

**GENERAL NOTES**

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY STANDARDS AND SPECIFICATIONS. ALL WORK AND MATERIALS SHALL COMPLY WITH O.S.H.A. STANDARDS.
- 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  
 VERIZON 1-800-253-0013  
 BUREAU OF UTILITIES: 410-313-4900  
 A&E (CONSTRUCTION SERVICES): 1-800-252-1133  
 A&E (EMERGENCY): 410-637-8713  
 STATE HIGHWAY ADMINISTRATION: 410-685-0123  
 COLONIAL PIPELINE CO.: 410-311-6533  
 410-795-1390
- SITE ANALYSIS:**  
 TOTAL PROJECT AREA: 2.192 AC. (LOT 1-A)  
 TOTAL AREA OF LAND WITHIN FDP-150-A-II: 23.816± AC.  
 EMPLOYMENT CENTER COMMERCIAL: 14.165 AC. ±  
 PARCEL A-1: 1.449 AC.  
 PARCEL A-2: 1.449 AC.  
 PARCEL B-1: 1.927 AC.  
 PARCEL B-2: 1.927 AC.  
 PARCEL C-1: 0.888 AC.  
 PARCEL C-2: 0.888 AC.  
 PARCEL D: 2.192 AC. (SDP SUBJECT AREA)  
 OPEN SPACE (TOTAL): 9.651 AC. ±  
 LOT 1-A: 2.192 AC. (SDP SUBJECT AREA)  
 LOT 2-A: 0.562 AC.  
 LOT 3-A: 3.343 AC.  
 LOT 4-A: 3.354 AC.  
 PRESENT ZONING (LOT 1-A): NT, NON-CREDITED OPEN SPACE  
 USE OF STRUCTURE: RELIGIOUS FACILITY  
 TOTAL BUILDING COVERAGE: 17,114 SF (0.393 AC. OR 4.07% OF GROSS OPEN SPACE AREA PER FDP-150-A-II)  
 LOT 1-A: 15,614 SF (0.35 AC. OR 3.5% OF GROSS AREA LOT 1-A)  
 EXISTING BUILDING AND ADDITION: 9,136 SF  
 PROPOSED BUILDING ADDITION: 6,028 SF  
 LOT 2-A: 0 SF  
 LOT 3-A: 0 SF  
 LOT 4-A: 1,950 SF (0.045 AC. OR 1.34% OF GROSS AREA LOT 4-A)  
 PAVED PARKING LOT AREA ON SITE: 2,777 SF ON AC. OR 27.72% OF GROSS AREA  
 AREA OF LANDSCAPE ISLAND: 5,433 SF (0.125 AC. OR 5.67% OF GROSS AREA)  
 LIMIT OF DISTURBED AREA: 1243 AC.  
 CUT: 1243 CU. FILL: 217 CU.
- PROJECT BACKGROUND:**  
 LOCATION: TAX MAP 36 BLOCK 21 P/O PARCEL 427, LOT 1-A  
 ZONING: NT  
 VILLAGE OF OWEN BROWN  
 SECTION 1, AREA 3  
 LOT 1-A  
 SITE AREA: 2.192 AC.  
 ZONE: NT  
 DPZ REFERENCES: SDP-83-2076, FDP-150-A-II, F-77-052, SDP-02-136, ECP-12-040, F-15-039, PLAT 23057
- 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.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS 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. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3,500 P.S.I.
- 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.
- ESTIMATES OF EARTHWORK QUANTITIES ARE PROVIDED SOLELY FOR THE PURPOSE OF CALCULATING FEES.
- SOIL COMPACTION SPECIFICATIONS, REQUIREMENTS, METHODS AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER. GEOTECHNICAL ENGINEER TO CONFIRM ACCEPTABILITY OF PROPOSED PAVING SECTIONS ON SITE PRIOR TO CONSTRUCTION.
- THE COORDINATES SHOWN HEREON ARE BASED UPON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE SYSTEM. HOWARD COUNTY MONUMENT NOS. 4298 AND 3698 WERE USED FOR THIS PROJECT.
- THE PROPERTY LINES SHOWN HEREON ARE BASED ON COLUMBIA, VILLAGE OF OWEN BROWN, PLAT 3718, DATED MAY 5, 1997.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS TAKEN FROM A FIELD RUN SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., PERFORMED ON JANUARY 12, 2012.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:  
 THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM. PLAT 3718, DATED MAY 5, 1997, AS PROJECTED BY HOWARD COUNTY MONUMENTS 3698 (N 492233.215/E 842256.749), AND 4298 (N 490646.777/E 843214.855). ALL VERTICAL CONTROLS ARE BASED ON FINISHED FLOOR ELEVATION OF EXISTING BUILDING AS SHOWN ON SDP-02-136.
- GEOTECHNICAL REPORT PREPARED BY HILLIS CARNES, DATED MAY 20, 2002, FOR SDP-02-136.
- THE GEOTECHNICAL ENGINEER TO CONFIRM PAVING SECTIONS PRIOR TO CONSTRUCTION. ALL PAVING TO BE MINIMUM HOWARD COUNTY STANDARD DETAIL P-2, UNLESS OTHERWISE NOTED.
- ALL CURB AND GUTTER TO BE HOWARD COUNTY STANDARD DETAIL 3.01 UNLESS OTHERWISE NOTED.
- WHERE DRAINAGE IS AWAY FROM CURB, CONTRACTOR TO REVERSE THE GUTTER PAN.
- ALL ELEVATIONS ARE TO FLOWLINE/BOTTOM OF CURB UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.
- CONTRACTOR RESPONSIBLE FOR CONSTRUCTING ALL HANDICAP RAMPS AND HANDICAP ACCESS IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.
- PUBLIC WATER AVAILABLE THROUGH CONTRACT NO. 24-0735-D.
- PUBLIC SEWER AVAILABLE THROUGH CONTRACT NO. 24-0735-D.
- APPO TRAFFIC STUDY PREPARED BY TRAFFIC CONCEPTS, INC., DATED DECEMBER 2012, REVISED JANUARY 2014; APPROVED 03/14/2014.
- THERE ARE NO WETLANDS, STEEP SLOPES, OR 100-YEAR FLOODPLAIN LOCATED ON SITE.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3500 P.S.I.
- ALL STORMDRAIN PIPE BEING IS TO BE CLASS "C" AS REQUIRED BY ASH 150.
- BUILDING ADDITION TO HAVE ROOF LEADERS WHICH EMPTY INTO STORM DRAIN SYSTEM.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 18.124 OF THE HOWARD COUNTY CODE, THE LANDSCAPE MANUAL, AND THE NEW TOWN ALTERNATIVE COMPLIANCE PROVISIONS OF THE LANDSCAPE MANUAL.
- FINANCIAL SURETY FOR THE ADDITIONAL 2 SHADE TREES AND 4 EVERGREEN TREES IN THE AMOUNT OF \$1,200.00 HAS BEEN POSTED AS PART OF THE NEW DEVELOPER'S AGREEMENT FOR THIS PROJECT.
- ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.
- THIS PROJECT IS EXEMPT FROM THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1202(b)(1)(v) OF THE HOWARD COUNTY CODE BECAUSE IT IS PART OF A PLANNED UNIT DEVELOPMENT (NEW TOWN) WITH PRELIMINARY PLAN APPROVAL PRIOR TO 12/31/92.
- THIS PROJECT IS SUBJECT TO COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATION.
- EXISTING CRADLEROCK WAY IS CLASSIFIED AS A MAJOR COLLECTOR.
- ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED 12" SQUARE TUBE SLEEVE (12 GAUGE) - 3" LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- THE PROPOSED BUILDING WILL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
- ALL EXTERIOR LIGHTING TO COMPLY WITH THE REQUIREMENTS FOUND IN ZONING SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS. (DETAILS ON SHEET 2 AND 3)
- A KNOX BOX IS REQUIRED TO BE PLACED ON THE FRONT OF THE BUILDING. IT SHALL BE PLACED TO THE RIGHT OF THE MAIN ENTRANCE AT A RANGE OF 4'-5" IN HEIGHT AND NO MORE THAN 6' LATERSIALLY FROM THE DOOR. IT'S LOCATION IS SHOWN ON THESE PLANS. THE BOX SHALL BE ELECTRONICALLY SUPERVISED. IT'S LOCATION IS SHOWN ON THESE PLANS. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESS (INTEGRATED WITH THE FIRE ALARM SYSTEM)
- LANDSCAPING NOT PERMITTED WITHIN 7'-1/2" OF EACH SIDE OF THE FIRE DEPARTMENT CONNECTION. PROVIDE A CLEAR UNOBSTRUCTED ACCESS PATH TO THE FIRE DEPARTMENT CONNECTION. NFPA-1 13.1.4
- FIRE LANES SHOULD BE PROVIDED IN THIS SITE TO ALLOW EMERGENCY VEHICLE ACCESS. EITHER FIRE LANE SIGNAGE SHOULD BE INSTALLED, OR THE CURBS SHOULD BE PAINTED IN RED AND STENCILED TO IDENTIFY THE ROAD AS A FIRE LANE.
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY.
- THERE ARE NO SPECIMEN OR CHAMPION TREES WITHIN THE LOT.
- TRASH COLLECTION AND RECYCLABLES TO BE PRIVATE.
- SPACE HAS BEEN PROVIDED ON THE BUILDING IDENTIFYING THE BUILDING ADDRESS.
- 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 AREAS AND 100 YEAR FLOODPLAIN.
- 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.
- A PARKING ANALYSIS AND SHARED PARKING CHART WILL BE PROVIDED AT THE SITE DEVELOPMENT PLAN STAGE IN ACCORDANCE WITH SECTION 133.E.1 OF THE ZONING REGULATIONS. SHOULD ADDITIONAL PARKING AREAS BE REQUIRED FOR THE EXPANSION OF THIS FACILITY, WITH ADDITION TO THE EXISTING STRUCTURE AS WELL AS TO PEDESTRIAN IMPROVEMENTS, ANY PROPOSED PEDESTRIAN IMPROVEMENTS, REVISIONS TO OR EXPANSION OF THE LOT MAY BE REQUIRED WHICH COULD THEN REQUIRE REVISIONS TO THIS ENVIRONMENTAL CONCEPT PLAN. EITHER WHOLLY OR PARTIALLY. ANY RIGHT OF WAY (KERRY HILL COURT), ARE SUBJECT TO DISABILITY TO ACCESS REQUIREMENTS OF THE US ACCESS BOARD.
- HEALTH DEPARTMENT APPROVAL OF THIS SITE DEVELOPMENT PLAN DOES NOT ENSURE APPROVAL OF BUILDING PERMIT APPLICATIONS ASSOCIATED WITH THIS PLAN. FOR THIS FACILITY, INCLUSION OF A KITCHEN IN THE PLAN WILL REQUIRE REVIEW AND APPROVAL BY HEALTH DEPARTMENT.
- STORMWATER MANAGEMENT FOR THIS PROJECT IS BEING PROVIDED BY ENVIRONMENTAL SITE DESIGN UTILIZING MICRO-BIOTRETENTION (M-6) FACILITIES TO ACCOMMODATE THE TOTAL ESD VOLUME REQUIRED. SWM FACILITIES TO BE PRIVATELY OWNED AND MAINTAINED.
- THE PROPOSED EXTERIOR ALTERATION AND LANDSCAPING HAVE BEEN REVIEWED AND APPROVED BY THE OWEN BROWN VILLAGE ASSOCIATION UNDER APPLICATION #18086, DATED JANUARY 10, 2014. THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION DOES NOT HAVE REVIEW RIGHTS OVER THE OWEN BROWN INTERFAITH CENTER. THEREFORE, THEIR APPROVAL IS NOT REQUIRED.
- ON JUNE 19, 2014, THE PLANNING BOARD APPROVED ADJUSTMENTS TO THE BULK REQUIREMENTS OF THE FDP-150-A-II CRITERIA FOR A SETBACK REDUCTION FROM 20 TO 10 FEET ADJACENT TO OPEN SPACE LOTS 2-A, 3-A AND PARCEL B-1, AND FOR AN INCREASE OF THE MAXIMUM ALLOWED LOT COVERAGE OF 10% TO 16.9%.
- THE PROPOSED BUILDING ADDITION IS EXEMPT FROM STORMWATER MANAGEMENT (350 SF) PATHWAY HAS BEEN RECORDED UNDER THE LAND RECORDS OF HOWARD COUNTY (PLAT 23166, L-10165, F-001)

