SITE DEVELOPMENT PLAN
GRACE COMMUNITY CHURCH
PHASE I & II
HOWARD COUNTY, MARYLAND

GENERAL NOTES

1. Property is within the Metropolit Distri t.
2. Public water and sewer will be us with this site.
3. The Contractor shall notify the fo ou in utility companies or encies at least five(5 working days before starting work sh on these plans:

State Highway dministration	410.531.553
BGE(Contractor Services)	410.850.462
BGE(Undergrou Damage Control)	410.787.906
Miss Utility	1.800.257 7
Colonial Pipeline Company	410.795.13
Howard Count Dept. of Public Works, Bureau of Utilities	410.313.49
Howard Count ealth Department	410.313.26
AT&T	1.800.252.
Verizon	1.800.743.0 /410.224.9210

4. The contractor shall notify Miss Utility at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
5. The contractor shall notify the Department of Public Works/Bureau of Engineering Construction Inspection Division at (410) 313-1880 at least five (5) working days prior the start of work.
6. The shown hereon complies with the minimum ownership, width and lot area as required by t Maryland State Department of the Environment.
7. This project is in conformance with the latest Howard County Standards unless waivers have been oved.
8. No cl g, grading or construction is permitted within wetlands, streams or their required buffers. Strea Disturbance at the Storm Water Management outfall approved under MDE tracking/permit numbe 200461672.
9. This plan has been prepared in accordance with the provisions of section 16.124 of the Howard Count code and Landscape Manual. 2. Financial surety for the required landscaping must be poste as part of the Developer's Agreement in the amount of $49,050.00 (96 shade trees @ $300.00 each, 30 ornamental trees @ $150.00 each, and 105 evergreen trees @ $150.00 each).
10. Al curb and gutter to be Howard County Standard R-3.01 Curb and Gutter unless otherwise noted. See Detail Sheet 6.
11. All paving to be P-1 unless otherwise noted, see sheets 2-6 for limits and sheet 6 for details.
12. Al proposed spot elevations along curb and gutter are to the flowline unless otherwise noted.
13. project complies with the requirements of section 16.1200 of the Howard County Code for Forest Conservation by planting 4.07 acres of afforestation and 0.84 acres of retention within Fore Conservation Easement 1. Total easement area = 4.92ac., $95,962.68 surety posted with the Developer's Agreement. See record plat #16724-16729.
14. All construction shall be in accordance with the latest standards and specifications of Howard County in addition to MSHA standards and specifications if applicable.
15. Contractor is responsible to construct all handicap ramps and handicap access in accordance with current ADA requirements. Handicap Ramps to conform to Howard County Standard Detail R 4.03 or Detail Sheet 6 (See plan for type). See sheet 6 for Handicap Parking Signs.
16. Any damage to public right-of ways, paving or existing utilities will be corrected at the Contractor's expense.
17. Existing utilities are located by the use of any or all of the following: Road Construction Plans, Surveys, Public Wa and Sewer Plans and other available record drawings. Approx location of the existing utilities are shown for the contractors information. Contractor shall locate existing ties in advance of construction activities and take a necessary precautions to protect the existing utilities and to maintain uninterrupted service. damage incurred due to the contractor's operation shall be repaired imme y at the contractor's expense.
18. All reinforced concrete for storm drain structures shall have a minimum of twenty-eight (28) days strength at 3,500 psi. Any RCP Storm Drain pipe bedding shall be Class 'C'.
19. All HDPE pipe specification and installation shall meet AASHTO M-252 Type S, M 294 and ASTM D respectively.
20. Soil compaction spec ons require ents, methods and materials are to be in accordance with the recommend of the project Geotechnical Engineer. Geotechnical Engineer to confirm acceptability oposed paving section, based on soil test, prior to construction.
21. All traffic control vi , markings and signing shall be in accordance with the te edition of the Manual on Uniform Traffic Control Devices (MUTCD)
22. Estimate of Earthwork quantities are provided solely for the purpose of calculatin fees.
23. The coordinates own h n are based on the Howard County Geodetic Control, ich is based upon the ryl e Plane Coordinate System Howard County monumen numbers 41GA 2 re used for this project.
24. ndary for Lots 1 2 aker from Record Plat #16724-16729. Two foot contours Lot 1 are based on a field run survey prepared by C.B. Miller and Associates, Inc. in November 2002. Two foot contours for Lot re based on a field run survey prepared by C.B. Miller and Associates Inc. in December, 2001. Five foot contours for Lot 2 are based on Howard County 1993 Aerial Topographic Surveys.
25. Geotechnical reports provided by Herbst/Benson & Associates and dated December 12 2002, November 17, 2003 and December 18, 2003 are integrated with these plans and should be evaluated together with these plans for bid and construction purposes.
26. Traffic study provided by The Traffic Group, Inc. on November 06, 2003.
27. A noise study is not required for this project due to Non-Residential use.
28. There are no known cemeteries or burial grounds located on this site.
29. The proposed Stormwater Management facility will be privately owned and maintained.
30. Stormwater Management is provided via a Wet Pond Extended Detention facility for both water quality and quantity. The SWM Facility is to be privately owned and maintained. The SWM Facility ssification is Hazard Class 'A'.
31. All exterior light fixtures shall be oriented to direct light inwards and downwards on site away from all adjoining residential properties and public roads in accordance with Section 134 of the Howard County Zoning Regulations. Parking lot lights shall be full cutoff, 400W per fixture, metal halide mounted on 25 foot tall dark bronze poles. Wall mounted lights to be metal halide or fluorescent downlights. See Architectural plans for more details.
32. For bearings and distances of Forest Conservation Easements, see Record Plat #16724-16729 recorded in the Land Records of Howard County.
33. This project is subject to the amended Fifth Edition of the Subdivision and Land Development Regulations.
34. This Site Development Plan is for Phase I improvements only. Phase II and any other future improvements will require a Redline to this plan or a new SDP, to be determined by the Subdivision Review Committee.
35. Stormwater Management is provided for all development under this contract, for the future parking and building expansions, and an additional impervious surface for currently undefined potential use shown on the SWM report maps. If future development occurs beyond the future expansion shown, SWM based on requirements at time of submittal, will be provided.
36. Contractor to store screened topsoil on site, and redistribute in a 4" layer over the redistribution area
37. MDE tracking/permit number: 200461672
38. Existing well and septic system to be properly abandoned per Health Department requirements prior to issuance of a house demolition permit.
39. See Architectural Plans for stair and railing details. Contractor to provide sleeving in sidewalks for railings.
40. Contractor to provide wheel stops for handicap parking at any locations that have depressed curb bordering the parking space.
41. In accordance with Section 128.A.10 of the Howard County Zoning Regulations, setbacks to lot lines internal to a development are not required.
42. See sheet 6 for sidewalk details
43. This Site Development Plan is subject to case #BA-03-078-C. On April 12th 2004 the hearing examiner ordered that the petit of Grace Community Church for a con use for a structure used primarily for religious serv in an RR-DEO zoning be granted. Phase II of the development will be substantially completed by the end of 2015.
44. Lot 2 is subject to the covenants set forth in Liber 8532 Folio 341 stating that in the event of a future resubdivision of Lot 2 that would place Building One and Building Two on two separate lots, Building Two will require independant water supply for a fire suppression system.
45. (2) Project subject to BA Case # BA-08-018C to allow placement of shed, pavilion and light pole in the south-western portion of the property, approximately 300-ft south of existing parking. Conditional use case approved by Board of Appeals Hearing Examiner on 9th day June 2008.
46. (3) Howard County Department of Public Works granted approval on (1) April 9, 2009 and (2) December 11, 2007 requesting a waiver from Section 5.4B5 of Howard County Design Manual, Volume II Water and Sewer, to allow the minimum required horizontal clearance from 10-feet to 2-feet more or less between any permanent structure, i.e. (1) the dumpster's masonry wall and (2) the corner of Building One's Storage Room Addition, and the edge of the utility easement, the 20-foot Public Water and Utility Easement. No improvements shall be constructed or placed within the Public Water and Utility Easement that will impede or hinder access to the Water Main. Improvements such as decks, fencing and trees shall not be placed within the easement.
47. (3) Per Zoning letter dated 2-26-2008, the proposed improvements of Storage Area Addition and Porch with roof does not require a Conditional Use Hearing.
48. (4) The Zoning Division has allowed the existing barn on-site to remain.
49. (4) The building permit application deadline date for the red-line plan for the construction of the buildings proposed as part of Phase II is ~~February 7, 2014~~ March 12, 2016 (5) (1 year from DED's letter approving the red-line).
50. (4) Landscaping for the 16 shade trees proposed with Phase II will be bonded with the builder's grading permit in the amount of $4,800.00.

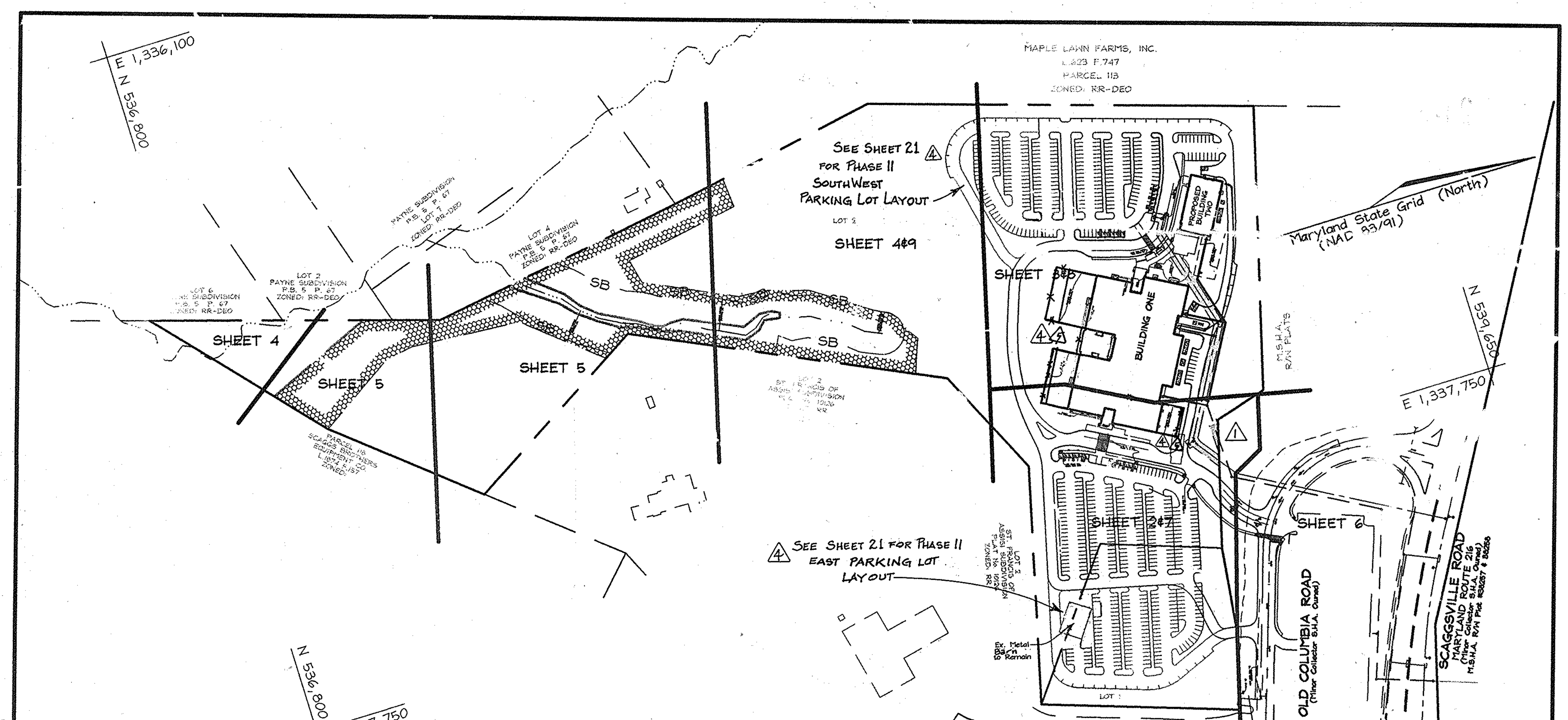
APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF OF DEVELOPMENT ENGINEERING DIVISION MAJ	7/30/04 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	8/3/04 DATE
DIRECTOR	8/3/04 DATE

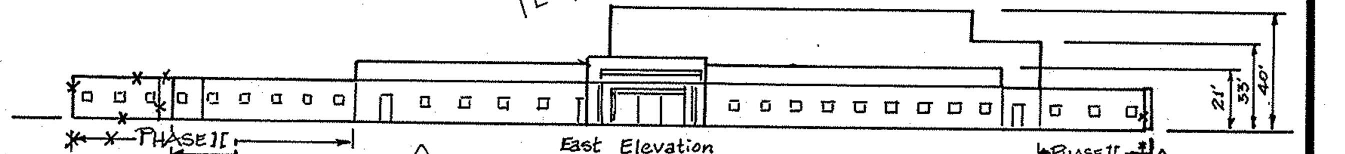
PROFESSIONAL CERTIFICATION
FOR REVISIONS # 1-5 ONLY

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 22418, Expiration Date: 07/29/2015.

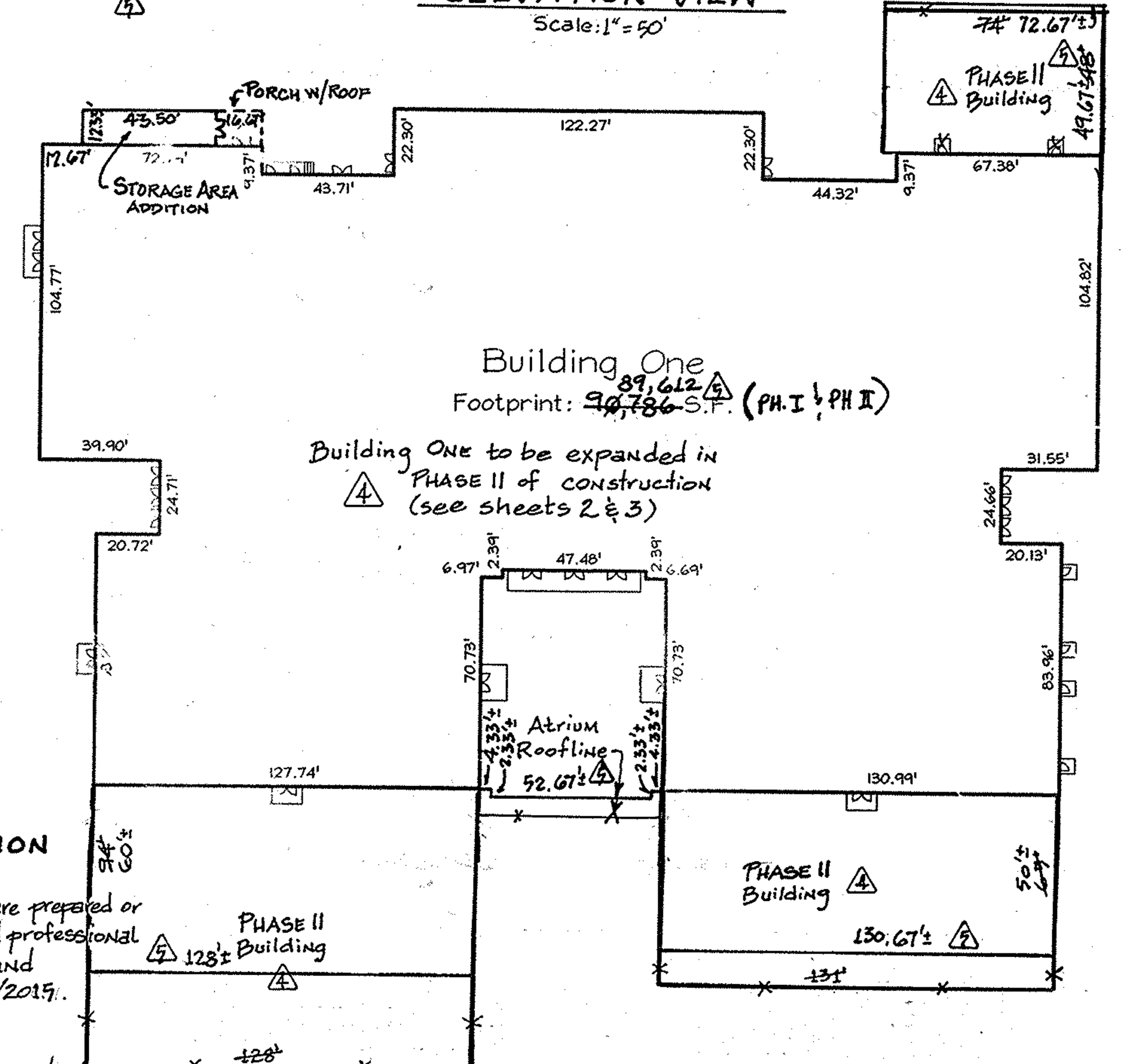
ZACHARIA Y. FISCH, P.E. #22418 — 3/26/15 DATE
FSH ASSOCIATES



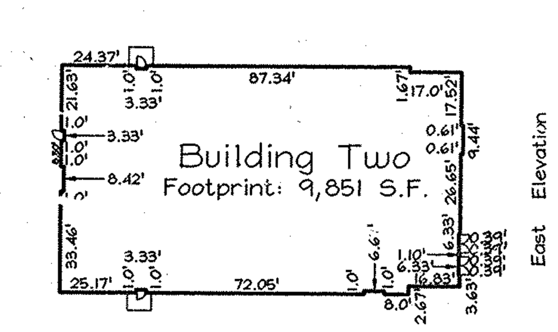
LOCATION MAP
Scale: 1"=200'



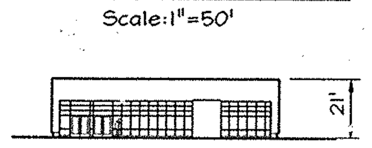
ELEVATION VIEW
Scale: 1"=50'



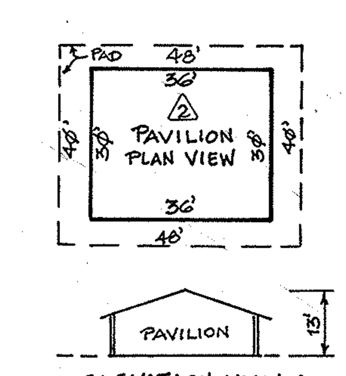
PLAN VIEW
Scale: 1"=50'

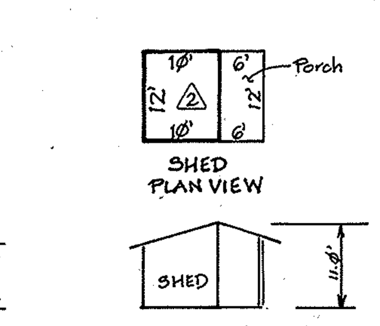


PLAN VIEW
Scale: 1"=50'



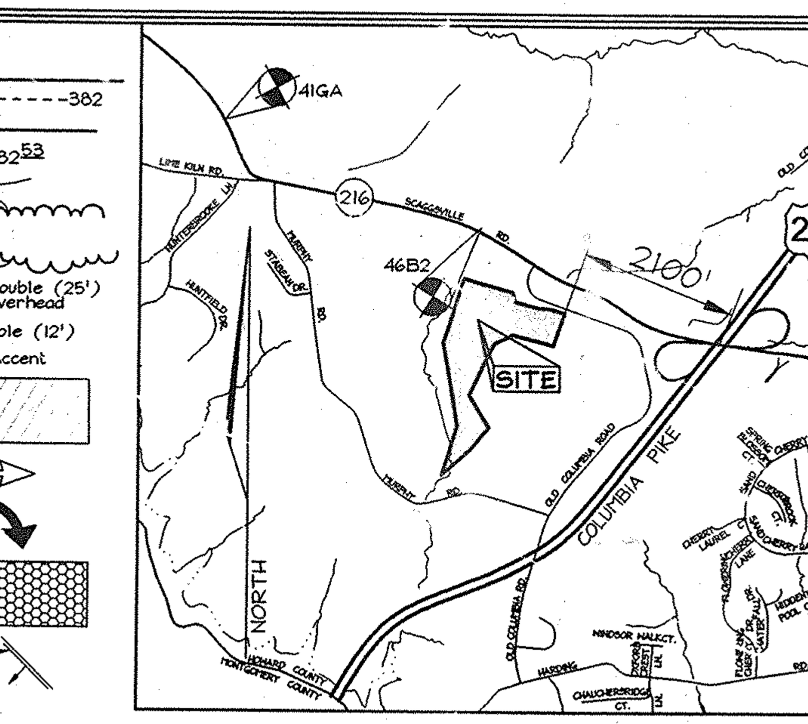
ELEVATION VIEW
Scale: 1"=50'





LEGEND

Existing Contour	-----382
Proposed Contour	82
Spot Elevation	+82.53
Direction of Flow	
Existing Trees to Remain	
Light Fixtures	Overhead; Wall Mounted; Double (25') Overhead; Pole (12'); Accent
P-2 Paving Section	
Existing Traffic Flow	
Proposed Traffic Flow	
Forest Conservation Easement	
Gutter slope direction	Face of Curb



VICINITY MAP
Scale: 1"=2000'

BENCHMARKS
Howard County Monuments:

Sta. 41GA N 165,018.7692 E 406,545.5671 El.: 141.0632 (meters)
N 541,399.078 E 1,333,808.248 El.: 462.805 (feet)
(Concrete Monument 5.5' SW of paving edge, 42.8' NW of C&P Pole #36.)

Sta. 46B2 N 164,588.5849 E 407,584.9942 El.: 144.8732 (meters)
N 539,987.715 E 1,3337,218.435 El.: 475.305 (feet)
(Concrete Monument 62.7' NE of G&E Pole, 34.2' N of nail in cedar stump.)

SHEET INDEX

DESCRIPTION	SHEET No.
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Site Development and Grading Plan	2 of 21
Site Development and Grading Plan	3 of 21
Site Development and Grading Plan	4 of 21
Site Development and Grading Plan	5 of 21
Old Columbia Road Improvements and Sediment and Erosion Control Plan	6 of 21
Soils, Sediment and Erosion Control Plan	7 of 21
Soils, Sediment and Erosion Control Plan	8 of 21
Soils, Sediment and Erosion Control Plan	9 of 21
Sediment and Erosion Control Details	10 of 21
Landscape Plan	11 of 21
Water & Sewer Profiles, Pond Planting Plan & Details and Sediment & Erosion Control Details	12 of 21
Stormdrain Drainage Area Map	13 of 21
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Storm Drain Profiles	15 of 21
Stormwater Management Details, and Profiles	16 of 21
Stormwater Management Details and Profiles	17 of 21
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Forest Conservation Notes and Planting Details	19 of 21
Existing Conditions Plan	20 of 21
(4) Phase II Parking Lot Plans and Storm Drain Profiles	21 of 21

ADDRESS CHART

LOT	STREET
2	8200 Old Columbia Road (Religious Facility)
	8204 Old Columbia Road (Anciliary Building)
1	8210 Old Columbia Road

SITE ANALYSIS DATA CHART

a. Total project area: 34.06 Acres±
b. Area of plan submission: 34.06 Acres±
c. Limit of disturbed area: 23.66 Acres±
d. Present zoning: "RR-DEO" per 02/02/04 Comprehensive Zonin Plan.
e. Proposed uses for site & structures: Religious facility
f. Floor space on each level of building(s) per use: See building footprint this sheet.
g. Building coverage of site:
Maximum allowed for Religious facility per the Zoning Regulations. 25% of site or 8.52 acres±
Existing Buildings to remain: 0.09 acres±
Proposed Buildings: 1.76 acres±
Total: 1.85 acres± or 5.4%
h. DPZ file references: Plat #4382; F-80-25; Conditional Use Case #BA-02-35-C and V, #BA-03-078-C; Plat #16724-16729 F-04-172
i. Number of parking spaces required: 1 space for every 3 seats (1800 seats) = 600 spaces (4)
(see Parking Tabulation below).
Total number of parking spaces provided: 727 (4)
Total required Handicap parking spaces: 9 spaces; including 2 van accessable spaces
Total provided Handicap parking spaces: 24 spaces; including 8 van accessable spaces
j. Phase II Site Analysis Data: (4)
Limit of Disturbed area (Phase II): 4.562 Acres ±
Floor space added to Building One: ~~23,995~~ 22,284 sf ± (5)
Total building coverage of site (after Phase II): 2.30 acres± or 7.0%±

OWNER/DEVELOPER
Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
(410) 9 -5384
C/O Joe Hancock

No.	Description	Date
(5)	Update Phase II building footprint	Mar. 2015
(4)	Add Phase II references and update data chart.	Mar. 2013
(3)	Add Notes #46 & 47 and Storage Addition to Building One Plan View	May 2009
(2)	Add Note #45, Plan and Elevation for Pavilion & Shed	Sept. 2008
(1)	Revised Sewer Manholes and Easements	

REVISIONS

PERMIT INFORMATION CHART

Subdivision Name:			Section/Area			Lot/Parcel No.
Grace Community Church			N/A			1, 2, 337
Plat #	Grid	Zoning	Tax Map No.	Elect. Dist.		Census Tract
16724-16729	3	RR-DEO	46	5th		6051.02
Water Code			Sewer Code			
E20			7690000			

COVER SHEET
GRACE COMMUNITY CHURCH
PHASE I & II
RELIGIOUS FACILITY

TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL 337
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

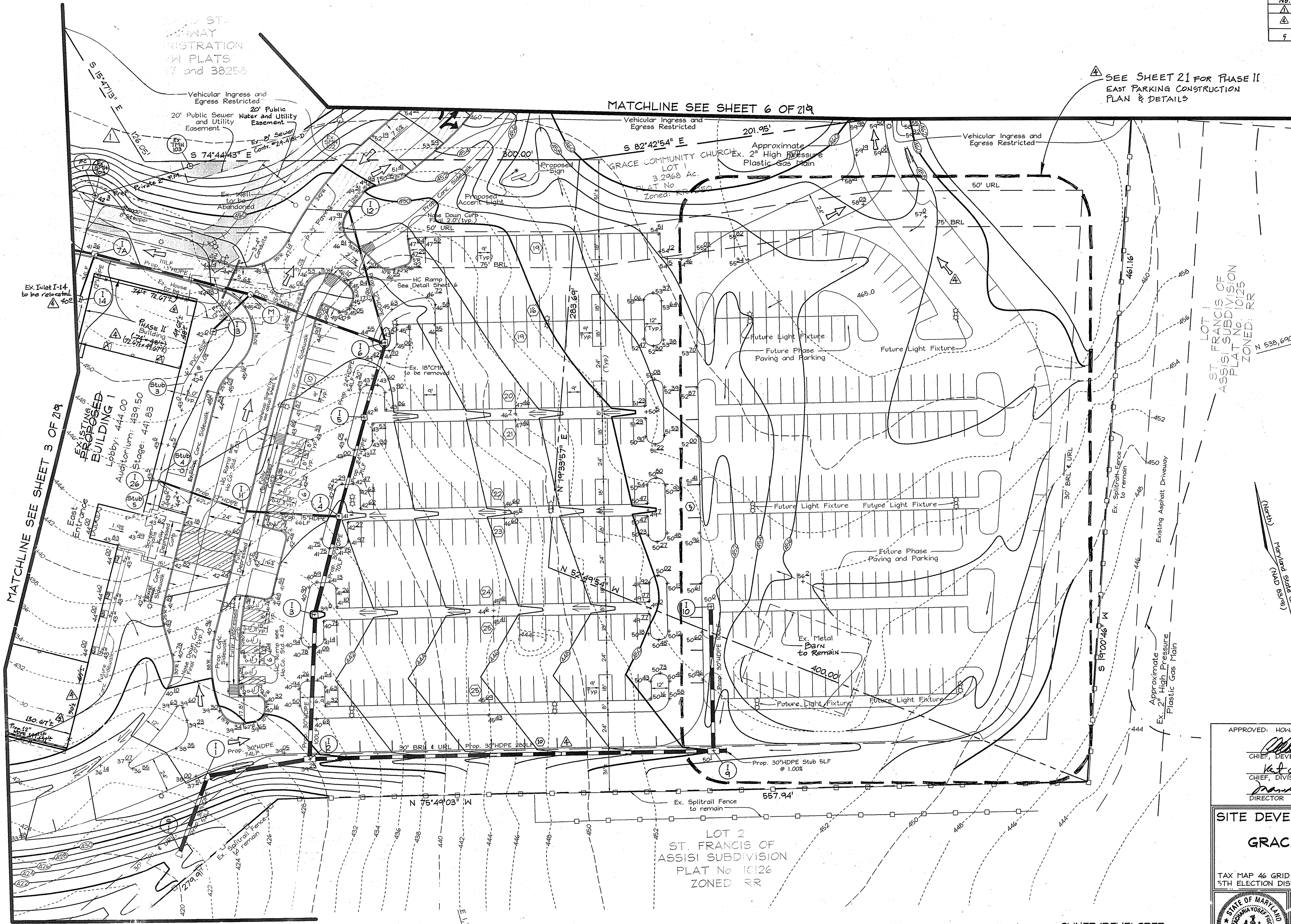
STATE OF MARYLAND — ZACHARIA YOSEF FISCH — 22418 — PROFESSIONAL ENGINEER

FSH Ass ciates
Engi ers Plan yors
3318 Forrest Street Ellic 043
Tel:410 2251 Fax
E ail: Associates@

DESIGN BY	PS
DRAWN BY	KSZ
CHECKED BY	ZYF
SCALE:	As Shown
DATE:	July 20, 2004
P. O. No.	3071 (4)
SHEET No.:	1 OF 21

SDP-04-079

REVISIONS		
No.	Description	Date
1 (in triangle)	Revised Grades and Sewer Main sizes	11.09.04
4 (in triangle)	Add PHASE II references, traffic flow arrows and PHASE II building one expansions.	Mar. 2013
5	Update PHASE II footprint and add roofdrain collection pipe	MAR. 2015



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ	7/30/04 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	8/3/04 DATE
DIRECTOR	8/4/04 DATE

SITE DEVELOPMENT AND GRADING PLAN

GRACE COMMUNITY CHURCH
PHASE I & II
RELIGIOUS FACILITY

TAX MAP 46 GRID 3
5TH ELECTION DISTRICT

LOTS 1 AND 2 PARCEL 337
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND · ZACHARIA YOSEF FISCH · 22418 · PROFESSIONAL ENGINEER

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
Tel:410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

DESIGN BY: PS
DRAWN BY: KSE
CHECKED BY: ZYF
SCALE: 1"=30'
DATE: July 20, 2004
W.O. No.: 3071
SHEET No.: 2 OF 21

OWNER/DEVELOPER
Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
(410) 992-5384
C/O Joe Hancock

SDP-04-079

REVISIONS		
No.	Description	Date
1	Revised Grades and Sewer Main sizes	11.09.04
2	REVISE GRADES	SEPT. 2008
3	ADD PROP. STORAGE ADDITION TO BUILDING 1; MOVE DUMPSTER PAD; ADD 3-SIDED WALL AROUND DUMPSTER AND DETAIL DRAWING; REVISE RAMP AND GRADING.	MAY 2009
4	Add PHASE II references, traffic flow arrows, and PHASE II building one expansions.	Mar. 2013
5	Update PHASE II footprint and add roofdrain collection pipes	MAR 2015

PROFESSIONAL CERTIFICATION

FOR REVISIONS #1-5 ONLY

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 22418; Expiration Date: 07/29/2015.

