

GENERAL NOTES

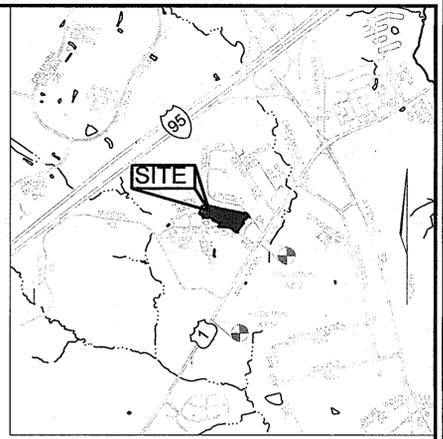
- THE SUBJECT PROPERTY ZONED "R-SC" PER 02/02/04 COMPREHENSIVE ZONING PLAN AND PER THE "COMP LITE" ZONING REGULATION AMENDMENTS EFFECTIVE 7/28/06.
- THIS SITE IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- PUBLIC WATER AND SEWER TO BE UTILIZED. (CONTRACT #24-4625-D, AND 676-S)
- HOWARD COUNTY SOILS MAP NO. 30.
- GROSS AREA OF SITE: 5.894 AC±
- NUMBER OF PROPOSED BUILDABLE LOTS: 33
AREA OF PROPOSED BUILDABLE LOTS: 5.885 AC±
- IN ACCORDANCE WITH SECTION 128 OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, CHIMNEYS OR EXTERIOR STAIRWAYS NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS, PORCHES OR DECKS, OPEN OR ENCLOSED MAY PROJECT NOT MORE THAN 10 FEET INTO THE FRONT OR REAR YARD SETBACK.
- DRIVEWAY(S) SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING REQUIREMENTS:
A) WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE);
B) SURFACE - SIX (6") INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" MINIMUM);
C) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND 45-FOOT TURNING RADIUS;
D) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25-LOADING);
E) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER SURFACE;
F) MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE
- ORIGINAL TOPOGRAPHY IS BASED ON A FIELD RUN SURVEY PREPARED BY WALKER LAND SURVEYS, LLC IN FEBRUARY 2007. MASS GRADED UNDER F-10-037, AND SHOWN HERE AS EXISTING.
- THE TRAFFIC STUDY FOR THIS PROJECT WAS APPROVED UNDER S-08-03, BASED ON AN INVESTIGATION PREPARED BY STREET TRAFFIC STUDIES LTD., IN NOVEMBER 2006. IT WAS DETERMINED THAT THE PROJECT WAS EXEMPT FROM AN APPO TRAFFIC STUDY BECAUSE THE NEAREST REQUIRED INVESTIGATION INTERSECTIONS US 1 & MD 175 (P-152) AND US 1 & PATUXENT RANGE ROAD (P-105) WERE BEYOND THE 1.5 MILE STUDY LIMIT.
- STORMWATER MANAGEMENT PROVIDED UNDER F-10-037.
A SUMMARY FOR THE STORMWATER MANAGEMENT PRACTICES PROVIDED AS FOLLOWS:
CPV BY A MICRO-POOL EXTENDED DETENTION FACILITY
WV BY A SURFACE SAND FILTER AND MICRO-POOL EXTENDED DETENTION FACILITY
REV BY ADDITIONAL STONE STORAGE BENEATH THE SURFACE SAND FILTER.
THE MICRO-POOL SWM FACILITY ON OPEN SPACE LOT 142 (PLAT 11758) SHALL BE PRIVATELY OWNED AND JOINTLY MAINTAINED WITH HOWARD COUNTY. THE SURFACE SAND FILTER SWM FACILITY ON OPEN SPACE LOT 178 SHALL BE PRIVATELY OWNED AND MAINTAINED.
- THE WETLAND LETTER AND REPORT AND THE FOREST STAND DELINEATION AND REPORT WERE PREPARED BY EXPLORATION RESEARCH INC. APPROVED UNDER SKETCH PLAN S-08-03.
- THERE ARE NO HISTORIC STRUCTURES, FLOODPLAINS, STREAMS OR CEMETERIES ON-SITE.
- THE FOLLOWING DPZ FILE REFERENCES APPLY TO THIS PLAN, S-91-04, PB-272, WP-91-55, WP-92-185, WP-93-03, WP-00-74, F-92-146, F-94-93, F-95-05, F-95-32, F-95-158, F-03-10, F-04-09, SDP-03-03, SDP-04-06, SDP-05-50, SDP-05-110, SDP-06-59, SDP-00-117, SDP-02-29, SDP-03-16, SDP-03-145, WP-09-70, S-08-03, P-09-005, F-10-037, CONTRACT #676-S, AND CONTRACT #24-4625-D.
- THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION, OR BUILDING AND GRADING PERMITS.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100-YEAR FLOODPLAIN.
- LANDSCAPING FOR THIS SUBDIVISION IS PROVIDED IN ACCORDANCE WITH A LANDSCAPE PLAN INCLUDED WITH THE ROAD CONSTRUCTION DRAWINGS UNDER HOWARD COUNTY PLAN F-10-037.
- LANDSCAPING ON F-10-037 HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- FOREST CONSERVATION REQUIREMENTS AND SURETY HAVE BEEN PROVIDED UNDER F-10-037.
- ALL EXISTING WELLS AND SEPTIC SYSTEMS HAVE BEEN ABANDONED UNDER F-10-037.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NUMBERS 43EB AND 4366 WERE USED FOR THIS PROJECT. (SEE VICINITY MAP)
- THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE(5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
STATE HIGHWAY ADMINISTRATION 410.531.5533
BGE(CONTRACTOR SERVICES) 410.850.4620
BGE(UNDERGROUND DAMAGE CONTROL) 410.787.9068
MISS UTILITY 1.800.257.7777
COLONIAL PIPELINE COMPANY 410.795.1390
HOWARD COUNTY, DEPT. OF PUBLIC WORKS, BUREAU OF UTILITIES 410.313.4800
HOWARD COUNTY HEALTH DEPARTMENT 410.313.2640
- THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK. ALL FILLS FOR PUBLIC ROAD SURFACES REQUIRE 95% COMPACTION (ASH70-T-180).
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- ALL WATER HOUSE CONNECTIONS SHALL BE FOR OUTSIDE METERING SETTINGS.
- CONTRACTOR TO VERIFY ALL DIMENSIONS IN THE FIELD AND IN CASE OF DISCREPANCY CONTACT THE ENGINEER.
- ALL LANDSCAPING FOR THIS SITE DEVELOPMENT PLAN HAS BEEN PROVIDED UNDER F-10-037.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- SHC (SEWER HOUSE CONNECTION) ELEVATIONS SHOWN ARE LOCATED AT THE PROPERTY LINE.
- FOR DRIVEWAY ENTRANCE DETAILS REFER TO THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD DETAIL R-6.03
- EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS AND AVAILABLE RECORD DRAWINGS. 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.
- BA CAGE NO. 18-022V TO REDUCE THE SIDE SETBACK FROM 7.5 FEET TO ONE (1) FOOT FOR A RETAINING WALL IN A R-SC (RESIDENTIAL SINGLE CLUSTER) ZONING DISTRICT, GRANTED OCTOBER 7, 2013.

SITE DEVELOPMENT PLAN

PLEASANT CHASE PHASE IV

LOTS 144 THROUGH 176

HOWARD COUNTY, MARYLAND



VICINITY MAP
SCALE: 1"=2000'
ADC MAP 5054, C-4

BENCHMARKS			
NO.	NORTHING	EASTING	ELEVATION
43EB	545,963.6476	1,371,573.8400	216.33'
4366	544,117.5286	1,370,550.8447	219.48'

SHEET INDEX	
DESCRIPTION	SHEET NO
COVER SHEET	1 OF 8
SITE DEVELOPMENT AND GRADING PLAN	2 OF 8
SITE DEVELOPMENT AND GRADING PLAN	3 OF 8
SEDIMENT & EROSION CONTROL AND SOILS PLAN	4 OF 8
SEDIMENT & EROSION CONTROL AND SOILS PLAN	5 OF 8
SEDIMENT & EROSION CONTROL NOTES/DETAILS, AND HOUSE TEMPLATES	6 OF 8
HOUSE TEMPLATES	7 OF 8
LOT 170 - RETAINING WALL DETAILS	8 OF 8

PERMIT INFORMATION CHART						
SUBDIVISION NAME		SECTION/ AREA				
PLEASANT CHASE		144-176		PHASE IV		
LOT / PARCELS						
PLAT REF #	BLOCK NO	ZONE	TAX MAP	ELECT DIST	CENSUS TR	
21459 - 21462	8	R-SC	43	6TH	6069.01	

BUILDER
RYAN HOMES
6031 UNIVERSITY BLVD.
SUITE 250
ELLCOTT CITY, MARYLAND 21043
(410) 796-0980

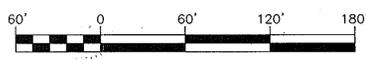
NO.	REVISION	DATE
4	REVISE THE PLAN TO ADD RETAINING WALL TO LOT 170, ADD GENNOTE 3A	07/30/13
1	REVISE GENERIC BOX TYPES & ASSOCIATED GRADING	9/26/11