**PARKING TABULATION**

EXISTING BUILDING	16,932 SF (2 STORY)
PROPOSED BUILDING	11,664 SF (2 STORY)
<b>TOTAL BUILDING AREA:</b>	<b>28,596 SF</b>
NUMBER OF PARKING SPACES REQUIRED (10 PER 1,000 SF ASSEMBLY):	
EXISTING BUILDING ASSEMBLY (3778 SF @ 105PF/1000SF)	38 SPACES
PROPOSED BUILDING ASSEMBLY (3815 SF @ 105PF/1000SF)	39 SPACES
<b>TOTAL PARKING REQUIRED:</b>	<b>77 SPACES</b>
NUMBER OF PARKING SPACES PROVIDED:	
TOTAL PARKING PROVIDED (LOT 1-A):	49 SPACES
*TOTAL PARKING PROVIDED (SHARED ON PARCEL 2-A):	43 SPACES
<b>TOTAL PARKING PROVIDED (WITHIN LOTS 1-A AND 2-A):</b>	<b>92 SPACES</b>
(INCLUDING 10 HC SPACES)	
*REFERENCE DEED L-1085/F-208 FOR SHARED PARKING AGREEMENT	

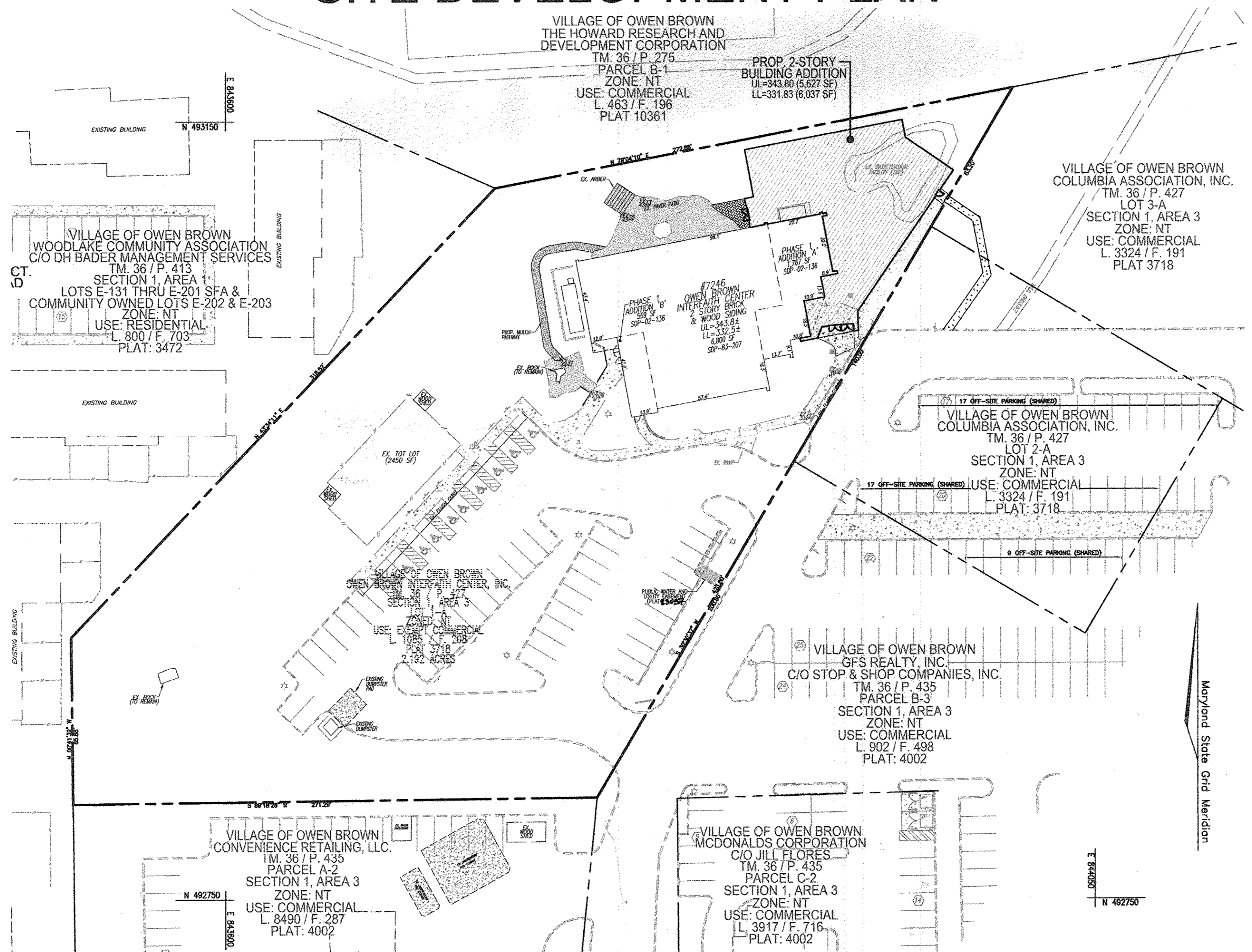
APPROVED BY PLANNING BOARD OF HOWARD COUNTY  
 DATE: JUNE 19, 2014

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 Chief, Development Engineering Division: 10.31.14 DATE  
 Chief, Division of Land Development: 11-25-14 DATE  
 Director: 11/25/14 DATE

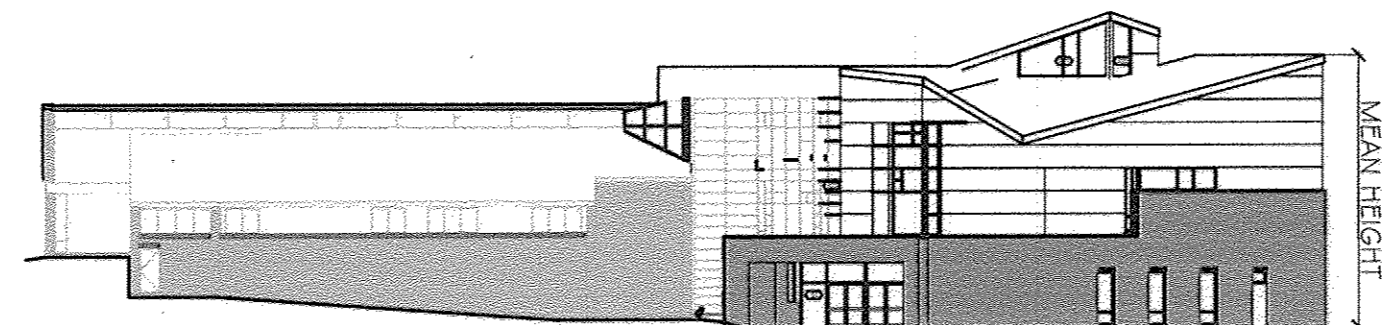
NO AS-BUILT INFORMATION ON THIS SHEET

# OWEN BROWN INTERFAITH CENTER UNITARIAN UNIVERSALIST CONGREGATION OF COLUMBIA BUILDING ADDITION

## RELIGIOUS CENTER 7246 CRADLE ROCK WAY VILLAGE OF OWEN BROWN, SECTION 1, AREA 3, LOT 1-1 P/O PARCEL 427 ZONED: NT / PLAT 3718/PLAT 23057 SITE DEVELOPMENT PLAN



LOCATION MAP  
 SCALE: 1"=40'



BUILDING ELEVATION  
 NOT TO SCALE

**ADDRESS CHART**

LOT/PARCEL #	STREET ADDRESS
P/O 427, LOT 1-A	7246 CRADLE ROCK WAY

**PERMIT INFORMATION CHART**

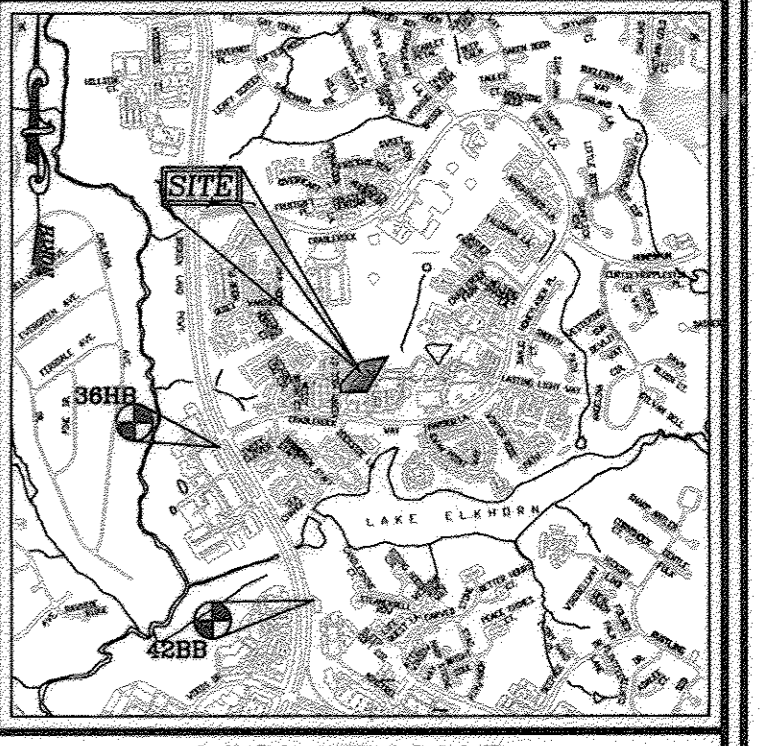
SUBDIVISION NAME	SECTION/AREA	LOTS/PARCEL #
VILLAGE OF OWEN BROWN	1/3	P/O PARCEL 427, LOTS 1-A & 2-A
PLAT # OR L/F	BLOCK NO.	ZONE
PLAT 3718 (F-37-52)	21	NT
TAX MAP	ELECT. DIST.	CENSUS TR.
36	6TH	6067.04
WATER CODE: E11	SEWER CODE: 5330800	

**BENCHMARKS**

HOWARD COUNTY BENCHMARK 3698  
 (N 492233.215/E 842256.749)  
 HOWARD COUNTY BENCHMARK 4298  
 (N 490646.777/E 843214.855)  
 ALL VERTICAL CONTROLS ARE BASED ON FINISHED FLOOR ELEVATION

**LEGEND**

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- DIRECTION OF FLOW
- EXISTING TREES TO REMAIN
- LIGHT POLES
- SOIL TYPE
- CONCRETE
- PUBLIC WATER AND UTILITY EASEMENT (PLAT 23057)



VICINITY MAP  
 SCALE: 1"=2,000'  
 ADC MAP COORDINATE: 5053/F-1

**SHEET INDEX**

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 7
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SD DRAINAGE AREA MAP AND STORM DRAIN PROFILES	5 OF 7
SWM DRAINAGE AREA MAP AND SWM DETAILS	6 OF 7
LANDSCAPE PLAN	7 OF 7

OWNER/DEVELOPER  
 OWEN BROWN INTERFAITH CENTER  
 LINDESEY THOMPSON  
 7246 CRADLEROCK WAY  
 COLUMBIA, MD 21045  
 410-381-2000

NO.	REVISION	DATE
2	REVISED TO REMOVE EXIT STAIRS AND TO ADD 4' PATH; REVISE FH FOR NEW ADD	04/22/16
1	REVISE TO ADD EXIT STAIRS AND REMOVE SIDEWALK ADJACENT TO BLDG	12/22/14

