

ROBINSON NATURE CENTER

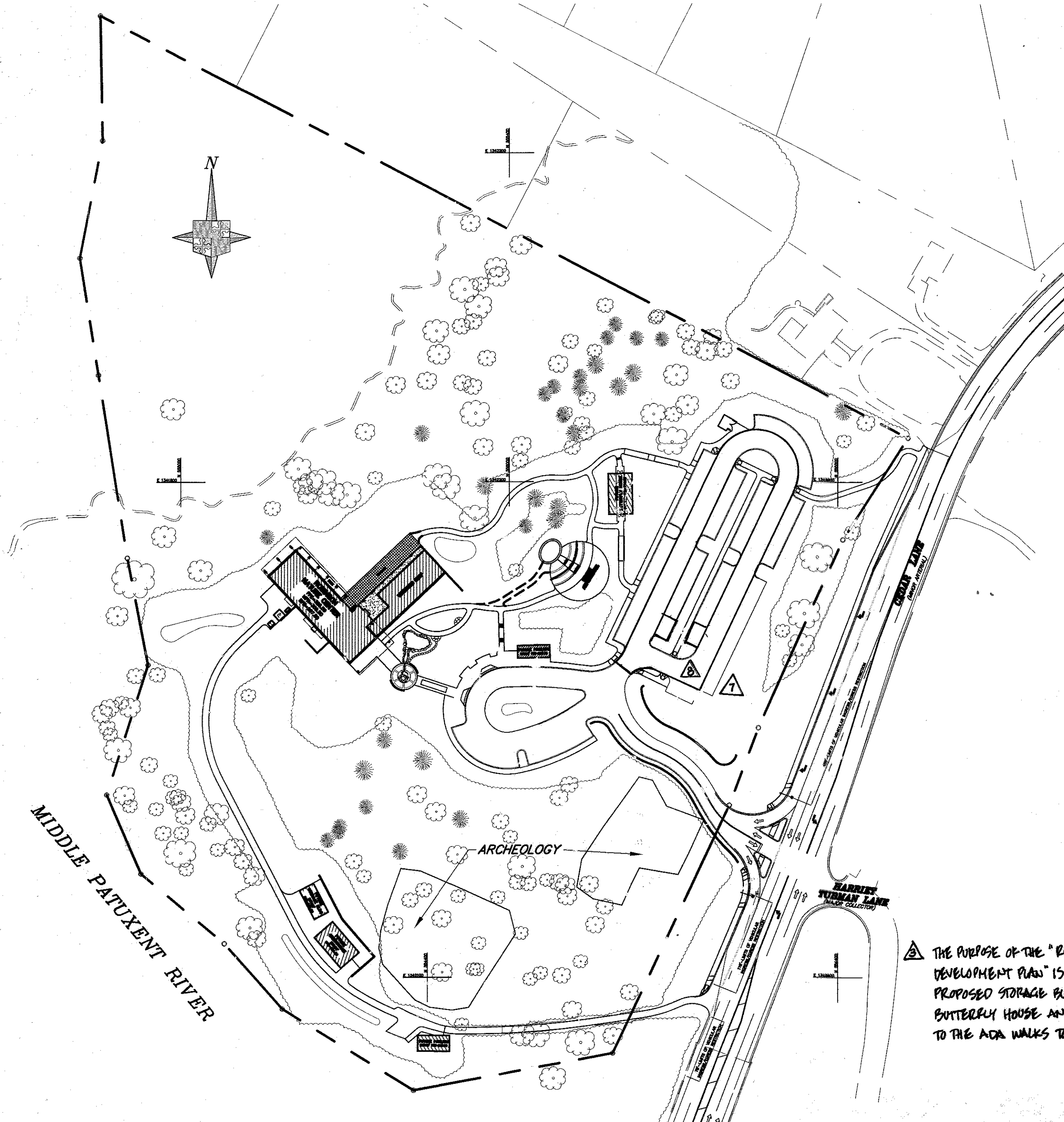
GENERAL NOTES

- 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.
- 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.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MS-A STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- 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.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 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.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- 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.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NO. 3512 CONCRETE MONUMENT AND CORN GAITHERSBURG (PID AA3495) WERE USED FOR THIS PROJECT.
- WATER IS PUBLIC. CONTRACT NUMBER 34-4587.
- SEWER IS PUBLIC. CONTRACT NUMBER 34-4587.
- STORMWATER MANAGEMENT CONTROL BY BIOPLETTERS AND GRASS CHANNELS, OWNERSHIP AND MAINTENANCE OF PROPOSED WATERSHED CENTER, PAVILIONS, BUTTERFLY HOUSE, AMPHITHEATER, GREENHOUSE, DRY SWALES, GREEN ROOF & PERVIOUS CONCRETE BY HOWARD COUNTY.
- EXISTING UTILITIES ARE BASED ON FIELD RUN SURVEY AND CONTRACT UTILITY DRAWINGS.
- THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP AND WAS APPROVED BY DPZ ON SEPT 17, 2008.
- THERE ARE NO BURIAL GROUNDS OR CEMETERY SITES LOCATED ON THE SUBJECT PROPERTY.
- NO WETLANDS WERE FOUND ON THIS SITE PER A STUDY PREPARED BY MR. JEFFREY WOLINSKI DATED AUGUST 18, 2008.
- 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.
- 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.	8,674 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 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.
- THERE ARE NO HISTORIC STRUCTURES OF SIGNIFICANCE LOCATED ON THIS SITE. ALL EXISTING ABOVE GROUND STRUCTURES ARE TO BE DEMOLISHED.
- THIS PLAN WAS PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.

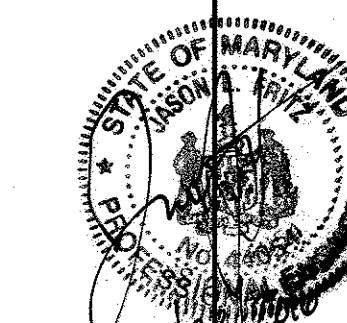
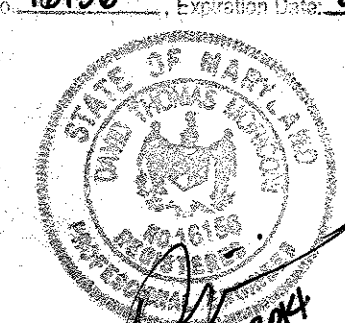
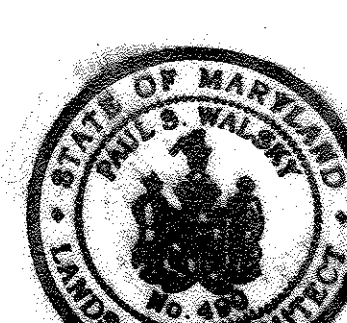
PLANTING OBLIGATION:	28 SHADE TREES, 16 EVERGREEN TREES, AND 73 SHRUBS.
PLANTING PROVIDED:	20 SHADE TREES, 8 SMALL DECIDUOUS TREES, 16 EVERGREEN TREES, AND 113 SHRUBS PROVIDED ON THE APPROVED LANDSCAPE PLAN.
- THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION WITH THE RETENTION OF 8.53 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 8.25 ACRES FOR THIS SITE.
- 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.
- ADDITIONAL DEVELOPMENT THAT ADDS IMPERVIOUS AREA SHALL REQUIRE THE AFFECTED BMP BE RE-EVALUATED FOR ADEQUACY.
- 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.
- THIS PROPERTY ENTERED THE METROPOLITAN DISTRICT ON DECEMBER 11, 2008.
- 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.
- 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.
- 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.
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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.

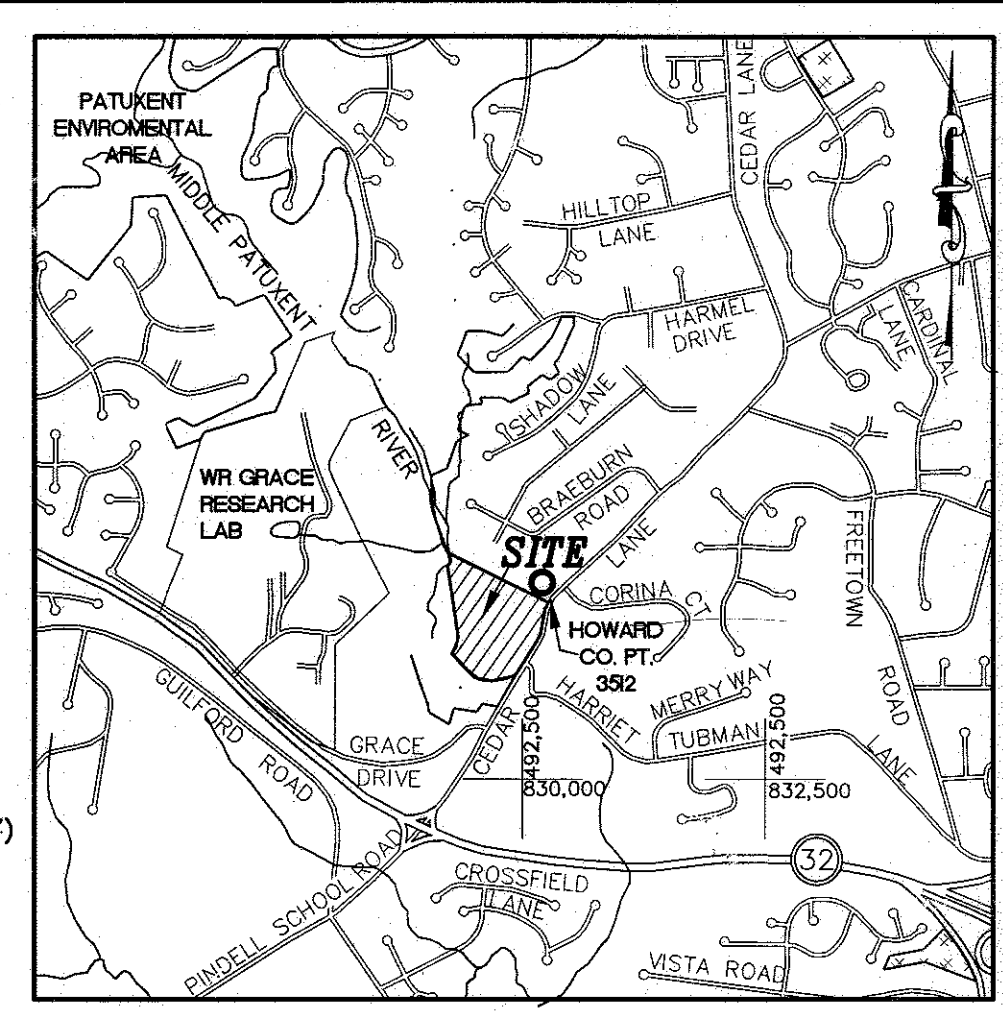
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 16186, Expiration Date: 8-28-2016



FOR REV. 2 ONLY OCT. 15, 2015

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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
NUMBER OF PARKING SPACES PROVIDED:	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

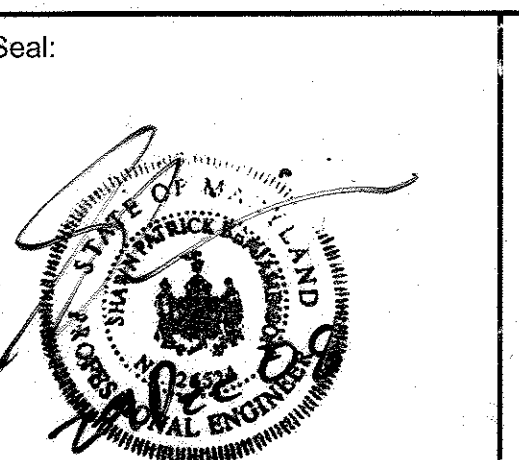
LOT/PARCEL #	STREET ADDRESS
PARCEL 87	6692 CEDAR LANE

PERMIT INFORMATION CHART

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL No.
N/A		PARCEL 87
PLAT# OR L/F	GRID#	ZONING
L-8987, F.160	22 & 23	R-ED
TAX MAP No.	ELECTION DIST.	CENSUS TRACT
35	5	6056.01
W/TER CODE 700	SEWER CODE N/A	

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chad Edmundson, Chief, Development Engineering Division, DATE 1/12/09
 Cindy Hanna, Chief, Division of Land Development, DATE 1/13/09
 Thomas E. Butler, Director, DEP, DATE 1/14/09

ADTEK ENGINEERS, INC.
 CIVIL & STRUCTURAL ENGINEERS
 97 Monocacy Boulevard, Unit H
 Frederick, Maryland 21701-5516
 Phone: 301.662.4408 Fax: 301.662.7484
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GRIEYES WORRAL, WRIGHT & OHATNICK INCORPORATED
 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: 410.313.6161

Project Title: 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

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

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 MARYLAND. LICENSE NUMBER: 16186 EXPIRATION DATE: 19 JULY 2009

FOR REV. 2 ONLY OCT. 15, 2015

CAPITAL PROJECT #: N39-60

CAPITAL PROJECT #: N39-60

Revisions:	No.	Date	Description	Drawn	Checked	Approved
	5-1-09		UPDATED PARKING COUNT			
	10-15-13		ADDED SHEET 37			
	4-15-14		ADDED SHEETS C2.3.1, C2.3.2, C3.1.1, C3.1.2, C3.1.3			
	7-23-16		REVISE TO REMOVE FRODOUS PAVING IN THE DRUG AISLES AND PLACE WITH SANDABLE CONCRETE			
	11-18-16		REVISE TO REMOVE FRODOUS PAVING IN 6 PARKING SPACES AND REPLACE WITH SANDABLE CONCRETE			

Cover Sheet
 C0.1
 Sheet 1 of 37
 SDP-09-02



LEGEND

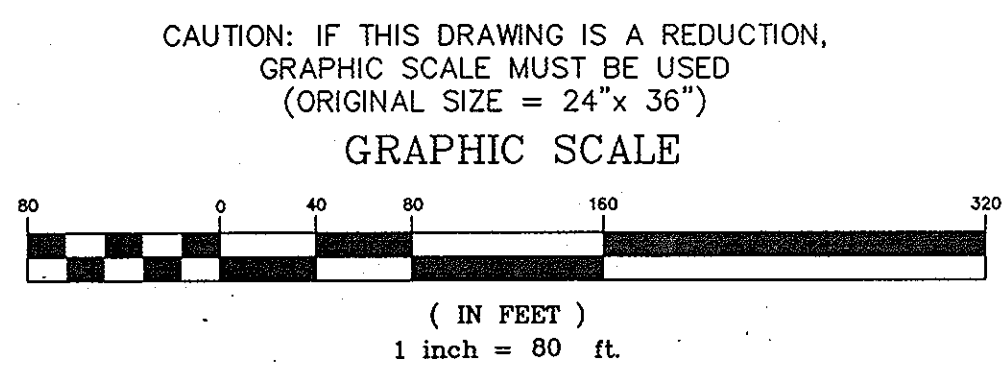
- EXISTING MANHOLE
- EXISTING SANITARY SEWER
- EXISTING STORM DRAIN
- UTILITY POLE
- EXISTING WATER LINE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING CONTOUR
- RIPRAP
- EXISTING LIGHT
- SIGN
- EXISTING TREE LINE
- EXISTING FENCE
- PROPERTY LINE
- SOIL BOUNDARY LINE
- STREAM VALLEY BUFFER
- 15%-24.9% SLOPE
- GREATER THAN 25% SLOPE
- FLOODPLAIN EASEMENT

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



APPROVED: DEPARTMENT OF PLANNING AND ZONING

Clud Edmondson for 1-2-9
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Hanna 11/3/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Dennis S. Buttle 11/4/09
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:

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NUMBER: 10054 EXPIRATION DATE: 19 JULY 2009

GRIEVES WORRALL WRIGHT & O'HATNICK
INCORPORATED

G|W
W|O

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: 410.313.6161

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

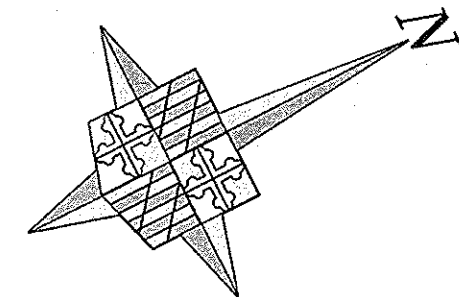
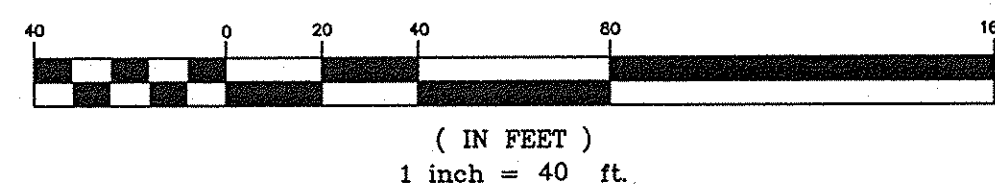
Sheet 2 Of 37

SEDIMENT CONTROL LEGEND

- LIMITS OF DISTURBANCE
- SUPER SILT FENCE WING WALL
- SUPER SILT FENCE
- SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- CONTRACTOR STAGING AREA
- INLET PROTECTION DEVICE
- TREE PROTECTION
- 100 YR. FLOODPLAIN EASEMENT
- STREAM VALLEY BUFFER
- TREE LINE TO REMAIN

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

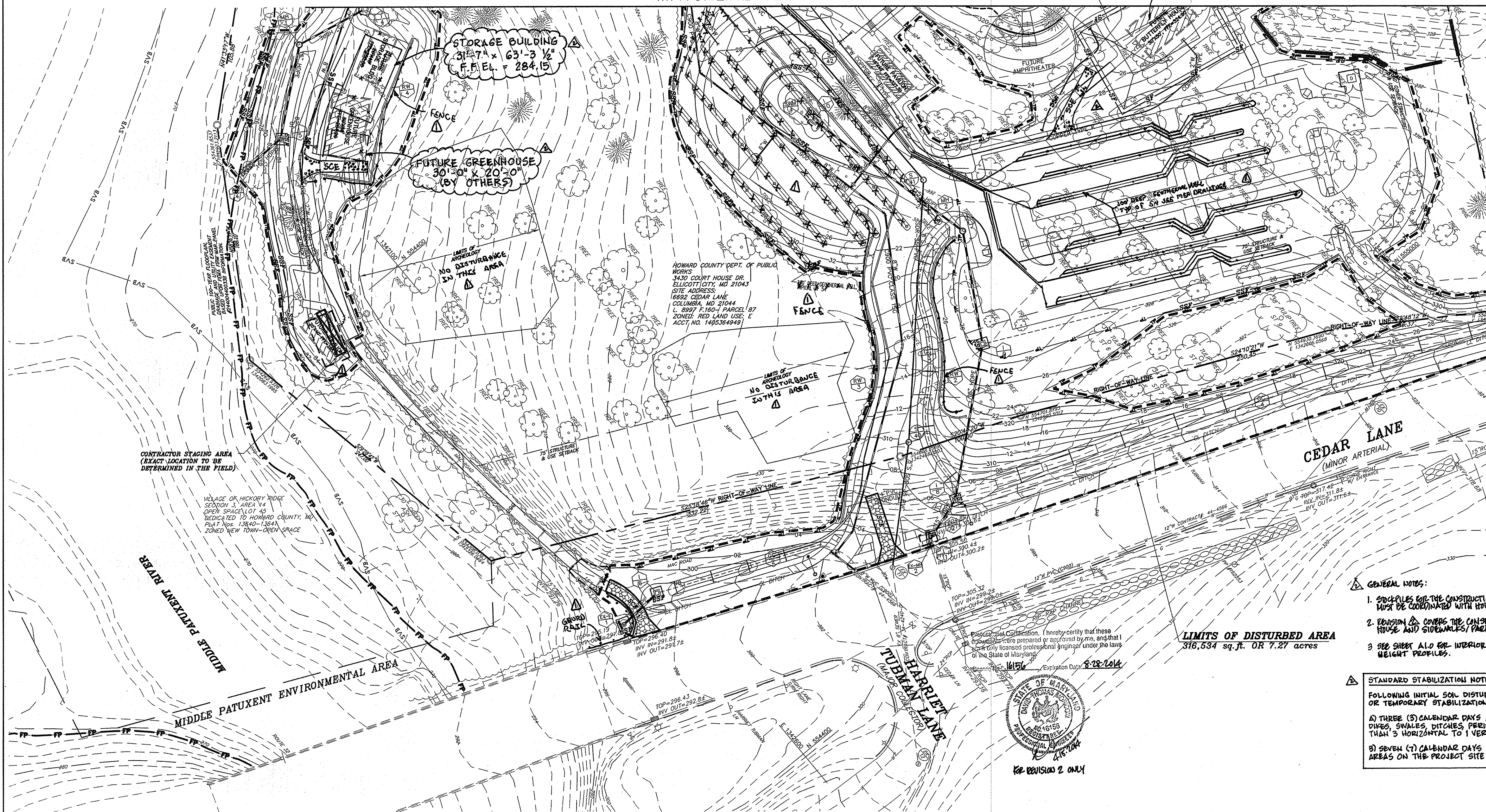
GRAPHIC SCALE



LOCATION OF TEMPORARY
TOP-SOIL STOCKPILE AREA.
PLACE REGULAR SILT FENCE AT
TOP OF SLOPE. MATERIAL SHALL
BE STABILIZED BY HYDROSEEDING.
STOCKPILE IS TO BE REMOVED
WHEN CONSTRUCTION IS COMPLETE.

MATCHLINE SEE PAGE C-2.2

SEE SHEET TA IF 37 FOR WALL LAYOUT

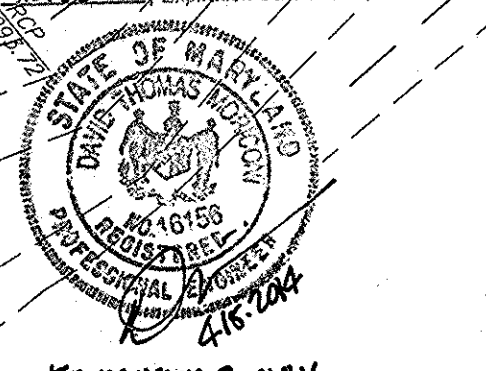


HOWARD COUNTY DEPT. OF PUBLIC
WORKS
1430 COURT HOUSE DR.
ELLCOTT CITY, MD 21043
SITE ADDRESS:
6992 CEDAR LANE
COLUMBIA, MD 21044
L. 8997 F.160-4 PARCEL 87
ZONING: RES. LAND USE: C
ACCT. NO. 1485364949

LIMITS OF DISTURBED AREA
316,534 sq. ft. OR 7.27 acres

- GENERAL NOTES:**
- STOCKPILES FOR THE CONSTRUCTION OF THE STORAGE BUILDING & BUTTERFLY HOUSE MUST BE COORDINATED WITH HOWARD COUNTY PRIOR TO CONSTRUCTION.
 - PROVISIONS COVER THE CONSTRUCTION OF THE STORAGE BUILDING, BUTTERFLY HOUSE AND STOCKPILES/PARKING AREAS ON C.3.1.1 & C.3.1.2 ONLY.
 - SEE SHEET A10 FOR INTERIOR WALL DIMENSIONS AND A20 FOR BUILDING HEIGHT PROFILES.

- STANDARD STABILIZATION NOTES**
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:
- THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DICES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
 - 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

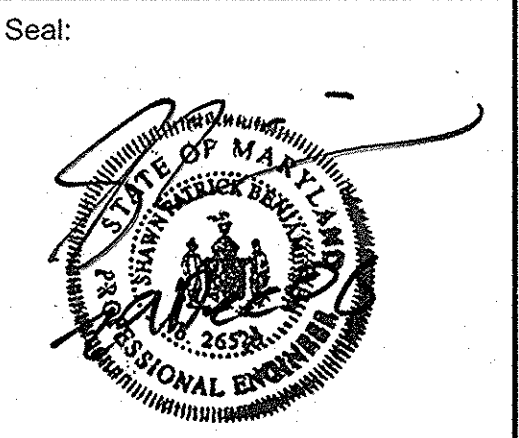
Chad Edwards 1-12-09
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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

Deanna J. Butler 1/14/09
DIRECTOR/PEP DATE

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INCORPORATED

G|W
W|O

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9250 BENDIX ROAD
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Project Title
Robinson Nature Center

6992 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

Revisions:
No. Date Description
5-1-09 FENCES, LOD, PAVILION, NOTE, GEO WELLS, GROUND RAIL
A-15-14 NEW STORAGE BLDG.; NEW WALKS @ BUTTERFLY HOUSE; NOTE

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

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 11/12/08
KS

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY PLANNING BOARD

John R. Robertson 11/6/09
HOWARD SCD DATE

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NUMBER: 36554 EXPIRATION DATE: 19 JULY 2009

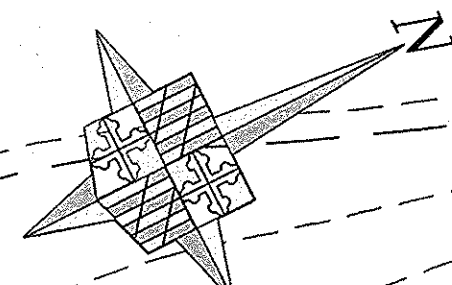
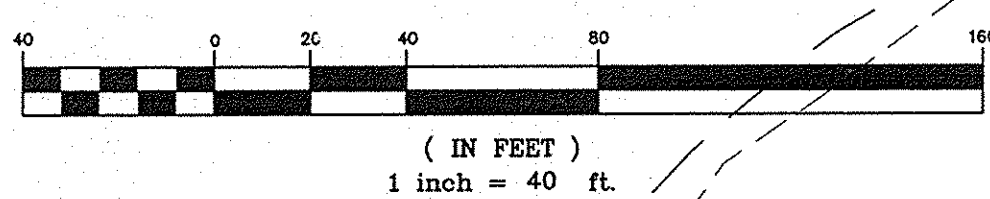
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CAPITAL PROJECT #: N39-60

SDP-09-02

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

GRAPHIC SCALE

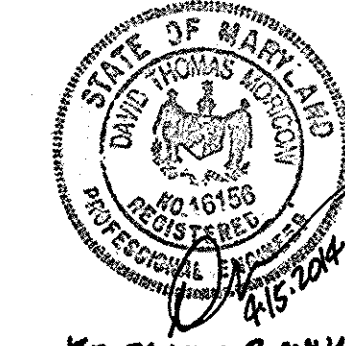


SEDIMENT CONTROL LEGEND

- LIMITS OF DISTURBANCE
- SUPER SILT FENCE WING WALL
- SUPER SILT FENCE
- SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- CONTRACTOR STAGING AREA
- INLET PROTECTION DEVICE
- TREE PROTECTION
- 100 YR. FLOODPLAIN EASEMENT
- STREAM VALLEY BUFFER



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



FOR REVISION 2 ONLY

SEE SHEET C2.1 FOR GENERAL NOTES

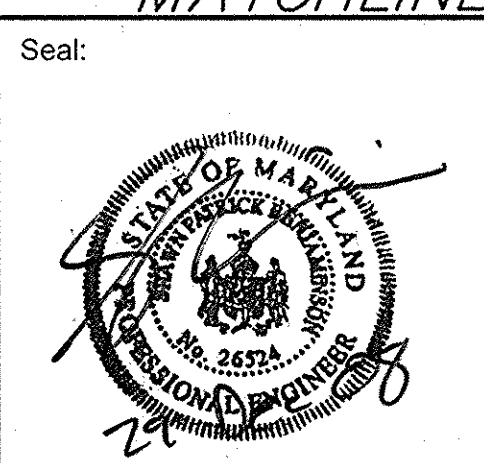
SEE SHEET 7A OF 37 FOR WALK LAYOUT

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chad Edwards
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 1/12/09

Condy Hanna
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 1/13/09

Thomas R. Riddle
 DIRECTOR, DEP.
 DATE: 1/14/09

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



GRIEVES WORRALL WRIGHT & O'HANNICK
 INCORPORATED
G | W
W | O
 ARCHITECTS
 800 WYMAN PARK DRIVE, SUITE 205
 BALTIMORE, MARYLAND 21211, 410.332.1009

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

Project Title
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
 Scale: 1"=40' SPB
 Date: December 29, 2008 SPB

Revisions:

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

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
John R. Roberts
 HOWARD SCD
 DATE: 1/16/09

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: 25254 EXPIRATION DATE: 19 J. 2009

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CAPITAL PROJECT #: N39-60

No.	Date	Description	Drawing Title	Sheet	Of
			EROSION AND SEDIMENT CONTROL PLAN	4	37

C2.2

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, SO2, TEMPORARY SEEDING, AND MULCHING (SEC. C). 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 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 = 13,628 CU. YDS.
 OFF-SITE 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 AREA IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROL, 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 WITH 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.

SEEDING 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./1000 SQ. FT.) AND 600 LBS./ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ. FT.) BEFORE SEEDING. HARK'N OR DISK UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS./ACRE 10-0-0 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./1000 SQ. FT.) BEFORE SEEDING. HARK'N OR DISK 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 APPLYING 2 TONS/ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION 2--USE SOO. 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 R SEEDINGS.

DATE LOCAL PERMANENT SEEDING WITH LANDSCAPE ARCHITECT AND LANDSCAPE ARCHITECT TEMPORARY SEEDING NOTES L-4-0-1

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

SEEDING 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.).

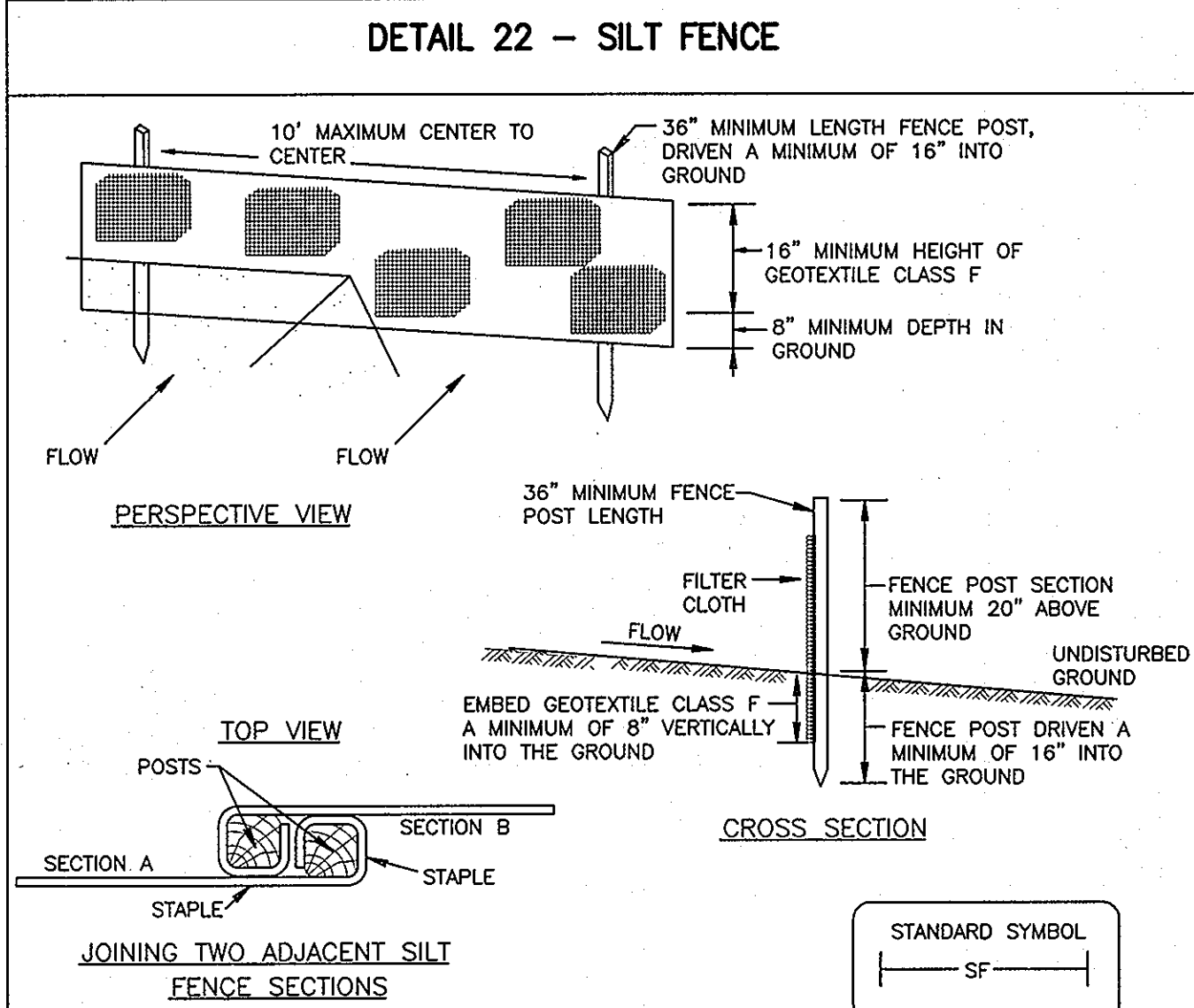
FOR THE PERIOD NOVEMBER 16 -- FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS/ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOO.

MULCHING -- APPLY 1-1/2 TO 2 TONS/ACRE (70 TO 90 LBS./1000 SQ. FT.) 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 8 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.



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

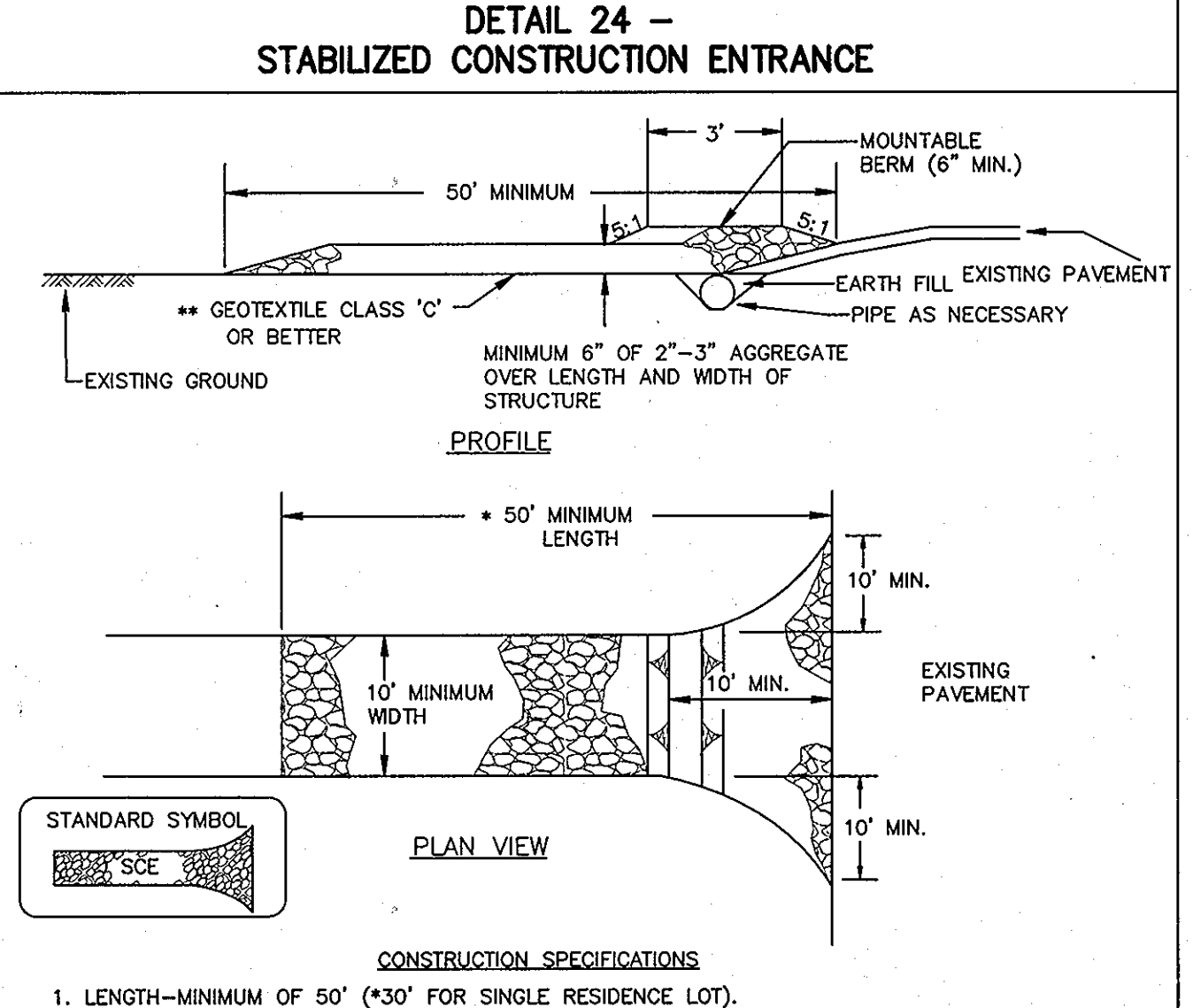
3. WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.
4. SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND MAINTAINED WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHED 50% OF THE FABRIC HEIGHT.

SILT FENCE DESIGN CRITERIA

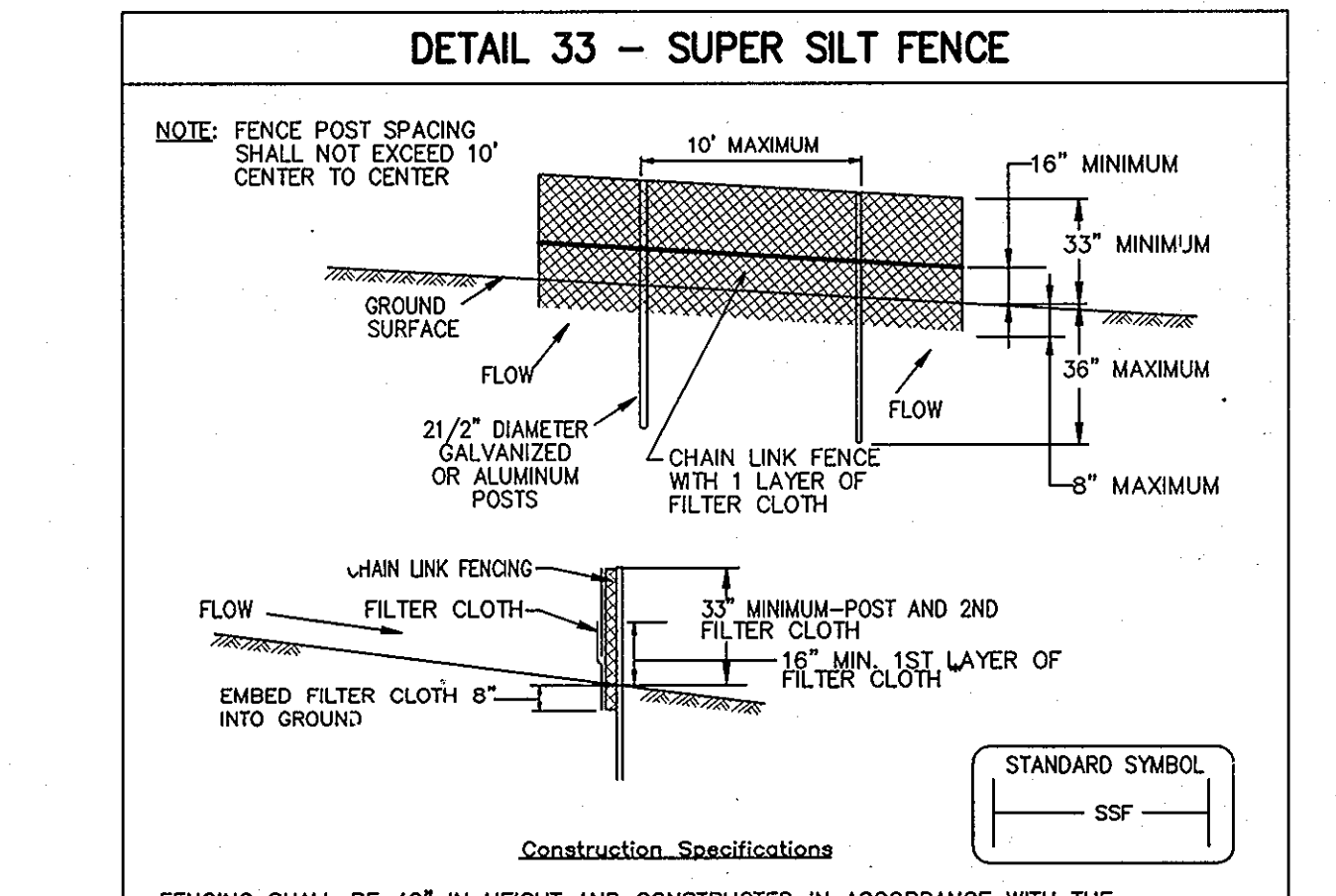
SLOPE STEEPNESS	(MAXIMUM) SLOPE LENGTH	(MAXIMUM) SILT FENCE LENGTH
FLATTER THAN 50:1	UNLIMITED	UNLIMITED
50:1 TO 10:1	125 FEET	1,000 FEET
10:1 TO 5:1	100 FEET	750 FEET
5:1 TO 3:1	60 FEET	500 FEET
3:1 TO 2:1	40 FEET	250 FEET
2:1 AND STEEPER	20 FEET	125 FEET

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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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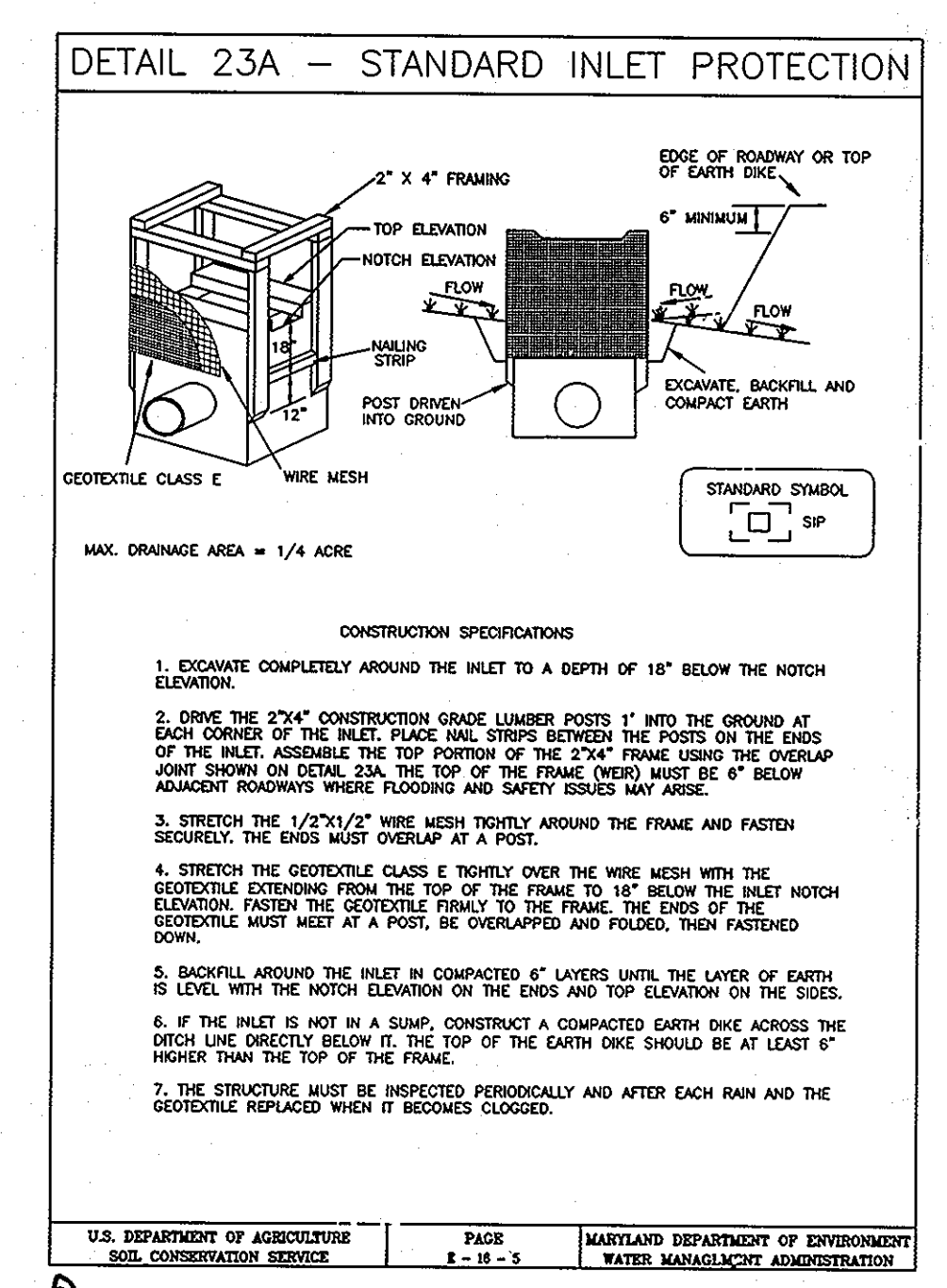
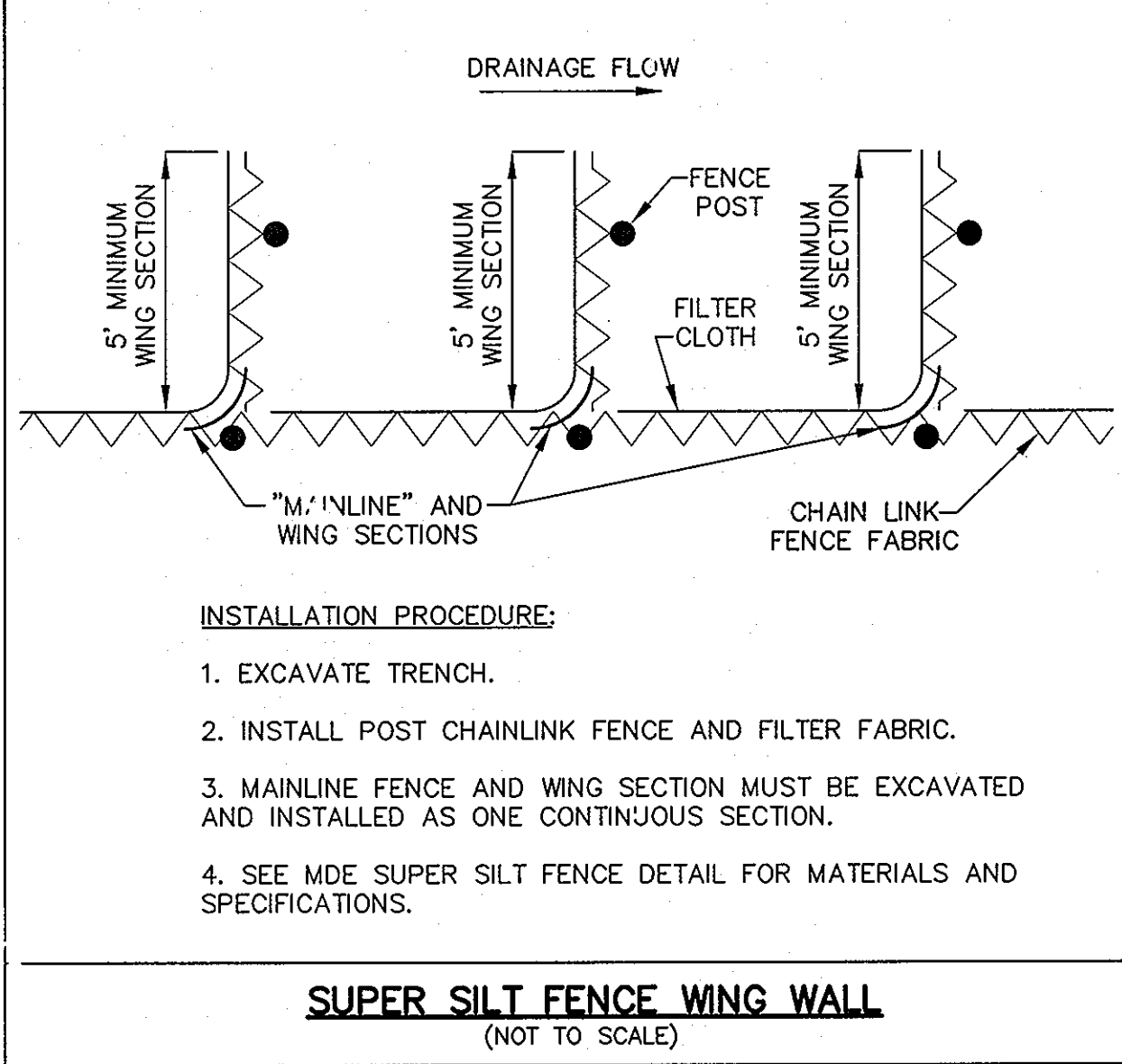


- CONSTRUCTION SPECIFICATIONS**
1. LENGTH--MINIMUM OF 50' (*30' FOR SINGLE RESIDENCE LOT).
 2. WIDTH--10' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
 3. GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. **THE PLAN APPROVAL 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 LEAST 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.



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 28 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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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.
 7. BEGIN SERVICE ROAD AND WALL CONSTRUCTION. 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.
 20. INSTALL PERVIOUS PAVEMENT. AND OVERLAY SERVICE DRIVE WITH 1" SURFACE COURSE ASPHALT.
 21. INSTALL REMAINING SITE APPURTENANCES, INCLUDING LANDSCAPING. AREAS DISTURBED SHALL BE 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.



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 PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

Shawn Benamison, 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 ENVIRONMENT 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

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division 1/12/09
 DATE

Chief, Division of Land Development 1/14/09
 DATE

Director, Dep. 1/14/09
 DATE

APPROVED
 PLANNING BOARD OF HOWARD COUNTY

DATE 1/13/08
 vs

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

John L. Robertson 1/6/09
 HOWARD SCD DATE

Seal: PROFESSIONAL ENGINEER

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

GRIEVES WORRALL WRIGHT & O'HANLICK INCORPORATED

G | W
W | O

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: 410.313.6161

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

Job No. SDP-09-02 KDL
 Scale AS SHOWN SPB
 Date October 8, 2008 SPB Approved

Revisions:

No.	Date	Description
1	10/21/08	COUNTY COMMENTS
2	5-1-09	NOTE
3	11-5-09	SEQUENCE REVISION AND DETAIL

Drawing No. C2.3
 Drawing Number

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 seeding or sodding 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; P₂O₅ (phosphorus), 200 pounds per acre; K₂O (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, Petroret, 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

John K. [Signature] 5/1/14
 HOWARD SOIL CONSERVATION DISTRICT DATE

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

Phil [Signature] 4-29-14
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Vest [Signature] 5-05-14
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Meredith [Signature] 5/6/14
 DIRECTOR, DEEP DPZ DATE

APPROVED
 PLANNING BOARD OF HOWARD COUNTY

DATE 11-13-08

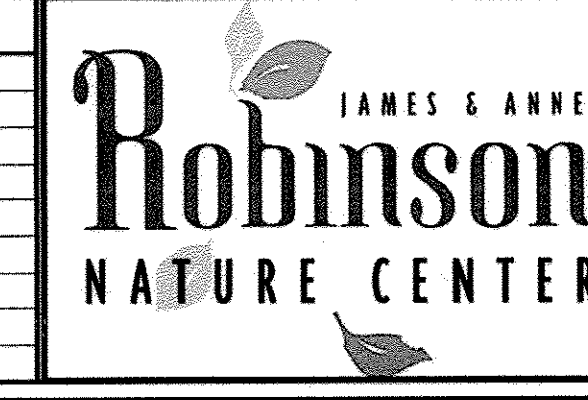
URS CORPORATION
 4 NORTH PARK DRIVE
 SUITE 300
 HUNT VALLEY, MARYLAND 21030
 PHONE: 410-785-7220/FAX: 410-785-6818

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

REVISION No.	REVISION DATE	DESCRIPTION
1	4-15-14	NEW SHEET



ROBINSON NATURE CENTER
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS

PROJECT TITLE: ROBINSON NATURE CENTER STORAGE BUILDING AND BUTTERFLY HOUSE	URS PROJECT NO: 20834595
SHEET TITLE: EROSION AND SEDIMENT CONTROL NOTES	SHEET No.: 5A OF 37
SCALE: AS NOTED	DATE: APRIL, 2014
C2.3.1	

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 1/2 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: 1 1/2 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 1 1/2 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 seedlings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

No.	Species	Application Rate (lb/ac)	Seeding Dates		Seeding Depths	Fertilizer Rate (10-20-20)			Lime Rate
			3/1-5/15	8/15-10/15		N	P ₂ O ₅	K ₂ O	
8	TALL FESCUE	100	3/1-5/15	8/15-10/15	1/4- 1/2 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)

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 1/4 inch, plus or minus 1/4 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 1/3 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.

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.

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Notes:
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APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 4.29.14
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
 [Signature] 5-05-14
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 [Signature] 5/6/14
 DIRECTOR, DEP D&Z DATE

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

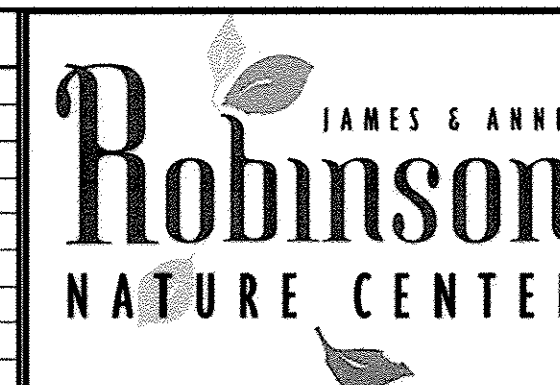
THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY HOWARD COUNTY CONSERVATION DISTRICT.
 [Signature] 5/6/14
 HOWARD COUNTY CONSERVATION DISTRICT DATE

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

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



**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.: 58 OF 37
C2.3.2



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



(IN FEET)
1 inch = 40 ft.

VILLAGE OF HICKORY RIDGE
SECTION 3, AREA 14
OPEN SPACE LOT 45
DEDICATED TO HOWARD COUNTY, MD
PLAT Nos. 13640-13641
ZONED NEW TOWN-OPEN SPACE

TIMBER CHECK DAMS
SEE DETAIL 1 ON
SHEET C-3.10

MATCHLINE SEE PAGE C3.1

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 TRAIL 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
SEE ARCH DWG'S
- PROPOSED BUILDING
SEE DETAIL 7 SHEET C-3.4
- 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
- FOREST CONSERVATION EASEMENT
- RETAINING WALL FENCE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

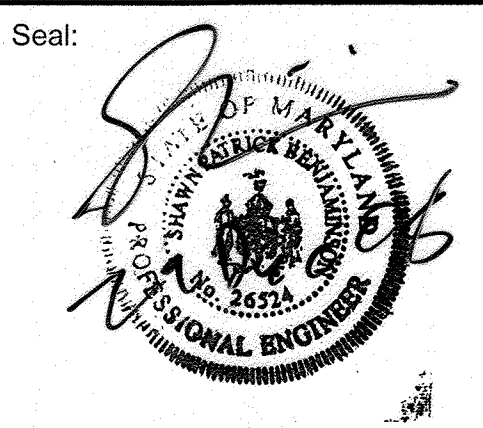
Chad Edwards 1/12/09
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Amidy Hanna 1/15/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mona Smith 1/14/09
DIRECTOR, DEP. DATE

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING

97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
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GRIEVES WORRALL WRIGHT & OHATNICK
INCORPORATED

G|W
W|O

ARCHITECTS
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OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
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Project Title
Robinson Nature Center

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

Tax Map 35 Parcel 87 Liber: 8997 Folia: 160

Job No. **SDP-09-02** KDL Drawn
Scale 1"=40' SPB Checked
Date December 29, 2008 SPB Approved

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 11/13/08

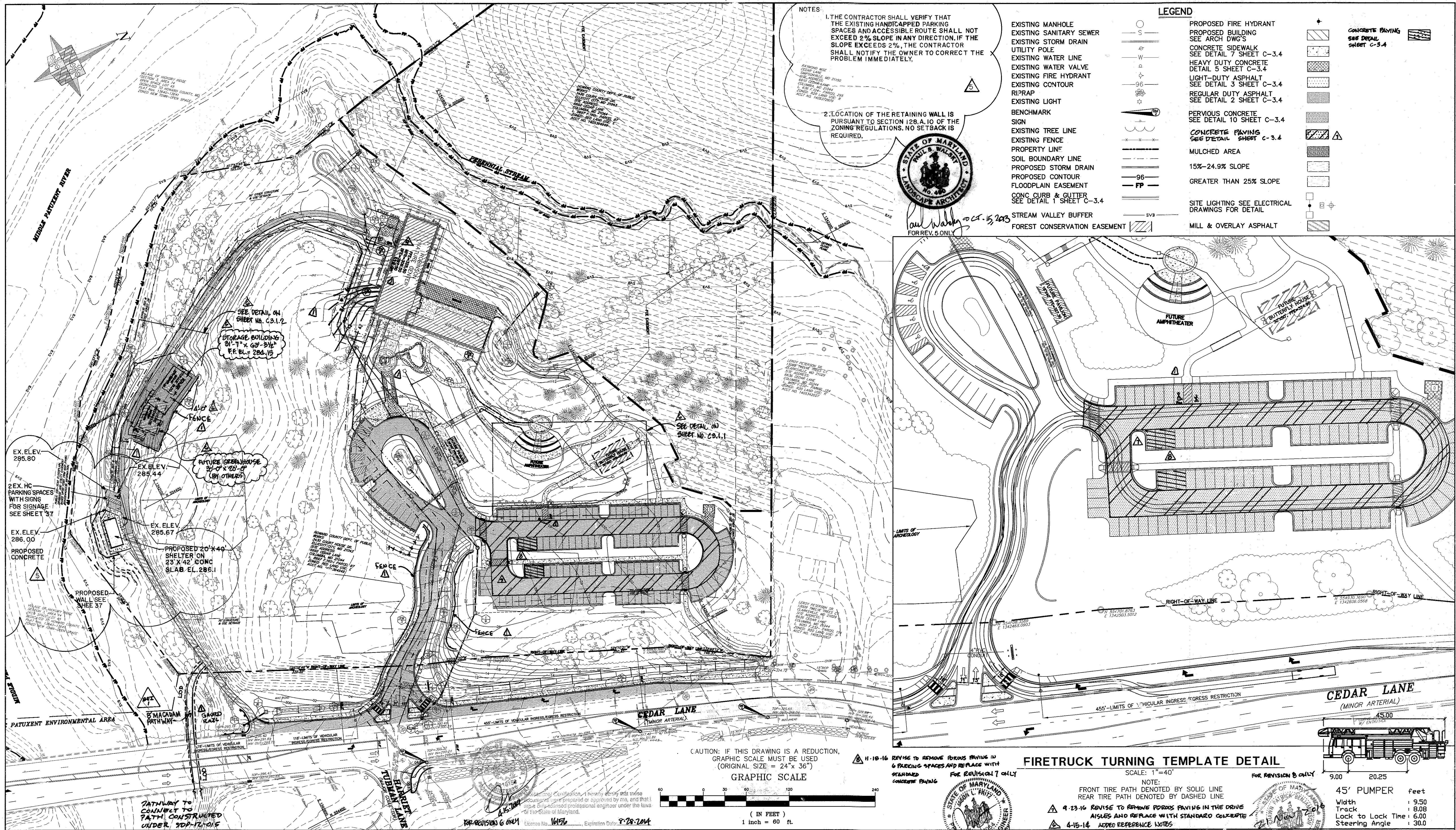
I CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT
I AM A FULLY LICENSED ENGINEER UNDER THE
LAWS OF THE STATE OF MARYLAND.
LICENSE NUMBER 28524
EXPIRATION DATE: 19 JULY 2009

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CAPITAL PROJECT #: N39-60

Revisions:		Drawing Title		Drawing Number	
No.	Date	Description	Site Plan	C3.2	
1	5-1-09	GRADING, G60 WALL, WALL, SEE TW ELEV. 616	Site Plan	C3.2	
2	3/20/10	REMOVE WATER LINE PUMP			
3	3-1-10	REMOVE FIRE PUMP APP. STRUCTURE YARD HYDRANT			

Sheet 8 Of 37



APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 1-12-9

Condy Haman
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 1/13/09

Thomas J. Suttler
DIRECTOR, DEP.
DATE: 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE: 1/13/08

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING

97 Monocacy Boulevard, Unit H
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Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

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

Seal: STATE OF MARYLAND 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 MARYLAND.
LICENSE NUMBER: 26524
EXPIRATION DATE: 19 JULY 2009

GRIEVES WORRAL WRIGHT & O'HAINICK INCORPORATED

G | W
W | O

ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1005

© 2007 GWWG, INC.

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

CAPITAL PROJECT #: N39-60

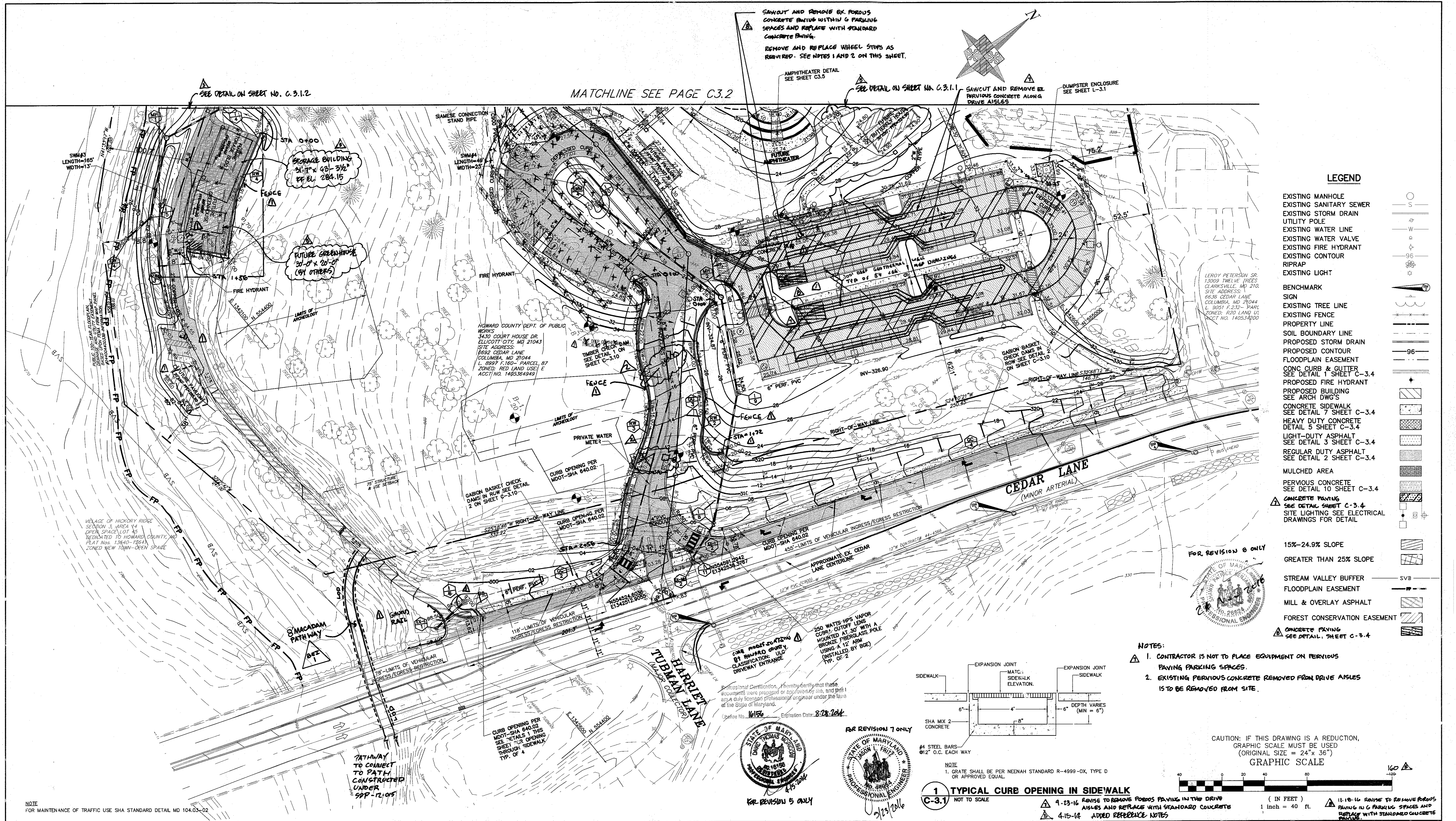
Project Title: **Robinson Nature Center**

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

Tax Map 35 Parcel 8' Liber: 8997 Folio: 1F0

Job No. SDP-09-02 KDL
Scale 1"=60' SPB
Date December 29, 2008 SPB
Drawing Title Overall Site Plan Drawing Number C3.0

Sheet 6 Of 37 SDP-09-02



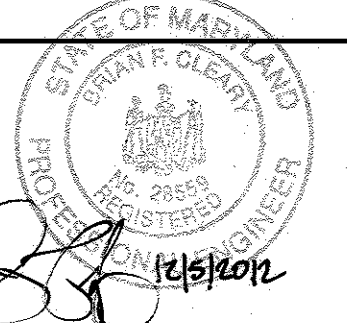
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 1-12-9

Candy Hamer
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 1/15/09

Thomas E. Suttler
DIRECTOR, DEP.
DATE: 1/14/09

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



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,



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 MARYLAND.
LICENSE NUMBER: 28524
EXPIRATION DATE: 19 JULY 2009

GRIEVES WRIGHT & O'HANICK INCORPORATED
G | W
W | O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-0099
C 2007 GWCO INC.

OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: A'RYE GIMMA
TEL: 410.313.6143 FAX: 410.313.6161

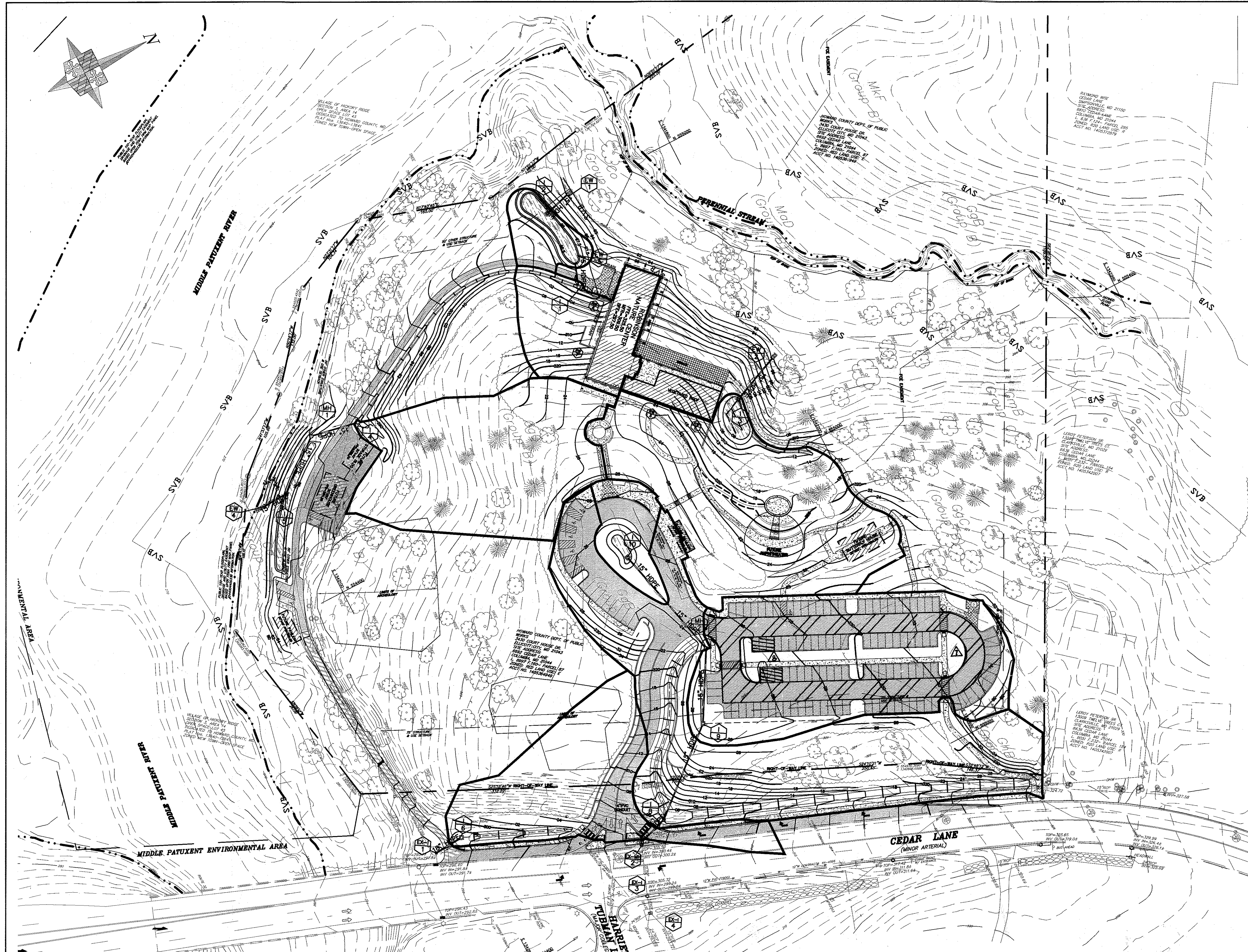
CAPITAL PROJECT #: N39-60

Project Title		Robinson Nature Center	
6692 Cedar Lane		Election District No. 5	
Tax Map 35 Parcel 37 Sub: 857 Folio: 160		Job No. SDP-09-02	
Scale 1"=40'		KDL	
Date December 29 2008		SPB	
Drawing Title		Drawing Number	
Site Plan		C3.1	
Sheet 7		Of 37	

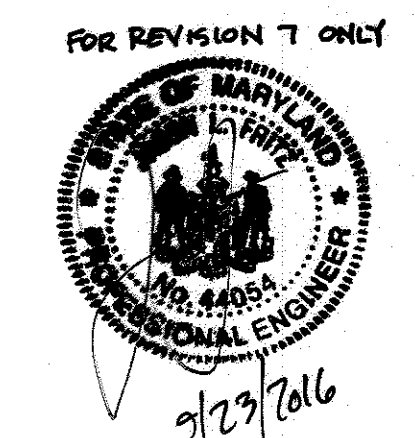
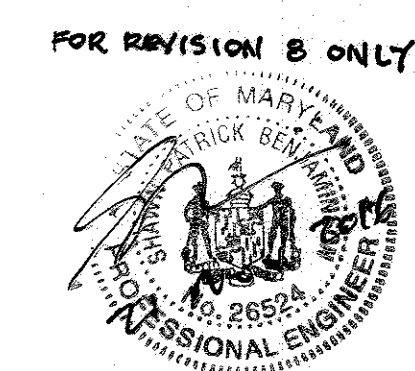
Revisions:

No.	Date	Description
1	6-1-09	FENCE GEO WELLS, CONC. HC SPACES, GAUDD RISE, PANELLED GRADING STATION WALLS
2	7/20/10	REMOVE WATER LINE PUMP STRUCTURE
3	3-1-10	MOVE SITE LIGHTING
4	11-30-12	SHOW 8' MACADAM PATHWAY BY BEI

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



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%



LEGEND

- CONCRETE PAVING
SEE DETAIL SHEET C-3.4
- CONCRETE PAVING
SEE DETAIL SHEET C-3.4
- PERVIOUS ASPHALT
- REGULAR DUTY ASPHALT
- MILL & OVERLAY ASPHALT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 1-12-9

Andy Harris
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 1/12/09

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

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE: 1/13/08

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 MARYLAND. LICENSE NUMBER: 26524 EXPIRATION DATE: 10 JULY 2009

GRIEVES WORRAL, WRIGHT & O'HATNICK
INCC: PORN: TED

G | W
W | O

ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 200
BALTIMORE, MARYLAND 21211, 410-332-1009
C 2007 G|W|O 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

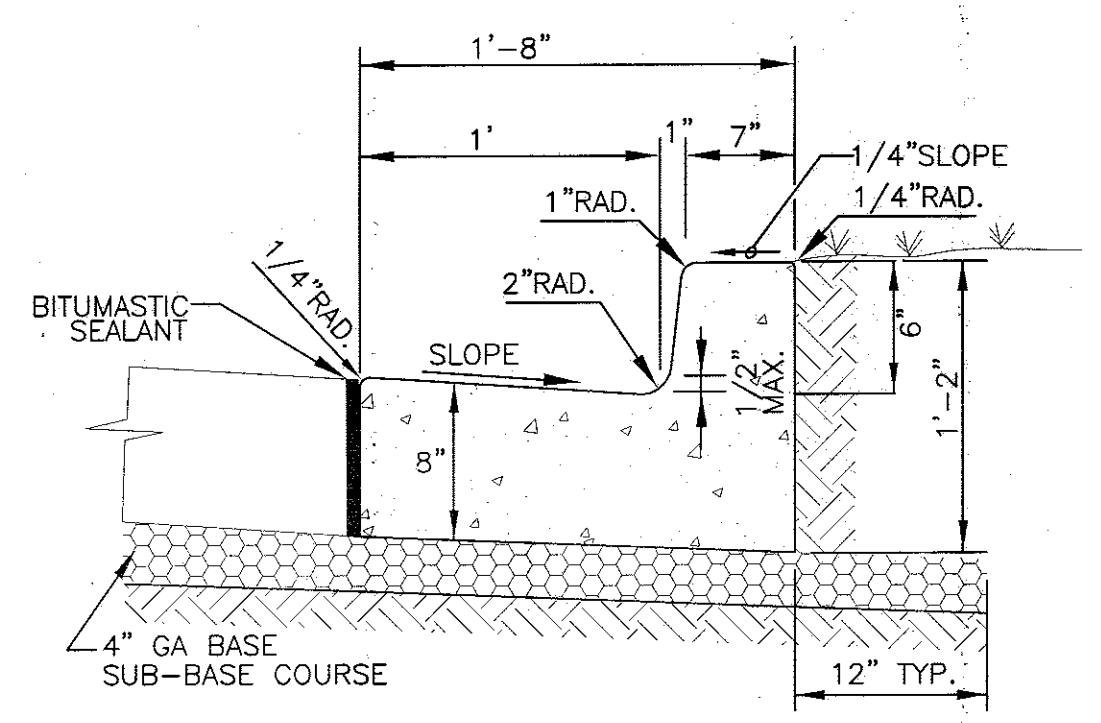
Revisions:

No.	Date	Description
1	9-23-10	REVISE TO REMOVE PERVIOUS PAVING IN THE DRIVE AISLES AND PERVAIS WITH STANDARD CONCRETE
2	11-10-16	REVISE TO REMOVE PERVIOUS PAVING IN 6 PARKING SPACES AND REPLACE WITH STANDARD CONCRETE PAVING.

