

**LEGEND**

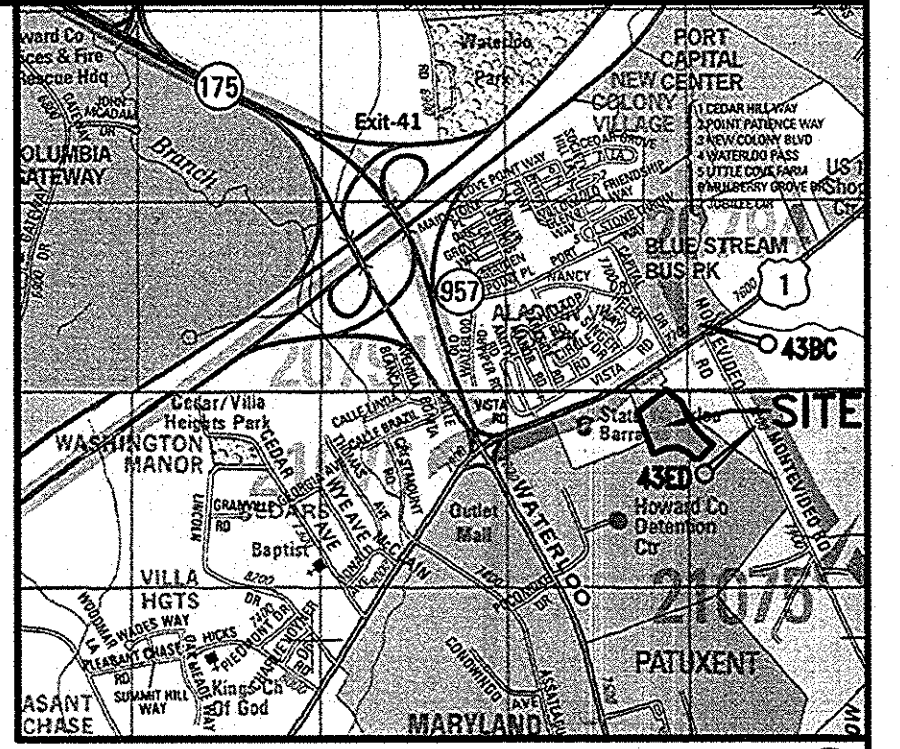
**EXISTING**

- Boundary
- Setback Lines
- Soil Type
- Soils Lines
- Contours
- Tree Lines
- Buildings
- Road Edge

**Well & 100' circle**

**Ex. Specimen Tree**

**Specimen Tree Removed**



**Vicinity Map - Scale: 1" = 2000'**

ADC The Map People - Permitted Use # 20612205  
 Map 5054 Grid E-3  
 BENCHMARK DESCRIPTIONS

The courses and coordinates shown herein are based on the following Howard County monuments:

Point	Northing	Easting	Elevation
43BC	N 549592.106	E 1375466.623	214.070
43ED	N 548525.032	E 1376022.979	210.160

Waiver Approved WP-14-048 on November 14, 2013

The Director of the Department of Planning and Zoning considered your request for waiver(s) from the Howard County Subdivision and Land Development Regulations.

As of the date of this letter, the Planning Director approved your request for waiver to Section 16.1205(a)(7) requiring the retention of specimen trees having a diameter of 30" or more so as to remove three specimen trees on the proposed development, subject to the following condition:

- Approval is given for removal of three specimen trees identified on the waiver petition exhibit as Specimen Tree D/33" White Oak; Specimen Tree E/30" White Oak and Specimen Tree F/30" American Sycamore. The developer shall be required to fulfill requirements of the Landscape Manual and Forest Conservation obligations under the site development plan to be submitted for the proposed development which will serve to mitigate removal of the specimen trees.

**WETLAND DELINEATION NOTES**

- Wetland delineation field work was performed by Eco-Science Professionals, Inc. on July 26, 2012.