**SITE DEVELOPMENT PLAN**

**COVER SHEET**

OWEN BROWN INTERFAITH CENTER  
 UNITARIAN UNIVERSALIST CONGREGATION OF COLUMBIA  
 BUILDING ADDITION

TAX MAP 36 BLOCKS 21  
 ELECTION DISTRICT

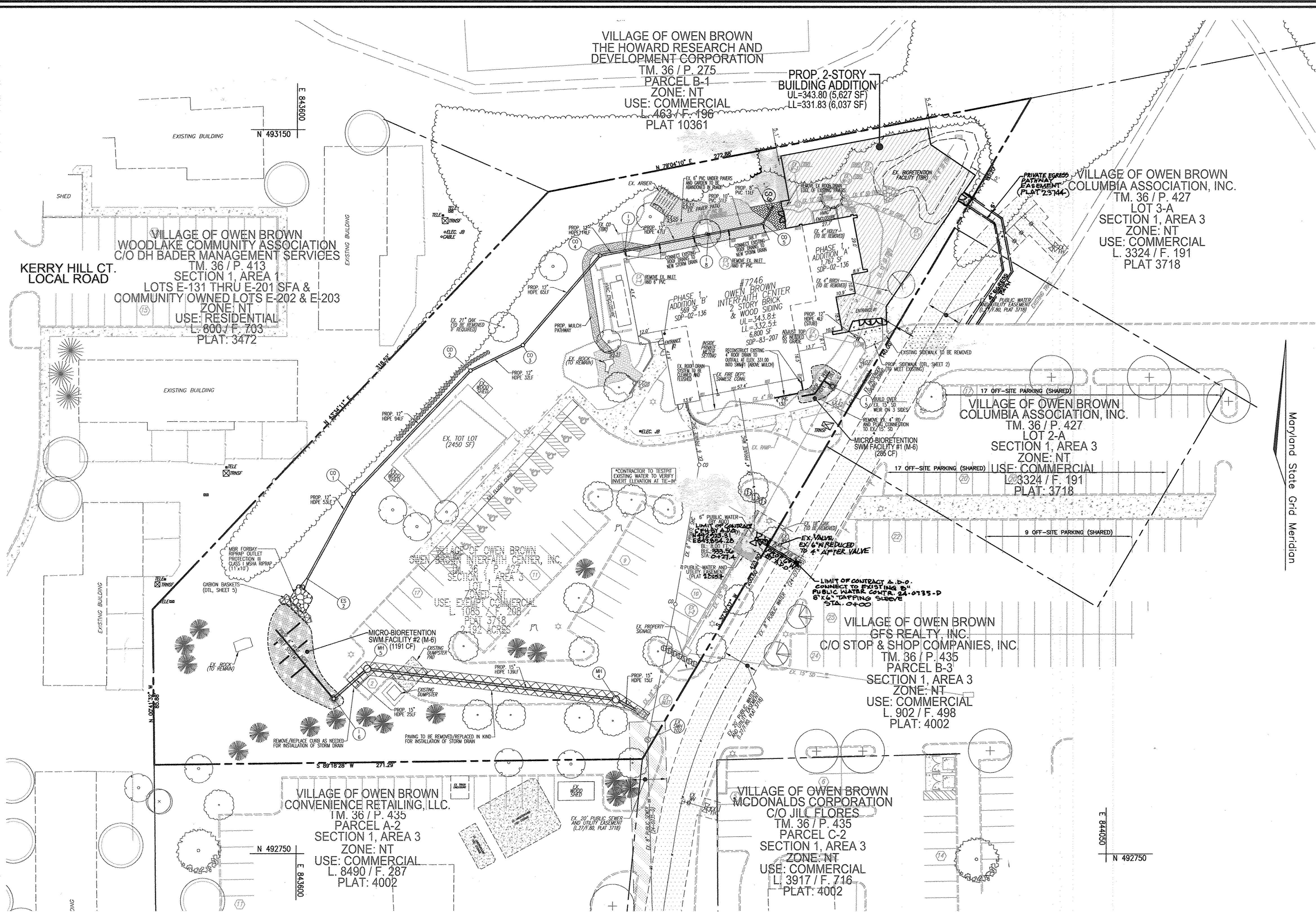


**ROBERT H. VOGEL  
 ENGINEERS, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 8407 MAIN STREET  
 ELLICOTT CITY, MD 21043  
 TEL: 410.461.7666  
 FAX: 410.461.8991

DESIGN BY: DZE  
 DRAWN BY: DZE/ER/KG  
 CHECKED BY: RHV  
 DATE: SEPTEMBER 2014  
 SCALE: AS SHOWN  
 W.O. NO.: 11-06

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. 16193, EXPIRATION DATE 08-29-2018.

AS-BUILT 2/16/17



### LEGEND:

- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING EDGE OF LANDSCAPED AREA
- EXISTING VEGETATION (APPROXIMATE LOCATION)
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROPOSED TREELINE
- PROPOSED SIDEWALK
- EX. PUBLIC WATER & UTILITY EASEMENT (L-27/F.80, PLAT. 3718)
- EX. PUBLIC SEWER & UTILITY EASEMENT (L-27/F.80, PLAT. 3718)
- PAVING TO BE REMOVED/REPLACED FOR STORM DRAIN INSTALLATION
- PUBLIC WATER AND UTILITY EASEMENT (PLAT. 2325)

**MODIFIED COMBINATION CURB AND GUTTER**

NOTES:

1. EXISTING UTILITY POLES SHALL BE MAINTAINED UNLESS OTHERWISE NOTED. ALL UTILITIES SHALL BE MAINTAINED AT ALL TIMES.
2. EXISTING SIGNAGE SHALL BE MAINTAINED UNLESS OTHERWISE NOTED.
3. A MINIMUM OF TWO (2) FEET OF COMPACTED GRANULAR FILL SHALL BE MAINTAINED UNDER THE ENTIRE BACK OF CURB.
4. EXISTING UTILITY POLES SHALL BE PROTECTED BY A MINIMUM OF 18" OF GRANULAR FILL.

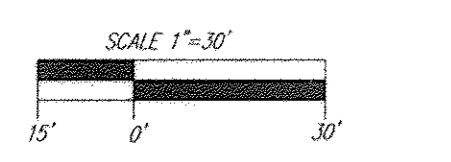
Howard County, Maryland  
Department of Public Works  
Curb and Gutter  
7" & Modified  
Detail  
R-3.01

**COMBINATION CURB AND GUTTER**

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Howard County, Maryland  
Department of Public Works  
Curb and Gutter  
7" & Modified  
Detail  
R-3.05



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Old Ed* 10-31-14  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Katrina* 11-25-14  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mark* 1/25/14  
DIRECTOR DATE

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING BARS (SBS)	3 TO 4.5 TO 4.7	4.7 TO 5.0 TO 5.2	5.2 TO 5.5 TO 5.7	5.7 TO 6.0 TO 6.2	6.2 TO 6.5 TO 6.7	6.7 TO 7.0 TO 7.2	7.2 TO 7.5 TO 7.7
P-1	RESIDENTIAL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
P-2	RESIDENTIAL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
P-3	RESIDENTIAL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
P-4	RESIDENTIAL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

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**SITE DEVELOPMENT PLAN**  
**SITE LAYOUT PLAN**

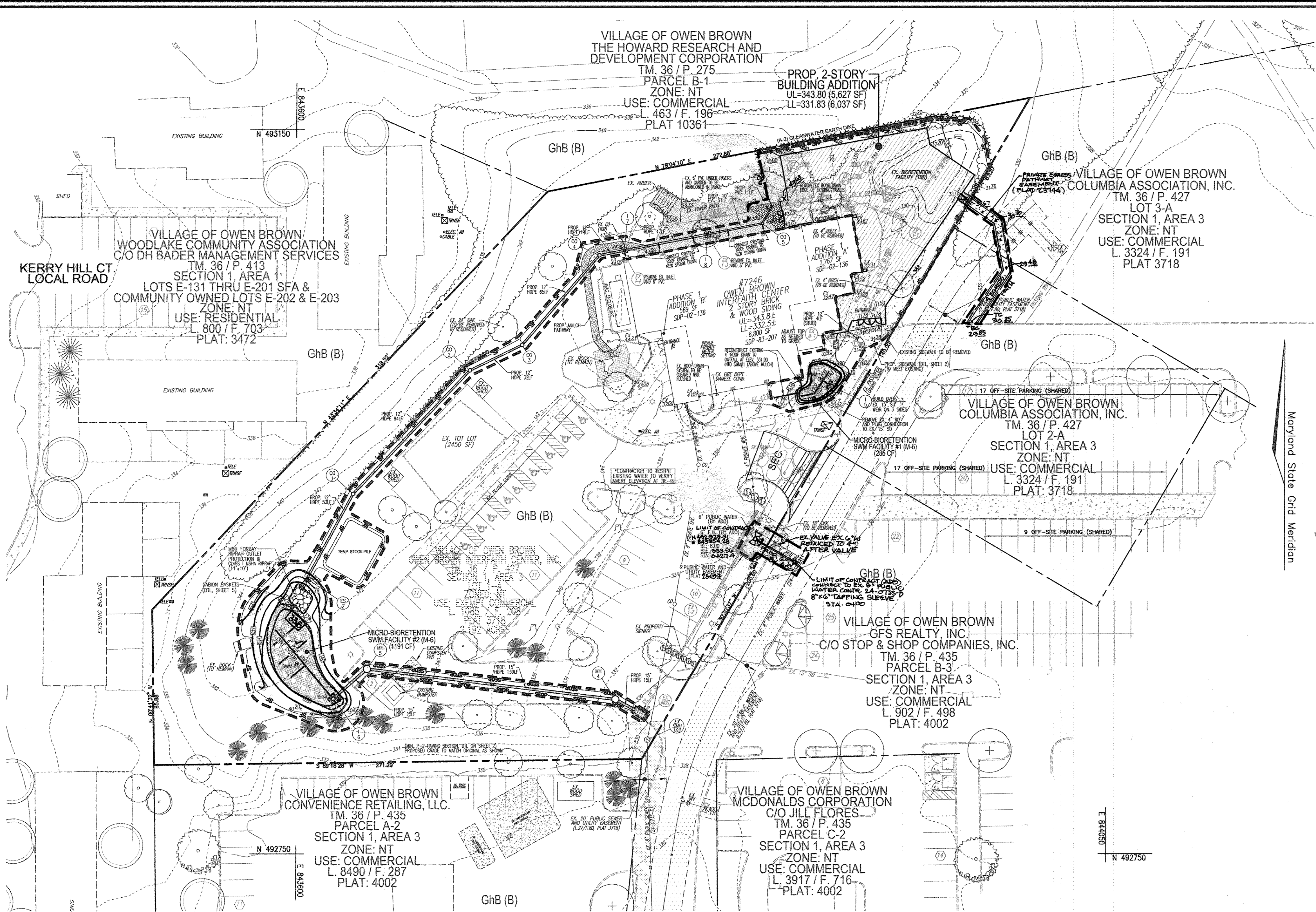
**OWEN BROWN INTERFAITH CENTER**  
UNITARIAN UNIVERSALIST CONGREGATION OF COLUMBIA  
BUILDING ADDITION

**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: DZE  
DRAWN BY: DZE/JER/KG  
CHECKED BY: RHV  
DATE: SEPTEMBER 2014  
SCALE: AS SHOWN  
W.O. NO.: 11-06

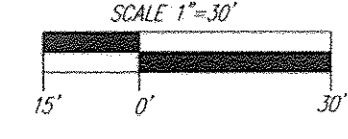
PROFESSIONAL CERTIFICATE  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18193, EXPIRATION DATE: 09-27-2016

2 SHEET OF 7



**LEGEND:**

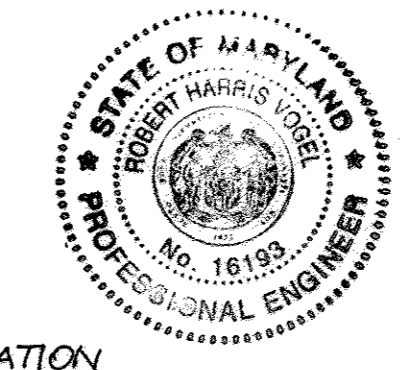
	EXISTING CONTOUR
	PROPOSED CONTOUR
	PROPOSED SPOT ELEVATION
	EXISTING SPOT ELEVATION
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	EXISTING UTILITY POLE
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	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	PROPOSED STORM DRAIN
	PROPOSED STORM DRAIN INLET
	EXISTING TREE LINE (FIELD LOCATED)
	EXISTING EDGE OF LANDSCAPED AREA
	EXISTING VEGETATION (APPROXIMATE LOCATION)
	EXISTING FENCE
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	SOILS BOUNDARY M1B2
	SOILS BOUNDARY M1D3
	PROPOSED SIDEWALK
	EX. PUBLIC WATER & UTILITY EASEMENT (L.27/F.80, PLAT 3718)
	EX. PUBLIC SEWER & UTILITY EASEMENT (L.27/F.80, PLAT 3718)
	PUBLIC WATER AND UTILITY EASEMENT (PLAT 2305)
	LIMIT OF DISTURBANCE LOD
	PROPOSED TREE LINE
	SILT FENCE SF
	STABILIZED CONSTRUCTION ENTRANCE



PLAN VIEW  
SCALE: 1"=30'

**SEDIMENT CONTROL NOTE:**  
TEMPORARY OR PERMANENT SEEDING AND STABILIZATION WILL BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE INTERVALS REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL; WHICHEVER IS MORE STRINGENT.