Zacharia Y. Fisch — 3/26/15

ZACHARIA Y. FISCH, P.E. #22418 — DATE

FSH ASSOCIATES

OWNER/DEVELOPER

Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
(410) 992-5384
C/O Joe Hancock

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ — DATE 7/30/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/3/04

DIRECTOR — DATE 8/3/04

SITE DEVELOPMENT AND GRADING PLAN

GRACE COMMUNITY CHURCH

PHASE I & II

RELIGIOUS FACILITY

TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL 337

5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

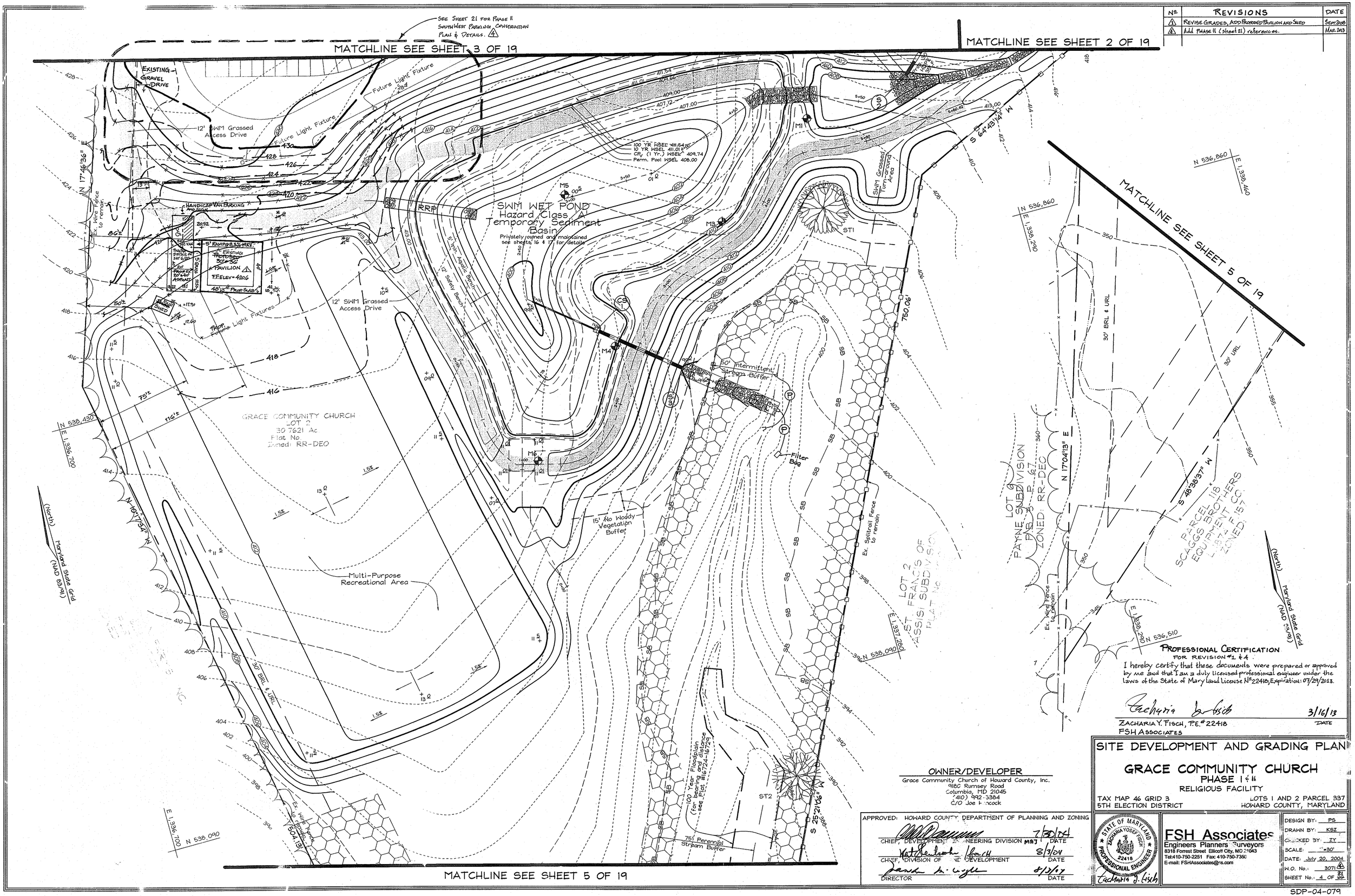
STATE OF MARYLAND — ZACHARIA YOSEF FISCH — 22418 — PROFESSIONAL ENGINEER

FSH Associates
Engineers Planners
8318 Forrest Street Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@comcast.com

DESIGN BY: FS
DRAWN BY: KSZ
CHECKED BY: ZYF
SCALE: 1"=30'
DATE: July 20, 2004
W.O. No. 3071
SHEET No.: 3 OF ~~20~~ 21

SDP-04-079

Nº	REVISIONS	DATE
1	Revise Grades, Add Proposed Pavilion and Shed	Sept. 2008
4	Add Phase II (sheet 21) references.	Mar. 2013



PROFESSIONAL CERTIFICATION
FOR REVISION #1 & 4.

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 22418, Expiration: 07/29/2013.

Zacharia Y. Fisch 3/16/13
ZACHARIA Y. FISCH, P.E. # 22418 DATE
FSH ASSOCIATES

OWNER/DEVELOPER
Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
(410) 992-5384
C/O Joe Hancock

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ	7/30/04 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	8/3/04 DATE
DIRECTOR	8/3/04 DATE

SITE DEVELOPMENT AND GRADING PLAN

GRACE COMMUNITY CHURCH
PHASE I & II
RELIGIOUS FACILITY

TAX MAP 46 GRID 3
5TH ELECTION DISTRICT

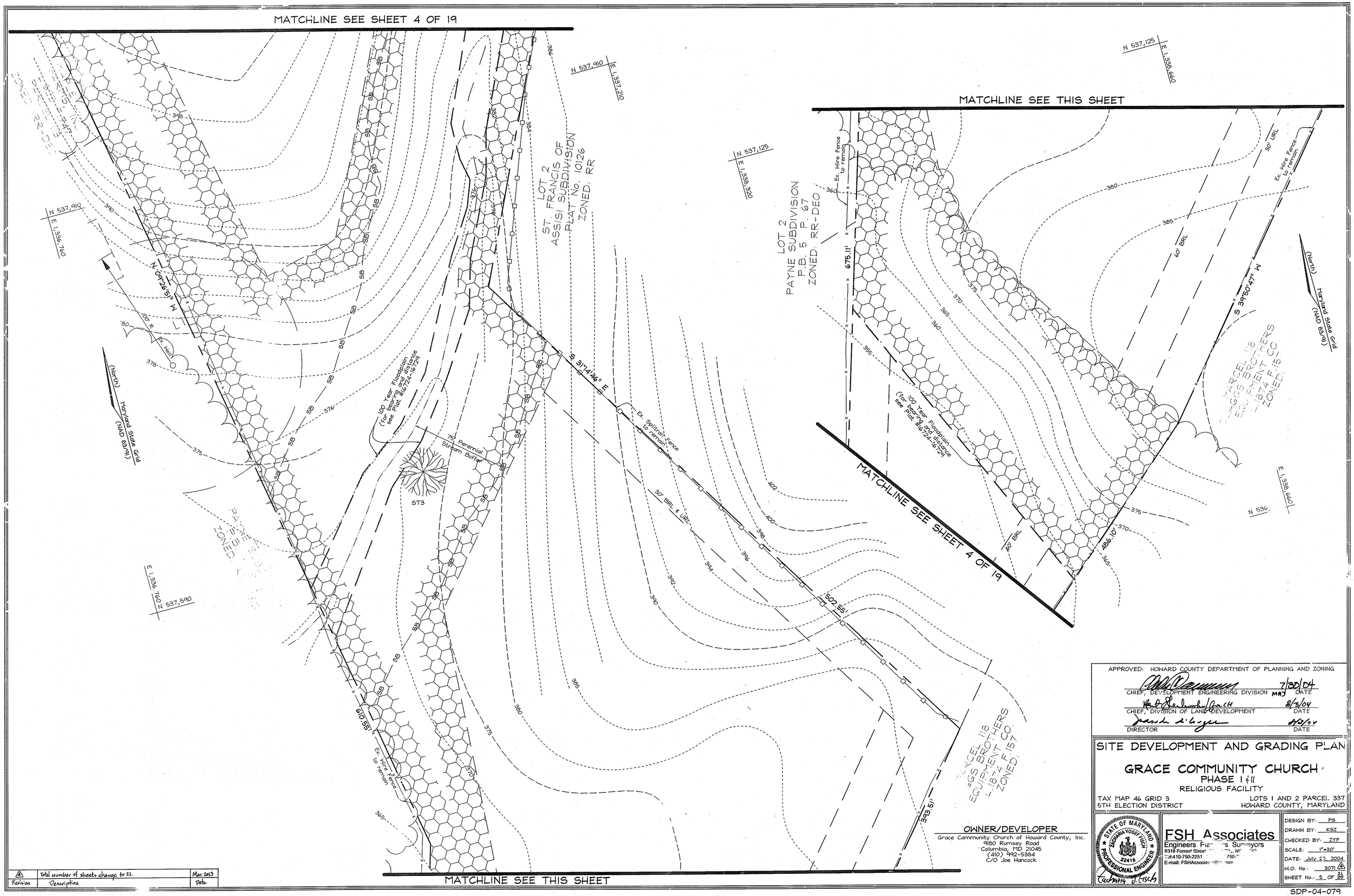
LOTS 1 AND 2 PARCEL 337
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — ZACHARIA YOSEF FISCH — 22418 — PROFESSIONAL ENGINEER
Zacharia Y. Fisch

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@rs.com

DESIGN BY:	PS
DRAWN BY:	KSZ
CHECKED BY:	ZY
SCALE:	1"=30'
DATE:	July 20, 2004
W.O. No.:	3071 4
SHEET No.:	4 OF 21

SDP-04-079



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ	7/30/04 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	8/3/04 DATE
DIRECTOR	8/3/04 DATE

SITE DEVELOPMENT AND GRADING PLAN

GRACE COMMUNITY CHURCH

PHASE I & II

RELIGIOUS FACILITY

TAX MAP 46 GRID 3
5TH ELECTION DISTRICT

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HOWARD COUNTY, MARYLAND

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Tel:410-750-2251
E-mail: FSHAssociates@...com

DESIGN BY:	PS
DRAWN BY:	KSZ
CHECKED BY:	ZYF
SCALE:	1"=30'
DATE:	July 20, 2004
W.O. No.:	3071
SHEET No.:	5 OF 21

Revision	Description	Date
4	Total number of sheets change to 21.	Mar. 2013

SDP-04-079

Nº	REVISION	DATE
1	ADD PROP. PAVILION'S HC-VAN PARKING SPACE DETAIL	SEPT. 2008
2	REVISE TRASH ENCLOSURE PLAN TO REQUIRE 3-SIDED 6'-0" MASONRY WALL WITH GATE AND 2 ADDITIONAL INTERNAL BOLLARDS (6').	MAY 2009
4	Total number of sheets change to 21.	MAR. 2013

PROFESSIONAL CERTIFICATION
FOR REVISIONS # 1, 2 & 4

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 22418, Expiration Date: 07/29/2013.

Zacharia Y. Fisch 3/16/13
ZACHARIA Y. FISCH P.E.# 22418 DATE
FSH ASSOCIATES

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ 7/30/04 DATE

CHIEF DIVISION OF LAND DEVELOPMENT 8/3/04 DATE

DIRECTOR 8/3/04 DATE

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

USDA-NATURAL RESOURCES CONSERVATION SERVICE 7/29/04 DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT 7/29/04 DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Joseph R Hancock 7/21/04
SIGNATURE OF DEVELOPER DATE

ENGINEERS CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Zacharia Y. Fisch 7/21/04
SIGNATURE OF ENGINEER DATE
ZACHARIA Y. FISCH

OWNER/DEVELOPER
Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
Tel: (410) 992-5384
C/O Joe Hancock

OLD COLUMBIA ROAD IMPROVEMENTS, SEDIMENT AND EROSION CONTROL PLAN
GRACE COMMUNITY CHURCH
PHASE I & II
RELIGIOUS FACILITY

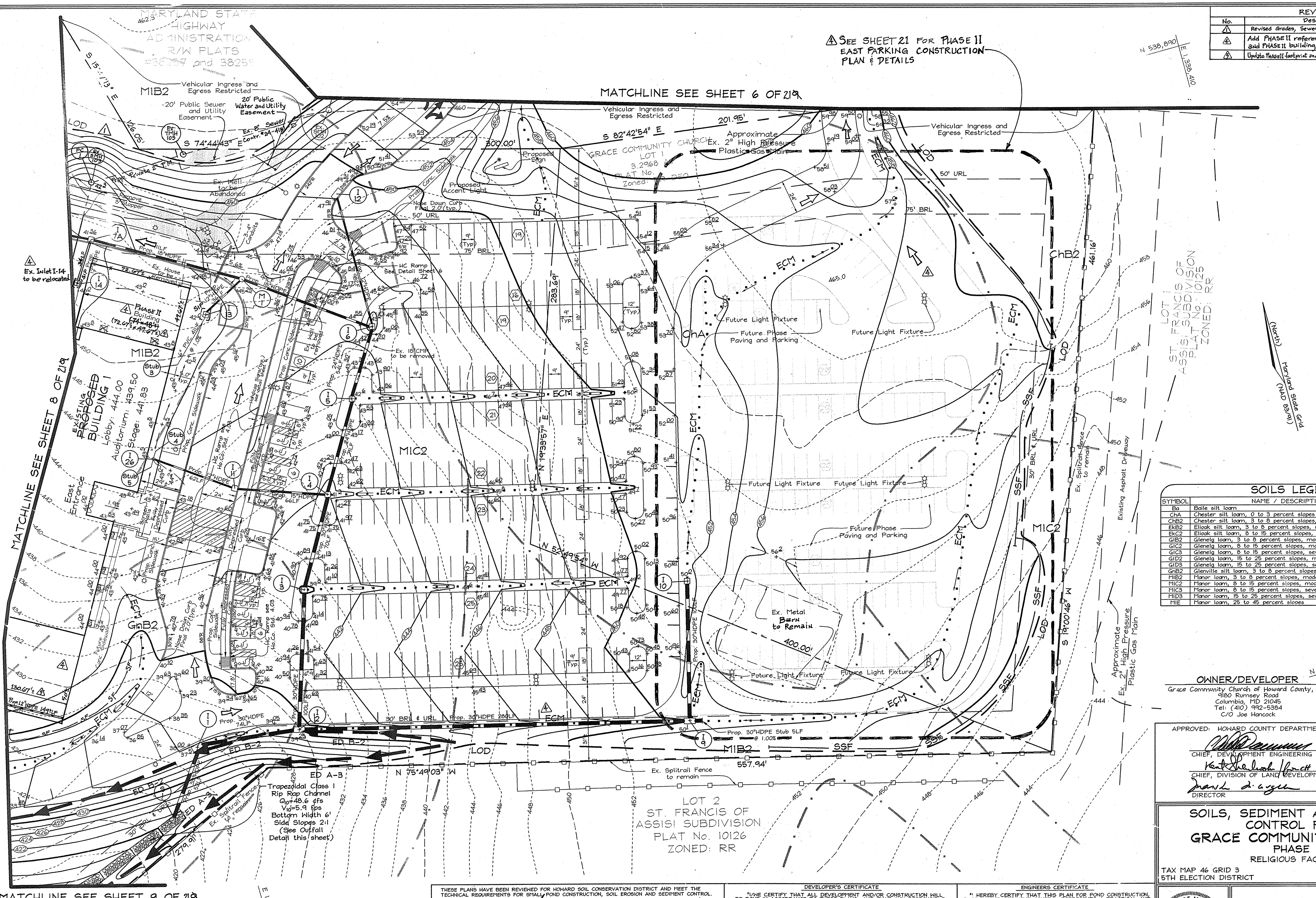
TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL 337
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — ZACHARIA YOSEF FISCH — 22418 — PROFESSIONAL ENGINEER

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
Tel:410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

DESIGN BY: PS
DRAWN BY: PS
CHECKED BY: ZYF
SCALE: 1"=30'
DATE: July 20, 2004
W.O. No.: 3071 4
SHEET No.: 6 OF 21

SDP-04-079



REVISIONS		
No.	Description	Date
1	Revised Grades, Sewer Manholes and Easements	11.09.04
4	Add PHASE II references, traffic flow arrows, and PHASE II building one expansions.	Mar.2013
5	Update PHASE II footprint and add roofdrain collection pipe	Mar.2019

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	SOIL GROUP
Ba	Baile silt loam	D
ChA	Chester silt loam, 0 to 3 percent slopes	B
ChB2	Chester silt loam, 3 to 8 percent slopes, moderately eroded	B
EkB2	Elioak silt loam, 3 to 8 percent slopes, moderately eroded	B
EkC2	Elioak silt loam, 8 to 15 percent slopes, moderately eroded	B
GlB2	Glenelg loam, 3 to 8 percent slopes, moderately eroded	B
GlC2	Glenelg loam, 8 to 15 percent slopes, moderately eroded	B
GlC3	Glenelg loam, 8 to 15 percent slopes, severely eroded	B
GlD2	Glenelg loam, 15 to 25 percent slopes, moderately eroded	B
GlD3	Glenelg loam, 15 to 25 percent slopes, severely eroded	B
GnB2	Glenville silt loam, 3 to 8 percent slopes, moderately eroded	C
MlB2	Manor loam, 3 to 8 percent slopes, moderately eroded	B
MlC2	Manor loam, 8 to 15 percent slopes, moderately eroded	B
MlC3	Manor loam, 8 to 15 percent slopes, severely eroded	B
MlD3	Manor loam, 15 to 25 percent slopes, severely eroded	B
MlE	Manor loam, 25 to 45 percent slopes	B

OWNER/DEVELOPER

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9180 Rumsey Road
Columbia, MD 21045
Tel: (410) 992-5384
C/O Joe Hancock

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAD — DATE 7/30/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/3/04

DIRECTOR — DATE 8/3/04

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 7/29/04

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/29/04

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

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SIGNATURE OF ENGINEER — DATE 7/21/04
ZACHARIA Y. FISCH

SOILS, SEDIMENT AND EROSION CONTROL PLAN
GRACE COMMUNITY CHURCH
PHASE I & II
RELIGIOUS FACILITY

TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL 337
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — ZACHARIA YOSEF FISCH — 22418 — PROFESSIONAL ENGINEER

FSH Associates
Engineers Planners Surveyors
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Tel:410-750-2251 Fax 410-750-7350
E-mail: FSHAssociates@cs.com

DESIGN BY: PS
DRAWN BY: KSZ
CHECKED BY: ZYF
SCALE: 1"=30'
DATE: July 20, 2004
W.O. No.: 3071 4
SHEET No.: 7 OF 21

MARYLAND STATE HIGHWAY ADMINISTRATION R/W PLATS #38257 and 38258

Vehicular Ingress and Egress Restricted

S 74°44'43" E 665.73'

LOD

N 539,110 E 1,336,820

N 839,086 E 1,337,710

N 538,810 E 1,337,710

MATCHLINE SEE SHEET 9 OF 219

MATCHLINE SEE SHEET 7 OF 219

(North) Maryland State Grid (NAD 83/91)

REVISIONS		
No.	Description	Date
1	Revised Grades, Sewer Manholes and Easements	11.09.04
2	REVISE GRADING	SEPT. 2006
3	ADD PROP STORAGE ADDITION TO BUILDING 1; MOVE DUMPSTER PAD; ADD PROP 3-SIDED WALL AROUND DUMPSTER; REVISE RAMP AND GRADES	MAY 2009
4	Add PHASE II references, traffic flow arrows, and PHASE II building one expansions.	MAR. 2013
5	Update PhaseII footprint and add roofdrain collection pipes	MAR. 2019

PROFESSIONAL CERTIFICATION
FOR REVISIONS #1-5 ONLY

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. 22418; Expiration Date: 07/29/2019.

Zacharia Y. Fisch 3/26/15

ZACHARIA Y. FISCH, P.E. 22418 — DATE
FSH ASSOCIATES

OWNER/DEVELOPER
Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
Tel: (410) 992-5384
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Zacharia Y. Fisch 7/21/04
SIGNATURE OF ENGINEER — DATE
ZACHARIA Y. FISCH

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Joseph R Hancock 7/21/04
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CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/3/04

DIRECTOR — DATE 8/5/04

SOILS, SEDIMENT AND EROSION CONTROL PLAN
GRACE COMMUNITY CHURCH
PHASE I & II
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5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STATE OF MARYLAND · ZACHARIA YOSEF FISCH · 22418 · PROFESSIONAL ENGINEER

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E-mail: FSHAssociates@

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CHECKED BY: ZYF
SCALE: 1"=30'
DATE: July 20, 2004
W.O. No.: 3071
SHEET No.: 8 OF 39

SDP-04-079

MAPLE LAWN FARMS, INC.
L. 623 F. 747
PARCEL 113
ZONED: RR-DEO

M1E
SEE SHEET 21 FOR PHASE II SOUTHWEST PARKING CONSTRUCTION PLAN & DETAILS

EXISTING ~~PROPOSED~~ BUILDING 2
Lobby: 444.00
Auditorium: 436.00
Stage: 436.50

EXISTING ~~PROPOSED~~ BUILDING 1
Lobby: 444.07
Auditorium: 439.50
Stage: 441.83

Approximate Future Building Prop. 5" Sewer Stub 5' LF @ 1.0%

PHASE II Approximate Future Building (60'x128') 7680 SF

PHASE II Approximate Future Building (80'x150') 12000 SF

Future Phase Paving and Parking

Future Light Fixture

12' SWM Grassed Access Drive

30' Exist. Gravel Drive

Future Courtyard

Future Concrete Sidewalk

Screen Wall

Proposed Single Dumpster Pad See Details, Sheet 6

Existing Dumpster Pad See Details, Sheet 6

Remove Depressed Curb and Reverse ramp from building addition and Relocate to Dumpster

Ramp at 8.33% max.

Depressed Curb (typ.)

Nose Down Curb Final 2.0' (typ.)

Proposed Transformer Pad

Proposed Conc. Pad

Existing Generator Pad

Existing Butress

Existing Conc. Pad

Proposed Conc. Pad

Proposed Bollard

Proposed Retaining Wall (See Sheet 6)

Existing Retaining Wall

Proposed Conc. Sidewalk

Proposed Private 6" Water (Sprinkler Line)

Ex. 8" Water Contr. #24-4181-D

Ex. Spiltrail Fence to remain

Ex. Silt Fence

Ex. Tree Line

Ex. Treeline

Ex. Edge of Woods

Ex. Building

Ex. Shed

Ex. Pavilion

Ex. Gazebo

Ex. Pool

Ex. Pool Deck

Ex. Pool Fence

Ex. Pool Bathhouse

Ex. Pool Pump House

Ex. Pool Equipment

Ex. Pool Gate

Ex. Pool Ladder

Ex. Pool Lifeguard Chair

Ex. Pool Diving Board

Ex. Pool Slide

Ex. Pool Water Fountain

Ex. Pool Water Heater

Ex. Pool Water Pump

Ex. Pool Water Filter

Ex. Pool Water Chlorinator

Ex. Pool Water Flow Meter

Ex. Pool Water Pressure Gauge

Ex. Pool Water Temperature Gauge

Ex. Pool Water Level Gauge

Ex. Pool Water Drain

Ex. Pool Water Overflow

Ex. Pool Water Skimmer

Ex. Pool Water Inlet

Ex. Pool Water Outlet

Ex. Pool Water Recirculation

Ex. Pool Water Filtration

Ex. Pool Water Chlorination

Ex. Pool Water Testing

Ex. Pool Water Maintenance

Ex. Pool Water Safety

Ex. Pool Water Rescue

Ex. Pool Water Emergency

Ex. Pool Water Alarm

Ex. Pool Water Lighting

Ex. Pool Water Electrical

Ex. Pool Water Plumbing

Ex. Pool Water Mechanical

Ex. Pool Water Structural

Ex. Pool Water Architectural

Ex. Pool Water Landscaping

Ex. Pool Water Irrigation

Ex. Pool Water Drainage

Ex. Pool Water Grading

Ex. Pool Water Paving

Ex. Pool Water Concrete

Ex. Pool Water Asphalt

Ex. Pool Water Gravel

Ex. Pool Water Soil

Ex. Pool Water Rock

Ex. Pool Water Sand

Ex. Pool Water Mulch

Ex. Pool Water Seed

Ex. Pool Water Sod

Ex. Pool Water Plant

Ex. Pool Water Tree

Ex. Pool Water Shrub

Ex. Pool Water Flower

Ex. Pool Water Grass

Ex. Pool Water Lawn

Ex. Pool Water Garden

Ex. Pool Water Park

Ex. Pool Water Playground

Ex. Pool Water Recreation

Ex. Pool Water Facility

Ex. Pool Water Amenity

Ex. Pool Water Feature

Ex. Pool Water Element

Ex. Pool Water Component

Ex. Pool Water System

Ex. Pool Water Network

Ex. Pool Water Infrastructure

Ex. Pool Water Utility

Ex. Pool Water Service

Ex. Pool Water Supply

Ex. Pool Water Distribution

Ex. Pool Water Collection

Ex. Pool Water Treatment

Ex. Pool Water Disposal

Ex. Pool Water Reuse

Ex. Pool Water Recycling

Ex. Pool Water Conservation

Ex. Pool Water Management

Ex. Pool Water Quality

Ex. Pool Water Quantity

Ex. Pool Water Flow

Ex. Pool Water Velocity

Ex. Pool Water Pressure

Ex. Pool Water Head

Ex. Pool Water Loss

Ex. Pool Water Gain

Ex. Pool Water Balance

Ex. Pool Water Budget

Ex. Pool Water Cost

Ex. Pool Water Price

Ex. Pool Water Value

Ex. Pool Water Benefit

Ex. Pool Water Risk

Ex. Pool Water Hazard

Ex. Pool Water Safety

Ex. Pool Water Security

Ex. Pool Water Protection

Ex. Pool Water Prevention

Ex. Pool Water Control

Ex. Pool Water Monitoring

Ex. Pool Water Testing

Ex. Pool Water Sampling

Ex. Pool Water Analysis

Ex. Pool Water Reporting

Ex. Pool Water Documentation

Ex. Pool Water Record

Ex. Pool Water Log

Ex. Pool Water Schedule

Ex. Pool Water Plan

Ex. Pool Water Procedure

Ex. Pool Water Policy

Ex. Pool Water Regulation

Ex. Pool Water Code

Ex. Pool Water Standard

Ex. Pool Water Guideline

Ex. Pool Water Recommendation

Ex. Pool Water Best Practice

Ex. Pool Water Lesson Learned

Ex. Pool Water Case Study

Ex. Pool Water Example

Ex. Pool Water Template

Ex. Pool Water Form

Ex. Pool Water Checklist

Ex. Pool Water Worksheet

Ex. Pool Water Calculation

Ex. Pool Water Formula

Ex. Pool Water Equation

Ex. Pool Water Model

Ex. Pool Water Simulation

Ex. Pool Water Forecast

Ex. Pool Water Prediction

Ex. Pool Water Estimate

Ex. Pool Water Projection

Ex. Pool Water Scenario

Ex. Pool Water Alternative

Ex. Pool Water Option

Ex. Pool Water Decision

Ex. Pool Water Recommendation

Ex. Pool Water Conclusion

Ex. Pool Water Summary

Ex. Pool Water Abstract

Ex. Pool Water Introduction

Ex. Pool Water Background

Ex. Pool Water Literature Review

Ex. Pool Water Methodology

Ex. Pool Water Results

Ex. Pool Water Discussion

Ex. Pool Water Conclusion

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Ex. Pool Water List of Lawyers

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Ex. Pool Water List of Insurers

Ex. Pool Water List of Brokers

Ex. Pool Water List of Agents

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Ex. Pool Water List of Lords

Ex. Pool Water List of Ladies

Ex. Pool Water List of Gentlemen

Ex. Pool Water List of Gentlewomen

Ex. Pool Water List of Squires

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Ex. Pool Water List of Liege Lords

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Ex. Pool Water List of Manorial Lords

Ex. Pool Water List of Landowners

Ex. Pool Water List of Tenants

Ex. Pool Water List of Sharecroppers

Ex. Pool Water List of Farmers

Ex. Pool Water List of Ranchers

Ex. Pool Water List of Herders

Ex. Pool Water List of Shepherds

Ex. Pool Water List of Cowboys

Ex. Pool Water List of Cowgirls

Ex. Pool Water List of Wranglers

Ex. Pool Water List of Drovers

Ex. Pool Water List of Trappers

Ex. Pool Water List of Hunters

Ex. Pool Water List of Gatherers

Ex. Pool Water List of Foragers

Ex. Pool Water List of Fishers

Ex. Pool Water List of Miners

Ex. Pool Water List of Quarrymen

Ex. Pool Water List of Stonemasons

Ex. Pool Water List of Bricklayers

Ex. Pool Water List of Carpenters

Ex. Pool Water List of Joiners

Ex. Pool Water List of Cabinetmakers

Ex. Pool Water List of Woodworkers

Ex. Pool Water List of Coopers

Ex. Pool Water List of Wheelwrights

Ex. Pool Water List of Shipwrights

Ex. Pool Water List of Boatbuilders

Ex. Pool Water List of Sailmakers

Ex. Pool Water List of Ropemakers

Ex. Pool Water List of Netmakers

Ex. Pool Water List of Weavers

Ex. Pool Water List of Spinners

Ex. Pool Water List of Dyers

Ex. Pool Water List of Tailors

Ex. Pool Water List of Dressmakers

Ex. Pool Water List of Milliners

Ex. Pool Water List of Hatters

Ex. Pool Water List of Cobblers

Ex. Pool Water List of Shoemakers

Ex. Pool Water List of Leatherworkers

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Ex. Pool Water List of Curriers