**Wetland Descriptions**

WETLAND SYSTEM	COWARDIN SYMBOL	DOMINANT VEGETATION
A	PEM1C	Scirpus atrovirens, Lactuca virginica, Glycyca striata, Arthrocnemum hispidum
B	PF06C	Nyssa sylvatica, Edella virens

**Specimen Trees**

Key	Species Name	Size	Cond.
D	White oak	33"	F. good
E	White oak	30"	Good
F	Am. sycamore	30"	F. good

**SHEET INDEX**

SHEET	DESCRIPTION
1	Existing Conditions
2	Proposed Conditions
3	Preliminary Sediment & Erosion Control Plan
4	SWM Drainage Area Maps

**Narrative**

The Waterloo Fire Station site is located approximately 500 feet east of US Route 1 on Port Capital Road Extended (Montevideo Road). The property is currently zoned M-2 and consists of approximately 6.37 acres. The site is made up of two parcels which are being acquired or leased by the county from the state. The soil types are hydrologic group C, with a small portion of type D soils located at the southern portion of the site in the wetlands. The site is currently wooded and drains in two directions; one towards US Route 1 and the other to the south. Both these areas drain into the Deep Run Watershed. Deep Run is a tributary to the Patuxent River and is a USE 1 water. These natural drainage patterns are being maintained to maximum extent practical by directing runoff to the existing swales to the south and to the proposed storm drainage system to the north. Since we are using structural practices as allowed in the approved design manual waiver and pervious paving, green roofs, and disconnections are not practical in reducing impervious area. A reduction in impervious area is not practical. There are no floodplains or regulated steep slopes located on the site. The existing natural resources including wetlands and forest are being maintained to the maximum extent practical. There are existing wetlands and buffers along the southern boundary of the site which will not be disturbed by the proposed construction. There are three specimen trees located on the site which will be removed due to the construction of the station. A waiver (WP 14-048) has been requested and approved for the removal of the specimen trees. The areas of forest outside the LOD will be maintained. Groundwater recharge, water quality, and stream channel protection volume will be provided by a combination of bio retention facilities. Quantity management for the 10 and 100 year storm is also required for this site located in the Deep Run watershed and will be provided in the facilities. Due to the fact that quantity management also has to be provided and that there are large areas of paving required for the fire station, micro practices are not feasible for the site; therefore, structural stormwater facilities will be used to provide the ESDV volume. Due to the c soils onsite, the large cuts and fills, and heavy vehicles, infiltration devices and pervious concrete paving are not practical. Due to the site configuration and grading, rooftop and non rooftop disconnections, as well as sheet flow to buffers are not practical. A green roof is also not practical due to the proposed slopes on the roof and the presence of mechanical equipment on the roof.

Sediment and Erosion control will be provided by using sediment traps, super silt fence, and silt fence located around the perimeter of the site. The trap to the south is located in the area of the proposed stormwater management facility while the trap to the north is located between the proposed parking lot and the proposed stormwater management facility for the capital project for the road. These facilities have been located to provide perimeter control and to allow for the construction of the stormwater management facilities while the measures are in place with the exception of the bio retention facility located in the area of the trap to the south. Permission to grade on the adjacent county property to install sediment and erosion control measures will be requested for the trap draining to US Route 1 and will be provided with the SDP Submission.

For determining the environmental site design volume a target curve number of 70 based on a wooded site for type C soils will be used for the two design points. Pretreatment for the bio retention facilities will be provided by overland flow, a mulch bed, and a gravel diaphragm. A forebay will provide pretreatment for facility #1 because of the concentrated flow at the storm drainage outfalls. Based on the above it is our opinion that these are the best management practices for the site and meet the requirements for environmental site design and 10 year and 100 year management.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

*Chad Edwards* 6/3/14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Veronica Salas* 6/16/14  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Howard County, Maryland (MAP #27)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI	K Factor Rock Free	K Factor Whole Soil
Fa	Fallsington sandy loam 0 to 2 percent slopes	0.15	2.2%	.02	.02
*RuB	Russet and Beltsville soils, 2 to 5 percent slopes	6.19	90.4%	.37	.37
*RuC	Russet and Beltsville soils, 5 to 10 percent slopes	0.51	7.4%	.28	.24