**AS-BUILT CERTIFICATION**  
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.  
*Robert H. Vogel* 2/16/17  
ROBERT H. VOGEL P.E. NO. 16193 DATE



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Chad Edman* 0-31-14  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE  
*Kate Schaefer* 11-25-14  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
*David Schaefer* 11/25/14  
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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."  
*James L. Stephens* 9-19-14  
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."  
*Robert H. Vogel* 9/12/14  
SIGNATURE OF ENGINEER DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*J.P. Roberts* 10/2/14  
HOWARD S.C.D. DATE

**OWNER/DEVELOPER**  
OWEN BROWN INTERFAITH CENTER, INC.  
UNDESY THOMPSON  
7246 CRADLE ROCK WAY  
COLUMBIA, MD 21045  
410-381-2000

NO.	REVISION	DATE
2	REVISED TO REMOVE EXIT STAIRS AND TO ADD 4' PATH; REVISE PL FOR NEW ADD	04/22/16
1	REVISE TO ADD EXIT STAIRS AND REMOVE SIDEWALK ADJACENT TO BLDG	12/12/14

**SITE DEVELOPMENT PLAN**  
**SITE GRADING; SEDIMENT AND EROSION CONTROL PLAN**  
**OWEN BROWN INTERFAITH CENTER**  
UNITARIAN UNIVERSALIST CONGREGATION OF COLUMBIA  
BUILDING ADDITION  
246 CRADLE ROCK WAY  
VILLAGE OF OWEN BROWN SECTION 1, AREA 3, LOT 1-A  
HOWARD COUNTY, MARYLAND  
PLOT 427  
ZONES: NT/PLAT 3718  
PLAT 28057  
PARCEL P/O 427, LOT 1-A  
DP7 FILES: EDP-150-A-E, L-77-052  
SDP-83-207, SDP-02-136, EDP-72-047  
F-15-039

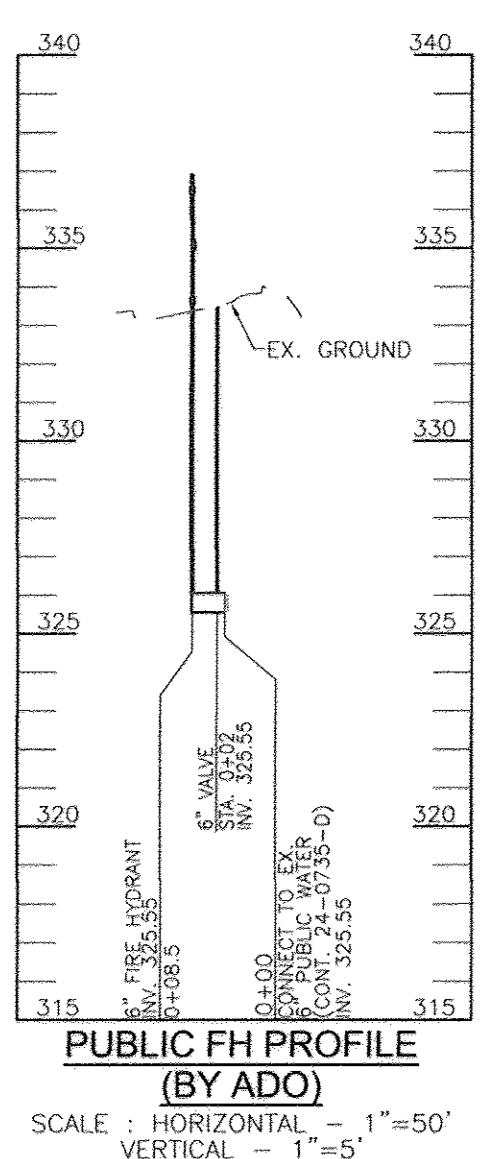
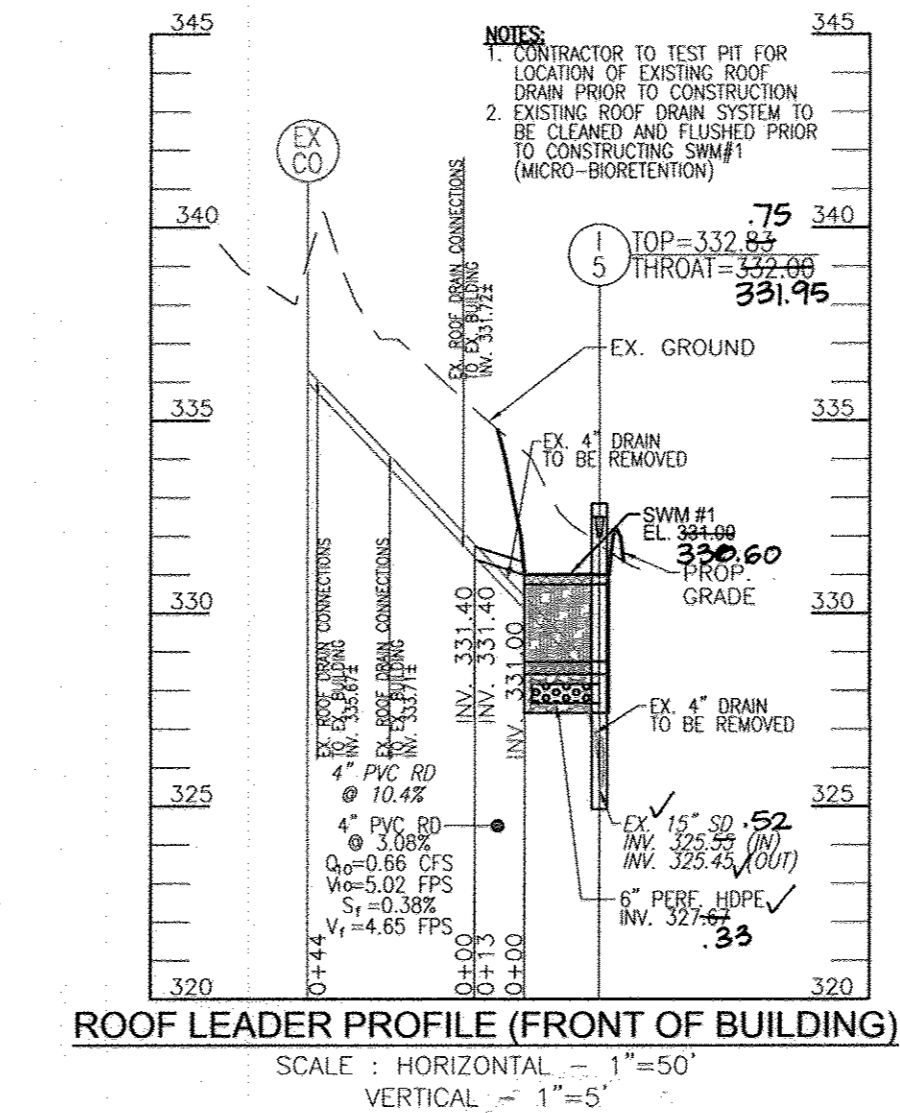
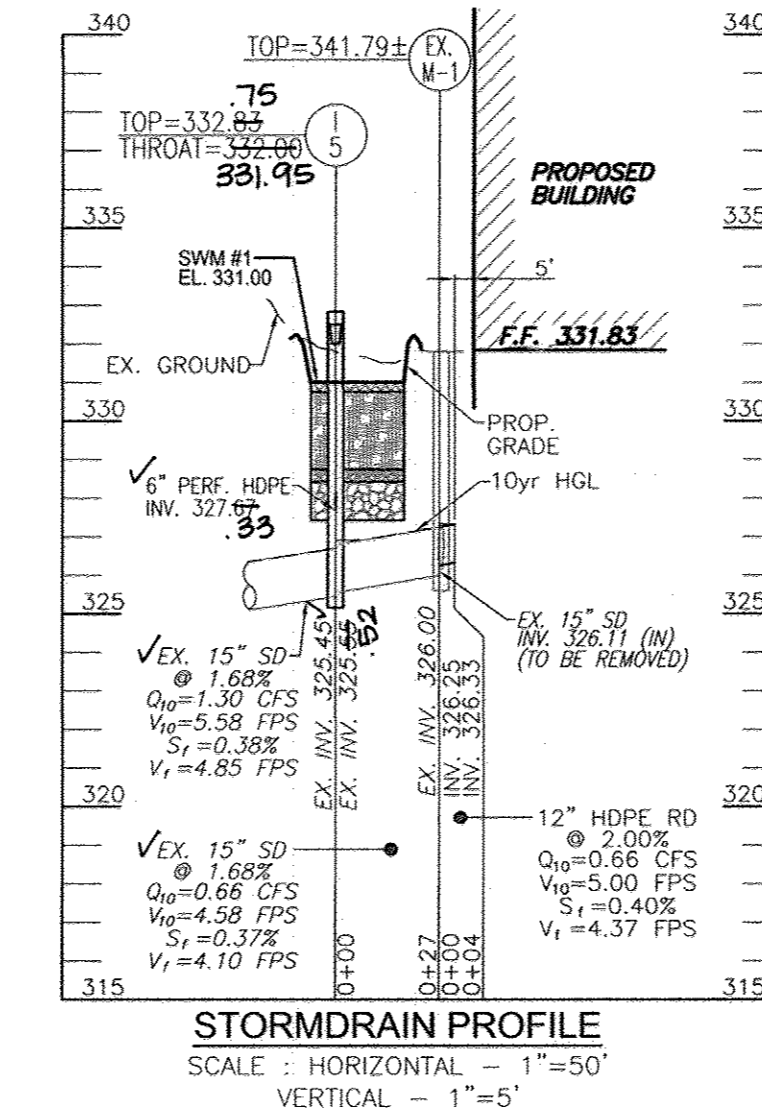
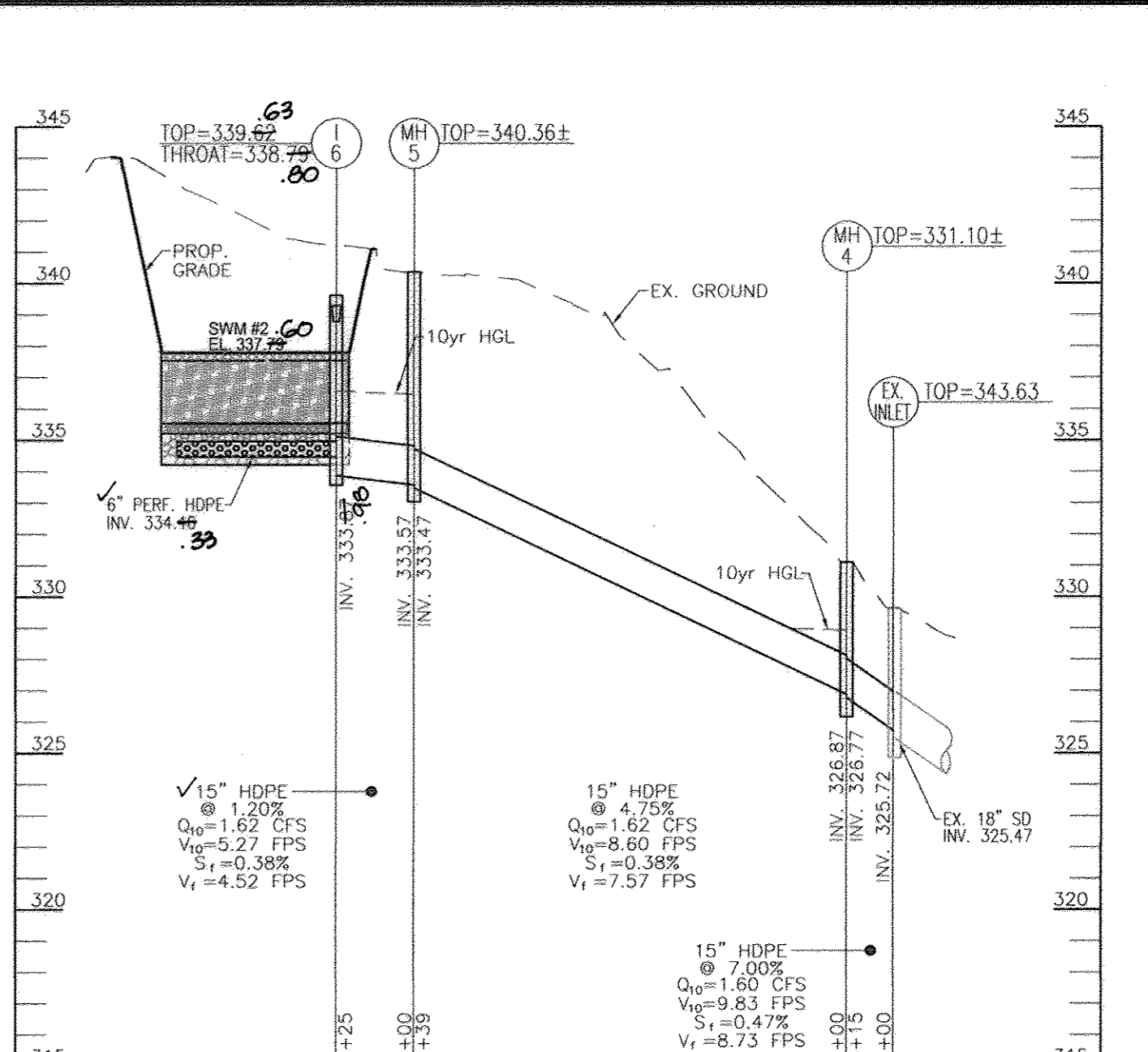
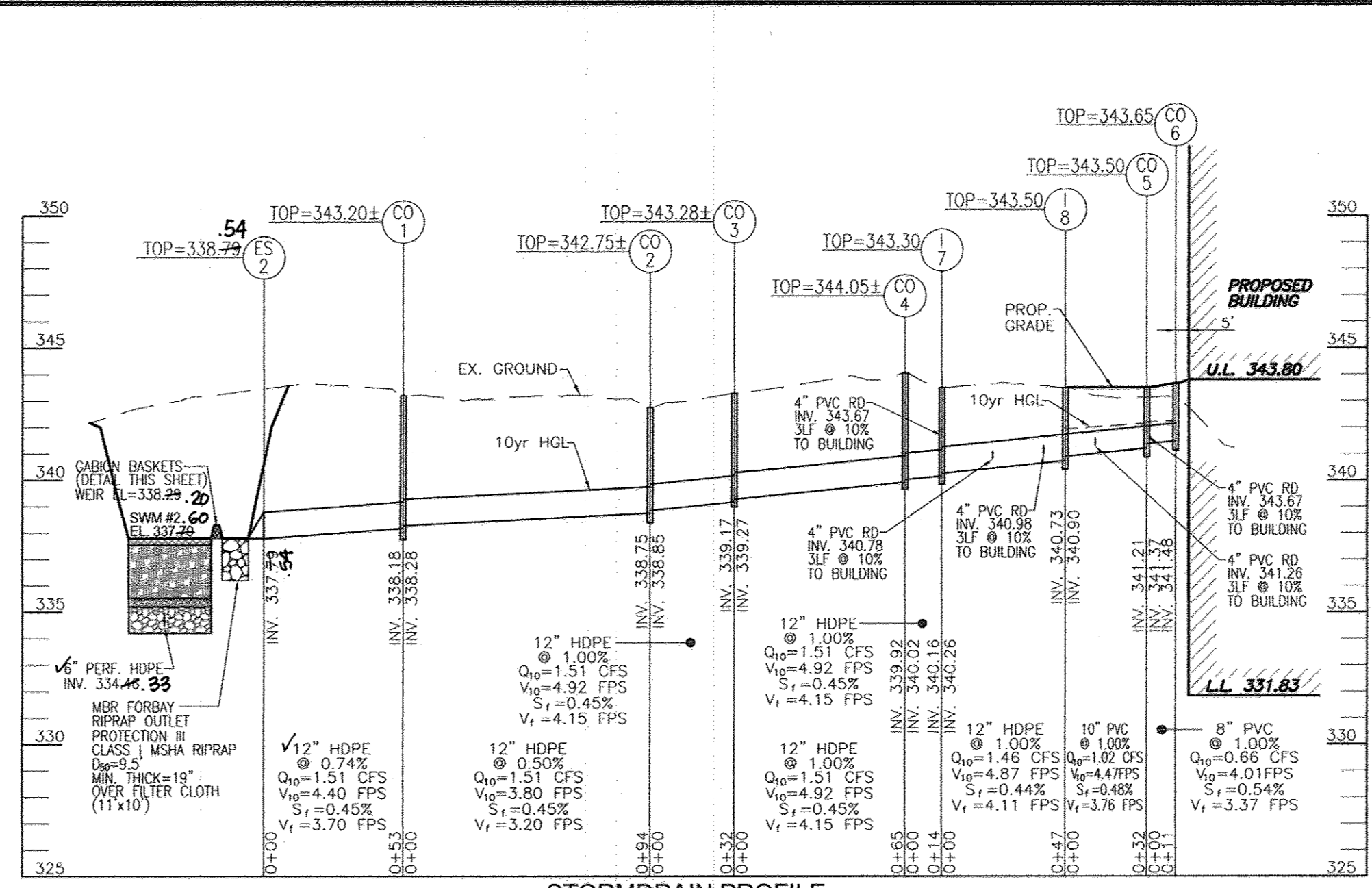
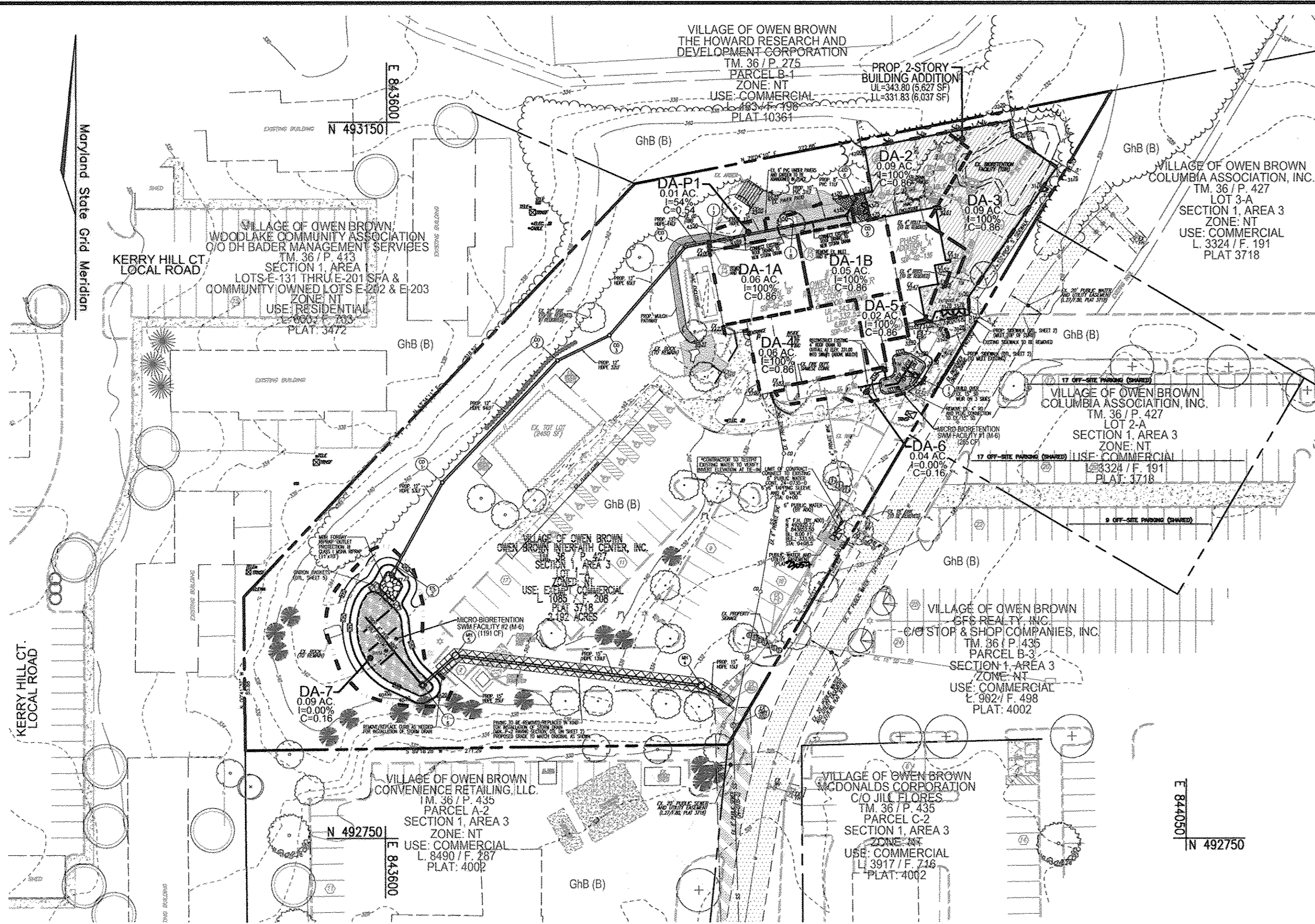
**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
8407 MAIN STREET  
ELLCOTT CITY, MD 21043  
TEL: 410.461.7666  
FAX: 410.461.8961