SITE DATA

LOCATION: TAX MAP 43, GRID 8, PARCELS 211, 492, 493, 494, 622
6TH ELECTION DISTRICT
EXISTING ZONING: R-SC
TOTAL AREA OF PROJECT: 5.893 AC
TOTAL AREA OF PLAN SUBMISSION: AREA OF BUILDABLE LOTS: 5.893 AC
LIMIT OF DISTURBED AREA: 5.592 AC±
TOTAL NUMBER OF UNITS/ LOTS PROPOSED FOR THIS SUBDIVISION: 33 UNITS/ LOTS
PROPOSED USES FOR SITE & STRUCTURES: SINGLE FAMILY DETACHED DWELLINGS
OPEN SPACE ON SITE: ADEQUATELY PROVIDED UNDER F-10-037
BUILDING COVERAGE OF SITE: 1.492 ACRES± OR 25.31% OF GROSS AREA.
PREVIOUS DPZ FILE REFERENCE NO.: S-91-04, PB-272, WP-91-55, WP-92-185, WP-93-03, WP-00-74, F-92-146, F-94-93, F-95-05, F-95-32, F-95-158, F-03-10, F-04-09, SDP-93-103, SDP-94-06, SDP-95-50, SDP-95-110, SDP-96-59, SDP-00-117, SDP-02-29, SDP-03-16, SDP-03-145, WP-09-70, S-08-03, P-09-005, F-10-037, 676-S, 24-4625-D.

LOCATION MAP
SCALE: 1" = 60'



ADDRESS CHART

LOT NO	STREET ADDRESS	LOT NO	STREET ADDRESS
144	8403 JACQUELINE COURT	161	8482 JACQUELINE COURT
145	8407 JACQUELINE COURT	162	8478 JACQUELINE COURT
146	8411 JACQUELINE COURT	163	8474 JACQUELINE COURT
147	8415 JACQUELINE COURT	164	8470 JACQUELINE COURT
148	8419 JACQUELINE COURT	165	8466 JACQUELINE COURT
149	8423 JACQUELINE COURT	166	8462 JACQUELINE COURT
150	8427 JACQUELINE COURT	167	8458 JACQUELINE COURT
151	8431 JACQUELINE COURT	168	8454 JACQUELINE COURT
152	8435 JACQUELINE COURT	169	8450 JACQUELINE COURT
153	8439 JACQUELINE COURT	170	8155 HICKS ROAD
154	8443 JACQUELINE COURT	171	8446 JACQUELINE COURT
155	8447 JACQUELINE COURT	172	8442 JACQUELINE COURT
156	8451 JACQUELINE COURT	173	8438 JACQUELINE COURT
157	8455 JACQUELINE COURT	174	8434 JACQUELINE COURT
158	8459 JACQUELINE COURT	175	8430 JACQUELINE COURT
159	8463 JACQUELINE COURT	176	8426 JACQUELINE COURT
160	8467 JACQUELINE COURT		

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 3/22/11 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION
[Signature] 4/14/11 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT
[Signature] 4/19/11 DATE
DIRECTOR

SITE DEVELOPMENT PLAN
COVER SHEET
PLEASANT CHASE - PHASE IV
LOTS 144 THROUGH 176
SINGLE-FAMILY DETACHED
TAX MAP 43 GRID 8
6TH ELECTION DISTRICT
PARCELS 211, 492, 493, 494, 622
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERS, SURVEYORS & PLANNERS
8407 MAIN STREET
ELLCOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

PROFESSIONAL CERTIFICATE
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 UNDER NO. 1813 EXPIRATION DATE 09-27-2015
DESIGN BY: JCO
DRAWN BY: RVS
CHECKED BY: RVS
DATE: FEBRUARY, 2011
SCALE: AS SHOWN
W.O. NO.: 10-32
1 SHEET OF 8
ROBERT H. VOGEL, PE No.16193



LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING SPOT ELEVATION
- DIRECTION OF FLOW
- EXISTING TREES (PER F-10-037)
- EXISTING TREES TO REMAIN
- EXISTING SIGN
- STREET LIGHT
- FIRE HYDRANT
- LOT LINES
- BOUNDARY LINE
- EXISTING WATER MAIN
- EXISTING SEWER MAIN
- EXISTING STORMDRAIN
- CENTERLINE OF ROAD
- EXISTING RIP-RAP
- EXISTING SAND FILTER
- EXISTING USE-IN-COMMON ACCESS EASEMENT
- EXISTING STORMDRAIN, DRAINAGE & UTILITY EASEMENT
- EXISTING SURFACE DRAINAGE EASEMENT
- EXISTING STREET TREE EASEMENT
- EXISTING SEWER EASEMENT
- EXISTING HOUSE/ BUILDING
- GENERIC BOX
- EXISTING UTILITY POLE TO REMAIN

NOTE:
EASEMENTS SHOWN ON-SITE HAVE BEEN ESTABLISHED AND RECORDED ON PLAT #21460

BUILDER
RYAN HOMES
6031 UNIVERSITY BLVD.
SUITE 250
ELLCOTT CITY, MARYLAND 21043
(410) 796-0980

NO.	REVISION	DATE
1	REVISE GENERIC BOX TYPES & ASSOCIATED GRADING	08/11/11

REVISED SITE DEVELOPMENT PLAN
SITE DEVELOPMENT AND GRADING PLAN
PLEASANT CHASE - PHASE IV
LOTS 144 THROUGH 176
SINGLE-FAMILY DETACHED
TAX MAP 43 GRID 8 PARCELS 211, 492, 493, 494, 622
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET TEL: 410.461.7866
ELLCOTT CITY, MD 21043 FAX: 410.461.2991

PROFESSIONAL CERTIFICATE
DESIGN BY: JCO
DRAWN BY: HS
CHECKED BY: RHV
DATE: FEBRUARY, 2011
SCALE: 1" = 30'
W.O. NO.: 10-32

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. 16193, EXPIRATION DATE 09-27-2015.

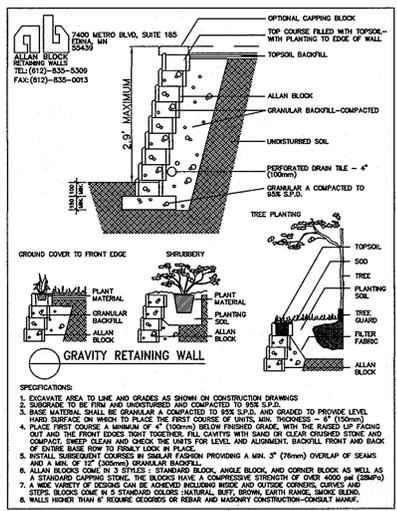
2 SHEET OF 8

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Chad P. ... 4/24/12
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
Mark P. ... 5/1/12
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
Mark P. ... 5/1/12
 DIRECTOR DATE

BY THE DEVELOPER:
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR EROSION AND SEDIMENT CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.
[Signature] 2/12/12
 SIGNATURE OF DEVELOPER DATE

BY THE ENGINEER:
 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] 2/12/12
 SIGNATURE OF ENGINEER DATE

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



TYP. GRAVITY WALL OR EQUAL

1. EXCAVATE AREA TO LINE AND GRADES AS SHOWN ON CONSTRUCTION DRAWINGS.
 2. SUBGRADE TO BE FIRM AND UNDISTURBED AND COMPACTED TO 95% P.C.
 3. BASE MATERIAL SHALL BE GRANULAR BACKFILL TO 30" S.P.C. AND GRADED TO PROPOSED LEVEL.
 4. HAVING SURFACE ON WHICH TO PLACE THE FIRST COURSE OF UNITS. "P.C." MEANS PERCENTAGE OF UNITS TO BE PLACED OUT AND THE FRONT EDGES TIGHT TOGETHER. FILL CAVITIES WITH SAND OR CLEAR CRUSHED STONE AND COMPACT. THESE CLEAR AND COVER THE UNITS FOR LEVEL AND ADJUSTMENTS. BACKFILL FRONT AND BACK OF ENTIRE BASE ROW TO FIRMLY LOCK IN PLACE.
 5. INSTALL SUBSEQUENT COURSES IN SIMILAR MANNER PROVIDING A MIN. 3" (75mm) OVERLAP OF SEAMS AND A MIN. OF 12" (300mm) GRANULAR BACKFILL.
 6. ALLAN BLOCKS COME IN 3 TYPES: STANDARD BLOCK, ANGLE BLOCK, AND CORNER BLOCK AS WELL AS A STANDARD CAPPING STONE. THE BLOCKS HAVE A COMPRESSIVE STRENGTH OF OVER 4000 PSI (280 MPa). A WIDE VARIETY OF COLORS CAN BE ORDERED INCLUDING BROWN AND OUTSIDE CORNERS, CURVES AND STEPS. BLOCKS COME IN 5 STANDARD COLORS: NATURAL BUFF, BROWN, EARTH TANG, SAND, BLENDED.
 7. ALL WALLS HIGHER THAN 4' REQUIRE RECORDS OR RETAIN AND MAINTENANCE CONSTRUCTION-CORRECT MAINT.