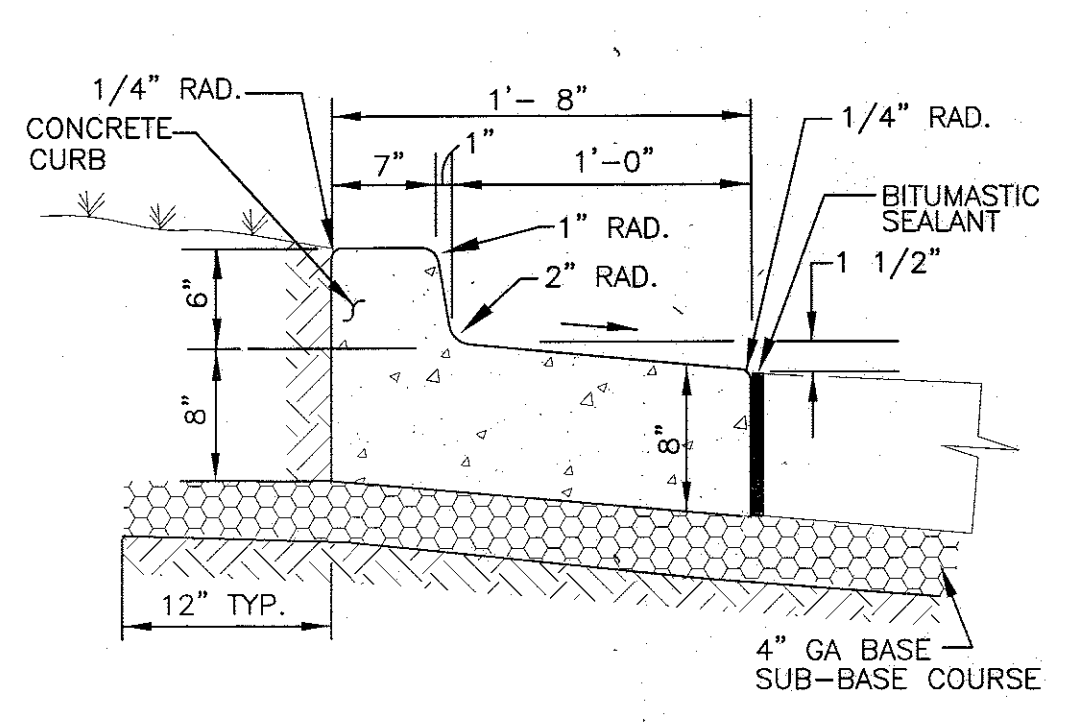
STORM DRAIN INLET DRAINAGE AREA MAP

C3.3

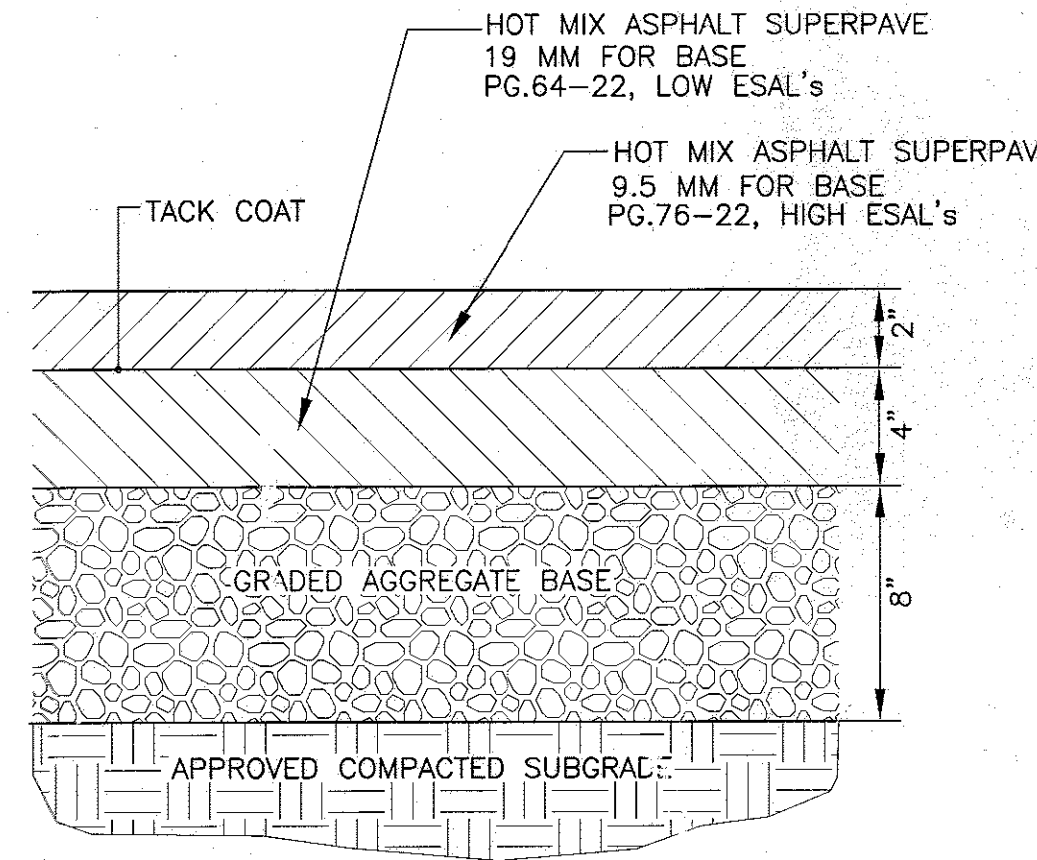
Sheet 9 Of 37



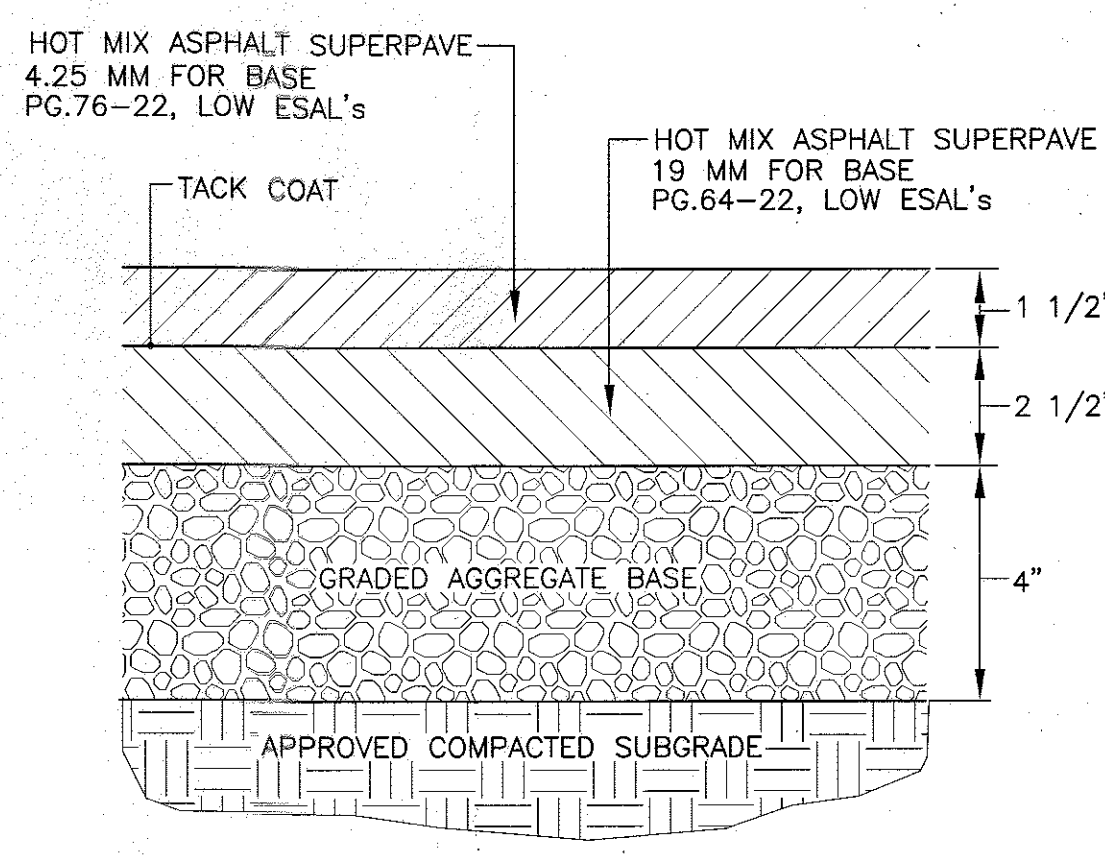
CURB/WITH NORMAL GUTTER



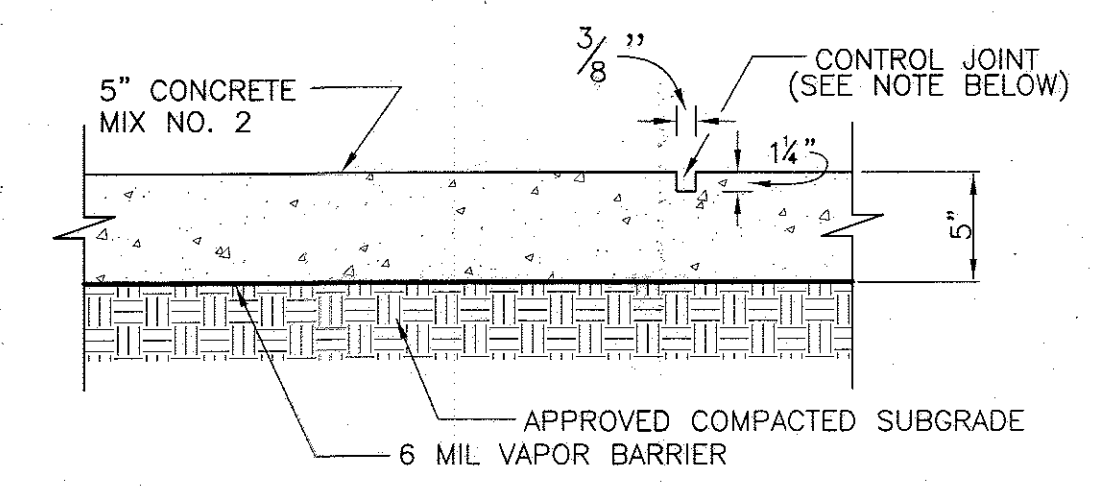
CURB/WITH SPILL GUTTER



2 ASPHALT CONCRETE SECTION
C-3.4 NOT TO SCALE



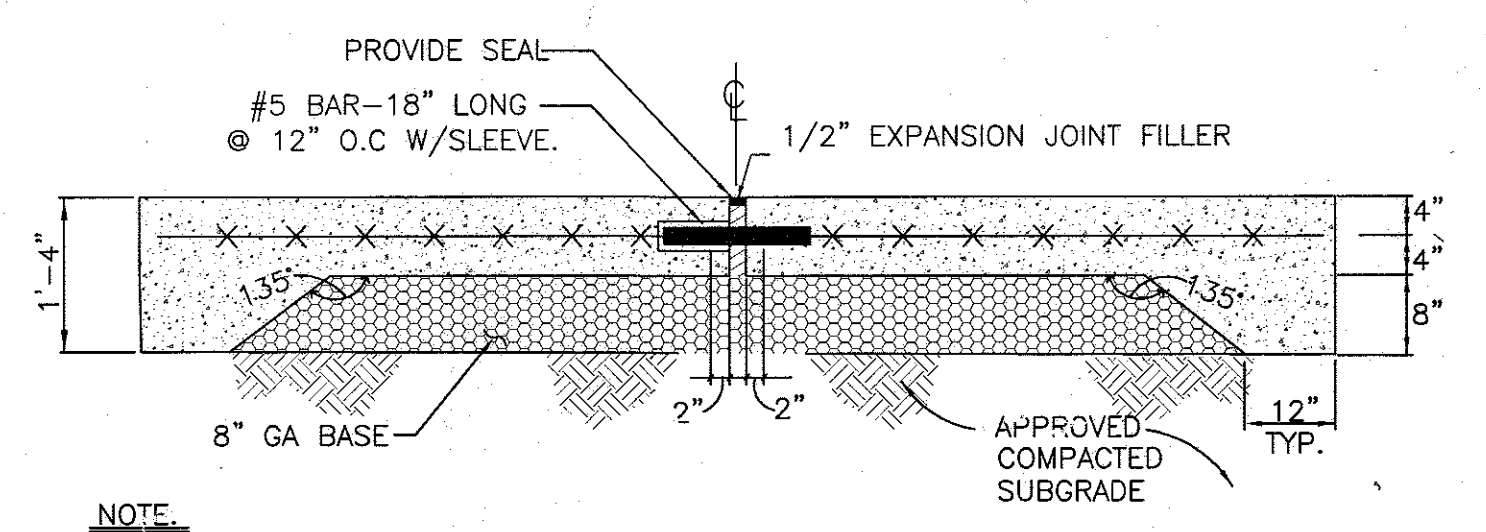
3 LIGHT-DUTY SURFACE
C-3.4 NOT TO SCALE



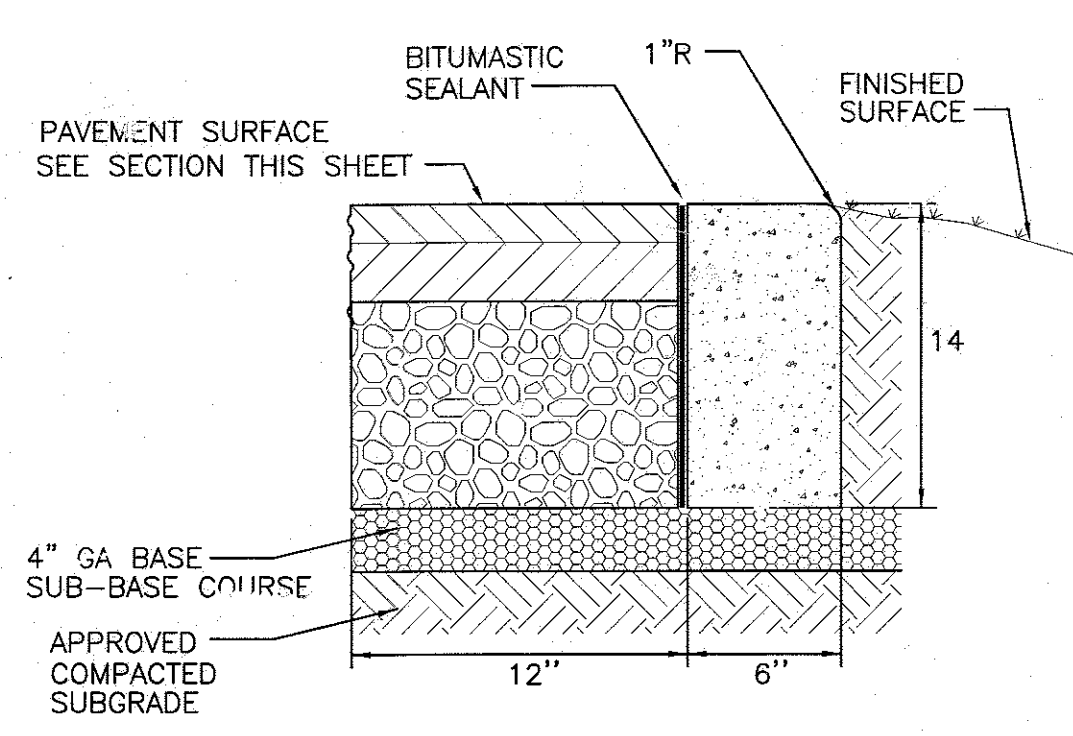
4 CONCRETE SIDEWALK SECTION
C-3.4 NOT TO SCALE

- GENERAL NOTES**
- REFER TO HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION SPECIFICATIONS FOR MATERIALS, METHODS OF CONSTRUCTION AND EXPANSION JOINT LOCATIONS.
 - 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, (NON-EXTRUDING).
 - CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT FOR ALL CURBS & GUTTER PRIOR TO BACKFILLING.

1 CONCRETE CURB & GUTTER
C-3.4 NOT TO SCALE

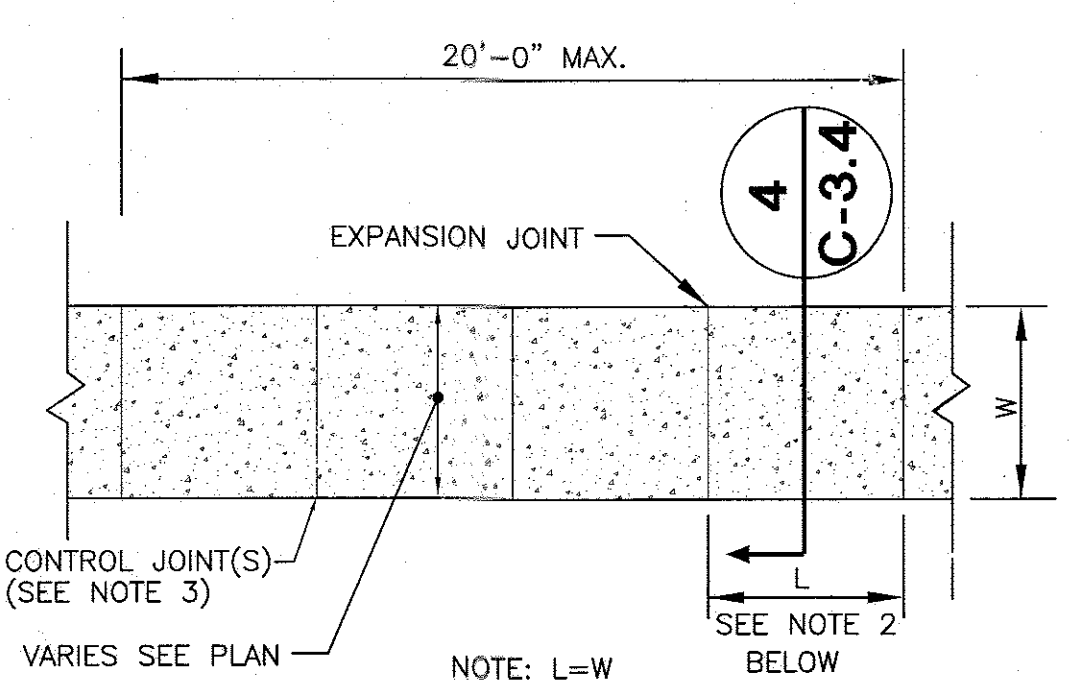


- NOTE:**
- 8" CONC. SLAB REINFORCED W/ W6x6 W4xW4 WWF @ MID DEPTH ON A 8" POROUS FILL MATERIAL OVER APPROVED COMPACTED SUBGRADE.
 - CONSTRUCT EXPANSION JOINT, AND ADJACENT TO OTHER STRUCTURES OR CONCRETE. JOINTS TO BE 10' x 15' SQUARES MINIMUM.
 - CONCRETE SHALL BE MIX NO. 3 PER SHA STANDARDS AND SPECIFICATIONS.



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

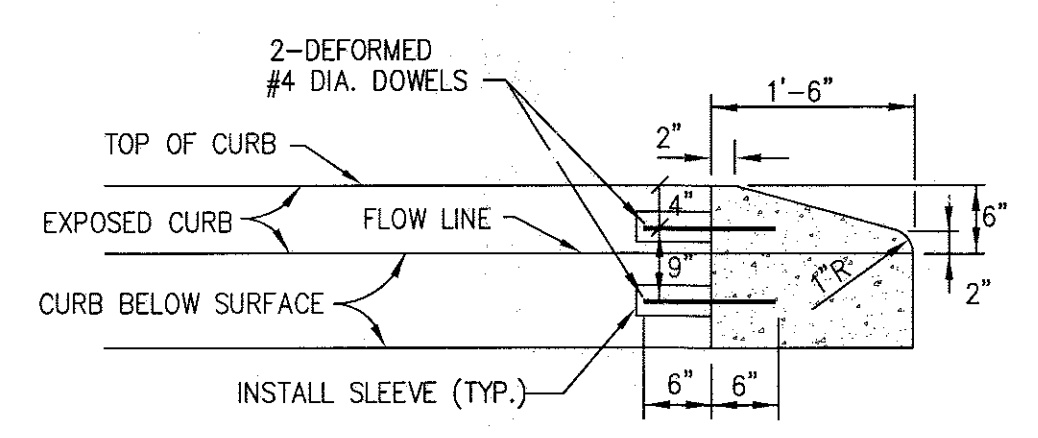
6 DEPRESSED CURB DETAIL
C-3.4 NOT TO SCALE



- NOTES:**
- ALL CONCRETE SHALL BE SHA MIX NO. 2, 3000 P.S.I., DEPTH SHALL BE 5".
 - 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.
 - CONTROL JOINTS SHALL BE SAW-CUT OR FORMED, 1 1/4" DEEP.
 - PROVIDE 1/2" EXPANSION JOINT FILLER WHERE SIDEWALK ABUTS CURB OR OTHER RIGID STRUCTURE(S).

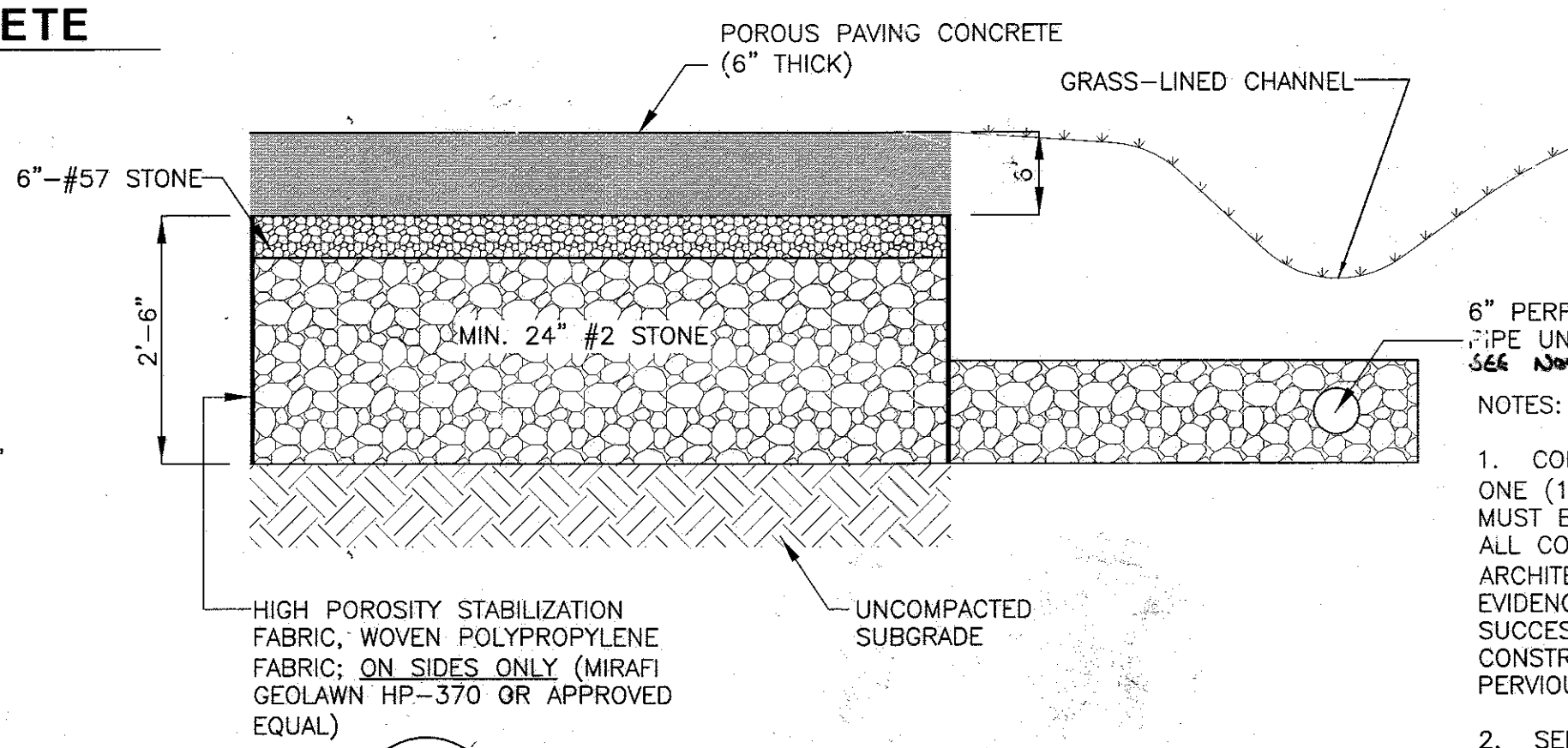
7 CONCRETE SIDEWALK DETAIL
C-3.4 NOT TO SCALE

5 HEAVY DUTY CONCRETE
C-3.4 NOT TO SCALE



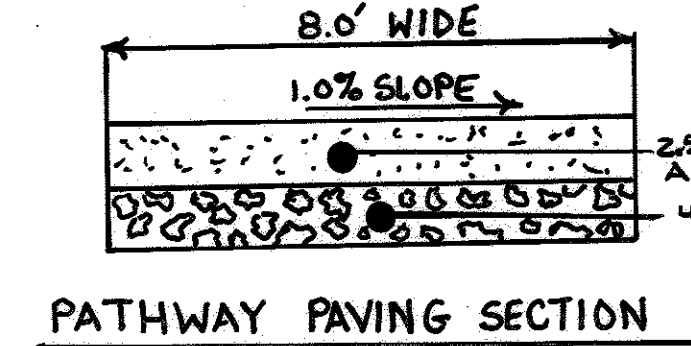
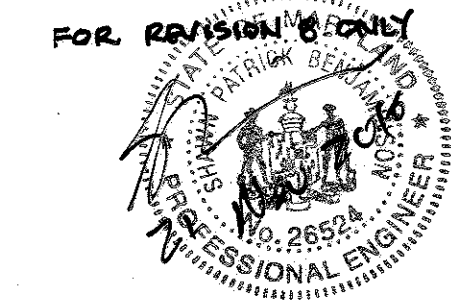
NOTE: USE MDOT-SHA MIX 2

9 CURB NOSE DOWN
C-3.4 NOT TO SCALE

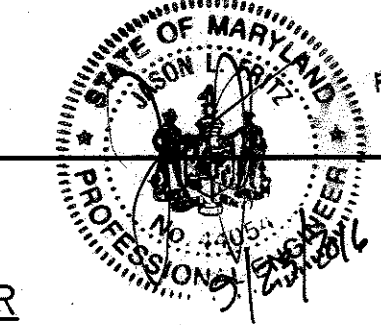


- NOTES:**
- CONTRACTOR SHALL PROVIDE EVIDENCE OF EMPLOYMENT OF ONE (1) NRMCA CERTIFIED PERVIOUS CONCRETE CRAFTSMAN WHO MUST BE ON-SITE, OVERSEEING EACH PLACEMENT CREW, DURING ALL CONCRETE PLACEMENT, OR WITH THE APPROVAL OF ARCHITECT/ENGINEER, CONTRACTOR MAY PROVIDE WRITTEN EVIDENCE OF PROJECT EXPERIENCE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

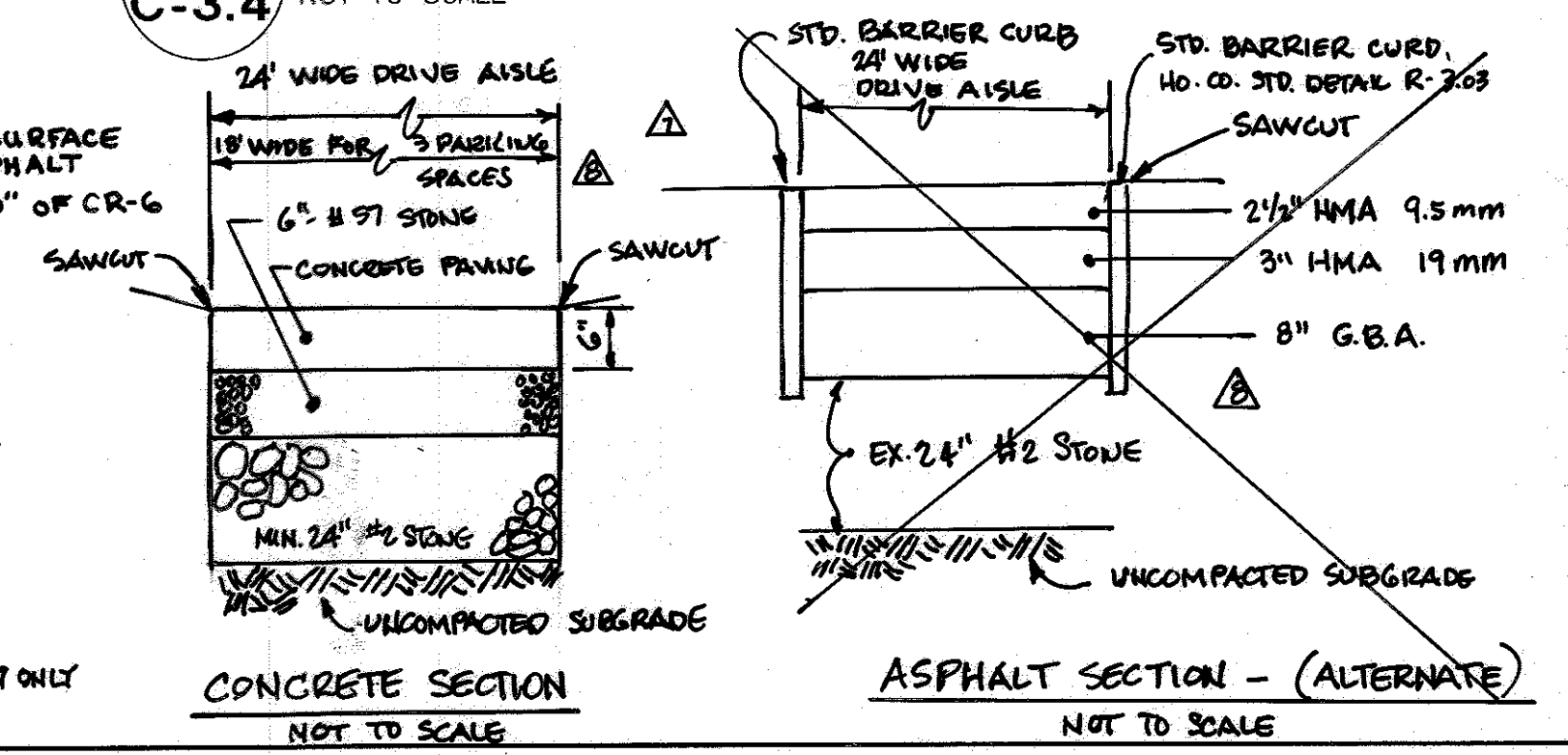
10 PERVIOUS CONCRETE SECTION
C-3.4 NOT TO SCALE



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



8 HANDICAP PARKING STRIPING
C-3.4 NOT TO SCALE



CONCRETE SECTION
NOT TO SCALE

ASPHALT SECTION - (ALTERNATE)
NOT TO SCALE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: *Chad Elwood*, 1/12/09

Chief, Division of Land Development: *Conrad Harris*, 1/14/09

Director, DEP: *Thomas J. Butch*, 1/14/09

APPROVED PLANNING BOARD OF HOWARD COUNTY

DATE: 1/13/08

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING

97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5316
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com

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 BE11

Seal: *Robert J. Smith*

STATE OF MARYLAND
PROFESSIONAL ENGINEER
LICENSE NO. 28559
EXPIRES 7/22/13

GRIEVES WORRAL WRIGHT & O'HAINICK
INCORPORATED

G|W
W|O

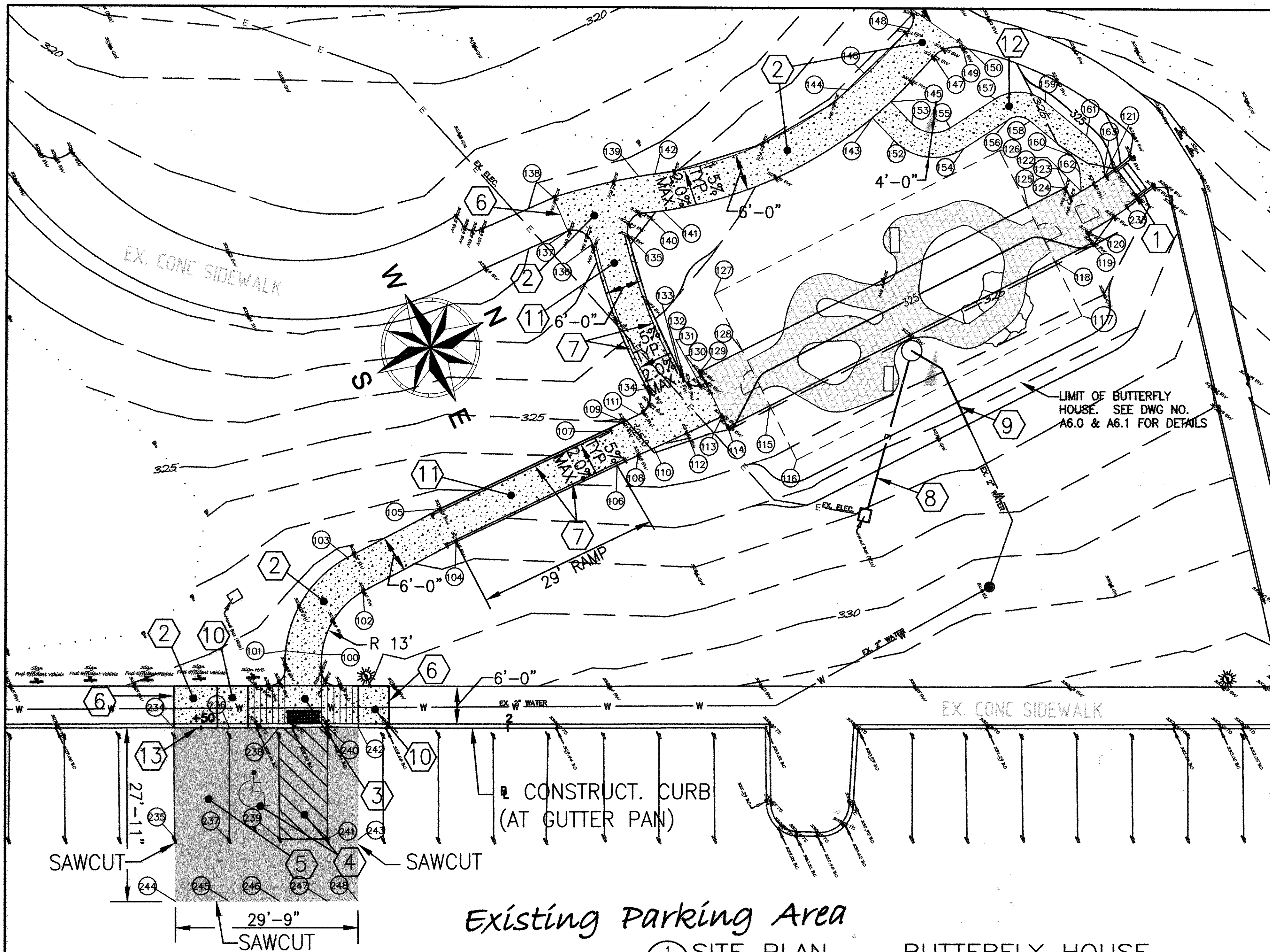
ARCHITECTS
800 YMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211-410-332-1009

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OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
A.T.N: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6131

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



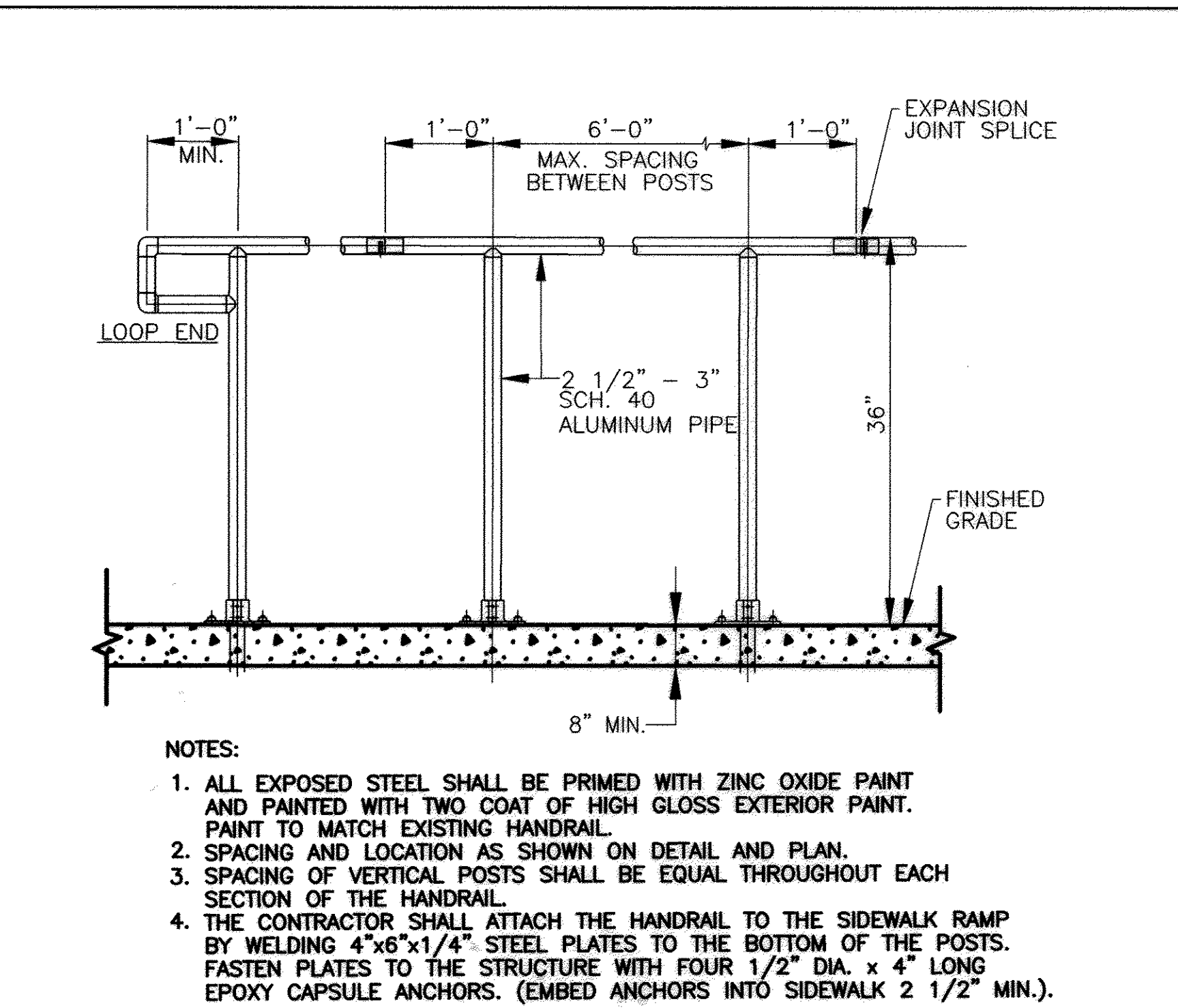
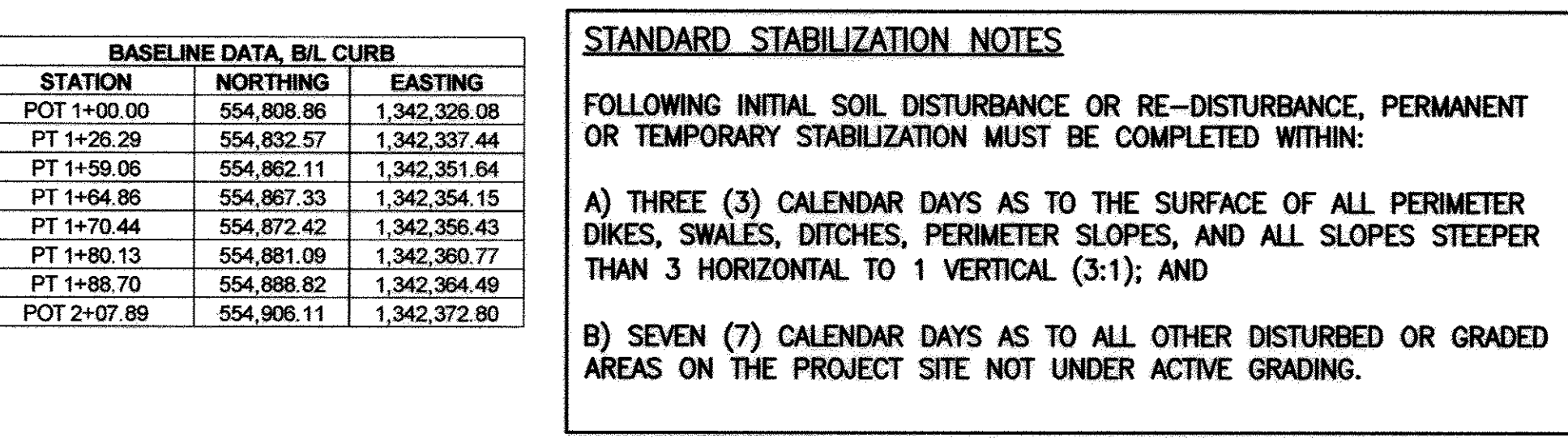
1 SITE PLAN - BUTTERFLY HOUSE
SCALE: 1" = 10'

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.

BASELINE DATA, BIL CURB

STATION	NORTHING	EASTING
POT 1+00.00	554,898.89	1,342,328.08
PT 1+28.29	554,832.57	1,342,337.44
PT 1+58.06	554,882.11	1,342,351.84
PT 1+64.98	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



2 SIDEWALK RAMP HANDRAIL
SCALE: N.T.S.

CONSTRUCTION CONTROL COORDINATES

POINT NO.	NORTHING	EASTING
100	554,876.75	1,342,345.60
101	554,871.85	1,342,342.45
102	554,867.22	1,342,339.34
103	554,867.28	1,342,333.33
104	554,904.33	1,342,338.66
105	554,904.22	1,342,332.66
106	554,933.34	1,342,338.66
107	554,933.38	1,342,332.66
108	554,937.13	1,342,338.66
109	554,937.22	1,342,332.66
110	554,939.81	1,342,338.66
111	554,940.04	1,342,332.66
112	554,945.77	1,342,338.66
113	554,952.18	1,342,338.66
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	1,342,338.85
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	554,965.11	1,342,305.97
144	554,963.63	1,342,300.16
145	554,968.96	1,342,304.88
146	554,967.12	1,342,299.16
147	555,008.38	1,342,301.32
148	555,006.78	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	1,342,308.48
154	555,006.37	1,342,316.84
155	555,005.86	1,342,312.88
156	555,014.98	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	555,026.21	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	1,342,369.38
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

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 4-29-14
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 5-05-14
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 5/6/14
 DIRECTOR, DEE DPZ

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

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

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

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

Robinson
 JAMES & ANNE
 NATURE CENTER

**ROBINSON NATURE CENTER
 HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS**

PROJECT TITLE: **ROBINSON NATURE CENTER STORAGE BUILDING AND BUTTERFLY HOUSE**

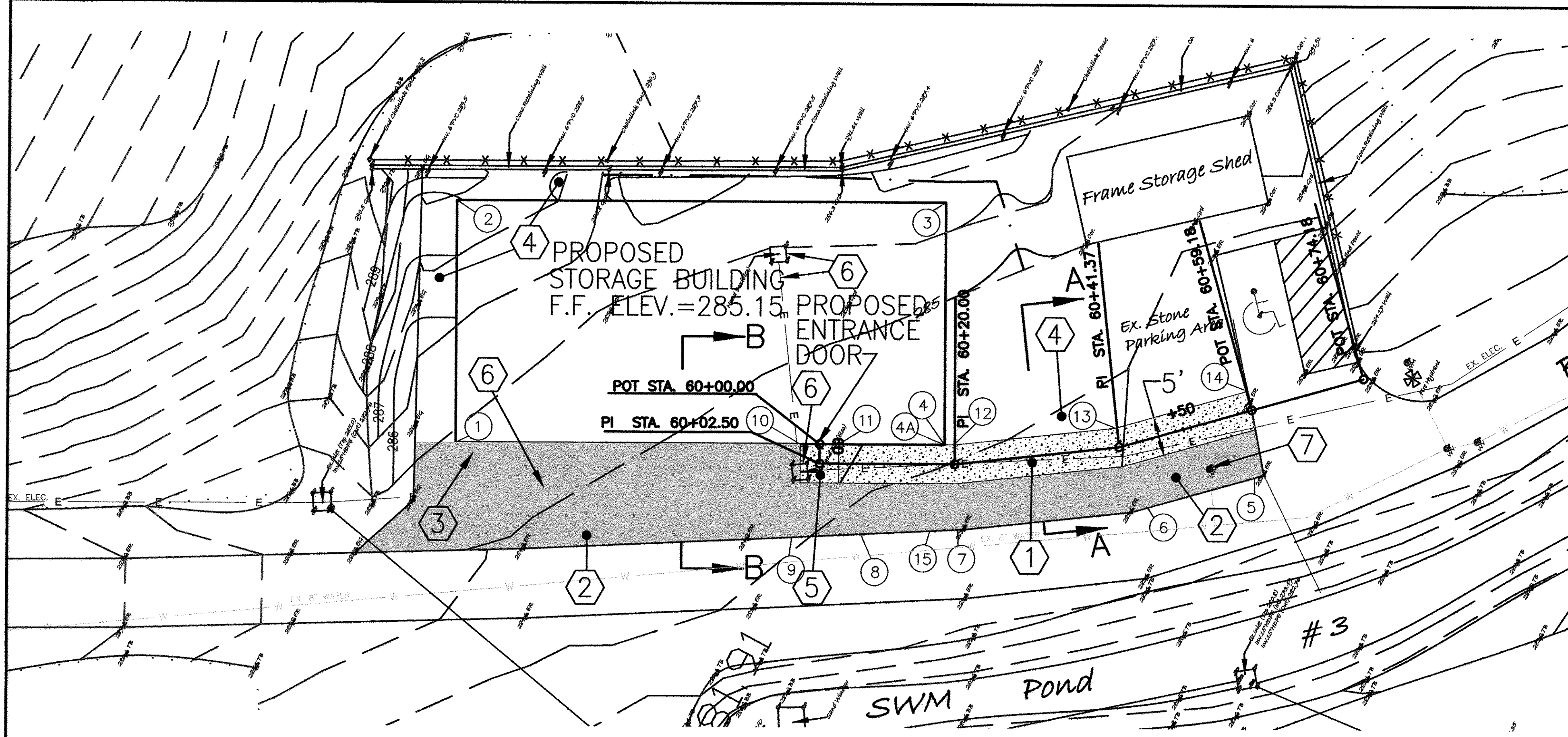
SHEET TITLE: **SITE PLAN**

SCALE: AS NOTED DATE: APRIL, 2014

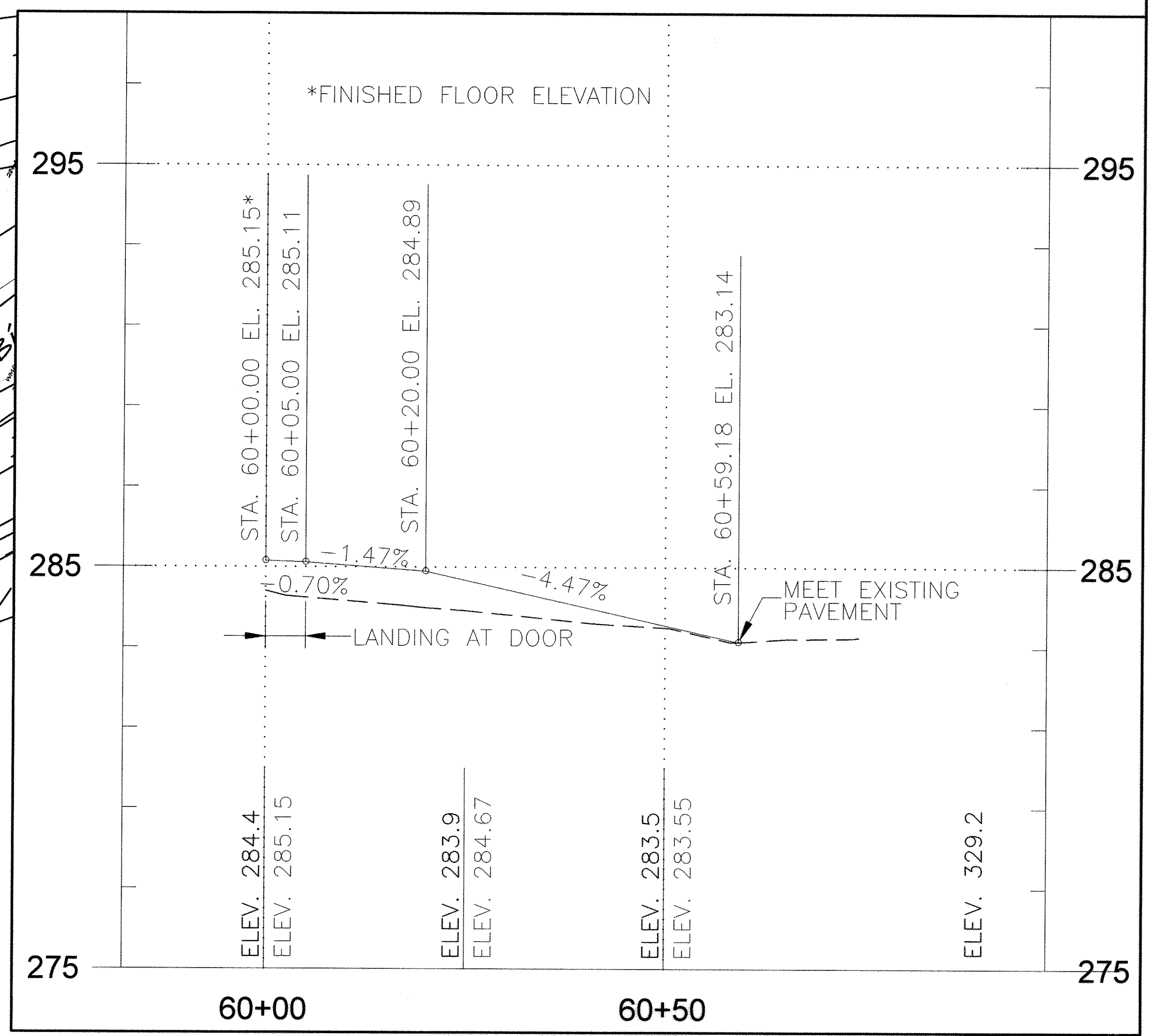
URS PROJECT NO: 20834595

SHEET No.: 7A OF 37

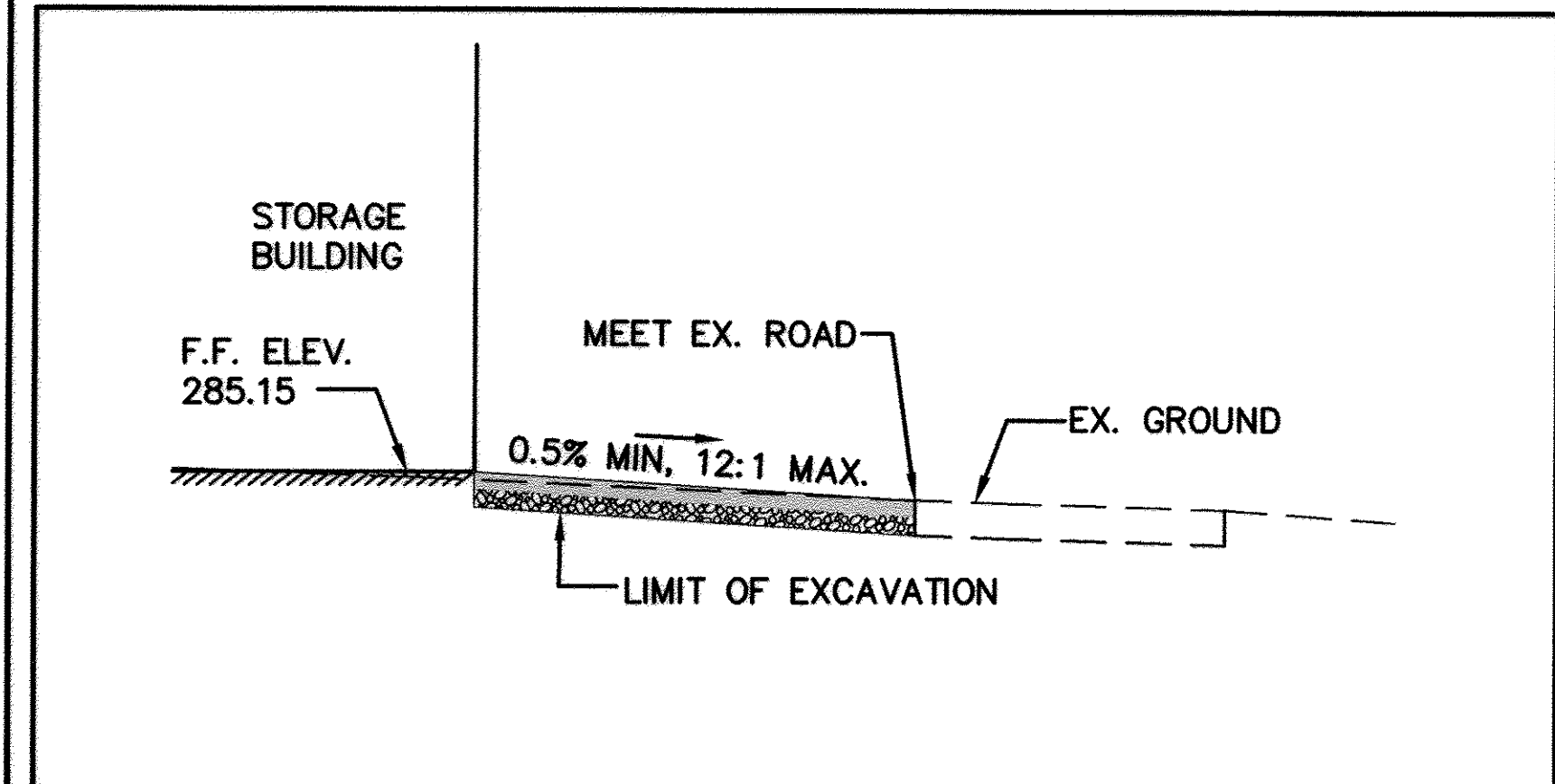
C3.1.1



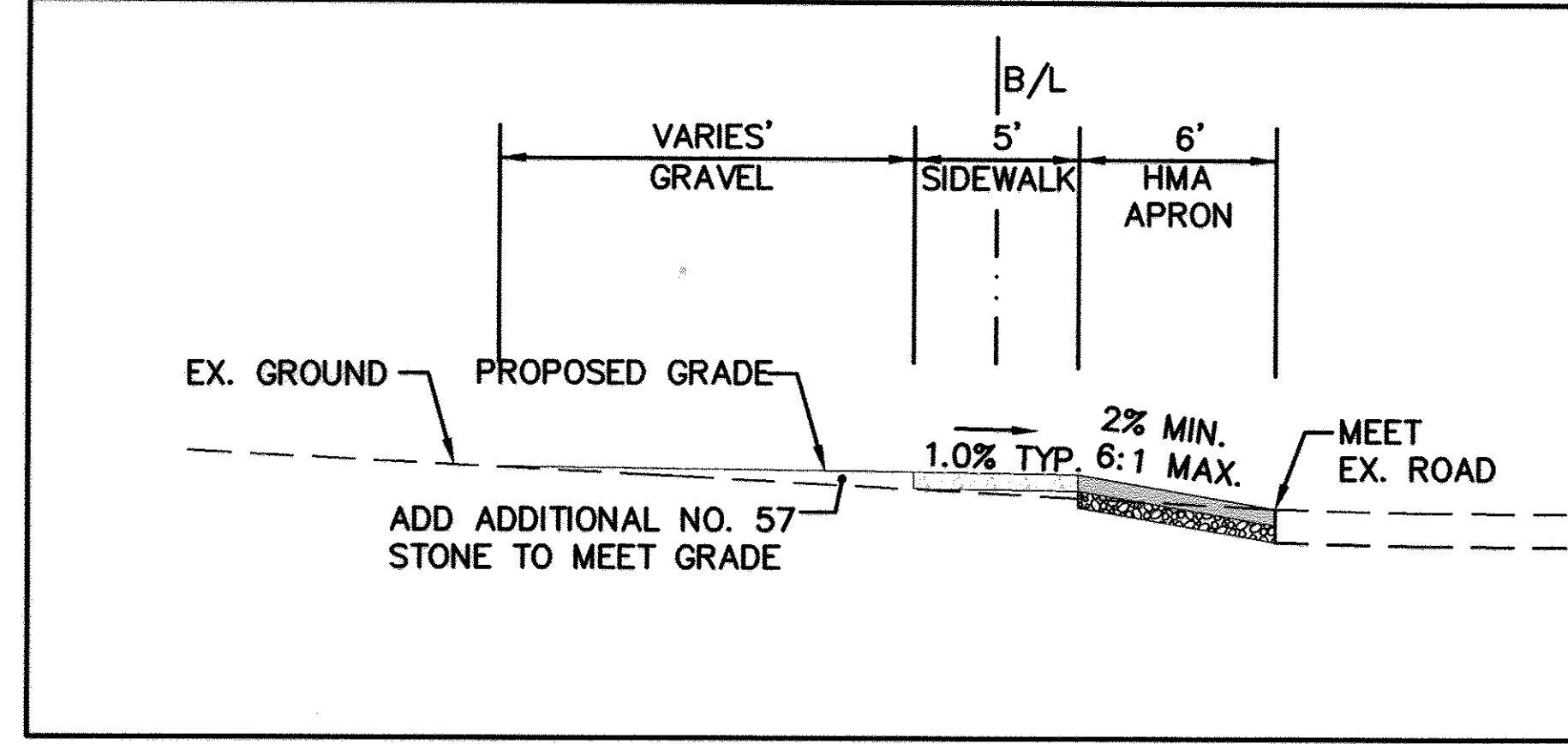
1 SITE PLAN - STORAGE BUILDING
C3.1.2 SCALE: 1"=10'



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



2 SECTION B-B
C3.1.2 SCALE: 1"=5'



3 SECTION A-A
C3.1.2 SCALE: 1"=5'

CONSTRUCTION NOTES:

- CONSTRUCT ADA COMPLIANT CONCRETE SIDEWALK PER SECTION B-B ON HOWARD COUNTY DPW NO. R-6.07.
- CONSTRUCT FULL DEPTH HOT MIX ASPHALT PAVEMENT PER DETAIL NO. 2 ON SDP 02-02 DRAWING NO. C-3.4.
- DECORATIVE BOLLARDS PER DWG. NO. A-2.0 AND DETAIL NO. 5 ON DWG. NO. A-1.0.
- PLACE SALVAGED STONE TO MEET GRADE AND MAINTAIN POSITIVE DRAINAGE.
- 5'x5' LANDING AT DOOR SLOPED 1% (2% MAX.) AWAY FROM ENTRANCE.
- REMOVE AND RESET EXISTING HANDBOXES AND CONDUIT AWAY FROM PROPOSED BUILDING AS DIRECTED BY THE COUNTY.
- ADJUST WATER METER VAULT TO MEET GRADE

GENERAL NOTES:

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

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 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	283.18	554,407.37	1,341,991.09
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

LEGEND

- FULL DEPTH PAVEMENT
- CONCRETE SIDEWALK
- PROPOSED CONTOURS
- EXISTING CONTOURS
- EXISTING CONDUIT

CONSTRUCTION CONTROL COORDINATES		
STATION	NORTHING	EASTING
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
 DATE: 4-29-14
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 5-05-14
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 5/6/14
 DIRECTOR, DPZ

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

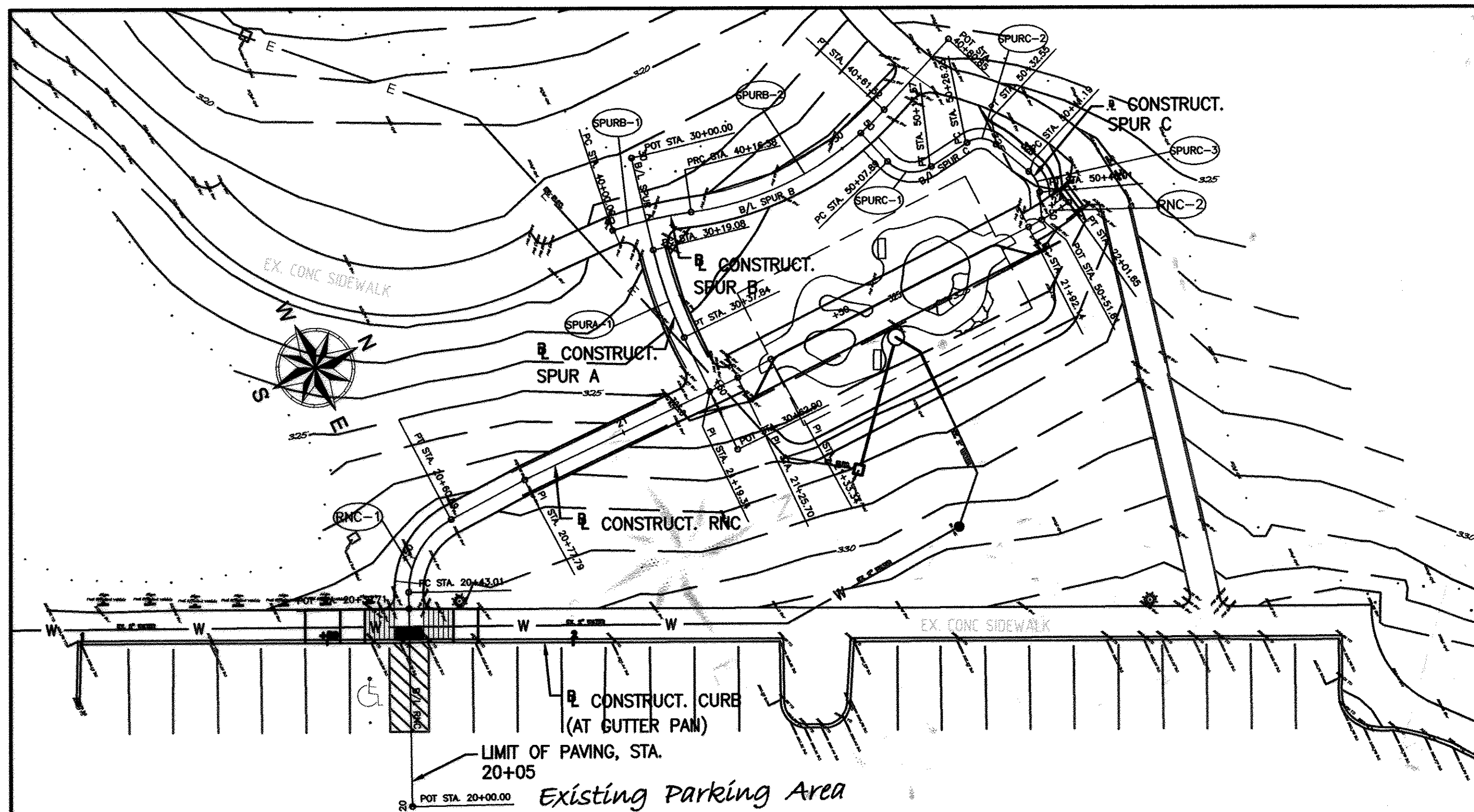
DESIGNED: J.H.YOON
 DRAWN: C.D.FLEWING
 CHECKED: D.T.MORICONI
 APPROVED: D.T.MORICONI

REVISION No.	REVISION DATE	DESCRIPTION
1	4-15-14	NEW SHEET

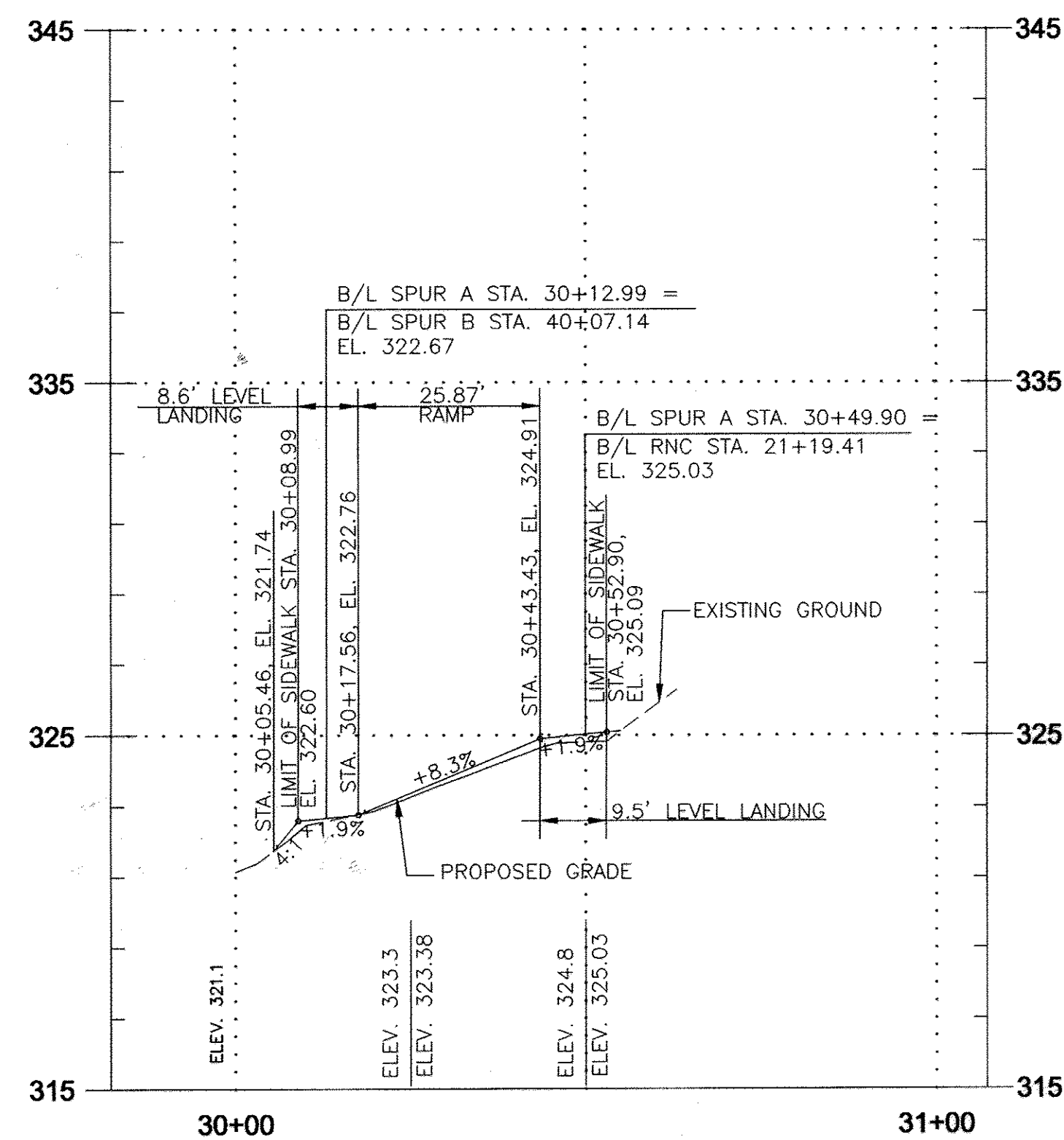
Robinson JAMES & ANNE
 NATURE CENTER
ROBINSON NATURE CENTER
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS

PROJECT TITLE: **ROBINSON NATURE CENTER STORAGE BUILDING AND BUTTERFLY HOUSE**
 SHEET TITLE: **SITE PLAN**
 SCALE: AS NOTED
 DATE: APRIL, 2014

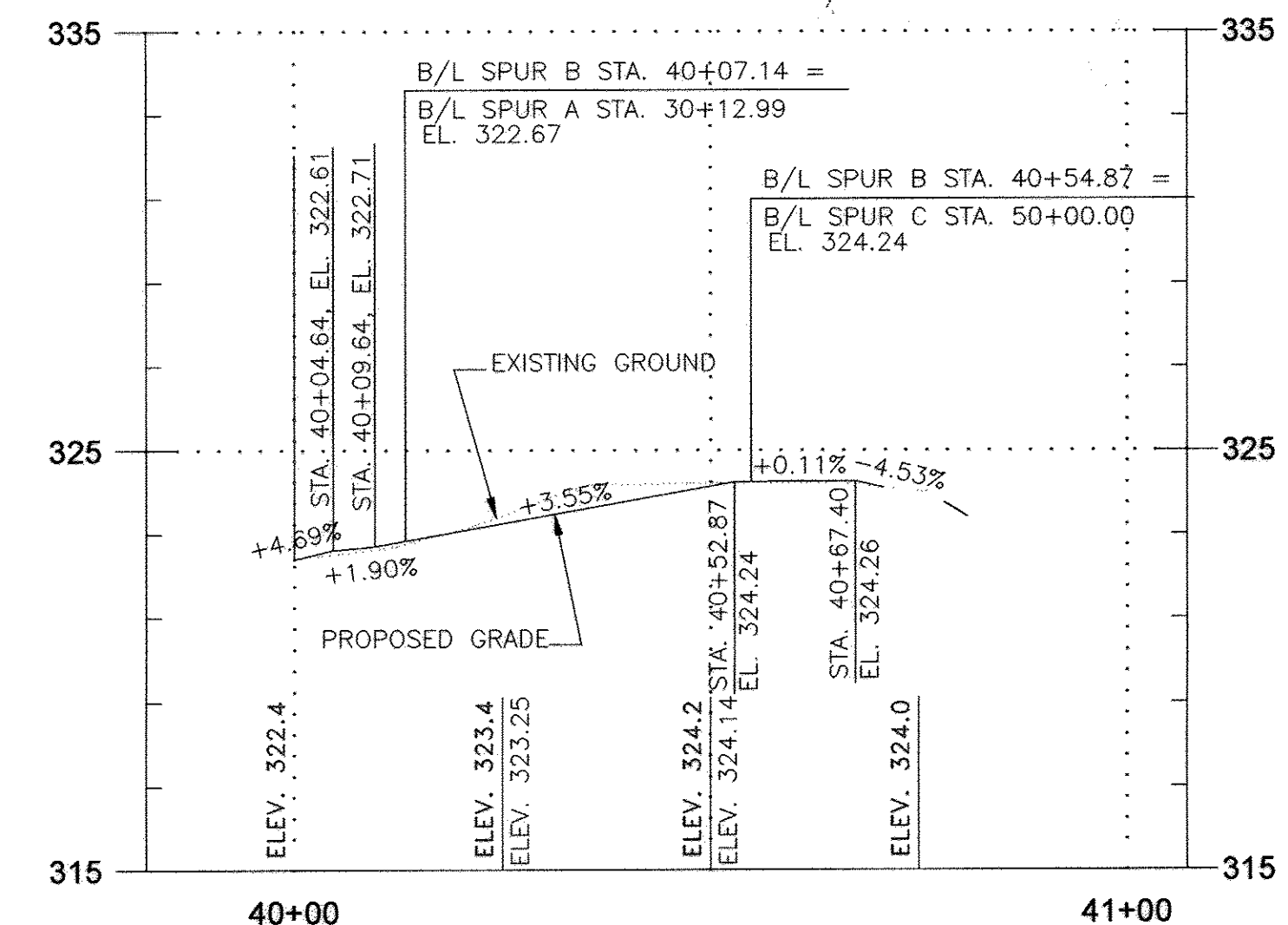
URS PROJECT NO: **20834595**
 SHEET No.: 7B OF 37
C3.1.2



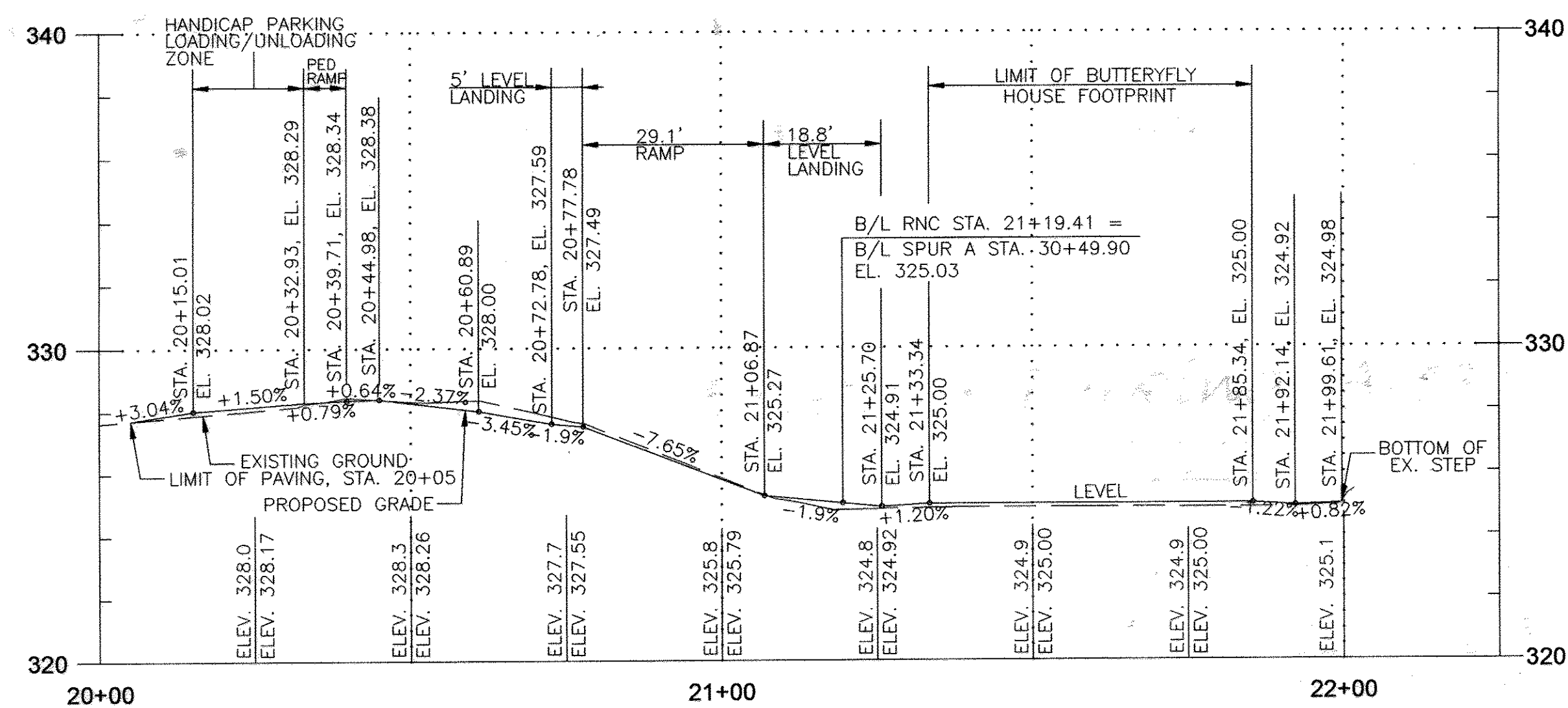
1 SIDEWALK LAYOUT PLAN - BUTTERFLY HOUSE
C3.1.3 SCALE: 1"=20'



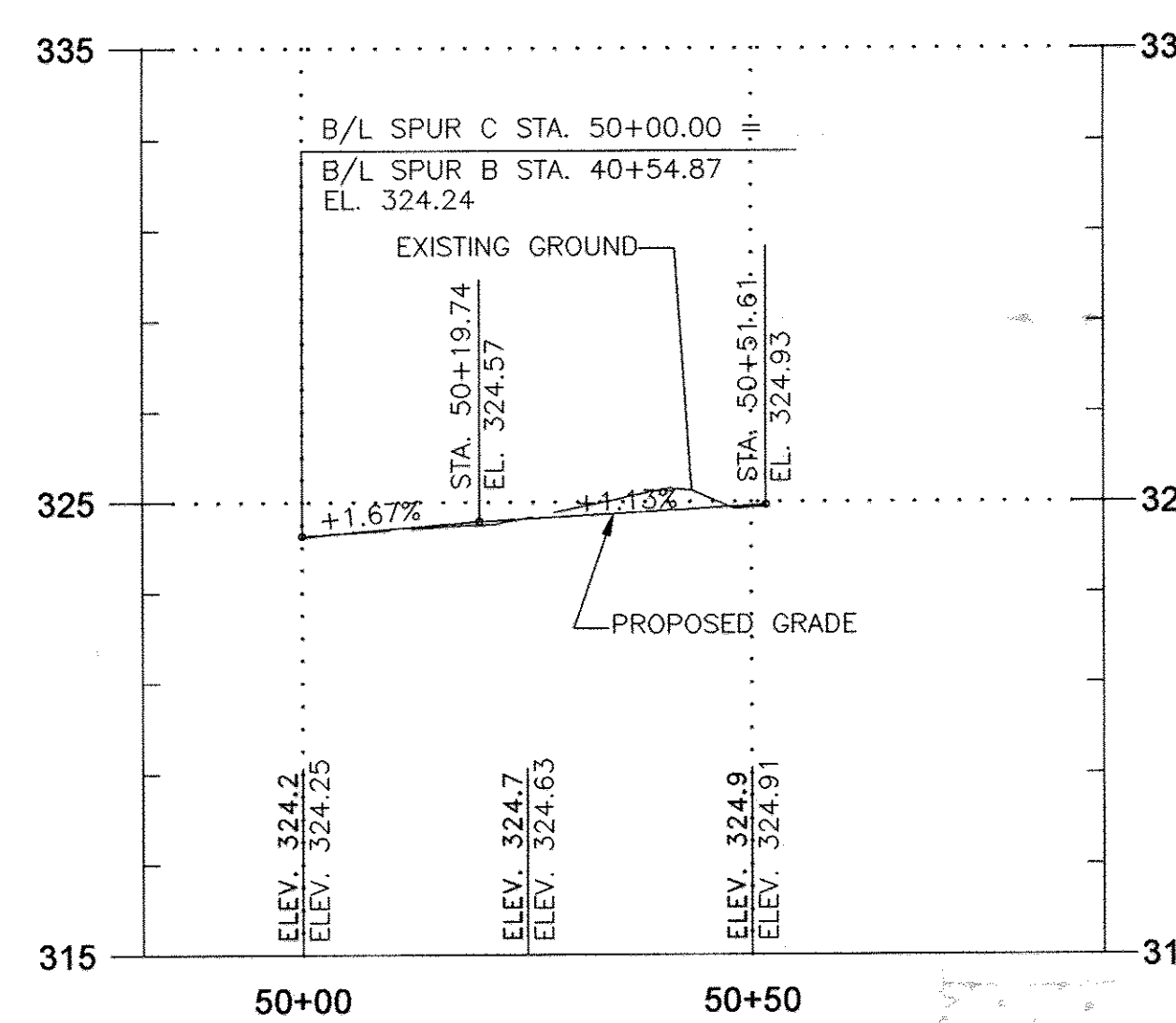
3 B/L SPUR A PROFILE
C3.1.3 SCALE: 1"=20' H. / 4' V.



