FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD
LOTS 1-64 , OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. 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.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
4. ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MdMUTCD).
5. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH 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.
6. THE TOPOGRAPHY SHOWN HEREON IS BASED ON AN AERIAL TOPOGRAPHIC SURVEY PREPARED BY POTOMAC AERIAL SERVICES, INC. DATED APRIL 2005.
7. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 31EA AND 31EB WERE USED FOR THIS PROJECT.
8. WATER AND SEWER FOR THIS PROJECT WILL BE PUBLIC. WATER WILL BE PROVIDED THROUGH CONTRACT NO. 14-4095-D, AND 208-W. SEWER WILL BE CONNECTED TO CONTRACT NO. 10-1214-D.
9. STORM WATER MANAGEMENT TO BE PROVIDED FOR THIS DEVELOPMENT BY ENVIRONMENTAL SITE DESIGN UTILIZING MICRO BIO RETENTION, RAIN BARRELS, PERVIOUS DRIVEWAYS AND SIDEWALKS. COUNTY WILL MAINTAIN INLET STRUCTURES WITHIN EACH MICRO BIO RETENTION, AND HOA SHALL MAINTAIN STREET TREES, PERFORATED UNDER DRAINS, FEEDERS, PLANTINGS, SWALES, AND DRIVEWAY CULVERTS WITHIN THE EASEMENT. THE MICRO BIO RETENTION FACILITIES WILL BE JOINTLY MAINTAINED BY HOWARD COUNTY AND THE HOA. THE PERMEABLE CONCRETE DRIVEWAYS AND RAIN BARRELS WILL BE PRIVATELY MAINTAINED BY THE INDIVIDUAL HOMEOWNERS.
10. EXISTING UTILITIES ARE BASED ON HOWARD COUNTY RECORDS AND FIELD SURVEY.
11. THERE IS NO 100-YR FLOODPLAIN WITHIN THE LIMITS OF THIS PROJECT.
12. STREAMS AND WETLANDS SHOWN ON-SITE ARE BASED ON A FIELD INVESTIGATION PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED FEBRUARY 2, 2009. THERE ARE NO PROPOSED DISTURBANCE TO STREAMS, WETLANDS OR ASSOCIATED BUFFERS.
13. A TRAFFIC STUDY IS NOT REQUIRED FOR THIS PROJECT SINCE THERE IS NOT A STUDY INTERSECTION WITHIN 1-1/2 MILES OF THE SITE.
14. THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC DATED DECEMBER OF 2005.
15. FOREST STAND DELINEATION PLAN WAS PREPARED BY ROBERT H. VOGEL ENGINEERING INC AND McCARTHY AND ASSOCIATES, DATED NOVEMBER 3, 2008.
16. FOREST CONSERVATION PLAN PREPARED BY ROBERT H. VOGEL ENGINEERING, INC.
17. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO CEMETERIES OR GRAVE SITES LOCATED ON THE SUBJECT PROPERTY.
18. THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION OF 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.
19. THE SUBDIVISION PLAN IS SUBJECT TO THE FOLLOWING DPZ FILES S-06-006, WP-09-092, WP-10-002 AND SP-10-001.
20. THE SUBJECT PROPERTY IS ZONED "R-20" AND "R-ED" IN ACCORDANCE WITH THE 2/2/04 COMPREHENSIVE ZONING PLAN AND THE COMP. LITE ZONING REGULATIONS EFFECTIVE ON 7/28/06.
21. A TOTAL OF 64 LOTS AND 5 OPEN SPACE LOTS ARE PROPOSED UNDER THIS PLAN. THE LOTS HAVE BEEN CREATED BY A SUBDIVISION OF PARCEL 115.
22. OPEN SPACE LOTS 65, 66, 67, 68 AND 69 TO BE OWNED AND MAINTAINED BY THE HOA. THE GENERAL PURPOSE OF THE OPEN SPACE LOTS IS RESERVED FOR COMMON USE OF THE RESIDENTS. SPECIFICALLY, LOTS 65 AND 69 ARE FOR COMMON USE, LOT 67 IS FOR SWM PURPOSES AND COMMON USE, LOT 66 IS FOR A PORTION OF SWM AND FOR ENVIRONMENTAL FEATURES, AND LOT 68 IS FOR RECREATIONAL OPEN SPACE AND AVAILABLE FOR GENERAL PUBLIC USE.
23. ALL DRIVEWAY ENTRANCES SHALL UTILIZE HOWARD COUNTY STANDARD DETAIL NO. R-6.03 MODIFIED FOR SIDEWALK ADJACENT TO CURB.
24. REFUSE COLLECTION, SNOW REMOVAL, AND MAINTENANCE FOR LOTS 23 THROUGH 28, AND 33 THROUGH 36 SHALL BE PROVIDED AT THE JUNCTION OF PRIVATE USE-IN-COMMON ACCESS EASEMENT AND THE RIGHT-OF-WAY OF PROPOSED ROAD.
25. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE, LANDSCAPE MANUAL AND GREEN NEIGHBORHOOD REQUIREMENTS WITH 151 SHADE TREES, 62 EVERGREEN TREES AND 10 SHRUBS. PROVIDED WITH LANDSCAPE SURETY IN THE AMOUNT OF $54,900.00 TO BE PROVIDED WITH THE DPW DEVELOPER'S AGREEMENT." (THE UNIT PRICES TO BE USED FOR ESTABLISHING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE ADOPTED COUNTY FEE SCHEDULE WHICH IS $300.00 PER SHADE TREE, $150.00 PER EVERGREEN/ORNAMENTAL TREE, AND $30.00 PER SHRUBS).
26. ILCHESTER ROAD AND BEECHWOOD ROAD ARE SCENIC ROADS. A TYPE B LANDSCAPE BUFFER WILL BE PROVIDED ALONG BOTH ROAD FRONTAGES EXCEPT WHERE A FOREST CONSERVATION EASEMENT IS TO BE ESTABLISHED.
27. TREE PROTECTION FENCING WILL BE PROVIDED AT THE LIMITS OF DISTURBANCE WHERE GRADING IS ADJACENT TO ENVIRONMENTAL AREAS AND RETENTION FOREST CONSERVATION AREAS.
28. STREET TREES ARE PROVIDED FOR THIS SUBDIVISION IN ACCORDANCE WITH SECTION 16.124(e)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF $37,500.00 TO BE POSTED AS PART OF THE DEVELOPER AGREEMENT FOR THE REQUIRED 125 STREET TREES. THE STREET TREES WITHIN THE 18' EASEMENT SHALL BE OWNED AND MAINTAINED BY LOCUST CHAPEL HOMEOWNER ASSOCIATION.
29. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION MANUAL. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
30. TOTAL FOREST CONSERVATION OBLIGATION IS 9.40 AC., TO BE FULFILLED BY RETENTION OF 13.24 ACRES. TOTAL FINANCIAL SURETY OBLIGATION IS $115,347.00 (576,734.40 X 0.20 = $115,346.88).
31. ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE - 3' LONG). A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON THE TOP OF EACH POST.
32. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAMS, OR THEIR BUFFERS. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENTS.
33. SEDIMENT AND EROSION CONTROL WILL BE PROVIDED FOR THIS SITE.
34. A NOISE STUDY IS NOT REQUIRED FOR THIS SUBDIVISION.
35. THERE ARE EXISTING STRUCTURES LOCATED ON PARCEL 115. THE EXISTING HOUSE AND EXISTING OUTBUILDING ON LOT 64 IS TO REMAIN. THE EXISTING SHED LOCATED ON LOT 66 IS TO BE REMOVED PRIOR TO PLAT RECORDATION.
36. USING THE NEIGHBORHOOD PRESERVATION EXCHANGE OPTION DESCRIBED IN SECTION 128.L OF THE ZONING REGULATIONS, THE RIGHTS FOR 1 OF THE RESIDENTIAL LOTS SHOWN ON THE SUBDIVISION PLAN FOR LOCUST CHAPEL, SECTION 1 HAS BEEN TRANSFERRED FROM PARCEL 703, TAX MAP 31, GRID 22, BREWER PROPERTY.
37. A TEMPORARY ACCESS EASEMENT OVER AND ACROSS OPEN SPACE LOT 69, LOTS 61, 62 AND 63 IS REQUIRED TO ACCOMODATE THE EXISTING DRIVEWAY TO THE RESIDENCE ON PARCEL 122. THIS EASEMENT WILL BECOME NULL AND VOID, CEASE TO EXIST, AND ALL RIGHTS GRANTED TO THE OWNER(S) OF PARCEL 122 SHALL REVERT TO THE OWNERS OF OPEN SPACE LOT 69, LOTS 61, 62 AND 63 SUBSEQUENT TO RECORDING OF THE PLAT FOR THIS SUBDIVISION AND THE CONNECTION OF THE PARCEL 122 DRIVEWAY TO A PUBLIC ROAD.
38. THE EXISTING PRIVATE WELL EASEMENT WILL BE EXTINGUISHED AND THE WELL ABANDONED SUBSEQUENT TO CONSTRUCTION OF THE PUBLIC WATER MAIN AND CONNECTION OF PARCEL 122 TO THE PUBLIC WATER MAIN.
39. THIS PLAN IS SUBJECT TO WP-09-92 APPROVED JANUARY 21, 2009 TO WAIVE SECTION 16.147 OF THE REGULATIONS AND PERMITS THE CONSOLIDATION OF 856 AND 115 BY ADJOINER DEED.
40. THIS PLAN IS SUBJECT TO WP-10-002 APPROVED JULY 14, 2009 TO WAIVE SECTION 16.147 OF THE REGULATIONS, AND PERMITS THE CONSOLIDATION OF 856 AND 115 BY ADJOINER DEED. THE DEEDS, AGREEMENTS, AND EASEMENTS REQUIRED BY THE WAIVER WERE RECORDED ON AUGUST 6, 2009. APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
    I. A. PLAN STATUS FOR S-06-006 - THE NEW PRELIMINARY EQUIVALENT SKETCH PLAN (SP) WHICH IS COMING IN FOR CONSOLIDATED PARCELS 856 AND 115 WILL DESIGNATE THE WELSH'S LAND (PARCEL 122) AS SECTION 2 AND WILL INCLUDE A NOTE EXPLAINING THAT PARCEL 122 WILL RETAIN THE 20 HOUSING UNIT ALLOCATIONS REQUESTED AS PART OF S-06-006. THIS REPRESENTATION OF PARCEL 122 WILL ALLOW S-06-006 TO REMAIN IN THE HOLDING BIN FOR ALLOCATIONS (ELKRIDGE).
    B. DEVELOPMENT PHASING - WHEN PARCEL 122 IS LATER SUBDIVIDED, IT WILL REQUIRE A NEW SP (OR COMPLIANCE WITH THE THEN-EFFECTIVE REGULATIONS). IF HOUSING ALLOCATIONS IN EXCESS OF THE 20 ASSOCIATED WITH S-06-006 ARE NEEDED, THEY WILL HAVE TO BE ACQUIRED IN CONJUNCTION WITH THE NEW SP. BASED ON CONVERSATION WITH THE WELSH'S AND THEIR CONSULTANT, IT IS ANTICIPATED THAT THE SP FOR PARCEL 122 WILL "STAND ALONE" IN TERMS OF FOREST CONSERVATION (FC), STORM WATER MANAGEMENT (SWM), OPEN SPACE (OS), ETC.
    II. RECORDATION OF THE FOLLOWING AGREED UPON DEEDS/EASEMENTS SHALL BE DONE PRIOR TO THE SUBMISSION OF THE SP FOR CONSOLIDATED PARCELS 856 AND 115.
        A. THE DEEDS ADJUSTING THE BOUNDARY BETWEEN PARCELS 856 AND 122 (TO RECTIFY THE BARN SETBACK ENCROACHMENT);
        B. THE CONSOLIDATED DEED FOR PARCEL 856 AND 115;
        C. THE ACCESS EASEMENT/MAINTENANCE AGREEMENT FOR THE PORTION OF THE EXISTING DRIVEWAY ON PARCEL 856 WHICH SERVES PARCEL 122; AND,
        D. AN EASEMENT FOR THE EXISTING WELL WHICH IS LOCATED ON PARCEL 856 AND SERVES THE WELSH'S DWELLING(S) ON PARCEL 122.

    ALL OF THESE DOCUMENTS MUST BE RECORDED AND COPIES SUBMITTED TO THIS DEPARTMENT FOR FILE RETENTION PURPOSES WITHIN 60-DAYS OF THE DATE OF THIS WAIVER APPROVAL (ON OR BEFORE SEPTEMBER 12, 2009).
    III. CONFIRMATION THAT THE EXISTING STRUCTURE ON PARCEL 122 MEETS ZONING SETBACKS RELATIVE TO THE COMMON BOUNDARY BETWEEN PARCELS 856 AND 122 WILL BE REQUIRED. A STATEMENT OF CONFIRMATION SHOULD ACCOMPANY THE REQUESTED COPIES OF ALL DEEDS.
    IV. PARCEL 122 HOOKUP TO PUBLIC WATER AND SEWER: PER THE DEVELOPER AGREEMENT FOR SECTION 1, THE DEVELOPER OF THAT SECTION WILL BE RESPONSIBLE FOR EXTENDING PUBLIC WATER AND SEWER TO THE EXISTING HOME ON PARCEL 122. THIS CONNECTION SHALL BE MADE BEFORE THE EXISTING WELL IS ABANDONED.
    V. COMPLIANCE WITH THE DEVELOPMENT ENGINEERING DIVISION'S COMMENT: "NO FURTHER DEVELOPMENT WILL BE PERMITTED ON PARCELS 115 AND 856 WITHOUT PRIOR SUBDIVISION. IT IS NOTED THAT THE DEVELOPER OF PARCELS 856 AND 115 HAS HAD PRELIMINARY MEETINGS FOR THE DEVELOPMENT OF A GREEN NEIGHBORHOOD DESIGN WITH THE COUNTY.
    VI. A NUMBER OF DISCREPANCIES EXIST WITHIN THE ACREAGE GIVEN FOR PARCEL 856 AND THE RESIDUE OF PARCEL 122. THIS WAIVER APPROVAL INVOLVES THE RECONFIGURATION OF TWO (2) PARCELS ONLY: PARCEL 122 AND THE NEW CONSOLIDATED PARCEL 856/115. NO OTHER PARCEL IS BEING LEGALLY ENDORSED.
    VII. ALTHOUGH NOT A CONDITION OF THIS WAIVER APPROVAL, SECTION 107.E OF THE ZONING REGULATIONS REQUIRES PLANNING BOARD (PB) APPROVAL OF A PRELIMINARY EQUIVALENT SKETCH PLAN FOR R-ED ZONED PROPERTY - SINCE PARCEL 115 IS NOT SHOWN ON ZB-1071M IT MUST BE PRESENTED AND APPROVED BY THE PLANNING BOARD.
    VIII. ALTHOUGH NOT A CONDITION OF THIS WAIVER APPROVAL, THE SUBMISSION OF DEVELOPMENT PLANS WHICH INCLUDE THE ACREAGE OF CURRENT PARCEL 115, MAY REQUIRE CONSIDERATION BY THE HISTORIC DISTRICT COMMISSION (HDC).
41. ALL WALKS AND PATHS WITHIN PROJECT BOUNDARY TO BE WATER PERMEABLE.
42. LOCUST CHAPEL SECTION II, PARCEL 122, RETAINS 20 HOUSING UNIT ALLOCATIONS REQUESTED AS PART OF S-06-006.
43. THE HISTORIC BUILDINGS ON THE SITE HAVE BEEN ADDED TO THE MARYLAND INVENTORY OF HISTORIC PROPERTIES, AND WILL BE ADDED TO THE HOWARD COUNTY HISTORIC SITES INVENTORY AS HO-978.
44. THE EXISTING WELL ON PARCEL 115 SERVING THE EXISTING HOUSE ON PARCEL 122 MUST BE PROPERLY ABANDONED AND THE EXISITNG HOUSE CONNECTED TO PUBLIC WATER.
45. TEST PITS TO DETERMINE GROUND WATER AND ROCK ELEVATIONS WERE PERFORMED UNDER PRELIMINARY EQUIVALENT SKETCH PLAN SP-10-001 AND WERE INCLUDED IN THE SWM REPORT.
46. DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO INSURE SAFE ACCESS FOR FIRE EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
    A. WIDTH -- 12'(16' SERVING MORE THAN ONE RESIDENCE);
    B. SURFACE -- 12" ASTM C-33 3/4" TO 2" STONE WITH 7" PERMEABLE CONCRETE
    C. GEOMETRY -- MAX. 14% GRADE, MAX. TO % GRADE CHANGE AND MIN. 45' 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 OF DEPTH OVER DRIVEWAY SURFACE;
    F. MAINTENANCE -- SUFFICIENT TO INSURE ALL WEATHER USE.
47. REFERENCE: PLANNING BOARD CASE 388 DECISION AND ORDER APPROVAL DATED 4/13/2010.
48. THE FOREST STAND DELINEATION WAS SUBMITTED AND APPROVED UNDER SP-10-001.
49. PER SECTION 108.F.3.b., STRUCTURES ARE REQUIRED TO BE SET BACK 75 FEET FROM PROJECT BOUNDARIES ADJOINING SINGLE-FAMILY DETACHED DEVELOPMENTS. THIS PROPOSED DEVELOPMENT MEETS THESE REQUIREMENTS.
50. A PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY SHALL BE FABRICATED AND INSTALLED AT ALL USE IN COMMON DRIVEWAY BY HOWARD COUNTY BUREAU OF ENGINEERING AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES.
51. THIS PROJECT IS SUBJECT TO A DESIGN MANUAL WAIVER APPROVED JULY 19, 2010 TO ALLOW FOR AN OPEN SECTION ROAD WITH A SIDEWALK ALONG ILCHESTER ROAD. SEE TYPICAL SECTION ON SHEET 6.
52. STREET LIGHTS TO BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION, BUT THE DESIGN AND LOCATION SHALL REMAIN UNDER THE PURVIEW OF HOWARD COUNTY DPW-TRAFFIC.
53. THIS PROJECT IS SUBJECT TO A DESIGN MANUAL WAIVER TO ALLOW FOR THE CONSTRUCTION OF A SIDEWALK ALONG THE PROJECTS ILCHESTER ROAD FRONTAGE WITHOUT CURB AND GUTTER.
54. THE PROPOSED SIDEWALK AND CONNECTIONS TO ILCHESTER ROAD AND BEECHWOOD ROAD SHALL MEET ALL ADA REQUIREMENTS.

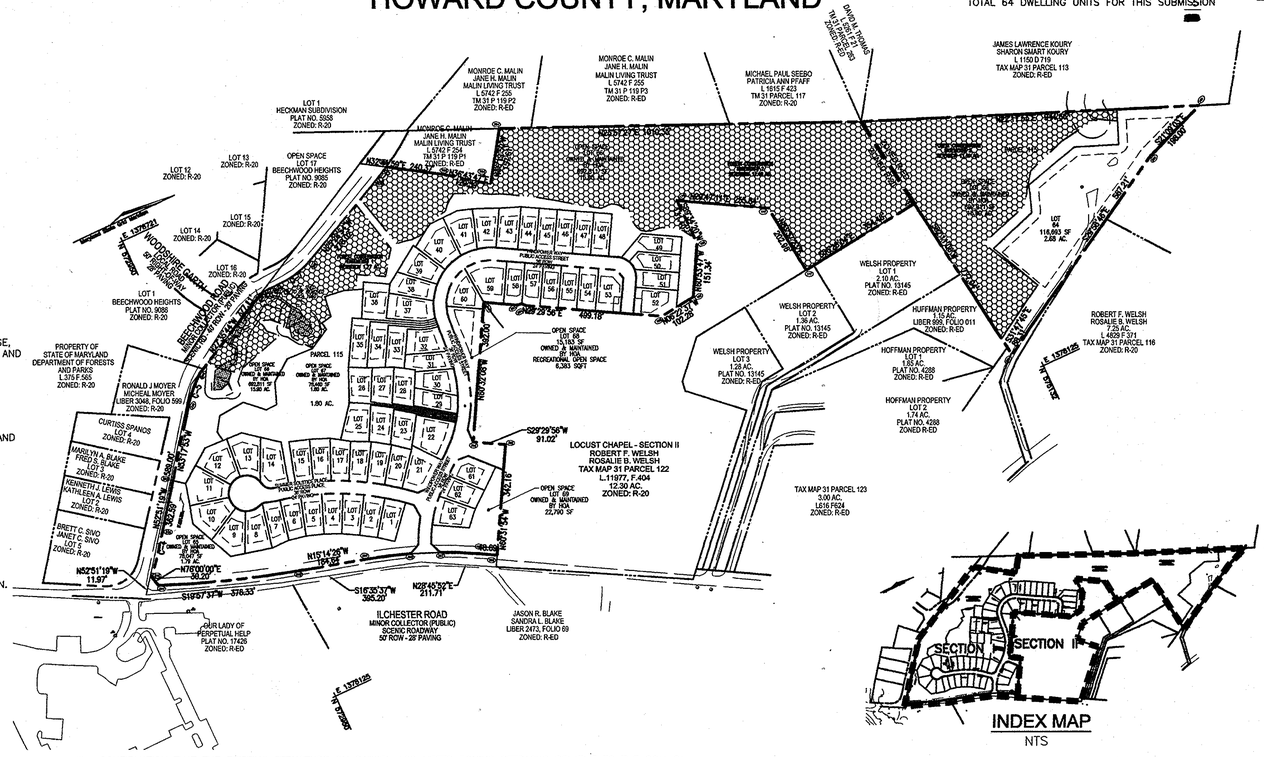
APPROVED: DEPARTMENT OF PUBLIC WORKS

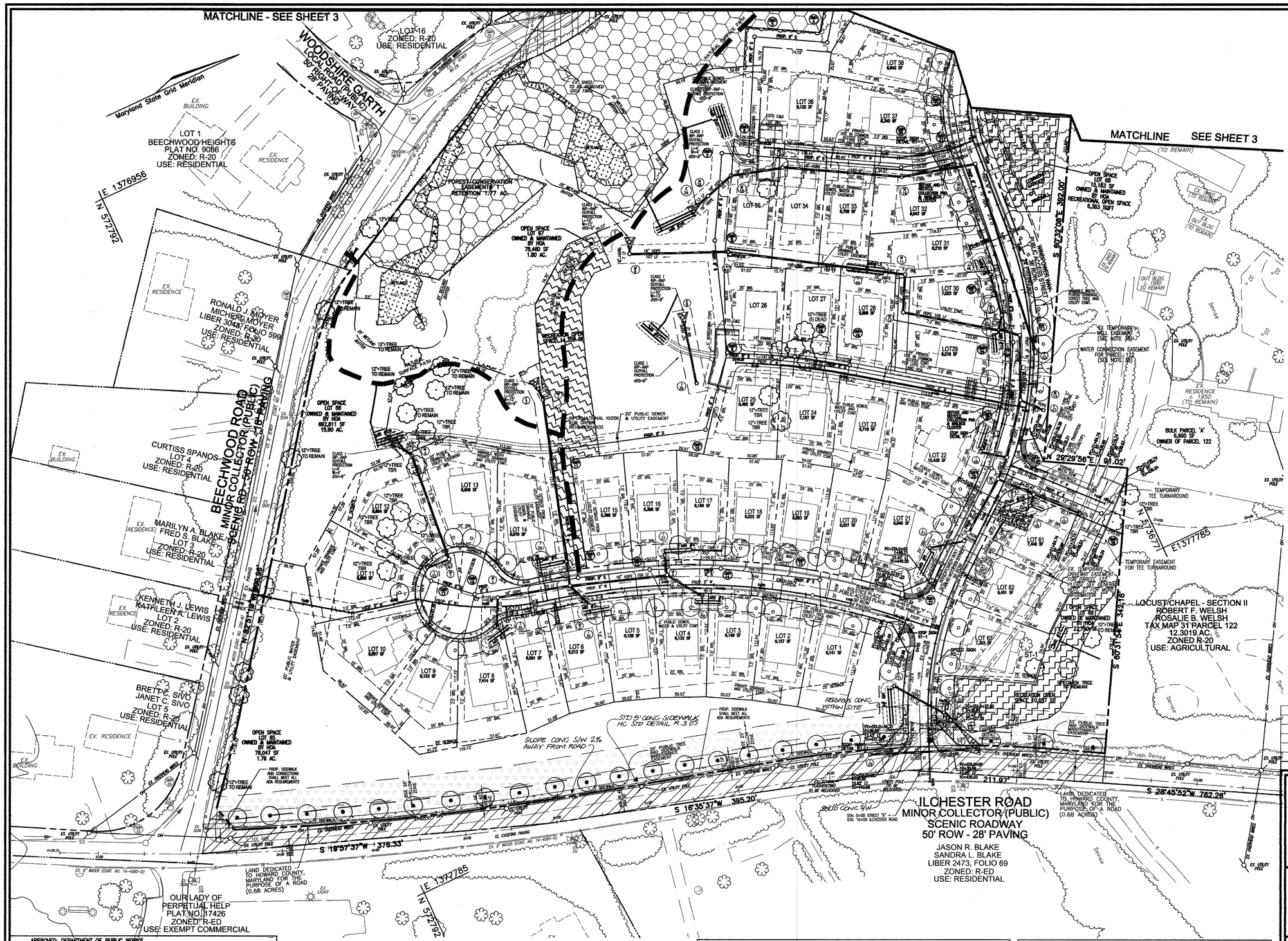
CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/28/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10


LOCUST CHAPEL - SECTION II
ROBERT F. WELSH
ROSALIE B. WELSH
TAX MAP 31 PARCEL 122
L.11977, F.404
12.30 AC.
ZONED: R-20
ILCHESTER ROAD
MINOR COLLECTOR (PUBLIC)
SCENIC ROADWAY
50' ROW - 28' PAVING
BEECHWOOD ROAD
MINOR COLLECTOR (PUBLIC)
SCENIC ROADWAY
50' ROW - 28' PAVING
PARCEL 115
1.80 AC.
PROPERTY OF STATE OF MARYLAND DEPARTMENT OF FORESTS AND PARKS
L.375 F.565
ZONED: R-20
RONALD J MOYER
MICHEAL MOYER
LIBER 3048, FOLIO 599
ZONED: R-20
CURTISS SPANOS
LOT 4
ZONED: R-20
MARILYN A. BAKE
LOT 5
ZONED: R-20
KENNETH T. LEWIS
KATHLEEN A. LEWIS
LOT 6
ZONED: R-20
BRETT C. SIVO
JANET C. SIVO
LOT 8
ZONED: R-20
OUR LADY OF PERPETUAL HELP
PLAT NO. 17426
ZONED: R-ED
JASON R. BLAKE
SANDRA L. BLAKE
LIBER 2473, FOLIO 69
ZONED: R-ED
TAX MAP 31 PARCEL 123
3.00 AC.
L.616 F.624
ZONED: R-ED
WELSH PROPERTY
LOT 2
2.10 AC.
PLAT NO. 13145
ZONED: R-ED
WELSH PROPERTY
LOT 1
1.28 AC.
PLAT NO. 13145
ZONED: R-ED
HUFFMAN PROPERTY
1.15 AC.
LIBER 999, FOLIO 011
ZONED: R-ED
HOFFMAN PROPERTY
LOT 1
1.50 AC.
PLAT NO. 4288
ZONED: R-ED
HOFFMAN PROPERTY
LOT 2
1.74 AC.
PLAT NO. 4288
ZONED R-ED
ROBERT F. WELSH
ROSALIE B. WELSH
7.35 AC.
L.4629 F.371
TAX MAP 31 PARCEL 116
ZONED: R-20
JAMES LAWRENCE KOURY
SHARON SMART KOURY
L.1150 D.719
TAX MAP 31 PARCEL 113
ZONED: R-ED
MICHAEL PAUL SEEBO
PATRICIA ANN PFAFF
L.1815 F.423
TM 31 PARCEL 117
ZONED: R-20
DAVID A. THOMAS
L.11977 F.404
TM 31 PARCEL 121
ZONED: R-ED
MONROE C. MALIN
JANE H. MALIN
MALIN LIVING TRUST
L.5742 F.255
TM 31 P 119 P3
ZONED: R-ED
LOT 1
HECKMAN SUBDIVISION
PLAT NO. 5858
ZONED: R-20
OPEN SPACE
LOT 17
BEECHWOOD HEIGHTS
PLAT NO. 9085
ZONED: R-20
LOT 1
BEECHWOOD HEIGHTS
PLAT NO. 9088
ZONED: R-20
LOT 18 ZONED: R-20
LOT 13 ZONED: R-20
LOT 14 ZONED: R-20
LOT 15 ZONED: R-20
LOT 16 ZONED: R-20
OPEN SPACE LOT 65 OWNED & MAINTAINED BY HOA 20,000 SF
OPEN SPACE LOT 66 OWNED & MAINTAINED BY HOA 7,526 SF
OPEN SPACE LOT 67 OWNED & MAINTAINED BY HOA 49,681 SF
OPEN SPACE LOT 68 OWNED & MAINTAINED BY HOA 8,383 SQFT
OPEN SPACE LOT 69 OWNED & MAINTAINED BY HOA 22,700 SF
PUBLIC ROAD A
PUBLIC ROAD B
PUBLIC ROAD C
PUBLIC ROAD D
PUBLIC ROAD E
S29°29'56"W 91.02'
N15°14'26"W 19.03'
N52°51'19"W 11.97'
N16°00'00"E 30.20'
S19°57'37"W 576.53'
S16°35'31"W 385.20'
N28°45'52"E 211.71'
N52°42'00"W 1,175.75'
N37°18'00"E 1,175.75'
S37°18'00"W 1,175.75'
S52°42'00"E 1,175.75'
N52°42'00"W 1,175.75'
S37°18'00"W 1,175.75'
N37°18'00"E



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
- DIRECTION OF FLOW
- STORM DRAIN FLOW THROUGH STRUCTURE
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING VEGETATION (APPROXIMATE LOCATION)
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROPOSED SIDEWALK
- PROPOSED STREET TREE
- WETLANDS BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- 16,000 LUMEN LED STREET LIGHT / 9,500 LUMEN LED STREET LIGHT — PROP. STREET LIGHTS
- PROP. STREET SIGNS
- FOREST CONSERVATON AREA (RETENTION)
- RECREATION OPEN SPACE
- PROP. ROW DEDICAITON
- BGE WIRE ZONES
- PUBLIC SEWER, WATER, AND UTILITY EASEMENT
- PRIVATE DRAINAGE AND UTILITY EASEMENT
- PUBLIC DRAINAGE, STREET TREE, AND UTILITY EASEMENT
- PUBLIC TREE AND SIDEWALK MAINT. EASEMENT
- EX. TEMP. DRIVEWAY EASEMENT FOR PARCEL 122
- PUBLIC DRAINAGE, AND UTILITY EASEMENT
- PUBLIC SEWER, AND UTILITY EASEMENT
- PRIVATE USE-IN-COMMON ACCESS EASEMENT

OWNER/DEVELOPER

WELSH PROPERTY, LLC
4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

NO.	REVISION	DATE
3	REVISE SIDEWALK FROM PERVIOUS PAVEMENT TO STANDARD PAVEMENT DOJ TO ILCHESTER ROAD	10-13-15

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD
LAYOUT PLAN

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

SP_10_001
WP-09-92, S-06-006
WP-10-002
PARCEL 115
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8981

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193
10/28/10

DESIGN BY:	JAR
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	AUGUST 2010
SCALE:	1"=50'
W.O. NO.:	04-151

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 06-27-2012

SHEET 2 OF 25

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/1/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

STREET LIGHT LOCATION CHART (PRIVATELY OWNED AND MAINTAINED)

STREET NAME	STATION	OFFSET	FIXTURE/POLE TYPE
WINDPOWER WAY	0+33.50	16.00 RT	16,000 LUMEN PHOTOVOLTAIC LED STREET LIGHT*
WINDPOWER WAY	1+88.60	25.00 LT	9,500 LUMEN PHOTOVOLTAIC LED STREET LIGHT**
WINDPOWER WAY	3+27.40	26.00 RT	9,500 LUMEN PHOTOVOLTAIC LED STREET LIGHT**
WINDPOWER WAY	4+31.18	20.00 LT	9,500 LUMEN PHOTOVOLTAIC LED STREET LIGHT**
WINDPOWER WAY	7+10.00	20.50 LT	9,500 LUMEN PHOTOVOLTAIC LED STREET LIGHT**
WINDPOWER WAY	8+44.50	27.00 LT	9,500 LUMEN PHOTOVOLTAIC LED STREET LIGHT**
WINDPOWER WAY	13+20.00	21.00 LT	9,500 LUMEN PHOTOVOLTAIC LED STREET LIGHT**
WINDPOWER WAY	14+81.50	20.30 LT	9,500 LUMEN PHOTOVOLTAIC LED STREET LIGHT**
SUMMER SOLSTICE PLACE	4+84.00	43.00 RT	9,500 LUMEN PHOTOVOLTAIC LED STREET LIGHT**

FOR STREET LIGHT DETAILS PLEASE SEE SHEET 6.

*16,000 LUMENS MEETS THE REQUIREMENTS FOR ENTRANCE LIGHTING.

**9,500 LUMENS MEETS THE REQUIREMENTS FOR SUBDIVISION LIGHTING.

NOTE:
THE STREET LIGHT LOCATIONS SHOWN ON SHEETS 2 & 3 ARE APPROXIMATE. EXACT LOCATIONS OF THE POLES AND THE ORIENTATION OF THE FIXTURES WILL BE FIELD DETERMINED BY HOWARD COUNTY DPW-TRAFFIC.