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Ex. Pool Water List of Glovers

Ex. Pool Water List of Saddlers

Ex. Pool Water List of Harnessmakers

Ex. Pool Water List of Coachbuilders

Ex. Pool Water List of Wainwrights

Ex. Pool Water List of Blacksmiths

Ex. Pool Water List of Farriers

Ex. Pool Water List of Whitesmiths

Ex. Pool Water List of Goldsmiths

Ex. Pool Water List of Silversmiths

Ex. Pool Water List of Jewellers

Ex. Pool Water List of Lapidaries

Ex. Pool Water List of Gemcutters

Ex. Pool Water List of Engravers

Ex. Pool Water List of Etchers

Ex. Pool Water List of Printers

Ex. Pool Water List of Bookbinders

Ex. Pool Water List of Papermakers

Ex. Pool Water List of Typesetters

Ex. Pool Water List of Compositors

Ex. Pool Water List of Pressmen

Ex. Pool Water List of Lithographers

Ex. Pool Water List of Photographers

Ex. Pool Water List of Cinematographers

Ex. Pool Water List of Videographers

Ex. Pool Water List of Audiographers

Ex. Pool Water List of Recordists

Ex. Pool Water List of Sound Engineers

Ex. Pool Water List of Mixers

Ex. Pool Water List of Producers

Ex. Pool Water List of Directors

Ex. Pool Water List of Actors

Ex. Pool Water List of Actresses

Ex. Pool Water List of Performers

Ex. Pool Water List of Musicians

Ex. Pool Water List of Singers

Ex. Pool Water List of Songwriters

Ex. Pool Water List of Composers

Ex. Pool Water List of Arrangers

Ex. Pool Water List of Conductors

Ex. Pool Water List of Orchestras

Ex. Pool Water List of Bands

Ex. Pool Water List of Choirs

Ex. Pool Water List of Ensembles

Ex. Pool Water List of Soloists

Ex. Pool Water List of Duets

Ex. Pool Water List of Trios

Ex. Pool Water List of Quartets

Ex. Pool Water List of Quintets

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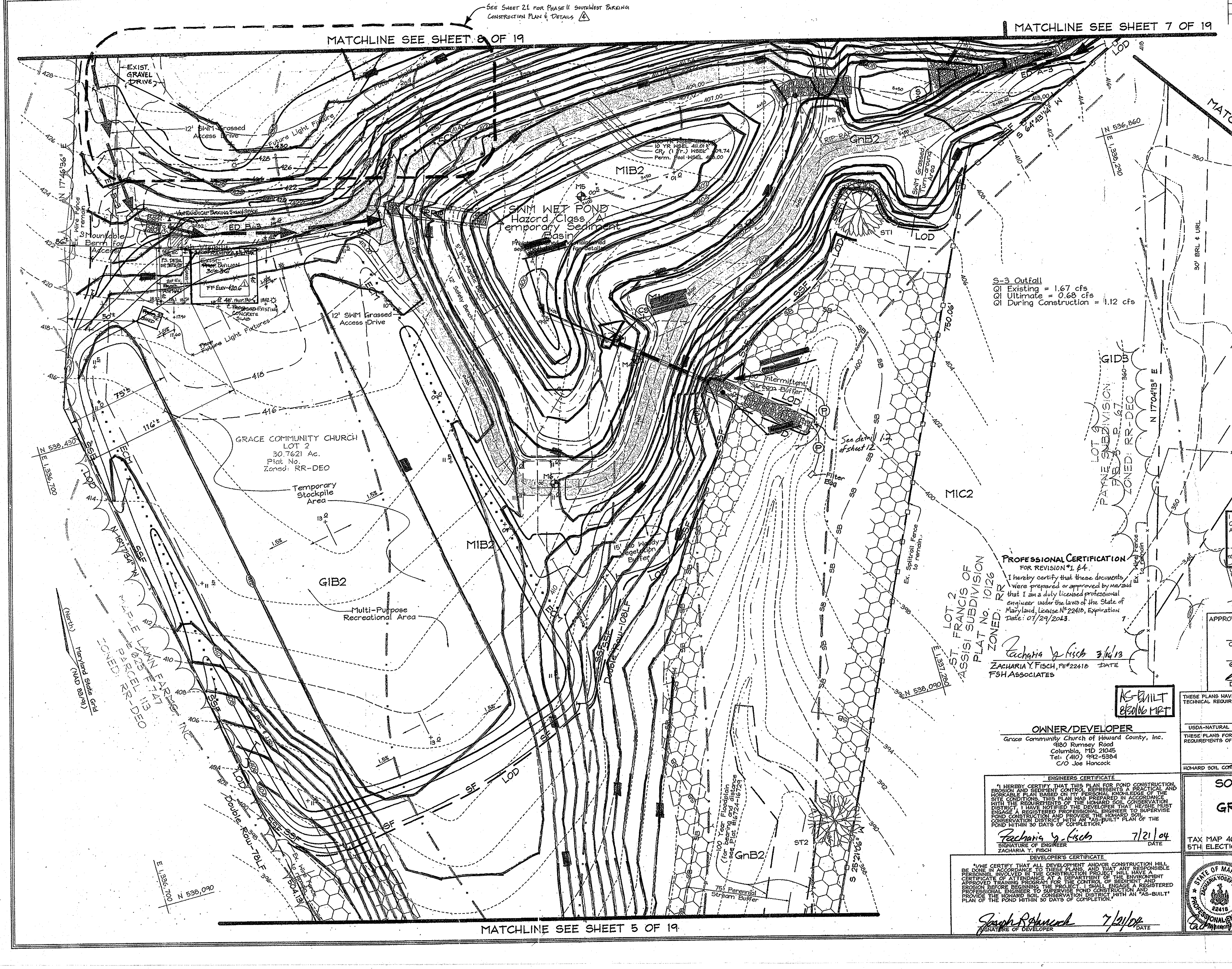
Nº	REVISION	DATE
1	Revise Grades, Add Prop. Pavilion, Shed & Dimensions	Sept. 2008
4	Add Phase II (sheet 21) references.	Mar. 2023



STATE OF MARYLAND · MARK R. THAYER · 25420 · PROFESSIONAL ENGINEER
MRT 8/31/06

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE (AS-BUILT) PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE ______ P.E. NO. 25420

PROFESSIONAL CERTIFICATION
FOR REVISION #1 & 4.
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 22418, Expiration Date: 07/29/2013.

ZACHARIA Y. FISCH, PE#22418 — 3/16/13 — DATE
FSH ASSOCIATES

AS-BUILT 8/30/06 MRT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 7/30/04 — DATE
CHIEF, DIVISION OF LAND DEVELOPMENT — 8/3/04 — DATE
DIRECTOR — 8/3/04 — DATE

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

USDA-NATURAL RESOURCES CONSERVATION SERVICE — 7/29/04 — DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — 7/29/04 — DATE

OWNER/DEVELOPER
Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
Tel: (410) 992-5384
C/O Joe Hancock

ENGINEERS CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER — 7/21/04 — DATE
ZACHARIA Y. FISCH

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF DEVELOPER — 7/21/04 — DATE

SOILS, SEDIMENT AND EROSION CONTROL PLAN
GRACE COMMUNITY CHURCH
PHASE I & II
RELIGIOUS FACILITY

TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL 337
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

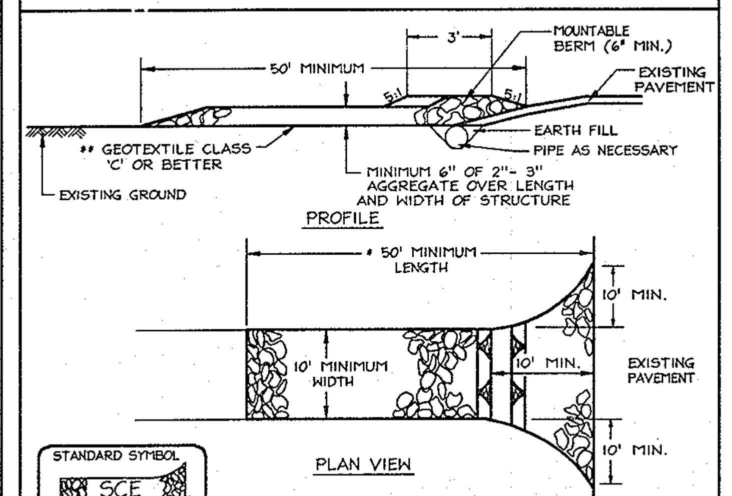
STATE OF MARYLAND · ZACHARIA YOSEF FISCH · 22418 · PROFESSIONAL ENGINEER

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
Tel:410-750-2251 Fax. 410-750-7350
E-mail: FSHAssociates@ .com

DESIGN BY:	PS
DRAWN BY:	KSZ
CHECKED BY:	ZYF
SCALE:	1"=30'
DATE:	July 20, 2004
W.O. No.:	3071
SHEET No.:	9 OF 21

SDP-04-079

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

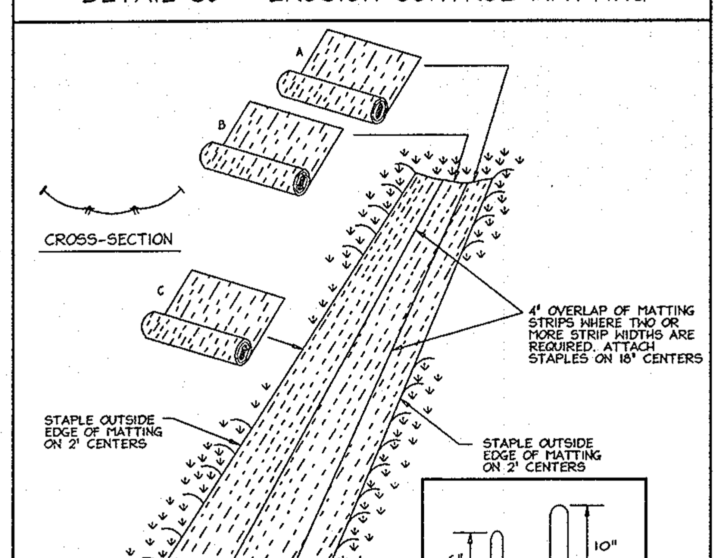


Construction Specification

1. Length - minimum of 50' (* 30' for a 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" to 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 F - 17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 30 - EROSION CONTROL MATTING



Construction Specifications

1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".

2. Staple the 4" overlap in the channel center using an 18" spacing between staples.

3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.

4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.

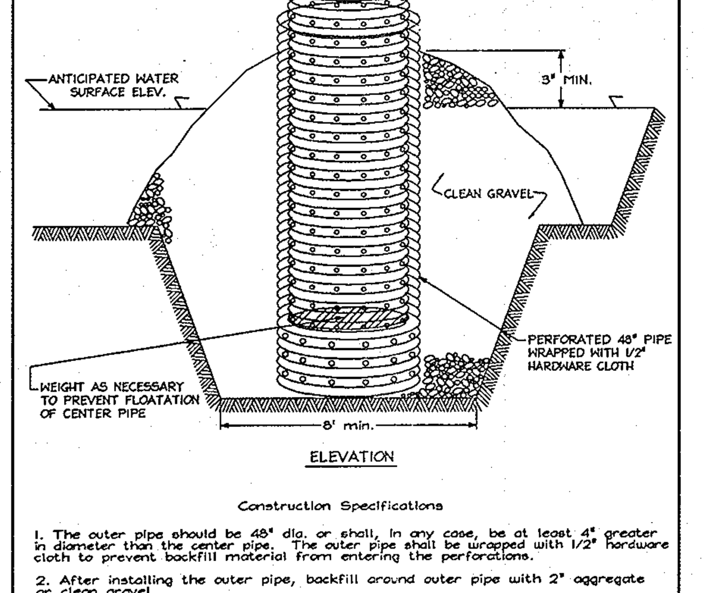
5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.

6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G - 22 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 20A - REMOVABLE PUMPING STATION

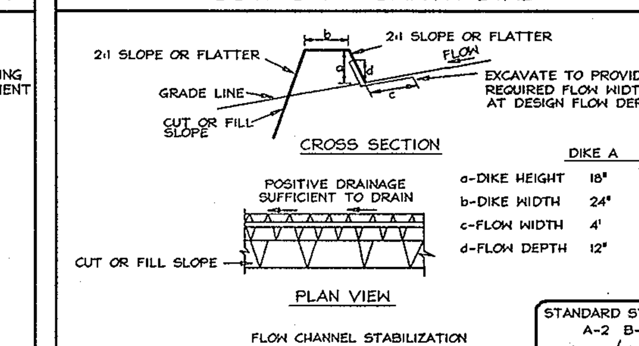


Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.
4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D - 12 - 4	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 1 - EARTH DIKE



	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	12"	24"

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum

Construction Specifications

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.

2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.

3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.

4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.

5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.

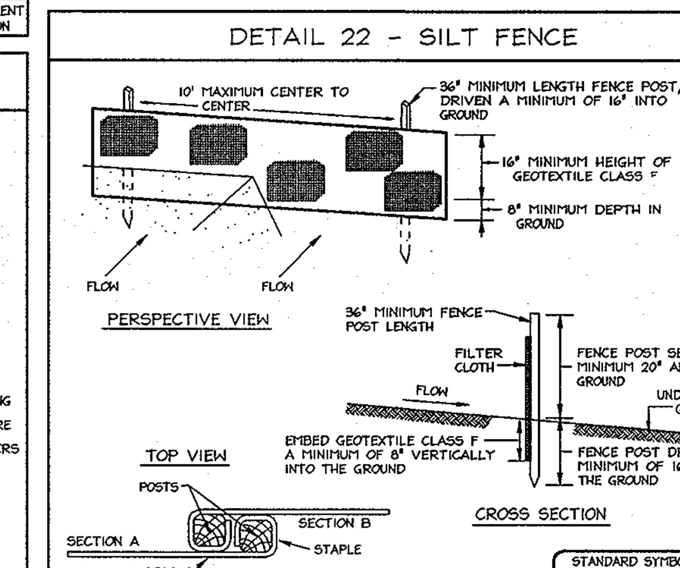
6. Fill shall be compacted by earth moving equipment.

7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.

8. Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE A - 1 - 6	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 - SILT FENCE



Construction Specifications

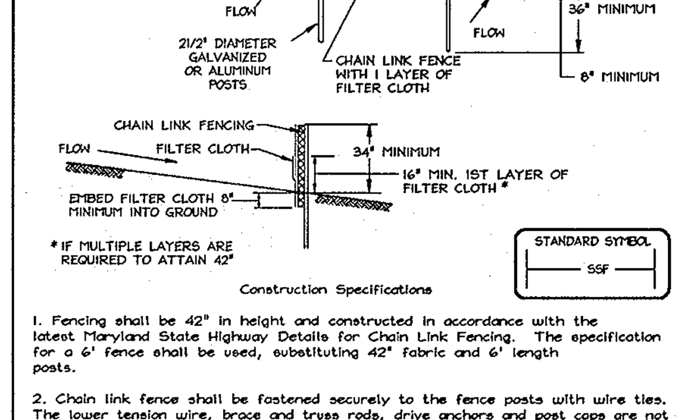
1. Fence posts shall be a minimum of 36" long, driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pound per linear 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 Eggeciency	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 reaches 50% of the fabric height.

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

DETAIL 33 - SUPER SILT FENCE



Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.

2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

4. Filter cloth shall be embedded a minimum of 8" into the ground.

5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.

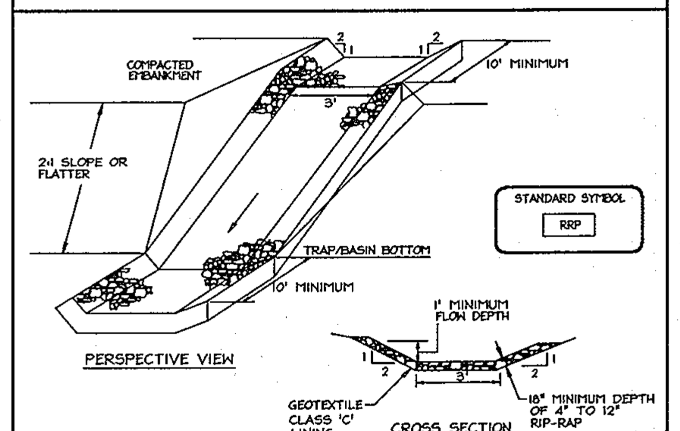
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height

7. Filter cloth 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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 5 - RIP-RAP INFLOW PROTECTION



Construction Specifications

1. Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min.) bottom width. The channel shall be lined with 4" to 12" rip- rap to a depth of 18".

2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.

3. Entrance and exit sections shall be installed as shown on the detail section.

4. Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.

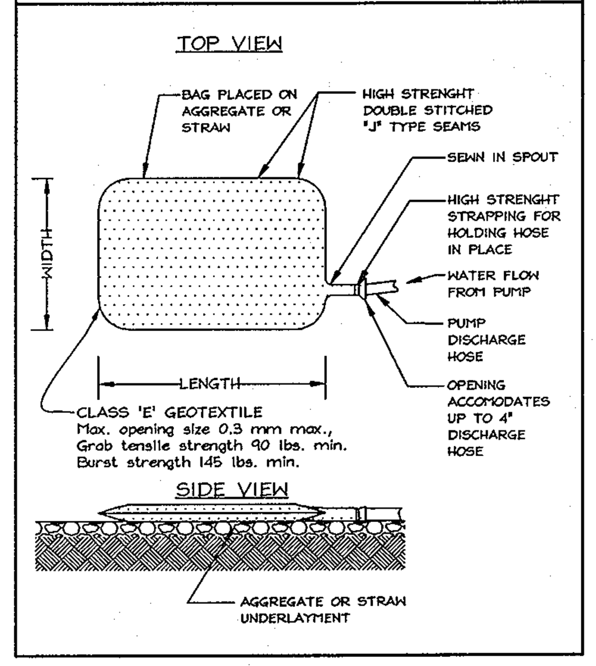
5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.

6. Rip-rap should blend into existing ground.

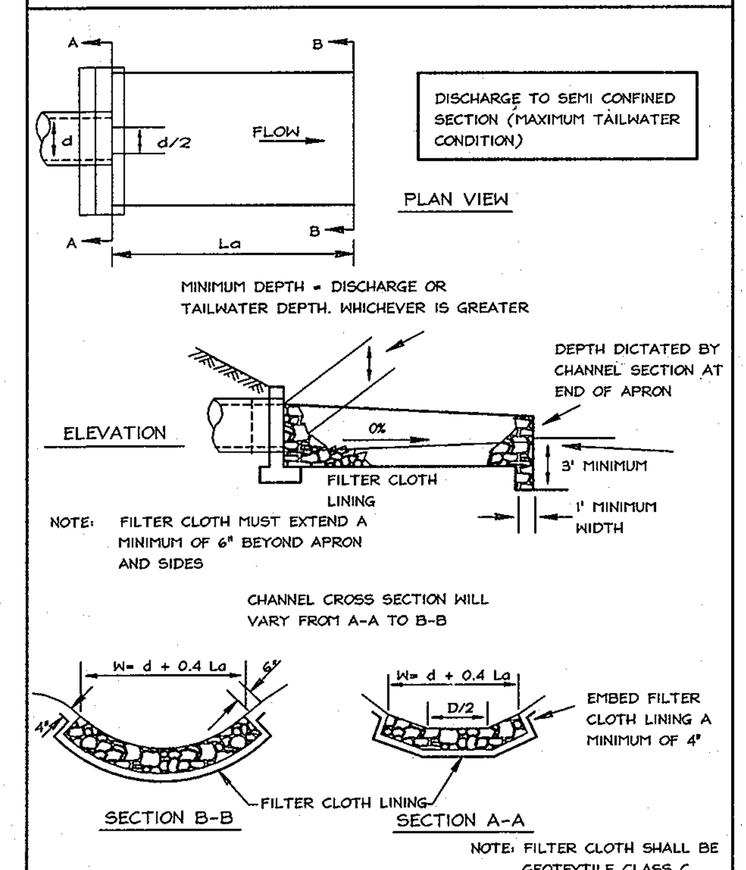
7. Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Swale lining criteria.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B - 6 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

FILTERBAG



DETAIL 25 - ROCK OUTLET PROTECTION



Construction Specifications

1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.

2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.

3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of

4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 18 - 8	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEDIMENT BASIN SCHEDULE

Drainage Area: 21.20 Ac.
Wet Storage Required: 38,160 cu ft
Wet Storage Provided: 38,160 cu ft @ Elev. 404.30
Dry Storage Required: 38,160 cu ft
Dry Storage Provided: 38,160cu ft @ Elev. 406.5
Riser Crest Elev.: 410.00
Temp Perforated Dewatering Pipe Elev.: 404.30 (Wet Pool)
Cleanout Elev.: 402.60
Bottom of Basin: 400.00
Minimum Settled Top Dam: 413.00
Design High Water Elev.: Q_{10} = 410.61
QI Existing: 1.67 cfs
QI Proposed: 1.12 cfs (Temp Sediment Control Phase)

VII. CONCLUSIONS AND RECOMMENDATIONS (from Geotechnical Report)

A. Core Trench and Dam Core
A review of the test boring information indicates that the standard dimensioned core trench section, in accordance with MD 378/2000, would be acceptable for use on this facility with the upper portion of the trench beginning at the stripped native soil grade. From review of the soil boring information and based upon the typical subsoil conditions for this geologic formation, it is unlikely that Unified "C" classification soils required for use in dam core and core trench fill will be found on the property. Consequently, it will be necessary to import core trench and dam core fills from an approved source. It is recommended the proposed borrow material be tested and approved prior to being imported to the site.

B. Principal Spillway
Assuming that the principal spillway invert will be at or below the pond basin elevation, it appears that the founding soils will be in a medium dense to dense condition capable of supporting design bearing pressures upwards of 3,000 PSF.

C. Excavation and Fill Slopes
The proposed 3H:1V cut and fill slopes should prove stable in the on-site soils. The micaceous silty sands, however, are particularly susceptible to erosion and it is likely that continuing maintenance will be required during the construction and post construction time period to fill erosion swales until a thick deeply rooted vegetative cover can be established on the slopes.

VIII. INFILTRATION POTENTIAL

The ground water level in M-5 indicates that design storm water disposal by infiltration will not be acceptable for this facility. If considering this basin for a wet pond, however, it should be noted that the soils are sandy loam to loamy sand which could allow seepage out of the basin. We recommend that the basin and slopes be lined up to the proposed wet pond level with at least a 12-inch thick layer of the on site finer-grained clayey ML soils to slow infiltration into the native soils beneath the basin.

IX. SUITABILITY OF CUT SOILS FOR FILL

A review of the results from the moisture/compacted density relationship tests performed on both predominantly fine-grained and predominantly granular soils from borings M-2 and M-5, as presented on SHEETS 1SWM and 2SWM, indicates acceptable compacted dry densities for use as embankment fill with moisture contents at the time of sampling within 2 percent of the optimum for most efficient compaction. At these moisture contents, the material would be readily reusable as controlled compacted fill during dry weather conditions.

It should be noted, however, that soil moistures will vary with changes in seasons and precipitation. Given the above-average precipitation since November 2002, it is likely that moisture contents presented in our original report could now be elevated. It is usually most economical and efficient to perform earthwork operations during the normally warmer, drier summer and early fall construction season when weather conditions are most conducive to air drying of soils if necessary. Construction during the cooler, wetter seasons of the year may not allow air drying of high moisture soils and may also require undercutting of exposed grades which may become saturated or frozen.
Given the moisture sensitive nature of these micaceous soils, we would highly recommend that the earthwork construction occur during the summer and early fall months.

X. EXCAVATION CONDITIONS

We anticipate from the test borings that normal soil excavation techniques will be acceptable for most of the basin. Very dense disintegrated rock was found below 8 feet in boring M-1 which would require ripping in mass excavations and blasting in trench excavations. If this material is encountered above plan finished grades, it will likely be in the western deeper cut portion of the basin.

Topsoil depths are expected to vary, being thinner in the higher elevations and thicker in the base of swales and at the lower elevations along the southeast side of the pond. Also, in wet areas, construction equipment clearing and stripping the soils may work topsoil into the upper layer of native soils requiring a greater depth of stripping to remove all organics.

Boring M-5 shows that ground water will be encountered near basin grade. Temporary ground water control measures may be required during excavation and initial core trench and embankment fill construction. Ground water may also be encountered above basin grade in the deeper cuts on the north and west side of the main basin. They should be controllable by a series of temporary pumps and trenches during construction. Temporary controls would be the responsibility of the contractor. Permanent ground water controls, should seepage be encountered in the cut slopes, would best be addressed at the time of construction.

XI. GEOTECHNICAL MONITORING

We recommend that Herbst/Benson & Associates (or an equivalent Geotechnical Engineer) be retained to provide the geotechnical monitoring and testing services during the earthwork and principal spillway construction phases of the work. This is to observe compliance with design concepts, specifications or recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.
The earthwork construction including stripping, undercutting, proof rolling and controlled fill placement shall be inspected with in-place density tests taken to verify construction according to the specifications. Also, the principal spillway excavations shall be examined and the exposed soil conditions approved for the design bearing. We will provide the indicated geotechnical monitoring and testing services upon request.

21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

To provide a suitable soil medium for vegetable growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

I. This practice 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.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that 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-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:

i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or a soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger that 1 and 1/2" in diameter.

ii. Topsoil must be free of plants or plant parts such as Bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.

iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

II. For sites having disturbed areas under 5 acres:

i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

iii. For sites having disturbed areas over 5 acres:
i. On soil meeting topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
b. Organic content of topsoil shall be not less than 1.5 percent by weight.
c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
d. No sod or seed shall be placed on soil 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.
NOTE: 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.
ii. Place topsoil (if required) and apply soil ammendments specified in 20.0 Vegetative Stabilization-Section I-Vegetative Stabilization Methods and Materials.

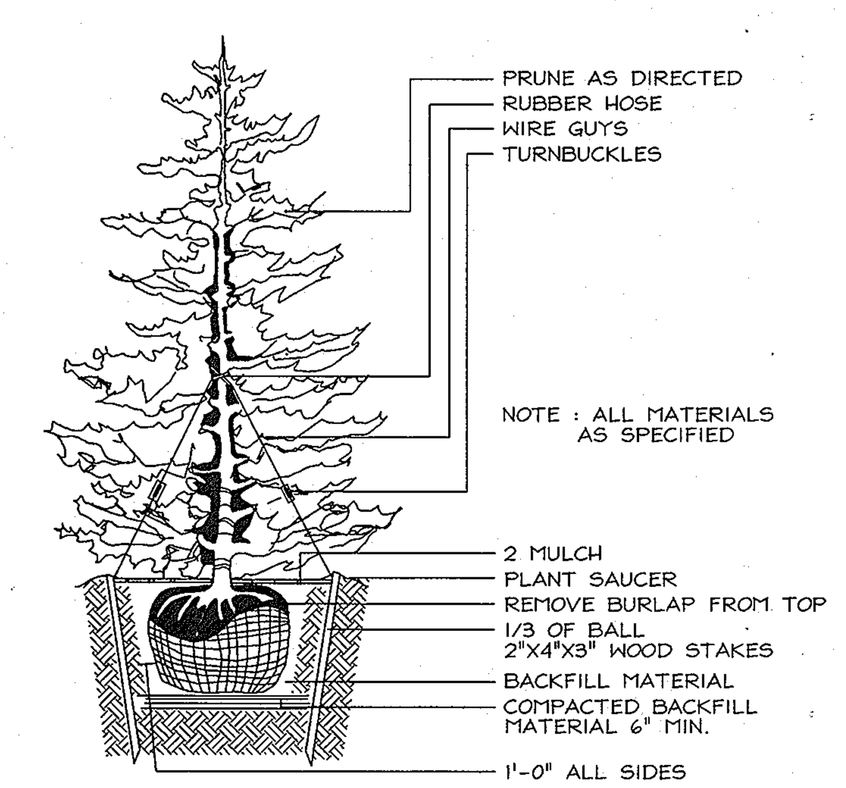
V. Topsoil Application

i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.

ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.

iii. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

iv. Topsoil shall not be place while 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.



TYPICAL EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE

PERMANENT SEEDING NOTES

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

SEEDBED PREPARATION: Loosen upper three inches of soil by raking, discing 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 per acre dolomitic limestone (92 lbs/100 sq.ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs./1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil. At the time of seeding, apply 400 lbs. per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq.ft.)
2) Acceptable-Apply 2 tons per acre dolomatic limestone (92 lbs/1000 sq.ft.) and apply 1000 lbs. per acre 10-10-10- fertilizer (23 lbs./1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil.

SEEDING: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs/1000 sq.ft.) of Turf Type Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs. Turf Type Tall Fescue per acre and 2 lbs. per acre (.05 lbs./1000 sq.ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 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 slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq.ft.) for anchoring.

MAINTENANCE: Inspect all seeded areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

SEEDBED PREPARATION: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

SOIL AMENDMENTS: Apply 600 lbs. per acre 10-10-10 fertilizer (14 lbs./1000 sq.ft).

SEEDING: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushel per acre of annual rye (3.2 lbs./1000 sq.ft.) For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (.07 lbs./1000 sq.ft.). For the period November 1 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

MULCHING: Apply 1 1/2 to 2 tons 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 slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq.ft.) for anchoring.

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

DUST CONTROL NOTES

Definition

Controlling dust blowing and movement on construction sites and roads.

Purpose

To prevent blowing of dust from exposed soil surfaces, reduce on and off-site damage, health hazards, and improve traffic safety.

Conditions Where Practice Applies

This practice is applicable to area subject to dust blowing and movement where on and off-site damage is likely without treatment.

Specifications

Temporary Methods

1. Mulches - See standards for vegetative stabilization with mulches only. Mulch should be crimped or tacked to prevent blowing.
2. Vegetative Cover - See standards for temporary vegetative cover.
3. Tillage - To roughen surface and bring clods to the surface. This is an an emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12" apart, spring-toothed harrows, and similar plows are examples of equipment which may produce the desired effect.
4. Irrigation - This is generally done as an emergency treatment. Site is sprinkled with water until the surface is moist. Repeat as needed. At no time should the site be irrigated to the point that runoff begins to flow.
5. Barriers - Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 10 times their height are effective in controlling soil blowing.
6. Calcium Chloride - Apply at rates that will keep surface moist. May need retreatment.