\* Highly Erodible

**Tesseract**  
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 Towson, Maryland, 21286 P. 410.321.7600 F. 410.321.7601

**Environmental Concept Plan**  
**Waterloo Fire Station**  
**Existing Conditions**  
 Howard County, Maryland

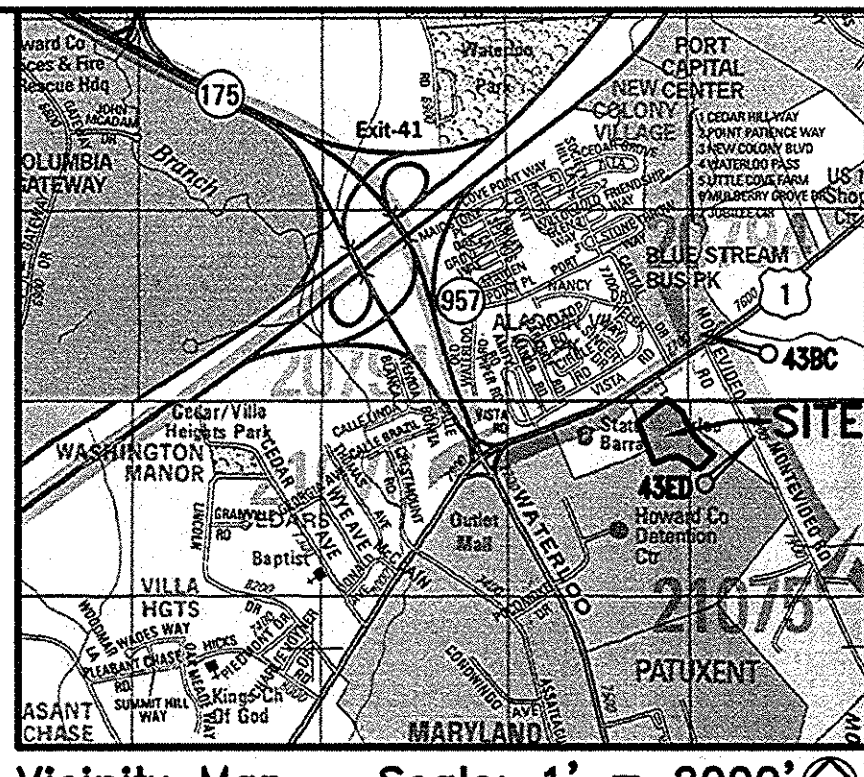
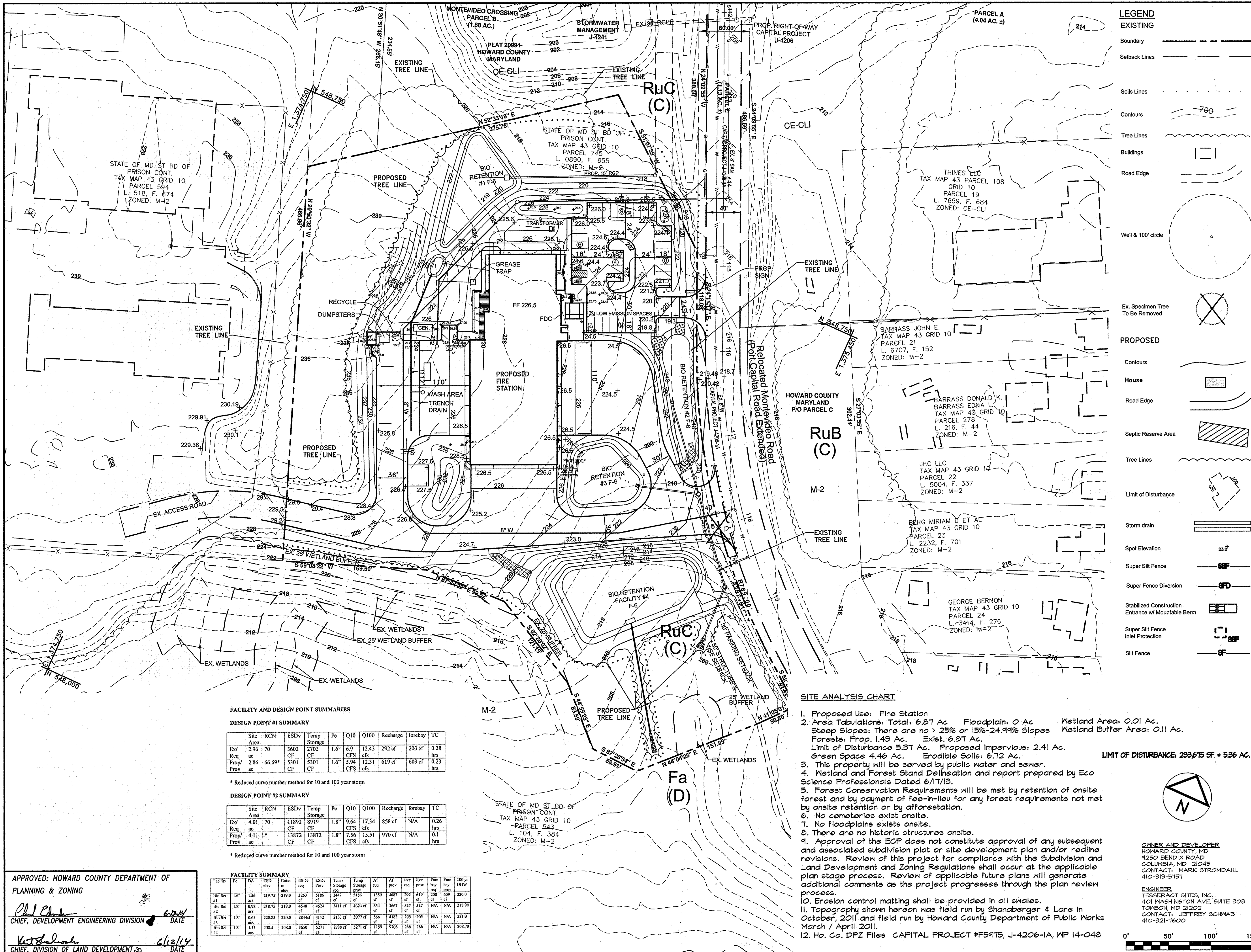
Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14230, Expiration Date: 12/09/14.