DESIGN BY: DZE  
DRAWN BY: DZE/JER/KG  
CHECKED BY: RHV  
DATE: SEPTEMBER 2014  
SCALE: AS SHOWN  
W.O. NO.: 11-06

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 09-27-2018

3 SHEET OF 7



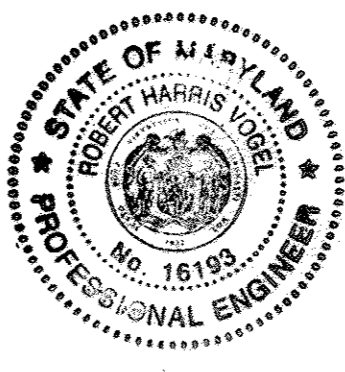


STRUCTURE SCHEDULE							
NO.	TYPE	LOCATION	TOP ELEV.	THROAT	INV. IN	INV. OUT	COMMENTS
I-5	TYPE 'D' INLET	N 493008.2 E 843897.6	332.83	332.00	332.00	325.55	HO. CO. STD SD -4.10
I-6	TYPE 'D' INLET	N 493010.0 E 843898.6	339.62	338.79	334.46	333.87	HO. CO. STD SD -4.10
I-7	ADS 15" CATCH BASIN	N 493083.2 E 843782.2	343.50	-	341.87	340.16	ADS 2815AG
I-8	ADS 15" CATCH BASIN	N 493092.2 E 843828.5	343.50	-	340.90	370.73	ADS 2815AG
MH-4	4'-0" STANDARD PRECAST MANHOLE	N 492835.3 E 843777.6	340.36	-	333.57	333.47	HO. CO. STD. G-5.12
MH-5	4'-0" STANDARD PRECAST MANHOLE	N 492852.1 E 492852.1	331.10	-	326.87	326.77	HO. CO. STD. G-5.12
CO-1	CLEANOUT	N 492948.8 E 843631.7	343.20	-	338.28	338.18	HO. CO. STD. S-2.22
CO-2	CLEANOUT	N 493016.9 E 843696.4	342.75	-	338.85	338.75	HO. CO. STD. S-2.22
CO-3	CLEANOUT	N 493031.0 E 843725.5	343.28	-	339.27	339.17	HO. CO. STD. S-2.22
CO-4	CLEANOUT	N 493080.5 E 843768.3	344.05	-	340.02	339.92	HO. CO. STD. S-2.22
CO-5	CLEANOUT	N 493098.1 E 843858.9	343.50	-	341.87	341.21	HO. CO. STD. S-2.22
CO-6	CLEANOUT	N 493107.5 E 843864.2	343.65	-	341.48	341.48	HO. CO. STD. S-2.22
ES-2	12" HDPE END SECTION	N 492898.4 E 843604.0	338.79	-	-	337.79	-

PIPE SCHEDULE		
SIZE	TYPE	LENGTH
12"	HDPE (SD)	313 LF
15"	HDPE (SD)	179 LF
4"	PVC (SD)	33 LF
8"	PVC (SD)	11 LF
10"	PVC (SD)	31 LF
6"	PERF. HDPE (SWM)	126 LF

NOTE: 1. TOP ELEVATIONS ARE AT CENTER TOP OF MANHOLE FOR TYPE 'D' INLET, TOP OF GRATE FOR ADS INLETS, AND TOP OF MANHOLE COVER FOR PRECAST MANHOLES.  
2. FOR TOP LAB SLOPES SEE GRADING PLAN.  
3. SEE ARCHITECTURAL PLANS FOR DOWNSPOUT AND ROOF DRAIN DETAILS.  
4. ALL CUSTOM AND NON-STANDARD STRUCTURES TO BE DESIGNED BY A QUALIFIED STRUCTURAL ENGINEER.

