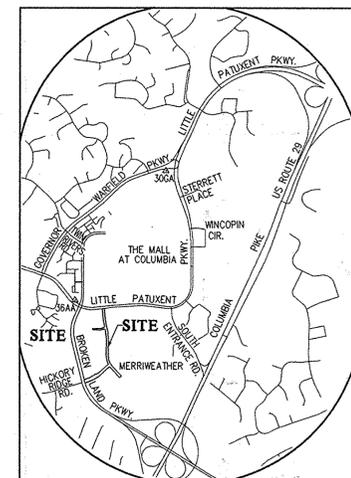


- GENERAL NOTES:**
- The property is zoned NT per the October 6, 2013 Comprehensive Zoning Plan.
  - Applicable DPZ File References: FDP-DC-Crescent-1, FDP-4-A-5, ECP 15-074, ECP 15-083, F 15-098, F 15-106, SDF 15-069, SDF 15-078, and FDP-DC-MSA.
  - All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications if applicable.
  - The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection Division at (410) 313-1860 at least five (5) working days prior to the start of work.
  - The contractor shall notify "Miss Utility" at 1-800-251-7111 at least 48 hours prior to any excavation work being done.
  - Street light placement and the type of fixture and poles shall be in accordance with the Howard County Design Manual, Volume III (2006), Section 5.5.A. A minimum of 20' shall be maintained between any street light and any tree.
  - Traffic Control Devices: a) The R-1 (STOP) signs and the street name signs (SNS) assemblies for this development must be installed before the base paving is completed. b) The traffic control device locations shown on the plans are approximate and must be field approved by Howard County traffic division (410-313-2430) prior to the installation of any traffic control devices. c) All traffic control devices and their locations shall be in accordance with the latest edition of the Maryland Manual on Uniform Traffic Control Devices (MUTCD). d) All sign posts used for traffic control signs installed in the County Right-of-Way shall be mounted on a 2" galvanized steel, perforated ("Oxick Pinch"), square tube post (1/4 gauge) inserted into a 2-1/2" galvanized steel, perforated square tube sleeve (2 gauge) - 3' long. The anchor shall not extend more than two "Oxick Pinch" holes above ground level. A galvanized steel pole cap shall be mounted on top of each post.
  - 15% compaction in fill areas shall meet AASHTO T-100 requirements.
  - This project is in conformance with the latest Howard County standards unless waivers have been approved.
  - Traffic Impact Study and Traffic Signal Warrant Analysis submitted and approved as a part of the Final Development Plan (FDP-DC-Crescent-1) by Kells and Associates.
  - Boundary information is from boundary surveys by Gutschick, Little, and Weber, P.A., dated November, 2011.
  - Horizontal and vertical datum is based on Howard County Control Stations: 306A, 36AA.
  - Aerial topography by McKenzie Snyder, Inc. on March, 2007 and Gutschick, Little and Weber on August, 2011.
  - Topography north and west of Broken Land Parkway provided by Howard County GIS.
  - No grading, removal of vegetative cover or trees or placement of new structures is permitted within wetlands, streams or their required buffers, and 100 year floodplain areas unless approved by the Department of Planning and Zoning as necessary disturbances or waivers have been approved.
  - Vehicle Ingress/Egress to Broken Land Parkway and Little Patuxent Parkway is restricted except as approved by Howard County Department of Planning and Zoning.
  - The Cemetery Inventory Maps do not show any cemeteries within the project limits.
  - The Scenic Roads Map does not indicate any scenic roads within or adjacent to the project limits.
  - Existing utilities are based on available Howard County records.
  - This property is within the Metropolitan District.
  - Water and Sewer are Public per Contract Nos. 24-492-D and 24-493-D and are within the Little Patuxent Sewerage Area.
  - The 100-year Flood plain limits shown on these plans were determined in a Floodplain study submitted as part of this Final Plan submission.
  - This subdivision is exempt from the requirements of Section 161202(b)(1)(iv) of the Howard County Code for Forest Conservation because the subject property is part of a Planned Unit Development which has preliminary development plan approval and 50% or more of the land is recorded and substantially developed before December 31, 1992.
  - This site is subject to the Final Development Plan recorded as plat numbers 23403 thru 23404, the Neighborhood Concept Plan (NCP) recorded as plat numbers 23341 thru 23402, the Neighborhood Specific Design Guidelines (NSDG) recorded as Liber 16305 Folio 415 and the Neighborhood Specific Implementation Plan (NSIP) recorded as Liber 16306 Folio 1.
  - For information on the locations of primary and secondary pedestrian routes and the bicycle circulation, see Chapter 3 of the Crescent Neighborhood Specific Design Guidelines. For information on the Street Framework changes, see Chapter 3 of the Crescent Neighborhood Specific Design Guidelines.
  - Stormwater management for this site is provided in accordance with Chapter 5 of the MDE Stormwater Management Design Manual, Volumes 1 and 2. Throughout the site, Micro Bio-Retention (M6), Submerged Gravel Wetlands (M2), PerVIOUS Pavement (A-2) and Filterstrips have been utilized. A Pe value of 1.45" was calculated for the site. All of the devices will be privately owned and maintained by the Commercial Owner's Association.
  - Water and sewer service to these parcels will be granted under the provisions of Section 18.122B of the Howard County Code.
  - Public water and sewer allocations will be granted at the time of issuance of building permit if capacity is available at that time.
  - A design narrative can be found on sheet 2 of this plan set.
  - Approval of this ECP does not constitute any approval of subsequent subdivision or site development plans. Further comments will be generated upon review of the applicable development plans. Further comments will be generated upon review of the applicable development plans in accordance with the Subdivision and Zoning Regulations. The applicant and consultant should expect additional and more detailed review comments including comments that may alter the overall site design as this project progresses through the plan review process.
  - A determination has been made by the Department of Planning and Zoning that the impacts to environmental features (including steep slopes, streams, wetlands, stream buffers and wetland buffers) for construction of public and private roads, utilities, or stormwater management as shown on this plan to be essential and necessary for the reasonable development of this property and the fulfillment of the Downtown Columbia Plan.
  - The following permits and tracking numbers have been assigned to this project by state and federal agencies: For the Maryland Department of the Environment: 14-NR-365/2014/01063 For the Army Corps of Engineers: GENAS-PP-RM-2014-01063-435
  - There are streams, stream buffers, wetlands, and wetland buffers present on the site.
  - See F 15-106 for stream re-alignment and restoration work and the sediment control measures necessary to perform the improvements.
  - Through the review and approval of F 15-098 and F 15-106 all waiver approvals and determinations for disturbance to environmental areas to be necessary have been obtained.