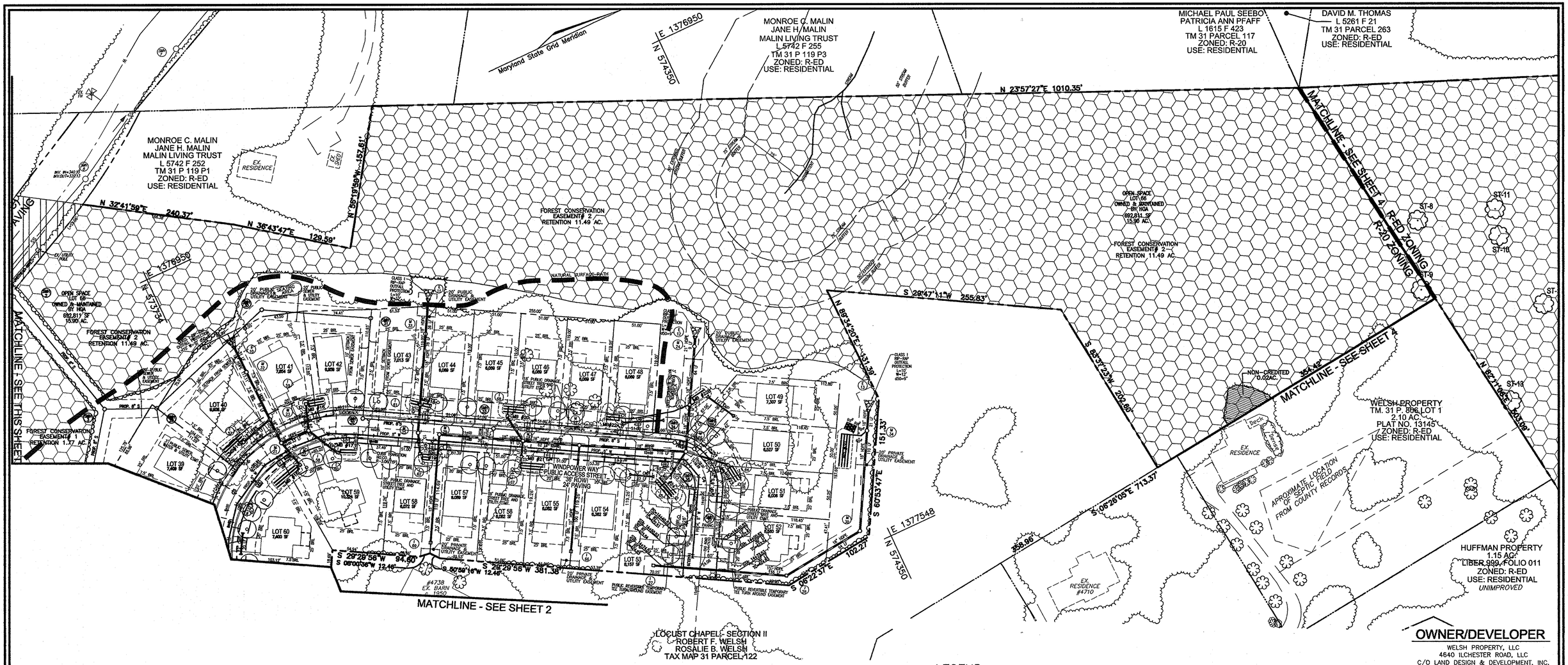
CURVE DATA TABLE

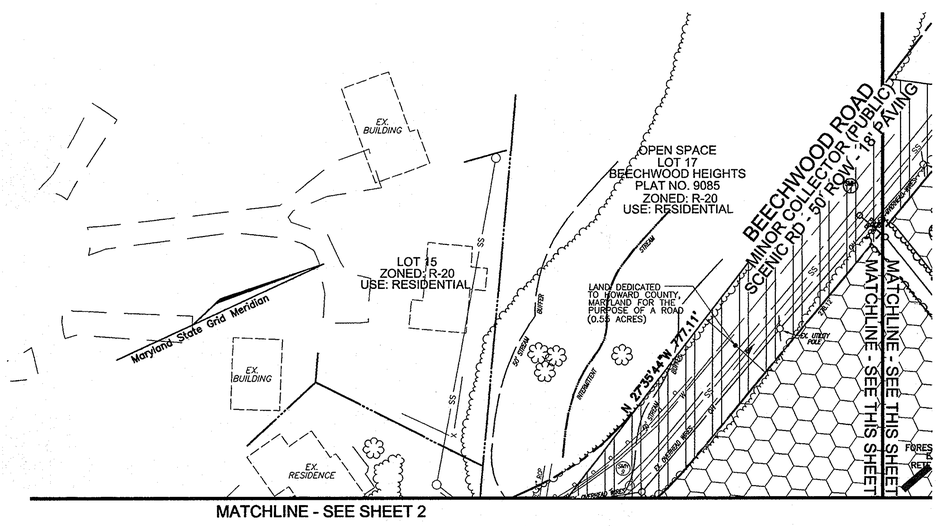
CURVE NO.	RADIUS	LENGTH	TANGENT	CENTRAL ANGLE	CHORD LENGTH	CHORD BEARING
C-1	350.00'	174.37'	89.03'	507.48	172.58'	N 942.2502 W
C-2	350.00'	288.06'	152.75'	838.33	279.99'	N 1107.67 W
C-3	140.00'	281.94'	221.39'	2051.2685	236.65'	N 501.2082 W
C-4	38.00'	59.69'	38.00'	53.74	1600.00'	N 1324.4260 W
C-5	250.00'	469.67'	341.83'	1913.6043	403.58'	S 118.7718 E
C-6	744.16'	415.16'	213.57'	569.3483	410.56'	S 485.1286 W
C-7	133.27'	76.87'	39.54'	587.4781	75.81'	S 494.1935 W

STREET SIGN LOCATION CHART

STREET NAME	STATION	OFFSET	FIXTURE/POLE TYPE
WINDPOWER WAY	0+27.50	18' LT	STOP SIGN R1-1
WINDPOWER WAY	1+17.30	15' RT	SPEED LIMIT SIGN R2-1
SUMMER SOLSTICE PLACE	0+24.46	23' LT	STOP SIGN R1-1
PRIVATE DRIVEWAY	INTERSECTION OF WINDPOWER WAY AND PRIVATE DRIVEWAY		STOP SIGN R1-1
PRIVATE DRIVEWAY			STOP SIGN R1-1

F-10-102





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
- DIRECTION OF FLOW
- STORM DRAIN FLOW THROUGH STRUCTURE
- EXISTING TREELINE (FIELD LOCATED)
- RECREATION OPEN SPACE
- PROP. ROW DEDICATION
- BGE WIRE ZONES
- PUBLIC SEWER, WATER, AND UTILITY EASEMENT
- PRIVATE DRAINAGE AND UTILITY EASEMENT
- PUBLIC SEWER, AND UTILITY EASEMENT
- PRIVATE USE-IN-COMMON ACCESS EASEMENT
- EXISTING VEGETATION (APPROXIMATE LOCATION)
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROPOSED SIDEWALK
- PROPOSED STREET TREE
- WETLANDS BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- 16,000 LUMEN LED STREET LIGHT
- 9,500 LUMEN LED STREET LIGHT
- PROP. STREET LIGHTS
- PROP. STREET SIGNS
- FOREST CONSERVATION AREA (RETENTION)
- PUBLIC DRAINAGE, STREET TREE, AND UTILITY EASEMENT
- PUBLIC TREE AND SIDEWALK MAINT. EASEMENT
- EX. TEMP. DRIVEWAY EASEMENT FOR PARCEL 122
- PUBLIC DRAINAGE, AND UTILITY EASEMENT

OWNER/DEVELOPER

WELSH PROPERTY, LLC
4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD

LAYOUT PLAN

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

SP_10_001
WP-09-92, S-06-006
WP-10-002
PARCEL 115
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

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

DESIGN BY:	JAR
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	AUGUST 2010
SCALE:	1"=50'
W.O. NO.:	04-151

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: 09-27-2012

3 SHEET OF 25

APPROVED: DEPARTMENT OF PUBLIC WORKS

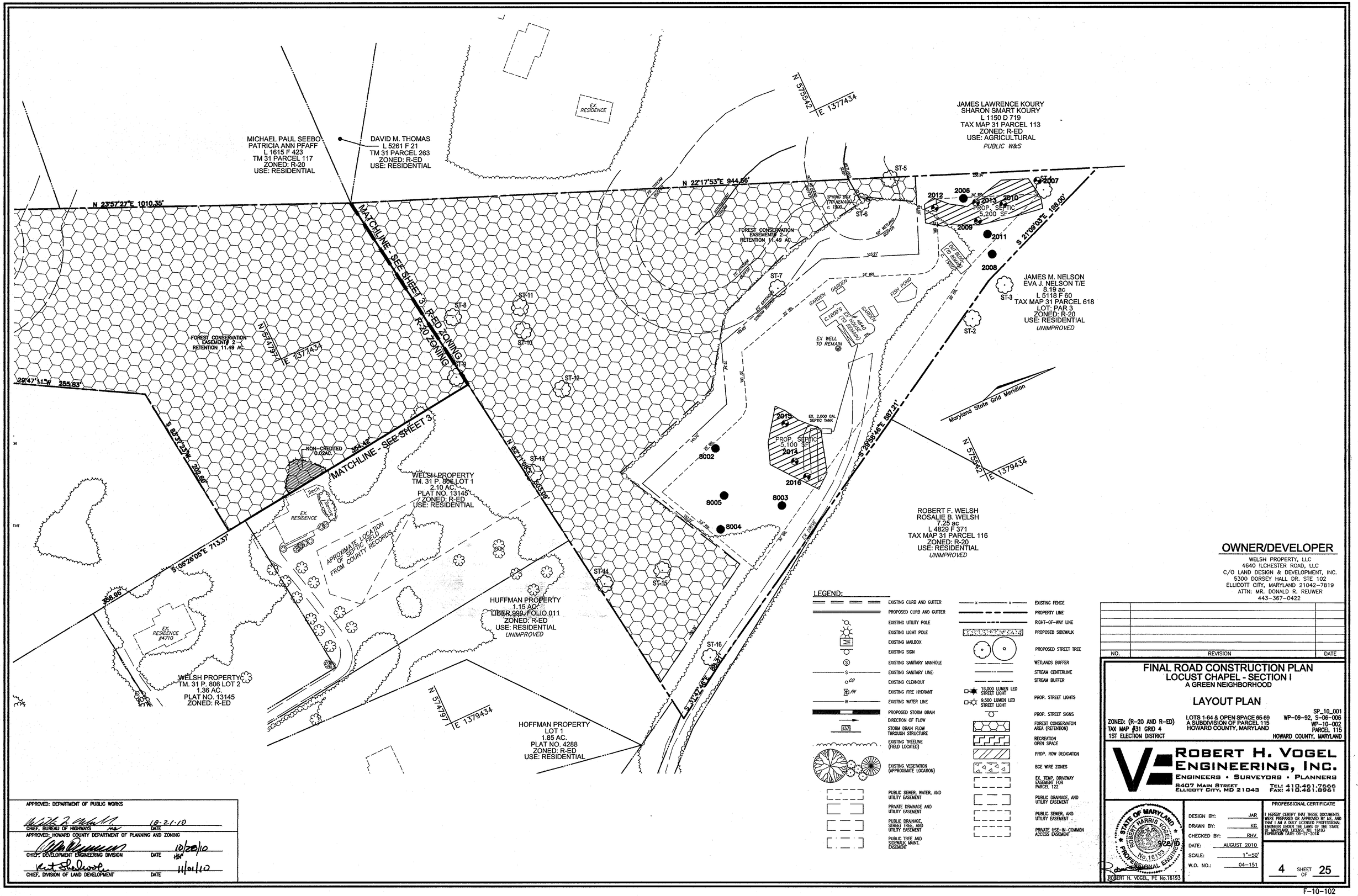
CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/20/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

F-10-102



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LEGEND:

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- PROPOSED CURB AND GUTTER
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- EXISTING MAILBOX
- EXISTING SIGN
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- DIRECTION OF FLOW
- STORM DRAIN FLOW THROUGH STRUCTURE
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- EX. TEMP. DRIVEWAY EASEMENT FOR PARCEL 122
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SHEET 4 OF 25

APPROVED: DEPARTMENT OF PUBLIC WORKS

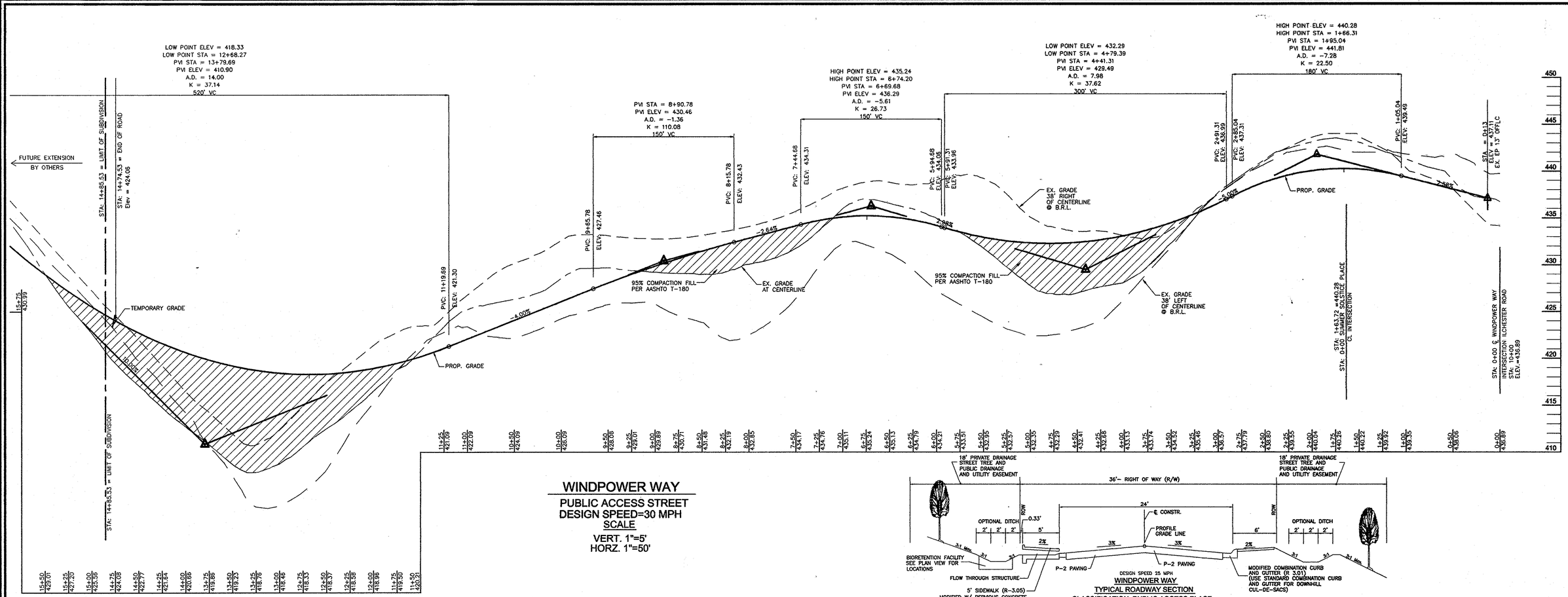
CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/20/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

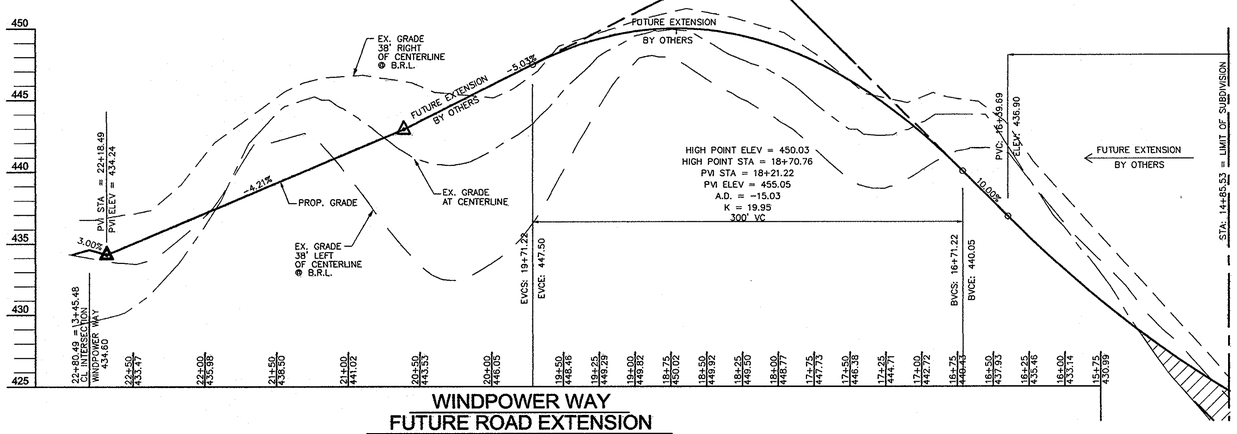
F-10-102



WINDPOWER WAY

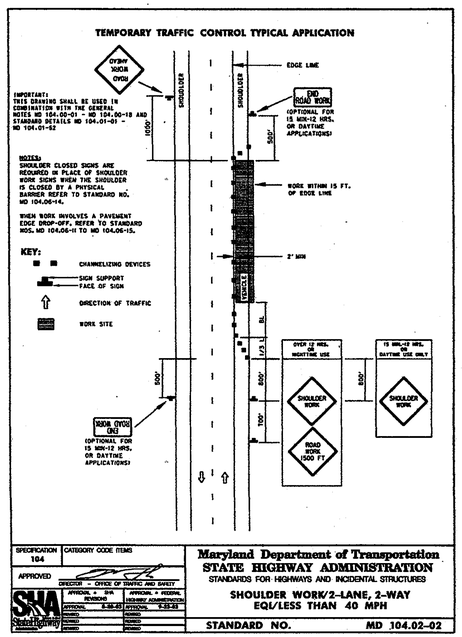
PUBLIC ACCESS STREET
DESIGN SPEED=30 MPH
SCALE
VERT. 1"=5'
HORZ. 1"=50'

WINDPOWER WAY
TYPICAL ROADWAY SECTION
CLASSIFICATION: PUBLIC ACCESS PLACE
SECTION NOT TO SCALE



WINDPOWER WAY
FUTURE ROAD EXTENSION

PUBLIC ACCESS STREET
DESIGN SPEED=30 MPH



SPECIFICATION 104 | CATEGORY CODE ITEMS
APPROVED — DIRECTOR - OFFICE OF TRAFFIC AND SAFETY
Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHOULDER WORK/2-LANE, 2-WAY
EQL/LESS THAN 40 MPH
STANDARD NO. MD 104.02-02

OWNER/DEVELOPER

WELSH PROPERTY, LLC
4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
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FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD
ROAD CONSTRUCTION PROFILES AND DETAILS

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
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SP_10_001
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STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY: JAR
DRAWN BY: KG
CHECKED BY: RHV
DATE: AUGUST 2010
SCALE: AS SHOWN
W.O. NO.: 04-151

PROFESSIONAL CERTIFICATE
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SHEET 5 OF 25

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CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10
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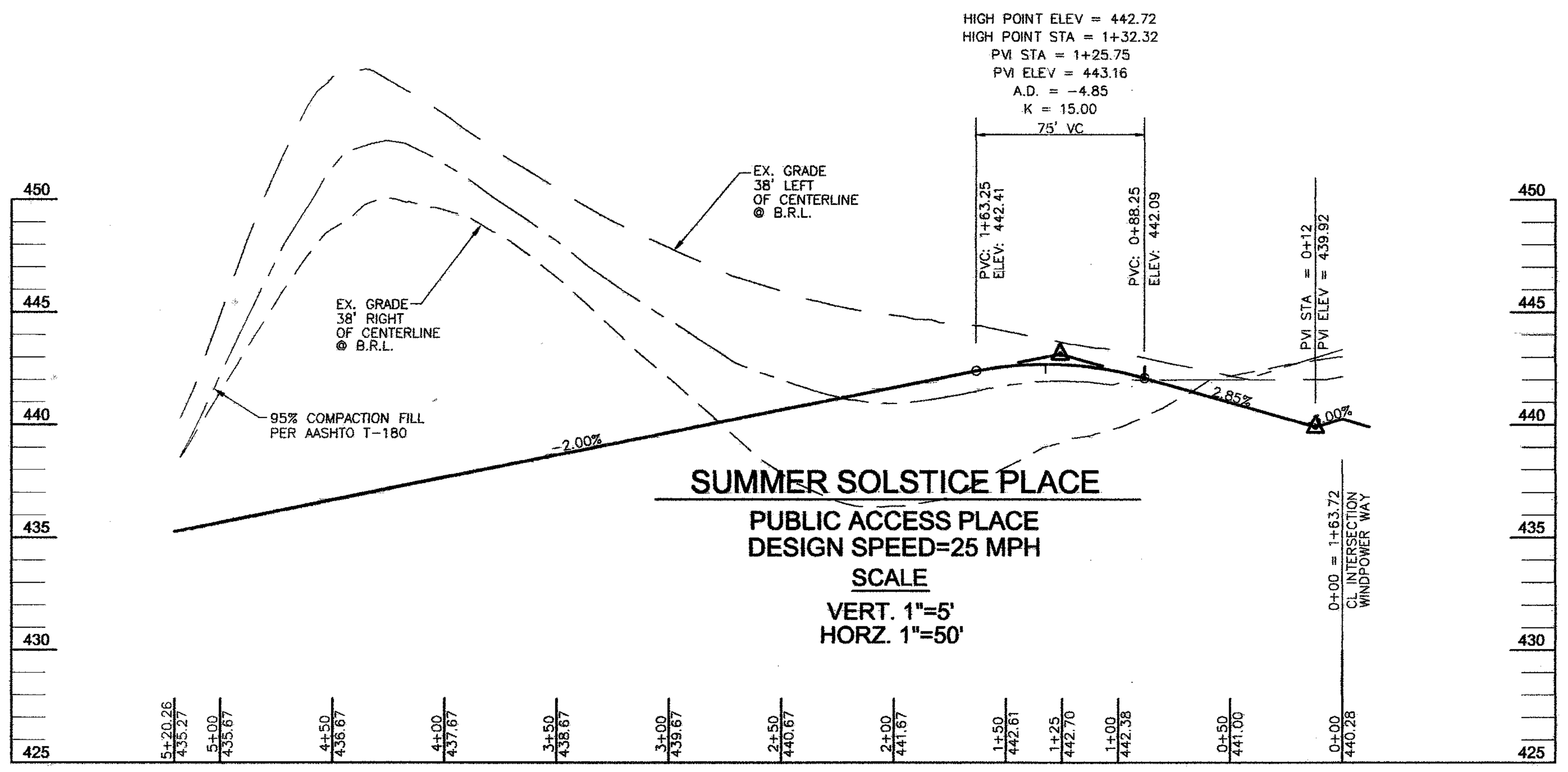
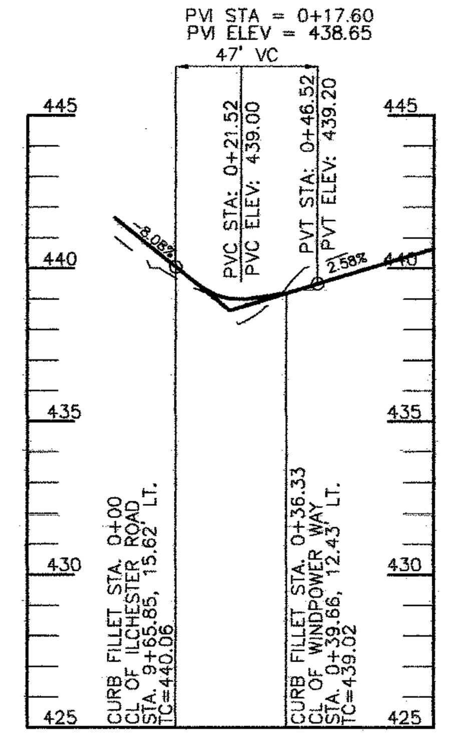
F-10-102



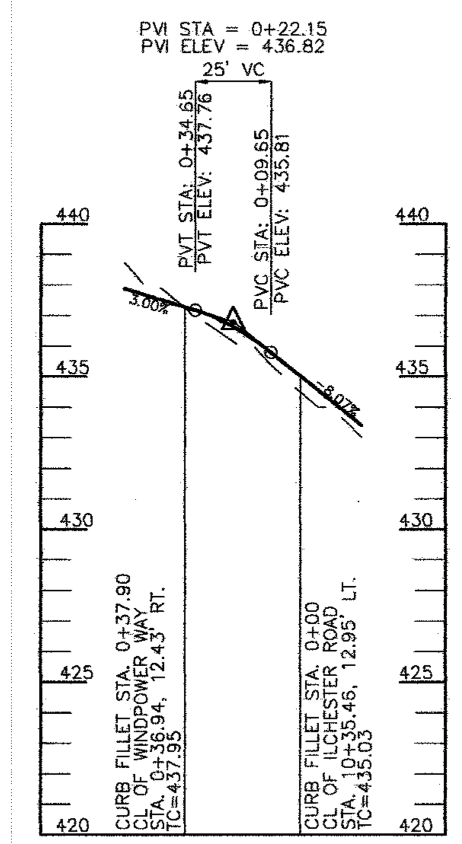
SUMMER SOLSTICE PLACE

PUBLIC ACCESS PLACE
DESIGN SPEED=25 MPH

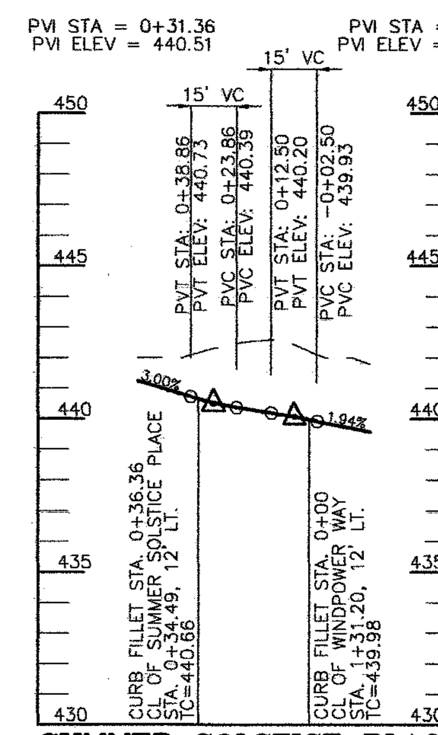
SCALE
VERT. 1"=5'
HORZ. 1"=50'



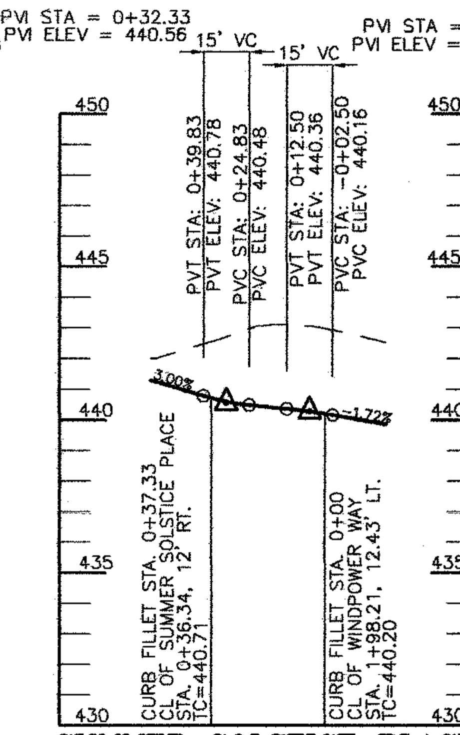
WINDPOWER WAY
WEST SIDE
CURB PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



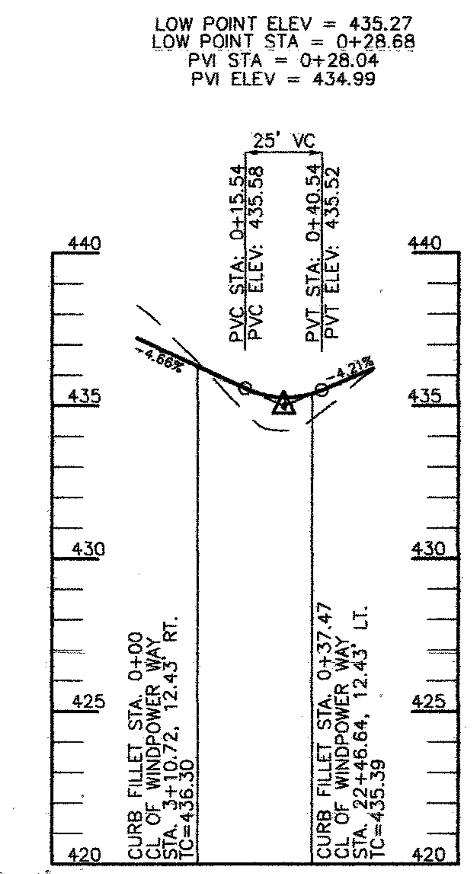
WINDPOWER WAY
EAST SIDE
CURB PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



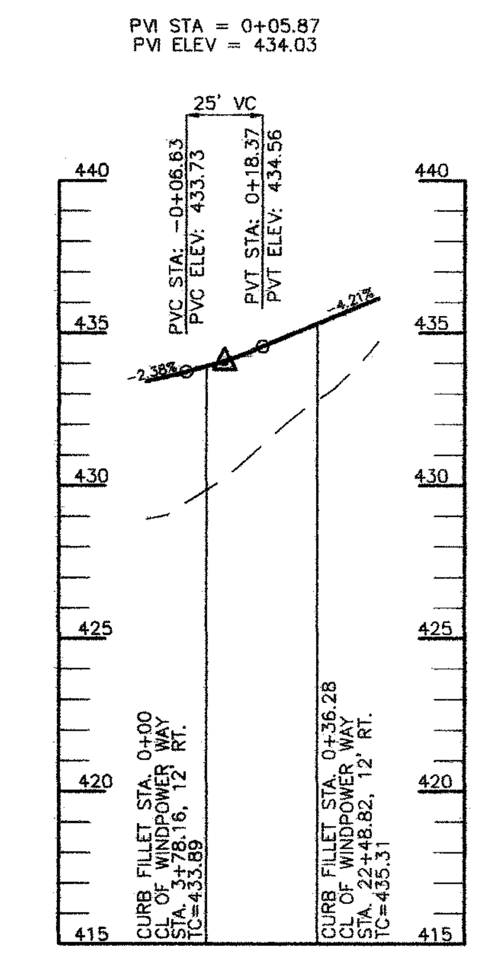
SUMMER SOLSTICE PLACE
SOUTH SIDE
CURB PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



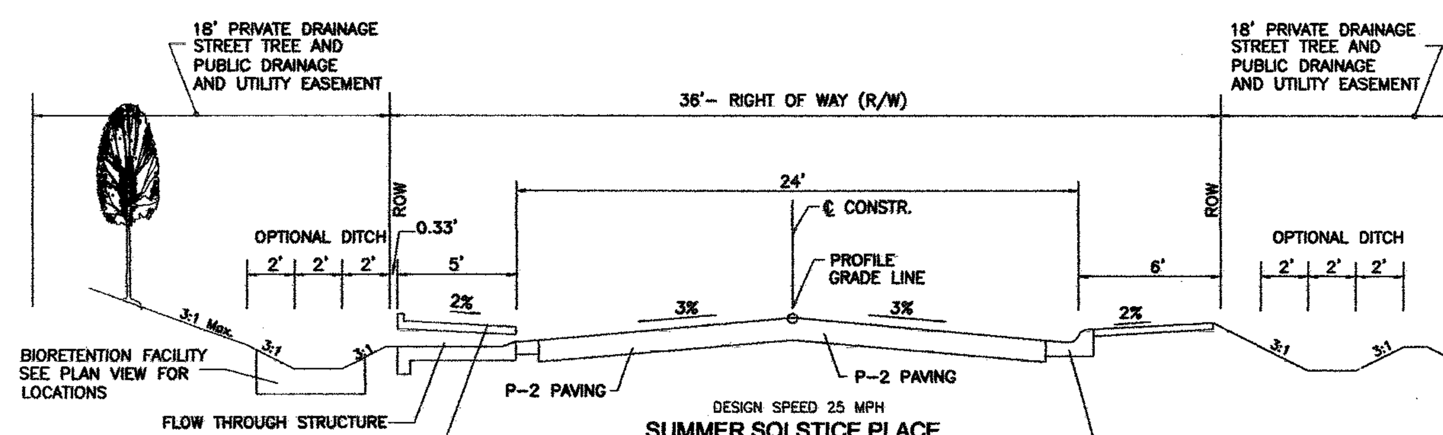
SUMMER SOLSTICE PLACE
NORTH SIDE
CURB PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



WINDPOWER WAY
FUTURE ROAD EXTENSION
SOUTH SIDE
CURB PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

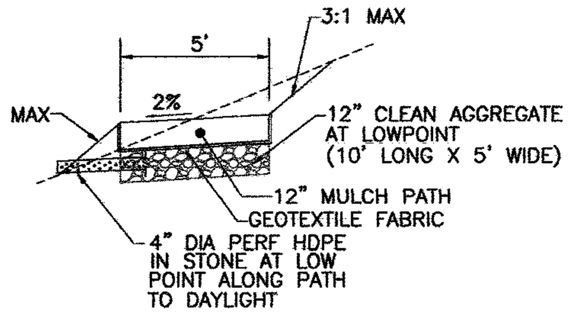


WINDPOWER WAY
FUTURE ROAD EXTENSION
NORTH SIDE
CURB PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

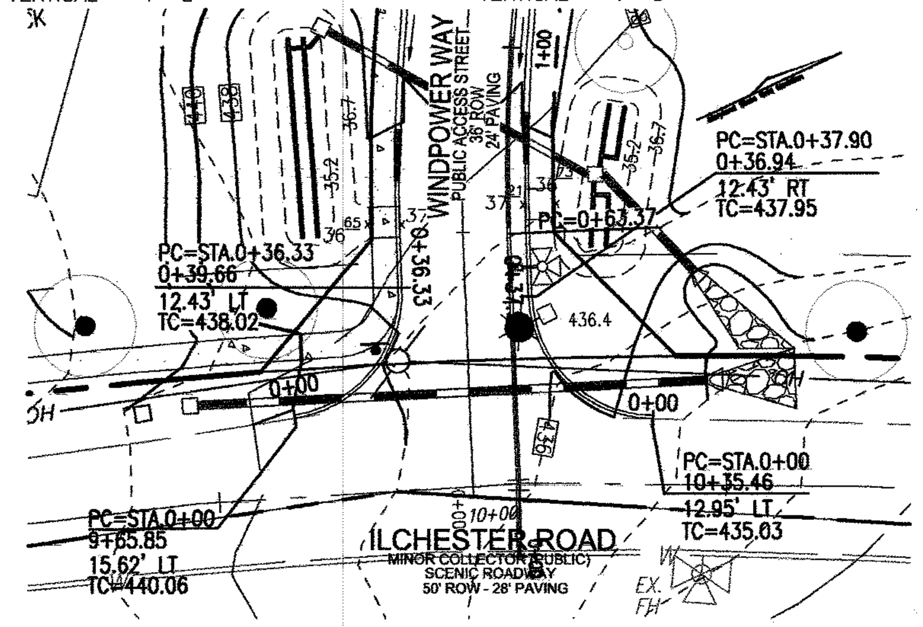


DESIGN SPEED 25 MPH
SUMMER SOLSTICE PLACE
TYPICAL ROADWAY SECTION
CLASSIFICATION: PUBLIC ACCESS PLACE
SECTION NOT TO SCALE

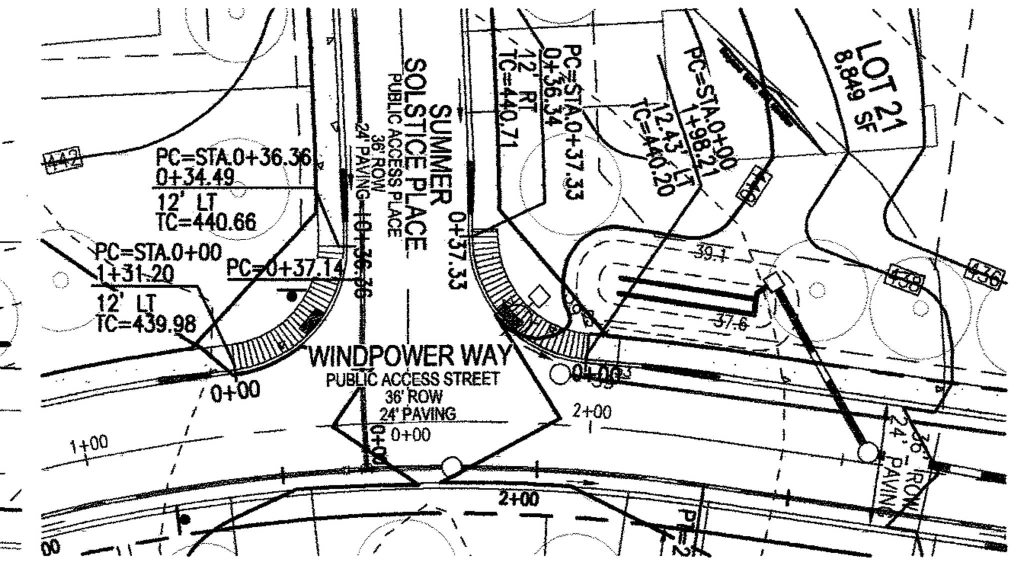
THE PATH WIDTH WILL BE REDUCED FROM 5 FEET TO 3 FEET IN AREAS OF 25% OR GREATER SLOPE.



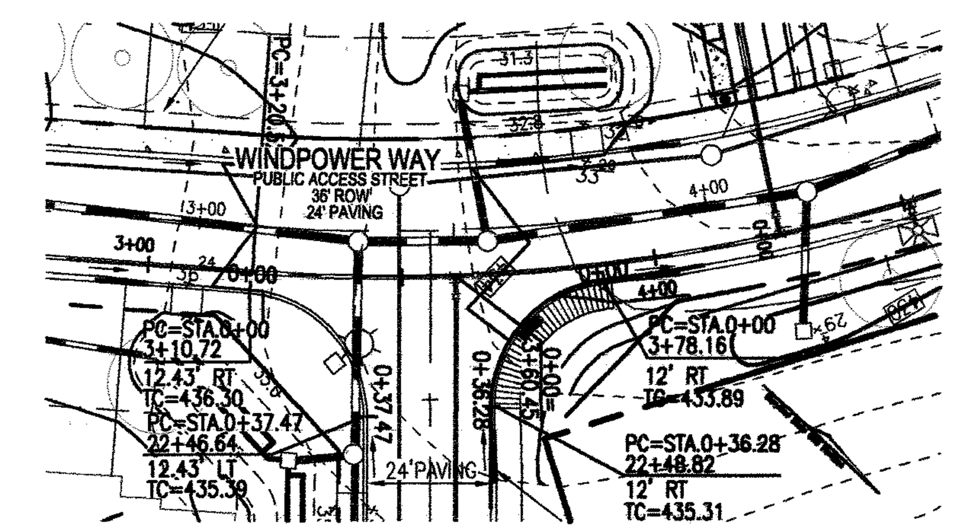
NATURAL SURFACE PATH DETAIL
SECTION NOT TO SCALE



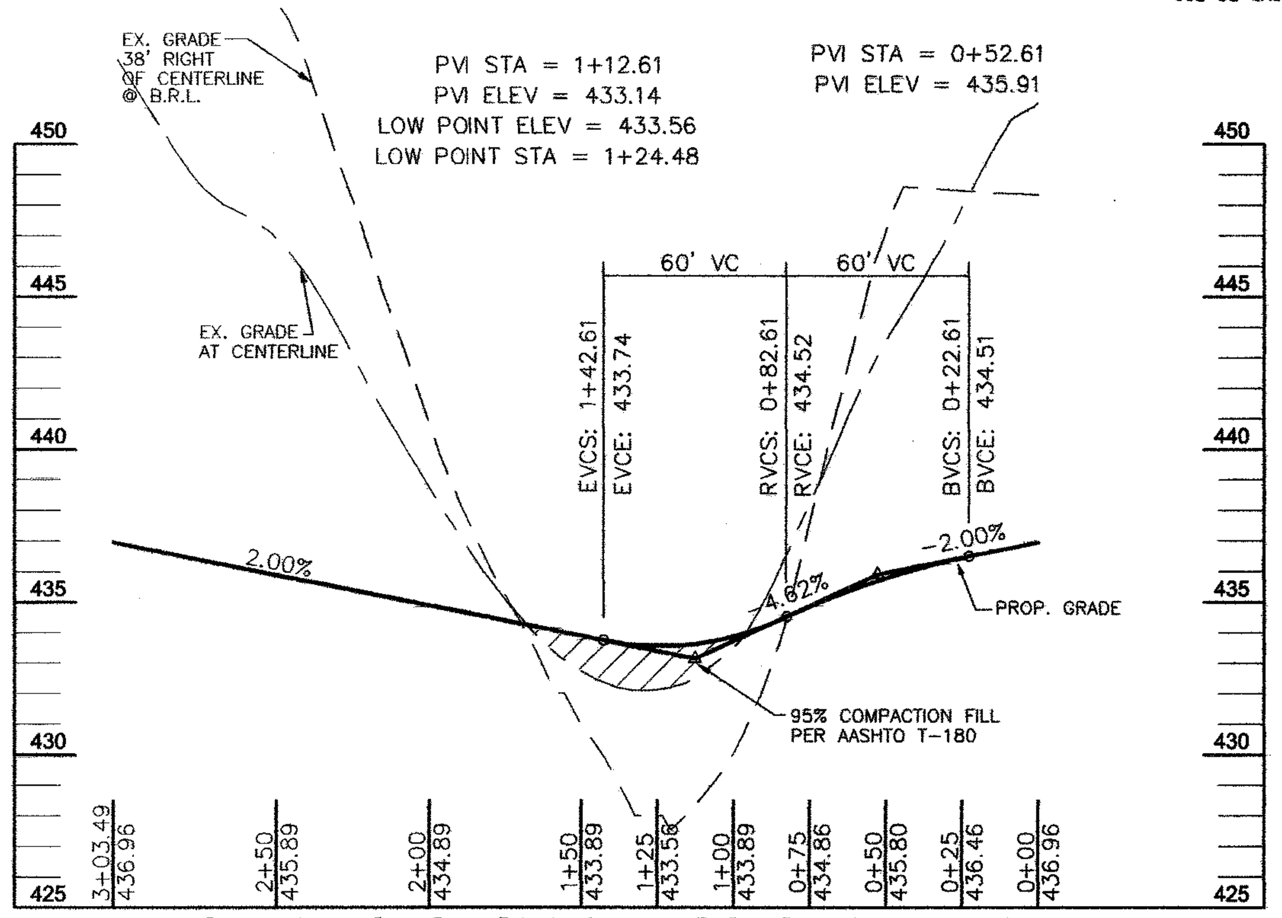
WINDPOWER WAY
CURB STATION
SCALE 1"=30'



SUMMER SOLSTICE PLACE
CURB STATION
SCALE 1"=30'



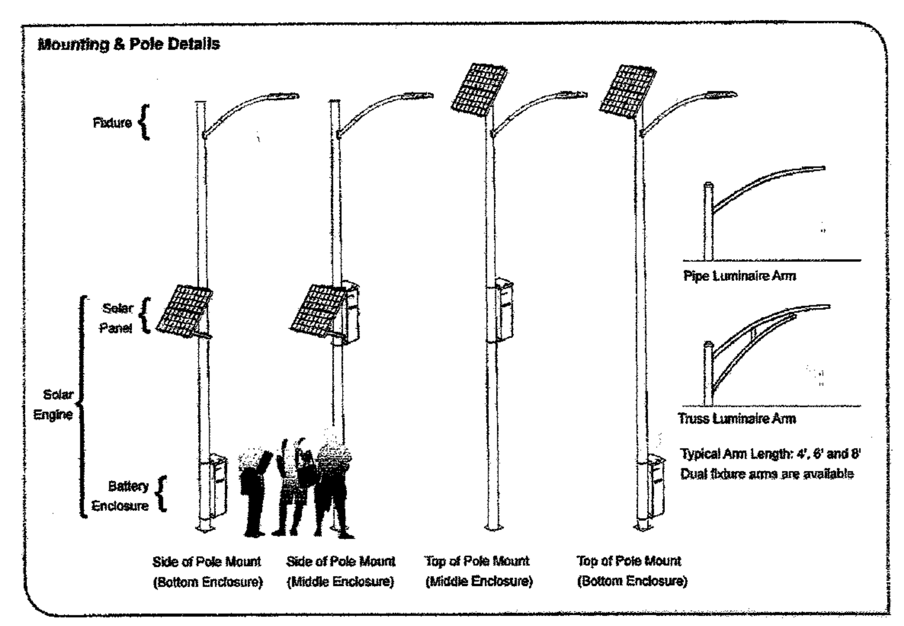
WINDPOWER WAY
FUTURE ROAD EXTENSION
CURB STATION
SCALE 1"=30'



CUL-DE-SAC - SUMMER SOLSTICE PLACE

PUBLIC ACCESS PLACE
DESIGN SPEED=25 MPH

SCALE
VERT. 1"=5'
HORZ. 1"=50'



Poles for the EverGEN 1500 can be ordered directly from Carmanah. Poles will be specified based on installation location as well as individual system size and configuration. To obtain weight and EPA specifications for the solar panel, batteries and fixture, please see the relevant specification table.