PARCEL	AREA	PERMITS
543 / 745	1,04 F.384 L.104 F.384	N/A

DATE: 6/3/2014  
 PROJ. #: 10019  
 SCALE: 1" = 50'

**C-1**

DESIGN: JLS DRAWN: MAS CHECKED: JLS



**Vicinity Map - Scale: 1" = 2000'**  
 ADC The Map People - Permitted Use # 20612205  
 Map 5054 Grid E-3  
 BENCHMARK DESCRIPTIONS  
 The courses and coordinates shown hereon are based on the following Howard County monuments:  
 Point Northing Easting Elevation  
 43BC N 549592.106 E 1375466.623 214.070  
 43ED N 548525.032 E 1376022.979 210.160

**SUMMARY OF BMP'S**  
 BIO RETENTION FACILITIES F-6 4

- LEGEND**
- EXISTING**
- Boundary
  - Setback Lines
  - Soils Lines
  - Contours
  - Tree Lines
  - Buildings
  - Road Edge
  - Well & 100' circle
  - Ex. Specimen Tree To Be Removed
- PROPOSED**
- Contours
  - House
  - Road Edge
  - Septic Reserve Area
  - Tree Lines
  - Limit of Disturbance
  - Storm drain
  - Spot Elevation
  - Super Silt Fence
  - Super Fence Diversion
  - Stabilized Construction Entrance w/ Mountable Berm
  - Super Silt Fence Inlet Protection
  - Silt Fence