# ENVIRONMENTAL CONCEPT PLAN

## DOWNTOWN COLUMBIA

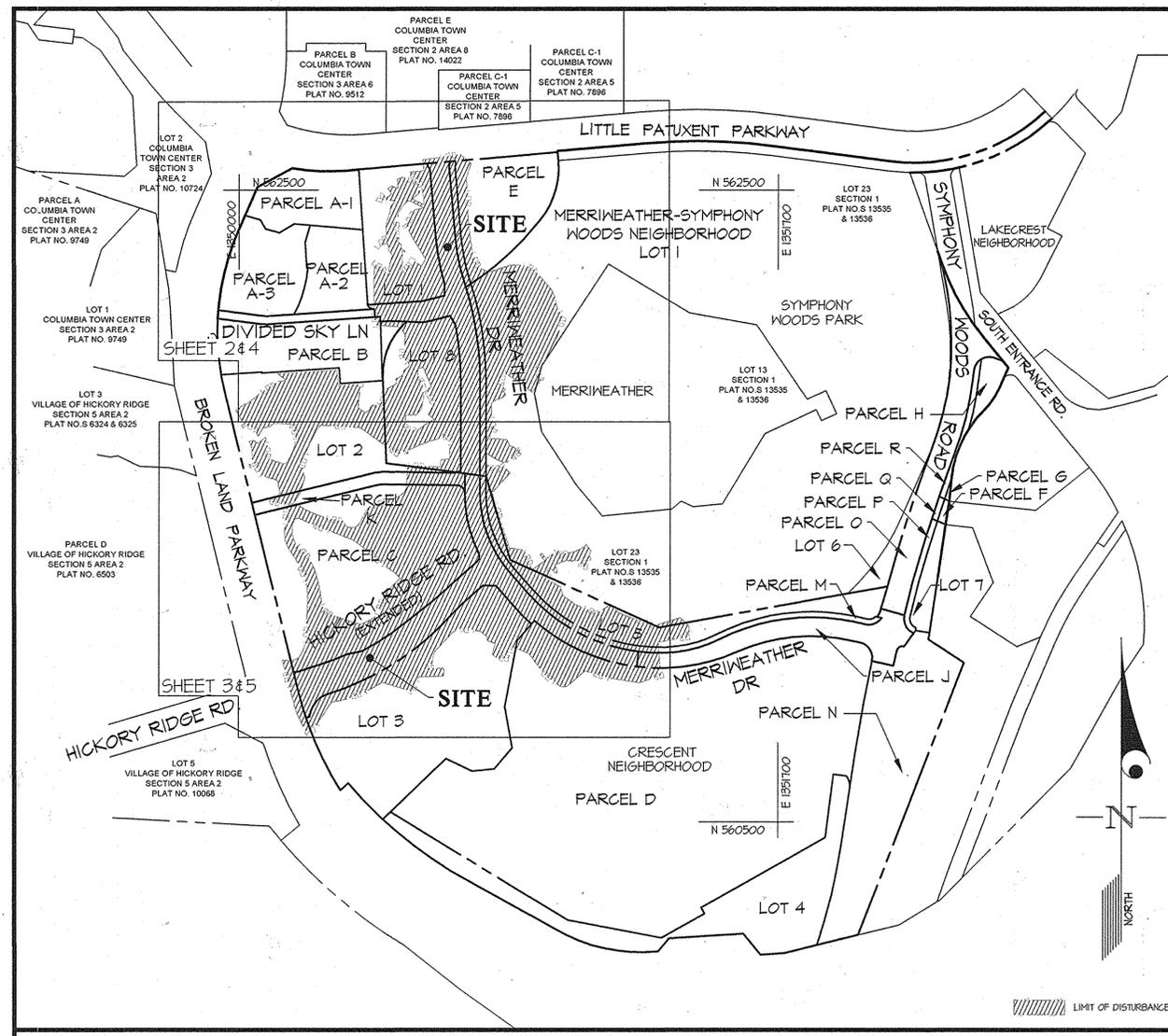
### CRESCENT NEIGHBORHOOD PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R, OPEN SPACE LOTS 1 THRU 8 AND MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD OPEN SPACE LOT 1 AND NON-BUILDABLE BULK PARCEL A



**VICINITY MAP**  
SCALE: 1" = 2,000'

ADC MAP COORDINATES: MAP 93, GRID A1 AND A2  
HOWARD COUNTY CONTROL STATIONS:

36AA	306A
NORTHING: 562,804.8531	NORTHING: 566,053.5419
EASTING: 1344,906.1701	EASTING: 1352,171.5307
ELEVATION: 354.151	ELEVATION: 334.278
(LATEST ADJ. NOV. 2008)	(LATEST ADJ. NOV. 2008)