Permanent Methods

1. Permanent Vegetation - See standards for permanent vegetative cover, and permanent stabilization with sod. Existing trees or large shrubs may afford valuable protection if left in place.
2. Topsoiling - Covering with less erosive soil materials. See standards for topsoiling.
3. Stone - Cover surface with crushed stone or coarse gravel.

References

1. Agricultural Handbook 346. Wind Erosion Forces in the United State and Their Use in Predicting Soil Loss.
2. Agricultural Information Bulletin 354. How to Control Wind Erosion, USDA-ARS. (H-30-1)

SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspection, License and Permits Sediment Control Division prior to the start of any construction (313-1855).
2. All vegetation 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 redisturbance, permanent or temporary stabilization shall be completed within: (a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes, and all slopes greater 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, HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding, sod, temporary seeding, and mulching (Sec. G). Temporary stabilization with mulch alone shall be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis :

Total Area	34.06 Acres
Area Disturbed	23.66 Acres
Area to be roofed or paved	7.66 Acres
Area to be vegetatively stabilized	16.00 Acres
Total Cut	*75,000 CY
Total Fill	*75,000 CY
Offsite waste/borrow area location	**

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 controls must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized within one working day, whichever is shorter.

* Earthwork quantities are solely for the purpose of calculating fees. Contractor to verify all quantities prior to the start of construction.

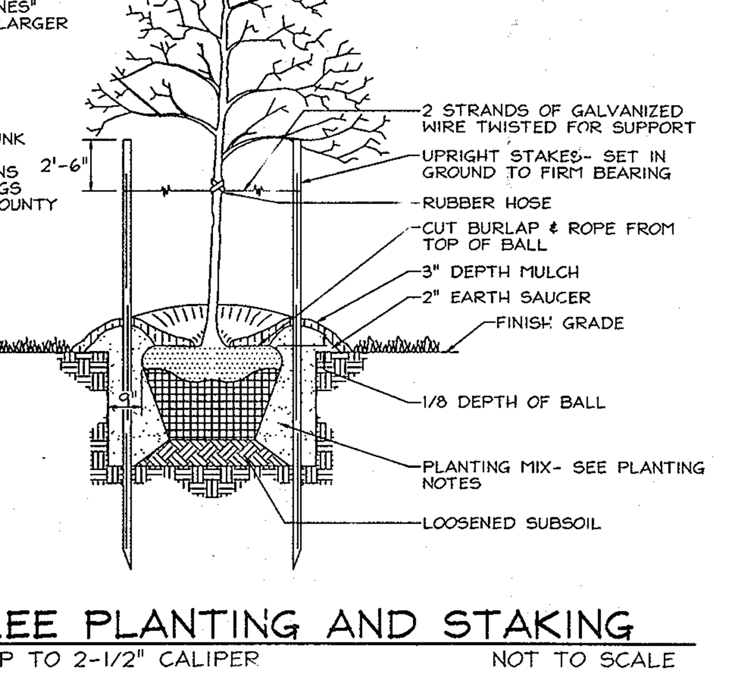
** To be determined by contractor, with pre-approval of the Sediment Control Inspector with an approved and active grading permit

SEQUENCE OF CONSTRUCTION

1. Obtain grading permit and contact Howard County Sediment Control Inspector(SCI) to arrange a pre-construction meeting. (1 Day)
2. Install Stabilized Construction Entrance at service road to be used as a access point for construction. (1 Day)
3. Clear and grub as necessary for installation of sediment control features.
4. Install perimeter silt fence/ super silt fence, and install the modified stormwater management basin to be used as a sediment basin, (block 6" orifice) including the outfall channel. In-stream work for placement of rip rap outfall may begin only after obtaining authorization from the Maryland Department of Environment Inspector. (3 Weeks).
5. Clear, grub, and install sand bag diversion dam, begin pump-around to install rip rap section in stream channel. Once rip rap placement is complete, remove pump-around and permanently stabilize disturbed areas. (1 day)
6. Install perimeter and internal earth dikes and rip rap grade stabilization protection. (5 Days)
7. With permission of SCI, begin site grading and adjust dikes as needed to insure safe conveyance to basin. Provide dust control in accordance with notes/ specifications of sheet this sheet. (Daily)
8. Bring site to subgrade and install storm drain system. Storm drains will be used to convey runoff to Sediment/Stormwater management basin. (3 Weeks)
9. Pave parking areas, topsoil and fine grade lawn areas and apply permanent stabilization.
10. With permission of SCI remove all earth dikes, silt fences, sediment traps, and apply permanent stabilization to those areas. (5 Days)
11. Flush storm drains of sediment. Convert sediment/stormwater basin to permanent SWM by dewatering, removal of accumulated sediment, removal of RRP, removal of standpipe, remove pumping station, and remove blocking device on internal orifice, and applying permanent seeding and mulching to disturbed areas.

NOTES

1. SEE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS" FOR ALL MATERIAL, PRODUCT, AND PROCEDURE SPECIFICATIONS.
2. SEE "LANDSCAPE GUIDELINES" FOR SUPPORTING TREES LARGER THAN 2-1/2" CALIPER.
3. PLACE UPRIGHT STAKES PARALLEL TO WALKS & BUILDINGS.
4. KEEP MULCH 1" FROM TRUNK
5. SEE ARCHITECTURAL PLANS FOR ADDITIONAL PLANTINGS WHICH EXCEED HOWARD COUNTY MINIMUM REQUIREMENTS.
6. TREES ARE NOT TO BE PLANTED OVER PRIVATE SEWAGE EASEMENT.



TYPICAL TREE PLANTING AND STAKING

DECIDUOUS TREES UP TO 2-1/2" CALIPER NOT TO SCALE

Revision	Description	Date
4	Total number of sheets change to 21.	Mar. 2013

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ — DATE 7/30/04
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/3/04
DIRECTOR — DATE 8/3/04

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 7/29/04

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/29/04

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Joseph A Hancock — 7/21/04
SIGNATURE OF DEVELOPER — DATE

ENGINEERS CERTIFICATE

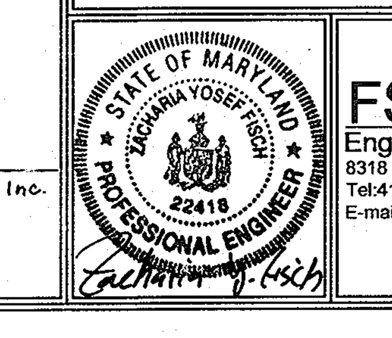
"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Zacharia Y. Fisch — 7/21/04
SIGNATURE OF ENGINEER — DATE
ZACHARIA Y. FISCH

OWNER/DEVELOPER
Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
Tel: (410) 992-5384
c/o Joe Hancock

SEDIMENT AND EROSION CONTROL AND MISCELLANEOUS DETAILS
GRACE COMMUNITY CHURCH
PHASE I & II
RELIGIOUS FACILITY

TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL 337
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND



FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
Tel:410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

DESIGN BY:	PS
DRAWN BY:	KSZ
CHECKED BY:	ZYF
SCALE:	1"=30'
DATE:	July 20, 2004
W.O. No.:	3071 (4)
SHEET No.	10 OF ~~20~~ 21

SDP-04-079

LANDSCAPE PLAN NARRA

The landscaping shown he[illegible]mplies with the Howard County Landscape [illegible] Amended March 2, 1998. This plan will mak[illegible] the Alternate Compliance provisions of [illegible]ual. Additionally, some landscape credit will be [illegible]ken for Forest Conservation Plantings of mat[illegible]ial that is of sufficient size, and in appropri[illegible] locations.

Perimeter 1 has been augmented by movement of 11 evergreen trees from Perimeter 5. This is justified due to the proximity of the adjacent users on Perimeter 1 and due to the distance from adjacent users on Perimeter 5. Also, Perimeter 5 abuts a forested area with a stream located in such a way as to limit any future development.

Perimeters 3 and 4 are an average of 15'±, and a minimum of 10' below the adjacent roadway and property. For this reason we are taking full credit for shrub requirements in Perimeter 3 and evergreen requirements in Perimeter 4. Additional shrubs shown are for aesthetic purposes only.

Perimeters 5 and 7 have taken 100% buffer credit for portions of the Perimeter that are not facing any change in land use, nor have any change in land use visible. The areas for which credit is taken face each other across a field that will have some reforestation planting. Additionally there is a significant elevation difference between these areas and the developed area of the site. Dimensions from the existing adjacent development to the proposed building are shown.

Perimeter 6 has taken 100% buffer credit due to its being over 1000 feet distant and approximately 25' lower in elevation than the closest developed area. Also the perimeter does not face directly into the developed area, and the indirect line of sight crosses a proposed forest planting easement.

In addition, for Perimeters 5 and 6, there is existing vegetation, preserved in an easement and floodplain, for which full buffer credit may be taken. This area is broken out on the Landscape Perimeter Schedule A.

The SWM Perimeter has been reduced along the area which borders Perimeter 7. Additionally credit for 100% of the evergreen requirement has been taken due to the average 14 foot elevation drop between the developed area and the pond. It should be noted that this pond is being intentionally developed as a site amenity and screening it from views runs counter to the wishes of the site owner. Plantings are being proposed to enhance the view of this asset.

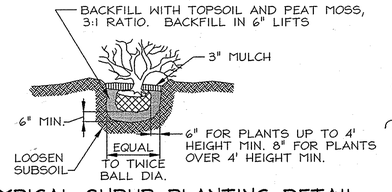
Due to the large parking areas with numerous opportunities for landscaped islands, several shade trees were transferred to the parking areas. Two trees were moved from Perimeter 2 which is buffering only a road with numerous trees along it and a park-and-ride lot. Four trees were moved from Perimeter 5 which has a heavy buffer abutting a forested area with a stream located in such a way as to limit any future development. These two perimeters have adequate buffering without the transferred trees.

Landscaping for the 16 shade trees proposed with PHASE II will be bonded with the builder's grading permit in the amount of $4,800.00. 4

LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	NOTE
AR	~~22~~ 30	Acer rubrum October Glory Red Maple	2 1/2"-3" Cal.	B & B
BN	4	Betula nigra River Birch	10'-12' Ht.	B & B
LS	16	Liquidambar styraciflua Sweetgum	2 1/2"-3" Cal.	B & B
LT	13	Liriodendron tulipifera Tulip Poplar	2 1/2"-3" Cal.	B & B
QP	15	Quercus phellos Willow Oak	2 1/2"-3" Cal.	B & B
QR	~~22~~ 28	Quercus rubra Red Oak	2 1/2"-3" Cal.	B & B
SB	6	Salix babylonica Weeping Willow	1 1/2"-2" Cal.	B & B
AH	11	Ilex opaca American Holly	5'-6' Ht.	B & B
PS	44	Pinus strobus Eastern White Pine	6'-8' Ht.	B & B
PT	9	Pinus taeda Loblolly Pine	6'-8' Ht.	B & B
TO	41	Thuja occidentalis Eastern Arborvitea	6'-8' Ht.	B & B
AC	5	Amelanchier canadensis Shadblow Serviceberry	8'-10' Ht.	B & B
CC	5	Carpinus caroliniana American Hornbeam	1 1/2"-2" Cal.	B & B
RB	9	Cercis canadensis Redbud	1 1/2"-2" Cal.	B & B
CV	11	Chionanthus virginicus White Fringetree	1 1/2"-2" Cal.	B & B
AA	20	Aronia arbutifolia Red Chokeberry	18-24"- 3-5gal.	Cont.
RD	42	Cornus serisea Redosier Dogwood	18-24"- 3-5gal.	Cont.

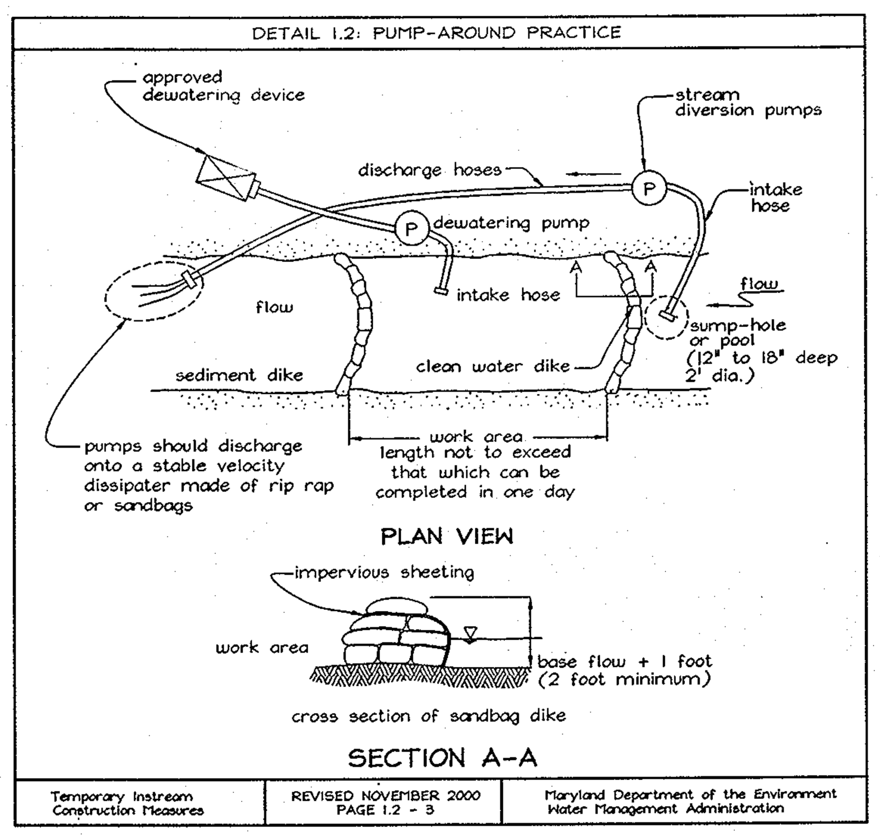
NOTE: See Sheet 19 of ~~20~~ 21 for all planting notes and details



TYPICAL SHRUB PLANTING DETAIL

NOT TO SCALE

PERIMETER ONE 461 LF
PERIMETER TWO 277 LF
PERIMETER THREE 527 LF
PERIMETER FOUR 2467 LF
PERIMETER FIVE 2467 LF
PERIMETER SIX 880 LF
PERIMETER SEVEN 2090 LF
SWM BASIN #2
100' LF Proposed Building
80' LF To Proposed Building
556' LF To Proposed Building
See Sheet 21 for Phase II East Parking Construction Plan & Details
See Sheet 21 for Phase II SouthWest Parking Construction Plan & Details
Ex. Barn to Remain
Ex. Shed to be Removed
Ex. Dwelling to be Removed
Ex. Garage to be Removed
Ex. Silo to be Removed
Ex. Shed to be Removed
Ex. Dwelling to be Removed
Ex. Shed to be Removed
Ex. Shed to be Removed
Ex. Shed



EMERGENT PLANTING
(1340 S.F) (112 PLANTINGS, 24" O.C. WITHIN 8 - 6'x 20-40'± PLOTS)

COMMON NAME	SCIENTIFIC NAME	WETLAND INDICATOR	PLANTING STOCK	QUANTITY
pickerel weed	Pontederia cordata	OBL	Bare root	28
soft stem bullrush	Scirpus validus	OBL	Bare root	28
rice cutgrass	Leersia oryzoides	OBL	Bare root	28
lizard tail	Saururus cernuus	OBL	Bare root	28

EMERGENT PLANTING NARRATIVE
Vegetation establishment is expected though natural plant propagation and will be enhanced by supplemental planting of 35% of the area. Supplemental planting of pickeral weed, Pontederia cordata, soft stem bullrush, Scirpus validus, Rice cutgrass, Leersia oryzoides and lizard tail, Saururus cernuus will be provided within 6' wide plots of varying length (20'-40', see plan) protected with goose exclusion fencing. Plant installation may be delayed one year after grading to allow the graded area to settle and hydrology to stabilize.

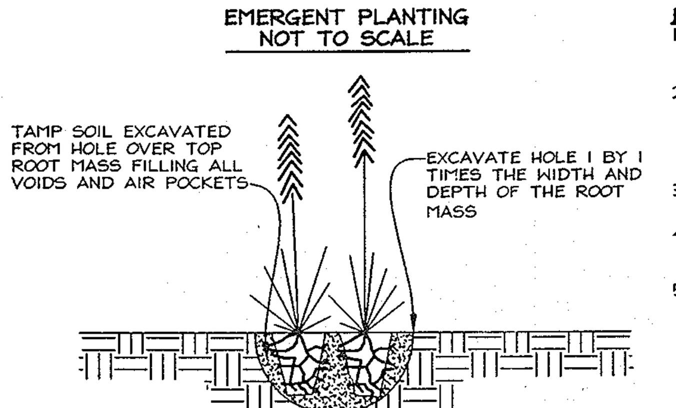
MGWC 2.: Pump-Around Practice

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

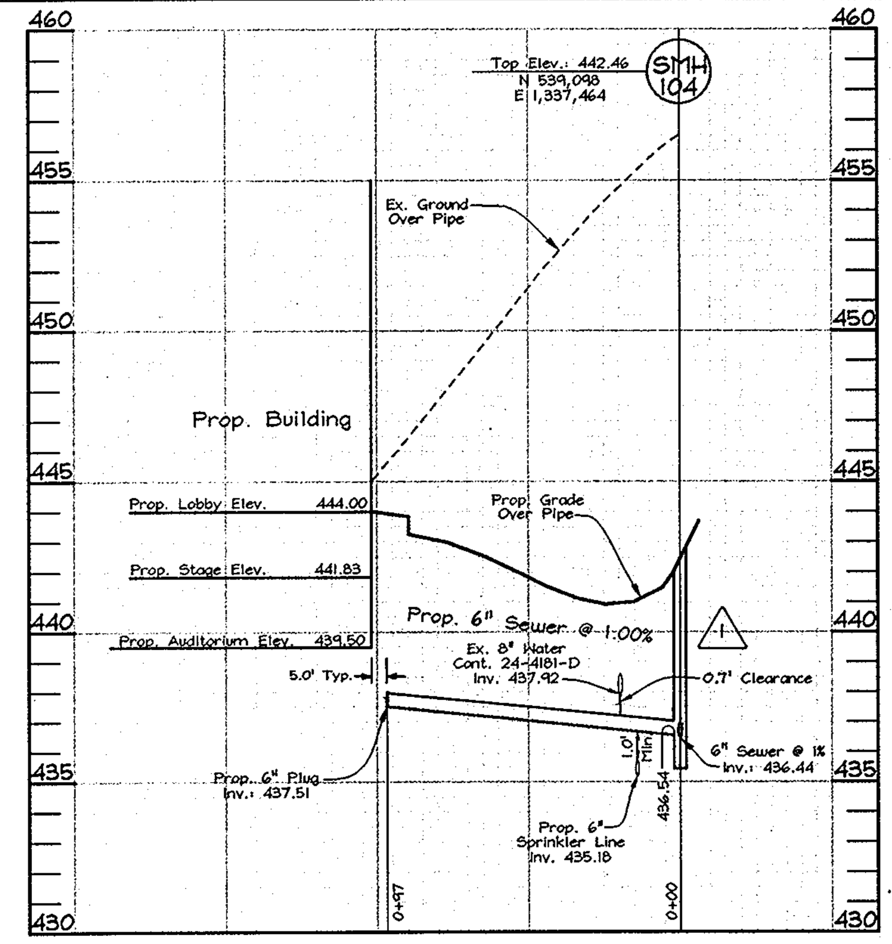
Implementation Sequence
Sediment control measures, pump arounds, and associated channel and bank construction shall be completed in the following sequence:

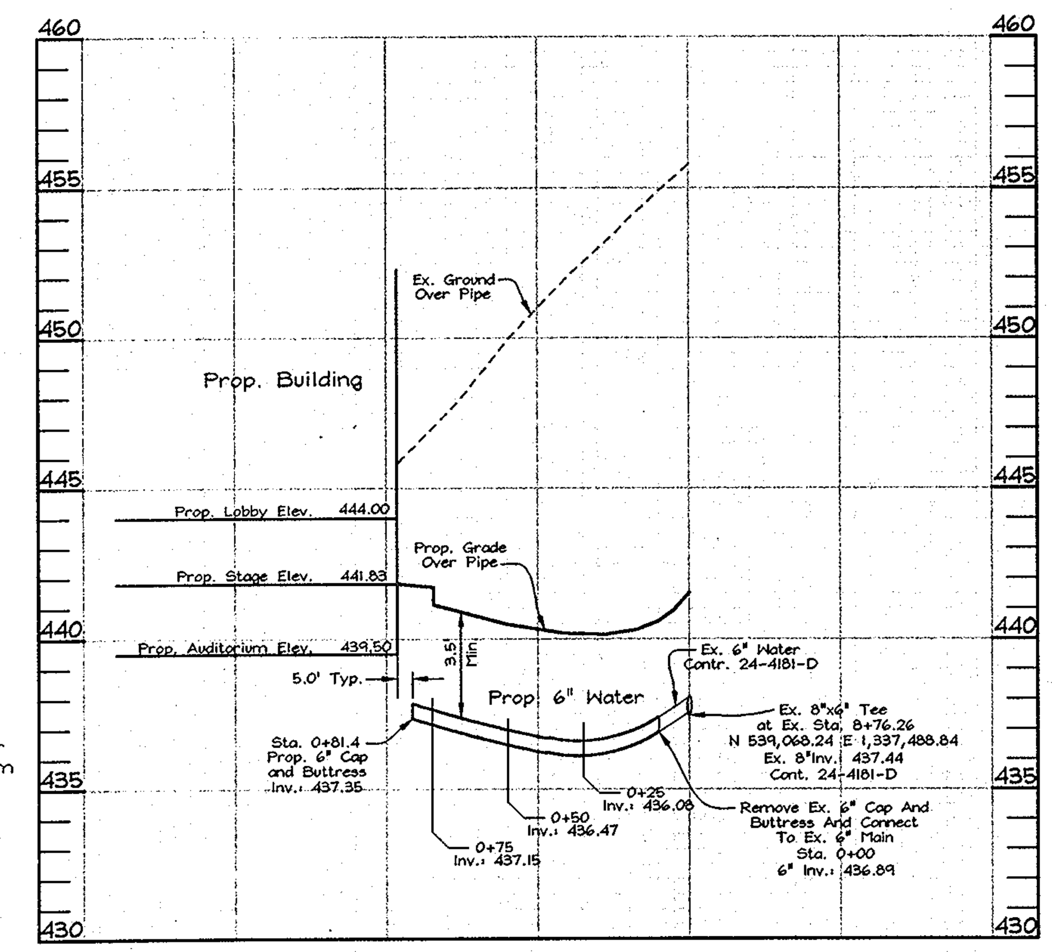
1. Construction activities including the installation of erosion and sediment control measures shall not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities shall be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and shall repair the damage at his/her own expense to the county's satisfaction.
2. The contractor shall notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor shall inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
3. The contractor shall conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. (The contractor shall stake out all limits of disturbance prior to the pre-construction meeting.) The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees shall not be removed within the limit of disturbance without approval from the WMA or local authority.
4. Construction shall not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor shall stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.
5. Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor shall begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor shall only begin work in an area which can be completed by the end of the day (including grading adjacent to the channel). At the end of each work day, the work area must be stabilized and the pump around removed from the channel. Work shall not be conducted in the channel during rain events.
6. Sandbag dikes shall be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow shall be pumped around the work area. The pump shall discharge onto a stable velocity dissipater made of riprap or sandbags.
7. Water from the work area shall be pumped to sediment filtering measure such as a sediment bag. The measure shall be located such that the water drains back into the channel below the downstream sandbag dike.
8. Traversing a channel reach with equipment where no work is proposed should be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures shall be used to minimize disturbance to the channel. Temporary stream crossings shall be used only when necessary and only where noted on the plans or specified by the engineer.
9. All steam restoration measures shall be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross-sections. All grading must be permanently stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.
10. After an area is completed and stabilized, sandbag diversions, the water pump, and sediment filtering measure shall be moved to the next work area. This shall be accomplished by first moving the downstream sandbag dike to the new upstream pump around location and then by relocating the upstream sandbag dike, velocity dissipater, and sediment filter to the new downstream location.
11. A pump around must be installed on any tributary or storm drain outfall which contributes base-flow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the steam flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.
12. If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices, shall follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem shall resume. Water from the tributary shall continue to be pumped around the work area in the main stem.
13. The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approved their removal.
14. After construction, all disturbed areas shall be re-graded and revegetated as per the planting plan.

EMERGENT PLANTING
NOT TO SCALE

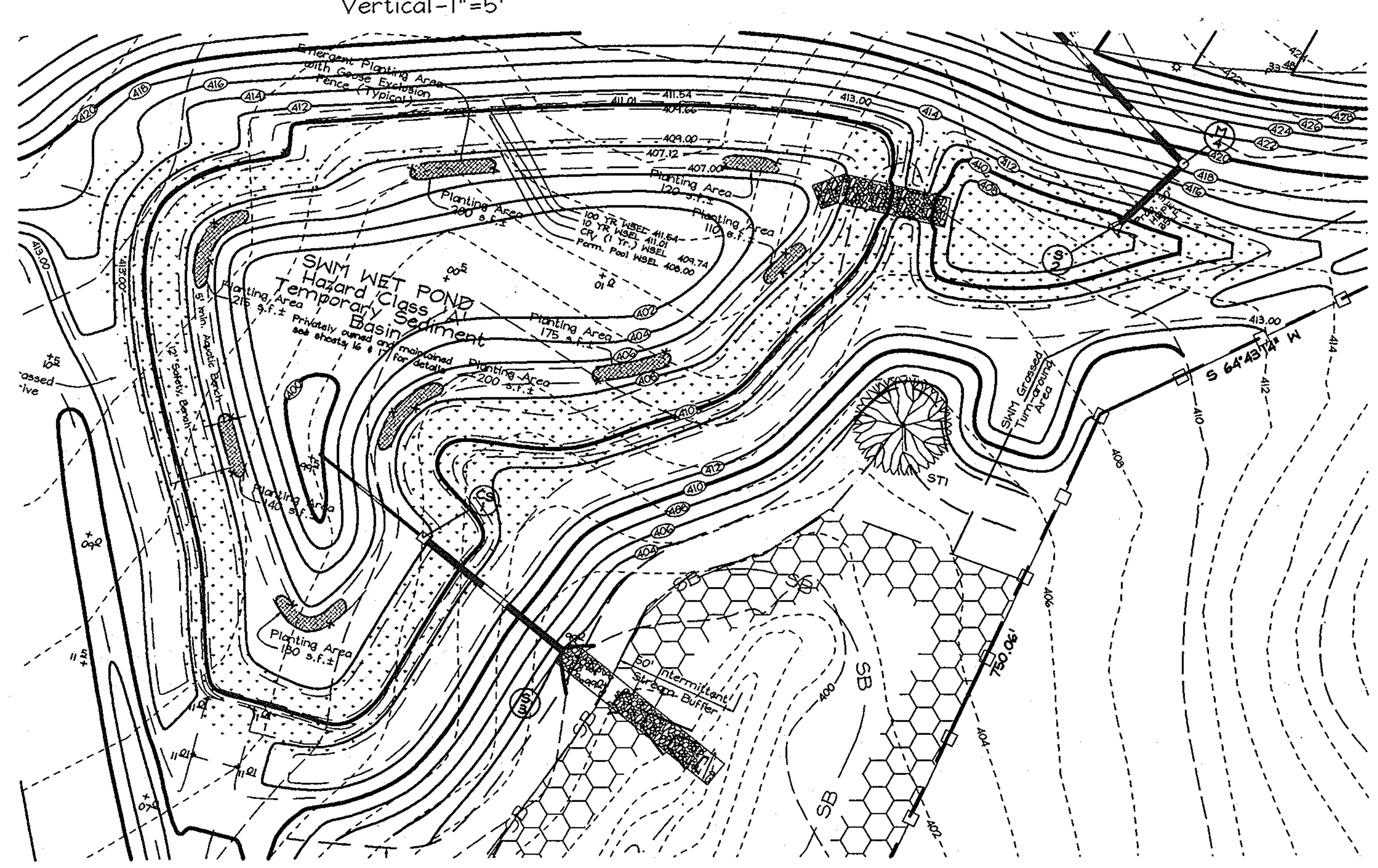


EMERGENT PLANTING SPECIFICATIONS
1) Rooted herbaceous plants may be locally harvested and planted immediately following harvest.
2) If not planted immediately after delivery to the job site, plants must be protected from direct exposure to the sun and roots must be kept moist at all times.
3) All plants shall contain new roots, white in color.
4) All plants must appear healthy, with no leaf spots, damage, wilting or evidence of insects or disease.
5) Planting operations must be followed immediately by installation of wire barriers.

