

GENERAL NOTES

- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK ON THESE DRAWINGS:
 - MISS UTILITY: 1-800-257-7777
 - BELL ATLANTIC TELEPHONE CO.: 725-9976
 - HOWARD COUNTY BUREAU OF UTILITIES: 313-2366
 - VERIZON CABLE LOCATION DIVISION: 593-3553
 - B.G.&E. CO. CONTRACTOR SERVICES: 850-4620
 - B.G.&E. CO. UNDERGROUND DAMAGE CONTROL: 787-4620
 - STATE HIGHWAY ADMINISTRATION: 531-5533
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
- ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTOR'S INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- IN ACCORDANCE WITH FDB-194-A, BAY WINDOWS OR CHIMNEYS NOT MORE THAN 10-FEET IN WIDTH MAY PROJECT NOT MORE THAN 4-FEET INTO ANY SETBACKS. PORCHES OR DECKS MAY PROJECT NOT MORE THAN 3-FEET INTO THE FRONT OR REAR YARD SETBACKS. EXTERIOR BASEMENT AREAS/STAIRWAYS MAY NOT ENCROUGH INTO ANY BRL.
- DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - A) WIDTH- 12 FEET (16 FEET IF SERVING MORE THAN ONE RESIDENCE)
 - B) SURFACE- 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" min)
 - C) GEOMETRY- MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE, AND MINIMUM 45 FOOT TURNING RADIUS
 - D) STRUCTURES (CULVERTS/BRIDGES)- MUST SUPPORT 25 GROSS TON LOADINGS (425 LOADINGS)
 - E) DRAINAGE ELEMENTS- CAPABLE OF SAFELY PASSING 100 YEAR FLOOD EVENTS WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE
 - F) STRUCTURE CLEARANCES- MINIMUM 12 INCHES
 - G) MAINTENANCE- SUFFICIENT TO INSURE ALL WEATHER USE
- THE SUBJECT PROPERTY IS ZONED NT PER THE FEBRUARY 2, 2004 COMPREHENSIVE ZONING PLAN AND THE COMPLETE ZONING AMENDMENTS EFFECTIVE 7/28/06.
- THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE OCTOBER 2, 2005 AND FINAL DEVELOPMENT PLAN PHASE 194-A.
- THIS PROJECT BOUNDARY IS BASED ON PLAT NO. 11249.
- TOPOGRAPHY SHOWN HEREON WAS FIELD RUN BY MCKEE AND ASSOCIATES, INC. ON 8-20-2010.
- ACCESS TO PUBLIC WATER AND PUBLIC SEWER HAS BEEN PROVIDED UNDER CONTRACT NO. 34-3219-D.
- NO BURIAL GROUNDS OR CEMETERIES ARE LOCATED ON THIS PROPERTY.
- NO STREAMS, STREAM BUFFERS, WETLANDS OR WETLAND BUFFERS EXIST ON THIS SITE.
- NO 100 YEAR FLOOD PLANS EXIST ON THIS SITE.
- NO STEEP SLOPES EXIST ON THIS SITE.
- FOR DRIVEWAY ENTRANCE DETAIL REFER TO HOWARD COUNTY DESIGN MANUAL IV, DETAIL R-6.05.
- THIS PLAN IS EXEMPT FROM THE FOREST CONSERVATION REQUIREMENT PER SECTION 16.1202(B)(1)(M) OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION MANUAL. THIS PROPERTY IS PART OF A PLANNED UNIT DEVELOPMENT WHICH HAD PRELIMINARY APPROVAL BEFORE DECEMBER 31, 1992.
- THIS PLAN IS EXEMPT FROM THE LANDSCAPE REQUIREMENTS BECAUSE THE SUBDIVISION WAS GRANTED PRELIMINARY PLAN APPROVAL PRIOR TO THE EFFECTIVE DATE OF THE 1993 EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- SITE ANALYSIS:
 - TOTAL AREA OF SITE: 1.512 AC.±
 - PRESENT ZONING: NT
 - LIMIT OF DISTURBANCE: 59,818 S.F.
 - AREA OF HOUSE, COV. PCH: = LOT COVERAGE
 - LOT COVERAGE ALLOWED: 9,879 S.F. (15%)
 - PROPOSED USE OF SITE: SINGLE FAMILY DETACHED DWELLING
- PROJECT BACKGROUND:
 - LOCATION: COLUMBIA, TAX MAP 29, PARCEL 370, GRID 15
 - DPZ REFERENCES: F-93-141, SP-92-21, WP-92-21B, WP-94-20, FDP-194-A, ECP-11-028
- HORIZONTAL AND VERTICAL CONTROL IS BASED ON HOWARD COUNTY GEODETIC CONTROL.
- THIS PLAN IS FOR THE HOUSE SITING AND LOT GRADING ONLY. PUBLIC UTILITIES EXIST WITHIN THE RIGHT-OF-WAY OF MANORSTONE LANE.
- CONTRACTOR SHALL VERIFY THE SEWER HOUSE CONNECTION ELEVATION AT THE RIGHT-OF-WAY LINE PRIOR TO CONSTRUCTION.
- COORDINATES AND BEARINGS ARE REFERRED TO PLAT TITLED "VILLAGE OF HARPER'S CHOICE, SECTION 5, AREA 9, PHASE 194-A, RECORDED AMONG THE RECORDS OF HOWARD COUNTY MARYLAND AS PLATS MDR 11247, MDR 11248 & MDR 11249.
- MINIMUM BUILDING SETBACK RESTRICTIONS FROM PROPERTY LINES AND THE PUBLIC RIGHT-OF-WAY LINES TO BE IN ACCORDANCE WITH THE ESTABLISHED BY FINAL DEVELOPMENT PLAN PHASE 194-A ENTITLED "COLUMBIA VILLAGE OF HARPER'S CHOICE SECTION 5, AREA 9," RECORDED AS PLAT NO. 3054-A-1503 THRU 1505 ON DEC. 01, 1995.
- WATER METER TO BE LOCATED AT THE RIGHT-OF-WAY OF MANORSTONE LANE, SEE HO. CO. DETAIL W-3.33.
- PER FDP-194-A NO LESS THAN 4 OFF-STREET PARKING SPACES CONTAINING A MINIMUM AREA OF 180 SQUARE FEET PER EACH PARKING SPACE SHALL BE PROVIDED.
- THE BUILDING CODE REQUIRES THAT ALL SINGLE FAMILY DWELLINGS CONSTRUCTED AFTER JANUARY 1, 2011 SHALL BE PROTECTED BY AN AUTOMATIC SPRINKLER SYSTEM.

21. SITE ANALYSIS:

TOTAL AREA OF SITE:	1.512 AC.±
PRESENT ZONING:	NT
LIMIT OF DISTURBANCE:	59,818 S.F.
AREA OF HOUSE, COV. PCH: = LOT COVERAGE	5,635 S.F. (9.4%) PROPOSED
LOT COVERAGE ALLOWED:	9,879 S.F. (15%)
PROPOSED USE OF SITE:	SINGLE FAMILY DETACHED DWELLING

22. PROJECT BACKGROUND:

LOCATION: COLUMBIA, TAX MAP 29, PARCEL 370, GRID 15
 DPZ REFERENCES: F-93-141, SP-92-21, WP-92-21B, WP-94-20, FDP-194-A, ECP-11-028

23. HORIZONTAL AND VERTICAL CONTROL IS BASED ON HOWARD COUNTY GEODETIC CONTROL.

24. THIS PLAN IS FOR THE HOUSE SITING AND LOT GRADING ONLY. PUBLIC UTILITIES EXIST WITHIN THE RIGHT-OF-WAY OF MANORSTONE LANE.

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26. COORDINATES AND BEARINGS ARE REFERRED TO PLAT TITLED "VILLAGE OF HARPER'S CHOICE, SECTION 5, AREA 9, PHASE 194-A, RECORDED AMONG THE RECORDS OF HOWARD COUNTY MARYLAND AS PLATS MDR 11247, MDR 11248 & MDR 11249.

27. MINIMUM BUILDING SETBACK RESTRICTIONS FROM PROPERTY LINES AND THE PUBLIC RIGHT-OF-WAY LINES TO BE IN ACCORDANCE WITH THE ESTABLISHED BY FINAL DEVELOPMENT PLAN PHASE 194-A ENTITLED "COLUMBIA VILLAGE OF HARPER'S CHOICE SECTION 5, AREA 9," RECORDED AS PLAT NO. 3054-A-1503 THRU 1505 ON DEC. 01, 1995.

28. WATER METER TO BE LOCATED AT THE RIGHT-OF-WAY OF MANORSTONE LANE, SEE HO. CO. DETAIL W-3.33.

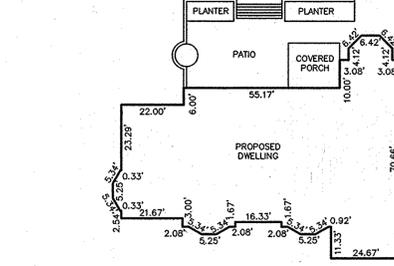
29. PER FDP-194-A NO LESS THAN 4 OFF-STREET PARKING SPACES CONTAINING A MINIMUM AREA OF 180 SQUARE FEET PER EACH PARKING SPACE SHALL BE PROVIDED.

30. THE BUILDING CODE REQUIRES THAT ALL SINGLE FAMILY DWELLINGS CONSTRUCTED AFTER JANUARY 1, 2011 SHALL BE PROTECTED BY AN AUTOMATIC SPRINKLER SYSTEM.

LOT 5
 1.512 AC.±
 GOLF PRACTICE GREEN

LOT 6
 STEPHEN C. TURNER
 GRETEL TURNER
 11520 MANORSTONE LANE
 DEED:
 ACCT NO.: 111410

LOT 25
 MICHAEL A. FRANCHETTA
 CATHERINE M. FRANCHETTA
 11521 MANORSTONE LANE
 DEED: 371/254
 ACCT NO.: 111488



HOUSE PLANS
 SCALE: 1"=30'



DWELLING ELEVATION
 34' MEAN ROOF HEIGHT RESTRICTION

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 10-16-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 10-20-15
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 10-20-15
 DIRECTOR DATE

Reviewed for HOWARD SCD and meets Technical Requirements.

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

[Signature] 9/29/2015
 Signature of Professional Land Surveyor Date

[Signature] 9/30/15
 Signature of Developer Date

GEORFFREY C. SCHULTZ
 Printed name

JAMES P. HAGAN
 Printed name

SURVEYOR'S CERTIFICATE

I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

[Signature] 9/29/2015
 Signature of Professional Land Surveyor Date

GEORFFREY C. SCHULTZ
 Printed name

DEVELOPER'S CERTIFICATE

I/We certify that all development and construction will be done according to this plan, 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 also authorize periodic on-site inspection by the Howard Soil Conservation District.

[Signature] 9/30/15
 Signature of Developer Date

JAMES P. HAGAN
 Printed name

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21154, EXPIRATION DATE: 01/27/2013.