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



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



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

CONSTRUCTION CONTROL COORDINATES			
CURVE	STATION	NORTHING	EASTING
B/L CONSTRUCTION RNC			
RNC-1	POT 20+00.00	554,855.27	1,342,384.83
	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			
SPURA-1	POT 30+00.00	554,952.05	1,342,286.75
	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
SPURB-2	PRC 40+16.38	554,958.19	1,342,301.84
	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			
SPURC-1	POT 50+00.00	554,996.11	1,342,302.60
	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'

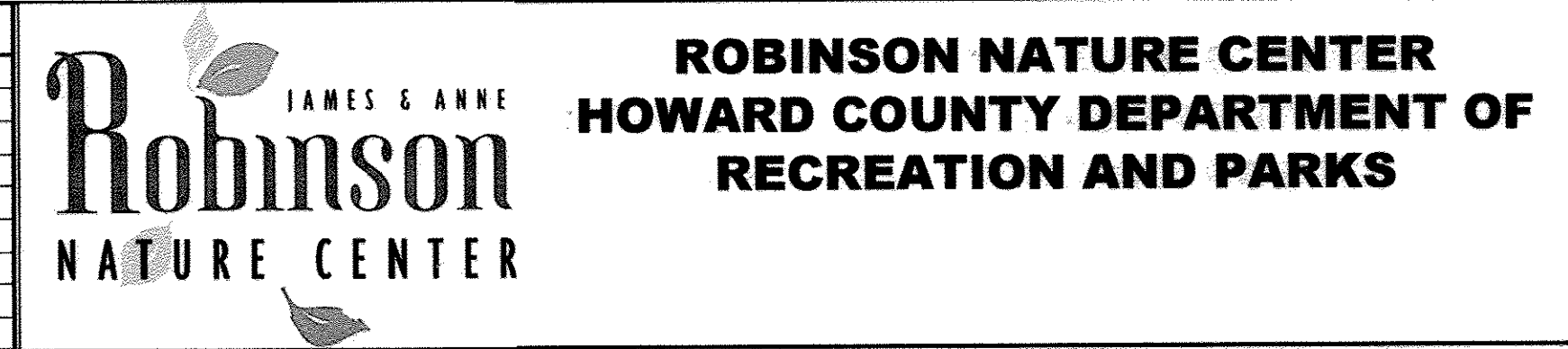
APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director, DEP/PZ

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

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

REVISION No.	REVISION DATE	DESCRIPTION
1	2-13-2014	NEW SHEET



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
- 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 DWGS
- 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
- FOREST CONSERVATION EASEMENT
- RETAINING WALL FENCE

SIMPSONVILLE, MD 21150
L. 204 F. 583 - PARCEL 173
ZONED: R20 LAND USE - R
ACCT NO. 1465372879

RAYMOND WISE
CEDAR LANE
SIMPSONVILLE, MD 21150
SITE ADDRESS:
6510 CEDAR LANE
COLUMBIA, MD 21044
L. 635 F. 124 - PARCEL 295
ZONED: R20 LAND USE - R
ACCT NO. 1405372879

HOWARD COUNTY DEPT. OF PUBLIC
WORKS
3400 COURT HOUSE DR.
ELICOTT CITY, MD 21043
SITE ADDRESS:
6692 CEDAR LANE
COLUMBIA, MD 21044
L. 809 F. 166 - PARCEL 07
ZONED: RES. LAND USE - R
ACCT NO. 1405364949

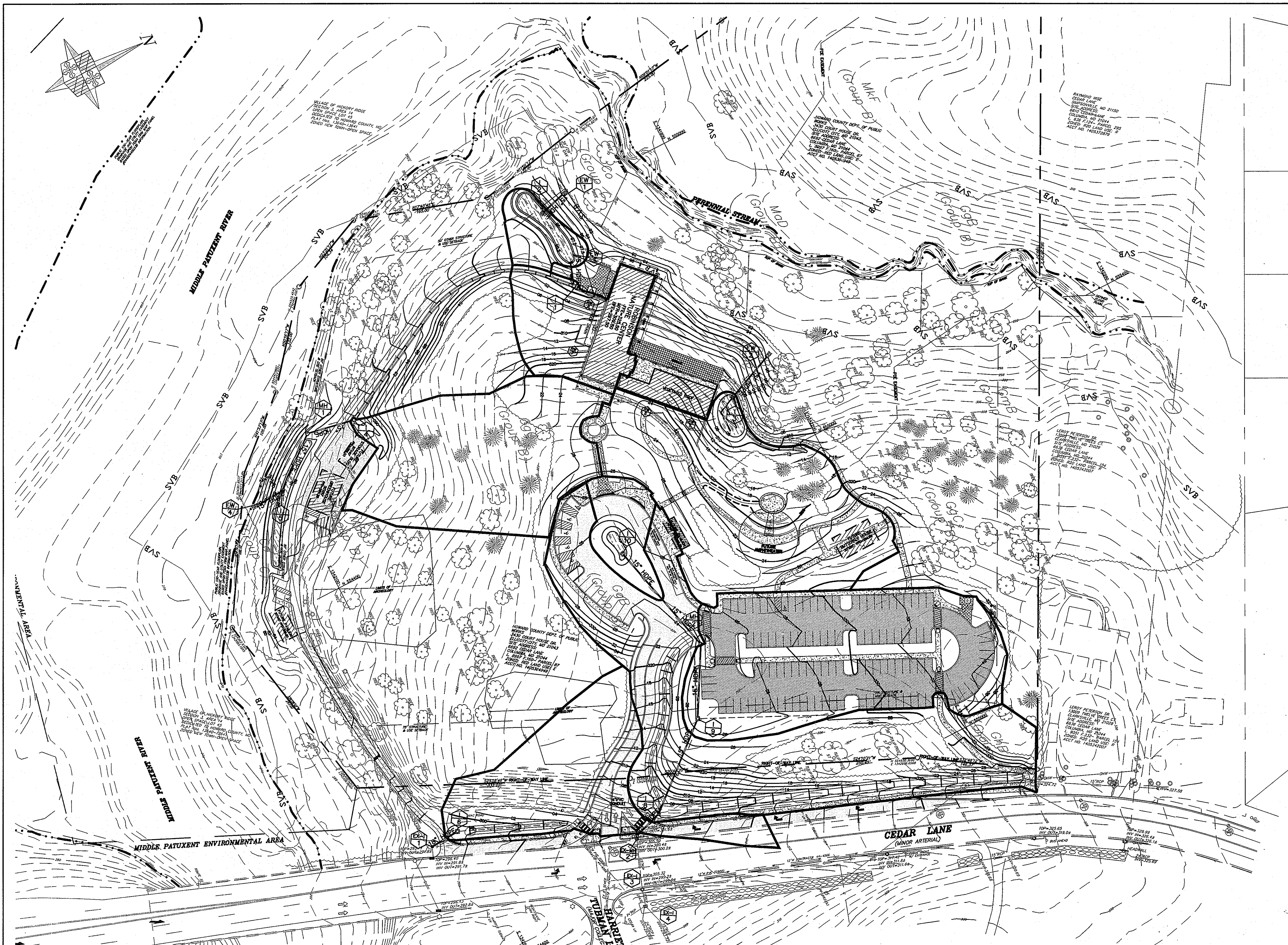
LEROY PETERSON SR.
13084 THREE TREE
CLARKSVILLE, MD 21
SITE ADDRESS:
6636 CEDAR LANE
COLUMBIA, MD 21044
L. 807 F. 232 - PARCEL
ZONED: R20 LAND USE - R
ACCT NO. 14053420

CAUTION: IF THIS DRAWING IS A REDUCTION,
GRAPHIC SCALE MUST BE USED
(ORIGINAL SIZE = 24" x 36")
GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

VILLAGE OF HICKORY RIDGE
SECTION 3, AREA 14
OPEN SPACE LOT 45
DEDICATED TO HOWARD COUNTY, MD.
PLAT Nos. 13640-13641
ZONED NEW TOWN-OPEN SPACE

MATCHLINE SEE PAGE C3.1

<p>APPROVED: DEPARTMENT OF PLANNING AND ZONING</p> <p><i>Chad Edwards</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 1/12/09</p> <p><i>Cindy Hanna</i> CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 1/15/09</p> <p><i>Mona Smith</i> DIRECTOR, DEP. DATE: 1/14/09</p>	<p>ADTEK ENGINEERS, INC. CIVIL & STRUCTURAL ENGINEERING</p> <p>97 Monocacy Boulevard, Unit H Frederick, Maryland 21701-5516 Phone: 301.662.4408 Fax: 301.662.7484 www.adtekengineers.com</p>	<p>Seal:</p>	<p>GRIEVES WORRALL WRIGHT & O'HATNIK INCORPORATED</p> <p>G W W O</p> <p>ARCHITECTS 800 WYMAN PARK DRIVE, SUITE 300 BALTIMORE, MARYLAND 21211, 410.332.7009</p> <p>C 2007 GWWO INC.</p>	<p>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</p>	<p>Project Title</p> <p style="text-align: center;">Robinson Nature Center</p> <p style="text-align: center;">6692 Cedar Lane Election District No. 5 Howard County, Maryland</p> <p>Tax Map: 35 Parcel 87 Liber: 8997 Folio: 160</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Revisions:</td> <td>Job No.</td> <td>SDP-09-02</td> <td>KDL</td> <td>Drawn</td> </tr> <tr> <td>No.</td> <td>Date</td> <td>Scale</td> <td>1"=40'</td> <td>SPB</td> </tr> <tr> <td>1</td> <td>5-1-09</td> <td>GRADING, GEO. WALL, WALL, SEE TW ELEV. SHEET</td> <td></td> <td>Checked</td> </tr> <tr> <td>2</td> <td>9/20/10</td> <td>REMOVE WATER LINE, PUMP</td> <td></td> <td>Approved</td> </tr> <tr> <td>3</td> <td>3-1-10</td> <td>REMOVE FIRE PUMP, ADD STRUCTURE</td> <td></td> <td>Drawing Number</td> </tr> <tr> <td></td> <td></td> <td>YARD HYDRANT</td> <td></td> <td></td> </tr> </table>	Revisions:	Job No.	SDP-09-02	KDL	Drawn	No.	Date	Scale	1"=40'	SPB	1	5-1-09	GRADING, GEO. WALL, WALL, SEE TW ELEV. SHEET		Checked	2	9/20/10	REMOVE WATER LINE, PUMP		Approved	3	3-1-10	REMOVE FIRE PUMP, ADD STRUCTURE		Drawing Number			YARD HYDRANT		
Revisions:	Job No.	SDP-09-02	KDL	Drawn																															
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		YARD HYDRANT																																	
<p>APPROVED PLANNING BOARD OF HOWARD COUNTY</p> <p>DATE: 11/13/08</p>		<p>I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NUMBER: 26534 EXPIRATION DATE: 19 JULY 2009</p>		<p>CAPITAL PROJECT #: N39-60</p>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Sheet</td> <td>8</td> <td>Of</td> <td>37</td> </tr> <tr> <td colspan="4" style="text-align: center; font-size: 2em;">C3.2</td> </tr> <tr> <td colspan="4" style="text-align: right;">SDP-09-02</td> </tr> </table>	Sheet	8	Of	37	C3.2				SDP-09-02																				
Sheet	8	Of	37																																
C3.2																																			
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%

LEGEND

PERVIOUS ASPHALT	
REGULAR DUTY ASPHALT	
MILL & OVERLAY ASPHALT	

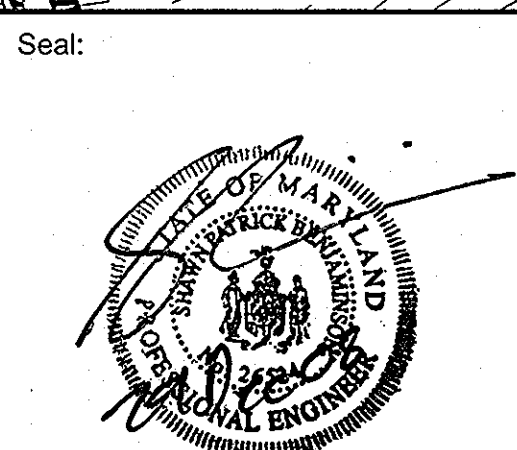
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 1/12/09

Andy Hamm
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 1/13/09

Mona F. Smith
DIRECTOR, DEP.
DATE: 1/14/09

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



GRIEVES WORRALL WRIGHT & O'HATNICK
INCORPORATED

G|W
W|O

ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1009

C 2007 GWWO INC.

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

Project Title
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 SPB Checked
Date December 29, 2008 SPB Approved

Revisions:

No.	Date	Description

Drawing Title
STORM DRAIN INLET DRAINAGE AREA MAP

Drawing Number
C3.3

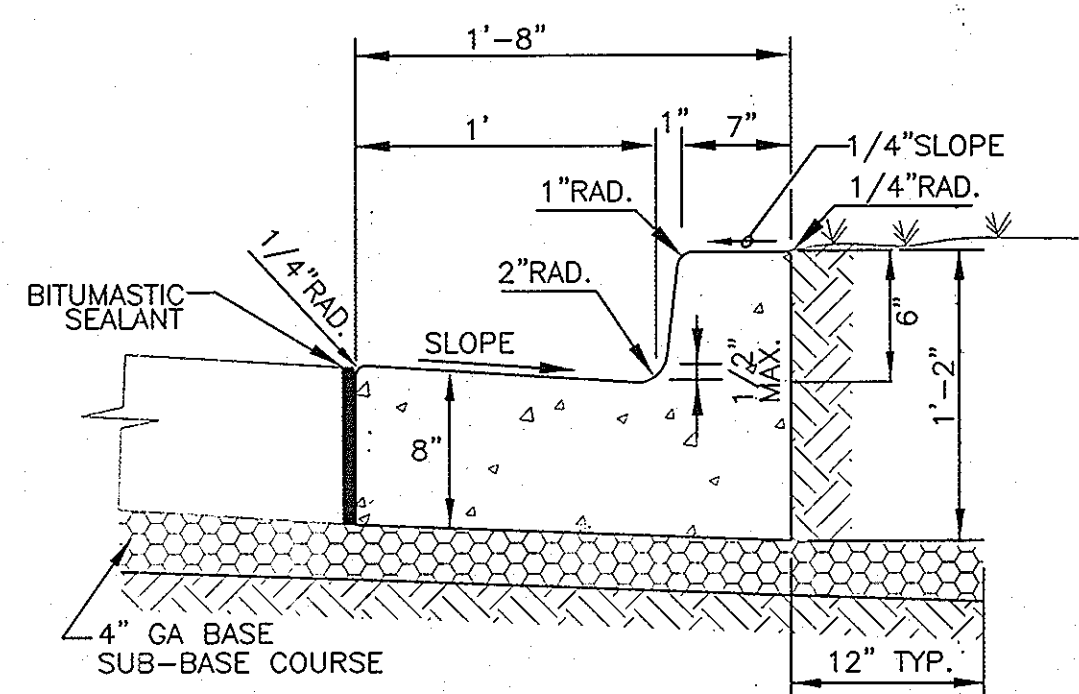
Sheet 9 Of 37

APPROVED
PLANNING BOARD OF HOWARD COUNTY

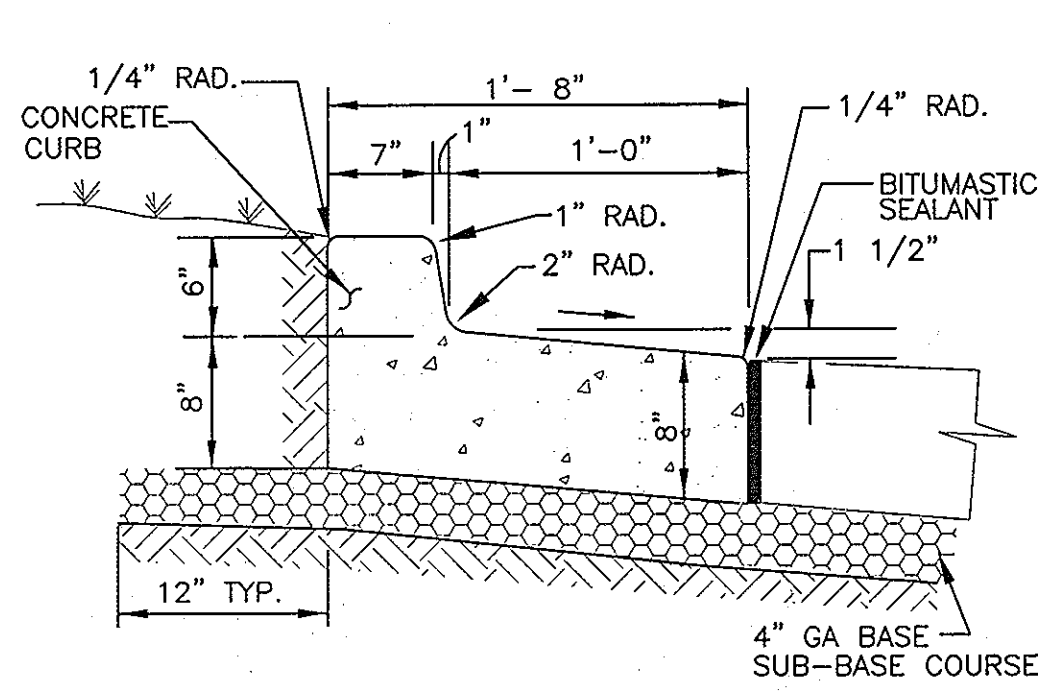
DATE: 1/13/09

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 MARYLAND, LICENSE NUMBER: 26524 EXPIRATION DATE: 19 JULY 2009

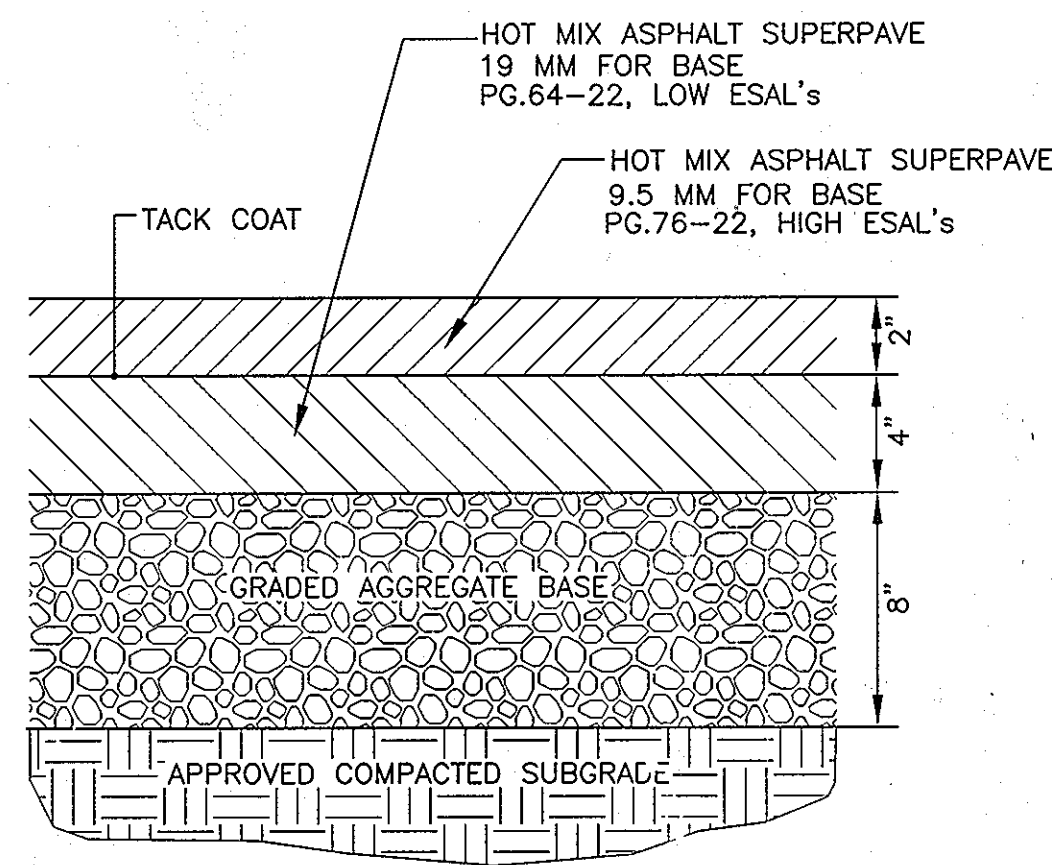
CAPITAL PROJECT #: N39-60



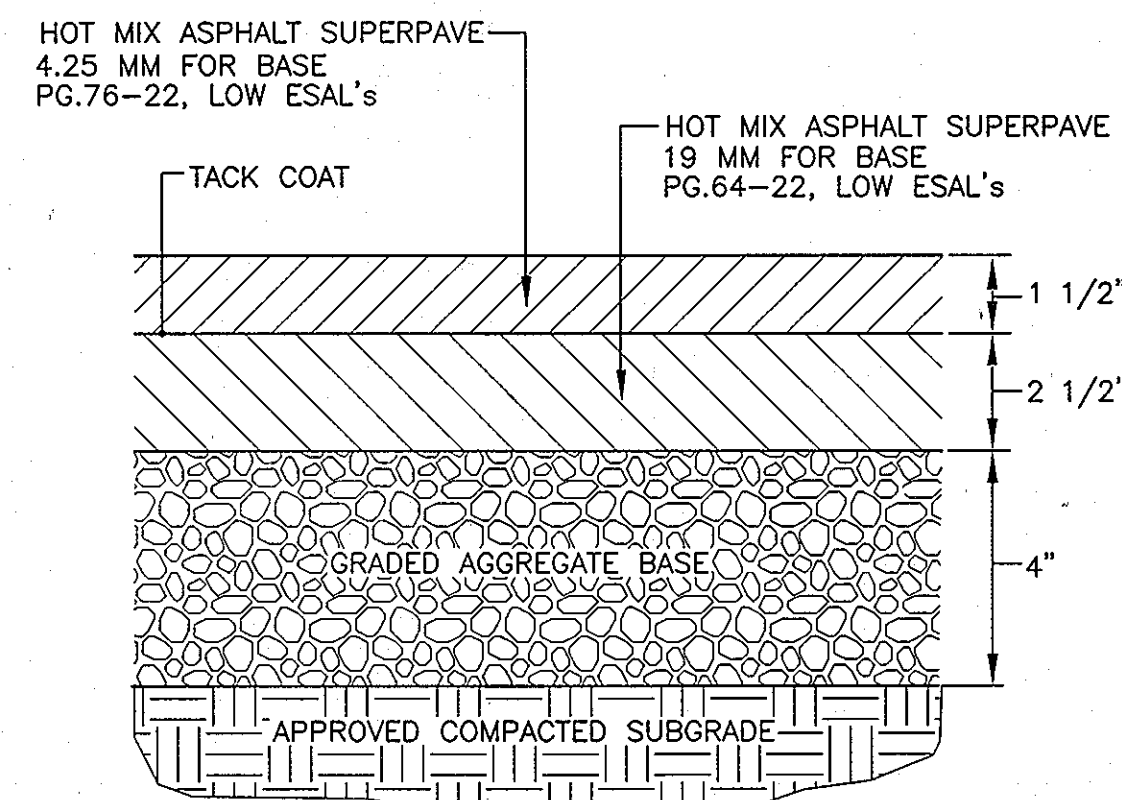
CURB/WITH NORMAL GUTTER



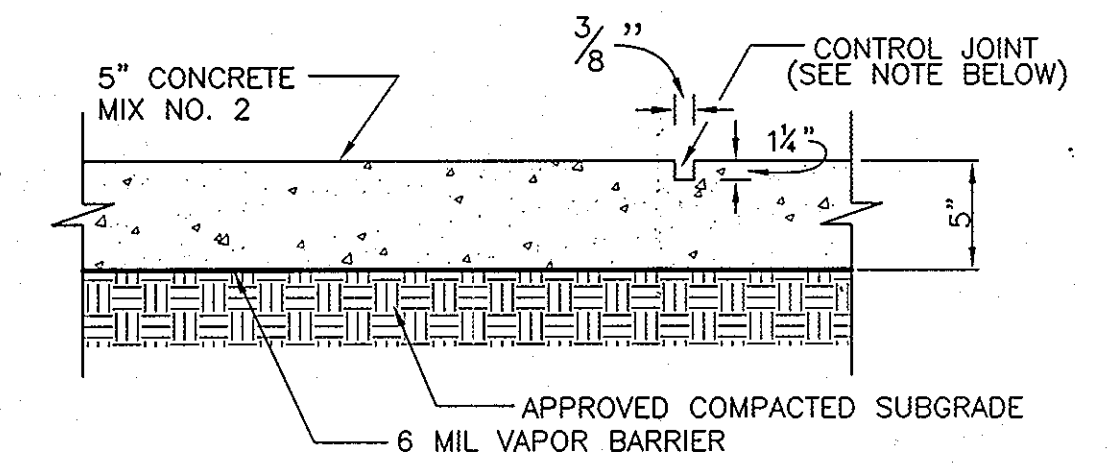
CURB/WITH SPILL GUTTER



2 ASPHALT CONCRETE SECTION
C-3.4 NOT TO SCALE



3 LIGHT-DUTY SURFACE
C-3.4 NOT TO SCALE

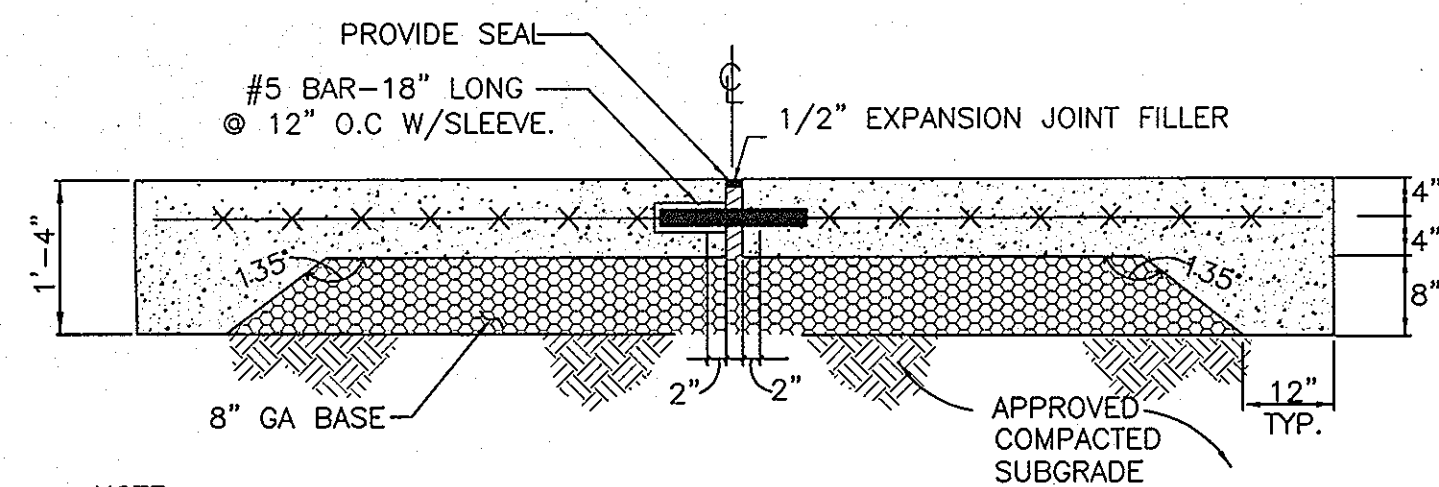


4 CONCRETE SIDEWALK SECTION
C-3.4 NOT TO SCALE

GENERAL NOTES

- REFER TO HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION SPECIFICATIONS FOR MATERIALS, METHODS OF CONSTRUCTION AND EXPANSION JOINT LOCATIONS.
- 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).
- CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT FOR ALL CURBS & GUTTER PRIOR TO BACKFILLING.

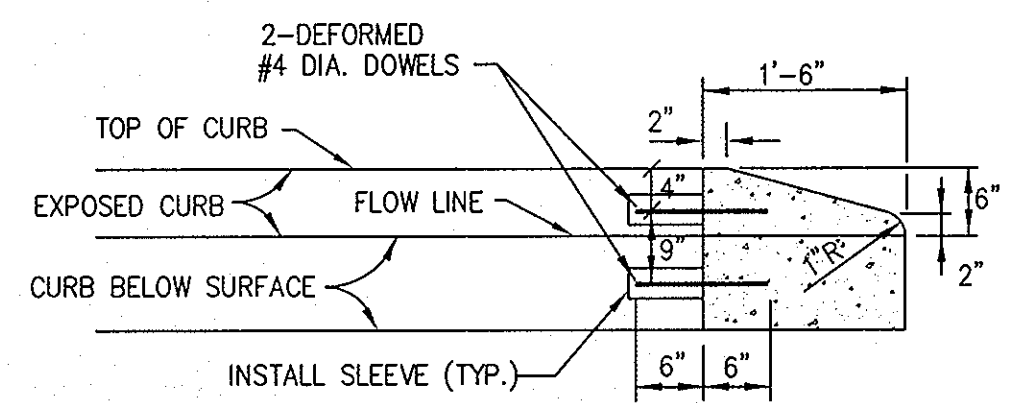
1 CONCRETE CURB & GUTTER
C-3.4 NOT TO SCALE



NOTE:

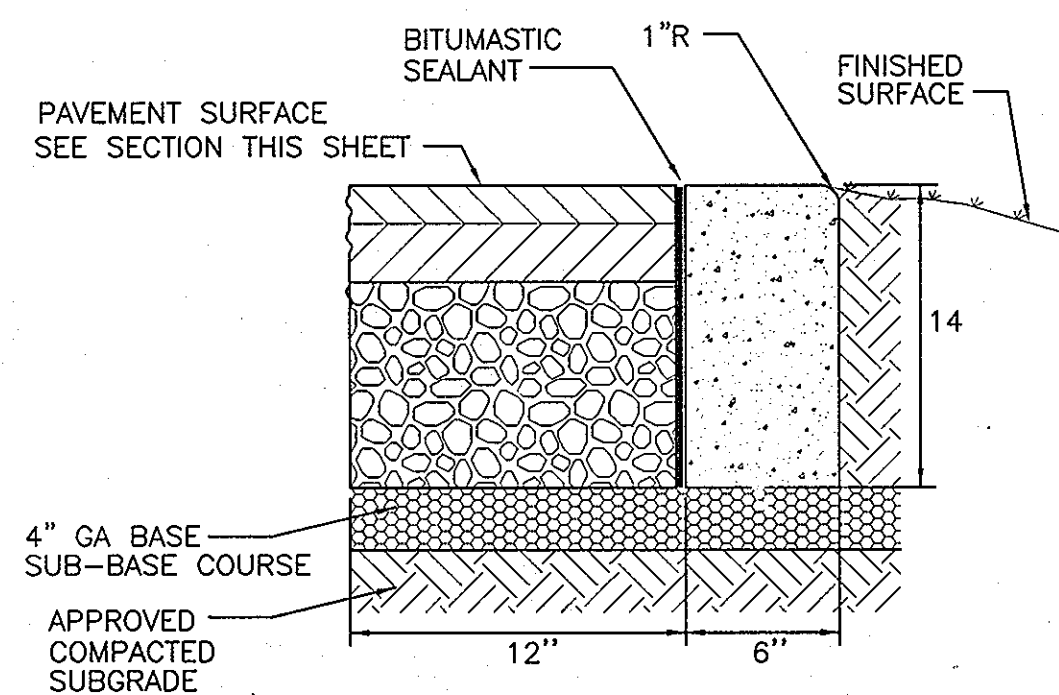
- 8" CONG. SLAB REINFORCED W/ W6x6 W4xW4 WWF @ MID DEPTH ON A 8" POROUS FILL MATERIAL OVER APPROVED COMPACTED SUBGRADE.
- CONSTRUCT EXPANSION JOINT, AND ADJACENT TO OTHER STRUCTURES OR CONCRETE. JOINTS TO BE 10' x 15' SQUARES MINIMUM.
- CONCRETE SHALL BE MIX NO. 3 PER SHA STANDARDS AND SPECIFICATIONS.

5 HEAVY DUTY CONCRETE
C-3.4 NOT TO SCALE



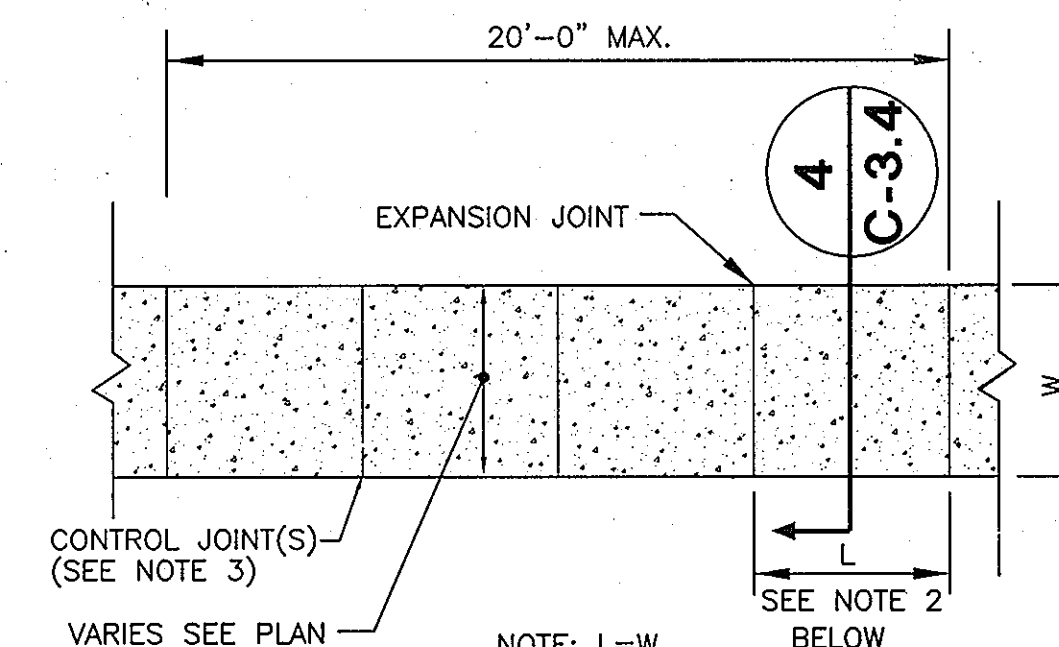
NOTE: USE MDOT-SHA MIX 2

9 CURB NOSE DOWN
C-3.4 NOT TO SCALE



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

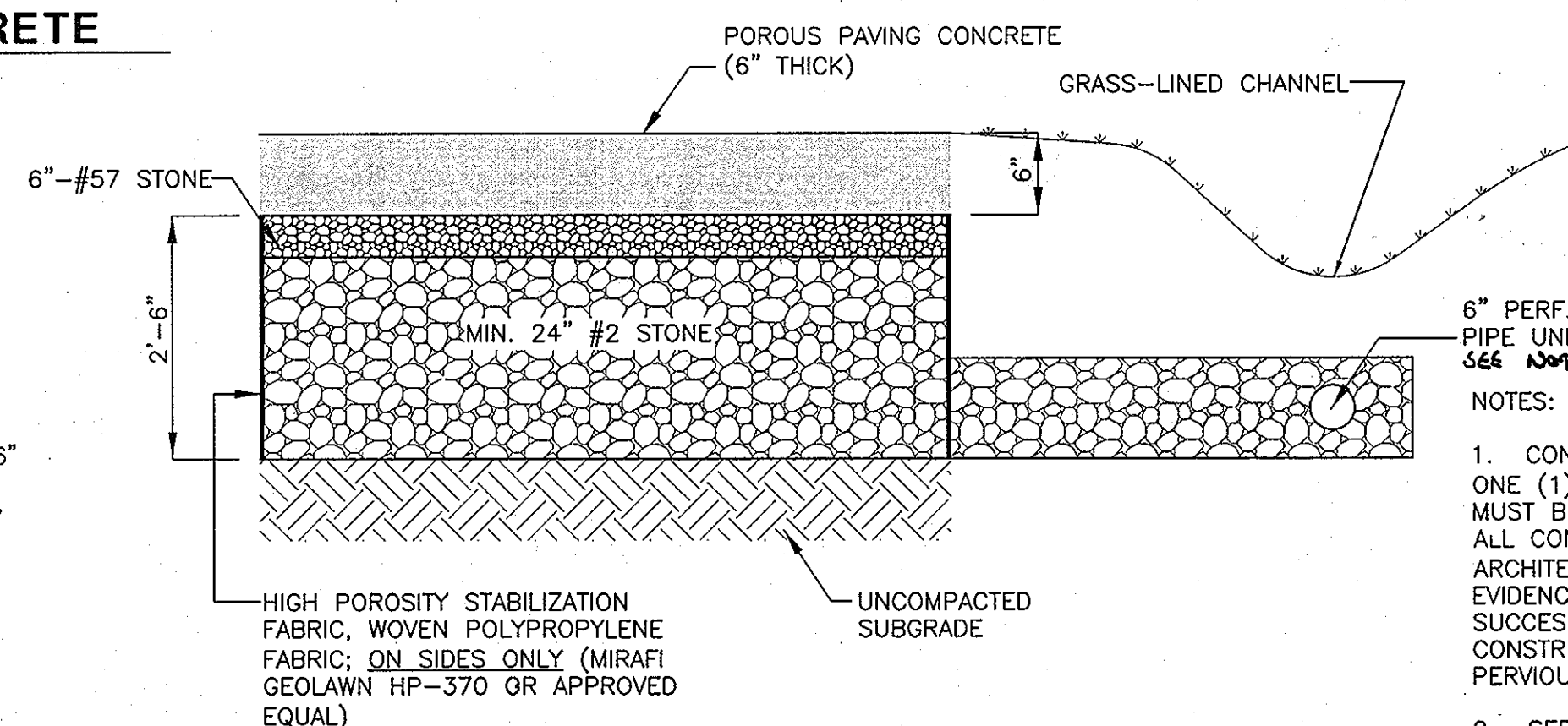
6 DEPRESSED CURB DETAIL
C-3.4 NOT TO SCALE



NOTES:

- ALL CONCRETE SHALL BE SHA MIX NO. 2, 3000 P.S.I., DEPTH SHALL BE 5".
- PROVIDE CONTROL JOINTS EVERY 4'-0" MIN. BOTH DIRECTIONS PROVIDE 1/2" EXPANSION JOINT EVERY 20' O/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 @ C/SIDEWALK.
- CONTROL JOINTS SHALL BE SAW-CUT OR FORMED, 1 1/4" DEEP.
- PROVIDE 1/2" EXPANSION JOINT FILLER WHERE SIDEWALK ABUTS CURB OR OTHER RIGID STRUCTURE(S).

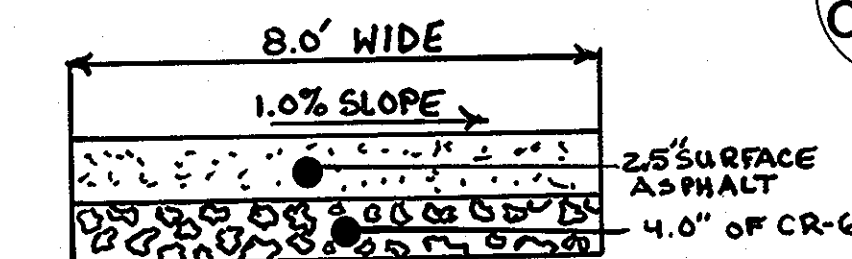
7 CONCRETE SIDEWALK DETAIL
C-3.4 NOT TO SCALE



NOTES:

- 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, CONTRACTOR 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.
- SEE POROUS CONCRETE NOTES IN SPECIFICATION.
- POROUS CONCRETE MUST BE COVERED WITH PLASTIC FOR A MINIMUM OF 7 DAYS IMMEDIATELY AFTER PLACEMENT.
- 6" PERF PVC SCH 40, 3/8" PERFORATIONS @ 4" O.C. LENGTH WIDE AND 90° RADIALY AROUND. INSTALL END CAP ON OPEN END

10 PERVIOUS CONCRETE SECTION
C-3.4 NOT TO SCALE



PATHWAY PAVING SECTION

NOTE:

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

8 HANDICAP PARKING STRIPING
C-3.4 NOT TO SCALE

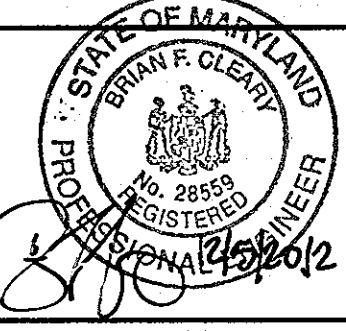
- STRIPING SHOULD END AT FACE OF CURB, U.N.O.
- STRIPING MATERIAL AND METHODS OF CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE LATEST MUTCD EDITION AND SHA STDS. & SPECS.
- (*) INSTALL "VAN ACCESSIBLE" SIGN ON 8'-0" WIDE SPACE, AS NOTED ON PLAN.
- YELLOW PAINT MAY BE USED ON CONCRETE OR OTHER SURFACES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

APPROVED: DEPARTMENT OF PLANNING AND ZONING

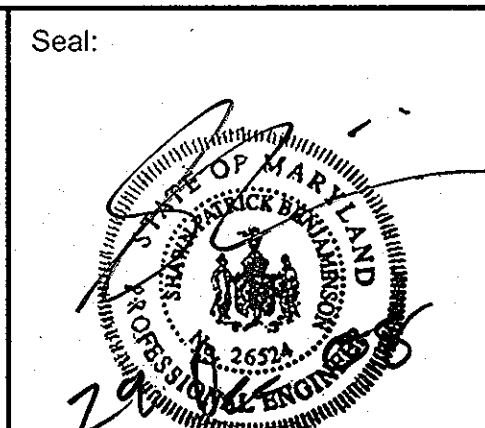
Chief, Development Engineering Division
 Chief, Division of Land Development
 Director, DEP.

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



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,



GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED

G|W
W|O

ARCHITECTS
 800 N. YAN PARK DRIVE, SUITE 200
 BALTIMORE, MARYLAND 21211, 410-520-1009

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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: 410.313.6131

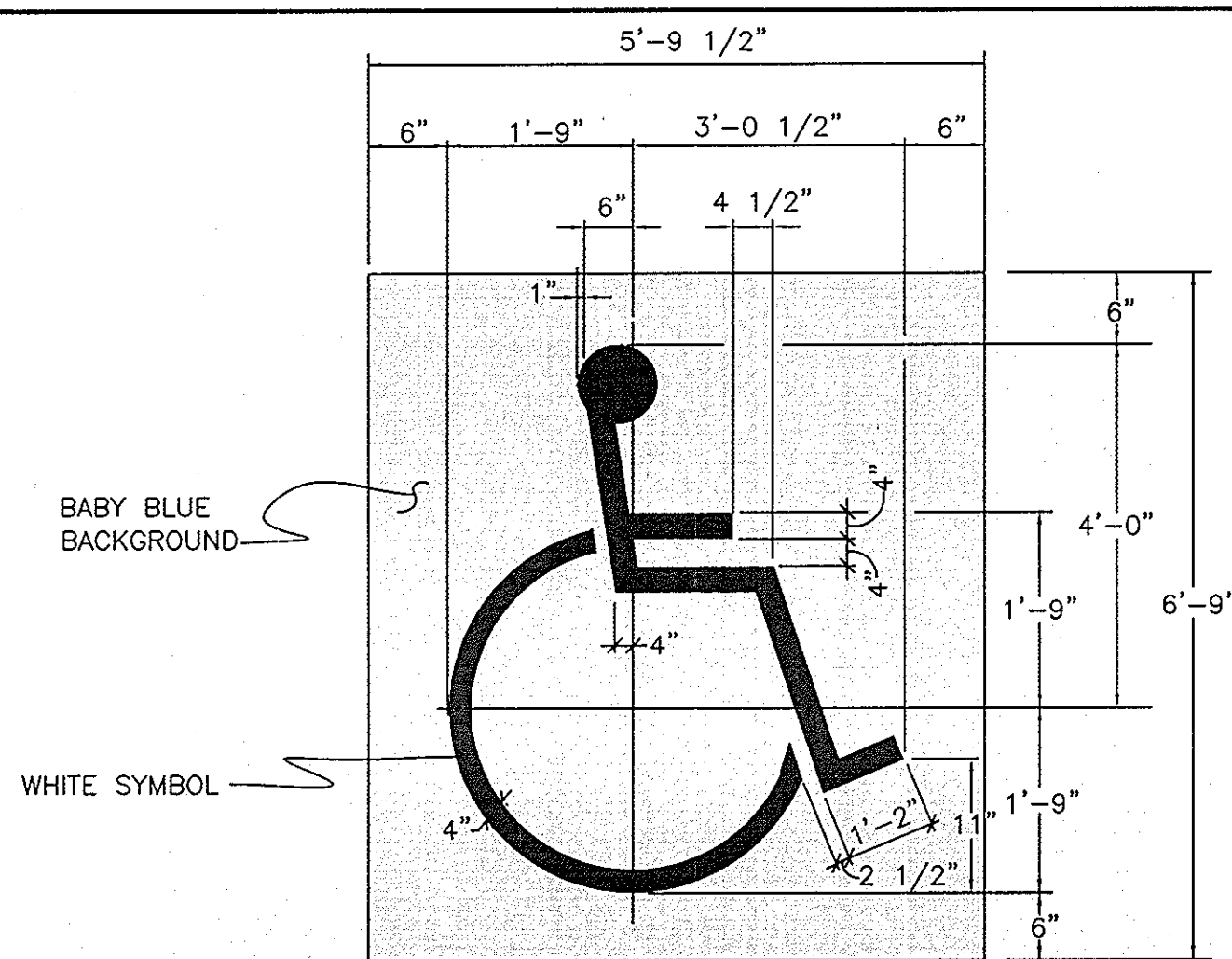
CAPITAL PROJECT #: N39-60

Project Title

Robinson Nature Center

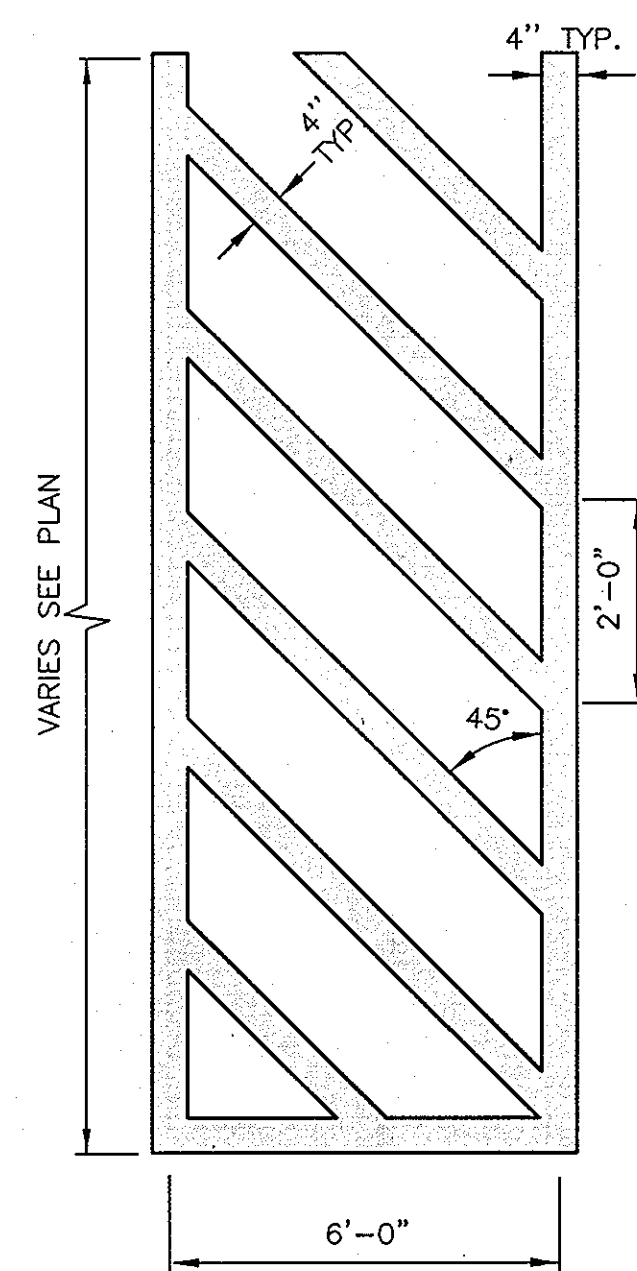
6692 Cedar Lane Election District No. 5 Howard County, Maryland

Tax Map 35 Parcel 87 Liber: 8997 Folio: 160	Job No. SDP-09-02 KDL	Drawn
Revisions:	Scale NTS SPB	Checked
No. Date Description	Date December 29, 2008	Approved
1 5-1-09 NOTE	Drawing Title	Drawing Number
2 11-20-12 ADD PATHWAY PAVING SECTION & PATH CONNECTION NOTE 8	Site Details	C3.4
Sheet 10	Of	37

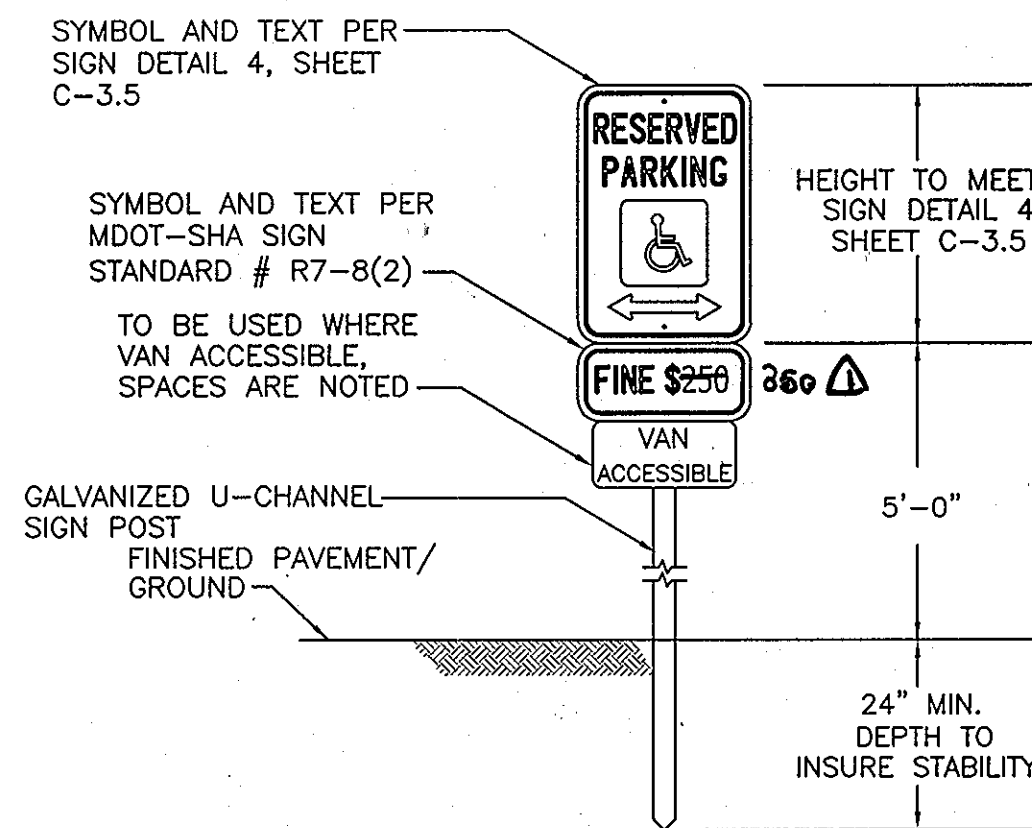


- NOTES:
1. PLACE SYMBOL @ CENTERLINE OF STALL, REFER TO PARKING STRIPING DETAIL 8 THIS SHEET FOR DIMENSIONS.
 2. THIS DETAIL PROVIDED FOR REFERENCE ONLY! ALL DIMENSIONS, LAYOUT, BACKGROUNDS AND COLOR MUST CONFORM TO MOST CURRENT ADA GUIDELINES.

1 HANDICAP SYMBOL LAYOUT
C-3.5 NOT TO SCALE



2 CROSSWALK STRIPING PATTERN
C-3.5 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.

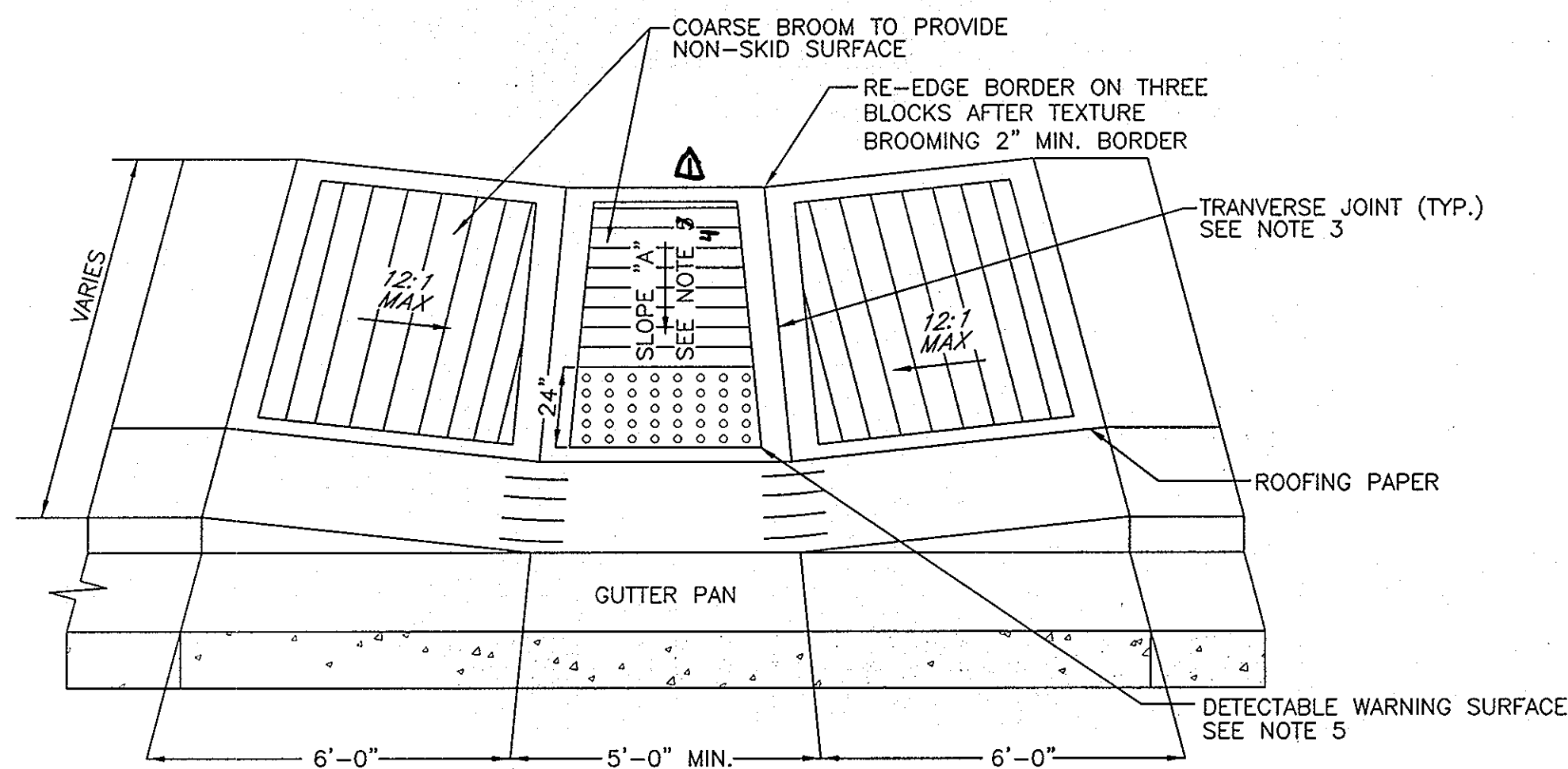
3 HANDICAP SIGN MOUNTING DETAIL AND TYP. SIGN POST DETAIL
C-3.5 NOT TO SCALE



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).

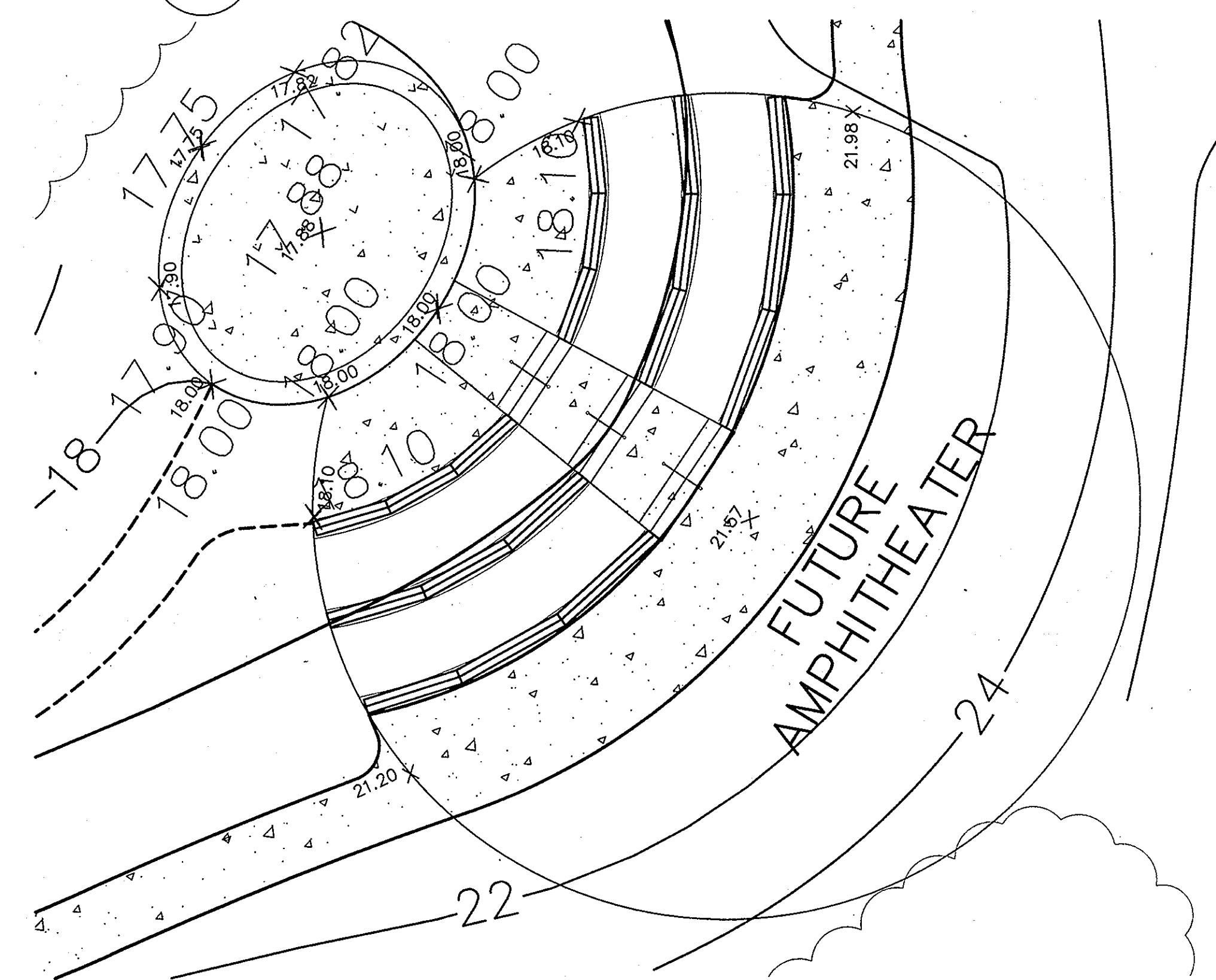
COLORS
LEGEND AND BORDER—GREEN; BACKGROUND — WHITE; WHITE SYMBOL ON BLUE BACKGROUND
NOTE: PROVIDE ADDITIONAL "VAN ACCESSIBLE" SIGNAGE PER ADA REQUIREMENTS FOR SPACES SPACES AS NOTED ON PLAN.
FOR INFORMATION ON SIGN POST AND MOUNTING REFER TO DETAIL 3, THIS SHEET.

4 RESERVED HANDICAP PARKING SIGN, (TYP.)
C-3.5 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 TRANVERSE 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 HANDICAP RAMP
C-3.5 NOT TO SCALE



AMPHITHEATER HANDICAP ACCESS
SCALE: 1"=10'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

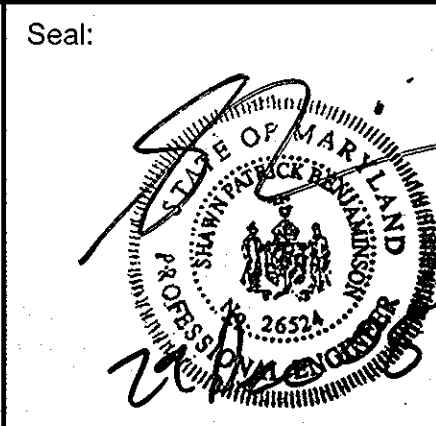
Craig Edwards 1.12.09
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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

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

ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING

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Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
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INCORPORATED

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W | O

ARCHITECTS
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BALTIMORE, MARYLAND 21211, 410-332-1009

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

Project Title		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
Revisions:		Scale	NTS
No.	Date	Description	Checked
A	6-10-09	FILE, NOTE CALL OUT	SPB
Date		December 29, 2008	SPB
Drawing title		Drawing Number	
Site Details		C3.5	
Sheet	11	Of	37

APPROVED
PLANNING BOARD OF HOWARD COUNTY

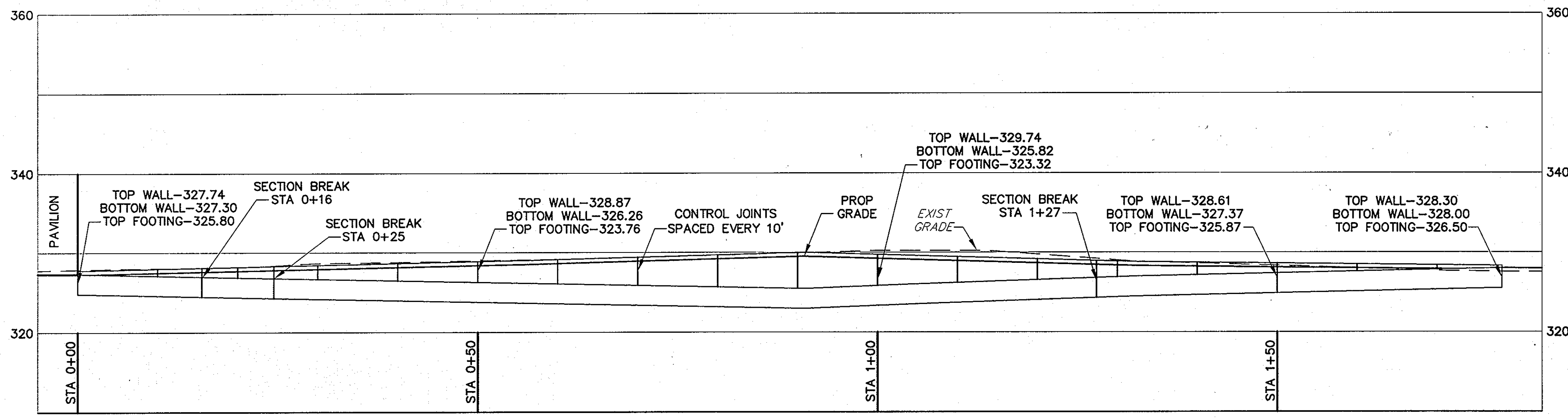
DATE 1/13/09
KS

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 MARYLAND.
LICENSE NUMBER: 26524
EXPIRATION DATE: 19 JULY 2009

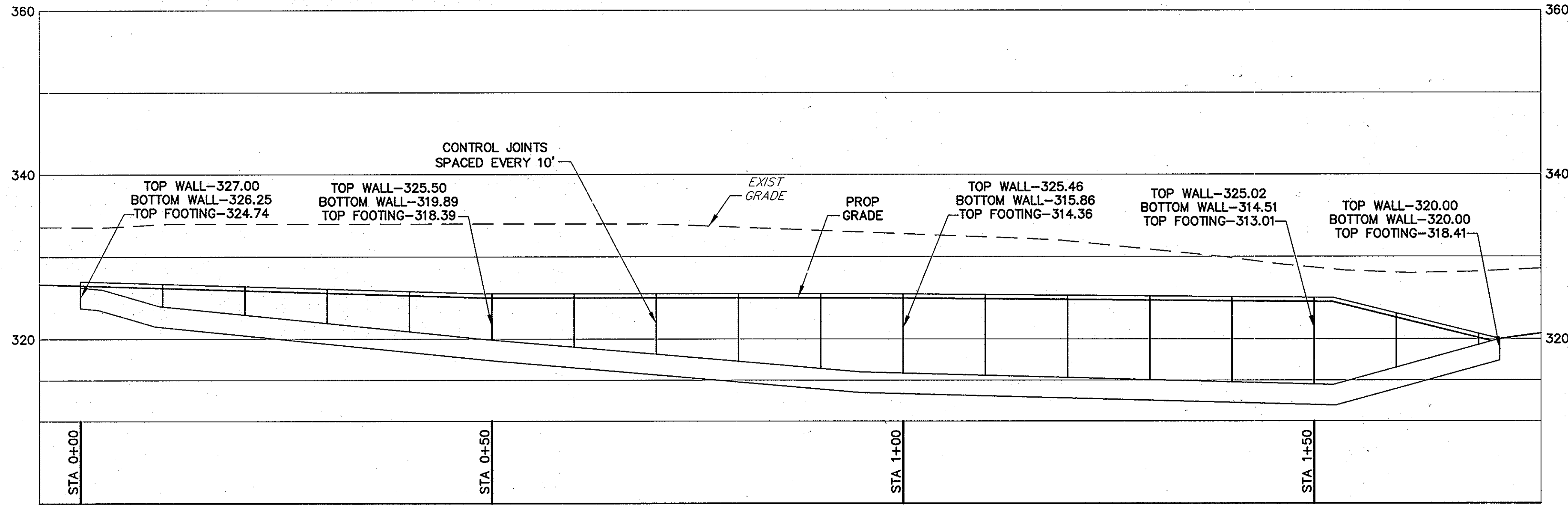
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CAPITAL PROJECT #: N39-60

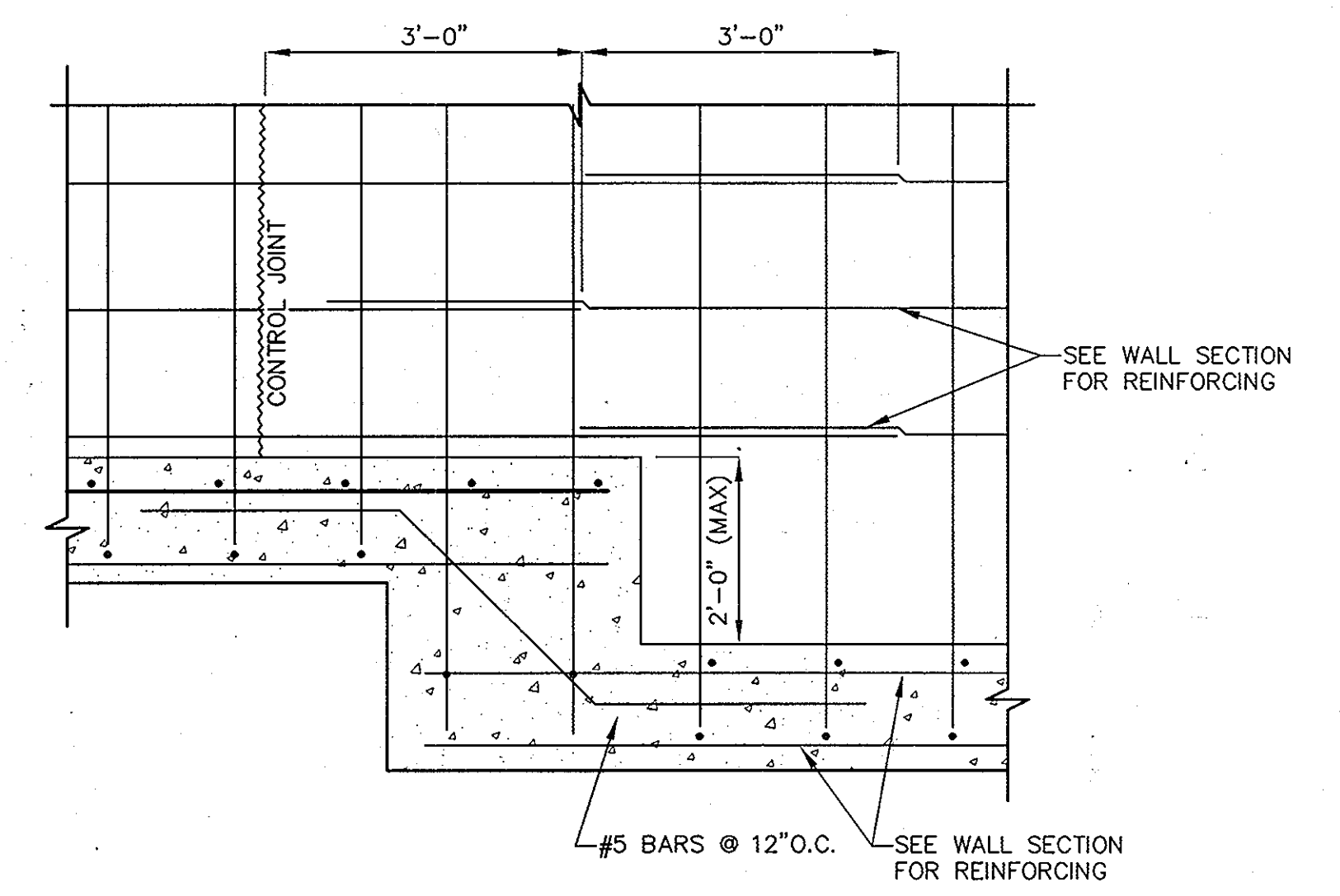
SDP-09-02



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

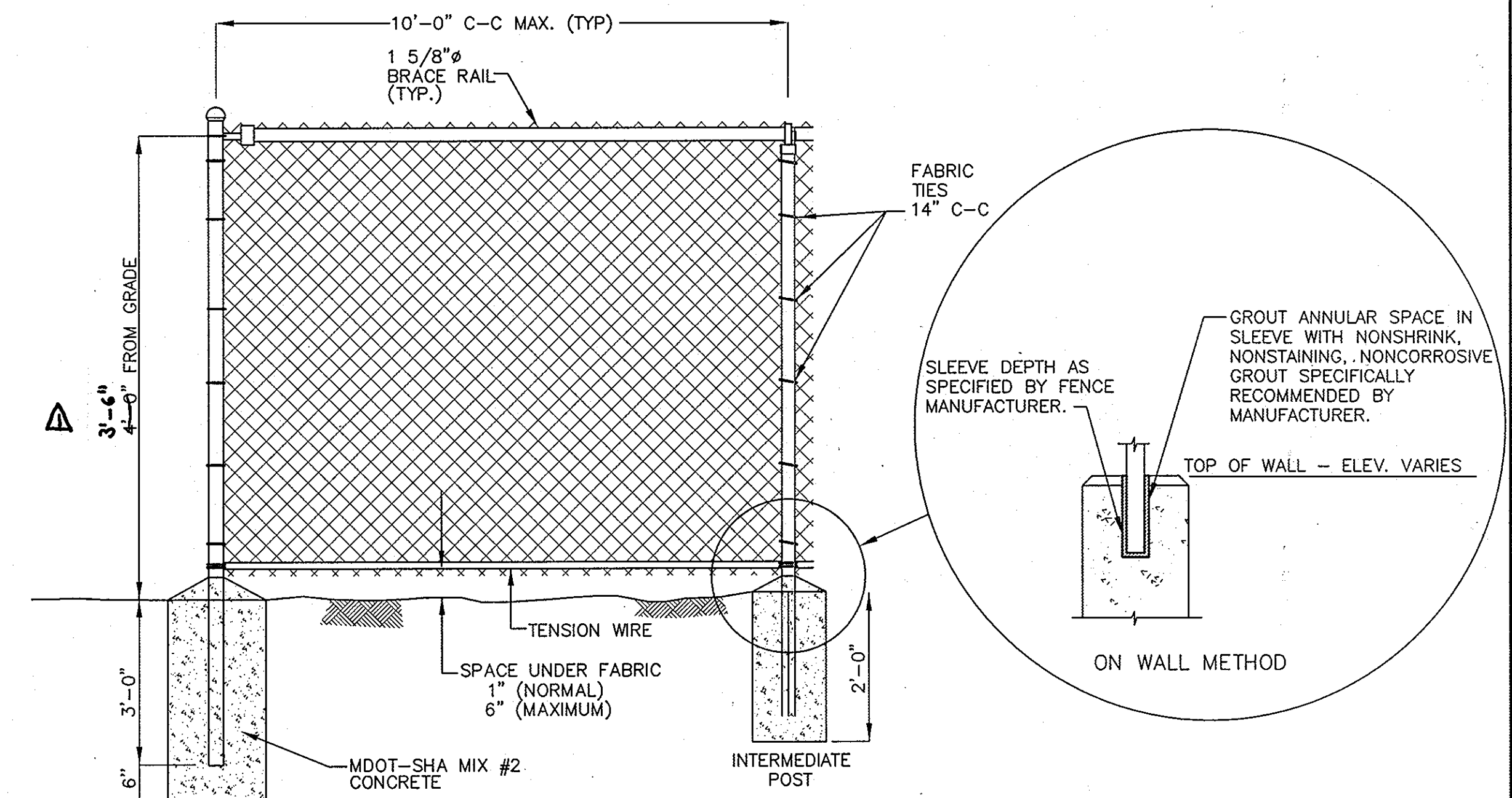


WALL #2
SCALE: 1" = 10'



NOTE: ALTERNATE LAP SPLICES.