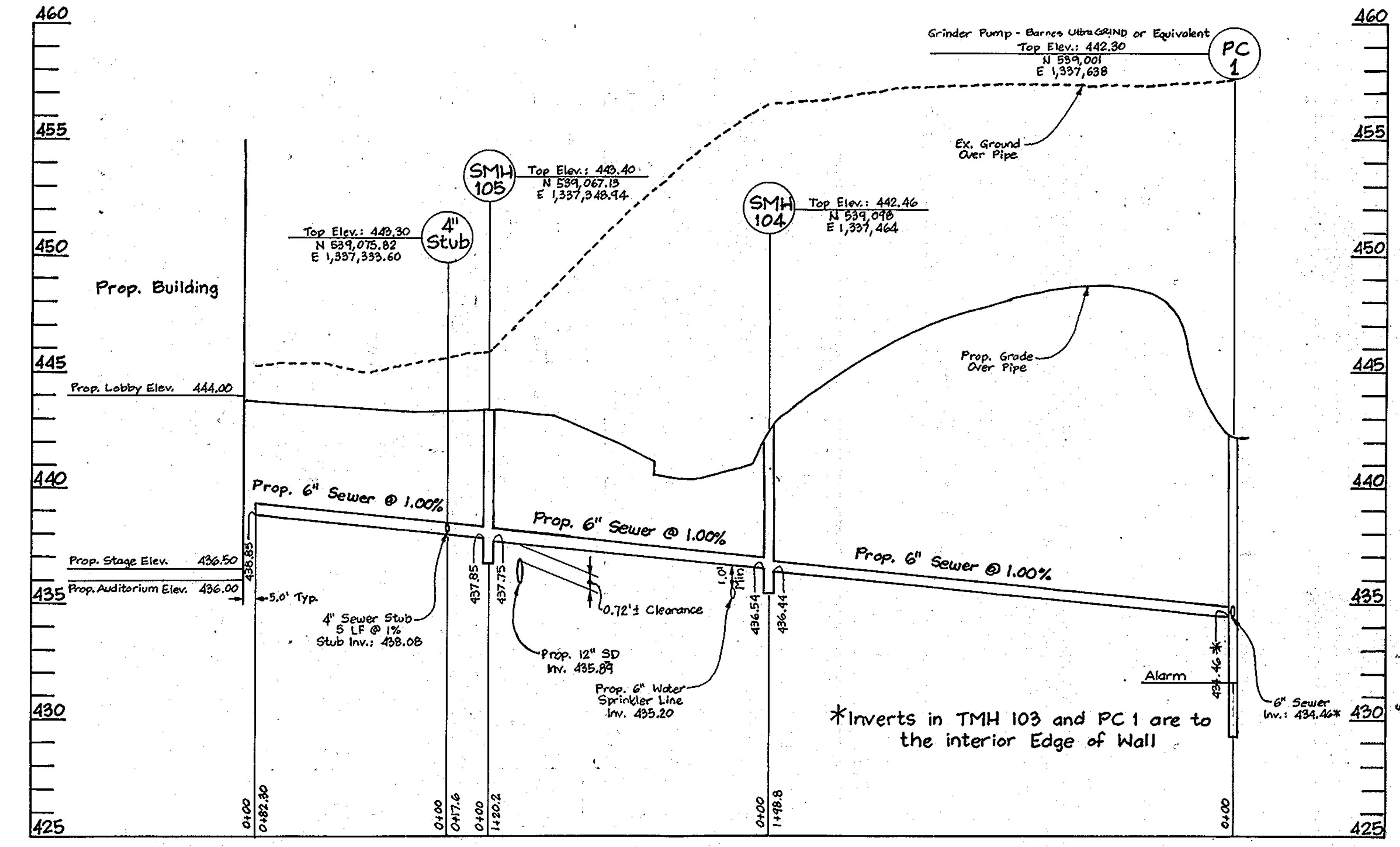




WATER & SEWER PROFILE
Scale: Horizontal- 1"=50'
Vertical-1"=5'



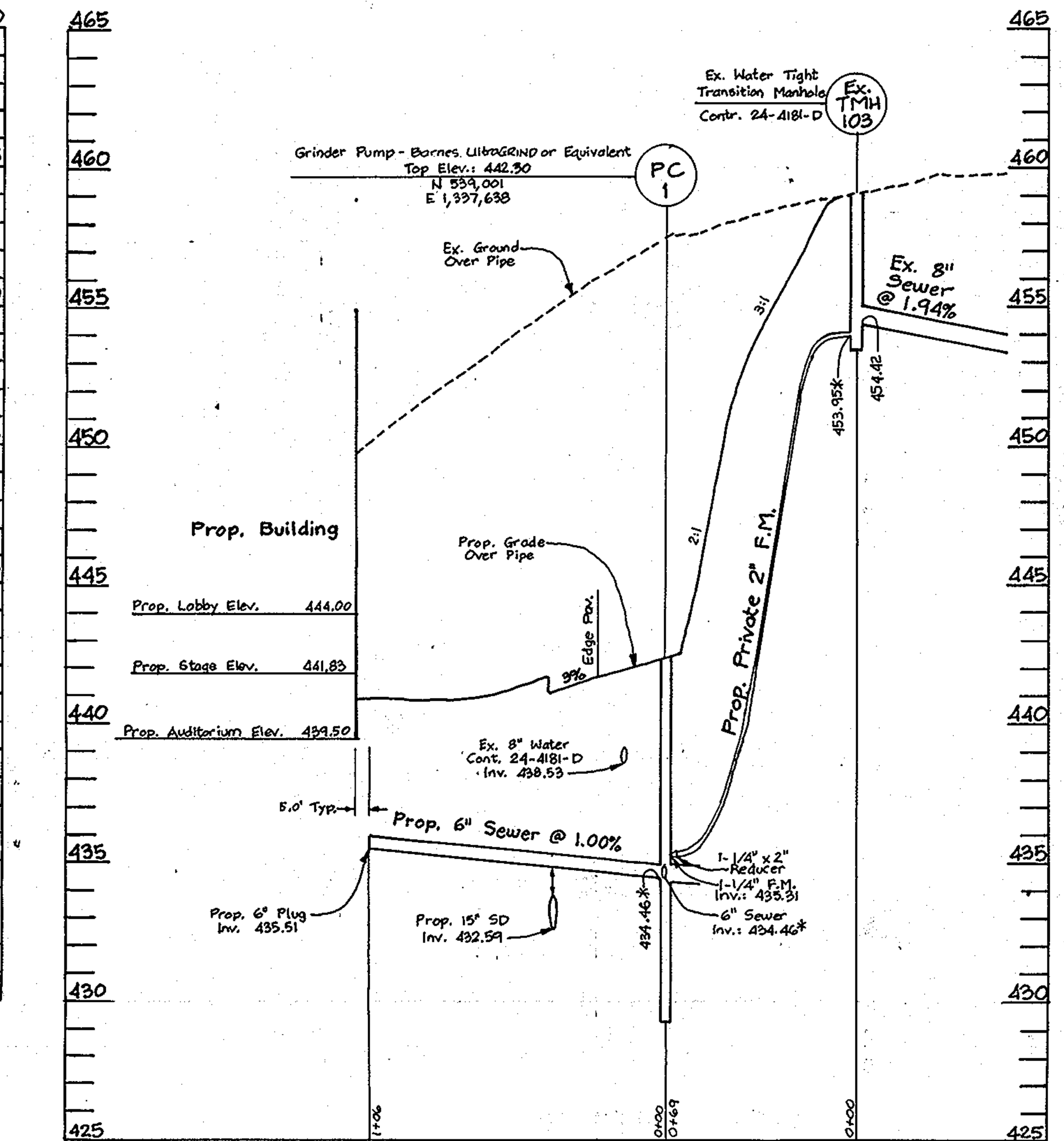
POND PLANTING PLAN
Scale: 1" = 50'



SEWER PROFILE
Scale: Horizontal- 1"=50'
Vertical-1"=5'

No.	Description	Date
4	Total number of sheets change to 21.	Mar. 2013
1	Revised Sewer Manholes, Grades over pipes, and added Grinder Pump to profiles.	11.09.04

REVISIONS

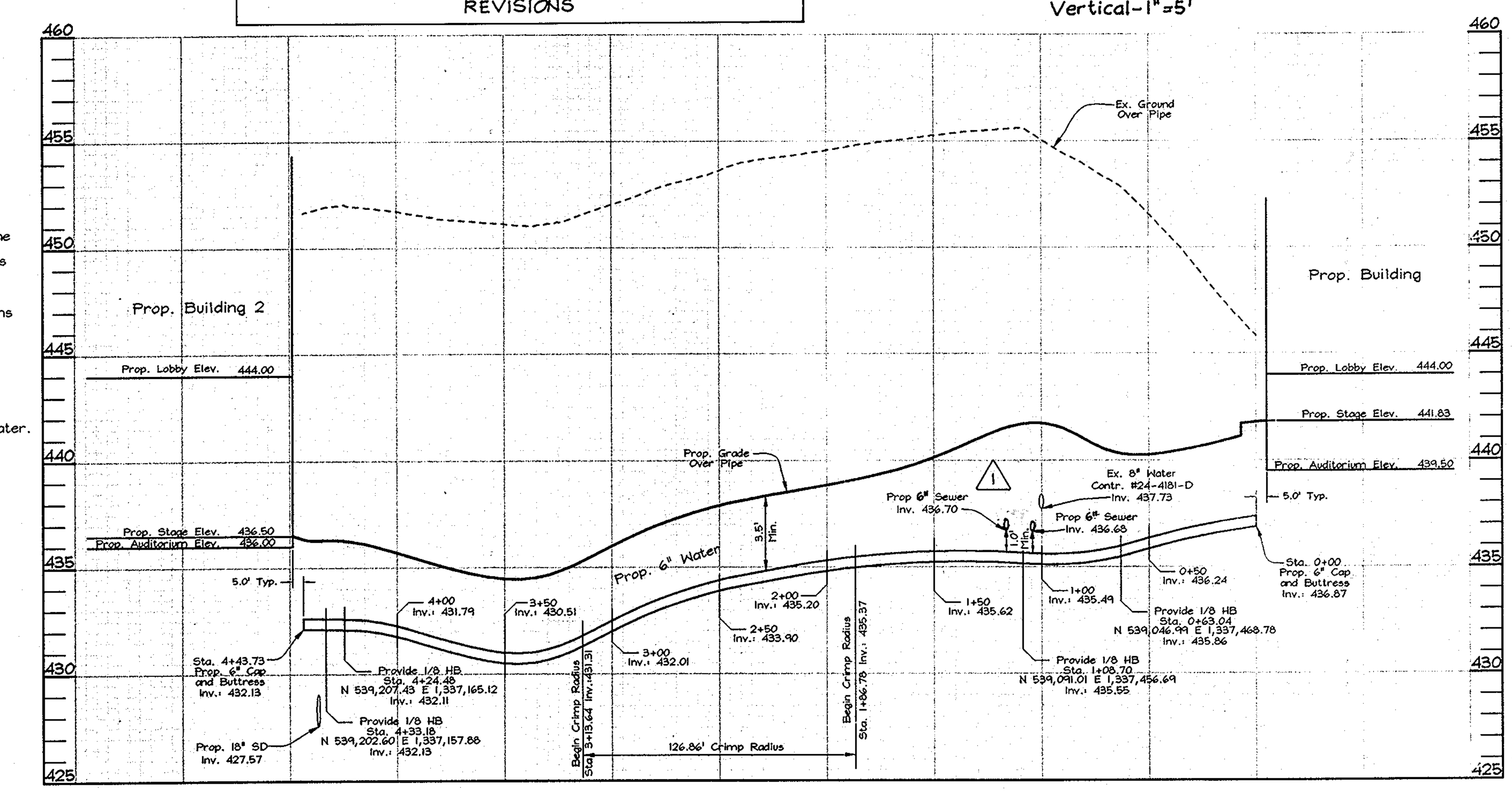


*Inverts in TMH 103 and PC 1 are to the interior Edge of Wall.

SEWER PROFILE
Scale: Horizontal- 1"=50'
Vertical-1"=5'

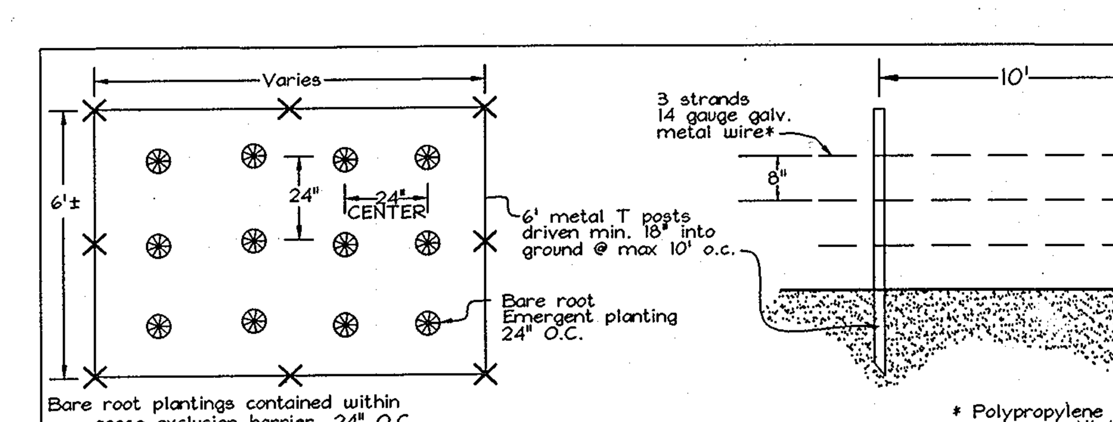
BEST MANAGEMENT PRACTICES
For working in Nontidal Wetlands, Wetland Buffers, Waterways, and 100-Year Flooplains.

1. No excess fill, constructed material, or debris shall be stockpiled or stored in Nontidal Wetland buffers, Waterways, or 100-Year Floodplains.
2. Place materials in a location and manner which does not adversely impact surface or subsurface water flow into or out of Nontidal Wetlands, Nontidal Wetland Buffers, Waterways, or the 100-Year Floodplain.
3. Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material, or any deleterious substance. If additional backfill is required, use clean material free of waste metal products, unsightly debris, toxic material, or any deleterious substance.
4. Place heavy equipment on mats or suitably operate the equipment to prevent damage to Nontidal Wetlands, Nontidal Wetland Buffers, Waterways, or the 100-Year Floodplain.
5. Repair and maintain any serviceable structure or fill so there is no permanent loss of Nontidal Wetlands, Nontidal Wetland Buffers, Waterways, or permanent modification of the 100-Year Floodplain in excess of that lost under the originally authorized structure or fill.
6. Rectify any Nontidal Wetlands, Wetland Buffers, Waterways, or 100-Year Floodplain temporarily impacted by construction.
7. All stabilization in the Nontidal Wetland and Nontidal Wetland Buffer shall consist of the following species: Annual Rye Grass (Lolium Multiflorum), Millet (Setaria Italica), Oats (Uliola SPP.), Barley (Hordeum Species), Rye (Secale Cereale). These species will allow for the stabilization of the site while also allowing for the voluntary revegetation of natural wetland species. Other non-persistant vegetation may be acceptable, but must be approved by the Nontidal Wetlands and Waterways Division. Kentucky 31 Fescue shall not be utilized in Wetland or Buffer areas. The area should be seeded and mulched to reduce erosion after construction activities have been completed.
8. After installation has been completed, make post-construction grades and elevations the same as the original grades and elevations in temporary impacted areas.
9. To protect Aquatic species, In-stream work is prohibited as determined by the classification of the stream.
   Use I waters: In-stream work shall be conducted during the period March 1 through June 15, inclusive, during any year.
10. Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the Waterway.
11. Culverts shall be constructed and any RipRap placed so as not to obstruct the movement of aquatic species, unless the purpose of the activity is to impound water.



WATER SPRINKLER PROFILE
Scale: Horizontal- 1"=50'
Vertical-1"=5'

Revision	Description	Date
4	Total number of sheets change to 21.	Mar. 2013



EMERGENT PLANTING AREAS WITH GOOSE EXCLUSION BARRIER
N.T.S.

OWNER/DEVELOPER
Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
Tel: (410) 992-5384
C/O Joe Hancock

WATER & SEWER PROFILES, POND PLANTING PLAN & DETAILS AND SEDIMENT & EROSION CONTROL DETAILS
GRACE COMMUNITY CHURCH
PHASE I & II
RELIGIOUS FACILITY

TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL 337
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

UPLAND SEEDMIX SPECIFICATIONS - 27,900 S.F.±

UPLAND SEED MIX TO BE APPLIED TO ALL DISTURBED AREAS WITHIN NON-WETLAND AREAS

COMMON NAME	APPLICATION RATE
TALL FESCUE (TURF TYPE)	120 lbs / Ac.
HARD FESCUE	30 lbs. / Ac.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[signature] 8/3/04
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
[signature] 7/30/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE
[signature] 8/3/04
DIRECTOR — DATE

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
[signature] 7/29/04
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
[signature] 7/29/04
HOWARD SOIL CONSERVATION DISTRICT — DATE

DEVELOPER'S CERTIFICATE
"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."
Joseph R Hancock 7/21/04
SIGNATURE OF DEVELOPER — DATE

ENGINEERS CERTIFICATE
"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."
Zacharia Y. Fisch 7/21/04
SIGNATURE OF ENGINEER — DATE
ZACHARIA Y. FISCH

STATE OF MARYLAND — ZACHARIA YOSEF FISCH — 22418 — PROFESSIONAL ENGINEER

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
Tel:410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

DESIGN BY: FS
DRAWN BY: DKM
CHECKED BY: ZYF
SCALE: As Shown
DATE: July 20, 2004
W.O. No.: 3071 (4)
SHEET No.: 12 OF 21 (20)

SDP-04-079

REVISIONS		
No.	Description	Date
1	Revised Grades, Sewer Manholes and Easements	11.09.04
2	Add Phase II references, traffic flow arrows, and Phase II building one expansions.	MAR 2013
3	Update Phase II footprint and add roofdrain collection pipes	MAR 2015

⚠ SEE SHEET 21 FOR PHASE II EAST PARKING CONSTRUCTION PLAN & DETAILS

⚠ SEE SHEET 21 FOR PHASE II SOUTHWEST PARKING CONSTRUCTION PLAN & DETAILS

MARYLAND STATE HIGHWAY ADMINISTRATION SHA PLATS #38257 and 38258

OLD COLUMBIA ROAD

GRACE COMMUNITY CHURCH LOT 1 ZONED: RR-DEO

EXISTING BUILDING 2 TO REMAIN

EXISTING BUILDING 1 TO REMAIN

PROPOSED BUILDING 1 Lobby: 444.00 Auditorium: 439.50 Stage: 441.83

PROPOSED BUILDING 2 Lobby: 444.00 Auditorium: 439.50 Stage: 441.83

SWM WET POND 1 Hazard Class A Temporary Sediment Basin Privately Owned and Maintained see sheets 16 & 17 for details

Phase II Parking Addition

Future Phase Paving and Parking

Future Light Fixture

Ex. Spillroll Fence to remain

50' Intermittent Stream Buffer

LOT 2 ST. FRANCIS OF ASSISI SUBDIVISION PLAT No. 10126 ZONED: RR

LOT 1 ST. FRANCIS OF ASSISI SUBDIVISION PLAT No. 10126 ZONED: RR

ADELE LAHN FARMS, INC L.623 F.747 PARCEL 113 ZONED: RR-DEO

(North) Maryland State Grid (NAD 83/91)

E 1,336,750 N 538,850

E 1,338,910 N 539,100

E 1,359,050 N 536,360

E 1,357,750 N 536,450

N 17°19'36" E 827.15'

S 74°44'43" E 665.73'

S 82°42'54" E 160.00'

N 76°49'09" W 857.94'

N 72°55'57" E 783.57'

S 64°03'16" W 786.08'

N 15°15'44" W 388.57'

S 74°44'43" E 150.00'

S 15°15'44" E 388.57'

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	SOIL GROUP
GIB2	Glenelg loam, 3 to 8 percent slopes, moderately eroded	B
GnB2	Glenville silt loam, 3 to 8 percent slopes, moderately eroded	C
MIB2	Manor loam, 3 to 8 percent slopes, moderately eroded	B
MIC2	Manor loam, 8 to 15 percent slopes, moderately eroded	B
MIC3	Manor loam, 8 to 15 percent slopes, severely eroded	B
MIE	Manor loam, 25 to 45 percent slopes	B

NOTE:
1. 'C' factors taken from table 3.01(d), Rational Formula Runoff Coefficients, for commercial development and impervious areas.
2. Property Zoned RR-DEO.
3. Structures A-1 and A-2 and Stub-10 to tie into Stub 1.
4. Structures A-3 and A-4 to tie into Stub 2.
5. Stubs 6 thru 9 to tie into 12" SD between I-24 and Stub-2.

DRAINAGE AREA TABLATION

D.A.	AREA (Ac.)	'C' FACTOR	SOIL
I-1	0.68	0.86	B and C
I-2	0.40	0.72	B
I-3	0.73	0.72	B and C
I-4	0.49	0.72	B
I-5	0.85	0.72	B
I-6	0.46	0.72	B
I-7	0.44	0.72	B
I-7A	0.41	0.72	B
I-8	0.52	0.72	B
I-9	0.98	0.72	B
I-10	1.30	0.72	B
I-11	0.26	0.72	B
I-12	0.34	0.72	B
I-13	0.22	0.72	B
I-14	0.10	0.72	B
I-15	2.60	0.72	B and C
I-16	0.16	0.72	B
I-17	0.64	0.72	B
I-18	0.42	0.72	B
I-19	0.53	0.72	B
I-20	0.35	0.72	B
I-21	0.85	0.72	B
I-22	0.31	0.72	B
I-23	0.49	0.72	B
I-23A	0.52	0.72	B
I-24	0.59	0.72	B
I-25	0.41	0.72	B
I-26	0.15	0.72	B
Stub-1	0.39	0.87	B
Stub-2	0.39	0.87	B
Stub-3	0.08	0.87	B
Stub-4	0.08	0.87	B
Stub-5	0.08	0.87	B

OWNER/DEVELOPER

Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
(410) 992-5384
C/O Joe Hancock

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/30/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/3/04

DIRECTOR — DATE 8/3/04

STORM DRAIN DRAINAGE AREA MAP

GRACE COMMUNITY CHURCH

PHASE I & II

RELIGIOUS FACILITY

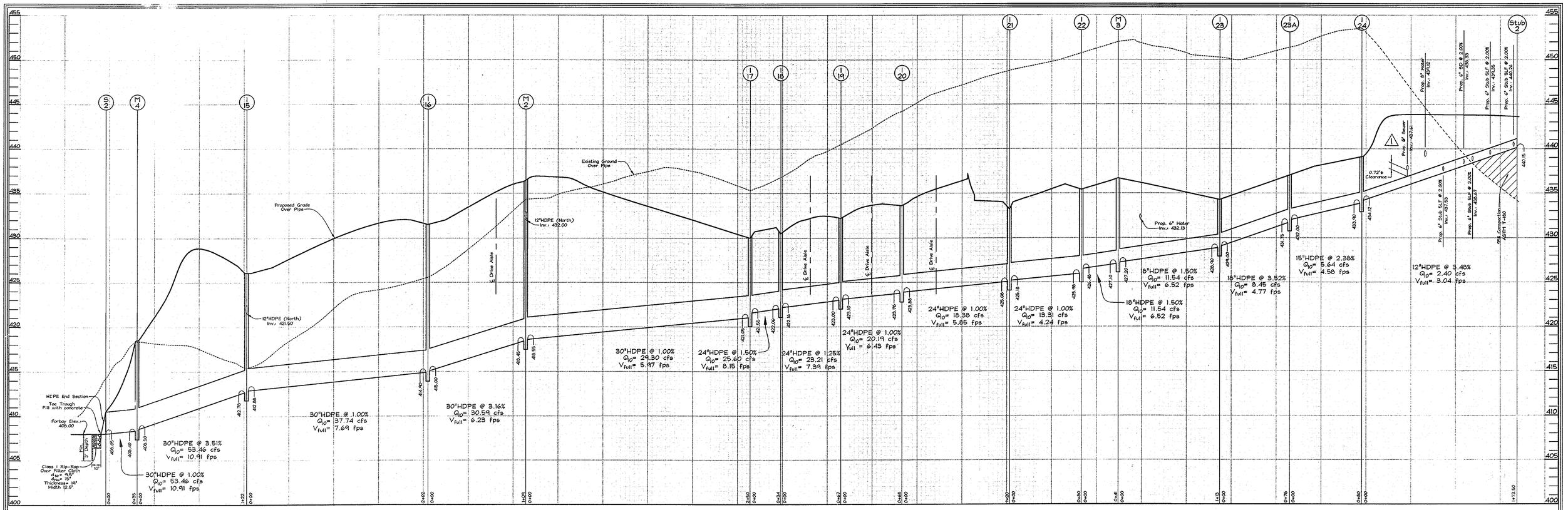
TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL 337
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — VIRGINIA YOSEF YUSCH — 22418 — PROFESSIONAL ENGINEER

FSH Associates
Engineers Planners Surveyors
8318 Forest Street Ellicott City, MD 21043
Tel:410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@rs.com

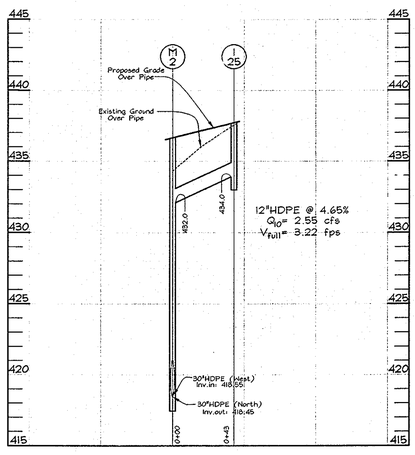
DESIGN BY: PS
DRAWN BY: KSZ
CHECKED BY: ZYF
SCALE 1"=50'
DATE: July 20, 2004
W.O. No.: 3071 ⚠3
SHEET No.: 13 OF 21 26

SDP-04-079



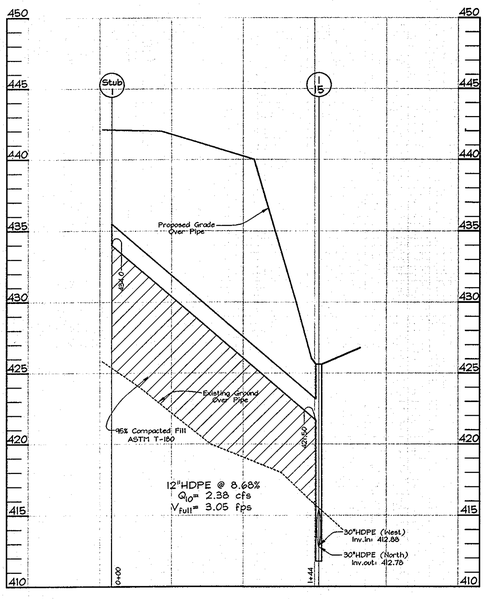
STORM DRAIN PROFILE

Scale: Horizontal- 1"=50'
Vertical- 1"=5'



STORM DRAIN PROFILE

Scale: Horizontal- 1"=50'
Vertical- 1"=5'



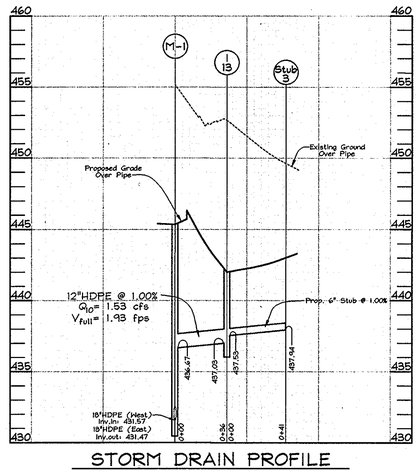
STORM DRAIN PROFILE

Scale: Horizontal- 1"=50'
Vertical- 1"=5'

STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT	REMARKS
I-1	Double Type 'S' Inlet	N 538,591.25 E 1,337,604.13	437.50	425.30	425.20	SD 4.23
I-2	Double Type 'S' Inlet	N 538,584.50 E 1,337,677.41	439.25	30" 426.33 30" 426.33	426.23	SD 4.23
I-3	Single Type 'S' Inlet	N 538,680.07 E 1,337,707.07	439.80	427.43	427.33	SD 4.22
I-4	Single Type 'S' Inlet	N 538,741.48 E 1,337,741.27	441.30	15" 436.47 24" 428.63	428.13	SD 4.22
I-5	Single Type 'S' Inlet	N 538,803.03 E 1,337,775.90	442.60	429.44	429.34	SD 4.22
I-6	Single Type 'S' Inlet	N 538,849.27 E 1,337,803.25	443.80	12" 429.50 18" 430.48	429.98	SD 4.22
I-7	Single Type 'S' Inlet	N 538,981.54 E 1,337,586.33	439.80	433.19	432.94	SD 4.22
I-7A	Single Type 'S' Inlet	N 538,961.79 E 1,337,626.56	441.36	12" 435.67 12" 432.49	432.24	SD 4.22
I-8	Single Type 'S' Inlet	N 539,038.49 E 1,337,492.33	439.60	–	434.56	SD 4.22
I-9	Double Type 'S' Inlet	N 538,516.33 E 1,337,947.16	450.10	30" 429.21 30" 429.21	429.11	SD 4.23
I-10	Single Type 'S' Inlet	N 538,613.29 E 1,337,971.66	450.00	–	430.21	SD 4.22
I-11	Single Type 'S' Inlet	N 538,763.20 E 1,337,678.55	442.93	437.38	437.13	SD 4.22
I-12	Double Type 'S' Inlet	N 538,947.26 E 1,337,803.95	448.22	–	448.50	SD 4.23
I-13	Single Type 'S' Inlet	N 538,888.45 E 1,337,691.40	442.00	437.53	437.03	SD 4.22
4 I-14	Single Type 'S' Inlet	~~E 1,337,606.91~~ N 538,937.13 ~~N 538,933.64 E 1,337,610.80~~	440.00	–	436.00	SD 4.22
I-15	Double Type 'S' Inlet	N 538,636.39 E 1,337,342.45	425.60	12" 421.50 30" 412.88	412.78	SD 4.23
I-16	Single Type 'S' Inlet	N 538,686.91 E 1,337,146.69	431.50	415.00	414.90	SD 4.22
I-17	Single Type 'S' Inlet	N 538,859.17 E 1,336,927.61	430.00	421.55	421.05	SD 4.22
I-18	Single Type 'S' Inlet	N 538,891.74 E 1,336,937.91	430.50	422.16	422.06	SD 4.22
I-19	Single Type 'S' Inlet	N 538,955.60 E 1,336,958.38	432.20	423.10	423.00	SD 4.22
I-20	Single Type 'S' Inlet	N 539,020.42 E 1,336,979.17	433.60	423.88	423.78	SD 4.22
I-21	Single Type 'S' Inlet	N 539,108.17 E 1,337,060.83	433.20	425.18	425.08	SD 4.22
I-22	Single Type 'S' Inlet	N 539,174.62 E 1,337,106.23	435.40	426.48	426.98	SD 4.22
I-23	Single Type 'S' Inlet	N 539,176.27 E 1,337,241.38	434.25	429.00	428.90	SD 4.22
I-23A	Single Type 'S' Inlet	N 539,149.35 E 1,337,319.30	437.10	432.00	431.75	SD 4.22
I-24	Double Type 'S' Inlet	N 539,115.15 E 1,337,387.28	439.10	434.12	433.90	SD 4.23
I-25	Double Type 'S' Inlet	N 538,834.37 E 1,337,180.98	437.70	–	434.00	SD 4.23
I-26	Yard Inlet	N 538,798.68 E 1,337,628.15	443.00	12" 439.10 12" 439.10	439.00	SD 4.14
M-1	Standard Precast Manhole (4')	N 538,906.38 E 1,337,722.78	445.30	12" 436.67 18" 431.57	431.47	G 5.12
M-2	Standard Precast Manhole (4')	N 538,793.20 E 1,337,169.18	436.50	12" 432.00 30" 418.55	418.45	G 5.13
M-3	Standard Precast Manhole (4')	N 539,206.01 E 1,337,132.32	436.69	427.20	427.10	G 5.12
M-4	Standard Precast Manhole (4')	N 538,546.25 E 1,337,429.76	418.50	408.50	408.40	G 5.13
S-1	30" HDPE End Section	N 538,546.94 E 1,337,574.65	–	421.39	–	Hancor or equivalent
S-2	30" HDPE End Section	N 538,522.10 E 1,337,404.06	–	408.05	–	Hancor or equivalent
S-3	Type 'C' Endwall	N 538,348.30 E 1,337,177.52	402.00	399.00	399.00	SD 5.21
S-4	15" RCP End Section	N 538,932.64 E 1,338,203.44	–	–	456.69	MD 368.02
S-5	15" RCP End Section	N 538,954.76 E 1,338,142.32	–	457.90	–	MD 368.02

NOTES : 1. Top elevations for Type 'S' Inlets along curb and gutters are to the center, edge of grate at the flow line. Top elevations for Type 'S' Inlets in grass areas are to the center top of grate.
2. Top elevations for Precast Manholes are to the center top of manhole cover.
3. Top slope of structures to conform to slope of paving or grading.
4. Area Drains A-1 thru A-4 to be Zurn Model Z587.