[Signature]
 SIGNATURE

GEORFFREY C. SCHULTZ
 PRINT NAME

21154
 PROFESSIONAL LAND SURVEYOR NO.

9/29/2015
 DATE



10-16-15 Removed pool and patio

DATE	REVISION
07-18-2011	AS PER AGENCY COMMENTS
10/03/2012	REVISED GENERAL NOTE 21, ADDED PATIOS, POOL, HOT TUB, AND POOL HOUSE AND DETAILS; ADDED STONE CHECK DAMS; REVISED SWM PRACTICES; REVISED SWM PRACTICES TABLE, ADDED POOL HOUSE ELEVATION

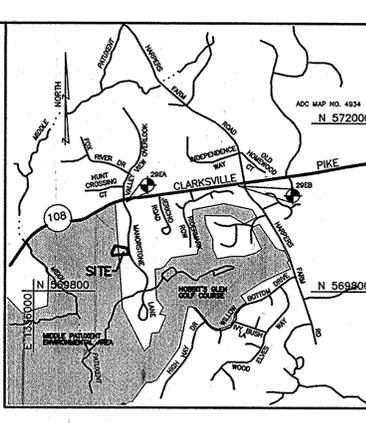
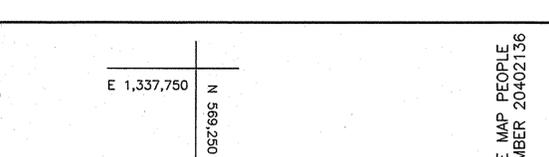
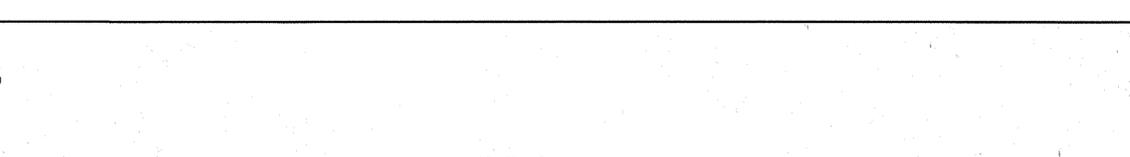
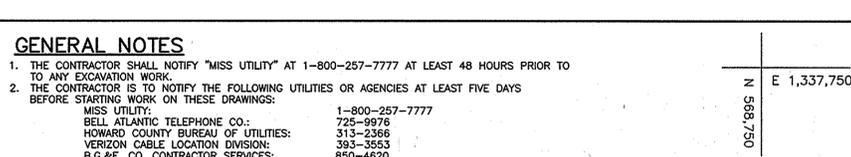
10 GERARD AVENUE
 SUITE 101
 TIMONIUM, MD 21093
 PHONE: (410) 252-4444
 FAX: (410) 252-4483
 WWW.POLARIS.LSC.COM

SITE DEVELOPMENT/SEDIMENT & EROSION CONTROL PLAN
VILLAGE OF HARPER'S CHOICE - LOT 5
 SINGLE FAMILY DWELLING

5TH ELECTION DISTRICT
 SCALE: 1" = 30'
 HOWARD COUNTY, MARYLAND
 MARCH 10, 2010

COLUMBIA VILLAGE OF HARPER'S CHOICE, SECTION 5, AREA 9, PHASE 1, PLAT 1'249
 TAX MAP 29, GRID 15, PARCEL 370, LOT 5

COMPUTED BY: JMB | DRAWN BY: JDG | CHECKED BY: JMB | JOP NO. 05'



VICINITY MAP
 SCALE: 1" = 2000'
 ADC MAP 4934 GRID E4

BENCHMARKS:

ELEVATIONS BASED ON HOWARD COUNTY GEODETIC SURVEY CONTROL

29EA N=570132.841 E=1338186.954 ELEV.=436.66
 29EB N=570505.059 E=1340430.124 ELEV.=442.39

LEGEND

EX. CONTOURS	50'
PROP. CONTOURS	50'
SPOT GRADE	499+5
SOIL TYPES	B&B, B&C
EX. WOODS LINE	---
PROP. WOODS LINE	---
SUPER SILT FENCE	SSF
SUPER FENCE DIVERSION	SFD
ROCK OUTLET PROTECTION III	ROK
STABILIZED CONSTRUCTION ENTRANCE W/ MOUNTABLE BERM	SCB
STONE CHECK DAM	SCD
LIMITS OF DISTURBANCE	100'
DRY WELL	DW
ROOF DRAIN/TRENCH DRAIN	RD
PROPERTY LINE	---

SHEET INDEX

DESCRIPTION	SHEET NO.
SITE DEVELOPMENT/SEDIMENT & EROSION CONTROL PLAN	1 OF 6
STORMWATER MANAGEMENT CONSTRUCTION DETAILS	2 OF 6
STORMWATER MANAGEMENT CONSTRUCTION DETAILS	3 OF 6
STORMWATER MANAGEMENT CONSTRUCTION DETAILS	4 OF 6
STORMWATER MANAGEMENT LANDSCAPING DETAILS	5 OF 6
SEDIMENT & EROSION CONTROL SPECIFICATIONS AND DETAILS	6 OF 6

ADDRESS CHART

LOT NO.	STREET ADDRESS
5	11516 MANORSTONE LANE

PERMIT INFORMATION CHART

SUBDIVISION NAME:	SECTION/AREA:	LOT/PARCEL NO.:
COLUMBIA VILLAGE OF HARPER'S CHOICE	SECTION 5/AREA 9	LOT 5/PARCEL 370
PLAT REF.:	GRID#	ZONING TAX MAP ELEC. DIST. CENSUS TRACT
11249	15	NT 29 5TH 6051.02

SOILS LEGEND

SYMBOL	NAME/DESCRIPTION	GROUP
G&B	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	B
G&C	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	B

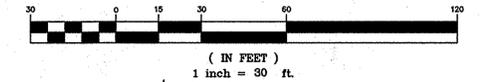
REVISION 9-10-2015

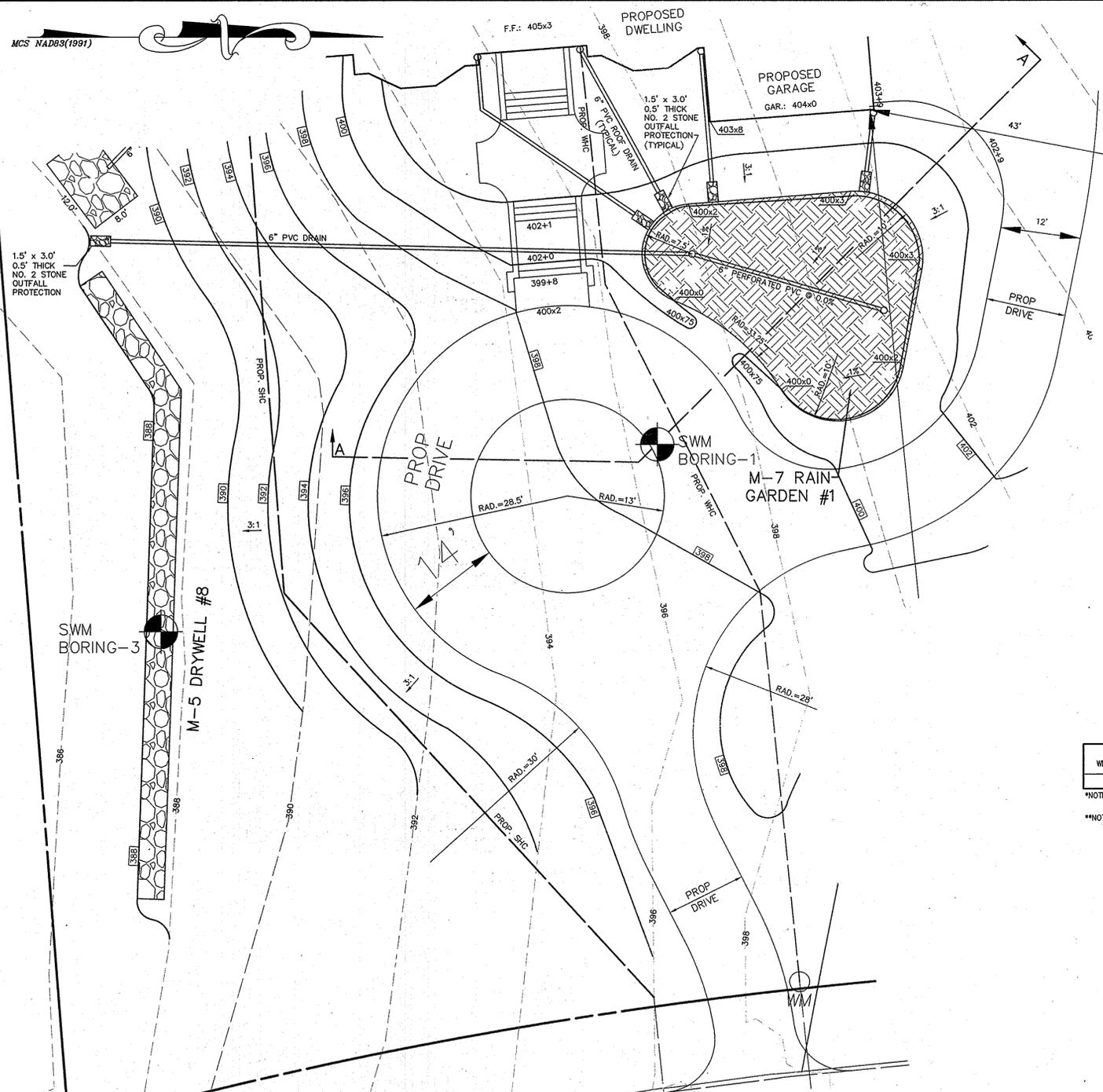
REMOVED POOL, POOL HOUSE, AND PATIOS BEHIND HOUSE.
 REMOVED 3 DRYWELLS AND 5 MICRO-BIOTRETENTION FACILITIES.
 REVISED GRADING IN REAR OF LOT.