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- DIRECTION OF FLOW
- EXISTING TREES (PER F-10-037)
- EXISTING TREES TO REMAIN
- EXISTING SIGN
- STREET LIGHT
- FIRE HYDRANT
- LOT LINES
- BOUNDARY LINE
- EXISTING WATER MAIN
- EXISTING SEWER MAIN
- EXISTING STORMDRAIN
- CENTERLINE OF ROAD
- EXISTING RIP-RAP
- EXISTING SAND FILTER
- EXISTING USE-IN-COMMON ACCESS EASEMENT
- EXISTING STORMDRAIN DRAINAGE & UTILITY EASEMENT
- EXISTING SURFACE DRAINAGE EASEMENT
- EXISTING STREET TREE EASEMENT
- EXISTING SEWER EASEMENT
- EXISTING HOUSE/ BUILDING
- GENERIC BOX
- EXISTING UTILITY POLE TO REMAIN

NOTE: EASEMENTS SHOWN ON-SITE HAVE BEEN ESTABLISHED AND RECORDED ON PLAT #21461

BUILDER
 RYAN HOMES
 6031 UNIVERSITY BLVD.
 SUITE 250
 ELLICOTT CITY, MARYLAND 21043
 (410) 796-0980

NO.	REVISION	DATE
4	REVISE THE PLAN TO ADD RETAINING WALL TO LOT 170	01/30/13
3	REVISE TO CHANGE THE HOUSE TYPE ON LOT 159; REVISE GRADING TO	03/11/13
2	REVISE TO CHANGE THE HOUSE TYPE ON LOT 170; REVISE GRADING AND RETAINING WALL	02/25/13
1	REVISE GENERIC BOX TYPES & ASSOCIATED GRADING	08/11/11

REVISED SITE DEVELOPMENT PLAN
SITE DEVELOPMENT AND GRADING PLAN
PLEASANT CHASE - PHASE IV
 LOTS 144 THROUGH 176
 SINGLE-FAMILY DETACHED
 TAX MAP 43 GRID 8 PARCELS 211, 492, 493, 494, 622
 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET ELLICOTT CITY, MD 21043 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: JCO
 DRAWN BY: HS
 CHECKED BY: RHV
 DATE: FEBRUARY, 2011
 SCALE: 1" = 30'
 W.O. NO.: 10-32

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE 09-27-2014

STATE OF MARYLAND PROFESSIONAL ENGINEER
 ROBERT H. VOGEL, PE No. 16193

3 SHEET OF 8

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director

4/24/12
 5/10/12
 5/1/12

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

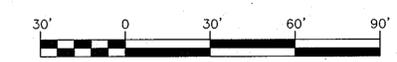
Signature of Developer: [Signature]
 Date: 2/22/12

BY THE ENGINEER:
 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 Engineer: [Signature]
 Date: 2/21/12

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

Signature: [Signature]
 Date: [Date]





LEGEND

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- PROPOSED CONTOUR
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- EXISTING STREET TREE EASEMENT
- EXISTING SEWER EASEMENT
- EXISTING HOUSE/ BUILDING
- GENERIC BOX
- STABILIZED CONSTRUCTION ENTRANCE
- SUPER SILT FENCE
- SILT FENCE
- LIMIT OF DISTURBANCE
- NOISE PROTECTION
- SOIL DUNE
- EXISTING UTILITY POLE TO REMAIN

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP
KHC2	KEYPORT SILT LOAM, 3 TO 10 PERCENT SLOPES, MODERATELY ERODED	C
luB	ILUKA LOAM, LOCAL ALLUVIUM, 1 TO 5 PERCENT SLOPES	C
ScB	SANDY AND CLAYEY LOAM, GENTLY SLOPING	C
SC2	SASSAFRAS GRAVELLY SANDY LOAM, 5 TO 10 PERCENT SLOPES, MODERATELY ERODED	B
SIB2	SASSAFRAS LOAM, 1 TO 5 PERCENT SLOPES, MODERATELY ERODED	B
SsE	SASSAFRAS LOAM, 15 TO 40 PERCENT SLOPES	B

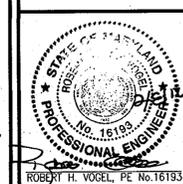
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 ELLICOTT CITY, MARYLAND 21043
 (410) 796-0980

NO.	REVISION	DATE
1	REVISE GENERIC BOX TYPES & ASSOCIATED GRADING	08/11/11

REVISED SITE DEVELOPMENT PLAN
SEDIMENT & EROSION CONTROL AND SOILS PLAN
PLEASANT CHASE - PHASE IV
 LOTS 144 THROUGH 176
 SINGLE-FAMILY DETACHED
 PARCELS 211, 492, 493, 494, 622
 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET ELLICOTT CITY, MD 21043
 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: JCO
 DRAWN BY: HS
 CHECKED BY: RHW
 DATE: FEBRUARY, 2011
 SCALE: 1" = 30'
 W.O. NO.: 10-32



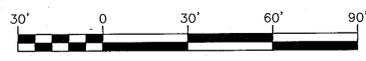
PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16153, EXPIRATION DATE 06-27-2012.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director

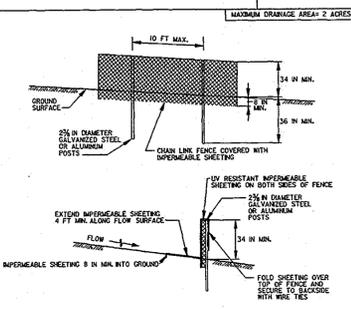
BY THE DEVELOPER:
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING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

BY THE ENGINEER:
 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.

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



DETAIL C-9 DIVERSION FENCE



- CONSTRUCTION SPECIFICATIONS**
- USE 42 INCH HIGH 9 GAUGE OR HEAVIER CHAIN LINK FENCING 2 3/8 INCH MAXIMUM DIAMETER.
 - USE 3/8 INCH DIAMETER GALVANIZED STEEL OR ALUMINUM POSTS WITH SPACING NOT TO EXCEED 10 FEET. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
 - FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
 - SECURE 1/2 IN. OR BETTER IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP AND BOTTOM, AND BELIEVE GROUND SURFACE.
 - EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND ENDED A MINIMUM OF 8 INCHES INTO GROUND.
 - WHEN TWO SECTIONS OF SHEETING ADJACENT EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNWATER.
 - INSPECT AND PERFORM MAINTENANCE PERIODICALLY AND AFTER EACH RAIN EVENT.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE
 MARYLAND DEPARTMENT OF ENVIRONMENT AND GENERAL SERVICES WATER MANAGEMENT ADMINISTRATION

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- DIRECTION OF FLOW
- EXISTING TREES (PER F-10-037)
- EXISTING TREES TO REMAIN
- EXISTING SIGN
- STREET LIGHT
- FIRE HYDRANT
- LOT LINES
- BOUNDARY LINE
- EXISTING WATER MAIN
- EXISTING SEWER MAIN
- EXISTING STORMDRAIN
- CENTERLINE OF ROAD
- EXISTING RIP-RAP
- EXISTING SAND FILTER
- EXISTING USE-IN-COMMON ACCESS EASEMENT
- EXISTING STORMDRAIN DRAINAGE & UTILITY EASEMENT
- EXISTING SURFACE DRAINAGE EASEMENT
- EXISTING STREET TREE EASEMENT
- EXISTING SEWER EASEMENT
- EXISTING HOUSE / BUILDING
- GENERIC BOX
- STABILIZED CONSTRUCTION ENTRANCE
- SUPER SILT FENCE
- SILT FENCE
- LIMIT OF DISTURBANCE
- INLET PROTECTION
- SOIL DNDE
- EXISTING UTILITY POLE TO REMAIN

NOTE: EASEMENTS SHOWN ON-SITE HAVE BEEN ESTABLISHED AND RECORDED ON PLAT #21461

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP
KhC2	KEYPORT SILT LOAM, 3 TO 10 PERCENT SLOPES, MODERATELY ERODED	C
lUb	IUKA LOAM, LOCAL ALLUVIUM, 1 TO 5 PERCENT SLOPES	C
ScB	SANDY AND CLAYEY LOAM, GENTLY SLOPING	C
SIC2	SASSAFRAS GRAVELLY SANDY LOAM, 5 TO 10 PERCENT SLOPES, MODERATELY ERODED	B
SIB2	SASSAFRAS LOAM, 1 TO 5 PERCENT SLOPES, MODERATELY ERODED	B
S4E	SASSAFRAS LOAM, 15 TO 40 PERCENT SLOPES	B

BUILDER

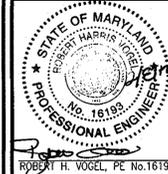
RYAN HOMES
 6031 UNIVERSITY BLVD.
 SUITE 250
 ELLICOTT CITY, MARYLAND 21043
 (410) 796-0980