STORM DRAIN PROFILE

Scale: Horizontal- 1"=50'
Vertical- 1"=5'

PIPE SCHEDULE

SIZE	TYPE	LENGTH
6"	PVC	173 LF
8"	RCP	71 LF
15"	RCP	65 LF
12"	HDPE	735 LF
15"	HDPE	194 LF
18"	HDPE	478 LF
24"	HDPE	423 LF
30"	HDPE	1,543 LF

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/3/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/30/04

DIRECTOR — DATE 8/6/04

No.	Description	Date
4	Relocated Inlet I-14 and Updated coordinates.	Mar. 2013
3	Revised Sewer Crossing Sizes	11.09.04

REVISIONS

OWNER/DEVELOPER

Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
(410) 992-5334
C/O Joe Hancock

STORM DRAIN PROFILES

GRACE COMMUNITY CHURCH

PHASE I & II

RELIGIOUS FACILITY

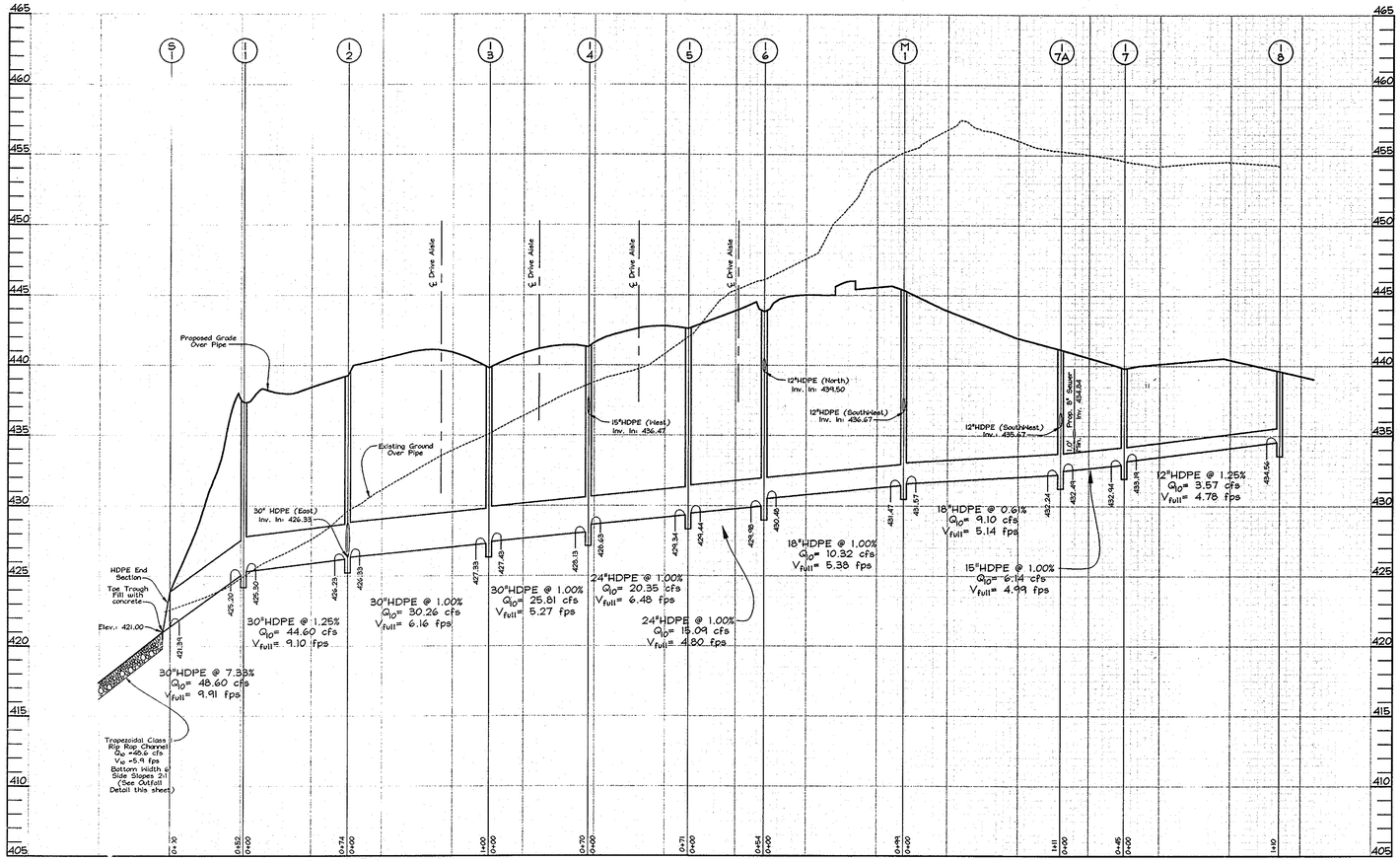
TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL 337
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STATE OF MARYLAND · JOSHUA YOSSEF FISCH · 22418 · PROFESSIONAL ENGINEER

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
Tel:410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

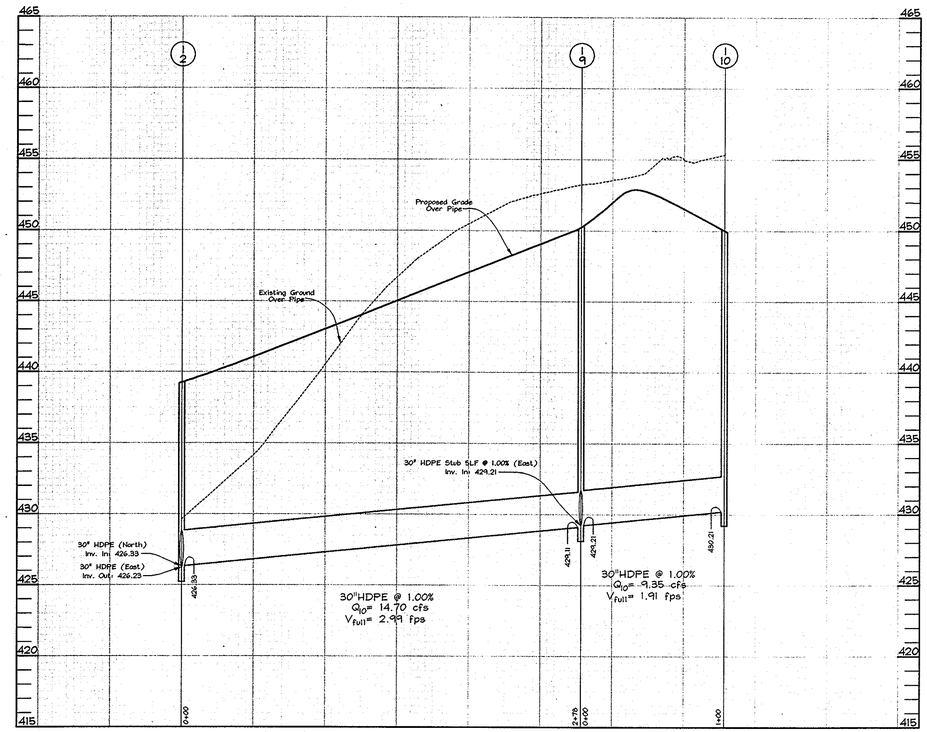
DESIGN BY: PS
DRAWN BY: AY
CHECKED BY: ZYF
SCALE: As Shown
DATE: July 20, 2004
W.O. No. 3071
SHEET No.: 14 OF 20

SDP-04-079



STORM DRAIN PROFILES

Scale: Horizontal- 1"=50'
Vertical-1"=5'



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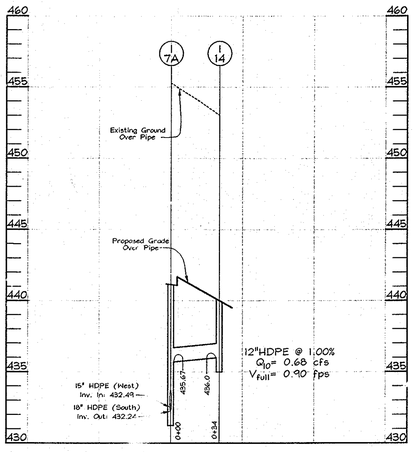
Vertical-1"=5'



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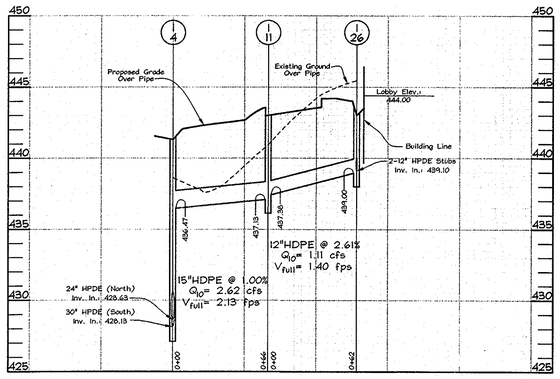
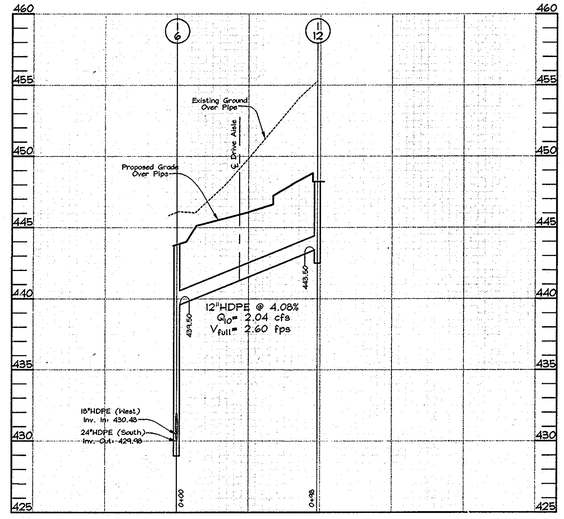
Scale: Horizontal- 1"=50'
Vertical-1"=5'



STORM DRAIN PROFILES

Scale: Horizontal- 1"=50'
Vertical-1"=5'



STORM DRAIN PROFILES

Scale: Horizontal- 1"=50'
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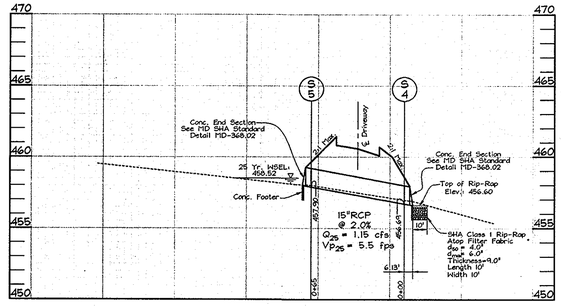


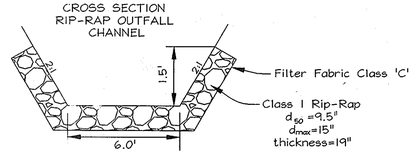
STORM DRAIN PROFILES

Scale: Horizontal- 1"=50'
Vertical-1"=5'

OWNER/DEVELOPER

Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
(410) 992-5384
C/O Joe Hancock

CROSS SECTION
RIP-RAP OUTFALL CHANNEL



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8/3/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 7/30/04
DIRECTOR	DATE 8/3/04

Revision	Description	Date
4	Total number of sheets change to 21.	Mar.2013

STORM DRAIN PROFILES

GRACE COMMUNITY CHURCH
PHASE I & II
RELIGIOUS FACILITY

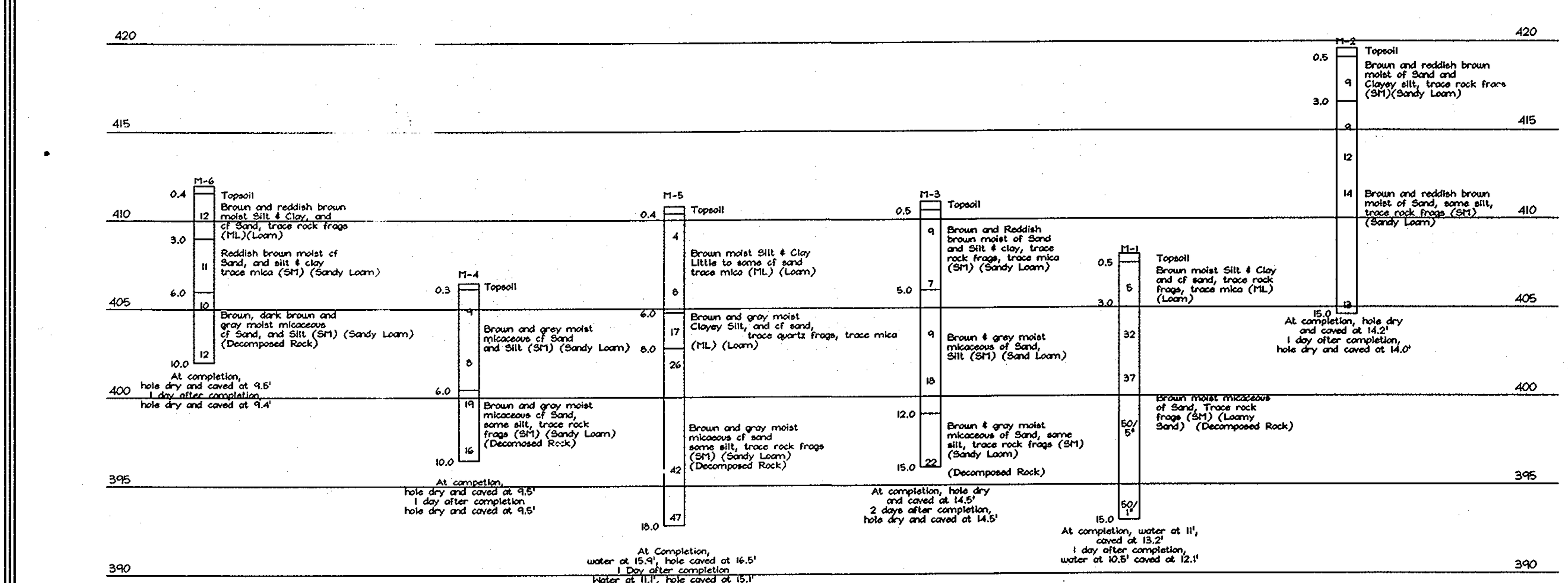
TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL 337
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
Tel:410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

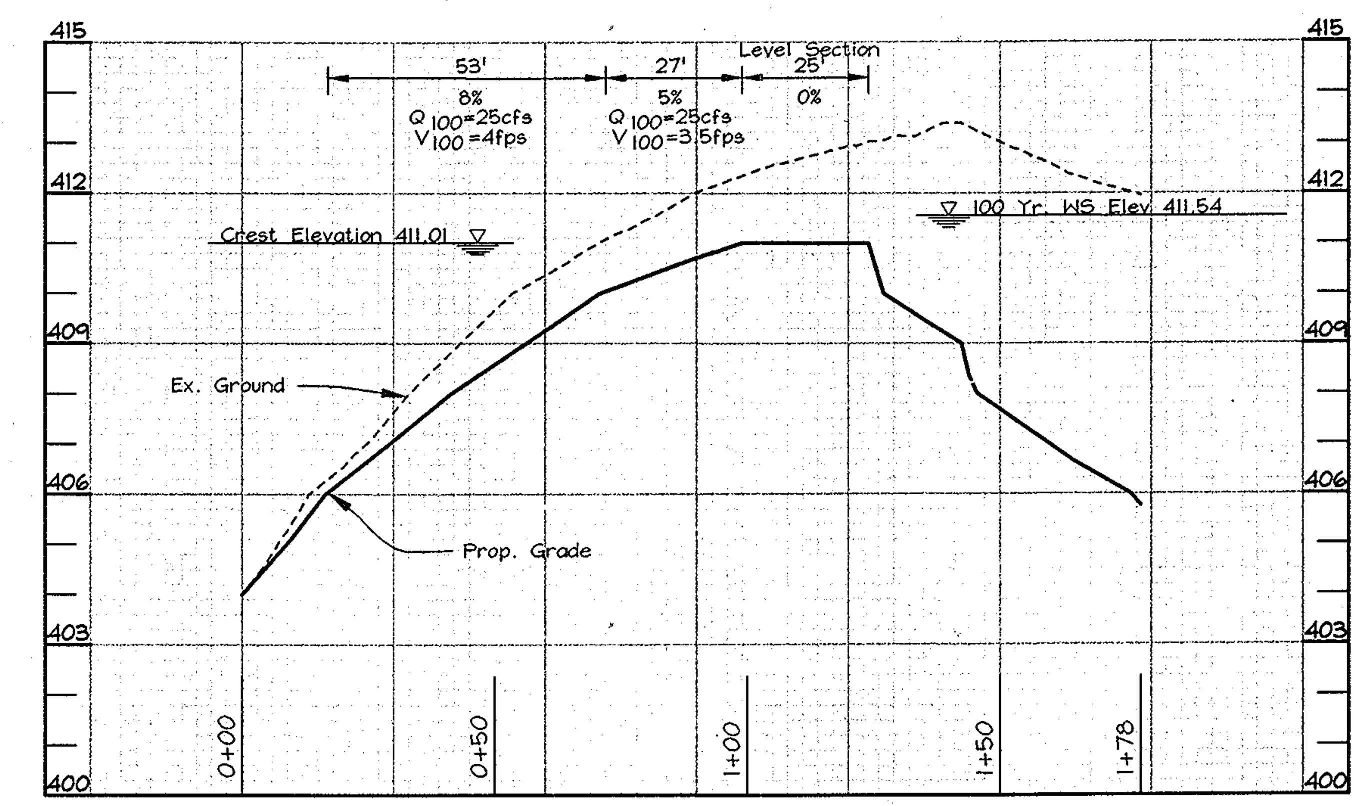
STATE OF MARYLAND — JOSHUA YORK FISCH — 22418 — PROFESSIONAL ENGINEER

DESIGN BY	PS
DRAWN BY	AY
CHECKED BY:	ZYF
SCALE:	As Shown
DATE:	July 20, 2004
W.O. No.:	3071 (4)
SHEET No.:	15 OF 21

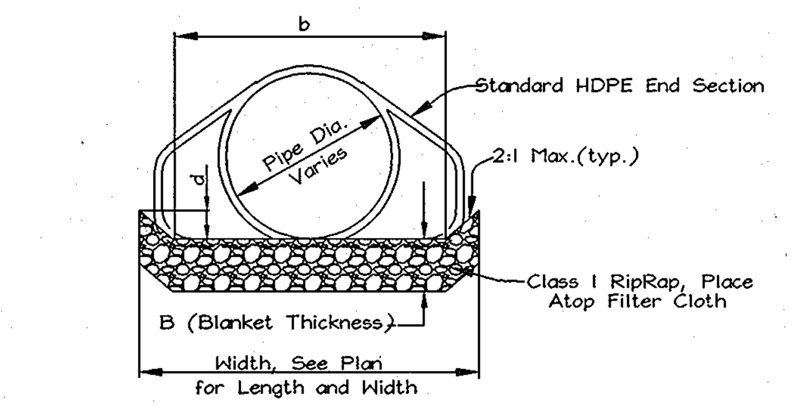
SDP-04-079



S.W.M. BORING PROFILES
NOT TO SCALE



EMERGENCY SPILLWAY PROFILE
Scale: Hor.: 1"=30'
Vert.: 1"=3'

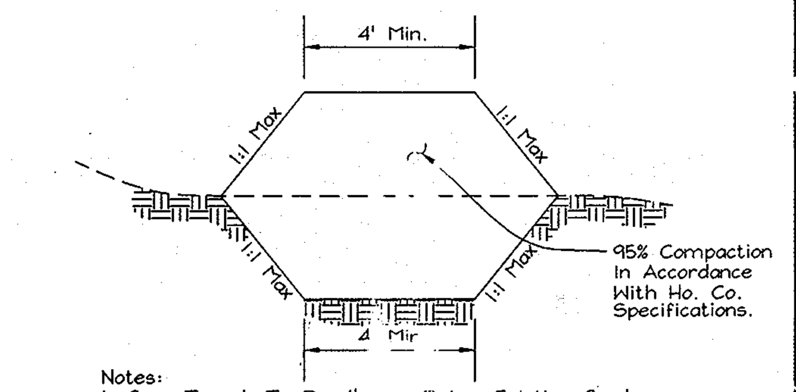


TYP. OUTFALL DETAIL FOR S-1 & S-2
Not to Scale

Structure	Q(c.f.s.)	S	n	b	d	d_{max}	d_{50}	B(Blanket Thickness)
S-1	48.0 c.f.s.	8.0%	0.06	5.0'	1.0'	15"	9.5"	19"
S-2	53.46 c.f.s.	0.5%	0.06	5.0'	1.0'	15"	9.5"	19"

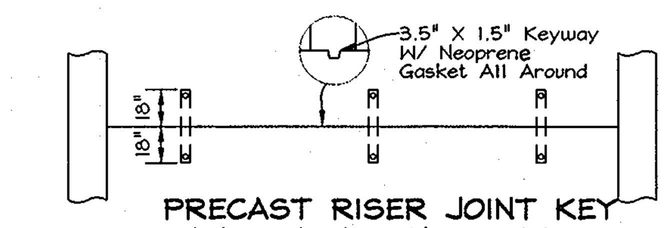
ROCK OUTFALL SCHEDULE
S-3

Structure	d	La	d_{50}	d_{100}	Thickness	Width
EW-1	24"	22'	16"	24"	32"	6'

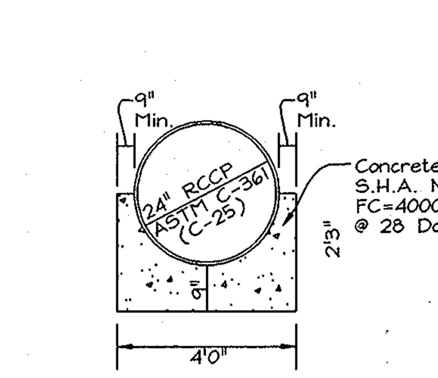


Notes:
1. Core Trench To Be 4' ... Below Existing Grade.
2. Core Trench Must Be ... Dry During Construction.
3. Core TrenchShall Cons... Impervious Material (CL, CH, GC or SC) As ... By a Geotechnical Engineer Onsite And May Require ... Hauled From An Offsite Location.

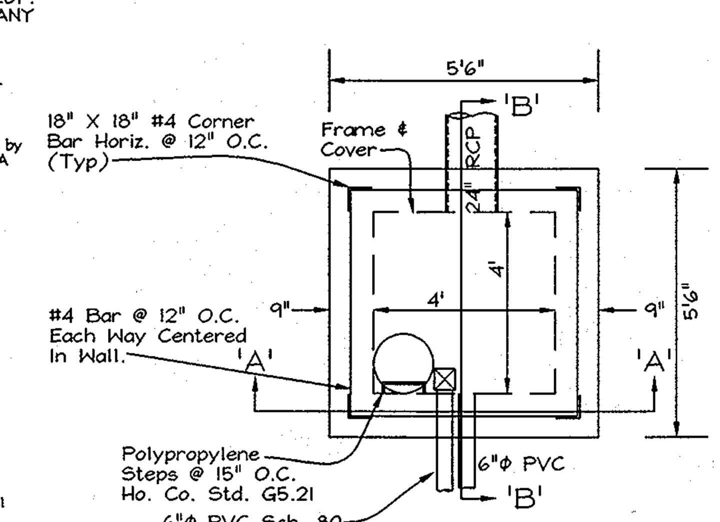
IMPERVIOUS CORE AND CORE TRENCH SECTION
Not to scale



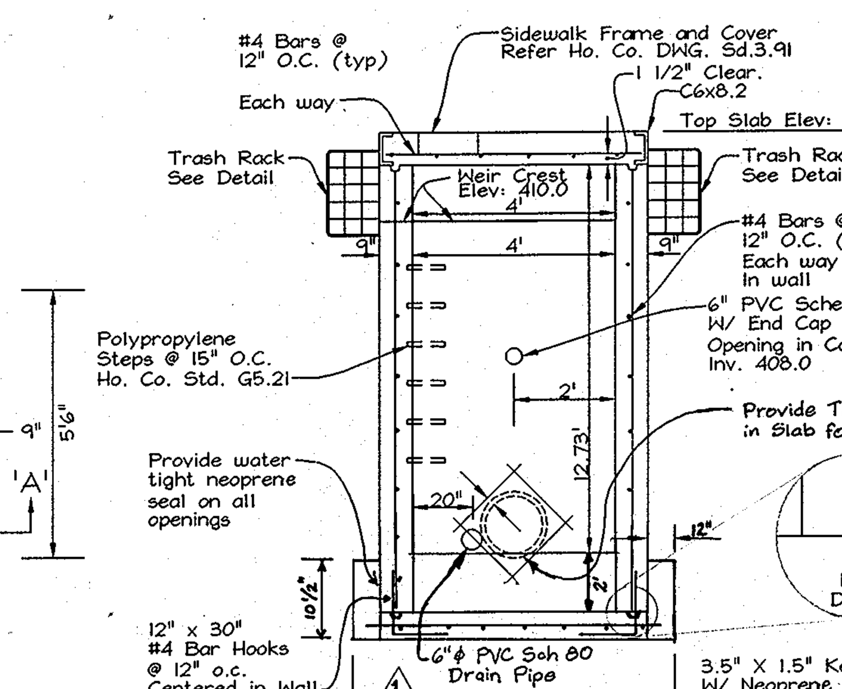
PRECAST RISER JOINT KEY AND STRAPPING DETAIL
Not to scale



CONCRETE CRADLE DETAIL
SCS TR-46 A-2
Not to scale



CS-1 PLAN VIEW
Not to scale



CS-1 SECTION A-A
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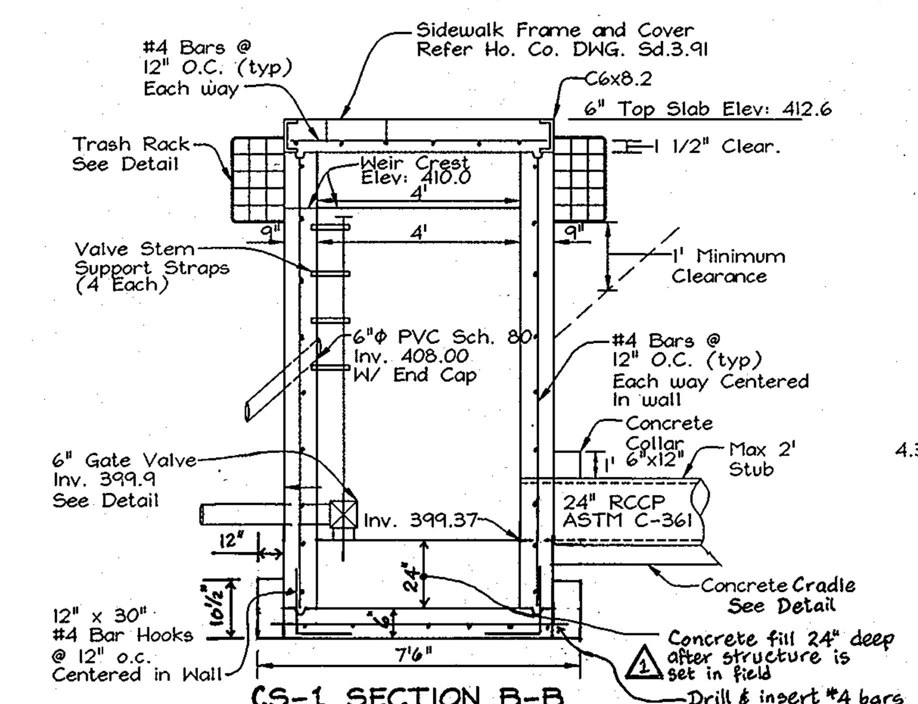
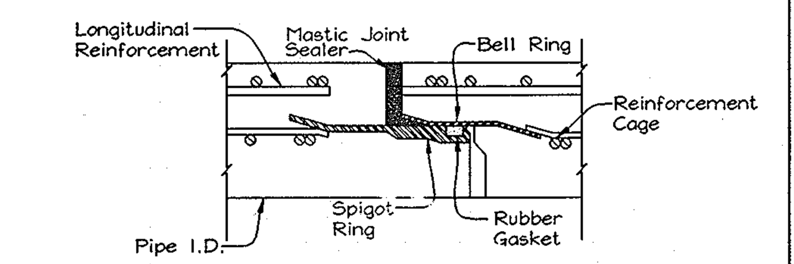
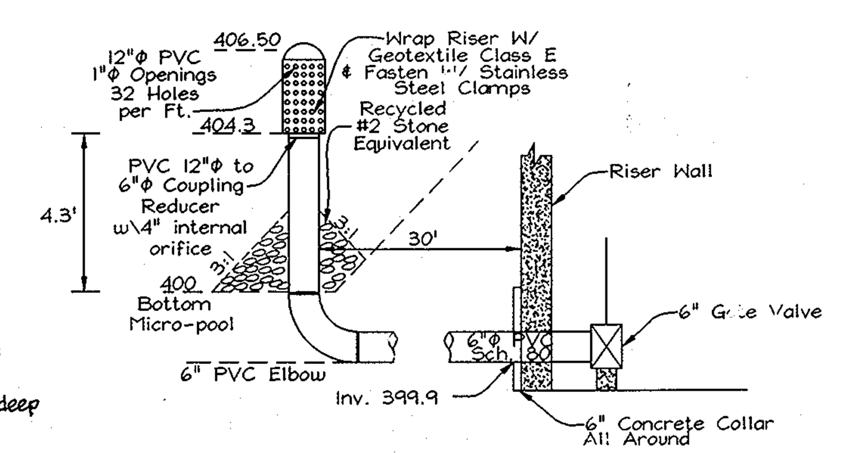