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



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

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING

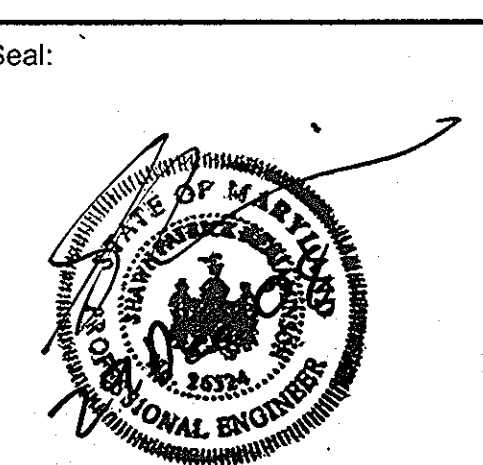
Chad Edwards
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 1-12-9

Caroly Hamon
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 1/13/09

Thomas F. Fiedler
DIRECTOR, DEP
DATE: 1/14/09

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Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
www.adtekengineers.com



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INCORPORATED

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ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 200
BALTIMORE, MARYLAND 21211, 410-337-1000

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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

Project Title
Robinson Nature Center

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

Tax Map 35 Parcel 87 Liber: 8997 Follo: 180

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

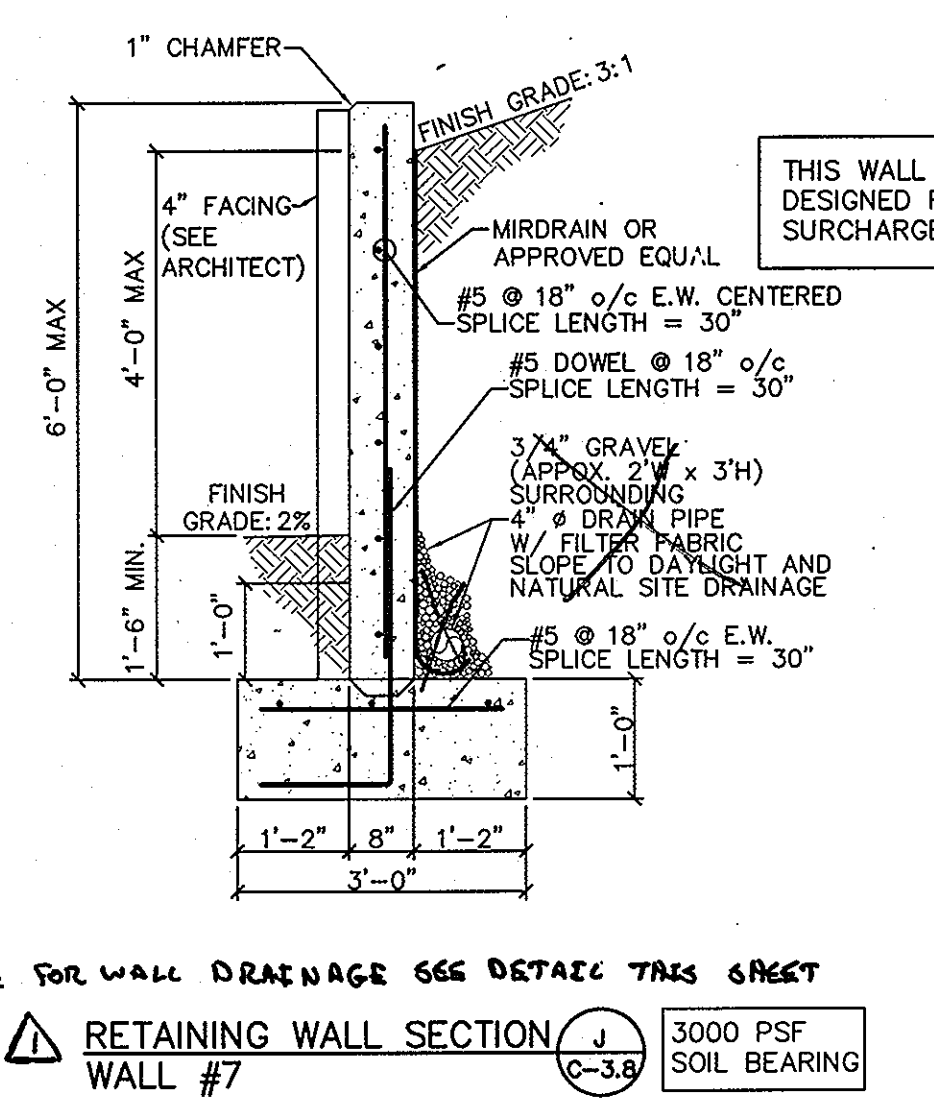
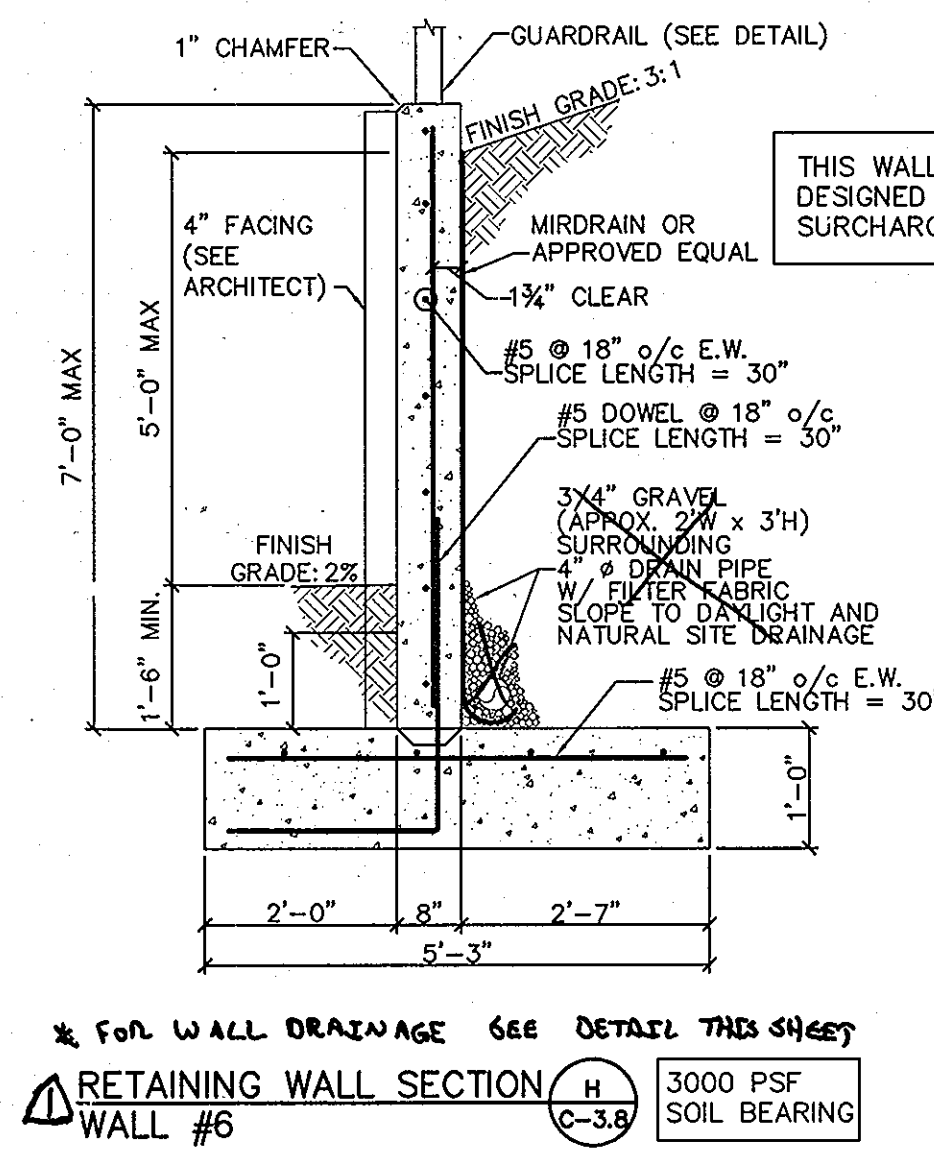
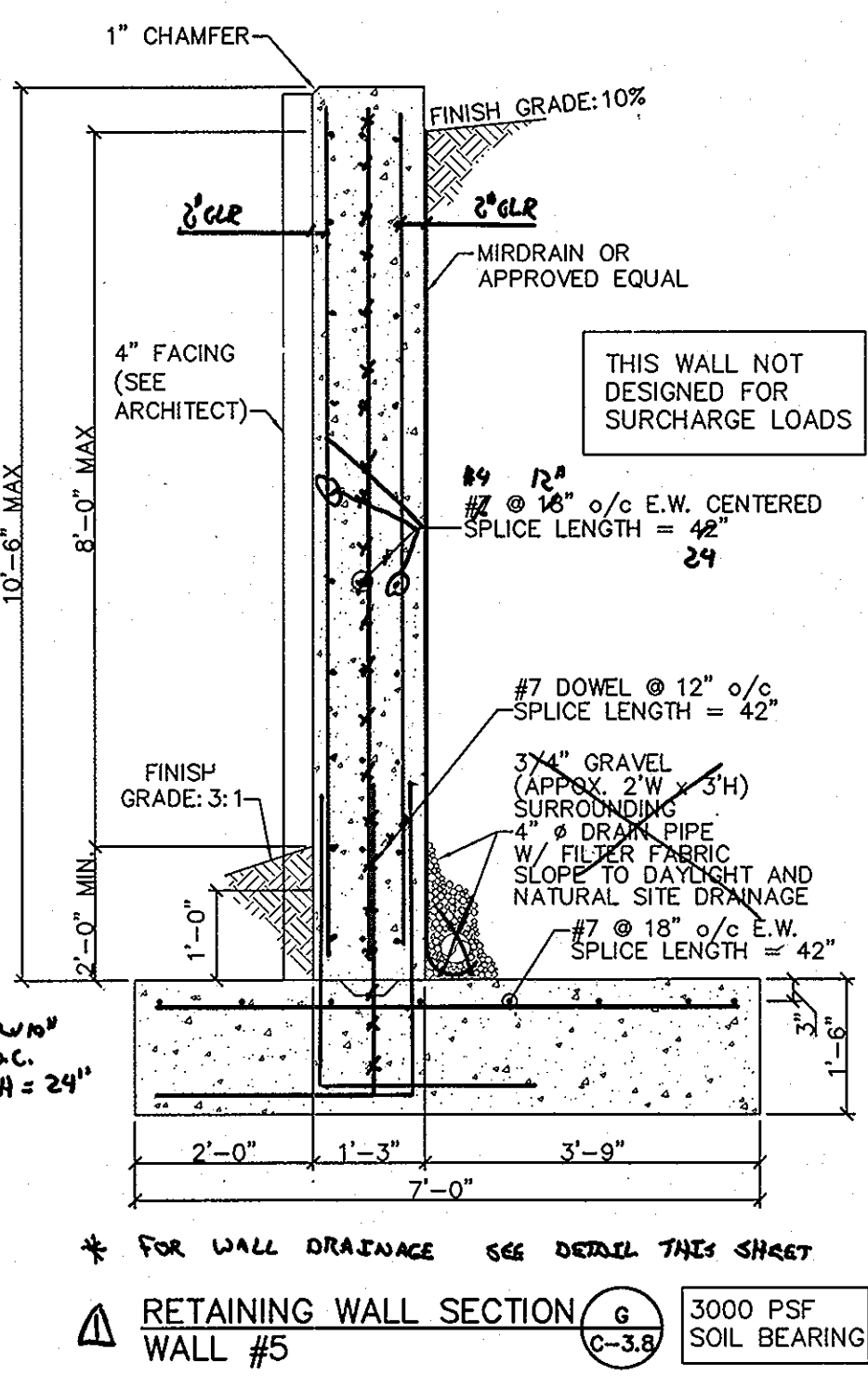
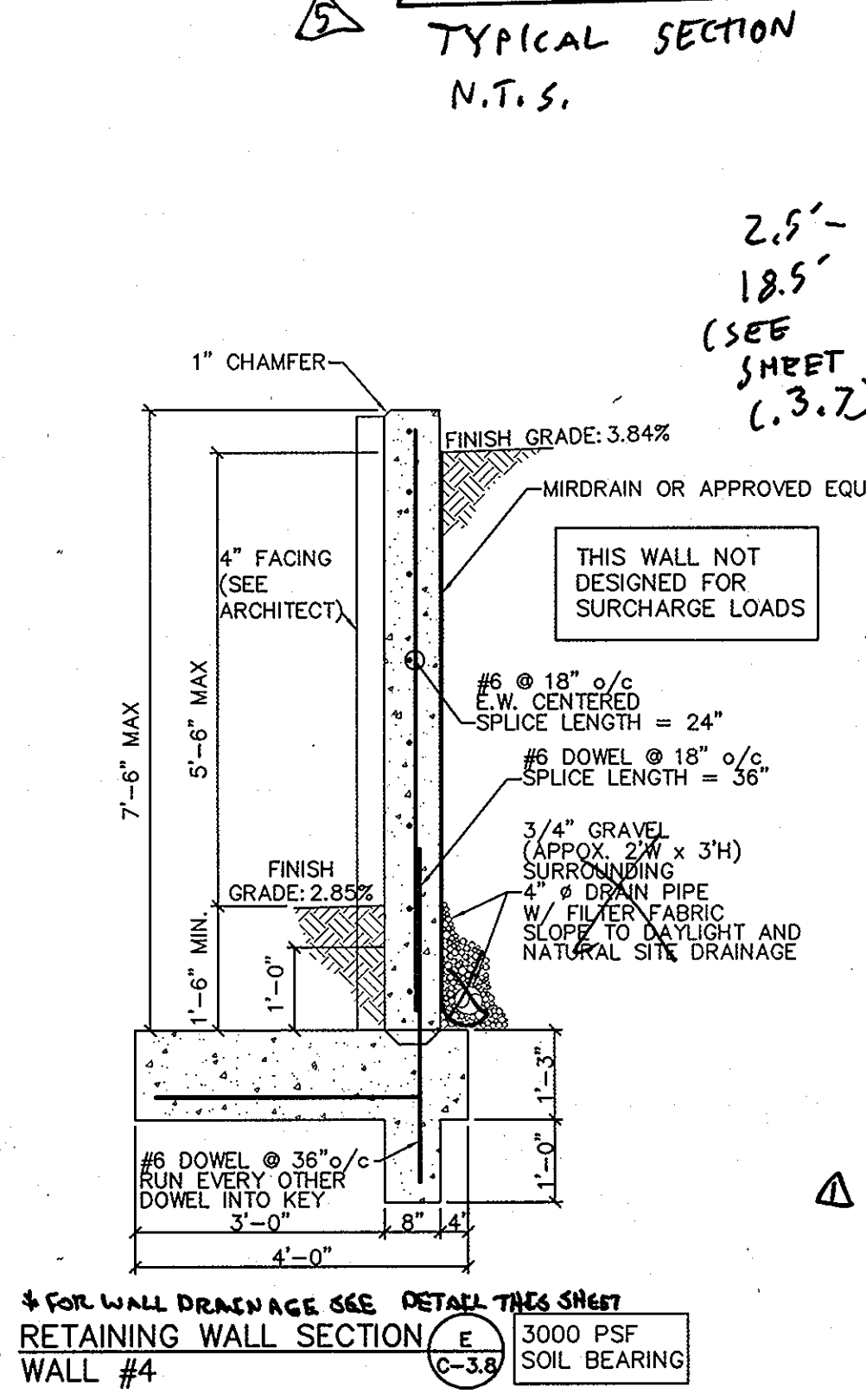
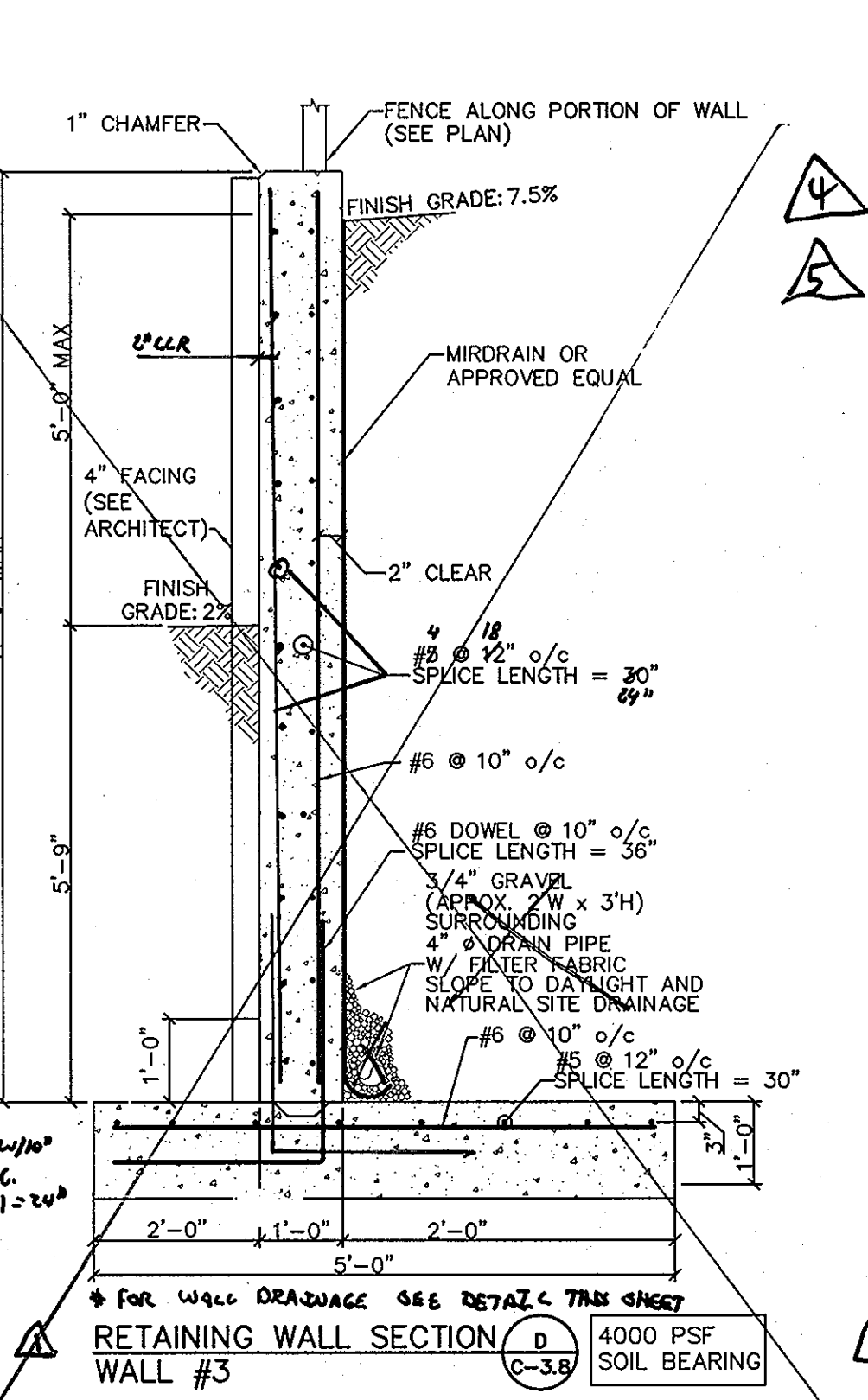
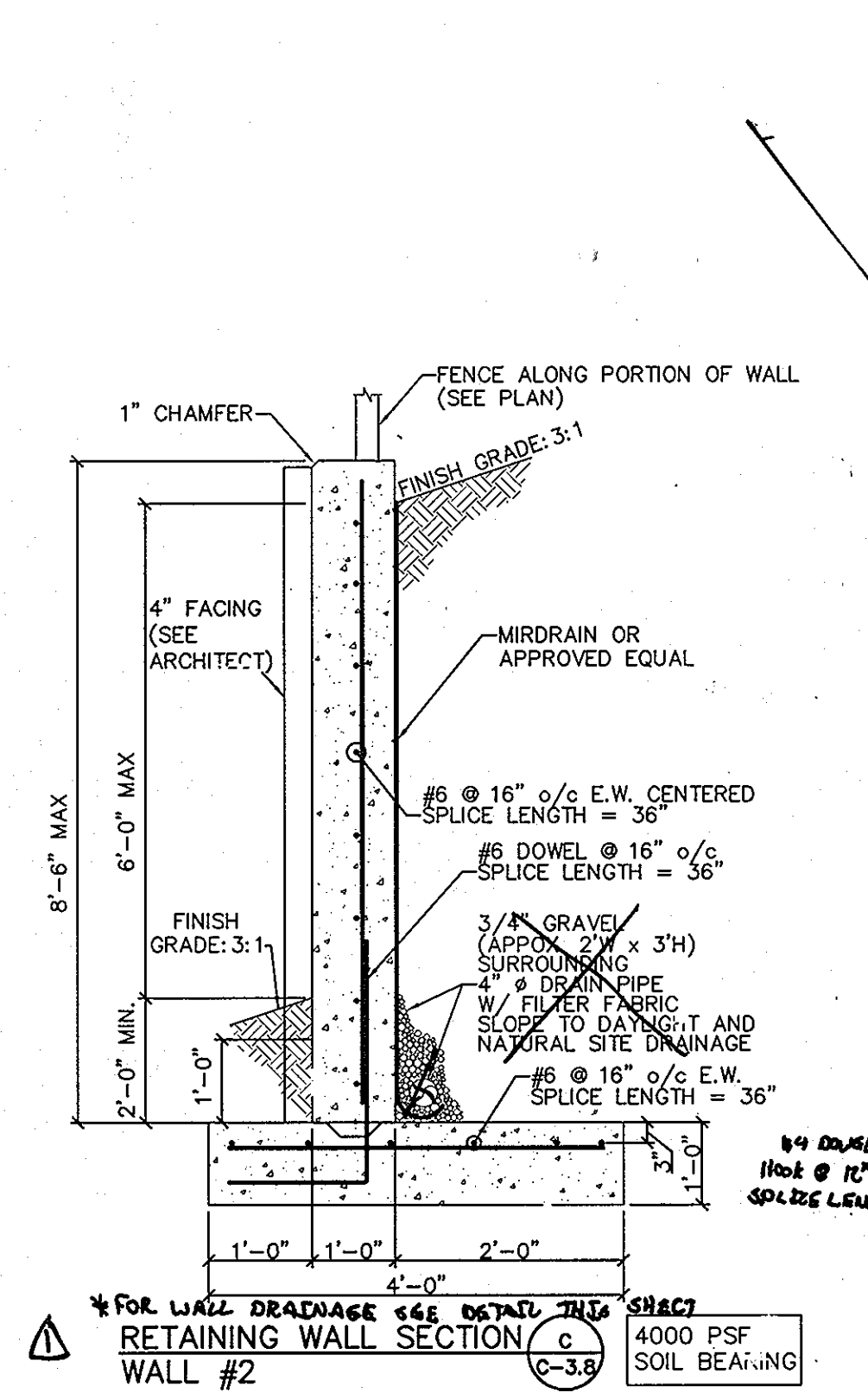
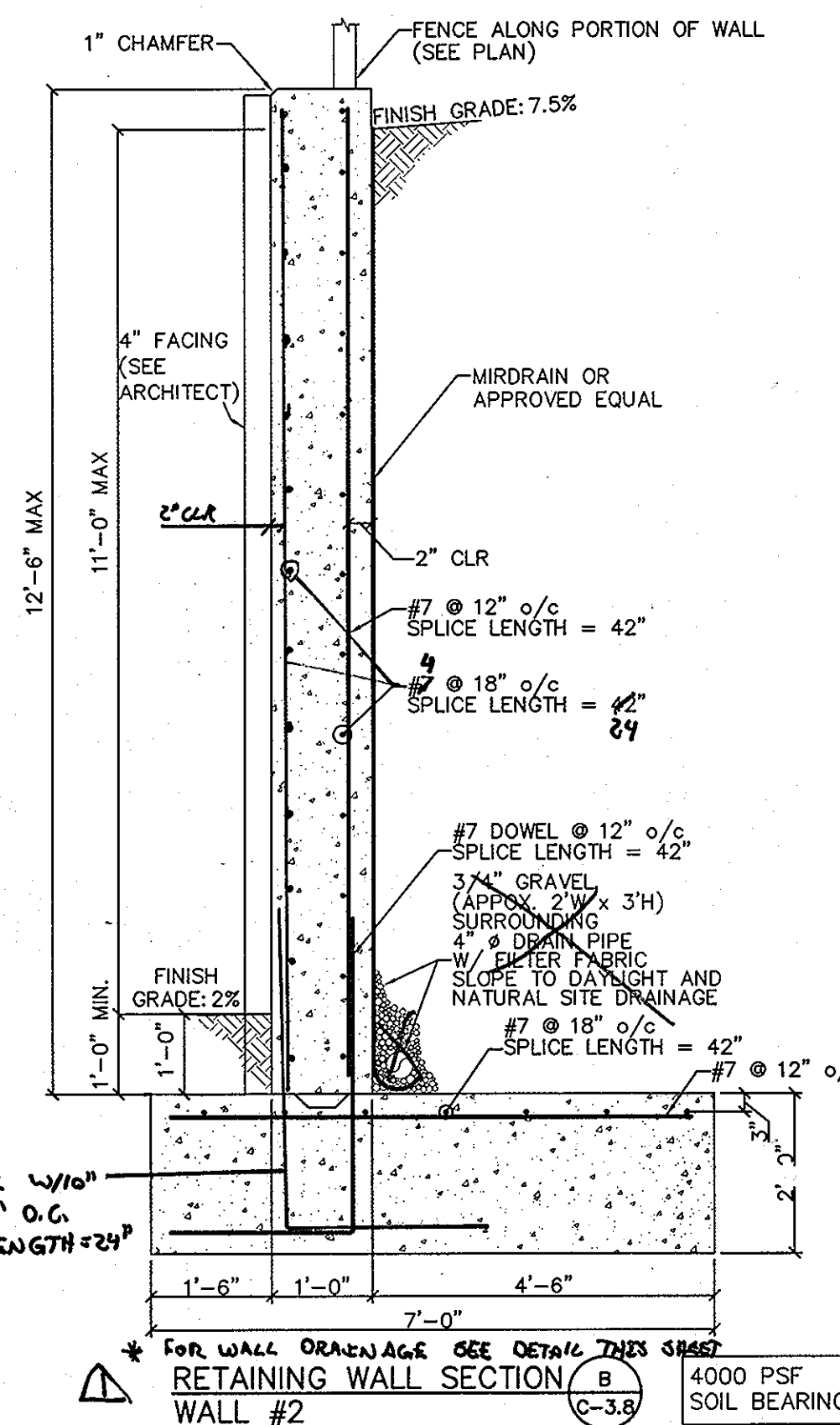
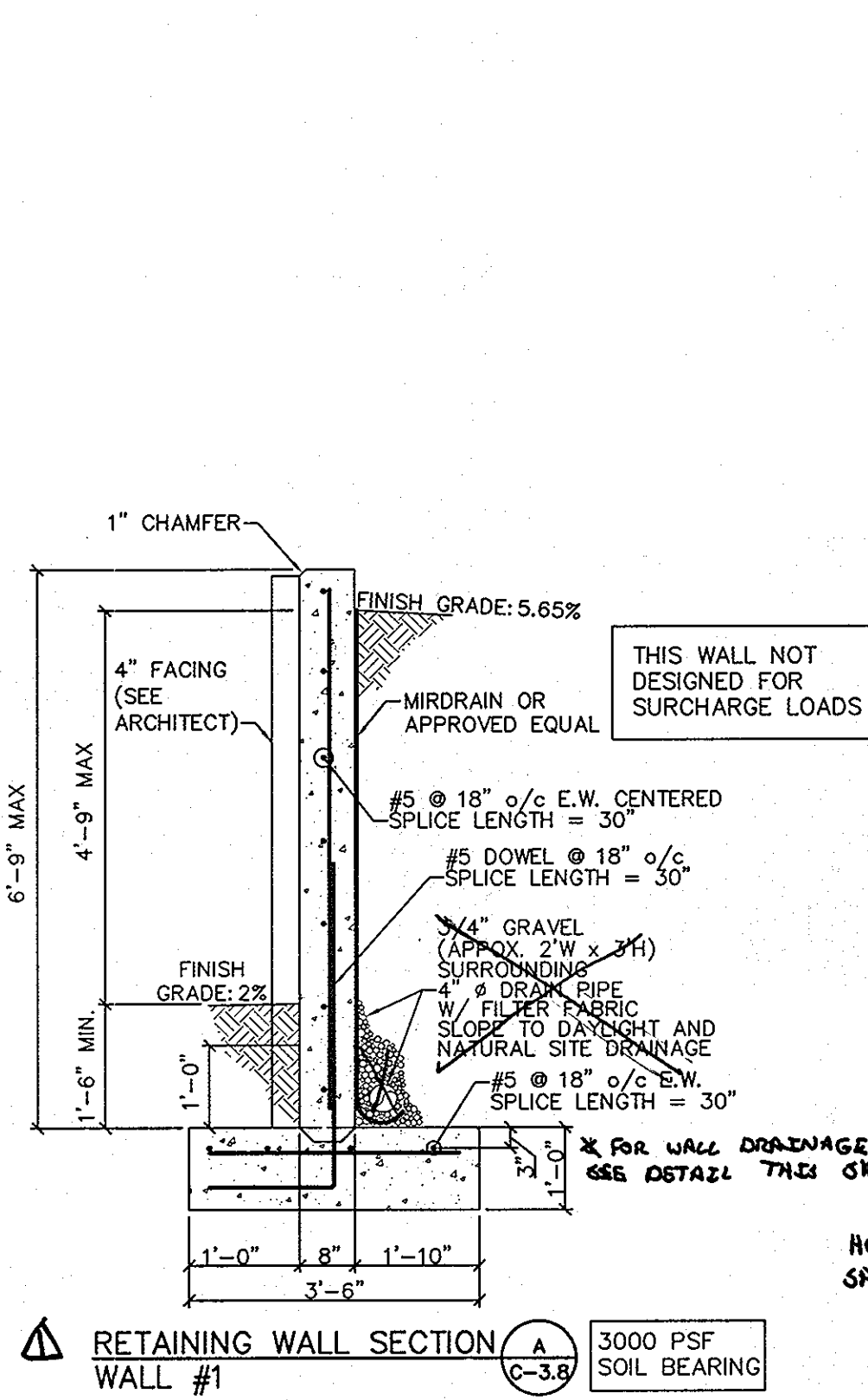
Revisions:
No. Date Description
1 5-1-09 SIZE, PROFILE NOT USED

Sheet 12 Of 37

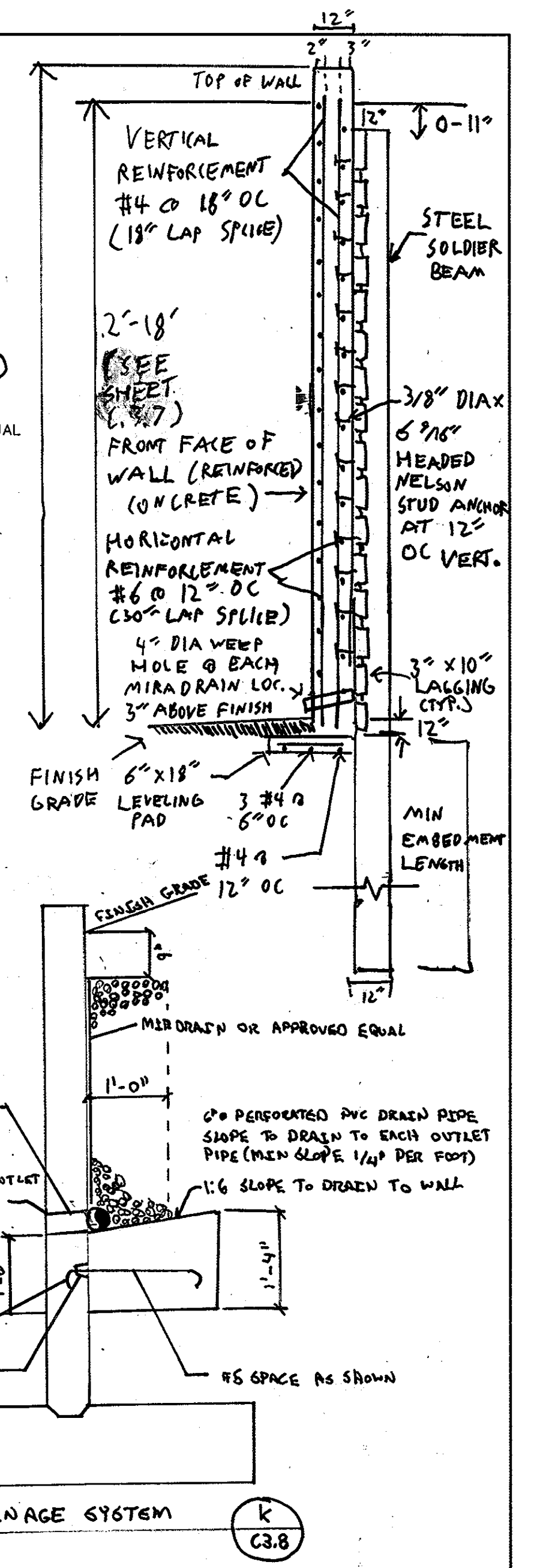
APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE: 11/13/08
KS

CAPITAL PROJECT #: N39-60



RETAINING WALL #3
TYPICAL SECTION
N.T.S.
2.5'-18.5'
(SEE SHEET C.3.7)



- 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

Chad Edwards
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 1-12-09

Cindy Hansen
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 1/13/09

Thomas E. Butler
DIRECTOR, DEP.
DATE: 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE: 1/13/09

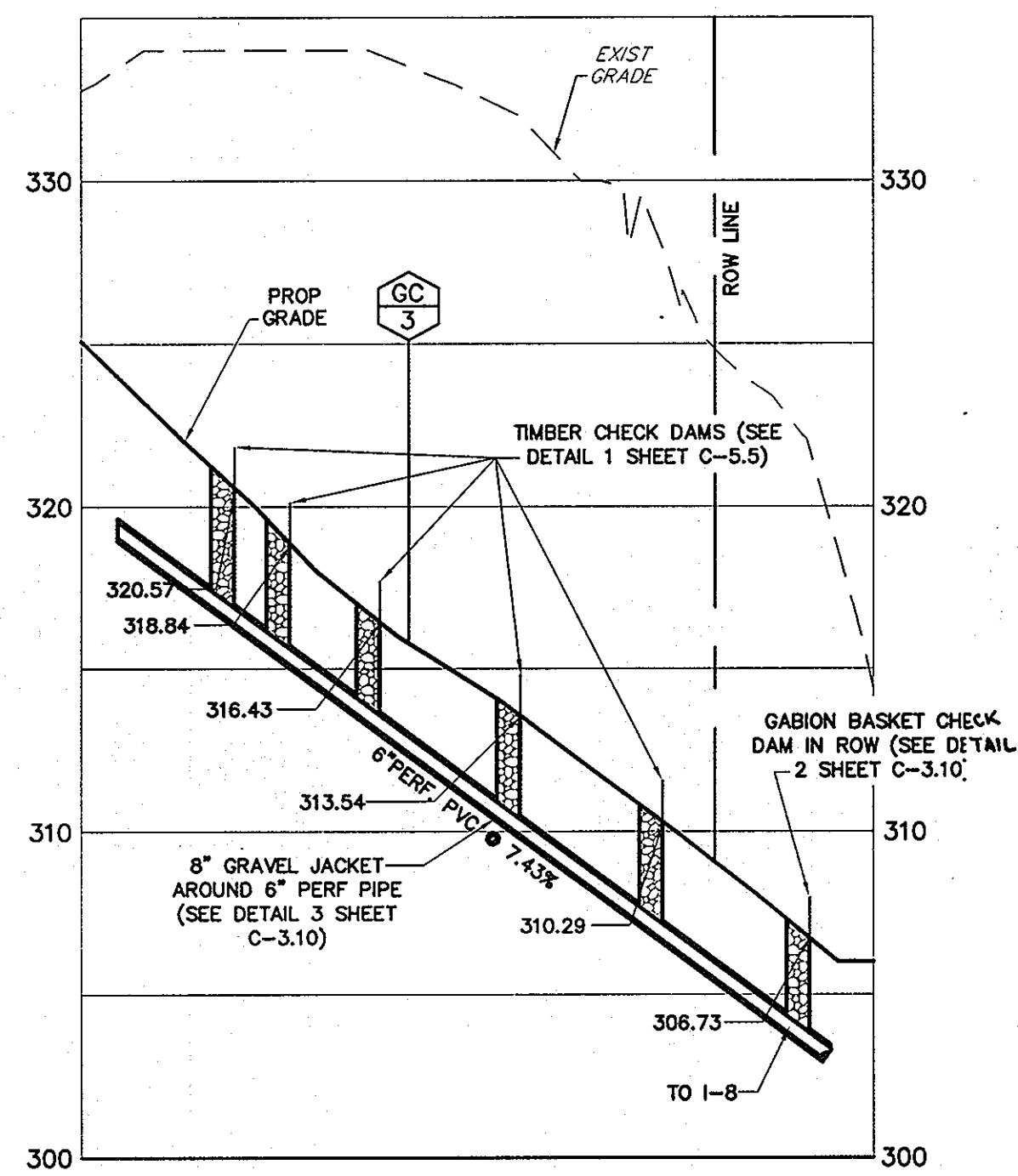
Seal: ADTEK ENGINEERS, INC.
CIVIL & STRUCTURAL ENGINEERING
97 Monocacy Boulevard, Unit H
Frederick, Maryland 21701-5516
Phone: 301.662.4408 Fax: 301.662.7484
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Seal: GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1009

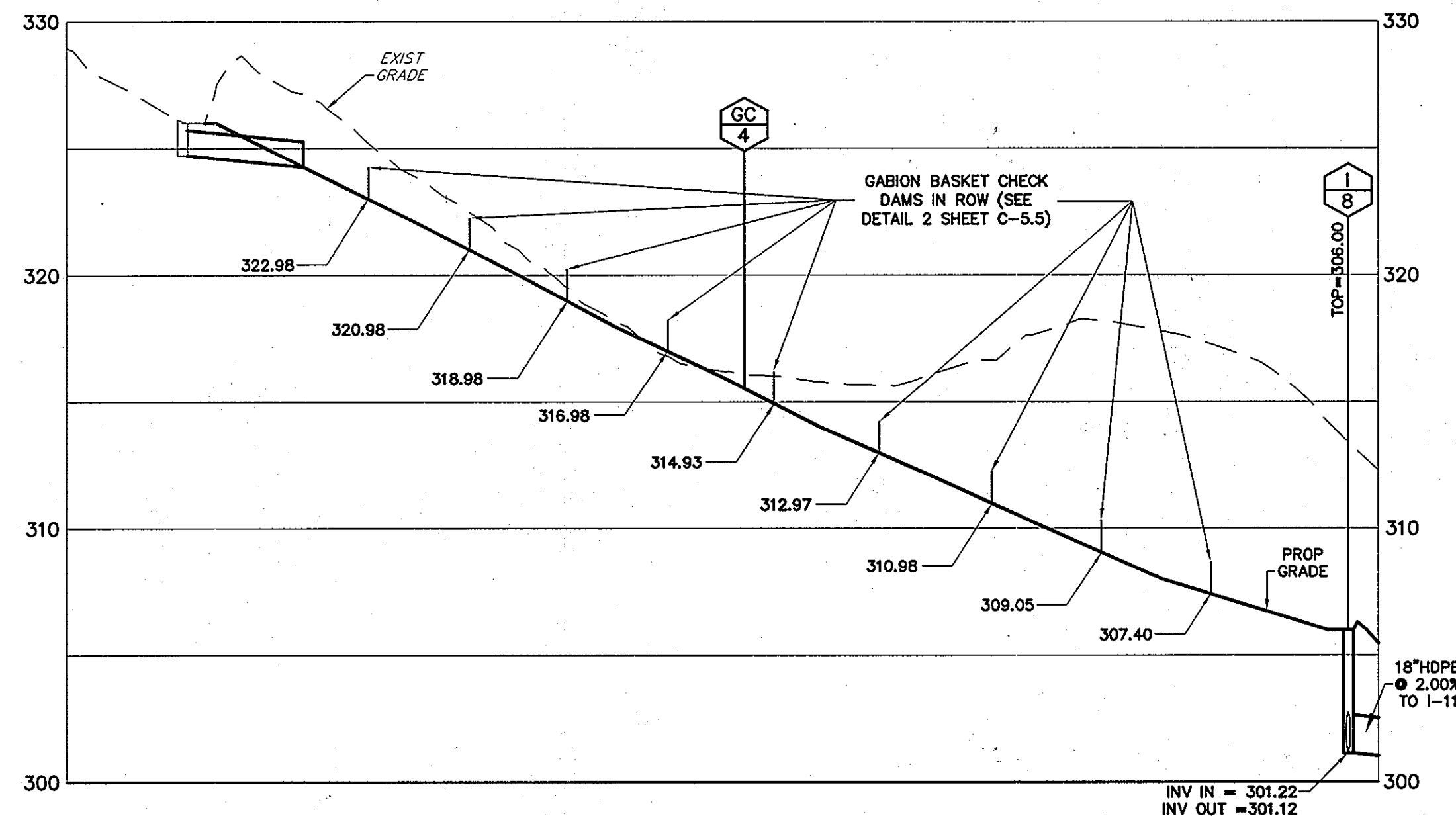
OWNER/DEVELOPER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

Project Title: 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
Scale 1" = 2' SPB
Date December 29, 2008 SPB
Drawing Title: Wall Details Sheet
Drawing Number: C3.8
Sheet 14 Of 37

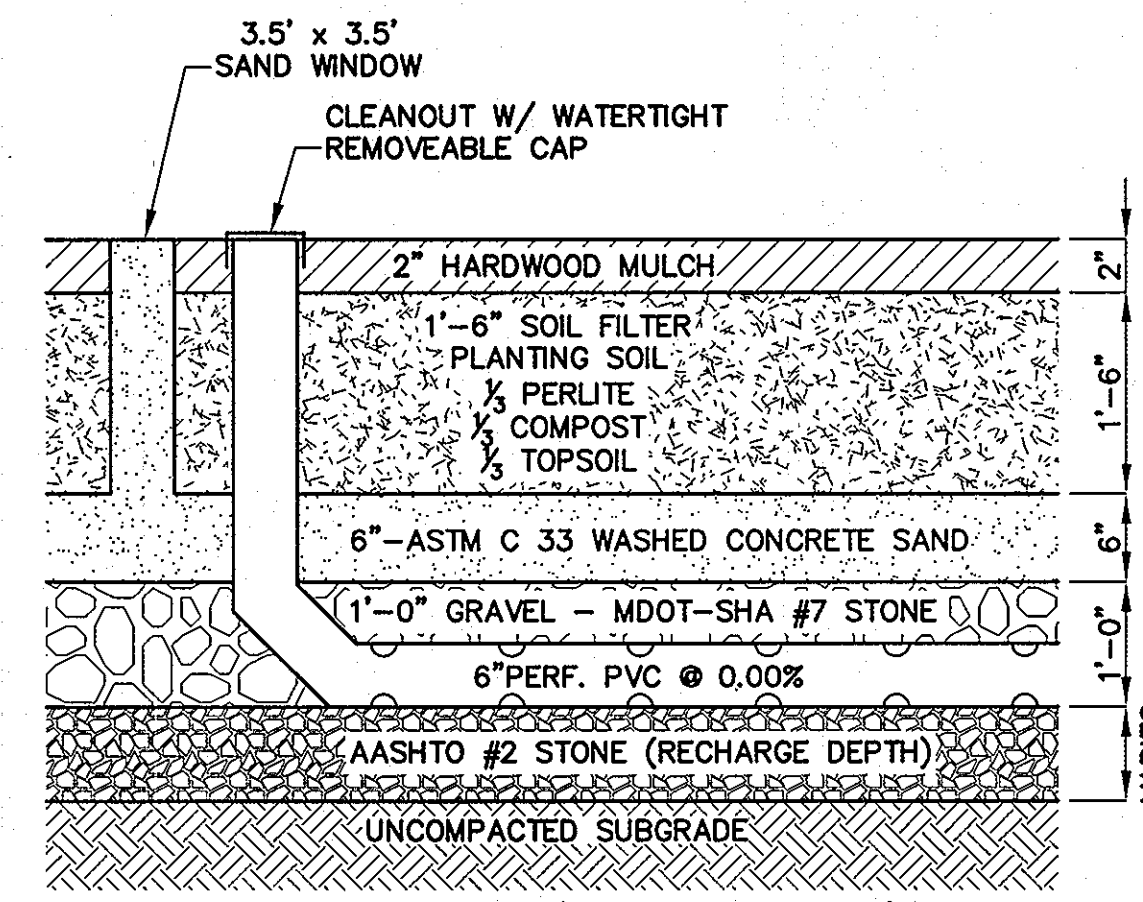
No.	Date	Description
1	5-1-09	DRAINAGE SYSTEM, REBAR
2	4/8/10	REVISE WALL #3 DETAIL



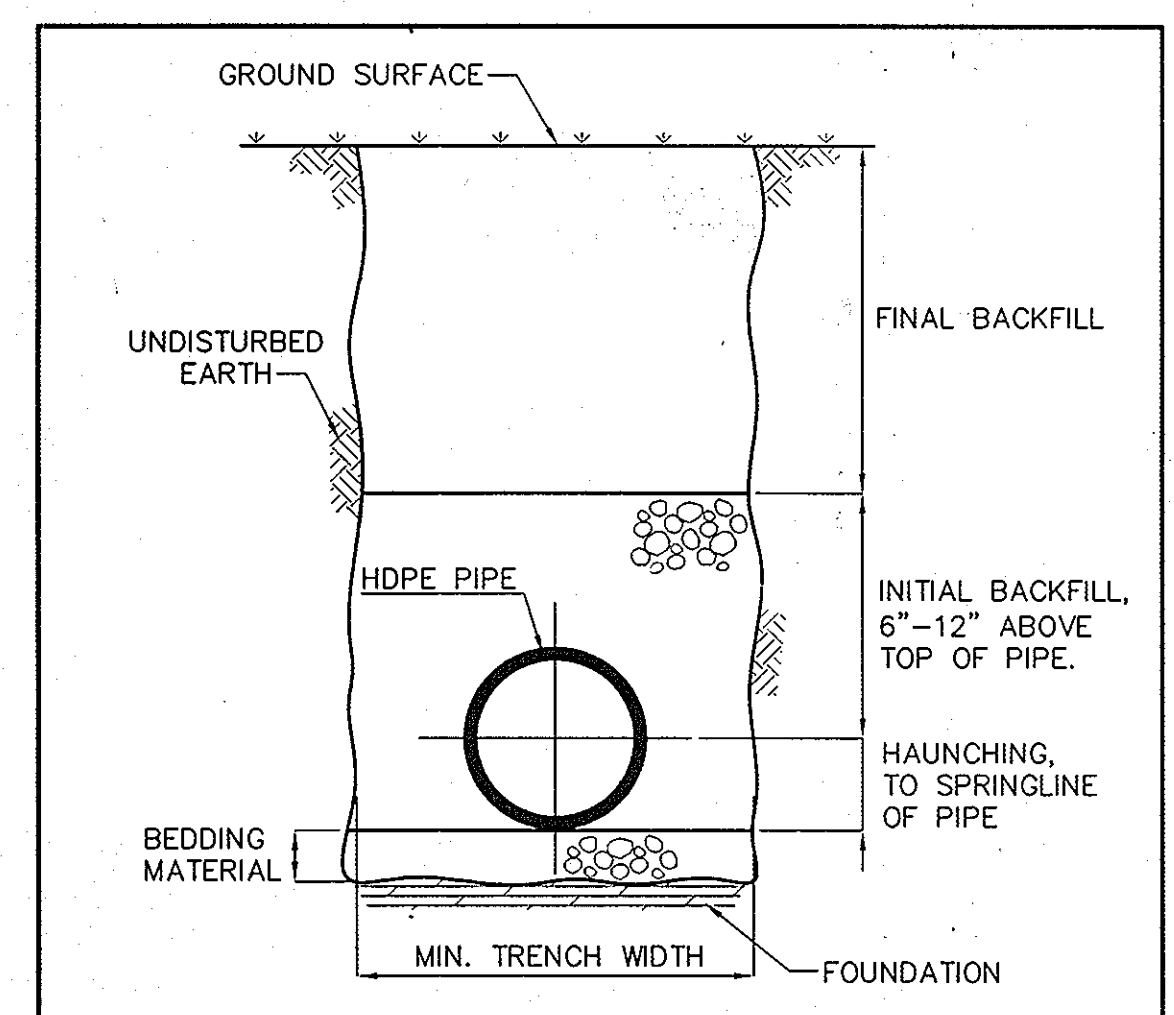
CENTERLINE GRASS CHANNEL 3
SCALE: 1" = 50'(HORIZ) 1" = 5'(VERT)



CENTERLINE GRASS CHANNEL 4
SCALE: 1" = 50'(HORIZ) 1" = 5'(VERT)



3 BIOFILTER - TYPICAL SECTION
C-3.10 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:**
- 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.
 - 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 4"-24" AND 42"-48" CORRUGATED POLYETHYLENE PIPE (CPEP); 6" FOR 30"-36" CPEP.
 - HAUNCHING AND INITIAL BACKFILL: 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 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 |
- 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

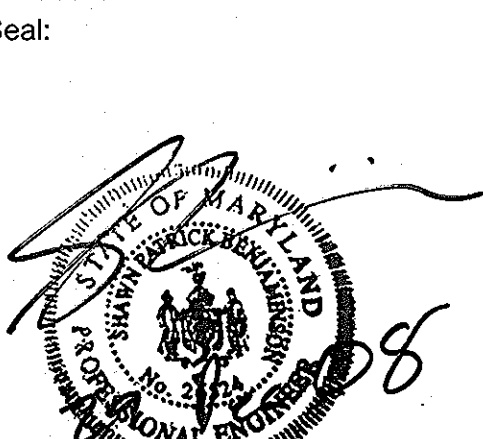
STORM DRAIN STRUCTURE SCHEDULE									
STRUCTURE NO.	STRUCTURE TYPE	DIAMETER OR WIDTH*	STANDARD NO.	TOP/GRADE ELEVATION	INVERT IN	INVERT OUT	NORTHING	EASTING	REMARKS
I-1	STANDARD YARD INLET	2'-0"	HCDPW NO. SD-4.14	297.70	-----	296.36	554822.4674	1341904.5129	-----
I-2	STANDARD YARD INLET	2'-0"	HCDPW 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/1-9 301.22 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	-----	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: *Chad Edwards* DATE: 1-12-09
 Chief, Division of Land Development: *Jenny Hauer* DATE: 1/13/09
 Director, DEP: *Thomas E. Suttler* DATE: 1/14/09

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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

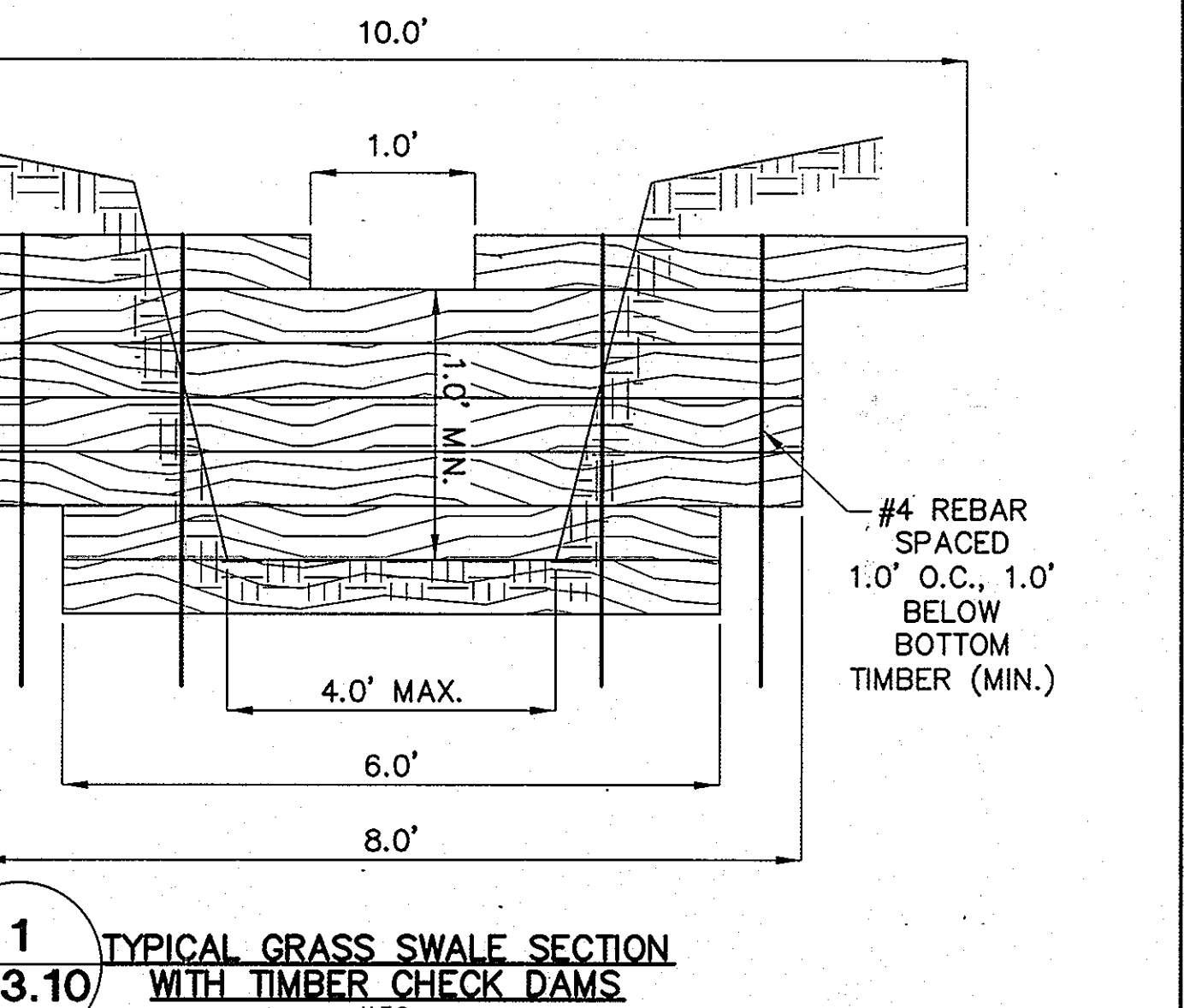
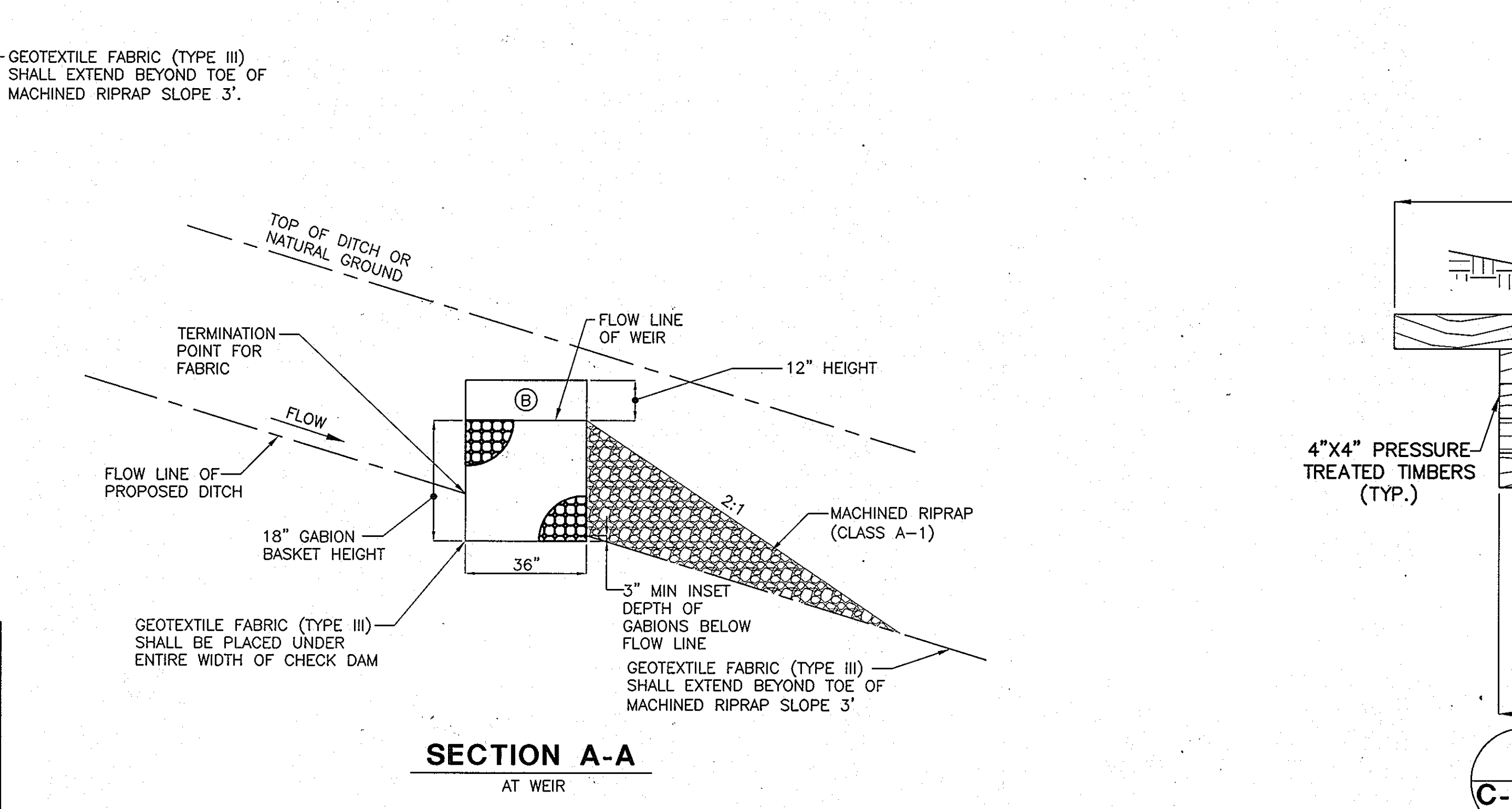
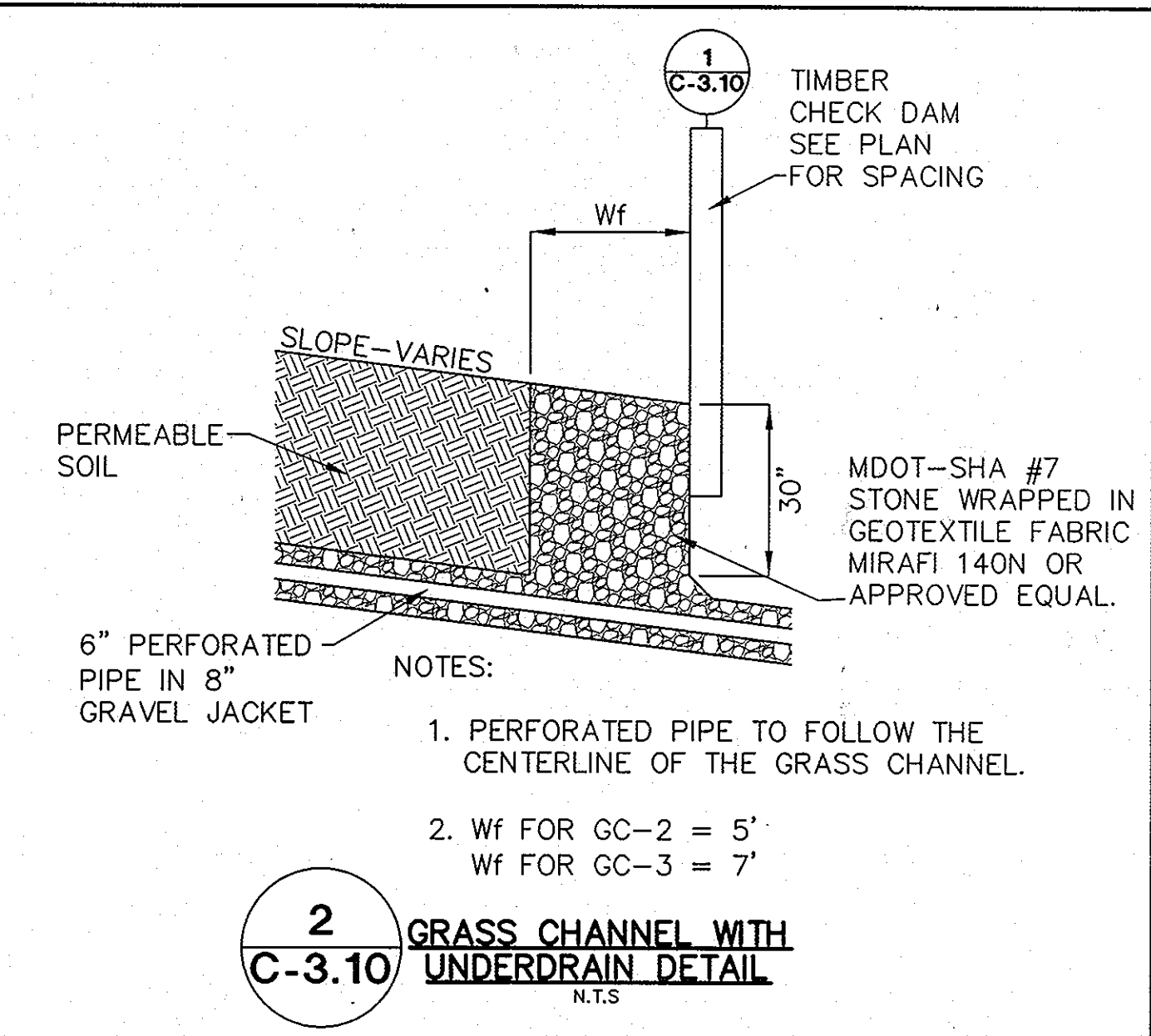
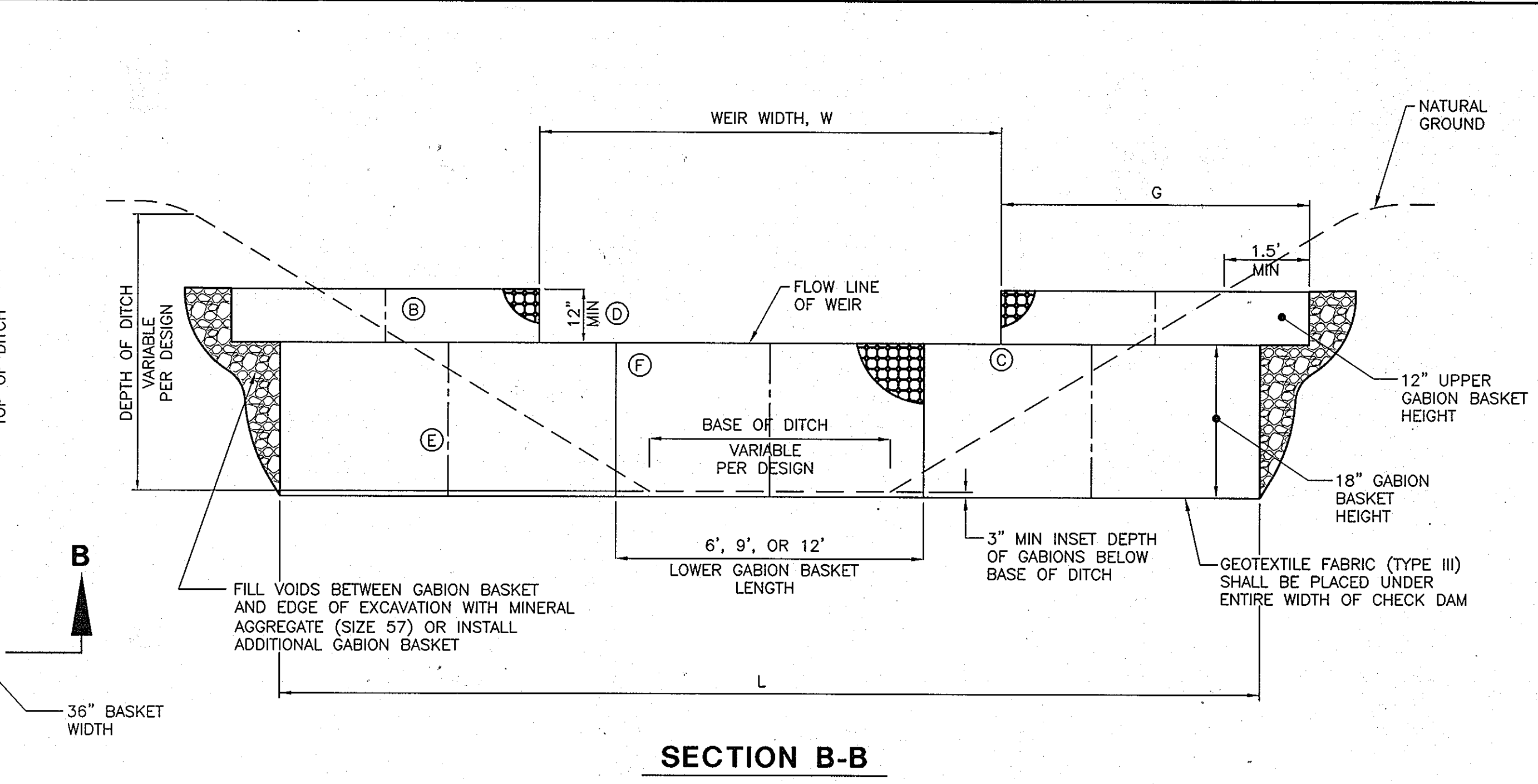
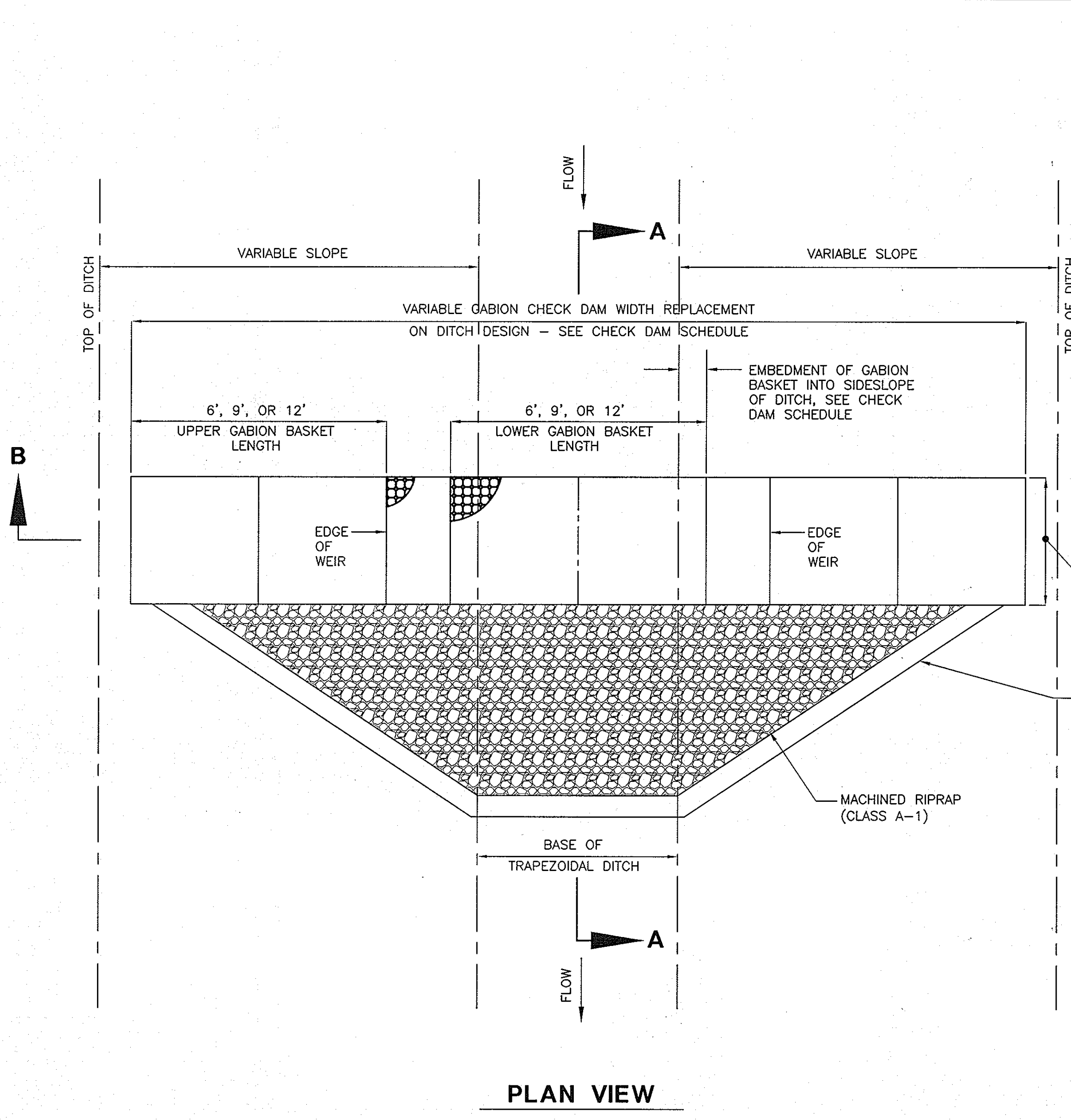
Project Title: **Robinson Nature Center**
 6692 Cedar Lane, Election District No. 5, Howard County, Maryland
 Tax Map 35 Parcel 87 Liber: 8997 Folio: 160
 Job No. SDP-09-02 KDL
 Scale AS SHOWN SPB
 Date December 29, 2008 SPB
 Drawing Title: Storm Drain Profiles
 Drawing Number: C3.10
 Sheet 16 Of 37

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: _____

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 MARYLAND.
 LICENSE NUMBER: 26524
 EXPIRATION DATE: 19 JULY 2009

CAPITAL PROJECT #: N39-60



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.
 - (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.
- SITES WHICH DRAIN TO HIGH-QUALITY OR SEDIMENT-IMPAIRED STREAMS, THE WEIR SHALL BE SIZED TO CONTAIN THE 5-YEAR, 24-HOUR STORM.

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

Chief Edwards 1-12-9
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Cindy Kean 1/16/09
CHIEF, DIVISION OF LAND DEVELOPMENT

Dennis J. Suter 1/14/09
DIRECTOR, DEP.

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 1/13/09

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:

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 MARYLAND. LICENSE NUMBER: 20024 EXPIRATION DATE: 19 JULY 2009

GRIEVES WORRALL WRIGHT & CHATNICK - INCORPORATED

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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: 410.313.6161

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

Job No. SDP-09-02 KDL Drawn

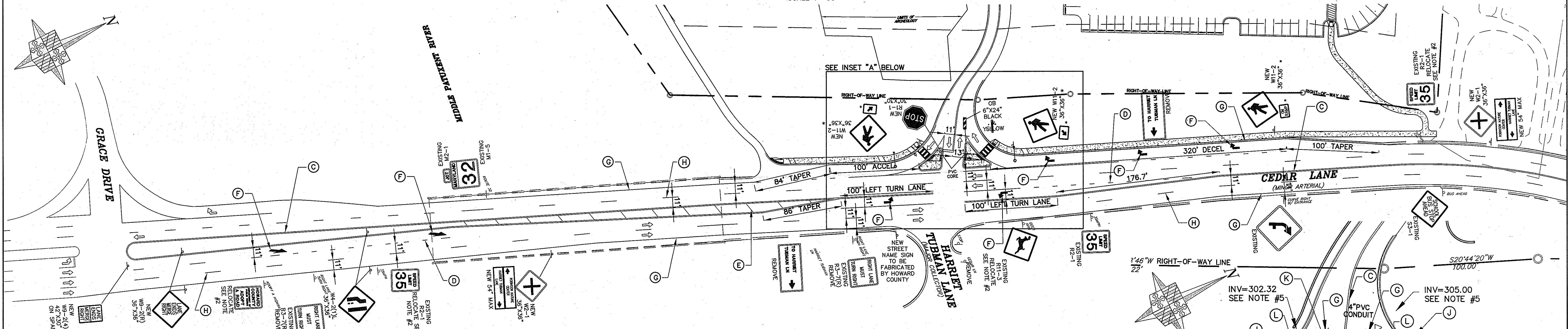
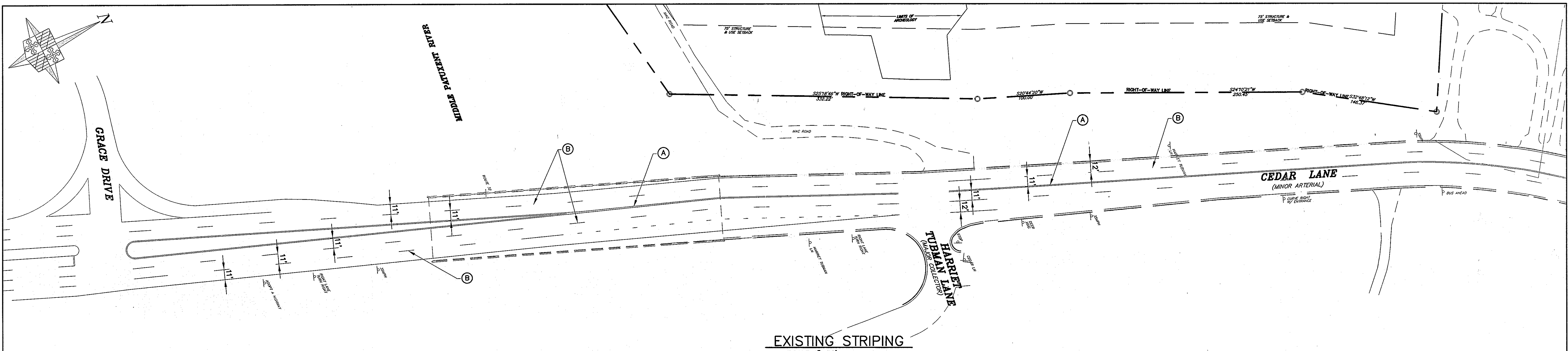
Scale AS SHOWN SPB Checked

Date December 29, 2008 SPB Approved

Drawing Title: Storm Drain & Check Dam Details Drawing Number: C3.11

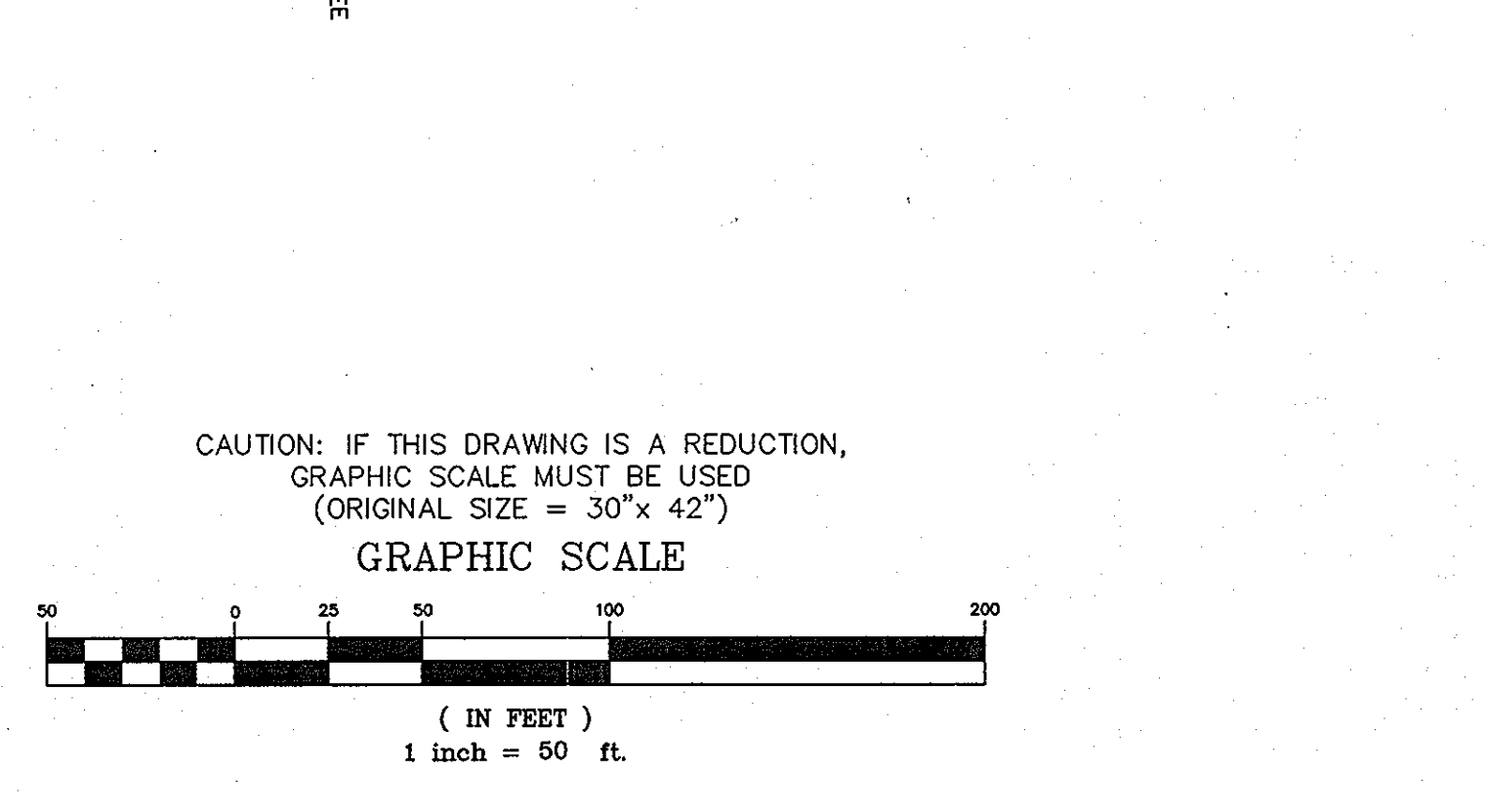
Sheet 17 Of 37

SDP-09-02



NOTES:

- 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.
- ALL SIGN LOCATIONS, NEW MARKINGS AND MARKING REMOVAL SHALL BE APPROVED BY HOWARD COUNTY TRAFFIC DIVISION PRIOR TO ANY INSTALLATION (410-313-5752)
- ALL EXISTING MARKINGS TO BE REMOVED BY GRINDING, MARKERS ON BRIDGE CHECK WITH TRAFFIC DIVISION PRIOR TO REMOVAL.
- PROVIDE NEW SIGNAGE POST FOR ALL SIGNS SHOWN ON THIS PLAN AS "RELOCATE". U.N.O.
- 4" PVC CONDUIT SLEEVE FOR STREET LIGHT POWER, 24" BELOW PAVEMENT SURFACE. CONTACT TRAFFIC DIVISION FOR BGE LOCATORS TO BE PLACED IN THE GROUND.