**SITE ANALYSIS CHART**

- Proposed Use: Fire Station
- Area Tabulations: Total: 6.87 Ac Floodplain: 0 Ac Wetland Area: 0.01 Ac  
 Steep Slopes: There are no > 25% or 15%-24.99% Slopes Wetland Buffer Area: 0.11 Ac  
 Forests: Prop. 1.43 Ac. Exist. 6.87 Ac.  
 Limit of Disturbance 5.37 Ac. Proposed Impervious: 2.41 Ac.  
 Green Space 4.46 Ac. Erodeable Soils: 6.72 Ac.  
**LIMIT OF DISTURBANCE: 233,675 SF = 5.36 AC.**
- This property will be served by public water and sewer.
- Wetland and Forest Stand Delineation and report prepared by Eco Science Professionals Dated 6/17/13.
- Forest Conservation Requirements will be met by retention of onsite forest and by payment of fee-in-lieu for any forest requirements not met by onsite retention or by afforestation.
- No cemeteries exist onsite.
- No floodplains exist onsite.
- There are no historic structures onsite.
- Approval of the ECP does not constitute approval of any subsequent and associated subdivision plat or site development plan and/or realine revisions. Review of this project for compliance with the Subdivision and Land Development and Zoning Regulations shall occur at the applicable plan stage process. Review of applicable future plans will generate additional comments as the project progresses through the plan review process.
- Erosion control matting shall be provided in all swales.
- Topography shown hereon was field run by Shanberger & Lane in October, 2011 and field run by Howard County Department of Public Works March / April 2011.
- Ho. Co. DPZ Files CAPITAL PROJECT #B5975, J-4206-1A, WP 14-048

**FACILITY AND DESIGN POINT SUMMARIES**

**DESIGN POINT #1 SUMMARY**

Site Area	RCN	ESDv	Temp Storage	Pc	Q10	Q100	Recharge	forebay	TC
Ex/Req	2.96	70	3602	2702	1.6"	6.9	12.43	292 cf	0.28 hrs
Prop/Prov	2.86	66.69*	5301	5301	1.6"	5.94	12.31	619 cf	0.23 hrs

\* Reduced curve number method for 10 and 100 year storm

**DESIGN POINT #2 SUMMARY**

Site Area	RCN	ESDv	Temp Storage	Pc	Q10	Q100	Recharge	forebay	TC
Ex/Req	4.01	70	11892	8919	1.8"	9.64	17.34	858 cf	0.26 hrs
Prop/Prov	4.11	*	13872	13872	1.8"	7.56	15.51	970 cf	0.1 hrs

\* Reduced curve number method for 10 and 100 year storm

**FACILITY SUMMARY**

Facility	Pc	DIV	ESDv	ESDv	Temp Storage	Temp Storage	AF	AF	Ree	Ree	Flow	Flow	100 y
Bio Ret #1	1.6"	1.56	219.75	219.75	3263	2447	5186	1359	4687	292	619	200	220.0
Bio Ret #2	1.8"	0.98	218.75	218.8	4548	4624	3411	4624	854	3667	327	N/A	218.98
Bio Ret #3	1.8"	0.65	220.83	220.0	2844	4112	2133	3977	566	4182	205	N/A	221.0
Bio Ret #4	1.8"	1.33	208.5	208.0	3650	5271	3738	5271	1159	9706	266	N/A	208.70

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Phil Chisholm* 6/24/14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE  
*Kevin Stalinski* 6/24/14  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