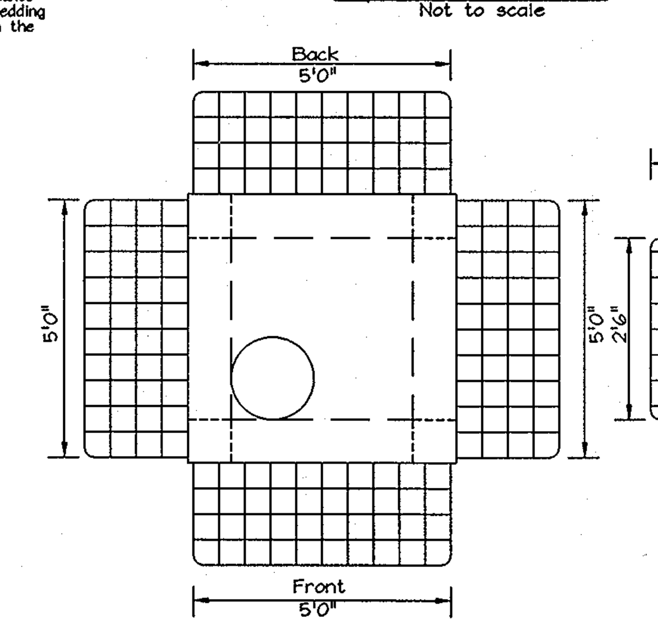
CS-1 SECTION B-B
Not to scale



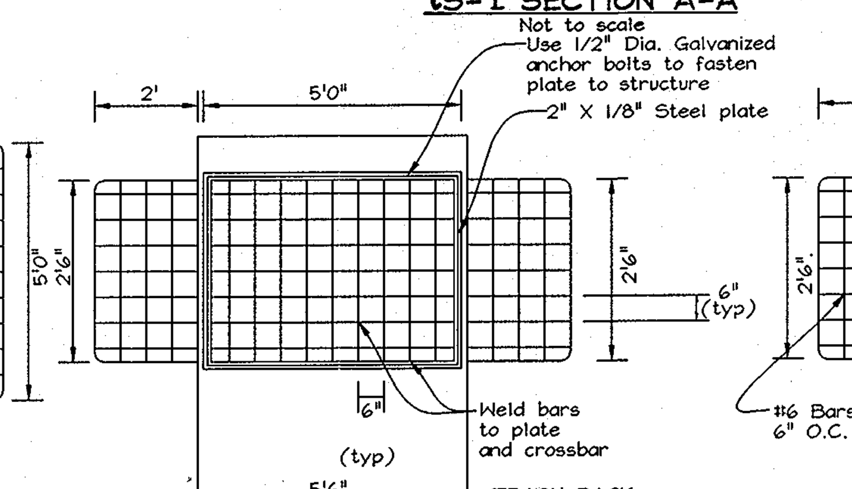
BARREL JOINT SEAL DETAIL
Not to scale



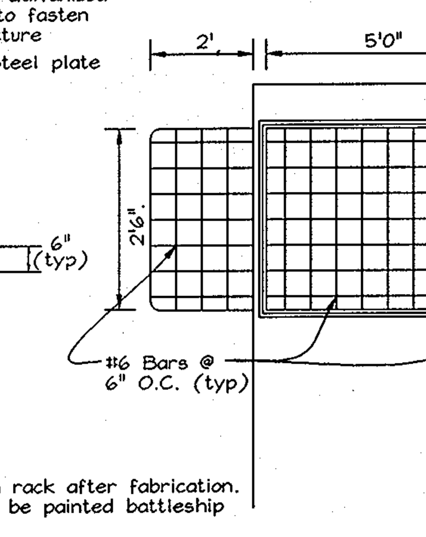
POND DRAIN PIPE AND VALVE DETAIL
Not to scale



TOP VIEW



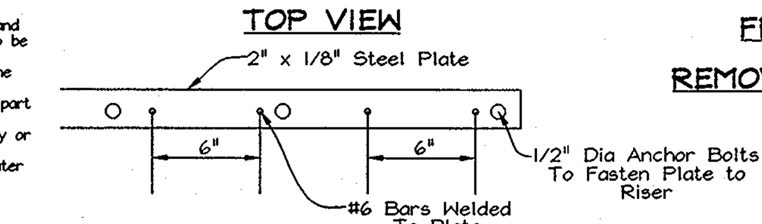
FRONT ELEVATION



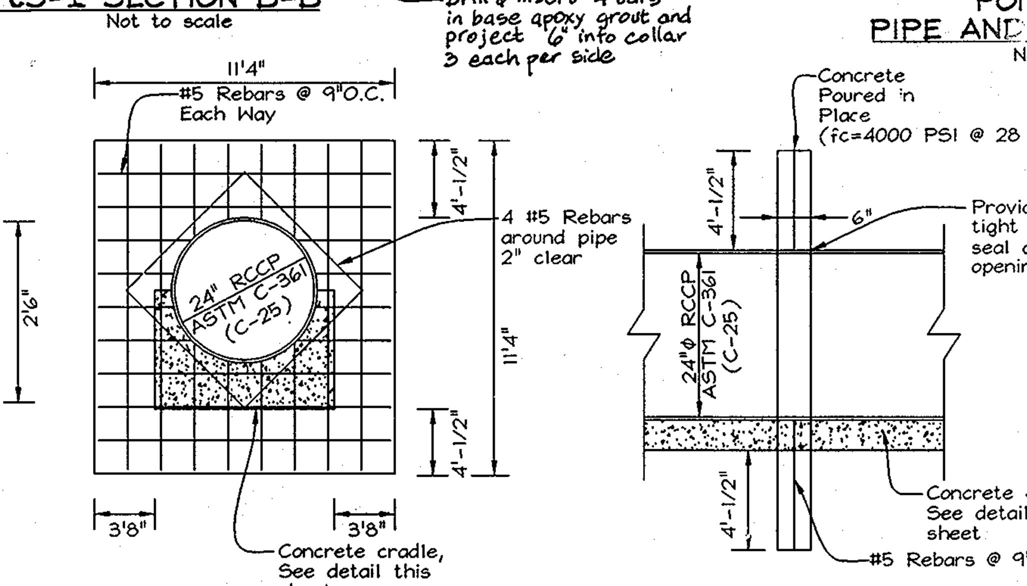
SIDE ELEVATION

TRASH RACK NOTES:
1. Galvanize trash rack after fabrication.
2. Trash rack to be painted battleship gray.

REMOVABLE TRASH RACK
Not to scale



TRASH RACK CONNECTION DETAIL
Not to scale



ANTI-SEEP COLLAR NOTES:
1. Locate collars a minimum of 2' from any pipe joint.
2. Provide asphalt joint filler material between all concrete surfaces except between the pipe and cradle
3. Fc = 4000 psi @ 28 days
4. Pour collar with pipe in place.
5. Backfill collars evenly on both sides.

ANTI-SEEP COLLARS
Not to scale

MARYLAND 378
STORMWATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the tow of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Earth Fill

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within +\-2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction

Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operated closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, or the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of the structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill (flowable fill)zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe:

1. Materials - (Polymer Coated steel pipe)- Steel pipes with polymeric coating shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling, bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at lease 24 mils in thickness.

3. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches diameter: flanges on both ends of the pipe with a circular 3/8 inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24 inch long annular corrugated band using a minimum of 4(four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8'inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

4. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "Structure Backfill".
6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Reinforced Concrete PipeAll of the following criteria shall apply for reinforced concrete pipe:

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361.

2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be shown on the drawings.

Plastic PipeThe following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" -10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Drainage Diaphragms - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction Materials, Section 311.

Geotexile shall be placed under all riprap and shall meet requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be pumped.

Stabilization

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT DETENTION FACILITY

STORMWATER MANAGEMENT FACILITY
ROUTINE MAINTENANCE (By Grace Community Church)
1. FACILITY WILL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
3. DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE
1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERE WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

OWNER/DEVELOPER
Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
Tel: (410) 992-5384
C/O Joe Hancock

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 8/3/04
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 7/30/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 8/3/04
DIRECTOR — DATE

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

[signature] 7/29/04
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

[signature] 7/29/04
HOWARD SOIL CONSERVATION DISTRICT — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Joseph R Hancock 7/21/04
SIGNATURE OF DEVELOPER

ENGINEERS CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Zacharia Y. Fisch 7/21/04
SIGNATURE OF ENGINEER — DATE
ZACHARIA Y. FISCH

Nº	REVISION	DATE
4	TOTAL NUMBER OF SHEETS CHANGE TO 21.	MAR. 2013
1	REVISED CS-1 BASE	30Aug04

STORMWATER MANAGEMENT DETAILS AND PROFILES
GRACE COMMUNITY CHURCH
PHASE I & II
RELIGIOUS FACILITY

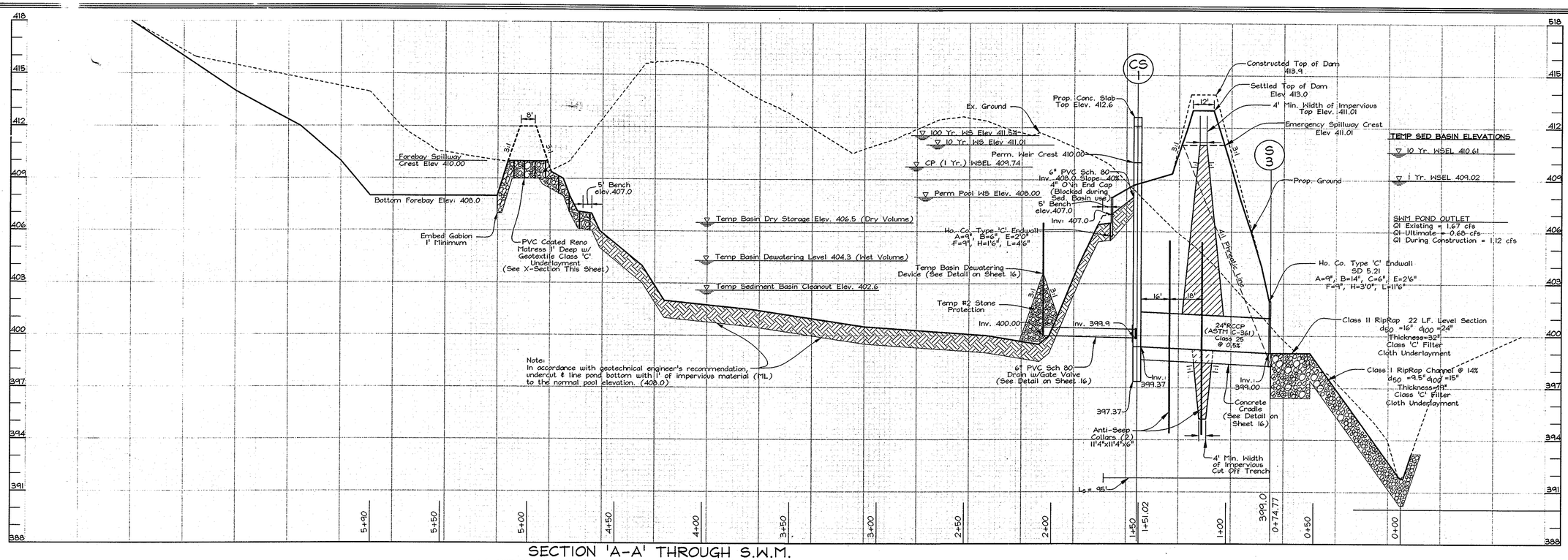
TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL 337
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — ZACHARIA YOSEF FISCH — 22418 — PROFESSIONAL ENGINEER

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
Tel:410-750-2251 Fax 410-750-7350
E-mail: FSHAssociates@cs.com

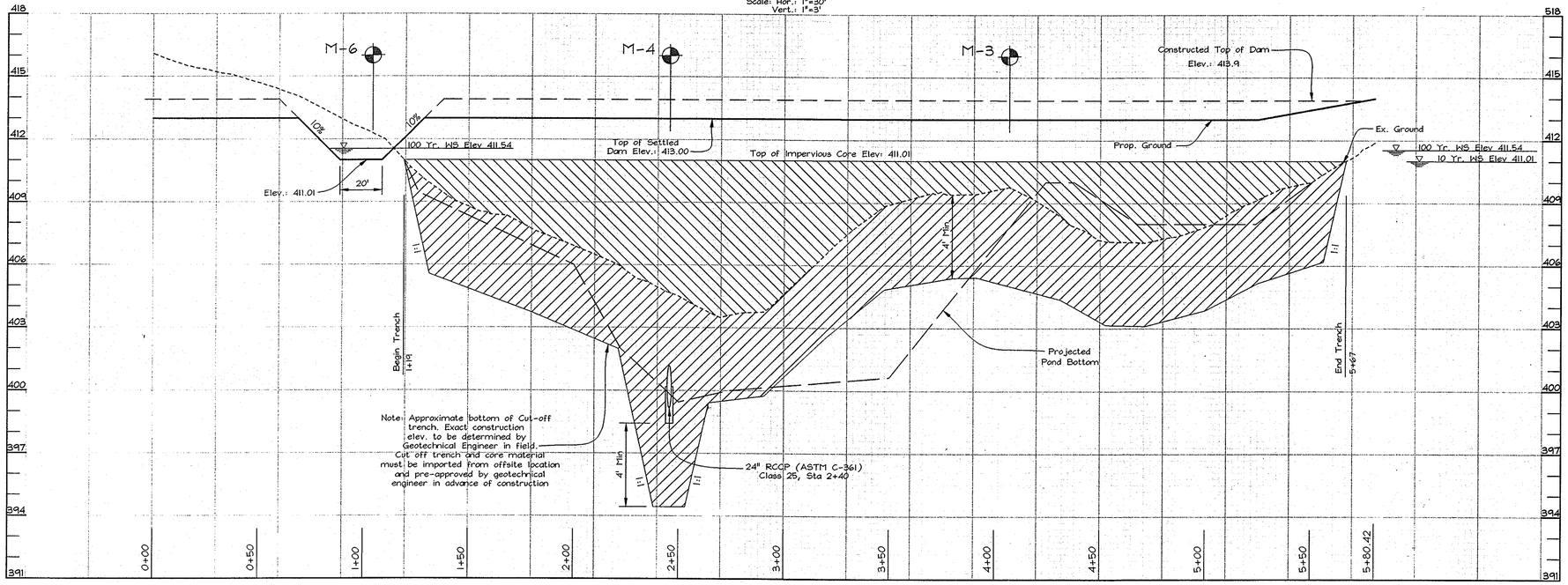
DESIGN BY: SLH
DRAWN BY: DSH
CHECKED BY: ZYF
SCALE: As Shown
DATE: July 20, 2004
W.O. No.: 3071
SHEET No.: 16 OF 21

SDP-04-079



SECTION 'A-A' THROUGH S.W.M. MICRO-POOL EXTENDED DETENTION FACILITY

Scale: Hor.: 1"=30'
Vert.: 1"=3'



SECTION 'B-B' THROUGH EMBANKMENT

Scale: Hor.: 1"=30'
Vert.: 1"=3'

FOREBAY GABION OUTLET X-SECTION DETAIL

Not to scale

CLASS I RIP RAP S-3 OUTFALL CHANNEL DETAIL

Not to scale

EXCAVATION CONDITIONS

Boring M-5 shows that ground water will be encountered near basin grade. Temporary ground water control measures may be required during excavation and initial core trench and embankment fill construction. Ground water may also be encountered above basin grade in the deeper cuts on the north and west side of the main basin. They should be controllable by a series of temporary pumps and trenches during construction. Temporary controls would be the responsibility of the contractor. Permanent ground water controls, should seepage be encountered in the cut slopes, would best be addressed at the time of construction.

OWNER/DEVELOPER

Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
Tel: (410) 992-5394
C/O Joe Hancock

STORMWATER MANAGEMENT PLAN, DETAILS AND PROFILES GRACE COMMUNITY CHURCH

PHASE I & II

RELIGIOUS FACILITY

TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL 337
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/3/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/30/04

DIRECTOR — DATE 8/2/04

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 7/29/04

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/29/04

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Joseph R. Hancock — 7/21/04 — DATE
SIGNATURE OF DEVELOPER

ENGINEERS CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN HAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Zacharia Y. Fisch — 7/21/04 — DATE
SIGNATURE OF ENGINEER
ZACHARIA Y. FISCH

Revision	Description	Date
4	Total number of sheets changed to 21.	Mar. 2013

STATE OF MARYLAND — ZACHARIA YOSEF FISCH — 22418 — PROFESSIONAL ENGINEER

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
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E-mail: FSHAssociates@cs.com

DESIGN BY: SLH
DRAWN BY: DSH
CHECKED BY: ZYF
SCALE: As Shown
DATE: July 20, 2004
W.O. No.: 3071 4
SHEET No.: 17 OF 21

SDF-04-079

FOREST CONSERVATION WORKSHEET

	Acres
Net Tract Area	
A. Total Tract Area	34.05
B. Area Within 100 Year Floodplain	1.35
C. Other deductions	--
D. Net Tract Area	32.70
Zoning Use Category: Institution	
Land Use Category	
E. Afforestation Minimum (15 % x D)	4.91
F. Conservation Threshold (20 % x D)	6.54
Existing Forest Cover	
G. Existing Forest on Net Tract Area	0.84
H. Forest Area Above Conservation Threshold	0
Breakeven Point	
I. Forest Retention Above Threshold with no Mitigation	NA
J. Clearing Permitted without Mitigation	0
Proposed Forest Clearing	
K. Forest Areas to be Cleared	0
L. Forest Areas to be Retained	0.84
Planting Requirements	
M. Reforestation for Clearing Above Threshold	0
N. Reforestation for Clearing Below the Threshold	0
P. Credit for Retention Above Conservation Threshold	0
Q. Total Reforestation Required	0
R. Total Afforestation Required	4.07
S. Total Reforestation and Afforestation Requirement	4.07

FOREST CONSERVATION EASEMENT TABLE

EASEMENT	TYPE	AREA (ACRES)
1	RETENTION	0.84
	AFFORESTATION	4.07
	NON-CREDITED	0.01
TOTAL		4.92

FOREST CONSERVATION NARRATIVE

This Forest Conservation Plan has been developed in accordance with the Howard County Forest Conservation Manual and the Forest Conservation Act of 1991.

The net tract area of the site consists of 32.70 acres. The site contains 0.84 acres of existing forest adjacent to floodplain, wetlands, streams and buffers. The forest area surrounding these sensitive areas have been preserved in Forest Conservation Easement 1. Due to existing forest cover below the afforestation minimum, 4.07 acres of planting is required. The afforestation planting will also be located within FCE 1. The planting will be located mainly in the stream buffer and floodplain area, and along the property line to connect the onsite forest with an adjacent stand on a neighboring property. There is 0.01 acres of non-credited area within the easement due to a SWM outfall, for a total easement area of 4.92 acres.

Planting of containerized 2-3' whips will be planted at a rate of 350 trees per acre to fulfill 4.07 acres of required afforestation.

The total forest conservation obligation for the site is 4.91 acres, with a total forest conservation surety amount of $95,962.68 (retention: .84 acres or 36,590 sq. ft. X $ .20 = $7,318.08 and afforestation: 4.07 acres or 177,289 sq. ft. X $.50 = $88,644.60; 0.01 ac/626 sq. ft. non-credited area not bonded).

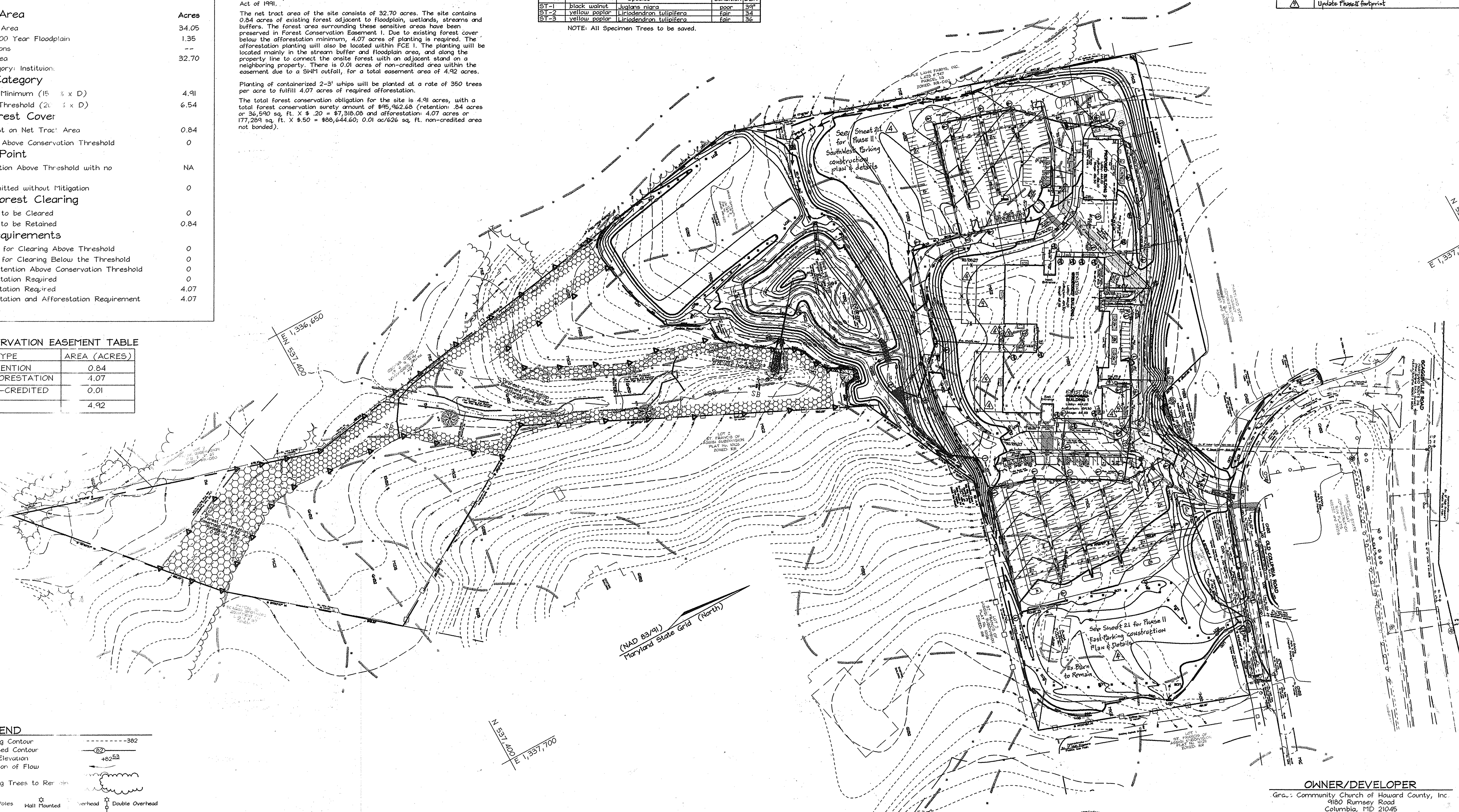
SPECIMEN TREE LIST

Number	Common name	Species	Condition	DBH
ST-1	black walnut	Juglans nigra	poor	39"
ST-2	yellow poplar	Liriodendron tulipifera	fair	34
ST-3	yellow poplar	Liriodendron tulipifera	fair	36

NOTE: All Specimen Trees to be saved.

REVISIONS

No.	Description	Date
1	Revised Grades, Sewer Manholes and Easements	11.09.04
4	Added PhaseII (sheet 21) references.	Mar. 2013
5	Update PhaseII footprint	Mar. 2015



LEGEND

Existing Contour	---------382
Proposed Contour	(82)
Spot Elevation	+82.53
Direction of Flow	
Existing Trees to Remain	
Light Poles	Wall Mounted, Overhead, Double Overhead
Forest Conservation Easement Planting Area	
Forest Conservation Easement Retention Area	
Tree Protection Fence	TPF
Forest Conservation Easement	△
Temporary Speciment Tree Sign	▲

AFFORESTATION AREA : 4.07 Ac.±

4.07Ac. ± @ 350 TPA 2'-3' Whip planting = 1,425 trees

Qty	Botanical Name	Common Name	Min. Size	Spacing	Notes
	Acer rubrum	Red Maple	WHIP 2-3'	11' o.c.	1-3 Gallon Container Grown
	Amelanchier canadensis	Service berry	WHIP 2-3'	11' o.c.	
	Liquidambar styraciflua	Sweetgum	WHIP 2-3'	11' o.c.	
3	Liriodendron tulipifera	Tulip Poplar	WHIP 2-3'	11' o.c.	
	Pinus taeda	Loblolly Pine	WHIP 2-3'	11' o.c.	
3	Prunus serrotina	Black Cherry	WHIP 2-3'	11' o.c.	
3	Quercus alba	White Oak	WHIP 2-3'	11' o.c.	

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	SOIL GROUP
Ba	Baile silt loam	D
ChA	Chester silt loam, 0 to 3 percent slopes	B
ChB2	Chester silt loam, 3 to 8 percent slopes, moderately eroded	B
EkB2	Elioak silt loam, 3 to 8 percent slopes, moderately eroded	B
EkC2	Elioak silt loam, 8 to 15 percent slopes, moderately eroded	B
GlB2	Glenelg loam, 3 to 8 percent slopes, moderately eroded	B
GlC2	Glenelg loam, 8 to 15 percent slopes, moderately eroded	B
GlC3	Glenelg loam, 8 to 15 percent slopes, severely eroded	B
GlD2	Glenelg loam, 15 to 25 percent slopes, moderately eroded	B
GlD3	Glenelg loam, 15 to 25 percent slopes, severely eroded	B
GnB2	Glenville silt loam, 3 to 8 percent slopes, moderately eroded	C
MlB2	Manor loam, 3 to 8 percent slopes, moderately eroded	B
MlC2	Manor loam, 8 to 15 percent slopes, moderately eroded	B
MlC3	Manor loam, 8 to 15 percent slopes, severely eroded	B
MlD3	Manor loam, 15 to 25 percent slopes, severely eroded	B
MlE	Manor loam, 25 to 45 percent slopes	B

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ — DATE 7/30/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/3/04

DIRECTOR — DATE 8/3/04

OWNER/DEVELOPER

Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
(410) 992-5384
C/O Joe Hancock

STATE OF MARYLAND STEPHEN L. HUBER No. 363 REGISTERED PROFESSIONAL FORESTER

EXPLORATION RESEARCH, INC.
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
8313 FOREST STREET
ELLICOTT CITY, MARYLAND 21043
TEL (410) 750-1150 FAX (410) 750-7350
EMAIL: EXPLORATIONRES@CS.COM

FOREST CONSERVATION PLAN
GRACE COMMUNITY CHURCH
PHASE I & II
RELIGIOUS FACILITY

TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STATE OF MARYLAND ZACHARIA YOSEF FISCH 22418 PROFESSIONAL ENGINEER

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Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
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E-mail: FSHAssociates@cs.com

DESIGN BY	AB
DRAWN BY	AB
CHECKED BY	ZYF
SCALE:	1"=100'
DATE:	July 20, 2004
W.O. No.:	3071
SHEET No.:	18 OF 21

SDP-04-070

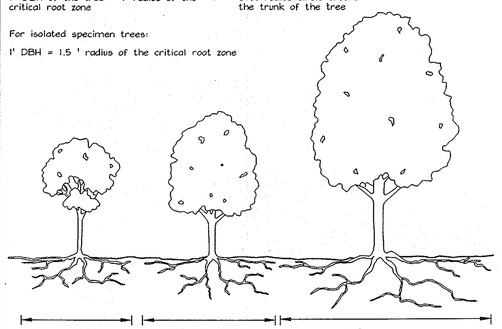
CRITICAL ROOT ZONE

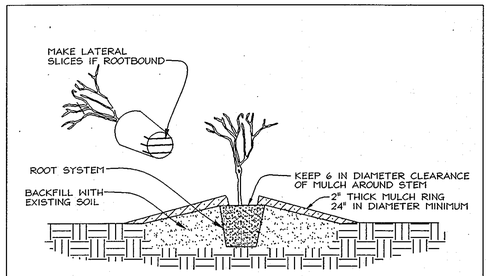
For the edge of large areas, use the greater of the two choices bellow:

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

For isolated specimen trees:

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



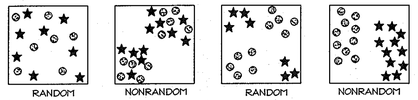


CONTAINER PLANTING
NOT TO SCALE

PLANTING PROCEDURE FOR CONTAINER GROWN PLANTS

1. REMOVE THE PLANT EITHER BY CUTTING OR INVERTING THE CONTAINER
2. USE A KNIFE TO CUT THROUGH BOTTOM HALF OF THE ROOT BALL.
3. PLANT SHRUBS ON FORMED UP MOUNDS 4" ABOVE THE EXISTING GRADE WHEN HIGH WATER TABLE CONDITIONS EXIST, OTHERWISE PLANT FLUSH WITH EXISTING GRADE.
4. PLANTING HOLE TO BE 2-3 TIMES THE DIAMETER OF THE CONTIANER.
5. INSERT FERTILIZER TABLET, BACKFILL 2/3 OF THE ROOT BALL AND WATER.
6. AFTER WATER PERCOLATES, BACKFILL HOLE TO TOP OF ROOT BALL AND GENTLY TAMP SOIL TO FIRM CONTACT WITH PLANT.
7. APPLY MULCH RING AROUND PLANT KEEPING A 6 IN CLEARANCE FROM STEM.

TYPICAL FOREST TREE DISTRIBUTION PATTERNS



NOTE:
Naturally occurring populations of trees tend to be found in informal groupings. A cluster of trees is really a mosaic of different species groups. The objective of an afforestation/ reforestation plan is to select the appropriate species and distribution pattern for a chose site that mimic natural patterns.

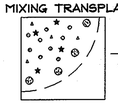
source: prince Georges County woodland Conservation Manual.

AGGREGATE DISTRIBUTION DRIFT

NOTE:
When used, plant cluster type groupings that taper or feather out along the edges. Clusters often appear as elongated of tear drop shapes.

Source: EOR, Inc.