**AS-BUILT CERTIFICATION**  
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.  
ROBERT H. VOGEL PE NO 10193 2/16/17 DATE



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 Chief, Development Engineering Division: 10-31-14  
 Chief, Division of Land Development: 11-27-14  
 Director: 11/25/14

**OWNER/DEVELOPER**  
OWEN BROWN INTERFAITH CENTER, INC.  
UNDESY THOMPSON  
7246 CRADLEROCK WAY  
COLUMBIA, MD 21045  
410-381-2000

NO.	REVISION	DATE

**SITE DEVELOPMENT PLAN**  
**STORM DRAIN DRAINAGE AREA MAP**  
**AND UTILITY PROFILES**

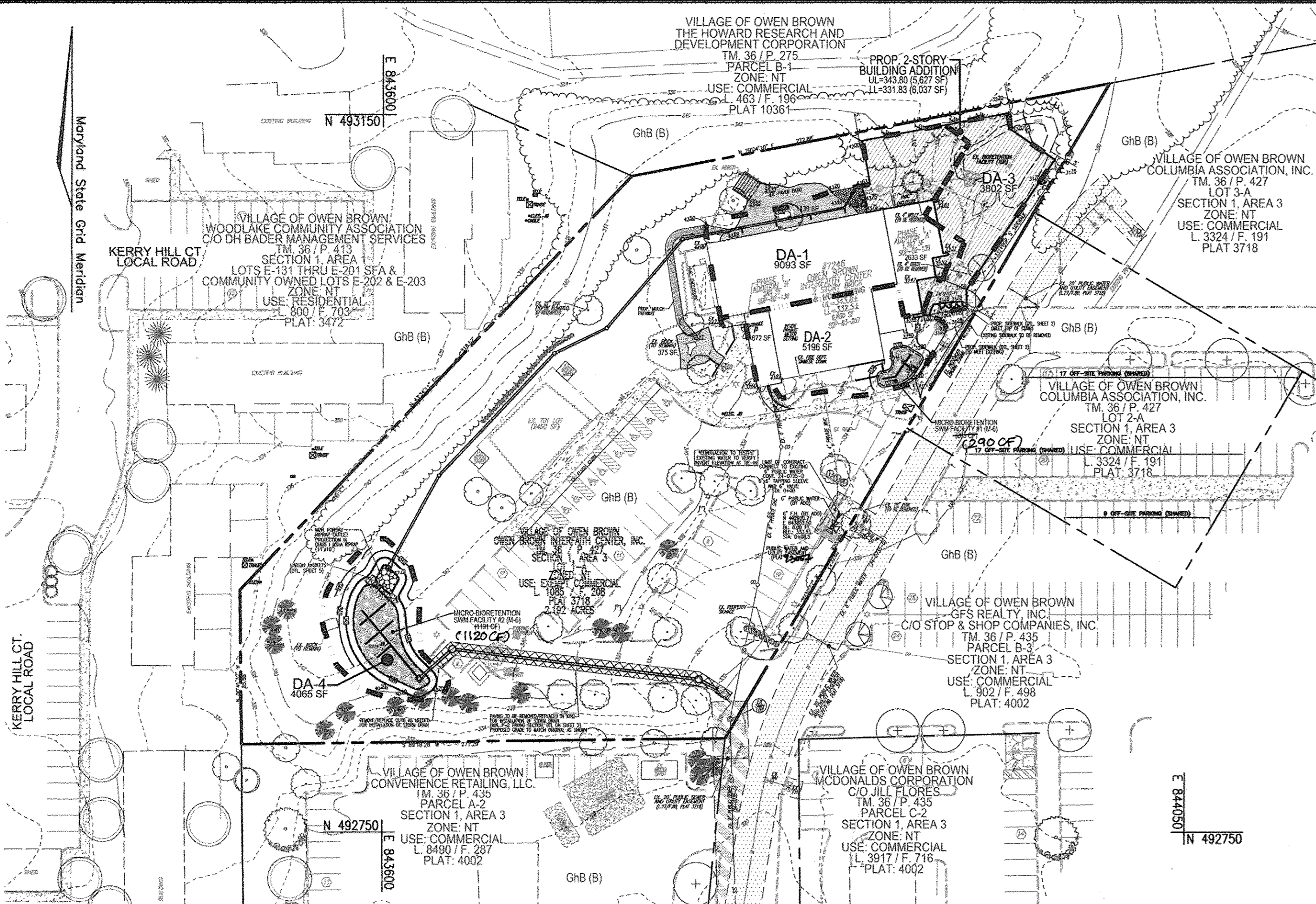
**OWEN BROWN INTERFAITH CENTER**  
UNITARIAN UNIVERSALIST CONGREGATION OF COLUMBIA

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

**PROFESSIONAL CERTIFICATE**  
DESIGN BY: DZE  
DRAWN BY: DZE/JER/KG  
CHECKED BY: RHV  
DATE: SEPTEMBER 2014  
SCALE: AS SHOWN  
W.O. NO.: 11-06

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. 10193, EXPIRATION DATE 09-27-2016.

5 OF 7



- SWM DRAINAGE AREAS:**
- STORMWATER MANAGEMENT FOR DRAINAGE AREAS 1 AND 4 TO BE PROVIDED IN MICROBIORETENTION #2.
  - STORMWATER MANAGEMENT FOR DRAINAGE AREA 2 TO BE PROVIDED IN MICROBIORETENTION #1.
  - DRAINAGE AREA 3 IS DIRECTED TO THE EXISTING STORM DRAIN SYSTEM.

**SWM DRAINAGE AREA MAP**  
SCALE: 1"=50'

SOILS LEGEND			
SYMBOL	NAME / DESCRIPTION	GROUP	
GhB	GLENELG-URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES	D	

NOTE: BASED ON HOWARD SOIL SURVEY

**APPENDIX B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BERMS**

**1. MATERIAL SPECIFICATIONS**  
THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

**2. FILTERING MEDIA OR PLANTING SOIL**  
THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE AN OBSTACLE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BENEDICA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.

THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:  
 \* SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (20%), AND COMPOST (40%).  
 \* CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.  
 \* PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G. LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.  
 THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH AND ADDITIONAL TESTS OF ORGANIC MATTER AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

**3. COMPACTION**  
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING LOADERS, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TUFF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

COMPACTION CAN BE AVOIDED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL FLOW, RYPER, OR SUBSOILERS. THESE TILLING OPERATIONS ARE TO REFRACTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT. ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDING WATER BEFORE PREPARING (ROTOTILLING) BASE.

WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.

WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE FACILITY TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/GRADER WITH MARSH TRACKS.

**4. PLANT MATERIAL**  
RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.

**5. PLANT INSTALLATION**  
COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.

ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION. TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL. GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.

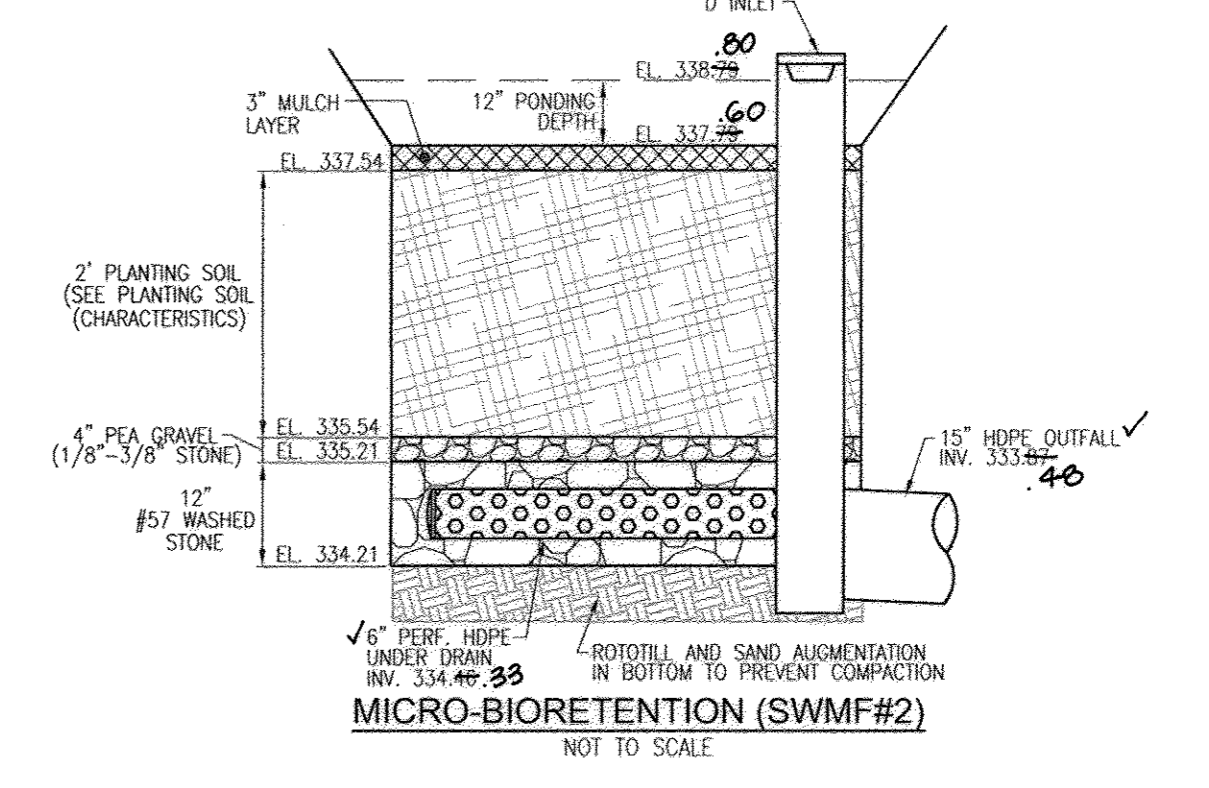
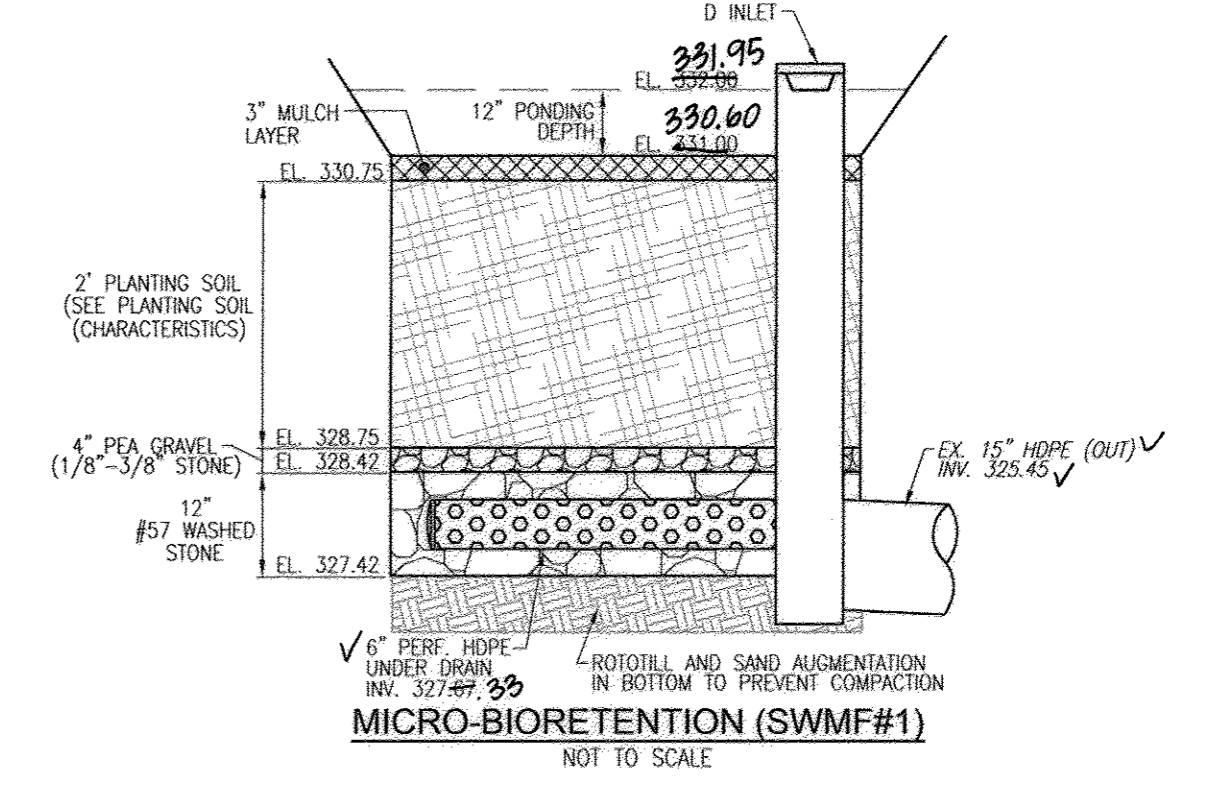
THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS, SEEDS, OR AT A MINIMUM MIXES THIS COAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 5 POUNDS PER 1000 SQUARE FEET.