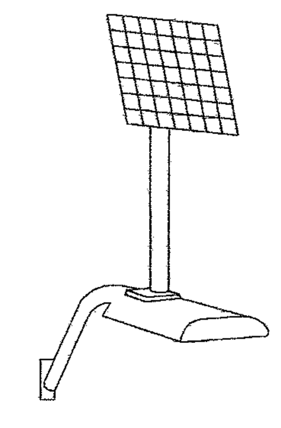
The EverGEN 1500 is configurable to meet specific application requirements. Suggested mounting configurations and the available pole arm options are listed above.

Mounting recommendation: poles 20 feet (6.1 metres) or shorter should be configured with top of pole mount. Poles 20 feet (6.1 metres) and above should be configured with side of pole mount. *Note: Carmanah recommends the assistance of a Carmanah representative when specifying poles to ensure proper pole choice for system size and configuration.*

2

SYSTEM COMPONENTS:
THE CARMANAH EVERGEN 1500 IS MADE UP OF THREE COMPONENTS: THE LIGHT FIXTURE, THE SOLAR PANEL AND THE BATTERY ENCLOSURE.
THE EXACT SYSTEM CONFIGURATION WILL BE DEPENDANT UPON YOUR INSTALLATION LOCATION, THE LIGHT OUTPUT YOU REQUIRE AND THE DIMMING FEATURES OF YOUR APPLICATION.
FOR IMMEDIATE ANSWERS ON HOW SOLAR AREA LIGHTING FITS INTO YOUR APPLICATION, CONTACT CARMANAH LIGHTING PROFESSIONAL .

EXPERIENCE THE INCREASE PERFORMANCE AND FLEXIBILITY OF THE EVERGEN 1500:
–BATTERIES AND SOLAR PANELS ARE MOUNTED SEPARATELY ALLOWING FOR VARIOUS MOUNTING CONFIGURATIONS ON THE POLE.
–ABILITY TO POWER ONE OR TWO LIGHT FIXTURES FROM A SINGLE SOLAR ENGINE.
–INCREASE LIGHT OUTPUT – UP TO FOUR LIGHTBARS*
–COST EFFECTIVE – ABILITY TO USE FEWER, LARGER SYSTEMS TO MEET LIGHT OUTPUT REQUIREMENTS.
* MAXIMUM OF ONE FIXTURE OF UP TO FOUR LIGHTBARS OR TWO FIXTURES OF UP TO TWO LIGHTBARS.



Specifications – Light Fixture & Engine

Fixture

Utilizing the BetaLED LEDway fixture, the Carmanah EverGEN 1500 is engineered with industry-leading optics and thermal design to provide superior efficiency and uniform light distribution. With the ability to run up to four lightbars of illumination, the EverGEN 1500 offers flexible fixture configuration with one fixture of up to four lightbars or two fixtures of up to two lightbars.

Engine

The Carmanah EverGEN 1500 is available with two engine sizes. The engine size you require will be dependant upon your installation location, the light output you require and the dimming features of your application.

With flexible configuration and a variety of options available, the size and specifics of your Carmanah solar lighting system will be dependant on your needs.

For immediate answers on how solar area lighting fits into your application, contact your Carmanah lighting professional today.

Please note: The table below represents preliminary specification information.

FIXTURE		
PHOTOMETRICS	Illumination technology	1, 2, 3, 4 high-intensity LED Lightbars with NanoOptics secondary optics
	Light Distribution	IESNA Type II, III, IV, V
	Output colour	6000K
	Lumen Output	800 - 6800*
	Remote mounting	up to 100' from solar engine (using 10 gauge wire - not included)
MECHANICAL	Housing	Die cast aluminum
	Finish	Colorfast DeltaGuard® finish
	Hardware	Corrosion resistant
	Ingress protection (IP)	IP 65 per IEC 529
	Colour	Silver
	Mounting	Luminaire mounting arm (not included)
DIMENSIONS	Height	4.7 in (12 cm)
	Width	10.6 in (27 cm)
	Length	1 Light bar – 17.5 in (44.5 cm) 2 to 3 Light bars – 22 in (56 cm) 4 Light bars – 33 in (84 cm)
WEIGHT	1 Light bar (20 LEDs)	13 lb (6 kg)
	2 to 3 Light bars (40 to 60 LEDs)	22 lb (10 kg)
	4 Light bars (80 LEDs)	32 lb (14.6 kg)
EFFECTIVE PROJECTED AREA (EPA)	1 to 2 Light bar	0.52 ft² (0.05 m²)
	2 to 3 Light bars	0.685 ft² (0.06 m²)
	4 Light bars	0.82 ft² (0.08 m²)

ENGINE		1520	1530
MECHANICAL	Mounting angles	5° increments between 30°– 60°	
WEIGHT	Solar Panel	58 lb (26.3 kg)	79.5 lb (36 kg)
	Batteries and Enclosure	320 lb (145 kg)	450 lb (204 kg)
EFFECTIVE PROJECTED AREA (EPA)**	Solar Panels	10.2 ft² (0.95 m²)	15.3 ft² (1.42 m²)
	Enclosure	7.5 ft² (0.70 m²)	7.5 ft² (0.70 m²)
DIMENSIONS			
SOLAR PANELS	Height	1.37 in (3.5 cm)	1.37 in (3.5 cm)
	Width	41.5 in (105 cm)	62.25 in (158 cm)
	Length	40.8 in (103.6 cm)	40.8 in (103.6 cm)
ENCLOSURE	Height	14 in (35.5 cm)	14 in (35.5 cm)
	Length	16 in (40.6 cm)	16 in (40.6 cm)
	Width	52 in (132 cm)	52 in (132 cm)
COMMON SPECIFICATIONS			
MECHANICAL	Housing	Corrosion-resistant aluminum	
	Support bracket	Hardened steel or aluminum	
ENERGY MANAGEMENT SYSTEM	Operating profile	Configurable (see operating profiles)	
ENVIRONMENTAL	Operating temperature range	Standard: -22° to 122° F (-30° to 50° C)	
	Wind load***	Steady wind speed not to exceed 100 mph (177km/h)	
	Shock	10 g's	
	Vibration	1 Hz, 12" amplitude, 20 yrs.	
	Other	Direct sunlight required	

* Lumen output is location and application dependant
** Measured at steepest mounting angle. Include fixture EPA for total system EPA. EPA's may not be additive if panels overlap enclosure.
*** Please consult a Carmanah representative for special wind zones.

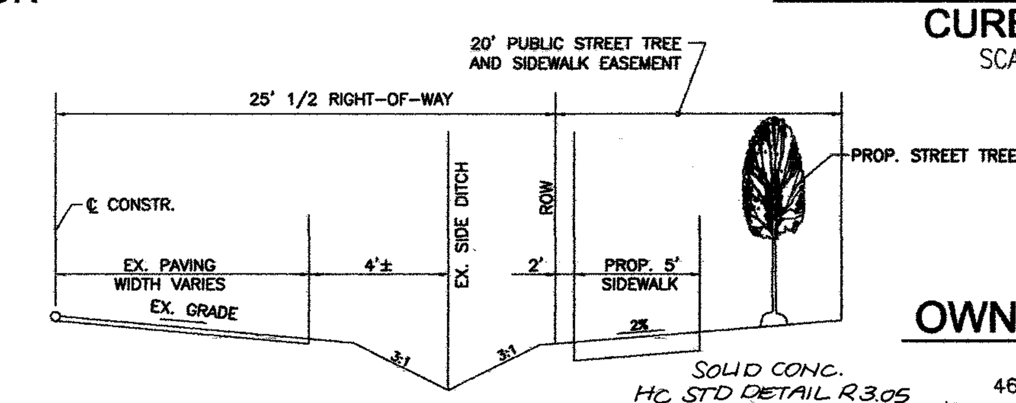
3

POLE HEIGHT TO BE 15' MAXIMUM

STREET LIGHTS TO BE 9,500–16,000 LUMENS OR EQUIVALENT. SEE SHEET 2

STREET LIGHTS TO BE PRIVATELY OWNED AND MAINTAINED

STREET LIGHT DETAIL
NTS



ILCHESTER ROAD
TYPICAL ROADWAY SECTION
CLASSIFICATION: MINOR COLLECTOR
SECTION NOT TO SCALE

OWNER/DEVELOPER

WELSH PROPERTY, LLC
4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042–7819
ATTN: MR. DONALD R. REUWER
443–367–0422

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 10/20/10
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 11/01/10

NO.	REVISION	DATE
3	REVISE SIDEWALK FROM PERVIOUS PAVEMENT TO STANDARD PAVEMENT ADDS TO ILCHESTER ROAD	10.13.15

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD

ROAD CONSTRUCTION PROFILES AND DETAILS

ZONED: (R–20 AND R–ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

SP_10_001
WP–09–92, S–06–006
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ELLICOTT CITY, MD 21043
TEL: 410.461.7666
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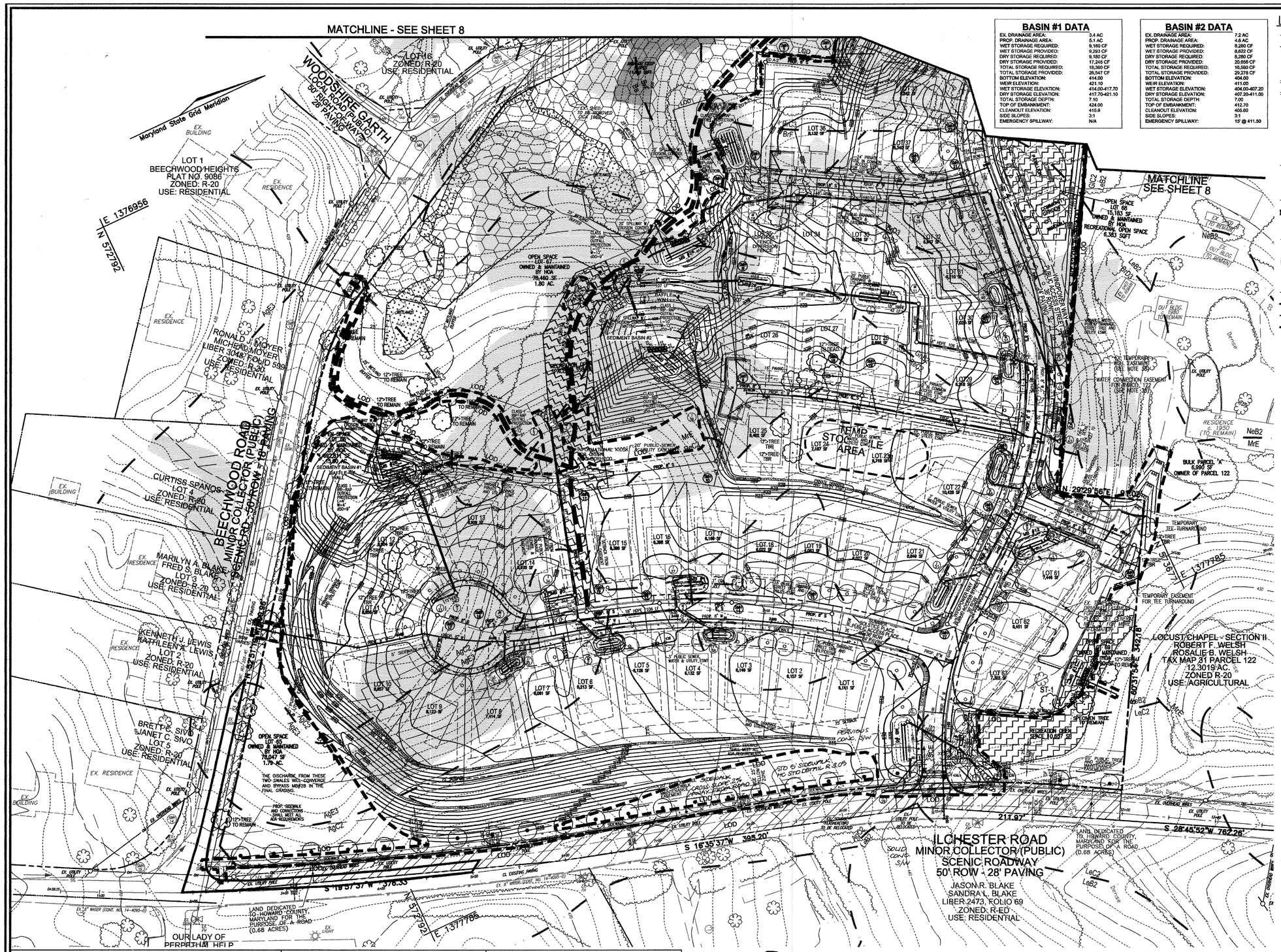
STATE OF MARYLAND – ROBERT HARRIS VOGEL – No. 16193 – PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	JAR
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	AUGUST 2010
SCALE:	AS SHOWN
W.O. NO.:	04–151

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: 09–27–2012

F–10–102



BASIN #1 DATA

EX. DRAINAGE AREA:	3.4 AC
PROP. DRAINAGE AREA:	5.1 AC
WET STORAGE REQUIRED:	9,160 CF
WET STORAGE PROVIDED:	9,293 CF
DRY STORAGE REQUIRED:	9,180 CF
DRY STORAGE PROVIDED:	17,245 CF
TOTAL STORAGE REQUIRED:	18,360 CF
TOTAL STORAGE PROVIDED:	26,547 CF
BOTTOM ELEVATION:	414.00
WEIR ELEVATION:	421.10
WET STORAGE ELEVATION:	414.00-417.70
DRY STORAGE ELEVATION:	417.70-421.10
TOTAL STORAGE DEPTH:	7.10
TOP OF EMBANKMENT:	424.00
CLEANOUT ELEVATION:	415.8
SIDE SLOPES:	3:1
EMERGENCY SPILLWAY:	N/A

BASIN #2 DATA

EX. DRAINAGE AREA:	7.2 AC
PROP. DRAINAGE AREA:	4.6 AC
WET STORAGE REQUIRED:	8,280 CF
WET STORAGE PROVIDED:	8,622 CF
DRY STORAGE REQUIRED:	8,280 CF
DRY STORAGE PROVIDED:	20,656 CF
TOTAL STORAGE REQUIRED:	16,560 CF
TOTAL STORAGE PROVIDED:	29,278 CF
BOTTOM ELEVATION:	404.00
WEIR ELEVATION:	411.00
WET STORAGE ELEVATION:	404.00-407.20
DRY STORAGE ELEVATION:	407.20-411.00
TOTAL STORAGE DEPTH:	7.00
TOP OF EMBANKMENT:	412.70
CLEANOUT ELEVATION:	405.60
SIDE SLOPES:	3:1
EMERGENCY SPILLWAY:	15' @ 411.50

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- 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
- DIRECTION OF FLOW
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING VEGETATION (APPROXIMATE LOCATION)
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- PUBLIC TREE AND SIDEWALK MAINT. EASEMENT
- EX. TEMP. DRIVEWAY EASEMENT FOR PARCEL 122
- PUBLIC DRAINAGE, AND UTILITY EASEMENT
- WETLANDS BUFFER
- LIMIT OF WETLAND
- STREAM CENTERLINE
- STREAM BUFFER
- 16,000 LUMEN LED STREET LIGHT
- 9,500 LUMEN LED STREET LIGHT
- PROP. STREET LIGHTS
- PROP. STREET SIGNS
- FOREST CONSERVATION AREA (RETENTION)
- RECREATION OPEN SPACE
- PROP. ROW DEDICATION
- STEEP SLOPES (<25%)
- MODERATE SLOPES (0-24.9%)
- EARTHDIKE
- PROPOSED SIDEWALK
- SILT FENCE
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- CURB INLET PROTECTION
- AT GRADE INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED STREET TREE
- PUBLIC SEWER, AND UTILITY EASEMENT
- PRIVATE USE-IN-COMMON ACCESS EASEMENT

SEDIMENT TRAP #1 DATA

TRAP TYPE:	TYPE II
PROP. DRAINAGE AREA:	1.9 AC.
WET STORAGE REQUIRED:	3,240 Cf
WET STORAGE PROVIDED:	3,687 CF
DRY STORAGE REQUIRED:	3,280 Cf
DRY STORAGE PROVIDED:	4,510 CF
TOTAL STORAGE REQUIRED:	6,480 Cf
TOTAL STORAGE PROVIDED:	8,197 Cf
BOTTOM ELEV:	398.0
TOP EMBANKMENT ELEV:	402.0
WEIR ELEVATION:	399.9812'
WET STORAGE ELEVATION:	398.0-398.9
DRY STORAGE ELEVATION:	398.9-399.9

SEDIMENT TRAP #2 DATA

TRAP TYPE:	TYPE II
PROP. DRAINAGE AREA:	1.9 AC.
WET STORAGE REQUIRED:	3,420 Cf
WET STORAGE PROVIDED:	3,512 CF
DRY STORAGE REQUIRED:	3,420 Cf
DRY STORAGE PROVIDED:	3,468 CF
TOTAL STORAGE REQUIRED:	6,840 Cf
TOTAL STORAGE PROVIDED:	6,980 Cf
BOTTOM ELEV:	392.0
TOP EMBANKMENT ELEV:	396.0
WEIR ELEVATION:	394.9086'
WET STORAGE ELEVATION:	392.0-393.6
DRY STORAGE ELEVATION:	393.9-394.9

OWNER/DEVELOPER

WELSH PROPERTY, LLC
4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

NO.	REVISION	DATE
3	REVISE SIDEWALK FROM PERVIOUS PAVEMENT TO STANDARD PAVEMENT ADJ TO ILCHESTER ROAD	10.13.15
2	REVISE SWM	8/15/12
1	REDUCE SIZE OF MR #4 & #2	6/20/12

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD

GRADING, SEDIMENT AND EROSION CONTROL PLAN

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

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APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 01/26/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPEMENT 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 — DATE 9/30/10

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 — DATE 9/22/10

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

HOWARD S.C.D. — DATE 10/7/10

STATE OF MARYLAND — ROBERT H. VOGEL — No. 16193 — PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	JAR
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	AUGUST 2010
SCALE:	1"=50'
W.O. NO.:	04-151

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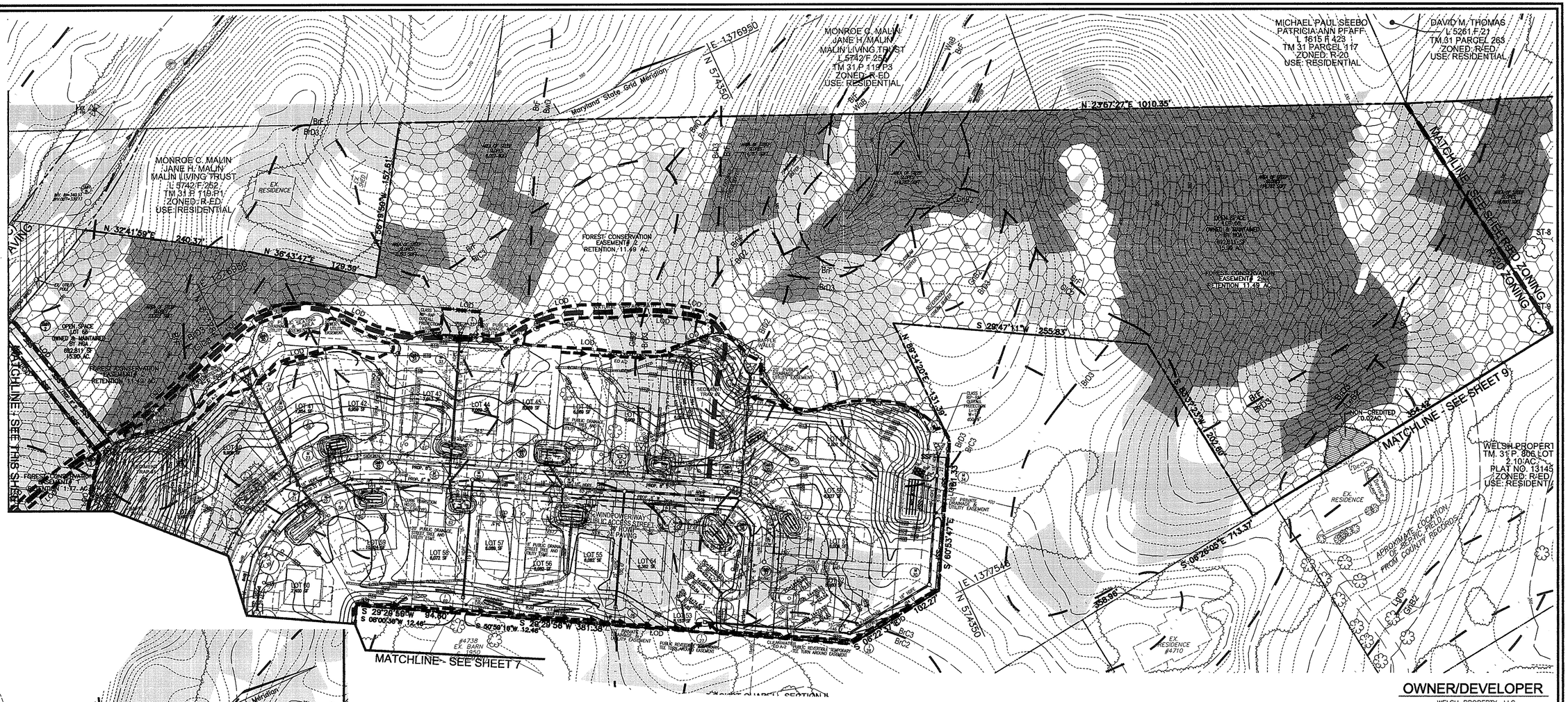
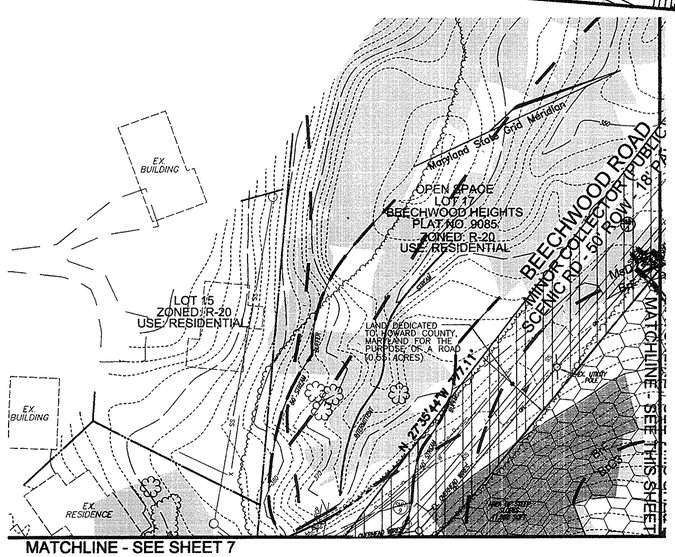
EXPIRATION DATE: 09-27-2012

SHEET 7 OF 25

F-10-102





SEE SHEET 7 FOR TRAP DATA.

OWNER/DEVELOPER

WELSH PROPERTY, LLC
4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

LEGEND:

- EXISTING CONTOUR
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NO.	REVISION	DATE
2	REVISE SWM	8/15/12

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD
GRADING, SEDIMENT AND EROSION CONTROL PLAN

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
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LOTS 1-64 & OPEN SPACE 65-69
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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	JAR
DRAWN BY:	KG
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EXPIRATION DATE: 09-27-2012

SHEET 8 OF 25

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/28/10
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

BY THE DEVELOPER:
"I/WE CERTIFY THAT ALL DEVELOPEMENT 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 — DATE 9/30/10

BY THE ENGINEER:
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SIGNATURE OF ENGINEER — DATE 9/28/10

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD S.C.D. — DATE 10/7/10

F-10-102

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING UTILITY POLE
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ATTN: MR. DONALD R. REUWER
443-367-0422

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	"K" FACTOR
AgC2	AURA GRAVELLY LOAM, 5 TO 10 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.32
AgE3	AURA GRAVELLY LOAM, 10 TO 30 PERCENT SLOPES, SEVERELY ERODED	B	NO	0.24
Ba	BAILE SILT LOAM	D	YES	0.43
BrC2	BRANDYWINE LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	C	NO	0.24
BrC3	BRANDYWINE LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED	C	NO	0.24
BrD2	BRANDYWINE LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED	C	NO	0.20
BrD3	BRANDYWINE LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	C	NO	0.20
BrF	BRANDYWINE LOAM, 20 TO 60 PERCENT SLOPES	C	NO	0.20
BwD	BRANDYWINE VERY STONY LOAM, 3 TO 25 PERCENT SLOPES	C	NO	0.20
GlB2	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.32
GlC2	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.32
GlC3	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED	B	NO	0.32
GnB2	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C	NO*	0.32
LeB2	LEGORE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.24
LeC2	LEGORE SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.24
LgC3	LEGORE SILTY CLAY LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED	B	NO	0.24
MsD	MONTALTO AND RELAY VERY STONY SILT LOAMS, 3 TO 25 PERCENT SLOPES	C	NO	0.32
MrE	MONTALTO AND RELAY SOILS, 15 TO 45 PERCENT SLOPES	C	NO	0.24
MsF	MONTALTO AND RELAY SOILS, VERY STONY SILT LOAMS, 25-60% SLOPES	C	NO	0.32
NeB2	NESHAMINY SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.32
NeC2	NESHAMINY SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.32
ReC2	RELAY SILT LOAM, 3 TO 15 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.24
WoB	WATCHUNG SILT LOAM, 3 TO 8 PERCENT SLOPES	D	YES	0.43

* MAY POTENTIALLY CONTAIN HYDRIC INCLUSIONS
SOURCE: USDA - SCS, 1968 SOIL SURVEY OF HOWARD COUNTY, MARYLAND.

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD

GRADING, SEDIMENT AND EROSION CONTROL PLAN

ZONED: (R-20 AND R-ED)
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LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
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STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER
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EXPIRATION DATE: 09-27-2012

SHEET 9 OF 25

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/20/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

BY THE DEVELOPER:

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SIGNATURE OF DEVELOPER — DATE 9/30/10

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 — DATE 9/28/10

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

HOWARD S.C.D. — DATE

F-10-102

BASINS CONSTRUCTION SPECIFICATIONS

1. SITE PREPARATION: PERIMETER SEDIMENT CONTROL DEVICES MUST BE INSTALLED PRIOR TO CLEARING AND GRUBBING. AREA WHERE THE EMBANKMENT IS TO BE PLACED SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL. THE POOL AREA SHALL NOT BE CLEARED UNTIL COMPLETION OF THE DAM EMBANKMENT UNLESS THE POOL AREA IS TO BE USED FOR BORROW. IN ORDER TO FACILITATE CLEAN-OUT AND RESTORATION, THE POOL AREA (MEASURED AT THE TOP OF THE PIPE SPILLWAY) SHALL BE CLEARED OF ALL BRUSH, TREES AND OTHER OBJECTIONABLE MATERIALS.

2. CUT-OFF TRENCH: A CUT-OFF TRENCH SHALL BE EXCAVATED ALONG THE CENTERLINE OF EARTH FILL EMBANKMENTS. THE MINIMUM DEPTH SHALL BE FOUR FEET. THE CUT-OFF TRENCH SHALL EXTEND UP BOTH ABUTMENTS TO THE RISER CREST ELEVATION. THE MINIMUM BOTTOM WIDTH SHALL BE TWO FEET, BUT WIDE ENOUGH TO PERMIT OPERATION OF EXCAVATION AND COMPACTION EQUIPMENT. THE SIDE SLOPES SHALL BE NO STEEPER THAN 1:1. COMPACTION REQUIREMENTS SHALL BE THE SAME AS THOSE FOR THE EMBANKMENT. THE TRENCH SHALL BE DEWATERED DURING THE BACKFILLING-COMPACTION OPERATIONS. FOR DEWATERING SEE SECTION D.

3. EMBANKMENT: THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED AREAS SHOWN ON THE PLANS. IT SHALL BE CLEAN MATERIAL SOIL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, OR OTHER OBJECTIONABLE MATERIAL. RELATIVELY PERVIOUS MATERIALS SUCH AS SAND OR GRAVEL (UNIFIED SOIL CLASSES GW, GP, SW & SP) OR ORGANIC MATERIALS (UNIFIED SOIL CLASSES OL AND OH) SHALL NOT BE PLACED IN THE EMBANKMENT. AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IT CAN BE FORMED BY HAND INTO A BALL WITHOUT CRUMBLING. IF WATER CAN BE SQUEEZED FROM THE BALL, IT IS TOO WET FOR PROPER COMPACTION. FILL MATERIAL SHALL BE PLACED IN SIX-INCH BY EIGHT-INCH THICK CONTINUOUS LIFTS OF THE ENTIRE LENGTH OF THE FILL. COMPACTION SHALL BE OBTAINED BY ROUTING AND HAULING THE CONSTRUCTION EQUIPMENT OVER THE FILL SO THAT THE ENTIRE SURFACE OF EACH LAYER OF THE FILL IS TRAVERSED BY AT LEAST ONE WHEEL OR TREAD TRACK OF THE EQUIPMENT OR BY THE USE OF A COMPACTOR. THE EMBANKMENT SHALL BE CONSTRUCTED TO AN ELEVATION 10 PERCENT HIGHER THAN THE DESIGN TO ALLOW FOR SETTLEMENT.

4. PRINCIPAL SPILLWAY: STEEL RISERS SHALL BE SECURELY ATTACHED TO THE BARREL OR BARREL STUB BY WELDING THE FULL CIRCUMFERENCE MAKING A WATERTIGHT STRUCTURAL CONNECTION. CONCRETE RISERS SHALL BE POURED WITH THE PRINCIPAL SPILLWAY IN PLACE OR PRECAST WITH VOIDS AROUND THE PRINCIPAL SPILLWAY FILLED WITH CONCRETE OR SHRINK PROOF GROUT FOR WATERTIGHT CONNECTION. THE BARREL STUB MUST BE ATTACHED TO THE RISER AND THE RISER BASE SHALL BE WATERTIGHT. ALL CONNECTIONS BETWEEN BARREL SECTIONS MUST BE ACHIEVED BY APPROVED WATERTIGHT BAND ASSEMBLIES. THE BARREL AND RISER SHALL BE PLACED ON A FIRM, SMOOTH FOUNDATION OF IMPERVIOUS SOIL AS THE EMBANKMENT IS CONSTRUCTED. BREACHING THE EMBANKMENT TO INSTALL THE BARREL IS UNACCEPTABLE. PERVIOUS MATERIALS SUCH AS SAND, GRAVEL OR CRUSHED STONE SHALL NOT BE USED AS BACKFILL AROUND THE PIPE OR ANTI-SEEP COLLARS. THE FILL MATERIAL AROUND THE PIPE SPILLWAY SHALL BE PLACED IN FOUR INCH LIFTS AND HAND COMPACTED UNDER AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. A DEPTH OF 1.5 TIMES THE PIPE DIAMETER (MIN.) SHALL BE BACKFILL OVER THE PRINCIPAL SPILLWAY AND HAND COMPACTED BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.

5. EMERGENCY SPILLWAY: THE EMERGENCY SPILLWAY SHALL BE INSTALLED IN UNDISTURBED GROUND. THE ACHIEVEMENT OF PLANNED ELEVATIONS, GRADES, DESIGN WIDTH, ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE EMERGENCY SPILLWAY AND MUST BE CONSTRUCTED WITHIN A TOLERANCE OF + 0.2 FEET.

6. VEGETATIVE TREATMENT: STABILIZE THE EMBANKMENT IN ACCORDANCE WITH THE APPROPRIATE VEGETATIVE STANDARD AND SPECIFICATION IMMEDIATELY FOLLOWING CONSTRUCTION. IN NO CASE SHALL THE EMBANKMENT REMAIN UNSTABILIZED FOR MORE THAN SEVEN (7) DAYS. ONCE CONSTRUCTED, THE TOP AND OUTSIDE FACE OF THE EMBANKMENT SHALL BE STABILIZED WITH SEED AND MULCH. THE REMAINDER OF THE INTERIOR SLOPES SHOULD BE STABILIZED (ONE TIME) WITH SEED AND MULCH UPON BASIN COMPLETION AND MONITORING AND MAINTAINED EROSION FREE DURING THE LIFE OF THE BASIN.

7. SAFETY: LOCAL REQUIREMENTS CONCERNING FENCING AND SIGNS SHALL BE MET, WARNING THE PUBLIC OF HAZARDS OF SOFT SEDIMENT AND FLOODWATER.

8. MAINTENANCE: REPAIR ALL DAMAGE CAUSED BY SOIL EROSION AND CONSTRUCTION EQUIPMENT AT OR BEFORE THE END OF EACH WORKING DAY. SEDIMENT SHALL BE REMOVED FROM THE BASIN WHEN IT REACHES THE SPECIFIED DISTANCE BELOW THE TOP OF THE RISER AS SHOWN ON THE RISER. THIS SEDIMENT SHALL BE PLACED IN SUCH A MANNER THAT IS WILL NOT ERODE FROM THE SITE. THE SEDIMENT SHALL NOT BE DEPOSITED DOWNSTREAM FROM THE EMBANKMENT, ADJACENT TO A STREAM OR FLOODPLAIN. DISPOSAL AREAS MUST BE STABILIZED.

9. FINAL DISPOSAL: WHEN TEMPORARY STRUCTURES HAVE SERVED THEIR INTENDED PURPOSE AND THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, THE EMBANKMENT AND RESULTING SEDIMENT DEPOSITS ARE TO BE LEVELED OR OTHERWISE DISPOSED OF IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN. THE PROPOSED USE OF A SEDIMENT BASIN SITE WILL OFTEN DICTATE FINAL DISPOSITITON OF THE BASIN AND ANY SEDIMENT CONTAINED THEREIN. IF THE SITE IS SCHEDULED FOR FUTURE CONSTRUCTION, THEN THE BASIN MATERIAL TRAPPED SEDIMENTS MUST BE REMOVED AND SAFELY DISPOSED OF THE AND BASIN SHALL BE BACKFILLED WITH STRUCTURAL FILL. WHEN THE BASIN AREA IS TO REMAIN OPEN SPACE, THE POND MAY BE PUMPED DRY (USING METHODS IN SECTION D - DEWATERING), GRADING, AND BACK FILLED.

10. CONVERSION TO STORMWATER MANAGEMENT STRUCTURE: AFTER PERMANENT STABILIZATION OF ALL DISTURBED CONTRIBUTORY DRAINAGE AREAS, TEMPORARY SEDIMENT BASINS IF INITIALLY BUILY AND CERTIFIED TO MEET PERMANENT STANDARDS, MAY BE CONVERTED TO PERMANENT STORMWATER MANAGEMENT STRUCTURES. TO CONVERT THE BASIN FROM TEMPORARY TO PERMANENT USE, THE OUTLET STRUCTURE MUST BE MODIFIED IN ACCORDANCE WITH APPROVED STORMWATER MANAGEMENT DESIGN PLANS. ADDITIONAL GRADING MAY ALSO BE NECESSARY TO PROVIDE THE REQUIRED STORAGE VOLUME IN THE BASIN. CONVERSION CAN ONLY TAKE PLACE AFTER ALL DISTURBED AREA HAVE BEEN PERMANENTLY STABILIZED TO SATISFACTION OF THE INSPECTION AUTHORITY AND STORM DRAINS HAVE BEEN FLUSHED.

30.0 DUST CONTROL

DEFINITION

CONTROLLING DUST BLOWING AND MOVEMENT ON CONSTRUCTION SITES AND ROADS.

PURPOSE

TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCE ON AND OFF-SITE DAMAGE HEALTH HAZARDS, AND IMPROVE TRAFFIC SAFETY.

CONDITIONS WHERE PRACTICE APPLIES

THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.

SPECIFICATIONS

TEMPORARY METHODS

1. MULCHES - SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING.
2. VEGETATIVE COVER - SEE STANDARDS FOR TEMPORARY VEGETATIVE COVER.
3. TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12" APART, SPRING-TOOTHED HARROWS, AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
4. IRRIGATION - THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS MOIST. REPEAT AS NEEDED. AT NO TIME SHOULD THE SITE BE IRRIGATED TO THE POINT THAT RUNOFF BEGINS TO FLOW.
5. BARRIERS - SOLID BOARD FENCES, SILT FENCES, SNOW FENCES, BURLAP FENCES, STRAW BALES, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 10 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING SOIL BLOWING.
6. CALCIUM CHLORIDE - APPLY AT RATES THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.

PERMANENT METHODS

1. PERMANENT VEGETATION - SEE STANDARDS FOR PERMANENT VEGETATIVE COVER, AND PERMANENT STABILIZATION WITH SOD. EXISTING TREES OR LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION IF LEFT IN PLACE.
2. TOPSOILING - COVERING WITH LESS EROSIVE SOIL MATERIALS. SEE STANDARDS FOR TOPSOILING.
3. STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

REFERENCES

1. AGRICULTURAL HANDBOOK 346. WIND EROSION FORCES IN THE UNITED STATES AND THEIR USE IN PREDICTING SOIL LOSS.
2. AGRICULTURAL INFORMATION BULLETIN 354. HOW TO CONTROL WIND EROSION, USDA-ARS.

EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION

THE AREAS OF THE PROPOSED SWM PONDS SHOULD BE STRIPPED OF TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOFROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, THE EXPOSED MATERIALS SHOULD BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROOFROLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILING WITH SUITABLE SOIL.

A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR THE EMBANKMENT AND CUT-OFF TRENCH. IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SPECIFICATION 378 SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUT-OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH OR CL.

IT IS OUR PROFESSIONAL OPINION THAT IN ADDITION TO THE SOIL MATERIALS DESCRIBED ABOVE A FINE GRAINED SOIL, INCLUDING SILT (ML) WITH A PLASTICITY INDEX OF 10 OR MORE CAN BE UTILIZED FOR THE CENTER OF THE EMBANKMENT & CORE TRENCH. EXPLORATION WITH TEST PITS AND LABORATORY TESTING CAN BE CONDUCTED PRIOR TO CONSTRUCTION TO IDENTIFY AND QUANTIFY POTENTIAL BORROW AREAS FOR CORE TRENCH MATERIAL. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED IN ACCORDANCE WITH MD SCS 378 SPECIFICATIONS.

SEDIMENT CONTROL NOTES

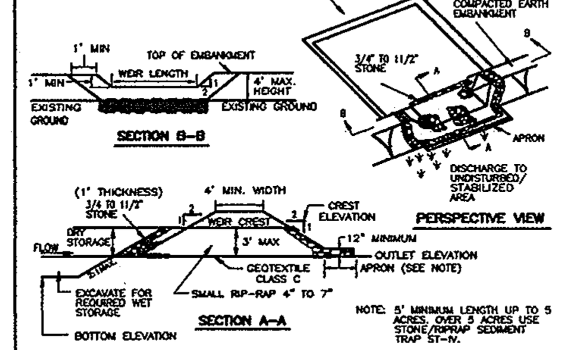
1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPT. OF INSPECTION, LICENSE AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATION AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: (A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3:1, (B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SOD, TEMPORARY SEEDING, AND MULCHING (SEC. G). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS :

TOTAL AREA	TRACT AREA	36.54 AC
AREA DISTURBED		16.18 AC.
AREA TO BE ROOFED OR PAVED		4.86 AC.
AREA TO BE VEGETATIVELY STABILIZED		11.32 AC.
TOTAL CUT		15,600 CY
TOTAL FILL		15,600 CY
OFFSITE WASTE/BORROW AREA LOCATION		*

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

* TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR WITH AN APPROVED AND ACTIVE GRADING PERMIT

DETAIL 9 - STONE OUTLET SEDIMENT TRAP - ST II



Construction Specifications

1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small rip-rap 4" to 7" in size with a 1' thick layer of 3/4" to 11/2" washed aggregate placed on the upstream face of the outlet. Stone facing shall be as necessary to prevent clogging. Geotextile Class C may be substituted for the stone facing by placing it on the inside face of the stone outlet.
5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

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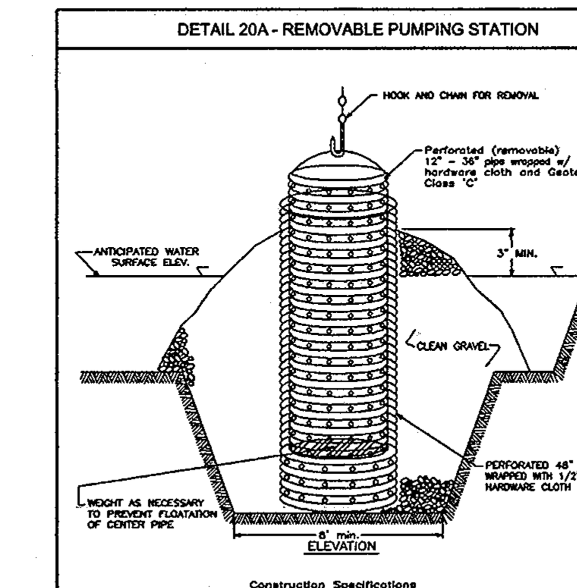
DETAIL 20A - REMOVABLE PUMPING STATION



Construction Specifications

1. THE OUTER PIPE SHOULD BE 48" DIA. OR SHALL, IN ANY CASE, BE AT LEAST 4" GREATER IN DIAMETER THAN THE CENTER PIPE. THE OUTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH TO PREVENT BACKFILL MATERIAL FROM ENTERING THE PERFORATIONS.
2. AFTER INSTALLING THE OUTER PIPE, BACKFILL AROUND OUTER PIPE WITH 2" AGGREGATE OR CLEAN GRAVEL.
3. THE INSIDE STAND PIPE (CENTER PIPE) SHOULD BE CONSTRUCTED BY PERFORATING A CORRUGATED OR PVC PIPE BETWEEN 12" AND 36" IN DIAMETER. THE PERFORATIONS SHALL BE 1/2" X 6" SLITS OR 1" DIAMETER HOLES 6" ON CENTER. THE CENTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH FIRST, THEN WRAPPED AGAIN WITH GEOTEXTILE CLASS C.
4. THE CENTER PIPE SHOULD EXTEND 12" TO 18" ABOVE THE ANTICIPATED WATER SURFACE ELEVATION OR RISER CREST ELEVATION WHEN DEWATERING A BASIN.

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21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETABLE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:

A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.

B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.

C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.

D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

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

I. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR A SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAT 1 AND 1/2" IN DIAMETER.

II. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

III. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

II. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:

I. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

III. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

I. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:

A. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.
B. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
C. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
D. NO SOD OR SEED SHALL BE PLACED ON SOIL SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

II. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMMENDMENTS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION-SECTION I-VEGETATIVE STABILIZATION METHODS AND MATERIALS.

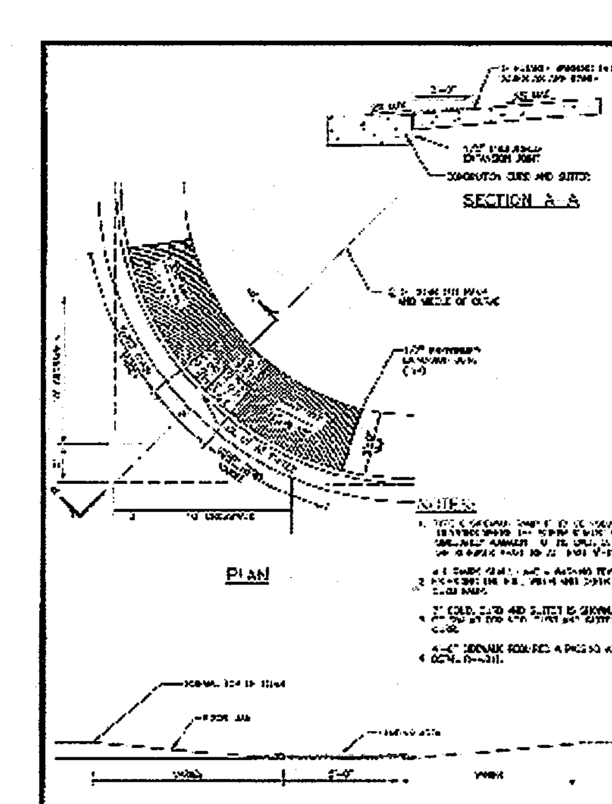
V. TOPSOIL APPLICATION

I. WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.

II. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4" - 8" HIGHER IN ELEVATION.

III. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.

IV. TOPSOIL SHALL NOT BE PLACE WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.



SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (313-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE.
2. INSTALL TREE PROTECTION FENCE AS SHOWN ON PLAN.
3. INSTALL PERIMETER SUPER SILT FENCE AND AND CLEAR AND GRUB SITE.
4. WITH PERMISSION FROM SEDIMENT CONTROL INSPECTOR CONSTRUCT SEDIMENT TRAPS AND BEGIN MASS GRADING OF SITE. INSTALL EARTH DIKES AND DIRECT TO TRAPS.
5. INSTALL DIVERSION STORM DRAIN SYSTEMS (I-47 THRU E-6 AND I-27 THRU E-13) AND DIRECT CLEAN WATER DIKES TO INLETS I-27 AND I-47.
6. WITH PERMISSION FROM SEDIMENT CONTROL INSPECTOR MASS GRADE SITE INSTALL WATER, SEWER AND STORM DRAIN SYSTEM.
7. GRADE ROADS TO SUB-BASE AND APPLY DUST CONTROL SPECIFICATIONS.
8. WITH ROAD GRADED TO SUB-BASE BEGIN CURB AND GUTTER CONSTRUCTION AND ROAD PAVING. INSTALL SIDEWALKS AND REMOVE TEMPORARY DRIVEWAY & EASEMENT.
9. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, AND FINAL ROAD PAVING COMPLETE, STABILIZE ANY REMAINING DISTURBED AREAS, AND FLUSH STORM DRAIN SYSTEM.
10. CONSTRUCT PRIVATE SWM FACILITIES AND STABILIZE IMMEDIATELY.
11. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, CONVERT REMOVE SEDIMENT CONTROL MEASURES.
12. REMOVE ALL NEW AND OLD JUNK, TRASH, DEBRIS AND OTHER MAN-MADE OBJECTS FROM THE ENTIRE FOREST CONSERVATION EASEMENT, FLOODPLAIN, WETLANDS, STREAMS AND THEIR BUFFERS.
13. INSTALL PERIMETER LANDSCAPING AS WELL AS STREET TREES.
14. PROVIDE COPY OF THE AS-BUILT APPROVAL LETTER FROM THE HOWARD SCD, TO THE COUNTY INSPECTOR

PERMANENT SEEDING NOTES

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

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

1) PREFERRED-APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/100 SQ.FT.) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT THE TIME OF SEEDING, APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ.FT.)
2) ACCEPTABLE-APPLY 2 TONS PER ACRE DOLOMATIC LIMESTONE (92 LBS/1000 SQ.FT.) AND APPLY 1000 LBS. PER ACRE 10-10-10- FERTILIZER (23 LBS./1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE (1.4 LBS/1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS. PER ACRE (.05 LBS./1000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ. FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.

MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

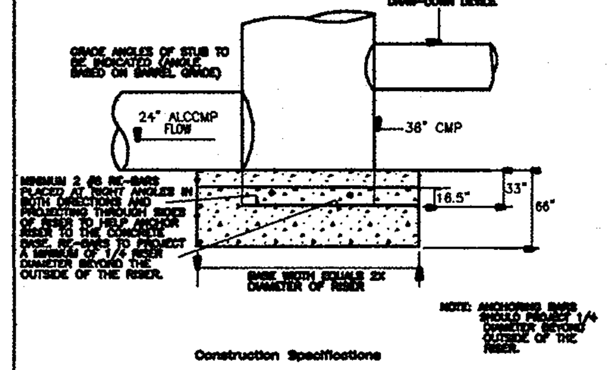
SOIL AMENDMENTS: APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ.FT).

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2 1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS./1000 SQ.FT.) FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (.07 LBS./1000 SQ.FT.). FOR THE PERIOD NOVEMBER 1 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.

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

DETAIL 15 - RISER BASE DETAIL



Construction Specifications

The riser shall have a base attached with a watertight connection and shall have sufficient weight to prevent flotation of the riser. Two approved bases for risers 10' or less in height are:

1. A concrete base 18" thick with the riser embedded 9" in the base.
2. A 1/4" minimum thickness steel plate attached to the riser by a continuous weld around the circumference of the riser to form a watertight connection. The plate shall have 2' of stone, gravel, or compacted earth placed on it to prevent flotation. In either case, each side of the square base shall be twice the riser diameter.

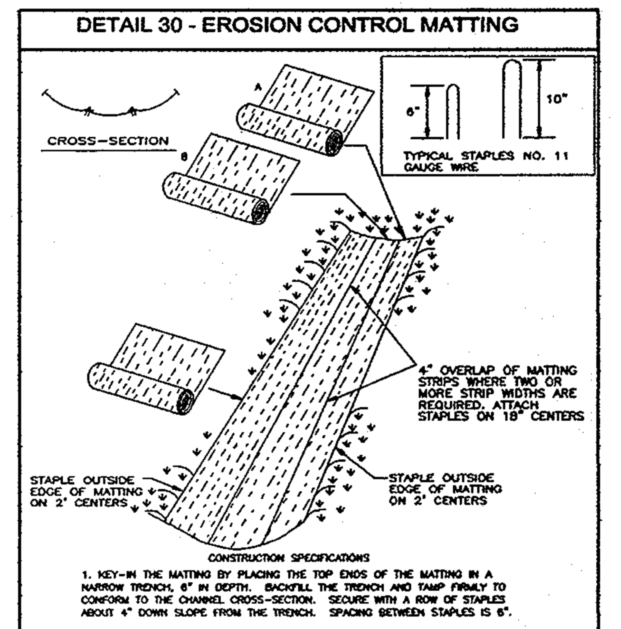
Note: For risers greater than ten feet high computations shall be made to design a base which will prevent flotation. The minimum factor of safety shall be 1.20 (downward forces = 1.20 x upward forces).

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - 10 - 23	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

OWNER/DEVELOPER

WELSH PROPERTY, LLC
4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

DETAIL 30 - EROSION CONTROL MATTING



CONSTRUCTION SPECIFICATIONS

1. KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH, 6" IN DEPTH. BACKFILL THE TRENCH AND TAMP FIRMLY TO CONFORM TO THE CHANNEL CROSS-SECTION. SECURE WITH A ROW OF STAPLES ABOUT 4" DOWN SLOPE FROM THE TRENCH. SPACING BETWEEN STAPLES IS 6".
2. STAPLE THE 4" OVERLAP IN THE CHANNEL CENTER USING AN 18" SPACING BETWEEN STAPLES.
3. BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL.
4. STAPLES SHALL BE PLACED 2' APART WITH 4 ROWS FOR EACH STRIP, 2 OUTER ROWS, AND 2 ALTERNATING ROWS DOWN THE CENTER.
5. WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4", SHIPLAP FASHION. REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6" APART IN A STAGGERED PATTERN ON EITHER SIDE.
6. THE DISCHARGE END OF THE MATTING LINER SHOULD BE SIMILARLY SECURED WITH 2 DOUBLE ROWS OF STAPLES.

NOTE: IF FLOW WILL ENTER FROM THE EDGE OF THE MATTING THEN THE AREA EFFECTED BY THE FLOW MUST BE KEYED-IN.

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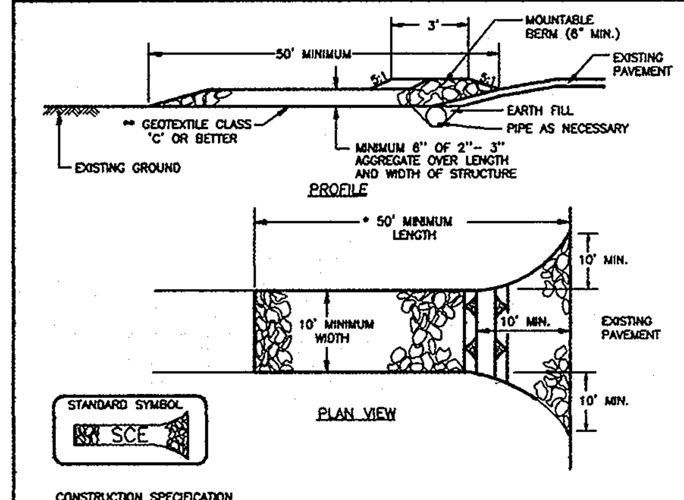
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



CONSTRUCTION SPECIFICATION

1. LENGTH - MINIMUM OF 50' (* 30' FOR A SINGLE RESIDENCE LOT).
2. WIDTH - 10' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
3. GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. ** THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.
4. STONE - CRUSHED AGGREGATE (2" TO 3") OR RECLAIMED OR RECYCLED CONCRETE THE ENTRANCE.
5. SURFACE WATER - ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. PIPE HAS TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE WILL NOT BE NECESSARY. PIPE SHOULD BE SIZED ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED. A 6" MINIMUM WILL BE REQUIRED.
6. LOCATION - A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.

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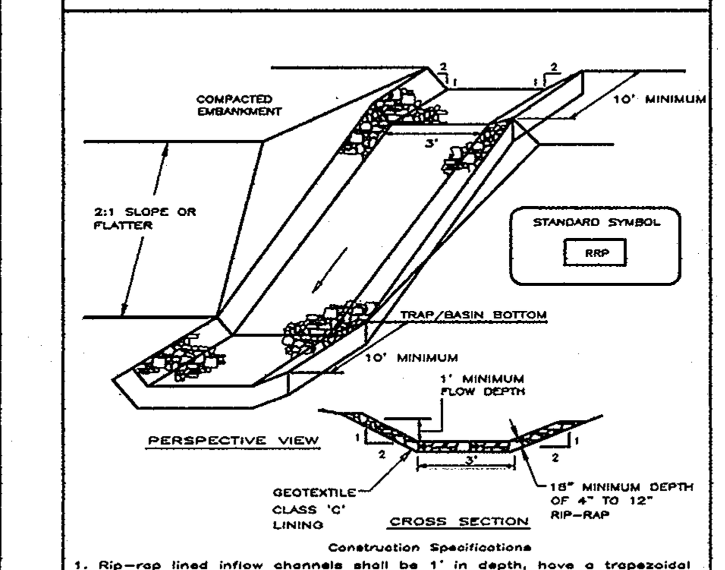
DETAIL 5 - RIP-RAP INFLOW PROTECTION

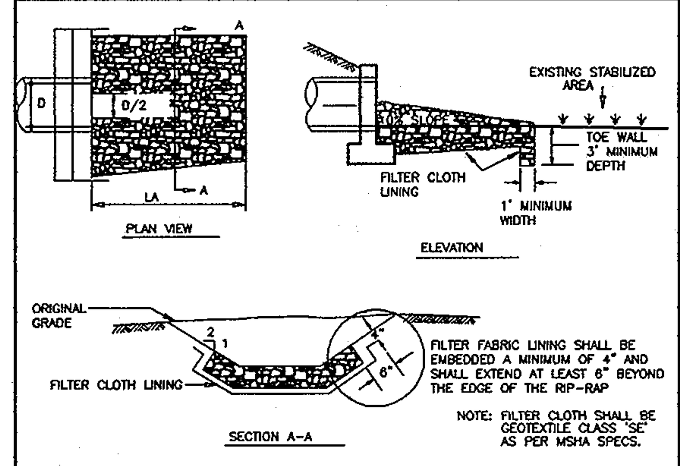


Construction Specifications

1. Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min.) bottom width. The channel shall be lined with 4" to 12" rip- rap to a depth of 18".
2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.
3. Entrance and exit sections shall be installed as shown on the detail section.
4. Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.
6. Rip-rap should blend into existing ground.
7. Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Swale lining criteria.

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

DETAIL 27 - ROCK OUTLET PROTECTION III



CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PEREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
3. GEOTEXTILE SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPARIED BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE SHALL BE A MINIMUM OF ONE FOOT.
4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACMENT OF UNDERLYING MATERIALS. THE STONE FOR RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
5. THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.

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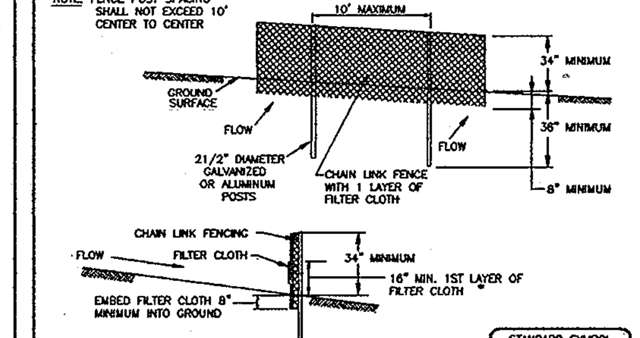
DETAIL 33 - SUPER SILT FENCE



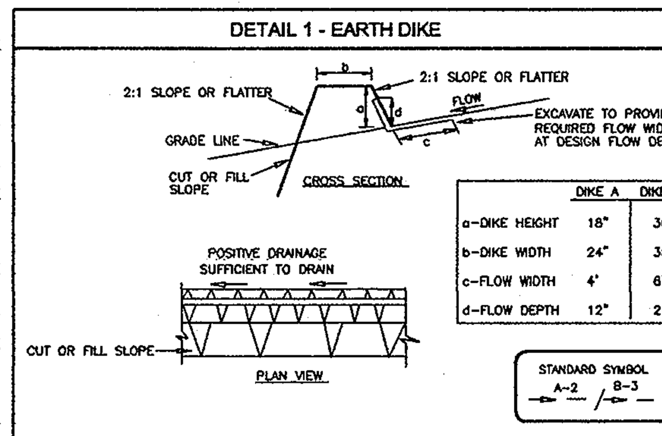
CONSTRUCTION SPECIFICATIONS

1. FENCING SHALL BE 42" IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY DETAILS FOR CHAIN LINK FENCING. THE SPECIFICATION FOR A 6' FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6' LENGTH POSTS.
2. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, DRIVE ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.
3. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT THE TOP AND MID SECTION.
4. FILTER CLOTH SHALL BE EMBEDDED A MINIMUM OF 8" INTO THE GROUND.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SILT BUILDUPS REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE, OR WHEN SILT REACHES 50% OF FENCE HEIGHT.
7. FILTER CLOTH SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:

TENSILE STRENGTH	50 LBS/IN (MIN.)	TEST: MSMT 509
TENSILE MODULUS	20 LBS/IN (MIN.)	TEST: MSMT 509
FLOW RATE	0.3 GAL/FT /MINUTE (MAX.)	TEST: MSMT 322
FILTERING EFFICIENCY	75% (MIN.)	TEST: MSMT 322

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

DETAIL 1 - EARTH DIKE



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

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

1. SEED AND COVER WITH STRAW MULCH.
2. SEED AND COVER WITH EROSION CONTROL MATTING OR LINE WITH SOD.
3. 4" - 7" STONE OR RECYCLED CONCRETE EQUIVALENT PRESSED INTO THE SOIL 7" MINIMUM

CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY EARTH DIKES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
2. RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED, STABILIZED AREA AT A NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONAL MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE DIKE.
5. THE DIKE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILL SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE DIKE.
8. INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.

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

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 10·21·10
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 10/20/10
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 11/01/10
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPEMENT 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] 9/30/10
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] 9/28/10
SIGNATURE OF ENGINEER — DATE

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

[signature] 10/7/10
HOWARD S.C.D. — DATE

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD
SEDIMENT AND EROSION CONTROL NOTES AND DETAILS

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

SP_10_001
WP-09-92, S-06-006
WP-10-002
PARCEL 115
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

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

DESIGN BY:	JAR
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	AUGUST 2010
SCALE:	AS SHOWN
W.O. NO.:	04-151

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: 09-27-2012

F-10-102

SITE LEGEND

- SITE PROPERTY LINE
- EX. 2' CONTOUR
- EX. 10' CONTOUR
- EX. WOODS LINE
- SOIL GROUP DIVIDE
- HYDROLOGIC SOIL GROUP DIVIDE
- PROPOSED DRAINAGE SUBAREA
- FOREST CONSERVATON AREA (RETENTION)
- RAINWATER HARVESTING & ROOFTOP DISCONNECTS (RAIN BARRELS)
- RAIN BARREL ONLY
- PERMEABLE PAVEMENT (PAVERS)
- PERMEABLE PAVEMENT (PERMEABLE CONCRETE)
- PAVEMENT
- GRASS SWALE
- ROOFTOP DISCONNECTS

PLAN

SCALE: 1"= 30'

OWNER/DEVELOPER

WELSH PROPERTY, LLC
4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD

STORMDRAIN AND ESD DA MAP

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

SP_10_001
WP-09-92, S-06-006
WP-10-002
PARCEL 115
HOWARD COUNTY, MARYLAND

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ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/20/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

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

DESIGN BY:	JAR
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	AUGUST 2010
SCALE:	AS SHOWN
W.O. NO.:	04-151

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SHEET 11 OF 25

F-10-102

PLAN

SCALE: 1"= 30'

LOCATION	DRAINAGE AREA (AC)	IMPERVIOUS %	"C" FACTOR
MB-1	0.20	58%	0.56
MB-2	0.17	62%	0.60
MB-3	0.19	51%	0.52
MB-4	0.24	60%	0.58
MB-5	0.21	53%	0.53
MB-6	0.38	41%	0.44
MB-7	0.17	56%	0.55
MB-8	0.20	54%	0.54
MB-9	0.16	64%	0.62
MB-10	0.15	69%	0.65
MB-11	0.15	67%	0.64
MB-12	0.30	51%	0.53
MB-13	0.42	22%	0.34
MB-14	0.26	79%	0.72
MB-15	0.48	28%	0.38
MB-16	0.17	85%	0.75
MB-17	0.13	46%	0.50
MB-18	0.16	81%	0.73
MB-19	0.16	38%	0.44
MB-20	0.15	75%	0.69
MB-21	0.21	70%	0.66
MB-22A	0.19	49%	0.53
MB-22B	0.17	5%	0.24
MB-23	0.16	88%	0.78
MB-24	0.33	65%	0.63
MB-25	0.44	55%	0.56
MB-26	0.28	69%	0.65
MB-27	0.43	72%	0.67
MB-28	0.45	65%	0.62
MB-29	0.44	20%	0.32
MB-30	0.78	11%	0.27
MB-31	0.41	34%	0.43
DA-4	0.43	12%	0.27
DA-5	0.41	19%	0.29
DA-6	0.91	0%	0.02
DA-8	1.23	15%	0.26
DA-9	0.59	18%	0.28
DA-10	1.71	18%	0.16
DA-14	0.88	7%	0.24

SITE LEGEND

- SITE PROPERTY LINE
- EX. 2' CONTOUR
- EX. 10' CONTOUR
- EX. WOODS LINE
- SOIL GROUP DIVIDE
- HYDROLOGIC SOIL GROUP DIVIDE
- PROPOSED DRAINAGE SUBAREA
- FOREST CONSERVATON AREA (RETENTION)
- RAINWATER HARVESTING & ROOFTOP DISCONNECTS (RAIN BARRELS)
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- PERMEABLE PAVEMENT (PERMEABLE CONCRETE)
- PAVEMENT
- GRASS SWALE
- ROOFTOP DISCONNECTS

OWNER/DEVELOPER

WELSH PROPERTY, LLC
4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD

STORMDRAIN AND ESD DA MAP

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

SP_10_001
WP-09-92, S-06-006
WP-10-002
PARCEL 115
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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER — 10/21/10

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	JAR
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	AUGUST 2010
SCALE:	AS SHOWN
W.O. NO.:	04-151

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: 09-27-2012

SHEET 12 OF 25

APPROVED: DEPARTMENT OF PUBLIC WORKS

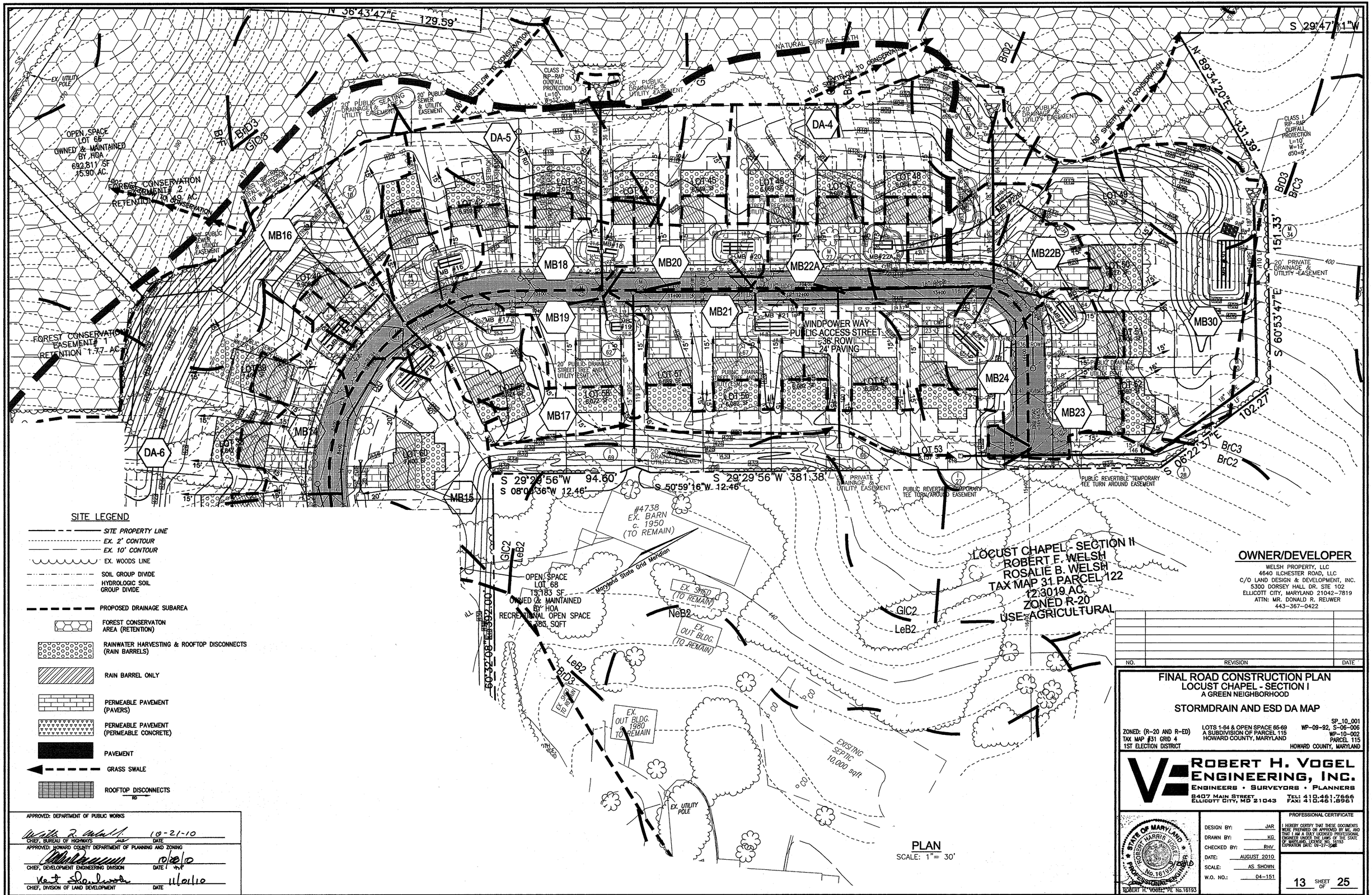
CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/20/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

F-10-102



SITE LEGEND

- SITE PROPERTY LINE
- EX. 2' CONTOUR
- EX. 10' CONTOUR
- EX. WOODS LINE
- SOIL GROUP DIVIDE
- HYDROLOGIC SOIL GROUP DIVIDE
- PROPOSED DRAINAGE SUBAREA
- FOREST CONSERVATON AREA (RETENTION)
- RAINWATER HARVESTING & ROOFTOP DISCONNECTS (RAIN BARRELS)
- RAIN BARREL ONLY
- PERMEABLE PAVEMENT (PAVERS)
- PERMEABLE PAVEMENT (PERMEABLE CONCRETE)
- PAVEMENT
- GRASS SWALE
- ROOFTOP DISCONNECTS

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/28/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

PLAN
SCALE: 1"= 30'

OWNER/DEVELOPER

WELSH PROPERTY, LLC
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5300 DORSEY HALL DR. STE 102
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ATTN: MR. DONALD R. REUWER
443-367-0422

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD

STORMDRAIN AND ESD DA MAP

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

SP_10_001
WP-09-92, S-06-006
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STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	JAR
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SHEET 13 OF 25

F-10-102

INLET SCHEDULE

NO.	TYPE	LOCATION	TOP ELEV.*	THROAT	INV. IN	INV. OUT	REMARKS	UNDER DRAIN INV. OUT
I-1	MD SHA 5' PRECAST COG INLET	SUMMER SOLSTICE PLACE 2+48.89, 12.43' LT.	440.92	440.32	–	–	MD 374.68	–
I-2	MD SHA 5' PRECAST COG INLET	SUMMER SOLSTICE PLACE 3+69.90, 12.43' LT.	438.50	437.90	–	–	MD 374.68	–
I-3	MD SHA 5' PRECAST COG INLET	SUMMER SOLSTICE PLACE 4+62.67, 12.43' LT.	436.65	436.05	–	–	MD 374.68	–
I-4	MD SHA 5' PRECAST COG INLET	SUMMER SOLSTICE PLACE 2+81.21, 12.43' RT.	440.28	439.68	–	–	MD 374.68	–
I-5	MD SHA 5' PRECAST COG INLET	SUMMER SOLSTICE PLACE 4+21.38, 12.43' RT.	437.47	436.87	–	–	MD 374.68	–
I-6	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 0+52.41, 12.43' LT.	438.36	437.76	–	–	MD 374.68	–
I-7	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 0+55.22, 12.43' RT.	438.43	437.83	–	–	MD 374.68	–
I-8	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 2+01.31, 12.43' LT.	440.16	439.56	–	–	MD 374.68	–
I-9	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 3+78.09, 12.43' LT.	433.89	433.29	–	–	MD 374.68	–
I-10	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 4+71.54, 12.43' LT.	432.53	431.93	–	–	MD 374.68	–
I-11	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 5+68.38, 12.43' LT.	433.57	432.97	–	–	MD 374.68	–
I-12	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 2+98.53, 12.43' RT.	436.87	436.27	–	–	MD 374.68	–
I-12A	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 22+28.61, 12.43' LT.	436.15	435.55	–	–	MD 374.68	–
I-14	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 8+50.18, 12.43' LT.	431.70	431.10	–	–	MD 374.68	–
I-15	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 8+81.15, 12.43' RT.	430.75	430.15	–	–	MD 374.68	–
I-16	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 9+38.85, 12.43' LT.	428.73	428.13	–	–	MD 374.68	–
I-17	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 9+68.32, 12.43' RT.	427.58	426.98	–	–	MD 374.68	–
I-18	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 10+53.23, 12.43' LT.	424.19	423.59	–	–	MD 374.68	–
I-19	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 10+63.41, 12.43' RT.	423.78	423.18	–	–	MD 374.68	–
I-20	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 11+64.97, 12.43' LT.	420.00	419.40	–	–	MD 374.68	–
I-21	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 11+89.13, 12.43' RT.	419.40	418.80	–	–	MD 374.68	–
I-22	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 12+66.71, 12.43' LT.	418.56	417.96	–	–	MD 374.68	–
I-23	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 13+70.80, 12.00' LT.	419.98	419.38	–	–	MD 374.68	–
I-24	MD SHA 5' PRECAST COG INLET	WINDPOWER WAY 12+66.65, 12.43' RT.	418.56	417.96	–	–	MD 374.68	–
I-27	TYPE 'D' INLET	N 574101.44 E 1377467.74	418.00	417.17	–	413.40	D-4.10	–
I-28	TYPE 'D' INLET	N 574228.19 E 1377539.26	419.00	418.17	412.67	412.43	D-4.10	–
I-29	TYPE 'D' INLET	N 573294.09 E 1377853.73	440.00	439.17	–	435.00	D-4.10	–
I-30	TYPE 'D' INLET	N 573385.75 E 1377846.26	437.06	436.23	433.51	433.27	D-4.10	432.56*
I-31	TYPE 'D' INLET	N 573348.81 E 1377797.36	436.98	436.15	–	434.12	D-4.10	432.48*
I-33	TYPE 'A-5' INLET	N 572944.49 E 1377466.22	434.63	434.03	–	427.63	D-4.01	–
I-34	TYPE 'D' INLET	N 573083.06 E 1377524.69	436.69	435.86	427.78	427.68	D-4.10	432.19
I-35	TYPE 'D' INLET	N 572985.28 E 1377557.99	435.87	435.04	–	428.80	D-4.10	–

NO.	TYPE	LOCATION	TOP ELEV.*	THROAT	INV. IN	INV. OUT	REMARKS	UNDER DRAIN INV. OUT
I-36	TYPE 'D' INLET	N 573085.50 E 1377577.96	437.72	436.89	–	430.57	D-4.10	433.22
I-37	TYPE 'D' INLET	N 573182.62 E 1377563.88	439.50	438.67	–	435.46	D-4.10	435.00*
I-38	TYPE 'D' INLET	N 573201.22 E 1377620.65	440.14	439.31	–	432.86	D-4.10	435.64
I-39	TYPE 'D' INLET	N 573292.2 E 1377409.52	425.23	423.40	–	420.40	D-4.10	–
I-43	TYPE 'D' INLET	N 573382.59 E 1377296.92	414.83	414.00	405.43	405.33	D-4.10	–
I-44	TYPE 'D' INLET	N 573510.71 E 1377378.78	419.00	418.17	410.85	410.75	D-4.10	414.50
I-45	TYPE 'D' INLET	N 573614.57 E 1377495.84	431.33	430.50	428.13 420.10	420.00	D-4.10	427.25
I-46	TYPE 'D' INLET	N 573631.37 E 1377437.59	432.79	431.96	–	428.70	D-4.10	428.29*
I-47	TYPE 'D' INLET	N 573621.77 E 1377595.10	431.00	430.17	–	425.20	D-4.10	–
I-48	TYPE 'D' INLET	N 573540.60 E 1377606.99	433.11	432.28	–	426.70	D-4.10	428.261
I-49	TYPE 'D' INLET	N 573564.99 E 1377682.98	436.09	434.50	–	427.77	D-4.10	431.59
I-50	TYPE 'D' INLET	N 573610.19 E 1377713.24	436.00	435.17	–	430.90	D-4.10	–
I-51	TYPE 'D' INLET	N 573446.75 E 1377678.10	439.38	438.55	–	430.87	D-4.10	434.98
I-53	TYPE 'A-5' INLET	WINDPOWER WAY 4+71.99, 12.43' RT.	432.43	431.83	–	425.33	D-4.01	–
I-57	TYPE 'D' INLET	N 573754.06 E 1377155.94	430.92	430.09	–	424.10	D-4.10	426.42
I-58	TYPE 'D' INLET	N 573787.30 E 1377205.55	429.97	429.14	–	423.15	D-4.10	425.47
I-59	TYPE 'D' INLET	N 573829.97 E 1377155.65	427.95	427.12	–	422.10	D-4.10	423.45
I-60	TYPE 'D' INLET	N 573842.46 E 1377209.93	427.07	426.24	–	422.07	D-4.10	422.57
I-61	TYPE 'D' INLET	N 573945.54 E 1377200.60	423.41	422.58	415.81	415.71	D-4.10	418.91
I-62	TYPE 'D' INLET	N 573929.83 E 1377250.59	430.00	422.17	–	416.30	D-4.10	418.50
I-63	TYPE 'D' INLET	N 574211.71 E 1377325.12	410.94	410.17	405.59	405.49	D-4.10	–
I-64	TYPE 'D' INLET	N 574221.75 E 1377402.90	419.25	418.37	–	411.11	D-4.10	–
I-65	TYPE 'D' INLET	N 574158.55 E 1377388.11	417.78	416.95	–	411.03	D-4.10	–
I-66	TYPE 'D' INLET	N 574034.70 E 1377401.39	419.00	418.17	–	412.40	D-4.10	–
I-67	TYPE 'D' INLET	N 574018.04 E 1377305.00	418.62	417.79	–	412.92	D-4.10	–
I-68	TYPE 'D' INLET	N 574025.74 E 1377244.89	419.22	418.39	–	413.00	D-4.10	–
I-69	TYPE 'D' INLET	N 573891.99 E 1377342.16	431.46	430.63	–	417.00	D-4.10	–

*TOP ELEV.=CENTER OF THE INLET FOR TYPE S INLET.
*TOP ELEV.=TOP OF THE CURB AT CENTER OF THE INLET FOR A-5 INLET.
*TOP ELEV.=TOP OF THE FRAME & COVER FOR TYPE D INLET.