NO.	REVISION	DATE
3	REVISE TO CHANGE THE HOUSE TYPE ON LOT 159, REVISE GROUND TO	03/11/13
2	REVISE TO CHANGE THE HOUSE TYPE ON LOT 178, REVISE GROUND AND R/W WALL	02/01/13
1	REVISE GENERIC BOX TYPES & ASSOCIATED GRADING	08/11/11

REVISED SITE DEVELOPMENT PLAN
 SEDIMENT & EROSION CONTROL
 AND SOILS PLAN
 PLEASANT CHASE - PHASE IV

LOTS 144 THROUGH 176
 SINGLE-FAMILY DETACHED
 TAX MAP 43 GRID 8 PARCELS 211, 492, 493, 494, 622
 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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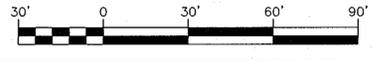
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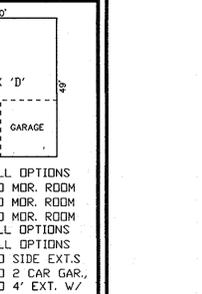
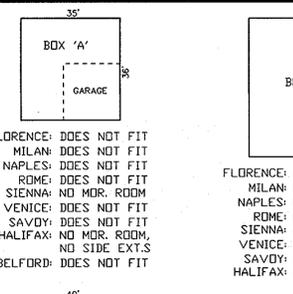
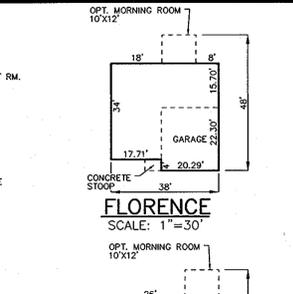
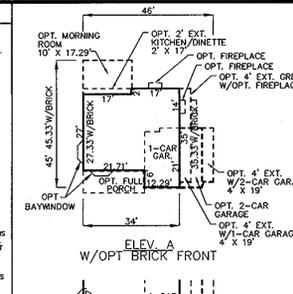
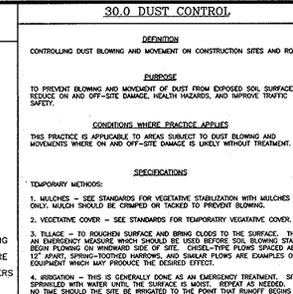
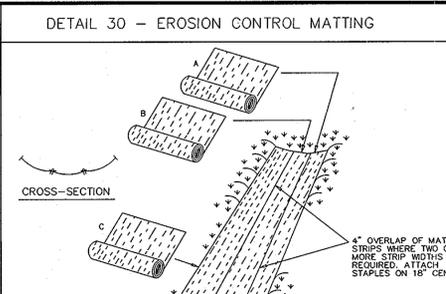
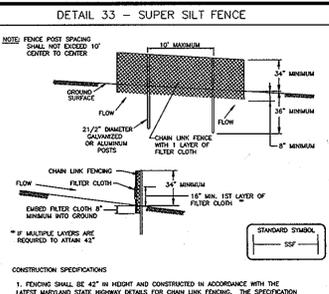
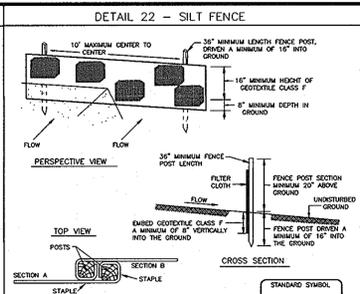
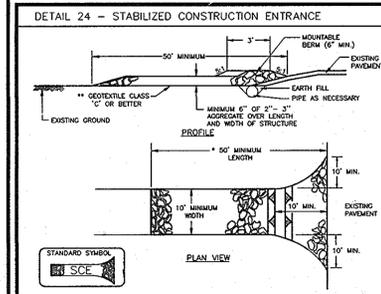
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 4/24/12
 CHIEF, DEVELOPMENT ENGINEERING DIVISION & DATE
 [Signature] 5/1/12
 CHIEF, DIVISION OF LAND DEVELOPMENT & DATE
 [Signature] 5/1/12
 DIRECTOR & DATE

BY THE DEVELOPER:
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."
 [Signature] 2/22/12
 SIGNATURE OF DEVELOPER & DATE

BY THE ENGINEER:
 "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] 4/16/12
 SIGNATURE OF ENGINEER & DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 4/16/12
 HOWARD S.C.D. & DATE





CONSTRUCTION SPECIFICATIONS

- LENGTH - MINIMUM OF 50' (30' FOR A SINGLE RESIDENCE LOT).
- WIDTH - MINIMUM, SHOULD BE FLARED AT END TO PROVIDE A TURNING RADIUS.
- GEOTEXTILE FABRIC (OTHER CLASS) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. THE FABRIC MUST BE SEWN TOGETHER TO PREVENT ANY GAPS.
- FAMILY ROOMS - CHANGED APPROXIMATE 12' TO 10' OR RECLAIMED OR RECYCLED CONCRETE TO THE ENTRANCE.
- SOIL AMENDMENTS - ALL EXPOSED SOIL TO BE AMENDED TO PREVENT FERTILIZER BURNING. FERTILIZER SHOULD BE APPLIED TO THE ENTIRE LENGTH OF THE ENTRANCE.
- SEEDING - SEED SHALL BE APPLIED TO THE ENTIRE LENGTH OF THE ENTRANCE. SEED SHALL BE APPLIED TO THE ENTIRE LENGTH OF THE ENTRANCE.
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CONSTRUCTION SPECIFICATIONS

- FENCE POSTS SHALL BE A MINIMUM OF 3/4" DIA. 12' MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 1 1/2" DIA. 12' MINIMUM INTO THE GROUND. STEEL POSTS SHALL BE 1 1/2" DIA. 12' MINIMUM INTO THE GROUND.
- GEOTEXTILE FABRIC SHALL BE FASTENED TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT 18" INTERVALS.
- SOIL AMENDMENTS - ALL EXPOSED SOIL TO BE AMENDED TO PREVENT FERTILIZER BURNING. FERTILIZER SHOULD BE APPLIED TO THE ENTIRE LENGTH OF THE ENTRANCE.
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CONSTRUCTION SPECIFICATIONS

- CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES OR STAPLES AT 18" INTERVALS.
- SOIL AMENDMENTS - ALL EXPOSED SOIL TO BE AMENDED TO PREVENT FERTILIZER BURNING. FERTILIZER SHOULD BE APPLIED TO THE ENTIRE LENGTH OF THE ENTRANCE.
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CONSTRUCTION SPECIFICATIONS

- 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".
- Staple the 4" overlap in the channel center using an 18" spacing between staples.
- Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
- Staples shall be placed 2" apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
- 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". sniplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.
- The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

DETAIL 23B - AT GRADE INLET PROTECTION

- Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.
- Place 3/4" x 1 1/2" stone, 4"-6" thick on the grate to secure the fabric and provide additional filtration.

CONSTRUCTION SPECIFICATIONS

- 1.5" HMA SUPERPAVE FINAL SURFACE (3" MIN. OVER 1" HMA SUPERPAVE BASE 19.0% PG 42-22, LEVEL 1 (EQA))
- 3.0" HMA SUPERPAVE BASE 19.0% PG 42-22, LEVEL 1 (EQA)
- 5.0" GRADED AGGREGATE BASE (GAB)

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- 5.0" GRADED AGGREGATE BASE (GAB)

PERMANENT SEEDING NOTES

- APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.
- SEEDING PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.
- SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:
1. PRECROPPED: APPLY 2 TONS/ACRE DOLOMITE LIME (92 IBS/1000 SQ. FT.) AND 600 IBS/ACRE 10-10-10 FERTILIZER (14 IBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL AT TIME OF SEEDING, APPLY 400 IBS/ACRE 0-0-0 UREA/UREA SOIL (10 IBS/1000 SQ. FT.)
2. ACCEPTABLE: APPLY 2 TONS/ACRE DOLOMITE LIME (92 IBS/1000 SQ. FT.) AND 1000 IBS/ACRE 10-10-10 FERTILIZER (23 IBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.
- SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 IBS/ACRE (1.4 IBS/1000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 IBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 IBS/ACRE (0.5 IBS/1000 SQ. FT.) OF WEEDS LOWGRASS. DURING THE PERIOD OF OCTOBER 15 THRU FEBRUARY 28, PROJECT 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 SOU.
- OPTION 3: SEED WITH 60 IBS/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 IBS/1000 SQ. FT.) OF UNWEEDED SMALL GRASS 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, OR 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.

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 VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW pH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL LIMITATIONS.