APPROVED: DEPARTMENT OF PLANNING AND ZONING

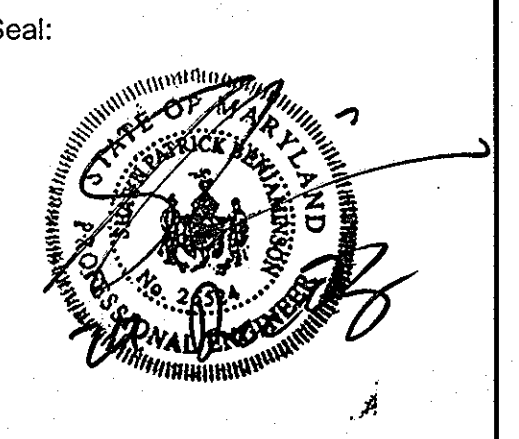
Chief, Development Engineering Division: *Chad Edwards* DATE: 1-12-09

Chief, Division of Land Development: *Christy Hanna* DATE: 1/13/09

Director, DEP: *Dennis E. Smith* DATE: 1/14/09

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www.adtekengineers.com



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BALTIMORE, MARYLAND 21211, 410-352-1009

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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

Project Title: **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

Scale: 1"=50' SPB

Date: December 29, 2008 SPB

Drawing Title: Sign & Striping Plan

Sheet: 18 Of 37

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE: 1/15/09

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 MARYLAND. LICENSE NUMBER: 20524 EXPIRATION DATE: 19 JULY 2009

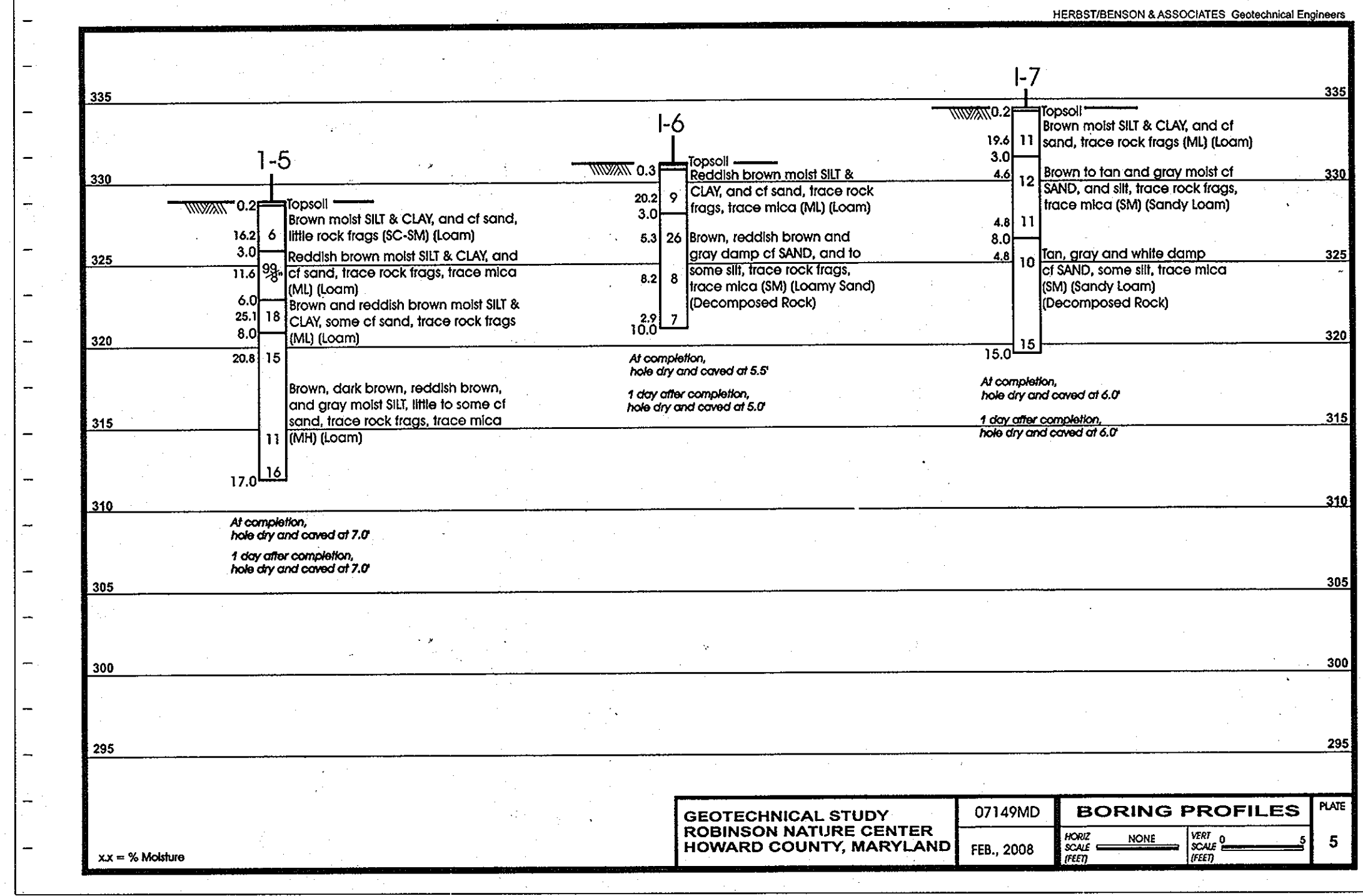
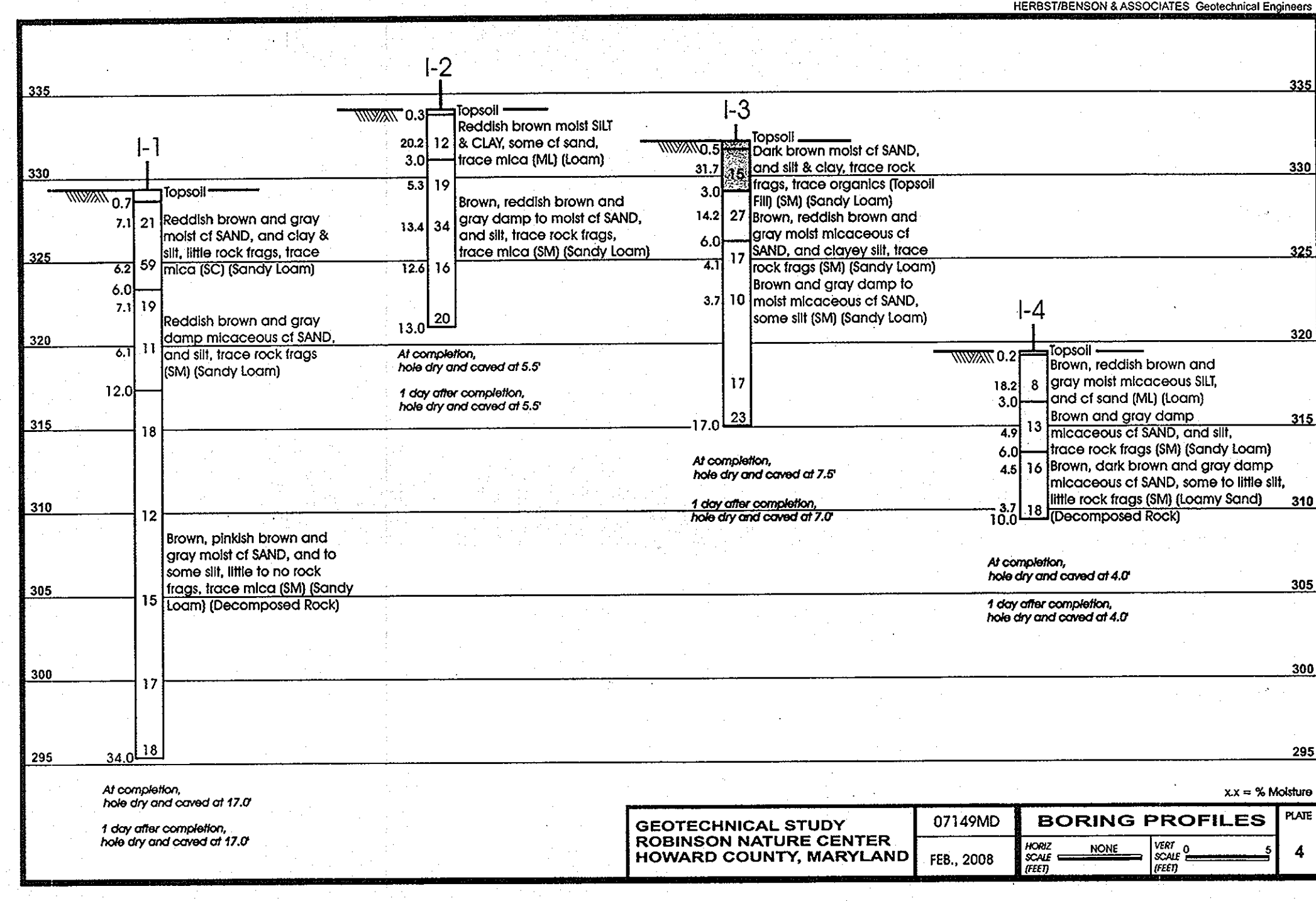
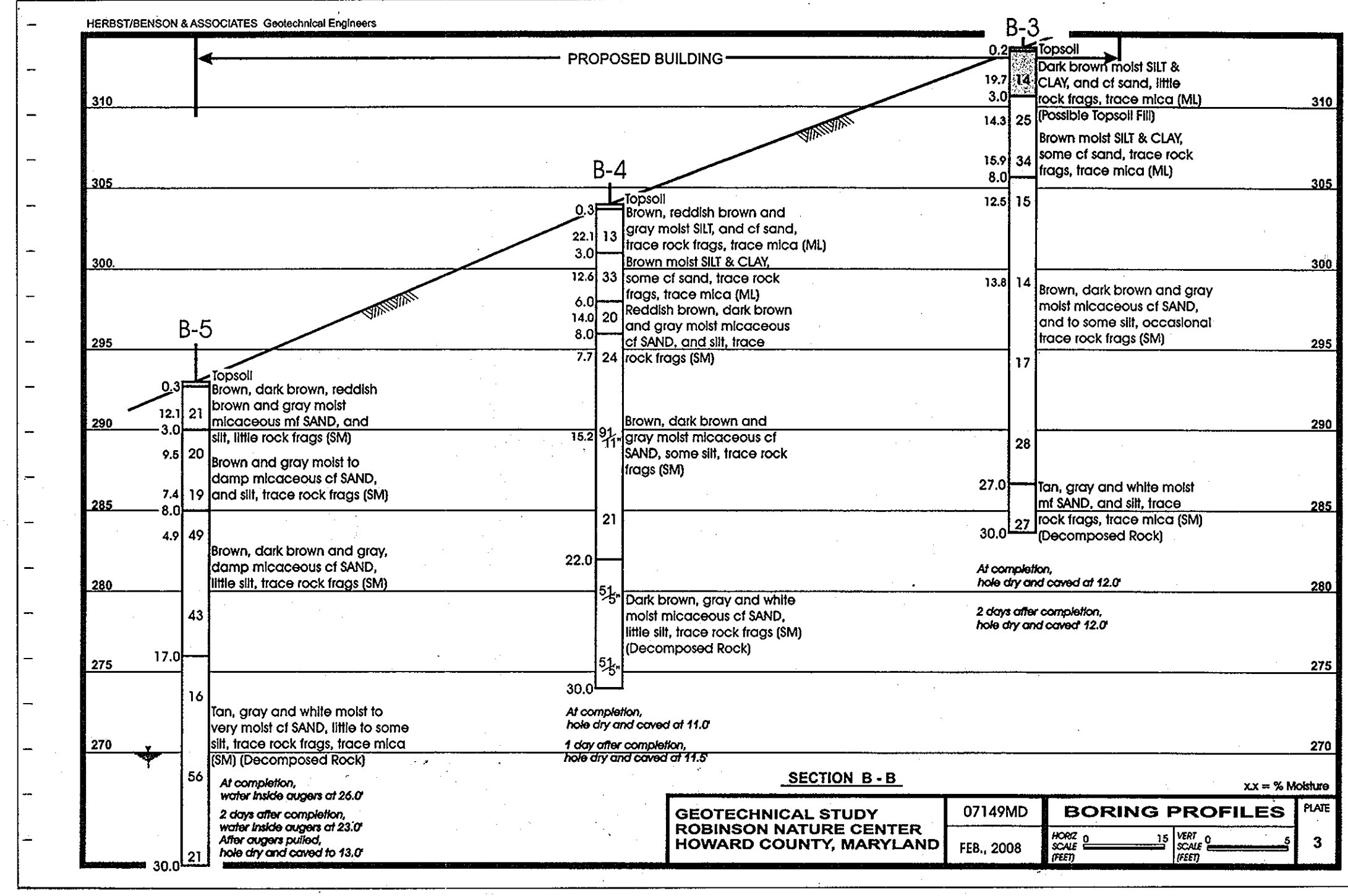
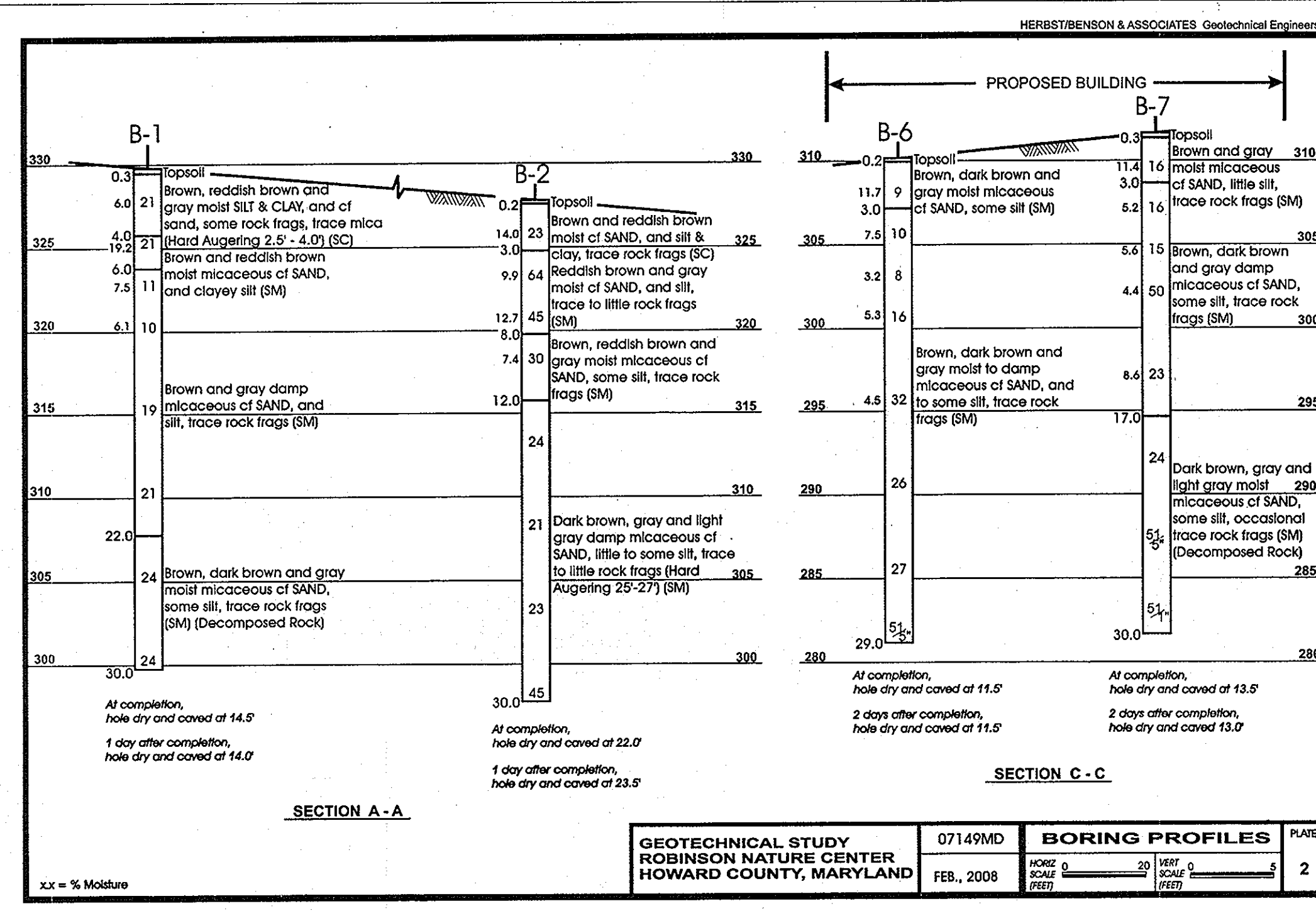
CAPITAL PROJECT #: N39-60

Revisions:

Revisions:

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: *Chad Edwards* 1/12/09
 Chief, Division of Land Development: *Cindy Hamer* 1/13/09
 Director, DEP.: *Thomas J. Suttell* 1/14/09
 APPROVED PLANNING BOARD OF HOWARD COUNTY
 DATE: 1/13/09

ADTEK ENGINEERS, INC.
 CIVIL & STRUCTURAL ENGINEERING
 97 Monocacy Boulevard, Unit H
 Frederick, Maryland 21701-5516
 Phone: 301.662.4408 Fax: 301.662.7484
 www.adtekengeers.com
 REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENTATION BY THE HOWARD SOIL CONSERVATION DISTRICT.
 HOWARD SCD DATE: _____

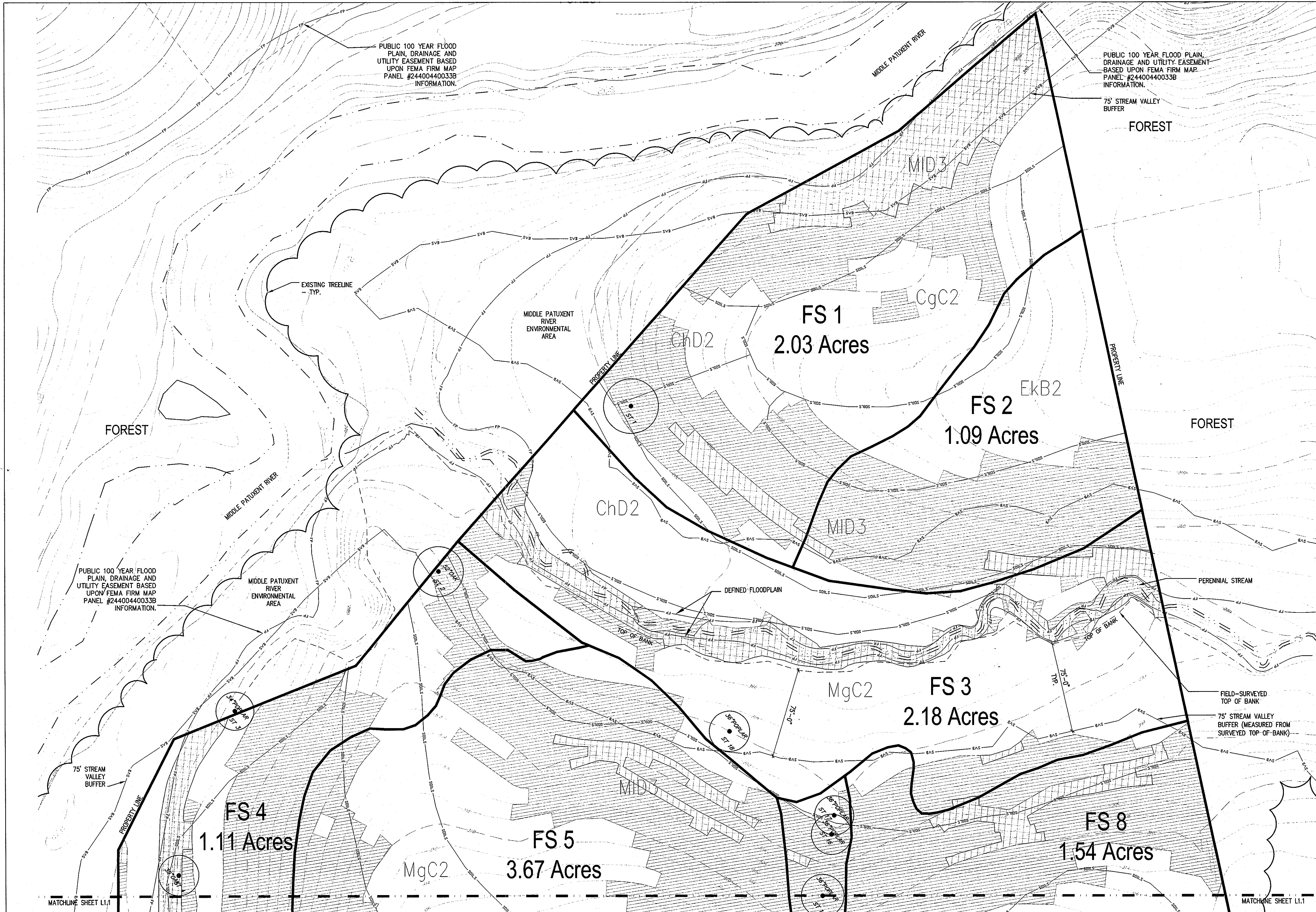
Seal:
 I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NUMBER: 25524
 EXPIRATION DATE: 19 JULY 2009

GRIEVES WORRALL WRIGHT & OHATNICK INCORPORATED

 ARCHITECTS
 800 WYMAN PARK DRIVE, SUITE 300
 BALTIMORE, MARYLAND 21211, 410-332-7000
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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 Folia: 160
 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.

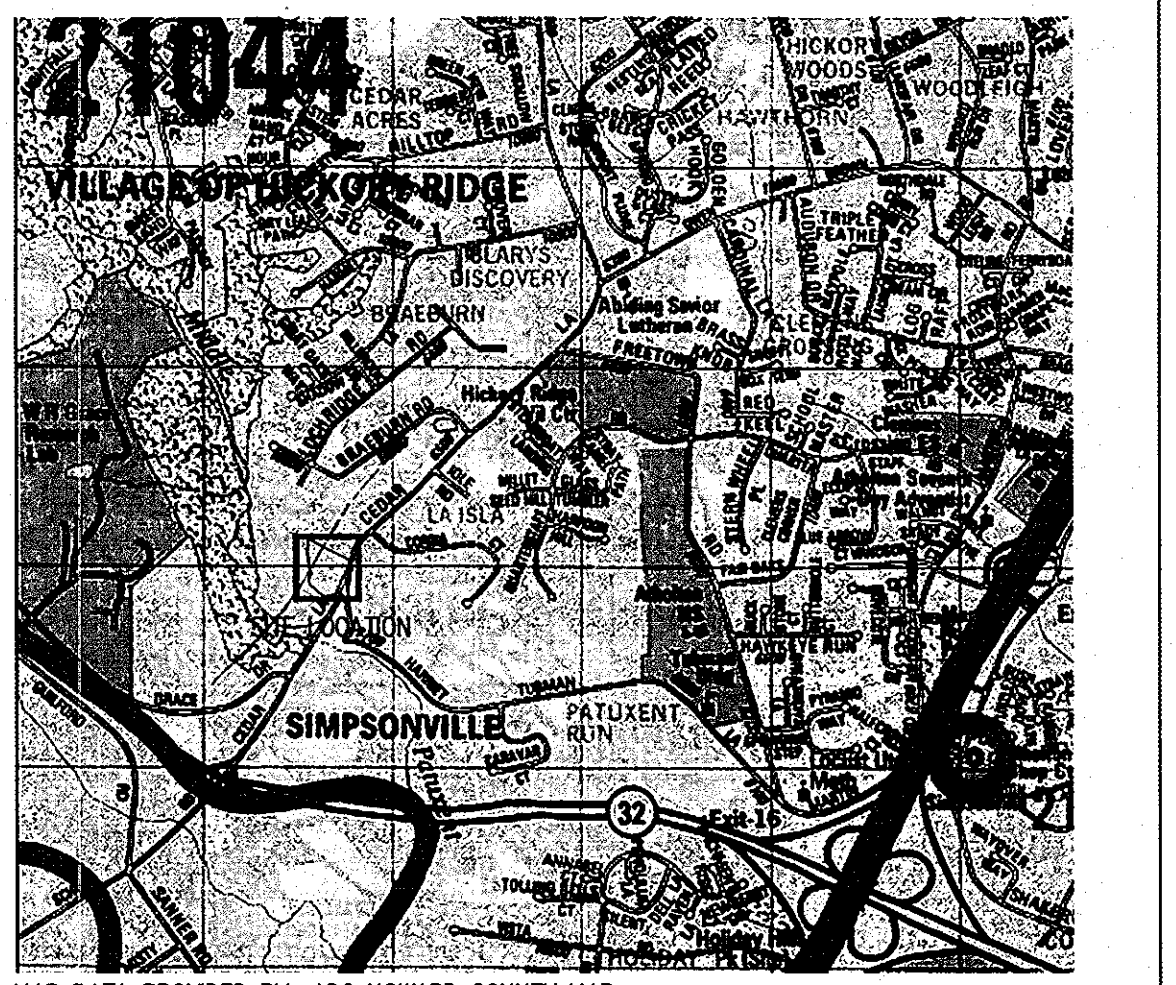
Specimen Tree Table

Specimen Tree (ST) #	Common Name	Botanical Name	Size DBH	Condition
1	Tuliptree	<i>Liriodendron tulipifera</i>	38"	Good
2	Red Oak	<i>Quercus rubra</i>	39"/29"	Good
3	Tuliptree	<i>Liriodendron tulipifera</i>	32"	Exc.
4	Red Oak	<i>Quercus rubra</i>	34"	Good
5	Green Ash	<i>Fraxinus pennsylvanicus</i>	30"	Fair
6	Tuliptree	<i>Liriodendron tulipifera</i>	31"	Exc.
7	Tuliptree	<i>Liriodendron tulipifera</i>	34"	Exc.
8	Tuliptree	<i>Liriodendron tulipifera</i>	36"	Exc.
9	Tuliptree	<i>Liriodendron tulipifera</i>	38"	Good
10	Tuliptree	<i>Liriodendron tulipifera</i>	34"	Exc.
11	Tuliptree	<i>Liriodendron tulipifera</i>	31"	Good
12	Tuliptree	<i>Liriodendron tulipifera</i>	35"	Exc.
13	Tuliptree	<i>Liriodendron tulipifera</i>	34"	Exc.
14	Tuliptree	<i>Liriodendron tulipifera</i>	34"	Exc.
15	Tuliptree	<i>Liriodendron tulipifera</i>	36"	Exc.
16	Tuliptree	<i>Liriodendron tulipifera</i>	34"	Exc.
17	Tuliptree	<i>Liriodendron tulipifera</i>	33"	Exc.
18	Tuliptree	<i>Liriodendron tulipifera</i>	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	Oaks and other upland hardwoods
Ekb2	Eliok silt loam	30	0.32	Mixed hardwoods, mainly oaks
ElC3	Eliok silty clay loam	30	0.28	Mixed hardwoods, mainly oaks
MgB2	Manor gravelly loam	43	0.37	Mixed upland hardwoods, mainly oaks
MgC2	Manor gravelly loam	43	0.37	Mixed upland hardwoods, mainly oaks
MID3	Manor loam	44	0.37	Mixed upland hardwoods, mainly oaks
MnD	Manor very stony loam	44	0.32	Mixed upland hardwoods, mainly oaks
MnF	Manor very stony loam	45	0.32	Mixed upland hardwoods, mainly oaks



MAP DATA PROVIDED BY: ADC HOWARD COUNTY MAP.

MAP KEY

- SLOPES 15% - 24.99%
- SLOPES 25% AND GREATER

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: 16.83 Acres (MINUS FLOODPLAIN AREA)

FP = FLOODPLAIN
SVB = STREAM VALLEY BUFFER

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Cindy Harris
CHIEF, DIVISION OF LAND DEVELOPMENT

Thomas P. Suttell
DIRECTOR, DEP.

DATE: 1/12/09
1/13/09
1/14/09

hord | coplan | macht
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.adtekengeers.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:

GRIEVES WORRALL WRIGHT & OLATNIK INCORPORATED

G | W
W | O

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800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1009

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TEL: 410.313.6143 FAX: 410.313.6161

Project Title
Robinson Nature Center

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

Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Job No. 26154.10 DD/DF Drawn

Scale AS SHOWN DD/ZR Checked

Date December 29, 2008 ZR Approved

Drawing Title Drawing Number

FOREST STAND DELINEATION -NORTH- L1.0

Sheet 20 37 of

APPROVED PLANNING BOARD OF HOWARD COUNTY

DATE: 11/13/08

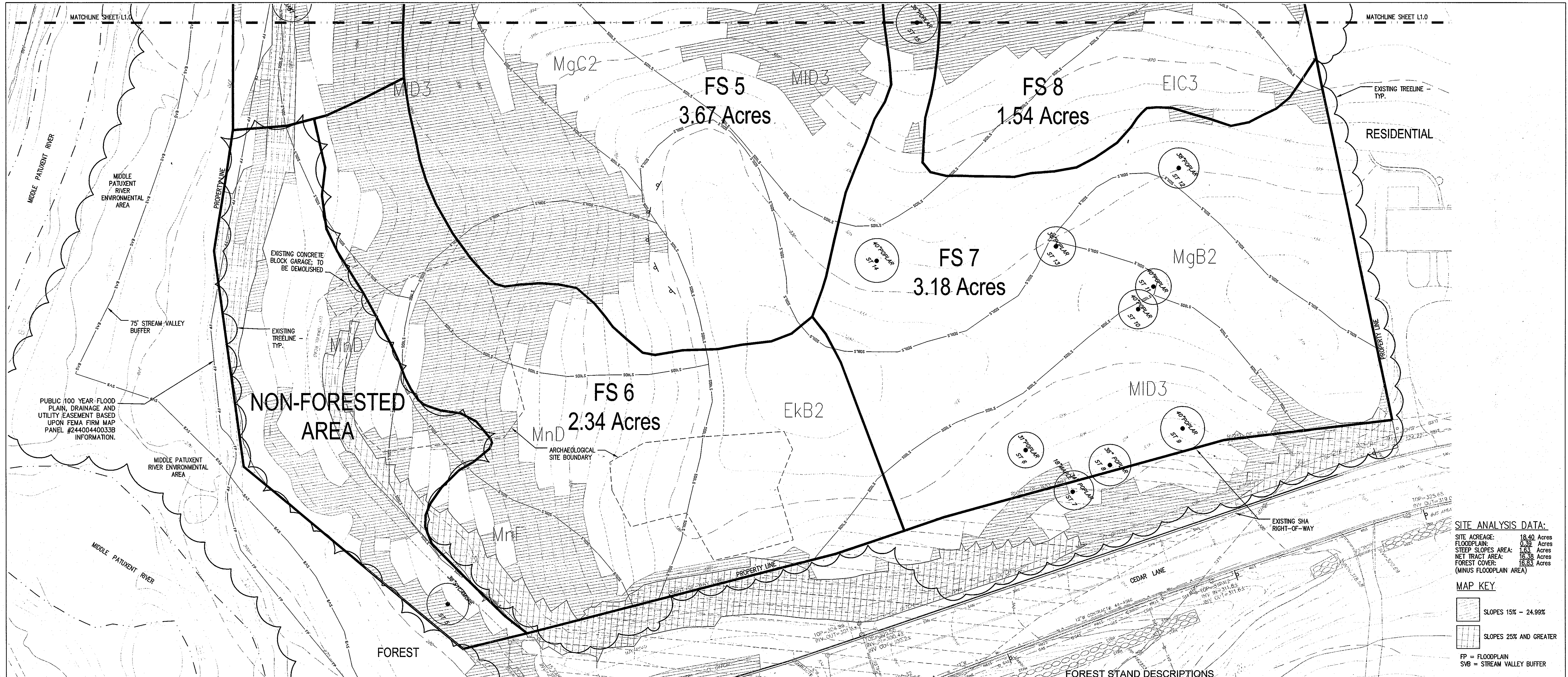
HOWARD SCD DATE

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 MARYLAND, LICENSE NUMBER: 26524, EXPIRATION DATE: 16 JULY, 2009.

CAPITAL PROJECT NUMBER: N39-60

CAPITAL PROJECT NUMBER: N39-60

Sheet 20 37 of



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:	18.83 Acres
(MINUS FLOODPLAIN AREA)	

MAP KEY:

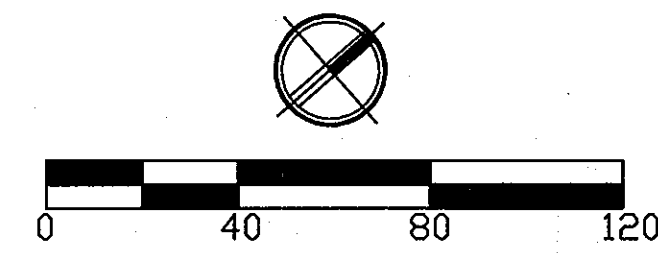
	SLOPES 15% - 24.99%
	SLOPES 25% AND GREATER
FP =	FLOODPLAIN
SVB =	STREAM VALLEY BUFFER

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	CgC2, ChD2, FkB2, MID3 See Soil Table	CgC2, FkF2, MID3 See Soil Table	ChD2 (?), MgC2 See Soil Table	MgC2, MID3, MnD 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, spicobush, 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	40
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 #6	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	2.34 acres	3.18 acres	1.54 acres
C. SOIL INFORMATION				
1. Soil Type	FkB2, EIC3, MgC2, MID3, MnD	FkF2, MID3, MnD, MnF	FkB2, 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, spicobush, Virginia creeper, Japanese honeysuckle, partridgeberry	Black walnut, sycamore, red maple, tuliptree, multiflora rose, spicobush, Japanese honeysuckle, stilt grass	Tuliptree, red maple, spicobush, Japanese honeysuckle, stilt grass, garlic mustard	Loblolly pine, tuliptree, red maple, spicobush, Japanese honeysuckle, Virginia creeper
E. STAND CHARACTERISTICS				
1. Size (DBH)	8"-16"	8"-28"	12"-36"	10"-24"
2. Age	40	40	40	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

Chad Edwards 1/12/09
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Hanna 1/18/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Thomas J. Suter 1/14/09
DIRECTOR, DEP. DATE

APPROVED PLANNING BOARD OF HOWARD COUNTY

DATE 1/13/09

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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 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 MARYLAND. LICENSE NUMBER: 26524, EXPIRATION DATE: 19 JULY, 2009.

GRIEVES WORRAL WRIGHT & O'HATNICK INCORPORATED

G | W
W | O

ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
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

Job No. 26154.10 DD/DF Drawn
Scale AS SHOWN DD/ZR Checked
Date December 29, 2008 ZR Approved
Drawing Title Drawing Number

FOREST STAND DELINEATION -SOUTH- **L1.1**

Sheet 21 of 37

NETTRACT 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	CA
0	0	0	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 afforestation 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:

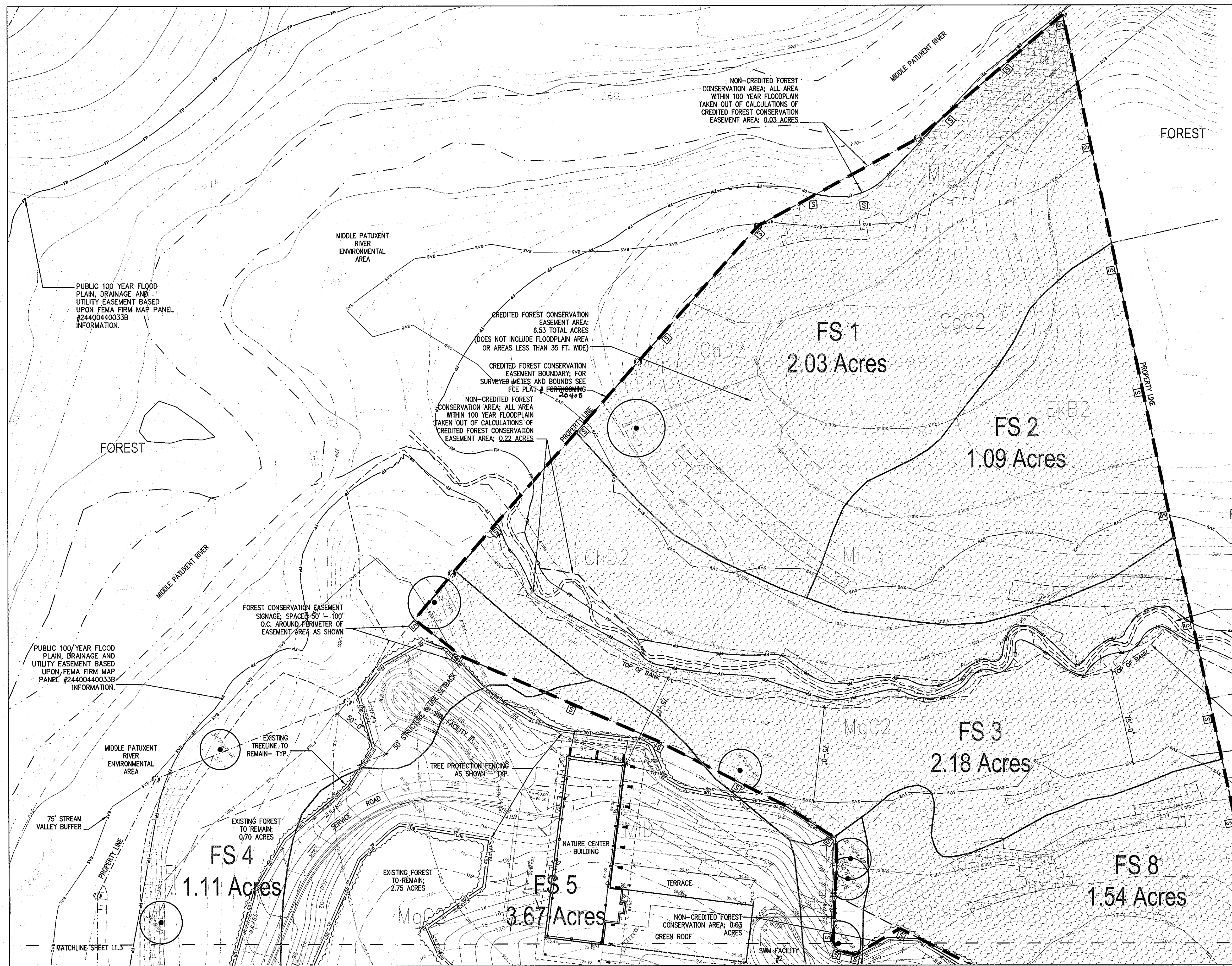
N. Reforestation for clearing above conservation threshold	2.58	0.0
P. Reforestation for clearing below conservation threshold	0.00	0.0
Q. Credit for retention above conservation threshold	2.93	0.0
R. Total reforestation required	0.00	0.0
S. Total afforestation required	0.00	0.00
T. Total reforestation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

FOREST CONSERVATION NOTES

- This Forest Conservation Plan (FCP) is a retention-only plan - no reforestation is required.
- 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.
- 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.
- 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.
- 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.

MAP KEY

- LIMIT OF DISTURBANCE LINE
- 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
- SVB = STREAM VALLEY BUFFER
- EXISTING SPECIMEN TREE TO REMAIN
- EXISTING SPECIMEN TREE WITH PARTIAL ROOT ZONE CLEARING
- ⊗ EXISTING SPECIMEN TREE TO BE REMOVED



Specimen Tree Table

Specimen Tree (ST) #	Common Name	Botanical Name	Size DBH	Condition
1*	Tuliptree	<i>Liriodendron tulipifera</i>	38"	Good
2*	Red Oak	<i>Quercus rubra</i>	39"/29"	Good
3*	Tuliptree	<i>Liriodendron tulipifera</i>	32"	Exc.
4*	Red Oak	<i>Quercus rubra</i>	34"	Good
5*	Green Ash	<i>Fraxinus pennsylvanicus</i>	30"	Fair
6***	Tuliptree	<i>Liriodendron tulipifera</i>	31"	Exc.
7*	Tuliptree	<i>Liriodendron tulipifera</i>	34"	Exc.
8*	Tuliptree	<i>Liriodendron tulipifera</i>	36"	Exc.
9*	Tuliptree	<i>Liriodendron tulipifera</i>	38"	Good
10***	Tuliptree	<i>Liriodendron tulipifera</i>	34"	Exc.
11***	Tuliptree	<i>Liriodendron tulipifera</i>	31"	Good
12***	Tuliptree	<i>Liriodendron tulipifera</i>	35"	Exc.
13***	Tuliptree	<i>Liriodendron tulipifera</i>	34"	Exc.
14***	Tuliptree	<i>Liriodendron tulipifera</i>	34"	Exc.
15**	Tuliptree	<i>Liriodendron tulipifera</i>	36"	Exc.
16**	Tuliptree	<i>Liriodendron tulipifera</i>	34"	Exc.
17*	Tuliptree	<i>Liriodendron tulipifera</i>	33"	Exc.
18*	Tuliptree	<i>Liriodendron tulipifera</i>	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 PLAN OF THE FCE WITH BEARINGS AND DISTANCES UNDER PLAT NO. 244040033B, 24408

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: *Clay Edwards*, 1/12/09
 Chief, Division of Land Development: *Cindy Hanna*, 1/13/09 vs
 Director, DEP: *Thomas E. Suttler*, 1/14/09

APPROVED PLANNING BOARD OF HOWARD COUNTY
 DATE: 1/13/09 vs

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ADTEK ENGINEERS, INC.
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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 SEDIMENTATION BY THE HOWARD SOIL CONSERVATION DISTRICT

HOWARD SCD DATE: _____

Seal:

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED

G | W
W | O

ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1009

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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 MARYLAND. LICENSE NUMBER: 20524 - EXPIRATION DATE: 19 JULY, 2009.

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

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

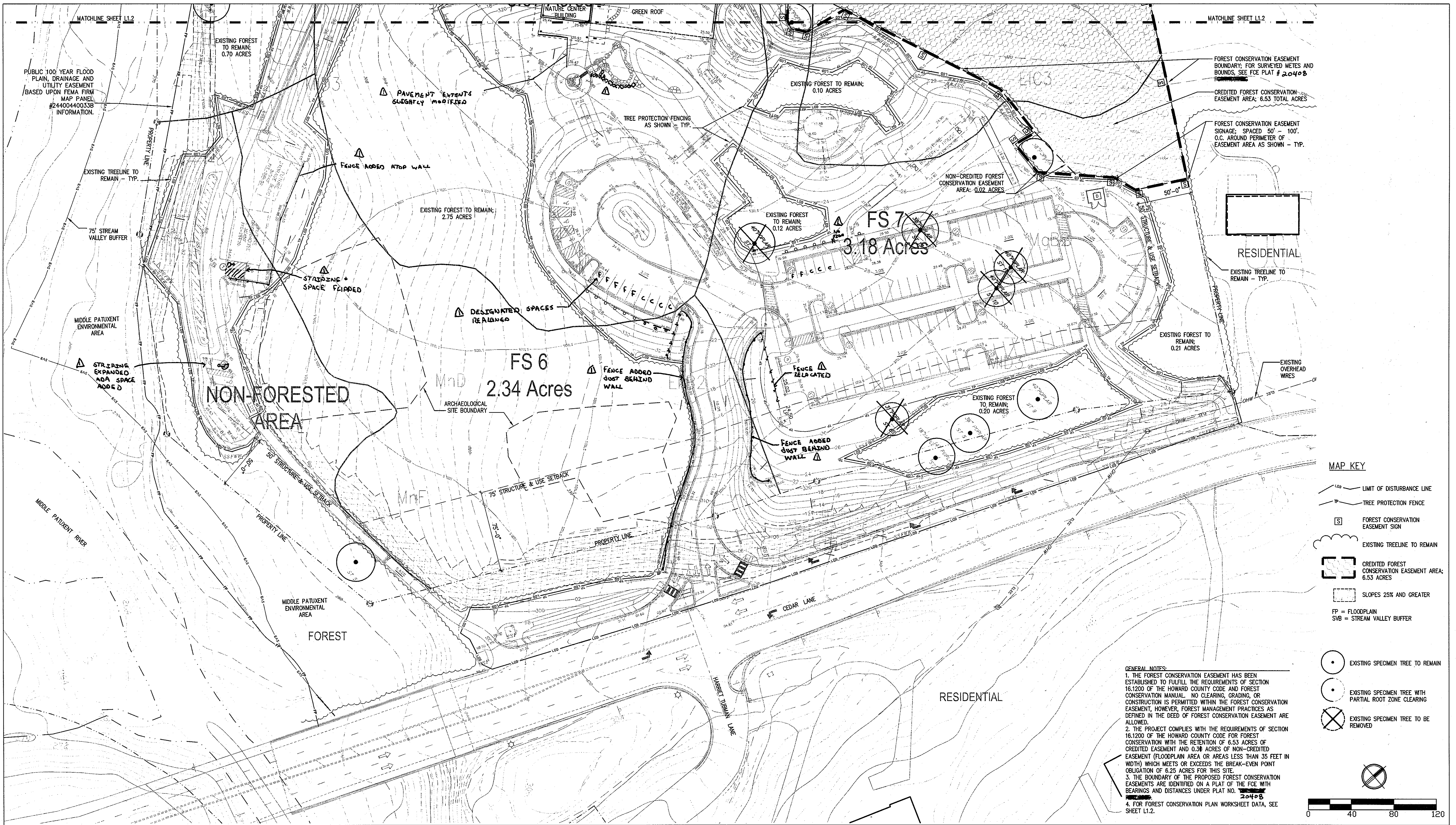
Revisions:

No.	Date	Description

Drawing Title: **FOREST CONSERVATION PLAN - NORTH**
Drawing Number: **L1.2**

Sheet 22 of 37

SDP-09-02

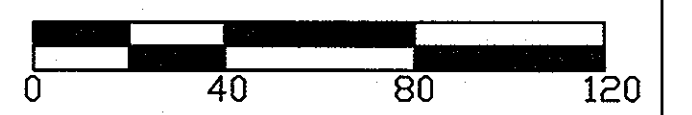


MAP KEY

- LIMIT OF DISTURBANCE LINE
- 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 SVB = STREAM VALLEY BUFFER
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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. 2040B.
4. FOR FOREST CONSERVATION PLAN WORKSHEET DATA, SEE SHEET L1.2.



APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cheryl Edwards 1-12-09
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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

Monica S. Butler 1/14/09
DIRECTOR, DEP. DATE

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 1/13/09

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REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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HOWARD SCD DATE

Seal:

1 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 MARYLAND. LICENSE NUMBER: 26524, EXPIRATION DATE: 19 JULY, 2009.

GRIEVES WORRALL WRIGHT & CHATNICK INCORPORATED

G | W
W | O

ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
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 Follo: 160

Job No.	26154.10	DD/DF	Drawn
Scale	AS SHOWN	DD/ZR	Checked
Date	December 29, 2008	ZR	Approved
Drawing Title	FOREST CONSERVATION PLAN -SOUTH-		
Sheet	23	37	of

Revisions:

No.	Date	Description
1	6-1-09	FENCE, SIDEWALK, HC PARKING, PARKING

Sheet 23 of 37

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 trees 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 a case.

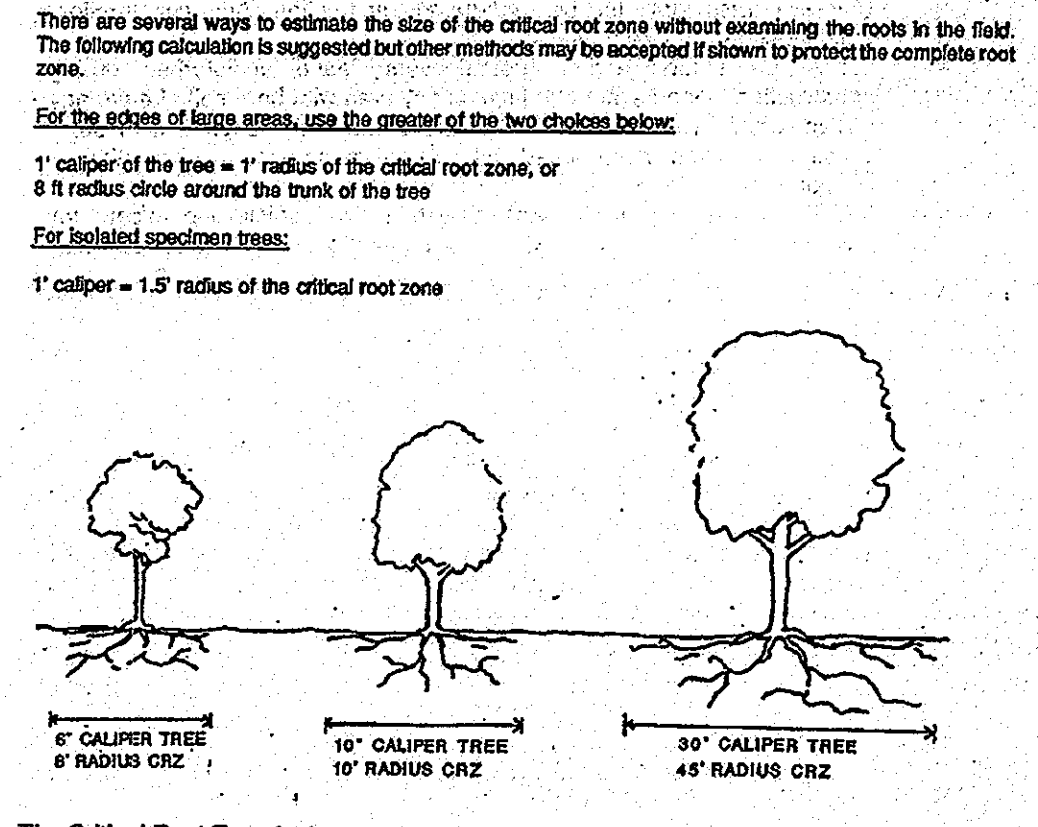
There are several ways to estimate the size of the critical root zone without examining the roots in the field. The following calculation is suggested but other methods may be accepted if shown to protect the complete root zone.

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
6 ft radius circle around the trunk of the tree

For isolated specimen trees:

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

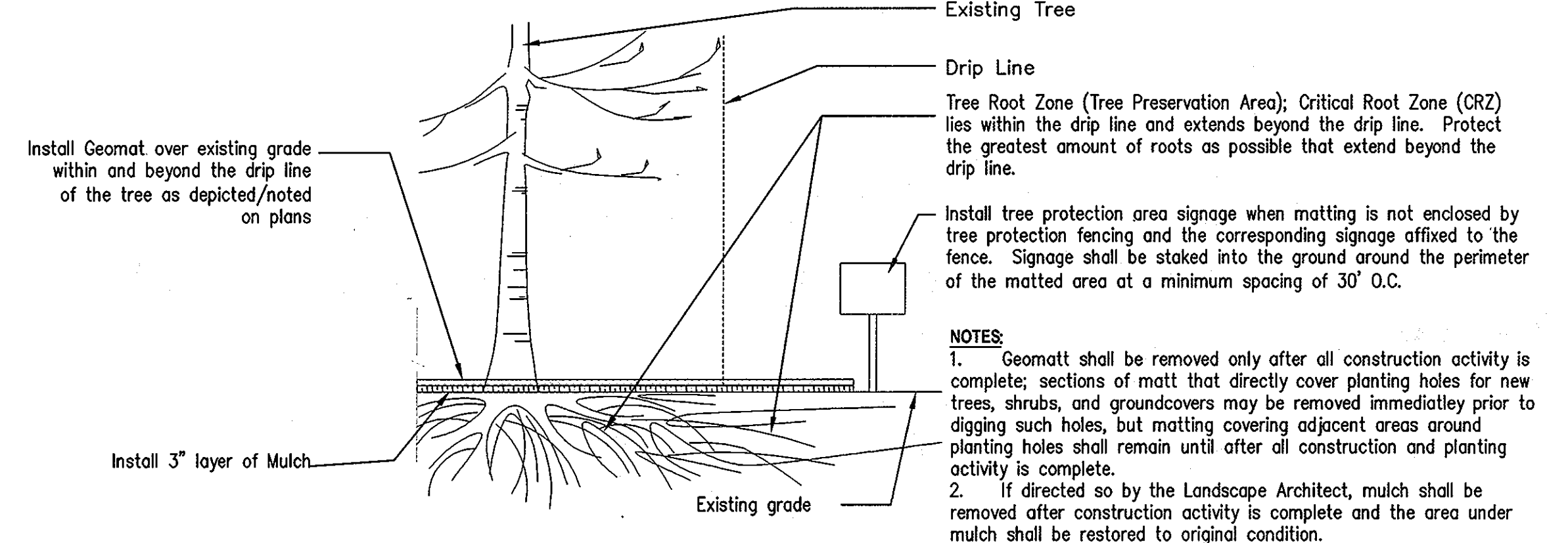


NOTES:

1. Disposing of construction debris within Tree Preservation Areas is prohibited. No construction materials or equipment/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 directed by Landscape Architect. Immediately after planting, fencing shall be re-installed and remain in place until all construction activity is complete.

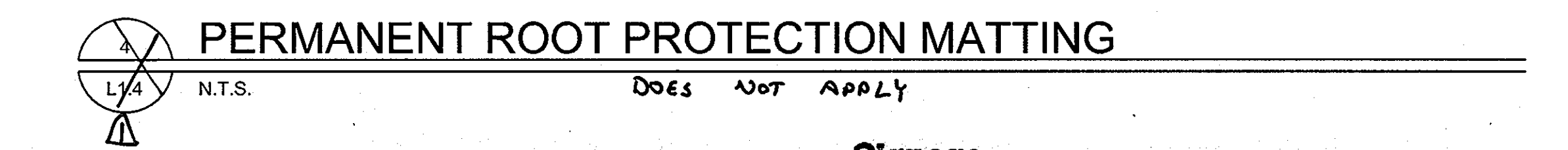
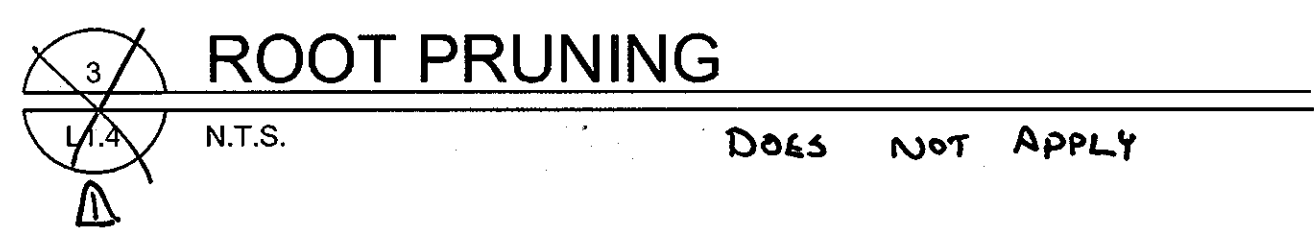
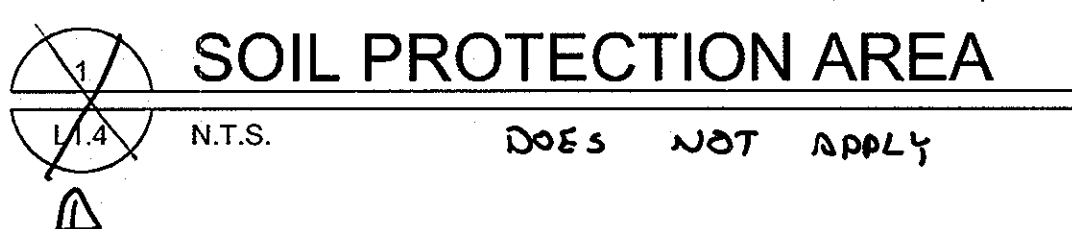
NOTES:

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 be 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 necessarily occur along entire length/all runs of tree protection fencing. Only root prune in certain locations as noted/depicted on drawing L1.2 & L1.3.



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 immediately 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.



SOIL PROTECTION AREA
N.T.S. DOES NOT APPLY

FOREST PROTECTION FENCE
L1.4 N.T.S.

ROOT PRUNING
N.T.S. DOES NOT APPLY

PERMANENT ROOT PROTECTION MATTING
L1.4 N.T.S. DOES NOT APPLY

SOIL PROTECTION AREA
N.T.S. DOES NOT APPLY

FOREST PROTECTION FENCE
L1.4 N.T.S.

ROOT PRUNING
N.T.S. DOES NOT APPLY

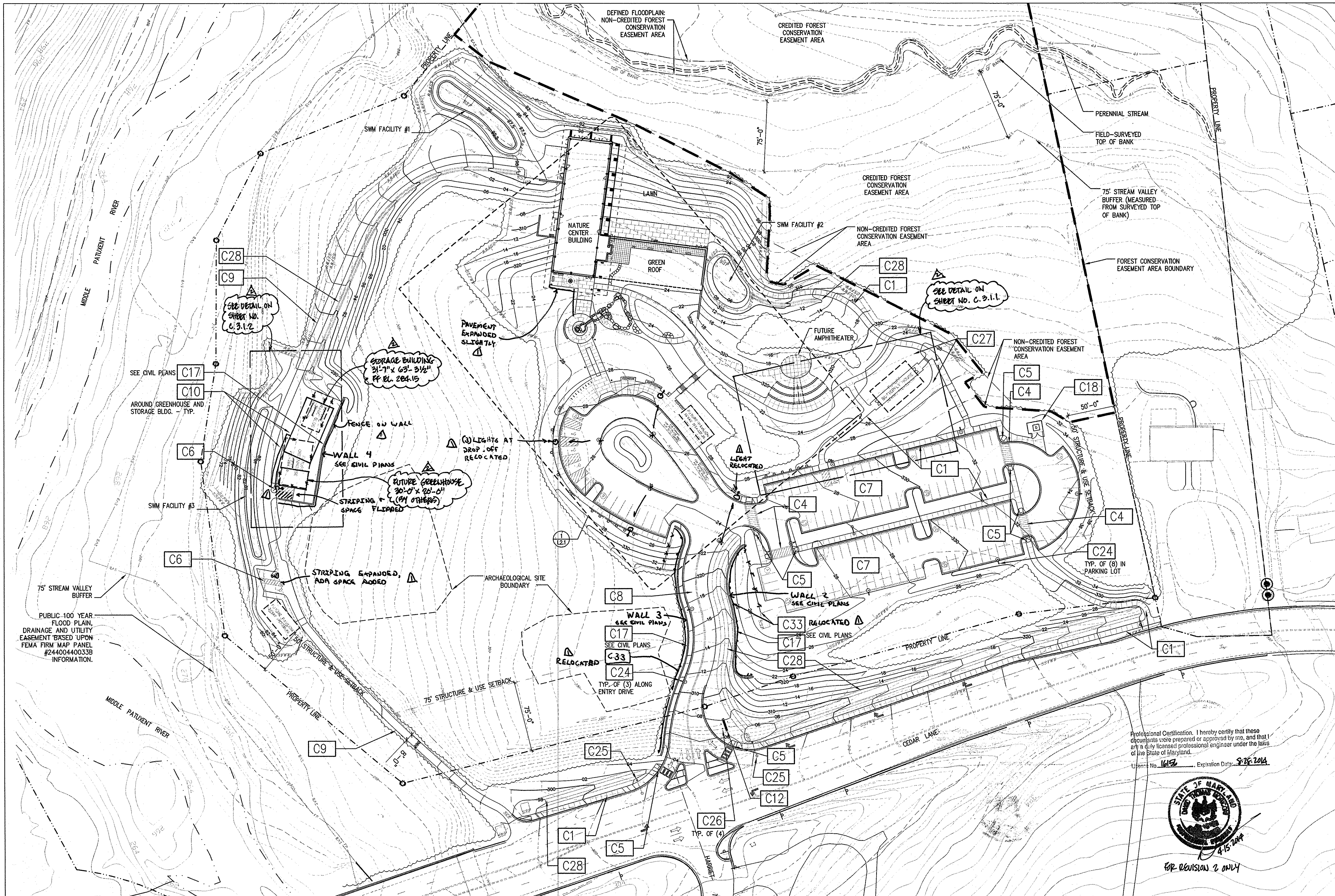
PERMANENT ROOT PROTECTION MATTING
L1.4 N.T.S. DOES NOT APPLY

APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 11/13/08

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
DATE: 11/13/08

Seal: G | W
W | O
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1009
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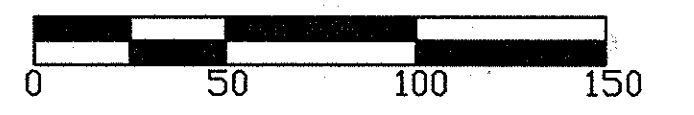
OWNER/APPLICANT
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161



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 DETAILS/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 NOTED 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

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. 16132 Expiration Date: 8/25/2014



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 1-12-9
 1/13/09
 1/14/09

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.adtekengeers.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 MARYLAND. LICENSE NUMBER: 28524, EXPIRATION DATE: 19 JULY, 2009.

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED
G | W
W | O
 ARCHITECTS
 800 WYMAN PARK DRIVE, SUITE 300
 BALTIMORE, MARYLAND 21211, 410-332-1009
 © 2008 GWWO INC.

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
 Election District No. 5
 Howard County, Maryland
 6692 Cedar Lane
 Tax Map 35 Parcel 87 Liber: 8997 Folio: 160
 Job No. 26154.10 DD/DF
 Scale AS SHOWN DD/ZR
 Date December 29, 2008 ZR
 Drawing Title LANDSCAPE CONSTRUCTION PLAN - OVERALL
 Drawing Number L2.0
 Sheet 25 of 37
 SDP-09-02

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

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

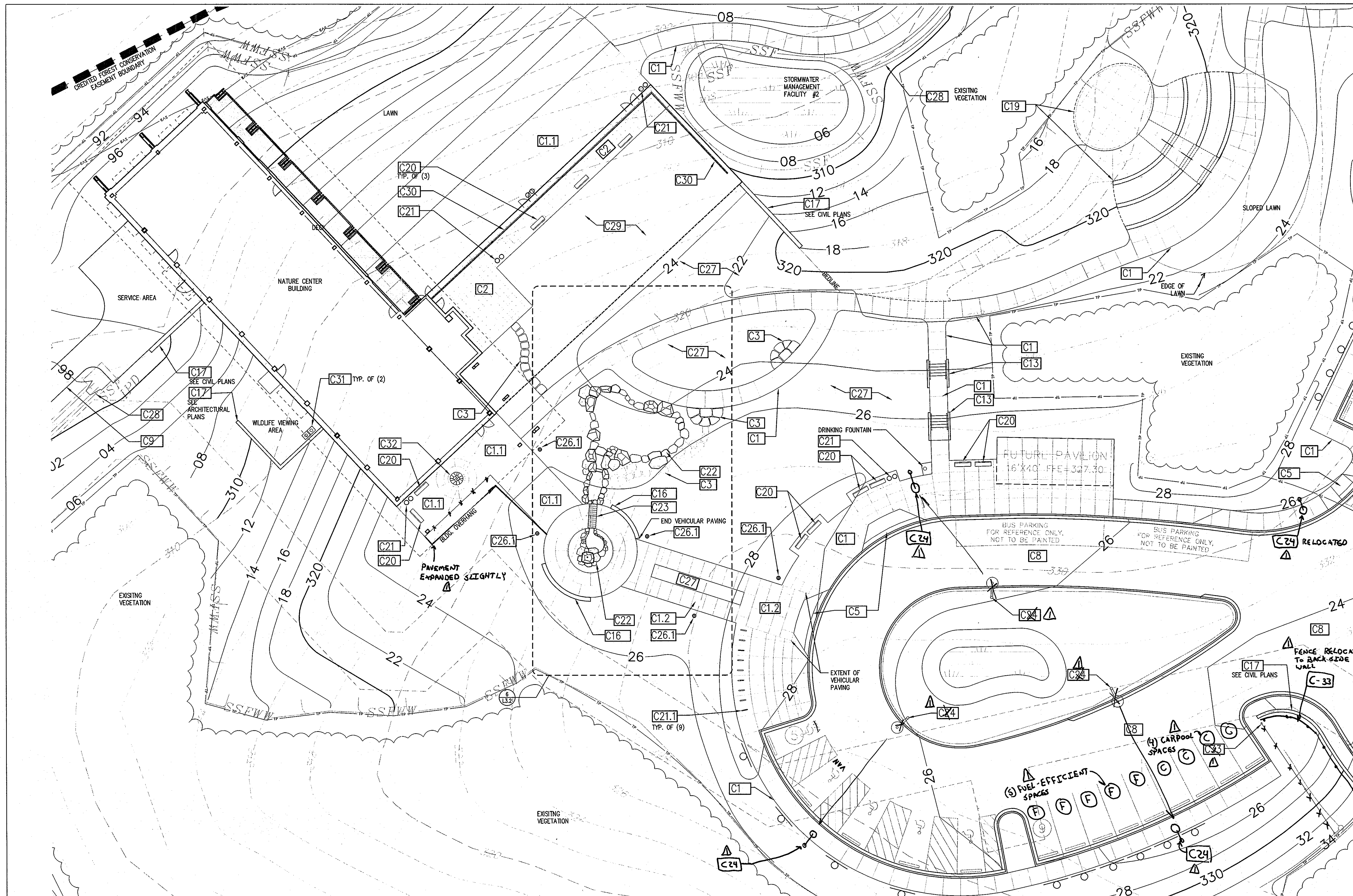
I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NUMBER: 28524, EXPIRATION DATE: 19 JULY, 2009.

ARCHITECTS
 800 WYMAN PARK DRIVE, SUITE 300
 BALTIMORE, MARYLAND 21211, 410-332-1009
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CAPITAL PROJECT NUMBER: N39-60

Revisions:

No.	Date	Description
1	6-1-09	FOOD, SEWER, ETC SPACES, LIGHTS, WALL CALIBRATIONS
2	4-15-10	ADDED REFERENCE NOTES

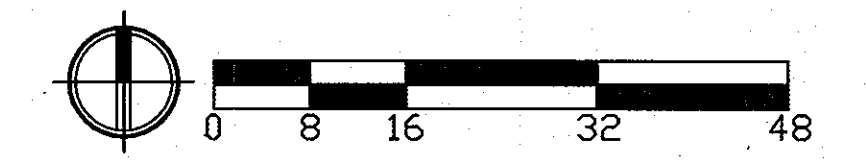


CONSTRUCTION NOTES

- 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 STEPPING 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 NOTED FOR MATERIALS AND DESIGN.
- C18 NOTE NOT USED ON THIS SHEET.
- C19 AMPHITHEATER; FUTURE CONSTRUCTION.
- C20 BENCH; SEE DETAIL 2/L3.1.
- C21 TRASH / RECYCLING RECEPTACLE; SEE DETAIL 3/L3.1.
- C21.1 INVERTED 'U' BIKE RACK; SEE DETAIL 8/L3.0.
- 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



APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards 1-12-9
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Condy Harris 1/13/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Monica S. Suller 1/14/09
DIRECTOR, DEP. DATE

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 1/13/09

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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

APPROVED 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 MARYLAND. LICENSE NUMBER: 26924, EXPIRATION DATE: 19 JULY, 2009.