STORMWATER MANAGEMENT PRACTICES (SDP11-038, VHC, Lot 5)

GREEN ROOFS	PERMEABLE PAVEMENTS	REINFORCED TURF	DISCONNECTION OF ROOFTOP RUNOFF	DISCONNECTION OF NON-ROOFTOP RUNOFF	SHEETFLOW TO CONSERVATION AREAS	RAINWATER HARVESTING	SUBMERGED GRAVEL WETLANDS
A-1 (Y/N)	A-2 (Y/N)	A-3 (Y/N)	N-1 (Y/N)	N-2 (Y/N)	N-3 (Y/N)	M-1 (NUMBER)	M-2 (NUMBER)
N	N	N	N	N	N	N	N
LANDSCAPE INFILTRATION	INFILTRATION BERMS	DRY WELLS	MICRO-BIOTRETENTION	RAIN GARDENS	SWALES	ENHANCED FILTERS	
M-3 (NUMBER)	M-4 (NUMBER)	M-5 (NUMBER)	M-6 (NUMBER)	M-7 (NUMBER)	M-8 (NUMBER)	M-9 (NUMBER)	
N	N	Y(5)	N	Y(1)	N	N	

GRAPHIC SCALE

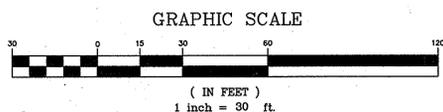




MANORSTONE LANE
PLAN
SCALE: 1"=10'

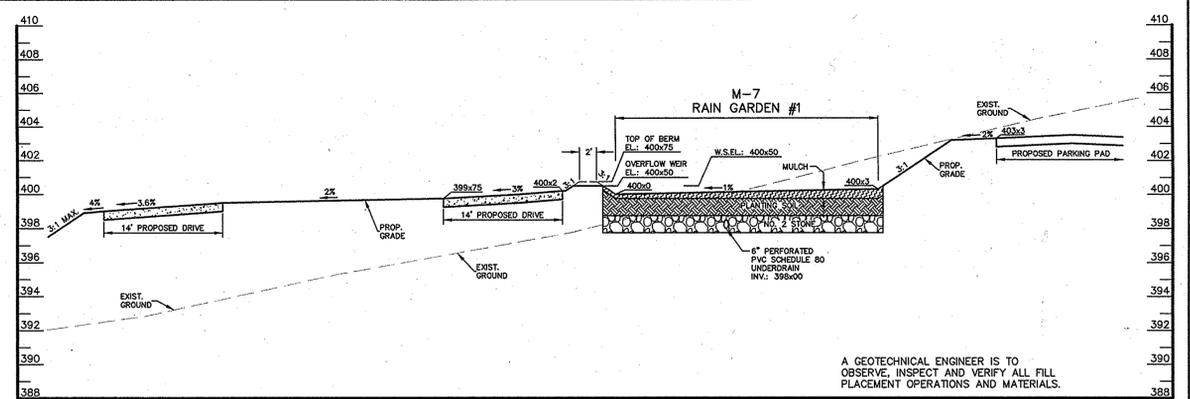
OWNER:
JUDY A. GRANT
10606 STRAY CAMEL WAY
COLUMBIA, MD 21044-4151
PHONE: 410-715-9135(W)

BUILDER:
HAGAN DEVELOPMENT CORPORATION, INC.
20 E. TIMONIUM ROAD SUITE 209
TIMONIUM, MD 21093
PHONE: (410) 561-1004

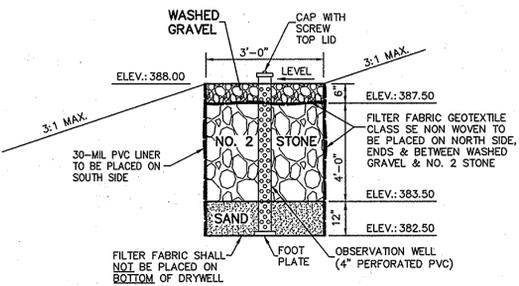


BENCHMARKS:
ELEVATIONS BASED ON HOWARD COUNTY GEODETIC SURVEY CONTROL.

29EA	N=570132.841	E=1338186.954	ELEV.=436.66
29EB	N=570505.059	E=1340430.124	ELEV.=442.39



SECTION A-A
OVERFLOW PROFILE OF M-7 RAIN GARDEN #1,
AND M-5 DRYWELL #8
SCALE: HORIZ. 1"=10'
VERT. 1"=5'

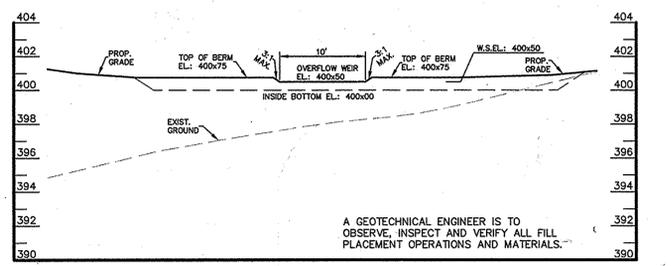


M-5 DRYWELL #8 DETAIL
SCALE: N.T.S.

M-5 DRY WELL DESIGN DATA

DRY WELL NO.	IMPERVIOUS DRAINAGE AREA	REQUIRED STORAGE*	PROP. GROUND ELEVATION	TOP OF STONE ELEVATION	STONE LENGTH	STONE WIDTH	STONE DEPTH	PROVIDED STONE VOLUME	PROVIDED STORAGE**	MAX. RUNOFF FROM 1 YR. STORM	MAXIMUM PROVIDED STORAGE
8	3926 sq. ft.	216 c.f.	388.00	387.50	95.0'	4.0'	4.0'	1520 c.f.	608 c.f.	89± c.f.	608 c.f.

*NOTE: REQUIRED STORAGE BASED ON STORING A PORTION OF THE REQUIRED ES_v AS PROPORTIONED AMONG THE MICRO-SCALE PRACTICES. (SEE STORMWATER MANAGEMENT COMPUTATIONS DATED OCTOBER 2012)
**NOTE: PROVIDED STORAGE BASED ON A VOID RATIO OF 0.4 FOR NO. 2 STONE.



SECTION B-B
PROFILE OF
M-7 RAIN GARDEN #1 EMBANKMENT
SCALE: HORIZ. 1"=10'
VERT. 1"=5'

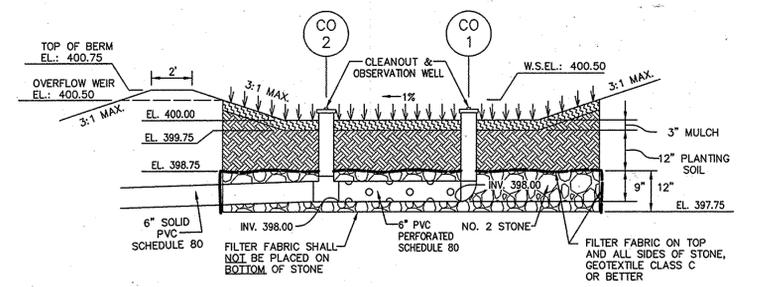
M-5 RAIN GARDEN DESIGN DATA

RAIN GARDEN NO.	IMPERVIOUS DRAINAGE AREA	REQUIRED STORAGE*	PROVIDED ABOVEGROUND STORAGE	PROVIDED MULCH & SOIL VOLUME**	PROVIDED UNDERGROUND STORAGE***	TOTAL PROVIDED STORAGE	MAX. RUNOFF FROM 1 YR. STORM	MAXIMUM PROVIDED STORAGE
1	3345 sq. ft.	379 c.f.	495 c.f.	1,238 c.f.	495 c.f.	990 c.f.	729 c.f.	729 c.f.

*NOTE: REQUIRED STORAGE BASED ON STORING A PORTION OF THE REQUIRED ES_v AS PROPORTIONED AMONG THE MICRO-SCALE PRACTICES. (SEE STORMWATER MANAGEMENT COMPUTATIONS DATED OCTOBER 2012)
**NOTE: PROVIDED UNDERGROUND VOLUME IS OF PROVIDED MULCH & PLANTING SOIL.
***NOTE: PROVIDED UNDERGROUND STORAGE BASED ON A VOID RATIO OF 0.4 FOR MULCH & PLANTING SOIL.

LEGEND

- EX. CONTOURS
- PROP. CONTOURS
- EX. WOODS LINE
- PROP. WOODS LINE
- LIMITS OF DISTURBANCE
- M-5 DRYWELL
- M-7 RAIN GARDEN
- ROOF DRAIN
- PROPERTY LINE



M-7 RAIN GARDEN #1 DETAIL
N.T.S.

SUMMARY TABLE

TOTAL DRAINAGE AREA TO PRACTICES 0.399 AC.±
MANAGEMENT REQUIRED Rev. WQv, Cpv
MANAGEMENT PROVIDED Rev. WQv, Cpv
MICRO-SCALE PRACTICES DRY WELL, RAIN GARDEN, MICRO-BIORETENTION

MICRO-SCALE PRACTICES TO BE PRIVATELY OWNED AND MAINTAINED.
WATERSHED IS THE MIDDLE PATUXENT RIVER.

REVISION 9/27/2014
REVISED SHEET NO.

REVISED SHEET 2 OF 8

STORMWATER MANAGEMENT CONSTRUCTION DETAILS
VILLAGE OF HARPER'S CHOICE - LOT 5
SINGLE FAMILY DWELLING
STORMWATER MANAGEMENT DETAILS

5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 30' MARCH 10, 2010

COLUMBIA VILLAGE OF HARPER'S CHOICE, SECTION 5, AREA 9, PHASE 1, FLAT 11248

COMPUTED BY: JMB/CVM DRAWN BY: JMB CHECKED BY: JMB JOB No.: 12-037

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 11/14/12

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 11/14/12

DIRECTOR
DATE: 11/14/12

Reviewed for HOWARD SCD and meets Technical Requirements.

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

Signature of Professional Land Surveyor
Date: 10/24/12

Signature of Developer
Date: 10/25/12

Signature of Professional Land Surveyor
Date: 10/24/12

Signature of Developer
Date: 10/25/12

SURVEYOR'S CERTIFICATE

I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

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Date: 10/24/12

Signature of Developer
Date: 10/25/12

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Signature of Developer
Date: 10/25/12

Signature of Professional Land Surveyor
Date: 10/24/12

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21154, EXPIRATION DATE: 01/27/2013.

