ROBINSON NATURE CENTER

GENERAL NOTES

1. THE SUBJECT PROPERTY IS ZONED R-ED (RESIDENTIAL: ENVIRONMENTAL DEVELOPMENT) PER THE 2/02/04 COMPREHENSIVE ZONING PLAN AND THE COMP LITE ZONING REGULATION AMENDMENTS EFFECTIVE 7/28/06.

2. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAMS OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100 YEAR FLOODPLAIN EXCEPT AS PERMITTED PER WP-09-03.

3. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.

4. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST TWENTY FOUR (24) HOURS PRIOR TO THE START OF WORK.

5. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

6. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.

7. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.

8. THE HORIZONTAL DATUM OF THIS SURVEY IS MARYLAND STATE PLANE (NAD83), UTILIZING HOWARD COUNTY D.P.W. STATION 3512 CONC. MONUMENT. THE VERTICAL DATUM OF THIS SURVEY IS NAVD 88.

9. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UP ON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NO. 3512 CONCRETE MONUMENT AND CORS GAITHERSBURG (PID AA3495) WERE USED FOR THIS PROJECT.

10. WATER IS PUBLIC. CONTRACT NUMBER 34-4587.

11. SEWER IS PUBLIC. CONTRACT NUMBER 34-4587.

12. STORMWATER MANAGEMENT CONTROL BY BIOFILTERS AND GRASS CHANNELS, OWNERSHIP AND MAINTENANCE OF PROPOSED NATURE CENTER, PAVILIONS, BUTTERFLY HOUSE, AMPHITHEATER, GREENHOUSE, DRY SWALES, GREEN ROOF & PERVIOUS CONCRETE BY HOWARD COUNTY.

13. EXISTING UTILITIES ARE BASED ON FIELD RUN SURVEY AND CONTRACT UTILITY DRAWINGS.

14. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP AND WAS APPROVED BY DPZ ON SEPT 17, 2008.

15. THERE ARE NO BURIAL GROUNDS OR CEMETERY SITES LOCATED ON THE SUBJECT PROPERTY.

16. NO WETLANDS WERE FOUND ON THIS SITE PER A STUDY PREPARED BY MR. JEFFREY WOLISNSKI DATED AUGUST 18, 2008.

17. THIS PROJECT IS SUBJECT TO COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.

18. STEEP SLOPES, 25% OR GREATER AND WITH A CONTIGUOUS AREA OVER 20,000 SQUARE FEET ARE LOCATED ON THIS SITE ALONG CEDAR LANE. THEY WILL BE DISTURBED TO CONSTRUCT THE MAIN ENTRANCEWAY, TWO RETAINING WALLS & OTHER ASSOCIATED SITE IMPROVEMENTS. DPZ DETERMINED THAT THE PROPOSED STEEP SLOPE DISTURBANCES LOCATED ALONG CEDAR LANE ARE NECESSARY AND ESSENTIAL FOR REASONABLE DEVELOPMENT OF THE SITE IN ACCORDANCE WITH SECTION 16.116(c) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.

AREA ON NORTHEAST CORNER OF PROPERTY	3,626 S.F.	3,626 S.F. AFFECTED
AREA ALONG CEDAR LANE	24,972 S.F.	8,874 S.F. AFFECTED
AREA ALONG PATUXENT RIVER	11,359 S.F.	2,981 S.F. AFFECTED
AREA UNDER BUILDING FOOTPRINT	2,986 S.F.	2,986 S.F. AFFECTED

ALL OTHER STEEP SLOPE AREAS 25% OR GREATER ARE REMAINING UNDISTURBED.

19. ALL EXTERIOR LIGHT FIXTURES SHALL BE ORIENTED TO DIRECT LIGHT INWARDS AND DOWNWARDS ON-SITE AWAY FROM ALL ADJOINING RESIDENTIAL PROPERTIES AND PUBLIC ROADS AND SHALL BE IN COMPLIANCE WITH THE LIGHT TRESPASS LIMIT OF 0.5 FOOT CANDLES ONTO ANY OTHER ADJOINING PROPERTY ZONED OR USED FOR RESIDENTIAL PURPOSES IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.

20. THERE ARE NO HISTORIC STRUCTURES OF SIGNIFICANCE LOCATED ON THIS SITE. ALL EXISTING ABOVE GROUND STRUCTURES ARE TO BE DEMOLISHED.

21. THIS PLAN WAS PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
PLANTING OBLIGATION: 28 SHADE TREES, 16 EVERGREEN TREES, AND 73 SHRUBS.
PLANTING PROVIDED: 20 SHADE TREES, 8 SMALL DECIDUOUS TREES, 16 EVERGREEN TREES, AND 113 SHRUBS PROVIDED ON THE APPROVED LANDSCAPE PLAN.

22. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION WITH THE RETENTION OF 6.53 ACRES OF CREDITED EASEMENT AND 0.31 ACRES OF NON-CREDITED EASEMENT (FLOOD PLAIN AREA OR AREAS LESS THAN 35 FEET IN WIDTH) WHICH MEETS OR EXCEEDS THE BREAK EVEN POINT OBLIGATION OF 6.25 ACRES FOR THIS SITE.

23. THIS SITE COMPLIES WITH HOWARD COUNTY GREEN BUILDINGS LAW SET FORTH UNDER TITLE 3, SUBTITLE 10 OF THE HOWARD COUNTY CODE AND SECTION 3.1005(A) OF THE CODE. REGISTRATION WITH THE GREEN BUILDING COUNCIL AND THE APPLICABLE LEED REGISTRATION FEE WAS PAID ON 12/10/07. THE LEED NEW CONSTRUCTION CHECKLIST WAS PREPARED, SIGNED AND DATED BY THE PROJECT LEED ACCREDITED PROFESSIONAL AND WAS RECEIVED BY DPZ ON JULY 8, 2008. THE PROPOSED BUILDING IS REGISTERED BY USGBC WITH A PLATINUM RATING.

24. ADDITIONAL DEVELOPMENT THAT ADDS IMPERVIOUS AREA SHALL REQUIRE THE AFFECTED BMP BE RE-EVALUATED FOR ADEQUACY. ✓

25. A WAIVER TO SECTION 5.2.5.F OF DESIGN MANUAL VOLUME I THAT REQUIRES THAT ZONING BE USED WHEN DETERMINING THE RUNOFF CURVE NUMBER WAS GRANTED BY THE DEVELOPMENT ENGINEERING DIVISION OF THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING ON SEPTEMBER 9, 2008.

26. THIS PROPERTY ENTERED THE METROPOLITAN DISTRICT ON DECEMBER 11, 2006.

27. WP-09-03: ALLOWANCE OF A SECOND ACCESS ENTRANCE ONTO A MINOR ARTERIAL ROAD. SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, SECTION 16.119(f)(3). ACTION BY DPZ: APPROVED ON AUGUST 1, 2008.

28. WP-09-03: ALLOWANCE OF TEMPORARY STREAM BUFFER DISTURBANCE. SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, SECTION 16.116(c). ACTION BY DPZ: APPROVED ON OCTOBER 1, 2008.

29. THE FOLLOWING ZONING SETBACK ENCROACHMENTS WERE APPROVED AS COUNCIL RESOLUTION #96-2008 AT THEIR PUBLIC MEETING OF OCT 6, 2008.

(A) A REDUCTION OF THE 75' SETBACK REQUIREMENT TO 62' FOR THE FRONT PARKING LOT SPACES FROM THE CEDAR LANE R/W LINE.

29. CONT.

(B) A REDUCTION OF THE 75' SETBACK REQUIREMENT TO 0' FOR THE FRONT RETAINING WALLS FROM THE CEDAR LANE R/W LINE.

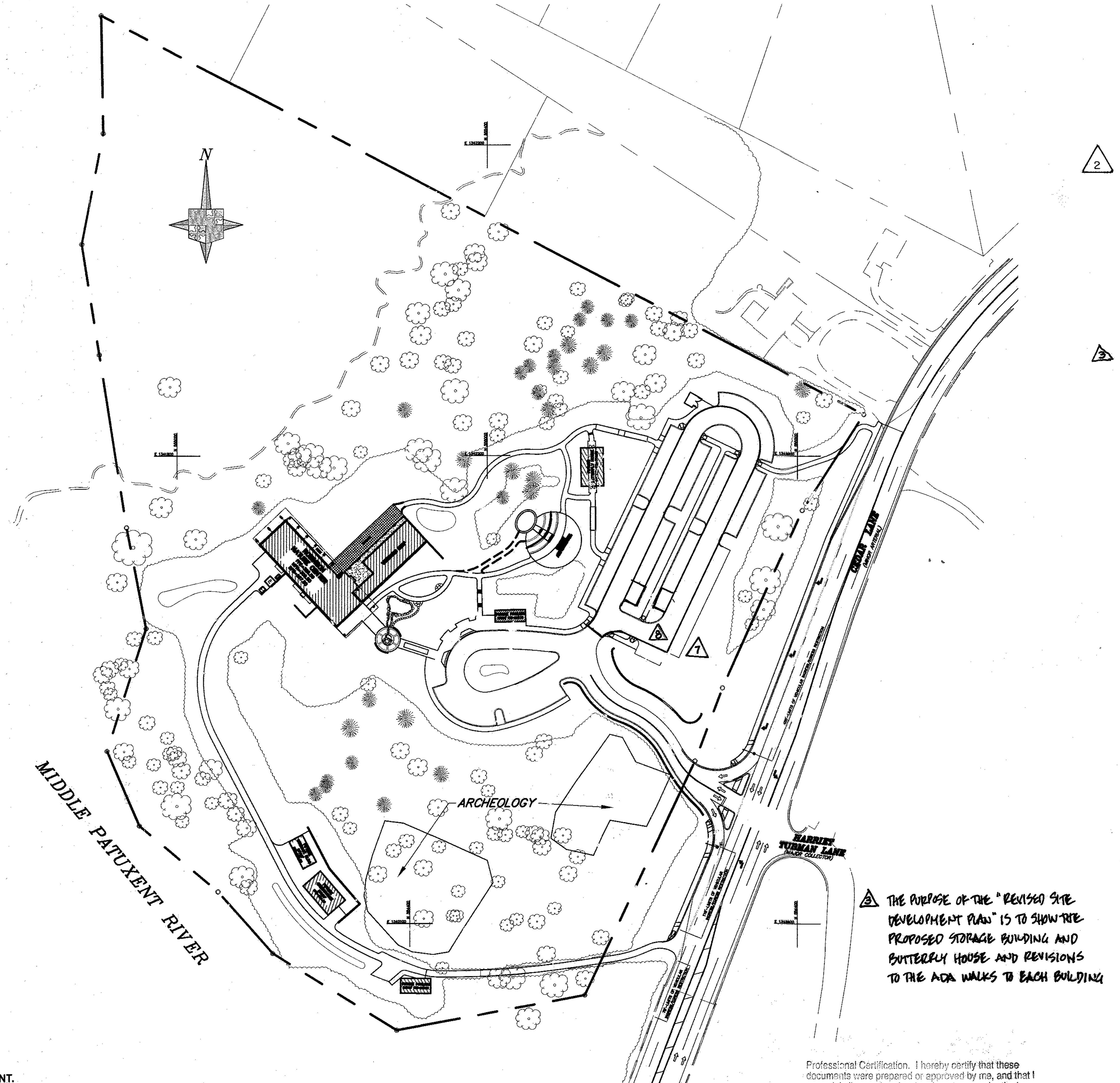
(C) A REDUCTION OF THE 50' SETBACK REQUIREMENT TO 38' FOR THE FUTURE PAVILION AND ADJACENT PARKING SPACES LOCATED ALONG THE SOUTHERN PROPERTY BOUNDARY.

30. THE PROPOSED BUILDING IS FULLY SPRINKLERED.

31. THE REQUIRED HISTORIC DISTRICT COMMISSION (HDC) MEETING FOR NEW DEVELOPMENT LOCATED WITHIN A HISTORIC DISTRICT IN HOWARD COUNTY, MARYLAND WAS HELD ON AUGUST 3, 2006 CONCERNING THE PROPOSED DEVELOPMENT. THE HISTORIC STRUCTURES (HO-636) AND THE OLD FARMHOUSE WERE REMOVED PRIOR TO COUNTY OWNERSHIP OF THE PROPERTY. THE HDC AGREED THAT THE EXISTING SHED AND BARN STRUCTURES WERE IN POOR CONDITION AND COULD BE REMOVED. THE MEETING MINUTES ARE INCLUDED WITH THIS SUBMISSION.

32. A CAPITAL PROJECT WILL BE CREATED IN 2010 TO MAKE THE SEWER CONNECTION AT SMH2.

33. THE ARCHAEOLOGICAL SITES SHOWN ON THIS PLAN WILL REMAIN UNDISTURBED.



3 THE PURPOSE OF THE "REVISED SITE DEVELOPMENT PLAN" IS TO SHOW THE PROPOSED STORAGE BUILDING AND BUTTERFLY HOUSE AND REVISIONS TO THE ADA WALKS TO EACH BUILDING

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C3.1 SITE PLAN (7 of 37)
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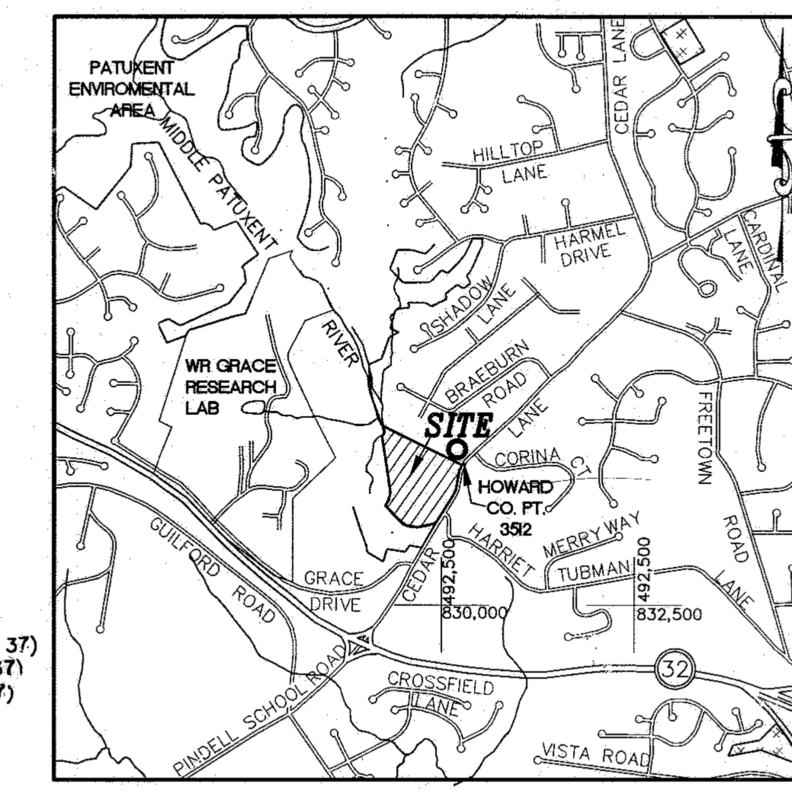

VICINITY MAP
SCALE: 1" = 2,000'±
HOWARD COUNTY
ADC MAP PAGE: 15
GRID: B-9
(21ST EDITION)

HOWARD COUNTY CONTROL POINT 3512

- CONSISTS OF A STAMPED (BRASS OR ALUMINUM) DISC SET ON TOP OF A 3' DEEP COLUMN OF CONCRETE.
- NORTHING 555100.776 FT.
- EASTING 1342733.0493 FT.
- THE SYSTEM OF COORDINATES USED BY HOWARD COUNTY, MARYLAND IS BASED UPON THE FOLLOWING PROJECTIONS;
HORIZONTAL: MARYLAND NAD83 (ADJ 1991)
VERTICAL: NAVD88

ZONING SETBACK REQUIREMENTS	
FROM EXTERNAL PUBLIC STREET RIGHT OF WAY	75 FEET
OTHER STRUCTURE & USE SETBACK FROM THE PROJECT BOUNDARY	50 FEET

SITE ANALYSIS DATA CHART	
TOTAL PROJECT AREA:	18.40 AC OR 801,394 S.F.
AREA OF PLAN SUBMISSION:	18.40 AC OR 801,394 S.F.
LIMIT OF DISTURBED AREA:	7.29 AC OR 317,209 S.F.
PRESENT ZONING DESIGNATION:	R-ED (RESIDENTIAL: ENVIRONMENTAL DEVELOPMENT
PROPOSED USES FOR SITE AND STRUCTURES:	EDUCATIONAL NATURE CENTER
FLOOR SPACE:	ENTRY-LEVEL: 9,123 S.F. MID-LEVEL: 14,051 S.F. LOWER LEVEL: 6,501 S.F. TOTAL FLOOR AREA: 29,675 S.F.
MAXIMUM NUMBER OF EMPLOYEES ON SITE:	6
NUMBER OF PARKING SPACES REQUIRED (BASED ON DETAILED PARKING NEEDS ANALYSIS DATED AUGUST 13, 2008)	MUSEUM EXHIBITS AREA IS 25,913 SF AT 5 SPACES PER 1,000 SF = 130 SPACES 121
NUMBER OF PARKING SPACES PROVIDED: 1	122 TYPICAL SPACES 9 8 HANDICAP SPACES 130 TOTAL SPACES
AREA OF PAVEMENT:	2.15 AC AND 12% OF GROSS AREA
OPEN/GREEN SPACE ON-SITE:	15.79 AC AND 86% OF GROSS AREA
BUILDING COVERAGE OF SITE:	0.46 AC AND 2% OF GROSS AREA
APPLICABLE DPZ FILE REFERENCES:	WP-09-003, COUNCIL RESOLUTION NO. 96-2008
100 YEAR FLOOD PLAIN AREA (ON SITE):	.39 AC OR 16,988 SF
> 25% STEEP SLOPE AREA (OUTSIDE FLOODPLAIN):	1.63 AC OR 71,184 SF
NET TRACT AREA:	16.38 AC OR 713,512 SF
WAIVER PETITIONS:	WP-09-003

ADDRESS CHART	
LOT/PARCEL #	STREET ADDRESS
PARCEL 87	6692 CEDAR LANE

PERMIT INFORMATION CHART					
SUBDIVISION NAME: N/A			SECTION/AREA: ----		LOT/PARCEL No.: PARCEL 87
PLAT# OR L/F: 20408 L.8997, F.160	GRID#: 22 & 23	ZONING: R-ED	TAX MAP No.: 35	ELECTION DISTR.: 5	CENSUS TRACT: 6056.01
WATER CODE 700			SEWER CODE N/A		

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. 16156 , Expiration Date: 8-28-2016

STATE OF MARYLAND PAUL S. WALSKY No. 490 LANDSCAPE ARCHITECT
FOR REV. 2 ONLY OCT. 15, 2015

FOR REVISION 3 ONLY 4-15-2014

FOR REVISION 7 ONLY 9/23/2016

FOR REVISION 8 ONLY

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-9
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09 KS
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08
KS

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

Seal:

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524 EXPIRATION DATE: 19 JULY 2009

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
G|W
W|O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: AREYE GIRMA
TEL: 410 313.6143 FAX: 410.313.6161

CAPITAL PROJECT #: N39-60

Project Title
3 REVISED SITE DEVELOPMENT PLAN

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Job No.	SDP-09-02	KDL	Drawn
Scale	NTS	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title	Cover Sheet	Drawing Number	C0.1
Sheet	1	Of	37

Revisions:

No.	Date	Description
1	5-1-09	UPDATED PARKING COUNT
2	10-15-13	ADDED SHEET 37
3	4-15-14	ADDED SHEETS C2.3.1, C2.3.2, C3.1.1, C3.1.2, C3.1.3 A1.0, A2.0, A6.0, A6.1
7	9-23-16	REVISE TO REMOVE POROUS PAVING IN THE DRIVE AISLES AND REPLACE WITH STANDARD CONCRETE
8	11-18-16	REVISE TO REMOVE POROUS PAVING IN 6 PARKING SPACES AND REPLACE WITH STANDARD CONCRETE PAVING.

LEGEND

EXISTING MANHOLE	
EXISTING SANITARY SEWER	—S—
EXISTING STORM DRAIN	
UTILITY POLE	
EXISTING WATER LINE	—W—
EXISTING WATER VALVE	
EXISTING FIRE HYDRANT	
EXISTING CONTOUR	—96—
RIPRAP	
EXISTING LIGHT	
SIGN	
EXISTING TREE LINE	
EXISTING FENCE	—x—x—x—
PROPERTY LINE	
SOIL BOUNDARY LINE	
STREAM VALLEY BUFFER	—SVB—
15%–24.9% SLOPE	
GREATER THAN 25% SLOPE	
FLOODPLAIN EASEMENT	—FP—

TRAVERSE TABLE

NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
2	555100.7920	1342733.0360	329.78	REBAR & CAP–3512
32	555104.8324	1342551.1530	334.91	REBAR & CAP–ROB12
38	554617.4359	1341786.0805	286.64	REBAR & CAP–ROB 2
39	554351.4202	1342003.4434	279.80	REBAR & CAP–ROB 1
43	554519.9253	1342510.6441	303.57	REBAR & CAP–S510

BENCHMARK TABLE

NO.	NORTHING	EASTING	ELEVATION	LOCATION
1	555008.8277	1342754.7008	325.05	X–CUT ON SOUTH SIDE OF CATCH BASIN, SOUTHEAST SIDE OF CEDAR LANE
3	554843.0589	1342691.0659	317.38	X–CUT ON SOUTH SIDE OF CATCH BASIN, SOUTHEAST SIDE OF CEDAR LANE
4	554559.1082	1342592.8203	305.26	X–CUT ON SOUTH SIDE OF CATCH BASIN, SOUTHEAST SIDE OF CEDAR LANE

CAUTION: IF THIS DRAWING IS A REDUCTION, GRAPHIC SCALE MUST BE USED (ORIGINAL SIZE = 24"x 36")

GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

ADTEK ENGINEERS, INC.
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Frederick, Maryland 21701-5516
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I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524
EXPIRATION DATE: 19 JULY 2009

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OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT #: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

Tax Map 35 Parce 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description

Job No.	SDP-09-02	KDL	Drawn
Scale	1"=80'	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title	Overall Existing Conditions Plan	Drawing Number	C1.1
Sheet	2	Of	37

SDP-09-02

CAUTION: IF THIS DRAWING IS A REDUCTION, GRAPHIC SCALE MUST BE USED (ORIGINAL SIZE = 24"x 36")

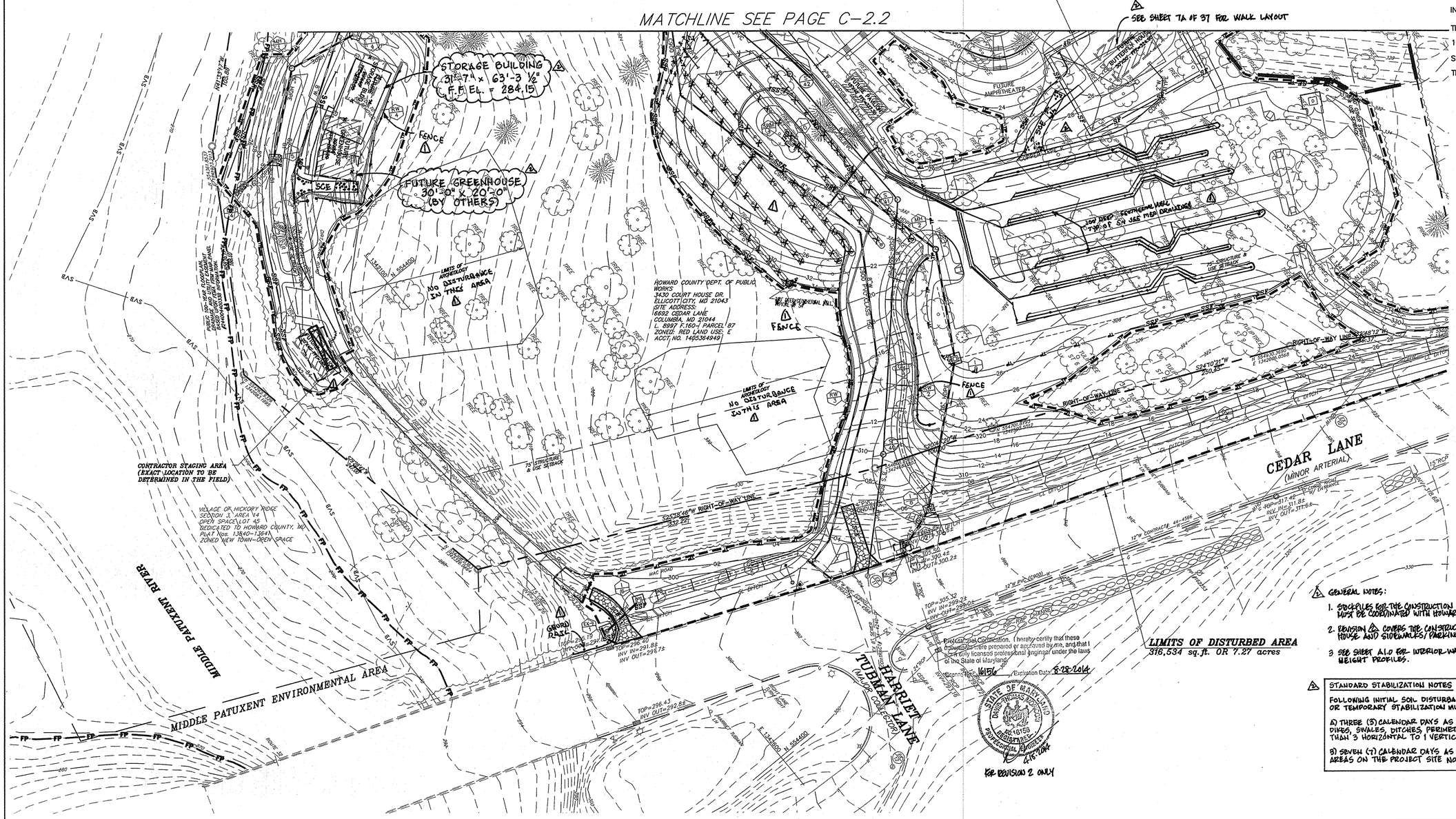
GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

SEDIMENT CONTROL LEGEND

LIMITS OF DISTURBANCE	
SUPER SILT FENCE WING WALL	SSFWW — SSFWW
SUPER SILT FENCE	SSF — SSF
SILT FENCE	SF — SF
STABILIZED CONSTRUCTION ENTRANCE	SCE
CONTRACTOR STAGING AREA	
INLET PROTECTION DEVICE	IPD
TREE PROTECTION	TP
100 YR. FLOODPLAIN EASEMENT	FP — FP
STREAM VALLEY BUFFER	SVB
TREE LINE TO REMAIN	



GENERAL NOTES:

1. STOCKPILES FOR THE CONSTRUCTION OF THE STORAGE BUILDING & BUTTERFLY HOUSE MUST BE COORDINATED WITH HOWARD COUNTY PRIOR TO CONSTRUCTION.
2. REVISION 2 COVERS THE CONSTRUCTION OF THE STORAGE BUILDING, BUTTERFLY HOUSE AND SIDEWALKS/PARKING AREAS ON C.3.1.1 & C.3.1.2 ONLY.
3. SEE SHEET A1.0 FOR INTERIOR WALL DIMENSIONS AND A2.0 FOR BUILDING HEIGHT PROFILES.

STANDARD STABILIZATION NOTES

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

A) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND

B) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/12/09
DIRECTOR	DATE 1/14/09 VS

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08
VS

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SCD — DATE 1/6/09

Seal:

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 20524 EXPIRATION DATE: 19 JULY 2009

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CAPITAL PROJECT #: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	5-1-09	FENCES, LOD, PAVILION, NOTE, GEO WELLS, GROUND RAIL
2	4-15-14	NEW STORAGE BLDG., NEW WALKS & BUTTERFLY HOUSE; NOTE

Job No.	SDP-09-02	KDL	Drawn
Scale	1"=40'	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title: EROSION AND SEDIMENT CONTROL PLAN		Drawing Number: C2.1	
Sheet	3	Of	37

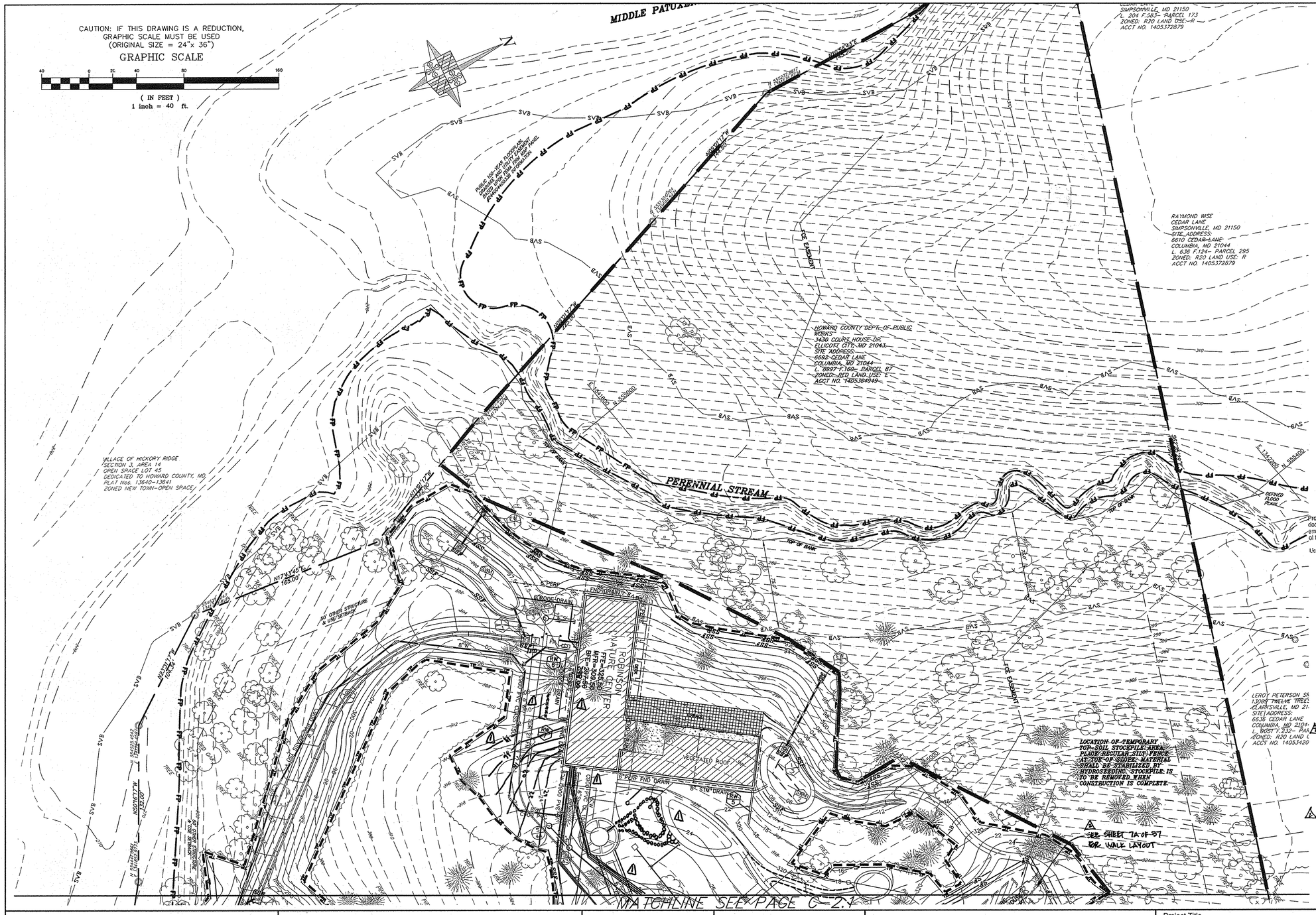
SDP-09-02

CAUTION: IF THIS DRAWING IS A REDUCTION, GRAPHIC SCALE MUST BE USED (ORIGINAL SIZE = 24"x 36")

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.



SEDIMENT CONTROL LEGEND

LIMITS OF DISTURBANCE	
SUPER SILT FENCE WING WALL	SSFWW SSFWW
SUPER SILT FENCE	SSF SSF
SILT FENCE	SF SF
STABILIZED CONSTRUCTION ENTRANCE	SCE
CONTRACTOR STAGING AREA	
INLET PROTECTION DEVICE	IPD
TREE PROTECTION	TP
100 YR. FLOODPLAIN EASEMENT	FP FP
STREAM VALLEY BUFFER	SVB

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. 16156 Expiration Date: 8-28-2014

STATE OF MARYLAND — DANIEL THOMAS SHANAHAN — No. 16156 — REGISTERED PROFESSIONAL ENGINEER — 4-15-2014

FOR REVISION 2 ONLY

STANDARD STABILIZATION NOTES

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

A) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND

B) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-9
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SCD — DATE 1/6/09

Seal: STATE OF MARYLAND — DANIEL THOMAS SHANAHAN — No. 16156 — REGISTERED PROFESSIONAL ENGINEER

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524 EXPIRATION DATE: 19 JULY 2009

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
G|W W|O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 2X
BALTIMORE, MARYLAND 21211, 410-332-1009

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OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT #: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	5-1-09	SIDEWALK, BFE, GRADING, WALL, WATER FEATURE, GEO WELLS
2	4-15-14	ADDED NOTES

Job No.	SDP-09-02	KDL	Drawn
Scale	1"=40'	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title	EROSION AND SEDIMENT CONTROL PLAN	Drawing Number	C2.2
Sheet	4	Of	37

SDP-09-02

HOWARD SOIL CONSERVATION DISTRICT

STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL 1, CHAPTER 7 OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SOD, TEMPORARY SEEDING, AND MULCHING (SEC. G). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	= 18.40 ACRES
AREA DISTURBED	= 7.29 ACRES
AREA TO BE ROOFED OR PAVED	= 2.61 ACRES
AREA TO BE VEGETATIVELY STABILIZED	= 6.35 ACRES
TOTAL CUT	= 59,364 CU. YDS.
TOTAL FILL	= 13,526 CU. YDS.

OFFSITE WASTE/BORROW AREA LOCATION: TO BE DETERMINED

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

HOWARD SOIL CONSERVATION DISTRICT

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

1. PREFERRED --APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 LBS/1,000 SQ. FT.) AND 600 LBS/ACRE 10-10-10 FERTILIZER (14 LBS/800 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS/ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ. FT.)

2. ACCEPTABLE --APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT) AND 1000 LBS/ACRE 10-10-10 FERTILIZER (23 LBS/1,000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING --FOR THE PERIODS MARCH 1 -- APRIL 30, AND AUGUST 1 --OCTOBER 15, SEED WITH 60 LBS/ACRE (1.4 LBS/1000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 -- JULY 31, SEED WITH 60 LBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS/ACRE (.05 LBS/1000 SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 -- FEBRUARY 28, PROTECT SITE BY: OPTION 1 --4 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION 2--USE SOD. OPTION 3 --SEED WITH 60 LBS/ACRE KENTUCKY 30 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING --APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ. FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ. FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPE 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ. FT.) FOR ANCHORING.

MAINTENANCE-- INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

△1 NOTE: COORDINATE PERMANT SEEDING WITH LANDSCAPE ARCHITECT AND LANDSCAPE SHEET L-4.0.1

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE RE-DISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED

SEEDBED PREPARATION -- LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SELL AMENDMENTS: --APPLY 600 LBS/ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT.).

SEEDING: -- FOR PERIODS MARCH 1 -APRIL 30 AND FROM AUGUST 15 --OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE

(3.2 LBS/1000 SQ. FT.). FOR DIE PERIOD MAY 1 --- AUGUST 14, SEED WITH 3 LBS/ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ. FT.).

FOR THE PERIOD NOVEMBER 16 -- FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS/ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

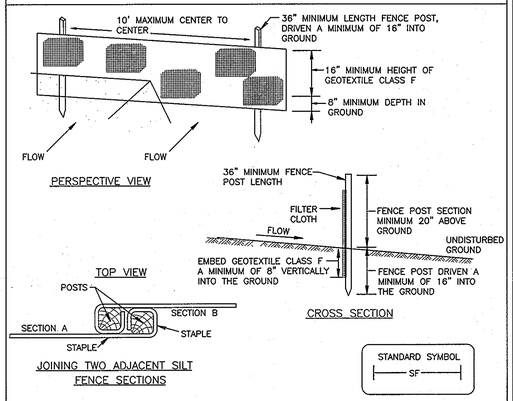
MULCHING: --APPLY 1-1/2 TO 2 TONS/ACRE (70 TO 90 LBS/1000 SQ. 1K.) OF UNROTTED WEED-FREE, SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL. PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPE S FT. OR HIGHER, USE 348 GAL. PER ACRE (8 GAL/1000 SQ. FT.) FOR ANCHORING.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

MISS UTILITY

CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION.

DETAIL 22 – SILT FENCE



CONSTRUCTION SPECIFICATIONS

1. FENCE POSTS SHALL BE MINIMUM OF 36" LONG DRIVEN 16" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 1-1/2" X 1-1/2" SQUARE (MINIMUM) CUT OR 1-3/4" DIAMETER (MINIMUM) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD T OR U SECTION WEIGHING NOT LESS THAN 1.00 POUND PER LINEAR FOOT.

2. GEOTEXTILE SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:

TENSILE STRENGTH	50 LBS/IN (MIN.)	TEST: MSMT 509
TENSILE MODULUS	20 LBS/IN (MIN.)	TEST: MSMT 509
FLOW RATE	0.3 GAL FT /MINUTE (MAX.)	TEST: MSMT 322
FILTERING EFFICIENCY	75% (MIN.)	TEST: MSMT 322

3. WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.

4. SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND MAINTAINED WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHED 50% OF THE FABRIC HEIGHT.

SILT FENCE DESIGN CRITERIA

SLOPE STEEPNESS	(MAXIMUM) SLOPE LENGTH	(MAXIMUM) SILT FENCE LENGTH
FLATTER THAN 50:1	UNLIMITED	UNLIMITED
50:1 TO 10:1	125 FEET	1,000 FEET
10:1 TO 5:1	100 FEET	750 FEET
5:1 TO 3:1	60 FEET	500 FEET
3:1 TO 2:1	40 FEET	250 FEET
2:1 AND STEEPER	20 FEET	125 FEET

NOTE:
IN AREAS OF LESS THAN 2% SLOPE AND SANDY SOILS (USDA GENERAL CLASSIFICATION SYSTEM, SOIL CLASS A) MAXIMUM SLOPE LENGTH AND SILT FENCE LENGTH WILL BE UNLIMITED. IN THESE AREAS A SILT FENCE MAY BE THE ONLY PERIMETER CONTROL REQUIRED.

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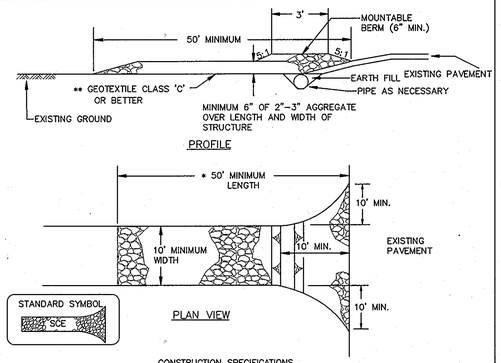
DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



CONSTRUCTION SPECIFICATIONS

1. LENGTH-MINIMUM OF 50' (*30' FOR SINGLE RESIDENCE LOT).

2. WIDTH-10' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.

3. GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. **THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.

4. STONE-CRUSHED AGGREGATE (2"-3") OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT SHALL BE PLACED AT LEASE 6" DEEP OVER THE LENGTH AND WIDTH OF THE ENTRANCE.

5. SURFACE WATER-ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. PIPE HAS TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE WILL NOT BE NECESSARY. PIPE SHOULD BE SIZED ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED. A 6" MINIMUM WILL BE REQUIRED.

6. LOCATION-A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.

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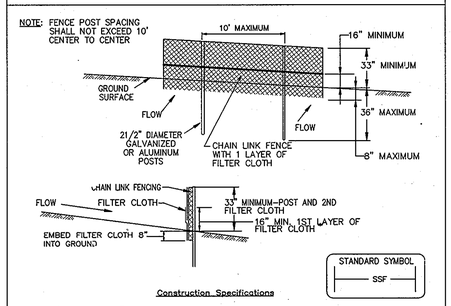
DETAIL 33 – SUPER SILT FENCE

NOTE: FENCE POST SPACING SHALL NOT EXCEED 10' CENTER TO CENTER



Construction Specifications

FENCING SHALL BE 42" IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY DETAILS FOR CHAIN LINK FENCING. THE SPECIFICATION FOR A 6' FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6' LENGTH POSTS.

1. THE POLES DO NOT NEED TO SET IN CONCRETE.

2. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES OR STAPLES.

3. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT THE TOP AND MID SECTION.

4. FILTER CLOTH SHALL BE EMBEDDED A MINIMUM OF 8" INTO THE GROUND.

5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.

6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SILT BUILDUPS REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

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SEQUENCE OF CONSTRUCTION

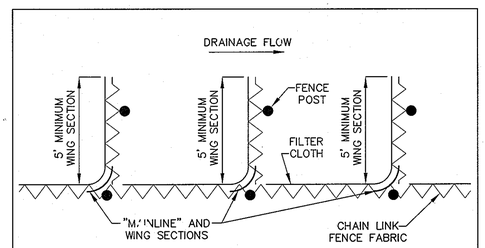
1. OBTAIN A GRADING PERMIT.
2. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
3. THE LIMITS OF DISTURBANCE MUST BE FIELD MARKED PRIOR TO CLEARING OF TREES, INSTALLATION OF SEDIMENT CONTROL MEASURES, CONSTRUCTION, OR OTHER LAND DISTURBING ACTIVITIES.
4. CLEAR AND GRADE FOR INSTALLATION OF SEDIMENT CONTROL DEVICES.
5. INSTALL SCE ON SERVICE ROAD TO BUILDING, PERIMETER SILT FENCE, SUPER SILT FENCE, INLET PROTECTION ON INLETS EX-1/1 AND ALL OTHER PERIMETER SEDIMENT CONTROL DEVICES.
6. INSTALL STORM DRAIN AND STRUCTURES EW-4, I-5, MH-1 TO I-4. INSTALL INLET PROTECTION (SUPER SILT FENCE SURROUNDED) FOR I-4 AND I-5. CONSTRUCT GRASS CHANNEL DIRECTING STORM WATER TO I-4.

△2 ~~7. BEGIN SERVICE ROAD AND WALL CONSTRUCTION.~~ 7. OVERLAY EXISTING MAC RD. PAVEMENT WITH 2" ASPHALT AND BEGIN SERVICE ROAD AND WALL CONSTRUCTION.

8. PERFORM GRADING AS REQUIRED TO PREPARE SITE FOR PROPOSED BUILDING CONSTRUCTION.
9. BEGIN BUILDING CONSTRUCTION.
10. INSTALL STORM DRAIN AND STRUCTURES EX-1/1 TO I-6. INSTALL INLET PROTECTION (SUPER SILT FENCE SURROUNDED) AT EX-1/1 AND I-6.
11. INSTALL SCE AT MAIN ENTRANCE.
12. INSTALL CONSTRUCTION FENCE TO PROTECT PERVIOUS CONCRETE PARKING LOT AREA.
13. PERFORM GRADING AS REQUIRED FOR PROPOSED ROAD AND WALL CONSTRUCTION AT MAIN ENTRANCE BUT DO NOT GRADE PAST LOCATION OF ENTRANCE TO LARGE PARKING LOT. DO NOT INSTALL PERVIOUS CONCRETE AT THIS TIME.
14. INSTALL STORM DRAIN AND STRUCTURES I-8, I-9, MH-2, I-10 AND SWM-4. INSTALL INLET PROTECTION (SUPER SILT FENCE SURROUNDED) FOR I-8 AND I-9.
15. INSTALL ALL UTILITIES AND ASSOCIATED APPURTENANCES.
16. FINE GRADE PARKING LOTS AND ENTRANCE DRIVES. INSTALL PAVEMENT. DO NOT INSTALL SURFACE COURSE AT THIS TIME. DO NOT INSTALL PERVIOUS CONCRETE PAVEMENT AT THIS TIME..
17. CONSTRUCT BIOFILTER, SWM-2. STABILIZE IMMEDIATELY. INSTALL STORM DRAINS AND STRUCTURES EW-2 TO I-3 AND INLET PROTECTION ON I-3 (SUPER SILT FENCE SURROUNDED).
18. INSTALL REMAINING STORM DRAIN AND EW-1, I-2, EW-3, I-1, AND SWM-1. INSTALL (SUPER SILT FENCE SURROUNDED) INLET PROTECTION ON I-1 AND I-2.
19. STABILIZE ALL AREAS ADJACENT TO AND DRAINING TO PERVIOUS PAVEMENT PARKING LOT.

△3 20. INSTALL PERVIOUS PAVEMENT. ~~AND OVERLAY SERVICE DRIVE WITH 1" SURFACE COURSE ASPHALT.~~

21. INSTALL REMAINING SITE APPURTENANCES, INCLUDING LANDSCAPING. AREAS DISTURBED SHALL STABILIZED IMMEDIATELY.
22. AFTER THE SITE IS PERMANENTLY STABILIZED AND PERMISSION IS GRANTED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROLS AND STABILIZE ANY REMAINING DISTURBED AREAS.

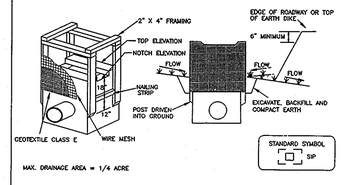


INSTALLATION PROCEDURE:

1. EXCAVATE TRENCH.
2. INSTALL POST CHAINLINK FENCE AND FILTER FABRIC.
3. MAINLINE FENCE AND WING SECTION MUST BE EXCAVATED AND INSTALLED AS ONE CONTINUOUS SECTION.
4. SEE MDE SUPER SILT FENCE DETAIL FOR MATERIALS AND SPECIFICATIONS.

SUPER SILT FENCE WING WALL
(NOT TO SCALE)

DETAIL 23A – STANDARD INLET PROTECTION



CONSTRUCTION SPECIFICATIONS

1. EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18" BELOW THE NOTCH ELEVATION.

2. DRIVE THE 2"X4" CONSTRUCTION GRADE LUMBER POSTS 1' INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2"X4" FRAME USING THE OVERLAP JOINT SHOWN ON DETAIL 23A. THE TOP OF THE FRAME (WEIR) MUST BE 6" BELOW ADJACENT ROADWAYS WHERE FLOODING AND SAFETY ISSUES MAY ARISE.

3. STRETCH THE 1/2"X1/2" WIRE MESH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. THE ENDS MUST OVERLAP AT A POST.

4. STRETCH THE GEOTEXTILE CLASS E TIGHTLY OVER THE WIRE MESH WITH THE GEOTEXTILE EXTENDING FROM THE TOP OF THE FRAME TO 18" BELOW THE INLET NOTCH ELEVATION. FASTEN THE GEOTEXTILE FIRMLY TO THE FRAME. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED. THEN FASTENED DOWN.

5. BACKFILL AROUND THE INLET IN COMPACTED 6" LAYERS UNTIL THE LAYER OF EARTH IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.

6. IF THE INLET IS NOT IN A SUMP, CONSTRUCT A COMPACTED EARTH DIKE ACROSS THE DITCH LINE DIRECTLY BELOW IT. THE TOP OF THE EARTH DIKE SHOULD BE AT LEAST 6" HIGHER THAN THE TOP OF THE FRAME.

7. THE STRUCTURE MUST BE INSPECTED PERIODICALLY AND AFTER EACH RAIN AND THE GEOTEXTILE REPLACED WHEN IT BECOMES CLOGGED.

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△2

ENGINEER'S CERTIFICATE

"I 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 PREPRED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT."

SHAWN BENJAMINSON, P.E. — 18 NOV 2008
SIGNATURE OF ENGINEER (print name below signature) — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN 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 ENVIROMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE THE BEGINNING OF THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

ABEYE GIRMA — 11 DEC 2008
SIGNATURE OF DEVELOPER (print name below signature) — DATE

THIS PLAN IS FOR EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT ONLY.
NOTE TO CONTRACTOR: EROSION AND SEDIMENT CONTROL WILL BE STRICTLY ENFORCED!

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-9
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301-662-4408 Fax: 301-662-7484
www.adtekengineers.com

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SCD — DATE 1/6/09

Seal:

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 20524
EXPIRATION DATE: 19 JULY 2009

GRIEVES WORRALL WRIGHT & OHATNICK INCORPORATED
GWWO
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

© 2007 GWWO INC.

OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT #: N39-60

Project Title
Robinson Nature Center
6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	10/21/08	COUNTY COMMENTS
△1	5-1-09	NOTE
△2	11-5-09	SEQUENCE REVISION AND DETAIL

Job No.	SDP-09-02	Drawn	KDL
Scale	AS SHOWN	Checked	SPB
Date	October 8, 2008	Approved	SPB
Drawing Title	EROSION AND SEDIMENT CONTROL NOTES	Drawing Number	C2.3
Sheet	5	Of	36

SDP-09-02

B-4-2 STANDARDS AND SPECIFICATIONS

FOR

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

1. Temporary Stabilization
   a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
   b. Apply fertilizer and lime as prescribed on the plans.
   c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
2. Permanent Stabilization
   a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
      i. Soil pH between 6.0 and 7.0.
      ii. Soluble salts less than 500 parts per million (ppm).
      iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
      iv. Soil contains 1.5 percent minimum organic matter by weight.
      v. Soil contains sufficient pore space to permit adequate root penetration.
   b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
   c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
   d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
   e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
   a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
   b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
   c. The original soil to be vegetated contains material toxic to plant growth.
   d. The soil is so acidic that treatment with limestone is not feasible.
4. Areas having slopes steeper than 2:1 require special consideration and design.
5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
   a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
   b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
   c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
6. Topsoil Application
   a. Erosion and sediment control practices must be maintained when applying topsoil.
   b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
   c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

B-4-3 STANDARDS AND SPECIFICATIONS

FOR

SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

A. Seeding

1. Specifications
   a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
   b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
   c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
   d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.
2. Application
   a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
   b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
   c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
      i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P_2O_5 (phosphorous), 200 pounds per acre; K_2O (potassium), 200 pounds per acre.
      ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
      iii. Mix seed and fertilizer on site and seed immediately and without interruption.
      iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching

1. Mulch Materials (in order of preference)
   a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. **Note: Use only sterile straw mulch in areas where one species of grass is desired.**
   b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
      i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
      ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
      iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
      iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
      v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.
2. Application
   a. Apply mulch to all seeded areas immediately after seeding.
   b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
   c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
3. Anchoring
   a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
      i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
      ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
      iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. **Use of asphalt binders is strictly prohibited.**
      iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 5/1/14

STANDARD STABILIZATION NOTES

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

A) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND

B) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4-29-14
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5-05-14
DIRECTOR, ~~DEP~~ DPZ	DATE 5/6/14

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11-13-08

URS CORPORATION
4 NORTH PARK DRIVE
SUITE 300
HUNT VALLEY, MARYLAND 21030
PHONE: 410-785-7220/FAX: 410-785-6818

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. 16156 — EXPIRATION DATE 08/28/14

DESIGNED: J.H. YOON
DRAWN: C.D. FLEMING
CHECKED: D.T. MORICONI
APPROVED: D.T. MORICONI

STATE OF MARYLAND — DAVID THOMAS MORICONI — REGISTERED PROFESSIONAL ENGINEER — No. 16156 — 4/3/2014

REVISION No.	REVISION DATE	DESCRIPTION
1	4-15-2014	NEW SHEET

JAMES & ANNE Robinson NATURE CENTER

ROBINSON NATURE CENTER
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS

PROJECT TITLE: ROBINSON NATURE CENTER STORAGE BUILDING AND BUTTERFLY HOUSE

SHEET TITLE: EROSION AND SEDIMENT CONTROL NOTES

SCALE: AS NOTED — DATE: APRIL, 2014

URS PROJECT NO: 20834595

SHEET No.: 5A OF 37

C2.3.1

FILE NAME: U:\Projects\AA\20834595\CAD\CIVIL\SHEETS\Redline No. 2\C2.3.1.dwg PLOTTED: Thursday, April 03, 2014 - 10:15am USER: joe_yoon

SDP-09-02

B-4-5 STANDARDS AND SPECIFICATIONS

FOR

PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

Criteria

A. Seed Mixtures

1. General Use

a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.

b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.

c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.

d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary .

2. Turfgrass Mixtures

a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.

b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.

i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.

iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1½ to 3 pounds per 1000 square feet.

Notes:
Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

c. Ideal Times of Seeding for Turf Grass Mixtures

Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.

e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

Hardiness Zone (from Figure B.3): 6B **Seed Mixture** (from Table B.3):					**Fertilizer Rate (10-20-20)**			**Lime Rate**
No.	**Species**	**Application Rate (lb/ac)**	**Seeding Dates**	**Seeding Depths**	**N**	**P_2O_5**	**K_20**	
8	TALL FESCUE	100	3/1–5/15 8/15 –10/15	¼- ½ in	45 pounds per acre (1.0 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	2 tons/ac (90 lb/ 1000 sf)
				¼- ½ in				
				¼- ½ in				

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

1. General Specifications

a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.

b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.

c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.

d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

2. Sod Installation

a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.

b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.

c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.

d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.

3. Sod Maintenance

a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.

b. After the first week, sod watering is required as necessary to maintain adequate moisture content.

c. Do not mow until the sod is firmly rooted. No more than ⅓ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

c. Ideal Times of Seeding for Turf Grass Mixtures

Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.

e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4.29.14

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-05-14

DIRECTOR, DEPT. OF PLANNING AND ZONING — DATE 5/6/14

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11-13-08

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 5/1/14

URS CORPORATION
4 NORTH PARK DRIVE
SUITE 300
HUNT VALLEY, MARYLAND 21030
PHONE: 410-785-7220/FAX: 410-785-6818

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. 16156 — EXPIRATION DATE 08/28/14

DESIGNED: J.H. YOON
DRAWN: C.D. FLEMING
CHECKED: D.T. MORICONI
APPROVED: D.T. MORICONI

STATE OF MARYLAND — DAVID THOMAS MORICONI — REGISTERED PROFESSIONAL ENGINEER — 4-15-2014

REVISION No.	REVISION DATE	DESCRIPTION
1	4.15.2014	NEW SHEET

JAMES & ANNE Robinson NATURE CENTER

ROBINSON NATURE CENTER
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS

PROJECT TITLE: ROBINSON NATURE CENTER STORAGE BUILDING AND BUTTERFLY HOUSE

SHEET TITLE: EROSION AND SEDIMENT CONTROL NOTES

SCALE: AS NOTED

DATE: APRIL, 2014

URS PROJECT NO: 20834595

SHEET No.: 5B OF 37

C2.3.2

NOTES:

1. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING HANDICAPPED PARKING SPACES AND ACCESSIBLE ROUTE SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION. IF THE SLOPE EXCEEDS 2%, THE CONTRACTOR SHALL NOTIFY THE OWNER TO CORRECT THE PROBLEM IMMEDIATELY.