GRIEVES WORRAL WRIGHT & OHATNICK INCORPORATED

G | W
W | O

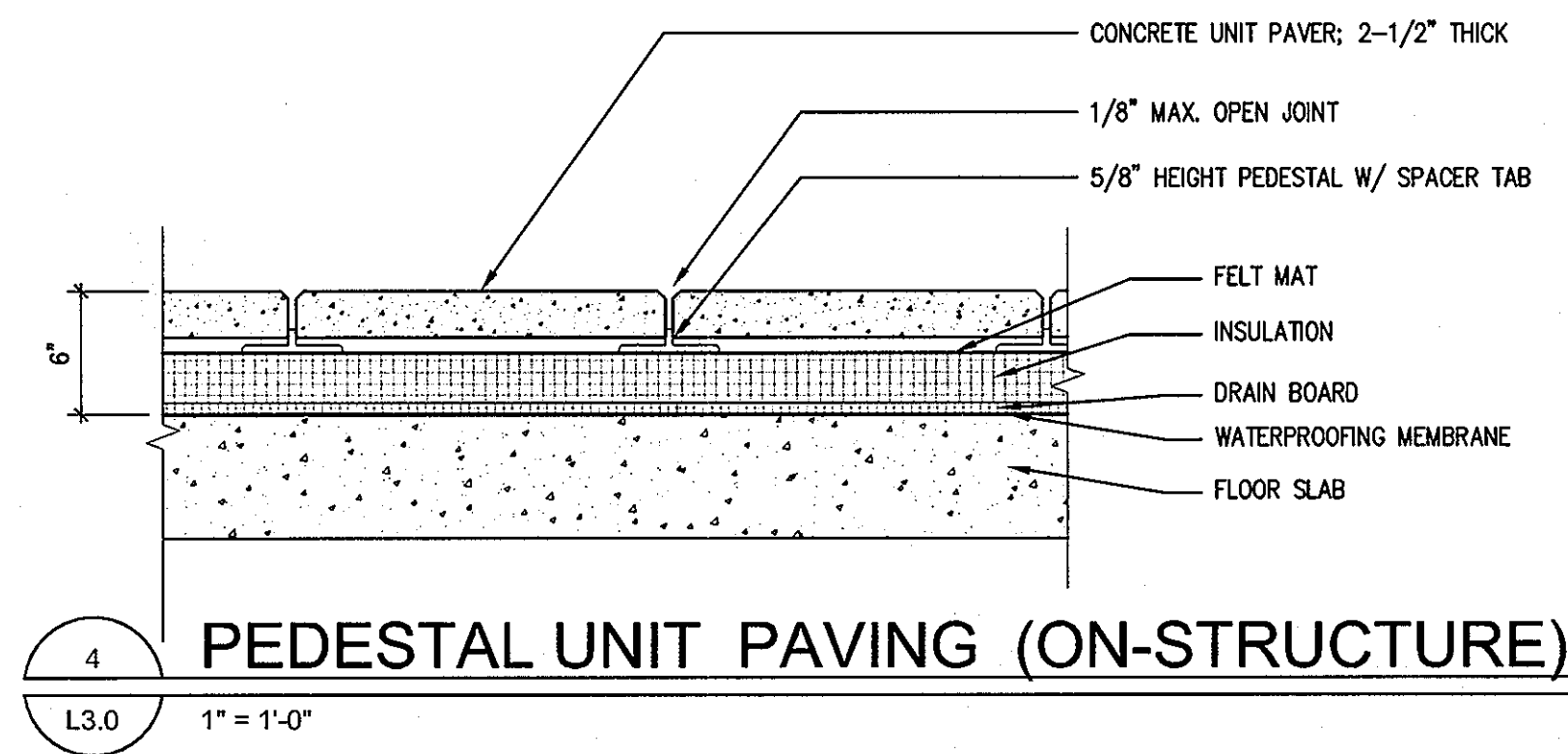
ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1009

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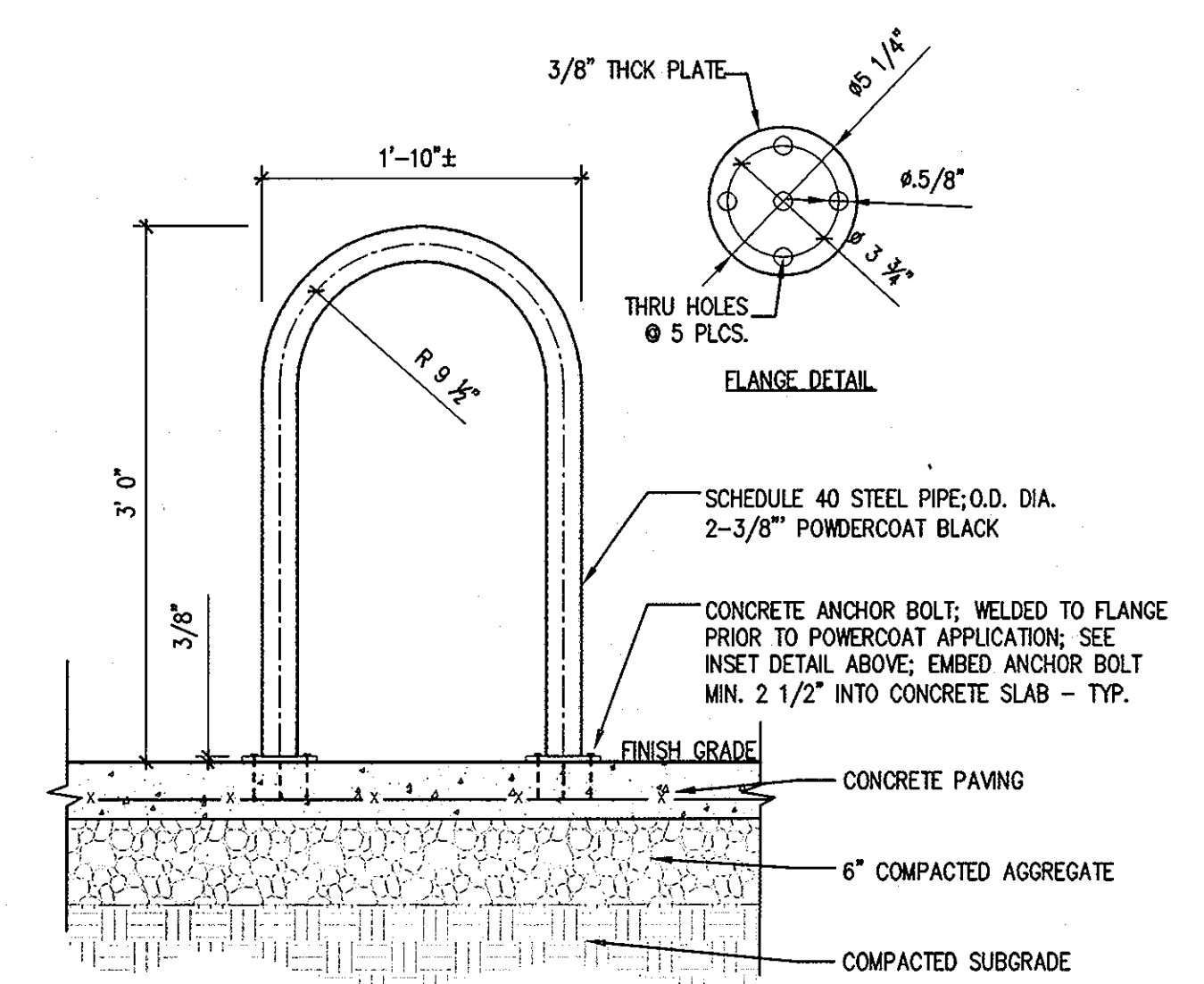
OWNER / APPLICANT
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MARYLAND 21045
ATTN: ABEYE GIRMA
TEL: 410.313.6143 FAX: 410.313.6161

CAPITAL PROJECT NUMBER: N39-60

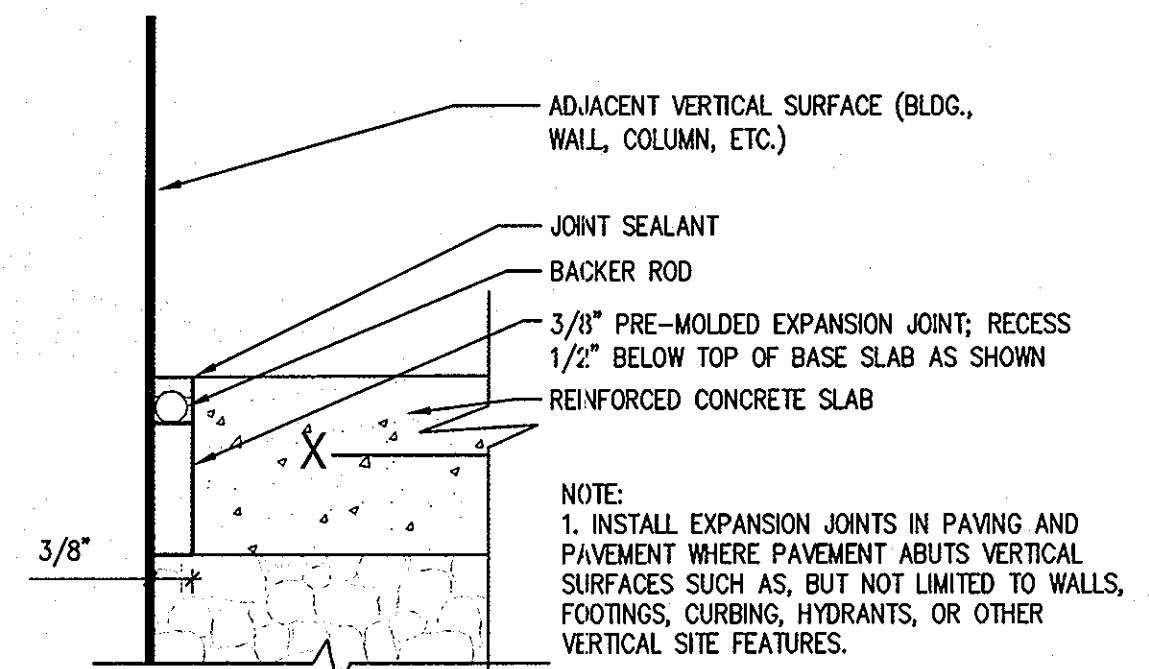
Project Title		Robinson Nature Center	
6692 Cedar Lane		Election District No. 5	
Howard County, Maryland			
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160		Job No.	26154.10
		Scale	AS SHOWN
Revisions:		Date	December 29, 2008
No.	Date	Description	DD/DF Drawn
1	5-1-09	LIGHTS, PARKING SPACES, SIDEWALK	DD/ZR Checked
		Drawing Title	ZR Approved
		HARDSCAPE CONSTRUCTION ENLARGEMENT	Drawing Number
		Sheet	26 37
			L2.1



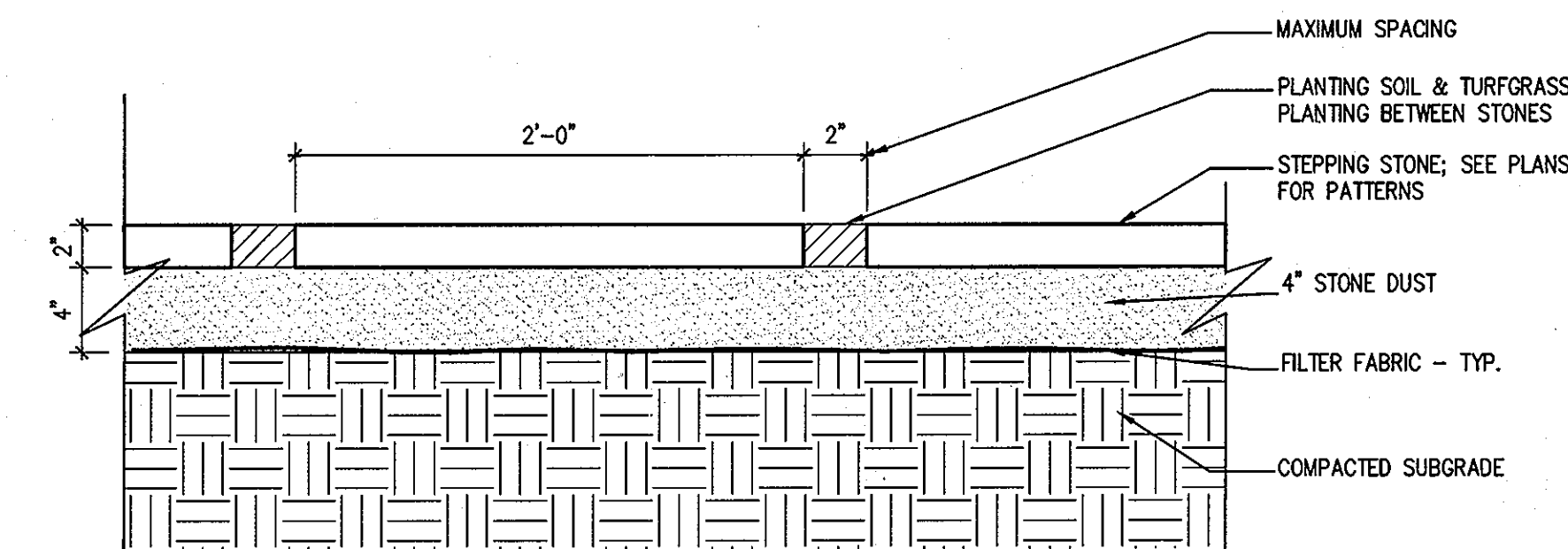
4 PEDESTAL UNIT PAVING (ON-STRUCTURE)
L3.0 1" = 1'-0"



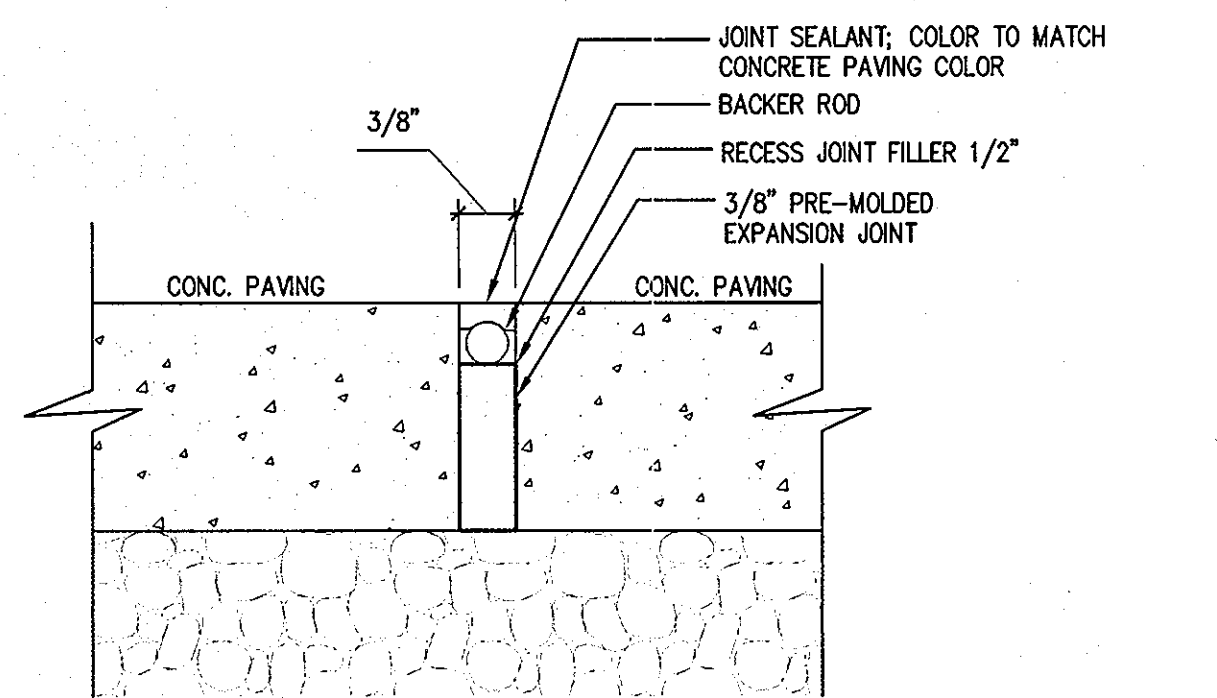
8 BIKE RACK - SURFACE MOUNTED
L3.0 1" = 1'-0" OR APPROVED EQUAL



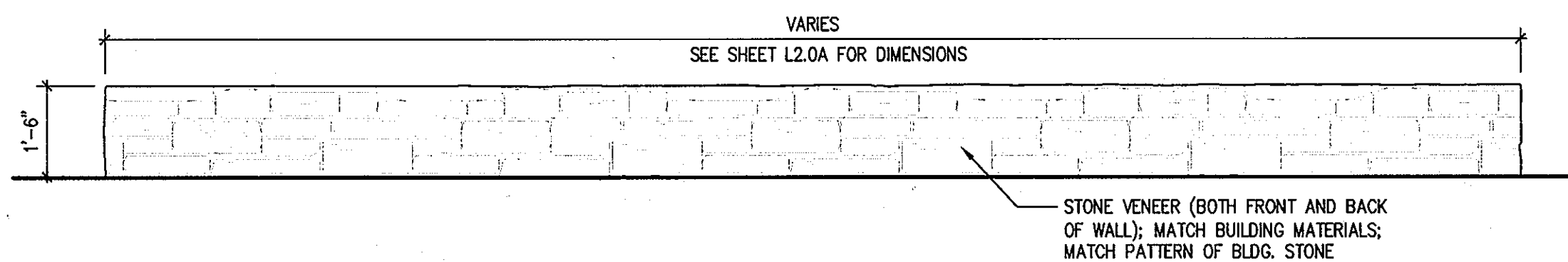
1 EXPANSION JOINT
L3.0 3" = 1'-0" ABUTTING VERTICAL SURFACE



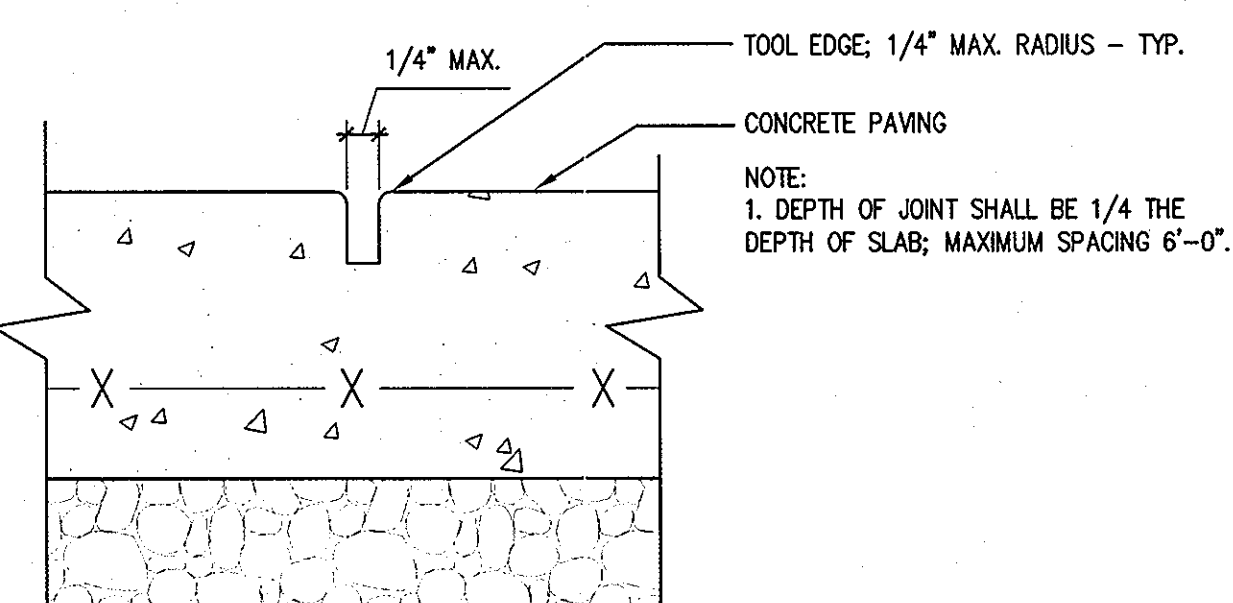
5 STEPPING STONES
L3.0 1-1/2" = 1'-0"



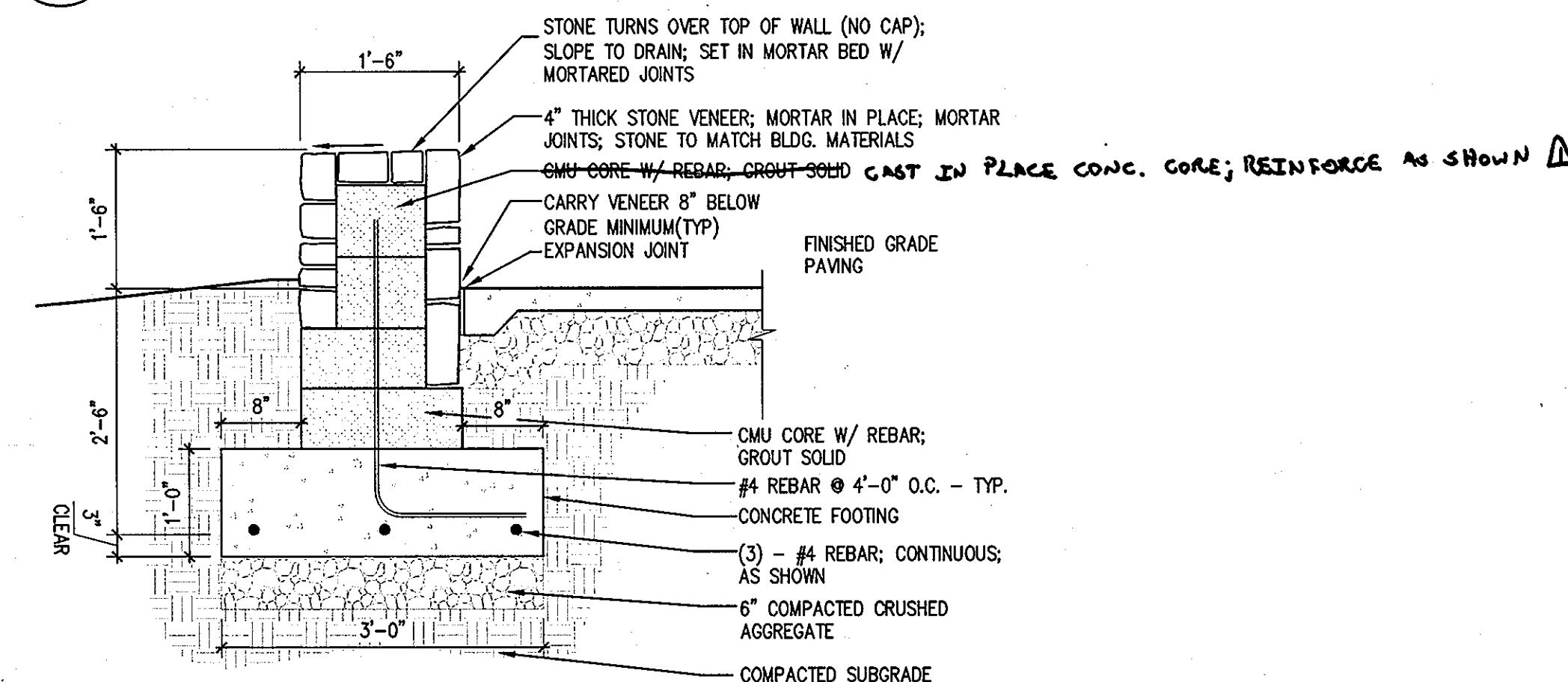
2 EXPANSION JOINT
L3.0 3" = 1'-0" IN CONCRETE SIDEWALKS



6 RADIAL MASONRY VENEER SEATWALL - ELEVATION
L3.0 1/2" = 1'-0"



3 SCORE JOINT
L3.0 3" = 1'-0"

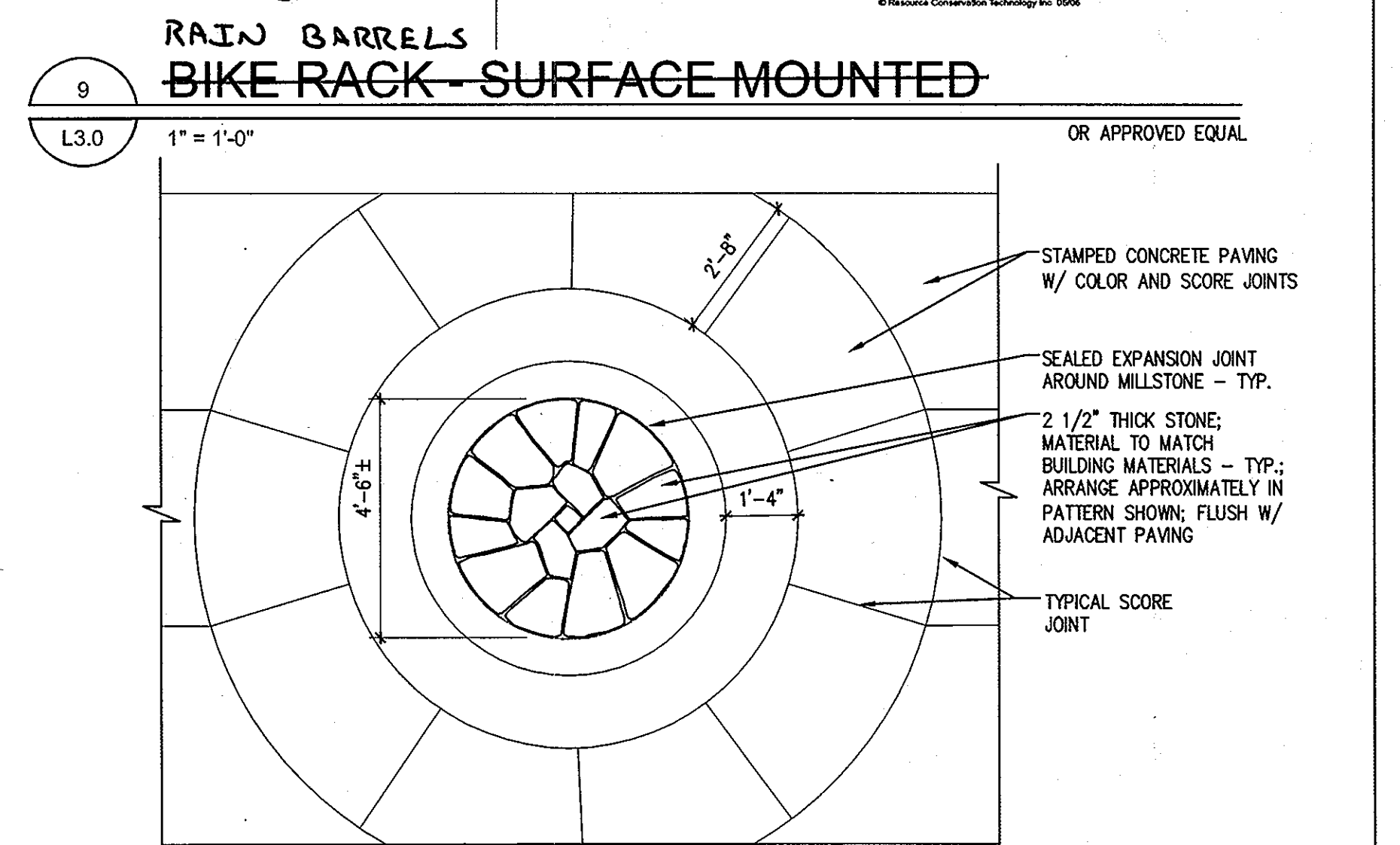


7 RADIAL MASONRY VENEER SEATWALL
L3.0 3/4" = 1'-0"

Rain Box
Water Filtration and Storage System

- 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

75 GALLON STORAGE CAPACITY



10 STONE MILLSTONE INSET IN PAVING
L3.0 3/8" = 1'-0" OR APPROVED EQUAL

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division
1-12-09

Chief, Division of Land Development
1/13/09

Director, DEP.
1/14/09

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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:
Professional Engineer
State of Maryland
1970

GRIEVES WORRALL WRIGHT & OHATNICK
INCORPORATED

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ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 200
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

Project Title
Robinson Nature Center

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

Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

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

Revisions:
No. Date Description
1 5-1-09 DETAIL CORRECTION

Drawing Title
HARDSCAPE DETAILS

Sheet 27 37 OF

L3.0

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 1/13/09

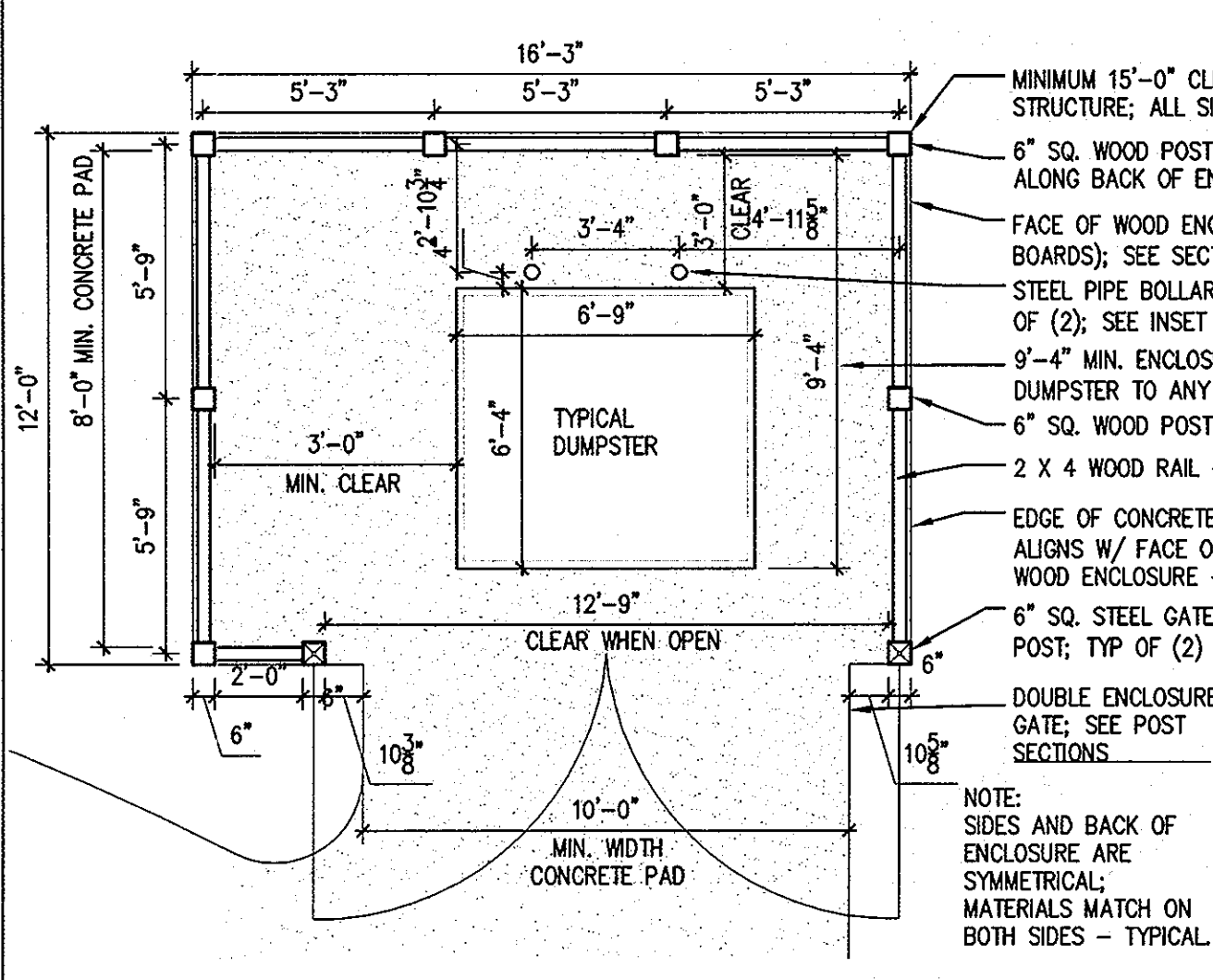
REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

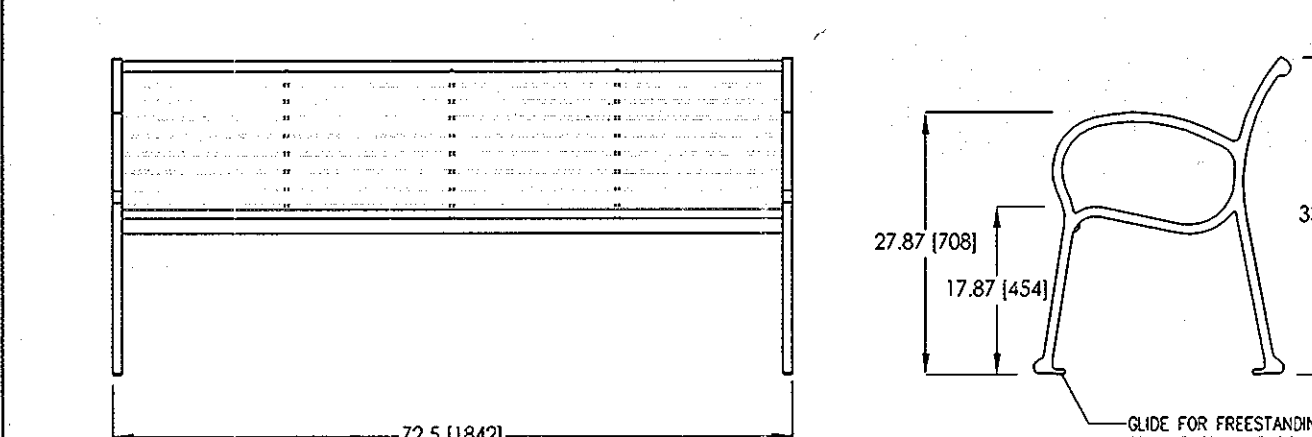
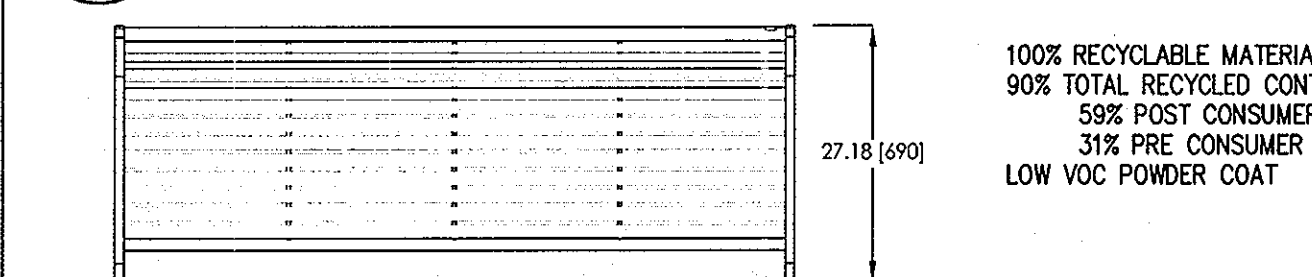
HOWARD SCD DATE

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 MARYLAND, LICENSE NUMBER: 26224, EXPIRATION DATE: 19 JULY, 2009.

CAPITAL PROJECT NUMBER: N39-60

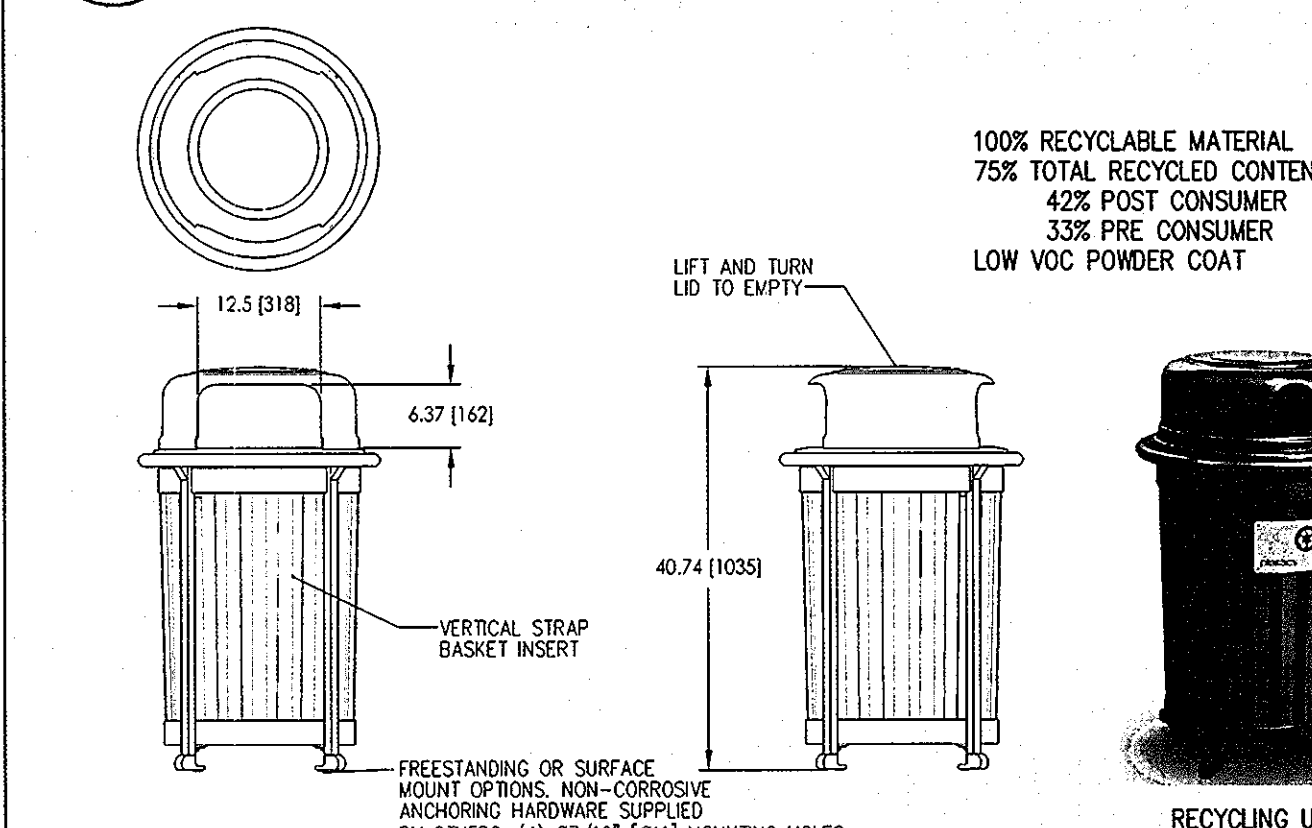


1 DUMPSTER ENCLOSURE - PLAN
L3.1 1/4" = 1'-0"



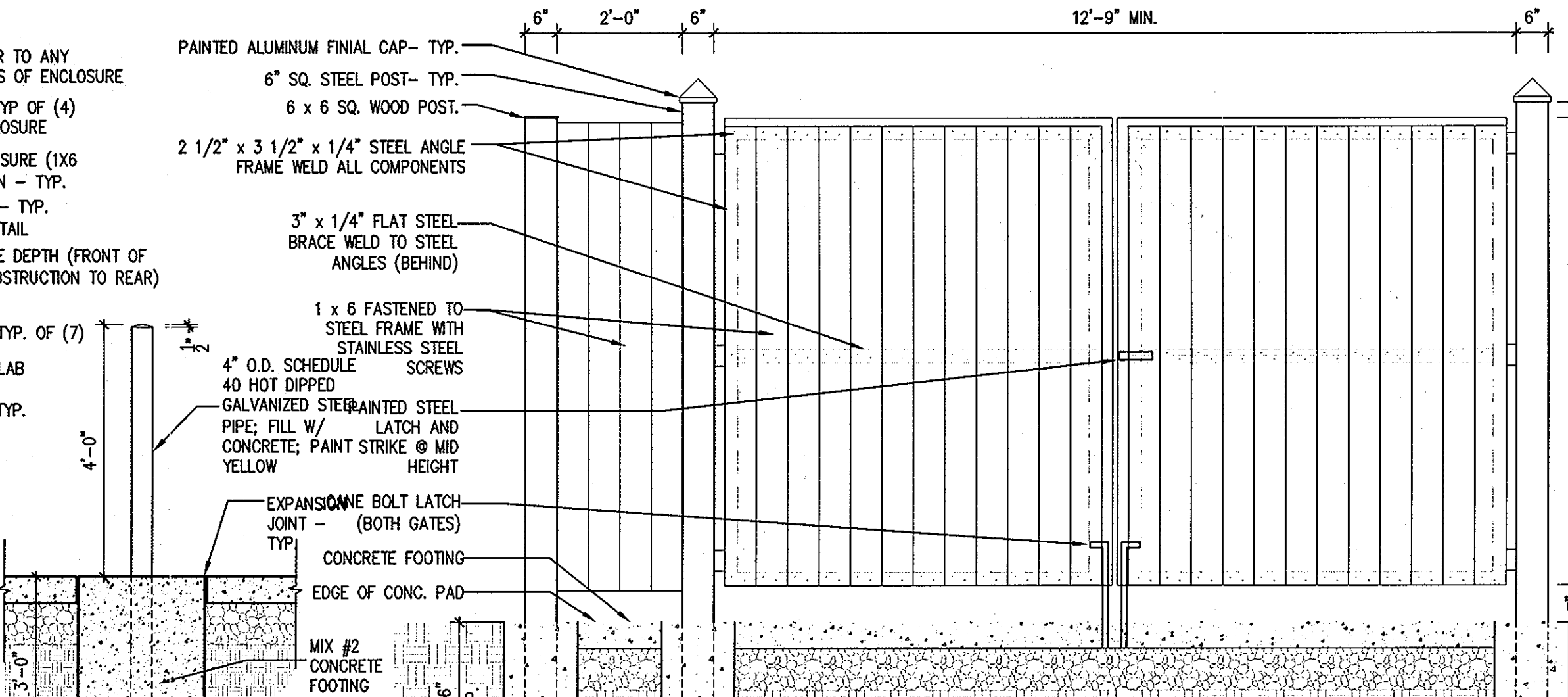
landscapeforms
431 LAMARDA AVE. KALAMAZOO, MI 49048
PHONE: 800-521-5446 FAX: 269-381-3455
DESIGN GROUP: SCARBOROUGH*
DESCRIPTION: BACKED BENCH, 72\"/>

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

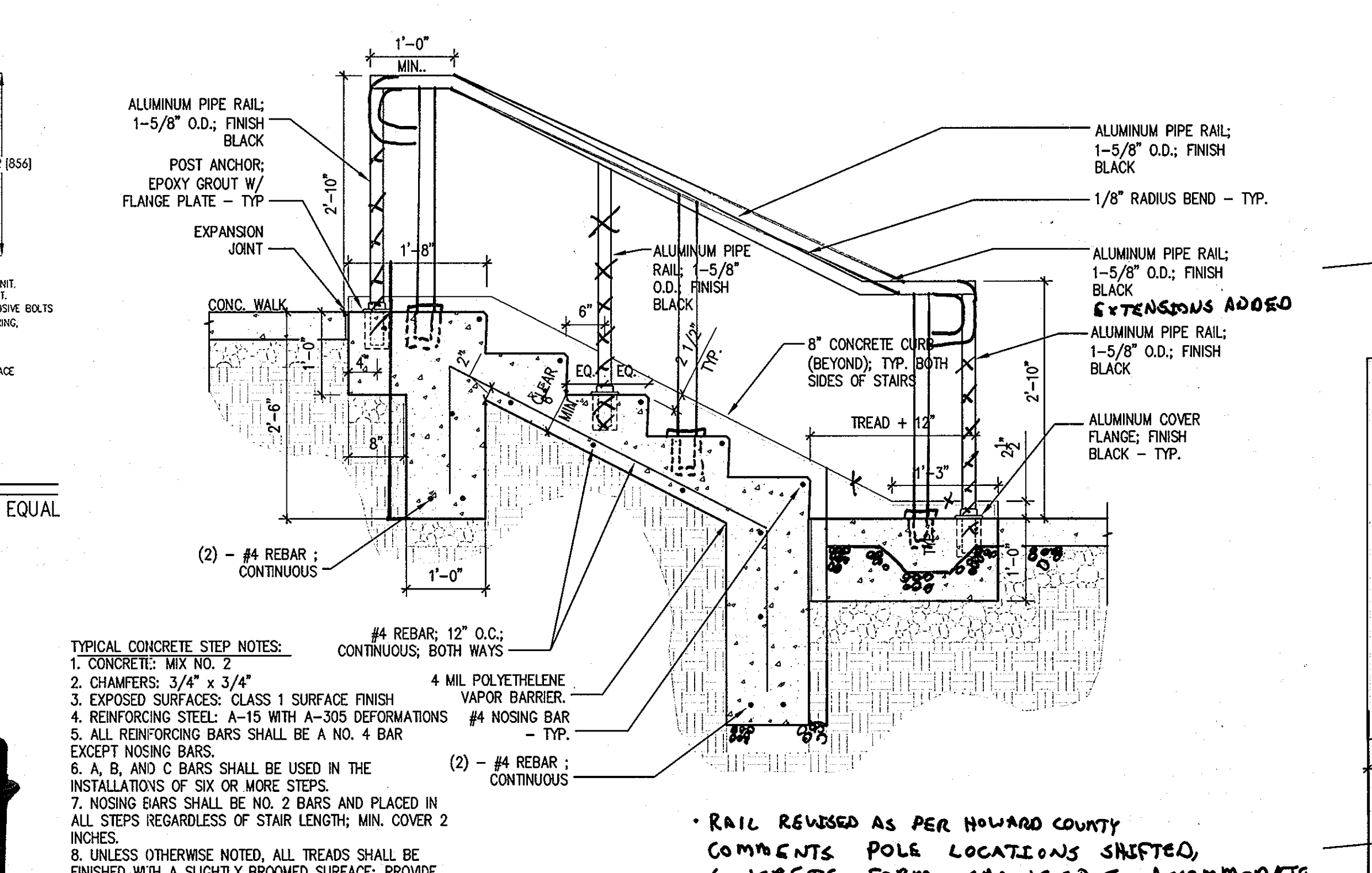


landscapeforms
431 LAMARDA AVE. KALAMAZOO, MI 49048
PHONE: 800-521-5446 FAX: 269-381-3455
DESIGN GROUP: SCARBOROUGH*
DESCRIPTION: UTTER, SIDE OPENING, STRAP MOUNT, HORIZONTAL STRAP
PATENT: FILE: SC78-01 DATE: 6/23/2006 DRAWN BY: JTB/ALG DIMENSIONS ARE IN INCHES(MM)

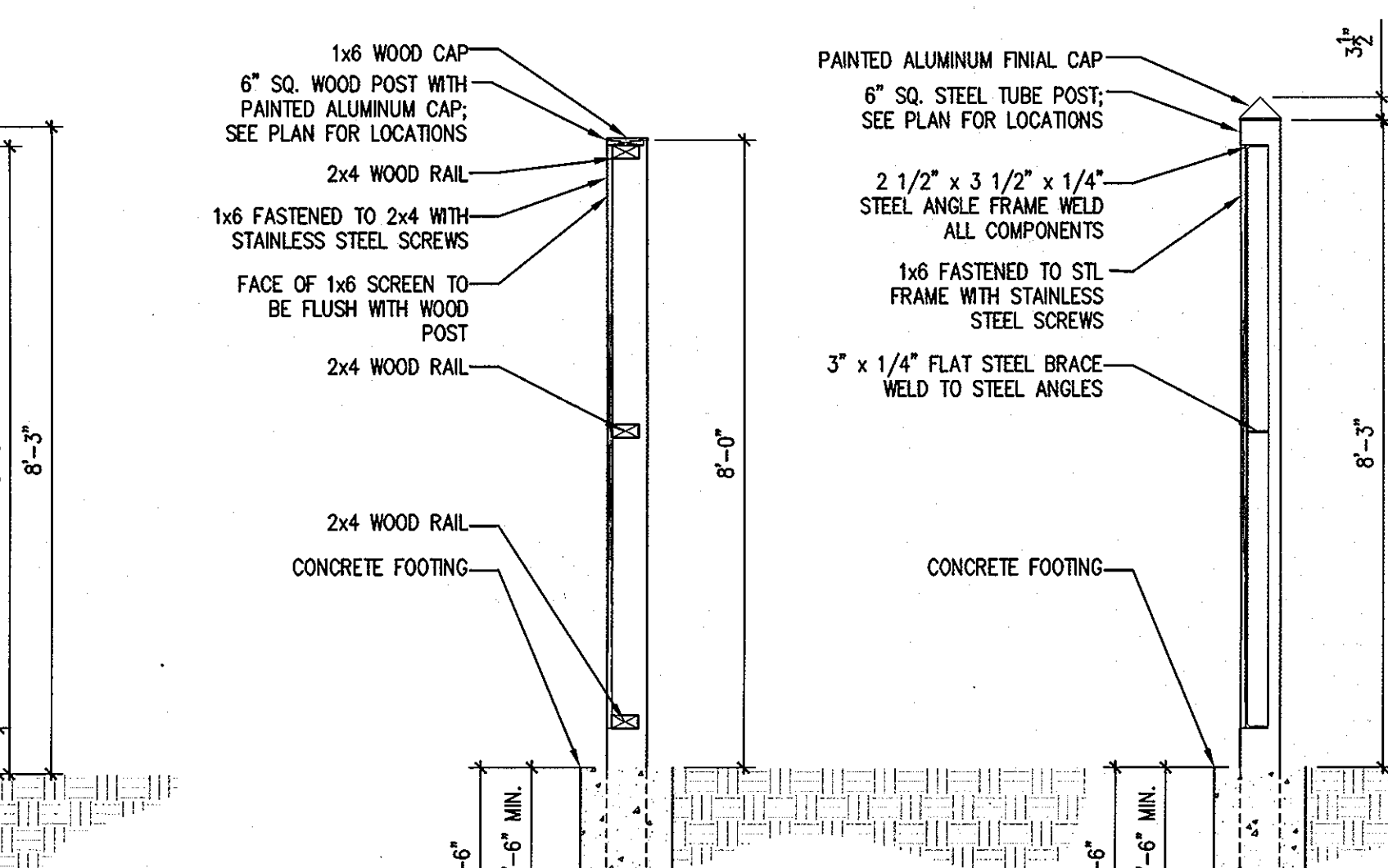
3 TRASH RECEPTACLE
L3.1 N.T.S. OR APPROVED EQUAL



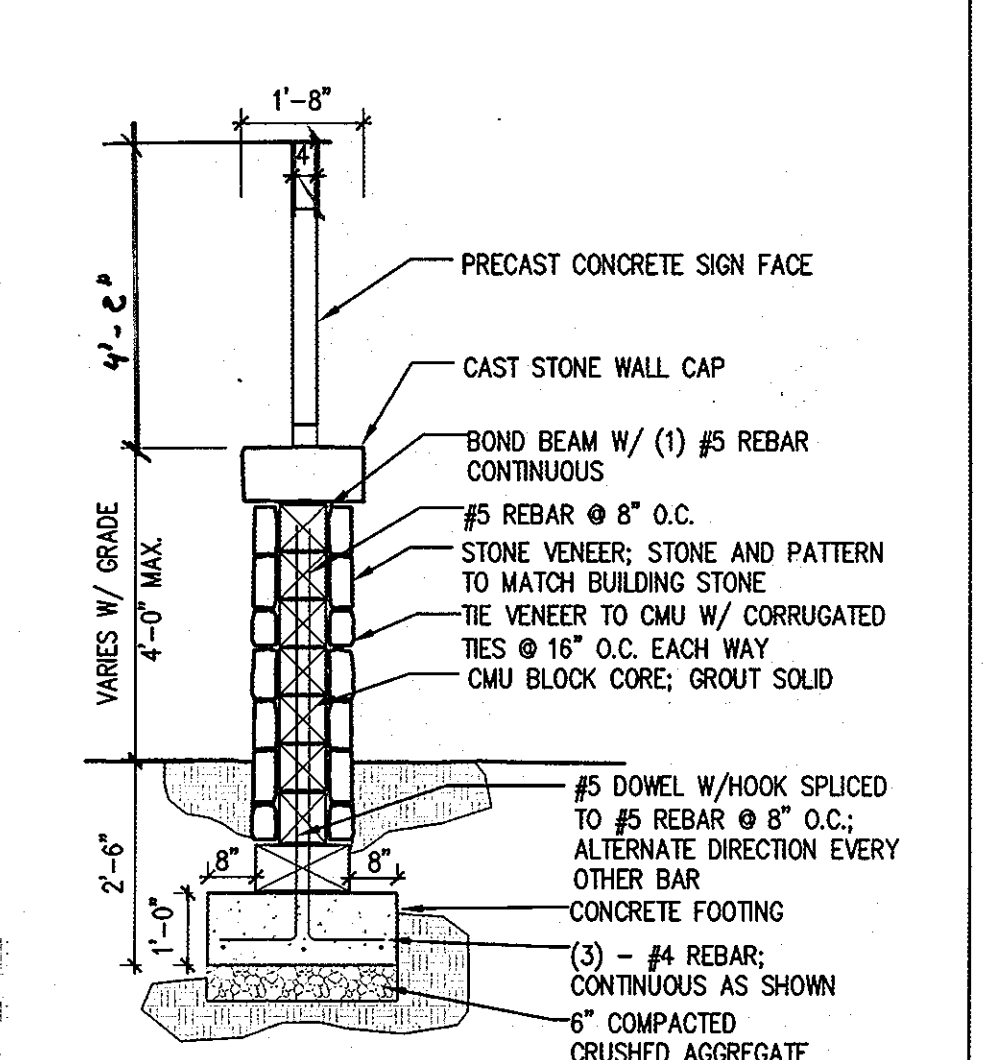
4 DUMPSTER ENCLOSURE - GATE ELEVATION
L3.1 1/2" = 1'-0"



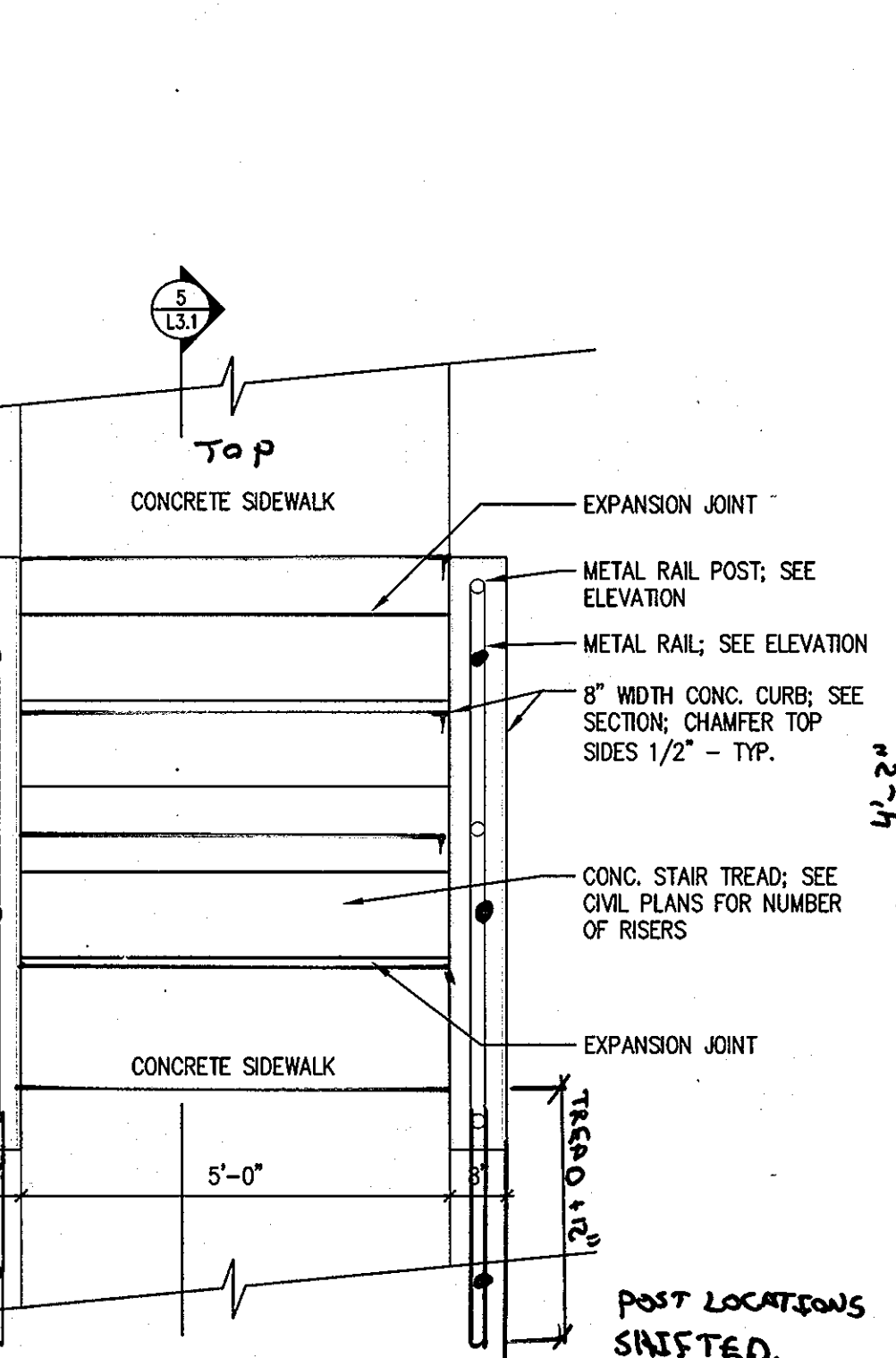
5 CONCRETE STAIRS W/ METAL HANDRAIL - TYP.
L3.1 3/4" = 1'-0"



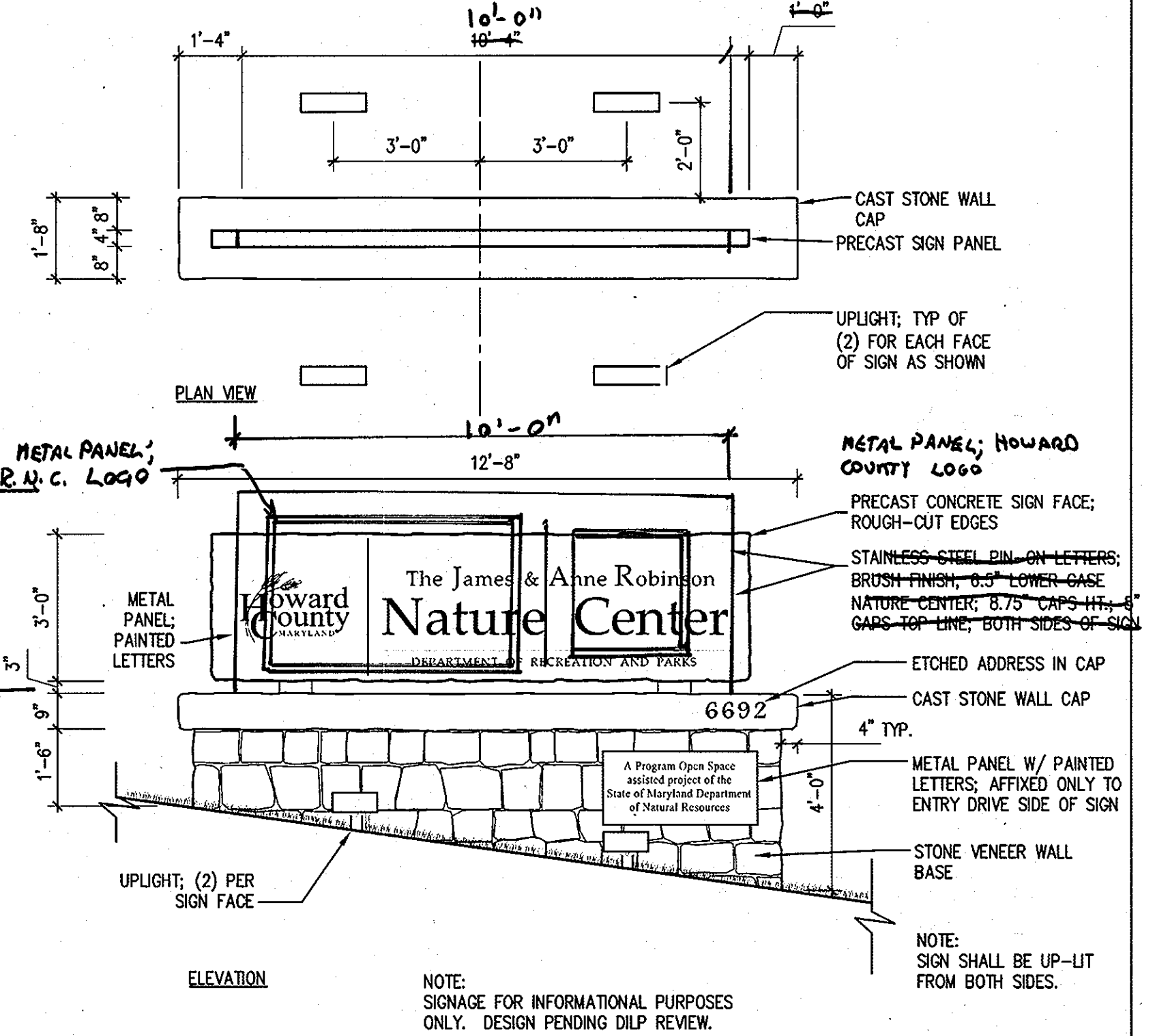
6 DUMPSTER ENCLOSURE - POST SECTIONS
L3.1 1/2" = 1'-0"



8 MONUMENT ENTRY SIGN
L3.1 3/8" = 1'-0"



7 CONCRETE STAIRS - PLAN
L3.1 3/4" = 1'-0"



9 MONUMENT ENTRY SIGN - ELEVATION
L3.1 3/8" = 1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chad Edwards 1.12.09
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
Andy Hester 1/12/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
Thomas E. Suter 1/14/09
DIRECTOR, DEP. DATE

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ARCHITECTURE LANDSCAPE ARCHITECTURE PLANNING INTERIOR DESIGN
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Seal:
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ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 200
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

Project Title
Robinson Nature Center
6692 Cedar Lane Election District No. 5 Howard County, Maryland
Tax Map 35 Parcel 87 Liber: 8997 Follo: 160 Job No. 26154.10 DD/DF Drawn
Scale AS SHOWN DD/ZR Checked
Date December 29, 2008 ZR Approved
Drawing Title Drawing Number
HARDSCAPE DETAILS L3.1
Sheet 28 37 OF

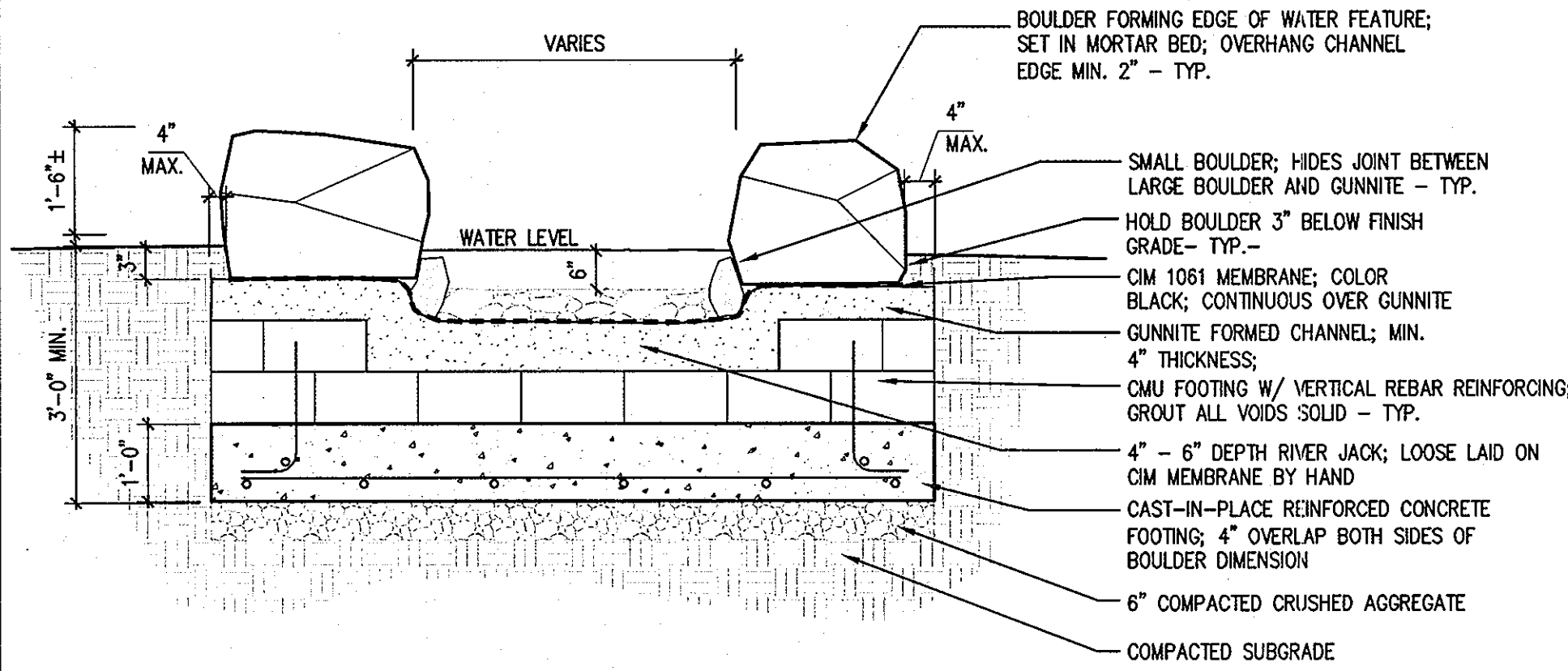
APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 1/12/09
1/12/09

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

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 MARYLAND. LICENSE NUMBER: 38504, EXPIRATION DATE: 19 JULY, 2009.

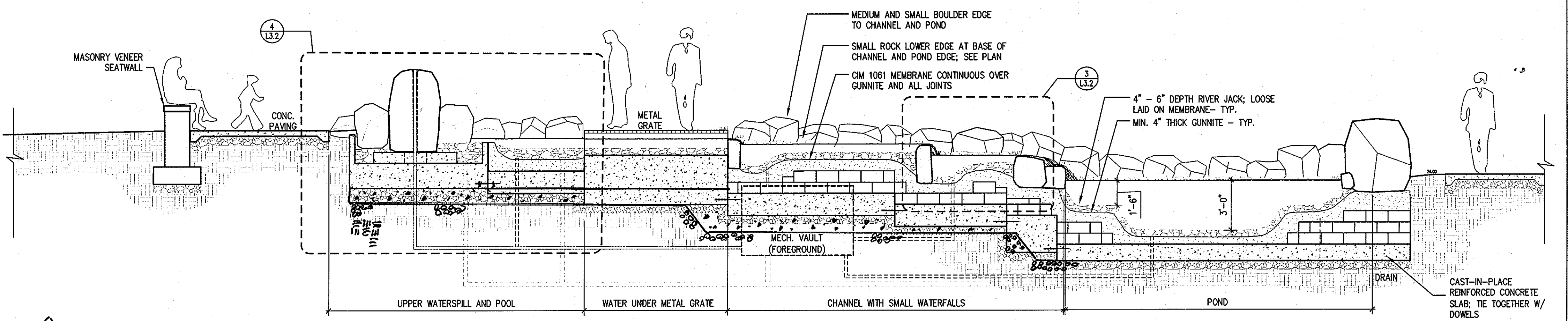
CAPITAL PROJECT NUMBER: N39-60

Revisions:
No. Date Description
1 5-1-09 UPDATED DETAILS
Drawing Title Drawing Number
HARDSCAPE DETAILS L3.1
Sheet 28 37 OF



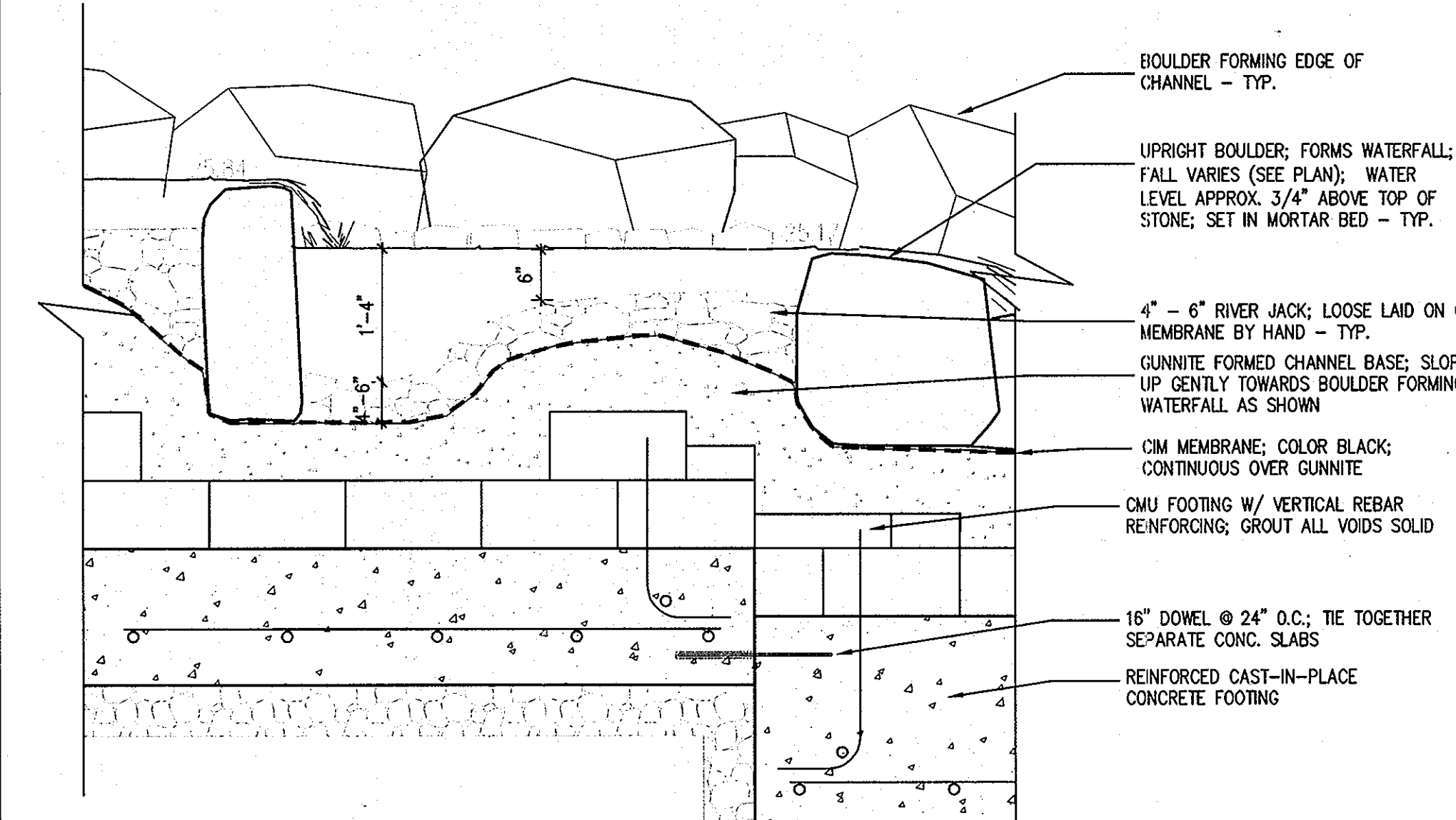
1 CHANNEL CROSS-SECTION

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



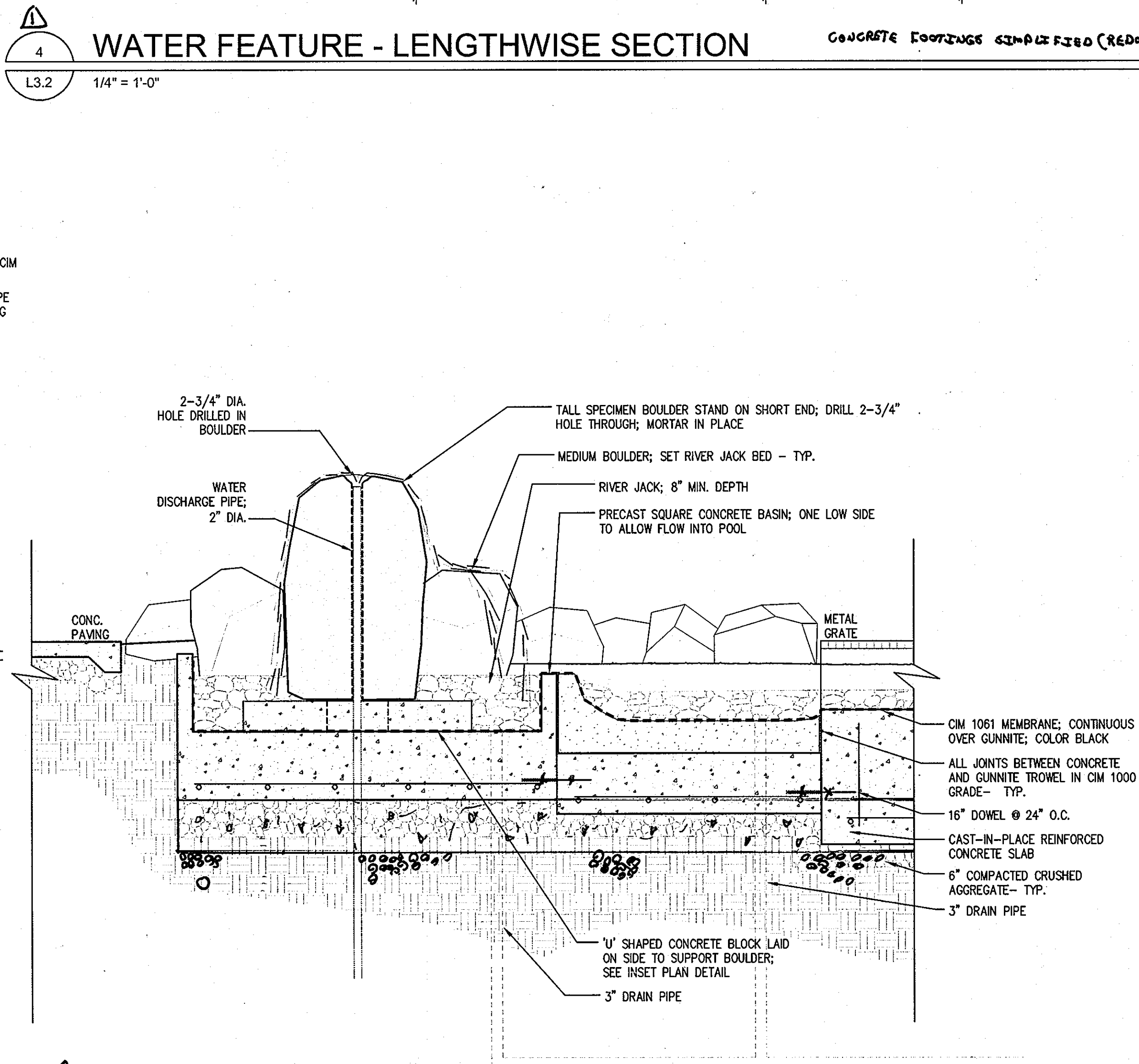
4 WATER FEATURE - LENGTHWISE SECTION

L3.2 1/4" = 1'-0"



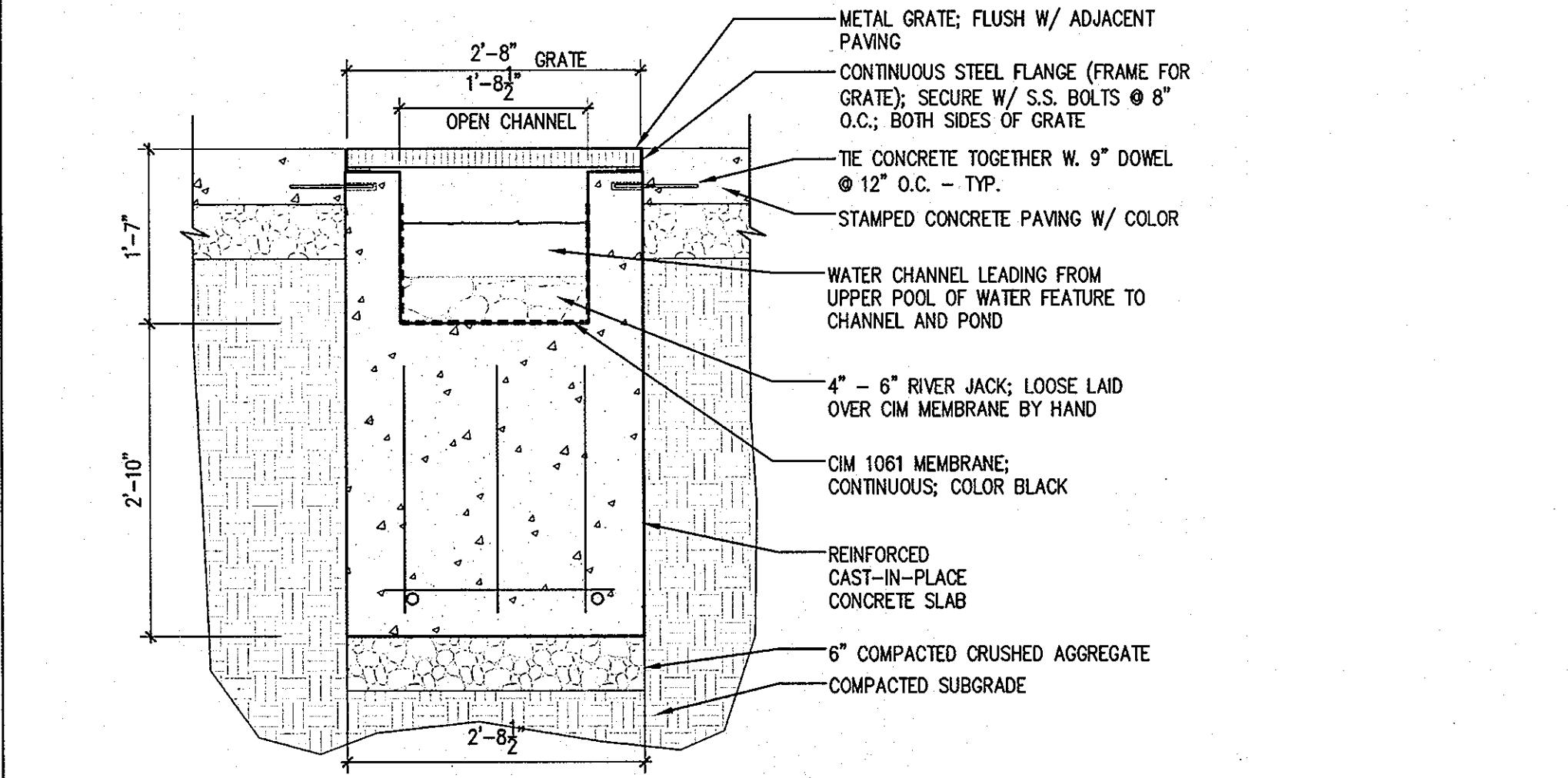
2 CHANNEL - LENGTHWISE SECTION

L3.2 3/4" = 1'-0"



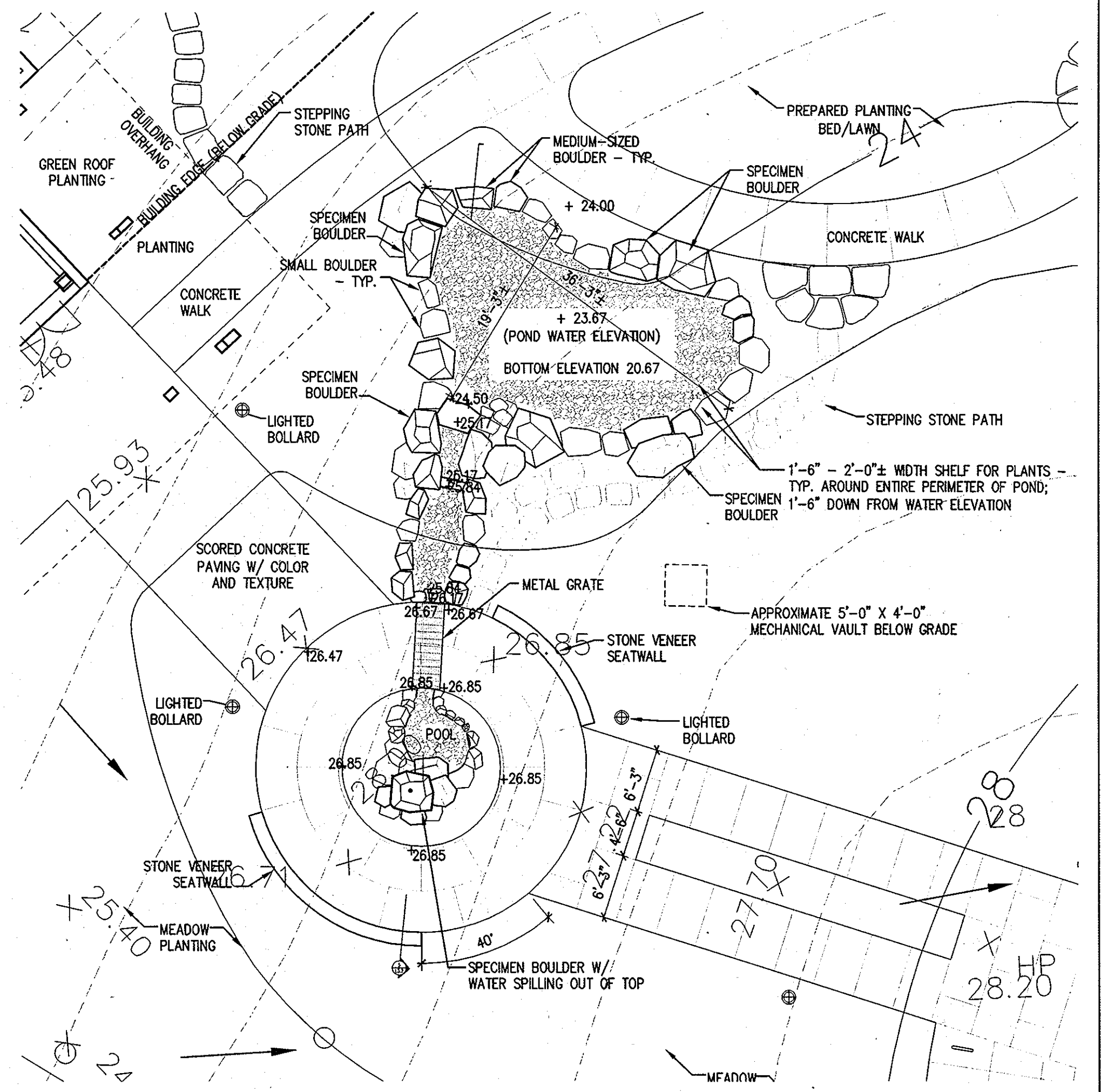
5 UPPER POOL AND SPECIMEN BOULDER

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



3 METAL GRATE @ WATER FEATURE

L3.2 3/4" = 1'-0"



6 WATER FEATURE - PLAN

L3.2 1" = 10'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 1/12/09

Andy Hanna
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 1/14/09

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

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ARCHITECTURE LANDSCAPE ARCHITECTURE PLANNING INTERIOR DESIGN

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Seal: [Professional Engineer Seal]

GRIEVES WORRALL WRIGHT & OHATNICK INCORPORATED

G | W
W | O

ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1009

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

Project Title
Robinson Nature Center

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

Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

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

Revisions:
No. Date Description
1 5-1-09 CONC. FOOTINGS

Drawing Title
HARDSCAPE DETAILS

Drawing Number
L3.2

Sheet 29 37 of

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE: 1/13/09

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

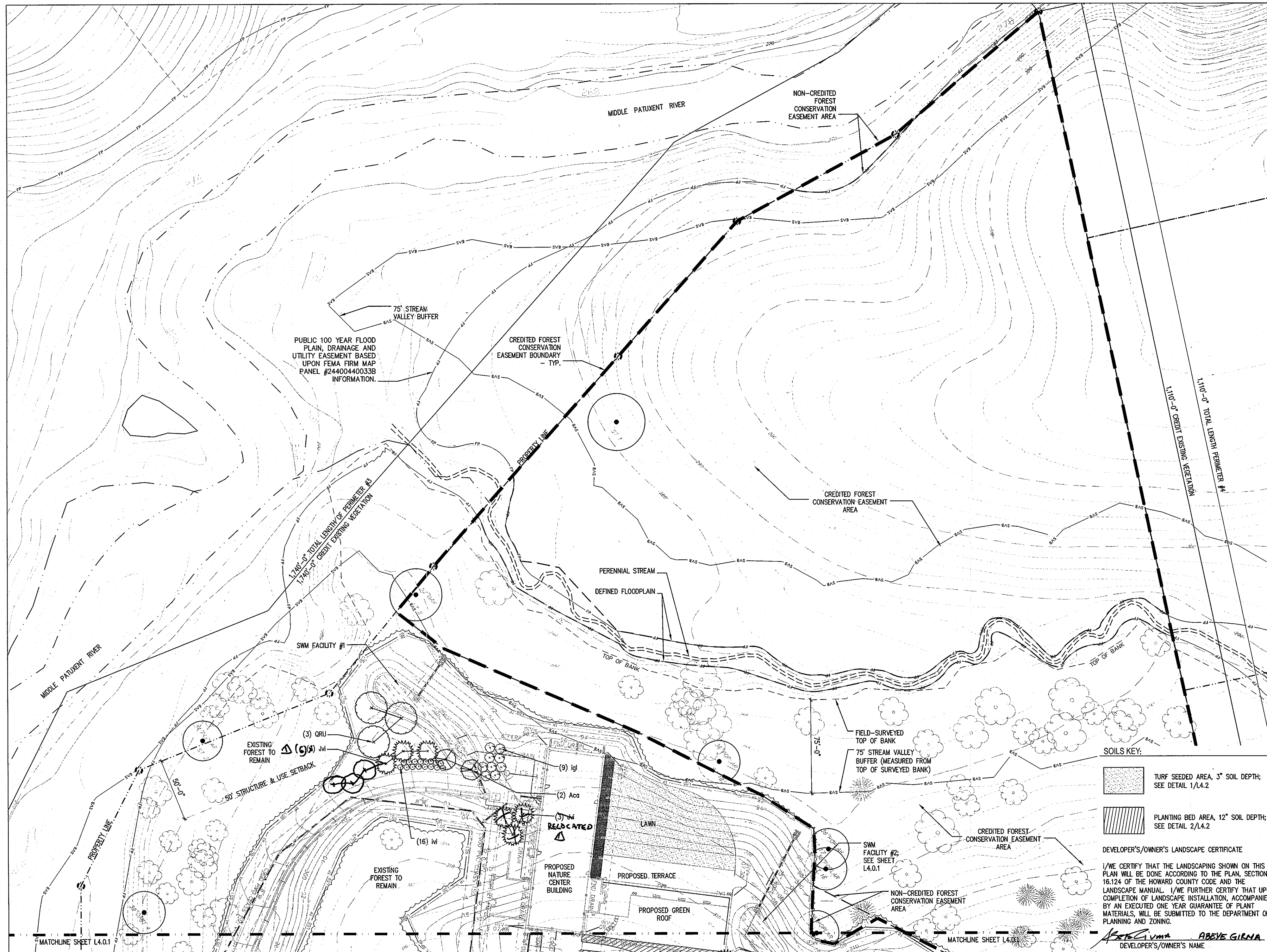
HOWARD SCD DATE: _____

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 MARYLAND. LICENSE NUMBER: 26524, EXPIRATION DATE: 19 JULY, 2009.