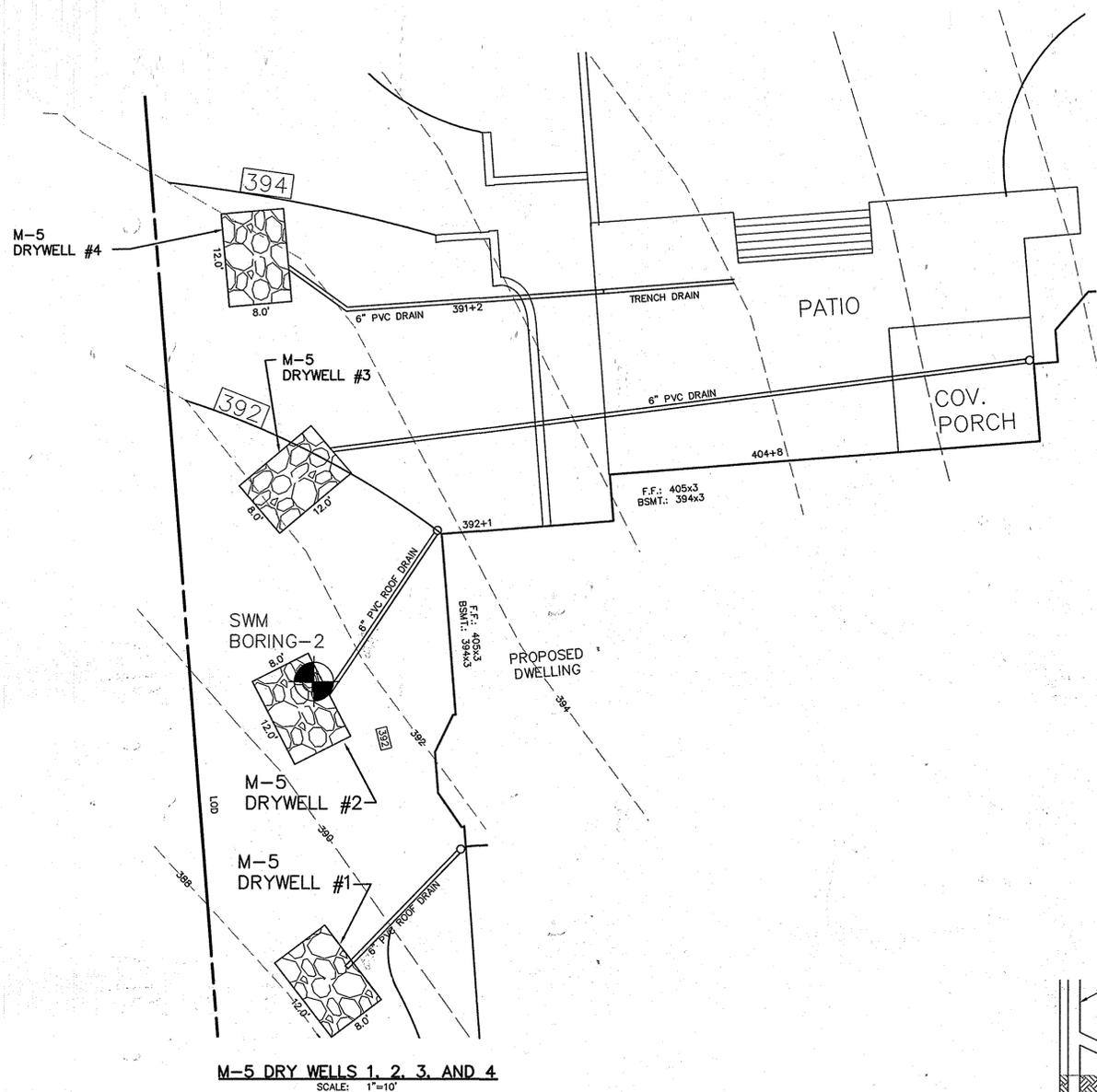
Signature: GCS
Date: 10/24/12

Signature: JMB
Date: 10/24/12

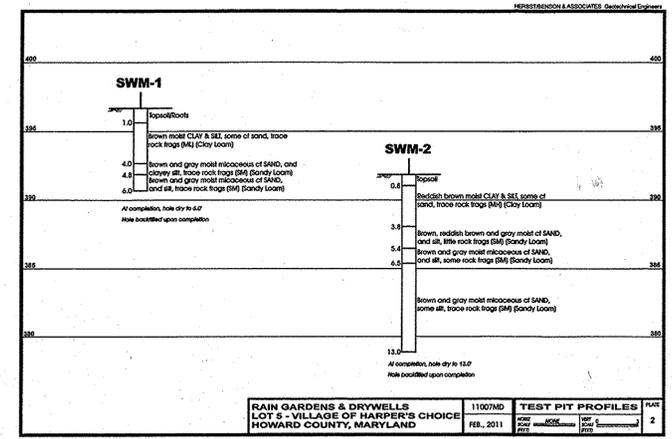


Polaris
LAND CONSULTANTS

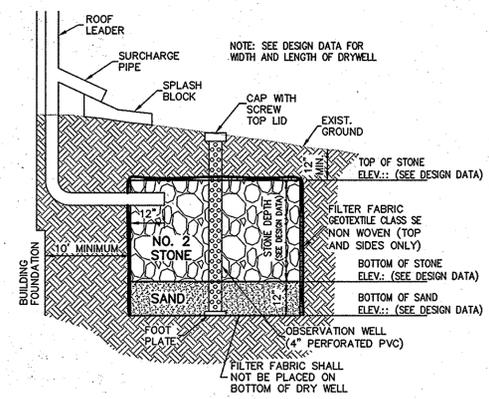
10 GERARD AVENUE SUITE 101
TIMONIUM, MD 21093
PHONE: (410) 252-4444
FAX: (410) 252-4493
WWW.POLARISL.C.COM



M-5 DRYWELLS 1, 2, 3, AND 4
SCALE: 1"=10'



RAIN GARDENS & DRYWELLS
LOT 5 - VILLAGE OF HARPER'S CHOICE
HOWARD COUNTY, MARYLAND
11007MD
FEB. 2011



DOWNSPOUT M-5 DRYWELL TYPICAL DETAIL
DRYWELLS 1-7
SCALE: N.T.S.

M-5 DRY WELL DESIGN DATA: DRYWELLS 1-4

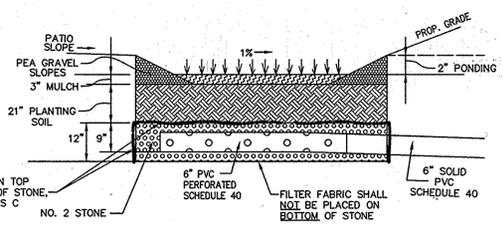
DRY WELL NO.	IMPERVIOUS DRAINAGE AREA	REQUIRED STORAGE*	EXIST. GROUND ELEVATION	TOP OF STONE ELEV. (SEE DESIGN DATA)	STONE LENGTH	STONE WIDTH	STONE DEPTH	PROVIDED STONE VOLUME	PROVIDED STORAGE**	MAX. RUNOFF FROM YR. STORM	MAXIMUM PROVIDED STORAGE
1	1045 sq. ft.	98 c.f.	388.3±	387.3	12.0'	8.0'	3.0'	288 c.f.	115 c.f.	215 c.f.	115 c.f.
2	1137 sq. ft.	107 c.f.	390.3±	389.3	12.0'	8.0'	3.0'	288 c.f.	115 c.f.	234 c.f.	115 c.f.
3	1082 sq. ft.	107 c.f.	391.9±	390.9	12.0'	8.0'	3.0'	288 c.f.	115 c.f.	223 c.f.	115 c.f.
4	1331 sq. ft.	107 c.f.	393.5±	392.5	12.0'	8.0'	3.0'	288 c.f.	115 c.f.	277 c.f.	115 c.f.

*NOTE: REQUIRED STORAGE BASED ON STORING A PORTION OF THE REQUIRED ESD, AS PROPORTIONED AMONG THE MICRO-SCALE PRACTICES. (SEE STORMWATER MANAGEMENT COMPUTATIONS DATED OCTOBER 2010)
**NOTE: PROVIDED STORAGE BASED ON A VOID RATIO OF 0.4 FOR NO. 2 STONE.
***NOTE: TOP OF STONE ELEVATION IS TO BE ADJUSTED TO MATCH FIELD CONDITIONS AS NECESSARY. (MINIMUM OF 1' BELOW FINISHED GRADE)

REVISION 9-10-2015
REMOVED POOL, POOL HOUSE, AND PATIOS BEHIND HOUSE. REMOVED 3 DRYWELLS AND 5 MICRO-BIORETENTION FACILITIES. REVISED GRADING IN REAR OF LOT.

OWNER:
JUDY A. GRANT
10606 STRAY CAMEL WAY
COLUMBIA, MD 21044-4151
PHONE: 410-715-9135(W)

BUILDER:
HAGAN DEVELOPMENT CORPORATION, INC.
20 E. TIMONIUM ROAD
SUITE 209
TIMONIUM, MD 21093
PHONE: (410) 561-1004



M-6 MICRO-BIORETENTION (TYPICAL SECTION)
N.T.S.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 10-30-15

Reviewed for HOWARD SCD and meets technical Requirements.
This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.
Howard Soil Conservation District
Date: 10-20-15

SURVEYOR'S CERTIFICATE
I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
Signature of Professional Land Surveyor: *GC*
Date: 9/29/2015
Signature of Developer: *James P. Hagan*
Date: 9/30/15
Printed name: GEOFFREY C. SCHULTZ
Printed name: JAMES P. HAGAN

DEVELOPER'S CERTIFICATE
I/We certify that all development and construction will be done according to this plan, 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 also authorize periodic on-site inspection by the Howard Soil Conservation District.
Signature of Developer: *James P. Hagan*
Date: 9/30/15
Printed name: JAMES P. HAGAN

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21154, EXPIRATION DATE: 01/27/2013.
Signature: *GC*
Date: 9/29/2015
Printed name: GEOFFREY C. SCHULTZ
Professional Land Surveyor No.: 21154
Date: 9/29/2015



DATE: 07-18-2011, 07-24-2012, 10-03-2012
REVISION: AS PER AGENCY COMMENTS, ADDED POOL HSE, POOL, PATIO; REV SWM, ADDED DRYWELLS AND MICRO-BIORETENTION; ADDED BORING LOGS; ADDED DESIGN DATA TABLES
Polaris LAND CONSULTANTS
10 GERARD AVENUE SUITE 101
TIMONIUM, MD 21093
PHONE: (410) 252-4444
FAX: (410) 252-4493
WWW.POLARISLGC.COM

STORMWATER MANAGEMENT CONSTRUCTION DETAILS
VILLAGE OF HARPER'S CHOICE - LOT 5
SINGLE FAMILY DWELLING
STORMWATER MANAGEMENT DETAILS
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 30' MARCH 10, 2010
COLUMBIA VILLAGE OF HARPER'S CHOICE, SECTION 5, AREA 9, PHASE 1, PLAT 11248
COMPUTED BY: JMB/CVM DRAWN BY: JMB CHECKED BY: JMB JOB No.: 12-037

SWM 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 toe 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 sheep's-foot, 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.

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 equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

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 operate 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 a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on 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 a 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 material outside the structural 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 coatings 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 least 24 mils in thick-ness.

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. All connections shall use a rubber or neoprene gasket when joining pipe sections.

The end of each pipe shall be re-rolled on adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, pre-punched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide lugger 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. 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 Pipe - All 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 bed-ding / cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its out-side 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 as shown on the drawings.

Plastic Pipe - The 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.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 902, Mix No. 3.

Drainage Diaphragms

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

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311. Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class SE Non-woven.

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 the areas to be occupied by the permanent works. The contractor shall also furnish, in-stall, 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 slightly 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

An operation and maintenance plan in accordance with Local and State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Written records of maintenance and major repairs needs to be retained in a file. The issuance of a Maintenance and Repair Permit for any repairs or maintenance that involves the modification of the dam or spillway from its original design and specifications is required. A permit is also required for any repairs or reconstruction that involve a substantial portion of the structure. All indicated repairs are to be made as soon as practical.

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE SCHEDULES

OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE INFILTRATION (M-3) MICRO-BIORETENTION (M-6), RAIN GARDENS (M-7), BIORETENTION SWALE (M-8), ENHANCED FILTERS (M-9)

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT ANY MULCH. REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A-4.1 AND 2.
2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER. ONCE EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER INFILTRATION TRENCHES (I-1), DRY WELLS (M-5)

1. THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
2. WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
3. A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
4. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE 72 HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
5. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
6. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

REVISION 9/27/2014
REVISED SHEET NO.