**LEGEND**

366	EXISTING CONTOUR	WB-WB	25' WETLAND BUFFER
300	PROPOSED CONTOUR	SB-SB	50' STREAM / BANK BUFFER
---	EXISTING TREELINE (DOES NOT MEET CRITERIA FOR A FOREST)	---	STREAM BANK
---	LIMIT OF EXISTING FOREST	---	CENTERLINE OF OR "BOTTOM WIDTH OF" STREAM
---	LIMIT OF ULTIMATE FOREST	---	25' BRL
EX. 8" S	EXISTING SANITARY SEWER	---	PROPOSED BUILDING RESTRICTION LINE
EX. 8" M	PROPOSED SANITARY SEWER	---	DRAINAGE DIVIDE
EX. 8" W	EXISTING WATERLINE	---	SOIL TYPE BOUNDARY
EX. 8" D	PROPOSED WATERLINE	---	SOIL TYPE / SOIL GROUP
EX. 8" P	EXISTING FIRE HYDRANT	---	SLOPES 15% TO 25%
EX. 8" S.D.	EXISTING STORM DRAIN	---	SLOPES GREATER THAN 25%
EX. 8" P.D.	PROPOSED STORM DRAIN	---	EARTH DIKE / CLEAN WATER DIVERSION
---	LIMIT OF DISTURBANCE	---	SILT FENCE / SUPER SILT FENCE
---	EXISTING TREE	---	LIMIT OF DISTURBANCE
---	PROPOSED STREET TREE	---	SOIL BORING LOCATION
---	EXISTING POST	---	PROPERTY CORNER IDENTIFICATION
---	EXISTING POLE	---	STABILIZED CONSTRUCTION ENTRANCE
---	EXISTING FLAG	---	SEDIMENT TRAP
---	EXISTING MANHOLE	---	TEMPORARY GABION OUTLET STRUCTURE
---	EXISTING FIRE HYDRANT	---	TEMPORARY STONE OUTLET STRUCTURE
---	EXISTING SIGN TO BE RELOCATED	---	PERMEABLE PAVING
---	CONCRETE SIDEWALK	---	MICRO BIO-RETENTION FACILITY (M-6)
---	EXISTING PAVING	---	SUBMERGED GRAVEL WETLAND (M-2)
---	EXISTING CURB AND GUTTER	---	
---	EXISTING EDGE OF PAVEMENT	---	
---	PROPOSED CURB AND GUTTER	---	
---	100 YEAR FLOODPLAIN	---	
---	FLOODPLAIN CROSS SECTION	---	
---	LIMIT OF WETLAND	---	
---	WETLAND AREA	---	

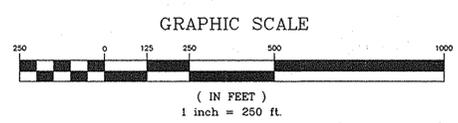
**SOIL TYPES**

Symbol	Description	Soil Type	K Factor
BaA	Baile Silt Loam, 0 to 3 percent slopes	D	0.32
GbB	Gladstone Loam, 3 to 8 percent slopes	B	0.20
GbC	Gladstone Loam, 8 to 15 percent slopes	B	0.20
GfB	Gladstone - Urban Land Complex, 0 to 8 percent slopes	D	0.20
GmB	Glennville - Silt Loam, 3 to 8 percent slopes	C	0.31
UaF	Udorthents, Highway, 0 to 65 percent slopes	D	---
MaC	Manor Loam, 0 to 15 percent slopes	B	0.24
Ha	Haltora Codorus - 0 to 3 percent slopes	D	0.31
McD	Manor Loam, 15 to 25 percent slopes	B	0.24

\*SOIL TYPES FROM HOWARD COUNTY SCD SOIL MAP #18.

**SITE ANALYSIS DATA SHEET**

AREA OF THE SITE	99.94 AC±
WETLANDS AND THEIR BUFFERS	1.10 AC±
FLOODPLAINS AND THEIR BUFFERS	5.13 AC±
FORESTS	12.51 AC±
STEEP SLOPES 15% AND GREATER	0.42 AC±
ERODIBLE SOILS (PROTECT AREA)	0 AC±
LIMIT OF DISTURBANCE AREA	21.80 AC±
PROPOSED SITE USES	0.04 AC±
GREEN OPEN AREA	0.04 AC±
PROPOSED IMPERVIOUS AREA	4.10 AC±



**PURPOSE NOTE**

THE LIMITS OF THIS ENVIRONMENTAL CONCEPT PLAN INCLUDES:

- THE CONSTRUCTION OF PORTIONS OF DIVIDED SKY LANE AND MERRIWEATHER DRIVE, THE CONSTRUCTION OF ALL OF HICKORY RIDGE ROAD, THE UTILITIES AND STORMWATER MANAGEMENT DEVICES ASSOCIATED WITH THE ROAD CONSTRUCTION.
- THE CONSTRUCTION NECESSARY FOR THE STREAM RESTORATION WORK.
- THE CONSTRUCTION OF A HANDICAP PARKING LOT IN THE AREA OF THE INTERSECTION OF DIVIDED SKY LANE AND MERRIWEATHER DRIVE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development: *W. S. 16*

Chief, Development Engineering Division: *5-11-16*

**GLWGUTSCHICK LITTLE & WEBER, P.A.**

CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS

3009 NATIONAL DRIVE - SUITE 250 - BURTOWNSVILLE OFFICE PARK  
BURTOWNSVILLE, MARYLAND 20868

TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

PREPARED FOR:

THE HOWARD HUGHES CORPORATION  
LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044  
ATTN: BOB JENKINS  
410-964-5443

**PROFESSIONAL CERTIFICATION**

I HEREBY CERTIFY THAT THESE PLANS 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. 14931  
EXPIRATION DATE: MAY 21, 2016



**COVER SHEET**

**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R, O.S. LOTS 1 THRU 8 AND MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1 AND NON-BUILDABLE BULK PARCEL A

ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND

**SHEET INDEX**

1 - COVER SHEET	SCALE	ZONING	G. L. W. FILE NO.
2 - ENVIRONMENTAL CONCEPT PLAN	AS SHOWN	NT	11071
3 - ENVIRONMENTAL CONCEPT PLAN	DATE	TAX MAP - GRID	SHEET
4 - SEDIMENT CONTROL - DRAINAGE AREA MAP	MAR., 2016	36 - 01	1 OF 5
5 - SEDIMENT CONTROL - DRAINAGE AREA MAP			

L:\CADD\DRAWINGS\1071\PLANS BY GUTSCHICK\11071\_01\_ECP\_CS.dwg PLOTTED 3/21/2016 9:24 AM LAST SAVER: 3/21/2016 9:07 AM PLOTTED BY: Doug Vande Brik

NARRATIVE

INTRODUCTION

THIS REPORT SUMMARIZES THE STORMWATER MANAGEMENT DESIGN FOR THE DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD, LIMITED TO PARCELS B THROUGH H, NON-BUILDABLE BULK PARCELS J THRU R, O.S. LOTS 1 THRU 8 AND MERRIWEATHER SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1 AND NON-BUILDABLE BULK PARCEL A. IT INCLUDES STORMWATER MANAGEMENT PRACTICES, JUSTIFIES WHY THOSE PRACTICES ARE USED, AND THE COMPUTATIONS THAT SUPPORT THEM. THE REPORT REVIEWS EXISTING AND PROPOSED SITE CONDITIONS, WHILE INDICATING ANY IMPACTS OR EFFECTS THAT THE LATTER MAY HAVE ON THE FORMER, OR HOW THOSE POSSIBLE IMPACTS ARE BEING CONTROLLED.