CONSTRUCTION SPECIFICATIONS

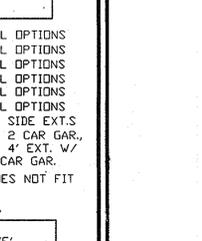
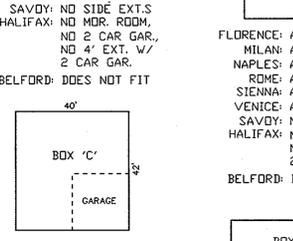
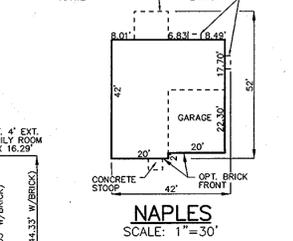
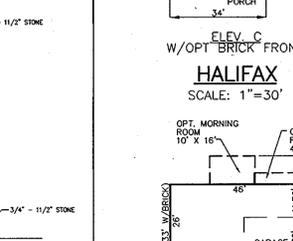
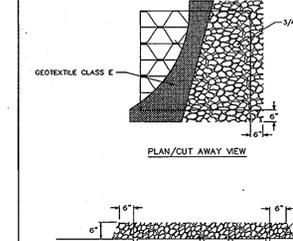
- THE PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES.
- A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL SHALL BE LOAM OR BETTER.
- B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE OF PLANTS WILL BE SUPPORTED TO A DEPTH OF 24 INCHES.
- C. CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
- D. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIALS WHICH ARE TOXIC TO PLANTS.
- E. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS REQUIRED TO RAISE THE pH TO 6.0 OR HIGHER.
- F. THE SOIL IS SO SALINE THAT TREATMENT WITH SODIUM SULFATE OR OTHER SALTS IS REQUIRED TO REDUCE THE SALINITY TO 1.0 PERCENT BY WEIGHT.
- G. TOPSOIL HAVING A FINER SAND CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
- H. SOU SHOULD BE USED AS A MULCH WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS TO PREVENT WEED GROWTH. REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6" APART IN A STAGGERED PATTERN ON EITHER SIDE.
- I. THE DISCHARGE END OF THE MATTING LINER SHOULD BE SIMILARLY SECURED WITH 2 DOUBLE ROWS OF STAPLES.

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. 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.
- 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 APPROVED BY THE COUNTY ENGINEER, AGRONOMIST OR A SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, REGARDLESS OF THE SOIL TYPE.
- II. TOPSOIL SHALL NOT BE A Mixture of contrasting textured subsols and shall contain less than 5% by weight of cinders, stones, 3/4" concrete fragments, gravel, sticks, roots, trash, or other materials larger than 1/2" in diameter.
- III. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BRANDED GRASS, QUACKERS, JOHNSONGRASS, NUTCRACK, POISON Ivy, THISTLE, OR OTHERS AS SPECIFIED ON THE SOIL SURVEY. SOILS WITH A HIGH PERCENTAGE OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-6 TONS/ACRE (200-300 IBS/1000 SQ. FT.) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMITY OVER THE AREA AND WORKED INTO THE SOIL IN CONJUNCTION WITH THE OPERATIONS AS DESCRIBED IN THE FOLLOWING SPECIFICATIONS:
- IV. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES: A. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND 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 AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

- WHEN TOPSOIL IS USED TO MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION TRAPS AND BASINS.
- GRADES ON THE AREAS TO BE TOPSOILED WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED ALBERT 4"-8" HIGHER IN ELEVATION.
- TOPSOIL SHALL BE UNIFORMITY DISTRIBUTED IN A 4"-8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4".
- SEEDING 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 POOLS.
- TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MOIST CONDITION, WHEN SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRASSING AND SEEDING PREPARATION.
- ALTERNATIVE TO PREVENT DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
- I. COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
- A. COMPOSTED SLUDGE SHALL BE SUPPLIED BY OR ORIGINATE FROM A PERSON OR PERSONS THAT ARE PERMITTED (AT THE DISCRETION OF THE COUNTY ENGINEER) TO APPLY TO THE DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.
- B. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 10 TONS PER ACRE (200 IBS/1000 SQ. FT.) PRIOR TO USE.
- C. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1000 SQUARE FEET.
- II. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.



PERMANENT SEEDING NOTES

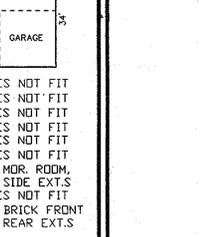
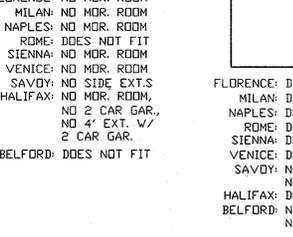
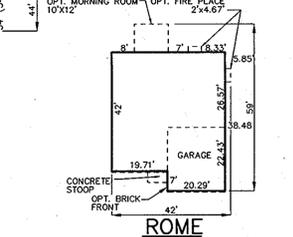
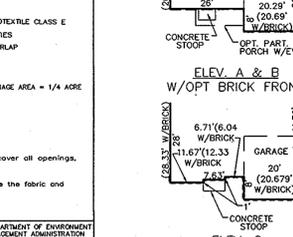
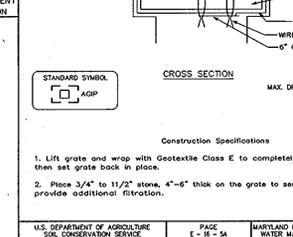
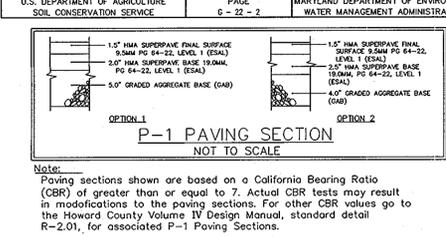
- APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE RE-DISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.
- SEEDING PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.
- SOIL AMENDMENTS: APPLY 600 IBS/ACRE 10-10-10 FERTILIZER (14 IBS/1000 SQ. FT.).
- SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 2-1/2 TONS PER ACRE OF ANNUAL RYE (4.5 IBS/1000 SQ. FT.). FOR THE PERIOD MAY 1 - AUGUST 14, SEED WITH 3 IBS/ACRE OF WEEPING LOWGRASS (0.7 IBS/1000 SQ. FT.) FOR THE PERIOD NOVEMBER 15 - FEBRUARY 28, PROJECT 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 SOU.
- MULCHING: APPLY 1-1/2 TO 2 TONS/ACRE (70 TO 90 IBS/1000 SQ. FT.) OF UNWEEDED SMALL GRASS 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, OR SLOPE 8 FT. OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ. FT.) FOR ANCHORING.
- REFER TO THE 1994 MARLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

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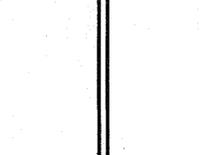
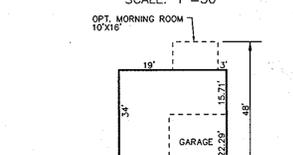
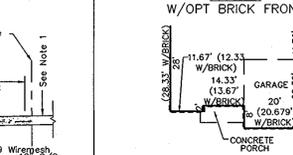
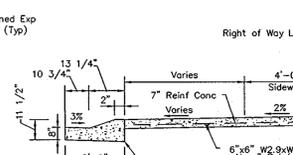
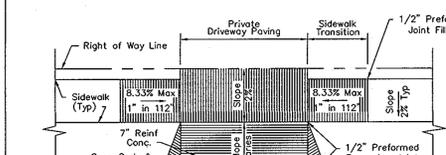
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- SITE ANALYSIS:

LOT NO.	8" SEWER MAIN INV. @ SHC	HOUSE CONNECT TYPE	4" SHC INV. @ SHC	SHC INV. @ RIGHT-OF-WAY LINE*	MINIMUM CELLAR ELEVATION	DESIGNED BASEMENT ELEVATION
144	272.28	DROP	277.85	278.54	283.04	284.41
145	271.51	DROP	277.84	278.61	283.04	283.30
146	270.74	STANDARD	270.91	271.69	277.94	280.24
147	270.48	STANDARD	270.65	271.41	277.33	280.24
148	269.84	DROP	275.47	276.13	280.04	281.44
149	268.81	DROP	272.64	273.34	280.03	280.03
150	268.70	DROP	269.70	270.48	275.07	277.36
151	265.13	STANDARD	265.30	266.01	265.23	273.79
152	263.41	STANDARD	263.57	264.23	268.70	270.56
153	260.00	STANDARD	260.17	260.81	265.23	266.73
154	255.14	STANDARD	255.31	255.95	260.34	262.75
155	250.28	STANDARD	250.45	251.09	249.95	249.95
156	246.35	STANDARD	246.52	247.16	251.54	254.43
157	240.52	DROP	243.30	243.94	248.34	250.24
158	235.43	DROP	238.96	240.11	244.04	247.35
159	233.17	DROP	236.10	237.33	241.44	244.57
160	226.48	SMH2	230.10	230.40	234.75	240.24
161	231.81	DROP	234.95	235.67	240.74	241.48
162	228.48	SMH2	228.81	229.17	235.04	235.78
** 163	235.62	STANDARD	235.45	236.37	240.50	241.11
** 167	243.93	STANDARD	244.10	244.46	249.07	251.29
** 168	237.48	STANDARD	237.31	238.17	242.09	248.95
** 170	237.98	STANDARD	237.81	238.64	243.03	250.71
** 170	238.76	STANDARD	238.59	239.39	243.20	256.81
171	251.09	STANDARD	251.26	251.62	256.05	257.25
172	255.95	STANDARD	256.12	256.48	260.94	261.25
173	260.81	STANDARD	260.98	261.34	266.34	266.65
174	263.70	DROP	263.87	264.20	269.10	270.90
175	265.86	STANDARD	265.86	270.34	273.91	273.91
176	268.99	STANDARD	270.85	271.09	275.74	277.14