MANHOLE SCHEDULE

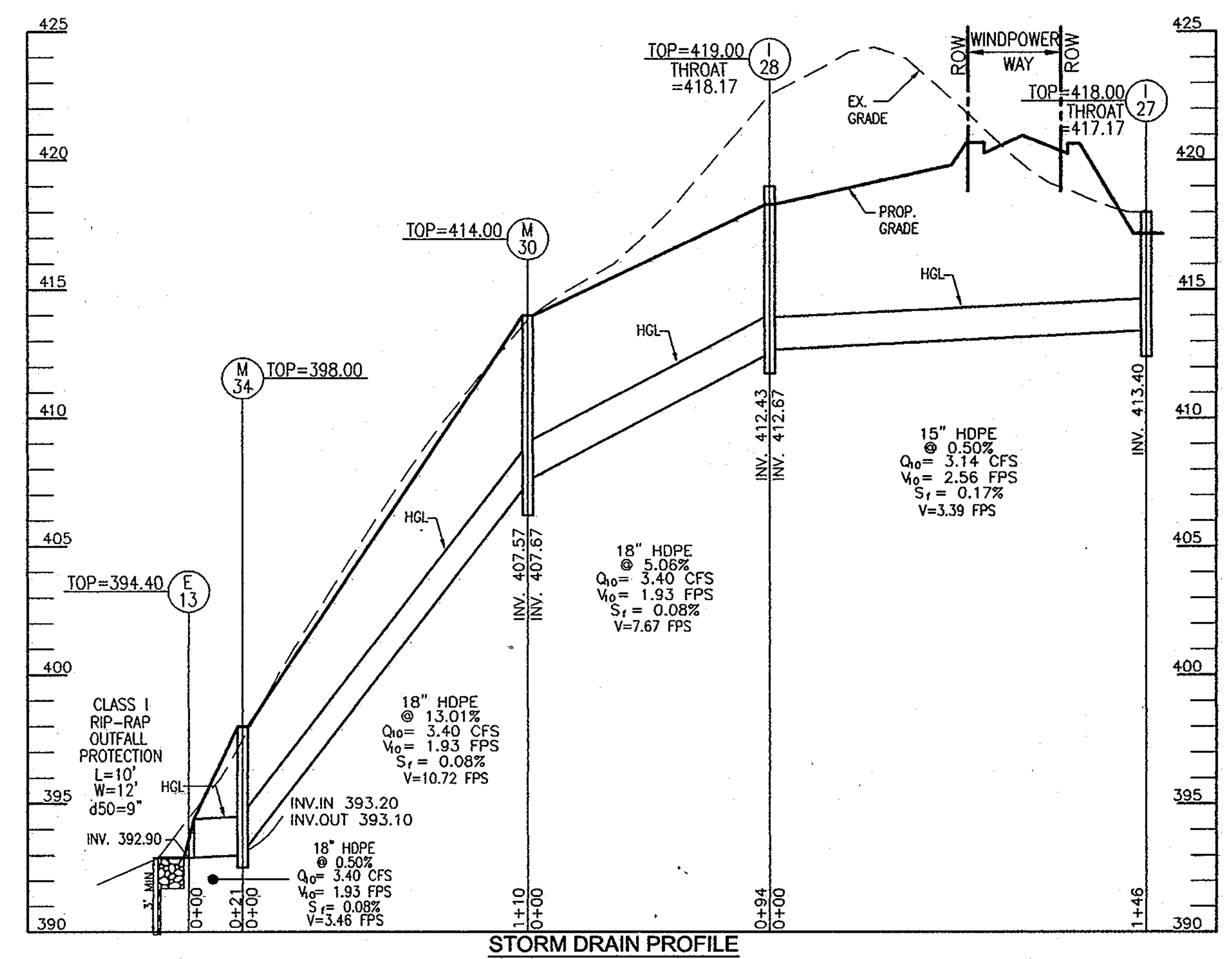
NO.	TYPE	LOCATION	TOP ELEV.*	INV. IN	INV. OUT	REMARKS
M-1	STANDARD 4' PRECAST MANHOLE	N 573134.10 E 1377355.30	430.00	425.91	425.81	G-5.12
M-2	STANDARD 4' PRECAST MANHOLE	SUMMER SOLSTICE PLACE 4+00.00, 2.00' RT.	437.61	430.36 430.11 428.01	427.91	G-5.12
M-3	STANDARD 4' PRECAST MANHOLE	SUMMER SOLSTICE PLACE 4+79.97, 2.00' RT.	436.01	428.66	428.41	G-5.12
M-4	STANDARD 4' PRECAST MANHOLE	SUMMER SOLSTICE PLACE 2+94.14, 2.00' RT.	439.73	435.33 432.64	432.13	G-5.12
M-6	STANDARD 4' PRECAST MANHOLE	N 572979.36 E 1377349.99	426.00	422.04	421.04	G-5.12
M-7	STANDARD 4' PRECAST MANHOLE	N 572968.68 E 1377468.76	435.51	427.51	427.26	G-5.12
M-8	STANDARD 4' PRECAST MANHOLE	N 573285.62 E 1377251.91	407.26	404.63	404.16	G-5.12
M-9	STANDARD 4' PRECAST MANHOLE	N 573573.54 E 1377673.39	435.00	430.00 427.73	427.48	G-5.12
M-10	STANDARD 4' PRECAST MANHOLE	WINDPOWER WAY 3+31.32, 2.00' RT.	435.16	427.27 427.27	427.17	G-5.12
M-11	STANDARD 4' PRECAST MANHOLE	N 573545.86 E 1377401.34	423.00	414.85	414.75	G-5.12
M-12	STANDARD 4' PRECAST MANHOLE	N 573528.34 E 1377434.72	423.00	415.14	415.04	G-5.12
M-13	STANDARD 4' PRECAST MANHOLE	WINDPOWER WAY 4+92.76, 8.01' LT.	432.25	424.26	420.22	G-5.12
M-14	STANDARD 4' PRECAST MANHOLE	WINDPOWER WAY 4+19.84, 2.00' RT.	432.70	425.06 424.81	424.71	G-5.12
M-15	STANDARD 4' PRECAST MANHOLE	WINDPOWER WAY 3+56.53, 2.45' RT.	434.22	426.57 426.32	426.22	G-5.12
M-16	STANDARD 4' PRECAST MANHOLE	WINDPOWER WAY 2+54.85, 2.00' LT.	438.54	430.68	430.44	G-5.12
M-17	STANDARD 4' PRECAST MANHOLE	N 573475.47 E 1377236.98	422.00	413.54	413.44	G-5.12
M-18	STANDARD 4' PRECAST MANHOLE	N 573421.30 E 1377221.32	417.00	408.54	406.47	G-5.12
M-19	STANDARD 4' PRECAST MANHOLE	N 57588.83 E 1377300.76	431.00	422.54	422.44	G-5.12
M-20	STANDARD 4' PRECAST MANHOLE	WINDPOWER WAY 6+82.96, 2.00' RT.	435.16	424.26	424.02	G-5.12
M-21	STANDARD 4' PRECAST MANHOLE	WINDPOWER WAY 8+94.73, 2.00' LT.	430.46	422.99 421.61	421.51	G-5.12
M-22	STANDARD 4' PRECAST MANHOLE	WINDPOWER WAY 9+27.14, 2.00' LT.	428.87	422.07 422.07	421.77	G-5.12
M-23	STANDARD 4' PRECAST MANHOLE	N 573790.53 E 1377145.89	430.50	423.91 421.37	421.27	G-5.12
M-24	STANDARD 4' PRECAST MANHOLE	N 574243.45 E 1377269.30	400.00	395.15	395.05	G-5.12
M-25	STANDARD 4' PRECAST MANHOLE	WINDPOWER WAY 10+46.93, 2.00' RT.	424.15	416.21	415.96	G-5.12
M-26	STANDARD 4' PRECAST MANHOLE	WINDPOWER WAY 13+39.26, 2.05' LT.	418.94	410.86 410.86 410.86	410.76	G-5.12
M-27	STANDARD 4' PRECAST MANHOLE	WINDPOWER WAY 12+23.24, 2.00' RT.	418.54	411.54 411.54	411.44	G-5.12
M-28	STANDARD 4' PRECAST MANHOLE	WINDPOWER WAY 11+61.44, 2.00' RT.	419.80	412.80 412.80 412.80	412.70	G-5.12
M-29	STANDARD 4' PRECAST MANHOLE	WINDPOWER WAY 10+70.13, 2.00' RT.	424.13	416.40	416.16	G-5.12
M-30	STANDARD 4' PRECAST MANHOLE	N 574321.50 E 1377528.91	414.00	407.67	407.57	G-5.12
M-31	STANDARD 4' PRECAST MANHOLE	N 573624.09 E 1377482.91	432.72	428.45	428.21	G-5.12
M-32	STANDARD 4' PRECAST MANHOLE	N 573789.35 E 1377087.75	422.00	416.76	416.66	G-5.12
M-33	STANDARD 4' PRECAST MANHOLE	N 573983.76 E 1377132.66	416.00	408.37	408.27	G-5.12
M-34	STANDARD 4' PRECAST MANHOLE	N 574374.88 E 1377432.66	398.00	393.20	393.10	G-5.12
M-35	STANDARD 4' PRECAST MANHOLE	N 573389.51 E 1377230.87	408.00	402.17	402.07	G-5.12

END SECTION SCHEDULE

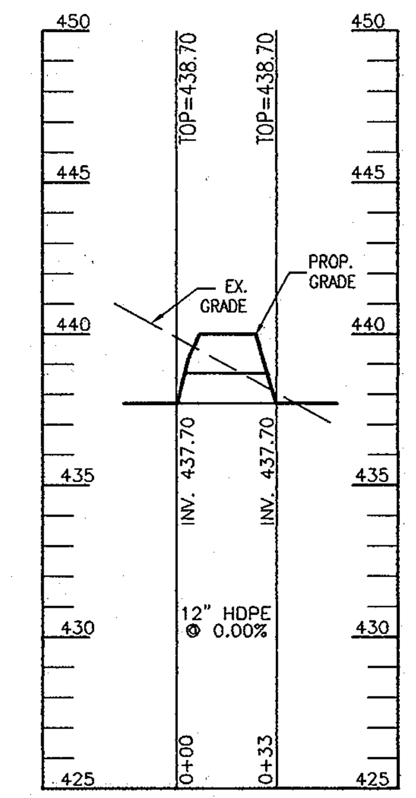
NO.	TYPE	LOCATION	TOP ELEV.*	INV. IN	INV. OUT
E-1	18" CONC. END SECTION	N 573388.71 E 1377892.23	434.50	433.00	–
E-2	18" ADS HDPE END SECTION	N 573395.26 E 1377871.54	434.63	433.13	–
E-3	18" ADS HDPE END SECTION	N 573134.25 E 1377344.92	427.26	425.76	–
E-4	15" ADS HDPE END SECTION	N 572976.10 E 1377343.71	422.25	421.00	–
E-6	18" ADS HDPE END SECTION	N 573288.01 E 1377247.40	405.63	404.13	–
E-8	15" ADS HDPE END SECTION	N 573308.13 E 1377343.35	419.45	418.20	–
E-9	15" ADS HDPE END SECTION	N 573440.89 E 1377185.25	412.54	411.29	–
E-10	15" ADS HDPE END SECTION	N 573788.78 E 1377059.54	417.75	416.50	–
E-11	18" ADS HDPE END SECTION	N 574001.25 E 1377101.80	414.90	408.09	–
E-12	21" ADS HDPE END SECTION	N 574247.45 E 1377262.41	396.75	395.00	–
E-13	18" ADS HDPE END SECTION	N 574384.79 E 1377415.23	394.40	392.90	–
E-24	15" ADS HDPE END SECTION	N 573377.44 E 1377234.67	402.25	401.00	–

PIPE SCHEDULE

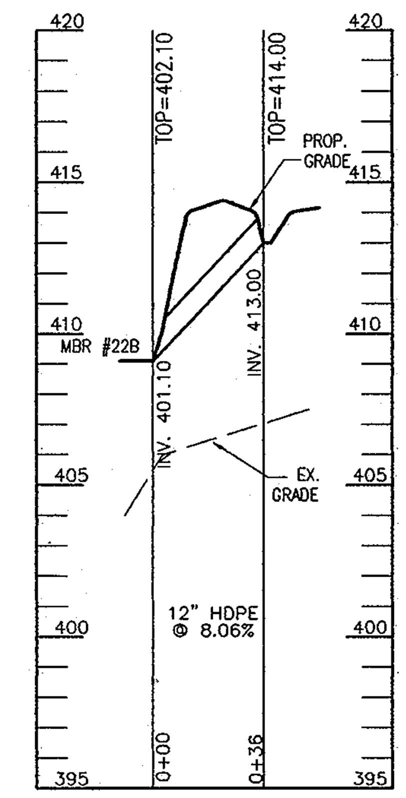
PIPE SIZE	TYPE	TOTAL LENGTH
12"	CMP	216 LF
15"	HDPE	1,298 LF
18"	HDPE	2,538 LF
18"	RCCP CLASS IV	104 LF
21"	HDPE	9 LF



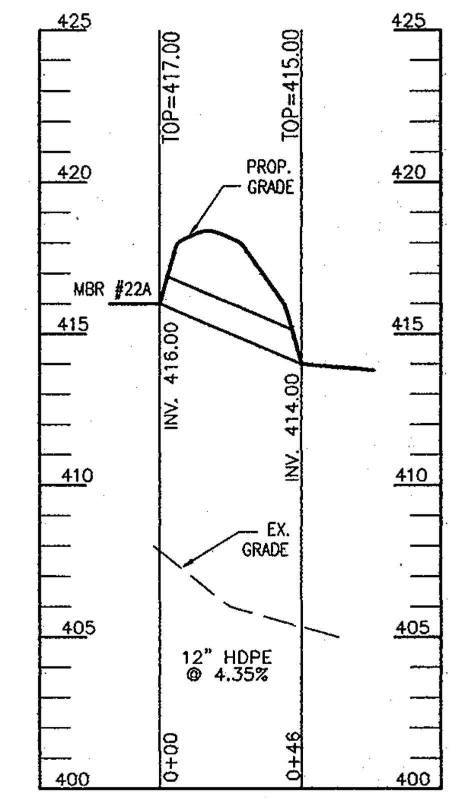
STORM DRAIN PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



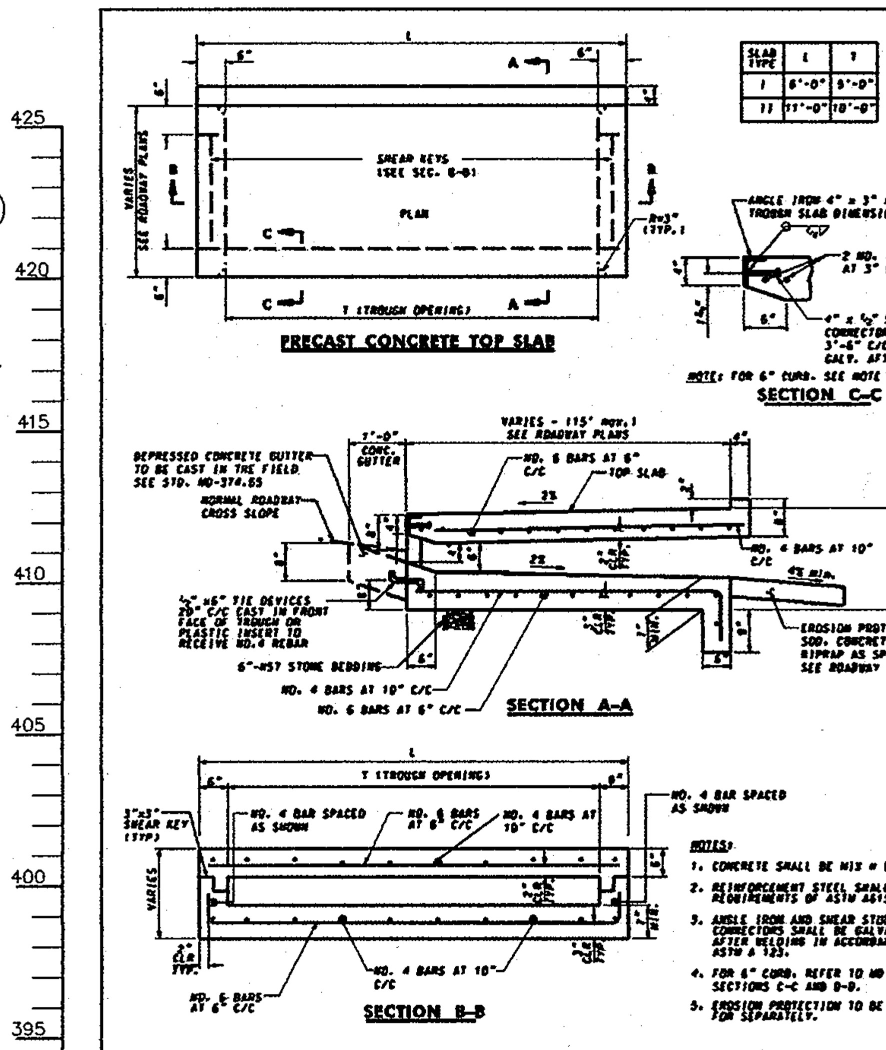
LOT 17 CULVERT PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



LOT 49 CULVERT PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



LOT 48 CULVERT PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



SPECIFICATION 305 | CATEGORY CODE ITEMS
APPROVED: DIRECTOR – OFFICE OF HIGHWAY DEVELOPMENT
Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PRECAST OR CAST-IN-PLACE COG /COS OPENING FOR 8" CURB 5' OR 10' ONLY
STANDARD NO. MD 374.68

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/28/10
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

OWNER/DEVELOPER

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4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

NO.	REVISION	DATE
1	REVISE THROAT ELEVATION I-49	6/20/12

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD

STORMDRAIN PROFILES

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

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WP-09-92, S-06-006
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HOWARD COUNTY, MARYLAND

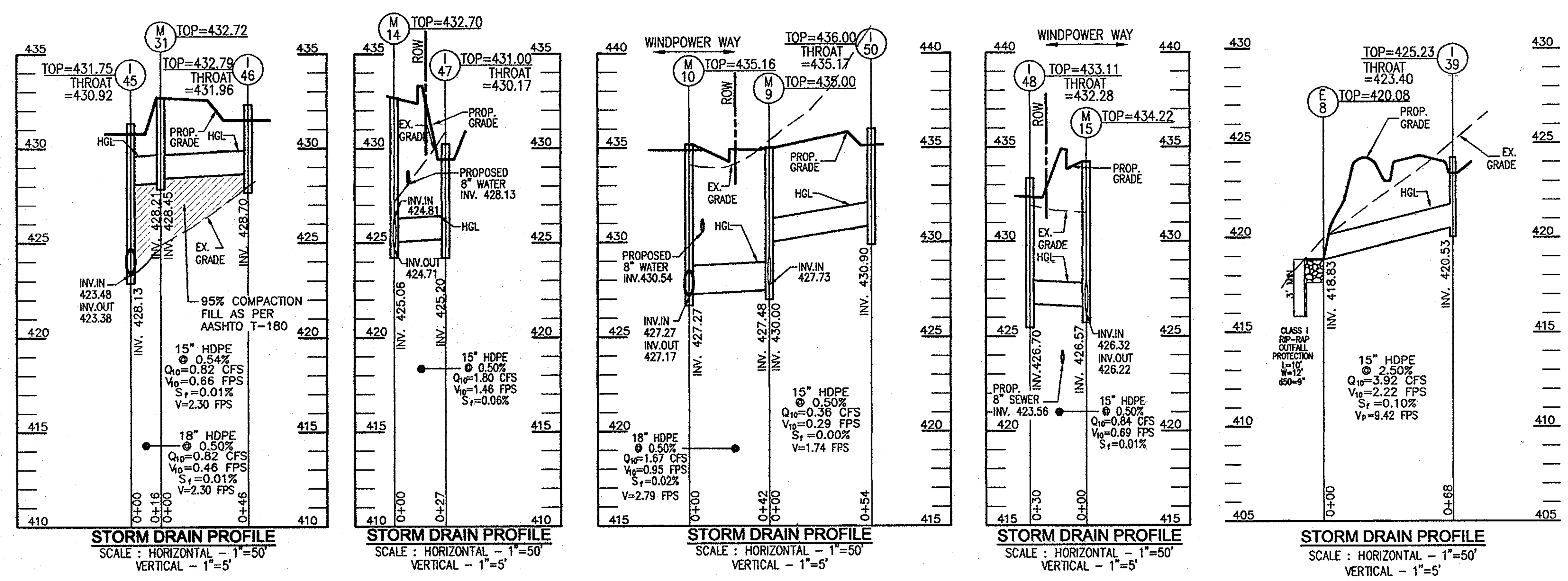
ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET ELLICOTT CITY, MD 21043
TEL: 410.461.7666 FAX: 410.461.8961

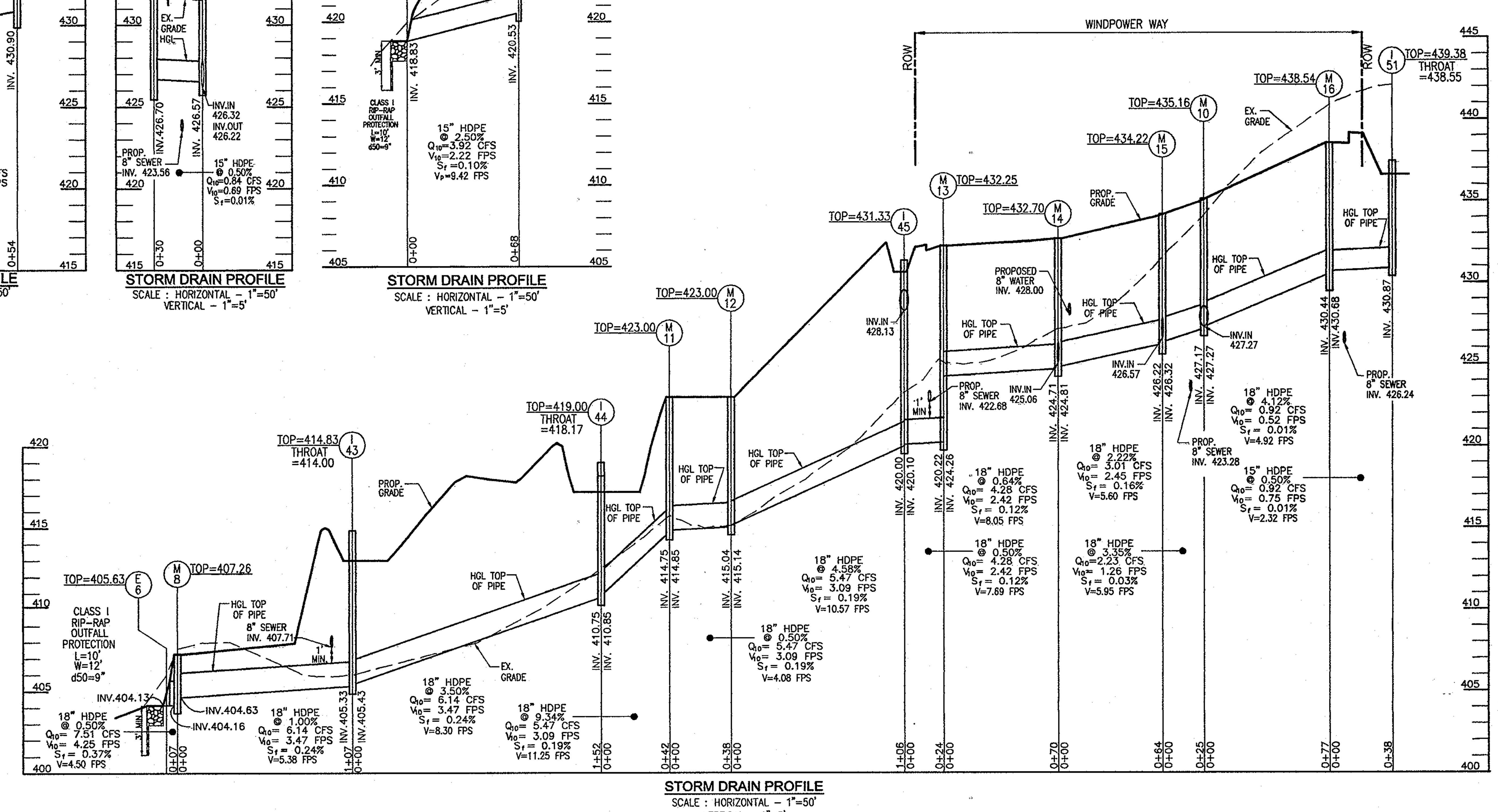
ROBERT H. VOGEL, PE No.16193

DESIGN BY: JAR
DRAWN BY: KG
CHECKED BY: RHV
DATE: AUGUST 2010
SCALE: AS SHOWN
W.O. NO.: 04-151

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: 09-27-2012

F-10-102





OWNER/DEVELOPER

WELSH PROPERTY, LLC
4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD

STORMDRAIN PROFILES

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

SP_10_001
WP-09-92, S-06-006
WP-10-002
PARCEL 115
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15 SHEET OF 25

APPROVED: DEPARTMENT OF PUBLIC WORKS

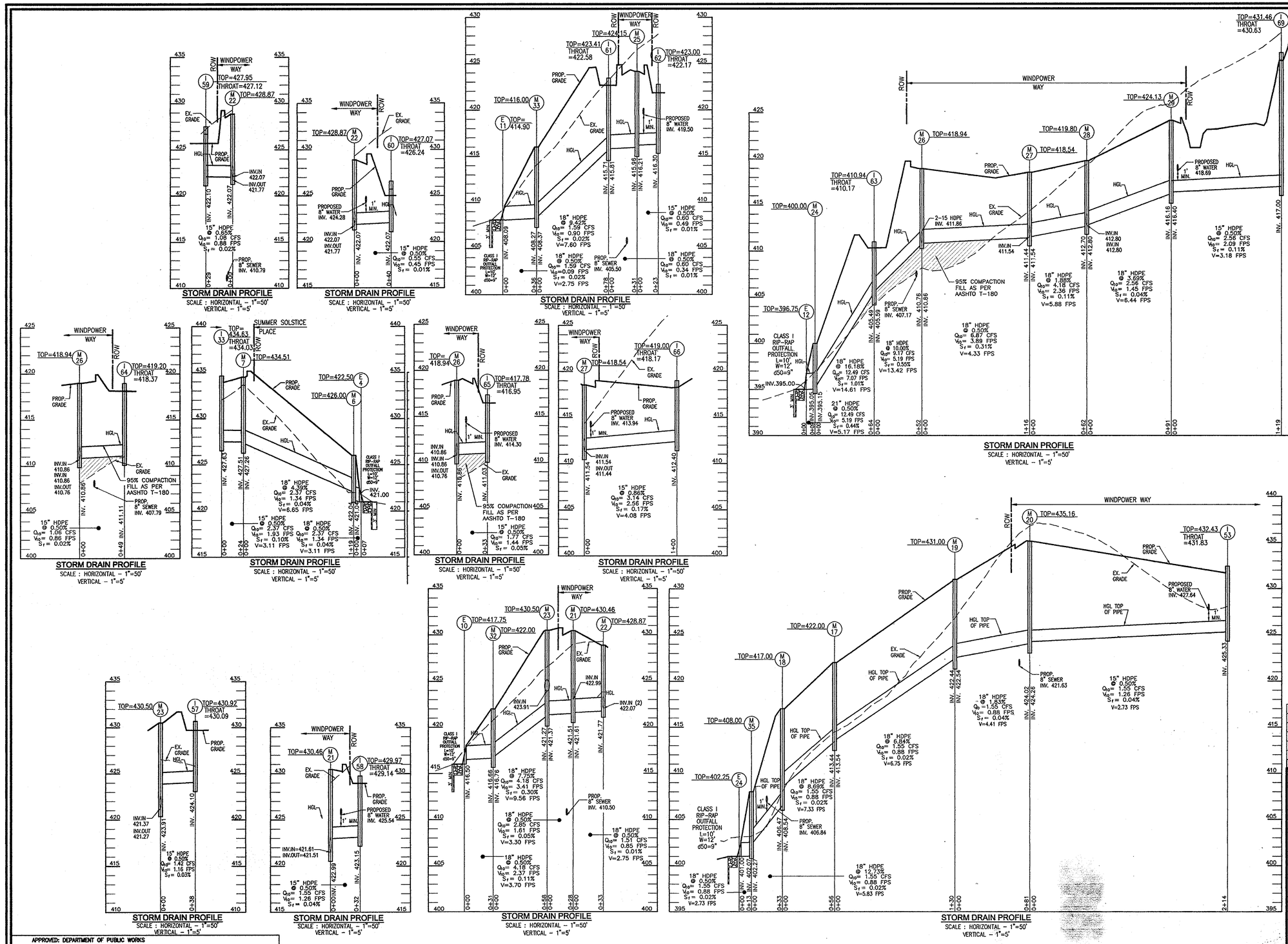
CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/28/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

F-10-102



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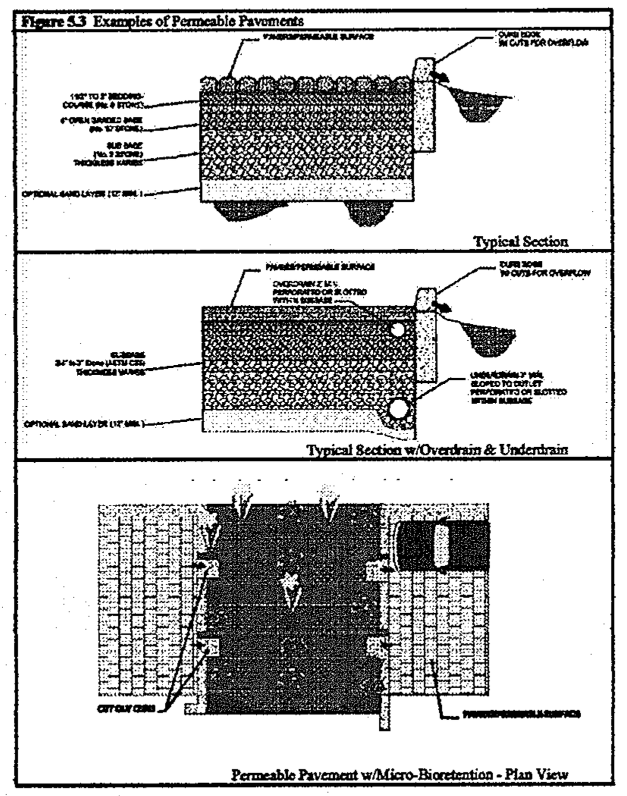
F-10-102

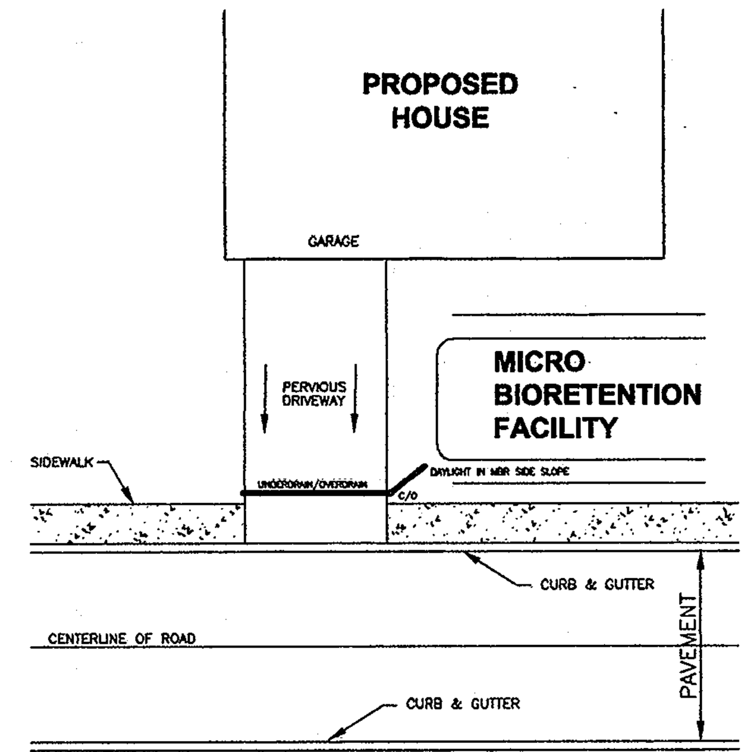
ESDv Summary							
LOCATION	DA	Adjusted PE	*Practices MBR	SFC	RB	RD	GC
DA#10	1.71	1.17	N	N	Y	Y	Y
DA#9	0.59	1.23	N	N	N	N	Y
DA#8	1.23	1.25	N	N	Y	Y	Y
DA#6	0.91	1.30	N	Y	Y	Y	N
DA#5	0.41	1.23	N	Y	Y	Y	N
DA#4	0.43	1.28	N	Y	Y	Y	N
DA MB#31	0.41	1.27	Y	N	Y	Y	N
DA MB#30	0.78	1.29	Y	N	Y	Y	N
DA MB#29	0.44	1.21	Y	N	Y	Y	N
DA MB#28	0.45	1.35	Y	N	N	N	N
DA MB#27	0.43	1.28	Y	N	Y	Y	N
DA MB#26	0.28	1.35	Y	N	N	N	N
DA MB#25	0.44	1.25	Y	N	Y	Y	N
DA MB#24	0.45	1.27	Y	N	Y	Y	N
DA MB#23	0.16	1.31	Y	N	Y	Y	N
DA MB#22B	0.17	1.34	Y	N	N	Y	N
DA MB#22A	0.19	1.32	Y	N	Y	Y	N
DA MB#21	0.31	1.26	Y	N	Y	Y	N
DA MB#20	0.15	1.31	Y	N	Y	Y	N
DA MB#19	0.22	1.29	Y	N	Y	Y	N
DA MB#18	0.16	1.31	Y	N	Y	Y	N
DA MB#17	0.13	1.24	Y	N	Y	Y	N
DA MB#16	0.17	1.31	Y	N	Y	Y	N
DA MB#15	0.48	1.29	Y	N	Y	Y	N
DA MB#14	0.26	1.31	Y	N	Y	Y	N
DA MB#13	0.38	1.25	Y	N	Y	Y	N
DA MB#12	0.30	1.35	Y	N	N	N	N
DA MB#10	0.15	1.35	Y	N	N	N	N
DA MB#9	0.16	1.35	Y	N	N	N	N
DA MB#8	0.20	1.32	Y	N	N	Y	N
DA MB#7	0.17	1.33	Y	N	N	Y	N
DA MB#6	0.38	1.31	Y	N	Y	Y	N
DA MB#5	0.21	1.24	Y	N	Y	Y	N
DA MB#4	0.24	1.18	Y	N	Y	Y	N
DA MB#3	0.19	1.23	Y	N	Y	Y	N
DA MB#2	0.17	1.22	Y	N	Y	Y	N
DA MB#1	0.20	1.21	Y	N	Y	Y	N

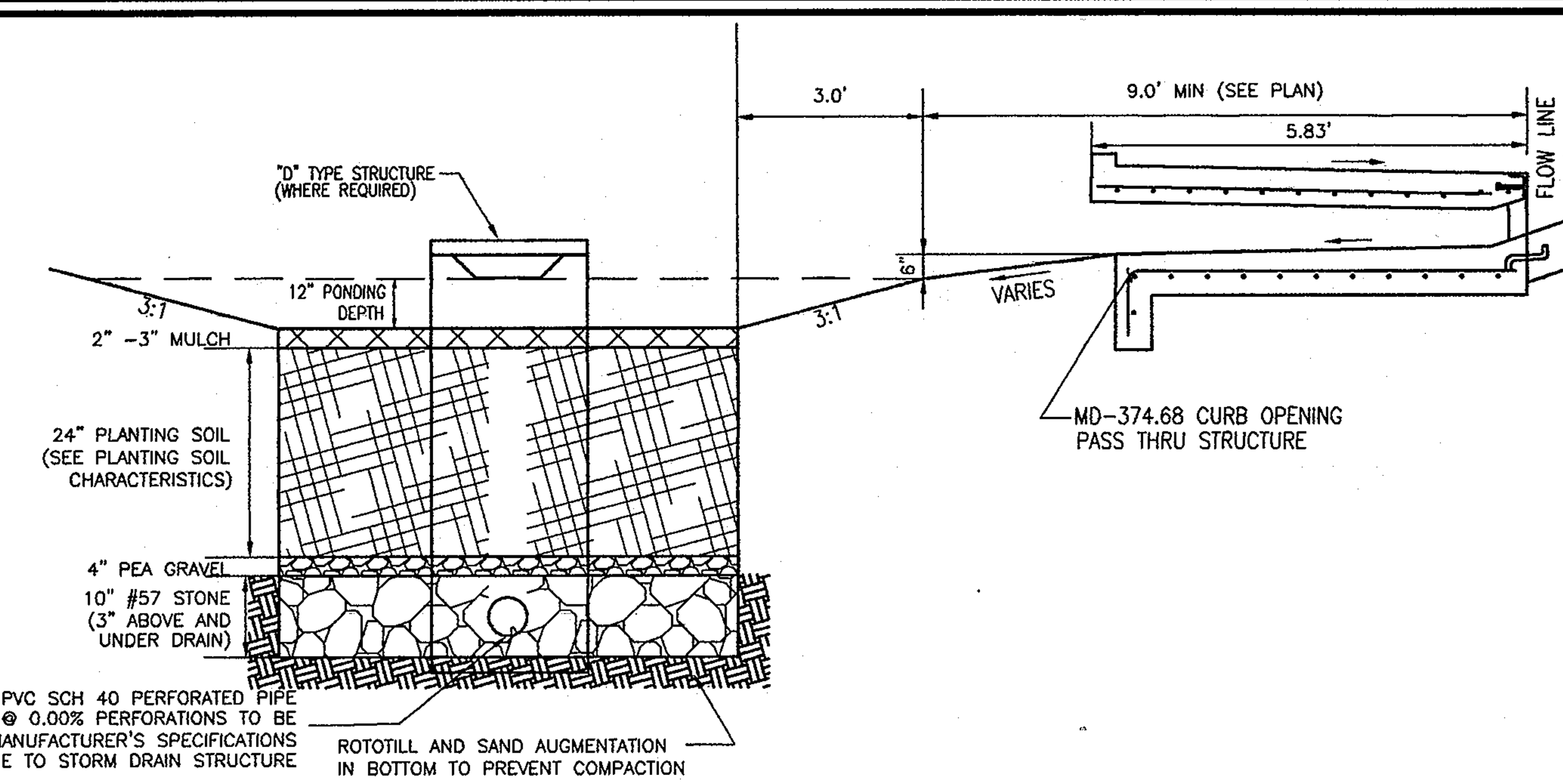
*** Subsequent to overall PE reduction due to alternative surfaces.**

- **MBR-** Micro-Biortention
- **SFC-** Sheetflow to Conservation Area
- **RB-** Rain Barrel
- **RD-** Rooftop Disconnect
- **GC-** Grass Channel Swale



MDE DETAIL A-2
NOT TO SCALE

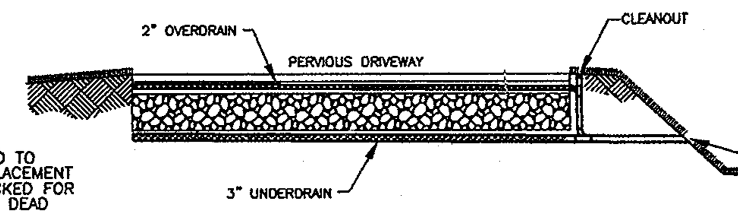




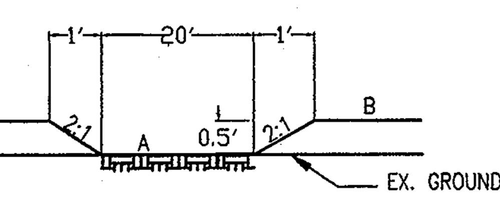
DETAIL - MICROBIORETENTION/RAIN GARDEN
NOT TO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS

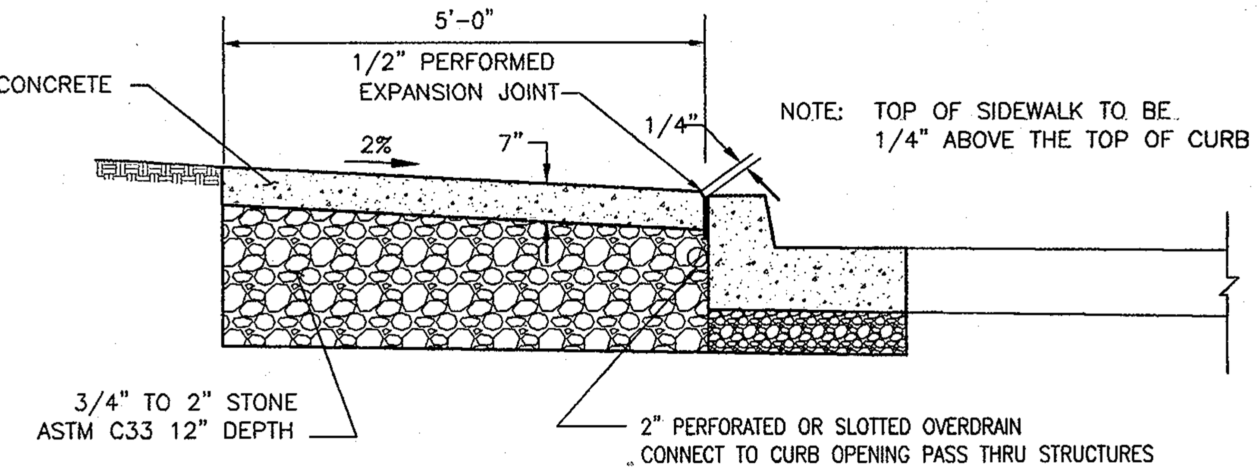
1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DEFICIENT STAKES AND WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.
5. COUNTY WILL MAINTAIN INLET STRUCTURES WITHIN EACH MICRO BIO RETENTION AREA, AND THE HOA SHALL MAINTAIN STREET TREES, PERFORATED UNDER DRAINS, FEEDERS, PLANTINGS, SWALES, AND DRIVEWAY CULVERTS WITHIN THE EASEMENT. THE MICRO BIO RETENTION FACILITIES WILL BE JOINTLY MAINTAINED BY HOWARD COUNTY AND THE HOA. THE PERMEABLE CONCRETE DRIVEWAYS AND RAIN BARRELS WILL BE PRIVATELY MAINTAINED BY THE INDIVIDUAL HOME OWNERS.