SITE DESCRIPTION

CRESCENT IS LOCATED IN THE FIFTH ELECTION DISTRICT OF HOWARD COUNTY. IT IS BOUNDED BY LITTLE PATUXENT PARKWAY TO THE NORTH, SOUTH ENTRANCE ROAD TO THE EAST, BROKEN LAND PARKWAY TO THE WEST, AND U.S. ROUTE 24 TO THE SOUTH.

THE ZONING FOR THIS PROPERTY IS NT AND THE LIMIT OF THIS PHASE IS APPROXIMATELY 21.4 ACRES. ACCESS TO THE SITE WILL BE FROM LITTLE PATUXENT PARKWAY AND BROKEN LAND PARKWAY. TWO ENTRANCES ARE BEING PROPOSED, AS WELL AS A CONTINUATION OF A ROAD FROM A PREVIOUS PHASE. THE FIRST ENTRANCE IS APPROXIMATELY 600' EAST FROM THE INTERSECTION OF LITTLE PATUXENT PARKWAY AND BROKEN LAND PARKWAY. THE SECOND ENTRANCE IS APPROXIMATELY 600' SOUTH OF THE INTERSECTION OF LITTLE PATUXENT PARKWAY AND BROKEN LAND PARKWAY. THIS PHASE ALSO COMPLETES DIVIDED SKY LANE APPROVED UNDER ECP-15-074, WHICH INTERSECTS WITH BROKEN LAND PARKWAY APPROXIMATELY 600' SOUTH OF ITS INTERSECTION WITH LITTLE PATUXENT PARKWAY.

THE SITE IS HOODED IN THE AREAS OF CONCENTRATED FLOWS, AND MEADOW IN THE AREAS OF HIGHER ELEVATION. IT CURRENTLY CONTAINS PAVED DRIVEWAYS AND IMPAVED PARKING LOTS, RESULTING IN A LOW PERCENT IMPERVIOUSNESS. THE PROPOSED SITE WILL HAVE A HIGHER PERCENT IMPERVIOUSNESS, CONSISTING OF A LIMIT OF DISTURBANCE ESSENTIALLY ENCOMPASSING THE PROPOSED ROADWAY AND STREAM RESTORATION. THE EXISTING TOPOGRAPHY ON THE SITE IS MODERATELY SLOPED DRAINING PREDOMINATELY FROM THE NORTHWEST CORNER OF THE SITE TO THE SOUTHEAST. THE SITE DRAINS TO SEVERAL AREAS OF CONCENTRATED FLOWS, MAKING UP THE THREE MAJOR TRIBUTARIES ANALYZED IN A FLOODPLAIN STUDY. THE COMPUTATIONS FOR THE FLOODPLAIN STUDY HAVE BEEN PROVIDED IN A SEPARATE REPORT. THESE AREAS EVENTUALLY DRAIN TO THE LITTLE PATUXENT RIVER. THE SITE LIES WITHIN THE LITTLE PATUXENT WATERSHED. THE LITTLE PATUXENT RIVER IS A TYPE IV-P STREAM.

IN ADDITION TO THE FLOODPLAIN, THE SITE CONTAINS STEEP SLOPES, WETLANDS, AND STREAMS. SOME OF THESE WILL BE IMPACTED AS PART OF THIS DEVELOPMENT. ANY DISTURBANCE TO THESE AREAS WILL NEED TO BE DETERMINED AS NECESSARY OR ESSENTIAL BY THE DEPARTMENT OF PLANNING AND ZONING IN REVIEW OF THE FINAL PLAN.

STORM DRAIN

STORM DRAIN INLETS ARE USED TO COLLECT RUNOFF FROM THE ROAD AND LOT DRAINAGE. WHERE POSSIBLE, THE STORM DRAIN WILL TAKE THE RUNOFF TO A STORMWATER MANAGEMENT FACILITY, WHERE IT WILL BE FILTERED BEFORE INFILTRATING INTO THE GROUND OR OUTFALLING TO A STREAM. ANY EROSION EFFECTS THAT COULD DEVELOP AT THESE OUTFALLS ARE MITIGATED BY RIP RAP. THIS WILL REDUCE THE FLOW RATE OF THE WATER EXITING THE STORM DRAIN BEFORE ENTERING THE STREAM. ALL DRAINAGE IS CONTROLLED IN SUCH A WAY THAT NO DRAINAGE EASEMENTS ARE REQUIRED.

THE 'C' FACTOR FOR THE STORM DRAIN DRAINAGE AREAS WAS ESTABLISHED WITH THE ASSUMPTION OF A SITE WITH 98% IMPERVIOUSNESS. THE ROAD RIGHT OF WAYS ARE PRIMARILY IMPERVIOUS, WITH THE GRASS BETWEEN THE SIDEWALK AND ROAD BEING PERVIOUS MATERIAL. DUE TO NOT KNOWING THE LAYOUT OF THE FUTURE DEVELOPMENT OF THE SURROUNDING PARCELS, THE STORM DRAIN STUBS TO THESE PARCELS WERE DESIGNED WITH THE CONSERVATIVE ASSUMPTION THAT THOSE SITES WOULD BE MOSTLY (98%) IMPERVIOUS.