2. LOCATION OF THE RETAINING WALL IS PURSUANT TO SECTION 128.A.10 OF THE ZONING REGULATIONS. NO SETBACK IS REQUIRED.

STATE OF MARYLAND · PAUL B. WALSH · No. 440 · LANDSCAPE ARCHITECT

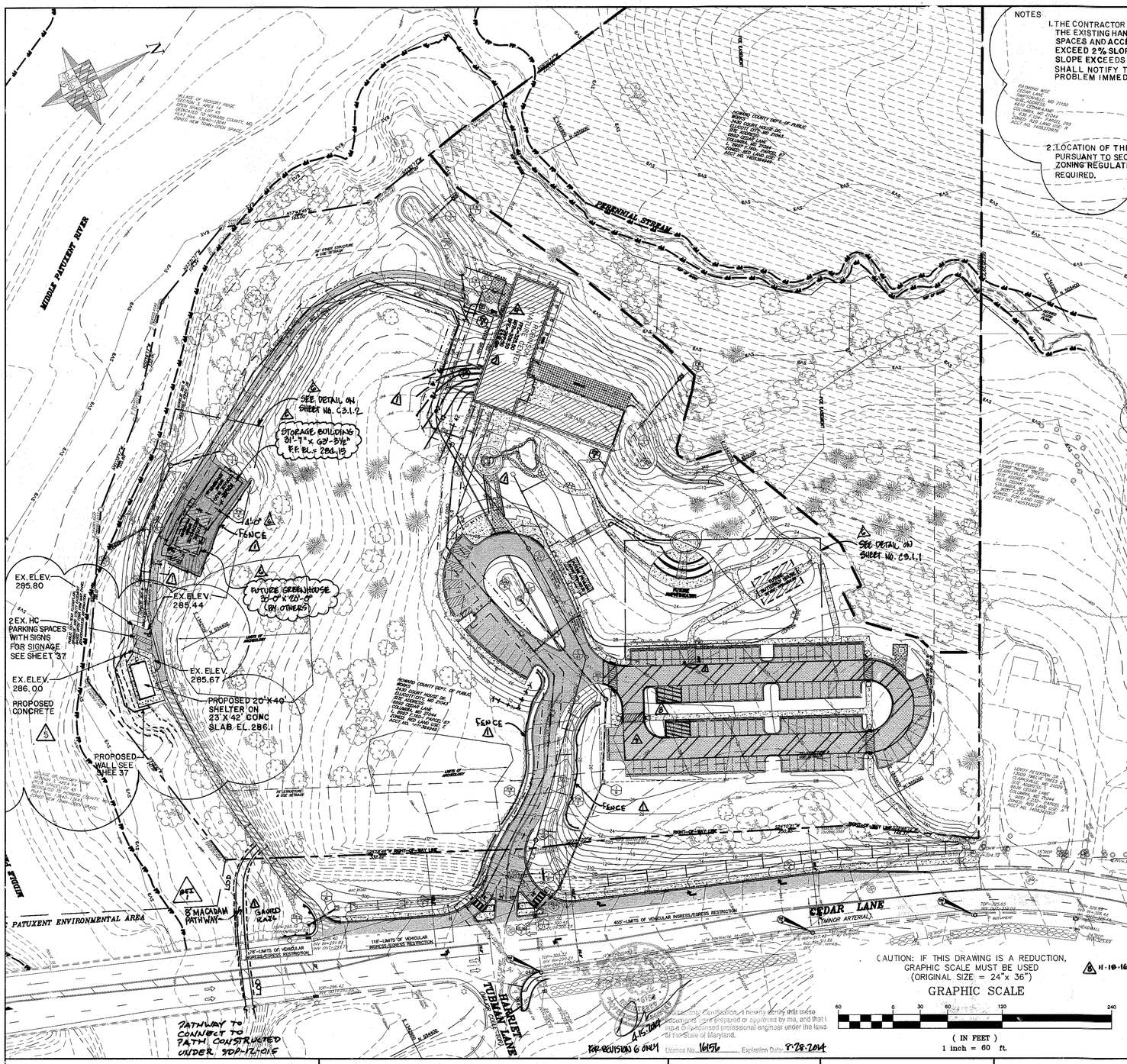
Paul Walsh 10-15-2013

FOR REV. 5 ONLY

LEGEND

EXISTING MANHOLE	PROPOSED FIRE HYDRANT
EXISTING SANITARY SEWER	PROPOSED BUILDING SEE ARCH DWG'S
EXISTING STORM DRAIN	CONCRETE SIDEWALK SEE DETAIL 7 SHEET C-3.4
UTILITY POLE	HEAVY DUTY CONCRETE DETAIL 5 SHEET C-3.4
EXISTING WATER LINE	LIGHT-DUTY ASPHALT SEE DETAIL 3 SHEET C-3.4
EXISTING WATER VALVE	REGULAR DUTY ASPHALT SEE DETAIL 2 SHEET C-3.4
EXISTING FIRE HYDRANT	PERVIOUS CONCRETE SEE DETAIL 10 SHEET C-3.4
EXISTING CONTOUR	CONCRETE PAVING SEE DETAIL SHEET C-3.4
RIPRAP	MULCHED AREA
EXISTING LIGHT	15%-24.9% SLOPE
BENCHMARK	GREATER THAN 25% SLOPE
SIGN	SITE LIGHTING SEE ELECTRICAL DRAWINGS FOR DETAIL
EXISTING TREE LINE	MILL & OVERLAY ASPHALT
EXISTING FENCE	
PROPERTY LINE	
SOIL BOUNDARY LINE	
PROPOSED STORM DRAIN	
PROPOSED CONTOUR	
FLOODPLAIN EASEMENT	
CONC CURB & GUTTER SEE DETAIL 1 SHEET C-3.4	
STREAM VALLEY BUFFER	
FOREST CONSERVATION EASEMENT	

CONCRETE PAVING SEE DETAIL SHEET C-3.4



CAUTION: IF THIS DRAWING IS A REDUCTION, GRAPHIC SCALE MUST BE USED (ORIGINAL SIZE = 24"x 36")

GRAPHIC SCALE

60 0 30 60 120 240

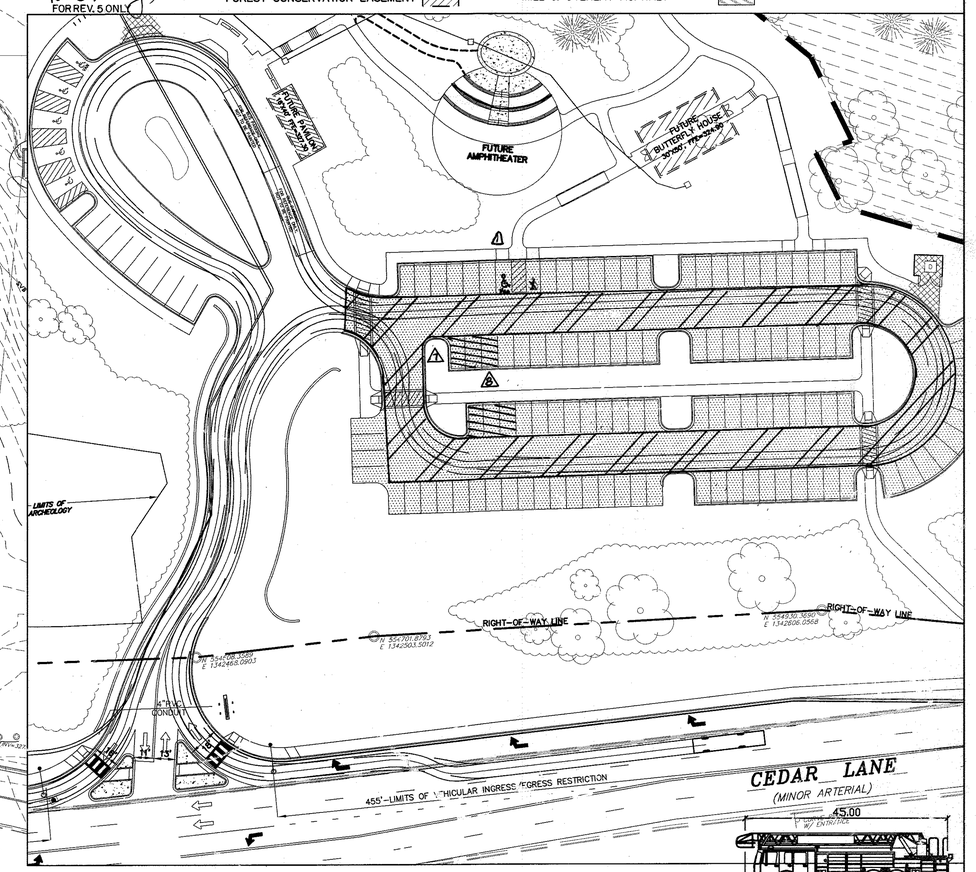
(IN FEET)
1 inch = 60 ft.

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. 16156, Expiration Date: 8-28-2014

6 11-18-16 REVISE TO REMOVE POROUS PAVING IN 6 PARKING SPACES AND REPLACE WITH STANDARD CONCRETE PAVING

FOR REVISION 7 ONLY

STATE OF MARYLAND · ABEBE L. GIRMA · No. 26524 · PROFESSIONAL ENGINEER · 12/29/08



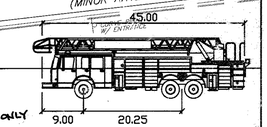
FIRETRUCK TURNING TEMPLATE DETAIL

SCALE: 1"=40'

NOTE:
FRONT TIRE PATH DENOTED BY SOLID LINE
REAR TIRE PATH DENOTED BY DASHED LINE

FOR REVISION 8 ONLY

STATE OF MARYLAND · BRIAN PATRICK BENJAMIN · No. 28559A · PROFESSIONAL ENGINEER · 12-6-2012



45' PUMPER	feet
Width	: 9.50
Track	: 8.08
Lock to Lock Time	: 6.00
Steering Angle	: 30.0

7 4-23-16 REVISE TO REMOVE POROUS PAVING IN THE DRIVE AISLES AND REPLACE WITH STANDARD CONCRETE

8 4-15-14 ADDED REFERENCE NOTES

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-9
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

STATE OF MARYLAND · BRIAN F. GLESKIT · No. 28559 · PROFESSIONAL ENGINEER

12/6/2012

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. 28559, Expiration Date: 7-22-13

FOR REVISIONS BY BENCHMARK ENGINEERING ONLY BEI 1,

Seal: STATE OF MARYLAND · ABEBE L. GIRMA · No. 26524 · PROFESSIONAL ENGINEER

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524
EXPIRATION DATE: 19 JULY 2009

GRIEVES WOIRRALL WRIGHT & OHATNICK INCORPORATED
G|W W|O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1005

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OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEBE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT #: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane | Election District No. 5 | Howard County, Maryland

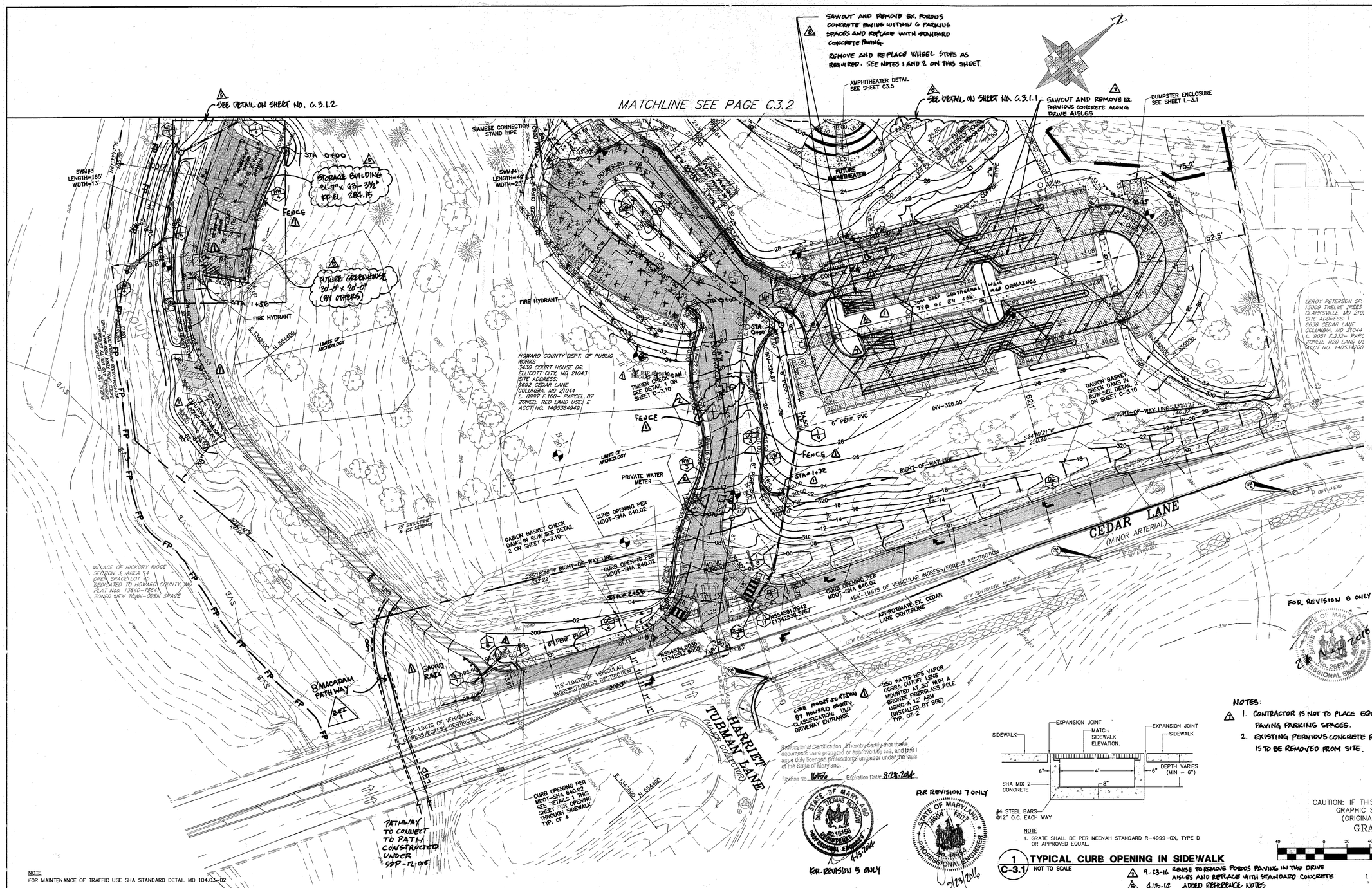
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	5-1-09	FENCE, GRADING, BFE, HC SPACES, PAVILION, GUARD RAIL
4	3/20/10	REMOVE WATER LINE PUMP STRUCTURE
BEI 1	11-30-12	SHOW 8' MACADAM PATHWAY BY BEI
5	10-15-13	ADD RETAINING WALL AROUND PAVILION

Job No.	SDP-09-02	KDL	Drawn
Scale	1"=60'	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title: Overall Site Plan		Drawing Number: C3.0	
Sheet	6	Of	37

SDP-09-02



NOTE
FOR MAINTENANCE OF TRAFFIC USE SHA STANDARD DETAIL MD 104.03-02

LEGEND

- EXISTING MANHOLE
- EXISTING SANITARY SEWER
- EXISTING STORM DRAIN
- UTILITY POLE
- EXISTING WATER LINE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING CONTOUR
- RIPRAP
- EXISTING LIGHT
- BENCHMARK
- SIGN
- EXISTING TREE LINE
- EXISTING FENCE
- PROPERTY LINE
- SOIL BOUNDARY LINE
- PROPOSED STORM DRAIN
- PROPOSED CONTOUR
- FLOODPLAIN EASEMENT
- CONC CURB & GUTTER SEE DETAIL 1 SHEET C-3.4
- PROPOSED FIRE HYDRANT
- PROPOSED BUILDING SEE ARCH DWG'S
- CONCRETE SIDEWALK SEE DETAIL 7 SHEET C-3.4
- HEAVY DUTY CONCRETE DETAIL 5 SHEET C-3.4
- LIGHT-DUTY ASPHALT SEE DETAIL 3 SHEET C-3.4
- REGULAR DUTY ASPHALT SEE DETAIL 2 SHEET C-3.4
- MULCHED AREA
- PERVIOUS CONCRETE SEE DETAIL 10 SHEET C-3.4
- 4 CONCRETE PAVING SEE DETAIL SHEET C-3.4 SITE LIGHTING SEE ELECTRICAL DRAWINGS FOR DETAIL
- 15%-24.9% SLOPE
- GREATER THAN 25% SLOPE
- STREAM VALLEY BUFFER
- FLOODPLAIN EASEMENT
- MILL & OVERLAY ASPHALT
- FOREST CONSERVATION EASEMENT
- 6 CONCRETE PAVING SEE DETAIL, SHEET C-3.4

NOTES:

1. CONTRACTOR IS NOT TO PLACE EQUIPMENT ON PERVIOUS PAVING PARKING SPACES.
2. EXISTING PERVIOUS CONCRETE REMOVED FROM DRIVE AISLES IS TO BE REMOVED FROM SITE.

NOTE
1. GRATE SHALL BE PER NEENAH STANDARD R-4999-0X, TYPE D OR APPROVED EQUAL.

1 / C-3.1 TYPICAL CURB OPENING IN SIDEWALK
NOT TO SCALE

CAUTION: IF THIS DRAWING IS A REDUCTION, GRAPHIC SCALE MUST BE USED (ORIGINAL SIZE = 24"x 36")

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

4 9-23-16 REVISE TO REMOVE POROUS PAVING IN THE DRIVE AISLES AND REPLACE WITH STANDARD CONCRETE
5 4-15-14 ADDED REFERENCE NOTES
6 11-18-16 REVISE TO REMOVE POROUS PAVING IN 6 PARKING SPACES AND REPLACE WITH STANDARD CONCRETE PAVING.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edmondson	1-12-9
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
Cindy Harter	1/13/09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
Thomas E. Butler	1/14/09
DIRECTOR, DEP.	DATE

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

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License No. 28559, Expiration Date: 7-22-13

FOR REVISIONS BY BENCHMARK ENGINEERING ONLY. BEI,

12/5/2012

Seal:

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524 EXPIRATION DATE: 19 JULY 2009

GRIEVES WORKALL WRIGHT & OHATNICK INCORPORATED
GWWO
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-0009

C 2007 GWWO INC.

OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6145 FAX: 410.313.6161

CAPITAL PROJECT #: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane | Election District No. 5 | Howard County, Maryland

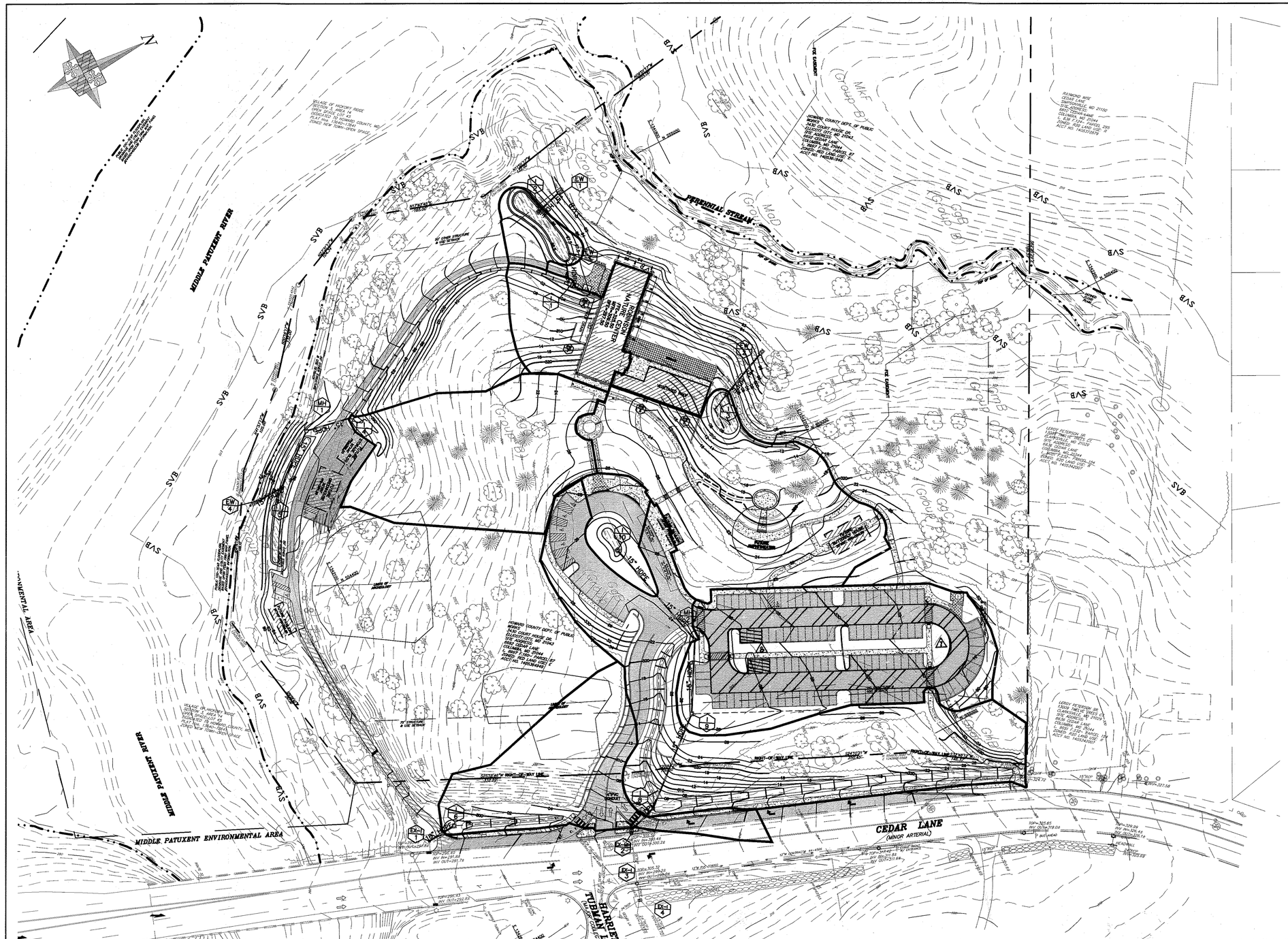
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	6-1-09	FENCE, GBO WALLS, CURB, HC SPACES, GAURD RAIL, PAVILION, GRADING, STATION WALLS
2	3/20/10	REMOVE WATER LINE PUMP STRUCTURE
3	3-1-10	MOVE SITE LIGHTING
BEI 1	11-30-12	SHOW 8' MACADAM PATHWAY BY BEI

Job No.	SDP-09-02	KDL	Drawn
Scale	1"=40'	SPB	Checked
Date	December 29 2008	SPB	Approved
Drawing Title: Site Plan		Drawing Number: C3.1	
Sheet 7		Of 37	

SDP-09-02



STORM INLETS			
INLET #	DA (ACRE)	C-VALUE	% TMP IMPERVIOUS
I-1	0.33	0.53	48%
I-2	0.41	0.46	2%
I-3	1.28	0.36	56%
I-4	1.54	0.22	1%
I-5	1.16	0.32	0%
I-6	0.63	0.27	27%
I-8	1.78	0.33	23%
I-9	1.33	0.22	9%
I-10	0.20	0.50	40%

FOR REVISION 8 ONLY

FOR REVISION 7 ONLY

9/23/2016

LEGEND

CONCRETE PAVING SEE DETAIL SHEET C-3.4 (8)

CONCRETE PAVING SEE DETAIL SHEET C-3.4 (7)

PERVIOUS ASPHALT

REGULAR DUTY ASPHALT

MILL & OVERLAY ASPHALT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edmondson — 1-12-9
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

Cindy Hanna — 1/13/09
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

Monica J. Butler — 1/14/09
DIRECTOR, DEP. — DATE

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 11/13/08

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

Seal:

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EXPIRATION DATE: 19 JULY 2009

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G|W W|O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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DEPARTMENT OF PUBLIC WORKS
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CAPITAL PROJECT #: N39-60

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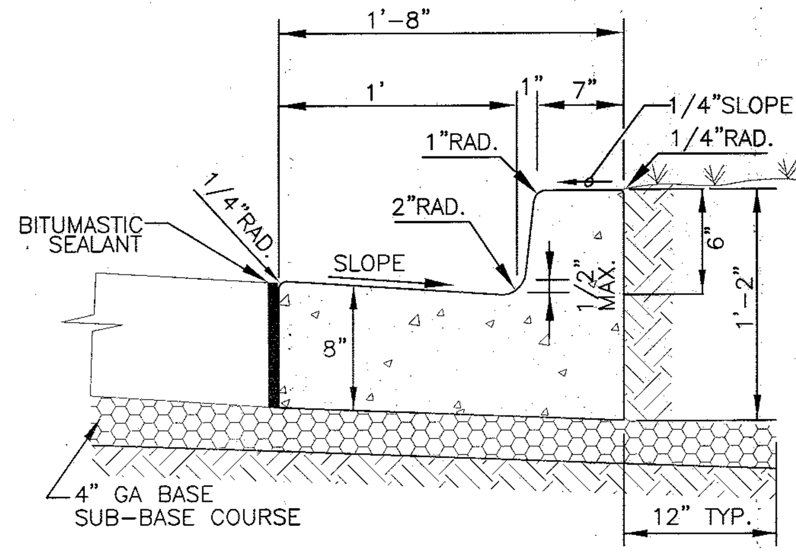
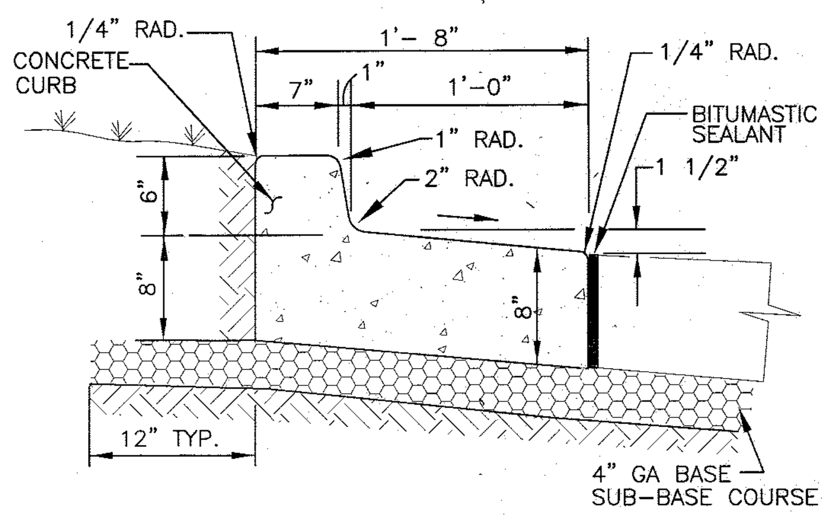
8	11-18-16	REVISE TO REMOVE POROUS PAVING IN 6 PARKING SPACES AND REPLACE WITH STANDARD CONCRETE PAVING

Job No.	SDP-09-02	KDL	Drawn
Scale		SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title	STORM DRAIN INLET DRAINAGE AREA MAP	Drawing Number	C3.3
Sheet	9	Of	37

SDP-09-02



CURB/WITH NORMAL GUTTER

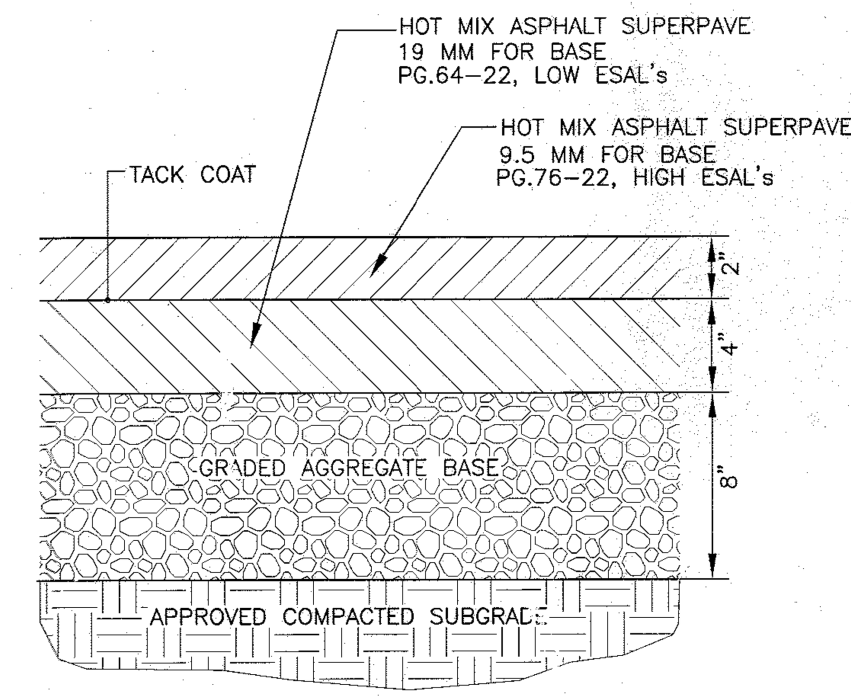


CURB/WITH SPILL GUTTER

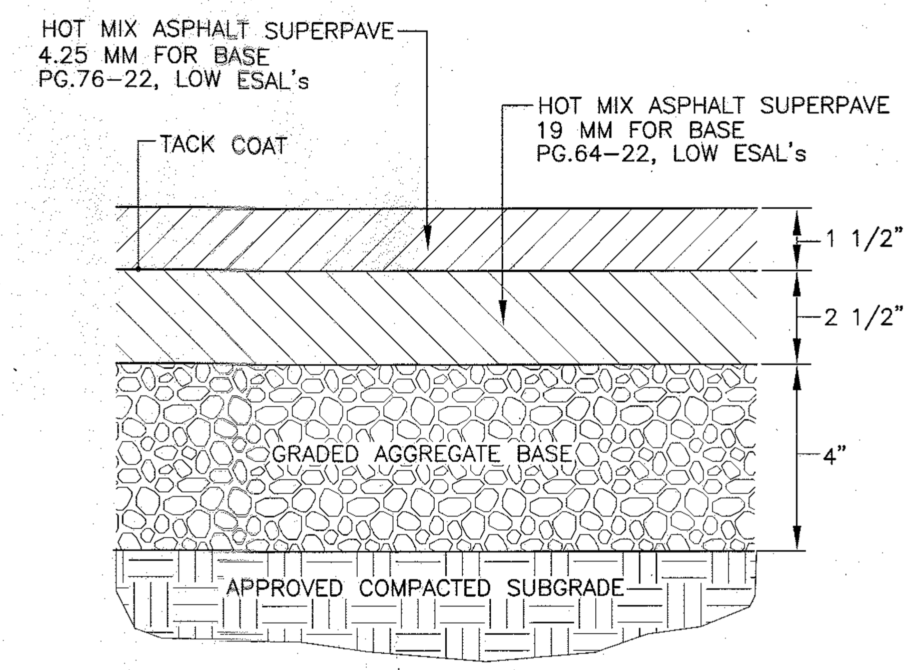
GENERAL NOTES

1. REFER TO HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION SPECIFICATIONS FOR MATERIALS, METHODS OF CONSTRUCTION AND EXPANSION JOINT LOCATIONS.
2. EXPANSION JOINT MATERIAL SHALL BE 1 1/2 INCH PREFORMED CORK, TRIMMED AND SEALED WITH NON-STAINING TWO-COMPONENT POLYSULFIDE OR POLYURETHANE ELASTOMERIC TYPE SEALANT COMPLYING WITH FS TT-S-00227, (NON-EXTRUDING).
3. CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT FOR ALL CURBS & GUTTER PRIOR TO BACKFILLING.

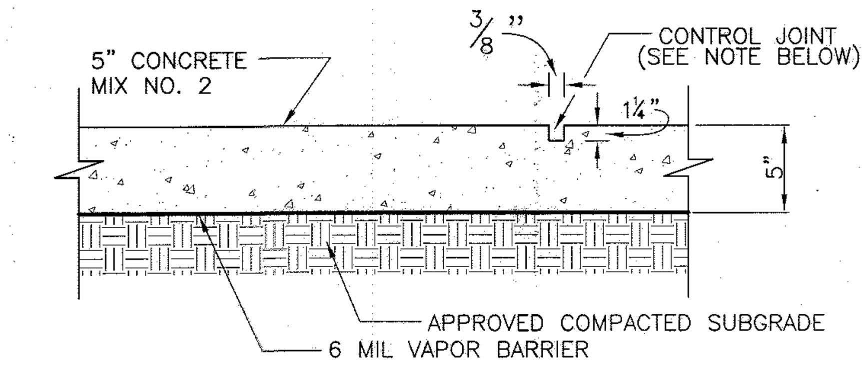
1 / C-3.4 CONCRETE CURB & GUTTER
NOT TO SCALE



2 / C-3.4 ASPHALT CONCRETE SECTION
NOT TO SCALE



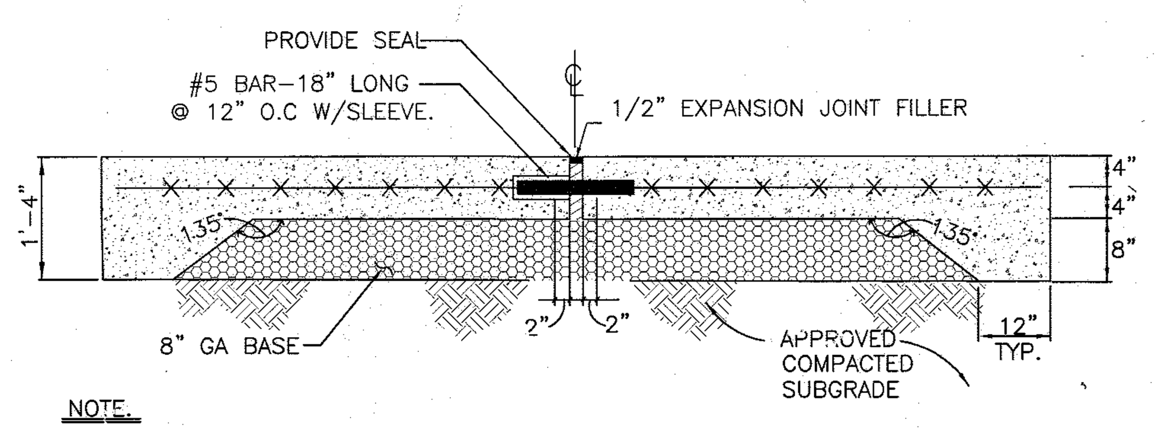
3 / C-3.4 LIGHT-DUTY SURFACE
NOT TO SCALE



NOTES:

- 1/2" EXP. JOINTS – PLACE 20' O.C. AND AT ALL AREAS WHERE PAVING ABUTS OTHER WALKS AND STRUCTURES (TYP.)
- SCORING JOINTS SHALL BE PLACED AT 4' (MIN.) TO 8' (MAX.) BOTH DIRECTIONS (TYP.) SEE ARCHITECTURAL SITE PLAN SHEET A-0.7 FOR SCORING PATTERNS

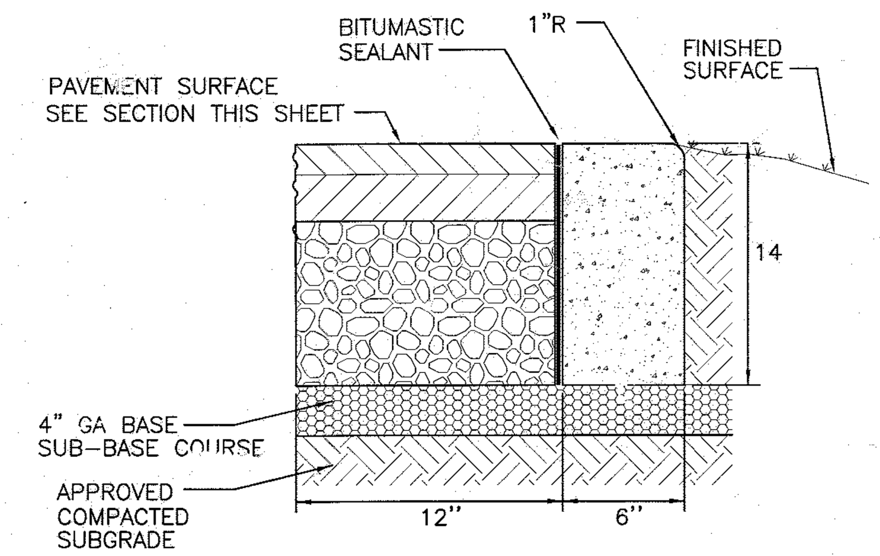
4 / C-3.4 CONCRETE SIDEWALK SECTION
NOT TO SCALE



NOTE.

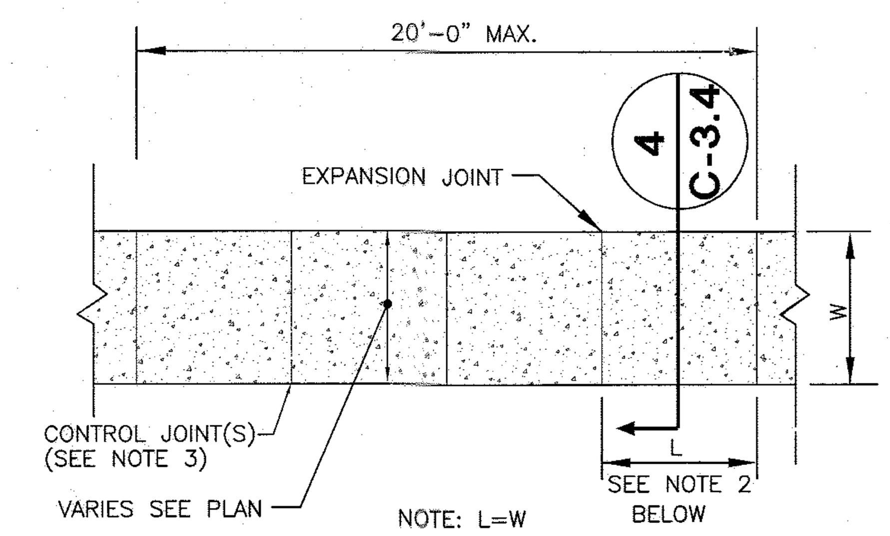
1. 8" CONC. SLAB REINFORCED W/ W6x6 W4xW4 WWF @ MID DEPTH ON A 8" POROUS FILL MATERIAL OVER APPROVED COMPACTED SUBGRADE.
2. CONSTRUCT EXPANSION JOINT, AND ADJACENT TO OTHER STRUCTURES OR CONCRETE. JOINTS TO BE 10' x 15' SQUARES MINIMUM.
3. CONCRETE SHALL BE MIX NO. 3 PER SHA STANDARDS AND SPECIFICATIONS.

5 / C-3.4 HEAVY DUTY CONCRETE
NOT TO SCALE



1. GENERAL NOTES FOR DETAIL 1, THIS SHEET ARE APPLICABLE TO THIS DETAIL.
2. CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT FOR ALL CURBS & GUTTER PRIOR TO BACKFILLING.

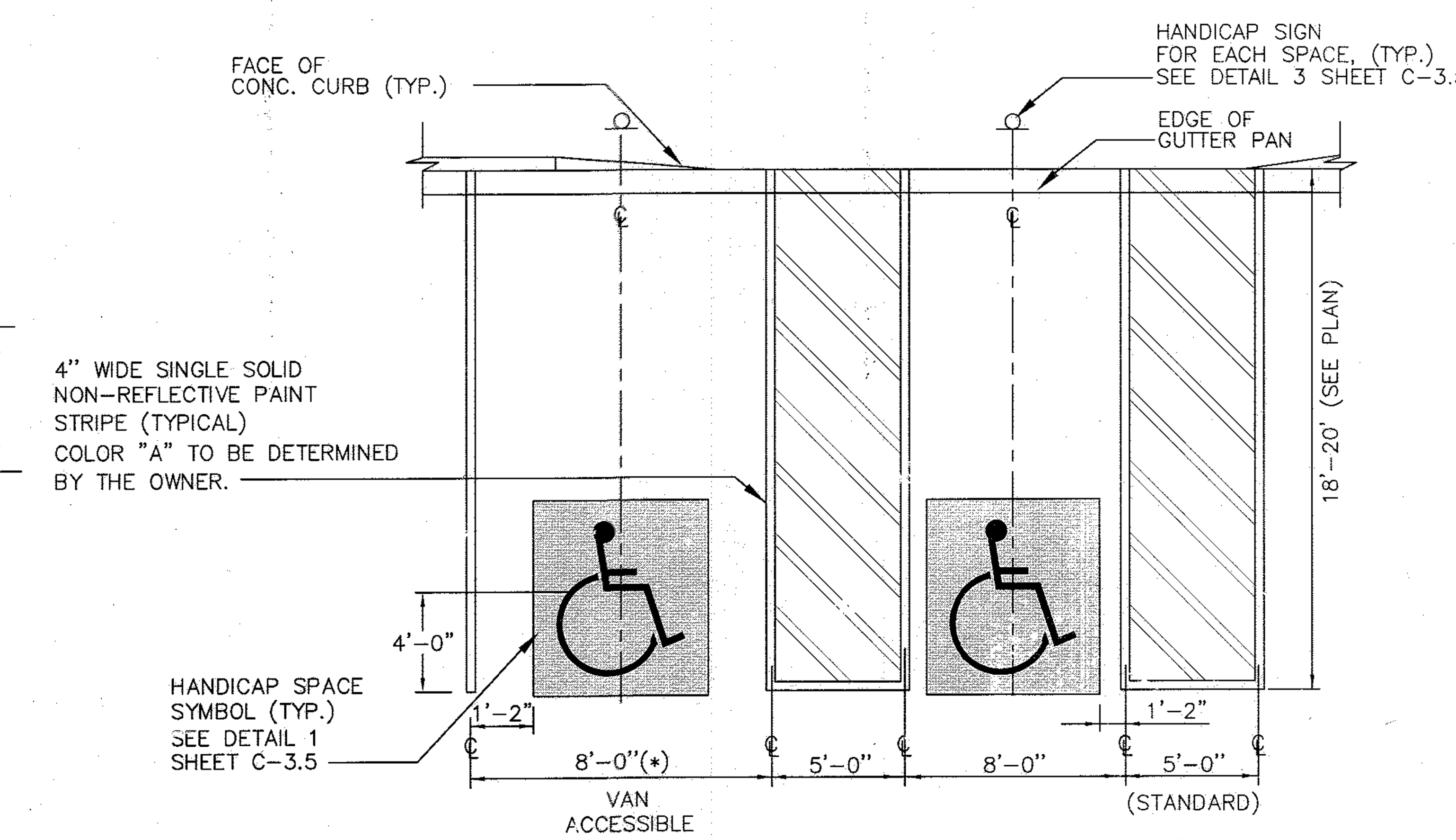
6 / C-3.4 DEPRESSED CURB DETAIL
NOT TO SCALE



NOTES:

1. ALL CONCRETE SHALL BE SHA MIX NO. 2, 3000 P.S.I., DEPTH SHALL BE 5".
2. PROVIDE CONTROL JOINTS EVERY 4'-0" MIN. BOTH DIRECTIONS PROVIDE 1/2" EXPANSION JOINT EVERY 20' C/C MAX. MARK EXPANSION/CONTRACTION JOINTS FOR SIDEWALK WIDTHS 4'-0" TO 8'-0". IF "W" IS 8'-0" OR GREATER, ADD LONGITUDINAL CONTRACTION JOINT ℄ OF SIDEWALK.
3. CONTROL JOINTS SHALL BE SAW-CUT OR FORMED, 1 1/4" DEEP.
4. PROVIDE 1/2" EXPANSION JOINT FILLER WHERE SIDEWALK ABUTS CURB OR OTHER RIGID STRUCTURE(S).

7 / C-3.4 CONCRETE SIDEWALK DETAIL
NOT TO SCALE

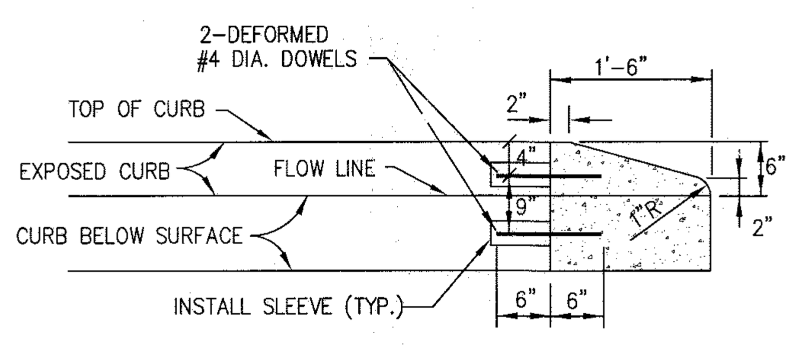


NOTES:

1. STRIPING SHOULD END AT FACE OF CURB, U.N.O.
2. STRIPING MATERIAL AND METHODS OF CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE LATEST MUTCD EDITION AND SHA STDS. & SPECS.
3. (*) INSTALL "VAN ACCESSIBLE" SIGN ON 8'-0" WIDE SPACE, AS NOTED ON PLAN.
4. YELLOW PAINT MAY BE USED ON CONCRETE OR OTHER SURFACES WHERE WHITE PAINT DOES NOT PROVIDE SUFFICIENT CONTRAST. OWNER'S WRITTEN APPROVAL MUST BE OBTAINED.
5. ALL DIMENSION, LAYOUT, BACKGROUND AND COLOR TO CONFORM TO MOST CURRENT ADA GUIDELINES.

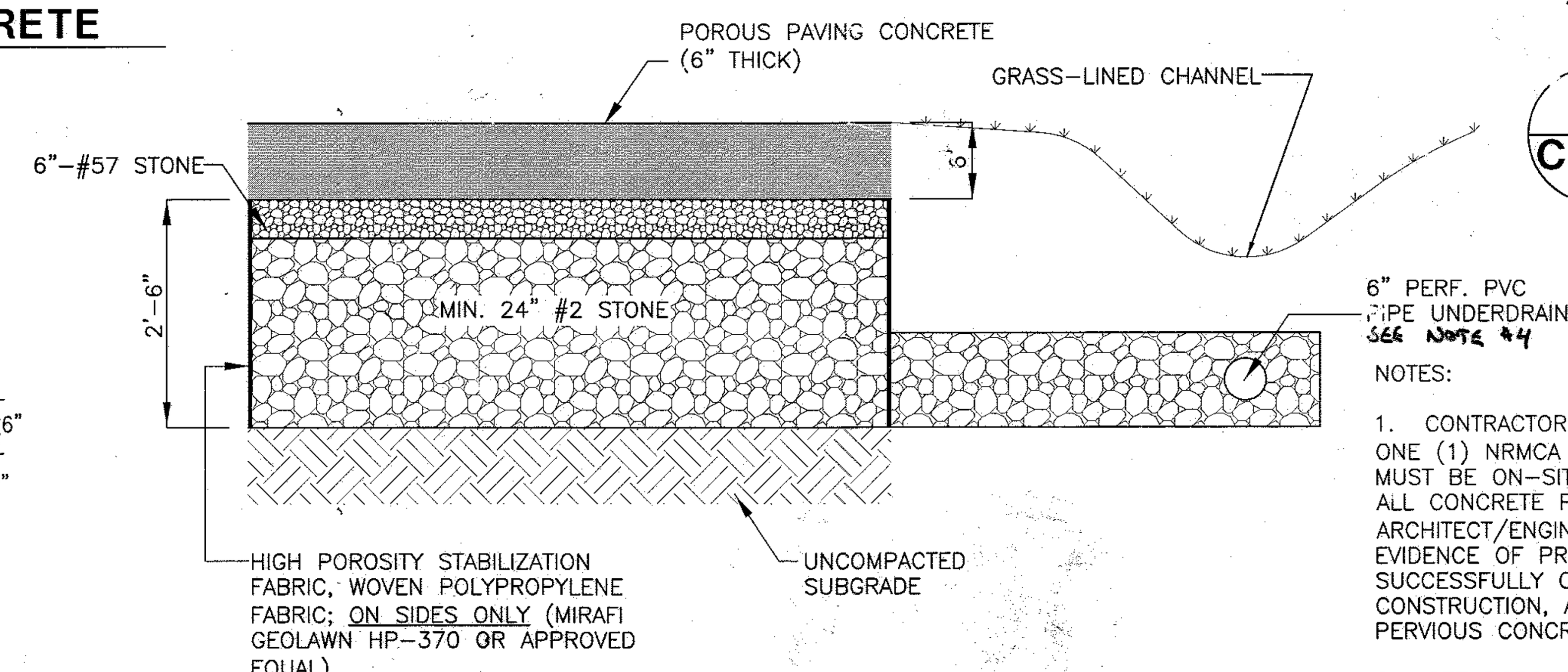
FOR REVISION 8 ONLY

8 / C-3.4 HANDICAP PARKING STRIPING
NOT TO SCALE



NOTE: USE MDOT-SHA MIX 2

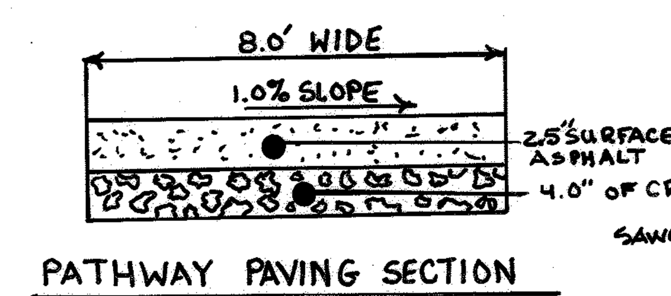
9 / C-3.4 CURB NOSE DOWN
NOT TO SCALE



10 / C-3.4 PERVIOUS CONCRETE SECTION
NOT TO SCALE

NOTES:

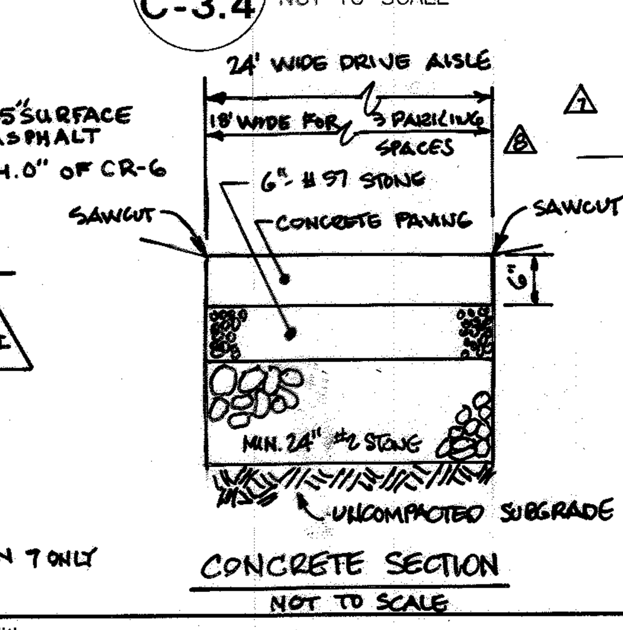
1. CONTRACTOR SHALL PROVIDE EVIDENCE OF EMPLOYMENT OF ONE (1) NRMCA CERTIFIED PERVIOUS CONCRETE CRAFTSMAN WHO MUST BE ON-SITE, OVERSEEING EACH PLACEMENT CREW, DURING ALL CONCRETE PLACEMENT, OR WITH THE APPROVAL OF ARCHITECT/ENGINEER, CONCTRACTOR MAY PROVIDE WRITTEN EVIDENCE OF PROJECT EXPERIENCE AND PROFICIENCY IN SUCCESSFULLY COMPLETING PERVIOUS CONCRETE PAVEMENT CONSTRUCTION, AND SUBMIT EVIDENCE OF COMPLETION OF A PERVIOUS CONCRETE CRAFTSMAN CERTIFICATION PROGRAM.
2. SEE POROUS CONCRETE NOTES IN SPECIFICATION.
3. POROUS CONCRETE MUST BE COVERED WITH PLASTIC FOR A MINIMUM OF 7 DAYS IMMEDIATELY AFTER PLACEMENT.
4. 6" PERF PVC SCH 40, 3/8" Ø PERFORATIONS @ 4" O.C. LENGTH WIDE AND 90° RADIALLY AROUND. INSTALL END CAP ON OPEN END



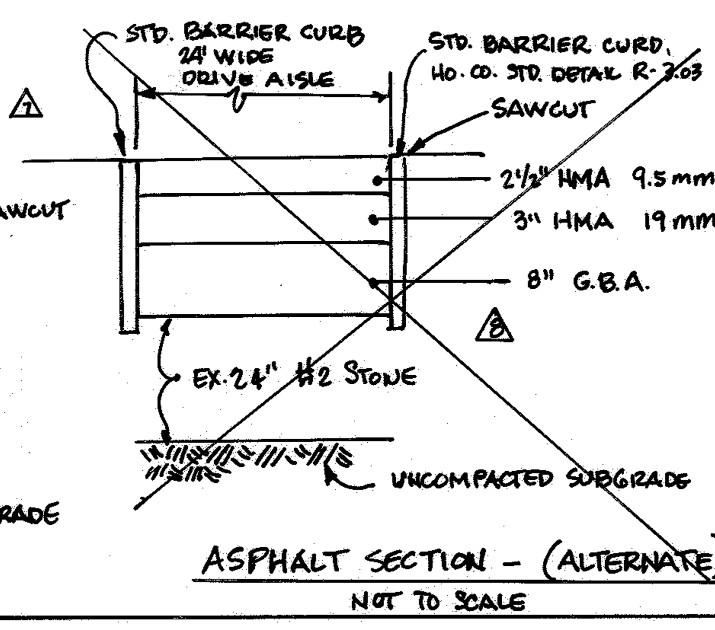
PATHWAY PAVING SECTION

NOTE:
PATHWAY TO CONNECT TO PATHWAY CONSTRUCTED UNDER SDP-12-015.