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CAPITAL PROJECT NUMBER: N39-60

SDP-09-02



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

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

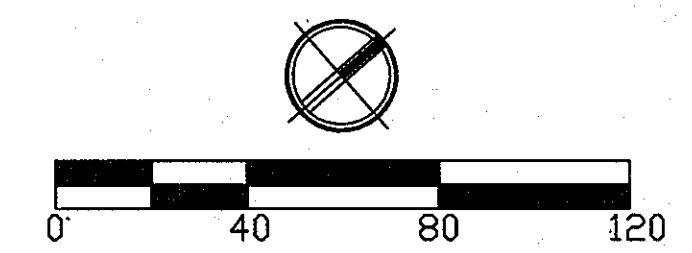
SCHEDULE A PLANTING PROVIDED	
SHADE TREES:	6
EVERGREEN TREES:	0
SHRUBS:	73
SMALL DECIDUOUS TREES (SUB 2:1 FOR (3) SHADE TREES):	4

GENERAL NOTES:

- 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.
- THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND 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:

- FOR SCHEDULES B & D, SEE SHEET L4.0.1.
- ALL SOUTHERN AND WESTERN PROPERTY BOUNDARIES ABOUT THE MIDDLE PATUXENT ENVIRONMENTAL AREA (MPEA).
- 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.)
- FOR SWM FACILITY LANDSCAPE PLANS, SEE SHEET L4.1.
- FOR LANDSCAPE PLANTING DETAILS, SEE SHEET L4.2.
- FOR GREEN ROOF PLANTING PLAN ENLARGEMENT, SEE SHEET L4.2.



APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 1-12-09

Vivian Hamer
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 1/13/09

Thomas E. Suter
DIRECTOR, DEP
DATE: 1/14/09

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE: 1/13/09

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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 SEDIMENTATION CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
HOWARD SCD DATE: 1/13/09

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 MARYLAND. LICENSE NUMBER: 20041, EXPIRATION DATE: 12/31/2009.

GRIEVES WORRAL WRIGHT & CHATNICK INCORPORATED

G | W
W | O

ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
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

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

Project Title: **Robinson Nature Center**

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

Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

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

Revisions:

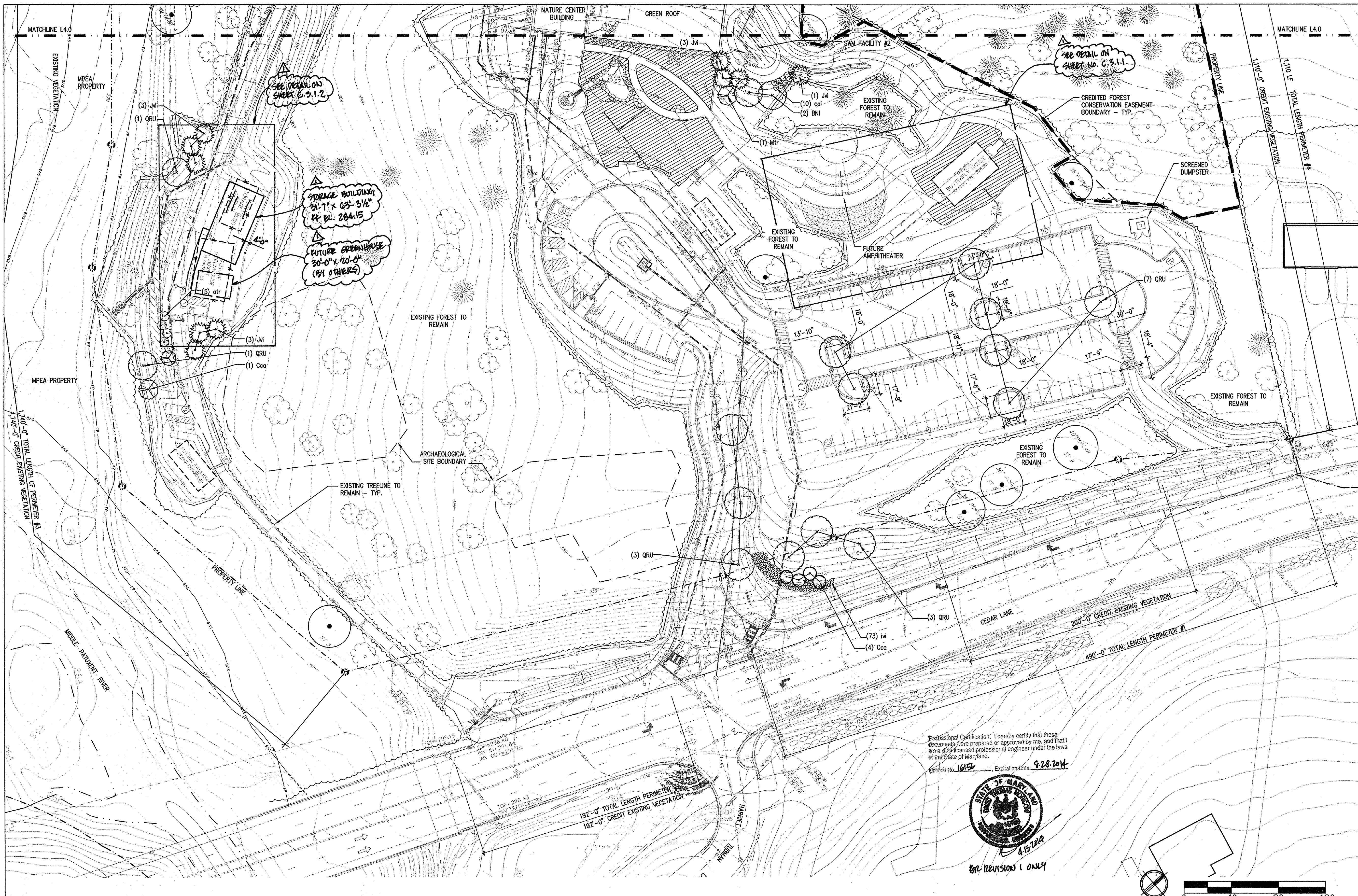
No.	Date	Description
1	5-1-09	PLANTING

Drawing Title: OVERALL LANDSCAPE PLAN - NORTH

Drawing Number: **L4.0**

Sheet 30 of 37

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	SWM PLANTING PROVIDED
SHADE TREES: 13	SHADE TREES: 7
EVERGREEN TREES: 16	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 SEEDDED 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

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Abeye Girma
 DEVELOPER'S/OWNER'S NAME

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards 1.12.09
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Condy Hunter 1/13/09
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Morgan E. Swell 1/14/09
 DIRECTOR, DEP. DATE

APPROVED PLANNING BOARD OF HOWARD COUNTY

DATE 1/13/09

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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 MARYLAND. LICENSE NUMBER: 26204 - EXPIRATION DATE: 19 JULY, 2009.

GRIEVES WORRALL WRIGHT & O'HATNICK INCORPORATED

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W | O

ARCHITECTS
 800 WYMAN PARK DRIVE, SUITE 300
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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 NUMBER: N39-60

Project Title
Robinson Nature Center

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

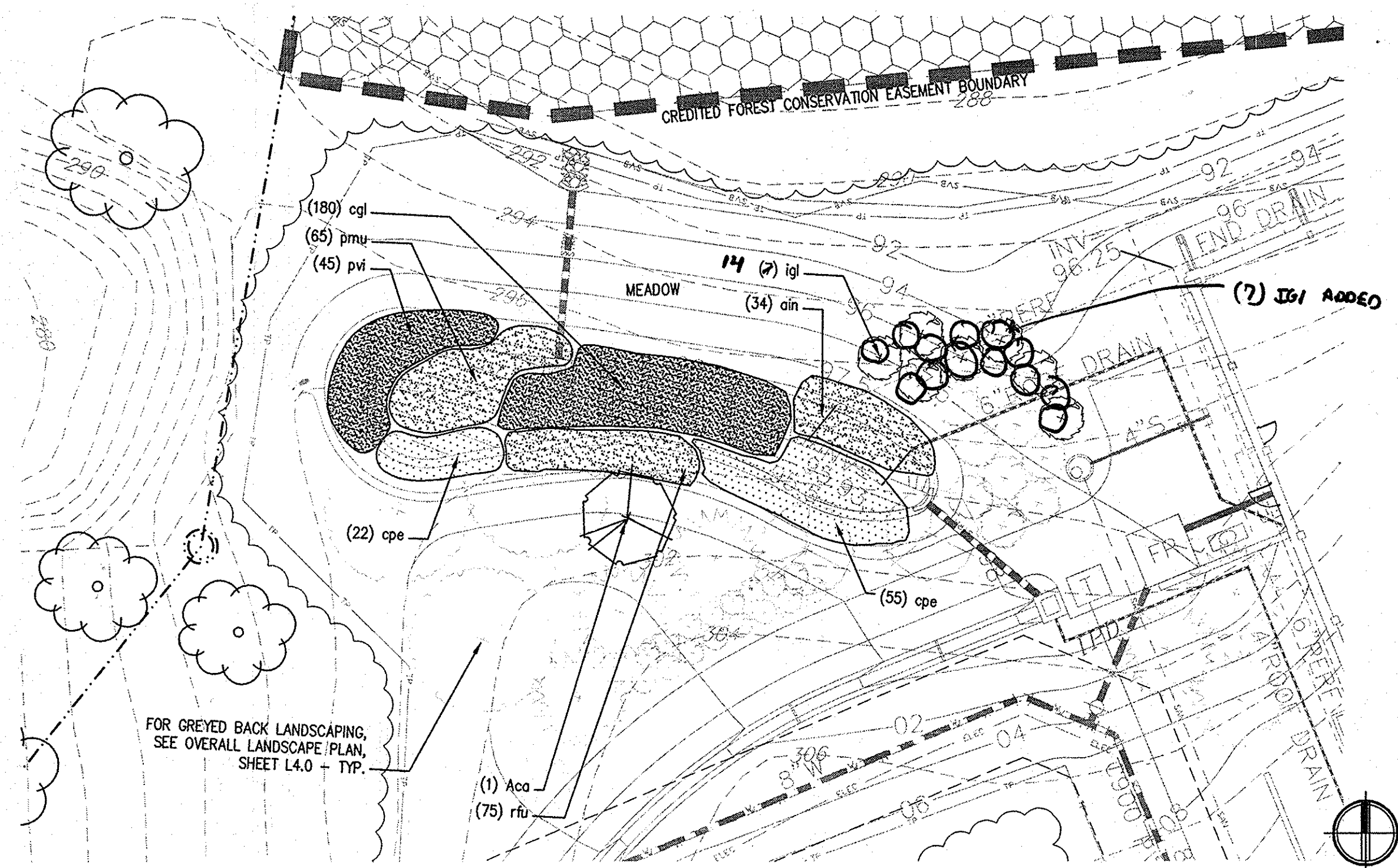
Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Job No. 26154.10 DD/DF
 Scale AS SHOWN DD/ZR
 Date December 29, 2008 ZR

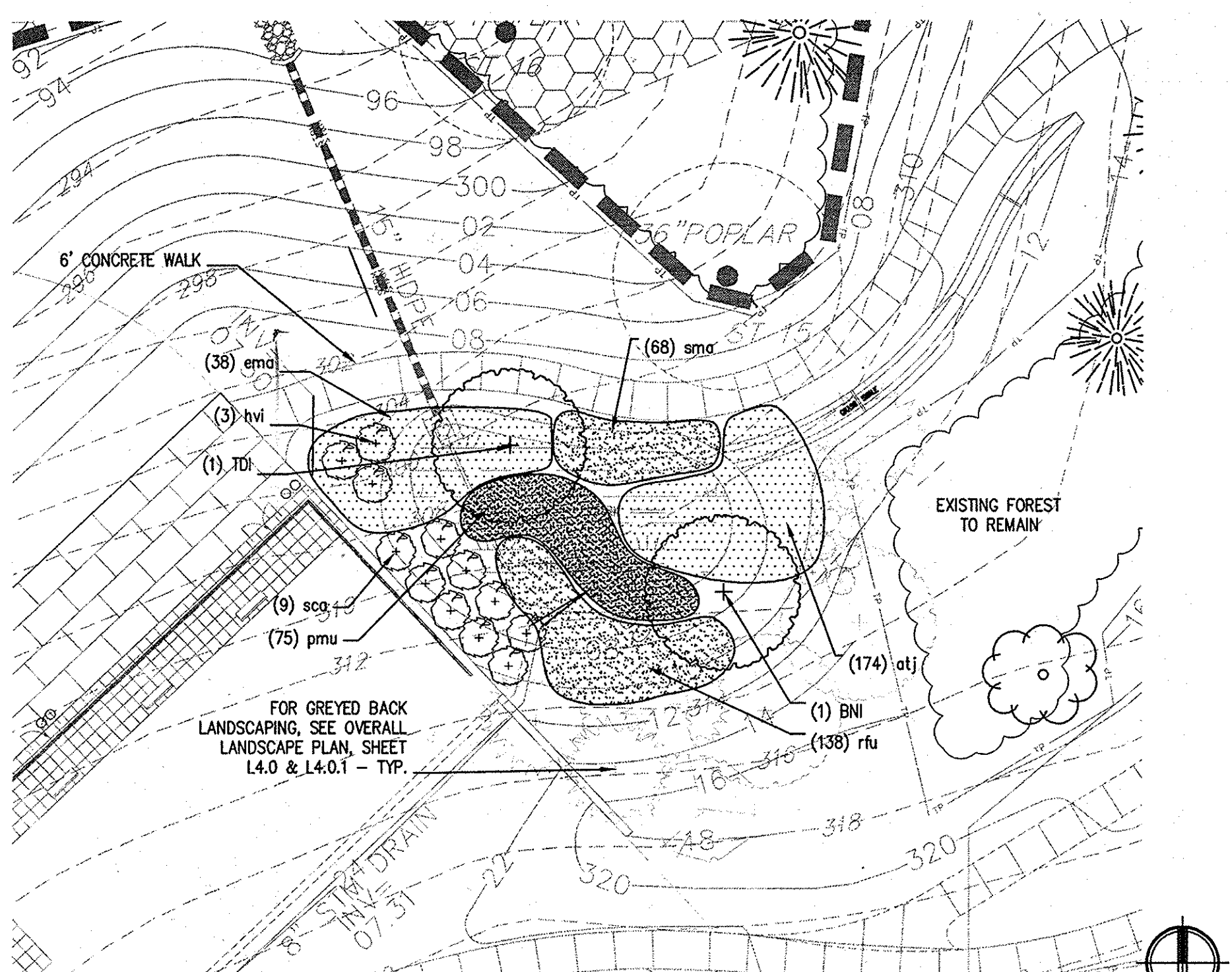
Revisions:
 No. Date Description
 1 4.15.14 ADDED REFERENCE NOTES

Drawing Title OVERALL LANDSCAPE PLAN - SOUTH-
 Drawing Number L4.0.1

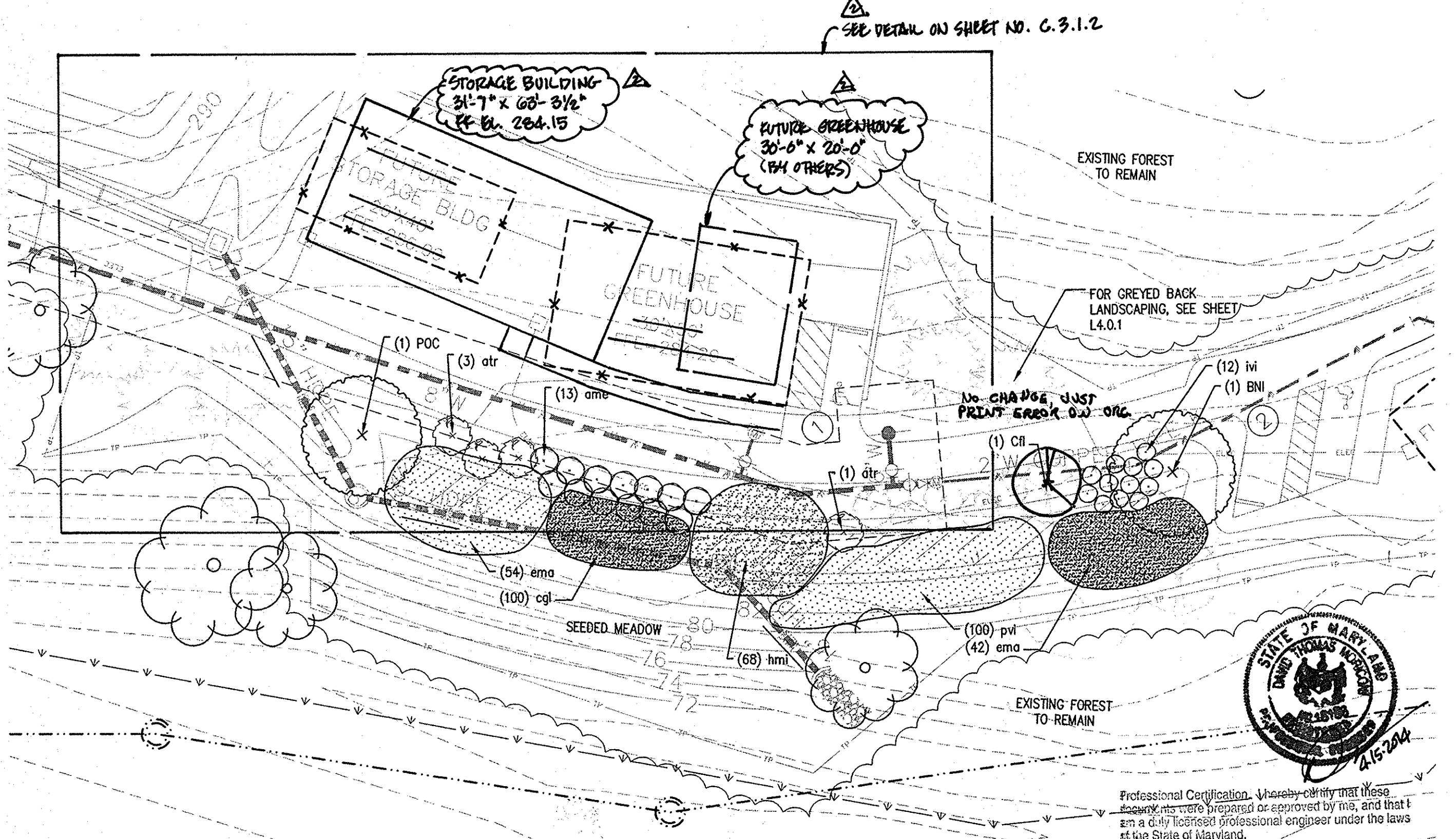
Sheet 31 37 OF SDP-09-02



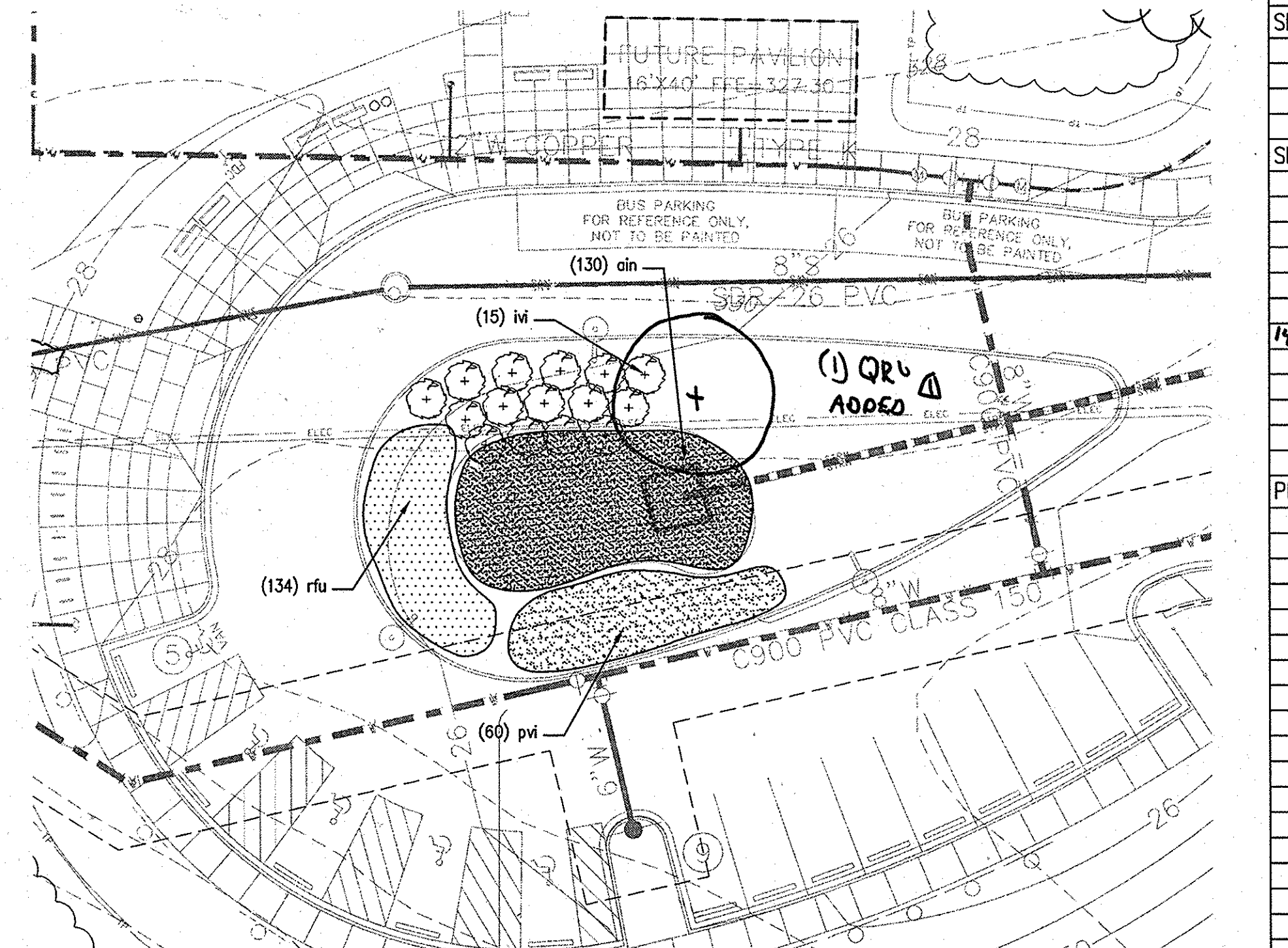
1 STORMWATER MANAGEMENT FACILITY #1
L4.1 1" = 20'-0"



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"

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division: Chad Edwards 1/12/09
 Chief, Division of Land Development: Wanda Hamble 1/13/09
 Director, DEP: Monica S. Suter 1/14/09

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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:

GRIEVES WORRALL WRIGHT & CHATNICK INCORPORATED
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 800 WYMAN PARK DRIVE, SUITE 300
 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

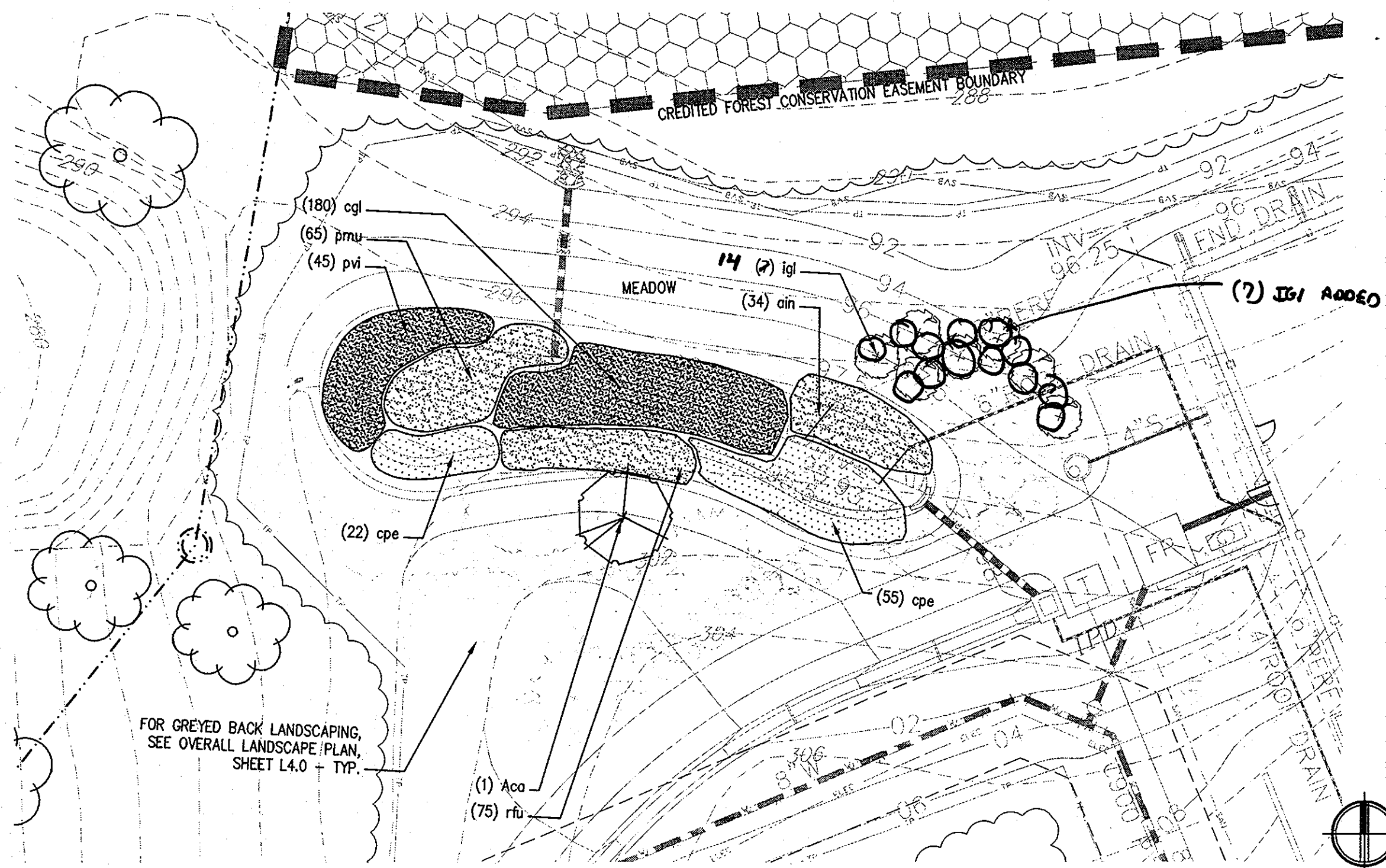
Project Title: **Robinson Nature Center**
 6692 Cedar Lane Election District No. 5 Howard County, Maryland
 Tax Map 35 Parcel 87 Liber: 8997 Folio: 160
 Job No. 26154.10 DD/DF
 Scale AS SHOWN DD/ZR
 Date December 29, 2008 ZR Approved
 Drawing Title: SWM FACILITY LANDSCAPE PLAN
 Drawing Number: L4.1
 Sheet 32 of 37

APPROVED PLANNING BOARD OF HOWARD COUNTY
 DATE: 1/13/09

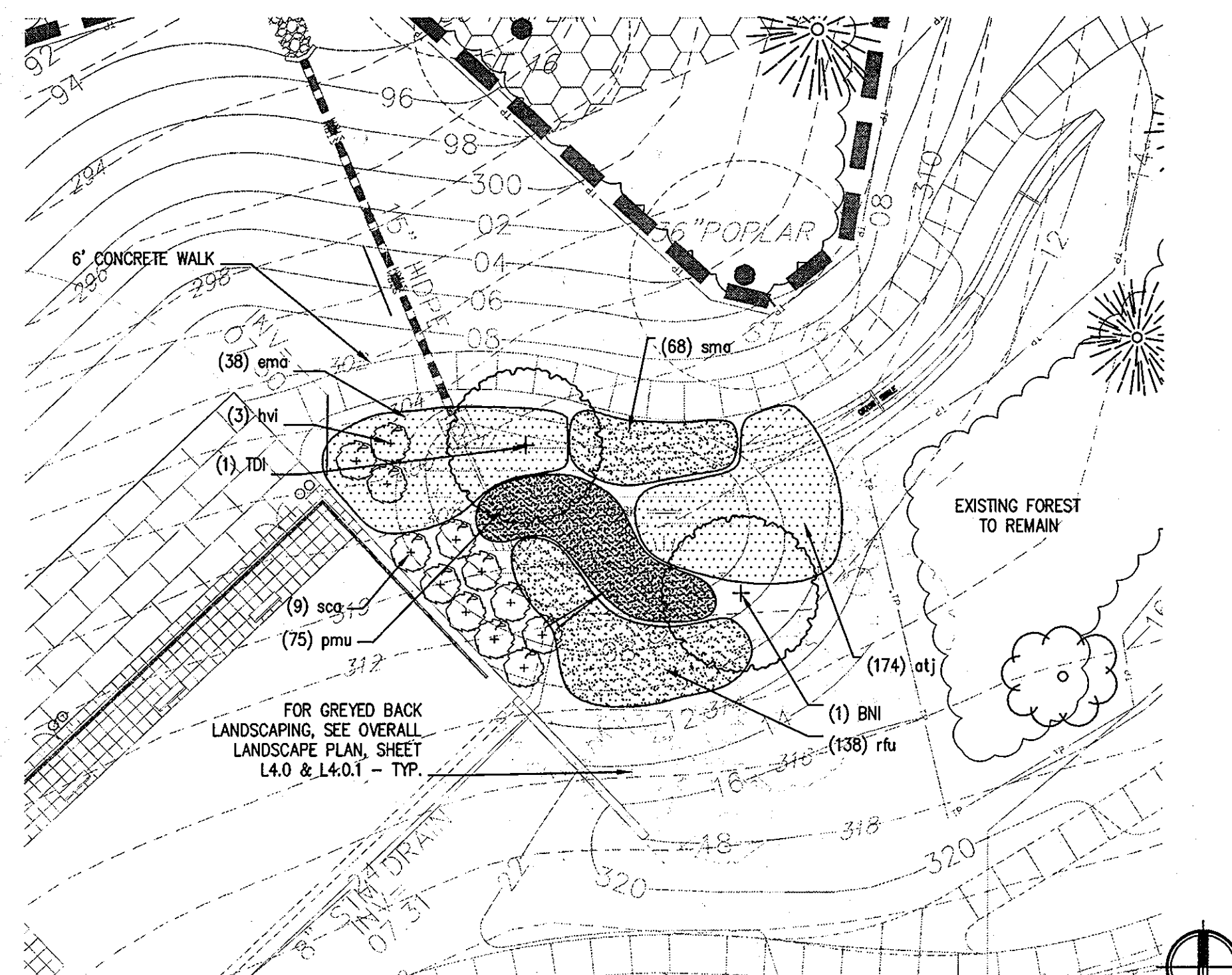
REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 HOWARD SCD DATE: _____

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 MARYLAND. LICENSE NUMBER: 26524, EXPIRATION DATE: 19 JULY, 2009.

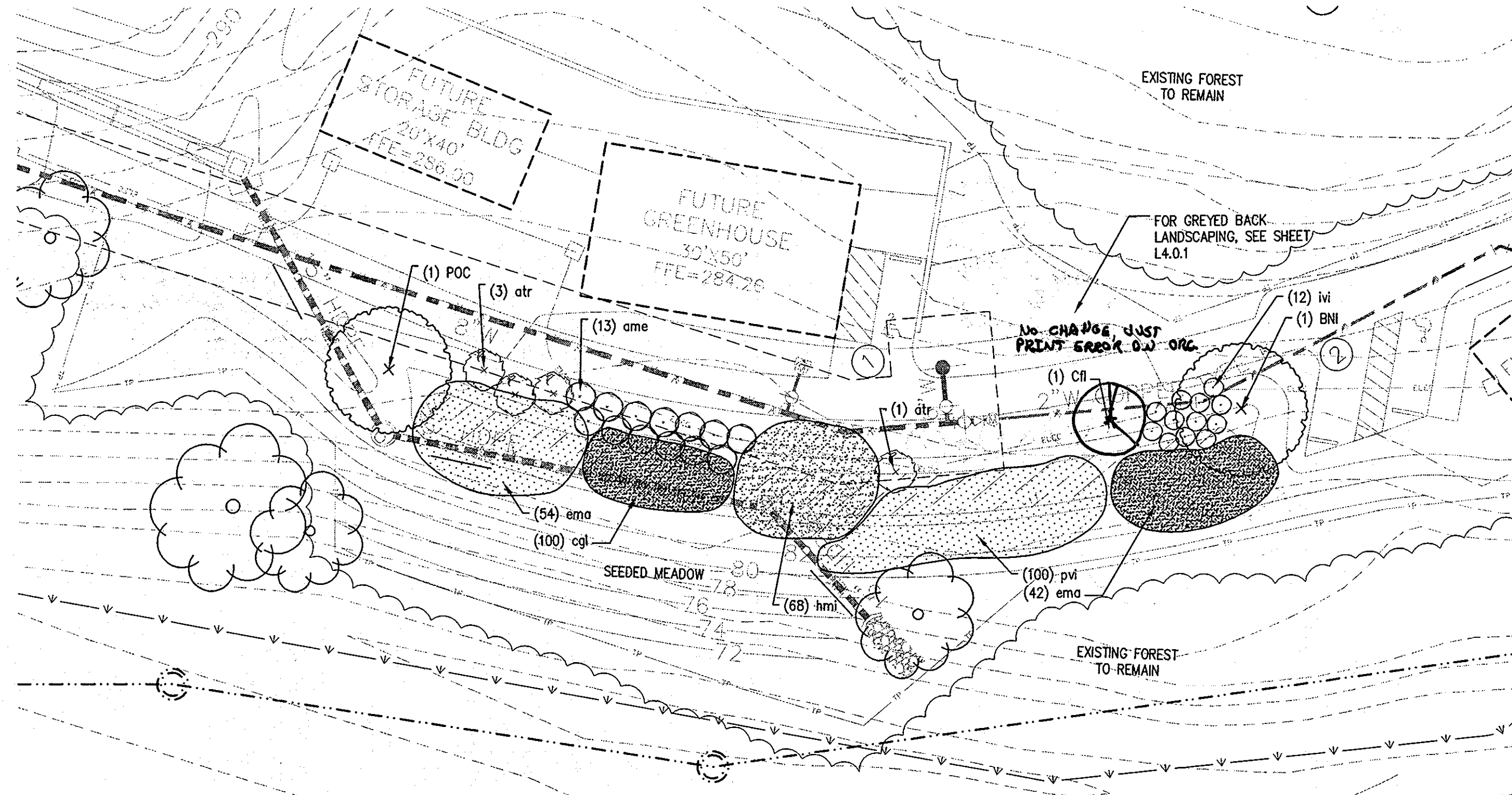
CAPITAL PROJECT NUMBER: N39-60



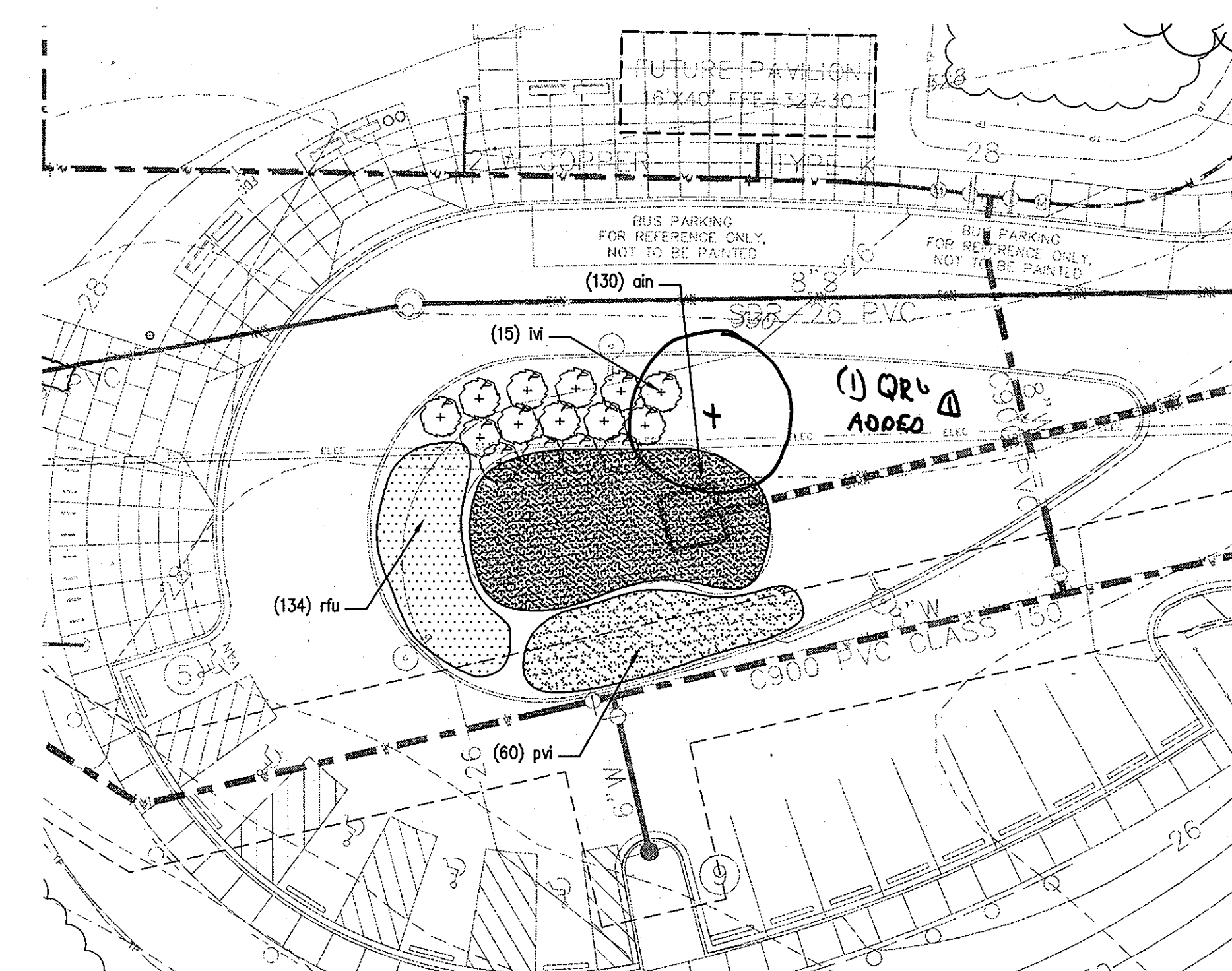
1 STORMWATER MANAGEMENT FACILITY #1
L4.1 1" = 20'-0"



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



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

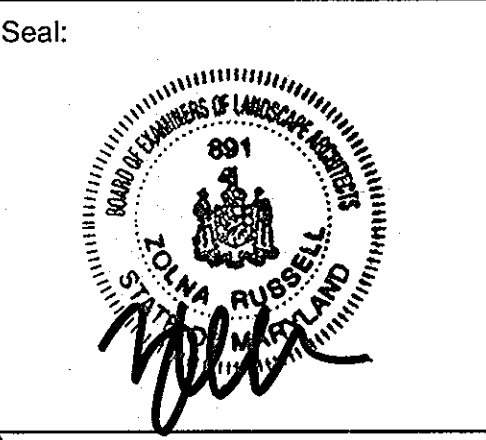


4 DROP-OFF AREA - BIOFILTRATION PLANTING
L4.1 1" = 20'-0"

QTY.	KEY	BOTANICAL NAME COMMON NAME	SIZE	CONT.	REMARKS
SHADE TREES					
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1	TDI	Taxodium distichum Baldcypress	2-1/2" - 3" Cal.	B & B	Specimen
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1	Aca	Amelanchier canadensis Serviceberry	8-10' ht.	B & B	Specimen
1	CF	Cornus florida Flowering Dogwood	8-10' ht.	B & B	Specimen
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13	ame	Aronia melanocarpa Black chokeberry	30" - 36" ht.		
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68	sma	Spigelia marilandica Woodland Pinkroot		1 qt.	24" o.c.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chad Edwards 1-12-09
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 Wendy Hamer 1/13/09
 CHIEF, DIVISION OF LAND DEVELOPMENT
 Thomas E. Suter 1/14/09
 DIRECTOR, DEP.

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Project Title
Robinson Nature Center
 6692 Cedar Lane Election District No. 5 Howard County, Maryland
 Tax Map 35 Parcel 87 Liber: 8997 Folio: 160
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L4.1

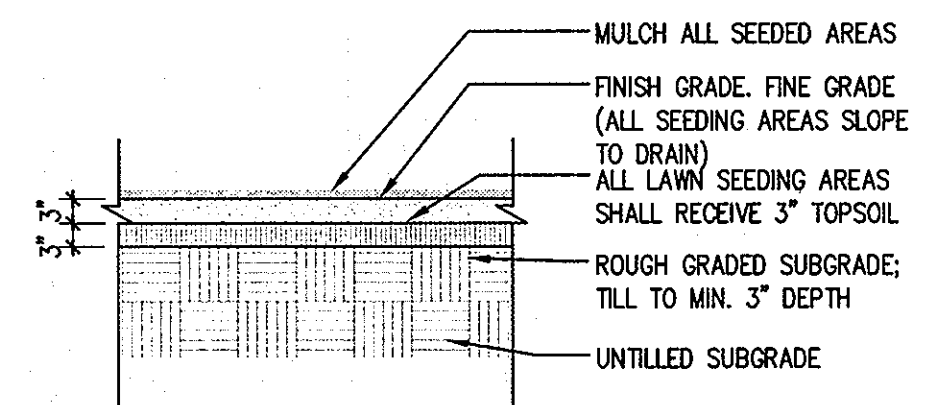
APPROVED
 PLANNING BOARD OF HOWARD COUNTY
 DATE 1/13/09

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

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 MARYLAND. LICENSE NUMBER: 26524, EXPIRATION DATE: 19 JULY, 2009.

CAPITAL PROJECT NUMBER: N39-60

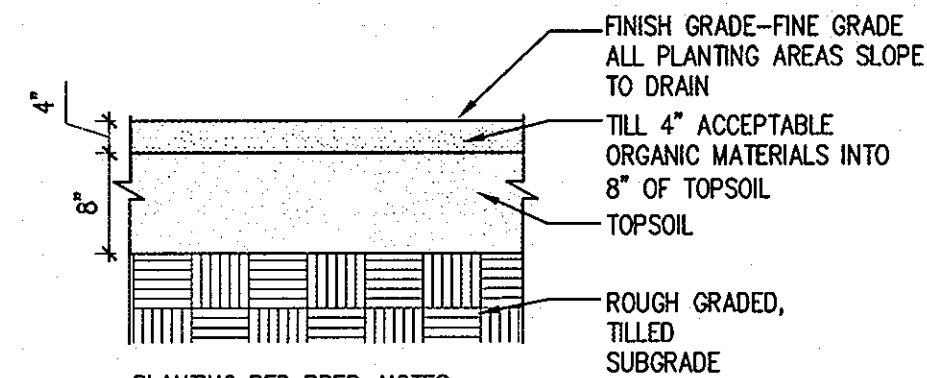
Revisions:
 No. Date Description
 1 6-1-09 PLANTING
 Sheet 32 37 of



- 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 SEEDING AREAS FROM SUBSEQUENT CONSTRUCTION ACTIVITY.
 - 8). ALL DISTURBED AREAS THAT ARE NOT PLANT BEDS OR TURF SEEDING SHALL MEADOW SEEDING. REFER TO SHEET L4.0 FOR PLANT BED AND LAWN AREA LOCATIONS.

1 SEEDING AREA BED PREPARATION

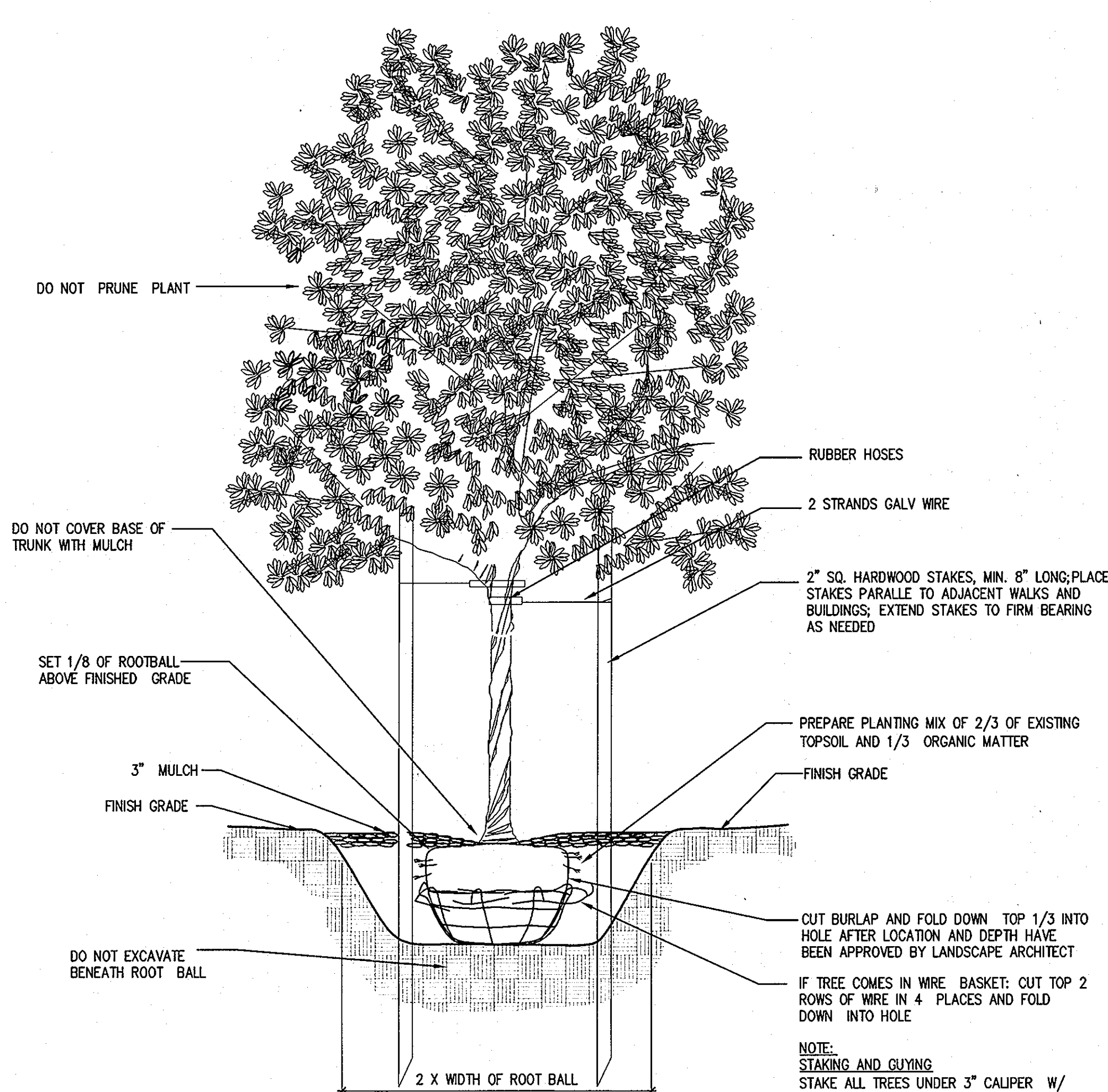
L4.2 1/2" = 1'-0"



- PLANTING BED PREP. NOTES:**
- 1). ROTOTILL SUBGRADE TO A DEPTH OF 6 INCHES PRIOR TO PLACEMENT OF TOPSOIL AND AMMENDMENTS.
 - 2). PLACE 8" TOPSOIL.
 - 3). PLACE 4" OF ACCEPTABLE ORGANIC MATERIAL IN ALL PLANTING BEDS.
 - 4). ROTOTILL ORGANIC MATTER INTO PLANTING TOPSOIL.
 - 5). FINE GRADE FINISHED PLANTING BED PRIOR TO MULCHING.
 - 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.

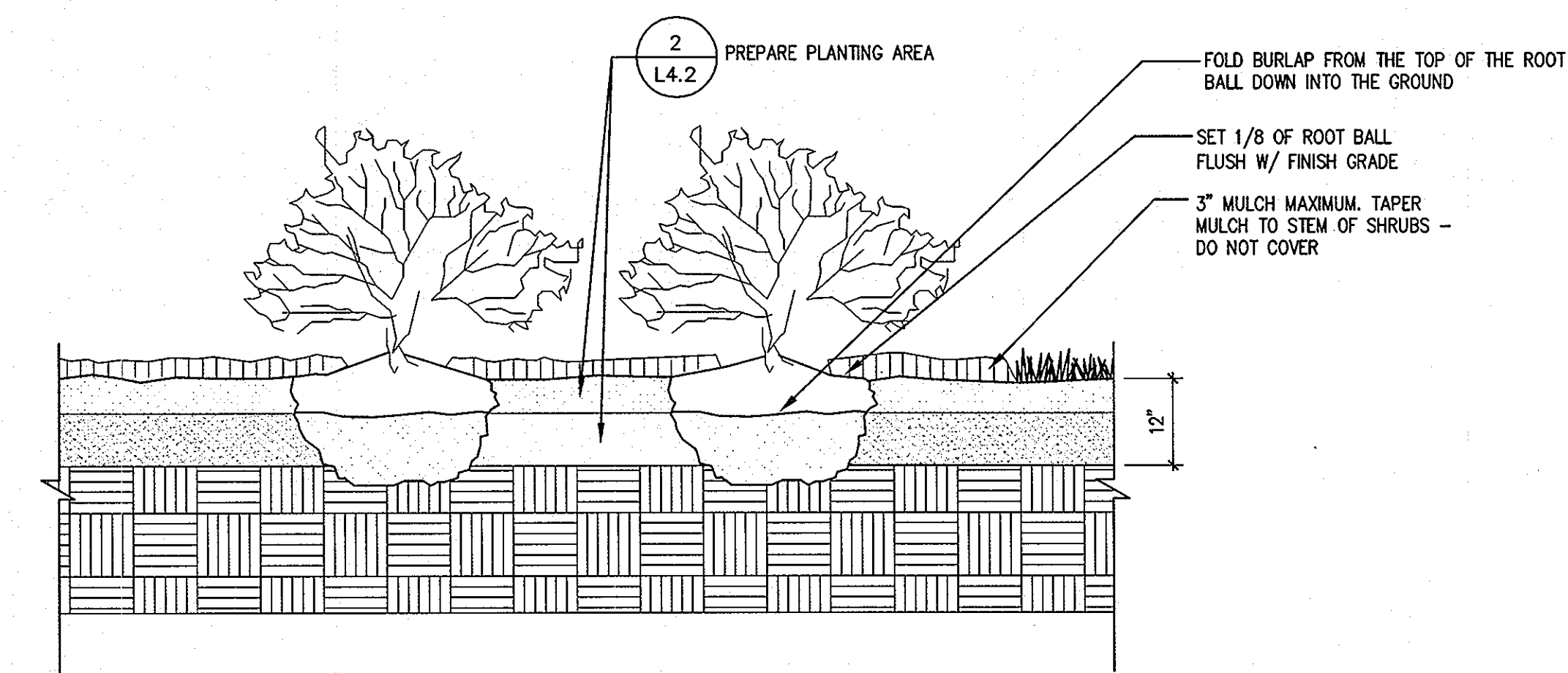
2 PLANTING AREA BED PREPARATION

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



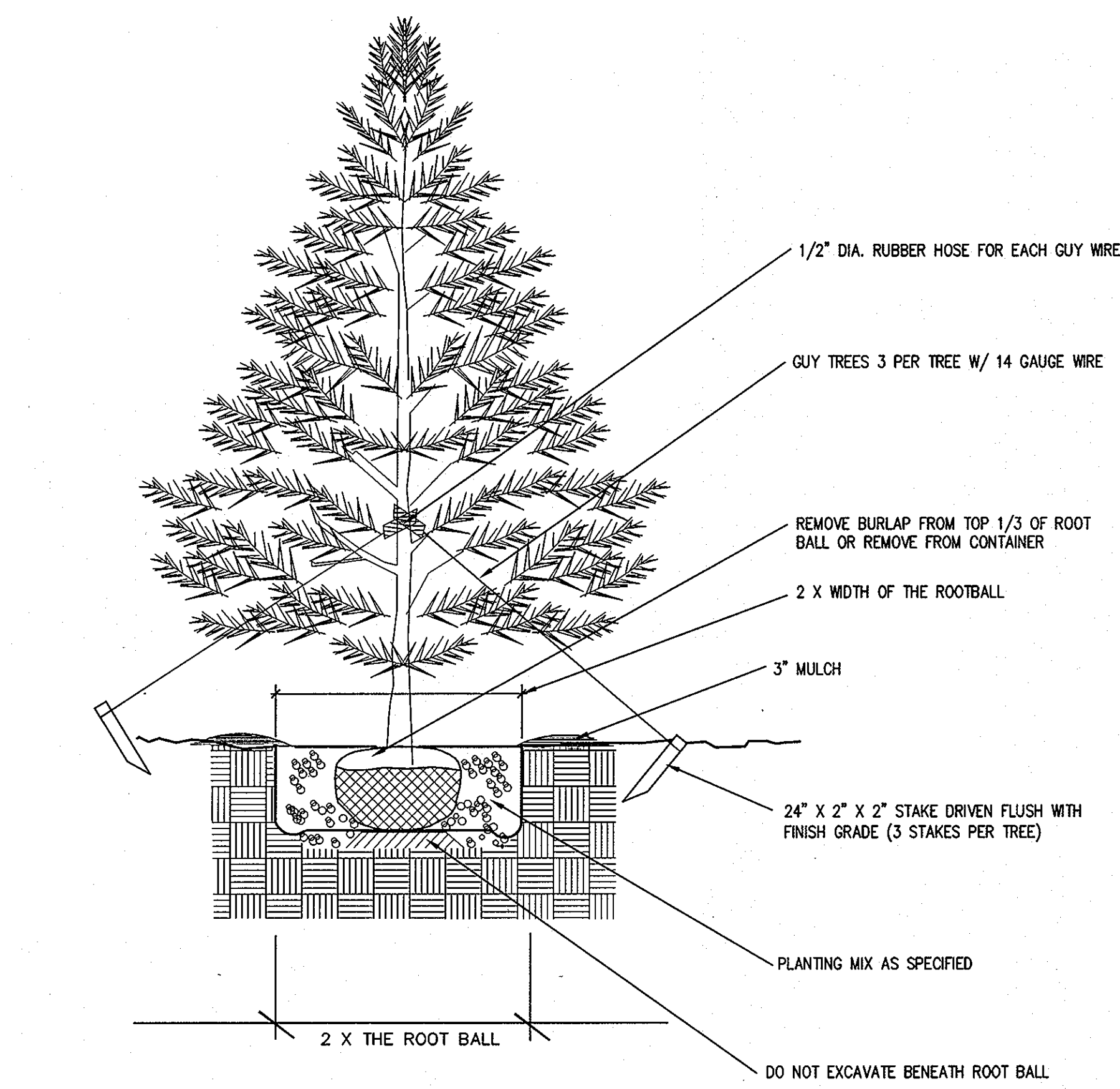
4 TREE PLANTING - TYP.

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



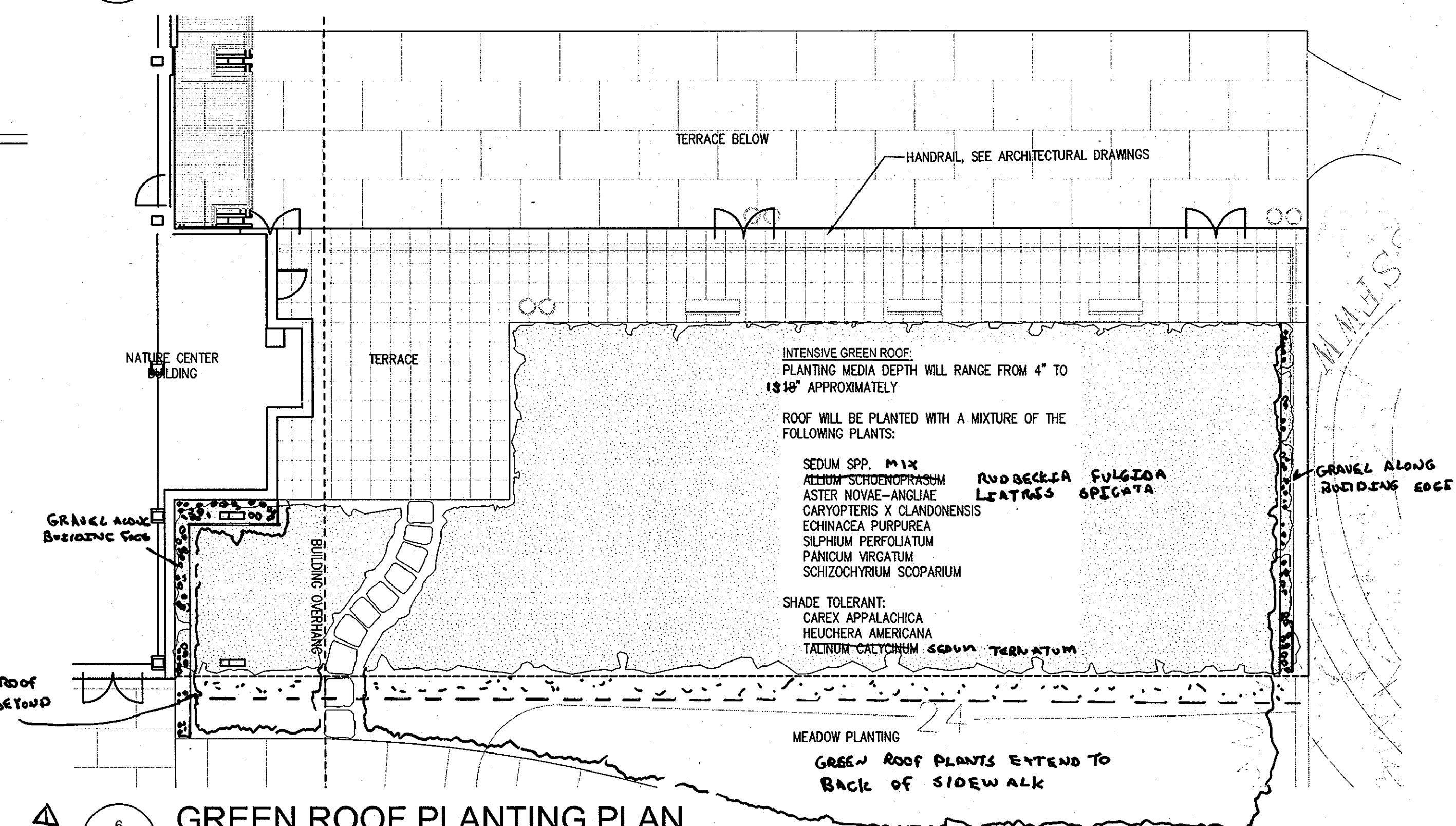
3 SHRUB IN PLANTING BED (TYP.)

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



5 EVERGREEN TREE PLANTING (TYP.)

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



6 GREEN ROOF PLANTING PLAN

L4.2 1" = 10'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Chubb
CHIEF, DEVELOPMENT ENGINEERING DIVISION

1-17-09
DATE

Wanda K...
CHIEF, DIVISION OF LAND DEVELOPMENT

1/13/09
DATE

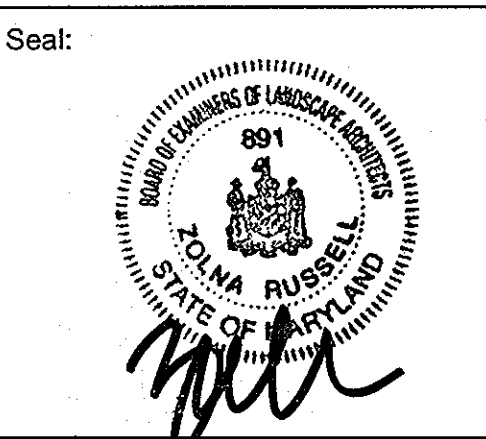
Thomas E. ...
DIRECTOR, DEP.

1/14/09
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



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INCORPORATED

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ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
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

Project Title
Robinson Nature Center

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

Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

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

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

Drawing Title
PLANTING DETAILS

Sheet 33 37 of

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

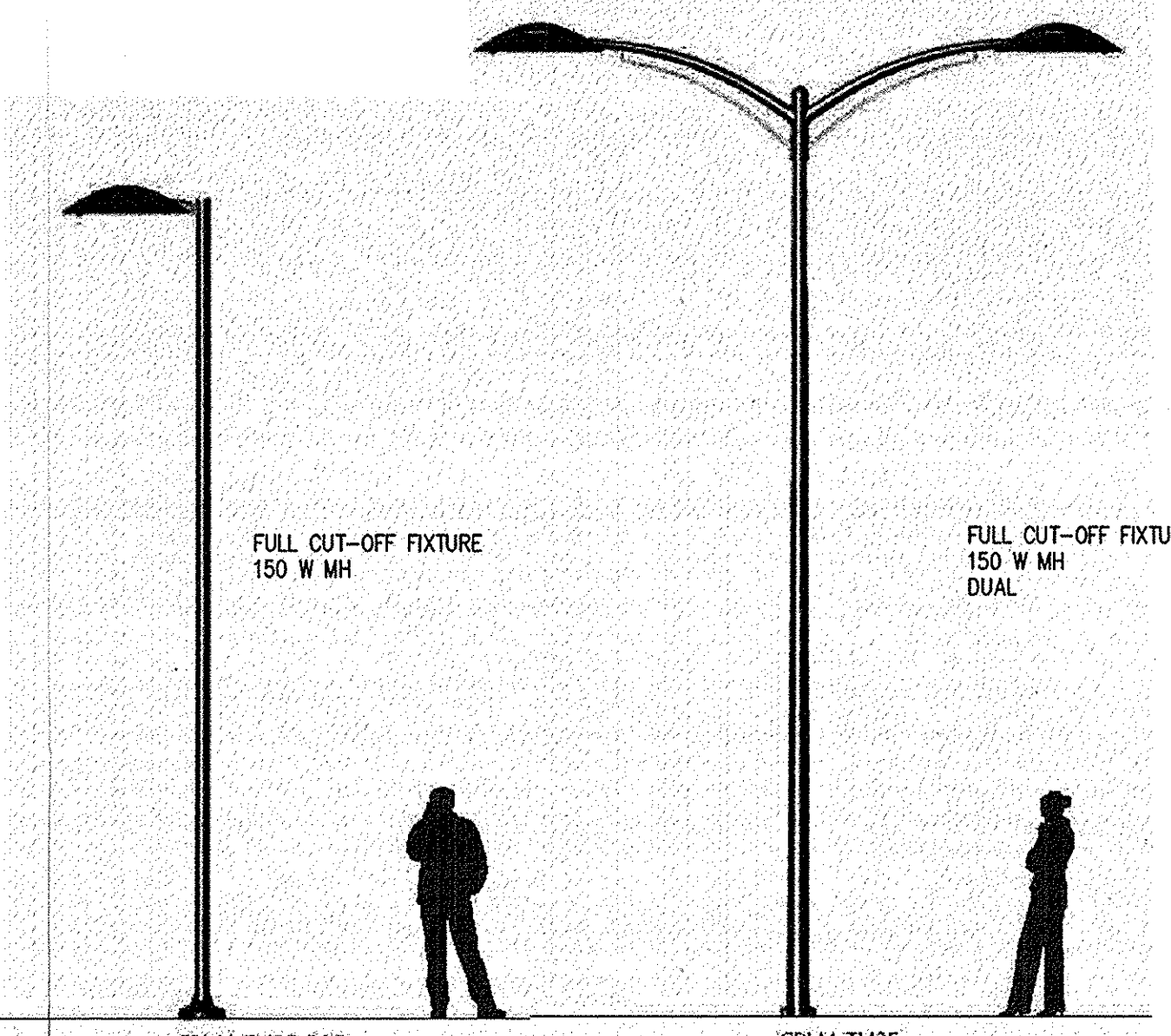
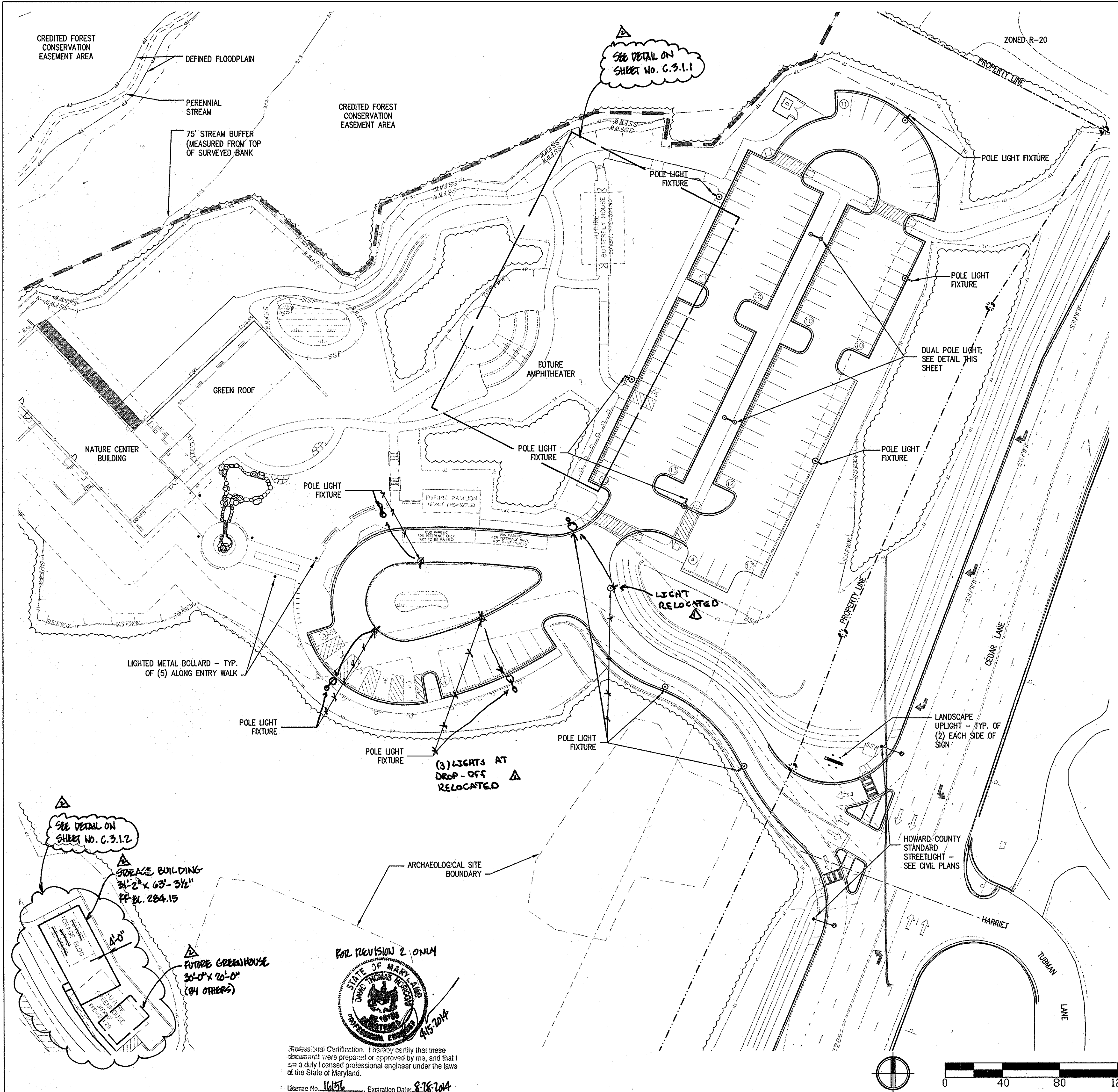
HOWARD SCD DATE

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 MARYLAND, LICENSE NUMBER: 26524, EXPIRATION DATE: 19 JULY, 2009.

CAPITAL PROJECT NUMBER: N39-60

Sheet 33 37 of

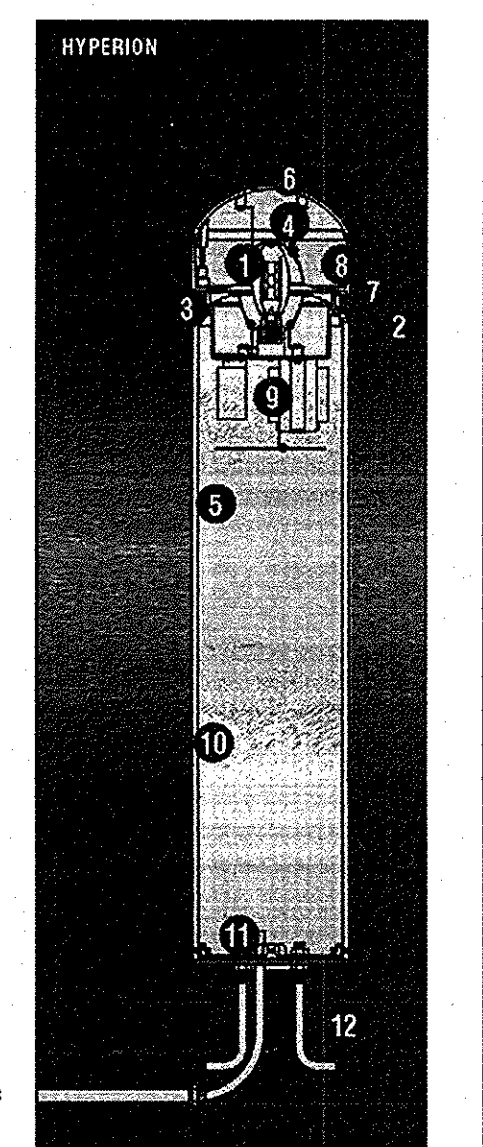
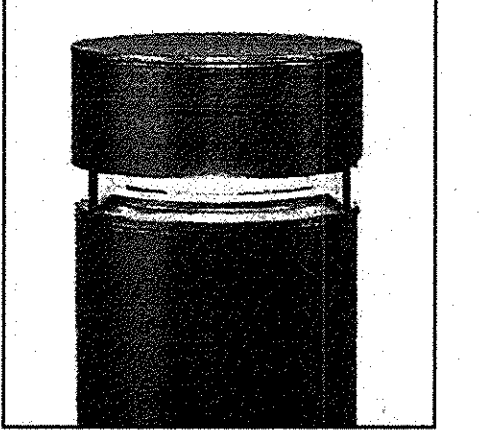
PLANTING DETAILS **L4.2**



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 Op0™ 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, medium 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 Op0™ 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.



HID lamps (high intensity discharge)

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		✓

Optical systems (lamps not included)

FLATIENS optics
 Flat lens optical system consisting of flat hydrophobic lens, epoxy sealed, and a flat lens panel glass filter.

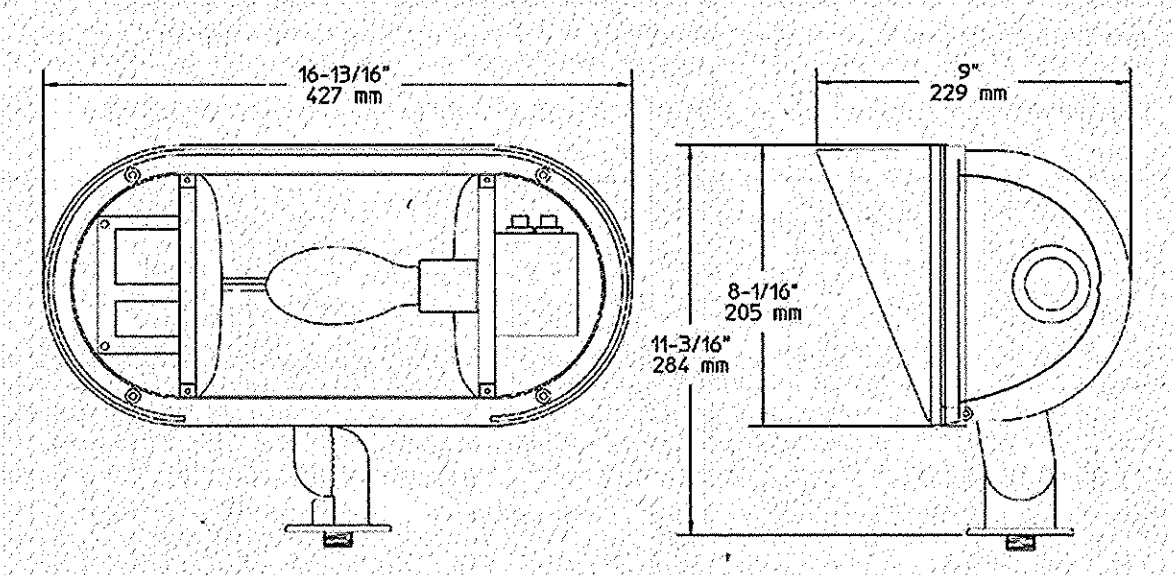
Voltages

120, 120/277, 277, 347, 740	House shield
	PH2

Luminaire options

1 POLE LIGHT FIXTURE
L5.0 N.T.S.

3 LIGHTED METAL BOLLARD
L5.0 N.T.S.



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
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director, DEP.