PERVIOUS DRIVEWAY UNDERDRAIN/OVERDRAIN OUTLET DETAIL
NOT TO SCALE

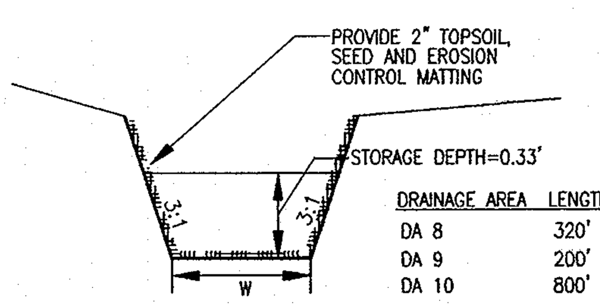


TYPICAL SPILLWAY PROFILE
NOT TO SCALE



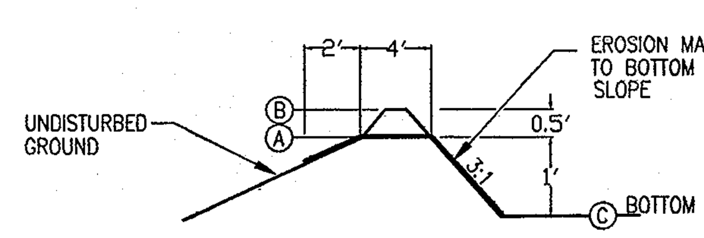
NOTE: TOP OF SIDEWALK TO BE 1/4" ABOVE THE TOP OF CURB

DETAIL - PERMEABLE CONCRETE WALK
NOT TO SCALE

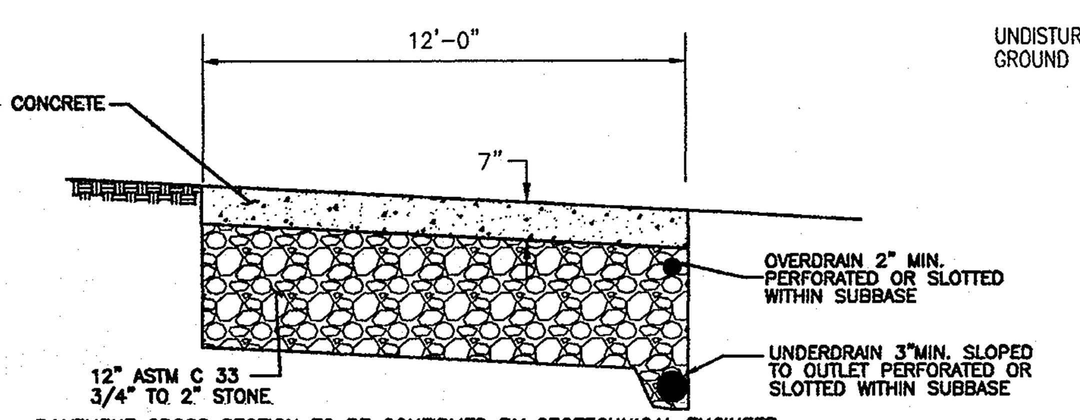


DRAINAGE AREA	LENGTH	WIDTH(W)
DA 8	320'	5'
DA 9	200'	4'
DA 10	800'	4.5'

TYPICAL GRASS CHANNEL DETAIL
(NOT TO SCALE)



TYPICAL SPILLWAY SECTION
NOT TO SCALE



PAVEMENT CROSS SECTION TO BE CONFIRMED BY GEOTECHNICAL ENGINEER

DETAIL - PERMEABLE CONCRETE DRIVEWAY
NOT TO SCALE

ALL PERMEABLE CONCRETE THICKNESS, MIX AND SUB-BASE TO BE DETERMINED BY GEOTECHNICAL ENGINEER ONSITE.

NOTES

1. SIDEWALK TO BE SCRIBED IN 5'-0" MAXIMUM SQUARES.
2. EXPANSION JOINTS ACROSS THE SIDEWALK NOT TO BE MORE THAN 15' APART.
3. 1/2" PREFORMED EXPANSION MATERIAL IN EXPANSION JOINTS TO BE KEPT 1/4" BELOW SURFACE OF SIDEWALK.
4. WHEN SIDEWALK ABUTS CURB, SIDEWALK SHALL BE 1/4' ABOVE CURB WITH 1/2" PREFORMED EXPANSION JOINT BETWEEN SIDEWALK AND CURB.
5. ON LONGITUDINAL SIDEWALK GRADES OF 5 OR GREATER, A CONCRETE HEADER. 6 THICK AND 6" DEEP BELOW THE NORMAL 4" SIDEWALK THICKNESS SHALL BE CONSTRUCTED FOR THE FULL WIDTH OF THE SIDEWALK AT INTERVALS OF 48 FEET. THE HEADERS SHALL BE PLACED AT THE EXPANSION JOINT LOCATIONS AND SHALL BE MONOLITHIC WITH THE SIDEWALK.
6. SIDEWALK WIDTH ADJACENT TO CURB SHALL BE 5 MINIMUM EXCEPT SIDEWALK ADJACENT TO CURB IN CUL-DE-SAC BULBS MAY BE 4'-0 WIDE.
7. Cement shall be per AASHTO M85 Air Entraining – Type II Portland type, gray color. Mix and Deliver concrete in accordance with ASTM C94/C94M, Opt:on C with the following criteria: Tensile Strength: 500 psi at 28 days, Compressive Strength: 3000 psi at 28 days,Unit Weight: 130 pounds/cf. Stoen shall be No. 8 coarse aggregate per ASTM C33
8. CONCRETE MIX SHALL BE DESIGNED BY GEO TECHNICAL CONSULTANT AND APPROVED BY HOWARD COUNTY.

DETAIL - PERMEABLE CONCRETE
NOT TO SCALE

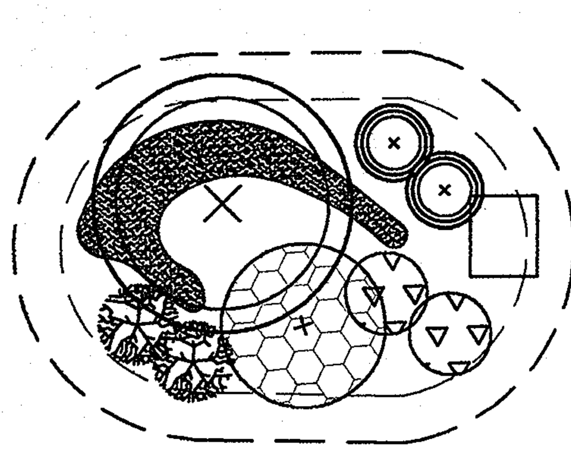
TYPICAL BIORETENTION PLANTING SCHEDULE PER 250 SF AREA				
KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
	1	ACER RUBRUM RED MAPLE	1 1/2"-2" CAL	B & B
	1	ILEX GLABRA INKBERRY	3 GALLON	CONT
	3	VACCINIUM CORYMBOSUM BLUEBERRY	(3) 1 GALLON	CONT
	3	LOBELIA SIPHILITICA GREAT BLUE LOBELIA	(3) 1 GALLON	CONT
	~~2~~	~~RHODODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA~~	~~3 GALLON~~	~~CONT~~
	50	LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF	2" POT	1' O.C.

BIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (.0229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESDv SUMMARY. ROUND UP FOR QUANTITY.

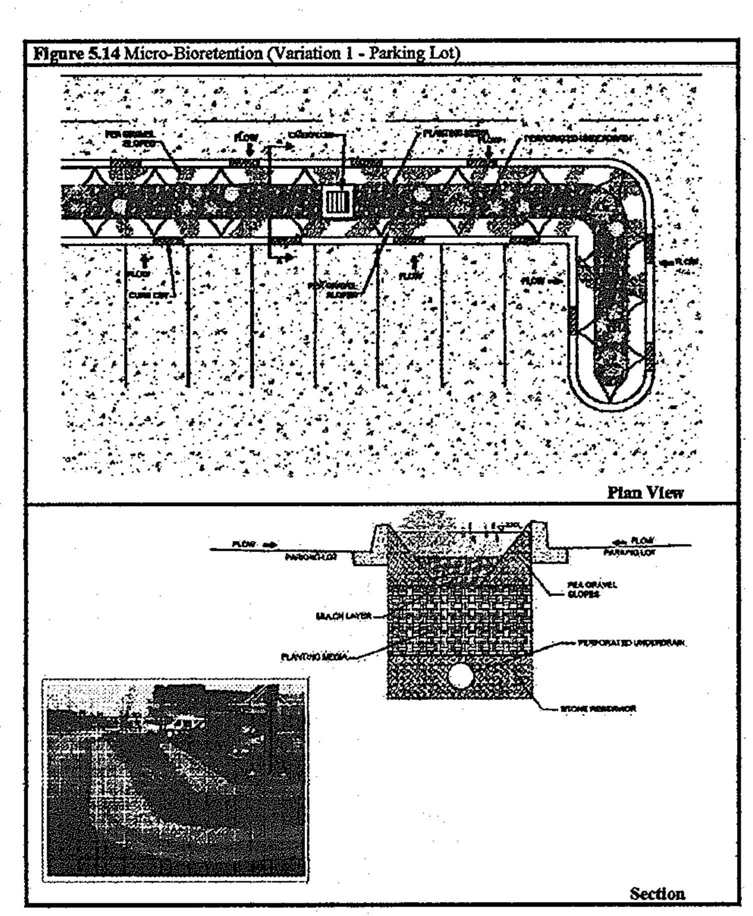
MBR FACILITY	A	B	C
MBR #25	412.0	412.5	411.0
MBR #26	402.0	402.5	401.0
MBR #27	422.0	422.5	421.0
MBR #28	420.0	420.5	419.0
MBR #30	398.0	398.5	397.0
MBR #31	438.0	438.5	437.0

BIORETENTION PLANTING SCHEDULE NOTES:

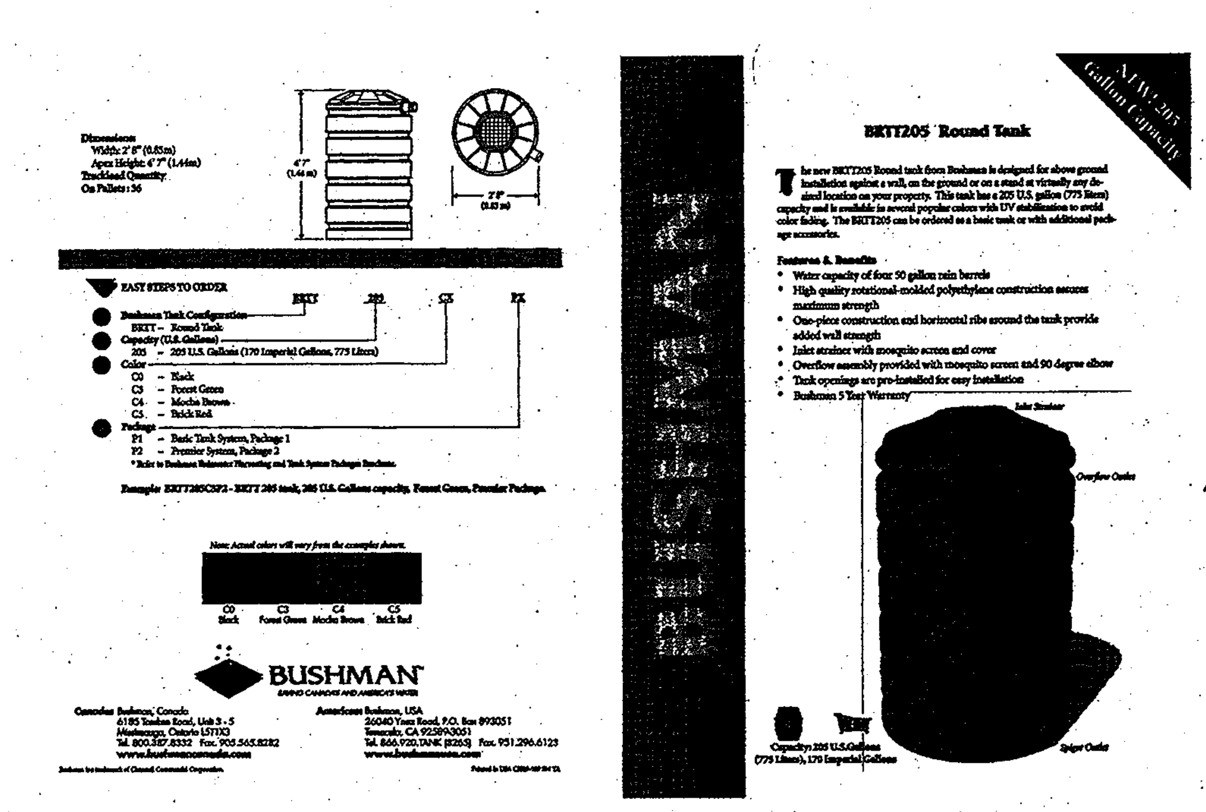
1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRD PLANTING SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
3. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
4. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
5. SEE LANDSCAPE PLAN FOR TYPICAL PLANTING DETAILS.



TYPICAL PLANTING DETAIL



MDE DETAIL M-6
NOT TO SCALE



BUSHMAN BRTT205 (205 GALLON) RAIN HARVESTING SYSTEM OR EQUIVALENT
RAIN BARREL DETAIL
NOT TO SCALE

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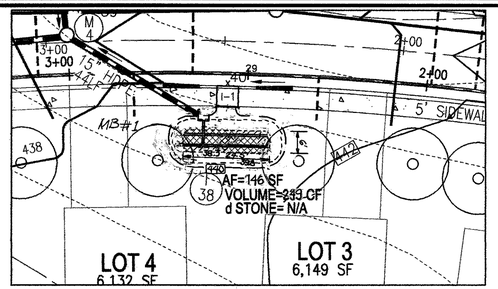
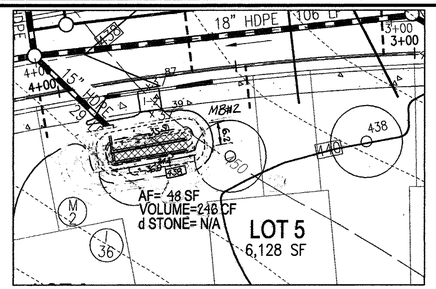
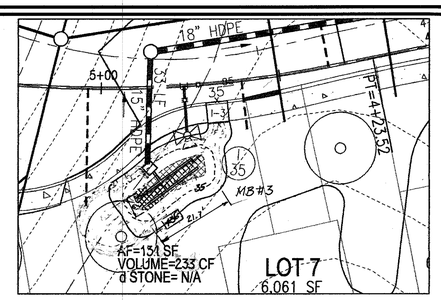


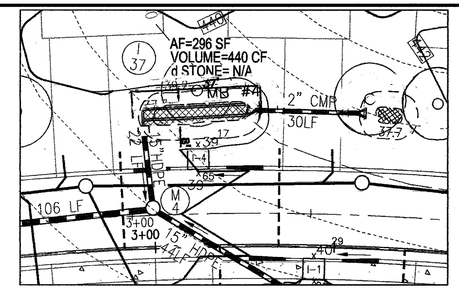
DETAIL – MICRO BIO-RETENTION #1
SCALE: 1"=20'



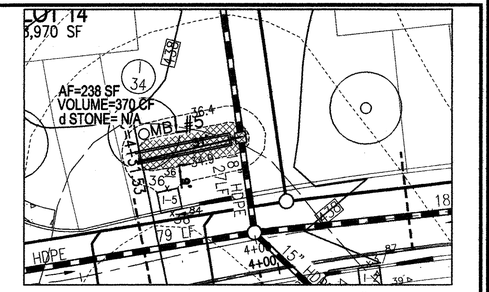
DETAIL – MICRO BIO-RETENTION #2
SCALE: 1"=20'



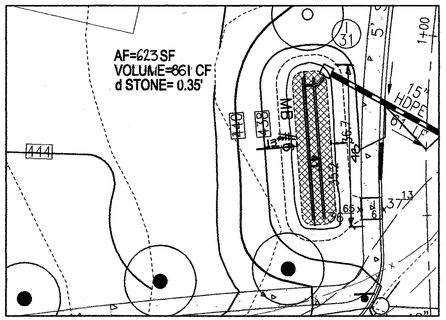
DETAIL – MICRO BIO-RETENTION #3
SCALE: 1"=20'



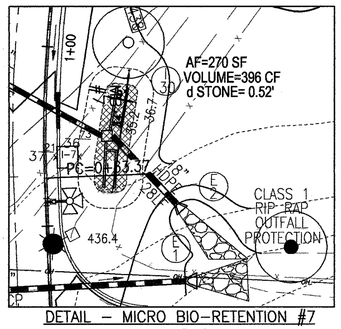
DETAIL – MICRO BIO-RETENTION #4
SCALE: 1"=20'



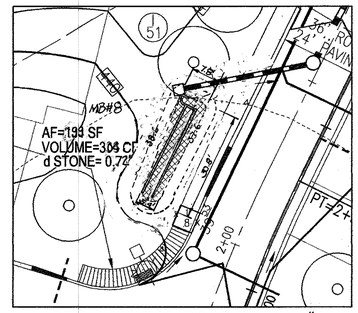
DETAIL – MICRO BIO-RETENTION #5
SCALE: 1"=20'



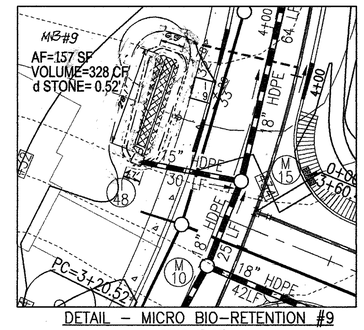
DETAIL – MICRO BIO-RETENTION #6
SCALE: 1"=20'



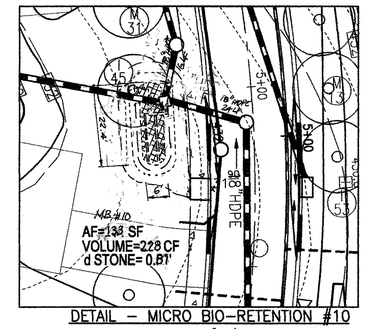
DETAIL – MICRO BIO-RETENTION #7
SCALE: 1"=20'



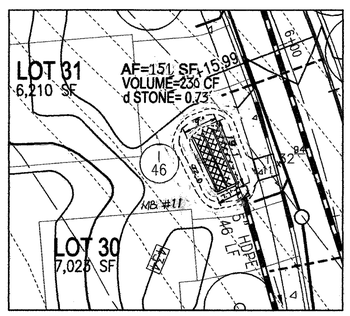
DETAIL – MICRO BIO-RETENTION #8
SCALE: 1"=20'



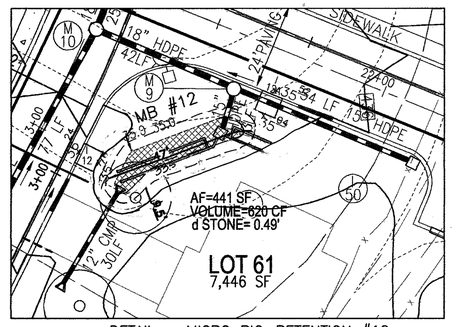
DETAIL – MICRO BIO-RETENTION #9
SCALE: 1"=20'



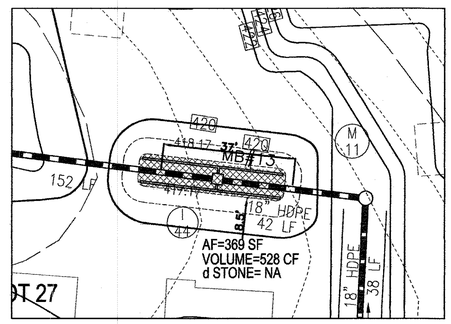
DETAIL – MICRO BIO-RETENTION #10
SCALE: 1"=20'



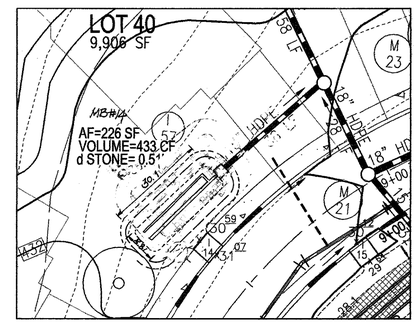
DETAIL – MICRO BIO-RETENTION #11
SCALE: 1"=20'



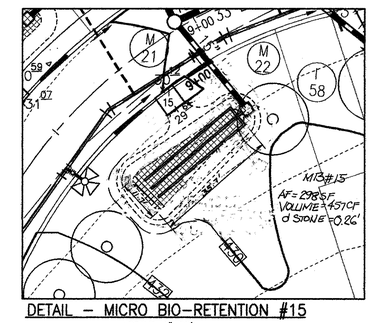
DETAIL – MICRO BIO-RETENTION #12
SCALE: 1"=20'



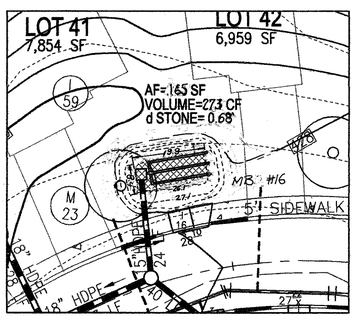
DETAIL – MICRO BIO-RETENTION #13
SCALE: 1"=20'



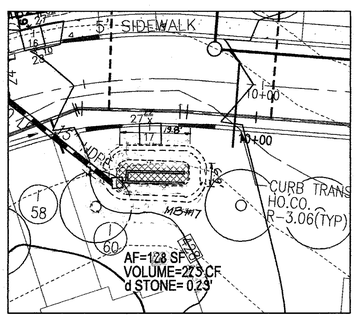
DETAIL – MICRO BIO-RETENTION #14
SCALE: 1"=20'



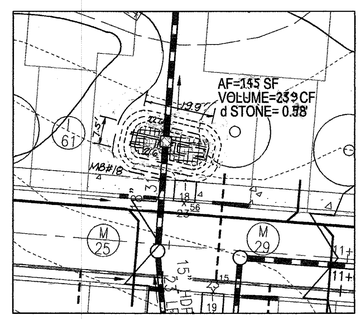
DETAIL – MICRO BIO-RETENTION #15
SCALE: 1"=20'



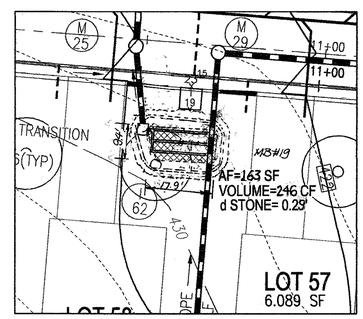
DETAIL – MICRO BIO-RETENTION #16
SCALE: 1"=20'



DETAIL – MICRO BIO-RETENTION #17
SCALE: 1"=20'



DETAIL – MICRO BIO-RETENTION #18
SCALE: 1"=20'



DETAIL – MICRO BIO-RETENTION #19
SCALE: 1"=20'

NO.	REVISION	DATE
3	REVISE SIDEWALK FROM PERVIOUS PAVEMENT TO STANDARD PAVEMENT ADJ. TO ILCHESTER ROAD	10-13-15
2	REVISE SWM	8/15/12

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD

STORMWATER MANAGEMENT DETAILS

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

SP_10_001
WP-09-92, S-06-006
WP-10-002
PARCEL 115
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

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/28/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPEMENT 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 — DATE 9/30/10

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 — DATE 9/30/10

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

HOWARD S.C.D. — DATE

OWNER/DEVELOPER

WELSH PROPERTY, LLC
4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER
9/28/10
ROBERT H. VOGEL, PE No.16193

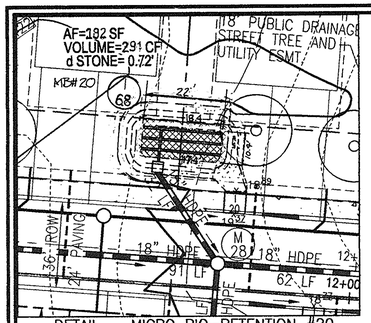
DESIGN BY:	JAR
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	AUGUST 2010
SCALE:	1"=20'
W.O. NO.:	04-151

PROFESSIONAL CERTIFICATE

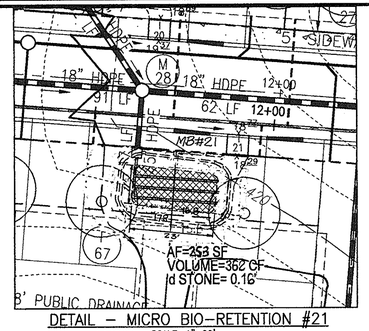
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2012

SHEET 18 OF 25

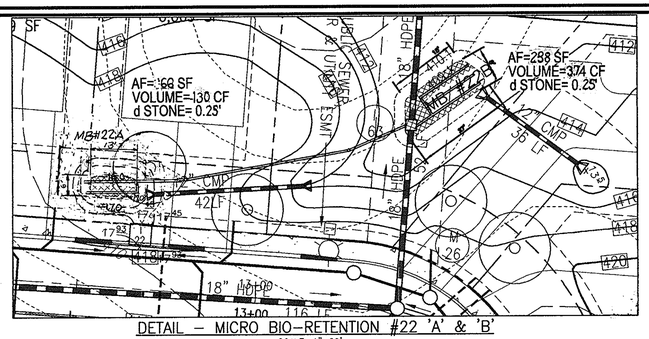
F-10-102



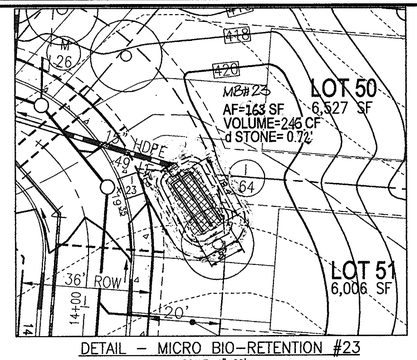
DETAIL – MICRO BIO-RETENTION #20
SCALE: 1"=20'



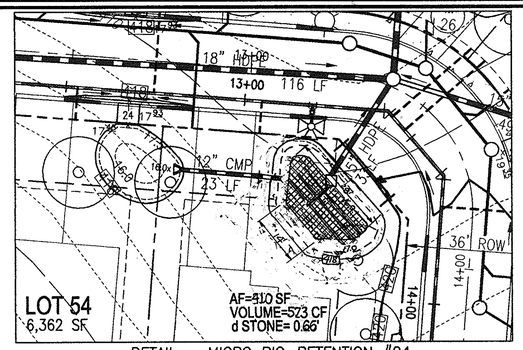
DETAIL – MICRO BIO-RETENTION #21
SCALE: 1"=20'



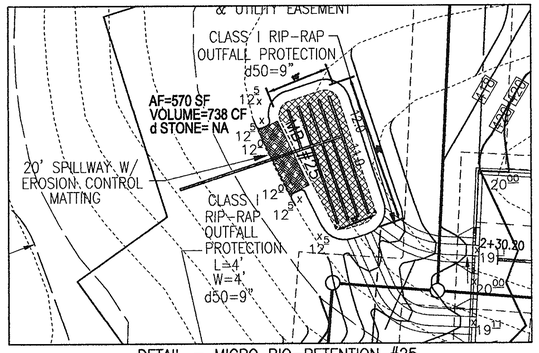
DETAIL – MICRO BIO-RETENTION #22 'A' & 'B'
SCALE: 1"=20'



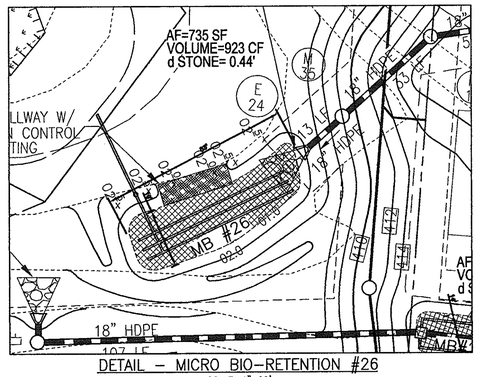
DETAIL – MICRO BIO-RETENTION #23
SCALE: 1"=20'



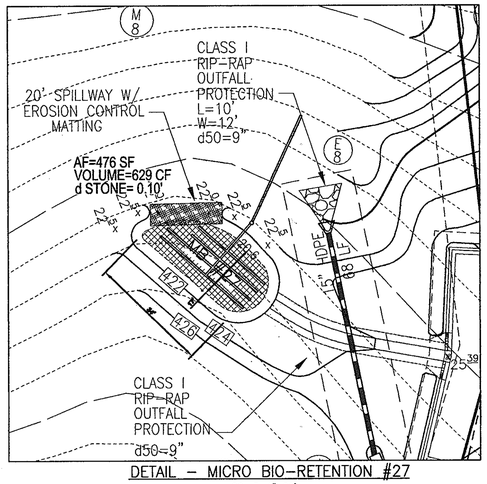
DETAIL – MICRO BIO-RETENTION #24
SCALE: 1"=20'



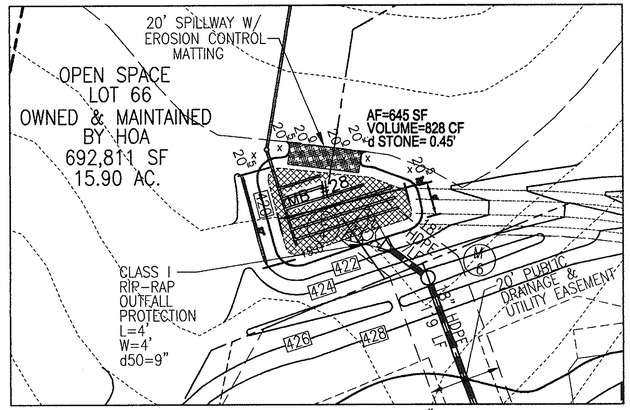
DETAIL – MICRO BIO-RETENTION #25
SCALE: 1"=20'



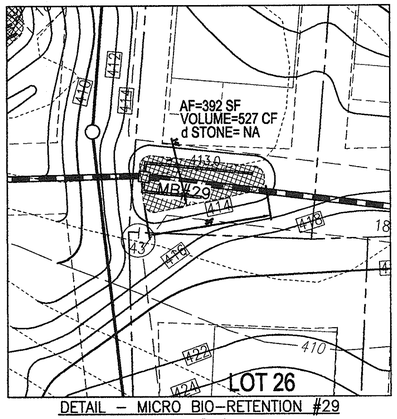
DETAIL – MICRO BIO-RETENTION #26
SCALE: 1"=20'



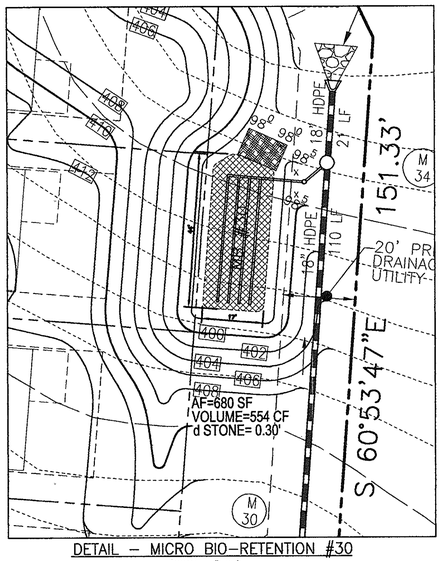
DETAIL – MICRO BIO-RETENTION #27
SCALE: 1"=20'



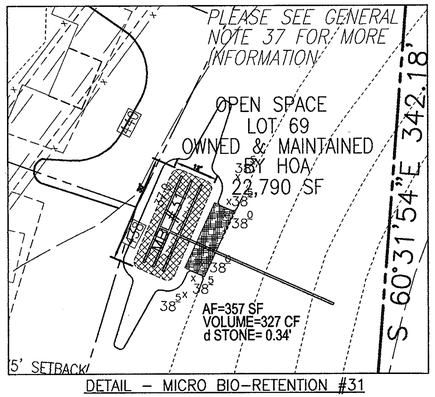
DETAIL – MICRO BIO-RETENTION #28
SCALE: 1"=20'



DETAIL – MICRO BIO-RETENTION #29
SCALE: 1"=20'

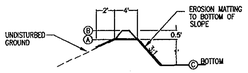


DETAIL – MICRO BIO-RETENTION #30
SCALE: 1"=20'



DETAIL – MICRO BIO-RETENTION #31
SCALE: 1"=20'

TYPICAL SPILLWAY PROFILE
NOT TO SCALE



TYPICAL SPILLWAY SECTION
NOT TO SCALE

OWNER/DEVELOPER

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4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

NO.	REVISION	DATE
2	REVISE SWM	8/15/12

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD
STORM WATER MANAGEMENT DETAILS

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-84 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

SP_10_001
WP-09-92, S-06-006
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PARCEL 115
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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	JAR
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	AUGUST 2010
SCALE:	1"=20'
W.O. NO.:	04-151

PROFESSIONAL CERTIFICATE

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EXPIRATION DATE: 09-27-2012

SHEET 19 OF 25

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/28/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

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SIGNATURE OF ENGINEER — DATE 9/28/10

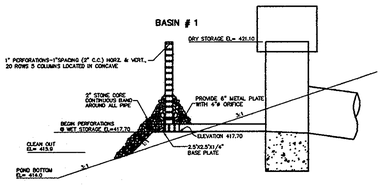
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD S.C.D. — DATE

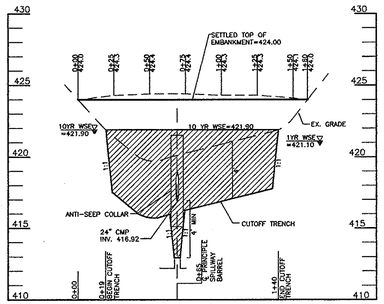
F-10-102

BASIN #1

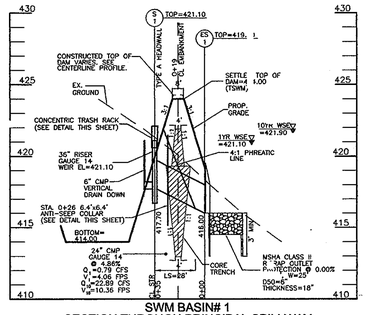
EX. DRAINAGE AREA:	3.4 AC
PROP. DRAINAGE AREA:	5.1 AC
WET STORAGE REQUIRED:	9,180 CF
WET STORAGE PROVIDED:	9,293 CF
DRY STORAGE REQUIRED:	9,180 CF
DRY STORAGE PROVIDED:	17,245 CF
TOTAL STORAGE REQUIRED:	18,360 CF
TOTAL STORAGE PROVIDED:	26,547 CF
BOTTOM ELEVATION:	414.00
WEIR ELEVATION:	421.10
WET STORAGE ELEVATION:	414.00-417.70
DRY STORAGE ELEVATION:	417.70-421.10
TOTAL STORAGE DEPTH:	7.10
TOP OF EMBANKMENT:	424.00
CLEANOUT ELEVATION:	415.9
SIDE SLOPES:	3:1
EMERGENCY SPILLWAY:	N/A



SEDIMENT BASIN DEWATERING DEVICE I
WITH 6" PERFORATED RISER
NOT TO SCALE



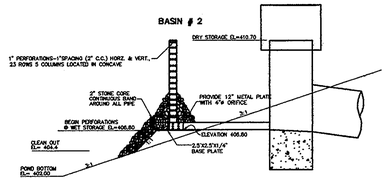
PROFILE OF CENTERLINE OF DAM
BASIN #1
SCALE: 1"= 50' HORZ.
1"= 5' VERT.