OWNER: JUDY A. GRANT
10606 STRAY CAMEL WAY
COLUMBIA, MD 21044-4151
PHONE: 410-715-9135(W)

BUILDER: HAGAN DEVELOPMENT CORPORATION, INC.
20 E. TIMUMION ROAD
SUITE 209
TIMUMION, MD 21093
PHONE: (410) 561-1004

REVISED SHEET 4 OF 8

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 7/20/11

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 7/20/11

DIRECTOR
DATE: 7/20/11

Reviewed for HOWARD SCD and meets Technical Requirements.
This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.
Howard Soil Conservation District
Date: 7/18/2011

SURVEYOR'S CERTIFICATE
I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
Signature of Professional Land Surveyor: GEOFFREY C. SCHULTZ
Date: 7/18/2011
Printed name: GEOFFREY C. SCHULTZ

DEVELOPER'S CERTIFICATE
I/We certify that all development and construction will be done according to this plan, 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 also authorize periodic on-site inspection by the Howard Soil Conservation District.
Signature of Developer: JAMES P. HAGAN
Date: 7/18/2011
Printed name: JAMES P. HAGAN

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21154, EXPIRATION DATE: 01/27/2013.
Signature: GEOFFREY C. SCHULTZ
Professional Land Surveyor No.: 21154
Date: 7/18/2011



DATE	REVISION
07-18-2011	AS PER AGENCY COMMENTS
10-08-12	REVISED SWM OPERATION AND MAINTENANCE SCHEDULES

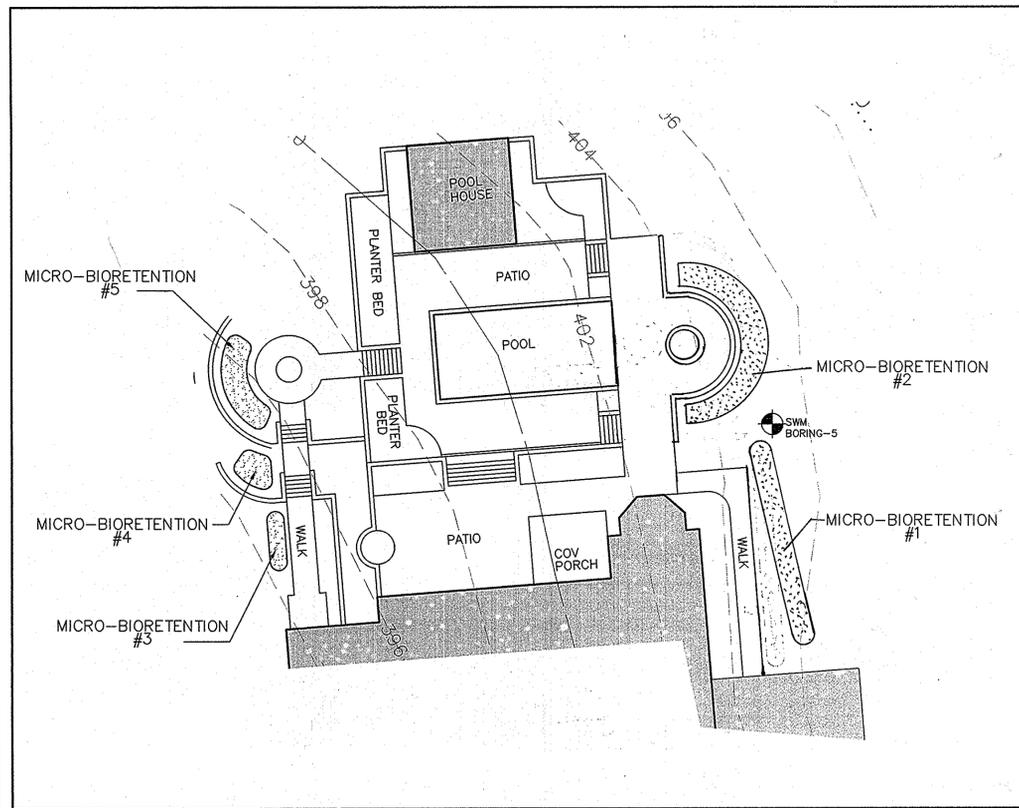
McKee & Associates, Inc.
Engineering - Land Planning - Land Surveying
Natural Resources Planning - Real Estate Development
5 SHAWAN ROAD, Suite 1 COCKEYSVILLE, MARYLAND 21036
TELEPHONE: (410) 527-1555 FACSIMILE: (410) 527-1563

STORMWATER MANAGEMENT CONSTRUCTION DETAILS
VILLAGE OF HARPER'S CHOICE - LOT 5
SINGLE FAMILY DWELLING
STORMWATER MANAGEMENT SPECIFICATIONS

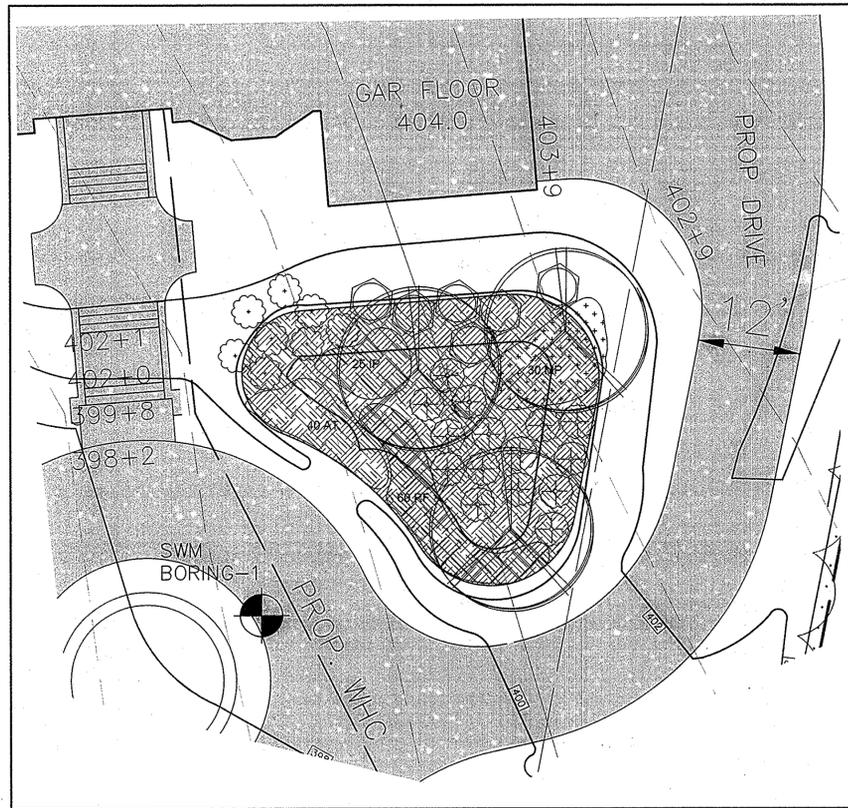
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 30' MARCH 10, 2010
COLUMBIA VILLAGE OF HARPER'S CHOICE, SECTION 5, AREA 9, PHASE I, PLAT 11248

COMPUTED BY: JMB/CVM DRAWN BY: JMB CHECKED BY: JOB No.: HH-056

SDP-H-038



M-6 MICRO-BIORETENTION
SCALE: 1"=20'



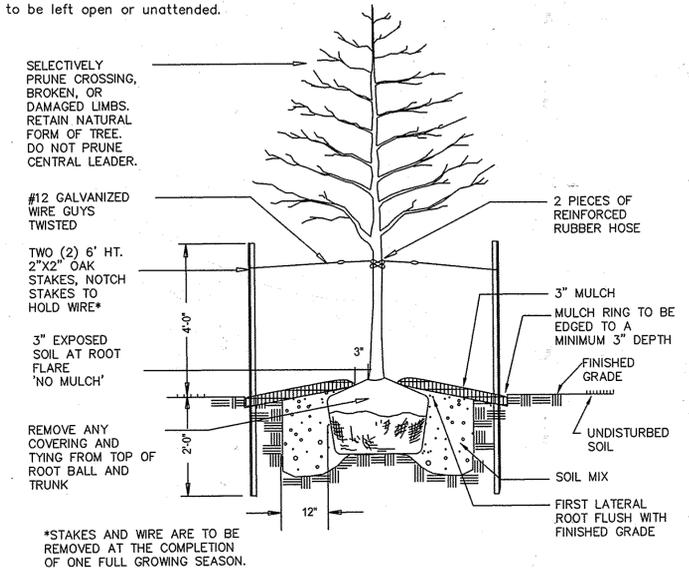
M-7 RAIN GARDEN
SCALE: 1"=10'

PLANT LIST: M-7 RAIN GARDEN

KEY	QUANTITY	BOTANICAL NAME COMMON NAME	SIZE	CONDITION	REMARKS
⊗	3	BETULA NIGRA 'HERITAGE' 'HERITAGE' RIVER BIRCH	10'-12" HT.	B & B	3- STEM CLUMP
⊙ IG	6	ILEX GLABRA 'NIGRA' NIGRA 'INKBERRY'	24" - 30"	#3 CONTAINER	SPACE 4' O.C.
⊙ SH	6	ILEX VERTICILLATA 'SPARKLEBERRY' SPARKLEBERRY HOLLY	36" - 42"	#5 CONTAINER	SPACE 5' O.C. USE 1 MALE 'APOLLO'
⊕ ILH	15	ITEA VIRGINICA 'LITTLE HENRY' LITTLE HENRY VIRGINIA SWEETSPIRE	24" - 30"	#3 CONTAINER	SPACE 4' O.C.
⊙ PV	16	PANICUM VIRGATUM 'HEAVY METAL' HEAVY METAL SWITCH GRASS	#1	CONTAINER	SPACE 4' O.C.
AT	78	LOBELIA CARDINALIS CARDINAL FLOWER	#SP4		SPACE 18" O.C. STAGGER
IP	25	IRIS PSEUDOACORUS YELLOW FLAG IRIS	#SP4		SPACE 18" O.C. STAGGER
RF	108	CAREX MORROWII 'ICE DANCE' SILVER VARIEGATED SEDGE	#SP4		SPACE 18" O.C. STAGGER
MP	30	METTEUCCIA PENNSYLVANICA OSTRICH FERN	#SP4		SPACE 24" O.C. STAGGER

PLANTING NOTES:

- This Plan is for planting purposes only.
- Contractor is to notify Miss Utility a minimum of 72 hours prior to digging. Telephone 1-800-257-7777
- The Landscape Architect is to be notified 48 hours before planting begins. The location of all plant material is to be approved in field by the Landscape Architect.
- No tree or shrub planting pits are to be left open or unattended.