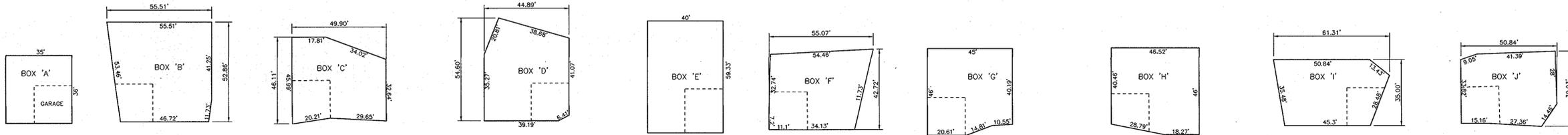
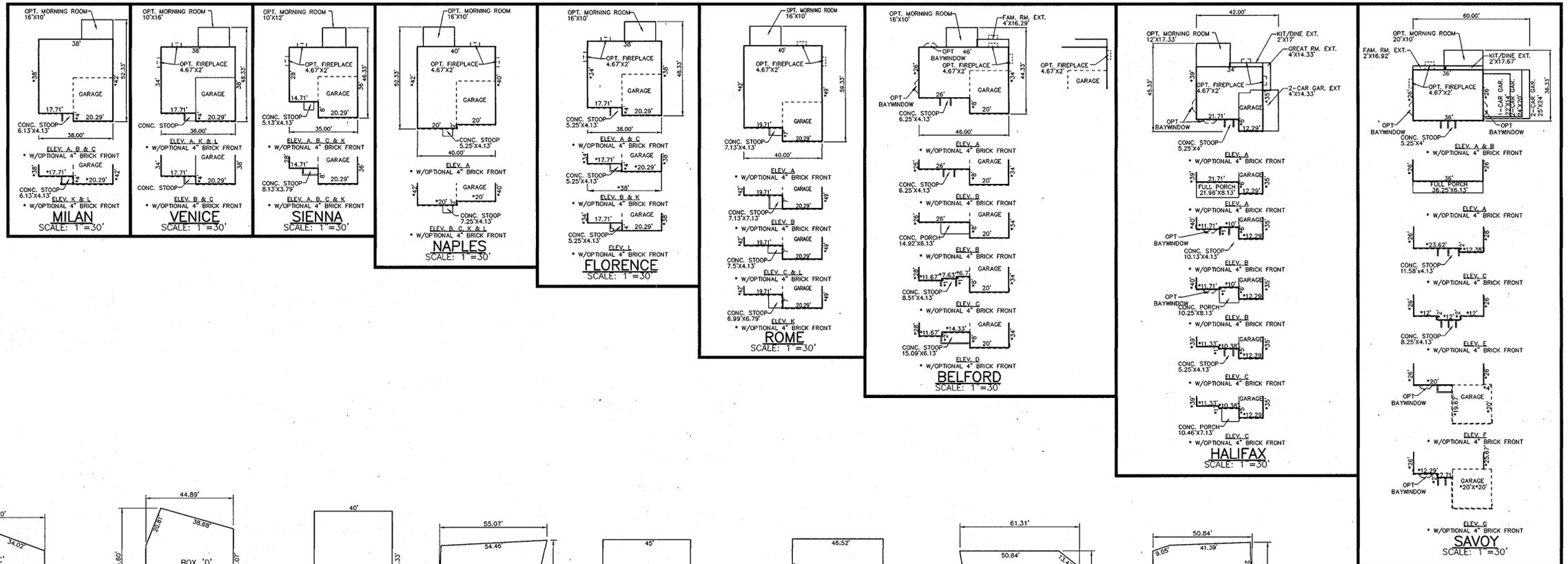
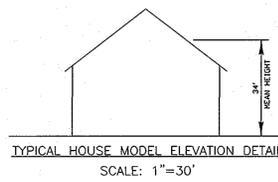
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FLORENCE: DOES NOT FIT
MILAN: DOES NOT FIT
NAPLES: DOES NOT FIT
ROME: DOES NOT FIT
SIENNA: NO MOR. ROOM
VENICE: DOES NOT FIT
SAVOY: DOES NOT FIT
HALIFAX: NO MOR. ROOM,
NO SIDE EXT.S
BELFORD: DOES NOT FIT

FLORENCE: ALL OPTIONS
MILAN: ALL OPTIONS
NAPLES: ALL OPTIONS
ROME: NO MOR. RM
SIENNA: ALL OPTIONS
VENICE: ALL OPTIONS
SAVOY: NO 2-CAR GAR. 20'X24'
NO 2-CAR GAR. 22'X24'
NO 2-CAR GAR. 24'X25'
NO ELV.F W/MOR. RM.
NO ELV.G W/MOR. RM.
HALIFAX: ALL OPTIONS
BELFORD: ALL OPTIONS

FLORENCE: NO MOR. RM
MILAN: NO BRICK FRONT
NAPLES: DOES NOT FIT
ROME: DOES NOT FIT
SIENNA: NO MOR. RM
VENICE: NO MOR. RM
SAVOY: NO MOR. RM
NO BRICK FRONT
HALIFAX: NO MOR. RM.
NO BRICK FRONT
BELFORD: DOES NOT FIT

FLORENCE: NO MOR. RM
MILAN: NO MOR. RM
NAPLES: NO MOR. RM
ROME: DOES NOT FIT
SIENNA: ALL OPTIONS
VENICE: NO MOR. RM
SAVOY: NO GARAGE
HALIFAX: NO MOR. RM.
BELFORD: DOES NOT FIT

FLORENCE: ALL OPTIONS
MILAN: ALL OPTIONS
NAPLES: NO MOR. RM
ROME: ALL OPTIONS
SIENNA: ALL OPTIONS
VENICE: ALL OPTIONS
SAVOY: NO SIDE EXT.S
HALIFAX: NO 2 CAR GAR.
BELFORD: DOES NOT FIT

FLORENCE: NO MOR. RM
MILAN: DOES NOT FIT
NAPLES: NO MOR. RM
ROME: DOES NOT FIT
SIENNA: NO MOR. RM
VENICE: NO MOR. RM
SAVOY: NO GARAGE
HALIFAX: NO MOR. RM.
BELFORD: NO MOR. RM

FLORENCE: NO MOR. RM
MILAN: NO MOR. RM
NAPLES: DOES NOT FIT
ROME: DOES NOT FIT
SIENNA: MOR. RM OR BRICK
VENICE: NO MOR. RM
SAVOY: NO MOR. RM
HALIFAX: ALL OPTIONS
BELFORD: DOES NOT FIT

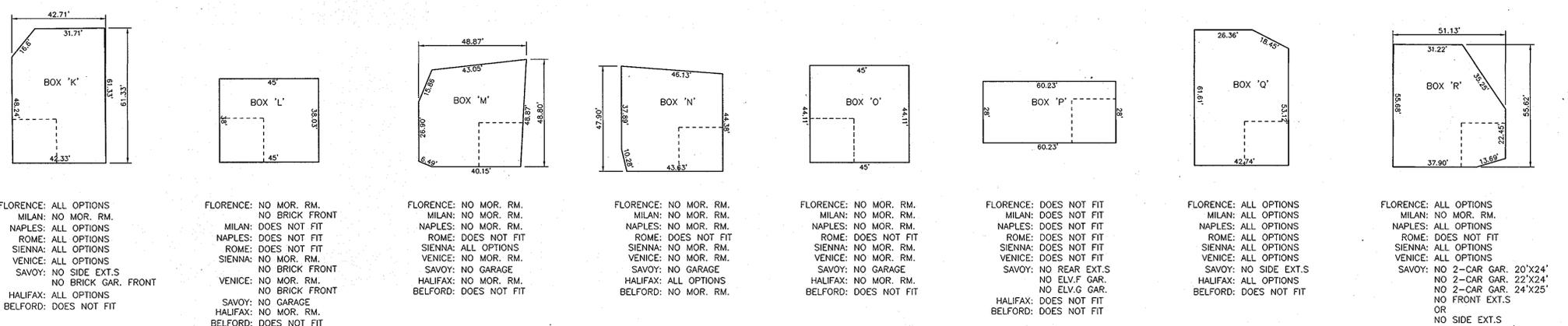
FLORENCE: NO MOR. RM
MILAN: NO MOR. RM
NAPLES: NO MOR. RM
ROME: DOES NOT FIT
SIENNA: NO MOR. RM
VENICE: NO MOR. RM
SAVOY: NO GARAGE
HALIFAX: NO MOR. RM
BELFORD: NO MOR. RM

FLORENCE: DOES NOT FIT
MILAN: DOES NOT FIT
NAPLES: DOES NOT FIT
ROME: DOES NOT FIT
SIENNA: NO MOR. RM
VENICE: DOES NOT FIT
SAVOY: NO 2-CAR GAR. 20'X24'
NO 2-CAR GAR. 22'X24'
NO 2-CAR GAR. 24'X25'
NO MOR. RM.
NO BRICK GAR. FRONT
HALIFAX: NO MOR. RM.
NO BRICK GAR. FRONT
BELFORD: NO MOR. RM
NO 4' FAMILY RM. EXT.