WE BELIEVE THAT THE MANNER IN WHICH WE WILL OUTFALL THE RUNOFF, ALONG WITH THE SEDIMENT CONTROL MEASURES TAKEN DURING CONSTRUCTION, THE NATURAL VEGETATION AND ECO-SYSTEM THAT EXISTS TODAY WILL NOT BE ADVERSELY IMPACTED AND WILL CONTINUE TO THRIVE. ALSO, BECAUSE THE STORM DRAIN SYSTEM OUTFALLS WITHIN THE SITE, IT DOES NOT AFFECT ANY EXISTING STORM DRAIN UTILITIES.

WATER AND SEWER

PROPOSED STORMWATER MANAGEMENT FACILITIES HAVE BEEN LOCATED IN SUCH A WAY SO THAT SEWER OUTFALLS AND WATER MAINS WILL NOT INTERFERE. THIS ALLOWS FOR BOTH THE INITIAL CONSTRUCTION AND FUTURE MAINTENANCE OF THE PUBLIC SYSTEMS.

SEDIMENT CONTROL

SEDIMENT CONTROL FOR THE SITE WILL CONSIST OF PERIMETER EARTH DIKES TO DIRECT THE RUNOFF TO SEDIMENT TRAPS, STONE OUTLET STRUCTURES, AND GABION OUTLET STRUCTURES. SILT FENCE OR SUPER SILT FENCE WILL BE UTILIZED IN AREAS THAT ARE CLOSE IN PROXIMITY AND THE DRAINAGE AREA TO THE DEVICE IS APPROPRIATE. THE LOCATION OF PERMANENT STORMWATER MANAGEMENT WAS TAKEN INTO CONSIDERATION DURING THE DESIGN OF SEDIMENT CONTROL. THE SITE DOES NOT BALANCE WITHIN ITSELF, THEREFORE, AN OFFSITE AREA FOR BORROW MATERIAL WILL BE REQUIRED. THIS AREA WILL BE DETERMINED AT A LATER DATE AND WILL HAVE AN APPROVED SEDIMENT CONTROL PLAN ASSOCIATED WITH IT.

STORMWATER MANAGEMENT

STORMWATER MANAGEMENT FOR THIS SITE WILL BE PROVIDED IN ACCORDANCE WITH CHAPTER 5 OF THE RECENTLY REVISED MDE STORMWATER MANAGEMENT DESIGN MANUAL. BASED ON TABLE 5.3, THIS SITE HAS A TARGET PE OF 145'. THE METHODOLOGY APPLIED IN OUR DESIGN AND THE FACILITIES BEING USED TO SATISFY OUR ESD VOLUMES FOLLOW THE HIERARCHY OF THE DESIGN MANUAL GUIDELINES AS THE PREFERRED MEANS OF PROVIDING ESD TO THE BMP. IN ORDER TO FULFILL THE STORMWATER MANAGEMENT REQUIREMENTS, A COMBINATION OF PERVIOUS PAVEMENT, MICRO-BIORETENTION FACILITIES, FILTERTRAS, AND A SUBMERGED GRAVEL WETLAND WILL BE USED.

DUE TO THE LIMIT OF DISTURBANCE CONSISTING PRIMARILY OF THE ROAD RIGHT OF WAY, WHICH HAS VERY LITTLE PERVIOUSNESS, THE STORMWATER MANAGEMENT WAS DESIGNED CONSIDERING THE SITE AS 98% IMPERVIOUS. THE EXISTING SITE WITHIN THE LIMIT OF DISTURBANCE CONSISTED OF 5% IMPERVIOUS AREA.

PERVIOUS PAVEMENT WILL BE USED IN THE AREA OF THE PROPOSED PARKING LOT, EAST OF MERRIWEATHER DRIVE AND SOUTH OF PARCEL 'E'. THIS WILL INCLUDE THE PATHWAY IN THE AREA, AS WELL AS DESIGNATED PARKING SPACES, WHICH WILL TREAT THE WATER DRAINING ON TO THEM. THE PERVIOUS PAVING WILL HAVE 12" OF STONE SUBBASE FOR BOTH THE PARKING LOT AND PATHWAYS, AS WELL AS AN ADDITIONAL 145" OF STONE FOR THE PARKING LOT. OWNERSHIP AND MAINTENANCE IN THIS AREA WILL BE PRIVATE.

PERVIOUS PAVEMENT WILL ALSO BE USED ALONG THE PROPOSED MULTI-USE PATHWAY THAT RUNS ALONGSIDE THE ROADWAY'S PROPOSED THROUGHOUT THESE PLANS. NO ESDV CREDIT HAS BEEN TAKEN FOR THE PERVIOUS PAVEMENT IN THE MULTI-USE PATHWAY.

TREATMENT FOR STORMWATER WITHIN THE ROADWAY WILL BE FULFILLED BY MICRO-BIORETENTION FACILITIES, FILTERTRAS, AND A SUBMERGED GRAVEL WETLAND, LOCATED ADJACENT TO THE ROAD. WATER WILL FLOW DIRECTLY INTO OR BE PIPED TO THESE FACILITIES THROUGH THE STORM DRAIN SYSTEM. ESD STORAGE IN MICRO-BIORETENTION FACILITIES IS PROVIDED IN THE 12" OF FILLING ABOVE THE FACILITY. ALL OF THE MICRO-BIORETENTION FACILITIES WILL HAVE AN INLET DRAIN SYSTEM AND AN OVERTFLOW INLET TO PASS LARGE STONES. IF THE FACILITY CAN PROVIDE THE FULL PE AND IS ADJACENT TO AN OPEN SPACE LOT DRAINING AWAY FROM THE SITE, THE FACILITY WILL OUTFALL TO THE OPEN SPACE LOT. 25% WATER QUALITY STORAGE SHALL BE PROVIDED IN THE SEDIMENTATION CHAMBER OF THE FILTERTRA UNITS. THEY HAVE ALL BEEN DESIGNED TO TREAT 1" OF RAINFALL OVER THEIR RESPECTIVE DRAINAGE AREAS WITH ANY ADDITIONAL WATER BYPASSING THE DEVICES AND FLOWING INTO STORM DRAIN INLETS. ESD STORAGE IN THE SUBMERGED GRAVEL WETLAND FACILITY IS PROVIDED IN THE 12" OF FILLING ABOVE THE FACILITY. A FOREBAY IS INCLUDED TO PROVIDE THE NECESSARY PRE-TREATMENT PRIOR TO WATER ENTERING THE FACILITY. THE PLACEMENT OF THESE FACILITIES WERE CONSIDERED BY FACTORS SUCH AS EXISTING TOPOGRAPHY, PROXIMITY TO ADJACENT LOTS, AND NEED TO PRESERVE EXISTING FOREST, WHICH CONSTITUTED FEWER AND LARGER FACILITIES THAN PREFERRED. EACH OF THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED.