PLANTING DETAIL FOR DECIDUOUS AND EVERGREEN TREES* - 1 - 4" CALIPER
SCALE: NONE

PLANT LIST: M-6 MICRO-BIORETENTION

	QUANTITY	BOTANICAL NAME COMMON NAME	SIZE	CONDITION	REMARKS
#1	54	CAREX MORROWII 'ICE DANCE' SILVER VARIEGATED SEDGE	1 QT	CONTAINER	18" O.C.
	5	AMELANCHIER CANADENSIS SERVICEBERRY	8'-10'	B & B	MULTI-STEM
	36	AMSONIA TABERNAEMONTANA 'BLUE ICE' BLUE STAR	1 QT	CONTAINER	18" O.C.
#2	72	COREOPSIS VERTICILLATA 'ZAGREB' TICKSEED COREOPSIS	1 GAL.	CONTAINER	18" O.C.
	5	MAGNOLIA VIRGINIANA SWEETBAY MAGNOLIA	8'-10'	B & B	
	42	CHELONE LYONII 'HOTLIPS' TURTLEHEAD	1 GAL.	CONTAINER	18" O.C.
#3	22	IRIS VERSICOLOR BLUE FLAG IRIS	1 GAL.	CONTAINER	24" O.C.
	1	HYDRANGEA DANICULATA 'LIMELIGHT' LIMELIGHT HYDRANGEA	24-36"	5 GAL CONT	
	12	MONARDA DIDYMA BEEBALM	1 QT	CONTAINER	18" O.C.
#4	6	EUPATORIUM 'BABY JOE' DWARF JOE PYE WEED	1 GAL.	CONTAINER	24" O.C.
	18	SOLIDAGO 'LITTLE LEMON' DWARF GOLDENROD	1 QT	CONTAINER	18" O.C.
	1	CERCIS CANADENSIS EASTERN REDBUD	10'-12'	B & B	
#5	24	IRIS CRISTATA DWARF CRESTED IRIS	1 QT	CONTAINER	15" O.C.
	3	HYDRANGEA PANICULATA 'TARDIVA' TARDIVA HYDRANGEA	4'-5'	B & B	
	20	PHYSOSTEGIA VIRGINIANA 'VIDID' OBEDIANT PLANT	1 GAL.	CONTAINER	18" O.C.
	36	ASTER NOVAE ANGLIAE 'PURPLE DOME' NEW ENGLAND ASTER	1 QT	CONTAINER	18" O.C.

PLANTING NOTES:

- This Plan is for planting purposes only.
- Contractor is to notify Miss Utility a minimum of 72 hours prior to digging. Telephone 1-800-257-7777
- The Landscape Architect is to be notified 48 hours before planting begins. The location of all plant material is to be approved in field by the Landscape Architect.
- No tree or shrub planting pits are to be left open or unattended.

SPECIFICATIONS FOR PLANTING

PLANT IDENTIFICATION:
All plants shall be identified in accordance with the latest edition of Hortus Third, by "The Staff of the Hortorium".

LIST OF PLANT MATERIALS:
The contractor will verify plant quantities prior to bidding and any discrepancies shall be brought to the attention of the Landscape Architect. The Contractor shall furnish and plant all plants required to complete the work as shown on the drawings. Substitutions shall not be made without the written approval of the Landscape Architect. This contract will be based on the bidder having verified, prior to bidding, the availability of the required plant materials as specified on the Plant List.

PLANT QUANTITY:
All shrubs shall be dense, heavy to the ground, and well grown, showing evidence of having been sheared regularly, and sound, free of plant disease or insect eggs, and shall have a healthy, normal root system. Plants shall be nursery grown. Plants shall not be pruned prior to delivery. The shape of the plant shall in general conform to its natural growth proportions unless otherwise specified. All plants including container grown shall conform to American Standard for Nursery Stock (ANSI z60.1, latest edition), and shall have a well-shaped, heavy branch structure for the species. Evergreen trees are to have an internode no greater than 24" and shall be uniformly well-shaped. All plant sizes shall average at least the middle of the range given in the plant list.

PLANT SPACING:
Plant spacing is to scale on the plan or as shown on the plant list.

SOIL MIX:
Soil mix will be 2/3 existing soil and 1/3 LEAFGR0 or equal organic

BALL SIZE:
The ball size shall conform to the American Association of Nurserymen's publication entitled American Standard for Nursery Stock, ANSI z60.1, latest edition.

EXCAVATION:
Holes for all plants shall be 18" larger in diameter than size of ball or container and shall have vertical sides. Hedges shall be planted in a trench 12" wider than ball diameter. Beds for mass planting shall be entirely rotted to a depth of 8" and shall be 18" beyond the average outside edge of plant balls. A 2" layer of organic material (i.e., LEAFGR0) will be incorporated into plant beds by tilling again.

PLANTING:
Backfilling shall be done with soil mix, reasonably free of stones, subsoil, clay, lumps, stumps, roots, weeds, bermuda grass, litter, toxic substances, or any other material which may be harmful to plant growth or hinder grading, planting, or maintenance operations. Should any unforeseen or unsuitable planting conditions arise, such as faulty soil drainage or chemical residues, they should be called to the attention of the Landscape Architect and Owner for adjustments before planting. The plant shall be set plumb and straight and shall be staked at the time of planting. Backfill shall be well worked about the and settled by watering. Plants will be planted higher than surrounding grade. Shrubs will be 1" higher and trees will be 3" higher. Remove ropes from around tree trunks and lay back burlap from top of all B&B material. Nylon or vinyl ropes and/or burlap will be completely removed from all plant material prior to planting.

TRANSPLANTING TREES BY TREE MACHINES:
Trees shall be moved by machines that provide a minimum of 9" per 1" of tree caliper. Holes are to be dug by the same size machine as the one transporting the plant. The plant material shall be transplanted in approximately the same growing condition as it is presently growing, in terms of soil type and moisture content. Fertilize and guy as described in these plans and specifications.

CULTIVATION:
All trees and shrub beds shall be cultivated, edged and mulched to a depth of 3" with shredded bark. The area around isolated plants shall be mulched to at least 6" greater diameter than that of the hole. Plant beds adjacent to buildings shall be mulched to the building wall.

MAINTENANCE:
The Contractor shall be responsible during the contract and up to the time of acceptance for keeping the planting and work incidental thereto in good condition, by replanting, plant replacement, watering, weeding, cultivating, pruning and spraying, restaking and cleaning up and by performing all other necessary operations of care for promotion of good plant growth so that all work is in satisfactory condition at time of acceptance, at no additional cost to the Owner.

FERTILIZER:
The Contractor shall apply granular fertilizer to the soil mix with 10-6-4 analysis, 50% organic, at the following rates: Trees @ 2-3 lbs. per caliper inch; Shrub Beds @ 3-5 lbs per 100 sq.ft.; and Groundcover Beds @ 2-3 lbs. per 100 sq.ft.

GROUNDCOVER:
The Contractor shall apply granular fertilizer to the soil mix with 10-6-4 analysis, 50% organic, at the following rates: Trees @ 2-3 lbs. per caliper inch; Shrub Beds @ 3-5 lbs per 100 sq.ft.; and Groundcover Beds @ 2-3 lbs. per 100 sq.ft.

GUARANTEE AND REPLACEMENT:
All material shall be unconditionally guaranteed for one (1) year. The Contractor is responsible for watering but not for losses or damage caused by mechanical injury or vandalism.

OWNER:
JUDY A. GRANT
10806 STRAY CAMEL WAY
COLUMBIA, MD 21044-4151
PHONE: 410-715-9135(W)

BUILDER:
HAGAN DEVELOPMENT
CORPORATION, INC.
20 E. TIMONIUM ROAD
SUITE 209
TIMONIUM, MD 21093
PHONE: (410) 561-1004

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
11/16/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION
11/16/12
CHIEF, DIVISION OF LAND DEVELOPMENT
11/16/12
DIRECTOR

Reviewed for HOWARD SCD and meets Technical Requirements.
This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.
11/16/12
HOWARD SOIL CONSERVATION DISTRICT

SURVEYOR'S CERTIFICATE
I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
10/24/12
GEOFFREY C. SCHULTZ
Signature of Professional Land Surveyor
Date

DEVELOPER'S CERTIFICATE
I/We certify that all development and construction will be done according to this plan, 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 also authorize periodic on-site inspection by the Howard Soil Conservation District.
10/25/12
JAMES P. HAGAN
Signature of Developer
Date

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21154, EXPIRATION DATE: 01/27/2013.
21154
PROFESSIONAL LAND SURVEYOR NO.
10/24/12
GEOFFREY C. SCHULTZ
PRINT NAME
DATE



DATE	REVISION
07-18-2011	AS PER AGENCY COMMENTS
07-24-2012	ADDED POOL HSE, POOL, PATIO; REV SWM
10-03-2012	REV. M-6 PLANTING CHART, REV. M-7 PLANTING CHART

Polaris LAND CONSULTANTS
10 GERARD AVENUE SUITE 101
TIMONIUM, MD 21093
PHONE: (410) 252-4444
FAX: (410) 252-4493
WWW.POLARISLC.COM

STORMWATER MANAGEMENT LANDSCAPING DETAILS
VILLAGE OF HARPER'S CHOICE - LOT 5
SINGLE FAMILY DWELLING
STORMWATER MANAGEMENT LANDSCAPE PLAN
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 30' MARCH 10, 2010
COLUMBIA VILLAGE OF HARPER'S CHOICE, SECTION 5, AREA 9, PHASE 1, PLAT 11248
COMPUTED BY: JMB DRAWN BY: JDG CHECKED BY: JMB JOB No.: 12-037

STANDARD SEDIMENT CONTROL NOTES

- A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313-1855).
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
- Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol 1, Chapter 12 of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- 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 (Sec. 51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- 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.
- Site Analysis:

Total Area of Site	1.51	Acres
Area Disturbed	1.37	Acres
Area to be roofed or paved	0.33	Acres
Area to be vegetatively stabilized	0.94	Acres
Total Cut	670	Cu. Yds.
Total Fill	1270	Cu. Yds.
Offsite waste/borrow area location:	TO BE DETERMINED	
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
- 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.
- Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized by the end of each work day, whichever is shorter.

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments: In lieu of soil test recommendations, use one of the following schedules:

- Preferred -- Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs/acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq. ft.)
- Acceptable -- Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs/acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil.

Seeding -- For the periods March 15 -- May 15, and August 1 -- October 15, seed with 60 lbs/acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 16 -- June 15 seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs/acre (.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period October 16 -- February 28, protect site by:

Option 1 -- Two tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option 2 -- Use sod. Option 3 -- Seed with 60 lbs/acre Kentucky 30 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching -- Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of rotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

Maintenance -- Inspect all seeding areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be re-disturbed where a short-term vegetative cover is needed.

Seeded preparation: -- Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments: -- Apply 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).

Seeding: -- For periods March 15 -- May 15, and August 1 -- October 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.). For the period May 16 -- June 15, seed with 3 lbs/acre of weeping lovegrass (.07 lbs/1000 sq. ft.). For the period October 16 -- February 28, protect site by applying 2 tons/acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: -- Apply 1-1/2 to 2 tons/acre (70 to 90 lbs/1000 sq. ft.) of rotted weed-free, small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 ft. or higher, use 348 gal. per acre (8 gal/1000 sq. ft.) for anchoring.

Refer to the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

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 VEGETATIVE 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

- THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES.
- 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
TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS.

TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

- 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 SOIL SCIENTIST AND APPROVED BY DPS. 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 THAN 1 1/2" IN DIAMETER.

THE SUBSOIL SHALL BE TILLED TO A MINIMUM DEPTH OF 6 INCHES BEFORE PLACEMENT OF TOPSOIL.

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 LBS PER 1000 SQ FT) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL.