FLORENCE: DOES NOT FIT
MILAN: DOES NOT FIT
NAPLES: DOES NOT FIT
ROME: DOES NOT FIT
SIENNA: NO MOR. RM
VENICE: DOES NOT FIT
SAVOY: NO 2-CAR GAR. 20'X24'
NO 2-CAR GAR. 22'X24'
NO 2-CAR GAR. 24'X25'
NO MOR. RM.
NO BRICK GAR. FRONT
HALIFAX: NO MOR. RM.
NO BRICK GAR. FRONT
BELFORD: NO MOR. RM
NO 4' FAMILY RM. EXT.

BUILDER

RYAN HOMES
6031 UNIVERSITY BLVD.
SUITE 250
ELLICOTT CITY, MARYLAND 21043
(410) 796-0980



FLORENCE: ALL OPTIONS
MILAN: NO MOR. RM.
NAPLES: ALL OPTIONS
ROME: ALL OPTIONS
SIENNA: ALL OPTIONS
VENICE: ALL OPTIONS
SAVOY: NO SIDE EXT.S
NO BRICK GAR. FRONT
HALIFAX: ALL OPTIONS
BELFORD: DOES NOT FIT

FLORENCE: NO MOR. RM.
MILAN: NO BRICK FRONT
NAPLES: DOES NOT FIT
ROME: DOES NOT FIT
SIENNA: NO MOR. RM
VENICE: NO BRICK FRONT
NO MOR. RM.
NO BRICK FRONT
SAVOY: NO GARAGE
HALIFAX: NO MOR. RM.
NO BRICK FRONT
BELFORD: DOES NOT FIT

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NAPLES: NO MOR. RM.
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SIENNA: ALL OPTIONS
VENICE: NO MOR. RM.
SAVOY: NO GARAGE
HALIFAX: NO MOR. RM.
BELFORD: DOES NOT FIT

FLORENCE: NO MOR. RM.
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ROME: DOES NOT FIT
SIENNA: NO MOR. RM.
VENICE: NO MOR. RM.
SAVOY: NO GARAGE
HALIFAX: ALL OPTIONS
BELFORD: NO MOR. RM.

FLORENCE: NO MOR. RM.
MILAN: NO MOR. RM.
NAPLES: NO MOR. RM.
ROME: DOES NOT FIT
SIENNA: NO MOR. RM.
VENICE: NO MOR. RM.
SAVOY: NO GARAGE
HALIFAX: NO MOR. RM.
BELFORD: DOES NOT FIT

FLORENCE: DOES NOT FIT
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NAPLES: DOES NOT FIT
ROME: DOES NOT FIT
SIENNA: ALL OPTIONS
VENICE: DOES NOT FIT
SAVOY: NO REAR EXT.S
NO ELV.F GAR.
NO ELV.G GAR.
HALIFAX: DOES NOT FIT
BELFORD: DOES NOT FIT

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OR
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FRONT GAR.
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BELFORD: DOES NOT FIT

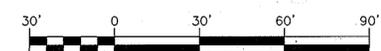
GENERIC HOUSE BOXES
SCALE: 1"=30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief
CHIEF, DEVELOPMENT ENGINEERING DIVISION 4/24/12 DATE

Chief
CHIEF, DIVISION OF LAND DEVELOPMENT 5/1/12 DATE

Director
DIRECTOR 5/1/12 DATE



NO.	REVISION	DATE
1	REVISE GENERIC BOX TYPES & ASSOCIATED GRADING	08/11/11

**REVISED SITE DEVELOPMENT PLAN
HOUSE TEMPLATES**

PLEASANT CHASE - PHASE IV
LOTS 144 THROUGH 176
SINGLE-FAMILY DETACHED
TAX MAP 43 GRID 8 PARCELS 211, 492, 493, 622
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

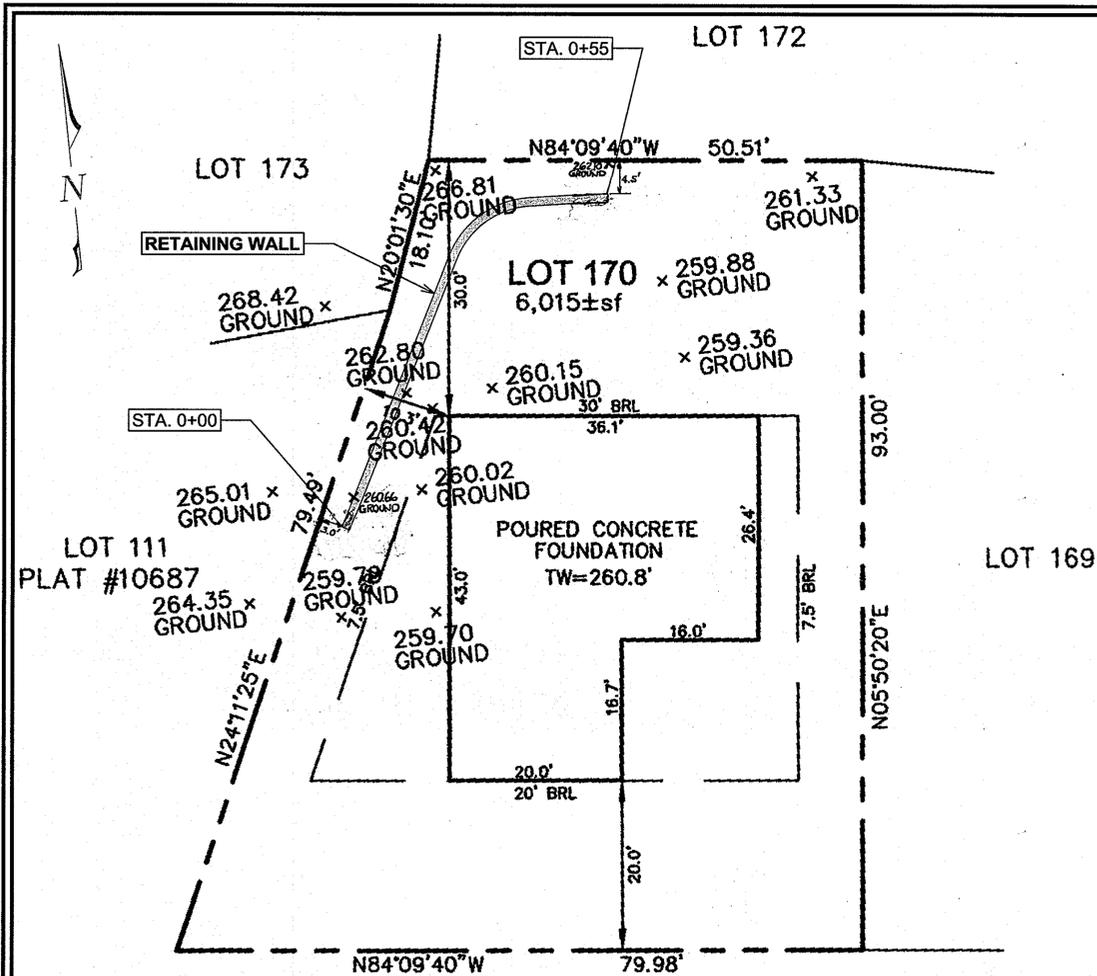
ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET TEL: 410.461.7666
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DESIGN BY: JCO
DRAWN BY: HS
CHECKED BY: RHY
DATE: FEBRUARY, 2011
SCALE: AS SHOWN
W.O. NO.: 10-32

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15193, EXPIRATION DATE 08-27-2015.