THE ENVIRONMENTAL SITE DESIGN PRESENTED IN THIS REPORT UTILIZES VARIOUS TYPES OF FACILITIES TO CAPTURE RUNOFF AND RECHARGE THE WATERSHED BY INFILTRATING IT BACK INTO THE GROUNDWATER THROUGH LOCATIONS DISTRIBUTED ACROSS THE SITE. ALTHOUGH IT MAY BE PREFERRED TO HAVE MORE SMALL STORMWATER MANAGEMENT FACILITIES DISPERSED ACROSS THE SITE, WE BELIEVE THAT THE PROPOSED FACILITIES ARE SPREAD OUT ENOUGH THAT THEY WILL RECHARGE THE GROUNDWATER MUCH BETTER THAN THE LESS EFFECTIVE FORMER METHOD OF RELYING ON ONE OR TWO LOCATIONS. MANY TIMES LOWER IN THE SITE'S WATERSHED. THE PROPOSED APPROACH REDUCES THE FOOTPRINT REQUIRED FOR THE ABOVE GROUND FACILITY NEEDED TO PROVIDE THE WATER QUALITY, THEREBY PRESERVING THE EXISTING VEGETATION.

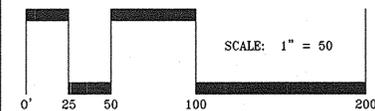
CONCLUSION

WE BELIEVE THAT BY PROVIDING THE NUMBER OF MICRO-BIORETENTION FACILITIES AS WE HAVE, ALONG WITH THEIR LOCATION AND THE OTHER DEVICES BEING PROPOSED, WE HAVE CREATED A STRATEGY THAT ALLOWS FOR THE PROPOSED DEVELOPMENT WITHOUT ADVERSELY AFFECTING THE RECEIVING WATERS AND OTHER ENVIRONMENTALLY SENSITIVE AREAS.

THE DESIGN FOR BOTH STORMWATER MANAGEMENT AND SEDIMENT CONTROL, PRESENTED IN THIS REPORT AND ON THE FINAL PLAN DOES NOT ADVERSELY IMPACT THE ADJACENT PROPERTIES BOTH DURING AND AFTER CONSTRUCTION.

THE DESIGN ALSO DOES NOT ADVERSELY IMPACT THE EXISTING UTILITIES IN THE AREA. THE PROPOSED WATER AND SEWER ARE CONSISTENT WITH THE MASTER PLAN.

THIS FINAL PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE LATEST HOWARD COUNTY STANDARDS. THE DESIGN PRESENTED WILL SERVE TO UPHOLD THE INTEGRITY OF THE WATERSHED.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
Karl DeLuna, Chief, Division of Land Development, Date: 5-5-16  
Paul Edwards, Chief, Development Engineering Division, Date: 5-11-16

GLWGUTSCHICK LITTLE & WEBER, P.A.  
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
3909 NATIONAL DRIVE - SUITE 250 - BURTNSVILLE OFFICE PARK  
BURTNSVILLE, MARYLAND 20886  
TEL: 301-421-4024 BAL: 410-989-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DES. MJT DRN. WJS CHK. MJT DATE REVISION BY APPR.



MATCH LINE, SEE SHEET 3

PREPARED FOR:  
THE HOWARD HUGHES CORPORATION  
LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044  
ATTN: BOB JENKINS  
410-964-5443

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS 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. 18931  
EXPIRATION DATE: MAY 21, 2018