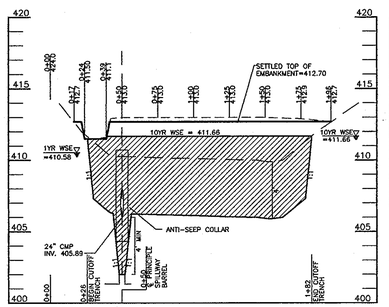
SWM BASIN# 1
SECTION THROUGH PRINCIPAL SPILLWAY
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

BASIN #2

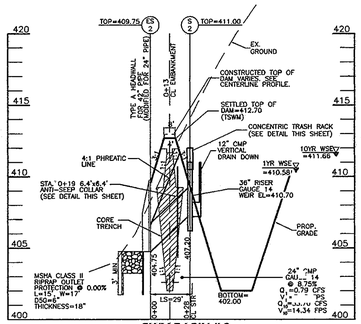
EX. DRAINAGE AREA:	7.2 AC
PROP. DRAINAGE AREA:	4.6 AC
WET STORAGE REQUIRED:	12,960 CF
WET STORAGE PROVIDED:	13,370 CF
DRY STORAGE REQUIRED:	12,960 CF
DRY STORAGE PROVIDED:	20,500 CF
TOTAL STORAGE REQUIRED:	25,920 CF
TOTAL STORAGE PROVIDED:	33,870 CF
BOTTOM ELEVATION:	402.00
WEIR ELEVATION:	410.70
WET STORAGE ELEVATION:	402.00-406.80
DRY STORAGE ELEVATION:	406.80-410.70
TOTAL STORAGE DEPTH:	8.70
TOP OF EMBANKMENT:	412.70
CLEANOUT ELEVATION:	404.40
SIDE SLOPES:	3:1
EMERGENCY SPILLWAY:	15' @ 411.50



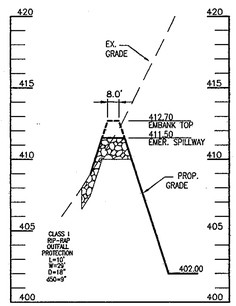
SEDIMENT BASIN DEWATERING DEVICE I
WITH 6" PERFORATED RISER
NOT TO SCALE



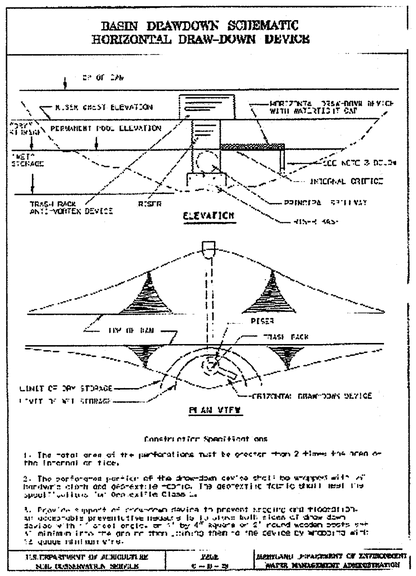
PROFILE OF CENTERLINE OF DAM
BASIN # 2
SCALE: 1"= 50' HORZ.
1"= 5' VERT.

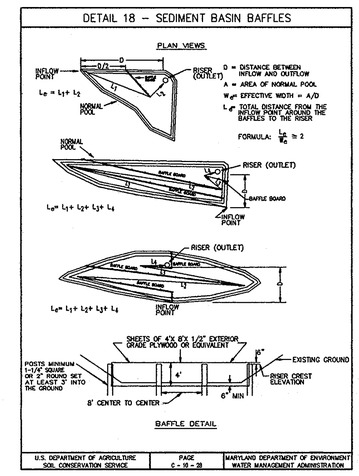


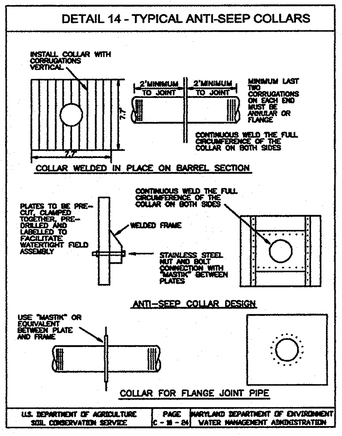
SWM BASIN # 2
SECTION THROUGH PRINCIPAL SPILLWAY
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

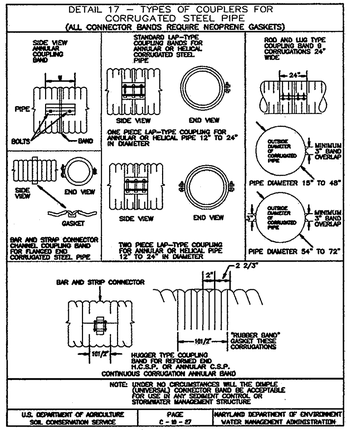


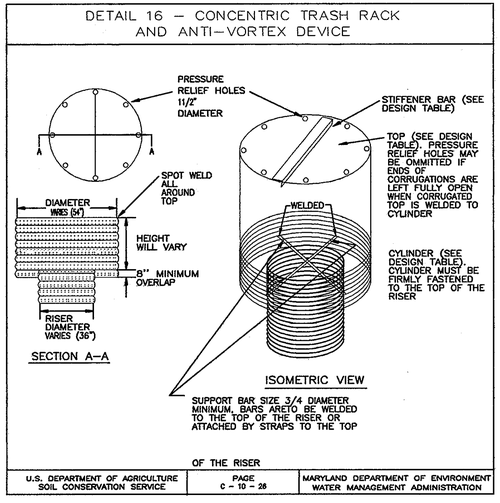
EMERGENCY SPILLWAY PROFILE
BASIN #2
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'











DETAIL 16 CONCENTRIC TRASH RACK AND ANTI–VORTEX DEVICE (continued)

Riser Diam., in.	Trash Rack Cylinder Diam. in.	Thick., gage	H, in.	Minimum Size Support Bar	Minimum Top Thickness	Minimum Top Stiffener
12	18	16	6	#6 Rebar	16 ga.	--
15	21	16	7	"	"	--
18	27	16	8	"	"	--
21	30	16	11	"	"	--
24	36	16	13	"	14 ga.	--
27	42	16	15	"	14 ga.	--
36	54	14	17	#8 Rebar	12 ga.	--
42	60	14	19	"	"	--
48	72	12	21	1–1/4" pipe or 1–1/4 x 1–1/4 x1/4 angle	10 ga.	--
54	78	12	25	"	"	--
60	90	12	29	1–1/2" pipe or 1–1/2 x 1–1/2 x1/4 angle	8 ga.	--
66	96	10	33	2" pipe or 2x2x3/16 angle	8 ga., w/stiffener	2x2x1/4 angle
72	102	10	36	"	"	2–1/2x2–1/2x1/4 angle
78	114	10	39	2–1/2" pipe or 2x2x1/4 angle	"	"
84	120	10	42	2–1/2" pipe or 2–1/2x2–1/2x1/4 angle	"	2–1/2 x2–1/2x 5/16 angle

Note: The above trash rack and anti–vortex device information is only for corrugated metal pipe. Concrete risers must meet the requirements of MD 378.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE C – 10 – 29A | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

NO.	REVISION	DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/28/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPEMENT 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 — DATE 9/30/10

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 — DATE 9/28/10

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

HOWARD S.C.D. — DATE 10/7/10

OWNER/DEVELOPER

WELSH PROPERTY, LLC
4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042–7819
ATTN: MR. DONALD R. REUWER
443–367–0422

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD

TEMPORARY STORMWATER MANAGEMENT NOTES AND DETAILS

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

SP_10_001
WP-09-92, S-06-006
WP-10-002
PARCEL 115
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.2666
FAX: 410.461.8961

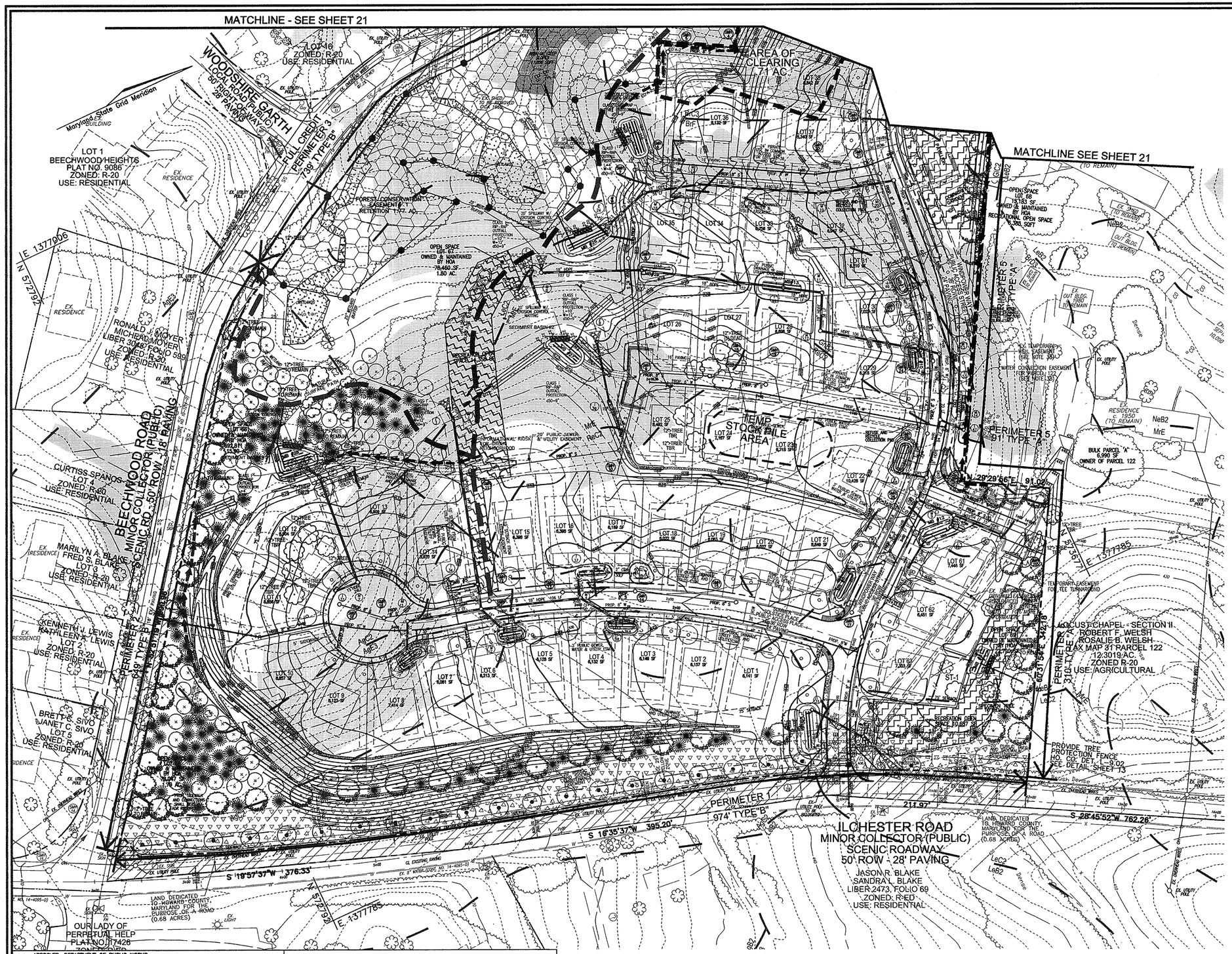
STATE OF MARYLAND ROBERT H. VOGEL No. 16193 PROFESSIONAL ENGINEER — 9/30/10
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	JAR
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	AUGUST 2010
SCALE:	AS SHOWN
W.O. NO.:	04–151

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: 09-27-2012

F-10-102



LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- 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
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- FOREST CONSERVATION SIGNS
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- STEEP SLOPES (<25%)
- MODERATE SLOPES (0-24.9%)
- PUBLIC SEWER, WATER, AND UTILITY EASEMENT
- PRIVATE DRAINAGE AND UTILITY EASEMENT
- PUBLIC DRAINAGE, STREET TREE, AND UTILITY EASEMENT
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- PROPOSED STREET TREE
- WETLANDS BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- 18,000 LUMEN LED STREET LIGHT
- 9,500 LUMEN LED STREET LIGHT
- PROP. STREET LIGHTS
- PROP. STREET SIGNS
- SPECIMEN TREE TREE PROTECTION FENCE HO.CO. DETAIL L-9.02
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J. CHRIS OGLE
DNR QUALIFIED PROFESSIONAL

OWNER/DEVELOPER

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C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

NO.	REVISION	DATE
2	REVISE SWM	8/15/12
1	REDUCE SIZE OF MR#4 & #12	6/20/12

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD

LANDSCAPE AND FOREST CONSERVATION PLAN

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

SP_10_001
WP-09-92, S-06-006
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TEL: 410.461.7666
FAX: 410.461.8951

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

DESIGN BY:	JAR
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	AUGUST 2010
SCALE:	1"=50'
W.O. NO.:	04-151

PROFESSIONAL CERTIFICATE

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EXPIRATION DATE: 09-27-2012

SHEET 21 OF 25

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/28/10

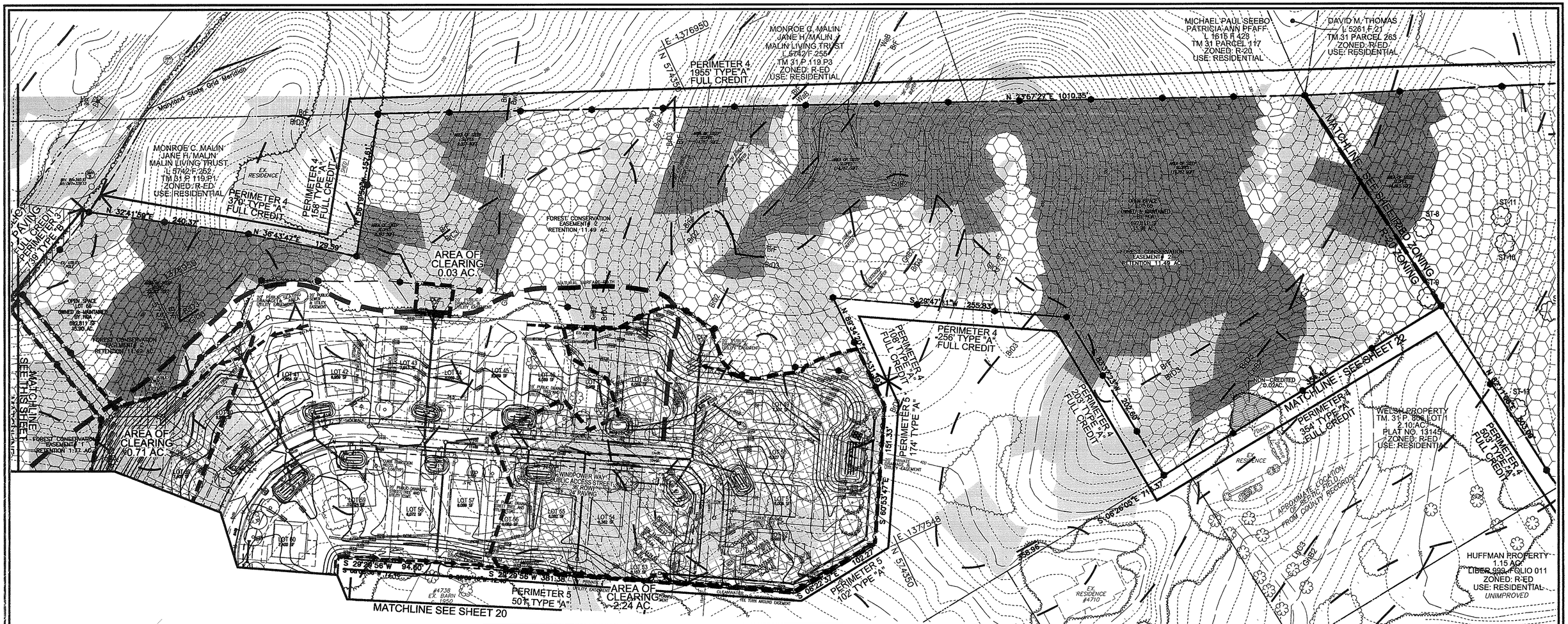
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

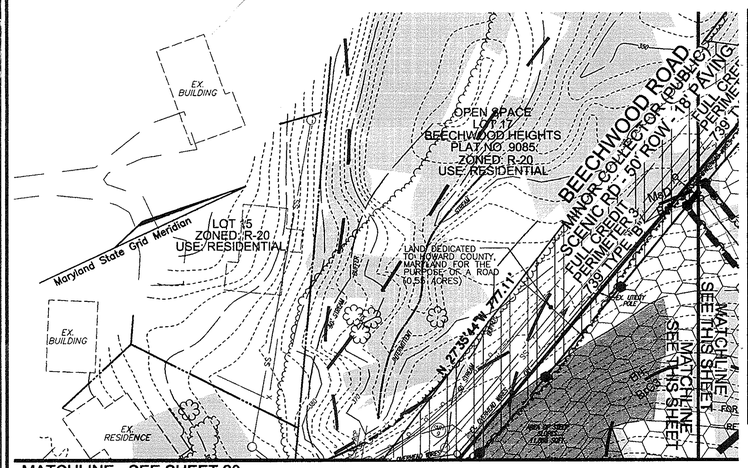
DEVELOPER'S/BUILDER'S CERTIFICATE

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.

SIGNATURE OF DEVELOPER — DATE 9/30/10

F-10-102





SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	"K" FACTOR
AgC2	AURA GRAVELLY LOAM, 5 TO 10 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.32
AgE3	AURA GRAVELLY LOAM, 10 TO 30 PERCENT SLOPES, SEVERELY ERODED	B	NO	0.24
Ba	BAILE SILT LOAM	D	YES	0.43
BrC2	BRANDYWINE LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	C	NO	0.24
BrC3	BRANDYWINE LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED	C	NO	0.24
BrD2	BRANDYWINE LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED	C	NO	0.20
BrD3	BRANDYWINE LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	C	NO	0.20
BrF	BRANDYWINE LOAM, 20 TO 60 PERCENT SLOPES	C	NO	0.20
BwD	BRANDYWINE VERY STONY LOAM, 3 TO 25 PERCENT SLOPES	C	NO	0.20
GlB2	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.32
GlC2	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.32
GlC3	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED	B	NO	0.32
GnB2	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C	NO*	0.32
LeB2	LEGORE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.24
LeC2	LEGORE SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.24
LgC3	LEGORE SILTY CLAY LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED	B	NO	0.24
MsD	MONTALTO AND RELAY VERY STONY SILT LOAMS, 3 TO 25 PERCENT SLOPES	C	NO	0.32
MrE	MONTALTO AND RELAY SOILS, 15 TO 45 PERCENT SLOPES	C	NO	0.24
MsF	MONTALTO AND RELAY SOILS, VERY STONY SILT LOAMS, 25–60% SLOPES	C	NO	0.32
NeB2	NESHAMINY SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.32
NeC2	NESHAMINY SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.32
ReC2	RELAY SILT LOAM, 3 TO 15 PERCENT SLOPES, MODERATELY ERODED	B	NO	0.24
WoB	WATCHUNG SILT LOAM, 3 TO 8 PERCENT SLOPES	D	YES	0.43

* MAY POTENTIALLY CONTAIN HYDRIC INCLUSIONS
SOURCE: USDA – SCS, 1968 SOIL SURVEY OF HOWARD COUNTY, MARYLAND.

LEGEND:

EXISTING CONTOUR
PROPOSED CONTOUR
EXISTING CURB AND GUTTER
PROPOSED CURB AND GUTTER
EXISTING UTILITY POLE
EXISTING LIGHT POLE
EXISTING MAILBOX
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MODERATE SLOPES (0-24.9%)
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STREAM CENTERLINE
STREAM BUFFER
16,000 LUMEN LED STREET LIGHT
9,500 LUMEN LED STREET LIGHT
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PROP. STREET SIGNS
SPECIMEN TREE
TREE PROTECTION FENCE HO.CO. DETAIL L-9.02
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LANDSCAPE PERIMETER
STEEP SLOPES (<25%)

PUBLIC DRAINAGE, STREET TREE, AND UTILITY EASEMENT
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EX. TEMP. DRIVEWAY EASEMENT FOR PARCEL 122
PUBLIC DRAINAGE, AND UTILITY EASEMENT
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PRIVATE USE-IN-COMMON ACCESS EASEMENT
RECREATION OPEN SPACE
BGE WIRE ZONES
PUBLIC SEWER, WATER, AND UTILITY EASEMENT
PRIVATE DRAINAGE AND UTILITY EASEMENT

OWNER/DEVELOPER

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4640 ILCHESTER ROAD, LLC
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5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

J. CHRIS OGLE
DNR QUALIFIED PROFESSIONAL

NO.	REVISION	DATE
2	REVISE SWM	8/15/12

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD

LANDSCAPE AND FOREST CONSERVATION PLAN

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

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WP-09-92, S-06-006
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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER
9/24/10
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	JAR
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	AUGUST 2010
SCALE:	1"=50'
W.O. NO.:	04-151

PROFESSIONAL CERTIFICATE
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EXPIRATION DATE: 09-27-2012

SHEET 22 OF 25

F-10-102

MATCHLINE - SEE SHEET 20

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10
APPROVED: HOWARD COUNTY, DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/28/10
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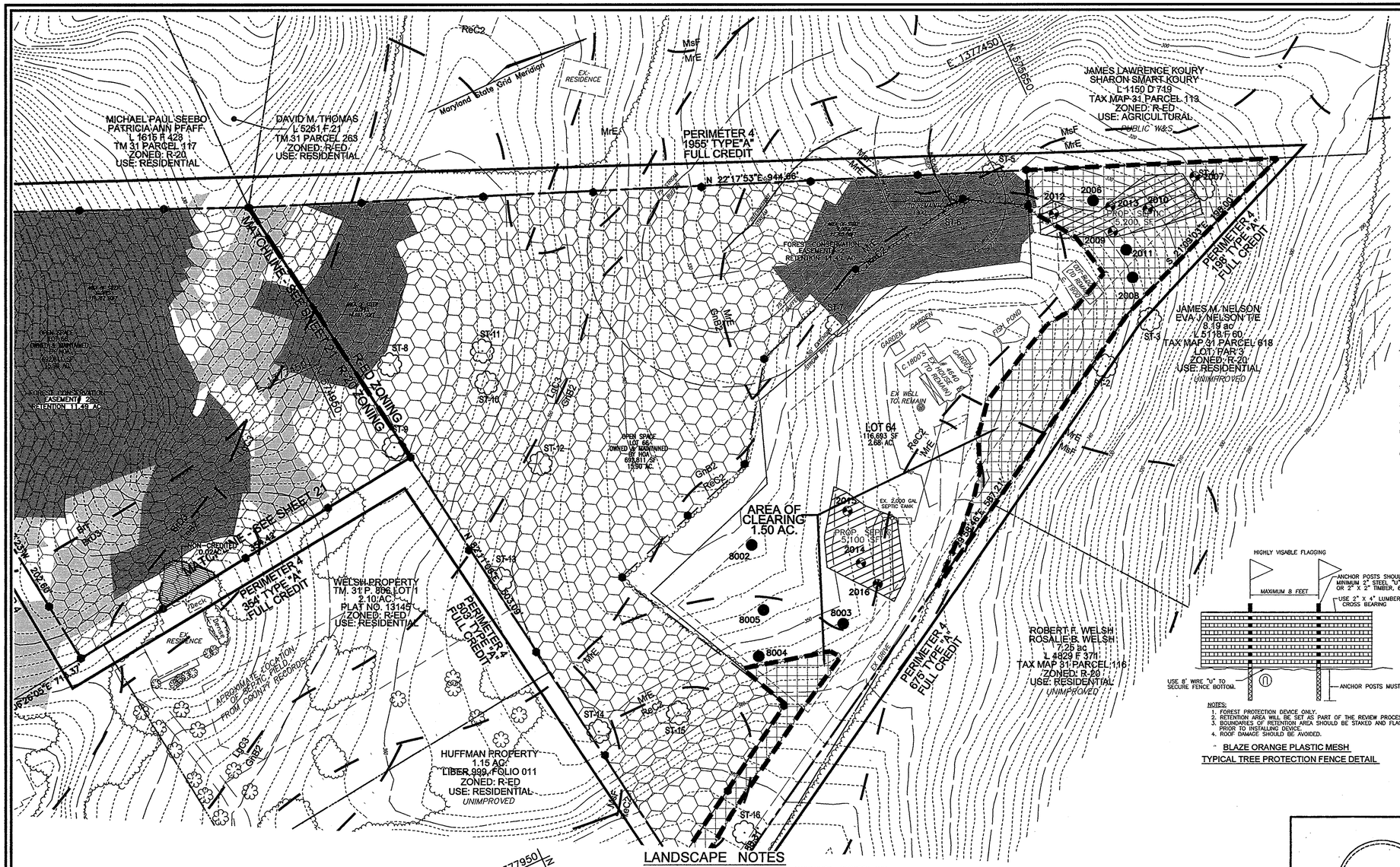

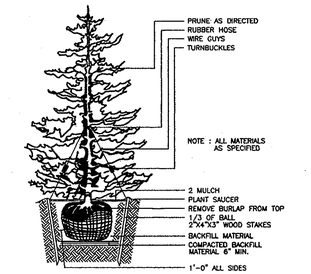

TYPICAL EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
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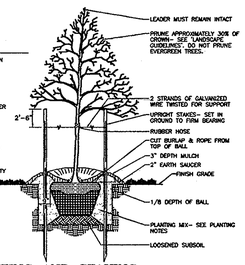
- EX. TEMP. DRIVEWAY EASEMENT FOR PARCEL 122
- PUBLIC DRAINAGE, AND UTILITY EASEMENT
- PUBLIC SEWER, AND UTILITY EASEMENT
- PRIVATE USE-IN-COMMON ACCESS EASEMENT

NOTES

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



TREE PLANTING AND STAKING

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

NOTES:
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.

BLAZE ORANGE PLASTIC MESH

TYPICAL TREE PROTECTION FENCE DETAIL

J. CHRIS OGLE
DNR QUALIFIED PROFESSIONAL

OWNER/DEVELOPER

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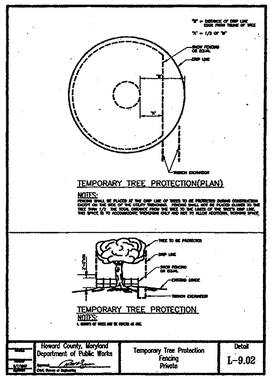
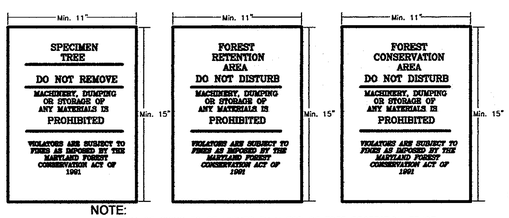
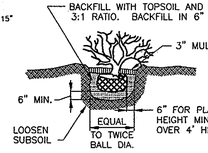




NOTE:
1. BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
2. SIGNS TO BE PLACED APPROXIMATELY 50-100' FEET APART, CONDITIONS ON SITE AFFECTING VISIBILITY MY WARRANT PLACING SIGNS CLOSER OR FARTHER APART.
3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.
4. ALL FOREST CONSERVATION SIGNAGE SHALL BE IN PLACE FOR PERPETUITY.

FOREST CONSERVATION AREA SIGNS



SHRUB PLANTING DETAIL

NOT TO SCALE

LANDSCAPE NOTES

1. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
2. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED FOR THIS SITE BE OF THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF THE REQUIRED PLANTING MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
3. THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
4. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE, THE LANDSCAPE MANUAL AND GREEN NEIGHBORHOOD REQUIREMENTS.
5. NO CLEARING OF EXISTING VEGETATION IS PERMITTED WITHIN THE LANDSCAPE EDGE FOR WHICH CREDIT IS BEING TAKEN; HOWEVER, LANDSCAPE MAINTENANCE IS AUTHORIZED.
6. CONTRACTOR SHALL CERTIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
7. FINAL LOCATION OF PLAN MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.

B G & E NOTES:

1. THE LANDSCAPING ON WIRECONE (40' FROM BGE POLES) IS IN ACCORDANCE WITH BGE LIST OF TREES AND PLANTS.
2. LINE THAT IN THE OPINION OF BGE SHALL BE DEEMED A HAZARD TO THE SAFE AND RELIABLE DELIVERY OF ELECTRICITY.
3. THE DEPARTMENT OF PLANNING AND ZONING MAY AUTHORIZE THE TRIMMING OR REMOVAL OF TREES OR VEGETATION IMMEDIATELY ADJACENT TO THE BGE R/W OR EASEMENT, IF BGE DETERMINES THE TREES ARE COMPROMISING THE SAFETY OR A TRANSMISSION LINE LOCATED WITHIN THEIR UTILITY R/W OR EASEMENT. IF BGE

FOREST PROTECTION NOTES

PRE-CONSTRUCTION ACTIVITIES

1. FOR RETENTION AREAS, INSTALL BLAZE ORANGE FENCE AND RETENTION SIGNS BEFORE CONSTRUCTION BEGINS.
2. FENCING SHALL BE MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS.
3. A QUALIFIED TREE CARE EXPERT SHALL DETERMINE IF ROOT PRUNING IS REQUIRED ALONG THE LIMIT OF DISTURBANCE. ROOT PRUNE TREES AS REQUIRED. WATER ANY ROOT-PRUNED TREES IMMEDIATELY AFTER ROOT-PRUNING AND MONITOR FOR SIGNS OF STRESS DURING CONSTRUCTION.

DEVELOPER'S AGREEMENT

STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124(e)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF $37,500.00 TO BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THE REQUIRED 125 PUBLIC STREET TREES.

FINANCIAL SURETY FOR THE REQUIRED PERIMETER LANDSCAPING PROVIDED PER THE MANUAL TO BE POSTED WITH THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $54,900.00 FOR THE REQUIRED 151 SHADE TREES, 62 EVERGREEN TREES, AND 10 SHRUBS.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/28/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

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.

SIGNATURE OF DEVELOPER — DATE 9/30/10

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD
LANDSCAPE AND FOREST CONSERVATION PLAN

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

SP_10_001
WP-09-92, S-06-006
WP-10-002
PARCEL 115
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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	JAR
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	AUGUST 2010
SCALE:	1"=50'
W.O. NO.:	04-151

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: 09-27-2012

SHEET 23 OF 25

F-10-102

GENERAL NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF $54,900.00 FOR THE REQUIRED 151 SHADE TREES, 62 EVERGREEN TREES, AND 10 SHADE TREES, SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS PLAN.
2. PUBLIC STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124(E)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF $37,500.00 HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THE REQUIRED 125 STREET TREES.
3. THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, PLANT MATERIALS, 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 REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
4. NO CLEARING OF EXISTING VEGETATION IS PERMITTED WITHIN THE LANDSCAPE EDGE FOR WHICH CREDIT IS BEING TAKEN; HOWEVER, LANDSCAPE MAINTENANCE IS AUTHORIZED.
5. AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS LISTED HEREWITH AND APPROVED FOR THIS SITE SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE 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 UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.
6. THERE IS NO 100YR FLOODPLAIN ON SITE.
7. WETLANDS ARE LOCATED ON SITE IN ACCORDANCE WITH DELINEATION PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED FEBRUARY 2, 2005.
8. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURE SHALL BE BE PERMITTED WITHIN THE WETLANDS, WETLANDS BUFFER, STREAM BANK BUFFER OR FOREST CONSERVATION EASEMENTS.
9. THE SUBJECT PROPERTY IS ZONED "R-ED" AND "R-20" IN ACCORDANCE WITH THE 2/2/04 COMPREHENSIVE ZONING PLAN AND THE COMP. LITE ZONING REGULATIONS EFFECTIVE ON 7/28/06, AND IS SUBJECT TO THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE 10/2/03 PER COUNCIL BILL 75-2003.
10. THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC DATED DECEMBER OF 2005
11. THE TOPOGRAPHY SHOWN HEREON IS BASED ON AN AERIAL TOPOGRAPHIC SURVEY PREPARED BY POTOMAC AERIAL SERVICES, INC. DATED APRIL 2005.
12. THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
13. THIS PROPERTY IS LOCATED IN THE PATAPSCO RIVER LOWER NORTH BRANCH WATERSHED #2130906.
14. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO GRAVE SITES, OR CEMETERIES LOCATED ON THE SUBJECT PROPERTY.
15. THE REMOVAL OF TREES 30" OR GREAT DHB IS PROHIBITED WITH OUT COUNTY APPROVAL.
16. THE PROPOSED EASEMENTS MUST BE DEVOID OF TRASH, DEBRIS, STRUCTURES, FENCING, ETC. IN ADDITION, IT IS THE DEVELOPER'S RESPONSIBILITY TO KEEP THESE AREAS CLEAN OF DEBRIS AND ENCROACHMENT FOR THE ENTIRE 2-YEAR MAINTENANCE PERIOD.

FOREST RETENTION AREAS AND NOTES

1. THE WETLANDS AND WETLAND BUFFERS ARE LOCATED ON AN OPEN SPACE LOT.
2. NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THIS SITE.
3. FORESTED AREAS ADJACENT TO FLOODPLAINS AND STREAM BUFFERS ARE SUBSTANTIALLY RETAINED IN OPEN SPACE LOTS.
4. CHANGES IN GRADING AND RUNOFF WITHIN CONSTRUCTION/INSTALLATION AREAS WILL NOT ADVERSELY AFFECT THE SOILS WITHIN THE FOREST RETENTION AREA. SEDIMENT CONTROL MEASURES WILL REDIRECT CONCENTRATED FLOW RUNOFF TO STORMWATER MANAGEMENT FACILITIES. RETAIN SEDIMENT WITHIN THE CONSTRUCTION SITE, AND/OR REDIRECT CLEAN WATER AWAY FROM CONSTRUCTION AREAS.
5. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
6. THE PROPOSED FOREST CLEARING HAS BEEN LIMITED TO UPLANDS AREAS. THE FOREST WITHIN ENVIRONMENTALLY SENSITIVE ZONES SUCH AS STEEP SLOPES, WETLANDS, STREAMS AND ASSOCIATED BUFFERS HAVE BEEN PRESERVED. THE PROPOSED SUBDIVISION IS A CLUSTER STYLE DEVELOPMENT WHICH FURTHER PRESERVES FOREST COVER BY REDUCING THE LIMIT OF DISTURBANCE. THE FOREST COVER THAT REMAINS IS LOCATED ON OPEN SPACE LOTS THAT WILL BE OWNED BY HOWARD COUNTY OR THE HOA. A HABITAT MANAGEMENT PLAN IS PART OF THIS APPLICATION WHICH WILL DEFINE THE ON GOING LONGTERM MAINTENANCE OF THE FORESTED AREAS. THE CLEARING INDICATED ON THE PLAN IS NECESSARY TO ALLOW FOR THE DEVELOPMENT OF RESIDENTIAL LOTS AND ASSOCIATED INFRASTRUCTURE IN ACCORDANCE WITH THE R-20 ZONING.

CONSTRUCTION PERIOD PROTECTION AND MANAGEMENT NOTES FOR FOREST CONSERVATION

PRE-CONSTRUCTION PHASE

1. FOR RETENTION AREAS, INSTALL BLAZE ORANGE FENCE AND RETENTION SIGNS BEFORE CONSTRUCTION BEGINS.
2. FENCING SHALL BE MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS.
3. A QUALIFIED TREE CARE EXPERT SHALL DETERMINE IF ROOT PRUNING IS REQUIRED ALONG THE LIMIT OF DISTURBANCE. ROOT PRUNE TREES AS REQUIRED. WATER ANY ROOT-PRUNED TREES IMMEDIATELY AFTER ROOT-PRUNING AND MONITOR FOR SIGNS OF STRESS DURING CONSTRUCTION.

CONSTRUCTION PHASE

1. NO DISTURBANCE OR DUMPING IS ALLOWED INSIDE THE TREE RETENTION AREA.
2. NO EQUIPMENT SHALL BE OPERATED INSIDE THE TREE RETENTION AREA INCLUDING TREE CANOPIES.
3. IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.

POST-CONSTRUCTION PHASE

1. AT THE DIRECTION OF A QUALIFIED TREE CARE EXPERT, DAMAGES TO RETAINED TREES SHALL BE REPAIRED BY THE CONTRACTOR.
2. FENCE REMOVAL AND STABILIZATION SHALL BE AS PER THE SEDIMENT AND EROSION CONTROL PLAN.
3. DO NOT REMOVE SIGNS.
4. ANY TRASH OR DEBRIS WITHIN THE EASEMENT AREAS SHALL BE REMOVED.