FOR REVISION 7 ONLY



CONCRETE SECTION
NOT TO SCALE



ASPHALT SECTION – (ALTERNATE)
NOT TO SCALE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-9
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

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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. 28559, Expiration Date: 7-22-13
FOR REVISION BY BENCH MARK ENGINEERING ONLY BEI 1,

Seal:

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G|W
W|O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1009

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9250 BENDIX ROAD
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TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT #: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

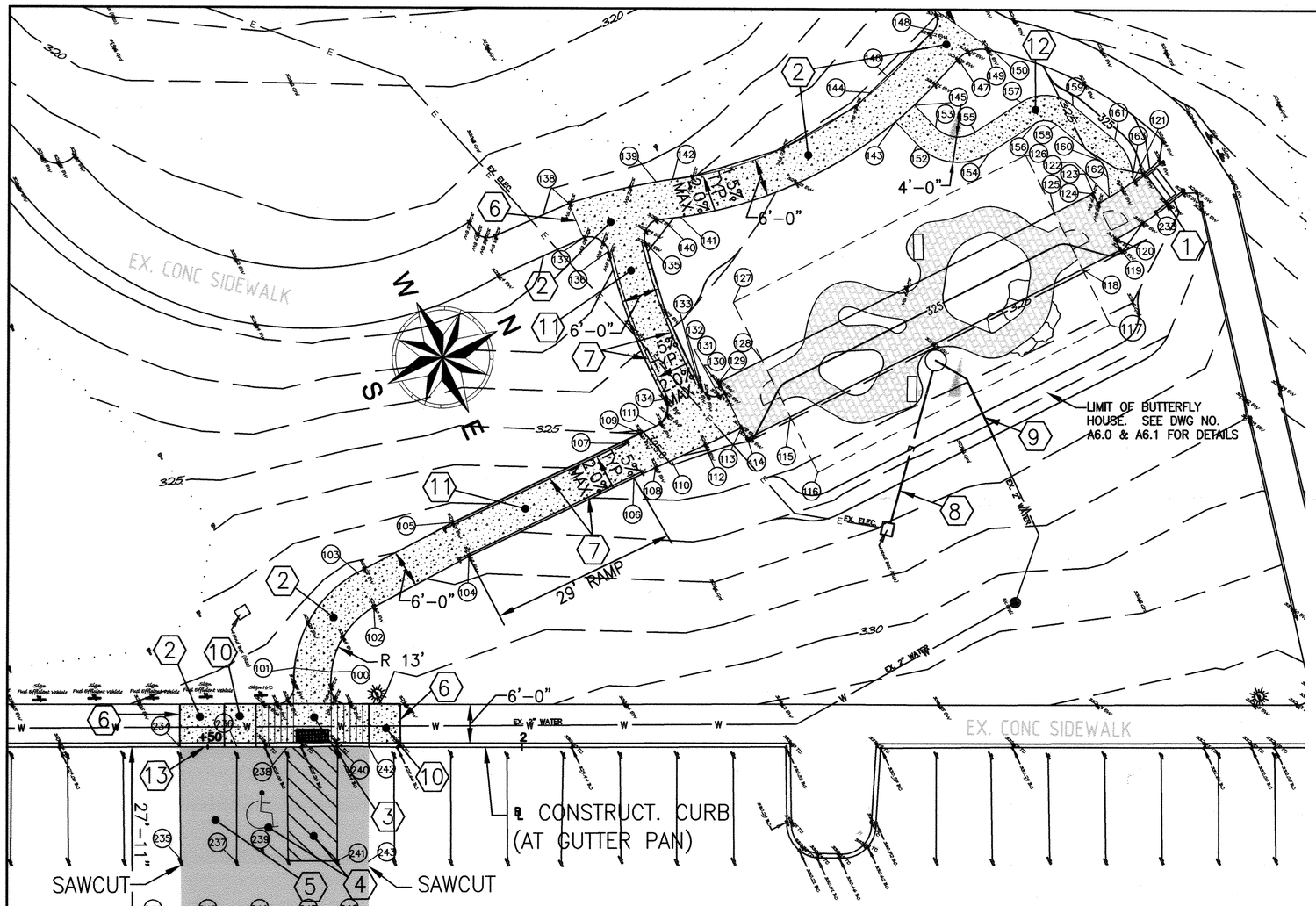
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	5-1-09	NOTE
BEI 1	11-30-12	ADD PATHWAY PAVING SECTION & PATH CONNECTION NOTE BY BEI
7	9-23-16	REVISE TO REMOVE POROUS PAVING IN THE DRIVE AISLES AND REPLACE WITH STANDARD CONCRETE
8	11-18-16	REVISE TO REMOVE POROUS PAVING IN 6 PARKING SPACES AND REPLACE WITH STANDARD CONCRETE PAVING

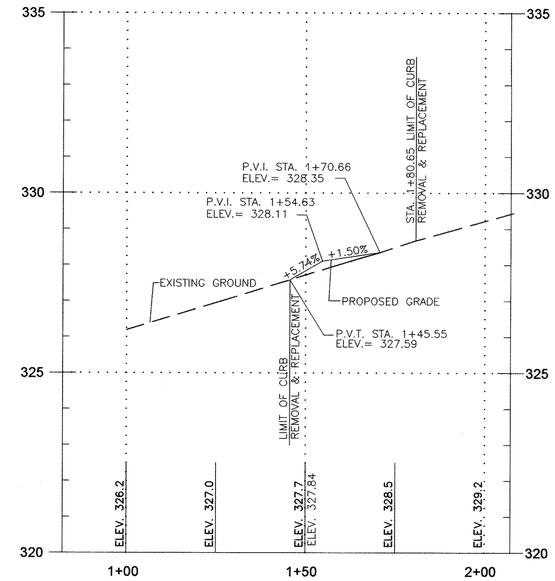
Job No.	SDP-09-02	KDL	Drawn
Scale	NTS	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title	Site Details	Drawing Number	C3.4
Sheet	10	Of	37

SDP-09-02



1 SITE PLAN – BUTTERFLY HOUSE

C3.1.1 SCALE: 1"=10'



CURB PROFILE

SCALE: 1" = 20'H / 2'V

CONSTRUCTION CONTROL COORDINATES		
POINT NO.	NORTHING	EASTING
100	554,876.75	1,342,345.60
101	554,871.65	1,342,342.45
102	554,887.22	1,342,339.34
103	554,887.28	1,342,333.33
104	554,904.33	1,342,338.66
105	554,904.22	1,342,332.66
106	554,933.34	1,342,338.86
107	554,933.38	1,342,332.86
108	554,937.13	1,342,338.88
109	554,937.22	1,342,332.89
110	554,939.91	1,342,338.94
111	555,940.04	1,342,332.95
112	554,945.77	1,342,339.07
113	554,952.18	1,342,339.08
114	554,952.29	1,342,341.05
115	554,959.92	1,342,340.86
116	554,960.12	1,342,350.66
117	555,012.11	1,342,349.63
118	555,011.91	1,342,339.85
119	555,018.71	1,342,339.71
120	555,018.71	1,342,337.80
121	555,025.19	1,342,330.74
122	555,020.68	1,342,331.33
123	555,018.63	1,342,331.51
124	555,018.51	1,342,329.71
125	555,010.71	1,342,329.85
126	555,011.51	1,342,319.63
127	554,959.52	1,342,320.67
128	554,959.72	1,342,330.87
129	554,952.06	1,342,331.05
130	554,952.12	1,342,333.07
131	554,951.17	1,342,333.05
132	554,949.22	1,342,331.22
133	554,949.09	1,342,329.40
134	554,943.10	1,342,329.76
135	554,950.90	1,342,306.03
136	554,945.02	1,342,304.81
137	554,942.37	1,342,301.19
138	554,942.61	1,342,295.26

CONSTRUCTION CONTROL COORDINATES		
POINT NO.	NORTHING	EASTING
139	554,956.65	1,342,298.22
140	554,954.97	1,342,303.90
141	554,957.71	1,342,304.84
142	554,959.12	1,342,298.99
143	554,995.11	1,342,305.97
144	554,993.63	1,342,300.16
145	554,998.96	1,342,304.88
146	554,997.12	1,342,299.16
147	555,008.38	1,342,301.32
148	555,006.76	1,342,295.51
149	555,013.25	1,342,301.98
150	555,014.06	1,342,302.60
151	555,008.01	1,342,291.95
152	554,996.67	1,342,310.72
153	555,000.47	1,342,309.48
154	555,006.37	1,342,316.84
155	555,005.86	1,342,312.88
156	555,014.96	1,342,315.73
157	555,014.45	1,342,311.77
158	555,018.06	1,342,317.45
159	555,021.69	1,342,315.76
160	555,021.70	1,342,325.28
161	555,025.33	1,342,323.60
162	555,021.81	1,342,328.41
163	555,025.54	1,342,329.85
233	555,029.21	1,342,336.95
234	554,849.93	1,342,345.78
235	554,842.48	1,342,361.73
236	554,858.11	1,342,349.72
237	554,850.27	1,342,365.98
238	554,865.34	1,342,353.20
239	554,857.74	1,342,369.36
240	554,872.61	1,342,356.52
241	554,864.78	1,342,372.76
242	554,877.09	1,342,358.77
243	554,869.25	1,342,375.01
244	544,838.10	1,342,371.09
245	554,846.00	1,342,374.86
246	554,853.45	1,342,378.42
247	554,860.44	1,342,381.76
248	554,864.95	1,342,383.92

BASELINE DATA, B/L CURB		
STATION	NORTHING	EASTING
POT 1+00.00	554,808.86	1,342,326.08
PT 1+26.29	554,832.57	1,342,337.44
PT 1+59.06	554,862.11	1,342,351.64
PT 1+64.86	554,867.33	1,342,354.15
PT 1+70.44	554,872.42	1,342,356.43
PT 1+80.13	554,881.09	1,342,360.77
PT 1+88.70	554,888.82	1,342,364.49
POT 2+07.89	554,906.11	1,342,372.80

STANDARD STABILIZATION NOTES

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

A) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND

B) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

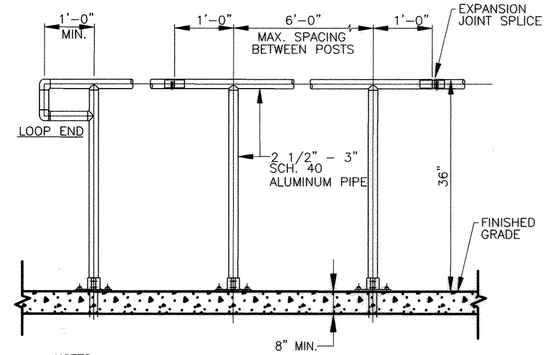
CONSTRUCTION NOTES:

1. MEET EXISTING SIDEWALK/STEPS..
2. REMOVE & REPLACE EXISTING SIDEWALK TO 1.5% CROSS SLOPE TYP., 2.0% MAX PER DETAIL NO. 4 & 7 ON SDP-09-02 DWG. NO. C-3.4.
3. CONSTRUCT ADA COMPLIANT SIDEWALK RAMP PER HOWARD COUNTY STD. R-4.04.
4. PAINT VAN ACCESSIBLE PARKING/LOADING ZONE STRIPING. (SEE DETAIL NO. 8 ON SDP-09-02 DWG. NO. C3.4).
5. REMOVE AND REPLACE PERVIOUS CONCRETE PER DETAIL NO. 10 ON SDP-09-02 DWG. NO. C3.4. SALVAGE EXISTING NO. 2 STONE. MAINTAIN 24" MIN. OF NO. 2 STONE AND 6" #57 STONE.
6. SAWCUT AT THE NEAREST JOINT.
7. INSTALL ADA COMPLIANT HAND RAIL PER DETAIL (THIS SHEET)
8. EXTEND ELECTRICAL CONDUIT TO FOUNTAIN AREA
9. EXTEND 2" WATER SERVICE TO WITHIN THE PROPOSED FOUNTAIN AREA AND TURN UP TO BE ABOVE GRADE AND CAP
10. MIN. 5-FOOT LEVEL LANDING
11. REMOVE AND REPLACE EXISTING SIDEWALK RAMP, 1.5% CROSS SLOPE, 8.33% MAX. LONGITUDINAL GRADE.
12. CONSTRUCT ADA COMPLIANT SIDEWALK PER DETAIL ON DWG. NO. C3.4.
13. REMOVE AND REPLACE EXISTING CURB AND GUTTER. SEE DETAIL ON DWG. NO. C3.4.

LEGEND

- FULL DEPTH PERVIOUS CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- STAMPED CONCRETE
- 325 — PROPOSED CONTOURS
- 325 — EXISTING CONTOURS

SEE DRAWING NO. C3.1.3 (SHEET NO. 7C) FOR SIDEWALK BASELINE AND PROFILES



NOTES:

1. ALL EXPOSED STEEL SHALL BE PRIMED WITH ZINC OXIDE PAINT AND PAINTED WITH TWO COAT OF HIGH GLOSS EXTERIOR PAINT. PAINT TO MATCH EXISTING HANDRAIL.
2. SPACING AND LOCATION AS SHOWN ON DETAIL AND PLAN.
3. SPACING OF VERTICAL POSTS SHALL BE EQUAL THROUGHOUT EACH SECTION OF THE HANDRAIL.
4. THE CONTRACTOR SHALL ATTACH THE HANDRAIL TO THE SIDEWALK RAMP BY WELDING 4"x6"x1/4" STEEL PLATES TO THE BOTTOM OF THE POSTS. FASTEN PLATES TO THE STRUCTURE WITH FOUR 1/2" DIA. x 4" LONG EPOXY CAPSULE ANCHORS. (EMBED ANCHORS INTO SIDEWALK 2 1/2" MIN.).

2 SIDEWALK RAMP HANDRAIL

C3.1.1 SCALE: N.T.S.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4-29-14

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-05-14

DIRECTOR, DEPT. OF P.Z. — DATE 5/6/14

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11-13-08

URS
URS CORPORATION
4 NORTH PARK DRIVE
SUITE 300
HUNT VALLEY, MARYLAND 21030
PHONE: 410-785-7220/FAX: 410-785-6818

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. 16156 — EXPIRATION DATE 08/28/14

DESIGNED: J.H. YOON
DRAWN: C.D. FLEMING
CHECKED: D.T. MORICONI
APPROVED: D.T. MORICONI

STATE OF MARYLAND — DAVID THOMAS MORICONI — REG. NO. 16156 — REGISTERED PROFESSIONAL ENGINEER — 4-15-2014

REVISION No.	REVISION DATE	DESCRIPTION
1	4-15-2014	NEW SHEET

JAMES & ANNE Robinson NATURE CENTER

ROBINSON NATURE CENTER
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS

PROJECT TITLE: ROBINSON NATURE CENTER STORAGE BUILDING AND BUTTERFLY HOUSE

SHEET TITLE: SITE PLAN

SCALE: AS NOTED — DATE: APRIL, 2014

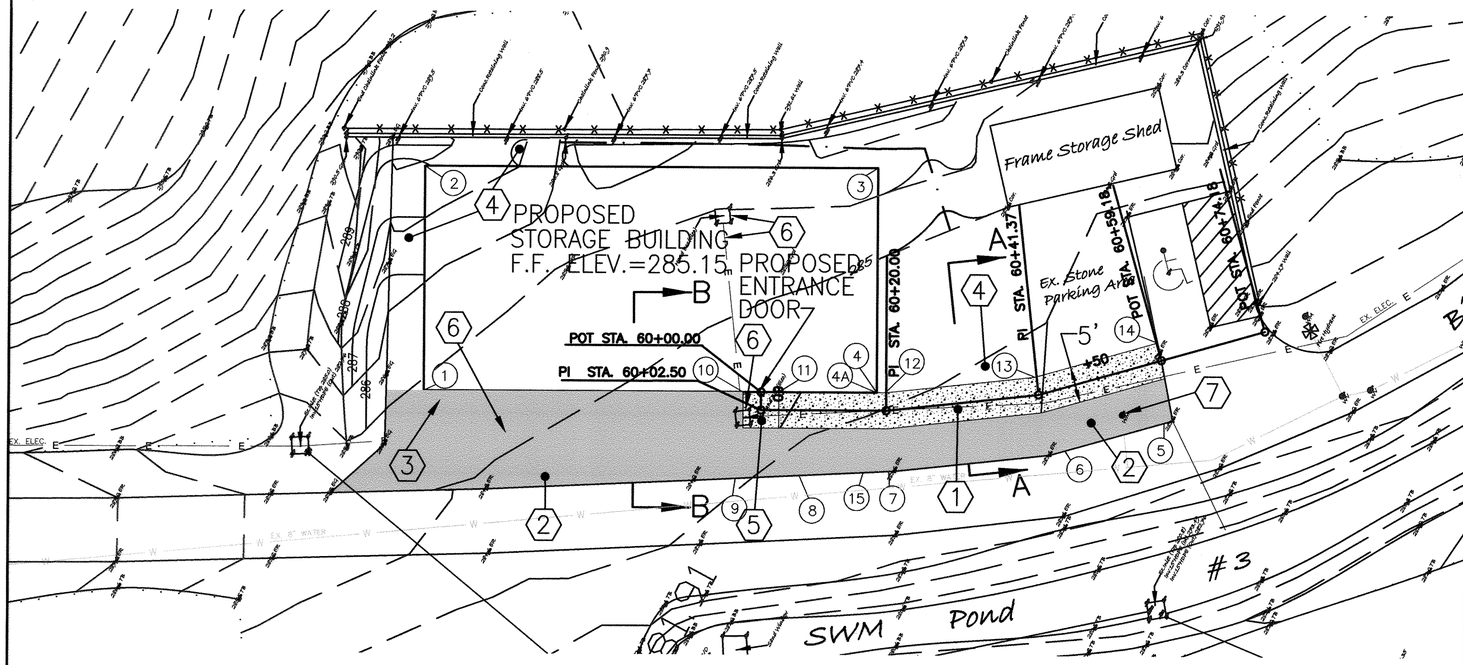
URS PROJECT NO: 20834595

SHEET No.: 7A OF 37

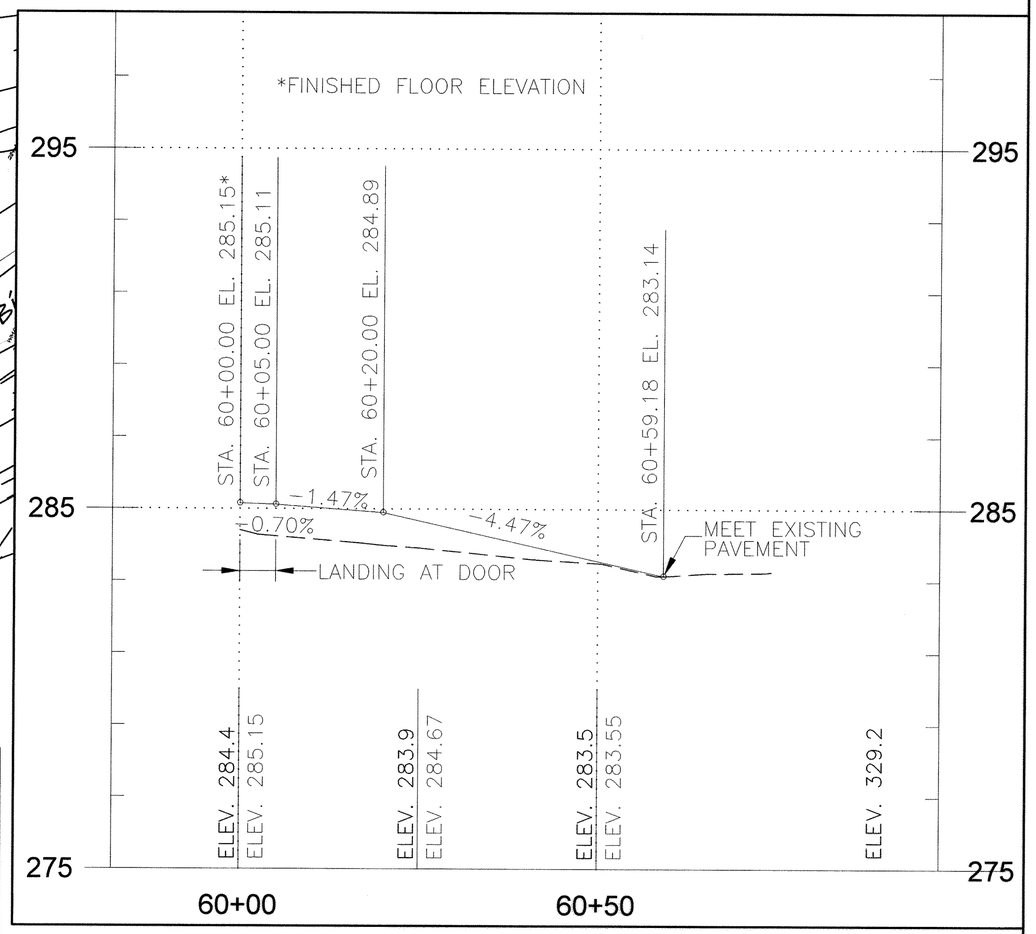
C3.1.1

FILE NAME: U:\Projects\AA\20834595\CAD\CIVIL\SHEETS\Redline No. 2\C3.1.1.dwg PLOTTED: Thursday, April 03, 2014 - 10:30am USER: joe_yoon

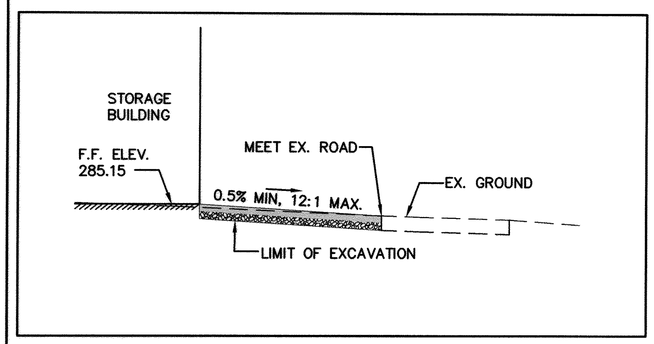
SDP-09-02



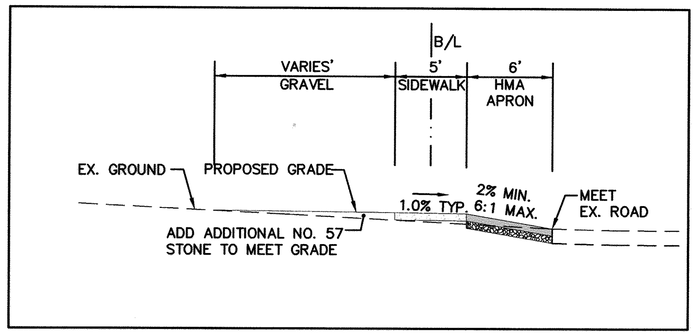
1 C3.1.2 SITE PLAN – STORAGE BUILDING
SCALE: 1"=10'



4 C3.1.2 SIDEWALK PROFILE
SCALE: 1"=10' H. / 2' V.



2 C3.1.2 SECTION B–B
SCALE: 1"=5'



3 C3.1.2 SECTION A–A
SCALE: 1"=5'

CONSTRUCTION CONTROL COORDINATES			
POINT NO.	ELEVATION	NORTHING	EASTING
1	285.15	554,498.02	1,341,941.70
2	285.15	554,512.49	1,341,969.31
3	285.15	554,456.43	1,341,998.69
4 (BUILDING)	285.15	554,441.96	1,341,971.08
4A	284.98	554,441.96	1,341,971.08
5	283.16	554,407.37	1,341,991.69
6	283.91	554,420.30	1,341,979.43
7	284.87	554,438.34	1,341,967.33
8	285.08	554,451.73	1,341,960.30
9	285.08	554,456.16	1,341,957.97
10	285.15	554,458.49	1,341,962.41
11	285.15	554,454.06	1,341,964.72
12	284.92	554,440.90	1,341,971.64
13	283.98	554,423.43	1,341,983.35
14	283.18	554,410.56	1,341,995.55
15	284.91	554,439.63	1,341,966.65

CONSTRUCTION NOTES:

1. CONSTRUCT ADA COMPLIANT CONCRETE SIDEWALK PER SECTION B–B ON HOWARD COUNTY DPW NO. R–6.07.
2. CONSTRUCT FULL DEPTH HOT MIX ASPHALT PAVEMENT PER DETAIL NO. 2 ON SDP 02–02 DRAWING NO. C–3.4.
3. DECORATIVE BOLLARDS PER DWG. NO. A–2.0 AND DETAIL NO. 5 ON DWG. NO. A–1.0.
4. PLACE SALVAGED STONE TO MEET GRADE AND MAINTAIN POSITIVE DRAINAGE.
5. 5'X5' LANDING AT DOOR SLOPED 1% (2% MAX.) AWAY FROM ENTRANCE.
6. REMOVE AND RESET EXISTING HANDBOXES AND CONDUIT AWAY FROM PROPOSED BUILDING AS DIRECTED BY THE COUNTY.
7. ADJUST WATER METER VAULT TO MEET GRADE

GENERAL NOTES:

1. REMOVE AND SALVAGE EXISTING GRAVEL FOR REUSE TO ACCOMMODATE THE PROPOSED CONSTRUCTION.
2. THE LONGITUDINAL GRADE OF THE NEW SIDEWALK SHALL NOT EXCEED 5% AND CROSS SLOPE SHALL NOT EXCEED 2%.

STANDARD STABILIZATION NOTES

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A) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND

B) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

LEGEND

- FULL DEPTH PAVEMENT
- CONCRETE SIDEWALK
- 325 — PROPOSED CONTOURS
- 325 — EXISTING CONTOURS
- E — EXISTING CONDUIT

CONSTRUCTION CONTROL COORDINATES		
STATION	NORTHING	EASTING
B/L CONSTRUCTION RNC		
PI 60+00.00	554,456.27	1,341,963.56
PI 60+02.50	554,455.11	1,341,961.35
PI 60+20.00	554,439.62	1,341,969.49
PI 60+41.37	554,421.87	1,341,981.39
PI 60+59.18	554,408.94	1,341,993.64
PI 60+74.18	554,398.06	1,342,003.96

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4.29.14

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-05-14

DIRECTOR, DEPDPZ — DATE 5/6/14

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11-13-08

URS
URS CORPORATION
4 NORTH PARK DRIVE
SUITE 300
HUNT VALLEY, MARYLAND 21030
PHONE: 410-785-7220/FAX: 410-785-6818

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. 16156 — EXPIRATION DATE 08/28/14

DESIGNED: J.H.YOON
DRAWN: C.D.FLEMING
CHECKED: D.T.MORICONI
APPROVED: D.T.MORICONI

STATE OF MARYLAND — DAVID THOMAS MORICONI — No. 16156 — REGISTERED PROFESSIONAL ENGINEER — 4-15-2014

REVISION No.	REVISION DATE	DESCRIPTION
1	4-15-2014	NEW SHEET

JAMES & ANNE Robinson NATURE CENTER

ROBINSON NATURE CENTER
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS

PROJECT TITLE: ROBINSON NATURE CENTER STORAGE BUILDING AND BUTTERFLY HOUSE

SHEET TITLE: SITE PLAN

SCALE: AS NOTED — DATE: APRIL, 2014

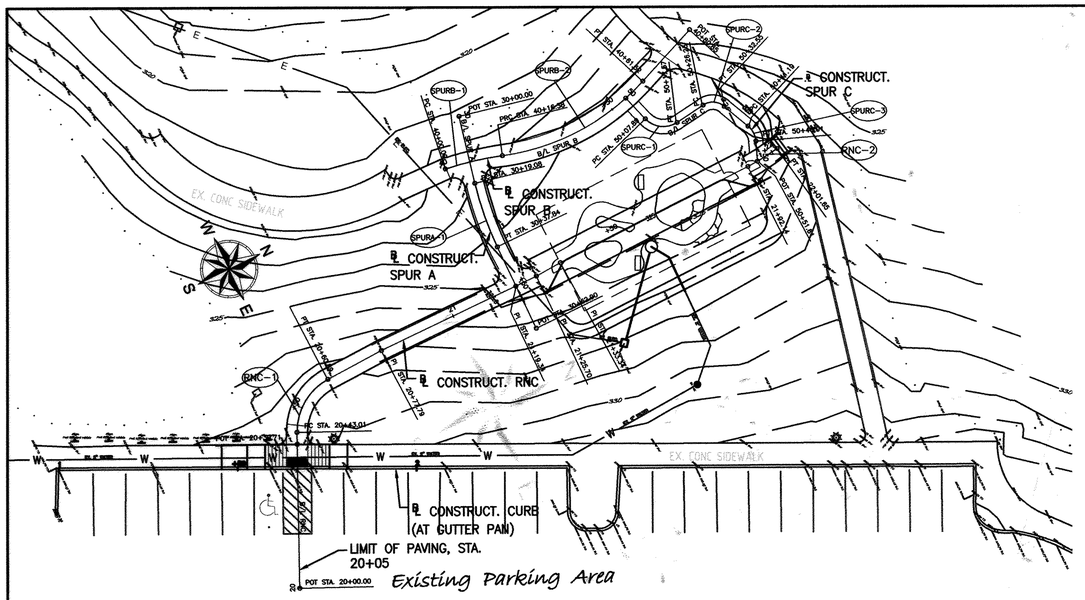
URS PROJECT NO: 20834595

SHEET No.: 7B OF 37

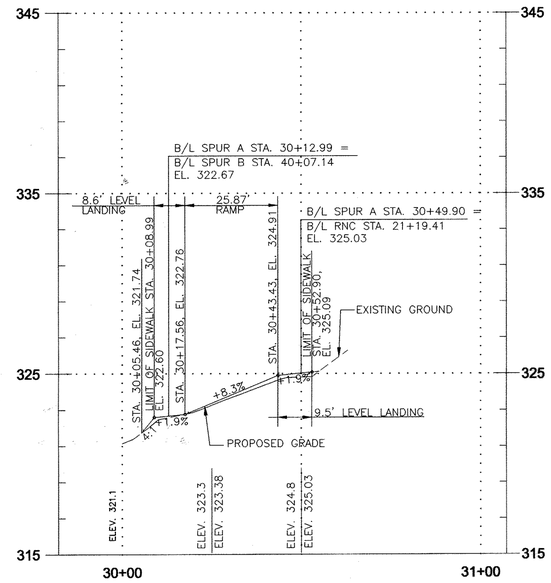
C3.1.2

FILE NAME: U:\Projects\AA\20834595\CAD\CIVIL\SHEETS\Redline No. 2\C3.1.2.dwg PLOTTED: Monday, April 14, 2014 – 2:53pm USER: Joe_Yoon

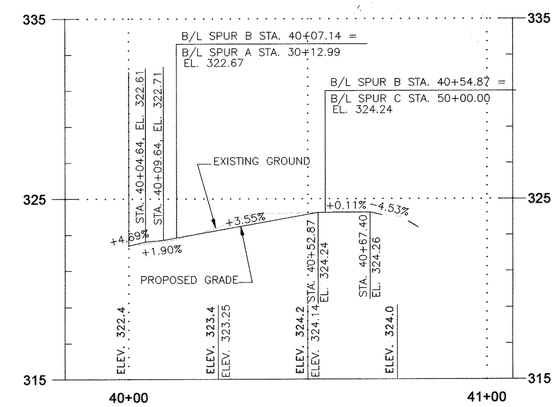
SDP–09–02



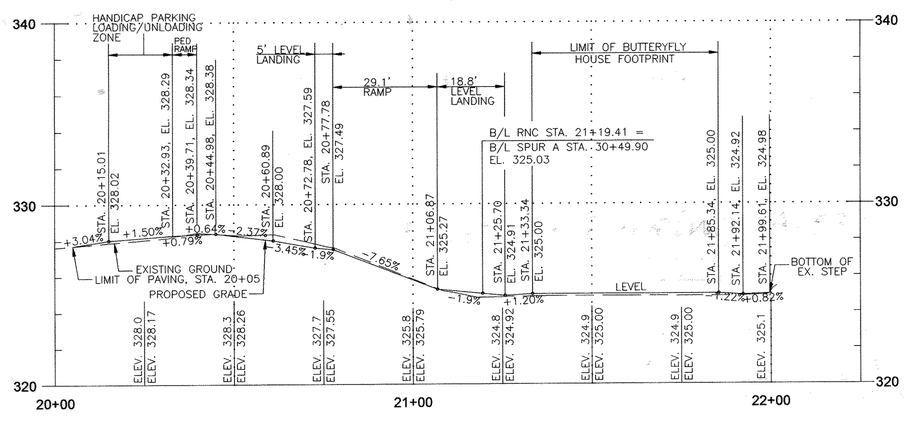
1 C3.1.3 SIDEWALK LAYOUT PLAN – BUTTERFLY HOUSE
SCALE: 1"=20'



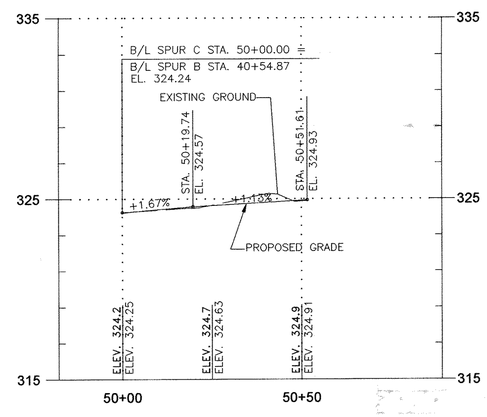
3 C3.1.3 B/L SPUR A PROFILE
SCALE: 1"=20' H. / 4' V.



4 C3.1.3 B/L SPUR B PROFILE
SCALE: 1"=20' H. / 4' V.



2 C3.1.3 B/L RNC PROFILE
SCALE: 1"=20' H. / 4' V.



5 C3.1.3 B/L SPUR C PROFILE
SCALE: 1"=20' H. / 4' V.

CONSTRUCTION CONTROL COORDINATES

CURVE	STATION	NORTHING	EASTING
B/L CONSTRUCTION RNC			
	POT 20+00.00	554,855.27	1,342,384.83
RNC-1	PC 20+43.01	554,873.27	1,342,345.77
	PI 20+52.97	554,877.44	1,342,336.72
	PT 20+60.89	554,887.39	1,342,336.32
	PI 20+77.79	554,904.28	1,342,335.66
	PI 21+19.34	554,945.83	1,342,336.07
	PI 21+25.70	554,952.19	1,342,336.08
	PI 21+33.34	554,959.82	1,342,335.66
RNC-2	PC 21+92.14	555,018.60	1,342,334.49
	PI 21+96.90	555,023.37	1,342,334.39
	PT 22+01.65	555,028.07	1,342,333.57
B/L CONSTRUCTION SPUR A			
	POT 30+00.00	554,952.05	1,342,286.75
SPURA-1	PC 30+19.08	554,947.97	1,342,305.39
	PI 30+28.50	554,945.95	1,342,314.59
	PT 30+37.84	554,945.93	1,342,324.01
	POT 30+62.90	554,945.87	1,342,349.07
B/L CONSTRUCTION SPUR B			
SPURB-1	PC 40+00.00	554,942.23	1,342,298.24
	PI 40+08.22	554,950.38	1,342,299.29
	PRC 40+16.38	554,958.19	1,342,301.84
SPURB-2	PI 40+39.91	554,980.55	1,342,309.15
	PT 40+61.52	555,002.41	1,342,300.46
	POT 40+80.85	555,020.36	1,342,293.32
B/L CONSTRUCTION SPUR C			
	POT 50+00.00	554,996.11	1,342,302.60
SPURC-1	PC 50+07.89	554,998.57	1,342,310.10
	PI 50+13.68	555,000.37	1,342,315.60
	PT 50+17.57	555,006.12	1,342,314.86
SPURC-2	PC 50+26.23	555,014.70	1,342,313.75
	PI 50+29.89	555,018.34	1,342,313.28
	PT 50+32.55	555,019.88	1,342,316.61
SPURC-3	PC 50+41.19	555,023.52	1,342,324.44
	PI 50+43.74	555,024.59	1,342,326.75
	PT 50+46.00	555,023.67	1,342,329.12
	POT 50+51.61	555,021.66	1,342,334.35

CURVE DATA

CURVE	DELTA	Dc	RADIUS	TANGENT	LENGTH	EXTERNAL
RNC-1	63° 00' 35.85" RT	352° 19' 32.52"	16.26'	9.97'	17.88'	2.81'
RNC-2	8° 47' 40.23" LT	92° 24' 45.17"	62.00'	4.77'	9.52'	0.18'
SPURA-1	12° 12' 54.0" LT	65° 06' 31.83"	88.00'	9.42'	18.76'	0.50'
SPURB-1	10° 47' 22.94" RT	65° 51' 25.98"	87.00'	8.22'	16.38'	0.39'
SPURB-2	39° 47' 25.90" LT	88° 08' 50.47"	65.00'	23.52	45.14'	4.13'
SPURC-1	79° 13' 38.2" LT	818° 30' 40.09"	7.00'	5.79'	9.68'	2.09'
SPURC-2	72° 28' 10.02" LT	1145° 45' 56.13"	5.00'	3.66'	6.32'	1.20'
SPURC-3	45° 59' 9.77" LT	954° 55' 46.77"	6.00'	2.54'	4.82'	0.52'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4-29-14

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-05-14

DIRECTOR, DEPDPZ — DATE 5/6/14

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11-13-08

URS CORPORATION
4 NORTH PARK DRIVE
SUITE 300
HUNT VALLEY, MARYLAND 21030
PHONE: 410-785-7220/FAX: 410-785-6818

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. 16156 — EXPIRATION DATE 08/28/14

DESIGNED: J.H. YOON
DRAWN: C.D. FLEMING
CHECKED: D.T. MORICONI
APPROVED: D.T. MORICONI

STATE OF MARYLAND — DAVID THOMAS MORICONI — REGISTERED PROFESSIONAL ENGINEER

REVISION No.	REVISION DATE	DESCRIPTION
1	2-15-2012	NEW SHEET

JAMES & ANNE Robinson NATURE CENTER

ROBINSON NATURE CENTER
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS

PROJECT TITLE: ROBINSON NATURE CENTER STORAGE BUILDING AND BUTTERFLY HOUSE

SHEET TITLE: SIDEWALK LAYOUT PLAN

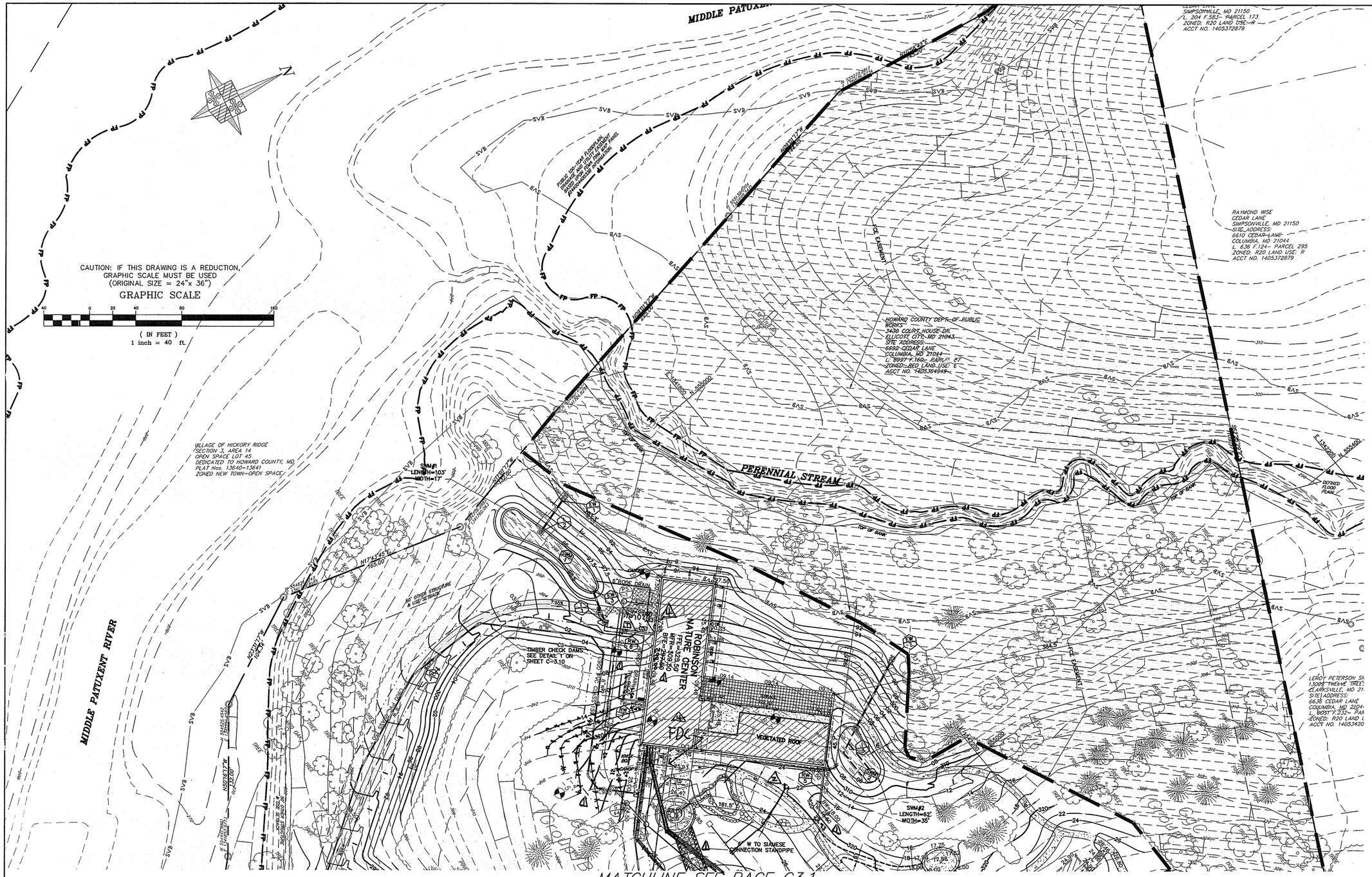
SCALE: AS NOTED

DATE: APRIL, 2014

URS PROJECT NO: 20834595

SHEET No.: 7C OF 37

C3.1.3



LEGEND

EXISTING MANHOLE	
EXISTING SANITARY SEWER	—S—
EXISTING STORM DRAIN	
UTILITY POLE	
EXISTING WATER LINE	—W—
EXISTING WATER VALVE	
EXISTING FIRE HYDRANT	
EXISTING CONTOUR	—96—
RIPRAP	
EXISTING LIGHT	
BENCHMARK	
SIGN	
EXISTING TREE LINE	
EXISTING FENCE	
PROPERTY LINE	
SOIL BOUNDARY LINE	
PROPOSED STORM DRAIN	
PROPOSED CONTOUR	—96—
FLOODPLAIN EASEMENT	—FP—
CONC CURB & GUTTER SEE DETAIL 1 SHEET C-3.4	
PROPOSED FIRE HYDRANT	
PROPOSED BUILDING SEE ARCH DWG'S	
CONCRETE SIDEWALK SEE DETAIL 7 SHEET C-3.4	
HEAVY DUTY CONCRETE DETAIL 5 SHEET C-3.4	
LIGHT-DUTY ASPHALT SEE DETAIL 3 SHEET C-3.4	
REGULAR DUTY ASPHALT SEE DETAIL 2 SHEET C-3.4	
MULCHED AREA	
SITE LIGHTING SEE ELECTRICAL DRAWINGS FOR DETAIL	
15%-24.9% SLOPE	
GREATER THAN 25% SLOPE	
STREAM VALLEY BUFFER	—SVB—
FOREST CONSERVATION EASEMENT	
RETAINING WALL FENCE	

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1.12.09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/12/09
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

Seal:

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524 EXPIRATION DATE: 19 JULY 2009

GRIEVES WORRALL WRIGHT & OHATNICK INCORPORATED
G|W W|O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-0009

C 2007 GWWO INC.

OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT #: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	5-1-09	GRADING, GEO WELL, WALL, DEF. TW ELEV. GIDE WINK
2	3/20/10	REMOVE WATER LINE, PUMP STRUCTURE
3	3-1-10	REMOVE FIRE PUMP, ADD YARD HYDRANT

Job No.	SDP-09-02	KDL	Drawn
Scale	1"=40'	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title	Site Plan	Drawing Number	C3.2
Sheet	8	Of	37

STORM INLETS			
INLET #	DA (ACRE)	C-VALUE	% TMP IMPERVIOUS
I-1	0.33	0.53	48%
I-2	0.41	0.46	2%
I-3	1.28	0.36	56%
I-4	1.54	0.22	1%
I-5	1.16	0.32	0%
I-6	0.63	0.27	27%
I-8	1.78	0.33	23%
I-9	1.33	0.22	9%
I-10	0.20	0.50	40%

LEGEND

PERVIOUS ASPHALT

REGULAR DUTY ASPHALT

MILL & OVERLAY ASPHALT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edmondson — 1-12-9
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

Cindy Hanson — 1/13/09
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

Thomas J. Butler — 1/14/09
DIRECTOR, DEP. — DATE

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 11/13/08

KS

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

Seal:

STATE OF MARYLAND — MARK PATRICK BEAUMONT — PROFESSIONAL ENGINEER

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524
EXPIRATION DATE: 19 JULY 2009

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
G|W W|O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
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CAPITAL PROJECT #: N39-60

Project Title

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6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

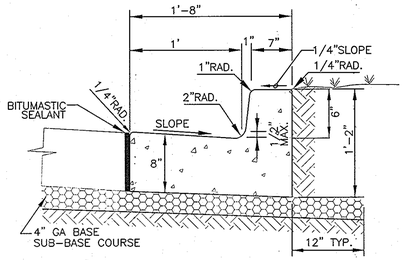
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

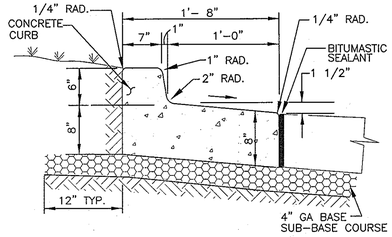
No.	Date	Description

Job No.	SDP-09-02	KDL	Drawn
Scale		SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title	STORM DRAIN INLET DRAINAGE AREA MAP	Drawing Number	C3.3
Sheet	9	Of	37

SDP-09-02



CURB/WITH NORMAL GUTTER



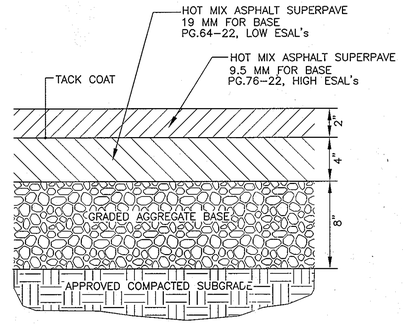
CURB/WITH SPILL GUTTER

GENERAL NOTES

1. REFER TO HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION SPECIFICATIONS FOR MATERIALS, METHODS OF CONSTRUCTION AND EXPANSION JOINT LOCATIONS.
2. EXPANSION JOINT MATERIAL SHALL BE 1 1/2 INCH PREFORMED CORK, TRIMMED AND SEALED WITH NON-STAINING TWO-COMPONENT POLYSULFIDE OR POLYURETHANE ELASTOMERIC TYPE SEALANT COMPLYING WITH FS TT-S-00227, (NON-EXTRUDING).
3. CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT FOR ALL CURBS & GUTTER PRIOR TO BACKFILLING.

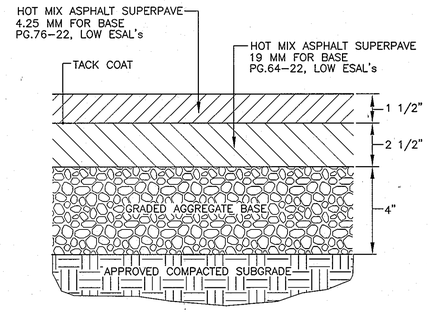
1 C-3.4 CONCRETE CURB & GUTTER

NOT TO SCALE



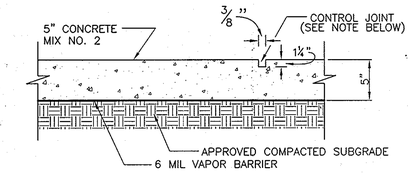
2 C-3.4 ASPHALT CONCRETE SECTION

NOT TO SCALE



3 C-3.4 LIGHT-DUTY SURFACE

NOT TO SCALE

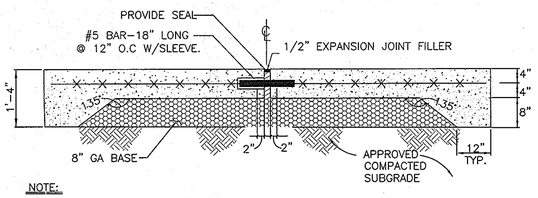


NOTES:

- 1/2" EXP. JOINTS – PLACE 20' O.C. AND AT ALL AREAS WHERE PAVING ABUTS OTHER WALKS AND STRUCTURES (TYP.)
- SCORING JOINTS SHALL BE PLACED AT 4' (MIN.) TO 8' (MAX.) BOTH DIRECTIONS (TYP.) SEE ARCHITECTURAL SITE PLAN SHEET A-0.7 FOR SCORING PATTERNS

4 C-3.4 CONCRETE SIDEWALK SECTION

NOT TO SCALE

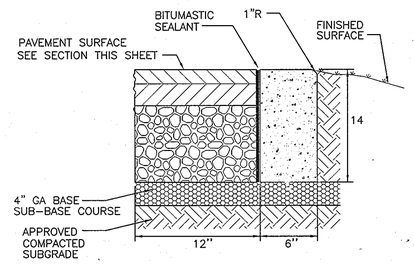


NOTE:

1. 8" CONC. SLAB REINFORCED W/ W6x6 W4xW4 WWF @ MID DEPTH ON A 8" POROUS FILL MATERIAL OVER APPROVED COMPACTED SUBGRADE.
2. CONSTRUCT EXPANSION JOINT, AND ADJACENT TO OTHER STRUCTURES OR CONCRETE. JOINTS TO BE 10' x 15' SQUARES MINIMUM.
3. CONCRETE SHALL BE MIX NO. 3 PER SHA STANDARDS AND SPECIFICATIONS.

5 C-3.4 HEAVY DUTY CONCRETE

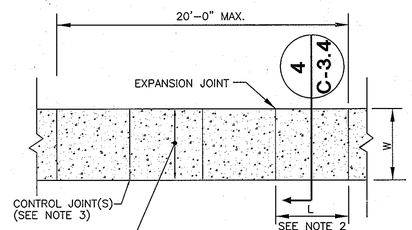
NOT TO SCALE



1. GENERAL NOTES FOR DETAIL 1, THIS SHEET ARE APPLICABLE TO THIS DETAIL.
2. CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT FOR ALL CURBS & GUTTER PRIOR TO BACKFILLING.

6 C-3.4 DEPRESSED CURB DETAIL

NOT TO SCALE

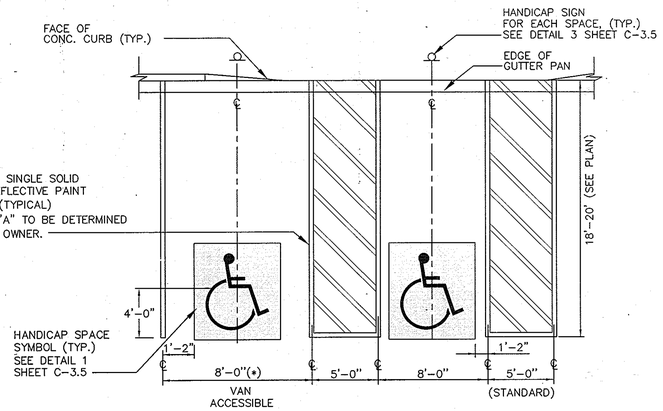


NOTES:

1. ALL CONCRETE SHALL BE SHA MIX NO. 2, 3000 P.S.I., DEPTH SHALL BE 5".
2. PROVIDE CONTROL JOINTS EVERY 4'-0" MIN. BOTH DIRECTIONS PROVIDE 1/2" EXPANSION JOINT EVERY 20' O/C MAX. MARK EXPANSION/CONTRACTION JOINTS FOR SIDE-WALK WIDTHS 4'-0" TO 8'-0". IF "W" IS 8'-0" OR GREATER, ADD LONGITUDINAL CONTRACTION JOINT ℄ OF SIDEWALK.
3. CONTROL JOINTS SHALL BE SAW-CUT OR FORMED, 1 1/4" DEEP.
4. PROVIDE 1/2" EXPANSION JOINT FILLER WHERE SIDEWALK ABUTS CURB OR OTHER RIGID STRUCTURE(S).

7 C-3.4 CONCRETE SIDEWALK DETAIL

NOT TO SCALE

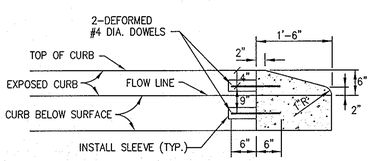


NOTES:

1. STRIPING SHOULD END AT FACE OF CURB, U.N.O.
2. STRIPING MATERIAL AND METHODS OF CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE LATEST MUTCD EDITION AND SHA STDS. & SPECS.
3. (*) INSTALL "VAN ACCESSIBLE" SIGN ON 8'-0" WIDE SPACE, AS NOTED ON PLAN.
4. YELLOW PAINT MAY BE USED ON CONCRETE OR OTHER SURFACES WHERE WHITE PAINT DOES NOT PROVIDE SUFFICIENT CONTRAST. OWNER'S WRITTEN APPROVAL MUST BE OBTAINED.
5. ALL DIMENSION, LAYOUT, BACKGROUND AND COLOR TO CONFORM TO MOST CURRENT ADA GUIDELINES.

8 C-3.4 HANDICAP PARKING STRIPING

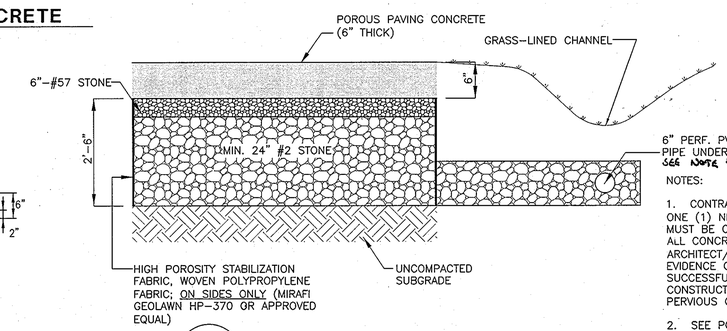
NOT TO SCALE



NOTE: USE MDOT-SHA MIX 2

9 C-3.4 CURB NOSE DOWN

NOT TO SCALE



NOTES:

1. CONTRACTOR SHALL PROVIDE EVIDENCE OF EMPLOYMENT OF ONE (1) NRMCA CERTIFIED PERVIOUS CONCRETE CRAFTSMAN WHO MUST BE ON-SITE, OVERSEEING EACH PLACEMENT CREW, DURING ALL CONCRETE PLACEMENT, OR WITH THE APPROVAL OF ARCHITECT/ENGINEER, CONCTRACTOR MAY PROVIDE WRITTEN EVIDENCE OF PROJECT EXPERIENCE AND PROFICIENCY IN SUCCESSFULLY COMPLETING PERVIOUS CONCRETE PAVEMENT CONSTRUCTION, AND SUBMIT EVIDENCE OF COMPLETION OF A PERVIOUS CONCRETE CRAFTSMAN CERTIFICATION PROGRAM.
2. SEE POROUS CONCRETE NOTES IN SPECIFICATION.
3. POROUS CONCRETE MUST BE COVERED WITH PLASTIC FOR A MINIMUM OF 7 DAYS IMMEDIATELY AFTER PLACEMENT.

4 6" PERF PVC SCH 40, 3/8"Ø PERFORATIONS @ 4" O.C. LENGTH WIDE AND 90° RADIALLY AROUND. INSTALL END CAP ON OPEN END

10 C-3.4 PERVIOUS CONCRETE SECTION

NOT TO SCALE

PATHWAY PAVING SECTION

NOTE:
PATHWAY TO CONNECT TO PATHWAY CONSTRUCTED UNDER SDP-12-015.

BEI 1

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards — CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-9
Kirsty Hansen — CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/14/09 VS
Marsha S. Butch — DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08
VS

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

STATE OF MARYLAND — BRIAN F. CLERRY — No. 28559 — REGISTERED PROFESSIONAL ENGINEER — 12/22/12

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. 28559 Expiration Date: 7-22-13
FOR REVISION BY BENCH MARK ENGINEERING ONLY
BEI 1,

Seal:

STATE OF MARYLAND — HARRY PATRICK WOOLSTON — No. 26524 — PROFESSIONAL ENGINEER

I 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 NUMBER: 26524
EXPIRATION DATE: 19 JULY 2009

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
GW WO
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1009

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OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6181

CAPITAL PROJECT #: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

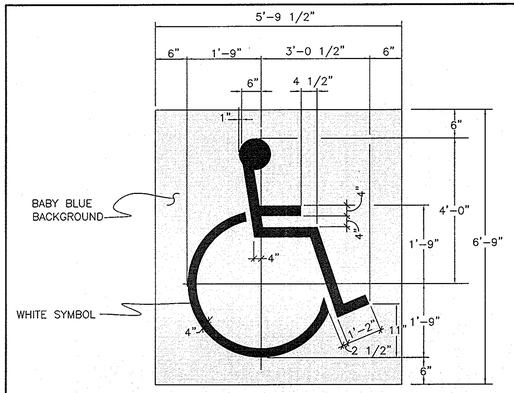
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	5-1-09	NOTE
BEI 1	11-30-12	ADD PATHWAY PAVING SECTION & PATH CONNECTION NOTE BY BEI

Job No.	SDP-09-02	KDL	Drawn
Scale	NTS	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title	Site Details	Drawing Number	C3.4
Sheet	10	Of	37

SDP-09-02

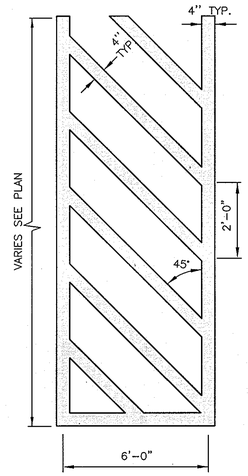


NOTES:

1. PLACE SYMBOL @ CENTERLINE OF STALL, REFER TO PARKING STRIPING DETAIL 8 THIS SHEET FOR DIMENSIONS.
2. THIS DETAIL PROVIDED FOR REFERENCE ONLY! ALL DIMENSIONS, LAYOUT, BACKGROUNDS AND COLOR MUST CONFORM TO MOST CURRENT ADA GUIDELINES.

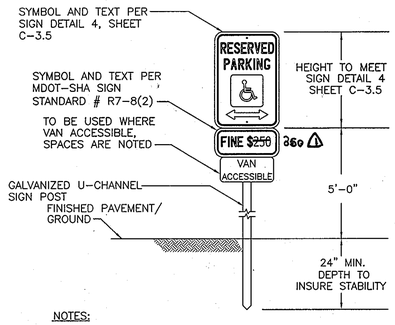
1 / C-3.5 HANDICAP SYMBOL LAYOUT

NOT TO SCALE



2 / C-3.5 CROSSWALK STRIPING PATTERN

NOT TO SCALE

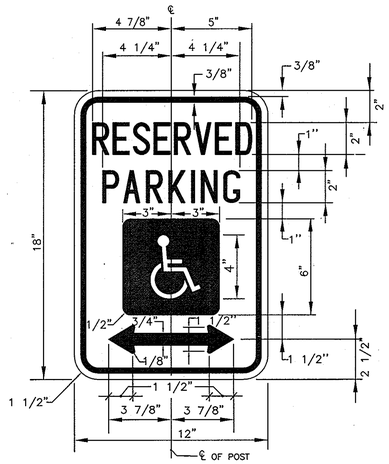


NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE MOST CURRENT ADA REGULATIONS.
2. PLACE SIGN 12" BEHIND FACE OF CURB/TIMBER (TYP.)
3. SECURE SIGN TO POST USING TWO (2) GALVANIZED BOLTS, NUTS, AND WASHERS.
4. POST TO MEET ASTM A499.

3 / C-3.5 HANDICAP SIGN MOUNTING DETAIL AND TYP. SIGN POST DETAIL

NOT TO SCALE



EACH ACCESSIBLE PARKING SPACE SHALL BE IDENTIFIED BY AN APPROVED SIGN WITH THE BOTTOM EDGE AT LEAST 5 FEET ABOVE THE GROUND, UNLESS THE SIGN IS PLACED FLUSH AGAINST A BUILDING, STRUCTURE, OR OTHER LOCATION THAT DOES NOT OBSTRUCT VEHICLE OR PEDESTRIAN TRAFFIC, IN WHICH CASE THE SIGN SHALL BE AT LEAST 6 FEET AND NO MORE THAN 10 FEET ABOVE THE GROUND. SIGNS SHALL BEAR THE INTERNATIONAL SYMBOL OF ACCESS AND THE WORDS "RESERVED PARKING" AND SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE MARYLAND MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (SEE REGULATION .07 FOR EXPLANATORY MATERIAL).