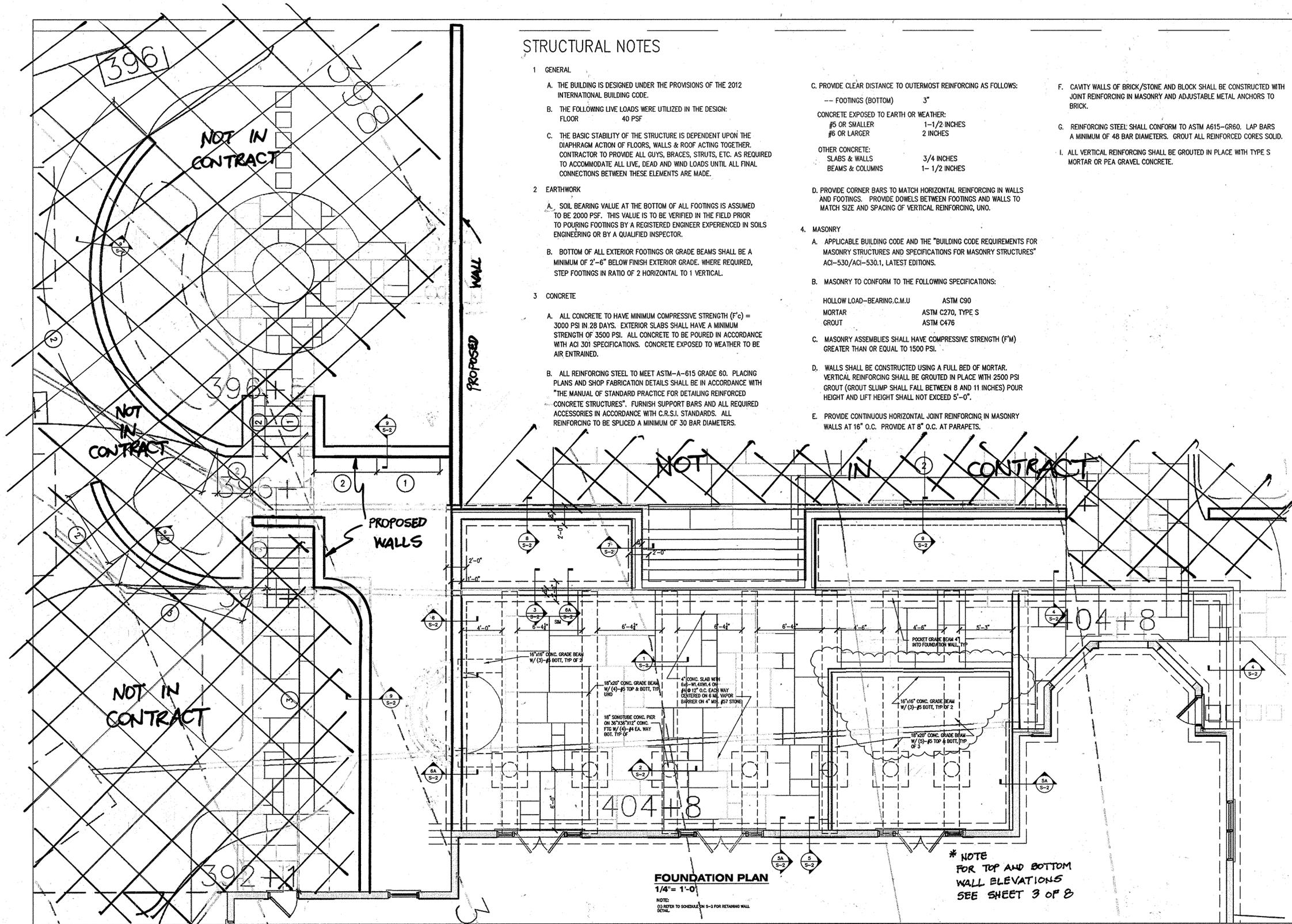
TOPSOIL SHALL BE TESTED AND AMENDED AS PER SOIL TEST RECOMMENDATIONS.

TOPSOIL APPLICATION.

- WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES.
- TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4-8 INCH LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4 INCHES. 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.
- TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL 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.

SEQUENCE OF CONSTRUCTION

- OBTAIN A GRADING PERMIT, 1 DAY
- INSTALL SEDIMENT CONTROLS AS SHOWN ON PLAN IN ACCORDANCE WITH DETAILS, 3 DAYS
- CLEAR AND GRUB SITE TO THE LIMITS OF DISTURBANCE AND MASS GRADE TO SUB-GRADE, 2 DAYS
- INSTALL TEMPORARY SEEDING, 1 DAY
- CONSTRUCT DRYWELL, PAVES, POOL, POOL HOUSE, 8 MONTHS
- PERFORM NECESSARY FINE GRADING AND STABILIZE ENTIRE SITE WITH TOPSOIL AND SEEDING. NOTE: ALL DOWN SPOUTS, SWALES, DITCHES AND OTHER CONCENTRATED FLOW AREAS SHALL RECEIVE EROSION CONTROL MATTING, 3 DAYS
- AFTER SITE IS STABILIZED, CONSTRUCT M-5 DRY WELL #1, M-5 DRY WELL #2, M-5 DRY WELL #3, M-5 DRY WELL #4, M-5 DRY WELL #5, M-5 DRY WELL #6, M-5 DRY WELL #7, M-5 DRY WELL #8, M-7 RAIN GARDEN #1, M-7 RAIN GARDEN #2, M-7 RAIN GARDEN #3, M-7 RAIN GARDEN #4, M-7 RAIN GARDEN #5, M-7 RAIN GARDEN #6, M-7 RAIN GARDEN #7, M-7 RAIN GARDEN #8, M-7 RAIN GARDEN #9, M-7 RAIN GARDEN #10, M-7 RAIN GARDEN #11, M-7 RAIN GARDEN #12, M-7 RAIN GARDEN #13, M-7 RAIN GARDEN #14, M-7 RAIN GARDEN #15, M-7 RAIN GARDEN #16, M-7 RAIN GARDEN #17, M-7 RAIN GARDEN #18, M-7 RAIN GARDEN #19, M-7 RAIN GARDEN #20, M-7 RAIN GARDEN #21, M-7 RAIN GARDEN #22, M-7 RAIN GARDEN #23, M-7 RAIN GARDEN #24, M-7 RAIN GARDEN #25, M-7 RAIN GARDEN #26, M-7 RAIN GARDEN #27, M-7 RAIN GARDEN #28, M-7 RAIN GARDEN #29, M-7 RAIN GARDEN #30, M-7 RAIN GARDEN #31, M-7 RAIN GARDEN #32, M-7 RAIN GARDEN #33, M-7 RAIN GARDEN #34, M-7 RAIN GARDEN #35, M-7 RAIN GARDEN #36, M-7 RAIN GARDEN #37, M-7 RAIN GARDEN #38, M-7 RAIN GARDEN #39, M-7 RAIN GARDEN 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STRUCTURAL NOTES

1. GENERAL
 - A. THE BUILDING IS DESIGNED UNDER THE PROVISIONS OF THE 2012 INTERNATIONAL BUILDING CODE.
 - B. THE FOLLOWING LIVE LOADS WERE UTILIZED IN THE DESIGN:
FLOOR 40 PSF
 - C. THE BASIC STABILITY OF THE STRUCTURE IS DEPENDENT UPON THE DIAPHRAGM ACTION OF FLOORS, WALLS & ROOF ACTING TOGETHER. CONTRACTOR TO PROVIDE ALL GUYS, BRACES, STRUTS, ETC. AS REQUIRED TO ACCOMMODATE ALL LIVE, DEAD AND WIND LOADS UNTIL ALL FINAL CONNECTIONS BETWEEN THESE ELEMENTS ARE MADE.
2. EARTHWORK
 - A. SOIL BEARING VALUE AT THE BOTTOM OF ALL FOOTINGS IS ASSUMED TO BE 2000 PSF. THIS VALUE IS TO BE VERIFIED IN THE FIELD PRIOR TO POURING FOOTINGS BY A REGISTERED ENGINEER EXPERIENCED IN SOILS ENGINEERING OR BY A QUALIFIED INSPECTOR.
 - B. BOTTOM OF ALL EXTERIOR FOOTINGS OR GRADE BEAMS SHALL BE A MINIMUM OF 2'-6" BELOW FINISH EXTERIOR GRADE. WHERE REQUIRED, STEP FOOTINGS IN RATIO OF 2 HORIZONTAL TO 1 VERTICAL.
3. CONCRETE
 - A. ALL CONCRETE TO HAVE MINIMUM COMPRESSIVE STRENGTH (F_c) = 3000 PSI IN 28 DAYS. EXTERIOR SLABS SHALL HAVE A MINIMUM STRENGTH OF 3500 PSI. ALL CONCRETE TO BE POURED IN ACCORDANCE WITH ACI 301 SPECIFICATIONS. CONCRETE EXPOSED TO WEATHER TO BE AIR ENTRAINED.
 - B. ALL REINFORCING STEEL TO MEET ASTM-A-615 GRADE 60. PLACING PLANS AND SHOP FABRICATION DETAILS SHALL BE IN ACCORDANCE WITH "THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", FURNISH SUPPORT BARS AND ALL REQUIRED ACCESSORIES IN ACCORDANCE WITH C.R.S.I. STANDARDS. ALL REINFORCING TO BE SPLICED A MINIMUM OF 30 BAR DIAMETERS.
4. MASONRY
 - A. APPLICABLE BUILDING CODE AND THE "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES AND SPECIFICATIONS FOR MASONRY STRUCTURES" ACI-530/ACI-530.1, LATEST EDITIONS.
 - B. MASONRY TO CONFORM TO THE FOLLOWING SPECIFICATIONS:
HOLLOW LOAD-BEARING C.M.U. ASTM C90
MORTAR ASTM C270, TYPE S
GROUT ASTM C476
 - C. MASONRY ASSEMBLIES SHALL HAVE COMPRESSIVE STRENGTH (F_m) GREATER THAN OR EQUAL TO 1500 PSI.
 - D. WALLS SHALL BE CONSTRUCTED USING A FULL BED OF MORTAR. VERTICAL REINFORCING SHALL BE GROUTED IN PLACE WITH 2500 PSI GROUT (GROUT SLUMP SHALL FALL BETWEEN 8 AND 11 INCHES) POUR HEIGHT AND LIFT HEIGHT SHALL NOT EXCEED 5'-0".
 - E. PROVIDE CONTINUOUS HORIZONTAL JOINT REINFORCING IN MASONRY WALLS AT 16" O.C. PROVIDE AT 8" O.C. AT PARAPETS.
5. PROVIDE CLEAR DISTANCE TO OUTERMOST REINFORCING AS FOLLOWS:
--- FOOTINGS (BOTTOM) 3"
CONCRETE EXPOSED TO EARTH OR WEATHER:
#5 OR SMALLER 1-1/2 INCHES
#6 OR LARGER 2 INCHES
6. CAVITY WALLS OF BRICK/STONE AND BLOCK SHALL BE CONSTRUCTED WITH JOINT REINFORCING IN MASONRY AND ADJUSTABLE METAL ANCHORS TO BRICK.
7. REINFORCING STEEL SHALL CONFORM TO ASTM A615-GR60. LAP BARS A MINIMUM OF 48 BAR DIAMETERS. GROUT ALL REINFORCED CORES SOLID.
8. ALL VERTICAL REINFORCING SHALL BE GROUTED IN PLACE WITH TYPE S MORTAR OR PEA GRAVEL CONCRETE.