**6. UNDERDRAINS**  
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:  
 \* PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM 758, TYPE PS 28, OR ASHMO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED 4" RIGID PIPE (E.G. PVC OF HDPE).  
 \* PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 1/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4x4) GALVANIZED HARDWARE CLOTH.  
 \* GRAVEL - THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.  
 \* THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.  
 \* A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.  
 \* A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES INTO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".  
 THIS MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1,000 SQUARE FEET OF SURFACE AREA).

**7. MISCELLANEOUS**  
THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING UPRANGE AREA HAS BEEN STABILIZED.

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

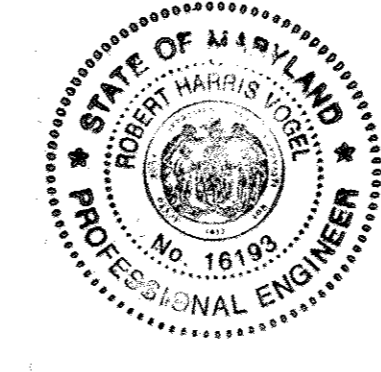
- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE 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.
- THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT. REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
- THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.



**MICROBIORETENTION NOTES:**  
 ONLY THE SIDES OF MICROBIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICROBIORETENTION WILL CAUSE THE MBR TO FAIL AND THEREFORE SHALL NOT BE INSTALLED.  
 2. WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH.

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Material	Specifications	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil (2" to 4" deep)	loamy sand (60-65%) & compost (35-40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min 10% by dry weight (ASTM D 2974)	n/a	
Mulch	shredded hardwood	n/a	aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 4 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone; washed cobbles	stone: 2" to 5"	
Geotextile	n/a	n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" TO 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe, 3/8" perf @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipe; not necessary unless pipe is used for clean-out; perforated pipe shall be wrapped with 1/4 inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; F <sub>c</sub> = 3500 psi @ 28 days, normal weight, air-entrained, reinforcing to meet ASTM 615-60	n/a	on-site testing of poured-in-place concrete required; 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 308.4R99; vertical loading (10-10 or 10-20), allowable horizontal loading (based on soil pressures), and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Gneiss (AASHTO) #10 are not acceptable. No calcium sulfonated or diatomaceous sand substitutions are acceptable. No "took dust" can be used for sand.



**AS-BUILT CERTIFICATION**

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

ROBERT H. VOGEL  
2/16/17  
DATE

**BORING LOG** GEOLAB, INC.

Elevation	Depth	DESCRIPTION OF MATERIALS (Observations)	Remarks
330.5	0.0	Sod with root (matter) and organic soil	Boring dry during drilling and at completion.
330.5	0.5	Brown micaceous fine to medium SAND with some silt, moist (GM, Loamy Sand)	
330.5	3.0	Gray to brown and gray micaceous fine to medium SAND with little silt, moist (GM, Loamy Sand)	12.3
330.5	5.0		13.2
330.5	5.5		
330.5	9.0		17.8
330.5	10.0	End of Boring	

**BORING LOG** GEOLAB, INC.

Elevation	Depth	DESCRIPTION OF MATERIALS (Observations)	Remarks
330.5	0.0	Sod with root (matter) and organic soil	Boring dry during drilling and at completion.
330.5	0.5	Brown clayey SILT with some fine sand, moist (ML, Loam)	
330.5	2.5		22.8
330.5	3.0		
330.5	5.0		18.7
330.5	5.5		
330.5	9.0		17.6
330.5	9.5		
330.5	10.0	End of Boring	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad P. ... 10.31.14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Rob ... 11.25.14  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mark ... 1/25/14  
 DIRECTOR DATE

DRAINAGE AREA #	TREATED AREA	FACILITY NUMBER	PERMEABLE PAVEMENT	LANDSCAPE PAVE	PERVIOUS INFILTRATION	BIO SWALE	GRAVEL TRENCH	MICRO BIO RETENTION	X	ESDV VOLUME
184	12786	2	0	0	0	0	0	1191	0	1191
2	6515	1	0	0	0	0	0	285	0	285
SUBTOTAL 1			0	0	0	0	0	0	0	1476
TOTAL AREA										18357 SF
TOTAL ESDV PROVIDED										1476 AC

ENVIRONMENTAL SITE DESIGN PRACTICE										
DRAINAGE AREA #	TREATED AREA	FACILITY NUMBER	PERMEABLE PAVEMENT	LANDSCAPE PAVE	PERVIOUS INFILTRATION	BIO SWALE	GRAVEL TRENCH	MICRO BIO RETENTION	X	ESDV VOLUME
184	12786	2	0	0	0	0	0	1191	0	1191
2	6515	1	0	0	0	0	0	285	0	285
SUBTOTAL 1			0	0	0	0	0	0	0	1476
TOTAL AREA										18357 SF
TOTAL ESDV PROVIDED										1476 AC

**SITE DEVELOPMENT PLAN**  
**STORMWATER MANAGEMENT DRAINAGE AREA MAP AND SWM DETAILS**

**OWEN BROWN INTERFAITH CENTER**  
 UNITARIAN UNIVERSALIST CONGREGATION OF COLUMBIA

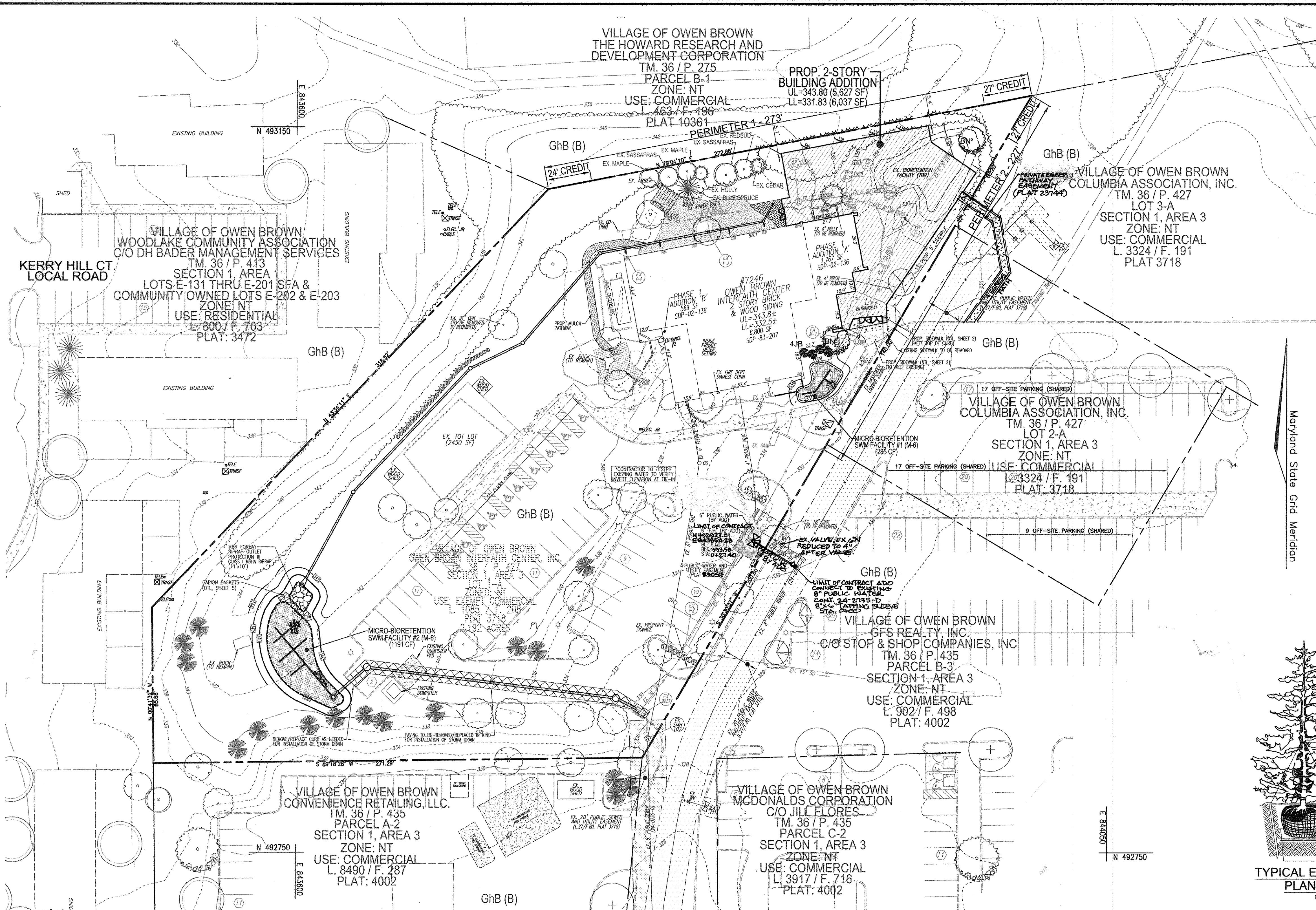
**ROBERT H. VOGEL ENGINEERING, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS

8407 MAIN STREET  
 ELLICOTT CITY, MD 21043 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: DZE  
 DRAWN BY: DZE/JER/KG  
 CHECKED BY: RHV  
 DATE: SEPTEMBER 2014  
 SCALE: AS SHOWN  
 W.O. NO.: 11-06

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.  
 EXPIRATION DATE: 09-27-2016