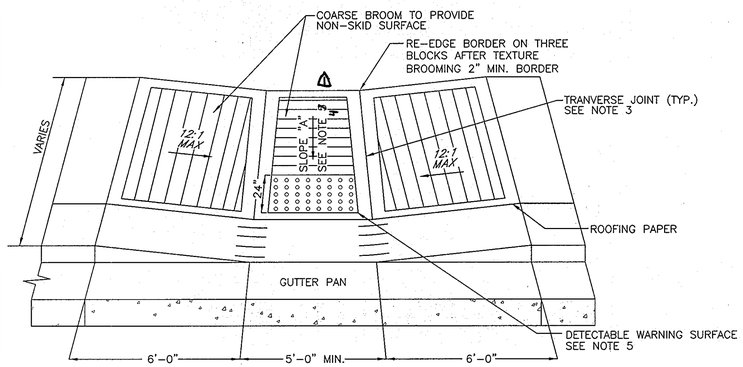
COLORS

LEGEND AND BORDER–GREEN; BACKGROUND – WHITE; WHITE SYMBOL ON BLUE BACKGROUND

NOTE: PROVIDE ADDITIONAL "VAN ACCESSIBLE" SIGNAGE PER ADA REQUIREMENTS FOR SPACES SPACES AS NOTED ON PLAN.
FOR INFORMATION ON SIGN POST AND MOUNTING REFER TO DETAIL 3, THIS SHEET.

4 / C-3.5 RESERVED HANDICAP PARKING SIGN, (TYP.)

NOT TO SCALE

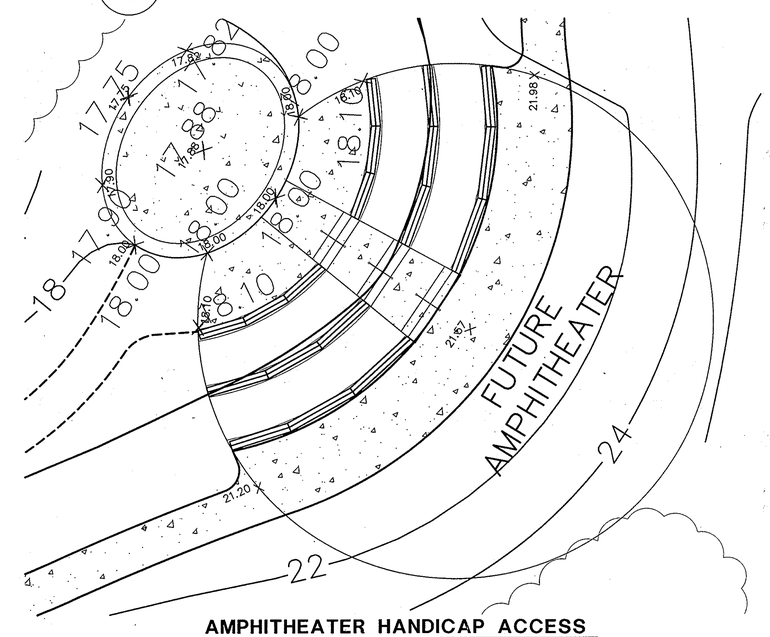


NOTES:

1. REFER TO MARYLAND STATE HIGHWAY ADMINISTRATION SPECIFICATIONS FOR MATERIALS AND METHODS OF CONSTRUCTION.
2. EXPANSION JOINT MATERIAL SHALL BE 1/2 INCH PREFORMED CORK, TRIMMED, AND SEALED WITH NON-STAINING, TWO-COMPONENT POLYSULFIDE OR POLYURETHANE ELASTOMERIC TYPE SEALANT COMPLYING WITH FS TT-S-00227.
3. SCORE THE CONCRETE FOR THE TRANSVERSE JOINTS TO A DEPTH OF 1/3 OF THE THICKNESS TO PROVIDE A WEAKENED PLANE.
4. WHERE SIDEWALK IS BEHIND RAMP, SLOPE 'A' IS 12:1 MAX. WHERE NO SIDEWALK IS BEHIND RAMP, SLOPE 'A' IS 50:1 MAX.
5. PROVIDE MDOT-SHA STD. NO. MD-655.40 WITH DETECTABLE WARNING SURFACE.

5 / C-3.5 HANDICAP RAMP

NOT TO SCALE



AMPHITHEATER HANDICAP ACCESS

SCALE: 1"=10'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1.12.9
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 11/13/08

KG

ADTEK ENGINEERS, INC.
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Frederick, Maryland 21701-5516
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CAPITAL PROJECT #: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane | Election District No. 5 | Howard County, Maryland

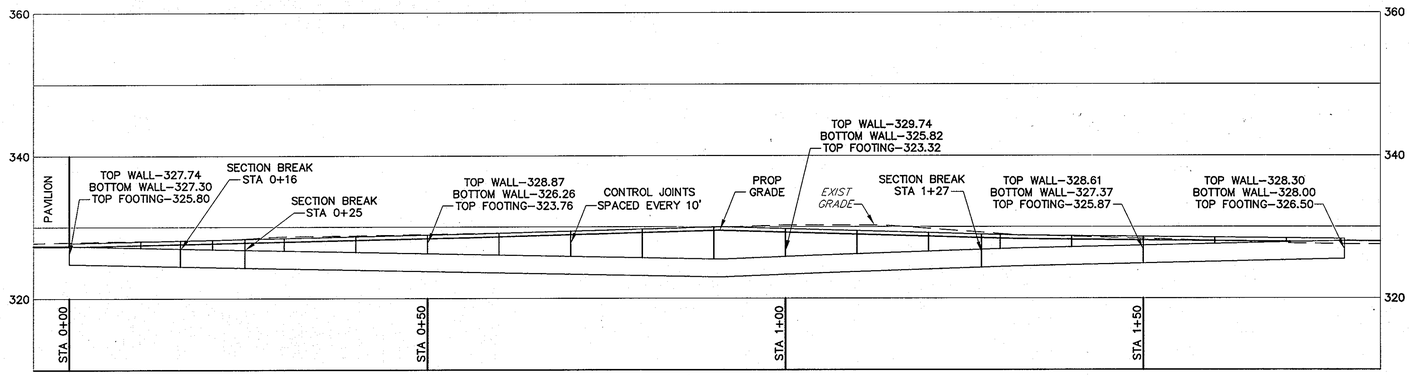
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

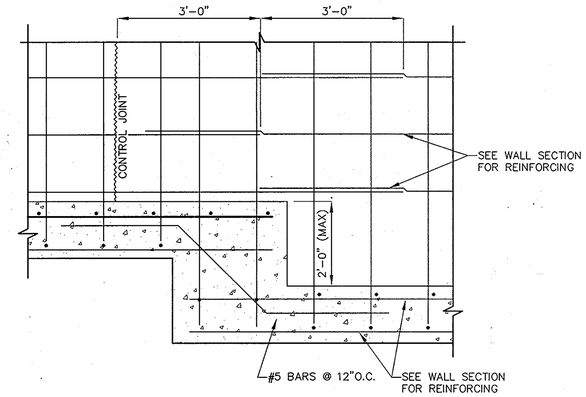
No.	Date	Description
1	6-1009	FIRE, NOTE CALL OUT

Job No.	SDP-09-02	KDL	Drawn
Scale	NTS	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title	Site Details	Drawing Number	C3.5
Sheet	11	Of	37

SDP-09-02

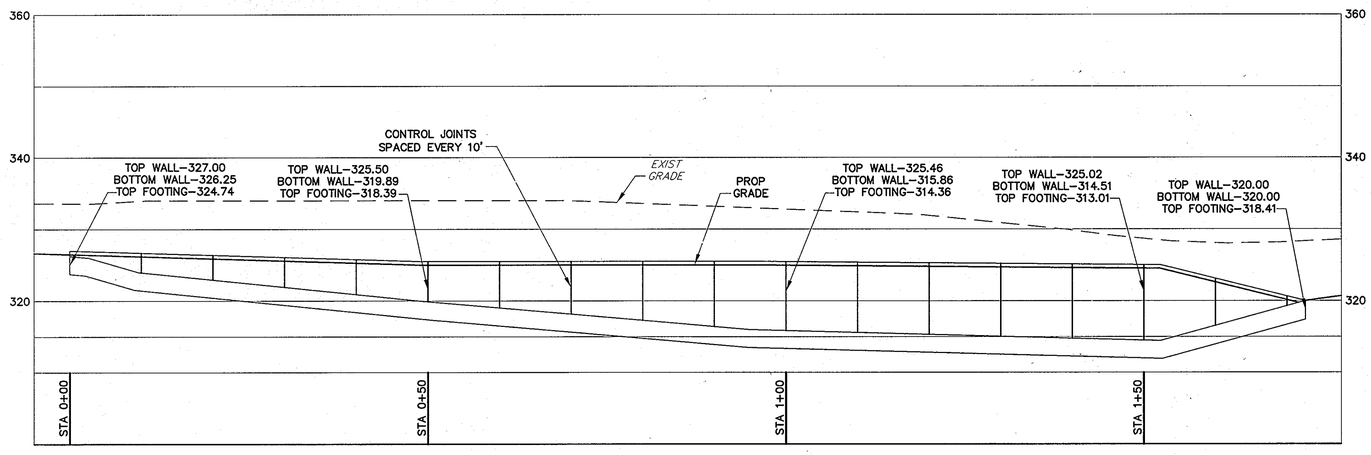


WALL # 1 NOT USED
SCALE: 1" = 10'

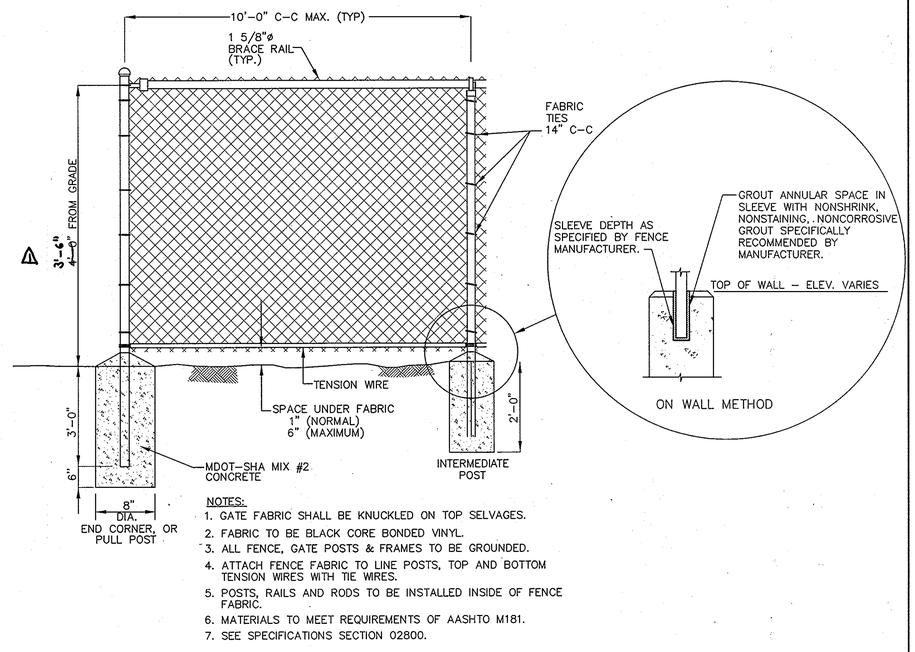


NOTE: ALTERNATE LAP SPLICES.

1 / C-3.6 **RETAINING WALL STEP AND WALL SPLICE**
NOT TO SCALE



WALL # 2
SCALE: 1" = 10'



NOTES:
1. GATE FABRIC SHALL BE KNUCKLED ON TOP SELVAGES.
2. FABRIC TO BE BLACK CORE BONDED VINYL.
3. ALL FENCE, GATE POSTS & FRAMES TO BE GROUNDED.
4. ATTACH FENCE FABRIC TO LINE POSTS, TOP AND BOTTOM TENSION WIRES WITH TIE WIRES.
5. POSTS, RAILS AND RODS TO BE INSTALLED INSIDE OF FENCE FABRIC.
6. MATERIALS TO MEET REQUIREMENTS OF AASHTO M181.
7. SEE SPECIFICATIONS SECTION 02800.

2 / C-3.6 **42" 48" HIGH CHAIN-LINK FENCE DETAIL**
NOT TO SCALE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edmondson CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-09
Cindy Franks CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09 KS
Thomas E. Butler DIRECTOR, DEP	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08
KS

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

Seal:

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524
EXPIRATION DATE: 19 JULY 2009

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
GWWO
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-337-1009

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OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT #: N39-60

Project Title
Robinson Nature Center
6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

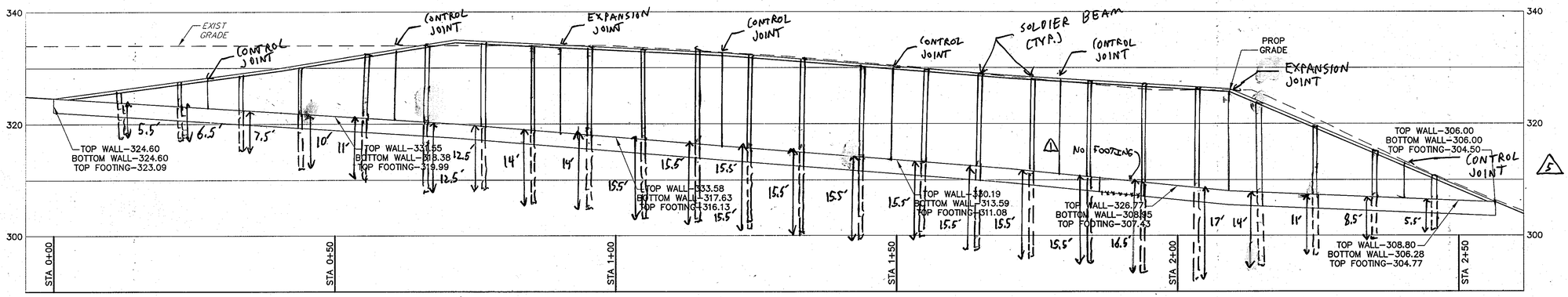
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

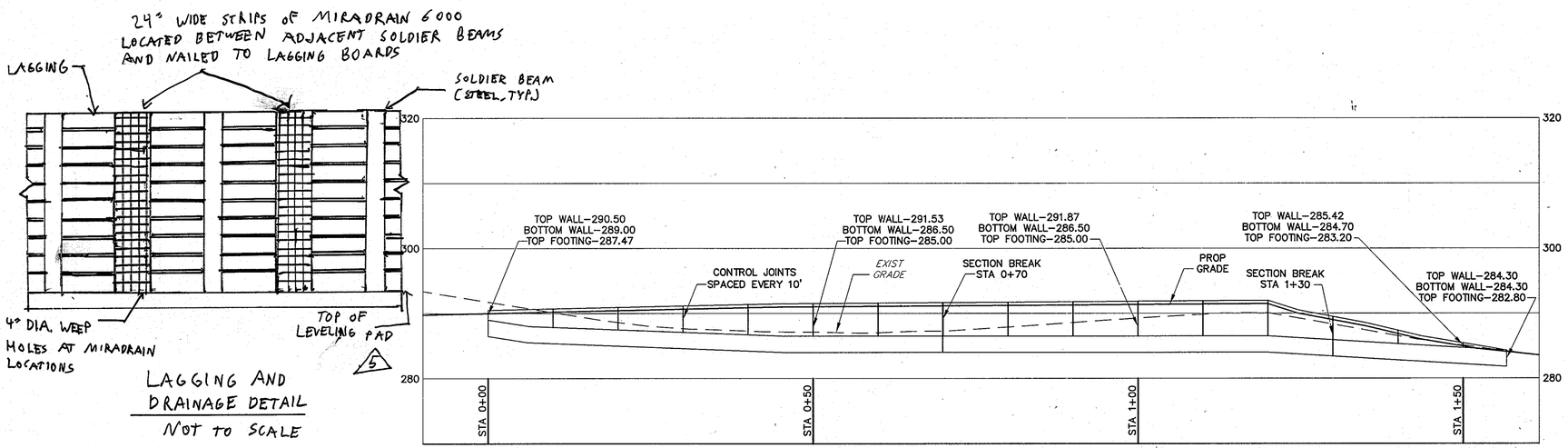
No.	Date	Description
1	6-1-09	SIZE, PROFILE NOT USED

Job No.	SDP-09-02	KDL	Drawn
Scale	AS SHOWN	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title	Wall Details Sheet	Drawing Number	C3.6
Sheet	12	Of	37

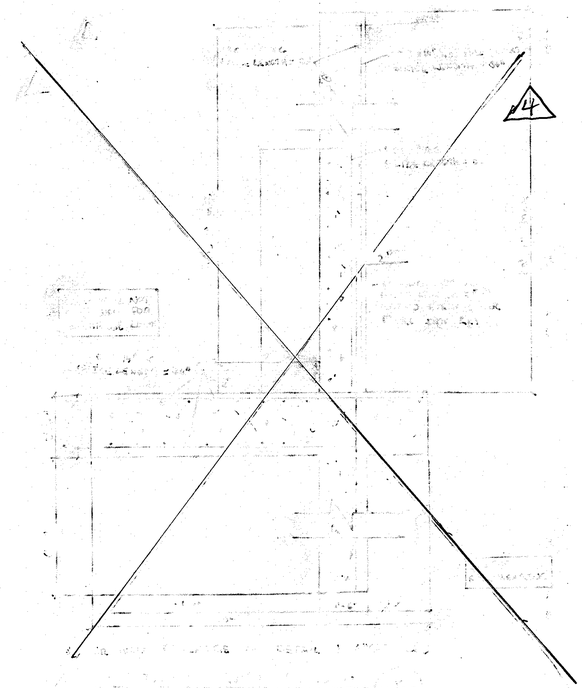
SDP-09-02



WALL # 3
SCALE: 1" = 10'



WALL # 4
SCALE: 1" = 10'



NOTE:
FOR WALLS > 10' CONTROL JOINTS SHALL BE SPACED 20'-25' APART
FOR WALLS < 10' CONTROL JOINTS SHALL BE SPACED 10' APART

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-9
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

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EXPIRATION DATE: 19 JULY 2009

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DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT #: N39-60

Project Title
Robinson Nature Center
6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

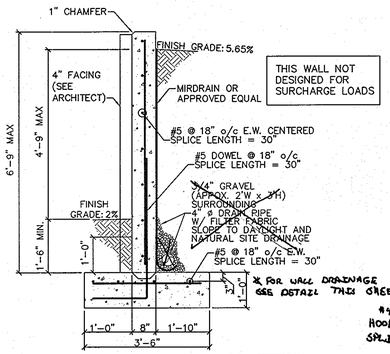
Tax Map 35 Parcel 87 Liber: 8997 Folio: 150

Revisions:

No.	Date	Description
1	5-1-09	DETAIL, FOOTING
2	4/8/10	REMOVE PER DPZ REQUEST
3	4/8/10	SHOW SOLDIER BEAMS

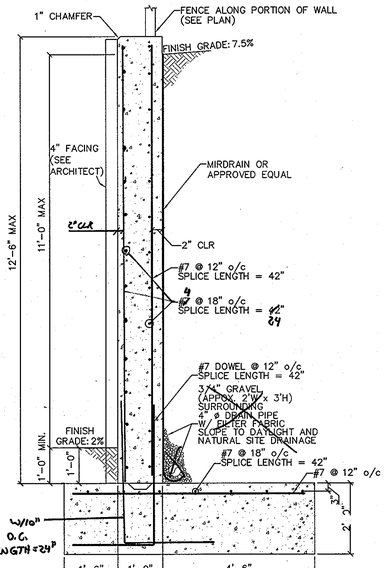
Job No.	SDP-09-02	KDL	Drawn
Scale	AS SHOWN	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title	Wall Details Sheet	Drawing Number	C3.7
Sheet	13	Of	37

SDP-09-02



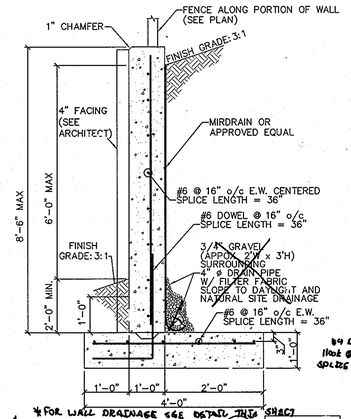
* FOR WALL DRAINAGE SEE DETAIL THIS SHEET

RETAINING WALL SECTION WALL #1 (A / C-3.8) — 3000 PSF SOIL BEARING



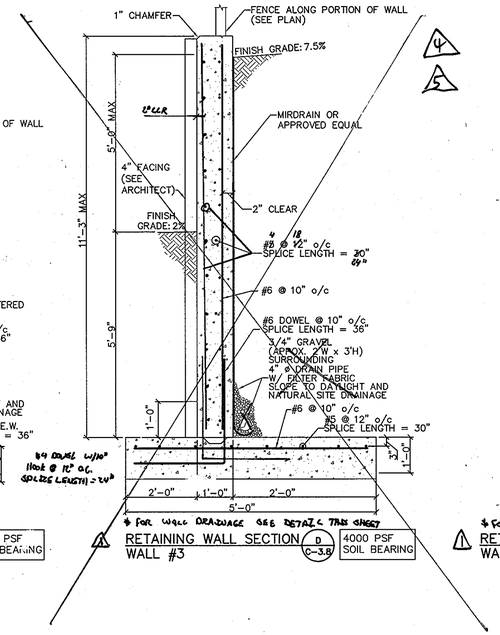
* FOR WALL DRAINAGE SEE DETAIL THIS SHEET

RETAINING WALL SECTION WALL #2 (B / C-3.8) — 4000 PSF SOIL BEARING



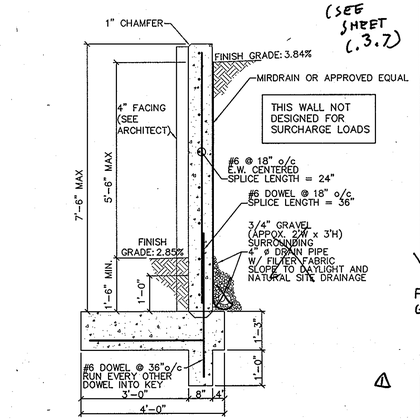
* FOR WALL DRAINAGE SEE DETAIL THIS SHEET

RETAINING WALL SECTION WALL #2 (C / C-3.8) — 4000 PSF SOIL BEARING



* FOR WALL DRAINAGE SEE DETAIL THIS SHEET

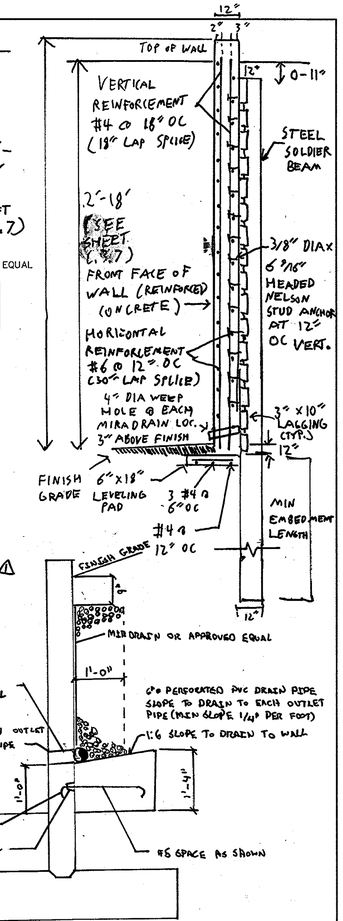
RETAINING WALL SECTION WALL #3 (D / C-3.8) — 4000 PSF SOIL BEARING

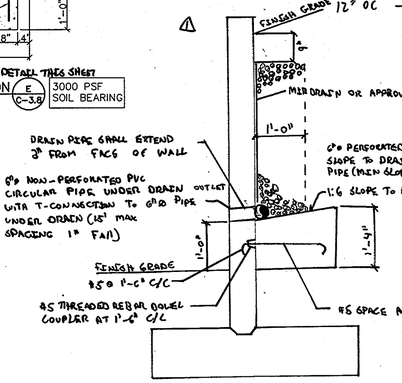


* FOR WALL DRAINAGE SEE DETAIL THIS SHEET

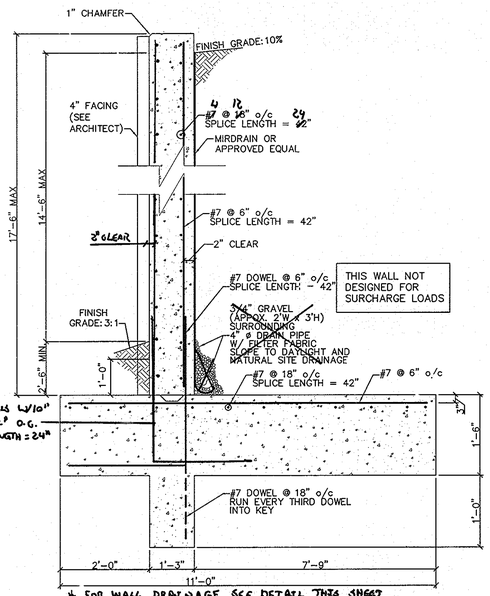
RETAINING WALL SECTION WALL #4 (E / C-3.8) — 3000 PSF SOIL BEARING

RETAINING WALL #3 TYPICAL SECTION N.T.S.



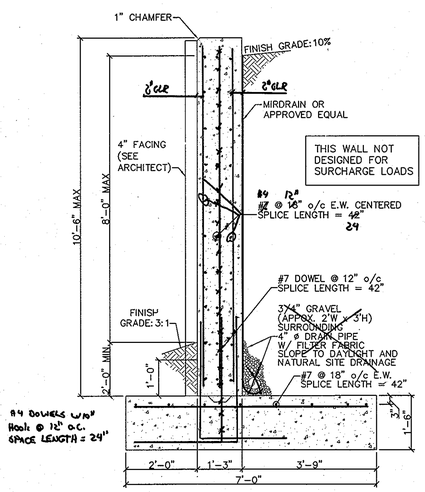


WALL DRAINAGE SYSTEM N.T.S. (K / C3.8)



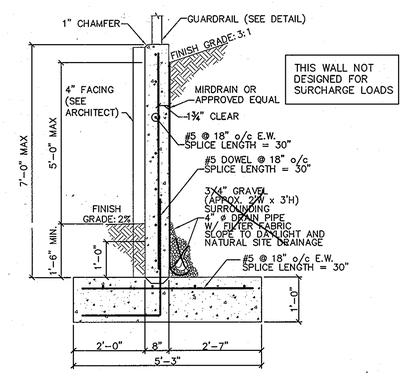
* FOR WALL DRAINAGE SEE DETAIL THIS SHEET

RETAINING WALL SECTION WALL #5 (F / C-3.8) — 3000 PSF SOIL BEARING



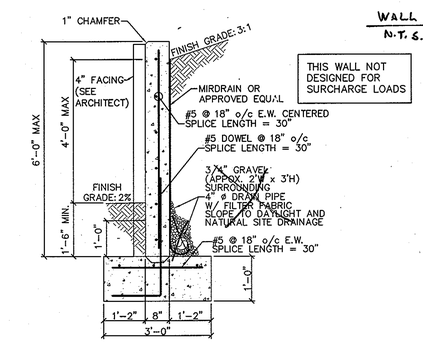
* FOR WALL DRAINAGE SEE DETAIL THIS SHEET

RETAINING WALL SECTION WALL #5 (G / C-3.8) — 3000 PSF SOIL BEARING



* FOR WALL DRAINAGE SEE DETAIL THIS SHEET

RETAINING WALL SECTION WALL #6 (H / C-3.8) — 3000 PSF SOIL BEARING



* FOR WALL DRAINAGE SEE DETAIL THIS SHEET

RETAINING WALL SECTION WALL #7 (J / C-3.8) — 3000 PSF SOIL BEARING

NOTES:

1. RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL OR EQUIVALENT) CERTIFIED SOILS TECHNICIAN.
2. THE REQUIRED BEARING PRESSURE BENEATH THE FOOTING OF THE WALL SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION. THE REQUIRED TEST PROCEDURE SHALL BE THE DYNAMIC CONE PENETROMETER TEST ASTM STP-399.
3. THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ONSITE SOILS TECHNICIAN. EACH EIGHT (8) INCH LIFT SHALL BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTER DENSITY AND THE TESTING REPORT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF CONSTRUCTION.
4. FOR "CRITICAL" WALLS, ONE SOIL BORING SHALL BE REQUIRED EVERY 100' ALONG THE ENTIRE LENGTH OF THE WALL. COPIES OF ALL BORING REPORTS SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-9
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/14/09
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

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CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

Seal: STEVEN M. WARWICK REGISTERED PROFESSIONAL ENGINEER NO. 26524 STATE OF MARYLAND

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND. LICENSE NUMBER: 26524 EXPIRATION DATE: 19 JULY 2009

GRIEVES WORRALL WRIGHT & OTHATNICK INCORPORATED
GWWO
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT #: N39-60

Project Title

Robinson Nature Center

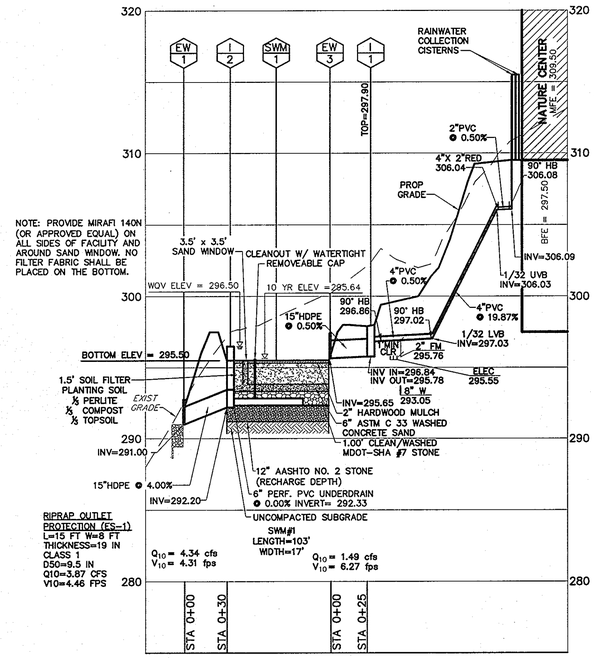
6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

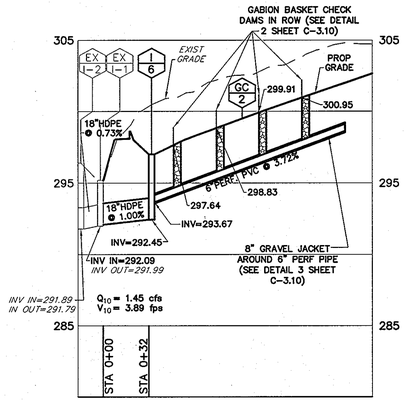
No.	Date	Description
1	5-1-09	DRAINAGE SYSTEM, REBAR
6	4/8/10	REVISE WALL #3 DETAIL

Job No.	SDP-09-02	KDL	Drawn
Scale	1" = 2'	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title	Wall Details Sheet	Drawing Number	C3.8
Sheet	14	Of	37



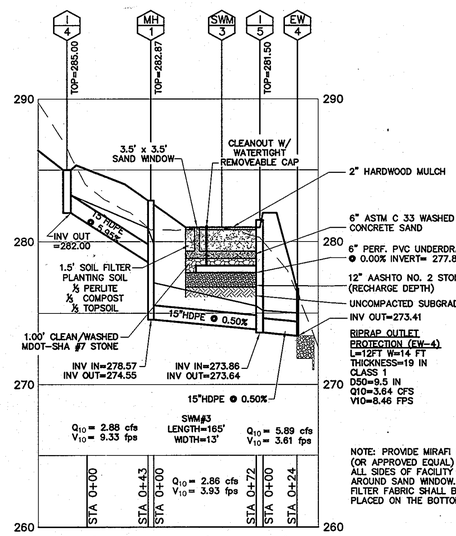
STORM DRAIN PROFILE (EW-1 TO CISTERN)

SCALE: 1" = 50'(HORIZ) 1" = 5'(VERT)



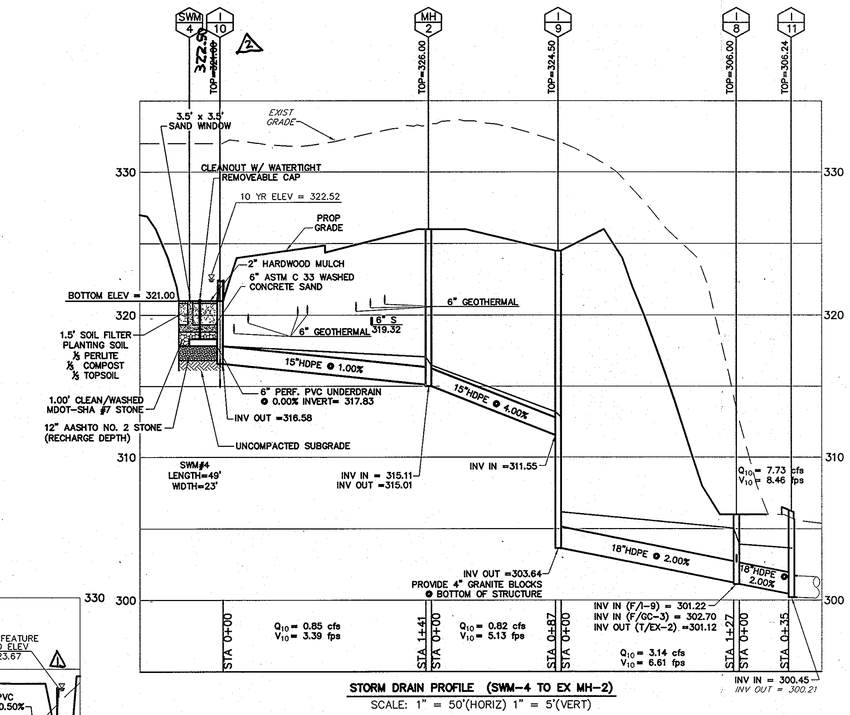
STORM DRAIN PROFILE (EX I-1 TO I-6)

SCALE: 1" = 50'(HORIZ) 1" = 5'(VERT)



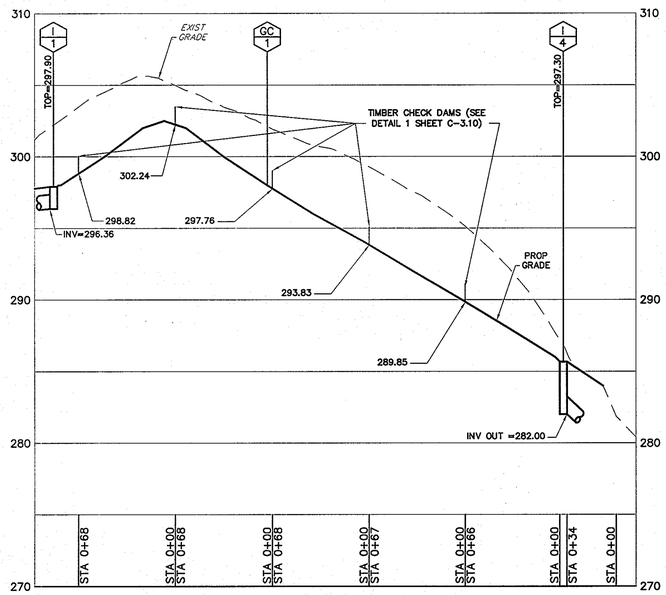
STORM DRAIN PROFILE (I-4 TO EW-4)

SCALE: 1" = 50'(HORIZ) 1" = 5'(VERT)



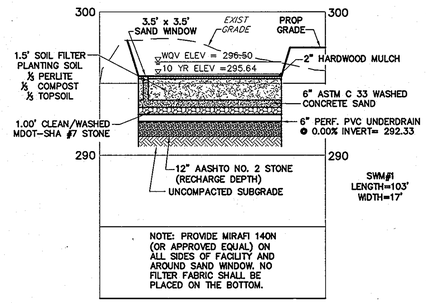
STORM DRAIN PROFILE (SWM-4 TO EX MH-2)

SCALE: 1" = 50'(HORIZ) 1" = 5'(VERT)



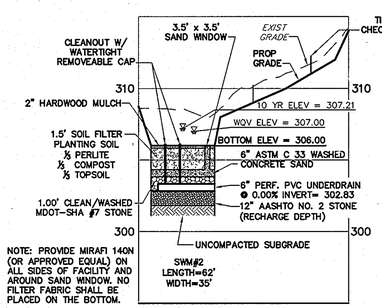
CENTERLINE SWALE FROM BUILDING PROFILE

SCALE: 1" = 50'(HORIZ) 1" = 5'(VERT)



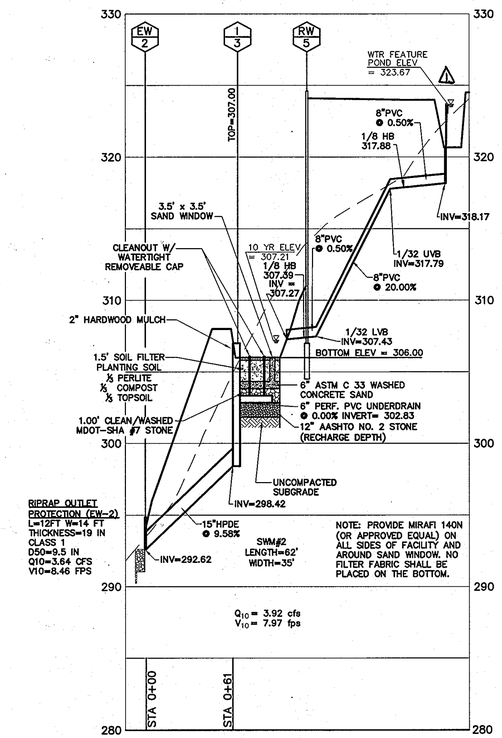
SWM #1 CROSS-SECTION PROFILE

SCALE: 1" = 50'(HORIZ) 1" = 5'(VERT)



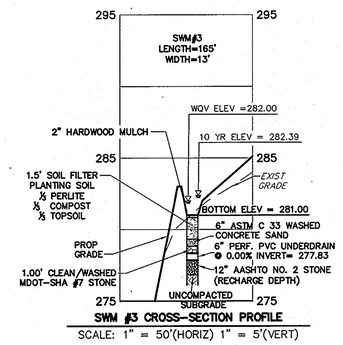
SWM #2 CROSS-SECTION PROFILE

SCALE: 1" = 50'(HORIZ) 1" = 5'(VERT)



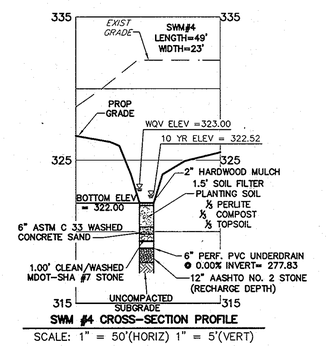
STORM DRAIN PROFILE (EW-2 TO WATER FEATURE)

SCALE: 1" = 50'(HORIZ) 1" = 5'(VERT)



SWM #3 CROSS-SECTION PROFILE

SCALE: 1" = 50'(HORIZ) 1" = 5'(VERT)



SWM #4 CROSS-SECTION PROFILE

SCALE: 1" = 50'(HORIZ) 1" = 5'(VERT)

OPEN CHANNEL MAINTENANCE SCHEDULE

ALL WORK TO BE PERFORMED BY THE OWNER – HOWARD COUNTY, DEPARTMENT OF PUBLIC WORKS.

OPEN CHANNEL SYSTEMS SHOULD BE MOWED AS REQUIRED DURING THE GROWING SEASON TO MAINTAIN GRASS HEIGHTS IN THE 4 TO 6 INCH RANGE.

SEDIMENT BUILD-UP WITHIN THE BOTTOM OF THE CHANNEL SHALL BE REMOVED WHEN 25% OF THE ORIGINAL WQv HAS BEEN EXCEEDED.

BIORETENTION MAINTENANCE SCHEDULE

1 ALL WORK TO BE PERFORMED BY THE OWNER – HOWARD COUNTY, DEPARTMENT OF PUBLIC WORKS.

TRASH AND ~~DBRIS~~ DEBRIS SHALL BE REMOVED AS NECESSARY

WHEN THE FILTERING CAPACITY OF THE FILTER DIMINISHES SUBSTATIALLY (E.G. WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS), THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REMOVED AND SHALL BE REPLACED WITH FRESH MATERIAL. THE REMOVED SEDIMENTS SHOULD BE DISPOSED IN AN ACCEPTABLE MANNER (EG. LANDFILL). SILT/SEDIMENT SHOULD BE REMOVED FROM THE FILTER BED WHEN THE ACCUMULATION EXCEEDS ONE INCH.

A DROP OF AT LEAST SIX INCHES SHALL BE PROVIDED AT THE INLET OF BIORETENTION FACILITIES (STONE DIAPHRAGM). DEAD OR DISEASED PLANT MATERIAL SHALL BE REPLACED. AREAS DEVOID OF MULCH ~~SHOLD~~ SHOULD BE RE-MULCHED ON AN ANNUAL BASIS. 1

DIRECT MAINTENANCE ACCESS SHALL BE PROVIDED AND MAINTAINED TO THE PRETREATMENT AREA AND THE FILTER BED.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 1/13/08

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CAPITAL PROJECT #: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane | Election District No. 5 | Howard County, Maryland

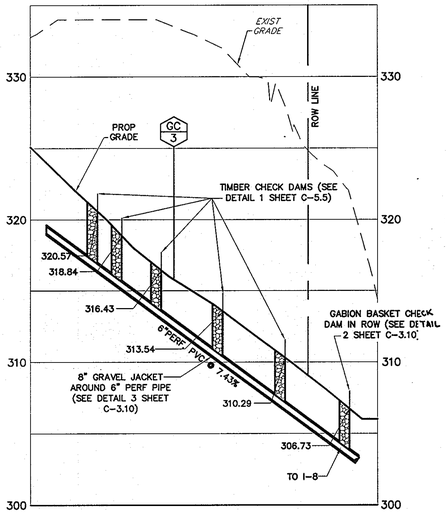
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	5-1-09	SPELLING, INLET
2	3-1-10	REVISE TOP ELEVATION

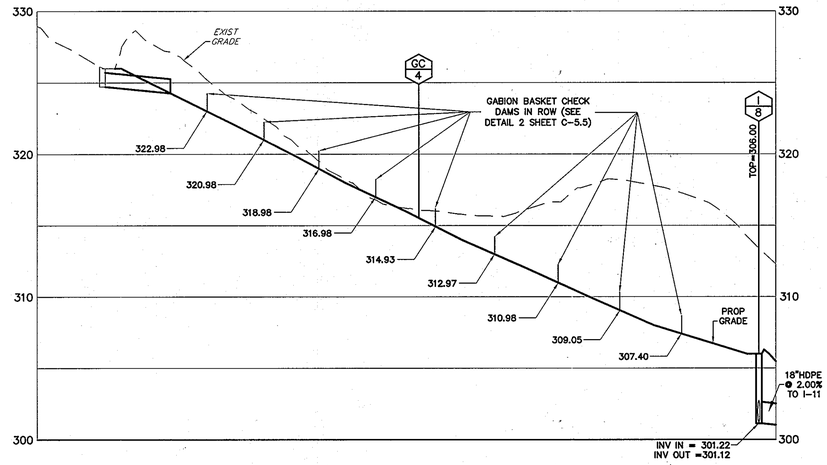
Job No.	SDP-09-02	KDL	Drawn
Scale	AS SHOWN	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title: Storm Drain Profiles		Drawing Number: C3.9	
Sheet	15	Of	37

SDP-09-02



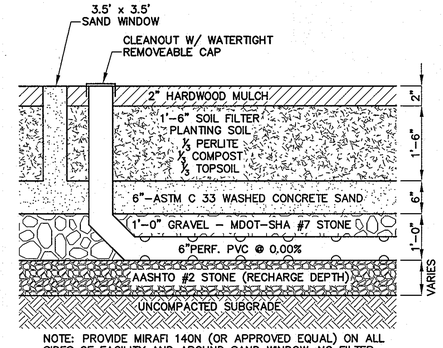
CENTERLINE GRASS CHANNEL 3

SCALE: 1" = 50'(HORIZ) 1" = 5'(VERT)



CENTERLINE GRASS CHANNEL 4

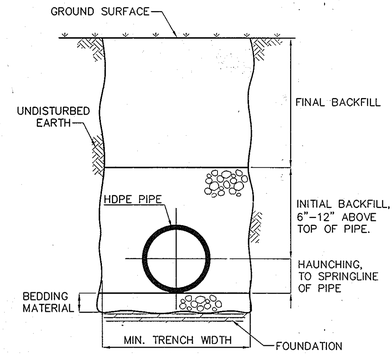
SCALE: 1" = 50'(HORIZ) 1" = 5'(VERT)



NOTE: PROVIDE MIRAFI 140N (OR APPROVED EQUAL) ON ALL SIDES OF FACILITY AND AROUND SAND WINDOW. NO FILTER FABRIC SHALL BE PLACED ON THE BOTTOM.

3 / C-3.10 **BIOFILTER - TYPICAL SECTION**

N.T.S



TYPICAL TRENCH CROSS SECTION

NOT TO SCALE

REFERENCE SECTION X-2, "RECOMMENDATIONS FOR INCORPORATION INTO CONTRACT DOCUMENTS" OF ASTM SPECIFICATION D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS".

NOTES:

1. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH A FOUNDATION OF CLASS I OR II MATERIAL AS DEFINED IN ASTM D2321, "STANDARD PRACTICE FOR INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS," LATEST EDITION; AS AN ALTERNATIVE AND AT THE DISCRETION OF THE ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A WOVEN GEOTEXTILE FABRIC.
2. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

   UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" FOR FOR 4"-24" AND 42"-48" CORRUGATED POLYETHYLENE PIPE (CPEP); 6" FOR 30"-36" CPEP.
3. HAUNCHING AND INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
4. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM TRENCH WIDTHS SHALL BE AS FOLLOWS:

NOMINAL ø in	MIN. RECOMMENDED TRENCH WIDTH, in
4	21
6	23
8	25
10	28
12	31
15	34
18	39
24	48
30	66
36	78
42	83
48	89
60	102

5. MINIMUM COVER: MINIMUM RECOMMENDED DEPTHS OF COVER FOR VARIOUS LIVE LOADING CONDITIONS ARE SUMMARIZED IN THE FOLLOWING TABLE. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TAKEN FROM THE TOP OF PIPE TO THE GROUND SURFACE.

SURFACE LIVE LOADING CONDITION	MINIMUM RECOMMENDED COVER, in
H25 (FLEXIBLE PAVEMENT)	12*
H25 (RIGID PAVEMENT)	12
E80 RAILWAY	24
HEAVY CONSTRUCTION	48

*TOP OF PIPE TO BOTTOM OF BITUMINOUS PAVEMENT SECTION

ON-SITE STORM DRAIN TRENCH INSTALLATION DETAIL

NOT TO SCALE

STORM DRAIN STRUCTURE SCHEDULE

STRUCTURE NO.	STRUCTURE TYPE	DIAMETER OR WIDTH*	STANDARD NO.	TOP/GRADE ELEVATION	INVERT IN	INVERT OUT	NORTHING	EASTING	REMARKS
I-1	STANDARD YARD INLET	2'-0"	HCDPW NO. SD-4.14	297.70	-----	296.36	554822.4674	1341904.5129	-----
I-2	STANDARD YARD INLET	2'-0"	HCDPW NO. SD-4.14	296.50	-----	292.17	554829.5893	1341807.9702	-----
I-3	STANDARD YARD INLET	2'-0"	HCDPW NO. SD-4.14	307.00	-----	298.42	554932.1270	1342113.6390	-----
I-4	STANDARD YARD INLET	2'-0"	HCDPW NO. SD-4.14	285.00	-----	282.00	554509.8613	1341926.7880	-----
I-5	STANDARD YARD INLET	2'-0"	HCDPW NO. SD-4.14	281.50	273.86	275.00	554393.2260	1341963.5586	-----
I-6	TYPE 'K' INLET	2'-0"	HCDPW NO. SD 4.12	297.00	293.67	292.43	554392.3184	1342428.9279	-----
I-8	TYPE 'K' INLET	2'-0"	HCDPW NO. SD 4.12	306.00	F/I-9 301.22 F/GC-3 302.70	301.12	554619.8108	1342521.8784	-----
I-9	STANDARD YARD INLET	2'-0"	HCDPW NO. SD-4.14	324.50	311.55	303.64	554714.7504	1342441.0949	-----
I-10	STANDARD YARD INLET	2'-0"	HCDPW NO. SD-4.14	322.50 ~~321.00~~ 2	-----	316.58	554725.5907	1342221.0605	-----
I-11	STANDARD COG INLET	5'-0"	MD SHA STD NO. 374.62	306.24	300.45	300.21	554583.1473	1342533.9906	-----
MH-1	PRECAST MANHOLE	48" DIA.	HCDPW NO. G-5.11	282.87	278.57	274.55	554452.0791	1341915.5502	STANDARD 48"ø PRECAST MANHOLE, TYPE 'A'
MH-2	PRECAST MANHOLE	48" DIA.	HCDPW NO. G-5.11	326.00	315.11	315.01	554759.4912	1342362.4059	STANDARD 48"ø PRECAST MANHOLE, TYPE 'A'
EW-1	STANDARD "TYPE A" HEADWALL	2'-0"	HCDPW NO. SD-5.11	-----	-----	292.00	554860.7096	1341799.0441	-----
EW-2	STANDARD "TYPE A" HEADWALL	2'-0"	HCDPW NO. SD-5.11	-----	-----	292.62	554990.2559	1342089.2270	-----
EW-3	STANDARD "TYPE A" HEADWALL	2'-0"	HCDPW NO. SD-5.11	-----	-----	296.00	554831.5645	1341877.7598	-----
EW-4	STANDARD "TYPE A" HEADWALL	2'-0"	HCDPW NO. SD-5.11	-----	-----	273.41	554364.7361	1341964.6289	-----

PIPE SCHEDULE

SIZE	TYPE	SCH/CL.	LENGTH (LF)
15"	HDPE	----	1053'
18"	HDPE	----	184'
12"	ALCMP	TYPE 2	38'

*CONTRACTOR TO VERIFY ALL QUANTITIES PRIOR TO ORDERING.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-9
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 11/13/08

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SCD DATE

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

Seal:

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524 EXPIRATION DATE: 19 JULY 2009

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
G|W W|O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT #: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane | Election District No. 5 | Howard County, Maryland

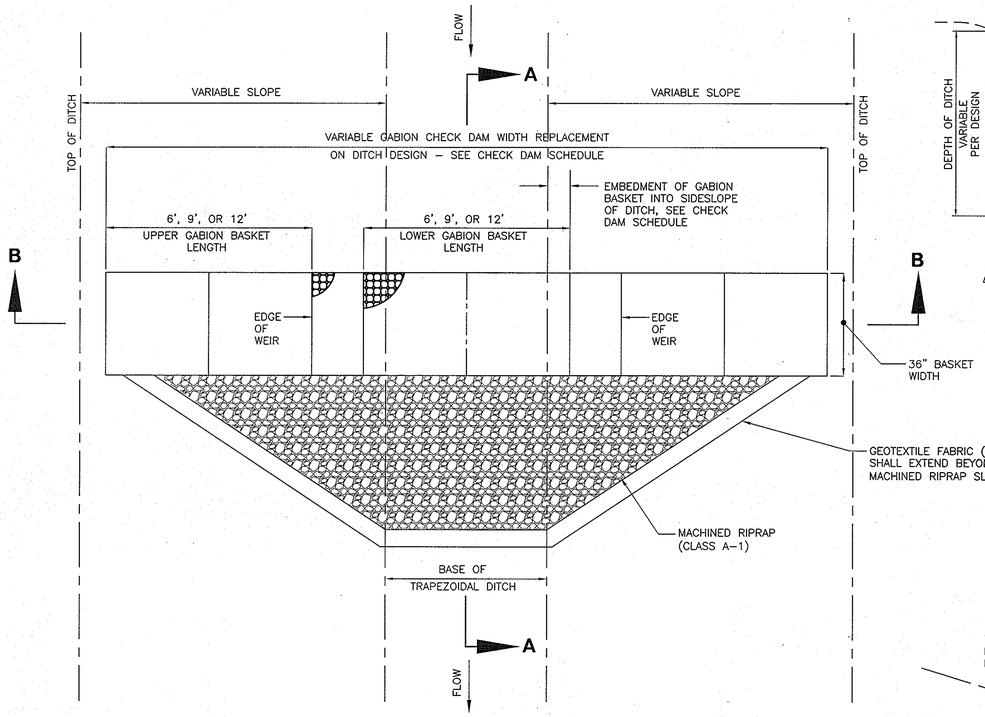
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

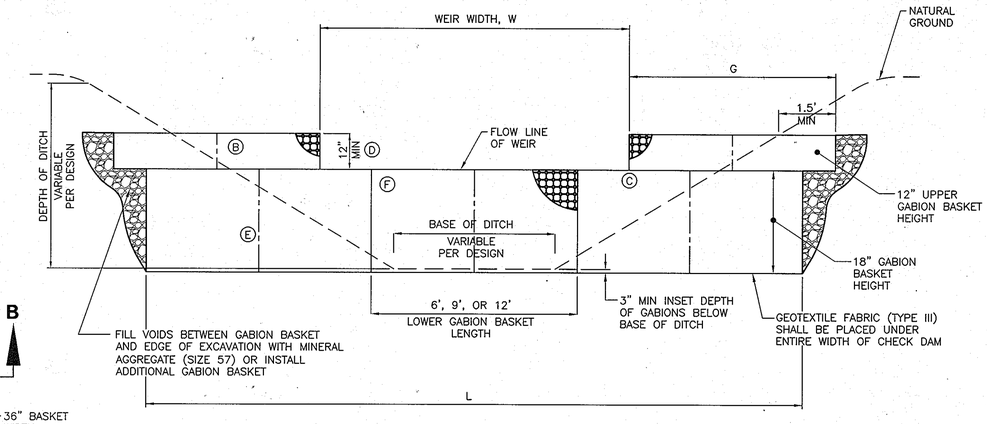
No.	Date	Description
2	3-1-10	REVISE TOP ELEVATION

Job No.	SDP-09-02	KDL	Drawn
Scale	AS SHOWN	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title: Storm Drain Profiles		Drawing Number: C3.10	
Sheet	16	Of	37

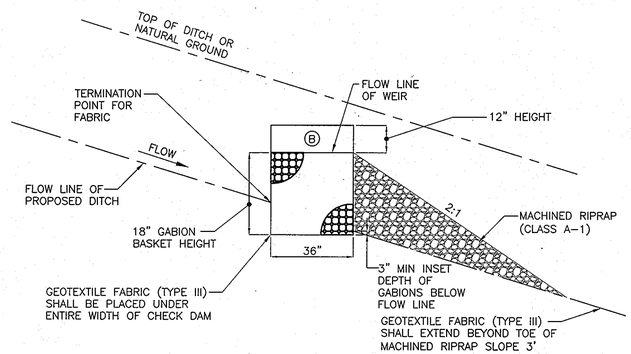
SDP-09-02



PLAN VIEW

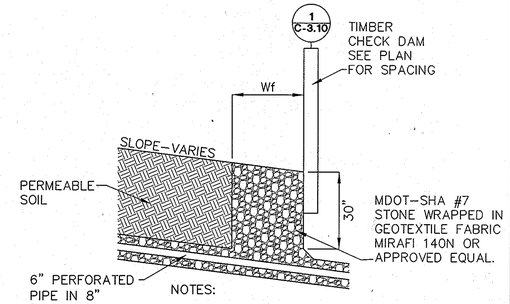


SECTION B-B



SECTION A-A

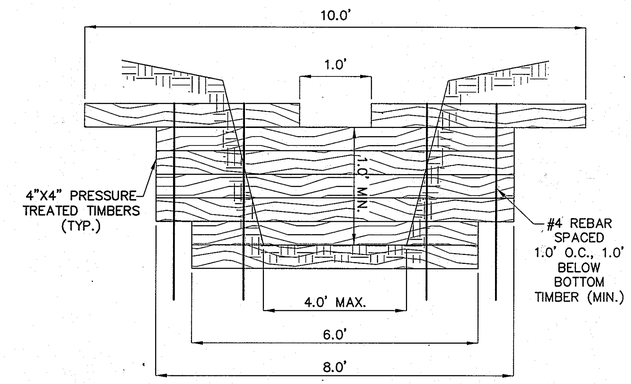
AT WEIR



NOTES:

1. PERFORATED PIPE TO FOLLOW THE CENTERLINE OF THE GRASS CHANNEL.
2. Wf FOR GC–2 = 5'
   Wf FOR GC–3 = 7'

2 / C-3.10 GRASS CHANNEL WITH UNDERDRAIN DETAIL
N.T.S



1 / C-3.10 TYPICAL GRASS SWALE SECTION WITH TIMBER CHECK DAMS
N.T.S

CHECK DAM SCHEDULE

UPPER GABION ROW, 12–INCH GABION HEIGHT

BOTTOM WIDTH OF DITCH, IN FEET	SIDESLOPE OF DITCH	MIN. LENGTH OF GABIONS, G (ONE PER SIDE)(UPPER ROW), IN FEET	LOWER EMBEDMENT LENGTH FOR UPPER GABIONS, IN FEET	UPPER EMBEDMENT LENGTH FOR UPPER GABIONS, IN FEET	NOTES
4	3:1	6	4.5	1.5	GC–2
7	3:1	6	4.5	1.5	GC–4

LOWER GABION ROW, 18–INCH GABION HEIGHT

BOTTOM WIDTH OF DITCH, IN FEET	SIDESLOPE OF DITCH	MIN. LENGTH OF GABIONS, L (LOWER ROW), IN FEET	LOWER EMBEDMENT LENGTH, IN FEET	✱UPPER EMBEDMENT LENGTH, IN FEET	NOTES
4	3:1	15	5.5	1.75	GC–2
7	3:1	15	4	.25	GC–4

UPPER GABION ROW, WEIR LENGTHS & ALLOWABLE FLOW RATES, 12–INCH GABION HEIGHT

BOTTOM WIDTH OF DITCH, IN FEET	SIDESLOPE OF DITCH	RECTANGULAR WEIR WIDTH, W IN FEET	ALLOWABLE FLOW (cfs) FOR 12–INCH UPPER GABION HEIGHT	----	NOTES
4	3:1	8.5	11.3	----	GC–2
7	3:1	11.5	15.7	----	GC–4

✱ ASSUMING 3 INCH EMBEDMENT DEPTH AT BASE OF GABION

GABION CHECK DAM GENERAL NOTES

(A) GABION CHECK DAMS ARE USED FOR VELOCITY REDUCTION AND EROSION PREVENTION IN AREAS WHERE CONCENTRATED FLOWS EXIST. GABION CHECK DAMS ARE NOT TO BE USED FOR SEDIMENT CONTROL AND SHOULD NOT BE CONSIDERED A SEDIMENT TRAPPING DEVICE. GABION CHECK DAMS SHALL NOT BE USED IN STREAMS OR OTHER NATURAL WATER RESOURCES.