ENVIRONMENTAL CONCEPT PLAN

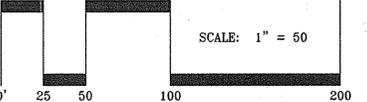
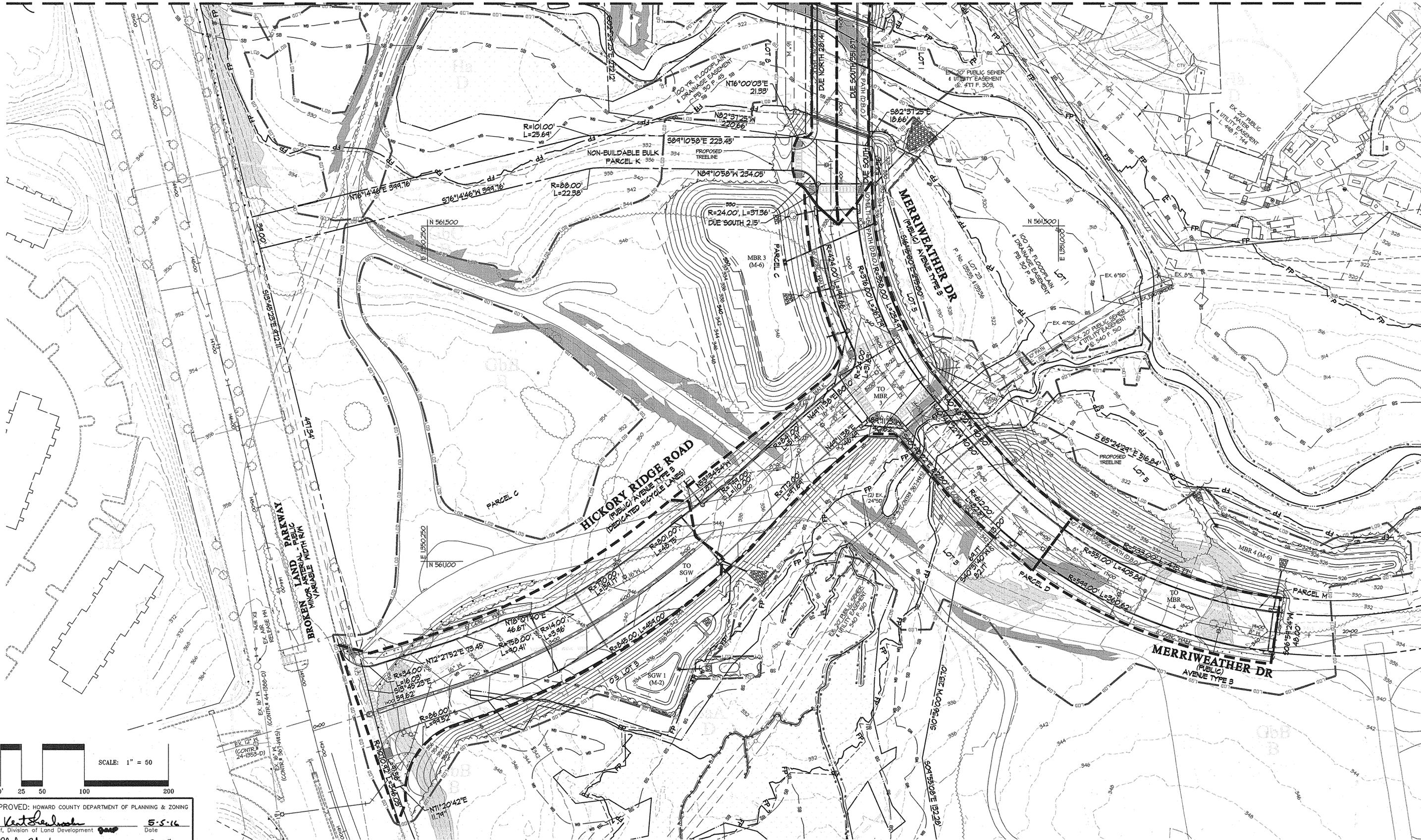
**DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD**  
PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R, O.S. LOTS 1 THRU 8 AND MERRIWEATHER SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1 AND NON-BUILDABLE BULK PARCEL A

SCALE	ZONING	G. L. W. FILE NO.
1"=50'	NT	11071
DATE	TAX MAP - GRID	SHEET
MAR., 2016	36 - 01	2 OF 5

ELECTION DISTRICT No. 5

HOWARD COUNTY, MARYLAND

L:\CADD\DRAWINGS\1074\PLANS BY SURVEYOR\1107\_02\_01\_ECP\_EC\_ANS.dwg PLOTTED 2/16/2016 6:52 PM, LAST SAVED 3/14/2016 11:28 AM, PLOTTED BY: Doug Varma BJK



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Kurt Schaefer*  
 Chief, Division of Land Development  
 Date: 5-5-16

*Chad Edwards*  
 Chief, Development Engineering Division  
 Date: 5-11-16

**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20886  
 TEL: 301-421-4024 BAL: 410-800-1820 DC/VA: 301-889-2524 FAX: 301-421-4186

DES. MJT	DRN. WSD	CHK. MJT	DATE	REVISION	BY	APPR.
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PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044  
 ATTN: BOB JENKINS  
 410-964-5443

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS  
 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. 19391  
 EXPIRATION DATE: MAY 31, 2018



ENVIRONMENTAL CONCEPT PLAN  
**DOWNTOWN COLUMBIA  
 CRESCENT NEIGHBORHOOD  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 OS, LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD OS, LOT 1  
 AND NON-BUILDABLE BULK PARCEL A**  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

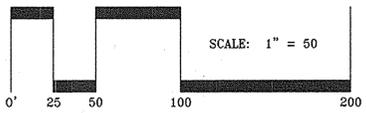
SCALE 1"=50'	ZONING NT	G. L. W. FILE No. 11071
DATE MAR., 2016	TAX MAP - GRID 36 - 01	SHEET 3 OF 5

L:\CADD\DRAWINGS\1071\PLANS BY QJ\1071\_02\_01\_ECP\_PLANS.dwg  
 PLOTTED: 3/16/2016 6:54 PM, LAST SAVED: 3/17/2016 11:28 AM, PLOTTED BY: Doug Vande Rye



ESD	ESD TYPE	DRAINAGE AREA (AC.)	IMPERVIOUS AREA (AC.)	PERVIOUS AREA (AC.)	P <sub>6</sub> PROVIDED (IN.)	ESDV PROVIDED (CF)
MBR 2	M-6	0.60	0.67	0.01	2.60	6,075
MBR 3	M-6	0.80	0.80	0.00	2.60	11,231
MBR 4	M-6	0.91	0.90	0.01	2.52	4,925
MBR 6	M-6	0.98	0.28	0.65	2.05	2,195
SGW 1	M-2	1.26	1.25	0.01	2.30	4,933
PERMEABLE PAVEMENTS	A-2	0.21	0.21	0.00	1.95	1,994
FILTERRA #1	N/A	0.12	0.12	0.00	1.00	401
FILTERRA #2	N/A	0.12	0.12	0.00	1.00	424
FILTERRA #3	N/A	0.35	0.35	0.00	1.00	1,200
FILTERRA #4	N/A	0.28	0.21	0.01	1.00	940
FILTERRA #5	N/A	0.18	0.13	0.00	1.00	491
FILTERRA #6	N/A	0.24	0.24	0.00	1.00	830
FILTERRA #7	N/A	0.25	0.25	0.00	1.00	864
					TOTAL	41,296

P<sub>6</sub> REQUIRED: 1.45"  
 TOTAL ESDV REQUIRED: 36,070 CF  
 \*\*ESDV PROVIDED UNDER PREVIOUS PLANS: 5,442 CF  
 TOTAL ESDV PROVIDED: 46,738 CF  
 \*\*STORMWATER MANAGEMENT PROVIDED FOR DIVIDED SKY LANE BETWEEN PARCELS 'A' AND 'B' UNDER ECP-15-014 AND F-15-048 WERE DESIGNED TO CONTRIBUTE TO THE TARGET ESDV REQUIRED FOR THE SITE.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Kurt Salomon* 5-5-16  
 Chief, Division of Land Development Date  
*Phil Clark* 5-11-16  
 Chief, Development Engineering Division Date