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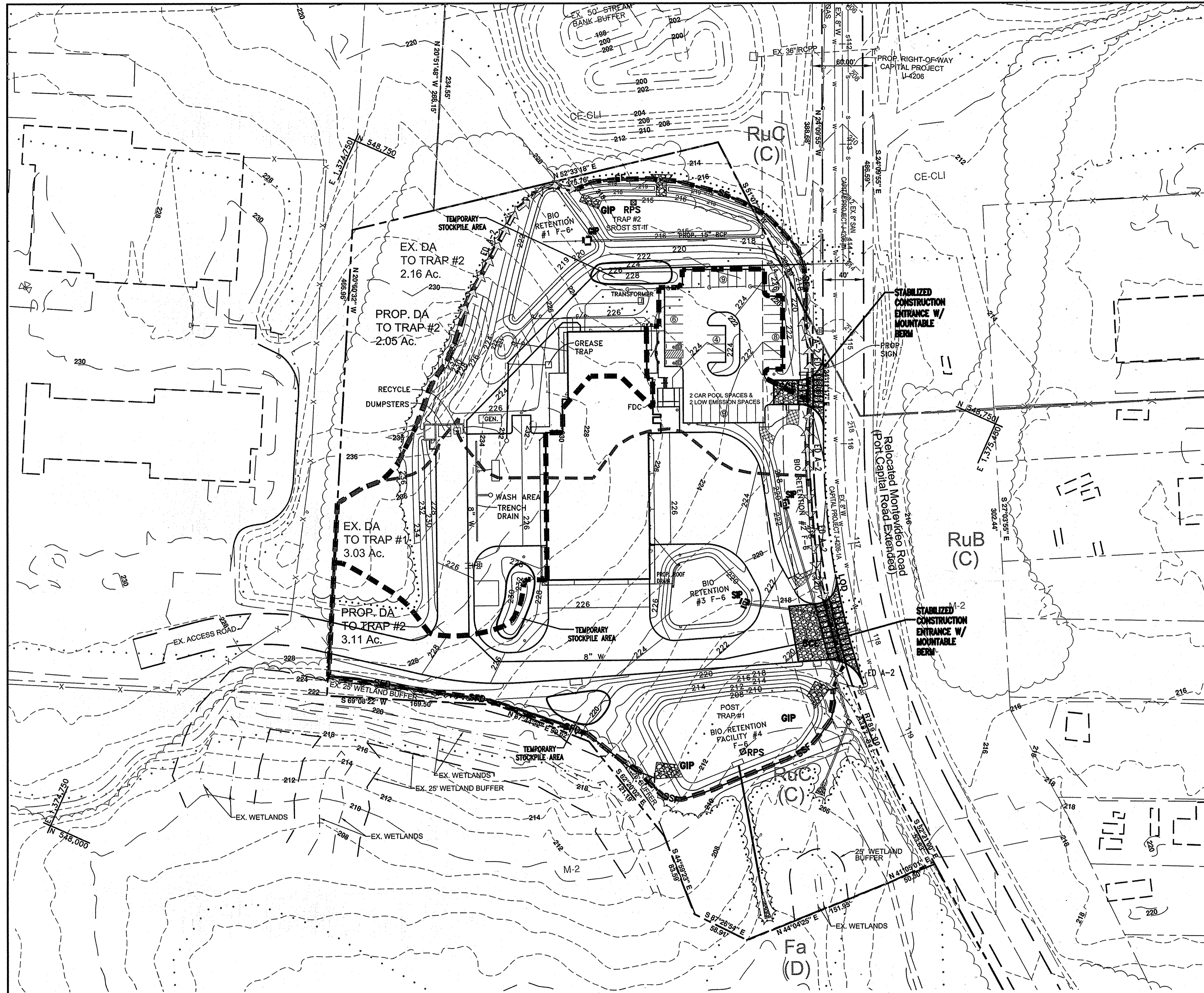
**Environmental Concept Plan**  
**Waterloo Fire Station**  
**Proposed Conditions**  
 Howard County, Maryland

Professional Certification. 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. 14230, Expiration Date: 12/09/14.