(B) HEIGHT OF UPPER GABION SHALL BE OF EQUAL OR LESSER HEIGHT THAN LOWER GABION AND SHALL NOT EXCEED 18".

(C) VERTICAL JOINTS OF GABION BASKETS SHALL BE STAGGERED.

(D) SIZE WEIR TO CONTAIN THE 2–YEAR, 24–HOUR STORM, CONTAIN DESIGN DISCHARGE WITHIN WEIR STRUCTURE WHERE POSSIBLE. FOR SITES WHICH DRAIN TO HIGH–QUALITY OR SEDIMENT–IMPAIRED STREAMS, THE WEIR SHALL BE SIZED TO CONTAIN THE 5–YEAR, 24–HOUR STORM.

(E) DIAPHRAGMS SEPARATE INDIVIDUAL GABION CELLS.

(F) BASKET–TO–BASKET CONNECTIONS SHALL BE AS DIRECTED ON CHECK DAM SCHEDULE.

(G) THE DRAINAGE AREA FOR THE GABION CHECK DAM SHALL BE 35 ACRES OR LESS.

(H) SEE CHECK DAM SCHEDULE FOR ADDITIONAL DETAILS AND GENERAL NOTES NOT SHOWN ON THIS DRAWING.

OPEN CHANNEL MAINTENANCE SCHEDULE

ALL WORK TO BE PERFORMED BY THE OWNER – HOWARD COUNTY, DEPARTMENT OF PUBLIC WORKS.

OPEN CHANNEL SYSTEMS SHOULD BE MOWED AS REQUIRED DURING THE GROWING SEASON TO MAINTAIN GRASS HEIGHTS IN THE 4 TO 6 INCH RANGE.

SEDIMENT BUILD–UP WITHIN THE BOTTOM OF THE CHANNEL SHALL BE REMOVED WHEN 25% OF THE ORIGINAL WQv HAS BEEN EXCEEDED.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards — CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-9
Cindy Hess — CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/12/09 VS
Thomas G. Butler — DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08
VS

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SCD — DATE

Seal:

STATE OF MARYLAND — SHAWN PATRICK BOURGEOIS — No. 25524 — PROFESSIONAL ENGINEER

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 25524 EXPIRATION DATE: 19 JULY 2009

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
GWWO
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT #: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

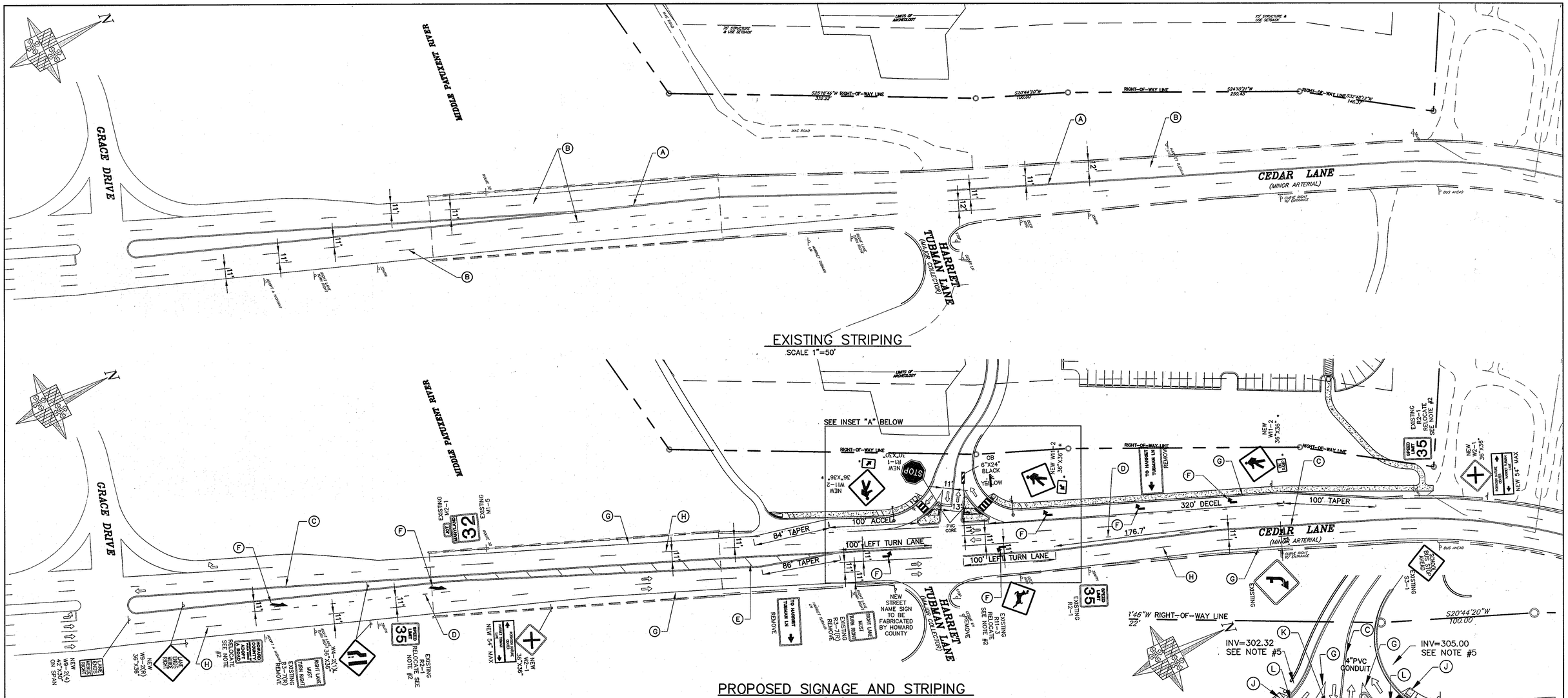
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description

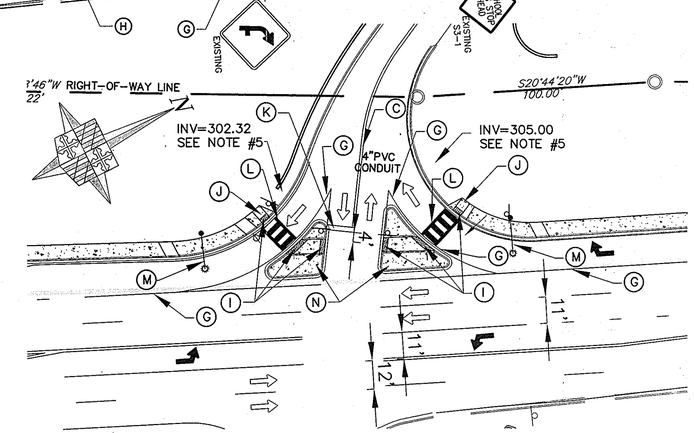
Job No.	SDP-09-02	KDL	Drawn
Scale	AS SHOWN	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title	Storm Drain & Check Dam Details	Drawing Number	C3.11
Sheet	17	Of	37

SDP-09-02



EXISTING STRIPING
SCALE 1"=50'

PROPOSED SIGNAGE AND STRIPING
SCALE 1"=50'



INSET "A"
SCALE 1"=30'

NOTES:

1. SIGN POSTS:

ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) – 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

2. ALL SIGN LOCATIONS, NEW MARKINGS AND MARKING REMOVAL SHALL BE APPROVED BY HOWARD COUNTY TRAFFIC DIVISION PRIOR TO ANY INSTALLATION (410-313-5752)

3. ALL EXISTING MARKINGS TO BE REMOVED BY GRINDING, MARKERS ON BRIDGE CHECK WITH TRAFFIC DIVISION PRIOR TO REMOVAL.

4. PROVIDE NEW SIGNAGE POST FOR ALL SIGNS SHOWN ON THIS PLAN AS "RELOCATE". U.N.O.

5. 4" PVC CONDUIT SLEEVE FOR STREET LIGHT POWER, 24" BELOW PAVEMENT SURFACE, CONTACT TRAFFIC DIVISION FOR BGE LOCATORS TO BE PLACED IN THE GROUND.

CAUTION: IF THIS DRAWING IS A REDUCTION, GRAPHIC SCALE MUST BE USED (ORIGINAL SIZE = 30"x 42")

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

PAVEMENT MARKING LEGEND:

A. REMOVE DOUBLE SOLID YELLOW LINE
B. REMOVE 5" BROKEN WHITE LINE
C. 5" DOUBLE YELLOW LINE
D. 5" BROKEN WHITE LINE (3' PAINT – 9" SPACE)
E. 12" SOLID YELLOW LINE (HATCHING DISTANCE IS EQUAL SPACED=35')
F. SOLID WHITE THERMOPLASTIC LANE ARROW (TYP.) MUTCD 3B-21 STANDARD
G. 5" WHITE EDGE LINE
H. 5" BROKEN WHITE LINE (10' PAINT – 30' SPACE)
I. DETECTABLE WARNING SURFACE (DETAIL 5 – SHEET C-3.5)
J. HANDICAP RAMP (DETAIL 5 – SHEET C-3.5)
K. 24" SOLID WHITE THERMOPLASTIC STOPBAR
L. CROSS WALK SEE HOWARD COUNTY VOLUME IV DESIGN MANUAL DETAIL R 9.02
M. STREET LIGHT
N. STAMPED BRICK PATTERN PAINTED RED. NOT IN THE PEDESTRIAN AREAS.

* SIGN TO BE FYG IN COLOR

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/12/09
DIRECTOR, DEP	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

Seal:

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524
EXPIRATION DATE: 19 JULY 2009

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
GWWO
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
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9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
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CAPITAL PROJECT #: N39-60

Project Title
Robinson Nature Center

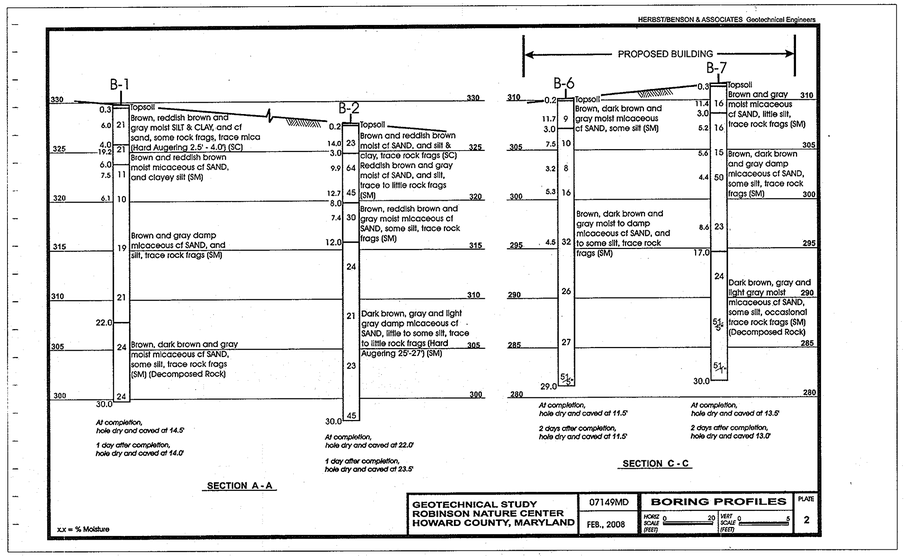
6692 Cedar Lane | Election District No. 5 | Howard County, Maryland

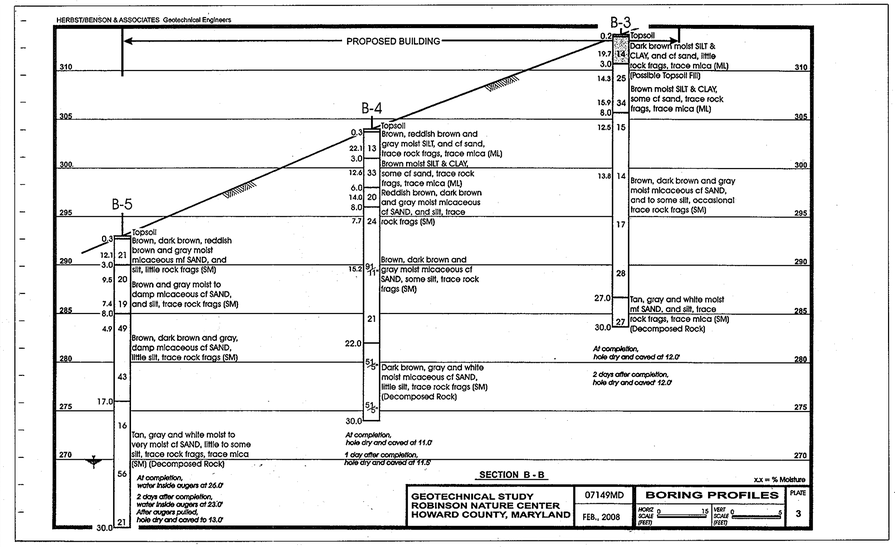
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

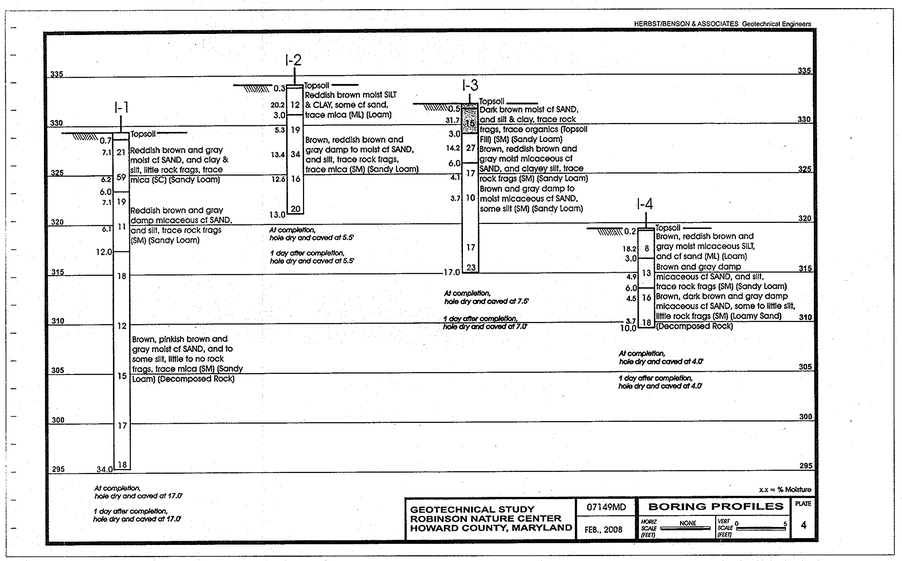
Revisions:

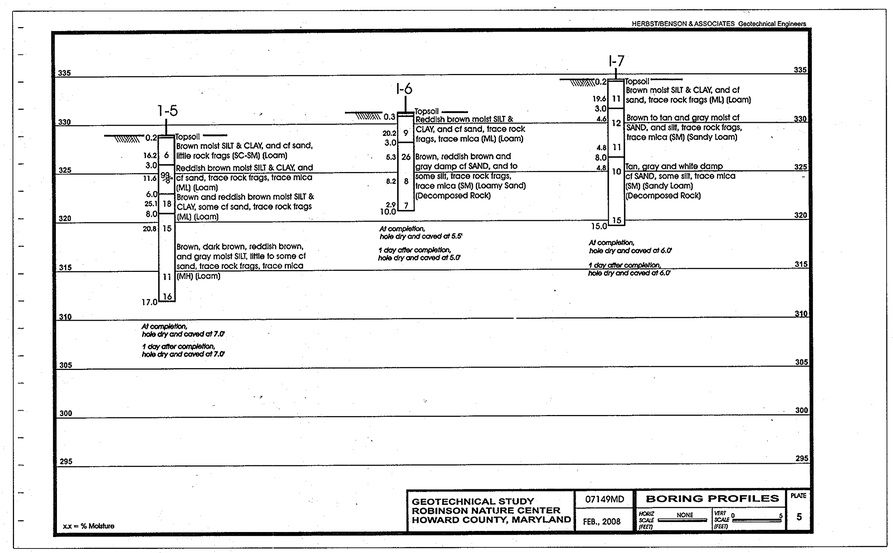
Job No.	SDP-09-02	KDL Drawn
Scale	1"=50'	SPB Checked
Date	December 29, 2008	SPB Approved
Drawing Title	Sign & Striping Plan	Drawing Number C3.12
Sheet	18	Of 37

SDP-09-02









ADTEK ENGINEERS, INC.
'97 Monocacy Boulevard Unit H, Frederick, Maryland 21701 Telephone: 301-662-4408 Facsimile: 301-662-7484

Field Inspection/Engineering Report

Date of Inspection: 10-03-08

Project : **Robinson Nature Center**

Location: 6692 Cedar Lane
Columbia, MD 21045

Description of Request:

Perform Soil Boring with Hand Auger for Boring Location I-0 to a depth of 6 feet.

Response:

Boring with a hand auger to a depth of 6 feet at location I-0. The first 2' of depth was a brown, topsoil layer soil. At 2' depth the soil changed to a reddish clay soil with no moisture. At the 3.5' depth, the soil remained a reddish clay, but the moisture in the soil increased slightly causing the soil sample to be compacted. The boring was dug to a depth of 6' and the soil remained as reddish clay with slight moisture content. The boring hole was checked after 15 minutes for water seepage and none was discovered. Nor was any rock encountered at the bottom of the boring.

Inspection Performed By: John Berkey, Kevin Lee

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1-12-09

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/12/09

DIRECTOR, DEP. — DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 11/13/08

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REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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HOWARD SCD — DATE

Seal:

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EXPIRATION DATE: 19 JULY 2009

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HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT #: N39-60

Project Title
Robinson Nature Center
6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

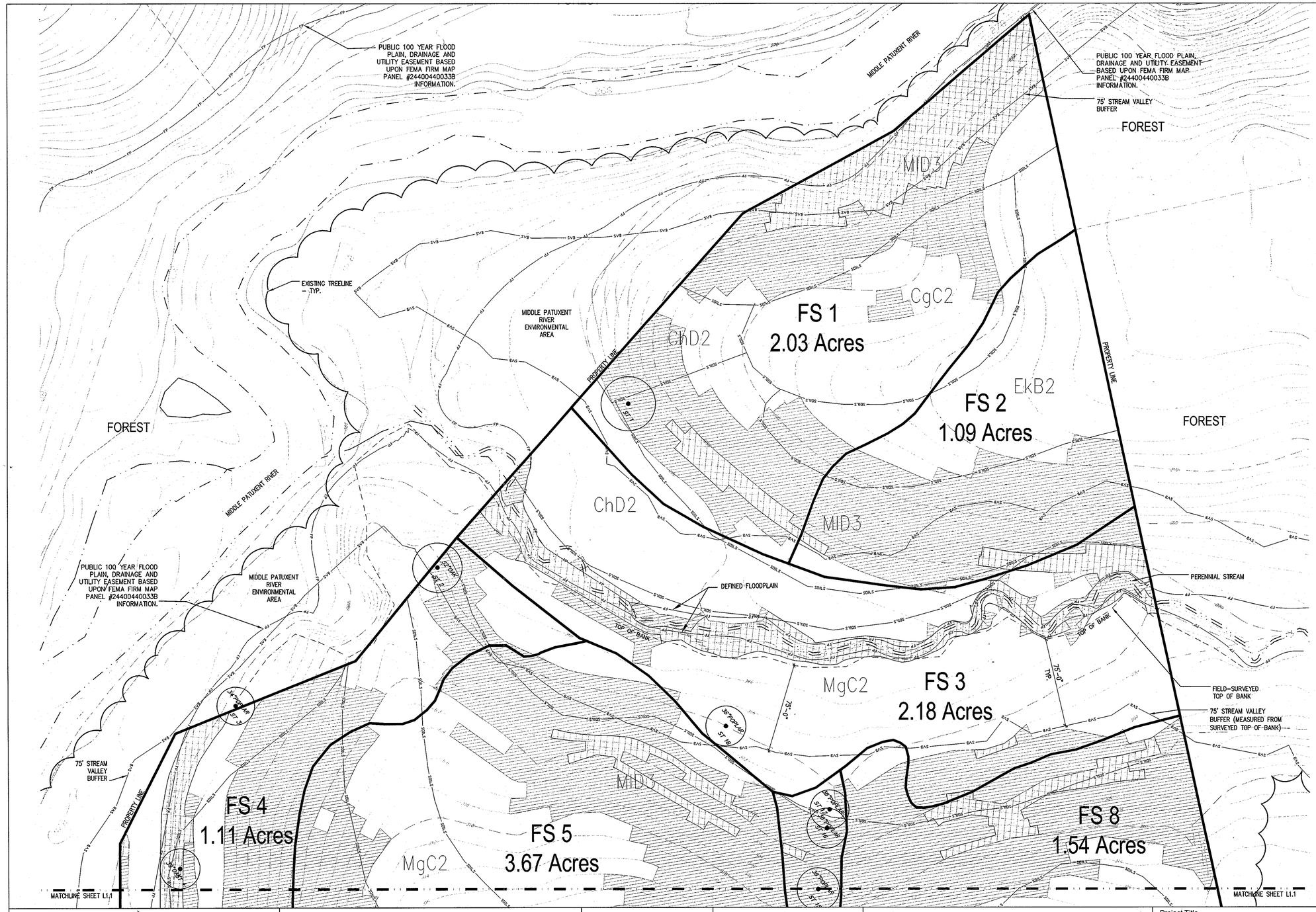
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description

Job No.	SDP-09-02	KDL	Drawn
Scale	NONE	SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title	Soil Boring Logs	Drawing Number	C5.1
Sheet	19	Of	37

SDP-09-02



Forest Stand Delineation Notes

1. Forest Stand fieldwork completed on June 1, 2007.
2. Forest limits and stand boundaries taken from Howard County aerial photography.
3. There are no known occurrences of any rare, threatened, or endangered species on or in the immediate vicinity of this site.
4. There are no hydric soils and/or non-tidal wetlands on or immediately adjacent to this site.
5. The historic Simpsonville Mill site is located immediately across Cedar Lane from this site. A mill race associated with this site is located along the southwestern boundary of this site.
6. Specimen trees are survey located on the south side of the on-site stream, the specimen tree on the north side is an estimated location.
7. All specimen trees are shown with a Critical Root Zone (CRZ) of one inch radius per inch diameter breast height (DBH).
8. Specimen trees 7 and 13 are located off-site but immediately adjacent to this site with CRZ extension onto this site.
9. There are no State or County Champion Trees on this site.
10. For Forest Stand Description tables, see Sheet L1.1.

Specimen Tree Table

Specimen Tree (ST) #	Common Name	Botanical Name	Size DBH	Condition
1	Tuliptree	*Liriodendron tulipifera*	38"	Good
2	Red Oak	*Quercus rubra*	39"/29"	Good
3	Tuliptree	*Liriodendron tulipifera*	32"	Exc.
4	Red Oak	*Quercus rubra*	34"	Good
5	Green Ash	*Fraxinus pennsylvanicus*	30"	Fair
6	Tuliptree	*Liriodendron tulipifera*	31"	Exc.
7	Tuliptree	*Liriodendron tulipifera*	34"	Exc.
8	Tuliptree	*Liriodendron tulipifera*	36"	Exc.
9	Tuliptree	*Liriodendron tulipifera*	38"	Good
10	Tuliptree	*Liriodendron tulipifera*	34"	Exc.
11	Tuliptree	*Liriodendron tulipifera*	31"	Good
12	Tuliptree	*Liriodendron tulipifera*	35"	Exc.
13	Tuliptree	*Liriodendron tulipifera*	34"	Exc.
14	Tuliptree	*Liriodendron tulipifera*	34"	Exc.
15	Tuliptree	*Liriodendron tulipifera*	36"	Exc.
16	Tuliptree	*Liriodendron tulipifera*	34"	Exc.
17	Tuliptree	*Liriodendron tulipifera*	33"	Exc.
18	Tuliptree	*Liriodendron tulipifera*	32"	Exc.

NOTE: SEE FCP (SHEETS 22 & 23) FOR INFORMATION REGARDING SPECIMEN TREES TO REMAIN IN PLACE.

Soils Table

Map Symbol	Soil Type	Woodland Suitability Group	K Factor	Typical Forest Cover
CgC2	Chester gravelly silt loam	30	0.28	Oaks and other upland hardwoods
ChD2	Chester silt loam	31	0.32	
EkB2	Elioak silt loam	30	0.32	Mixed hardwoods, mainly oaks
EkC3	Elioak silty clay loam	30	0.28	
MgB2	Manor gravelly loam	43	0.37	Mixed upland hardwoods, mainly oaks
MgC2	Manor gravelly loam	43	0.37	
MID3	Manor loam	44	0.37	
MnD	Manor very stony loam	44	0.32	
MnF	Manor very stony loam	45	0.32	

MAP DATA PROVIDED BY: ADC HOWARD COUNTY MAP.

MAP KEY

SLOPES 15% – 24.99%

SLOPES 25% AND GREATER

FP = FLOODPLAIN
SVB = STREAM VALLEY BUFFER

SITE ANALYSIS DATA:

SITE ACREAGE:	18.40	Acres
FLOODPLAIN:	0.39	Acres
STEEP SLOPES AREA:	1.63	Acres
NET TRACT AREA:	16.38	Acres
FOREST COVER: (MINUS FLOODPLAIN AREA)	16.83	Acres

0 40 80 120

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1·12·9
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

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ARCHITECTURE LANDSCAPE ARCHITECTURE PLANNING INTERIOR DESIGN
ADTEK ENGINEERS, INC.
CIVIL, STRUCTURAL & GEOTECHNICAL ENGINEERING
97 Monocacy Drive, Unit H
Frederick, Maryland 21701-5516
Phone: 301-662-4408 Fax: 301-662-7484
www.adtekengineers.com

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SCD DATE

Seal:

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524 , EXPIRATION DATE: 19 JULY, 2009.

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
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W | O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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CAPITAL PROJECT NUMBER: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

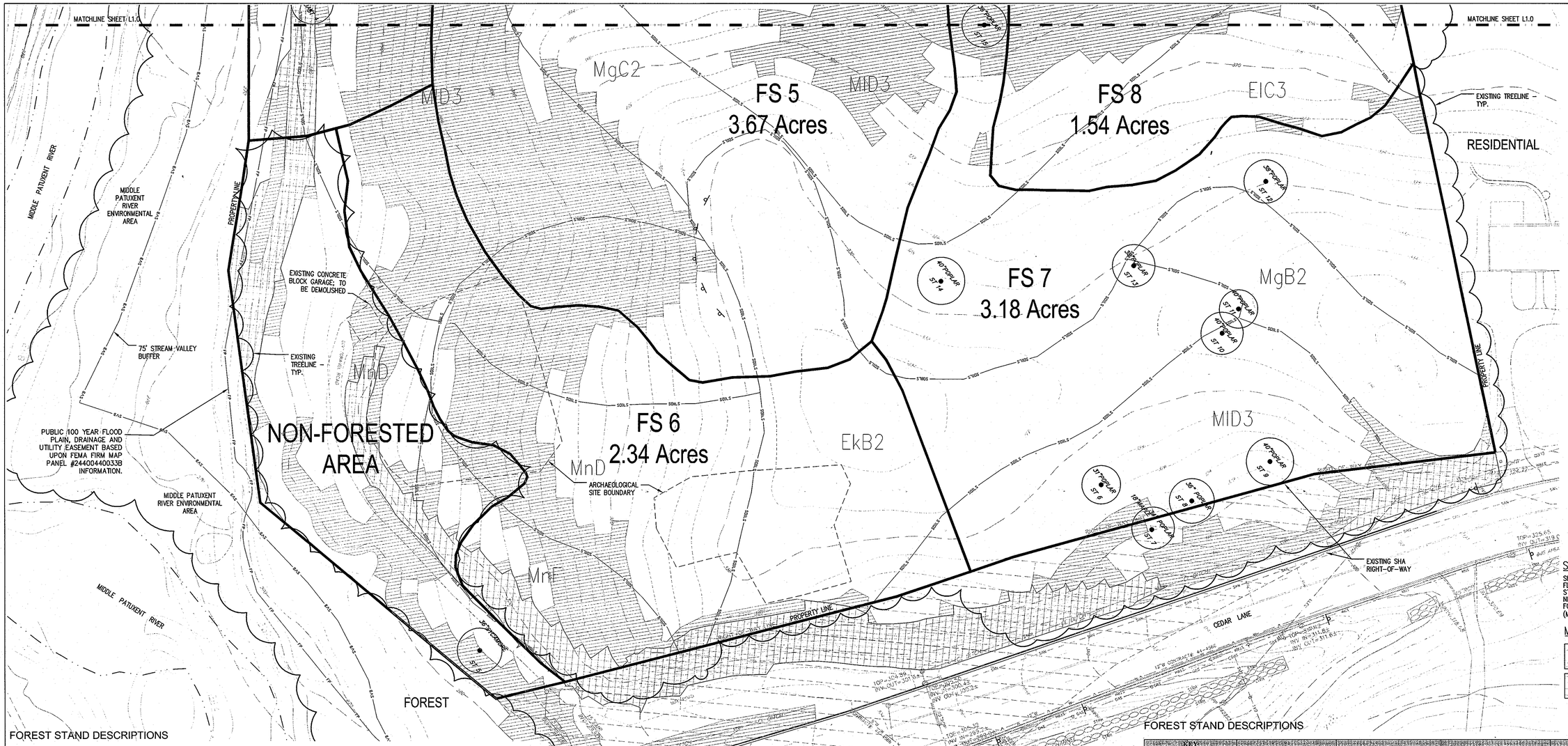
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description

Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
Drawing Title	FOREST STAND DELINEATION -NORTH-	Drawing Number	L1.0
Sheet	20	37	Of

SDP-09-02



SITE ANALYSIS DATA:

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FLOODPLAIN:	0.39 Acres
STEEP SLOPES AREA:	1.63 Acres
NET TRACT AREA:	16.38 Acres
FOREST COVER:	16.83 Acres
(MINUS FLOODPLAIN AREA)	

MAP KEY

SLOPES 15% – 24.99%

SLOPES 25% AND GREATER

FP = FLOODPLAIN
SVB = STREAM VALLEY BUFFER

0 40 80 120

FOREST STAND DESCRIPTIONS

KEY	FOREST STAND #1	FOREST STAND #2	FOREST STAND #3	FOREST STAND #4
A. TYPE OF COMMUNITY	Mature Mixed Oak	Declining Virginia Pine	Mature Floodplain Forest	Mature Mixed Oak
B. AREA	2.03 acres	1.09 acres	2.18 acres	1.11 acres
C. SOIL INFORMATION				
1. Soil Type	CgC2, ChD2, EkB2, MID3	CgC2, EkB2, MID3	ChD2 (?), MgC2	MgC2, MID3, MnD
2. Typical Forest Cover	See Soil Table	See Soil Table	See Soil Table	See Soil Table
3. Woodland Suitability Index	See Soil Table	See Soil Table	See Soil Table	See Soil Table
D. EXISTING VEGETATION	Black oak, white oak, hickories, maple-leaved Viburnum, Virginia creeper, white wood aster, sedges	Virginia pine, tuliptree, red maple, brambles, Virginia creeper, stilt grass	Tuliptree, sycamore, red maple, multiflora rose, spicebush, Japanese honeysuckle, stilt grass	Red oak, white oak, tuliptree, flowering dogwood, Japanese honeysuckle, sedges
E. STAND CHARACTERISTICS				
1. Size (DBH)	10"-24"	8"-16"	10"-28"	10"-28"
2. Age	80	40	80	80
3. General Conditions	Good	Fair	Good	Good
F. FOREST AREA IN SENSITIVE ENVIRONMENTS	1.57 Acres	.68 Acres	1.96 Acres	.66 Acres
G. HABITAT VALUE	Good	Good	Good	Good

FOREST STAND DESCRIPTIONS

KEY	FOREST STAND #5	FOREST STAND #6	FOREST STAND #7	FOREST STAND #8
A. TYPE OF COMMUNITY	Mature Virginia Pine	Maturing Pioneer	Mature Tuliptree	Mature Loblolly Pine
B. AREA	3.67 acres acres	2.34 acres	3.18 acres	1.54 acres
C. SOIL INFORMATION				
1. Soil Type	EkB2, EIC3, MgC2, MID3, MnD	EkB2, MID3, MnD, MnF	EkB2, EIC3, MgB2, MID3	EIC3, MgC2, MID3
2. Typical Forest Cover	See Soil Table	See Soil Table	See Soil Table	See Soil Table
3. Woodland Suitability Index	See Soil Table	See Soil Table	See Soil Table	See Soil Table
D. EXISTING VEGETATION	Virginia pine, tuliptree, spicebush, Virginia creeper, Japanese honeysuckle, partridgeberry	Black walnut, sycamore, red maple, tuliptree, multiflora rose, spicebush, Japanese honeysuckle, stilt grass	Tuliptree, red maple, spicebush, Japanese honeysuckle, stilt grass, garlic mustard	Loblolly pine, tuliptree, red maple, spicebush, Japanese honeysuckle, Virginia creeper
E. STAND CHARACTERISTICS				
1. Size (DBH)	8"-16"	8"-28"	12"-36"	10"-24"
2. Age	40	40	60	40
3. General Conditions	Fair	Fair	Good	Good
F. FOREST AREA IN SENSITIVE ENVIRONMENTS	1.47 Acres	1.02 Acres	.05 Acres	.28 Acres
G. HABITAT VALUE	Fair	Fair	Good	Good

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief Edmondson	1.12.09
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
Cindy Harvey	1/8/09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
Thomas G. Butler	1/14/09
DIRECTOR, DEP.	DATE

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 11/13/08

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REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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HOWARD SCD DATE

Seal:

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GRIEVES WORRALL WRIGHT & OHATNICK INCORPORATED

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ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
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DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
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TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT NUMBER: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description

Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
Drawing Title	FOREST STAND DELINEATION -SOUTH-	Drawing Number	L1.1
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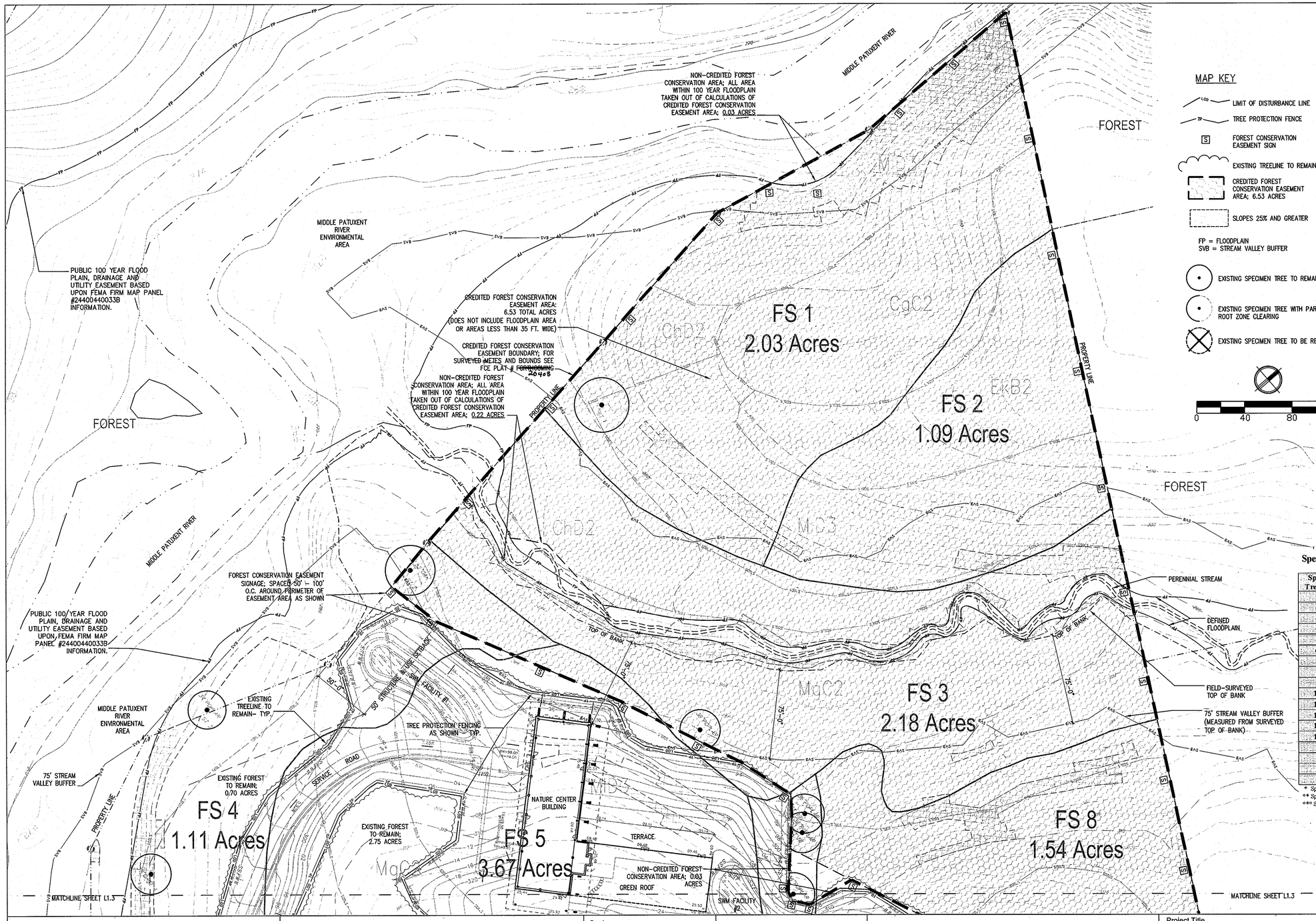

MAP KEY

- LOD — LIMIT OF DISTURBANCE LINE
- TP — TREE PROTECTION FENCE
- S — FOREST CONSERVATION EASEMENT SIGN
- EXISTING TREELINE TO REMAIN
- CREDITED FOREST CONSERVATION EASEMENT AREA; 6.53 ACRES
- SLOPES 25% AND GREATER
- FP = FLOODPLAIN
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- EXISTING SPECIMEN TREE TO REMAIN
- EXISTING SPECIMEN TREE WITH PARTIAL ROOT ZONE CLEARING
- EXISTING SPECIMEN TREE TO BE REMOVED

0 40 80 120

FOREST CONSERVATION WORKSHEET
VERSION 1.0
(Enter in Yellow Cells)

NET TRACT AREA:

A. Total tract area....=	18.40
B. Area within 100 year floodplain....=	0.39
C. Area to remain in agricultural production....=	0.00
D. Net tract area....=	18.01

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

Input the number "1" under the appropriate land use zoning, and limit to only one entry.

ARA	MDR	IDA	HDR	MPD	CIA
0	0	1	0	0	0

E. Afforestation Threshold....	15% x D =	2.70
F. Conservation Threshold....	20% x D =	3.60

EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain)....=	16.83
H. Area of forest above afforestaion threshold....=	14.13
I. Area of forest above conservation threshold....=	13.23

BREAK EVEN POINT:

J. Forest retention above threshold with no mitigation....=	6.25
K. Clearing permitted without mitigation....=	10.58

PROPOSED FOREST CLEARING:

L. Total area of forest to be cleared....=	10.30
M. Total area of forest to be retained....=	6.53

PLANTING REQUIREMENTS:

N. Reforestation for clearing above conservation threshold...=	2.58	
P. Reforestation for clearing below conservation threshold...=	0.00	0.0
Q. Credit for retention above conservation threshold....=	2.93	
R. Total reforestation required....=	0.00	0.0
S. Total afforestation required....=	0.00	
T. Total reforestation and afforestation required....=	0.00	

FOREST CONSERVATION NOTES

1. This Forest Conservation Plan (FCP) is a retention-only plan – no reforestation is required.
2. The unique requirements of the proposed nature center use and topographic and archaeological site restrictions mandate the proposed limits of forest clearing. Every effort has been made to reduce forest clearing and loss of specimen trees to the greatest extent practicable. Most high quality forest stands and specimen trees are retained.
3. Specimen trees are shown as retained, retained with remedial measures, or removed. Retained trees are retained with their entire critical root zone (CRZ) intact and undisturbed. Trees to be retained with remedial measures are those which are proposed to have partially impacted CRZs. These trees will be evaluated individually and treated as needed to ensure maximum survivability and condition. Trees to be removed are unfortunately unable to be retained due to the aforementioned site limitations.
4. Two small areas of approximately 0.1 acre each are shown as being retained within the overall disturbed area. However, these retained areas are less than the required 10,000 square feet and are not included in the total of forest areas to be retained. Although retained, these areas are considered to be cleared for the purposes of the Forest Conservation Worksheet calculations.
5. Prior to any work on-site, the edges of all forest areas to be retained shall be field surveyed, posted with signage, and protected by orange safety fencing. No disturbance of any type shall be allowed within the forest retention areas.

Specimen Tree Table

Specimen Tree (ST) #	Common Name	Botanical Name	Size DBH	Condition
1 *	Tuliptree	*Liriodendron tulipifera*	38"	Good
2 *	Red Oak	*Quercus rubra*	39"/29"	Good
3 *	Tuliptree	*Liriodendron tulipifera*	32"	Exc.
4 *	Red Oak	*Quercus rubra*	34"	Good
5 *	Green Ash	*Fraxinus pennsylvanicus*	30"	Fair
6 ***	Tuliptree	*Liriodendron tulipifera*	31"	Exc.
7 *	Tuliptree	*Liriodendron tulipifera*	34"	Exc.
8 *	Tuliptree	*Liriodendron tulipifera*	36"	Exc.
9 *	Tuliptree	*Liriodendron tulipifera*	38"	Good
10 ***	Tuliptree	*Liriodendron tulipifera*	34"	Exc.
11 ***	Tuliptree	*Liriodendron tulipifera*	31"	Good
12 ***	Tuliptree	*Liriodendron tulipifera*	35"	Exc.
13 ***	Tuliptree	*Liriodendron tulipifera*	34"	Exc.
14 ***	Tuliptree	*Liriodendron tulipifera*	34"	Exc.
15 **	Tuliptree	*Liriodendron tulipifera*	36"	Exc.
16 **	Tuliptree	*Liriodendron tulipifera*	34"	Exc.
17 *	Tuliptree	*Liriodendron tulipifera*	33"	Exc.
18 *	Tuliptree	*Liriodendron tulipifera*	32"	Exc.

* Specimen tree to be saved with no CRZ disturbance.
** Specimen tree to be retained with CRZ disturbance – remedial measures to be employed.
*** Specimen tree to be removed.

GENERAL NOTES:
1. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION MANUAL. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
2. THE PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION WITH THE RETENTION OF 6.53 ACRES OF CREDITED EASEMENT AND 0.39 ACRES OF NON-CREDITED EASEMENT (FLOODPLAIN AREA OR AREAS LESS THAN 35 FEET IN WIDTH) WHICH MEETS OR EXCEEDS THE BREAK-EVEN POINT OBLIGATION OF 6.25 ACRES FOR THIS SITE.
3. THE BOUNDARY OF THE PROPOSED FOREST CONSERVATION EASEMENTS ARE IDENTIFIED ON A PLAT OF THE FCE WITH BEARINGS AND DISTANCES UNDER PLAT NO. ~~TO BE RECORDED~~ 20408.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

~~REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS~~
~~THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT~~
HOWARD SCD DATE

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Seal: BOARD OF EXAMINERS OF ARCHITECTS AND ENGINEERS 891 ZOLIA RUSSELL STATE OF MARYLAND

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524 , EXPIRATION DATE: 19 JULY, 2009.

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Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

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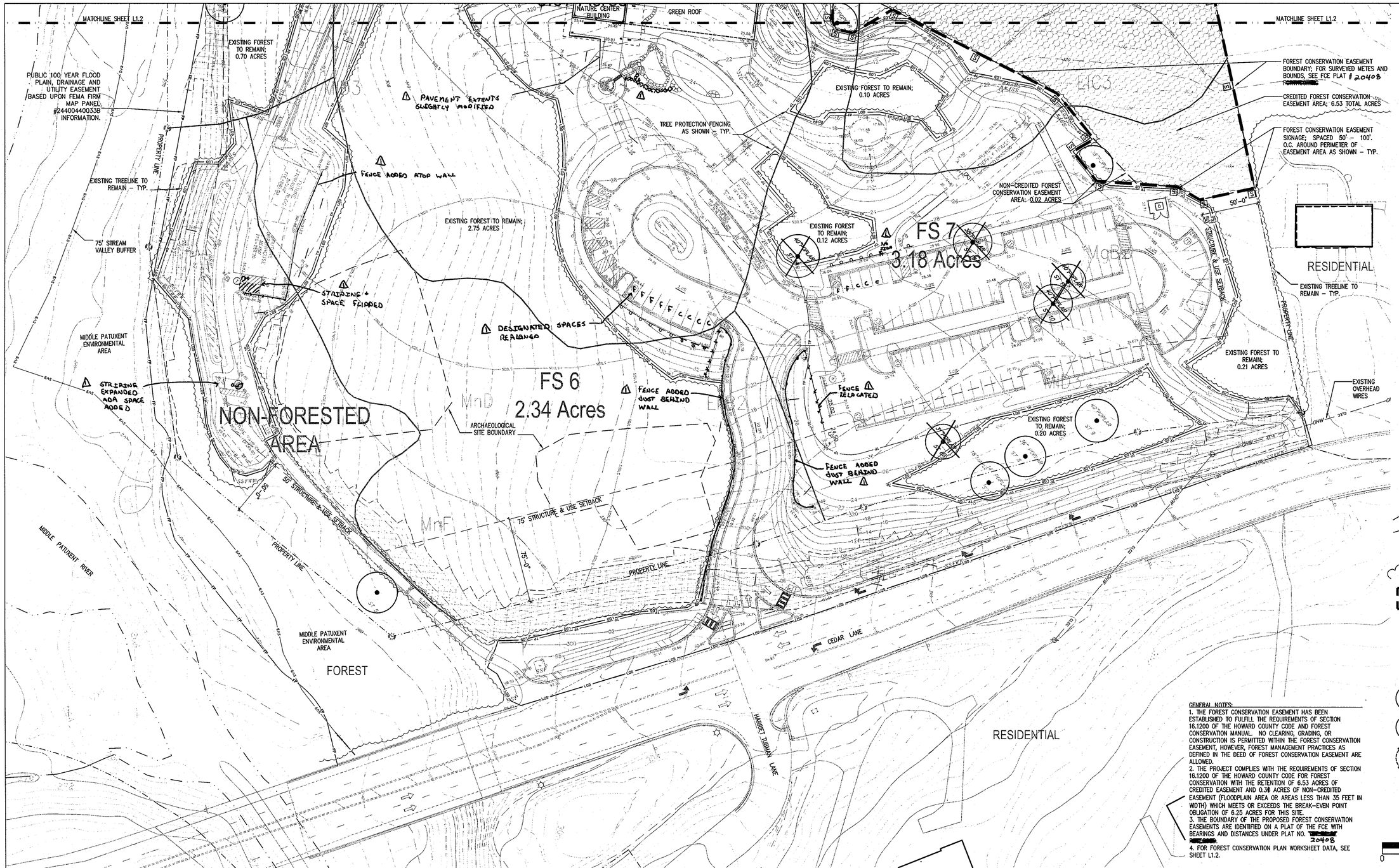
Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
Drawing Title	FOREST CONSERVATION PLAN -NORTH-	Drawing Number	L1.2
Sheet	22	37	Of

SDP-09-02



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3. THE BOUNDARY OF THE PROPOSED FOREST CONSERVATION EASEMENTS ARE IDENTIFIED ON A PLAT OF THE FCE WITH BEARINGS AND DISTANCES UNDER PLAT NO. 20408.
4. FOR FOREST CONSERVATION PLAN WORKSHEET DATA, SEE SHEET L1.2.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-9
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/12/09
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 11/13/08

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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1	6-1-09	FENCE, SIDEWALK, HC PARKING, PARKING

Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
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Sheet	23	37	Of

SDP-09-02

The soil protection area (Critical Root Zone) of a tree is the zone in which the majority of a tree's roots lay. Ninety-five percent of the roots of most trees will be found in the upper 12-18 feet of the soil. The majority of the roots that supply the nutrients and water to the tree are found just below the soil surface. The total amount of a tree's roots are generally proportional to the volume of the tree's canopy. Therefore, if the roots only penetrate a thin layer of soil, then the roots must spread far from the tree, beyond the extension of the canopy.

When delineating forest retention lines in the field, one must consider not only the visible portion of the tree (the trunk and canopy) but the below ground portion as well. On all forest conservation plan sheets, isolated specimen trees should be noted with their critical root zones and all forest stands to be saved should be noted by the edges of their critical root zones and not just by the extent of their canopies.

The true size of the critical root zone is determined by the species and size of the tree as well as the conditions of the soil (including texture and moisture level). It is difficult to generalize for all trees but also difficult to field examine the root systems of all of the trees in question.

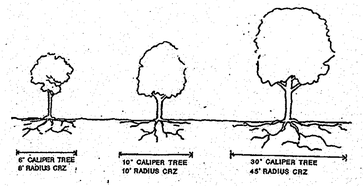
There are several ways to estimate the size of the critical root zone without examining the roots in the field. The following calculation is suggested but other methods may be accepted if shown to protect the complete root zone.

For the edges of large areas, use the greater of the two choices below:

1' caliper of the tree = 1' radius of the critical root zone, or
8 ft radius circle around the trunk of the tree

For isolated specimen trees:

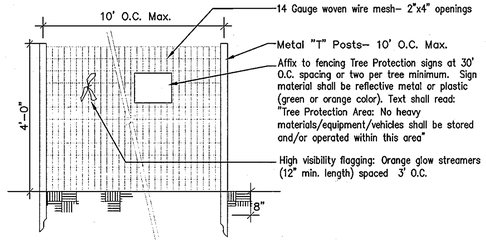
1' caliper = 1.5' radius of the critical root zone



The Critical Root Zone is the area in which most of a tree's root lay. Retaining this area, along with the tree itself, will help to insure a healthy retention area.

1 SOIL PROTECTION AREA

L1.4 N.T.S. DOES NOT APPLY

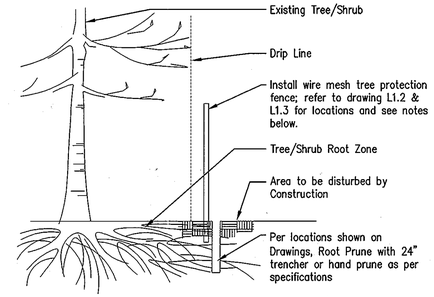


ELEVATION OF TREE PROTECTION FENCE

NOTES:
1. Disposing of construction debris within Tree Preservation Areas is prohibited. No construction materials or equipement/vehicles are allowed inside of tree protection fencing.
2. Tree protection fencing shall be maintained during the entire construction period, and shall not be laid on the ground at any time during the duration of construction activity, unless approved by the landscape architect. Tree protection fencing may be temporarily removed in order to install new plantings within fenced areas as shown on plans, but only as directected by Landscape Architect. Immediately after planting, fencing shall be re-installed and remain in place until all constraction activity is complete.

2 FOREST PROTECTION FENCE

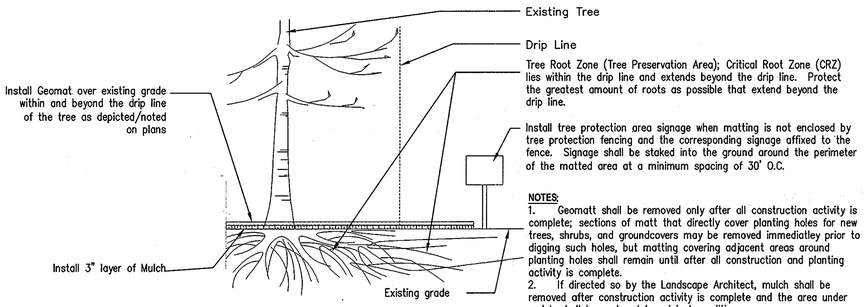
L1.4 N.T.S.



NOTES:
1. Install Tree Protection Fence where noted/depicted on drawing L1.2 & L1.3. Except where expressly depicted on plans, tree protection fencing shall not be placed inside of the tree/shrub drip line. Fencing shall placed 1' to 5' beyond/outside the drip line, or, whenever feasible, an even further distance away from the drip line.
2. Root Pruning does not neccessarily occur along entrie length/all runs of tree protection fencing. Only root prune in certain locations as noted/depicted on drawing L1.2 & L1.3.

3 ROOT PRUNING

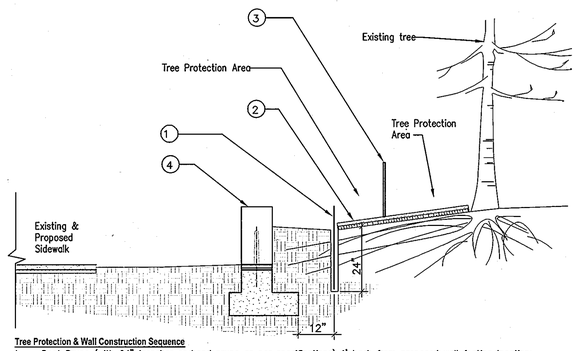
L1.4 N.T.S. DOES NOT APPLY



NOTES:
1. Geomatt shall be removed only after all construction activity is complete; sections of matt that directly cover planting holes for new trees, shrubs, and groundcovers may be removed immediatley prior to digging such holes, but matting covering adjacent areas around planting holes shall remain until after all construction and planting activity is complete.
2. If directed so by the Landscape Architect, mulch shall be removed after construction activity is complete and the area under mulch shall be restored to original condition.

4 PERMANENT ROOT PROTECTION MATTING

L1.4 N.T.S. DOES NOT APPLY

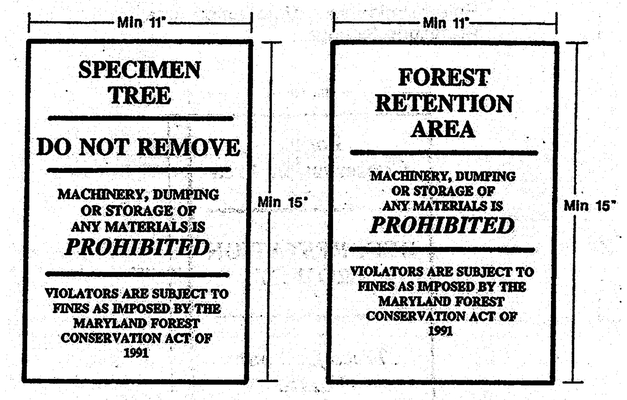


Tree Protection & Wall Construction Sequence
1. Root Prune (with 24" trencher or hand prune as per specifications) 1' back from proposed wall footing location; Owner's Representative to coordinate between masonery contractor and root pruner.
2. Immediately after root pruning, install temporary root protection geofabric over existing grade in order to protect remaining roots back from the root pruning location.
3. Install tree protection fence, as per locations shown/noted on plans. Fence shall be located 2' to 3' back from root pruning in order to allow adequate room for wall construction and grading work.
4. Excavate and install wall construction under supervision of arborist, and preform additional root pruning as neccessary during excavation. Refer to wall details for specifics on wall dimensions, materials, etc.
5. After construction activity is complete and/or immediately prior to any final grading activities, remove temporary fabric/matting. Note, matting shall remain in any areas receiving 4" or more of fill.