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
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 TEL: 301-421-4024 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

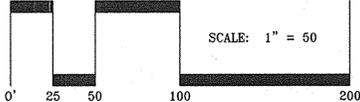
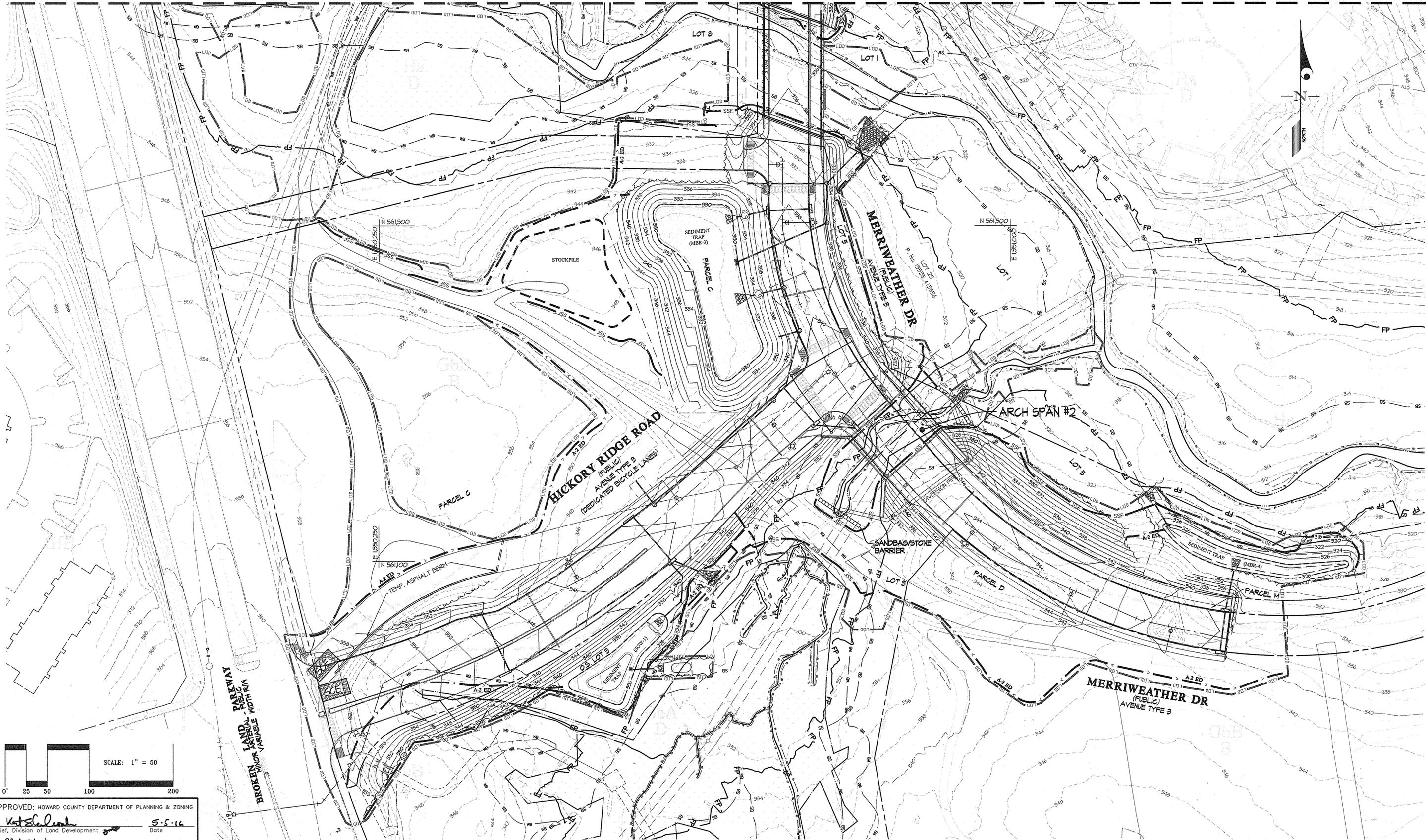
PREPARED FOR:  
 THE HOWARD HUGHES CORPORATION  
 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044  
 ATTN: BOB JENKINS  
 410-964-5443

**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE PLANS 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. 14931  
 EXPIRATION DATE: MAY 31, 2018

**SEDIMENT CONTROL - DRAINAGE AREA MAP**  
**DOWNTOWN COLUMBIA**  
**CRESCENT NEIGHBORHOOD**  
 PARCELS B THRU H, NON-BUILDABLE BULK PARCELS J THRU R,  
 O.S. LOTS 1 THRU 8 AND  
 MERRIWEATHER-SYMPHONY WOODS NEIGHBORHOOD O.S. LOT 1  
 AND NON-BUILDABLE BULK PARCEL A  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	NT	11071
DATE	TAX MAP - GRID	SHEET
MAR., 2016	36 - 01	4 OF 5

L:\CADD\WORKING\15071\PLANS BY CLIENT\15071\_Plan\_04\_06\_ECP\_S04.dwg  
 PLOTTED 3/16/2016 7:00 PM, LAST SAVED 3/14/2016 11:26 AM, PLOTTED BY: Doug Vande BAK



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Kate Schell*  
 Chief, Division of Land Development 5-5-16  
 Date  
*Chad Edwards*  
 Chief, Development Engineering Division 5-11-16  
 Date

**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
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DES. MJT	DRN. Wsj	CHK. MJT
DATE	REVISION	BY APPR.

PREPARED FOR:  
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 HOWARD COUNTY, MARYLAND

SCALE 1"=50'	ZONING NT	G. L. W. FILE No. 11071
DATE MAR., 2016	TAX MAP - GRID 36 - 01	SHEET 5 OF 5

L:\CADD\PROJECTS\1071\PLANS BY QW\1071\_Plan\_04\_05\_12\_15.dwg PLOTTED 3/19/2016 10:28 AM, PLOTTED BY: Doug Vanden BAK