6 OF 7



**SCHEDULE A PERIMETER LANDSCAPE EDGE**

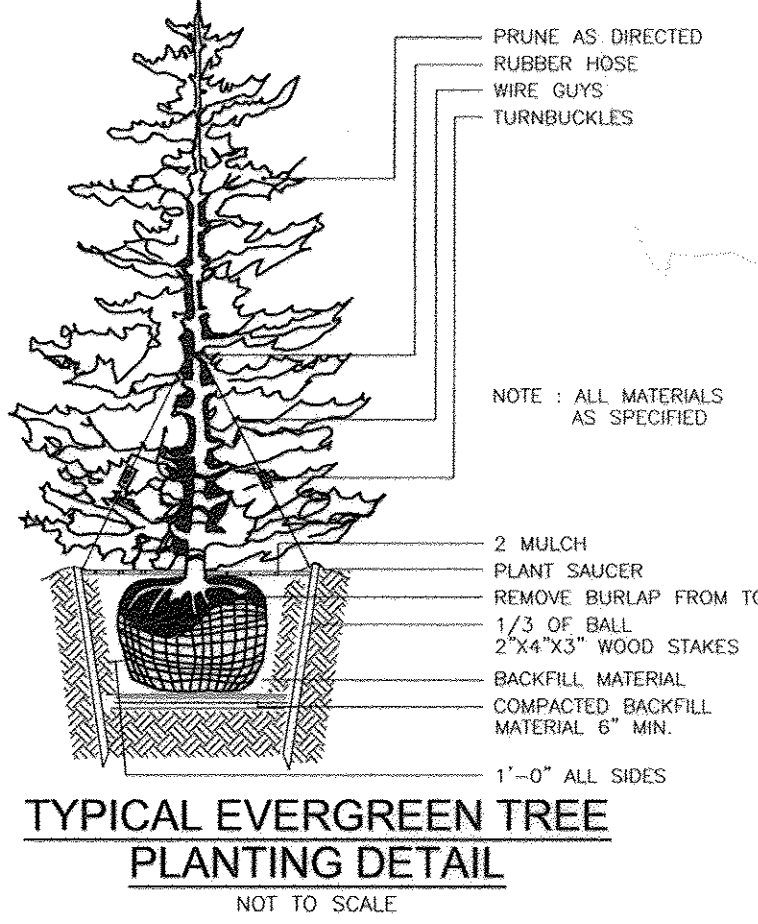
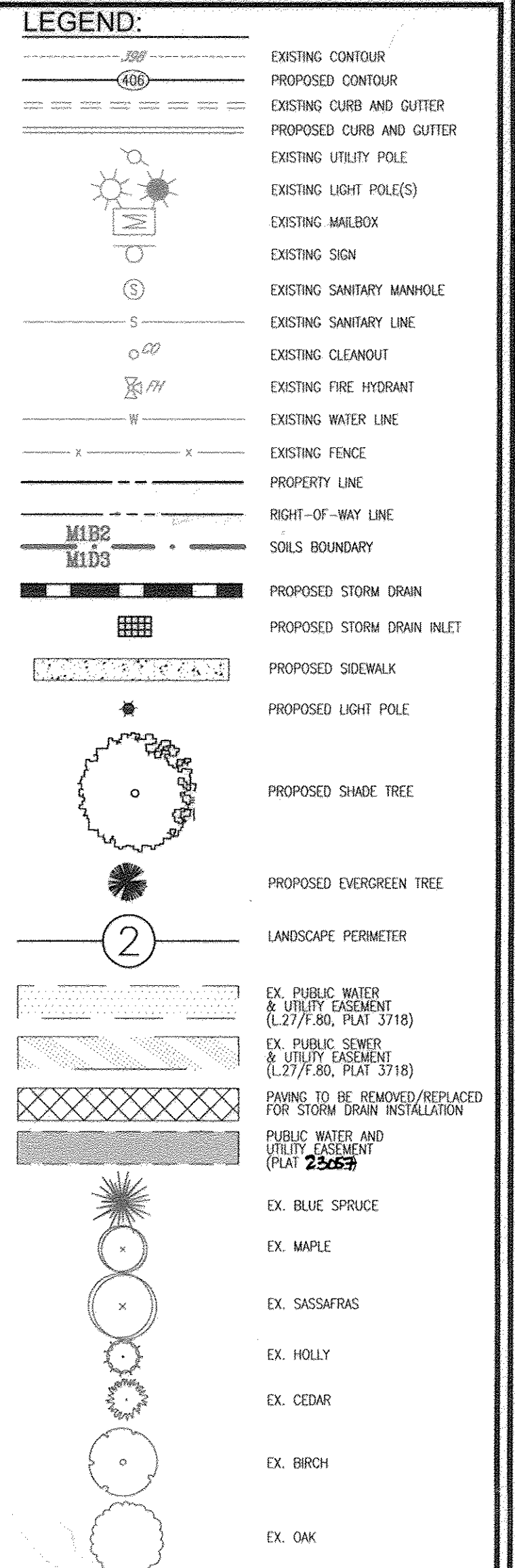
CATEGORY	ADJACENT TO PERIMETER PROPERTIES	1	2
PERIMETER/FRONTAGE DESIGNATION		1	2
LANDSCAPE TYPE		1	2
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER		273	227'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)		51'	27'
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)		NO	NO
NUMBER OF PLANTS REQUIRED		222	200'
SHADE TREES		1,600	1,600
EVERGREEN TREES		4	8
NUMBER OF PLANTS PROVIDED		222	200'
SHADE TREES		222	200'
EVERGREEN TREES		4	8
OTHER TREES (2:1 SUBSTITUTION)		2	4
SHRUBS (10:1 SUBSTITUTION)		2	4
EX. SHADE TREES		2	2
EX. EVERGREEN TREES		2	2
EX. OTHER TREES (2:1 SUBSTITUTION)		2	2
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED			

\* CREDIT FOR EXISTING SHADE, ORNAMENTAL AND EVERGREEN TREES IN PERIMETER 1. SUBSTITUTION 4 EVERGREENS FOR 2 SHADE TREES IN PERIMETER 2.

**LANDSCAPE PLANT LIST**

KEY	QUAN.	BOTANICAL NAME	SIZE	CAT
BN	2	BETULA NIGRA 'HERITAGE'	2 1/2"-3" CAL.	B & B
JB	4	JUNIPERUS VIRGINIANA 'BLUE ARROW'	5'-6' HT.	B & B

- LANDSCAPE GENERAL NOTES**
- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT ANN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH LOAMMY PLANTING SPECIFICATIONS.
  - CONTRACTOR SHALL CERTIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
  - FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
  - CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING, IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
  - THE PROPERTY OWNER WILL BE RESPONSIBLE FOR MAINTAINING STREET TREES WITHIN THE PUBLIC RIGHT-OF-WAY.
  - FINANCIAL SURETY FOR THE ADDITIONAL 2 SHADE TREES, AND 4 EVERGREEN TREES IN THE AMOUNT OF \$1,200 LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT FOR THIS PROJECT.
  - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISION OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
  - THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION AND WHEN NECESSARY, REPAIRED OR REPLACED.
  - AT THE TIME OF INSTALLATION, ALL SHRUBS AND OTHER PLANTINGS HERELISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPING MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNIT SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.
  - THE PROPOSED EXTERIOR ALTERATION AND LANDSCAPING HAVE BEEN REVIEWED AND APPROVED BY THE OWEN BROWN VILLAGE ASSOCIATION UNDER APPLICATION #19055, DATED JANUARY 10, 2014. THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION DOES NOT HAVE REVIEW RIGHTS OVER THE OWEN BROWN INTERFAITH CENTER, THEREFORE, THEIR APPROVAL IS NOT REQUIRED.



**OWNER/DEVELOPER**  
OWEN BROWN INTERFAITH CENTER, INC.  
LINDSEY THOMPSON  
7245 CRADLEROCK WAY  
COLUMBIA, MD 21045  
410-381-2000

NO.	REVISION	DATE
2	REVISED TO REMOVE EAT STAIRS AND TO ADD A PATH, REVISE PM FOR NEWADA	04/22/16

**SITE DEVELOPMENT PLAN**  
**LANDSCAPE PLAN**

**OWEN BROWN INTERFAITH CENTER**  
UNITARIAN UNIVERSALIST CONGREGATION OF COLUMBIA  
BUILDING ADDITION

TAX MAP 36 BLOCKS 21  
VILLAGE OF OWEN BROWN SECTION 1, AREA 3, LOT 1-A  
ZONED NT PLAT 3718

**ROBERT H. VOGL ENGINEERING, INC.**  
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ELLICOTT CITY, MD 21043  
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DESIGN BY: DZE  
DRAWN BY: DZE/JER/KG  
CHECKED BY: RHY  
DATE: SEPTEMBER 2014  
SCALE: AS SHOWN  
W.O. NO.: 11-06

PROFESSIONAL CERTIFICATE  
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EXPIRATION DATE: 09-27-2016

7 SHEET OF 7

**BIORETENTION PLANT LIST**

KEY	QUAN.	BOTANICAL NAME	SIZE	REMARKS
AI	12	ASCLEPIAS INCARNATA SWAMP MILKWEEED	1 GAL.	18" O/C
CG	11	CHELONE GLABRA WHITE TURTLEHEAD	1 GAL.	18" O/C
HM	3	HEBESCUS MACHROELOS ROSEMAW	1 GAL.	30" O/C
IV	18	IRIS VERSICOLOR	1 GAL.	18" O/C
LS	11	LOBELIA SIPHILITICA GREAT BLUE LOBELIA	1 GAL.	18" O/C
SO	14	SOLIDAGO ODORA SWEET GOLDENROD	1 GAL.	18" O/C
CS	9	CORNUS SERICEA 'C RACEMOSA RED TWIGGED DOGWOOD	4"-6" HT.	SPECIM QUALITY STRAIGHT LEADER
PD	115	FONSTEDION DIGITALIS FOXGLOVE BEARDTONGUE	1 QT.	12" O/C
SA	110	SISYRINCHUM ANGUSTIFOLIUM BLUE-EYED GRASS	1 QT.	12" O/C
SL	45	SALVIA LYRATA LYRE LEAF SAGE	1 QT.	12" O/C

**SCHEDULE D - STORMWATER MANAGEMENT AREA LANDSCAPING**

LINEAR FEET OF PERIMETER	227 LF (TOTAL ALL MICRO-BIORETENTIONS)
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND 2)	YES, 100%*
NUMBER OF TREES REQUIRED (8 BUFFER)	0 SHADE TREES 0 EVERGREEN TREES
NUMBER OF TREES PROVIDED	SEE BIORETENTION PLANT LIST*

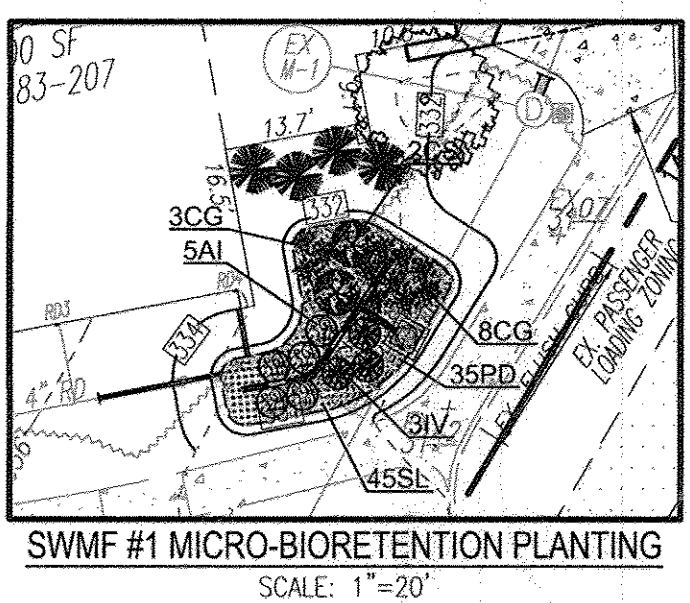
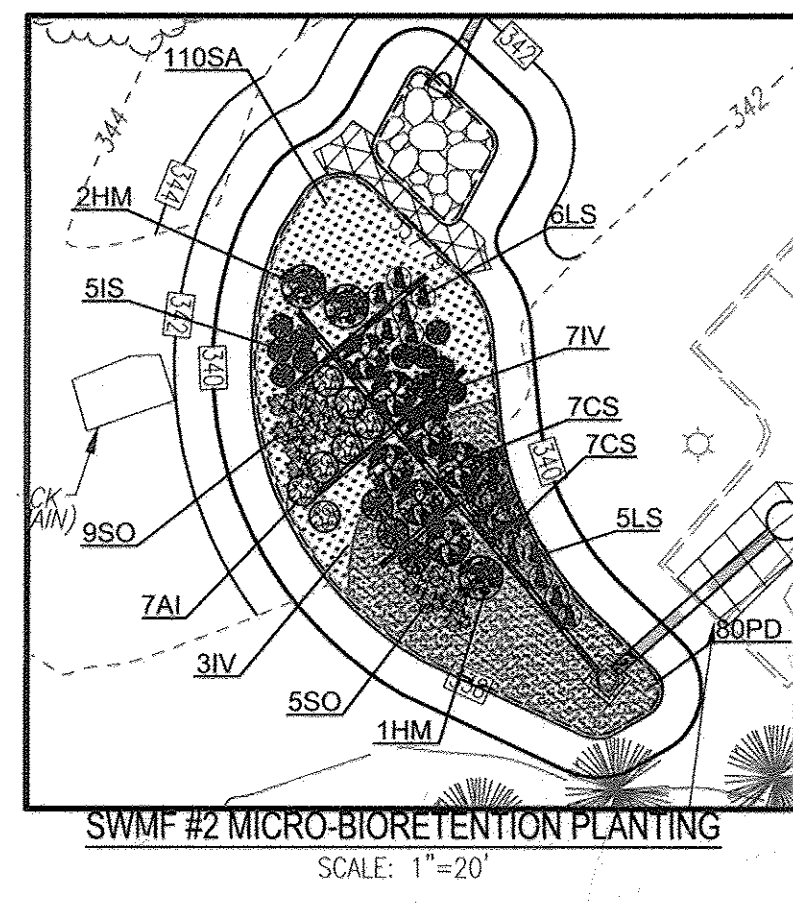
\*SURETY FOR BIORETENTION PROVIDED IN THE BID COST ESTIMATE

**BIORETENTION PLANTING REQUIREMENTS**

MBR	AREA	STEMS REQUIRED	STEMS PROVIDED
SWMF #1	285 SF	27	27
SWMF #2	1191 SF	27	27

BIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEM PER PLANTED ACRE (0.229 STEM PER SQUARE FOOT).

**PLAN VIEW**  
SCALE: 1"=30'



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division  
DATE: 10-31-14

Chief, Division of Land Development  
DATE: 11-25-14

Director  
DATE: 11/25/14

**DEVELOPER'S/BUILDER'S CERTIFICATE**

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

James L. Stephens  
SIGNATURE OF DEVELOPER  
DATE: 9-19-14

**NO AS-BUILT INFORMATION THIS SHEET**