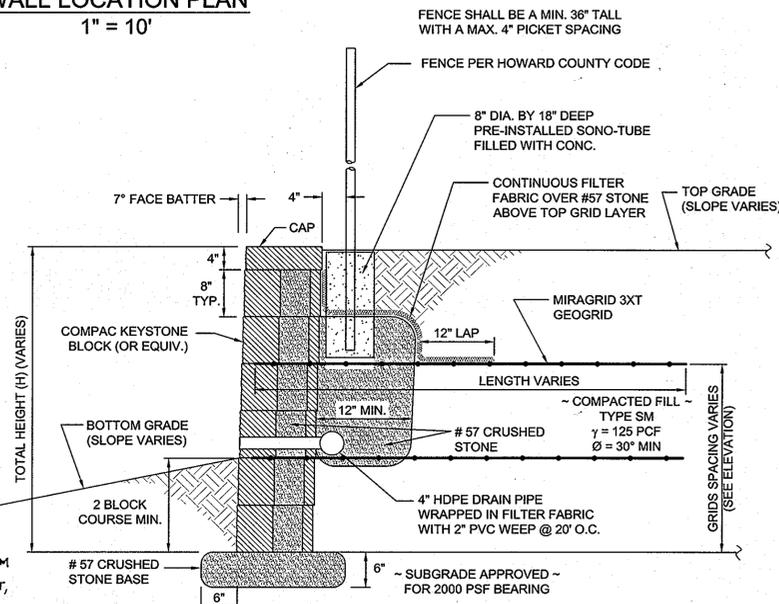
7 SHEET OF 8



**HICKS ROAD
WALL LOCATION PLAN**
1" = 10'

GENERAL NOTES:

- No trees shall be planted within 10 feet of the top of the retaining wall.
- Retaining walls shall only be constructed under the observation of a registered professional engineer and a (NICET, WACEL, or equiv.) certified soils technician.
- The required bearing pressure beneath the wall system shall be verified in the field by a certified soils technician. Testing documentation must be provided to the Howard County Inspector prior to start of construction. The required bearing test shall be the Dynamic Cone Penetrometer test ASTM STP-399.
- The suitability of fill material shall be confirmed by the on-site soils technician. Each 8" lift must be compacted to a minimum 95% standard proctor density and the testing report shall be made available to the Howard County Inspector upon completion of construction.
- Walls shall not be constructed on uncertified fill materials.
- Walls shall not be constructed within a Howard Co. right-of-way or easement.
- BA CASE NO. 13-022V TO REDUCE THE SIDE SETBACK FROM 7.5 FEET TO ONE (1) FOOT FOR A RETAINING WALL IN A R-5C (RESIDENTIAL SINGLE CLUSTER) ZONING DISTRICT, GRANTED OCTOBER 7, 2012.



TYPICAL WALL SECTION
N.T.S.

SPECIFICATIONS

MODULAR CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

1.01 Description

- Work shall consist of furnishing and construction of a Modular Retaining Wall System in accordance with these specifications and in reasonably close conformity with the lines, grades, design, and dimensions shown on the plans.
- Work includes preparing foundation soil, furnishing and installing leveling pad, unit drainage fill and backfill to the lines and grades shown on the construction drawings.
- Work includes furnishing and installing geogrid soil reinforcement of the type, size, location, and lengths designated on the construction drawings.

1.02 Delivery, Storage and Handling

- Contractor shall check all materials upon delivery to assure that the proper type, grade, color, and certification has been received.
- Contractor shall protect all materials from damage due to job site conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

PART 2: PRODUCTS

2.01 Modular Concrete Retaining Wall Units

- Modular concrete units shall conform to the following architectural requirements:
 - face color - concrete gray - standard manufacturers' color may be specified by the Owner.
 - face finish - sculptured rock face in angular tri-planer or flat configuration. Other face finishes will not be allowed without written approval of Owner.
 - bond configuration - running with bonds nominally located at midpoint vertically adjacent units, in both straight and curved alignments.
- Modular concrete materials shall conform to the requirements of ASTM C1372 - Standard Specifications for Segmental Retaining Wall Units.
- Modular concrete units shall conform to the following structural and geometric requirements measured in accordance with appropriate references:
 - compressive strength = 3000 psi minimum; absorption = 8% maximum (8% in northern states) for standard weight aggregates;
 - dimensional tolerances = ±1/8" from nominal unit dimensions not including rough split face, ±1/16"

unit height - top and bottom planes; unit size - 8" (H) x 18" (W) x 12 (D) minimum;

unit weight - 75 lbs/unit minimum for standard weight aggregates;

inter-unit shear strength - 1000 pif minimum at 2 psi normal pressure; at 2 psi normal force.

geogrid/unit peak connection strength - 1000 pif minimum

vertical setback = 1/8"± per course (near vertical) or 1"± per course per the design;

alignment and grid positioning mechanism - fiberglass pins, two per unit minimum;

maximum horizontal gap between erected units shall be - 1/2 inch.

2.02 Shear Connectors (if applicable)

A. Shear connectors shall be 1/2 inch diameter thermoset isophthalic polyester resin-protuded fiberglass reinforcement rods or equivalent to provide connection between vertically and horizontally adjacent units. Strength of shear connectors between vertical adjacent units shall be applicable over a design temperature of 10 degrees F to + 100 degrees F. B. Shear connectors shall be capable of holding the geogrid in the proper design position during grid pre-tensioning and backfilling.

2.03 Base Leveling Pad Material

A. Material shall consist of a compacted #57 crushed stone base as shown on the construction drawings.

2.04 Unit Drainage Fill

A. Unit drainage fill shall consist of #57 crushed stone

2.05 Reinforced Backfill

A. Reinforced backfill shall type SM, be free of debris and meet the following gradation tested in accordance with ASTM D-422 and meet other properties shown on the plan:

Sieve Size	Percent Passing
2 inch	100-75
3/4 inch	100-75
No. 40	0-60
No. 200	0-40

Plasticity Index (PI) <10 and Liquid Limit <40 per ASTM D-4318.

B. Material can be site excavated soils where the above requirements can be met. Unsuitable soils for backfill (high

plastic clays or organic soils) shall not be used in the reinforced soil mass.

2.06 Geogrid Soil Reinforcement

A. Geosynthetic reinforcement shall consist of geogrids manufactured specifically for soil reinforcement applications and shall be manufactured from high tenacity polyester yarn.

2.07 Drainage Pipe

A. The drainage pipe shall be perforated corrugated HDPE pipe manufactured in accordance with ASTM D-1248.

PART 3 EXECUTION

3.01 Excavation

A. Contractor shall excavate to the lines and grades shown on the construction drawings. Owner's representative shall be responsible for inspecting and approving the excavation prior to placement of leveling material or fill soils.

3.02 Base Leveling Pad

A. Leveling pad material shall be placed to the lines and grades shown on the construction drawings, to a minimum thickness of 6 inches and extend laterally a minimum of 6" in front and behind the modular wall unit.

B. Leveling pad shall be prepared to insure full contact to the base surface of the concrete units.

3.03 Modular Unit Installation

A. First course of units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions and insure that all units are in full contact with the base and properly seated.

B. Place the front of units side-by-side. Do not leave gaps between adjacent units. Layout of corners and curves shall be in accordance with manufacturer's recommendations.

C. Install shear/connecting devices per manufacturer's recommendations.

D. Place and compact drainage fill within and behind wall units. Place and compact backfill soil behind drainage fill. Follow wall erection and drainage fill closely with structure backfill.

E. Maximum stacked vertical height of wall units, prior to unit drainage fill and backfill placement and compaction, shall not exceed three courses.

3.04 Structural Geogrid Installation

A. Geogrid shall be oriented with the highest strength axis perpendicular to the wall alignment.

B. Geogrid reinforcement shall be placed at the strengths, lengths, and elevations shown on the construction design drawings or as directed by the Engineer.

C. The geogrid shall be laid horizontally on compacted backfill and

attached to the modular wall units. Place the next course of modular concrete units over the geogrid. The geogrid shall be pulled taut, and anchored prior to backfill placement on the geogrid.

D. Geogrid reinforcements shall be continuous throughout their embedment lengths and placed side-by-side to provide 100% coverage at each level. Spliced connections between shorter pieces of geogrid or gaps between adjacent pieces of geogrid are not permitted.

3.05 Reinforced Backfill Placement

A. Reinforced backfill shall be placed, spread, and compacted in such a manner that minimizes the development of slack in the geogrid and installation damage.

B. Reinforced backfill shall be placed and compacted in lifts not to exceed 6 inches where hand compaction is used, or 8 - 10 inches where heavy compaction equipment is used. Lift thickness shall be decreased to achieve the required density as required.

C. Reinforced backfill shall be compacted to 95% of the maximum density as determined by ASTM D698. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer and shall be + 3% to - 3% of optimum.

D. Only lightweight hand-operated equipment shall be allowed within 3 feet from the tail of the modular concrete unit.

E. Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Tracked vehicle turning should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.

F. Rubber tired equipment may pass over geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning shall be avoided.

G. At the end of each day's operation, the Contractor shall slope the last lift of reinforced backfill away from the wall units to direct runoff away from wall face. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

3.06 Cap Installation

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

3.07 Field Quality Control

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

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

BUILDER

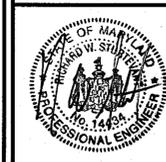
RYAN HOMES
6031 UNIVERSITY BLVD.
SUITE 250
ELICOTT CITY, MARYLAND 21043
(410) 796-0980

NO.	REVISION	DATE

**LOT 170
RETAINING WALL CONSTRUCTION DETAILS**
PLEASANT CHASE - PHASE IV
LOTS 144 THROUGH 176
SINGLE-FAMILY DETACHED
TAX MAP 43 GRID 8 PARCELS 211, 492, 493, 494, 622
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**HILLIS-CARNES
ENGINEERING ASSOCIATES**

10975 Gullford Road, Suite A Annapolis Junction, Maryland
(410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098



PROFESSIONAL CERTIFICATE
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. 14434.
EXPIRATION DATE: 05/31/15.

DESIGN BY: RWS
DRAWN BY: AM
CHECKED BY: RWS
DATE: JULY 9, 2013
SCALE: AS SHOWN
HCEA NO.: 13232-A

8 SHEET OF 8

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
9/20/13
10/25/13
10/25/13