5 ALONG WALL CONSTRUCTION

L1.4 N.T.S. DOES NOT APPLY

Signage



6 TREE PROTECTION SIGNAGE

L1.4 NTS

TREE PROTECTION GENERAL NOTES AND SEQUENCE:

1. REVIEW SITE WITH OWNER REPRESENTATIVE, CONSTRUCTION MANAGEMENT AND CONSULTING ECOLOGIST.
2. REVIEW CONSTRUCTION AND DEMOLITION PROCEDURES AND STRATEGY ON SITE WITH CONTRACTOR, OWNER, LANDSCAPE ARCHITECT, AND CONSULTING ECOLOGIST TO DETERMINE ACCESS, STAGING, EQUIPMENT, AND OVERHEAD CLEARANCE.
3. PRE– CONSTRUCTION MEETING TO INCLUDE REVIEW OF TREE PROTECTION MEASURES AND LIMITS OF CONSTRUCTION.
4. NO SITE PREPARATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND PROTECTION MEASURES HAVE NOT BEEN COMPLETED AND APPROVED BY THE CONSULTING ECOLOGIST.
5. BEGIN ROOT PRUNING OPERATION AS SHOWN ON THE PLANS.
6. INSTALL TEMPORARY TREE PROTECTION FENCE PRIOR TO CLEARING.
7. INSTALL SILT FENCE WITH SPECIAL DETAIL WITHIN TREE PROTECTION AREAS.
8. PRE– CONSTRUCTION CONTRACTOR'S LAYOUT OF SELECTED FOOTERS, PIERS, AND UNDERGROUND UTILITIES ADJACENT TO TREE PRESERVATION WILL BE NECESSARY FOR ACCURATE INSTALLATION OF TREE PROTECTION MEASURES.
9. LOCATION OF THE FOLLOWING ITEMS WILL BE DETERMINED AT OR PRIOR TO THE PRE–CONSTRUCTION MEETING AND REVIEWED FOR IMPACT TO TREE ENVIRONMENT AREAS. ONCE THE TREE PROTECTION FENCE IS INSTALLED THESE ACTIVITIES ARE NOT ALLOWED TO OCCUR WITHIN THE PROTECTED AREA WITHOUT PRIOR APPROVAL AND SPECIAL CONDITIONS MET:

CONSTRUCTION PARKING	CONCRTE WASH–OUT
CONSTRUCTION TRAILERS	EQUIPMENT ACCESS
MATERIALS STORAGE	STAGING AREAS
FUEL & CHEMICAL STORAGE	SOIL STOCKPILE
DEMOLITION ACCESS & DUMPSTERS	

TREE PRESERVATION WILL BE AS FOLLOWS:

1. SUPPLEMENTAL WATERING DURING TIMES OF DROUGHT.
2. LAYOUT OF TREE PROTECTION MEASURES.
3. TREE PROTECTION FENCING / TREE PROTECTION SIGN INSTALLATION
4. ROOT PRUNING PRIOR TO/OR DURING EXCAVATION.

ABOVE MEASURES TO BE DIRECTED IN THE FIELD BY THE CONSULTING ECOLOGIST AND COORDINATED WITH THE CONSTRUCTION MANAGER.
TREE PROTECTION FENCING WILL BE MAINTAINED & REPAIRED BY THE CONTRACTOR FOR THE DURATION OF THE PROJECT.
CONSTRUCTION ACCESS TO FENCED TREE PROTECTION AREAS WILL BE PERMITTED ONLY WITH PRE– APPROVAL OF OWNER'S REPRESENTATIVE.
THE CONSULTING ECOLOGIST OR OWNER'S REPRESENTATIVE SHALL APPROVE ANY CLEARING, GRADING, STOCKPILE, DEMOLITION, OR EXCAVATION REQUIRED WITHIN THE FENCED TREE PROTECTION AREAS. SPECIAL CONDITIONS MAY APPLY.
ELECTRICAL CONTRACTOR TO ARRANGE SITE MEETING WITH CONSULTING ECOLOGIST TO REVIEW LAYOUT OF SITE LIGHTING WITHIN TREE PROTECTION AREA AND METHODS FOR INSTALLATION.
SUBSURFACE IRRIGATION OR WATER LINES WITHIN CRITICAL ROOT ZONE OF TREES WILL BE REVIEWED PRIOR TO INSTALLATION.
PRIOR TO REMOVAL OF CONCRETE PIPE SECTIONS IN CRITICAL ROOT ZONE'S MEET WITH CONSULTING ECOLOGIST TO DETERMINE ACCESS & PROTECTION MEASURES.

TREE PRESERVATION MEASURES

THE TREE PROTECTION PLANS WILL DESIGNATE TREES TARGETED FOR SPECIFIC PRESERVATION MEASURES. AT CONSTRUCTION COMPLETION ANOTHER REVIEW BY THE CONSULTING ECOLOGIST WILL DOCUMENT CHANGES TO HEALTH OR CONDITION BASED UPON CONSTRUCTION IMPACT OR OTHER NATURAL OR MAN–MADE DISTURBANCES.

ROOT PRUNE PRIOR TO FENCING. PURPOSE OF THE ROOT PRUNING IS TO PROVIDE A MORE SUITABLE CUT SO AS TO NOT RIP OR TEAR ROOTS DURING EXCAVATIONS AND GRADING WITH STANDARD CONSTRUCTION EQUIPMENT. THE EXACT LOCATION AND DEPTH ALONG THE EDGE OF EXCAVATION WILL BE DETERMINED DURING THE CONSULTING ECOLOGIST'S LAYOUT. EQUIPMENT & METHODS WILL BE DETERMINED BASED UPON DEPTH & TREE IMPACT. THE USE OF SUPERSONIC AIR TOOLS (SSAT) TO EXPOSE AND HAND PRUNE ROOTS 1.5" DIAMETER AND LARGER SHALL BE THE PREFERRED METHOD. DEEP EXCAVATIONS WILL BE REVIEWED WHEN OPEN AND HAND PRUNING SHALL BE PERFORMED USING SHARP HAND TOOLS.

SUPPLEMENTAL WATER. THIS ACTION IS FOR HIGH IMPACT TREES OF SIGNIFICANCE DURING DROUGHT TIMES. BASED UPON THE NUMBER AND SIZE OF TREES VARIOUS STRATEGIES CAN BE CONSIDERED TO MAINTAIN ADEQUATE SOIL MOISTURE DURING THESE TIMES. A PRESCRIPTION FOR THE NUMBER OF GALLONS AND STRATEGY FOR WATERING DESIGNATED TREES WILL BE DEVELOPED. ESTIMATED GALLONS AS FOLLOWS 4–12" CALIPER: 25–50 GALLONS PER WATERING, 13–23" DIAMETER: 60–100 GALLONS, 24–36" DIAMETER: 150–200 GALLONS, 37" + 250–300 GALLONS PER WATERING. EACH WATERING 7–15 DAYS APART.

PROTECTION MEASURES

TREE PROTECTION FENCE. TEMPORARY FENCING FOR THE EXISTING TREE FOR DEMO AND CONSTRUCTION WILL BE BLAZE ORANGE PLASTIC HIGH VISIBILITY FENCE (HVF) OR DESIGNATED EQUAL. ATTACH TREE PROTECTION AREA SIGNS @ 30' SPACING OR TWO PER TREE MINIMUM. INSTALL PRIOR TO MOBILIZATION, DEMO, CLEARING & GRADING. FENCING INCLUDES HI–VISIBILITY FLAGGING. SET–IN BLOCK CHAIN LINK FENCE MAY BE SUBSTITUTED WHERE APPROPRIATE. SHOULD SOILS STOCKPILE OR STAGING ACCESS DRIVE BE NEEDED ADJACENT TO FENCING, SILT FENCE FABRIC SHALL BE ATTACHED AND PINNED TO EXISTING GRADE. THE EXACT LOCATION SHALL BE DETERMINED BY THE CONSULTING ECOLOGIST.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards — CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-9
Cindy Thomas — CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09 VS
Monica E. Butler — DIRECTOR, DEPT	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08
VS

hord | coplan | macht
ARCHITECTURE LANDSCAPE ARCHITECTURE PLANNING INTERIOR DESIGN

ADTEK ENGINEERS, INC.
CIVIL, STRUCTURAL & GEOTECHNICAL ENGINEERING
97 Monocacy Drive, Unit H
Frederick, Maryland 21701-5516
Phone: 301-662-4408 Fax: 301-662-7484
www.adtekengineers.com

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SCD DATE

Seal:

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 28524 , EXPIRATION DATE: 19 JULY, 2009.

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
G | W
W | O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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OWNER/APPLICANT
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT NUMBER: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

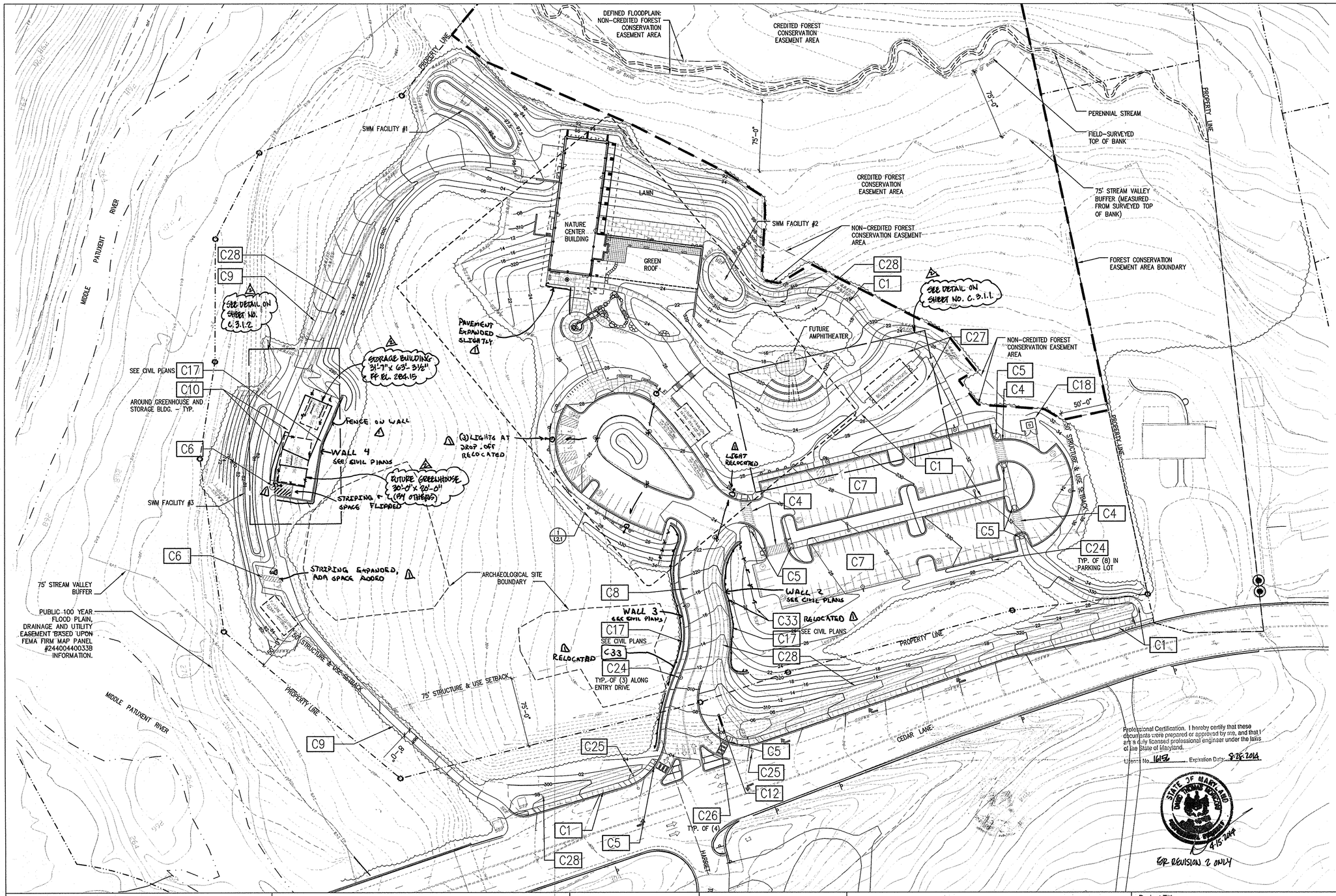
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	5-1-09	REMOVE DETAILS

Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
Drawing Title: HOWARD COUNTY TREE PROTECTION DETAILS		Drawing Number: L1.4	
Sheet	24	37	Of

SDP-09-02



CONSTRUCTION NOTES

C1	SCORED CONCRETE PAVING; SEE CIVIL PLANS.
C2	NOTE NOT USED ON THIS SHEET.
C3	NOTE NOT USED ON THIS SHEET.
C4	CROSSWALK; SEE CIVIL PLANS.
C5	ADA COMPLIANT PEDESTRIAN RAMP; SEE CIVIL PLANS.
C6	PAVED PARKING AREA; SEE CIVIL PLANS.
C7	PERVIOUS CONCRETE DRIVE AISLE AND PARKING; SEE CIVIL PLANS.
C8	ENTRY DRIVE; SEE CIVIL PLANS.
C9	SERVICE DRIVE; SEE CIVIL PLANS.
C10	GRAVEL PAVING; SEE CIVIL PLANS.
C11	NOTE NOT USED ON THIS SHEET.
C12	MONUMENT ENTRY SIGN; SEE DETAIL8/L3.1.
C13	NOTE NOT USED ON THIS SHEET.
C14	NOTE NOT USED ON THIS SHEET.
C15	NOTE NOT USED ON THIS SHEET.
C16	NOTE NOT USED ON THIS SHEET.
C17	RETAINING WALL; SEE CIVIL OR ARCHITECTURAL PLANS AS NOITED FOR MATERIALS AND DESIGN.
C18	SCREENED DUMPSTER ENCLOSURE ON CONCRETE PAD IN COMPLIANCE W/ HOWARD COUNTY DESIGN MANUAL; SEE DETAILS 1,4, & 6/L3.1.
C19	NOTE NOT USED ON THIS SHEET.
C20	NOTE NOT USED ON THIS SHEET.
C21	NOTE NOT USED ON THIS SHEET.
C22	NOTE NOT USED ON THIS SHEET.
C23	NOTE NOT USED ON THIS SHEET.
C24	POLE MOUNTED LIGHT FIXTURE; SEE DETAIL 1/L5.0.
C25	HOWARD COUNTY STANDARD STREET LIGHT; SEE CIVIL PLANS.
C26	LANDSCAPE UPLIGHT; SEE DETAIL 3/L5.0.
C27	PREPARED PLANTING BED; SEE DETAIL 4/L4.1.
C28	DRAINAGE SWALE; SEE CIVIL PLANS.
C33	4'-0" HT. VINYL COATED CHAIN LINK FENCE; COLOR BLACK

0 50 100 150

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. 16152, Expiration Date: 3-28-2014

STATE OF MARYLAND — DAVID PAUL BENSON — No. 16152 — PROFESSIONAL ENGINEER

4-15-2014

FOR REVISION 2 ONLY

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 11/13/08

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ARCHITECTURE LANDSCAPE ARCHITECTURE PLANNING INTERIOR DESIGN

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CIVIL, STRUCTURAL & GEOTECHNICAL ENGINEERING
97 Monocacy Drive, Unit H
Frederick, Maryland 21701-5516
Phone: 301-662-4408 Fax: 301-662-7484
www.adtekengineers.com

~~REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS~~

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

HOWARD SCD DATE

Seal: BOARD OF ENGINEERS OF LANDSCAPE ARCHITECTS — 891 — SOLMA RUSSELL — STATE OF MARYLAND

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524 , EXPIRATION DATE: 19 JULY, 2009.

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
G | W
W | O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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OWNER/APPLICANT
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT NUMBER: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

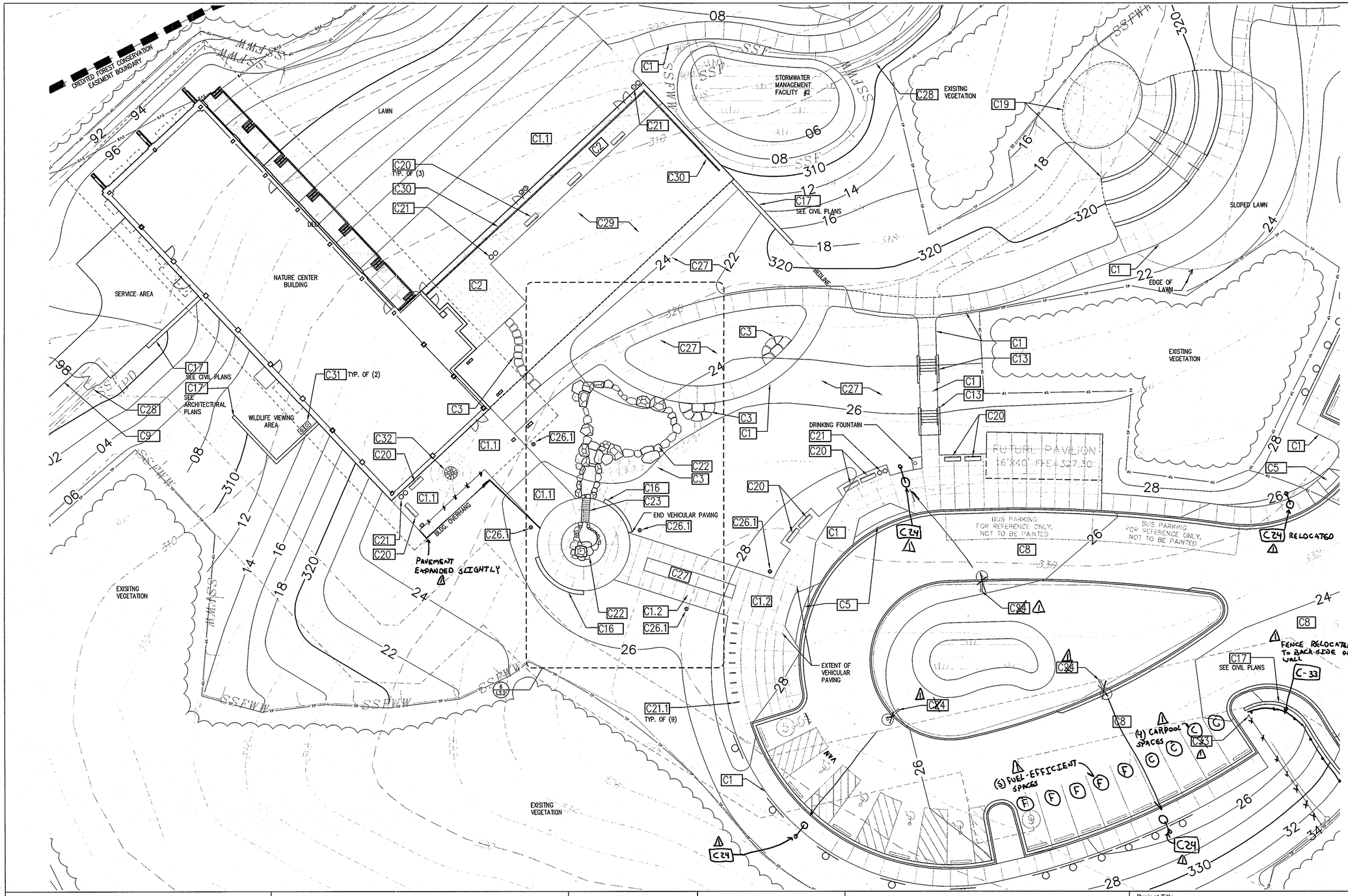
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	5-1-09	FENCE, SIDEWALK, HC SPACES, LIGHTS, WALL CALLOUTS
2	4-15-14	ADDED REFERENCE NOTES

Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
Drawing Title	LANDSCAPE CONSTRUCTION PLAN - OVERALL	Drawing Number	L2.0
Sheet	25	37	Of

SDP-09-02



CONSTRUCTION NOTES

C1	SCORED CONCRETE PAVING; SEE CIVIL PLANS.
C1.1	SCORED CONCRETE PAVING W/ COLOR AND TEXTURE.
C1.2	SCORED CONCRETE PAVING W/ COLOR AND TEXTURE; VEHICULAR APPLICATION.
C2	UNIT PAVING ON PEDESTAL SYSTEM; SEE DETAIL 4/L3.0.
C3	STEPPINIG STONE PATH; SEE DETAIL 5/L3.0.
C4	CROSSWALK; SEE CIVIL PLANS.
C5	ADA COMPLIANT PEDESTRIAN RAMP; SEE CIVIL PLANS.
C6	PAVED PARKING AREA; SEE CIVIL PLANS.
C7	PERVIOUS CONCRETE DRIVE AISLE AND PARKING; SEE CIVIL PLANS.
C8	ENTRY DRIVE; SEE CIVIL PLANS.
C9	SERVICE DRIVE; SEE CIVIL PLANS.
C10	NOTE NOT USED ON THIS SHEET.
C12	NOTE NOT USED ON THIS SHEET.
C13	CONCRETE STAIRS W/ METAL HANDRAILS; SEE DETAIL 5 & 7/L3.1.
C16	STONE VENEER SEATWALL; 18" HT. x 18" WIDTH; SEE DETAIL 6 & 7/L3.0.
C17	RETAINING WALL; SEE CIVIL OR ARCHITECTURAL PLANS AS NOITED FOR MATERIALS AND DESIGN.
C18	NOTE NOT USED ON THIS SHEET.
C19	AMPHITHEATER; FUTURE CONSTRUCTION.
C20	BENCH; SEE DETAIL 2/L.3.1
C21	TRASH / RECYCLING RECEPTACLE; SEE DETAIL 3/L.3.1
C21.1	INVERTED 'U' BIKE RACK; SEE DETAIL 8/L.3.0.
C22	WATER FEATURE; SEE DETAIL 2/L3.2.
C23	METAL GRATE IN PAVING (WATER CHANNEL BELOW); SEE DETAIL 3/L3.2.
C24	POLE MOUNTED LIGHT FIXTURE; SEE DETAIL 1/L5.0.
C25	NOTE NOT USED ON THIS SHEET.
C26	NOTE NOT USED ON THIS SHEET.
C26.1	LIGHTED METAL BOLLARD; SEE DETAIL 3/L5.0.
C27	PREPARED PLANTING BED; SEE DETAIL 4/L4.1.
C28	DRAINAGE SWALE; SEE CIVIL PLANS.
C29	GREEN ROOF; SEE DETAIL 6/L4.2.
C30	METAL HANDRAIL; DESIGN TO BE DEVELOPED WITH ARCHITECTURAL PLANS
C31	RAIN BOX RAINBARREL; SEE DETAIL 9/3.0.
C32	STONE MILLSTONE INSET INTO PAVING; SEE DETAIL 10/3.0.
C33	4'-0" HT VINYL COATED CHAIN LINK FENCE; COLOR BLACK.

LEGEND

- POLE LIGHT FIXTURE
- BENCH
- TRASH RECEPTACLE & RECYCLING
- LIGHTED BOLLARD

0 8 16 32 48

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards, CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-09
Cindy Harris, CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
Marsha S. Scheller, DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

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ADTEK ENGINEERS, INC.
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97 Monocacy Drive, Unit H
Frederick, Maryland 21701-5516
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www.adtekengineers.com

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SCD DATE

Seal: BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS 891 ZOLNA RUSSELL STATE OF MARYLAND

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524 , EXPIRATION DATE: 19 JULY, 2009.

GRIEVES WORRALL WRIGHT & OHATNICK INCORPORATED
G | W
W | O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
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OWNER/APPLICANT
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT NUMBER: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

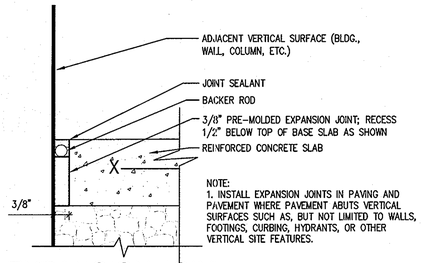
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	5-1-09	LIGHTS, PARKING SPACES, SIDEWALK

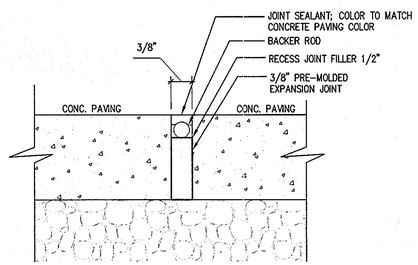
Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
Drawing Title: HARDSCAPE CONSTRUCTION ENLARGEMENT		Drawing Number: L2.1	
Sheet	26	37	Of

SDP-09-02



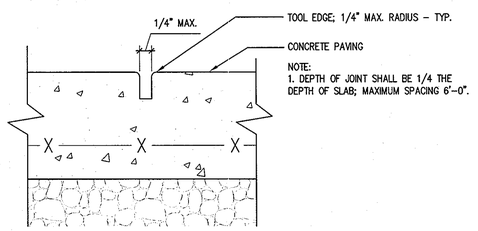
1 / L3.0 — EXPANSION JOINT

3" = 1'-0" — ABUTTING VERTICAL SURFACE



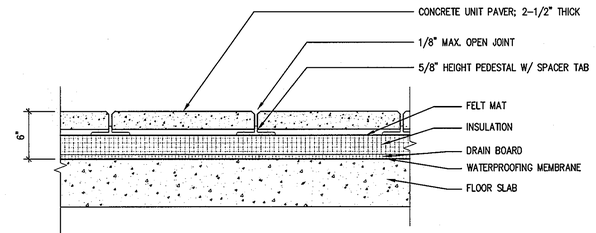
2 / L3.0 — EXPANSION JOINT

3" = 1'-0" — IN CONCRETE SIDEWALKS



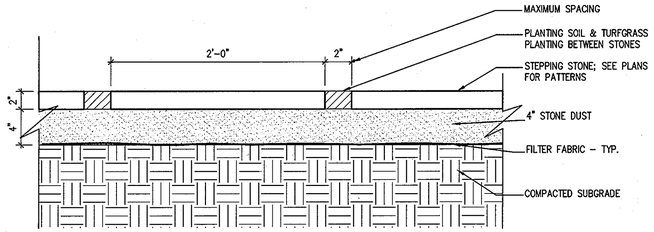
3 / L3.0 — SCORE JOINT

3" = 1'-0"



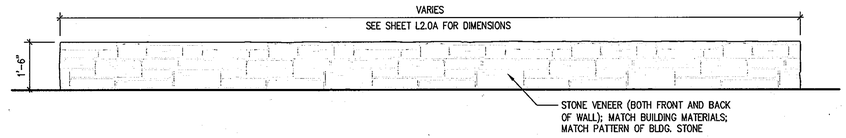
4 / L3.0 — PEDESTAL UNIT PAVING (ON-STRUCTURE)

1" = 1'-0"



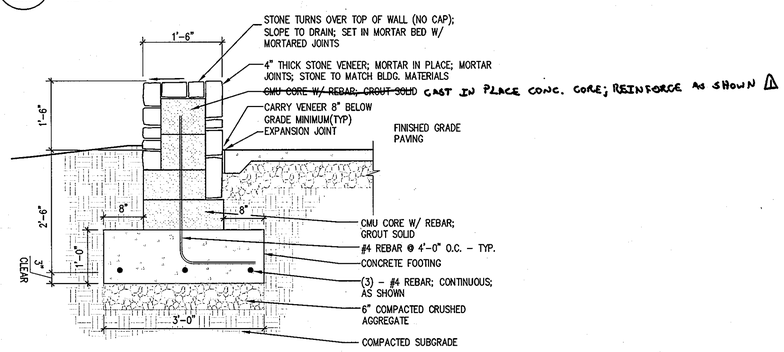
5 / L3.0 — STEPPING STONES

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



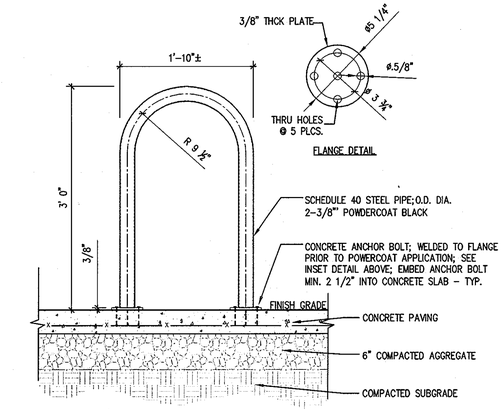
6 / L3.0 — RADIAL MASONRY VENEER SEATWALL - ELEVATION

1/2" = 1'-0"



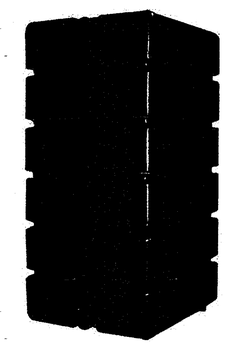
7 / L3.0 — RADIAL MASONRY VENEER SEATWALL

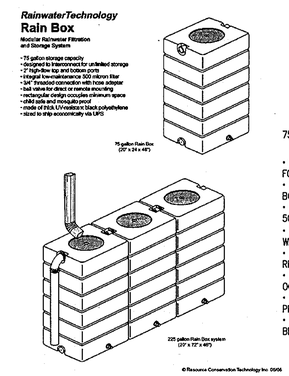
3/4" = 1'-0"



8 / L3.0 — BIKE RACK - SURFACE MOUNTED

1" = 1'-0" — OR APPROVED EQUAL





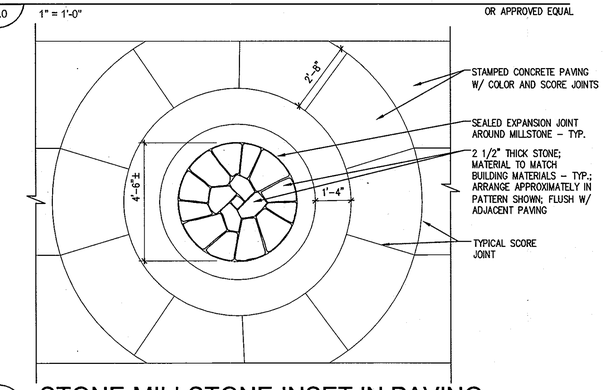
75 GALLON STORAGE CAPACITY

- DESIGNED TO INTERCONNECT FOR UNLIMITED STORAGE.
- 2" HIGH-FLOW TOP AND BOTTOM PORTS
- INTEGRAL LOW-MAINTENANCE 500 MICRON FILTER
- 3/4" THREADED CONNECTION WITH HOSE ADAPTER
- BALL VALVE FOR DIRECT OR REMOTE MOUNTING
- RECTANGULAR DESIGN OCCUPIES MINIMUM SPACE
- CHILD SAFE AND MOSQUITO PROOF
- MADE OF THICK UV-RESISTANT BLACK POLYETHYLENE

RAIN BARRELS

9 / L3.0 — ~~BIKE RACK - SURFACE MOUNTED~~

1" = 1'-0" — OR APPROVED EQUAL



10 / L3.0 — STONE MILLSTONE INSET IN PAVING

3/8" = 1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edmondson — CHIEF, DEVELOPMENT ENGINEERING DIVISION	1-12-09 DATE
Cindy Hanna — CHIEF, DIVISION OF LAND DEVELOPMENT	1/13/09 DATE
Marsha S. Scott — DIRECTOR, DEP.	1/14/09 DATE

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 11/13/08

~~REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS~~

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

~~HOWARD SCD — DATE~~

hord | coplan | macht
ARCHITECTURE LANDSCAPE ARCHITECTURE PLANNING INTERIOR DESIGN

ADTEK ENGINEERS, INC.
CIVIL, STRUCTURAL & GEOTECHNICAL ENGINEERING
97 Monocacy Drive, Unit H
Frederick, Maryland 21701-5516
Phone: 301-662-4408 Fax: 301-662-7484
www.adtekengineers.com

Seal: STATE OF MARYLAND LICENSED LANDSCAPE ARCHITECT 891 ZONA RUSSELL CORNISH

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND. LICENSE NUMBER: 26524 , EXPIRATION DATE: 19 JULY, 2009.

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
G | W
W | O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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OWNER/APPLICANT
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT NUMBER: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

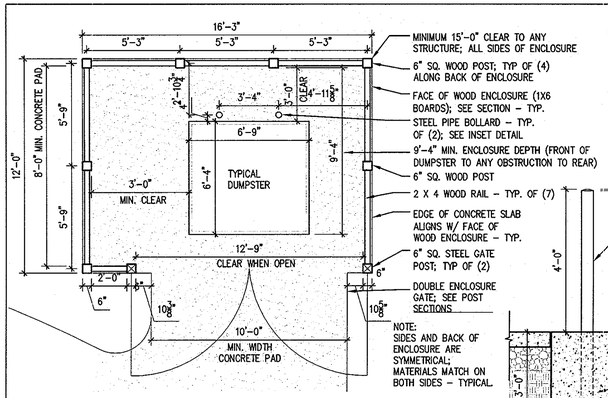
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
△1	5-1-09	DETAIL CORE

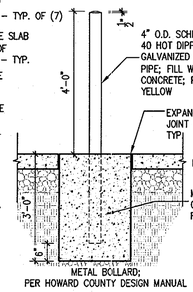
Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
Drawing Title	HARDSCAPE DETAILS	Drawing Number	L3.0
Sheet	27	37	Of

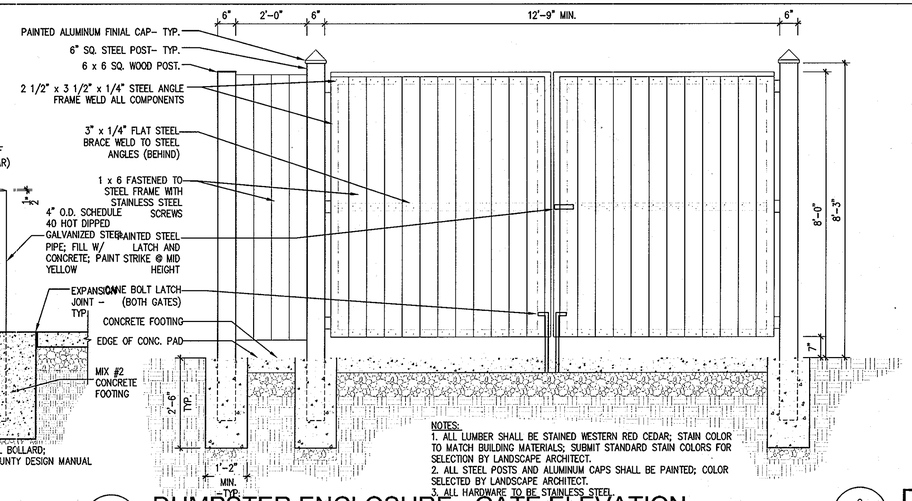
SDP-09-02



1 DUMPSTER ENCLOSURE - PLAN

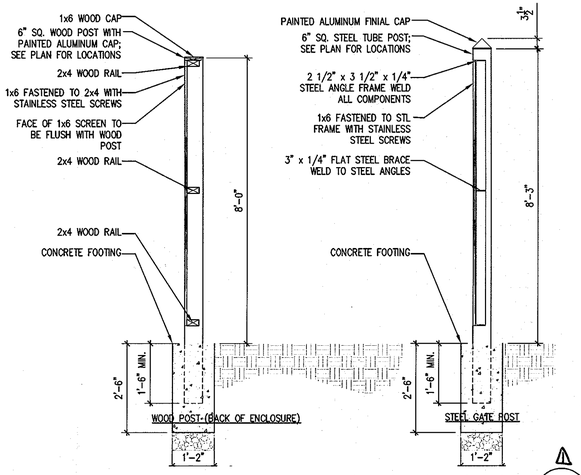
L3.1 1/4" = 1'-0"





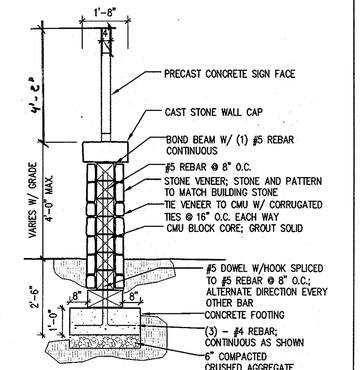
4 DUMPSTER ENCLOSURE - GATE ELEVATION

L3.1 1/2" = 1'-0"



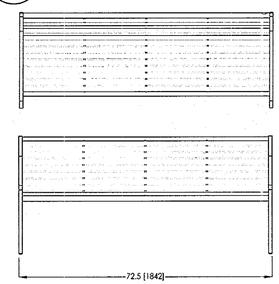
6 DUMPSTER ENCLOSURE - POST SECTIONS

L3.1 1/2" = 1'-0"

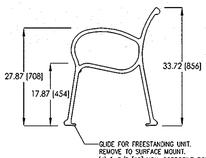


8 MONUMENT ENTRY SIGN

L3.1 3/8" = 1'-0"



100% RECYCLABLE MATERIAL
90% TOTAL RECYCLED CONTENT
59% POST CONSUMER
31% PRE CONSUMER
LOW VOC POWDER COAT



landscapeforms

431 LAWNDALE AVE. KALAMAZOO, MI 49048 PHONE: 800-521-2546 FAX: 269-381-3455

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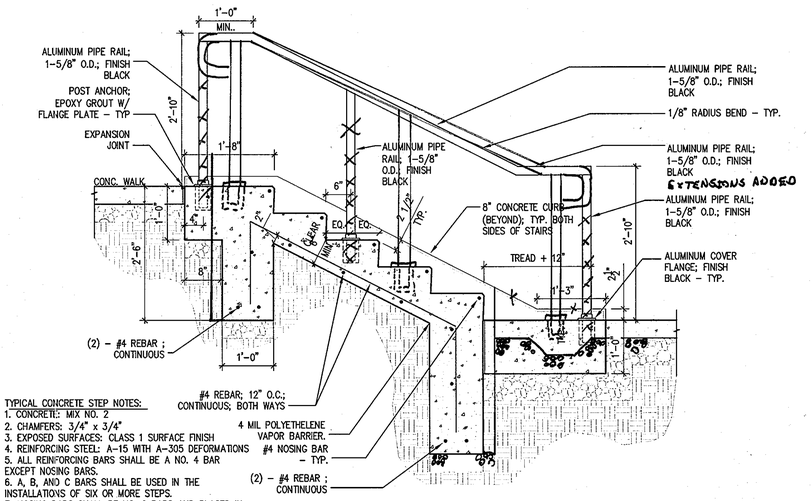
DESIGN GROUP: SCARBOROUGH™
DESCRIPTION: BACKED BENCH, 72", FREESTANDING/SURFACE MOUNT, HORIZONTAL STRAP
PATENT:
FILE: SC175-03
DATE: 2/19/2008
DRAWN BY: JLO
DIMENSIONS ARE IN INCHES[mm]

2 BENCH

L3.1 N.T.S. OR APPROVED EQUAL

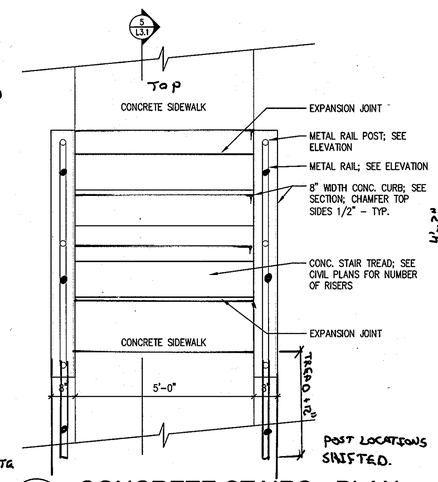


TYPICAL CONCRETE STEP NOTES:
1. CONCRETE: MIX NO. 2
2. CHAMFERS: 3/4" x 3/4"
3. EXPOSED SURFACES: CLASS 1 SURFACE FINISH
4. REINFORCING STEEL: A-15 WITH A-305 DEFORMATIONS
5. ALL REINFORCING BARS SHALL BE A NO. 4 BAR EXCEPT NOSING BARS.
6. A, B, AND C BARS SHALL BE USED IN THE INSTALLATIONS OF SIX OR MORE STEPS.
7. NOSING BARS SHALL BE NO. 2 BARS AND PLACED IN ALL STEPS REGARDLESS OF STAIR LENGTH; MIN. COVER 2 INCHES.
8. UNLESS OTHERWISE NOTED, ALL TREADS SHALL BE FINISHED WITH A SLIGHTLY BROOMED SURFACE; PROVIDE MAX. 2% WASH AT EXTERIOR LOCATIONS.

• RAIL REVISED AS PER HOWARD COUNTY COMMENTS POLE LOCATIONS SHIFTED, CONCRETE FORM CHANGED TO ACCOMMODATE

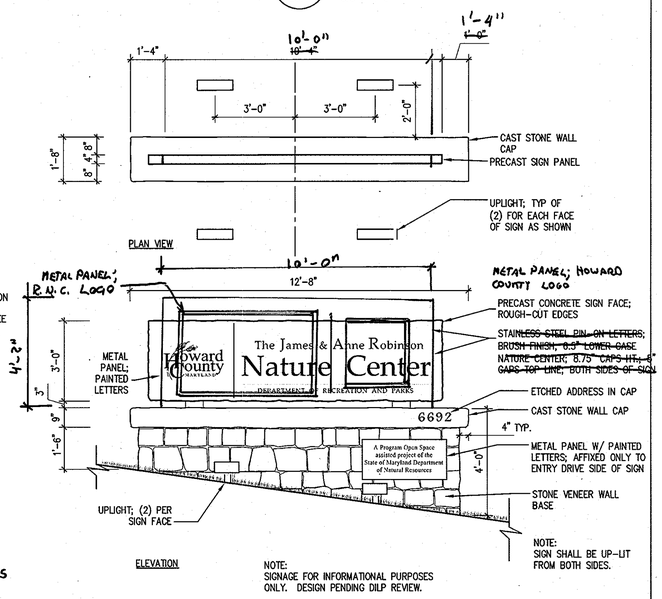
5 CONCRETE STAIRS W/ METAL HANDRAIL - TYP. (DTLS 5+7)

L3.1 3/4" = 1'-0"



7 CONCRETE STAIRS - PLAN

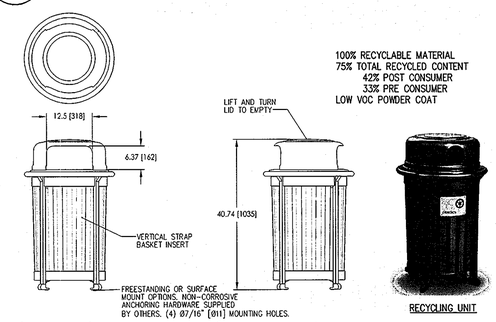
L3.1 3/4" = 1'-0"



9 MONUMENT ENTRY SIGN - ELEVATION

L3.1 3/8" = 1'-0"

SIGNAGE RE-DESIGNED AS PER COMMENTS OF PUBLIC INFORMATION OFFICE.



RECYCLING UNIT

100% RECYCLABLE MATERIAL
75% TOTAL RECYCLED CONTENT
42% POST CONSUMER
33% PRE CONSUMER
LOW VOC POWDER COAT

landscapeforms

431 LAWNDALE AVE. KALAMAZOO, MI 49048 PHONE: 800-521-2546 FAX: 269-381-3455

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DESIGN GROUP: SCARBOROUGH™
DESCRIPTION: LITTER, SIDE OPENING, STRAP
PATENT:
FILE: SC176-01
DATE: 8/23/2006
DRAWN BY:
DIMENSIONS ARE IN INCHES[mm]

TRASH RECEPTACLE / RECYCLING UNIT IS TANDEM PAIRING OF TWO UNITS SHOWN ABOVE– TYPICAL

3 TRASH RECEPTACLE

L3.1 N.T.S. OR APPROVED EQUAL

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1.12.09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

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ARCHITECTURE LANDSCAPE ARCHITECTURE PLANNING INTERIOR DESIGN

ADTEK ENGINEERS, INC.
CIVIL, STRUCTURAL & GEOTECHNICAL ENGINEERING
97 Monocacy Drive, Unit H
Frederick, Maryland 21701-5516
Phone: 301-662-4408 Fax: 301-662-7484
www.adtekengineers.com

~~REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS~~

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

HOWARD SCD DATE

Seal: BOARD OF ENGINEERS OF LANDSCAPE ARCHITECTS 891 ZOLNA RUSSELL STATE OF MARYLAND

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524 , EXPIRATION DATE: 19 JULY, 2009.

GREVES WORRALL WRIGHT & O'HATNICK INCORPORATED
G|W W|O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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OWNER/APPLICANT
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT NUMBER: N39-60

Project Title
Robinson Nature Center

6692 Cedar Lane | Election District No. 5 | Howard County, Maryland

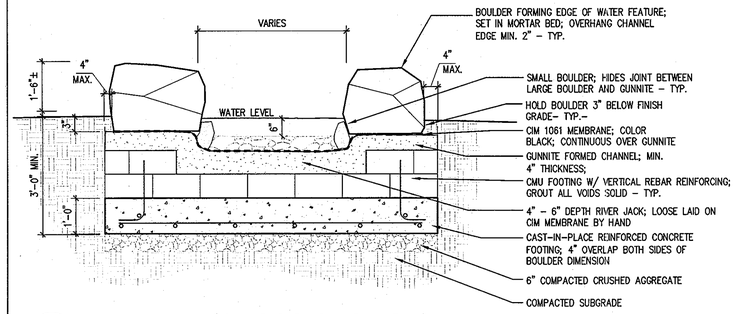
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	5-1-09	UPDATED DETAILS

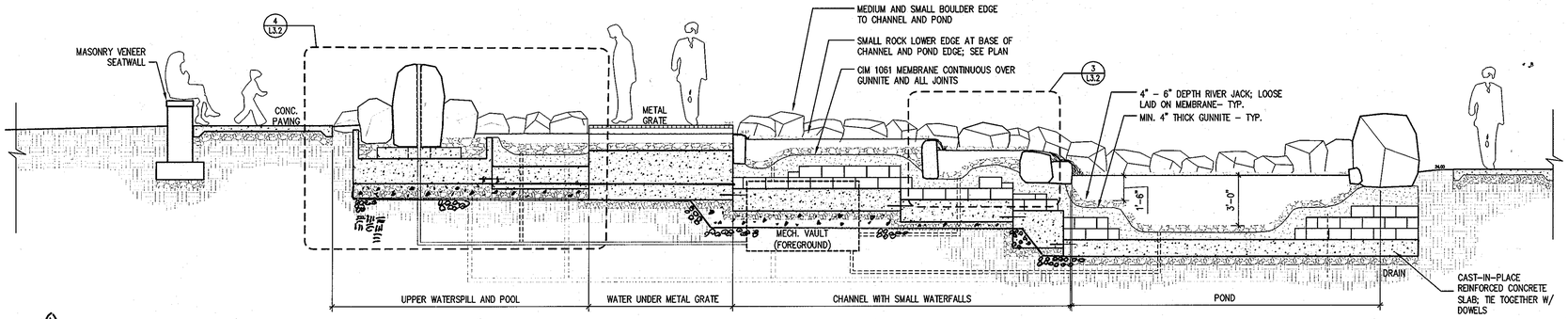
Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
Drawing Title	HARDSCAPE DETAILS	Drawing Number	L3.1
Sheet	28	37	Of

SDP-09-02



1 / L3.2 CHANNEL CROSS-SECTION

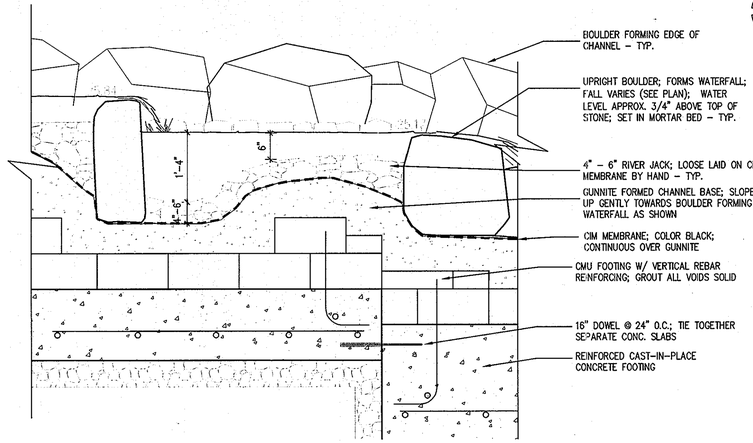
1/2" = 1'-0"



4 / L3.2 WATER FEATURE - LENGTHWISE SECTION

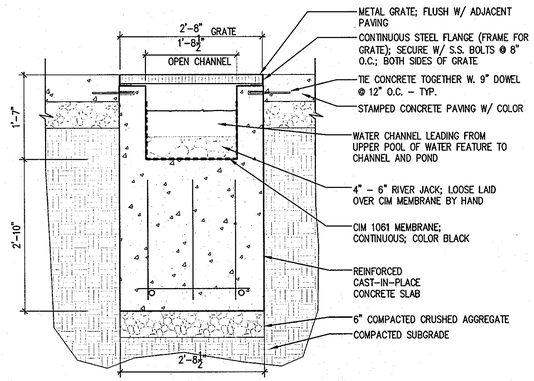
CONCRETE FOOTINGS SIMPLIFIED (REDUCED POURS)

1/4" = 1'-0"



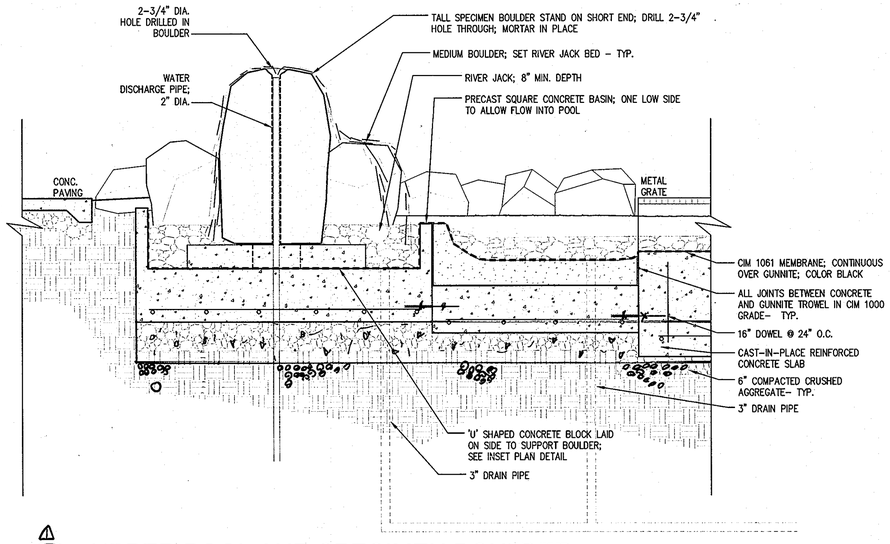
2 / L3.2 CHANNEL - LENGTHWISE SECTION

3/4" = 1'-0"



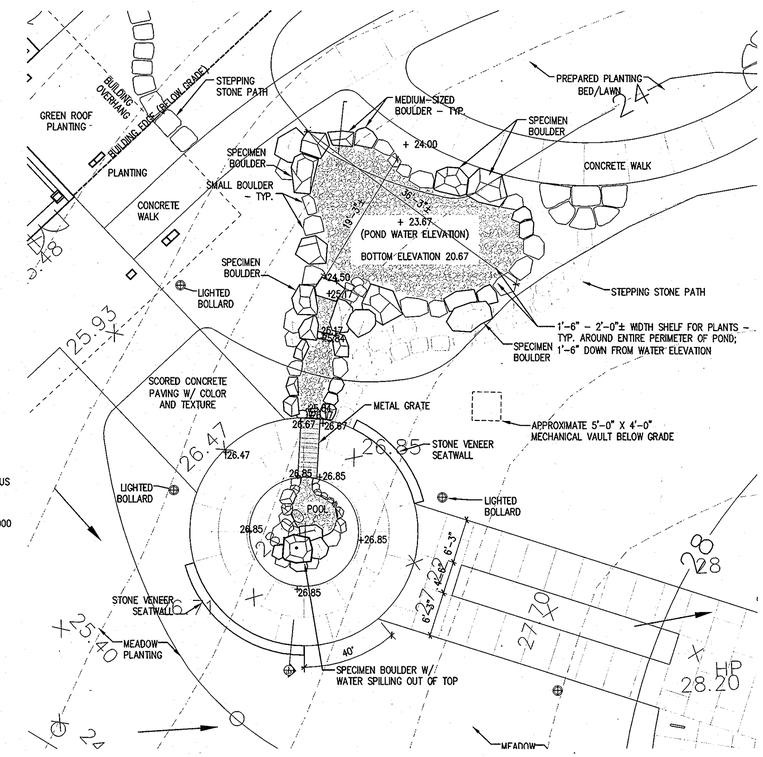
3 / L3.2 METAL GRATE @ WATER FEATURE

3/4" = 1'-0"



5 / L3.2 UPPER POOL AND SPECIMEN BOULDER

1/2" = 1'-0"



6 / L3.2 WATER FEATURE - PLAN

1" = 10'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1-12-9

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/13/09

DIRECTOR, DEP. — DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 11/13/08

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ARCHITECTURE LANDSCAPE ARCHITECTURE PLANNING INTERIOR DESIGN

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HOWARD SCD — DATE

Seal: BOARD OF LANDSCAPE ARCHITECTS 891 ZOLINA RUSSELL STATE OF MARYLAND

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524 , EXPIRATION DATE: 19 JULY, 2009.

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ARCHITECTS
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TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT NUMBER: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

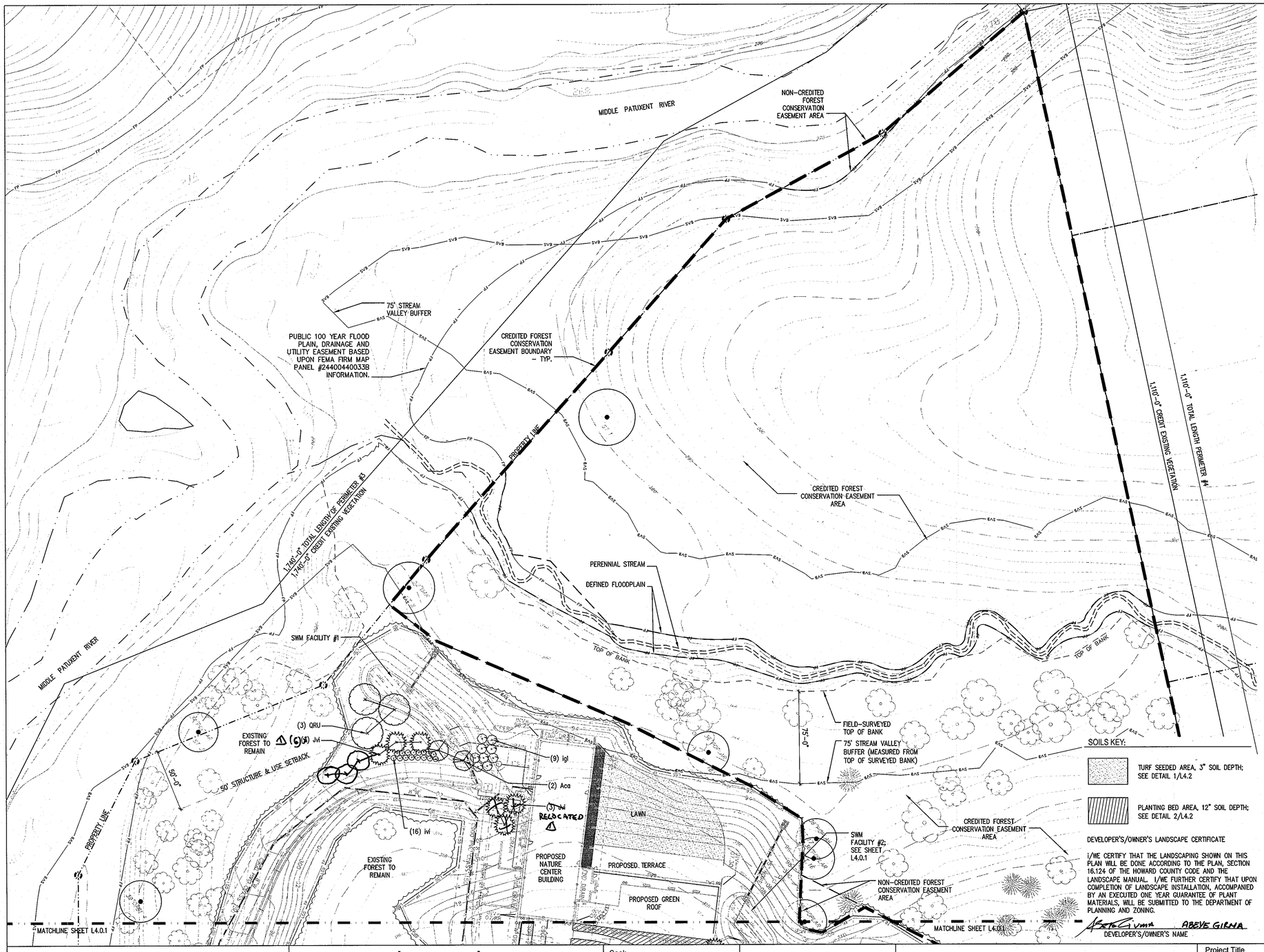
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	6-1-09	CONC. FOOTINGS.

Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
Drawing Title	HARDSCAPE DETAILS	Drawing Number	L3.2
Sheet	29	37	Of

SDP-09-02



PLANT LIST					
QTY.	KEY	BOTANICAL NAME COMMON NAME	SIZE	CONT.	REMARKS
SHADE TREES					
2	BNI	Betula nigra	2-1/2" – 3" Cal.	B & B	Specimen
		River Birch			
18	QRU	Quercus rubra	2-1/2" – 3" Cal.	B & B	Lowest branch @ 6 ft.
		Northern Red Oak			
EVERGREEN TREES					
16	Jvi	Juniperus virginiana	6' – 8' Ht.	B & B	Full To Ground
		Eastern Redcedar			
SMALL DECIDUOUS TREES					
2	Aca	Amelanchier canadensis	8' – 10' Ht.	B & B	
		Serviceberry			
5	Cca	Cercis canadensis	8' – 10' Ht.	B & B	
		Eastern Redbud			
1	Mtr	Magnolia tripetala	8' – 10' Ht.	B & B	
		Umbrella Magnolia			
SHRUBS					
5	atr	Asimina triloba	30" – 36" Ht.	3 gal.	
		Pawpaw			
10	cal	Clethra alnifolia	30" – 36" Ht.	3 gal.	
		Summersweet Clethra			
9	igl	Ilex glabra	24" – 30" Ht.	3 gal.	
		Inkberry Holly			
89	ivi	Itea virginica	24" – 30" Ht.	3 gal.	
		Virginia Sweetspire			

SCHEDULE A

PERIMETER LANDSCAPE EDGE

PERIMETER	EDGE TYPE
PERIMETER #1 – TOTAL LENGTH 490 LF CREDIT EXISTING TREES TO REMAIN – 200 LF PARKING TO ROAD – 290 LF 1 SHADE TREE/ 40 LF = 8 1 SHRUB/ 4 LF = 73	TYPE E
PERIMETER #2 – TOTAL LENGTH 192 LF CREDIT EXISTING TREES TO REMAIN – 192 LF	TYPE B
PERIMETER #3 – TOTAL LENGTH 1,740 LF CREDIT EXISTING TREES TO REMAIN – 1,740 LF	TYPE A
PERIMETER #4 – TOTAL LENGTH 1.110 LF CREDIT EXISTING TREES TO REMAIN – 1,110 LF	TYPE C

TOTAL SCHEDULE A PLANTING OBLIGATION	
SHADE TREES:	8
EVERGREEN TREES:	0
SHRUBS:	73

SCHEDULE A PLANTING PROVIDED	
SHADE TREES:	6
EVERGREEN TREES:	0
SHRUBS:	73
SMALL DECIDUOUS TREES (SUB 2:1 FOR (3) SHADE TREES):	4

SOILS KEY:

TURF SEEDED AREA, 3" SOIL DEPTH; SEE DETAIL 1/L4.2

PLANTING BED AREA, 12" SOIL DEPTH; SEE DETAIL 2/L4.2

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 OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

ABEYE GIRMA
DEVELOPER'S/OWNER'S NAME

GENERAL NOTES:

1. AT 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.

2. 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.

3. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL WITH A TOTAL PLANTING OBLIGATION OF 28 SHADE TREES, 16 EVERGREEN TREES, AND 73 SHRUBS. THE TOTAL PLANTING PROVIDED PER THIS PLAN (TAKING INTO ACCOUNT SOME SUBSTITUTIONS) IS 20 SHADE TREES, 8 SMALL DECIDUOUS TREES, 16 EVERGREEN TREES, AND 113 SHRUBS.

LANDSCAPE NOTES:

1. FOR SCHEDULES B & D, SEE SHEET L4.0.1.

2. ALL SOUTHERN AND WESTERN PROPERTY BOUNDARIES ABUT THE MIDDLE PATUXENT ENVIRONMENTAL AREA (MPEA).

3. ALL DISTURBED AREAS, NOT BUILT UPON OR PLANTED WITH ALTERNATE MATERIALS SHALL BE SEEDED WITH A NATIVE PLANTS AND GRASSES MEADOW MIX. (THE BOUNDARIES OF THIS MEADOW AREA MAY BE DEFINED IN THIS PLAN BY ALL LAND OUTSIDE OF THE EXISTING VEGETATION LINE NOT BUILT UPON OR PLANTED WITH ALTERNATE MATERIALS.)

4. FOR SWM FACILITY LANDSCAPE PLANS, SEE SHEET L4.1.

5. FOR LANDSCAPE PLANTING DETAILS, SEE SHEET L4.2.

6. FOR GREEN ROOF PLANTING PLAN ENLARGEMENT, SEE SHEET L4.2.

0 40 80 120

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 1/13/09

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SCD DATE

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ARCHITECTURE LANDSCAPE ARCHITECTURE PLANNING INTERIOR DESIGN

ADTEK ENGINEERS, INC.
CIVIL, STRUCTURAL & GEOTECHNICAL ENGINEERING
97 Monocacy Drive, Unit H
Frederick, Maryland 21701-5516
Phone: 301-662-4408 Fax: 301-662-7484
www.adtekengineers.com

Seal: MARYLAND LICENSED LANDSCAPE ARCHITECT 891 ZOLNA RUSSELL STATE OF MARYLAND

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND. LICENSE NUMBER: 26524 , EXPIRATION DATE: 19 JULY, 2009.

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
G|W
W|O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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OWNER/APPLICANT
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT NUMBER: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane | Election District No. 5 | Howard County, Maryland

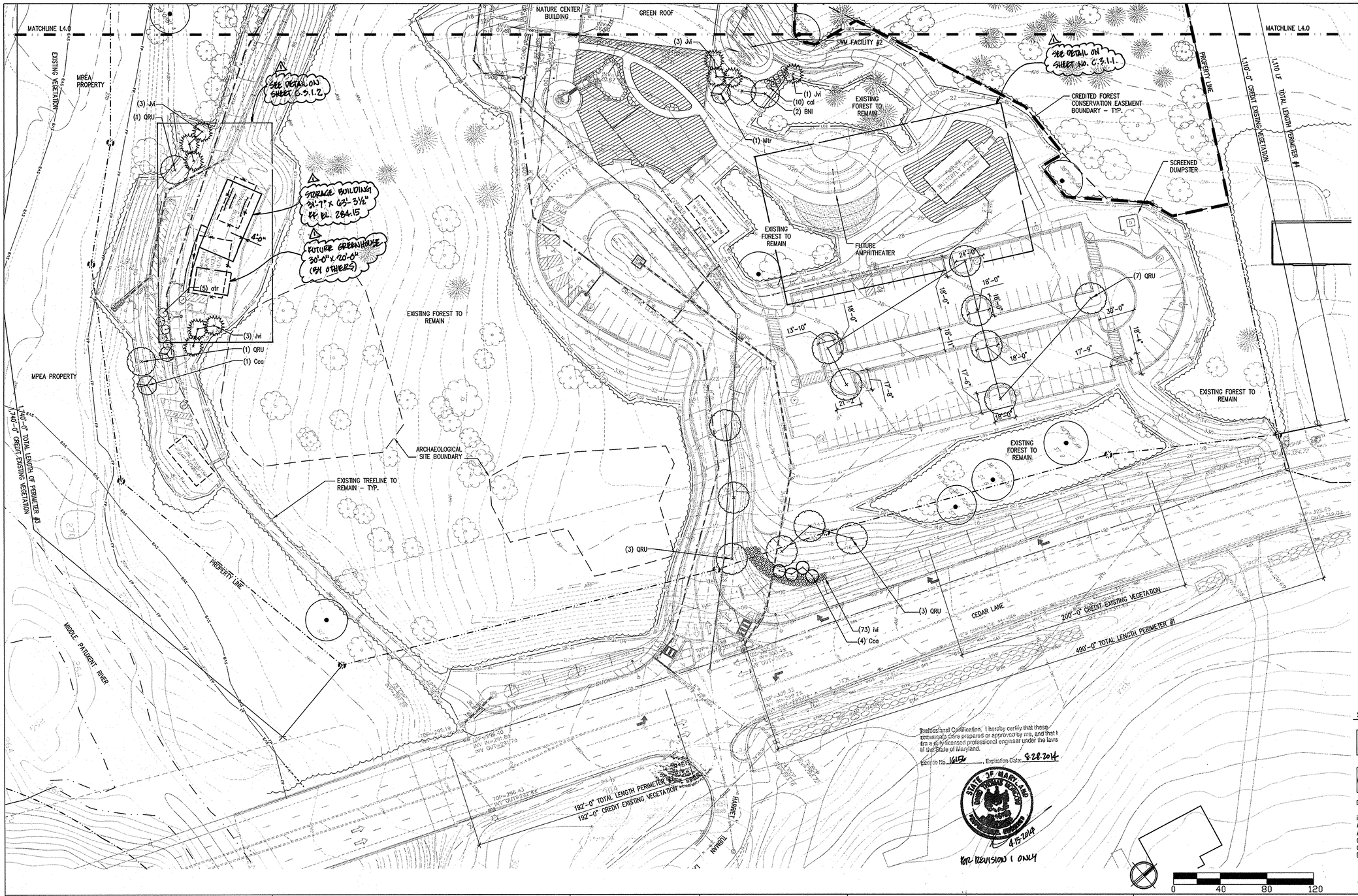
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	5-1-09	PLANTING

Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
Drawing Title: OVERALL LANDSCAPE PLAN -NORTH-		Drawing Number: L4.0	
Sheet	30	37	Of

SDP-09-02



SCHEDULE B

PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PARKING SPACES:	130
NUMBER OF LANDSCAPED ISLANDS REQUIRED (1 PER 20 SPACES):	7
NUMBER OF LANDSCAPED ISLANDS PROVIDED:	7
NUMBER OF TREES REQUIRED (1 PER 20 SPACES):	7
NUMBER OF TREES PROVIDED SHADE TREES	7 SHADE TREES

SCHEDULE D

SWM FACILITY LANDSCAPING

FACILITY #1	
*PERIMETER LENGTH	340.5 LF
CREDIT EXISTING WOODS TO REMAIN	209.5 LF
BUFFER LENGTH	131 LF
BUFFER TYPE	B
TREES REQUIRED	
1 SHADE TREE/ 50 LF	3
1 EVERGREEN TREE/ 40 LF	4
FACILITY #2	
*PERIMETER LENGTH	257 LF
CREDIT EXISTING WOODS TO REMAIN	55 LF
BUFFER LENGTH	202 LF
BUFFER TYPE	B
TREES REQUIRED	
1 SHADE TREE/ 50 LF	5
1 EVERGREEN TREE/ 40 LF	6
FACILITY #3	
*PERIMETER LENGTH	457 LF
EXISTING WOODS TO REMAIN	220 LF
BUFFER LENGTH	237 LF
BUFFER TYPE	B
TREES REQUIRED	
1 SHADE TREE/ 50 LF	5
1 EVERGREEN TREE/ 40 LF	6

* NOTE: TOTAL PERIMETER LENGTH FOR EACH FACILITY INCLUDES REQUIRED 20 FT SETBACK PER HOWARD COUNTY LANDSCAPE MANUAL, FIGURE 8.

TOTAL SWM PLANTING OBLIGATION	
SHADE TREES:	13
EVERGREEN TREES:	16

SWM PLANTING PROVIDED	
SHADE TREES:	7
EVERGREEN TREES:	16
SHRUBS (SUB 10:1 FOR (4) SHADE TREES:	40
SMALL DECIDUOUS TREES (SUB 2:1 FOR (2) SHADE TREES):	4

SOILS KEY:

TURF SEEDED AREA, 3" SOIL DEPTH; SEE DETAIL 1/L4.2

PLANTING BED AREA, 12" SOIL DEPTH; SEE DETAIL 2/L4.2

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. 16157, Expiration Date: 8-28-2014

STATE OF MARYLAND — ZONIA RUSSELL — No. 16157 — PROFESSIONAL ENGINEER

4-15-2014

FOR REVISION 1 ONLY

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 OF LANDSCAPE INSTALLATION, ACCOMPANED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Abeye Girma — ABEYE GIRMA
DEVELOPER'S/OWNER'S NAME

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards — CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1.12.09
Cindy Hanna — CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
Thomas G. Butler — DIRECTOR, DEP	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SCD — DATE

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ARCHITECTURE LANDSCAPE ARCHITECTURE PLANNING INTERIOR DESIGN

ADTEK ENGINEERS, INC.
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97 Monocacy Drive, Unit H
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Phone: 301-662-4408 Fax: 301-662-7484
www.adtekengineers.com

Seal: STATE OF MARYLAND — ZONIA RUSSELL — No. 16157 — PROFESSIONAL ENGINEER

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524 , EXPIRATION DATE: 19 JULY, 2009.

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DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT NUMBER: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

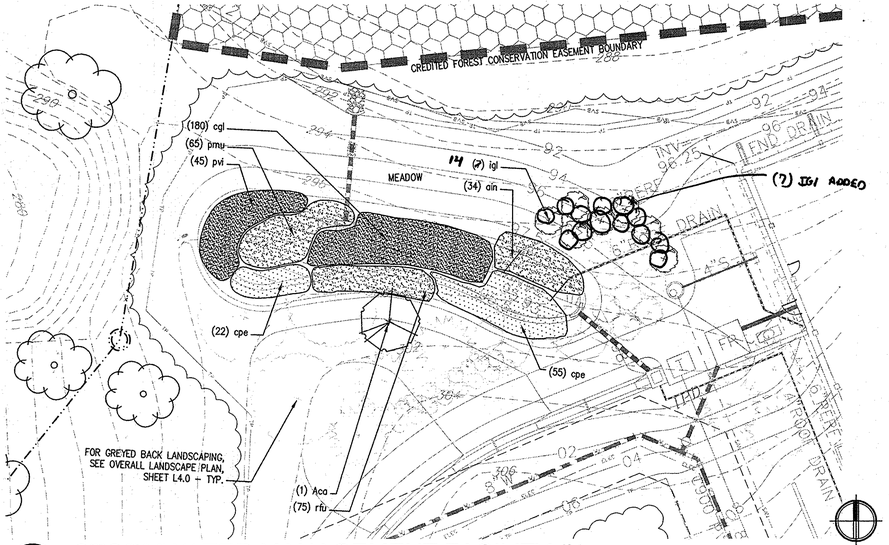
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	4-15-14	ADDED REFERENCE NOTES

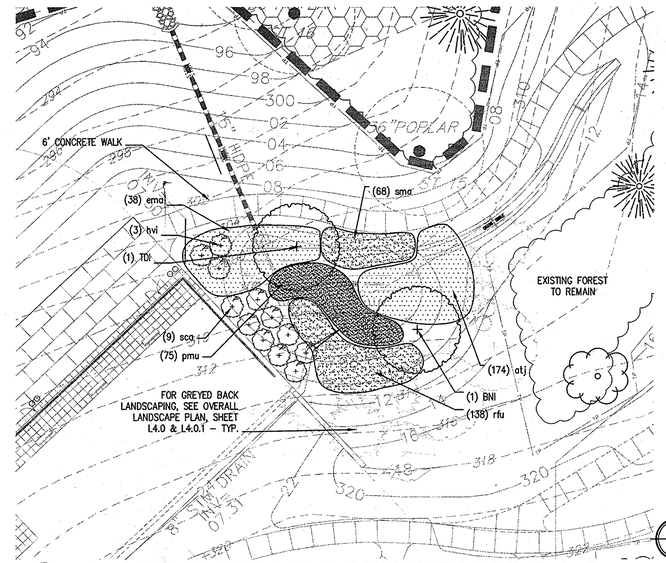
Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
Drawing Title	OVERALL LANDSCAPE PLAN -SOUTH-	Drawing Number	L4.0.1
Sheet	31	37	Of

SDP-09-02



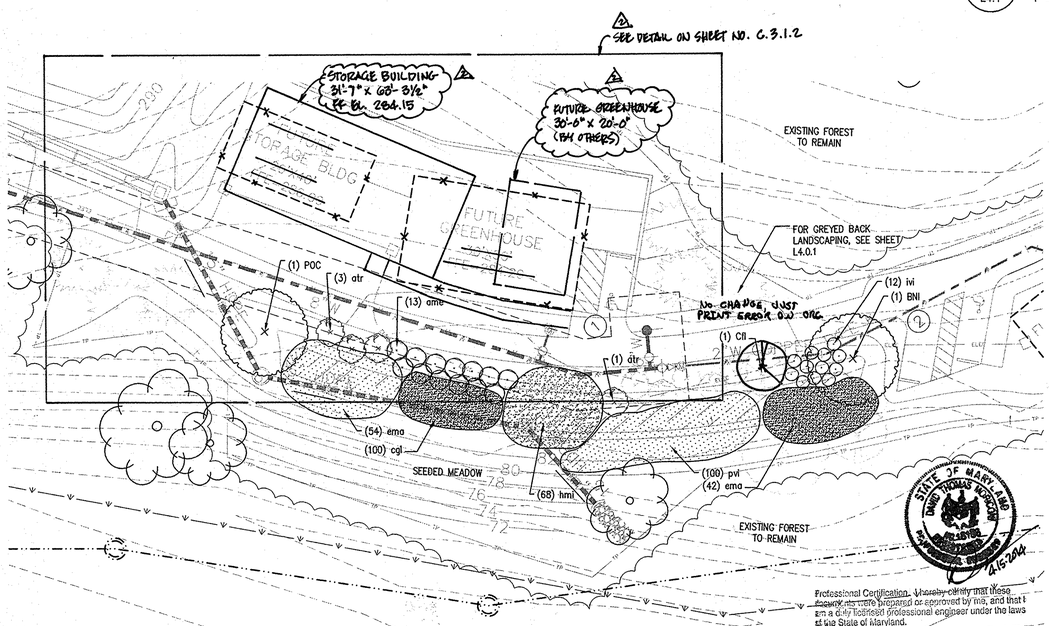
1 STORMWATER MANAGEMENT FACILITY #1

L4.1 1" = 20'-0"



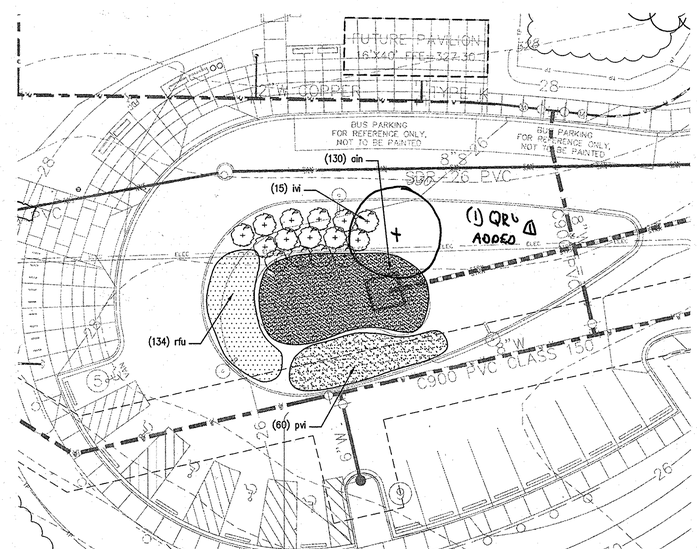
3 STORMWATER MANAGEMENT FACILITY #2

L4.1 1" = 20'-0"



2 STORMWATER MANAGEMENT FACILITY #3

L4.1 1" - 20'-0"



4 DROP-OFF AREA - BIOFILTRATION PLANTING

L4.1 1" - 20'-0"

1	QRU	QUERCUS RUBRA	2 1/2" - 3" cal.	B&B	SPECIMEN

PLANT LIST

QTY.	KEY	BOTANICAL NAME / COMMON NAME	SIZE	CONT.	REMARKS
SHADE TREES					
2	BNI	Betula nigra	2-1/2" - 3" Cal.	B & B	Multi-Stem
		Riverbirch			
1	POC	Platanus occidentalis	2-1/2" - 3" Cal.	B & B	Specimen
		Sycamore			
1	TDI	Taxodium distichum	2-1/2" - 3" Cal.	B & B	Specimen
		Baldcypress			
SMALL DECIDUOUS TREES					
1	Aca	Amelanchier canadensis	8-10' ht.	B & B	Specimen
		Serviceberry			
1	Cfl	Cornus florida	8-10' ht.	B & B	Specimen
		Flowering Dogwood			
SHRUBS					
13	ame	Aronia melanocarpa	30" - 36" ht.		
		Black chokeberry			
4	atr	Asimina triloba	36" - 42" ht.		
		Pawpaw			
3	hvi	Hamamelis virginiana	36" ht.		
		Witchhazel			
14	igl	Ilex glabra		3 gal.	3'-0" o.c.
		Inkberry Holly			
27	ivi	Itea virginica 'Henry's Garnet'	24"-30" ht.		
		Virginia Sweetspire			
9	sca	Sambucus canadensis	36" ht.		
		American Elder			
PERENNIALS/GRASSES					
164	ain	Asclepias incarnata		1 qt.	24" o.c.
		Swamp Milkweed			
174	atj	Aster tataricus 'Jindai'		1 qt.	24" o.c.
		Tatarian Aster			
280	cgl	Chilone glabra		1 qt.	24" o.c.
		White Turtlehead			
77	cpe	Carex pensylvanica		1 qt.	18" o.c.
		Pennsylvania Sedge			
134	ema	Eupatorium maculatum 'gateway'		1 gal.	3'-0" o.c.
		Joe Pye Weed			
68	hmi	Helianthus microcephalus		1 gal.	3'-0" o.c.
		Small Woodland Sunflower			
140	pmu	Pycnanthemum muticum		1 qt.	24" o.c.
		Big Leaf Mountain Mint			
205	pvi	Panicum virgatum		1 gal.	3'-0" o.c.
		Switchgrass			
347	rfu	Rudbeckia fulgida 'Fulgida'		1 qt.	24" o.c.
		Black Eyed Susan			
68	sma	Spigelia marilandica		1 qt.	24" o.c.
		Woodland Pinkroot			

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 11/13/08

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ARCHITECTURE LANDSCAPE ARCHITECTURE PLANNING INTERIOR DESIGN

ADTEK ENGINEERS, INC.

CIVIL, STRUCTURAL & GEOTECHNICAL ENGINEERING

97 Monocacy Drive, Unit H
Frederick, Maryland 21701-5516
Phone: 301-662-4408 Fax: 301-662-7484
www.adtekengineers.com

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SCD DATE

Seal: BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS 891 ZONA RUSSELL STATE OF MARYLAND

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524 , EXPIRATION DATE: 19 JULY, 2009.

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED

G | W
W | O

ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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OWNER/APPLICANT
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT NUMBER: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

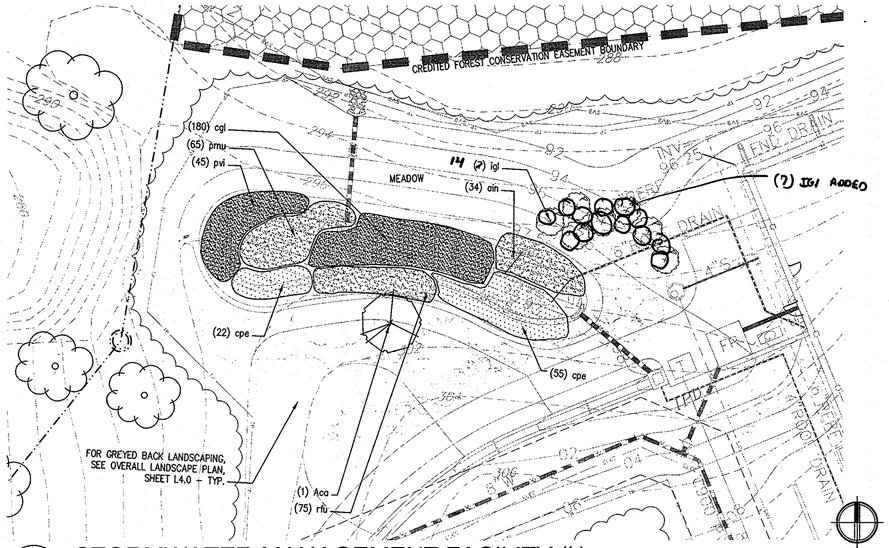
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

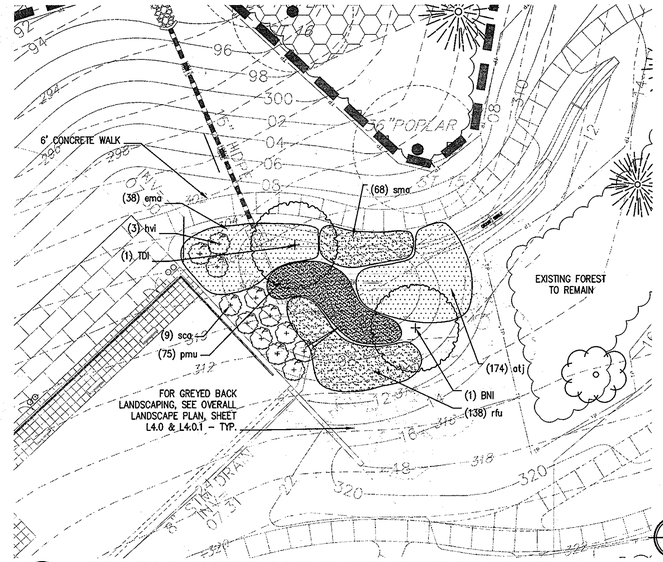
No.	Date	Description
1	5-1-09	PLANTING
2	4-15-14	ADDED REFERENCE NOTES

Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
Drawing Title	SWM FACILITY LANDSCAPE PLAN	Drawing Number	L4.1
Sheet	32	37	Of

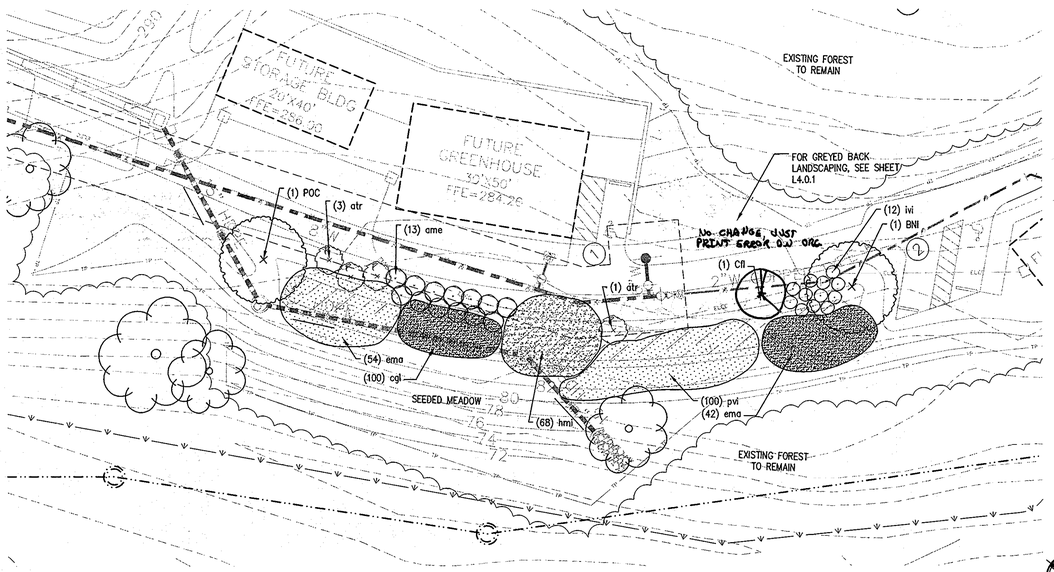
SDP-09-02



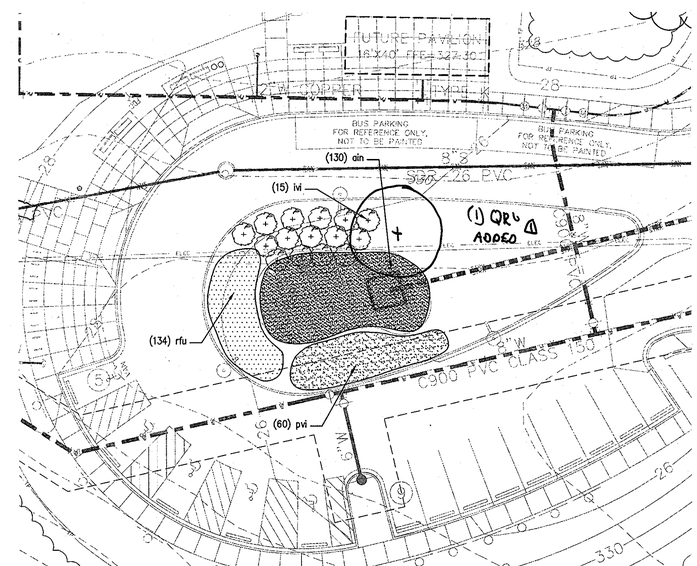
1 STORMWATER MANAGEMENT FACILITY #1
L4.1 1" = 20'-0"



3 STORMWATER MANAGEMENT FACILITY #2
L4.1 1" = 20'-0"



2 STORMWATER MANAGEMENT FACILITY #3
L4.1 1" - 20'-0"



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		Witchhazel			
14 P	igl	Ilex glabra		3 gal.	3'–0" o.c.
		Inkberry Holly			
27	ivi	Itea virginica 'Henry's Garnet'	24"–30" ht.		
		Virginia Sweetspire			
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68	sma	Spigelia marilandica		1 qt.	24" o.c.
		Woodland Pinkroot			

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

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ARCHITECTURE LANDSCAPE ARCHITECTURE PLANNING INTERIOR DESIGN

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~~REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS~~

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

~~HOWARD SCD DATE~~

Seal:

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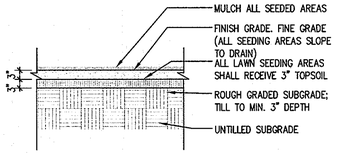
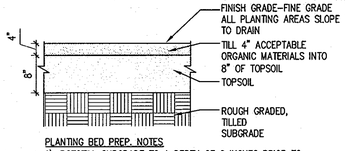


LAWN SEEDING PREPARATION NOTES:
1). ROTOTILL SUBGRADE TO A DEPTH OF 3 INCHES PRIOR TO PLACEMENT OF TOPSOIL.
2). PLACE TOPSOIL ON TOP OF TILLED SUBGRADE TO DEPTH REQUIRED.
3). FINE GRADE SEEDING AREA PRIOR TO SEEDING.
4). SEED AS PER DETAILS.
5). MULCH AS PER DETAILS.
6). FERTILIZE AS REQUIRED.
7). PROTECT SEEDED AREAS FROM SUBSEQUENT CONSTRUCTION ACTIVITY.
8). ALL DISTURBED AREAS THAT ARE NOT PLANT BEDS OR TURF SEEDED SHALL MEADOW SEEDED. REFER TO SHEET L4.0 FOR PLANT BED AND LAWN AREA LOCATIONS.

1 SEEDED AREA BED PREPARATION

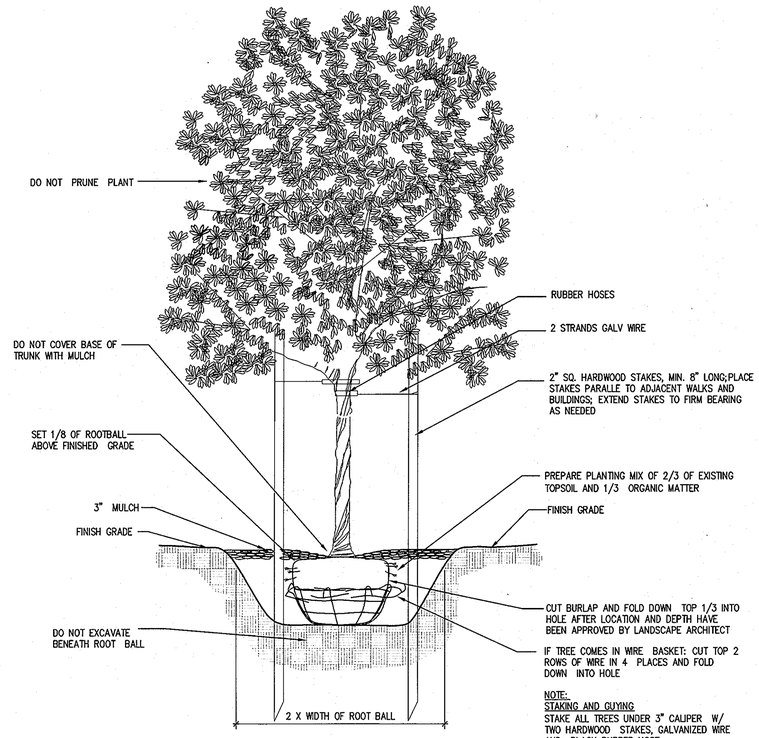
L4.2 1/2" = 1'-0"



PLANTING BED PREP. NOTES
1). ROTOTILL SUBGRADE TO A DEPTH OF 6 INCHES PRIOR TO PLACEMENT OF TOPSOIL AND AMMENDMENTS.
2). PLACE 8" TOPSOIL.
4). PLACE 4" OF ACCEPTABLE ORGANIC MATERIAL IN ALL PLANTING BEDS.
5). ROTOTILL ORGANIC MATTER INTO PLANTING TOPSOIL.
6). FINE GRADE FINISHED PLANTING BED PRIOR TO MULCHING.
7). PLANT AS PER DETAILS.
8). FERTILIZE AS REQUIRED.
9). PROTECT PREPARED PLANTING BEDS FROM SUBSEQUENT CONSTRUCTION ACTIVITY.

2 PLANTING AREA BED PREPARATION

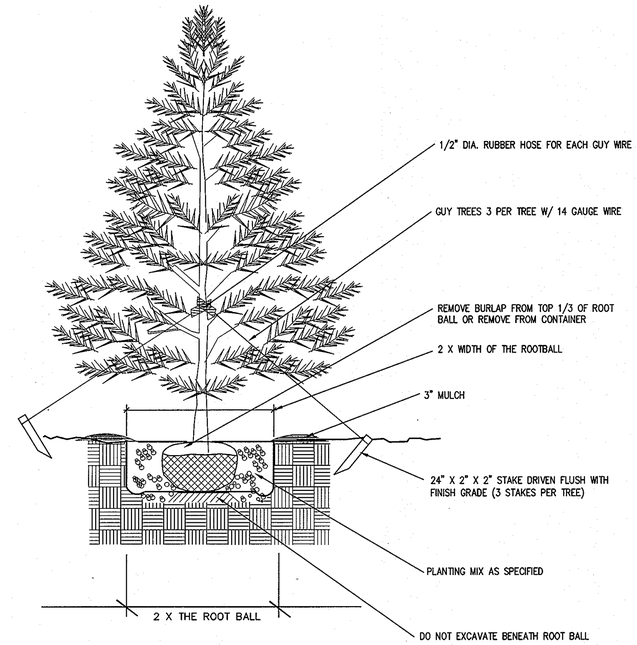
L4.2 1/2" = 1'-0"



NOTE:
STAKING AND GUYING
STAKE ALL TREES UNDER 3" CALIPER W/ TWO HARDWOOD STAKES, GALVANIZED WIRE AND BLACK RUBBER HOSE

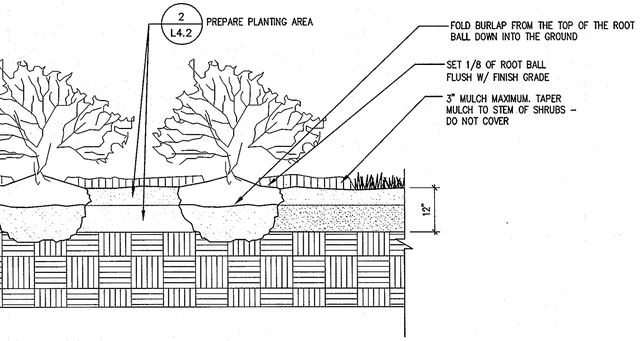
4 TREE PLANTING - TYP.

L4.2 1/2" = 1'-0"



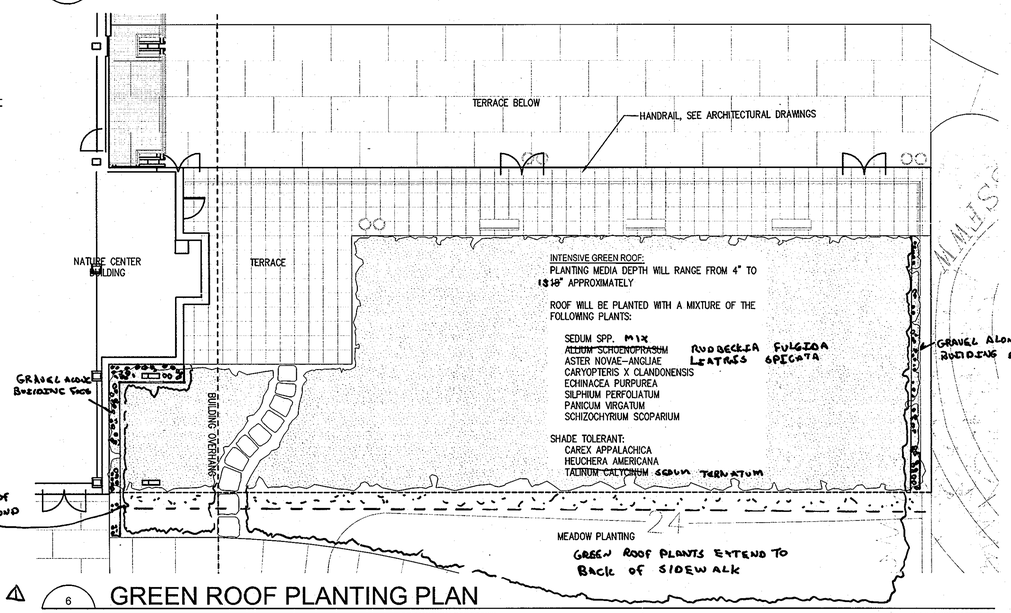
5 EVERGREEN TREE PLANTING (TYP.)

L4.2 3/4" = 1'-0"



3 SHRUB IN PLANTING BED (TYP.)

L4.2 3/4" = 1'-0"



6 GREEN ROOF PLANTING PLAN

L4.2 1" = 10'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwardson	1-12-09
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
Kristy Kenney	1/13/09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
Thomas G. Sadler	1/14/09
DIRECTOR, DEP.	DATE

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

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ARCHITECTURE LANDSCAPE ARCHITECTURE PLANNING INTERIOR DESIGN

ADTEK ENGINEERS, INC.
CIVIL, STRUCTURAL & GEOTECHNICAL ENGINEERING
97 Monocacy Drive, Unit H
Frederick, Maryland 21701-5516
Phone: 301-662-4408 Fax: 301-662-7484
www.adtekengineers.com

~~REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS~~
~~THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT~~
HOWARD SCD DATE

Seal: BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS 891 SOLMA RUSSELL STATE OF MARYLAND

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524 , EXPIRATION DATE: 19 JULY, 2009.

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
G | W
W | O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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OWNER/APPLICANT
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT NUMBER: N39-60

Project Title
Robinson Nature Center

6692 Cedar Lane | Election District No. 5 | Howard County, Maryland

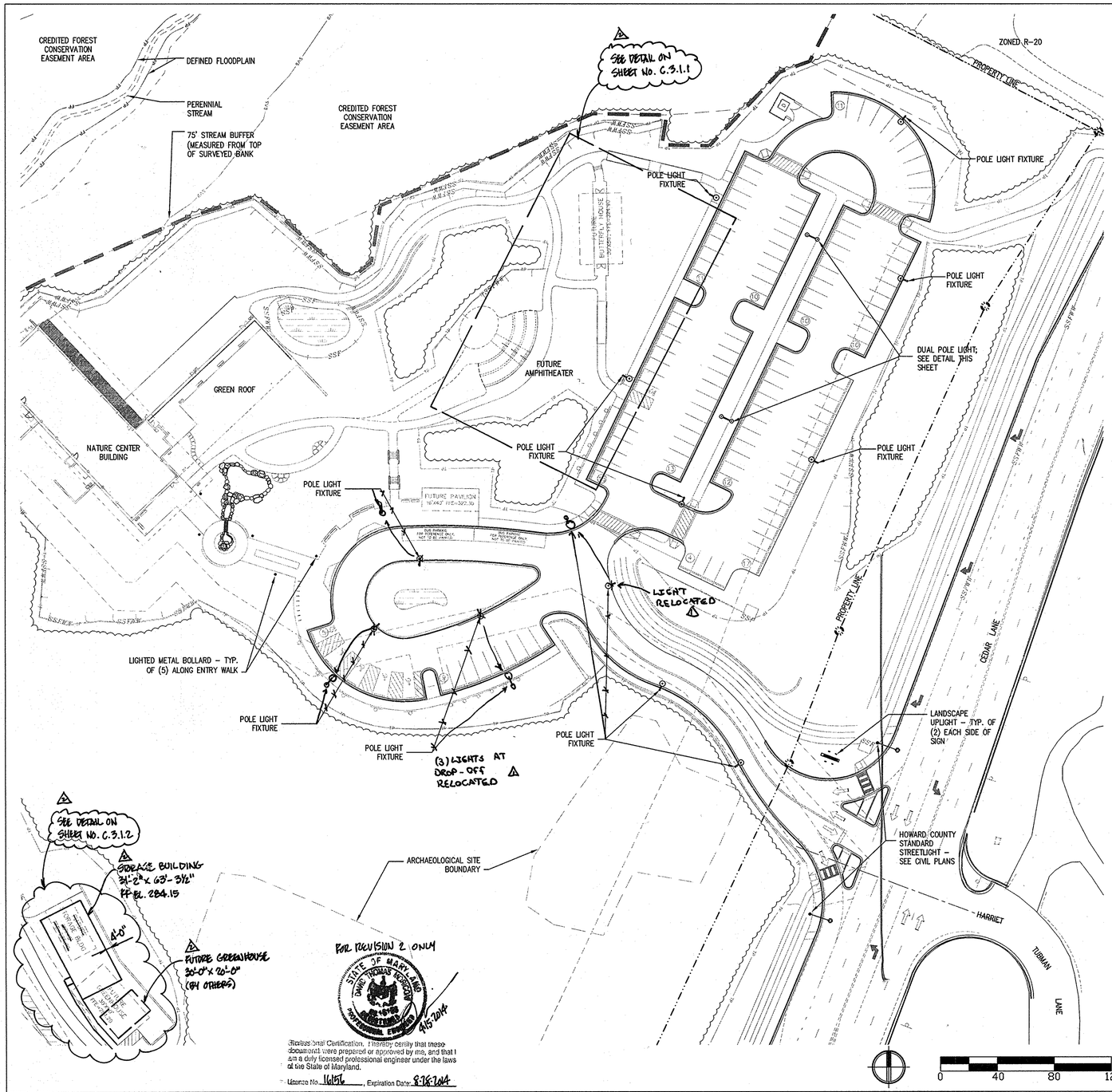
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description
1	6-1-09	GREEN ROOF

Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
Drawing Title	PLANTING DETAILS	Drawing Number	L4.2
Sheet	33	37	Of

SDP-09-02

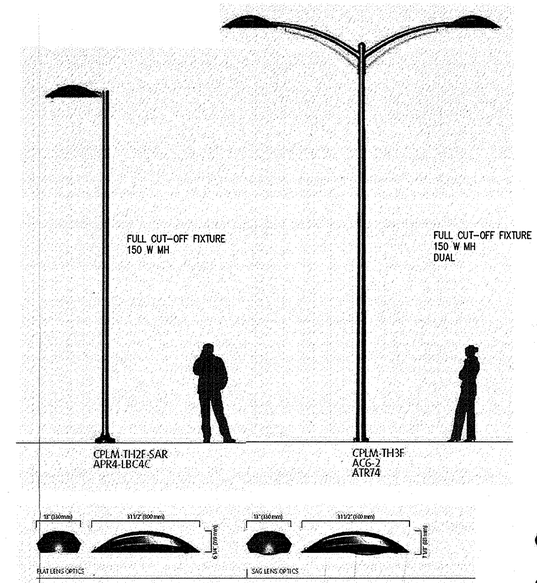


FOR REVISION 2 ONLY

STATE OF MARYLAND – LANCE THOMAS BERCOW – No. 16156 – PROFESSIONAL ENGINEER – 4/15/2014

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. 16156, Expiration Date: 8-18-2014



HID lamps *(High intensity discharge)*

Wattage	2H / 4H	2HF / 4HF
50 MH	medium	✓
70 MH	medium	✓
100 MH	medium	✓
150 MH	medium	✓
175 MH	medium	✓
35 HPS	medium	✓
50 HPS	medium	✓
70 HPS	medium	✓
100 HPS	medium	✓
150 HPS	medium	✓
18 CF	✓	✓
26 CF	✓	✓
32 CF	✓	✓
42 CF	✓	✓

> Socket CX24Q-2 (18W), CX24Q-3 (26W) (32W), CX24Q-4 (42W), triple tube for compact fluorescent (lamp not included).

Optical systems *(lamps not included)*

FLATLENS optics Sealed optical chamber consisting of an hydroformed reflector permanently sealed; one flat tempered glass lens.	2HF: Full cut-off (F); 4HF: Full cut-off (IV)

Voltages

120 / 208 / 240 / 277 / 347 / 480

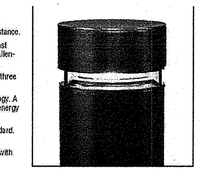
> multitap ballast also available

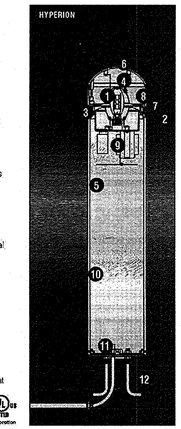
Luminaire options

HS	House shield
PH7	Photoelectric cell

1 POLE LIGHT FIXTURE

L5.0 N.T.S.





LAMP TYPE: Standard or Ceramic Metal Halide

HOUSING: One-piece, heavy-walled, extruded aluminum, .322" thick for vandal resistance.

CROWN ASSEMBLY: Flat or domed, heavy cast aluminum. For added security against vandals, crown attaches to lower housing with four captive, concealed 1/4" x 20 Allen-head screws.

LENS: One-piece, heavy-walled borosilicate lens is recessed .764" and protected by three cast ribs for vandal resistance. Exposed portion of the lens is only .671" tall.

OPTICS: Patented Opti™ optical assembly uses Constructive Occlusion™ technology. A precisely positioned clear lamp in a Cavity and Fan™ assembly projects radiant energy into selective zones. Proprietary coating on the cavity is 98% reflective.

BALLAST: High Power Factor, multi-tap ballast designed for -20°F operation is standard. Universal electronic ballast for 120-277V, 50 or 60 HZ operation is available.

LAMPHOLDER: Matched to lamp. Glazed porcelain, mexium base, 4KV pulse rated with spring center contact.

ANCHOR BOLTS: Anchor bolts are 3/8" x 10" heavy-duty galvanized steel. Four (4) are furnished.

FINISH: Available in metallic silver, satin verde green, black, bronze, white, and buff.

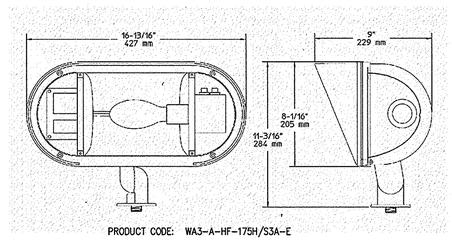
EXTRA VALUE FEATURES:
- Unique Opti™ optical assembly
- Tailored, uniform distribution over greater distances.
- Increased spacing between luminaires
- Vandal Resistant Aperture
- Heavy Duty Construction
- Premium Materials

Bollards are subjected to extreme environments – from severe weather to pedestrian wear-and-tear, and senseless vandalism. The Hyperion Bollard Series was designed with this harsh reality in mind, and that's why its materials are of the highest quality, ruggedly durable, and feature superior vandal resistant construction.

1. **OPTICS** – Opti™ optics are the heart of this luminaire. A clear lamp is precisely positioned in a highly engineered, and patented, Cavity and Fan assembly that functions like an integrating sphere. Known as Constructive Occlusion technology, this sphere uses a proprietary internal coating that realizes 98% reflectance. The lamp's radiant energy is distributed by this finely tuned, reflective surface to desired zones.
2. **VANDAL RESISTANT APERTURE** – Hyperion features the narrowest aperture of any bollard on the market, a mere 1.167" wide, which gives the luminaire a sleek and elegant appearance while minimizing the target area available to vandals.
3. **VANDAL RESISTANT LENS** – The one-piece, heavy-walled borosilicate lens is recessed a full .764" and protected by three cast ribs. The exposed portion of the lens is only .671" tall. These design features and premium materials provide superior vandal resistance.
4. **LAMPS** – Standard and Ceramic Metal Halide
5. **HEAVY-WALL HOUSING** – One-piece, heavy-wall extruded aluminum, .322" thick for vandal resistance.
6. **CROWN** – Flat or domed heavy-wall cast aluminum. One-piece castings provide for greater impact strength.
7. **CONCEALED ACCESS** – Added security against vandals, crown attaches to lower housing with four captive, concealed 1/4" x 20 Allen-head screws.
8. **SEALING AND GASKETS** – Silicone gaskets and seals ensure Hyperion is as dependable as it is rugged.
9. **BALLASTS** – Standard ballast is high power factor, designed for -20° operation. Universal electronic ballast available.
10. **FINISHES** – Metallic Silver, Satin Verde Green, Black, Bronze, White or Platinum Plus polyester powder coating.
11. **MOUNTING BASE** – Extra thick, 1/2" cast aluminum (cromate converted and powder coat finished in black standard).
12. **ANCHOR BOLTS** – 3/8" x 10" heavy-duty galvanized steel; four (4) furnished.

3 LIGHTED METAL BOLLARD

L5.0 N.T.S.



PRODUCT CODE: WA3-A-HF-175H/S3A-E

BLACK POWDERCOAT
175W METAL HALIDE LAMP
DIMENSIONS AS SHOWN
MOUNTED IN PLACE AS RECOMMENDED BY MANUFACTURER

2 SIGNAGE UPLIGHT

L5.0 N.T.S.

LIGHTING LEGEND:

- POLE LIGHT FIXTURE — QUANTITY: 12
- DUAL POLE LIGHT FIXTURE — QUANTITY: 2
- LIGHTED METAL BOLLARD — QUANTITY: 5
- LANDSCAPE UPLIGHT — QUANTITY: 4
- STANDARD HOWARD COUNTY STREET LIGHT — QUANTITY: 2

GENERAL NOTE:
ALL EXTERIOR LIGHT FIXTURES SHALL BE ORIENTED TO DIRECT LIGHT INWARDS AND DOWNWARDS ON-SITE AWAY FROM ALL ADJOINING RESIDENTIAL PROPERTIES AND PUBLIC ROADS AND SHALL BE IN COMPLIANCE WITH THE LIGHT TRESPASS LIMIT OF 0.5 FOOTCANDLES ONTO ANY OTHER ADJOINING PROPERTY ZONED OR USED FOR RESIDENTIAL PURPOSES IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edmondson — CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-09
Cindy Hanna — CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/12/09
Thomas G. Lutter — DIRECTOR, DEPT.	DATE 1/12/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

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ARCHITECTURE LANDSCAPE ARCHITECTURE PLANNING INTERIOR DESIGN

ADTEK ENGINEERS, INC.
CIVIL, STRUCTURAL & GEOTECHNICAL ENGINEERING
97 Monocacy Drive, Unit H
Frederick, Maryland 21701-5516
Phone: 301-662-4408 Fax: 301-662-7484
www.adtekengineers.com

~~REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS~~

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

~~HOWARD SCD~~ ~~DATE~~

Seal: BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS – 891 – TONIA RUSSELL – STATE OF MARYLAND

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER: 26524 , EXPIRATION DATE: 19 JULY, 2009.