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: **G | W**
W | O
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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

Project Title
Robnson Nature Center
 6692 Cedar Lane Election District No. 5 Howard County, Maryland
 Tax Map 35 Parcel 87 Liber: 8997 Foli: 160
 Job No. 26154.10 DD/DF Drawn
 Scale AS SHOWN DD/ZR Checked
 Date December 29, 2008 ZR Approved

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

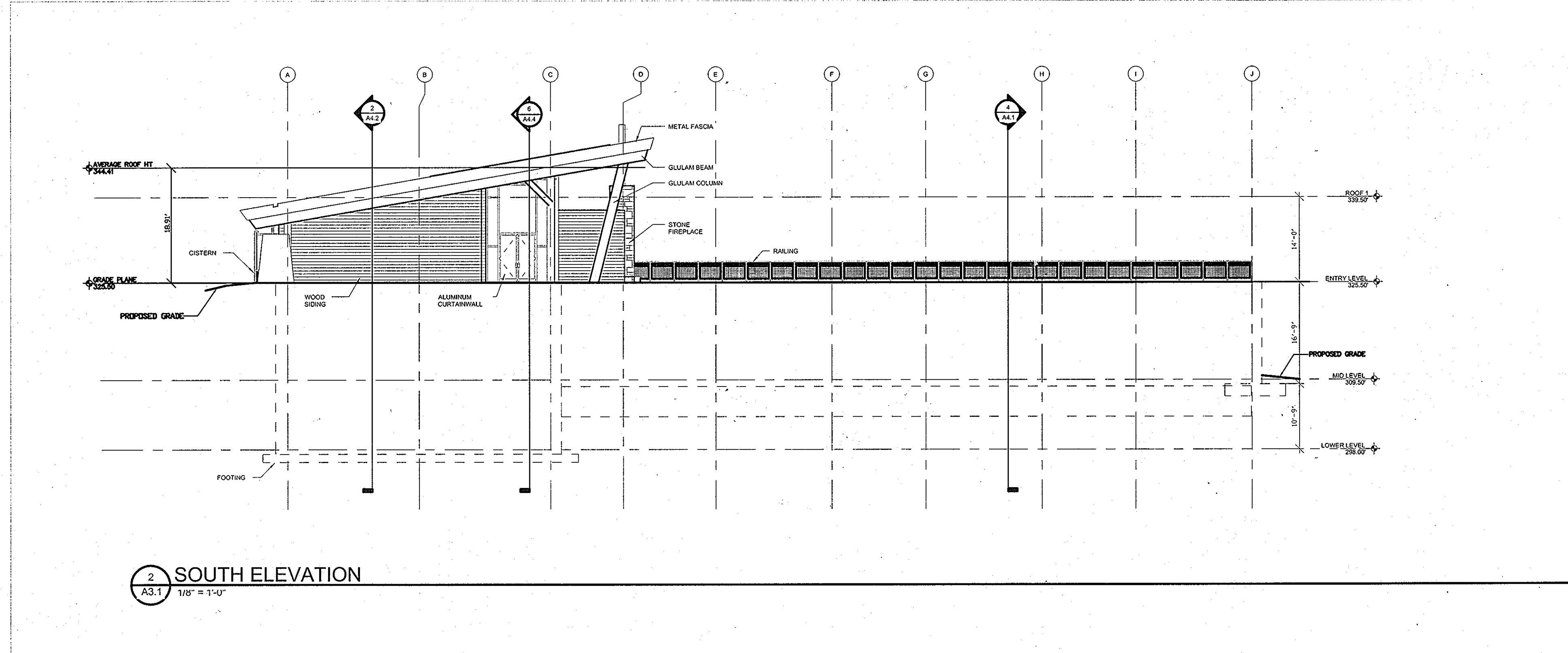
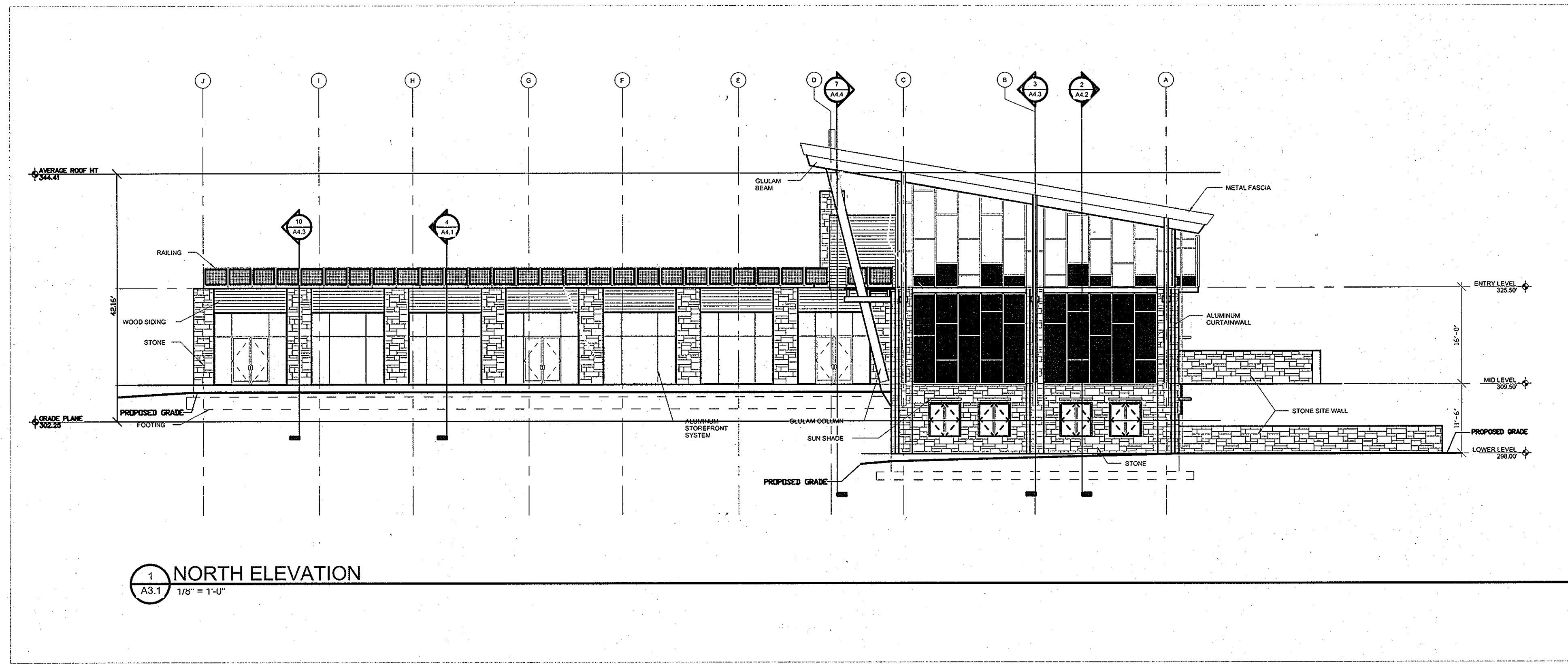
REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
 HOWARD SCD DATE

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 MARYLAND, LICENSE NUMBER: 26524, EXPIRATION DATE: 19 JULY, 2009.

CAPITAL PROJECT NUMBER: N39-60

Revisions:
 No. Date Description
 1 5-1-09 LIGHTS
 2 6-15-14 ADDED REFERENCE NOTES

LIGHTING PLAN
 Drawing Number
 L5.0
 Sheet 34 37



BUILDING HEIGHTS	
NORTH ELEVATION	42.16'
SOUTH ELEVATION	18.91'
WEST ELEVATION	32.91'
EAST ELEVATION	41.04'
OVERALL MEAN BUILDING HEIGHT	33.75'

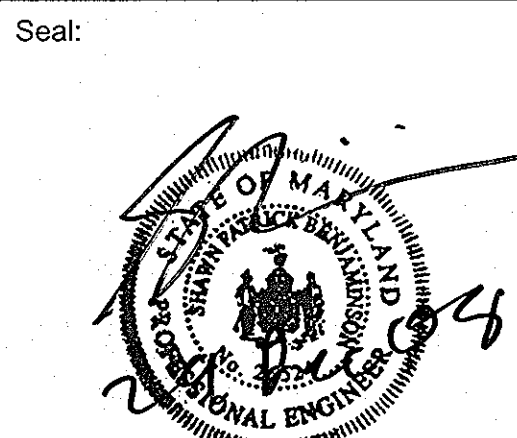
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief Edwards 1-12-09
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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

Mamas & Sautler 1/14/09
 DIRECTOR, DEP. DATE

ADTEK ENGINEERS, INC.
 CIVIL & STRUCTURAL ENGINEERING
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 INCORPORATED

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ARCHITECTS
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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

Project Title
Robinson Nature Center
 Election District No. 5 Howard County, Maryland

6692 Cedar Lane
 Tax Map 35 Parcel 87 Liber: 8997 Folio: 160

Job No. SDP-09-02 KDL
 Scale SPB
 Date December 29, 2008 SPB
 Drawing Title
 Drawing Number

APPROVED
 PLANNING BOARD OF HOWARD COUNTY

DATE 1/13/09

16

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

CAPITAL PROJECT #: N39-60

Revisions:

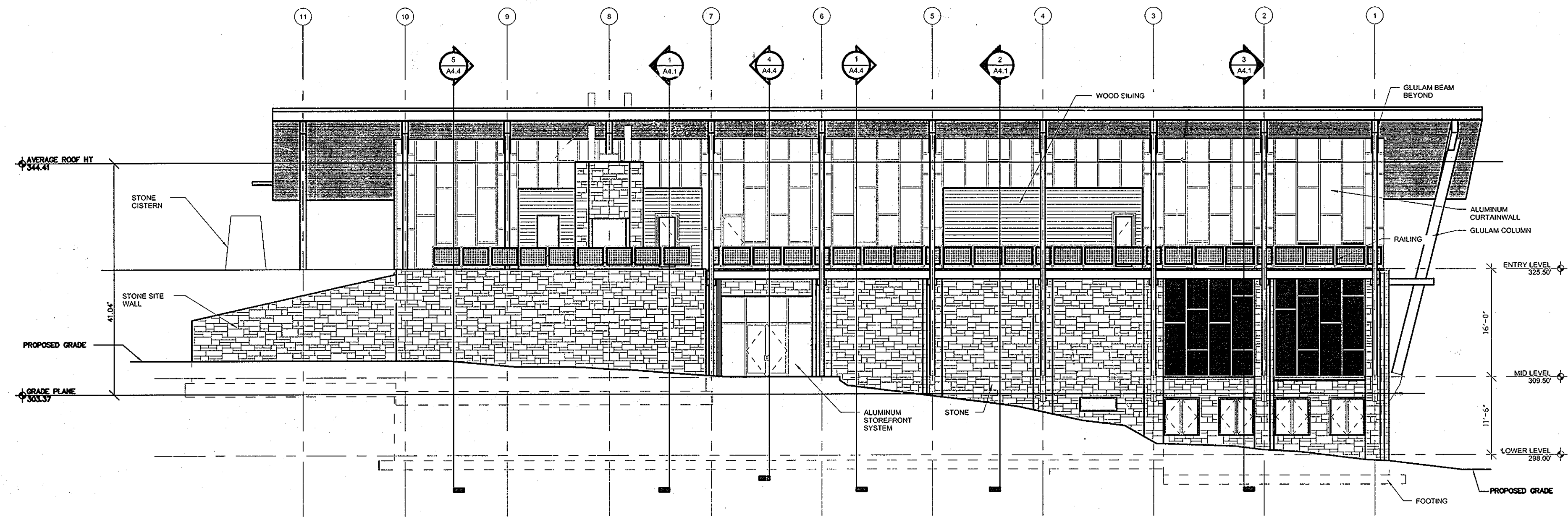
No.	Date	Description

BUILDING ELEVATIONS

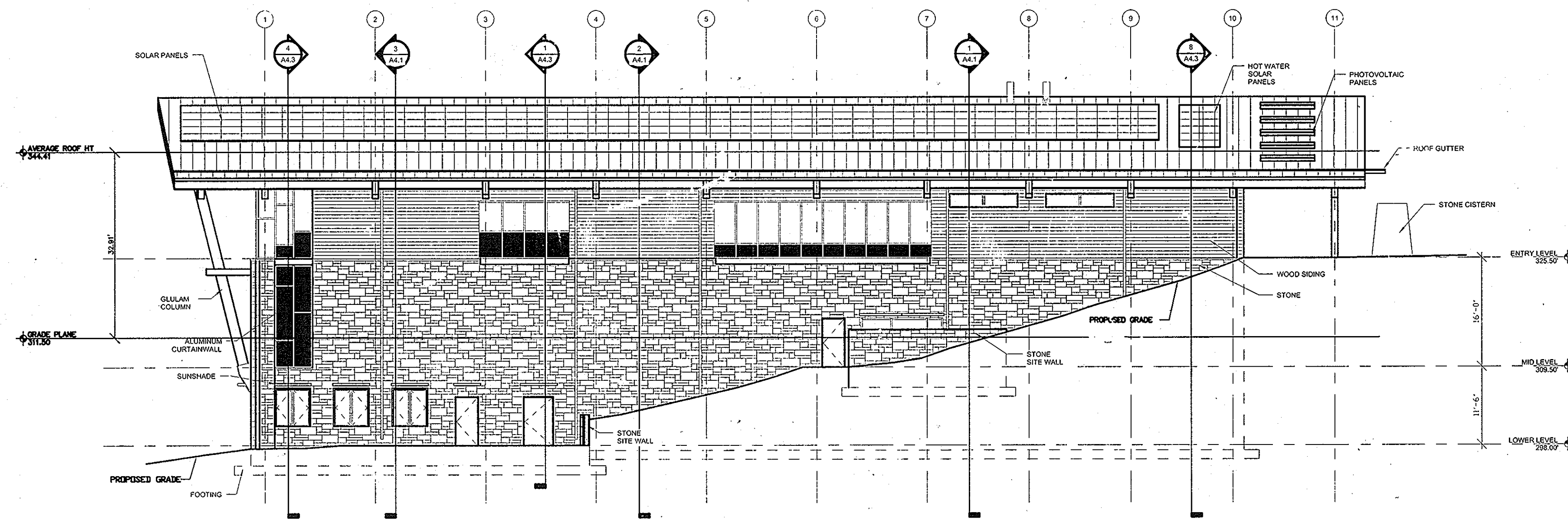
A3.1

Sheet 35 Of 37

SDP-09-02



1 EAST ELEVATION
A3.2 1/8" = 1'-0"



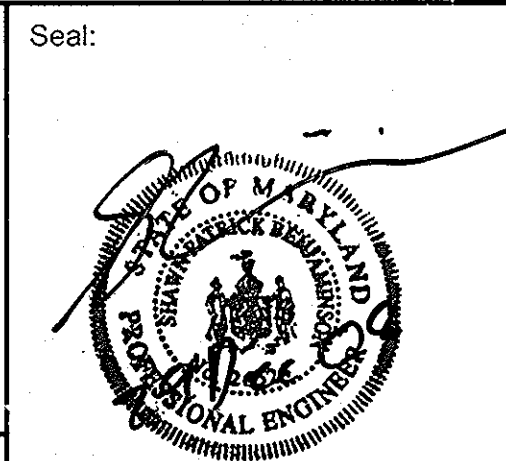
2 WEST ELEVATION
A3.2 1/8" = 1'-0"

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 Edwards 1-12-09
CHIEF, DEVELOPMENT ENGINEERING DIVISION
Cindy Harris 1/14/09
CHIEF, DIVISION OF LAND DEVELOPMENT
Thomas J. Suttell 1/14/09
DIRECTOR, DEP.

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



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 MARYLAND.
LICENSE NUMBER: 25524
EXPIRATION DATE: 19 JULY 2009

GW/ES WORRALL WRIGHT & OHATNICK INCORPORATED

GW
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ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
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		Job No. SDP-09-02	KDL	Drawn
Revisions:		Scale	SPB	Checked
No.	Date	Description	Date December 29, 2008	SPB
			Approved	
			Drawing Title	Drawing Number
			BUILDING ELEVATIONS	A3.2
			Sheet	39 of 37

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 1/13/09
KS

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

- 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.

2.05 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.

2.06 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 +2% to -5% of optimum.

- D. Only lightweight hand-operated equipment shall be allowed within 5 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.

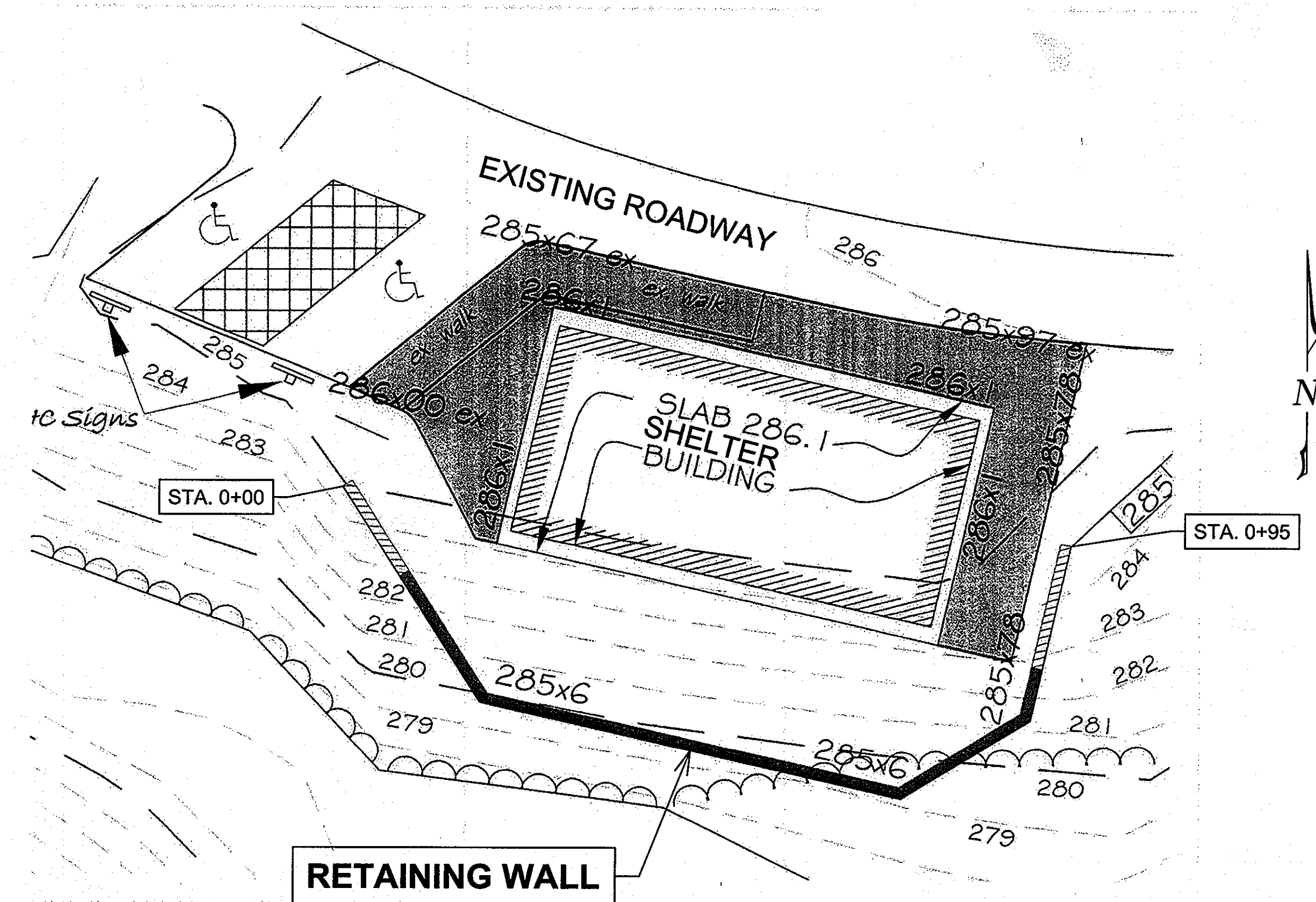
3.06 Cap Installation

- A. Cap units shall be glued to underlying units with an all-weather adhesive recommended by the manufacturer.

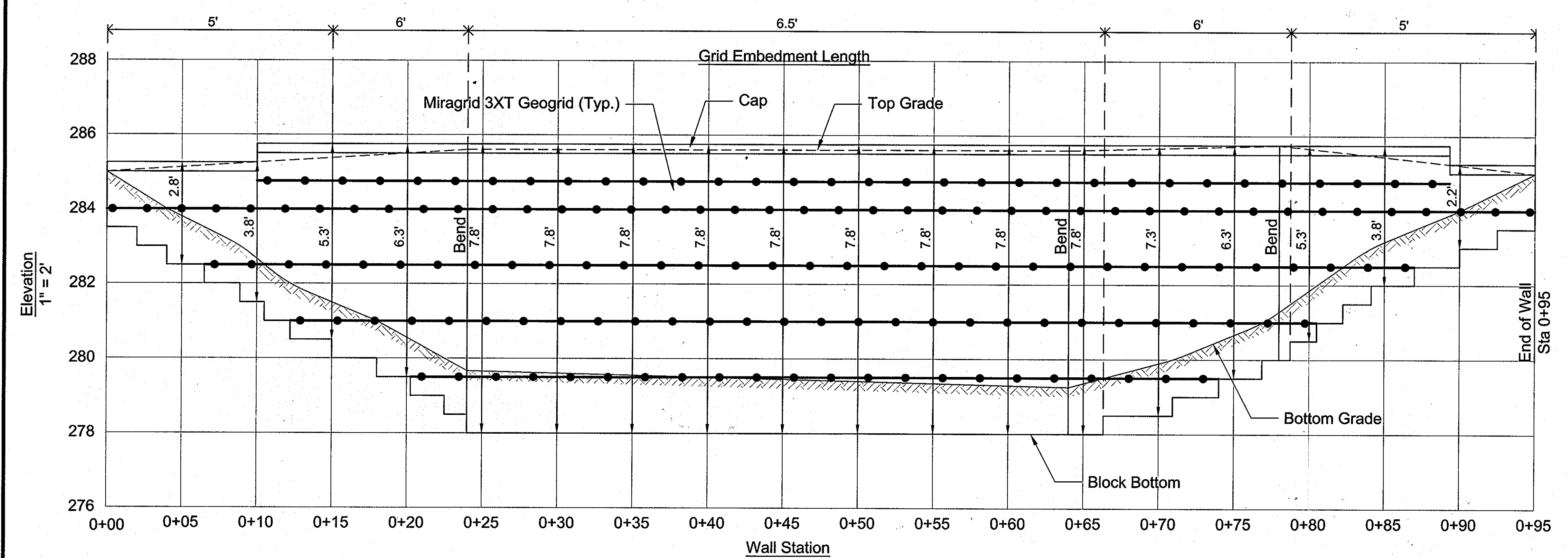
3.07 Field Quality Control

- A. The Owner shall engage inspection and testing services, including independent laboratories, to provide quality assurance and testing services during construction.

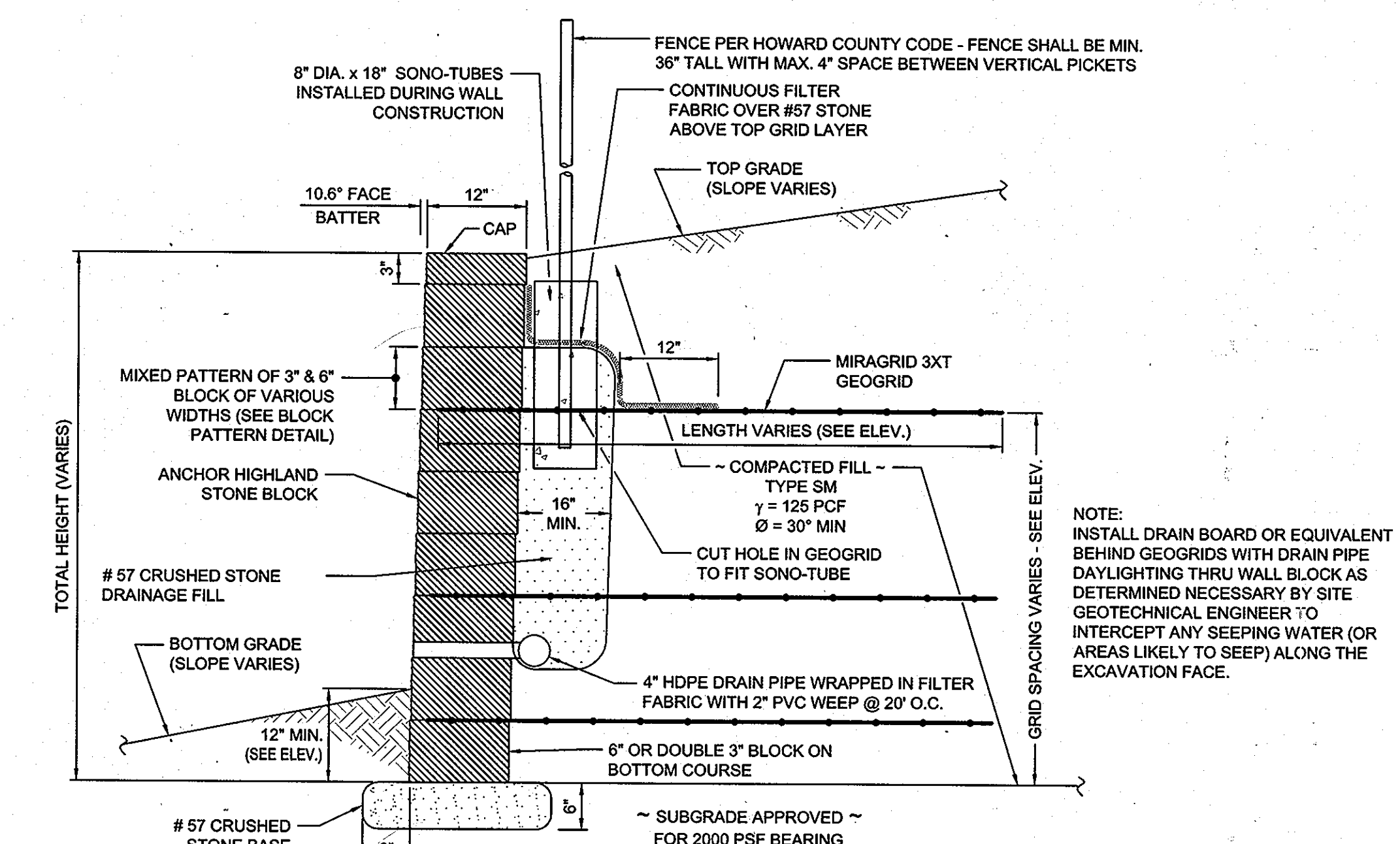
- B. As a minimum, quality assurance testing should include foundation soil inspection, soil and backfill testing, verification of design parameters, and observation of construction for general compliance with design drawings and specifications.



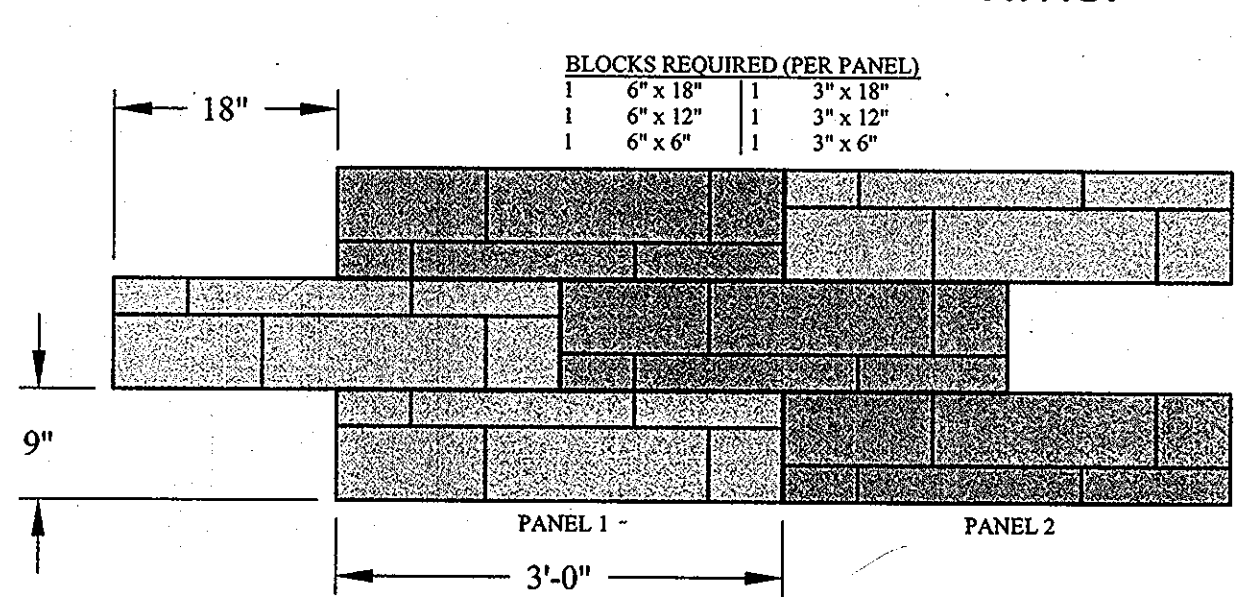
WALL LOCATION PLAN
1" = 10'



WALL ELEVATION
1" = 5'



TYPICAL WALL SECTION
N.T.S.



BLOCK PATTERN DETAIL
N.T.S.

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

WALL ELEVATION

DIRECTOR: *Paul M. Leger* DATE: 11/5/13

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *Charles Edwards* DATE: 11/4/13

CHIEF, DIVISION OF LAND DEVELOPMENT: *Victor Delano* DATE: 11/5/13

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14434, EXPIRATION DATE: 03/31/13.

STATE OF MARYLAND
JAMES W. WARREN
PROFESSIONAL ENGINEER

HILLIS-CARNES
ENGINEERING ASSOCIATES

10975 Guilford Road, Suite A
(410) 880-4788

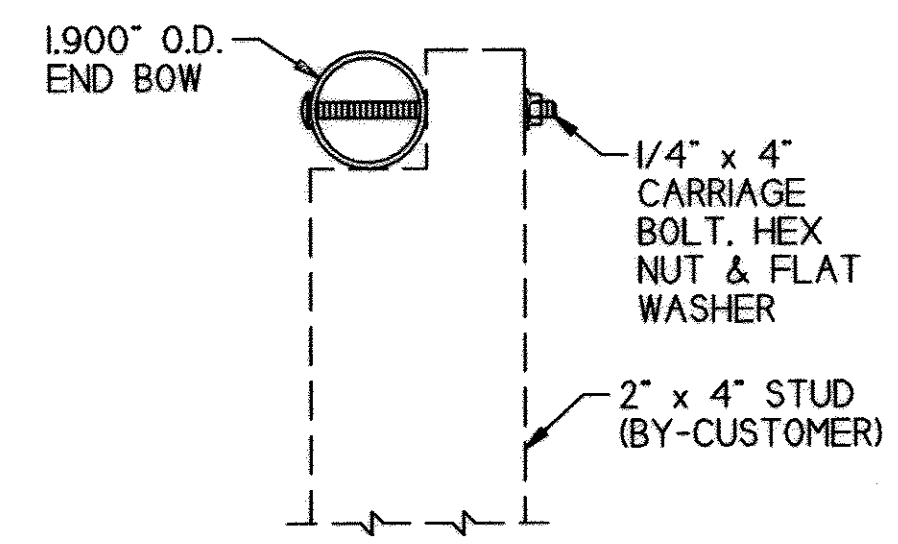
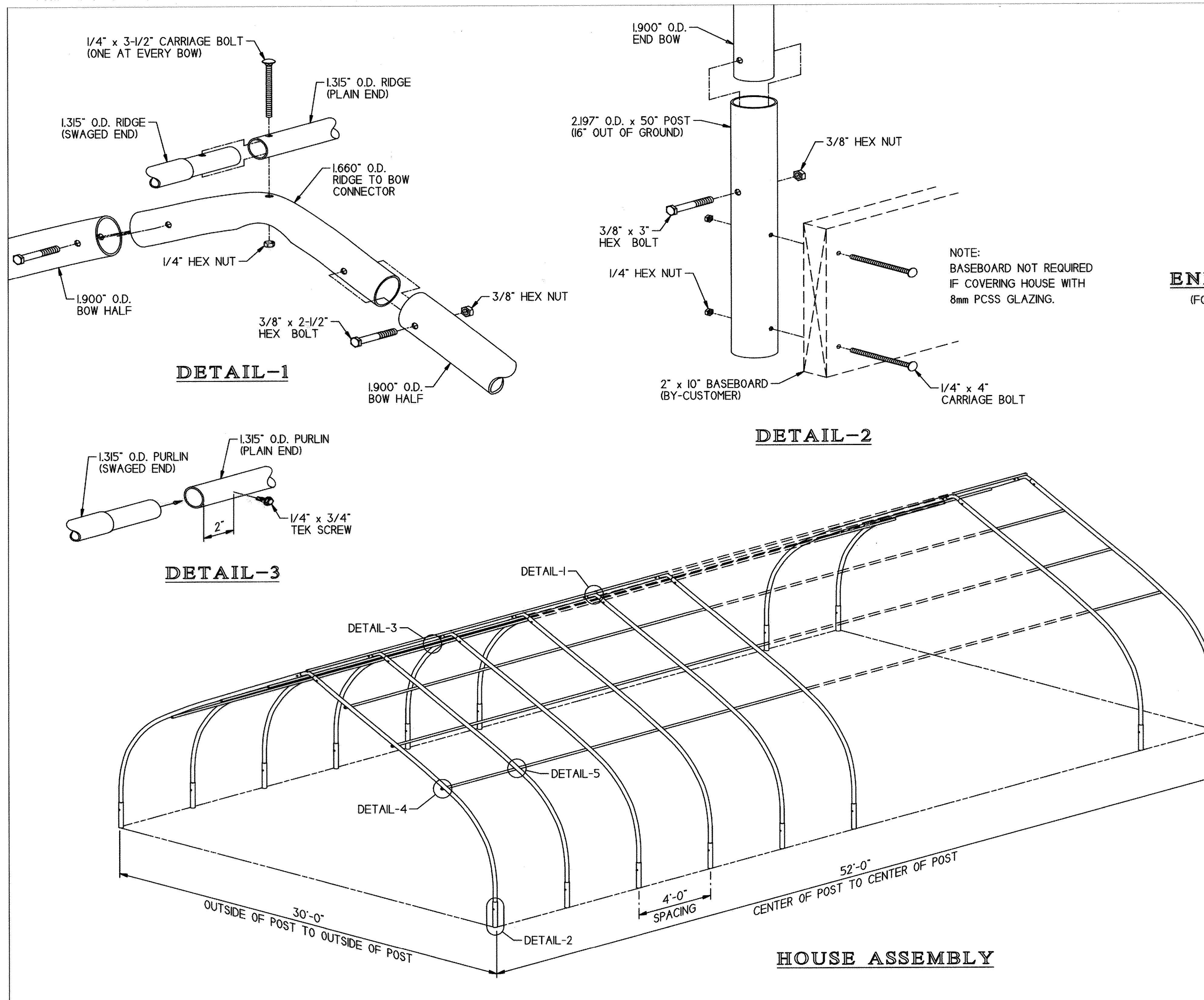
Annapolis Junction, MD
Fax: (410) 880-4098

RETAINING WALL CONSTRUCTION DETAILS

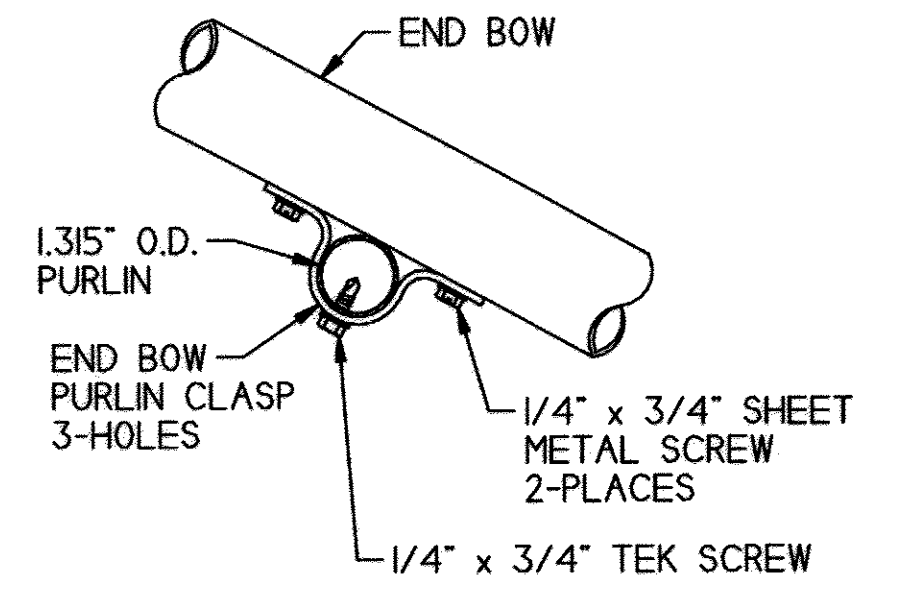
ROBINSON NATURE CENTER - SHELTER BUILDING HOWARD COUNTY, MD

REVISIONS:	JOB NUMBER: 12532-A	DESIGNED BY: HM
	SCALE: AS SHOWN	DRAWN BY: HM
	DATE: 01/02/13	APPROVED BY: RWS
		37 of 37 SHEET

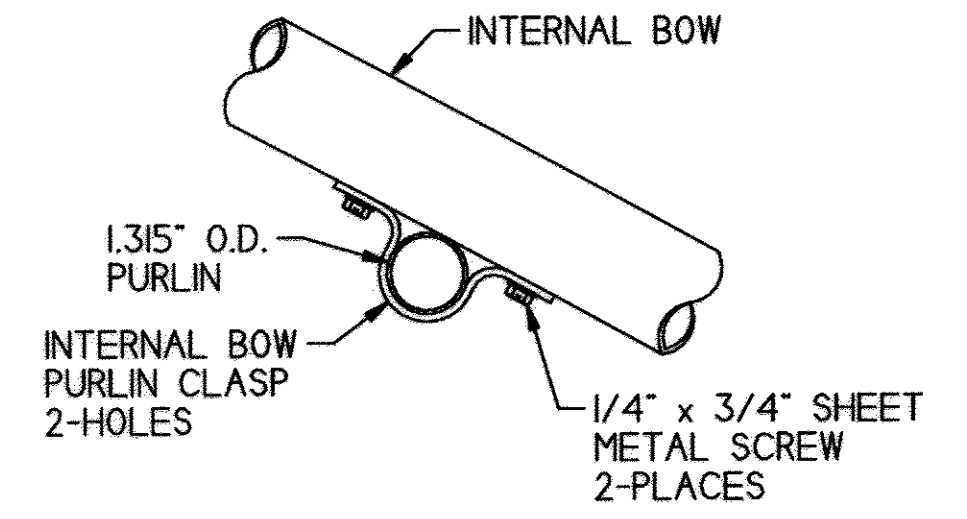
SDP-09-002



ENDWALL STUD ATTACHMENT
(FOR METAL ENDWALL FRAMING-SEE JOB SPECIFIC DRAWINGS)



DETAIL-4



DETAIL-5

NOTE:
DRAWINGS ARE BY "OTHERS" AND
ARE SHOWN FOR GRAPHICAL
REPRESENTATION ONLY.

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WASHINGTON, NC 27889
800-631-2226
WWW.XSMITH.COM

Smith

TITLE
STORM KING 30' x 52'
ASSEMBLY & DETAILS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division 5-1-14
 Chief, Division of Land Development 5-5-14
 Director, DPZ 5/6/14

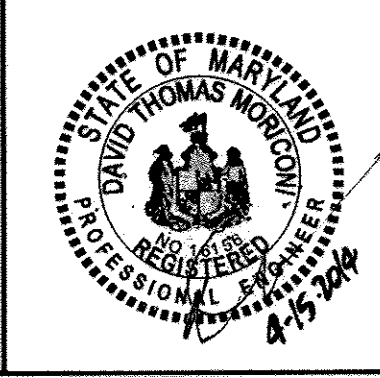
APPROVED
PLANNING BOARD OF HOWARD COUNTY
 DATE 11-13-08

1 BUTTERFLY STRUCTURE - BY OTHERS
 A6.1 SCALE: N.T.S.

URS
 URS CORPORATION
 4 NORTH PARK DRIVE
 SUITE 300
 HUNT VALLEY, MARYLAND 21030
 PHONE: 410-785-7220/FAX: 410-785-8818

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



REVISION No.	REVISION DATE	DESCRIPTION
1	8-15-2014	NEW SHEET

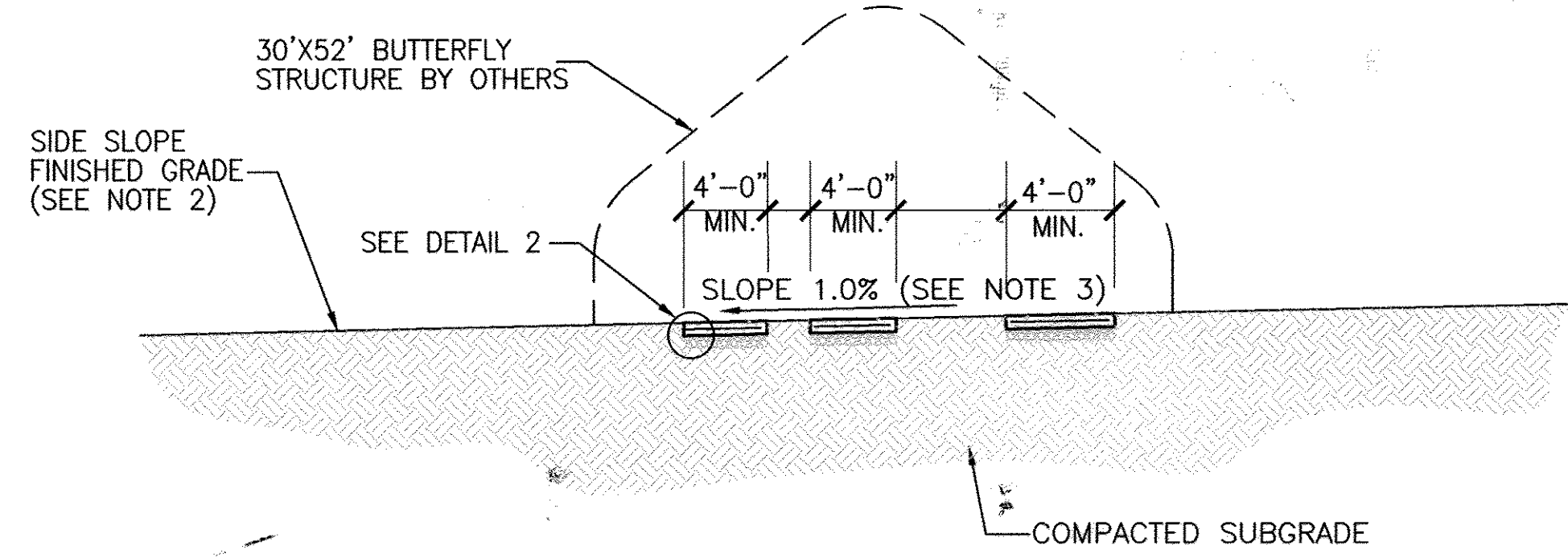
Robinson JAMES & ANNE
 NATURE CENTER
 ROBINSON NATURE CENTER
 HOWARD COUNTY DEPARTMENT OF
 RECREATION AND PARKS

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.: 360 OF 37
A6.1

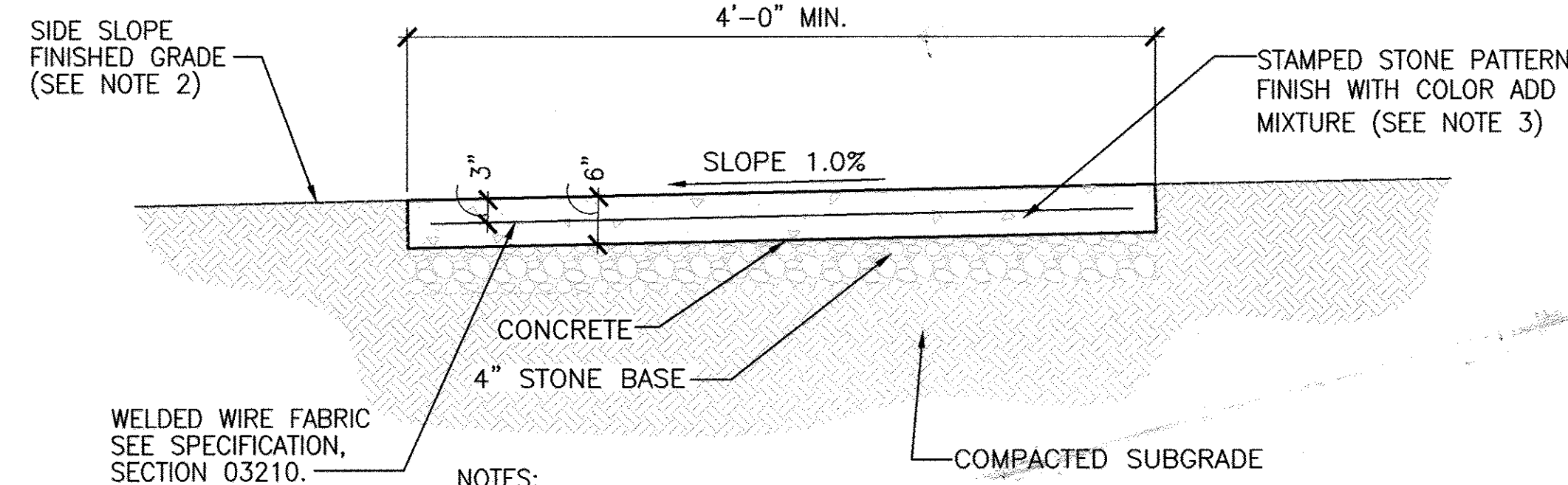
POINT NO.	ELEVATION	NORTHING	EASTING
164	325.03	554,959.87	1,342,338.25
165	325.04	554,963.85	1,342,339.69
166	325.09	554,966.93	1,342,344.46
167	325.12	554,971.23	1,342,347.02
168	325.12	554,977.74	1,342,347.72
169	325.09	554,981.06	1,342,349.61
170	325.06	554,984.74	1,342,349.96
171	325.08	554,989.52	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	555,008.98	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	1,342,329.25
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	554,988.44	1,342,327.82
223	324.93	555,000.43	1,342,327.86
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	1,342,337.94
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.



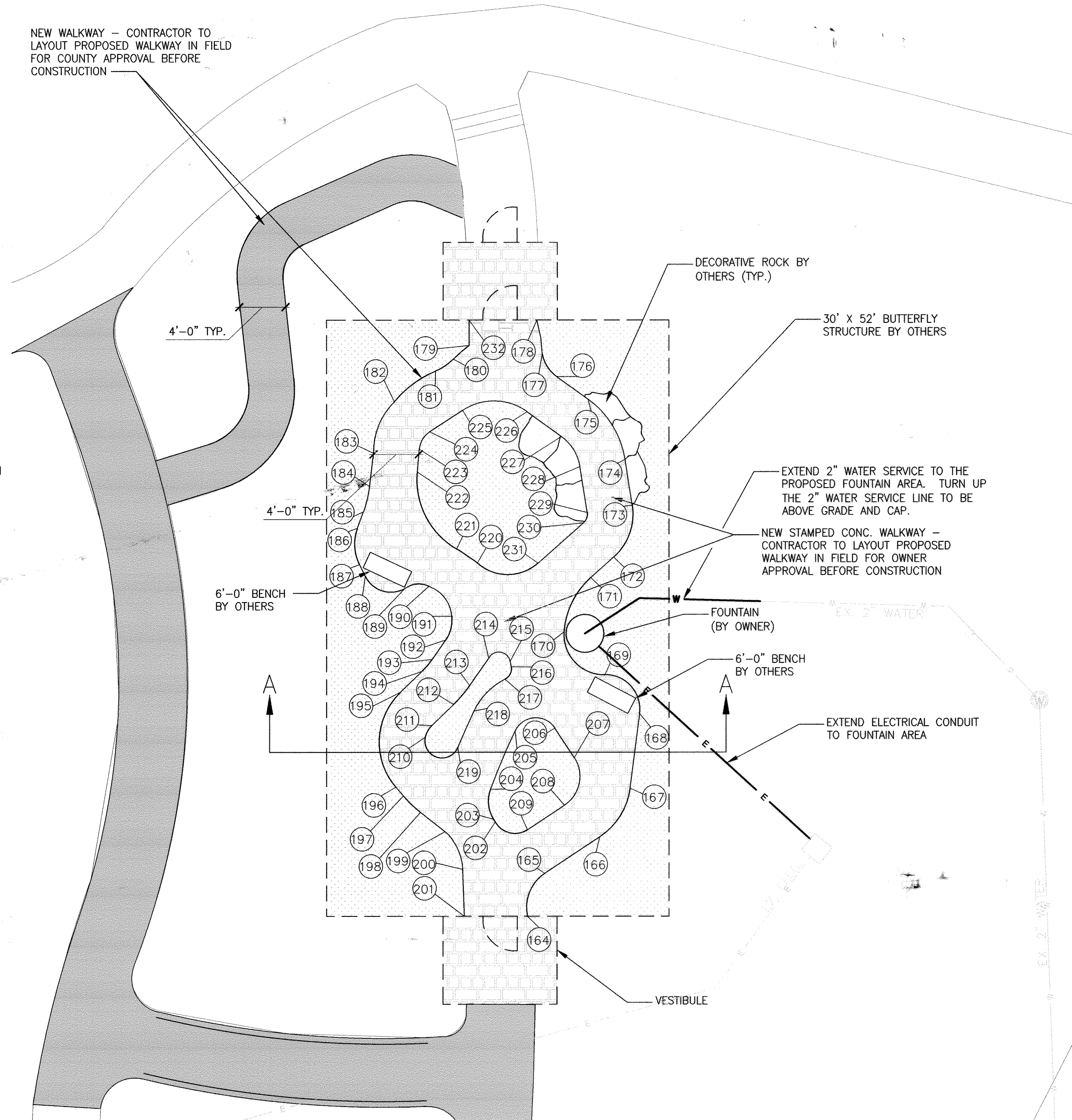
- NOTES:
- 1) TO MEET ADA THE CROSS SLOPE SHALL NOT EXCEED 2%; RUNNING SLOPE SHALL NOT EXCEED 4.5%
 - 2) PROVIDE 4" TOPSOIL, SEED, AND MULCH TO DISTURBED TURF AREAS.
 - 3) SIDEWALK WIDTH AND LAYOUT VARIES. SEE PATH LAYOUT AND CONSTRUCTION CONTROL COORDINATES.

3 SECTION A-A
A6.0 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 TYPICAL SIDEWALK SECTION
A6.0 SCALE: 1/8"=1'-0"



1 BUTTERFLY STRUCTURE PATH LAYOUT
A6.0 SCALE: 1/4"=1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING
4-29-14
DATE
5-05-14
DATE
5/6/14
DATE

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

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

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

Robinson JAMES & ANNE
NATURE CENTER

**ROBINSON NATURE CENTER
HOWARD COUNTY DEPARTMENT OF
RECREATION AND PARKS**

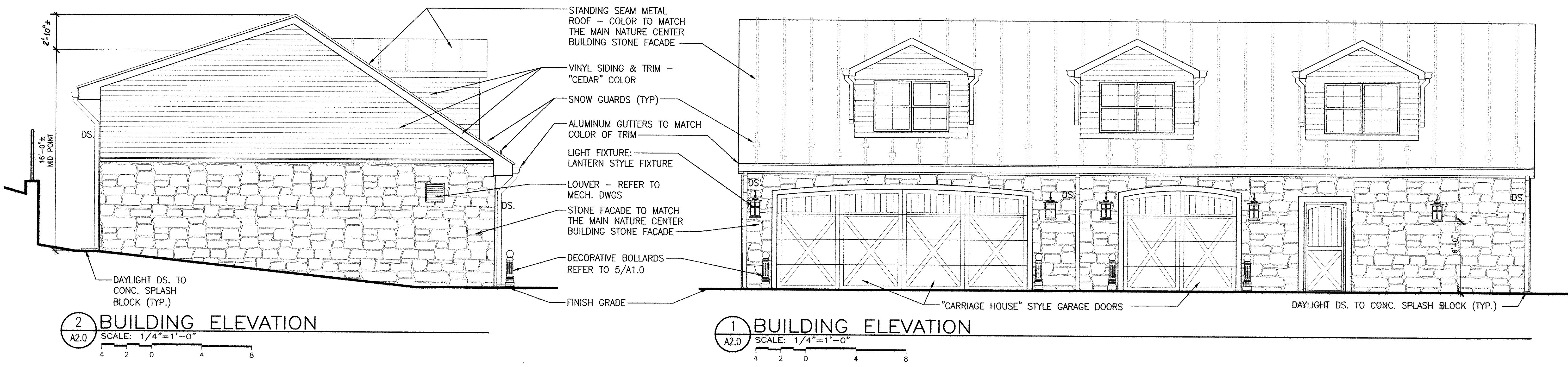
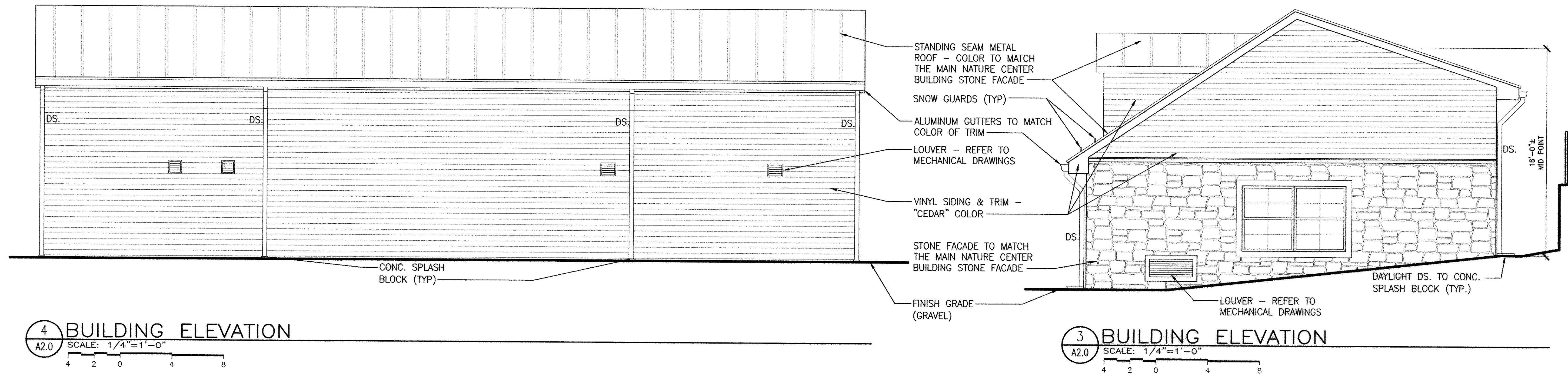
PROJECT TITLE: **ROBINSON NATURE CENTER
STORAGE BUILDING AND BUTTERFLY HOUSE**

SHEET TITLE: **BUTTERFLY STRUCTURE
PATH LAYOUT PLAN**

SCALE: AS NOTED DATE: APRIL, 2014

URS PROJECT NO: 36C OF 37
20834595

SHEET No.:
A6.0



APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 4-29-14

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

CHIEF, DIVISION OF LAND DEVELOPMENT
[Signature]
 DATE: 5-05-14

DIRECTOR, DPZ
[Signature]
 DATE: 5/6/14

REVISION No.	REVISION DATE	DESCRIPTION
1	4-15-14	NEW SHEET

DESIGNED: M.J. HENNING	
DRAWN: M.J. HENNING	
CHECKED: L. GILBERT	
APPROVED: M.R. COLLINS	

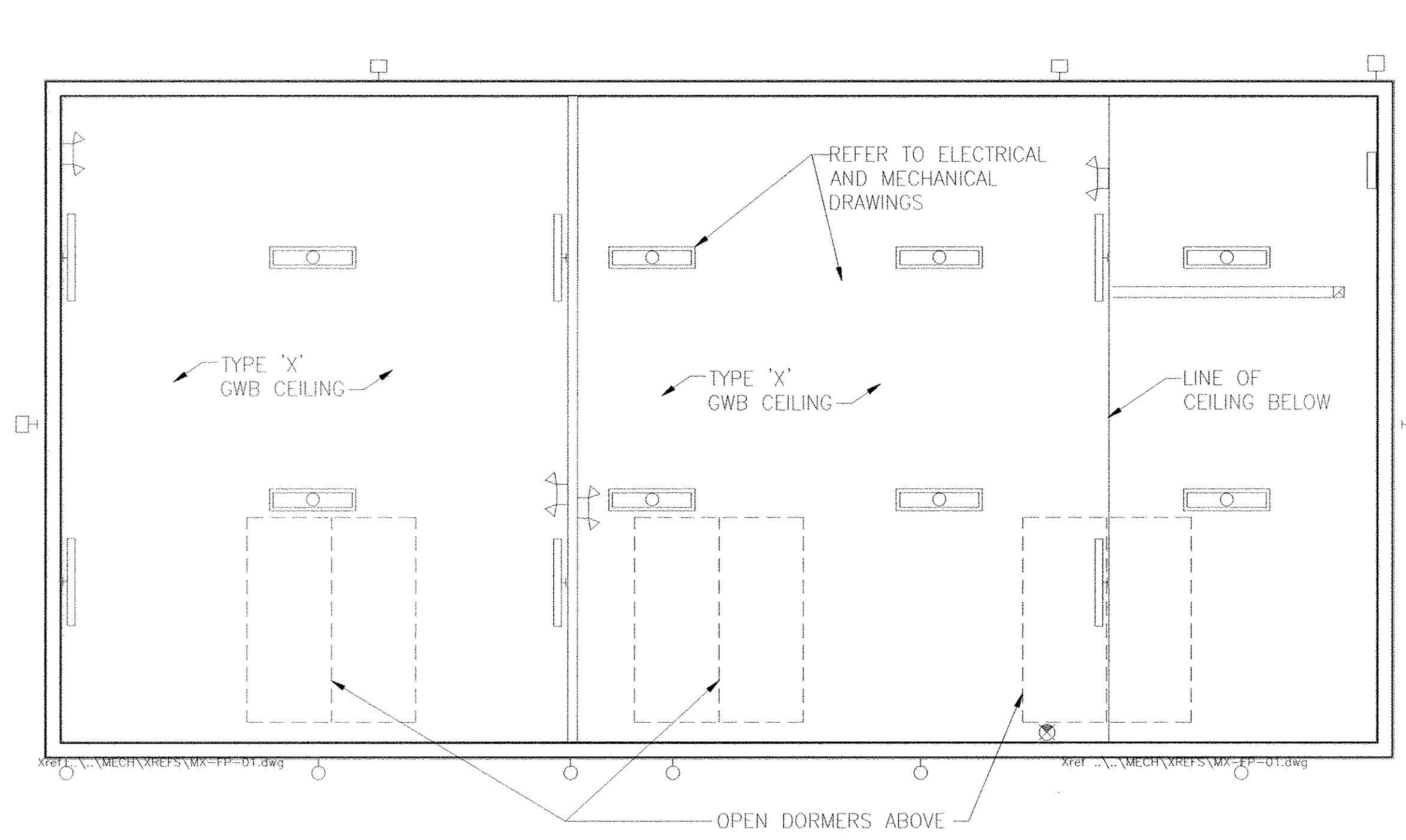
Robinson JAMES & ANNE
 NATURE CENTER

**ROBINSON NATURE CENTER
 HOWARD COUNTY DEPARTMENT OF
 RECREATION AND PARKS**

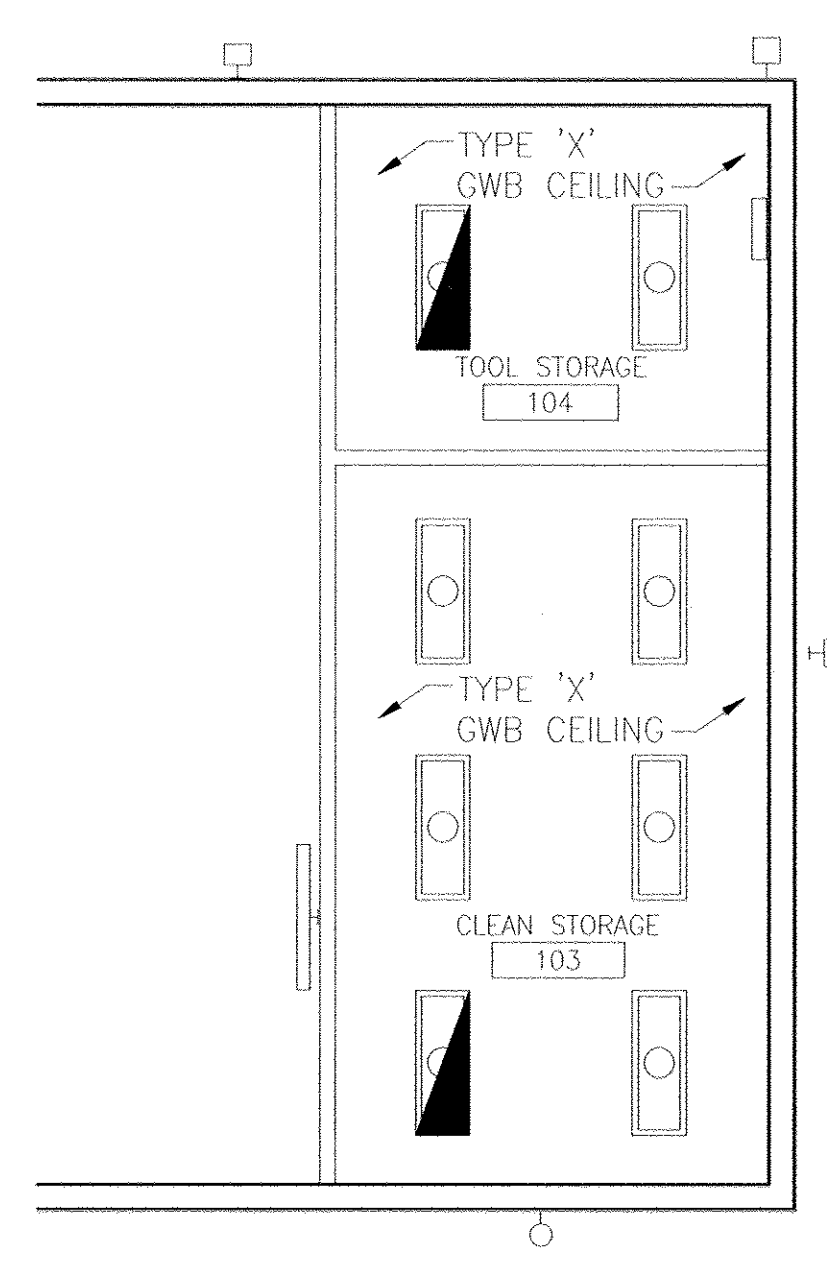
PROJECT TITLE: ROBINSON NATURE CENTER STORAGE BUILDING AND BUTTERFLY HOUSE	URS PROJECT NO: 20834595
SHEET TITLE: ELEVATIONS	SHEET No.: 36B OF 37
SCALE: AS NOTED	DATE: APRIL, 2014
A2.0	

URS
 URS CORPORATION
 4 NORTH PARK DRIVE
 SUITE 300
 HUNT VALLEY, MARYLAND 21030
 PHONE: 410-785-7220/FAX: 410-785-8818

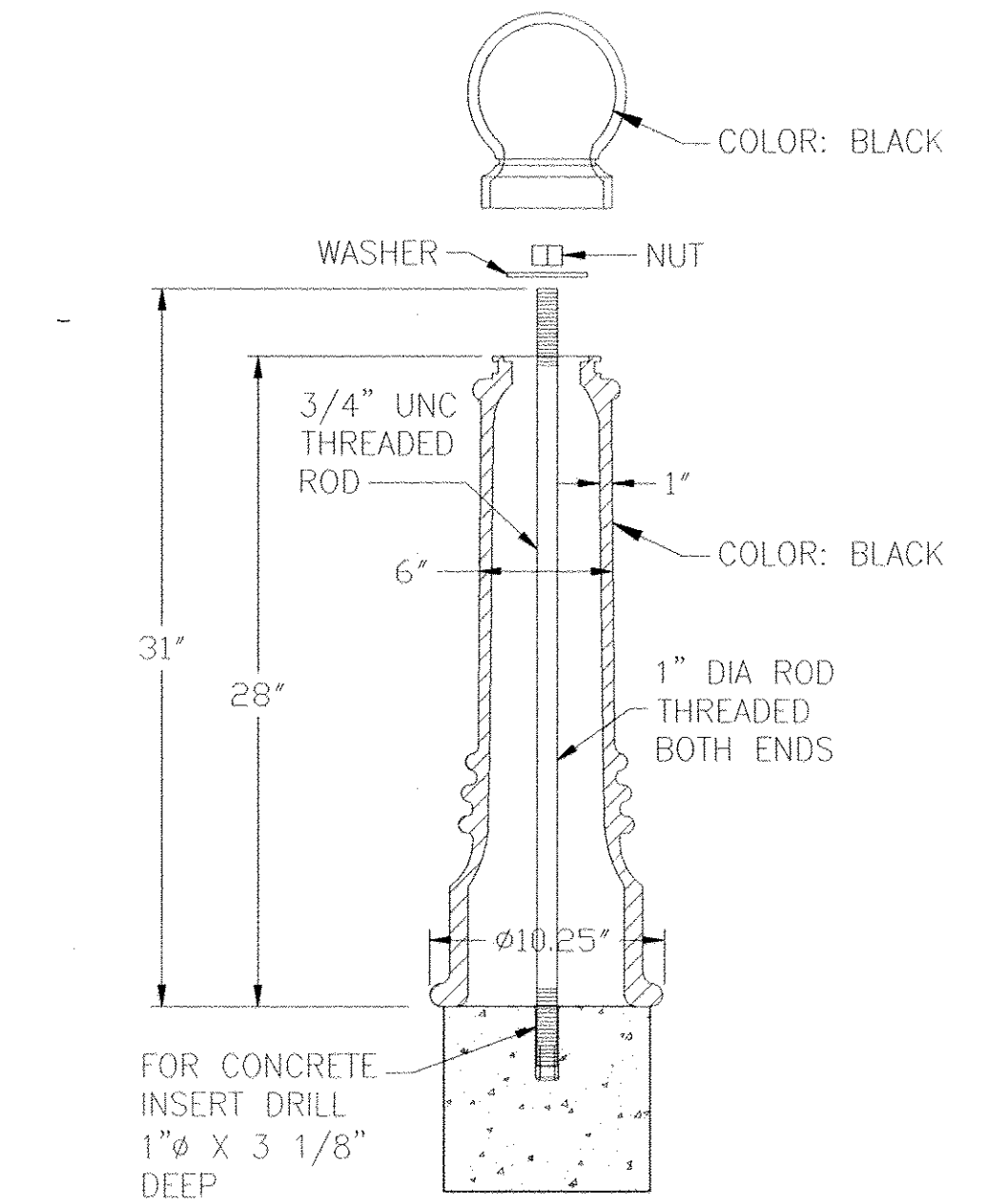
PROFESSIONAL CERTIFICATION: I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
 LICENSE NO. 9583 EXPIRATION DATE 07/03/2015



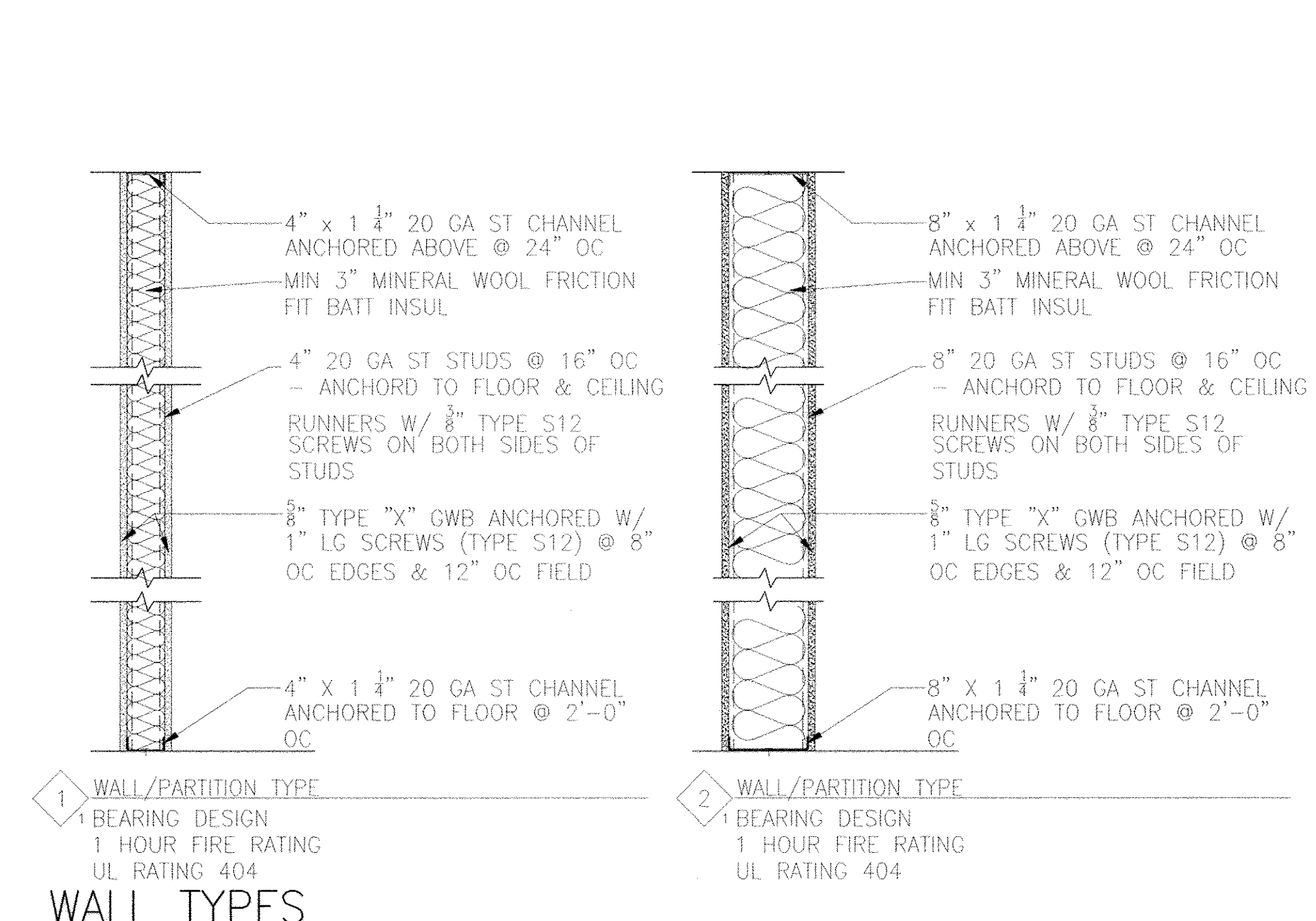
3 REFLECTED CEILING PLAN
 A1.0 SCALE: 3/16"=1'-0"
 4 2 0 4 8 12



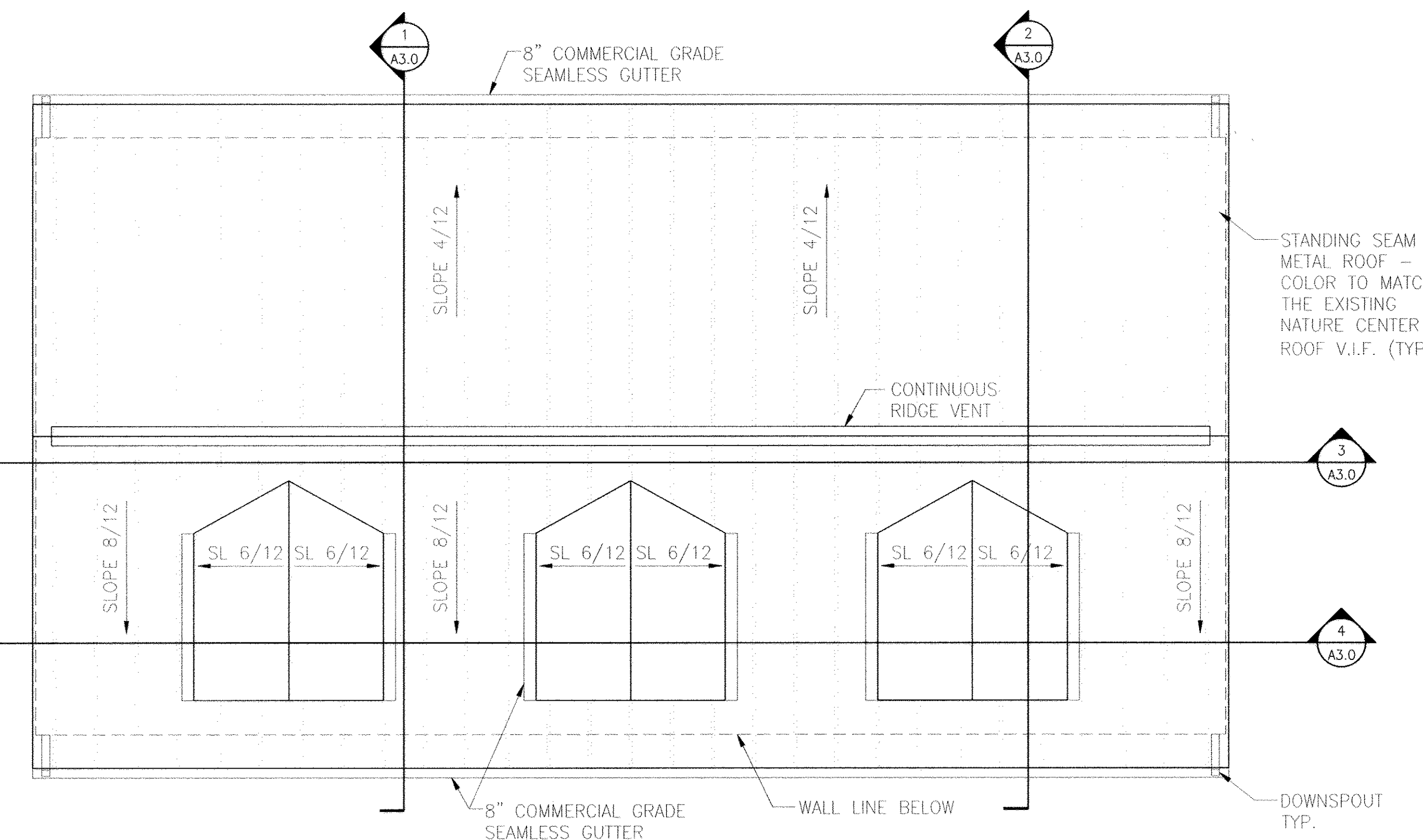
4 REFLECTED CEILING PLAN
 A1.0 SCALE: 3/16"=1'-0"
 4 2 0 4 8 12



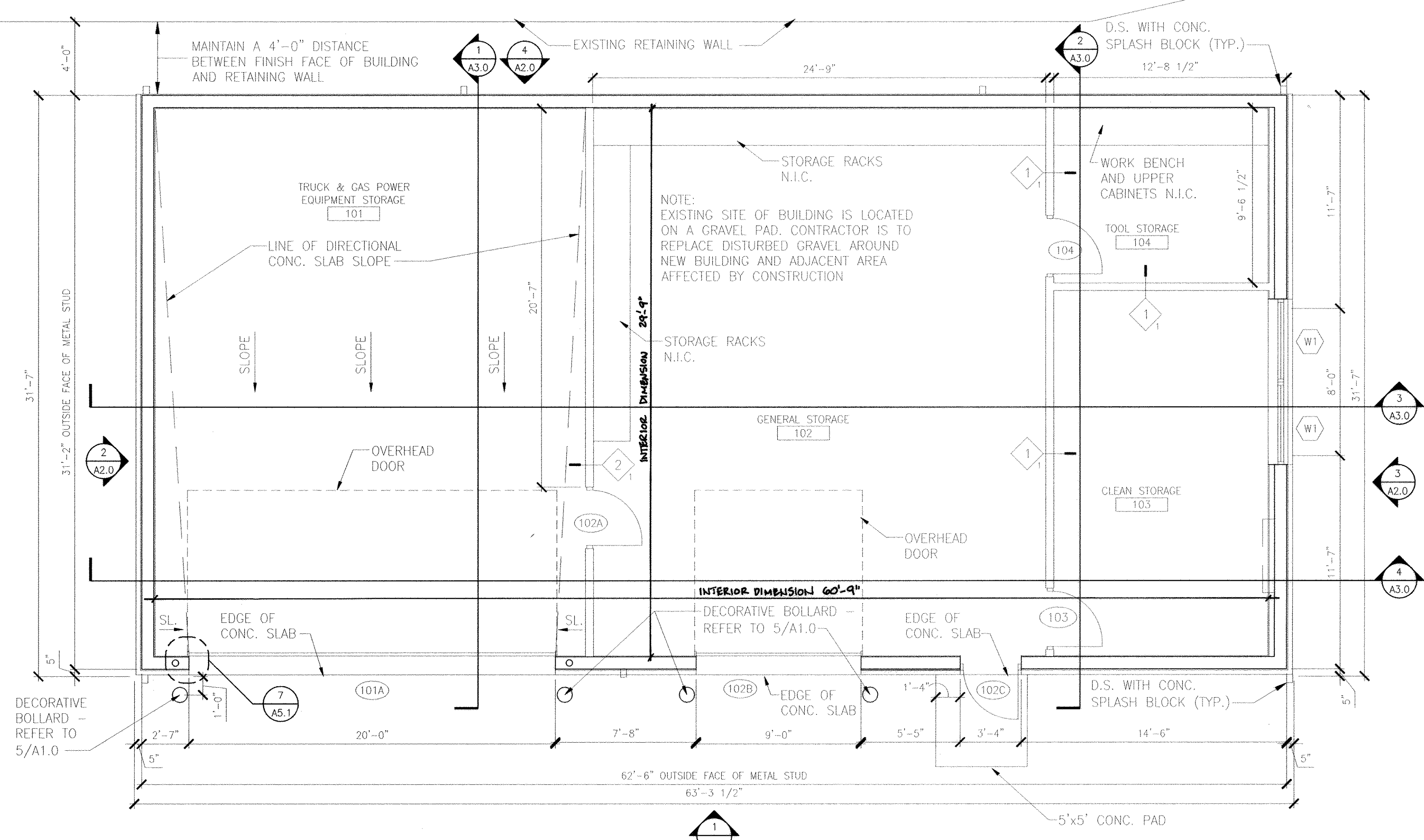
5 BOLLARD DETAIL
 A1.0 SCALE: 1 1/2"=1'-0"
 1 9 6 3 0 1



WALL TYPES
 SCALE: N.T.S.



2 ROOF PLAN
 A1.0 SCALE: 3/16"=1'-0"
 4 2 0 4 8 12



1 FLOOR LEVEL
 A1.0 SCALE: 1/4"=1'-0"
 4 2 0 4 8

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 4-29-14

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

APPROVED: DIVISION OF LAND DEVELOPMENT
Director
 DIRECTOR, DPZ
 DATE: 5-6-14

URS
 URS CORPORATION
 4 NORTH PARK DRIVE
 SUITE 300
 HUNT VALLEY, MARYLAND 21050
 PHONE: 410-785-7220/FAX: 410-785-6818

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

ROBINSON NATURE CENTER
 HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS

Robinson
 JAMES & ANNE
 NATURE CENTER

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