OWNER:
JUDY A. GRANT
10606 STRAY CAMEL WAY
COLUMBIA, MD 21044-4151
PHONE: 410-715-9135(W)

BUILDER:
HAGAN AND HAMILTON, INC.
20 E. TIMONIUM ROAD
SUITE 209
TIMONIUM, MD 21093
PHONE: (410) 561-1004

2ND REVISED SHEET 7 OF 8

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
10-16-14
DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Reviewed for HOWARD SCD and meets Technical Requirements.
This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.
Howard Soil Conservation District Date

ENGINEER'S CERTIFICATE
I certify that this structural plan represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of Howard County jurisdiction.
Signature of Engineer (Print Name Below Signature)
Xiaojin Zhang 9/22/14
Date

DEVELOPER'S CERTIFICATE
I/We certify that all development and construction will be done according to this plan, 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 also authorize periodic on-site inspection by the Howard Soil Conservation District.
Signature of Developer
James P. Hagan
Printed name
Date

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22243, EXPIRATION DATE: 02/04/2015.
Signature
Xiaojin Zhang
Print Name
22243
PROFESSIONAL ENGINEER No.
9/22/14
DATE



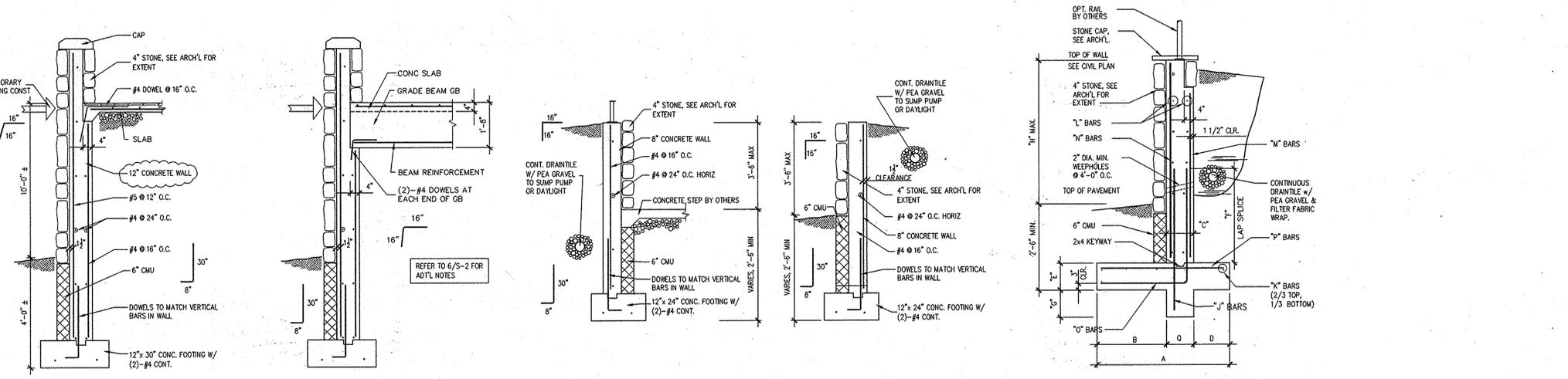
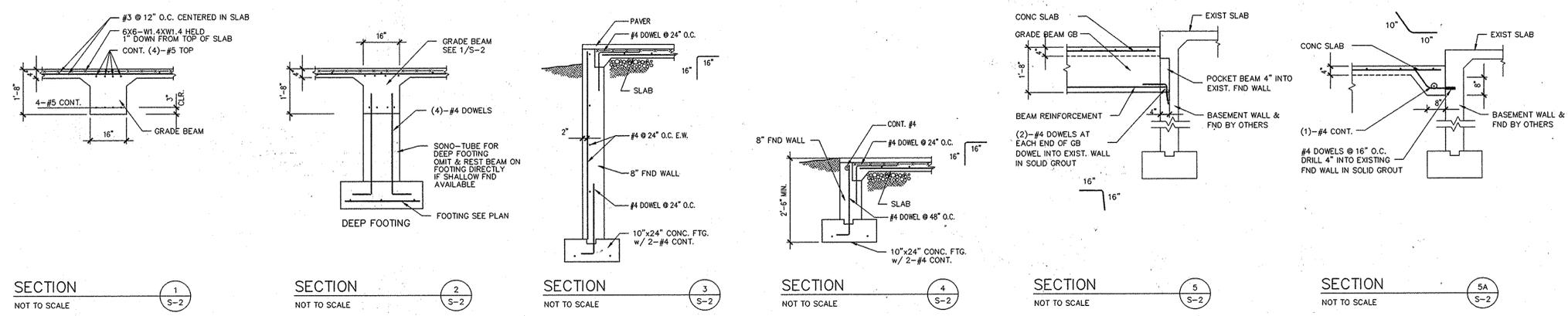
DATE 9-10-2015
REVISION
REMOVED POOL, POOL HOUSE, AND PATIOS BEHIND HOUSE REMOVED
3 DRY WELLS AND 5 MICRO-BIORETENTION FACILITIES - REVISED GRADING IN REAR

JZ
STRUCTURAL CONSULTING, INC.
43130 Amberwood Plaza
Suite 235
Chantilly, VA 20152
PH. (703) 327-9912
FAX (703) 327-8285

WALL PLANS
VILLAGE OF HARPER'S CHOICE - LOT 5
SINGLE FAMILY DWELLING

5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN MARCH 10, 2010 **9-10-15**
COLUMBIA VILLAGE OF HARPER'S CHOICE, SECTION 5, AREA 9, PHASE 1, PLAT 11248

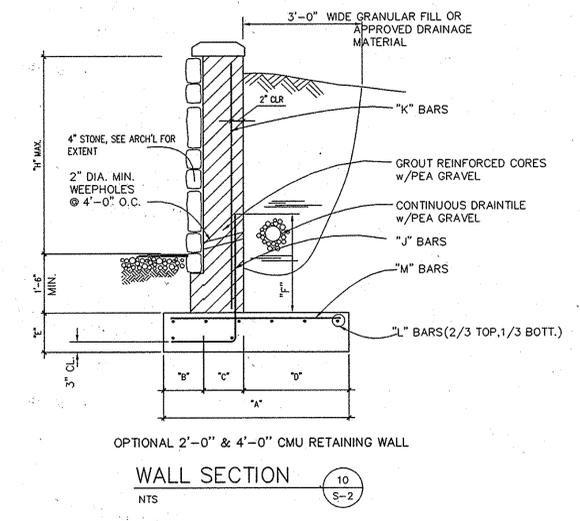
COMPUTED BY: JMB/CVM DRAWN BY: JMB CHECKED BY: JOB No.: HH-056



SECTION 1 NOT TO SCALE S-2
 SECTION 2 NOT TO SCALE S-2
 SECTION 3 NOT TO SCALE S-2
 SECTION 4 NOT TO SCALE S-2
 SECTION 5 NOT TO SCALE S-2
 SECTION 5A NOT TO SCALE S-2
 SECTION 6 NOT TO SCALE S-2
 SECTION 6A NOT TO SCALE S-2
 SECTION 7 SCALE: NTS S-2
 SECTION 8 SCALE: NTS S-2
 WALL SECTION 9 NTS S-2

CONCRETE RETAINING WALL SECTION SCHEDULE										
SECTION	WALL HEIGHT	DIMENSIONS								
		H	A	B	C	D	E	F	G	Q
①	2'-0"	3'-0"	1'-6"	8"	1'-6"	1'-0"	1'-6"	0"	0"	
②	4'-0"	4'-0"	2'-0"	8"	2'-0"	1'-0"	2'-0"	0"	0"	
③	6'-0"	5'-9"	2'-3"	8"	3'-6"	1'-0"	2'-6"	0"	0"	
SECTION	WALL HEIGHT	REINFORCING								
		H	J	K	L	M	N	O	P	
①	2'-0"	-	#4 @ 12"	#4 @ 16"	#4 @ 16"	#4 @ 16"	#4 @ 16"	#4 @ 16"		
②	4'-0"	-	#4 @ 12"	#4 @ 16"	#4 @ 16"	#4 @ 16"	#4 @ 16"	#4 @ 16"		
③	6'-0"	-	#4 @ 12"	#4 @ 16"	#4 @ 16"	#4 @ 16"	#5 @ 10"	#4 @ 16"		

OPTIONAL MASONRY RETAINING WALL SCHEDULE								
WALL HEIGHT	DIMENSIONS							
	H	A	B	C	D	E	F	G
2'-0"	2'-3"	6"	8"	1'-1"	12"	16"	-	-
4'-0"	3'-0"	9"	12"	1'-3"	12"	30"	-	-
WALL HEIGHT	REINFORCING							
	H	J	K	L	M			
2'-0"	#4@32"	#4@32"	3#4	#4@32"				
4'-0"	#5@16"	#4@16"	4#4	#4@16"				



OPTIONAL 2'-0" & 4'-0" CMU RETAINING WALL
 WALL SECTION 10 NTS S-2

OWNER: JUDY A. GRANT
 10606 STRAY CAMEL WAY
 COLUMBIA, MD 21044-4151
 PHONE: 410-715-9135(W)

BUILDER: HAGAN AND HAMILTON, INC.
 20 E. TIMONIUM ROAD
 SUITE 209
 TIMONIUM, MD 21093
 PHONE: (410) 561-1004

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 10-16-14
 DATE

Reviewed for HOWARD SCD and meets Technical Requirements.
 This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.
 Howard Soil Conservation District
 Date

ENGINEER'S CERTIFICATE
 I certify that this structural plan represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of Howard County jurisdiction.
 Signature of Engineer (Print Name Below Signature)
 Xiaojin Zhang
 9/22/14
 Date

DEVELOPER'S CERTIFICATE
 I/We certify that all development and construction will be done according to this plan, 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 also authorize periodic on-site inspection by the Howard Soil Conservation District.
 Signature of Developer
 James P. Hagan
 Printed name
 9/22/14
 Date

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22243, EXPIRATION DATE: 02/04/2015.
 Signature
 Xiaojin Zhang
 PRINT NAME
 22243
 PROFESSIONAL ENGINEER No.
 9/22/14
 DATE



DATE
 REVISION
 JZ
 STRUCTURAL CONSULTING, INC.
 43130 Amberwood Plaza
 Suite 235
 Chantilly, VA 20152
 PH. (703) 327-9912
 FAX (703) 327-8285

WALL PLANS
 VILLAGE OF HARPER'S CHOICE - LOT 5
 SINGLE FAMILY DWELLING
 5TH ELECTION DISTRICT
 SCALE: 1" = 30'
 COLUMBIA VILLAGE OF HARPER'S CHOICE, SECTION 5, AREA 9, PHASE 1, FLAT 1 | 248
 HOWARD COUNTY, MARYLAND
 MARCH 10, 2010
 COMPLETED BY: JMB/CVM
 DRAWN BY: JMB
 CHECKED BY:
 JOB No.: HH-056