SEQUENCE OF CONTRUCTION-FOREST CONSERVATION

1. PRECONSTRUCTION MEETING /SITE WALK WITH CONTRACTORS AND OTHER RESPONSIBLE PARTIES TO DEFINE PROTECTION MEASURES TO BE UTILIZED AND TO POINT OUT PARTICULAR TREES TO BE SAVED.
2. STAKE OUT LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS.
3. INSTALL TREE PROTECTION FENCING; FENCING TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY PLANNING AND ZONING.
4. PROCEED WITH TREE REMOVAL AND SITE IMPROVEMENTS AS PER APPROVED SEDIMENT CONTROL PLAN - TO BE INSPECTED BY HOWARD COUNTY PLANNING AND ZONING.
5. TEMPORARY TREE PROTECTION DEVICES SHALL BE REMOVED AFTER ALL FINISHED GRADING AND UTILITY CONSTRUCTION HAS OCCURED AND WITH APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

LANDSCAPE NOTES

1. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
2. 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.
3. SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD, AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.
4. PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCITON OF THE FINAL PLAN.

Forest Conservation Worksheet 2.2

Net Tract Area								
A.	Total Tract Area						A =	36.54
B.	Deductions						B =	0.00
C.	Net Tract Area						C =	36.54
Land Use Category								
Input the number "1" under the appropriate land use zoning, and limit to only one entry								
	ARA	MDR	IDA	HDR	MPD	CIA		
	0	0	0	1	0	0		
D.	Afforestation Threshold (Net Tract Area x 15%)						D =	5.48
E.	Conservation Threshold (Net Tract Area x 20%)						E =	7.31
Existing Forest Cover								
F.	Existing Forest Cover within the Net Tract Area						F =	17.72
G.	Area of Forest Above Conservation Threshold						G =	10.41
Break Even Point								
H.	Break Even Point						H =	9.40
I.	Forest Clearing Permitted Without Mitigation						I =	8.32
Proposed Forest Clearing								
J.	Total Area of Forest to be Cleared						J =	*4.48
K.	Total Area of Forest to be Retained						K =	13.24
Planting Requirements								
L.	Reforestation for Clearing Above the Conservation Threshold						L =	0.00
M.	Reforestation for Clearing Below the Conservation Threshold						M =	0.00
N.	Credit for Retention above the Conservation Threshold						N =	0.00
P.	Total Reforestation Required						P =	0.00
Q.	Total Afforestation Required						Q =	0.00
R.	Total Planting Requirement						R =	0.00

*THERE IS 2.98 AC CLEARED WITHIN THE LOD. THE REMAINING 1.50 AC IS LOCATED IN LOT 64 AND IS ASSUMED TO BE CLEARED.

TOTAL FOREST RETENTION: 13.24 AC WITHIN EASEMENT

FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULLFILL THE REQUIREDMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION MANUAL. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

BOND FOR 13.24 AC. (576,734.40 X .20 = $115,346.88)
TOTAL FINANCIAL SURETY OBLIGATION IS $115,347.00

TOTAL FOREST RETENTION: 13.24 AC WITHIN EASEMENT

SCHEDULE A: PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES					
PERIMETER/FRONTAGE DESIGNATION LANDSCAPE TYPE	1 B	2 B	3 B	4 A	5 A	TOTAL
LINEAR FEET OF ROADWAY, PERIMETER/FRONTAGE	974'	649'	739'	4,780'	1,570'	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	YES* 739'	YES* 4,780'	NO	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	– –	– –	– –	– –	– –	
NUMBER OF PLANTS REQUIRED (LF REMAINING)	974'	649'	0'	0'	1,570'	
SHADE TREES	1:50 20	1:50 13	–	–	1:60 26	59
EVERGREEN TREES	1:40 25	1:40 16	–	–	–	41
SHRUBS	–	–	–	–	–	
NUMBER OF PLANTS PROVIDED						
SHADE TREES	20	13	–	–	26	59
EVERGREEN TREES	25	16	–	–	–	41
OTHER TREES (2:1 SUBSTITUTION)	–	–	–	–	–	
SHRUBS (10:1 SUBSTITUTION)	–	–	–	–	–	
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)						

*EXISTING WOODS TO REMAIN

STREET TREE CALCULATIONS

STREET NAME	LINEAR FEET	NO. REQUIRED	NO. PROVIDED
WINDPOWER WAY	2876/40	72	72
SUMMER SOLSTICE PLACE	1189/40	30	30
ILCHESTER ROAD IMPVMTS	894/40	23	23
BEECHWOOD ROAD	EXISTING FOREST ALONG ROAD		0
			TOTAL 125

STREET TREE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REM.
	72	ACER RUBRUM 'RED SUNSET' RED SUNSET RED MAPLE	2 1/2"-3" CAL.	B & B
	30	ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY RED MAPLE	2 1/2"-3" CAL.	B & B
	23	QUERCUS PHELLOS WILLOW OAK	2 1/2"-3" CAL.	B & B

TOTAL 125

PERIMETER/BUFFER PLANTING SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REM.
	59	DECIDUOUS TREES SEE NATIVE TREE LIST FOR MIX	2 1/2"-3" CAL.	B & B
	41	EVERGREEN SEE NATIVE TREE LIST FOR MIX	2 1/2"-3" CAL.	B & B

ADDITIONAL TREES REQUIRED TO MEET GREEN NEIGHBORHOOD CRITERIA
SEE NATIVE TREE LIST FOR MIX AND QUANTITY

TOTAL PLANTING REQUIREMENT

NATIVE HARDWOOD	276
NON NATIVE HARDWOOD	0
NATIVE EVERGREEN	62
TOTAL	338

(INCLUDES 125 STREET TREES)

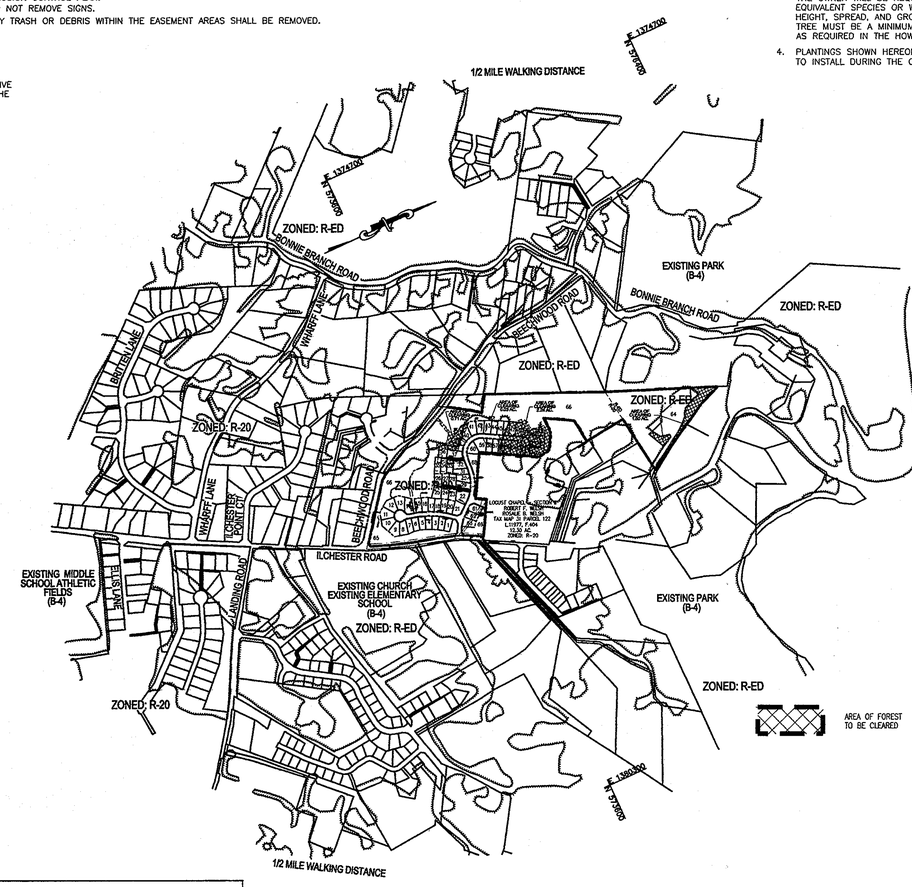
NATIVE PLANT LIST

BOTANICAL NAME	QUANTITY	COMMON NAME
SHRUBS		
GAULTHERIA PROCUMBENS		WINTERGREEN
HYPERICUM DENSIFLORUM		DENSE ST. JOHNS WORT
ROSA CAROLINA		PASTURE ROSE
VIBURNUM ACERIFOLIUM		MAPLE-LEAVED ARROWWOOD
RHODODENDRON VISCOSUM		SWAMP AZALEA
ROSA PALUSTRIS		SWAMP ROSE
MAGNOLIA VIRGINIANA		SWEETBAY MAGNOLIA
SAMBUCUS CANADENSIS		COMMON ELDERBERRY
ARONIA ARBUTIFOLIA		RED CHOKEBERRY
HAMAMELIS VIRGINIANA		WITCH HAZEL
ILEX OPACA		AMERICAN HOLLY
JUNIPERUS VIRGINIANA		EASTERN RED CEDAR
KALMIA LATIFOLIA		MOUNTAIN LAUREL
TREES		
ACER RUBRUM 'RED SUNSET'	102	RED SUNSET RED MAPLE (72 STREET TREES)
ACER RUBRUM 'OCTOBER GLORY'	30	OCTOBER GLORY RED MAPLE (30 STREET TREES)
LIQUIDAMBAR STYRACIFLUA	41	SWEET GUM
QUERCUS PHELLOS	33	WILLOW OAK
QUERCUS RUBRA		NORTHERN RED OAK
QUERCUS VELUTINA	35	BLACK OAK
QUERCUS PHELLOS	35	WILLOW OAK (23 STREET TREES)
TOTAL HARDWOOD	276	
PINUS STROBUS	41	WHITE PINE (EVERGREEN)
PINUS VIRGINIANA	21	VIRGINIA PINE (EVERGREEN)
PINUS RIGIDA		PITCH PINE (EVERGREEN)
TOTAL EVERGREEN	62	

THE SOURCE OF MATERIAL WILL BE IDENTIFIED ON THE FINAL PLAN

TRASH PAD LANDSCAPING

SYM.	QTY.	DESCRIPTION	SIZE	REM.
	10	MAGNOLIA VIRGINIANA SWEETBAY MAGNOLIA	3'-4' HT	B & B



VICINITY MAP

SCALE: 1"=600'

24" OR GREATER SPECIMEN TREE CHART

NO.	SIZE	SPECIES NAME	COMMON NAME	CONDITION	LOCATION	COMMENTS
ST-1	32" DBH	Acer platanoides	NORWAY MAPLE	GOOD	L-1	TO REMAIN
ST-2	47" DBH	Quercus alba	WHITE OAK (off site)	GOOD	F-1	TO REMAIN
ST-3	44" DBH	Liriodendron tulipifera	YELLOW POPLAR (off site)	GOOD	F-1	TO REMAIN
ST-4	36" DBH	Quercus alba	WHITE OAK	GOOD	F-1	TO REMAIN
ST-5	33" DBH (TWIN)	Quercus alba	WHITE OAK	GOOD	F-1	TO REMAIN
ST-6	32" DBH	Fraxinus americana	WHITE ASH	FAIR*	F-1	TO REMAIN
ST-7	32" DBH	Fraxinus americana	WHITE ASH	GOOD	F-1	TO REMAIN
ST-8	30" DBH	Liriodendron tulipifera	YELLOW POPLAR	GOOD	F-1	TO REMAIN
ST-9	35" DBH	Liriodendron tulipifera	YELLOW POPLAR	GOOD	F-1	TO REMAIN
ST-10	32" DBH	Liriodendron tulipifera	YELLOW POPLAR	GOOD	F-1	TO REMAIN
ST-11	33" DBH	Liriodendron tulipifera	YELLOW POPLAR	GOOD	F-1	TO REMAIN
ST-12	32" DBH	Liriodendron tulipifera	YELLOW POPLAR	GOOD	F-1	TO REMAIN
ST-13	34" DBH	Liriodendron tulipifera	YELLOW POPLAR	GOOD	F-1	TO REMAIN
ST-14	32" DBH	Liriodendron tulipifera	YELLOW POPLAR	GOOD	F-1	TO REMAIN
ST-15	32" DBH	Liriodendron tulipifera	YELLOW POPLAR	GOOD	F-1	TO REMAIN
ST-16	30" DBH	Liriodendron tulipifera	YELLOW POPLAR	GOOD	F-1	TO REMAIN

* HOLLOW TRUNK

FOREST STAND ANALYSIS TABLE

KEY	A. TYPE OF COMMUNITY	B. AREA	C. SOILS INFORMATION: 1. SOILS TYPES	2. TYPICAL FOREST COVER FOR SOILS TYPE	3. WOODLAND SUITABILITY INDEX	4 HABITAT	D. EXISTING VEGETATION	E. STAND CHARACTERISTICS: 1. SIZE (DIA)	2. AGE (YRS)	3. GENERAL CONDITION	F. FOREST AREA IN SEN. ENV
L-1	MAINTAINED LAWN AND OPEN FIELD	18.81 AC	AgC2	MIXED HARDWOODS, MAINLY OAKS	16	2	MAINTAINED LAWN	N/A	N/A	N/A	0.00 AC
			AgE3		17	3					
			Bo		1	1					
			BrC2		16	2					
			BrD3		17	3					
			BrD3		41	2					
			BrF		41	2					
			BwD		41	2					
			GlB2		30	1					
			GlC2		30	1					
			GlC3		30	1					
			GnB2		12	1					
			LaB3		40	1					
			LaC3		40	1					
			LpC3		40	1					
			MsD		31	1					
			MfE		31	1					
			NeB2		30	1					
			NsC2		40	1					
			RaC2		40	1					
			WdB		1	1					
F-1	TULIP POPLAR FOREST ASSOCIATION	17.74 AC					TULIP POPLAR, WHITE OAK, HICKORY, RED MAPLE, S. RED OAK	12-27"	30±	GOOD	4.83 AC

SUPPLEMENTAL INFORMATION

GROSS SITE AREA	36.54 ACRES
AREA OF STEEP SLOPES	4.60 ACRES
AREA OF FLOODPLAIN	0.00 ACRES
NET AREA OF SITE	31.94 ACRES
ZONED	R-ED & R-20
EXISTING USE	AGRICULTURAL
PROPOSED USE	RESIDENTIAL

FOREST STAND TOTALS

STAND F-1	17.74 ACRES
STAND L-1	18.81 ACRES

LANDSCAPE SCHEDULE NOTE:

1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRD PLANTING SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
3. 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.
4. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
5. NO INVASIVE SPECIES TO BE UTILIZED.

OWNER/DEVELOPER

WELSH PROPERTY, LLC
4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
ATTN: MR. DONALD R. REUWER
443-367-0422

NO.	REVISION	DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-21-10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/28/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/10

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.

SIGNATURE OF DEVELOPER — DATE 9/30/10

J. CHRIS OGLE
QUALIFIED PROFESSIONAL

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD

LANDSCAPE AND FOREST CONSERVATION NOTES

ZONED: (R-20 AND R-ED)
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
A SUBDIVISION OF PARCEL 115
HOWARD COUNTY, MARYLAND

SP_10_001
WP-09-92, S-06-006
WP-10-002
PARCEL 115
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

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

DESIGN BY: JAR
DRAWN BY: KG
CHECKED BY: RHV
DATE: AUGUST 2010
SCALE: AS SHOWN
W.O. NO.: 04-151

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: 06-27-2012

F-10-102

GREEN NEIGHBORHOOD PLAN SHEET
FINAL PLAN SUBMITTAL
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD
HOWARD COUNTY, MARYLAND

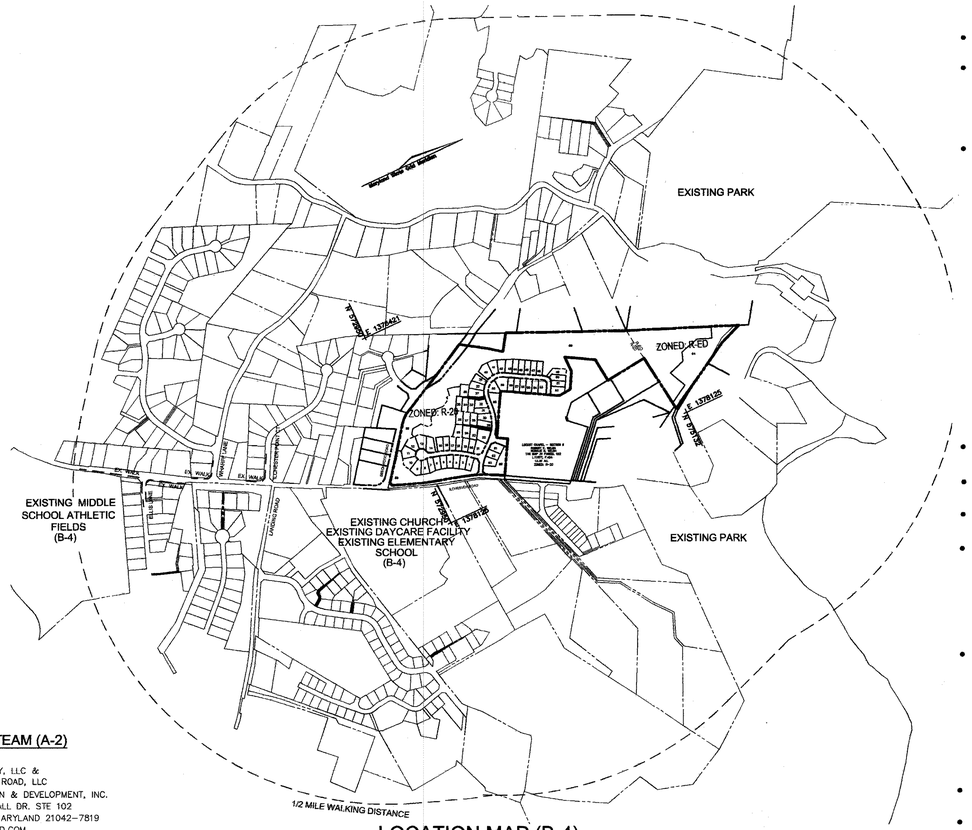
Credit No.	Credit	Champion (Name, Role)	Preliminary Equivalent Sketch Plan: Strategies	Final Plan: Strategies	Site Development Plan: Strategies	Documentation Location	Max Points	Requested Points
A	**Innovative / Integrated Design Process**						**4**	**4**
A-1	Green Development Plan	Robert H. Vogel Engineering	Provided	Provided		GN Plan Sheet provided GN Report provided.	RBZ'D	0
A-2	Interdisciplinary Project Team	Developer	Team includes an attorney who is a LEED AP, an Environmental consultant, and a professional engineer	Team includes an attorney who is a LEED AP, an Environmental consultant, and a professional engineer		Team listed on GN Plan sheet, signature blocks provided, GN Report team members listed	RBZ'D	0
A-3	Third Party Certification	Developer	Provided	Provided		GN Plan and Report	RBZ'D	0
A-4a	Innovative Design A	Robert H. Vogel Engineering	Reduce width of Public RW w/ pass through structures, ditch and inline bio retention.	Reduce width of Public RW w/ pass through structures, ditch and inline		Final Road Construction Plans, Sheets 2-3, Detail Sheet 5	1	1
A-4b	Innovative Design B	Robert H. Vogel Engineering	Provide water permeable walks and paths. (2%)	Provide water permeable walks and paths (81%)		Final Road Construction Plan, Sheet 17	1	1
A-4c	Innovative Design C	Developer	Educational Landscape Seminars	Educational Landscape Seminars		GN Report	1	1
A-4d	Innovative Design D	Developer	Infrastructure Energy Efficiency	Infrastructure Energy Efficiency		GN Report and F.R.C.P. Sheet 6.	1	1
B	**Location, Linkages & Community Context**						**27**	**8**
B-1a	Redevelopment Site						4	0
B-1b	Redevelopment Site (Brownfield)						8	0
B-2	Historic Buildings	Developer	Howard Co has determined the bldgs on lot 64 qualify as historic- structure to be perserved ad restored	Howard Co has determined the bldgs on lot 64 qualify as historic- structure to be perserved ad restored		Information to be provided with Site Development Plan.	4	4
B-3a	Transit Access & Amenities for Reduced Auto Dependence (Stops)						2	0
B-3b	Transit Access & Amenities for Reduced Auto Dependence (Shelter)						4	0
B-4	Proximity to Community Resources	Robert H. Vogel Engineering	Church and school located across street and athletic fields located within 1/2 mile of perimetre of project. Provided sidewalks for access	Church,School and Day Care located across street of project. Rochester sidewalk connects to resources.		GN Plan Location Map and Community Resource Chart.	5	4
C	**Compact, Complete & Connected Development**						**27**	**13**
C-1	Diversity of Uses						3	0
C-2	Planned Service Areas	Robert H. Vogel Engineering	Project is located within water and sewer services			Final Public Water and Sewer Construction Plans.	5	5
C-3a	Pedestrian System (Path)	Robert H. Vogel Engineering	Natural surface pedestrian path through open space	Natural surface pedestrian path through open space		Final R.C.P. Sheet 2+3, and Detail Sheet 6.	2	2
C-3b	Pedestrian System (Connections)	Robert H. Vogel Engineering	Sidewalk connects to Rochester near intersection with Beechwood across from the Church and to Beechwood east of Woodshire Garth.	Sidewalk connects to Rochester near intersection with Beechwood across from the Church and to Beechwood east of Woodshire Garth.		Final R.C.P. Sheet 2+3.	2	2
C-3c	Pedestrian System (Amenities)	Robert H. Vogel Engineering	Seating areas provided along natural surface path, informational kiosk provided.	Seating areas provided along natural surface path, informational kiosk provided.		Final R.C.P. Sheet 2+3.	2	2
C-4	Connected On-site Street Network						2	0
C-5	Parking does not exceed Required						4	0
C-6	Exceed Minimum Open Space Requirements	Robert H. Vogel Engineering	Open space exceed by 5.8% over required	Open space exceed by 5.8% over required		GN Plan C-6 and F.R.C.P. Sheet 1	5	1
C-7	Green Spaces and Amenity Areas	Robert H. Vogel Engineering	Provide open space parcels along road frontage with pavilion and community garden	Provide open space parcels along road frontage with pavilion and community garden		GN Plan C-7 and F.R.C.P. Sheets 2+3.	2	1
D	**Environmental Preservation**						**52**	**20**
D-1	Stream Restoration or Wetland Creation or Restoration						16	0
D-2	Habitat Management Plan	Environmental Consultant	Habitat management plan for HOA property	Habitat management plan for HOA property		See habitat management plan GN Report.	4	4
D-3	25% Steep Slope Preservation						2	0
D-4	15% Slope Preservation	Robert H. Vogel Engineering	52% of the Existing 15% slope protected	52% of the Existing 15% slope protected		GN Plan D-4 and F.R.C.P. Sheets 7-9	4	3
D-5	Minimize Grading and Site Disturbance	Robert H. Vogel Engineering	Limit LOD, balance site and graded to eliminate retaining walls	Limit LOD, balance site and graded to eliminate retaining walls		GN Plan D-5 and F.R.C.P. Sheet 10.	5	5
D-6	Exceed Minimum Forest Conservation Requirements	Robert H. Vogel Engineering	Exceeded minimum Forest retained above break even by 41%	Exceeded minimum Forest retained above break even by 41%		GN Plan D-6 and F.R.C.P. Sheet 23.	5	4
D-7	Save Trees above 12" Minimum Caliper	Robert H. Vogel Engineering	100% of specimen trees protected.	Credit eliminated.			4	0
D-8a	Exceed Minimum Stream Buffer Requirements	Robert H. Vogel Engineering	75' stream buffer provided	75' stream buffer provided		F.R.C.P. Sheets 2-4.	RBZ'D	0
D-8b	Exceed Minimum Stream Buffer Requirements	Robert H. Vogel Engineering	Exceeded stream buffer by additional 50'	Exceeded stream buffer by additional 50'		F.R.C.P. Sheets 2-4. Buffers labeled as 75' and extended to 125'	6	4
D-9	Exceed Minimum Wetland Buffer Requirements					Chart added to GN Plan indicating summary	4	0
D-10	Floodplain Buffer						2	0
E	**Site Landscape Improvements**						**9**	**8**
E-1	Landscaping exceeds Minimum Requirements and Reduces Heat Island Effect	Robert H. Vogel Engineering	Provided 50% increase in total planting above the required amount within the LS manual	Provided 50% increase in total planting above the required amount within the LS manual		Chart added to GN Plan indicating summary, F.R.C.P. Sheet 23.	5	5
E-2	Native Plants	Robert H. Vogel Engineering	Provide 100% native palnts	Provide 100% native palnts		F.R.C.P. Sheet 23.	3	3
E-3	No Invasive Plants	Robert H. Vogel Engineering	Note states no invasive plants will be used	Note states no invasive plants will be used		Gn Plan and F.R.C.P. Sheet 23.	RBZ'D	0
E-4	Limit Turf						1	0
F	**Water Conservation / Efficiency / Management**						**17**	**17**
F-1	Rainwater Harvesting System	Robert H. Vogel Engineering	Rain barrels provided to collect 50% of roof area	Rain barrels provided to collect 50% of roof area		See F.R.C.P. Sheets 11-13 and 17, and SWM Report.	5	5
F-2	Water-Permeable Walkways	Robert H. Vogel Engineering	Walkways are water permeable	Walkways are water permeable		GN Plan and F.R.C.P. Sheet 17.	4	4
F-3a	Low Impact Development (LID) Stormwater Treatment	Robert H. Vogel Engineering	The minimum standards of the How and County SWM manual have been met	The minimum standards of the How and County SWM manual have been met		SWM Report and F.R.C.P. Sheets 9-19.	RBZ'D	0
F-3b	Low Impact Development (LID) Stormwater Treatment	Robert H. Vogel Engineering	Ground water recharge and rain water reuse accomplished by permeable walks, rain barrels and bio-	Ground water recharge and rain water reuse accomplished by permeable walks, rain		GN Plan F-3 and F.R.C.P. Sheets 9-19.	8	8
G	**Energy Efficiency**						**13**	**10**
G-1	Light Pollution Reduction	Developer	Provide shielded lights	Provide shielded lights		GN Plan G-1 and F.R.C.P. Sheet 6	4	4
G-2	Solar Orientation						3	0
G-3	Infrastructure Energy Efficiency	Developer	100% of infrastructure energy needs provided by solar energy which exceeds 60% requirement.	100% of infrastructure energy needs provided by solar energy which exceeds 60% requirement.		F.R.C.P. Sheet 6.	6	6
H	**Materials Beneficial to the Environment / Waste Management**						**17**	**13**
H-1	Environmentally Preferable Site Products	Developer	60% Environmentally Preferable site products will be used	60% Environmentally Preferable site products will be used		GN Plan H-1.	6	6
H-2	Reduce Heat Island Effect of Paving						2	0
H-3	Site Construction Waste Management	Developer	Divert 75% of construction waste	Divert 75% of construction waste		Note added to GN Plan; H-3 and GN Report	4	4
H-4	Regionally Provided Materials	Developer	20% of total site material to be regional	20% of total site material to be regional		Note added to GN Plan; H-4 and GN Report.	3	3
I	**Operations and Maintenance Education**						**0**	**0**
I-1	HOA Documents	Developer	HOA Documents include information of green site features	HOA Documents include information of green site features		Note added to GN Plan + GN Report	RBZ'D	0
I-2	Maintenance Manual for Owner / HOA /	Developer	HOA Documents to include maintenance information for	HOA Documents to include maintenance information		Note added to GN Plan + GN Report.	RBZ'D	0
I-3	Public Awareness of Sustainable Community	Developer	Promote public awarenesss of Sustainable Community	Promote public awarenesss of Sustainable Community		Note added to GN Plan + GN Report.	RBZ'D	0
						TOTAL GREEN NEIGHBORHOOD SITE POINTS	**166**	**93**
						Number of points required to obtain Green Neighborhood Allocations	**90**	

Third Party Certification

By affixing my signature below, the undersigned does hereby declare and affirm to How and County that the targeted Green Neighborhood Site credits and point total, as specified in this Green Neighborhood Site Compliance Checklist, are reasonable and achiev

	President	10439206	9-28-2010
Signature	Title	LEED Accreditation Number	Date
Charles Alexander	Alexander Design Studio	410-465-6707	
Name	Organization	Telephone	Email

Submission (mark "X" where applicable): _ Preliminary Equivalent Sketch Plan _X_ Final Plan __ Site Development Plan



LOCATION MAP (B-4)
SCALE: 1"=600'

- **PROJECT TEAM (A-2)**

OWNER
WELSH PROPERTY, LLC &
4640 ILCHESTER ROAD, LLC
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
DREUWER@LDANDD.COM
443-367-0422

DEVELOPER
ELLICOTT CITY LAND HOLDING, INC.
5300 DORSEY HALL DR. STE 102
ELLICOTT CITY, MARYLAND 21042-7819
DREUWER@LDANDD.COM
443-367-0422

CIVIL ENGINEER
ROBERT H. VOGEL, P.E.
ROBERT H. VOGEL ENGINEERING INC
8407 MAIN STREET
ELLICOTT CITY, MARYLAND 21043
410-461-7666
RVOGEL@VOGELENG.COM

LAW FIRM
MEGAN L. REUWER, ESQUIRE, LEED AP
O'MALLEY, MILES, NYLEN & GILMORE, P.A.
11785 BELTSVILLE DRIVE, 10TH FLOOR
CALVERTON, MARYLAND 20705
301-572-7800
MREUWER@OMNG.COM
10387878

REGULATORY AND ENVIRONMENTAL CONSULTANT
KENNETH R. WALACE
McCARTHY AND ASSOCIATES, INC
14458 OLD MILL ROAD, SUITE 201
UPPER MARLBORO, MARYLAND 20772
301-627-7505

- **INNOVATIVE DESIGN (A-4)**

SEE REPORT FOR SUMMARY OF MODIFIED PUBLIC RIGHT OF WAY, WATER PERMEABLE PATHS AND WALKS, INFRASTRUCTURE ENERGY EFFICIENCY AND LANDSCAPING ORIENTATION SESSIONS

- **HISTORIC BUILDINGS (B-2)**

SEE REPORT FOR SUMMARY, INFORMATION TO BE PROVIDED WITH SITE DEVELOPMENT PLAN.

- **COMMUNITY RESOURCE (B-4)**

COMMUNITY RESOURCE	WALKING DISTANCE
CHURCH	100'
DAYCARE FACILITY	100'
ELEMENTARY SCHOOL	100'

- **PLANNED SERVICE AREA (C-2)**

PROJECT IS LOCATED WITHIN PLANNED SERVICE AREA

- **PEDESTRIAN SYSTEM PATHS (C-3a)**

SEE PES FOR LOCATION OF NATURAL SURFACE PATH
SEE REPORT FOR NARRATIVE

- **PEDESTRIAN SYSTEM CONNECTIONS (C-3b)**

A CONNECTION AT BEECHWOOD RD FROM THE PROPOSED NATURAL SURFACE PATH TO THE MAJOR NEIGHBORHOOD ACROSS THE STREET.

- **PEDESTRIAN SYSTEM AMENITIES (C-3c)**

SEATING AREAS PROVIDED ALONG NATURAL SURFACE TRAIL
INFORMATIONAL KIOSK RE: GREEN NEIGHBORHOOD

- **EXCEED MINIMUM OPEN SPACE REQUIREMENT (C-6)**

OPEN SPACE REQUIRED EXCEEDED BY 5% OVER REQUIRED

REQUIRED OPEN SPACE	PROVIDED OPEN SPACE	PERCENTAGE INCREASE
18.27 ac	20.41 ac	5.8 %

- **GREEN SPACES AND AMENITY AREA (C-7)**

PARCEL	PARCEL SIZE ACRES	ROAD FRONTAGE	AMENITY TYPE
Open Space Lot 68	0.15 ac	366 ft	Pavilion and Community Garden

SEE REPORT NARRATIVE FOR SPECIFIC AMENITIES WITHIN PARCELS

- **HABITAT MANAGEMENT PLAN (D-2)**

A HABITAT MANAGEMENT PLAN IS ATTACHED TO THE REPORT

- **MODERATE SLOPE PROTECTION (D-4)**

AREA EXISTING SLOPE (15%-24.9%)	AREA DISTURBED (15%-24.9%)	AREA PROTECTED (15%-24.9%)	% PROTECTED
351,687 SQFT	167,757 SQFT	183,930 SQFT	52%

- **GRADING AND SITE DISTURBANCE (D-5)**

GROSS AREA OF PROJECT	AREA OF EXISTING IMPERVIOUS	NET AREA OF PROJECT	AREA TO REMAIN UNDISTURBED	% UNDISTURBED	RATIO CUT/FILL	RETAINING WALL HGT
36.54 AC	0.28 AC	31.94 AC	20.36 AC	55.7%	1:1	0'

NOTE: 15,600 CY CUT; 15,600 CY FILL

- **EXCEED MINIMUM FC REQUIREMENTS (D-6)**

	ACRES	PERCENT
RETENTION BREAK EVEN POINT	9.40	
FOREST RETAINED ABOVE BREAK EVEN POINT	3.84	41%
AFFORESTATION THRESHOLD	5.48	

- **SAVE TREES ABOVE 12" MINIMUM CALIPER (D-7)**

NOT PURSING ANY POINTS UNDER THIS CREDIT

- **MINIMUM STREAM BUFFER REQUIREMENT (D-8A)**

MINIMUM BUFFER OF 75' WAS MET

- **EXCEED MINIMUM STREAM BUFFER (D-8b)**

TOTAL STREAM BUFFER WIDTH	WIDTH OF BUFFER EXCEEDING REQ	TOTAL LENGTH OF STREAM	LENGTH OF STREAM BUFFER OUTSIDE OTHER BUFFERS	% OF STREAM BUFFER OUTSIDE OTHER BUFFERS
75'	50' (total 125')	108'	108'	100%

- **LANDSCAPING (E-1)**

PLANTS REQUIRED

	SHADE TREES	EVERGREEN TREES	SHRUBS	TOTAL	GN % INCREASE
REQ. PLANTING BY LS MANUAL	184	41		225	
EXCESS PLANTS FOR GN CREDIT	92	21		113	50%
TOTAL	276	62		338	

PLANTS PROVIDED

	SHADE TREES	EVERGREEN TREES	EVERGREEN TREES (SUBSTITUTE)	OTHER TREES (SUBSTITUTE)	SHRUBS	SHRUBS (SUBSTITUTE)	TOTAL
NUMBER OF PLANTS PROVIDED TO MEET LS MANUAL	184	41					225
NUMBER OF PLANTS FOR GN CREDIT	92	21					113
TOTAL	276	62					338

- **NATIVE PLANTS (E-2)**

100% OF NATIVE PLANTS UTILIZED, SEE LANDSCAPE PLAN

- **NO INVASIVE PLANTS (E-3)**

NO INVASIVE PLANTS WILL BE USED

- **RAINWATER HARVESTING (F-1)**

SEE GREEN REPORT FOR SUMMARY OF RAINWATER HARVESTING

- **PERMEABLE WALKS(F-2)**

81% WALKS ON SITE ARE WATER PERMEABLE CONCRETE.

TYPE OF WATER PERMEABLE MATERIAL	AREA OF WALKWAY OR PATHWAY (SQFT)	% OF TOTAL WALK OR PATHWAY
PRVT WALKS	5,000 SQFT	100%
PUB WALKS	8,000 SQFT	73%

- **LOW IMPACT DEV. SWM TREATMENT (F-3B)**

WQv VOLUME Required MDE 2000 Manual	VOLUME STORED	% WQv VOLUME STORED
16,672 CUFT	ESDv = 13,753 CF Permeable = 16,380 CF Walks & Drives Permeable = 5326 CF Public Walks Rain Barrels = 4,952 CF Total = 40411 CF	242%

- **LIGHT POLLUTION REDUCTION (G-1)**

PROVIDE SHIELDED STREET LIGHTS.

- **INFRASTRUCTURE ENERGY EFFICIENCY (G-3)**

15% ENERGY REDUCTION PLUS PHOTO VOLTAIC GENERATED ENERGY FOR OVER 40% OF SITE INFRASTRUCTURE. SEE SHEET 6 FOR LIGHTING DETAIL.

- **ENVIRONMENTALLY PREFERABLE SITE PRODUCTS (H-1)**

60% OF SITE MATERIAL IS ENVIRONMENTALLY PREFERABLE

- **SITE CONSTRUCTION WASTE MANAGEMENT (H-3)**

75% OF WASTE DIVERTED

- **REGIONALLY PROVIDED MATERIALS (H-4)**

MORE THAN 20% OF THE TOTAL SITE MATERIAL IS GENERATED WITHIN 200 MILES OF SITE

- **HOA DOCUMENTS IDENTIFY GREEN SITE FEATURES (I-1)**

SEE REPORT FOR NARRATIVE

- **MAINTENANCE MANUAL FOR HOA/OWNER/MANAGER (I-2)**

SEE REPORT FOR NARRATIVE

- **PUBLIC AWARENESS OF SUSTAINABLE COMMUNITY (I-3)**

SEE REPORT FOR NARRATIVE

VICINITY MAP
SCALE = 1"=2000'
ADC MAP COORDINATES: 4936 G-1&2

NO.	REVISION	DATE
3	REVISE SIDEWALK FROM PERVIOUS PAVEMENT TO STANDARD ADD TO ILCHESTER ROAD	10-13-15

LEED ACCREDITED PROFESSIONAL

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINTS TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITE COMPLIANCE CHECKLIST.

SIGNATURE OF MEGAN L. REUWER, LEED ACCREDITED PROFESSIONAL 10387878 — DATE 9/27/10

TENTATIVELY APPROVED
HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
GREEN NEIGHBORHOOD PLAN FOR SITES

Susan A. Overstreet (Acting) 10/29/10
Chief, Resource Conservation Division DATE

FINAL ROAD CONSTRUCTION PLAN
LOCUST CHAPEL - SECTION I
A GREEN NEIGHBORHOOD

GREEN NEIGHBORHOOD PLAN

ZONED: R-20 AND R-ED
TAX MAP #31 GRID 4
1ST ELECTION DISTRICT

LOTS 1-64 & OPEN SPACE 65-69
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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER
ROBERT H. VOGEL, P.E. No.16193

DESIGN BY:	JAR
DRAWN BY:	HD
CHECKED BY:	RHV
DATE:	SEPTEMBER 2010
SCALE:	AS SHOWN
W.O. NO.:	04-151

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: 09-27-2012

SHEET 25 OF 25

F-10-102

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