MIXING TRANSPLANT STOCK

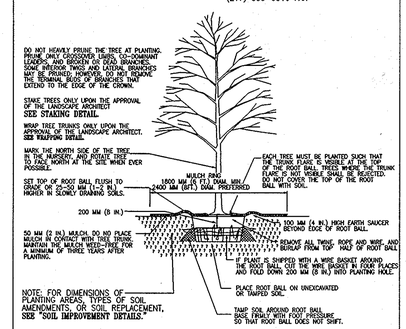


⊗ Locate larger trees (B4B or container grown) or transplant stock at the perimeter of reforestation/ afforestation planting of whips, seedling grown stock.
——Protective fencing
★=Smaller Stock

Source: Adapted from Forest Conservation Manual, 1991.

PLANTING DISTRIBUTION PATTERNS | FIGURE 3.8.2

INTERNATIONAL SOCIETY OF ARBORICULTURE
INTERNATIONAL SOCIETY OF ARBORICULTURE
1400 WEST ANTHONY DRIVE
CHAMPAIGN, IL 61821
(217) 355-9411
(217) 355-9516 FAX



NOTES
1. PLEASE REFER TO INTRODUCTION AND USE CRITERIA PRIOR TO USING THIS DETAIL.

TREE PLANTING DETAIL - B&B TREES IN ALL SOIL TYPES
NOTE: THIS DETAIL ASSUMES THAT THE PLANTING SPACE IS LARGER THAN 2400 MM (8 FT.) SQUARE, OPEN TO THE SKY, AND NOT COVERED BY ANY PAVING OR GRATING.

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INTERNATIONAL SOCIETY OF ARBORICULTURE
INTERNATIONAL SOCIETY OF ARBORICULTURE
1400 WEST ANTHONY DRIVE
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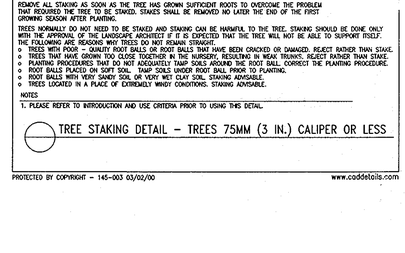
(217) 355-9516 FAX



ASSURE THAT THE BEARING SURFACE OF THE PROTECTIVE COVERING OF THE WIRE OR CABLE AGAINST THE TREE TRUNK IS A MINIMUM OF 12 MM (0.5 IN.).
REMOVE ALL STAKING AS SOON AS THE TREE HAS GROWN SUFFICIENT ROOTS TO OVERCOME THE PROBLEM THAT REQUIRED THE TREE TO BE STAKED. STAKES SHALL BE REMOVED NO LATER THE END OF THE FIRST GROWING SEASON AFTER PLANTING.
TREES NORMALLY DO NOT NEED TO BE STAKED AND STAKING CAN BE HARMFUL TO THE TREE. STAKING SHOULD BE DONE ONLY WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT IF IT IS EXPECTED THAT THE TREE WILL NOT BE ABLE TO SUPPORT ITSELF. THE FOLLOWING ARE REASONS WHY TREES DO NOT REMAIN STRAIGHT:
- TREES WITH POOR - QUALITY ROOT BALLS OR ROOT BALLS THAT HAVE BEEN CRACKED OR DAMAGED. REJECT RATHER THAN STAKE.
- TREES THAT HAVE GROWN TOO CLOSE TOGETHER IN THE NURSERY, RESULTING IN WEAK TRUNKS. REJECT RATHER THAN STAKE.
- PLANTING PROCEDURES THAT DO NOT ADEQUATELY TAMP SOILS AROUND ROOT BALL. CORRECT THE PLANTING PROCEDURE.
- ROOT BALLS PLACED ON SOFT SOIL. TAMP SOILS UNDER ROOT BALL PRIOR TO PLANTING.
- ROOT BALLS WITH VERY SANDY SOIL OR VERY WET CLAY SOIL. STAKING ADVISABLE.
- TREES LOCATED IN A PLACE OF EXTREMELY WINDY CONDITIONS. STAKING ADVISABLE.

NOTES
1. PLEASE REFER TO INTRODUCTION AND USE CRITERIA PRIOR TO USING THIS DETAIL.

TREE STAKING DETAIL - TREES 75MM (3 IN.) CALIPER OR LESS

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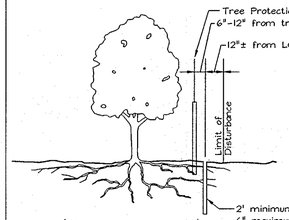
ROOT PRUNING

1. Retention areas shall be set prior to construction
2. Boundaries of retention areas shall be flagged, and location of trench shall be specified by ERI Qualified Professional.
3. Roots shall be cut cleanly with root pruning equipment. Where roots >1" are found, trenching shall be done by air spade or hand tools. Roots >1" shall be cut with a hand saw.
4. Trench shall be immediately backfilled with soil removed or high organic content soil.
5. Any other techniques shall be approved by the ERI Qualified Professional before implementation.



Soil Protection Zone Notes

1. The Soil Protection Zone shall include all areas contained inside the Limit of Disturbance.
2. Where possible, the Soil Protection Zone shall extend to the drip line of specimen trees. For other groups of trees, the zone shall be the drip line or 40% of the height of the tree, whichever is greater.
3. No construction activity is permitted within the Soil Protection Zone beyond the tree protection fence or limit of disturbance as shown on plan.
4. If soil has been compacted or grading has taken place in the vicinity of the Soil Protection Zone, root pruning shall be implemented per Root Pruning detail, shown on this plan.
5. Root pruning shall occur prior to the beginning of construction.
6. Where the Soil Protection Zone must encroach inside the Critical Root Zone of a tree, soil disturbance shall be mitigated with vertical mulching, radial trenching, or another method approved by the ERI Forest Conservation Professional. This mitigation will not occur in areas graded for the SWM pond dam.
7. Prior to contruction, the Limits of Disturbance shall be marked and the ERI Professional shall determine which trees will need preventative treatment or removal.
8. Tree maintenance and removal shall be undertaken by a qualified MD Tree Expert to ensure damage to surrounding trees is minimized.
9. Brush and limbs removed for construction shall be chipped and spread at the edge of the Soil Protection Zone to a depth to to exceed 6 inches. This shall occur outside the Soil Protection Zone where compaction could impact otherwise unprotected Critical Root Zone.

Planting Notes - Afforestation Area and Landscaping

1. Initial planting inspection and certification required. Planting contractor to notify ERI qualified professional 24 hours in advance of planting.
2. Afforestation areas may be planted as soon as reasonable to do so. Late winter- early spring plantings are preferred. Earliest planting dates will vary from year to year but planting may generally begin as soon as the ground is no longer frozen. Alternate planting dates may be considered as conditions warrants.
3. Soil amendments and fertilization recommendations will be made based upon the results of soil analysis for nitrogen, phosphorus, potassium, organic matter content and pH. If required, fertilizer will be provided using a slow release, soluble 16-8-16 analysis designed to last 5-6 years contained in polyethylene perforated bags such as manufactured by ADCO Works, P.O. Box 310 Hollins, N.Y. 11423 or approved equal.
4. Plant materials shall be planted in accordance with the planting diagram, planting details, planting schedule, Landscape Plan, as appropriate.
5. Plant stock must be protected from desiccation at all times prior to planting. Materials held for planting shall be moistened and placed in cool shaded areas until ready for placement.
6. Planting materials shall be nursery grown and inspected prior to planting. Plants not conforming to the American Standards for Nursery Stock specifications for size, form, vigor, or roots, or due to trunk wounds, breakage, desiccation, insect or disease must be replaced.
7. Newly planted trees may require watering at least once per week during the first growing season depending on rainfall in order to get established. The initial planting operation should allow for watering during installation to completely soak backfill materials.
8. Mulch shall be applied in accordance with the diagram provided and shall consist of composted, shredded hardwood bark mulch, free of wood alcohol.
9. Planting holes should be excavated to a minimum diameter of 2.5 to 3 times the diameter of the root ball or container. Mechanical auguring is preferred with scarification of the sides of each hole.
10. All nursery stock to be sprayed with deer repellent containing Bitrex such as Repellex All nursery stock to be grown with deer repellent tablets in growing medium, such as Repellex Tablets.

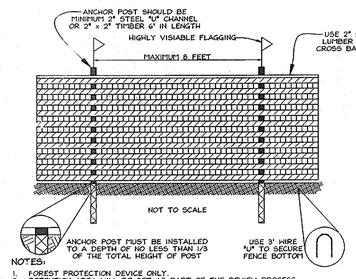
Forest Tree Protection and Management Notes

1. Tree protection devices shall be installed prior to any grading or land clearing.
2. After the boundaries of the retention areas have been staked and flagged and before any disturbance has taken place a pre-construction meeting with the Howard County Inspector is required.
3. Provide maintenance to tree protection devices and signage to maintain their integrity throughout the duration of the project.
4. Attachment of signs to tree protection devices to maintain their integrity throughout the duration of the project.
5. Any significant changes made to the Forest Conservation Plan shall be made with the prior approval if the Howard County Dept Of Planning and Zoning.
6. No burial of discarded material is permitted within the Forest Conservation and Planting arsas.
7. No open burning within 100 feet of wooded areas is permitted.
8. Post construction phase.
   a. Inspect existing trees around the perimeter of the site for signs of root or trunk damage and excessive soil compaction.
   b. Remove dead or dying trees and evaluate for hazard tree removal.*
   c. All temporary forest protection devices will be removed after construction.
   d. Following completion of construction, prior to use, the county inspector shall inspect the entire site for compliance with this Forest Conservation Plan.

* A licensed Arborist or Forester should be retained for this service as needed.

Afforestation Area Monitoring Notes

1. Monthly visits during the first growing season are to assess the success of the plantings and to determine if supplemental watering, pest control or other actions are necessary. Early spring visits will document winter kill and autumn visits will document summer kill.
2. The minimum survival rate shall be 75% of the total number of trees planted per acre at the end of the two year maintenance period. Wild tree seedlings from natural regeneration on the planting site may be counted up to 50% toward the total survival number if they are healthy native species at least 12 inches tall.
3. Survival will be determined by a stratified random sample of the plantings. The species composition of the sample population should be proportionate to the amount of each species in the entire planting to be sampled.
4. Effective monitoring will assess plant survivability during the first growing season and make recommendations for reinforcement planting if required at that time.



NOTES:
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION DETAIL
BLAZE ORANGE PLASTIC MESH

Specimen Tree Protection Signage

Min. 11"

SPECIMEN TREE
DO NOT REMOVE
MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS PROHIBITED
VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991

Min 15"

Forest Retention Area Protection Signage

Min. 11"

FOREST RETENTION AREA
MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS PROHIBITED
VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991

Min 15"

Reforestation and Afforestation Area Protection Signage

Min. 11"

Forest Conservation Area
REFORESTATION PROJECT
Trees for Your Future

Min 15"

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/30/04
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/3/04
DIRECTOR — DATE 8/5/04

Revision	Description	Date
4	Total number of sheets change to 21.	Mar. 2013

STATE OF MARYLAND STEPHEN L. HUSSEY REGISTERED PROFESSIONAL FORESTER

EXPLORATION RESEARCH, INC.
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
6318 FOREST STREET
ELLICOTT CITY, MARYLAND 21043
TEL: (410) 750-1150 FAX:(410) 750-7350
EMAIL: EXPLORATIONRES@CS.COM

OWNER/DEVELOPER
Grace Community Church of Howard County, Inc.
9180 Rumsey Road
Columbia, MD 21045
(410) 992-5384
C/O Joe Hancock

FOREST CONSERVATION NOTES AND PLANTING DETAILS
GRACE COMMUNITY CHURCH
PHASE I & II
RELIGIOUS FACILITY

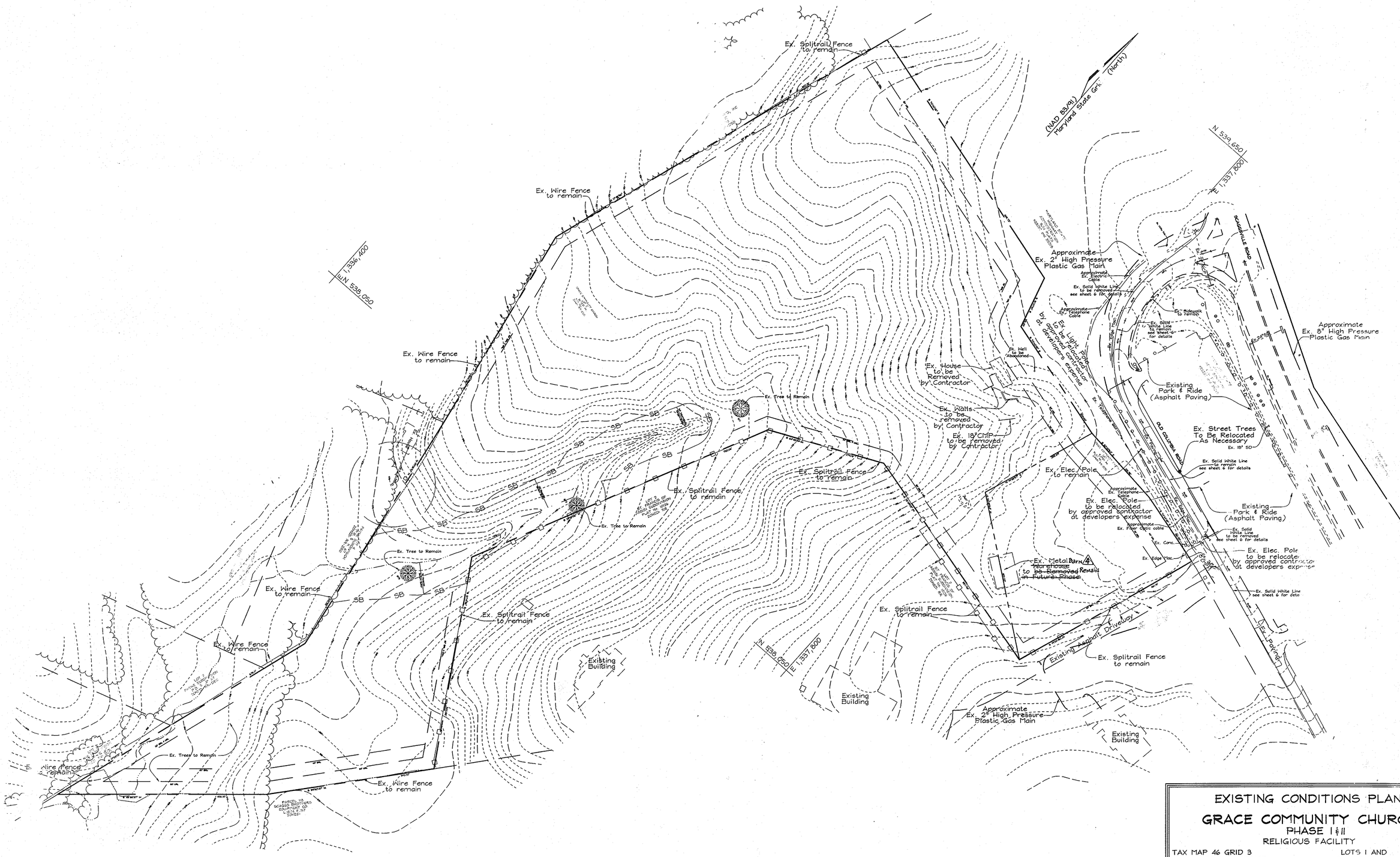
TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL 337
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STATE OF MARYLAND JOSHUA YOSEF FSH 22418 PROFESSIONAL ENGINEER

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
Tel:410-750-2251 Fax: 410-750-7350
E-mail: FSHassociates@cs.com

DESIGN BY: AB
DRAWN BY: AB
CHECKED BY: ZYF
SCALE: No Scale
DATE: July 20, 2004
W.O. No.: 3071 (4)
SHEET No.: 19 OF 21 (22)

SDP-04-079



EXISTING CONDITIONS PLAN

GRACE COMMUNITY CHURCH

PHASE I & II

RELIGIOUS FACILITY

TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL 337

5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

APPROVED: [illegible] COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEPARTMENT ENGINEERING DIVISION	MAJ	7/30/04 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT		8/3/04 DATE
DIRECTOR		8/4/04 DATE

Revision	Description	Date
4	Total number of sheets change to 21.	Mar. 2013

OWNER/DEVELOPER

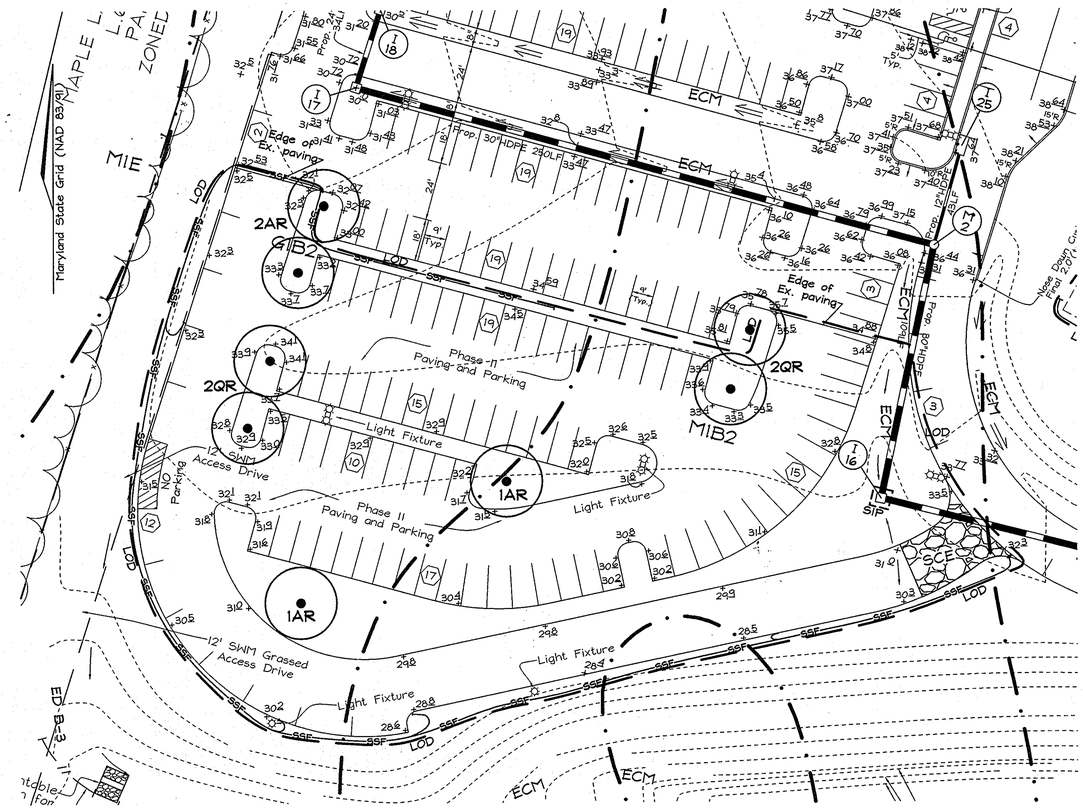
Grace Community Church of Howard County, Inc
9180 Rumsey Road
Columbia, MD 21045
(410) 992-5384
C/O Joe Hancock

STATE OF MARYLAND — ZACHARIA YOSEF FISCH — 22418 — PROFESSIONAL ENGINEER

FSI Engineers [illegible] iates
8318 Forrest [illegible]
Tel: 410 750 [illegible]
Email: FSI@[illegible]

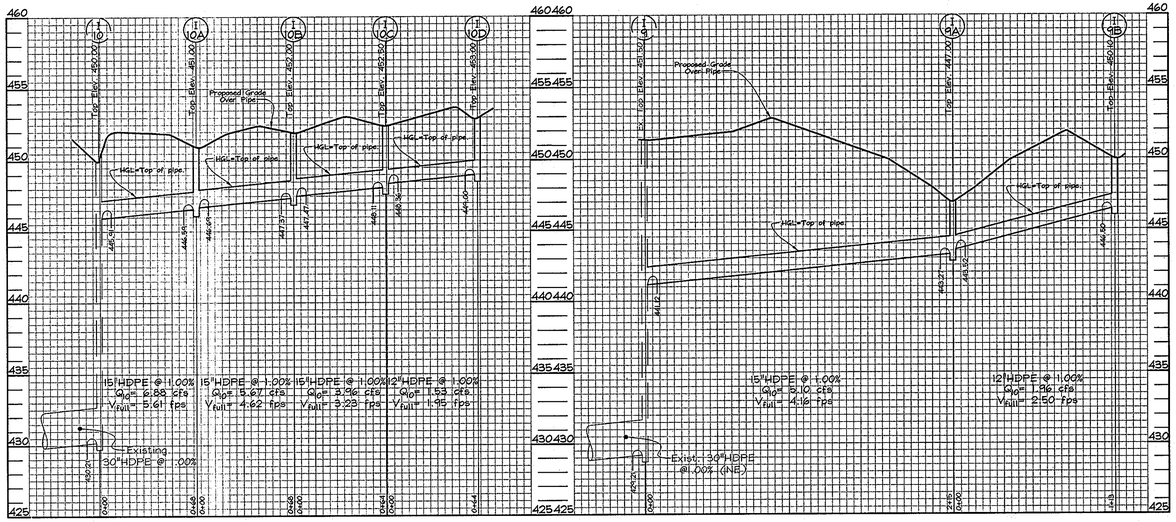
DESIGN BY	S
DRAWN BY	KSZ
CHECKED BY	ZYF
SCALE	1"=100'
DATE:	July 20, 2004
W.O. No	3071 4
SHEET No	21 OF 26

SDP- 079



ADDITIONAL PARKING LOT (SOUTHWEST)

Scale: 1" = 30'



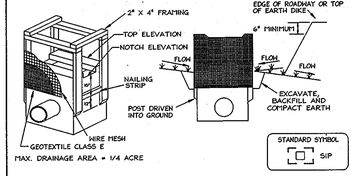
EXTENDED STORM DRAIN PROFILE

Hor. Scale: 1"=50', Vert. Scale: 1"=5'

EXTENDED STORM DRAIN PROFILE

Hor. Scale: 1"=50', Vert. Scale: 1"=5'

DETAIL 23A - STANDARD INLET PROTECTION*



Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.
2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
4. Stretch the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 8 - 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

* For inlets I-9A, I-9B, I-10C, and I-10D, utilize super silt fence standards.

Sequence of Construction

1. Obtain grading permit & contact Howard County Sediment Control Inspector (SCI) to arrange a pre-construction meeting (15 days).
2. Install stabilized construction entrances. (1 day)
3. Install perimeter sediment controls. (2 days)
*4. Install inlet protection at I-9 and I-10. (1 day)
*5. Construct I-9A, I-9B, I-10A thru I-10D. (5 days)
*6. Before connecting to I-10 and the stub at I-9, flush the system from any sediments. (1 day)
*7. Block I-9 stub to I-9A.
*8. Install Standard Inlet Protection at I-9, I-10, I-10A and I-10B, and Super Silt Fence Inlet Protection at I-9A, I-9B, I-10C and I-10D and connect to the existing system.
**9. Install inlet protection at I-16.
10. Bring grade to sub-grade. (15 days)
11. Pave site. (10 days)
12. Stabilize site with permanent seeding. (5 days)
13. With permission of the Sediment Control Inspector, remove sediment controls.
14. Block I-9 to I-2 and flush the system from any sediments.

* For Parking Lot East
**For Parking Lot Southwest

NOTE: Additional fencing is to be installed at the direction of the sediment control inspector.

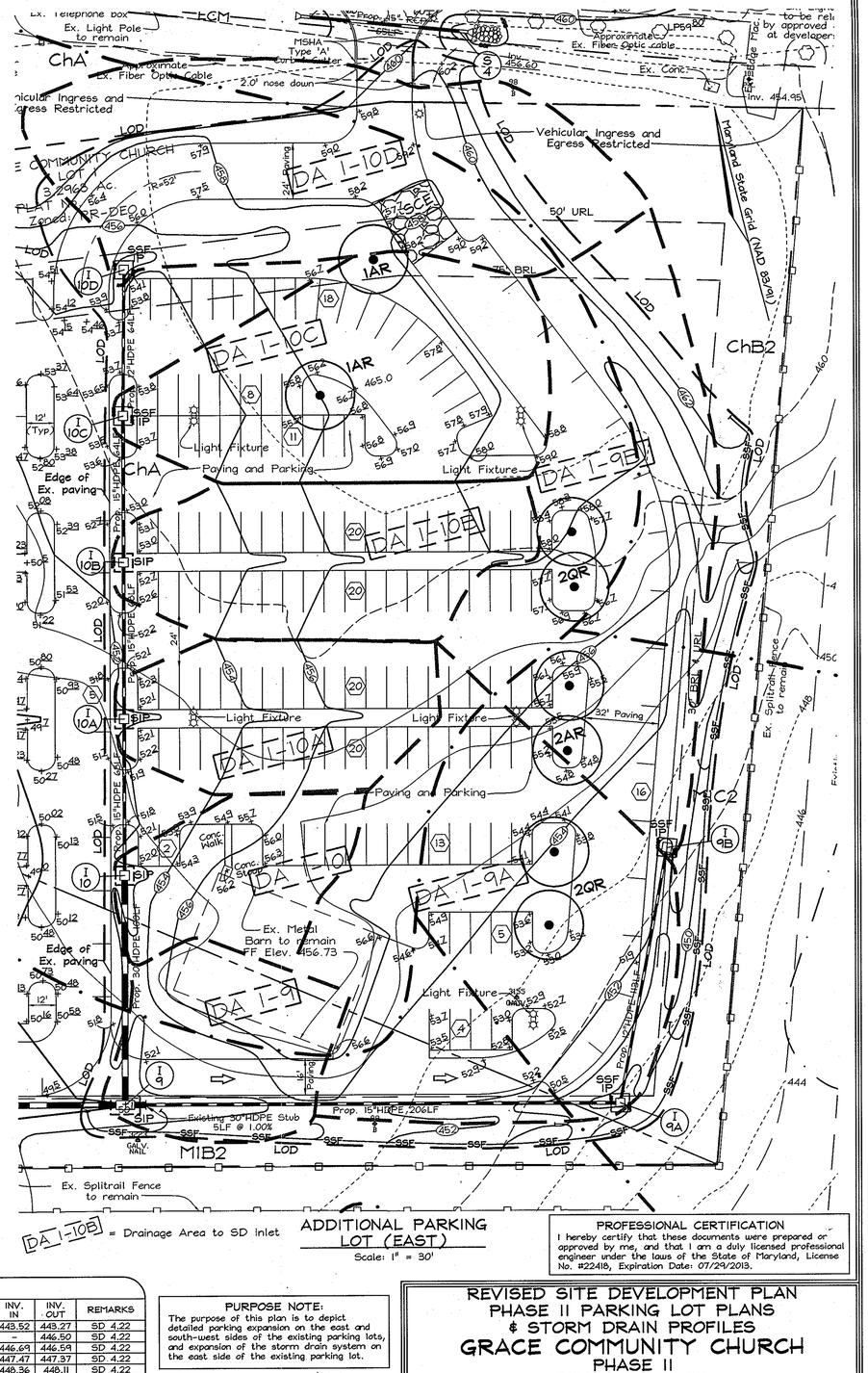
DA TABULATION

DA	AREA (Ac.)	"C" FACTOR	SOIL
I-9	0.17	0.52	B
I-9A	0.54	0.64	B
I-9B	0.45	0.51	B
I-10	0.14	0.45	B
I-10A	0.19	0.75	B
I-10B	0.25	0.75	B
I-10C	0.34	0.75	B
I-10D	0.45	0.36	B

STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT	REMARKS
I-9A	SINGLE TYPE "S" INLET	N 538,463.66 E 1,338,155.61	447.00	443.52	443.27	SD 4.22
I-9B	SINGLE TYPE "S" INLET	N 538,566.33 E 1,338,155.61	450.10	-	446.50	SD 4.22
I-10A	SINGLE TYPE "S" INLET	N 538,679.21 E 1,337,988.32	451.00	446.69	446.59	SD 4.22
I-10B	SINGLE TYPE "S" INLET	N 538,745.14 E 1,338,004.98	452.00	447.47	447.37	SD 4.22
I-10C	SINGLE TYPE "S" INLET	N 538,807.20 E 1,338,020.62	452.50	448.36	448.11	SD 4.22
I-10D	SINGLE TYPE "S" INLET	N 538,849.10 E 1,338,036.89	453.00	-	449.00	SD 4.22
I-14 #	SINGLE TYPE "S" INLET	N 538,935.13 E 1,337,608.39	440.00	-	436.00	SD 4.22

Existing Inlet I-14 to be relocated using the information listed above.



[DA I-10D] = Drainage Area to SD Inlet

ADDITIONAL PARKING LOT (EAST)

Scale: 1" = 30'

PURPOSE NOTE:
The purpose of this plan is to depict detailed parking expansion on the east and south-west sides of the existing parking lots, and expansion of the storm drain system on the east side of the existing parking lot.

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. #22418, Expiration Date: 07/29/2013.

REVISED SITE DEVELOPMENT PLAN
PHASE II PARKING LOT PLANS & STORM DRAIN PROFILES
GRACE COMMUNITY CHURCH
PHASE II
RELIGIOUS FACILITY

TAX MAP 46 GRID 3 — LOTS 1 AND 2 PARCEL 337
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/12/13
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/12/13
DIRECTOR MARSHA MCLAUGHLIN — DATE 3-12-13

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

HOWARD SCD — DATE 2/27/13

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF DEVELOPER: Joseph R. Hancock — DATE 2-20-13

ENGINEERS CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND AGREABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER: Zacharia Y. Fisch — DATE 2/20/2013
ZACHARIA Y. FISCH

OWNER/DEVELOPER
Grace Community Church of Howard County, Inc.
8200 Old Columbia Road
Fulton, Maryland 20759
(240) 553-1090
C/O Joe Hancock

STATE OF MARYLAND — ZACHARIA YOSEF FISCH — 22418 — PROFESSIONAL ENGINEER

FSH Associates
Engineers Planners Surveyors
6339 Howard Lane, Elkridge, MD 21075
Tel:410-567-5200 Fax: 410-796-1562
E-mail: info@fsheri.com

DESIGN BY: MLT
DRAWN BY: CRH2
CHECKED BY: ZYF
SCALE: As Shown
DATE: Nov 2012
W.O. No.: 3071
SHEET No.: 21 OF 21

SDP-04-079

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