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
G | W
W | O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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OWNER/APPLICANT
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT NUMBER: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

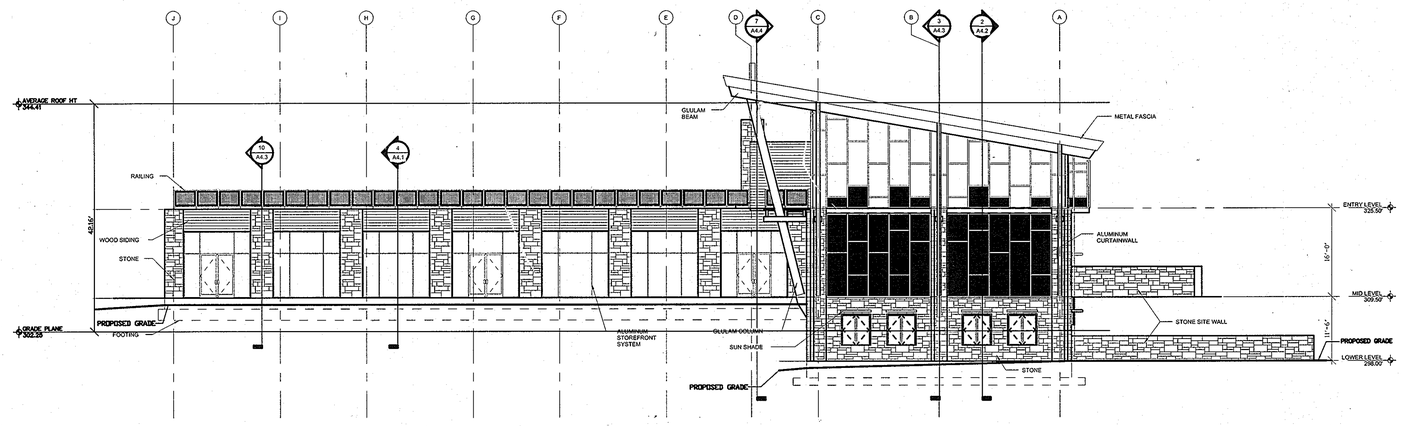
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

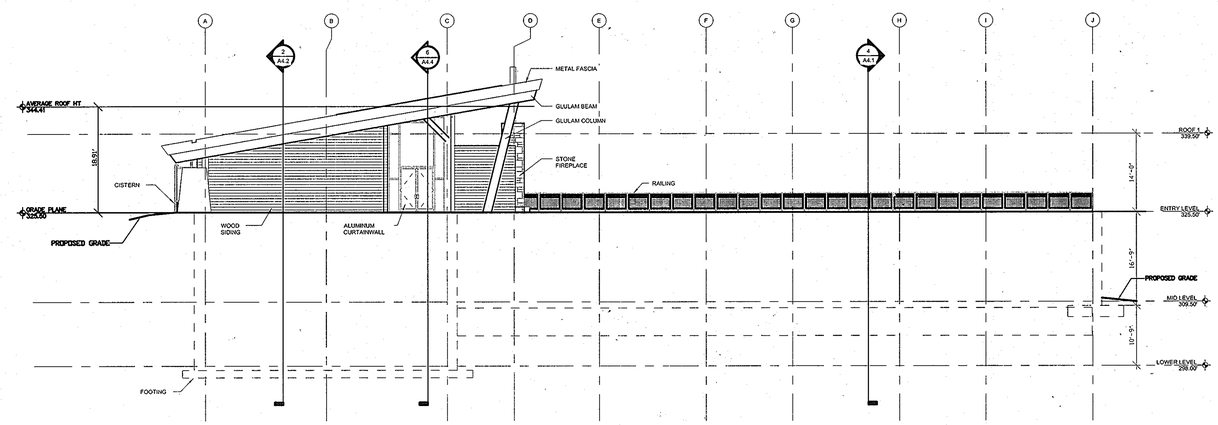
No.	Date	Description
1	5-1-09	LIGHTS
2	4-15-14	ADDED REFERENCE NOTES

Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
Drawing Title	LIGHTING PLAN	Drawing Number	L5.0
Sheet	34 of 37		

SDP-09-02



1 A3.1 NORTH ELEVATION
1/8" = 1'-0"



2 A3.1 SOUTH ELEVATION
1/8" = 1'-0"

BUILDING HEIGHTS	
NORTH ELEVATION	42.16'
SOUTH ELEVATION	18.91'
WEST ELEVATION	32.91'
EAST ELEVATION	41.04'
OVERALL MEAN BUILDING HEIGHT	33.75'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/13/09
DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

Seal:

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GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
GWWO
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
BALTIMORE, MARYLAND 21211, 410-332-1009

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HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT #: N39-60

Project Title
Robinson Nature Center
6692 Cedar Lane — Election District No. 5 — Howard County, Maryland

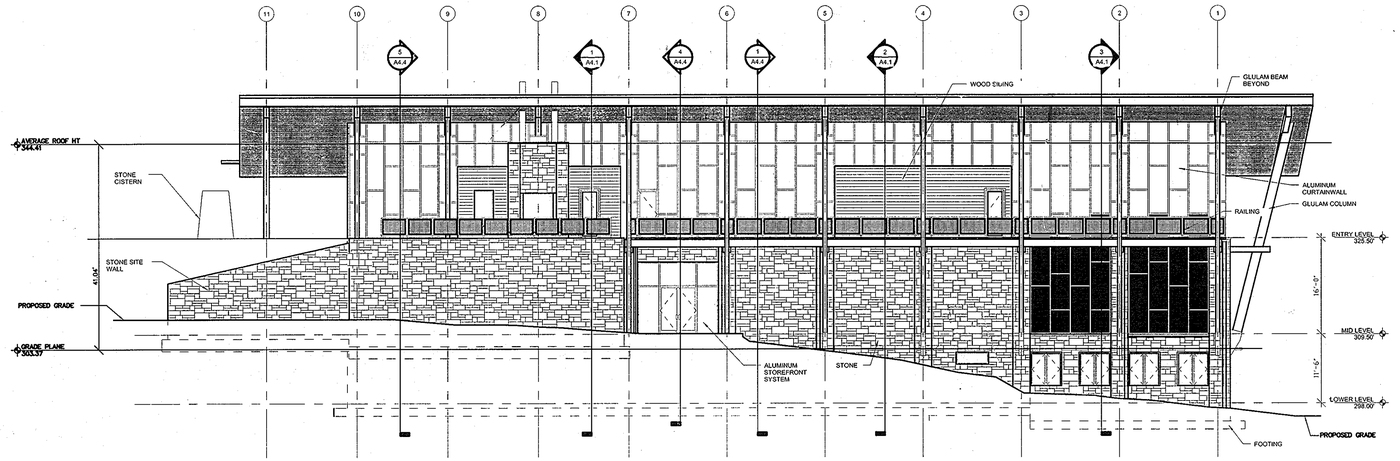
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

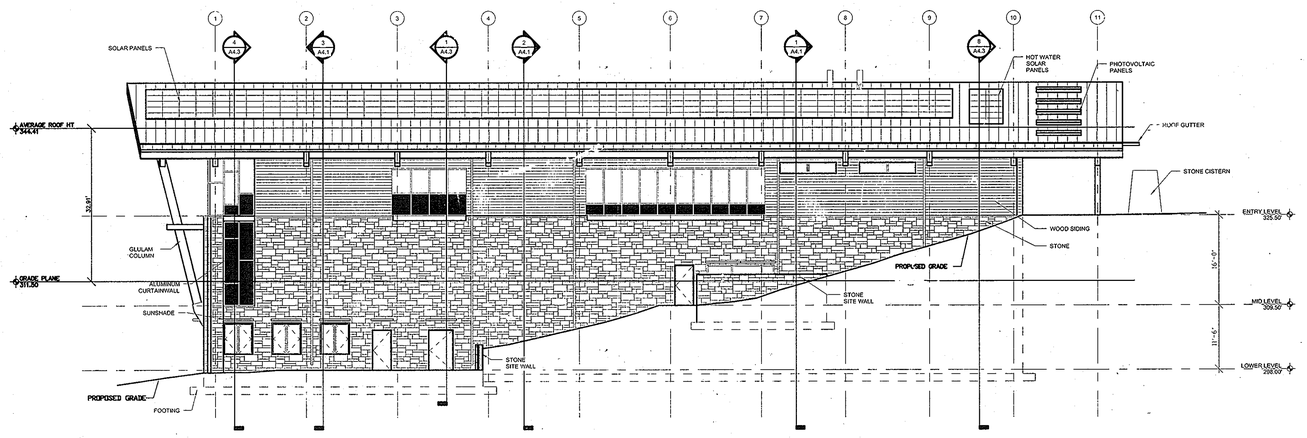
No.	Date	Description

Job No.	SDP-09-02	KDL	Drawn
Scale		SPB	Checked
Date	December 29, 2008	SPB	Approved
Drawing Title	BUILDING ELEVATIONS	Drawing Number	A3.1
Sheet	35	Of	37

SDP-09-02



1 A3.2 EAST ELEVATION
1/8" = 1'-0"



2 A3.2 WEST ELEVATION
1/8" = 1'-0"

BUILDING HEIGHTS	
NORTH ELEVATION	42.16'
SOUTH ELEVATION	18.91'
WEST ELEVATION	32.91'
EAST ELEVATION	41.04'
OVERALL MEAN BUILDING HEIGHT	33.75'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edmondson CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1-12-09
Cindy Horner CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/14/09
Thomas G. Butler DIRECTOR, DEP.	DATE 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11/13/08

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CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
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www.adtekengineers.com

Seal:

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EXPIRATION DATE: 19 JULY 2009

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GWWO
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE300
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HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
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CAPITAL PROJECT #: N39-60

Project Title

Robinson Nature Center

6692 Cedar Lane | Election District No. 5 | Howard County, Maryland

Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Revisions:

No.	Date	Description

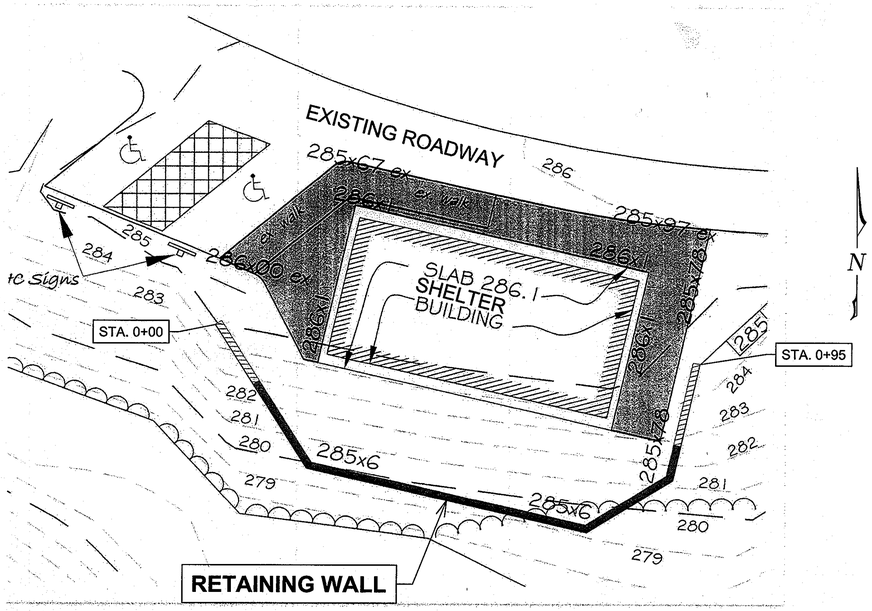
Job No.	SDP-09-02	KDL Drawn
Scale		SPB Checked
Date	December 29, 2008	SPB Approved

Drawing Title: BUILDING ELEVATIONS

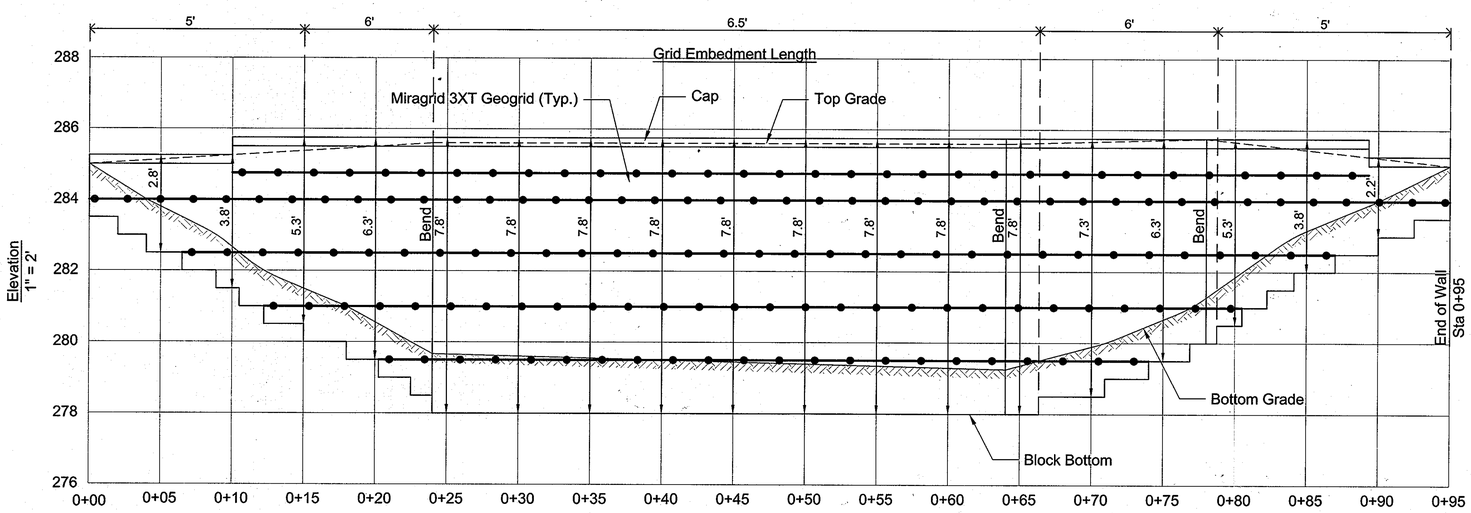
Drawing Number: A3.2

Sheet 36 of 37

SDP 09-02



WALL LOCATION PLAN
1" = 10'



WALL ELEVATION

SPECIFICATIONS

MODULAR CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

1.01 Description

A. Work shall consist of furnishing and construction of a Modular Retaining Wall System in accordance with these specifications and in reasonably close conformity with the lines, grades, design, and dimensions shown on the plans.

B. Work includes preparing foundation soil, furnishing and installing leveling pad, unit drainage fill and backfill to the lines and grades shown on the construction drawings.

C. Work includes furnishing and installing geogrid soil reinforcement of the type, size, location, and lengths designated on the construction drawings.

1.02 Delivery, Storage and Handling

A. Contractor shall check all materials upon delivery to assure that the proper type, grade, color, and certification has been received.

B. Contractor shall protect all materials from damage due to job site conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

PART 2: PRODUCTS

2.01 Modular Concrete Retaining Wall Units

A. Modular concrete units shall conform to the following architectural requirements: face color - granite

face finish - sculptured rock face in flat face configuration. Other face finishes will not be allowed without written approval of Owner.

bond configuration - see block pattern detail

exposed surfaces of units shall be free of chips, cracks or other imperfections when viewed from a distance of 10 feet under diffused lighting.

B. Modular concrete materials shall conform to the requirements of ASTM C1372 - Standard Specifications for Segmental Retaining Wall Units.

C. Modular concrete units shall conform to the following structural and geometric requirements measured in accordance with appropriate references:

compressive strength = 3000 psi minimum

dimensional tolerances = ±1/8" from nominal unit dimensions not including rough split face, ±1/16"

D. Modular concrete units shall conform to the following constructability requirements: (if applicable)

face setback = 10.6 degrees

maximum horizontal gap between erected units shall be - 1/2 inch.

2.02 Shear Connectors (not applicable)

2.03 Base Leveling Pad Material

A. Material shall consist of a compacted #57 crushed stone base as shown on the construction drawings.

2.04 Unit Drainage Fill - #57 stone

2.05 Reinforced Backfill

A. Reinforced backfill shall type SM, be free of debris and meet the following gradation tested in accordance with ASTM D-422 and meet other properties shown on the plan:

Sieve Size	Percent Passing
2 inch	100-75
3/4 inch	100-75
No. 40	0-60
No. 200	0-35

Plasticity Index (PI) <10 and Liquid Limit <35 per ASTM D-4318.

B. Material can be site excavated soils where the above requirements can be met. Unsuitable soils for backfill (high plastic clays or organic soils) shall not be used in the reinforced soil mass.

2.06 Geogrid Soil Reinforcement

A. Geosynthetic reinforcement shall consist of geogrids manufactured specifically for soil reinforcement applications and shall be manufactured from high tenacity polyester yarn.

2.07 Drainage Pipe

A. The drainage pipe shall be perforated corrugated HDPE pipe manufactured in accordance with ASTM D-1248.

PART 3 EXECUTION

3.01 Excavation

A. Contractor shall excavate to the lines and grades shown on the construction drawings. Owner's representative shall be responsible for inspecting and approving the excavation prior to placement of leveling material or fill soils.

3.02 Base Leveling Pad

A. Leveling pad material shall be placed to the lines and grades shown on the construction drawings, to a minimum thickness of 6 inches and extend laterally a minimum of 6" in front and behind the modular wall unit.

B. Leveling pad shall be prepared to insure full contact to the base surface of the concrete units.

3.03 Modular Unit Installation

A. First course of units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions and insure that all units are in full contact with the base and properly seated.

B. Place the front of units side-by-side. Do not leave gaps between adjacent units. Layout of corners and curves shall be in accordance with manufacturer's recommendations.

C. Install shear/connecting devices per manufacturer's recommendations if applicable.

D. Place and compact drainage fill behind wall units. Place and compact backfill soil behind drainage fill. Follow wall erection and drainage fill closely with structure backfill.

E. Maximum stacked vertical height of wall units, prior to unit drainage fill and backfill placement and compaction, shall not exceed three courses.

3.04 Structural Geogrid Installation

A. Geogrid shall be oriented with the highest strength axis perpendicular to the wall alignment.

B. Geogrid reinforcement shall be placed at the strengths, lengths, and elevations shown on the construction design drawings or as directed by the Engineer.

C. The geogrid shall be laid horizontally on compacted backfill and attached to the modular wall units. Place the next course of modular concrete units over the geogrid. The geogrid shall be pulled taut, and anchored prior to backfill placement on the geogrid.

D. Geogrid reinforcements shall be continuous throughout their embedment lengths and placed side-by-side to provide 100% coverage at each level. Spliced connections between shorter pieces of geogrid or gaps between adjacent pieces of geogrid are not permitted.

3.05 Reinforced Backfill Placement

A. Reinforced backfill shall be placed, spread, and compacted in such a manner that minimizes the development of slack in the geogrid and installation damage.

B. Reinforced backfill shall be placed and compacted in lifts not to exceed 6 inches where hand compaction is used, or 8 - 10 inches where heavy compaction equipment is used. Lift thickness shall be decreased to achieve the required density as required.

C. Reinforced backfill shall be compacted to 95% of the maximum density as determined by ASTM.D698. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer and shall be + 3% to - 3% of optimum.

D. Only lightweight hand-operated equipment shall be allowed within 3 feet from the tail of the modular concrete unit.

E. Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Tracked vehicle turning should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.

F. Rubber tired equipment may pass over geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning shall be avoided.

G. At the end of each day's operation, the Contractor shall slope the last lift of reinforced backfill away from the wall units to direct runoff away from wall face. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

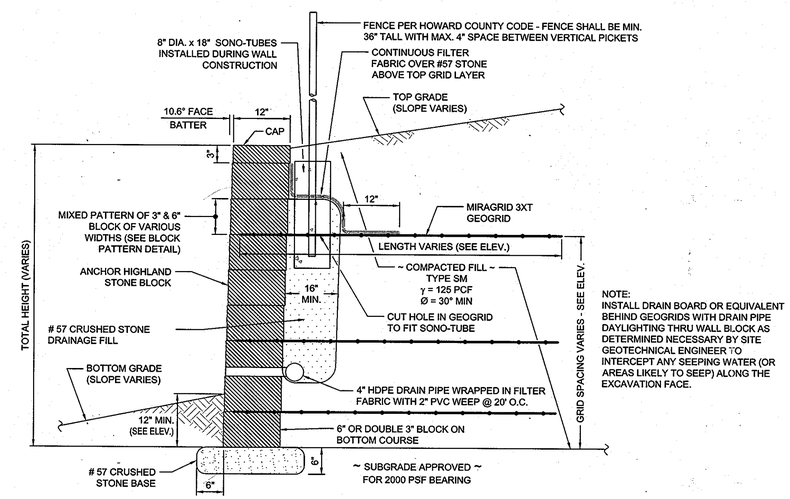
3.06 Cap Installation

A. Cap units shall be glued to underlying units with an all-weather adhesive recommended by the manufacturer.

3.07 Field Quality Control

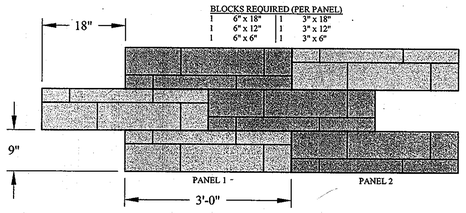
A. The Owner shall engage inspection and testing services, including independent laboratories, to provide quality assurance and testing services during construction.

B. As a minimum, quality assurance testing should include foundation soil inspection, soil and backfill testing, verification of design parameters, and observation of construction for general compliance with design drawings and specifications.



NOTE:
INSTALL DRAIN BOARD OR EQUIVALENT BEHIND GEOGRIDS WITH DRAIN PIPE DAYLIGHTING THRU WALL BLOCK AS DETERMINED NECESSARY BY SITE GEOTECHNICAL ENGINEER TO INTERCEPT ANY SEEPING WATER (OR AREAS LIKELY TO SEEP) ALONG THE EXCAVATION FACE.

TYPICAL WALL SECTION
N.T.S.



BLOCK PATTERN DETAIL
N.T.S.

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

DIRECTOR — DATE 11/5/13	CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11.4.13	CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/05/13

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14434, EXPIRATION DATE: 05/13/13.

STATE OF MARYLAND — RICHARD WARREN SHEFFIELD — No. 14434 — REGISTERED PROFESSIONAL ENGINEER

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A
Annapolis Junction, MD
(410) 880-4788
Fax: (410) 880-4098

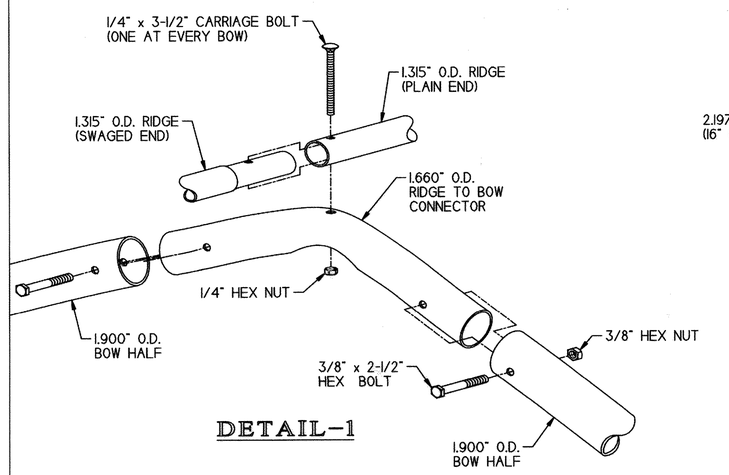
RETAINING WALL CONSTRUCTION DETAILS

ROBINSON NATURE CENTER - SHELTER BUILDING — HOWARD COUNTY, MD

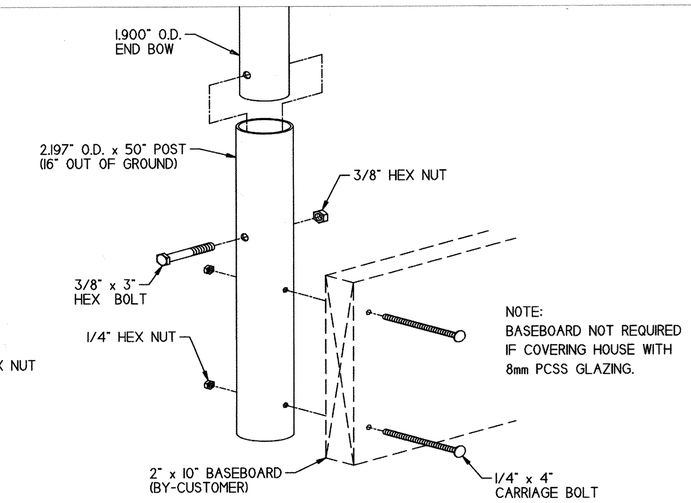
REVISIONS:

JOB NUMBER:	12532-A	DESIGNED BY:	HM
SCALE:	AS SHOWN	DRAWN BY:	HM
DATE:	01/02/13	APPROVED BY:	RWS

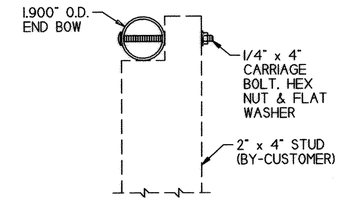
SDP-09-002



DETAIL-1

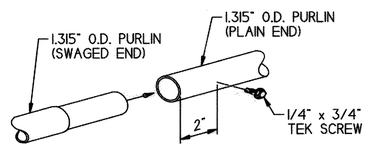


DETAIL-2

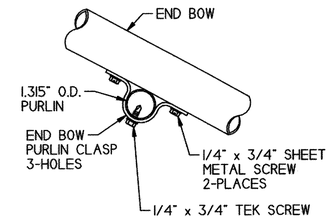


ENDWALL STUD ATTACHMENT

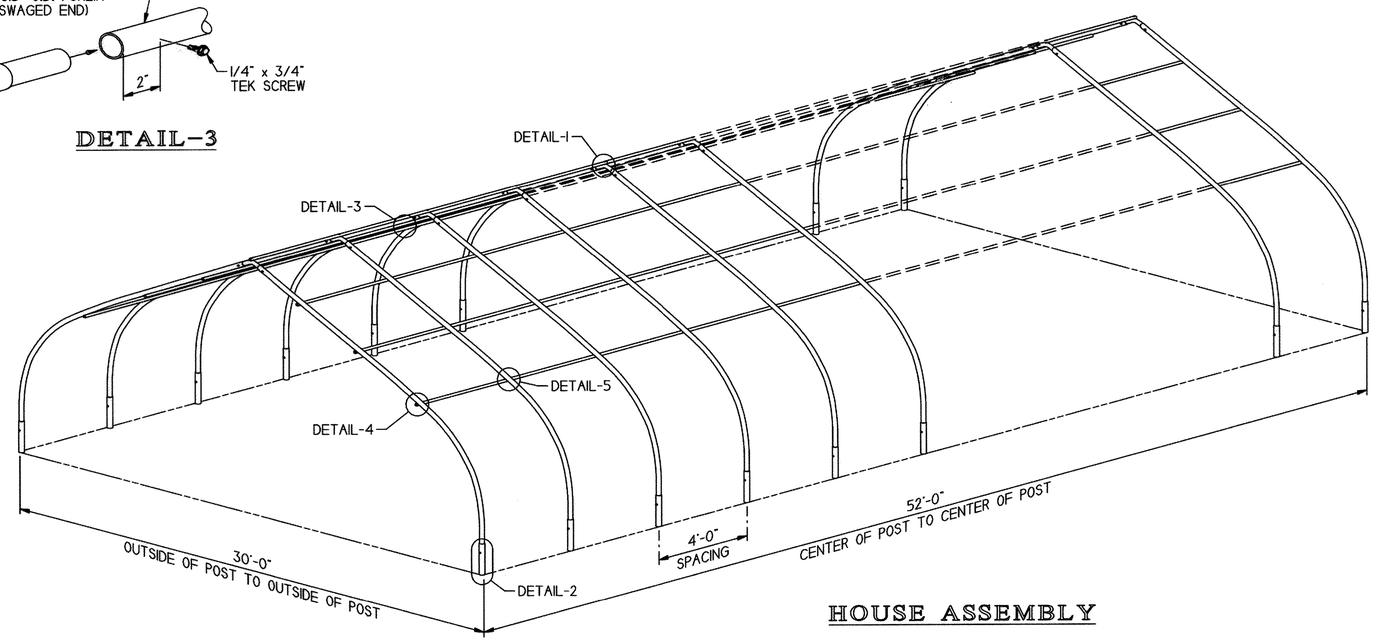
(FOR METAL ENDWALL FRAMING-SEE JOB SPECIFIC DRAWINGS)



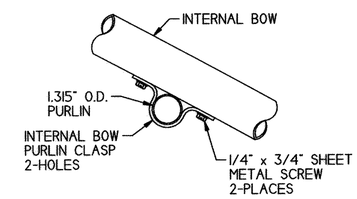
DETAIL-3



DETAIL-4



HOUSE ASSEMBLY



DETAIL-5

NOTE:
DRAWINGS ARE BY "OTHERS" AND ARE SHOWN FOR GRAPHICAL REPRESENTATION ONLY.

932 PAGE ROAD
WASHINGTON, NC 27889

X-S Smith

800-633-2226
WWW.XSSMITH.COM

TITLE

STORM KING 30' x 52'
ASSEMBLY & DETAILS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5-1-14

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-5-14

DIRECTOR, DPZ — DATE 5/6/14

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11-13-08

1 A6.1 BUTTERFLY STRUCTURE– BY OTHERS
SCALE: N.T.S.

URS

URS CORPORATION
4 NORTH PARK DRIVE
SUITE 300
HUNT VALLEY, MARYLAND 21030
PHONE: 410-785-7220/FAX: 410-785-6818

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. 16156 EXPIRATION DATE 08/28/14

DESIGNED: J.H.YOON
DRAWN: C.D.FLEMING
CHECKED: D.T.MORICONI
APPROVED: D.T.MORICONI

STATE OF MARYLAND — DAVID THOMAS MORICONI — REGISTERED PROFESSIONAL ENGINEER — 8-15-2014

REVISION No.	REVISION DATE	DESCRIPTION
1	8-15-2014	NEW SHEET

JAMES & ANNE Robinson NATURE CENTER

ROBINSON NATURE CENTER
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS

PROJECT TITLE: ROBINSON NATURE CENTER STORAGE BUILDING AND BUTTERFLY HOUSE

SHEET TITLE: BUTTERFLY STRUCTURE DETAILS – BY OTHERS

SCALE: AS NOTED

DATE: APRIL, 2014

URS PROJECT NO: 20834595

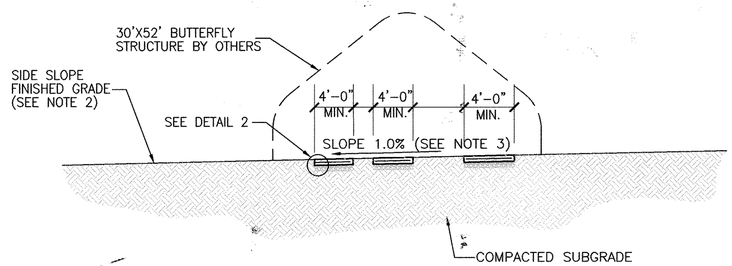
SHEET No.: 36D OF 37

A6.1

SDP-09-02

CONSTRUCTION CONTROL COORDINATES			
POINT NO.	ELEVATION	NORTHING	EASTING
164	325.03	554,959.87	1,342,338.25
165	325.04	554,963.65	1,342,339.69
166	325.09	554,966.93	1,342,344.46
167	325.12	554,971.23	1,342,347.02
168	325.12	554,977.74	1,342,347.72
169	325.09	554,981.06	1,342,344.61
170	325.06	554,984.74	1,342,340.96
171	325.08	554,989.52	1,342,343.21
172	325.10	554,991.34	1,342,345.18
173	325.12	554,995.90	1,342,346.72
174	325.11	554,999.89	1,342,346.00
175	325.08	555,005.07	1,342,342.66
176	325.05	555,006.98	1,342,339.88
177	325.04	555,008.93	1,342,338.57
178	325.03	555,011.88	1,342,338.05
179	324.97	555,009.55	1,342,332.15
180	324.96	555,008.34	1,342,330.80
181	324.95	555,007.25	1,342,328.25
182	324.91	555,004.52	1,342,325.70
183	324.89	555,000.00	1,342,323.96
184	324.89	554,997.11	1,342,323.66
185	324.88	554,994.86	1,342,323.17
186	324.88	554,993.42	1,342,322.68
187	324.88	554,990.26	1,342,322.92
188	324.88	554,989.24	1,342,323.46
189	324.92	554,988.26	1,342,326.96
190	324.94	554,988.48	1,342,329.04
191	324.96	554,985.91	1,342,331.09
192	324.95	554,983.83	1,342,330.61
193	324.94	554,982.12	1,342,329.47
194	324.93	554,981.06	1,342,328.60
195	324.91	554,979.17	1,342,326.71
196	324.91	554,970.91	1,342,326.50
197	324.92	554,970.15	1,342,327.18
198	324.93	554,968.75	1,342,328.70
199	324.95	554,967.12	1,342,330.88
200	324.97	554,963.85	1,342,332.50
201	324.97	554,959.76	1,342,332.72
202	325.00	554,968.03	1,342,335.26
203	325.00	554,968.27	1,342,335.12
204	324.99	554,970.89	1,342,334.80
205	325.02	554,976.02	1,342,336.85
206	325.05	554,976.33	1,342,340.32
207	325.07	554,973.78	1,342,342.07
208	325.06	554,969.61	1,342,341.30
209	325.03	554,967.42	1,342,338.11
210	324.94	554,975.31	1,342,328.99
211	324.94	554,976.34	1,342,329.54
212	324.96	554,978.21	1,342,331.41
213	324.98	554,979.89	1,342,332.79
214	324.99	554,982.31	1,342,334.40
215	325.01	554,982.08	1,342,336.29
216	325.01	554,981.60	1,342,336.39
217	325.01	554,980.51	1,342,335.87
218	324.98	554,977.67	1,342,333.21
219	324.96	554,974.48	1,342,331.86
220	324.98	554,990.59	1,342,333.25
221	324.96	554,991.78	1,342,331.41
222	324.93	554,998.44	1,342,327.82
223	324.93	555,000.43	1,342,327.96
224	324.94	555,001.96	1,342,328.85
225	324.97	555,003.90	1,342,331.70
226	325.03	555,003.88	1,342,337.34
227	325.06	555,001.77	1,342,340.40
228	325.07	554,999.18	1,342,342.07
229	325.08	554,995.19	1,342,342.78
230	325.07	554,994.28	1,342,342.47
231	325.04	554,990.68	1,342,338.56
232	324.97	555,011.76	1,342,332.11

THE ABOVE TABLE IS PROVIDED FOR THE CONTRACTOR'S CONVENIENCE. THE STAKEOUT CONFIGURATION MAY SLIGHTLY VARY WITH THE APPROVAL OF THE COUNTY.

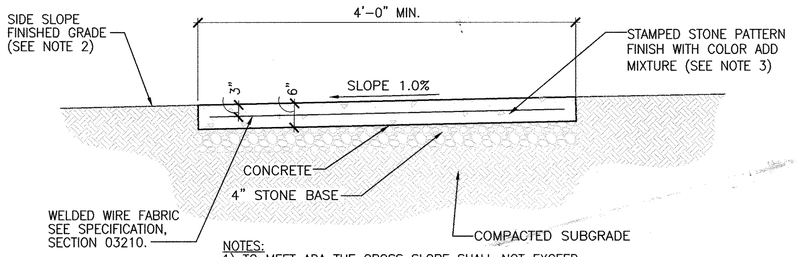


NOTES:
1) TO MEET ADA THE CROSS SLOPE SHALL NOT EXCEED 2%; RUNNING SLOPE SHALL NOT EXCEED 4.5%

2) PROVIDE 4" TOPSOIL, SEED, AND MULCH TO DISTURBED TURF AREAS.

3) SIDEWALK WIDTH AND LAYOUT VARIES. SEE PATH LAYOUT AND CONSTRUCTION CONTROL COORDINATES.

3 / A6.0 SECTION A–A
SCALE: N.T.S.

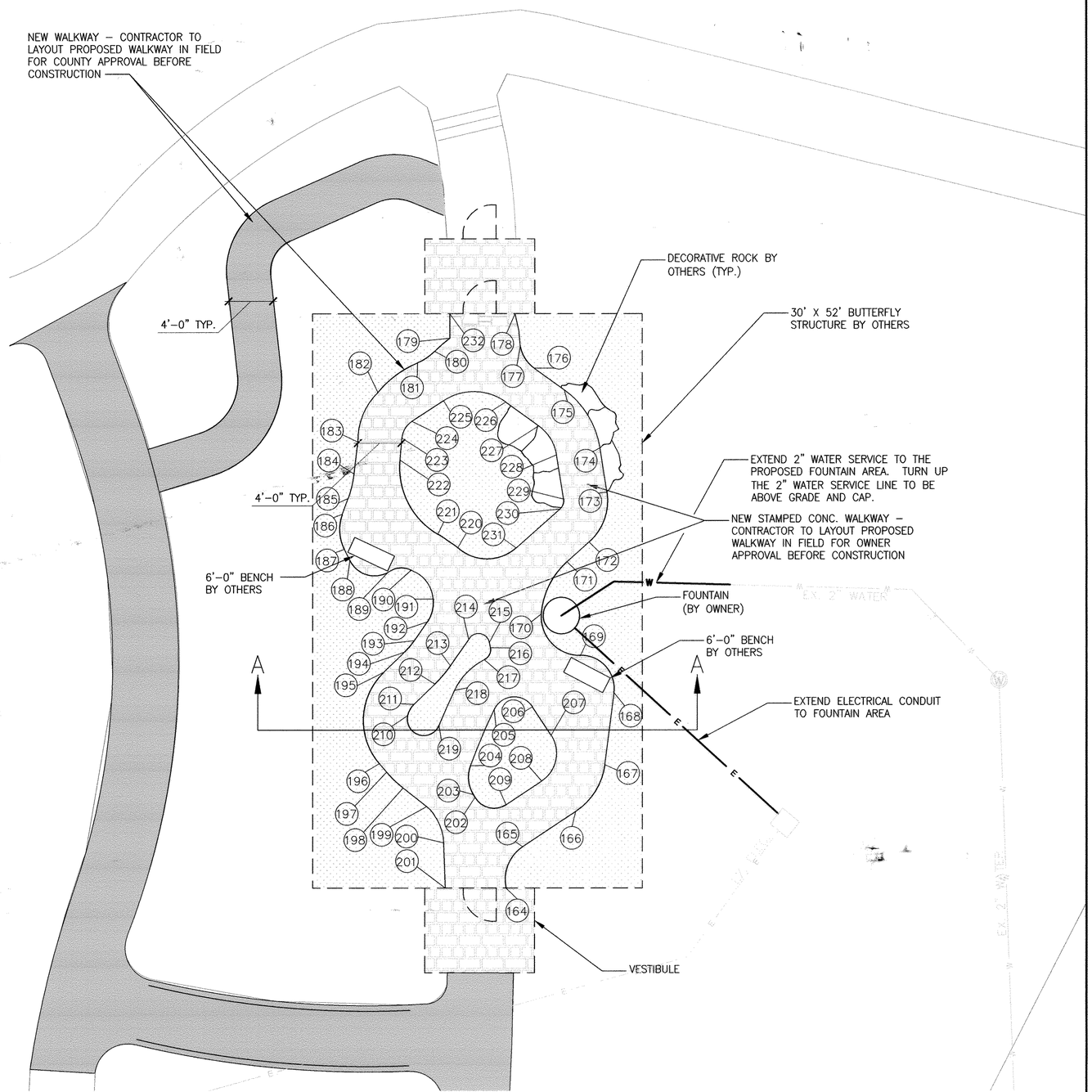


NOTES:
1) TO MEET ADA THE CROSS SLOPE SHALL NOT EXCEED 2%; RUNNING SLOPE SHALL NOT EXCEED 4.5%

2) PROVIDE 4" TOPSOIL, SEED, AND MULCH TO DISTURBED TURF AREAS.

3) CONTRACTOR SHALL PROVIDE THE COUNTY A SAMPLE FOR APPROVAL OF COLOR/PATTERN PRIOR TO CONSTRUCTION.

2 / A6.0 TYPICAL SIDEWALK SECTION
SCALE: 1/8"=1'-0"
8 4 0 8 16



1 / A6.0 BUTTERFLY STRUCTURE PATH LAYOUT
SCALE: 1/4"=1'-0"
4 2 0 4 8

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4.29.14
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5-05-14
DIRECTOR, DEPT. OF P.Z.	DATE 5/6/14

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11-13-08

URS
URS CORPORATION
4 NORTH PARK DRIVE
SUITE 300
HUNT VALLEY, MARYLAND 21030
PHONE: 410-785-7220/FAX: 410-785-6818

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. 16156 EXPIRATION DATE 08/28/14

DESIGNED: J.H.YOON
DRAWN: C.D.FLEMING
CHECKED: D.T.MORICONI
APPROVED: D.T.MORICONI

STATE OF MARYLAND – DAVID THOMAS MORICONI – REGISTERED PROFESSIONAL ENGINEER – 4-15-2014

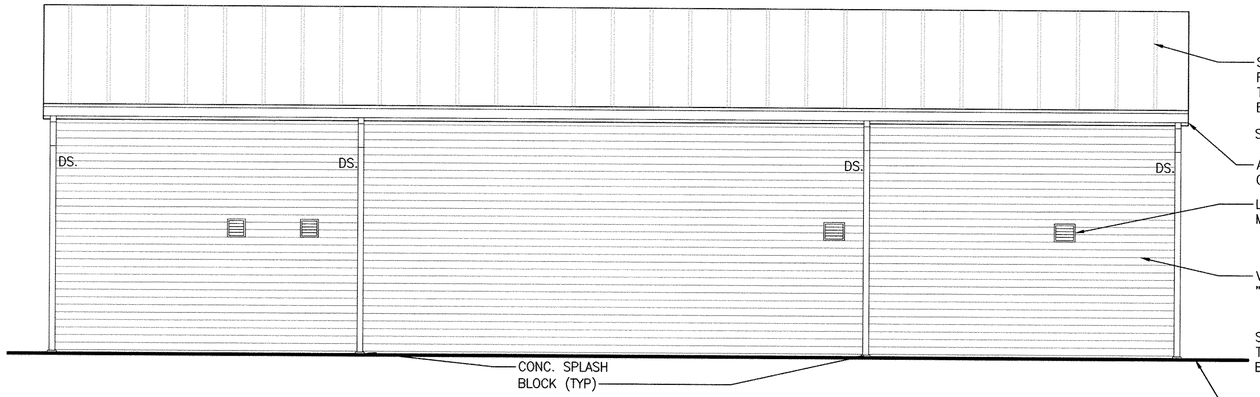
REVISION No.	REVISION DATE	DESCRIPTION
1	4-15-2014	NEW SHEET

JAMES & ANNE Robinson NATURE CENTER

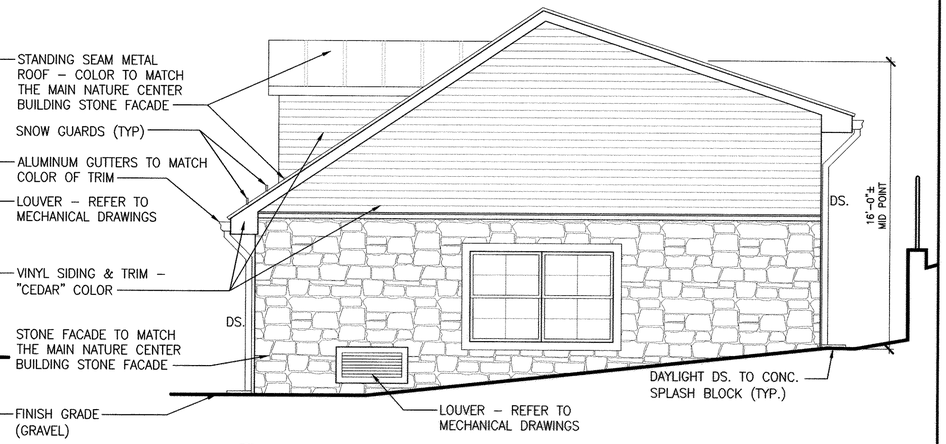
ROBINSON NATURE CENTER
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS

PROJECT TITLE: ROBINSON NATURE CENTER STORAGE BUILDING AND BUTTERFLY HOUSE
SHEET TITLE: BUTTERFLY STRUCTURE PATH LAYOUT PLAN
SCALE: AS NOTED
DATE: APRIL, 2014
URS PROJECT NO: 36C OF 37
20834595
SHEET No.: A6.0

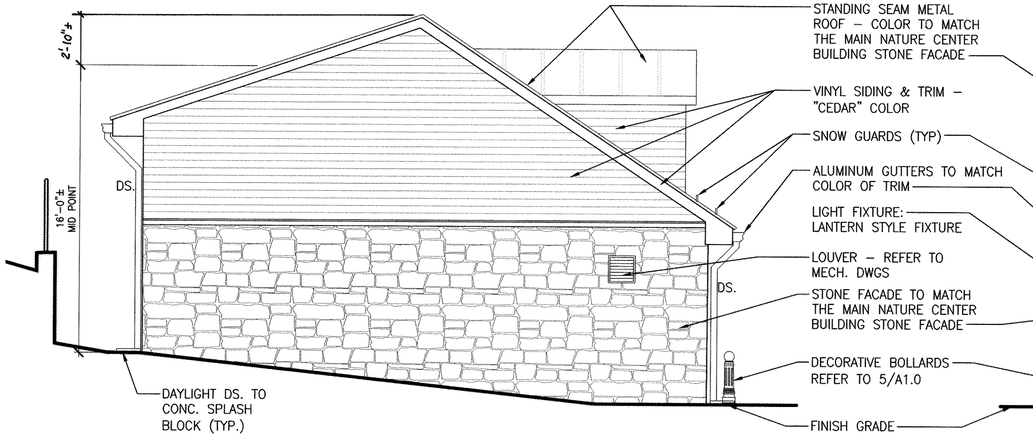
SDP-09-02



4 A2.0 BUILDING ELEVATION
SCALE: 1/4"=1'-0"
4 2 0 4 8



3 A2.0 BUILDING ELEVATION
SCALE: 1/4"=1'-0"
4 2 0 4 8



2 A2.0 BUILDING ELEVATION
SCALE: 1/4"=1'-0"
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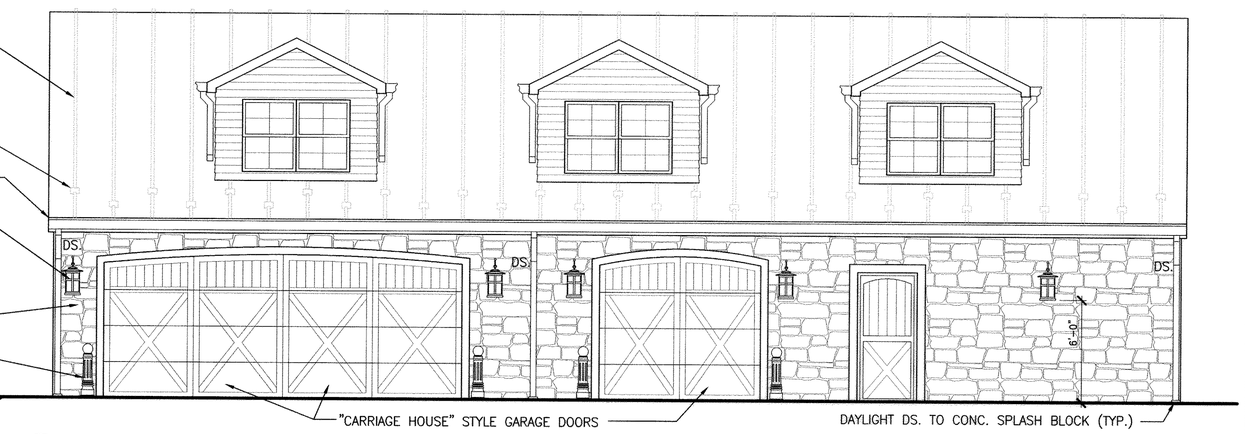


1 A2.0 BUILDING ELEVATION
SCALE: 1/4"=1'-0"
4 2 0 4 8

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4.29.14
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-05-14
DIRECTOR, DPZ — DATE 5/6/14

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11-13-08

URS
URS CORPORATION
4 NORTH PARK DRIVE
SUITE 300
HUNT VALLEY, MARYLAND 21030
PHONE: 410-785-7220/FAX: 410-785-6818

PROFESSIONAL CERTIFICATION: I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 9583 EXPIRATION DATE 07/03/2015

DESIGNED: M.J. HENNING
DRAWN: M.J. HENNING
CHECKED: L. GILBERT
APPROVED: M.R. COLLINS

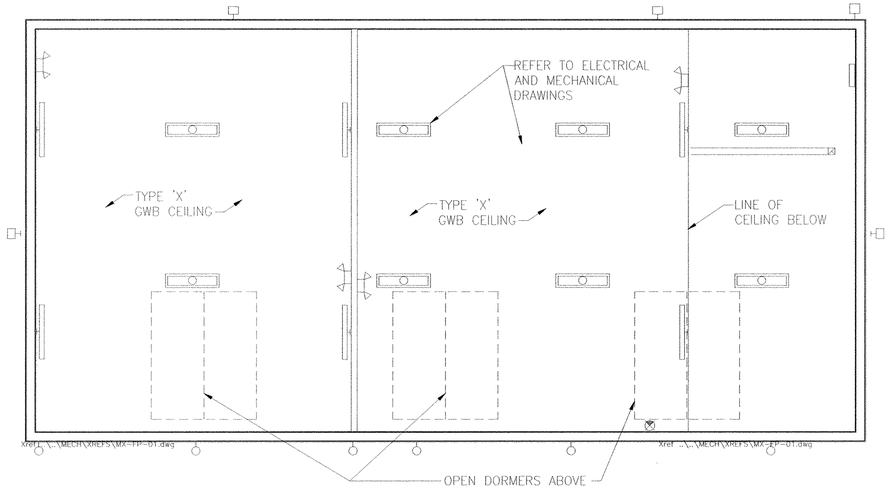
REVISION No.	REVISION DATE	DESCRIPTION
1	4-15-2014	NEW SHEET

JAMES & ANNE Robinson NATURE CENTER

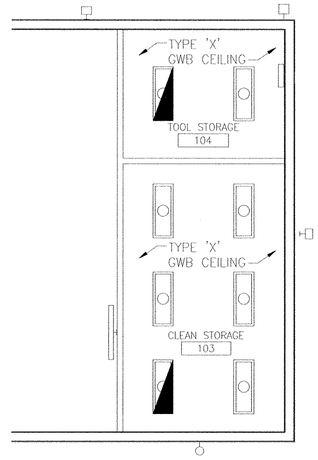
ROBINSON NATURE CENTER
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS

PROJECT TITLE: ROBINSON NATURE CENTER STORAGE BUILDING AND BUTTERFLY HOUSE
SHEET TITLE: ELEVATIONS
SCALE: AS NOTED
DATE: APRIL, 2014
URS PROJECT NO: 20834595
SHEET No.: 36B OF 37
A2.0

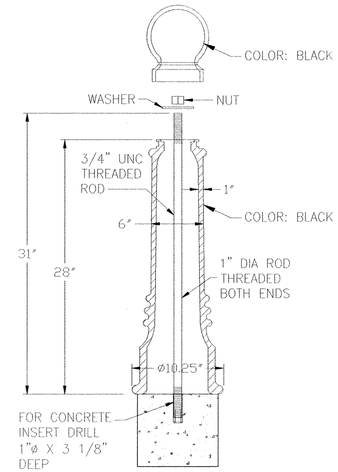
SDP-09-02



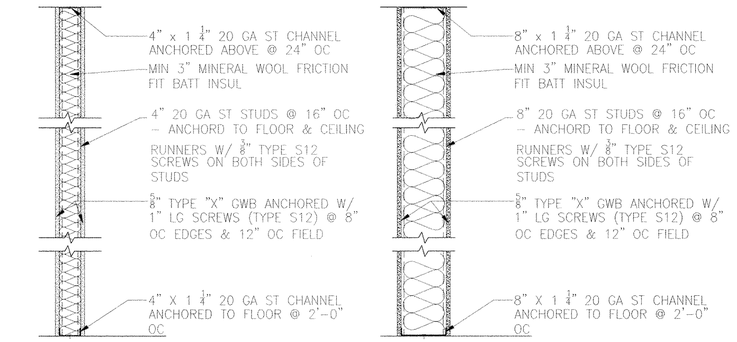
3 A1.0 REFLECTED CEILING PLAN
SCALE: 3/16"=1'-0"



4 A1.0 REFLECTED CEILING PLAN
SCALE: 3/16"=1'-0"



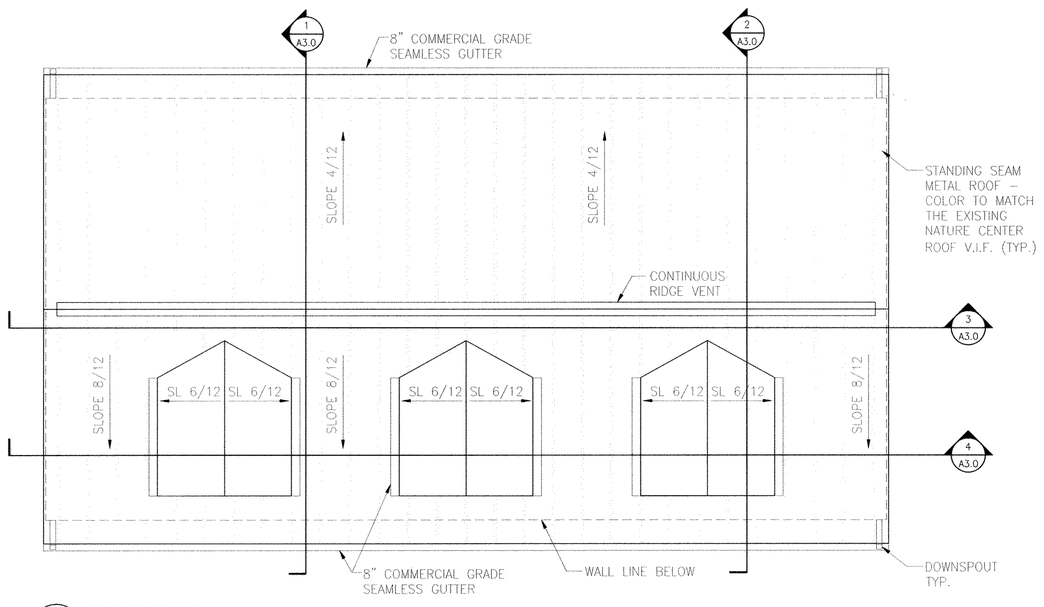
5 A1.0 BOLLARD DETAIL
SCALE: 1 1/2"=1'-0"



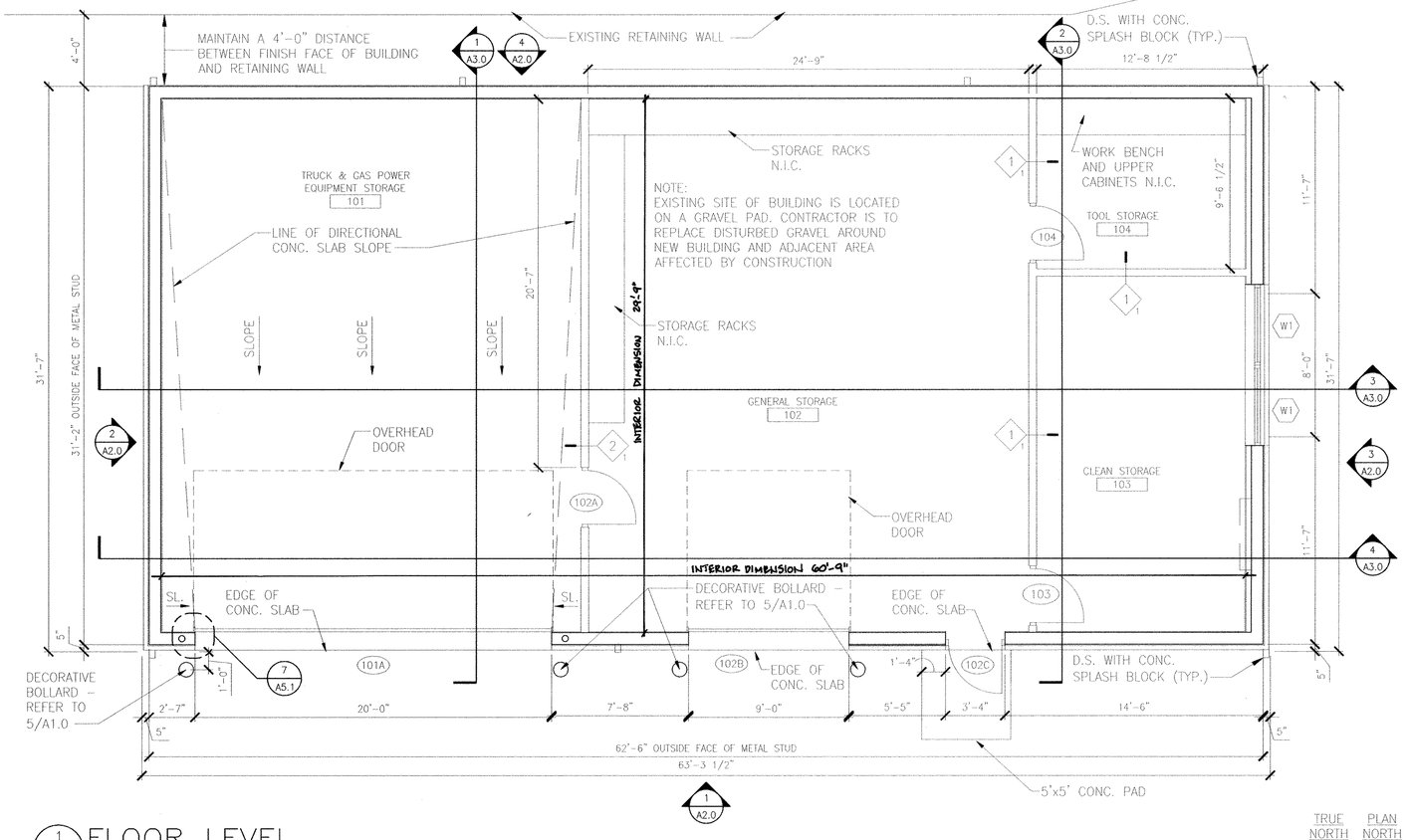
1 WALL/PARTITION TYPE
BEARING DESIGN
1 HOUR FIRE RATING
UL RATING 404

2 WALL/PARTITION TYPE
BEARING DESIGN
1 HOUR FIRE RATING
UL RATING 404

WALL TYPES
SCALE: N.T.S.



2 A1.0 ROOF PLAN
SCALE: 3/16"=1'-0"



1 A1.0 FLOOR LEVEL
SCALE: 1/4"=1'-0"

TRUE NORTH PLAN NORTH

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4.29.14
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-05-14
DIRECTOR, ~~SDP~~ DPZ — DATE 5/6/14

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 11-13-08

URS
URS CORPORATION
4 NORTH PARK DRIVE
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HUNT VALLEY, MARYLAND 21030
PHONE: 410-785-7220/FAX: 410-785-6818

PROFESSIONAL CERTIFICATION: I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 9583 EXPIRATION DATE 07/03/2015

DESIGNED: M.J. HENNING
DRAWN: M.J. HENNING
CHECKED: L. GILBERT
APPROVED: M.R. COLLINS

REVISION No.	REVISION DATE	DESCRIPTION
1	4-15-2014	NEW SHEET

JAMES & ANNE Robinson NATURE CENTER

ROBINSON NATURE CENTER
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS

PROJECT TITLE: ROBINSON NATURE CENTER STORAGE BUILDING AND BUTTERFLY HOUSE
SHEET TITLE: FLOOR PLAN, REFLECTED CEILING PLAN & ROOF PLAN
SCALE: AS NOTED
DATE: APRIL, 2014
URS PROJECT NO: 20834595
SHEET No.: 36A OF 37
A1.0

SDP-09-02