PROJECT: 543 / 745	DATE: 6/3/2014
ZONE: M-2	PROJ. #: 10019
SCALE: 1" = 50'	DATE: 6/3/2014
DESIGN: JLS	DRAWN: MAS
CHECKED: JLS	

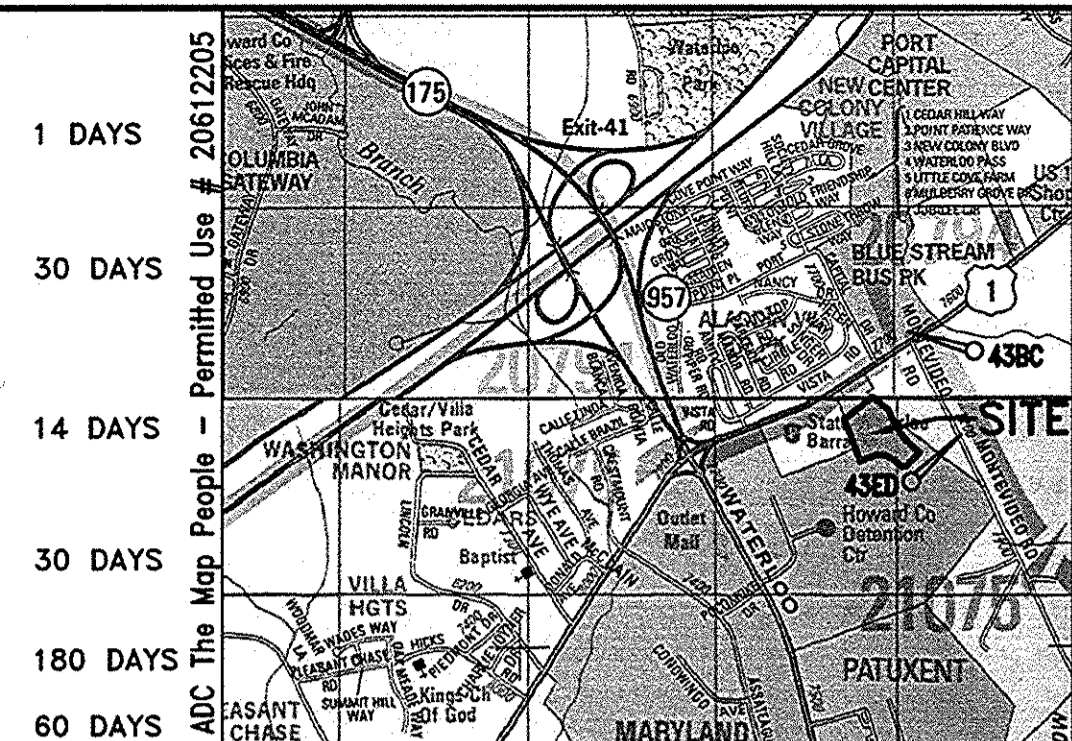
**C-2**

ECP 14-025



**SEQUENCE OF CONSTRUCTION**

- 1.) OBTAIN GRADING PERMIT AND REQUEST PRE CONSTRUCTION MEETING WITH SEDIMENT CONTROL INSPECTOR.
- 2.) CLEAR AND GRUB FOR AND INSTALL SEDIMENT & EROSION CONTROL MEASURES INCLUDING EARTH DIKES, SUPER SILT FENCE, SUPER FENCE DIVERSION, AND TRAPS.
- 3.) WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR CLEAR AND GRUB REMAINING AREAS WITHIN L.O.D.
- 4.) ROUGH GRADE SITE AND EXCAVATE FOR BUILDING FOUNDATIONS.
- 5.) CONSTRUCTION FIRE STATION.
- 6.) INSTALL WATER, SEWER AND UTILITIES.
- 7.) INSTALL STORM DRAINAGE.
- 8.) FINE GRADE AND CONSTRUCT DRIVEWAYS, PARKING LOTS, AND FIRE APPARATUS BAYS.
- 9.) STABILIZE ALL AREAS WITHIN THE L.O.D. AND INSTALL BIO RETENTION FACILITIES EXCEPT FACILITY #4.
- 10.) UPON ESTABLISHMENT OF PERMANENT VEGETATION AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR REMOVE SEDIMENT AND EROSION CONTROL MEASURES AND CONVERT P.O.S.T. TO BIO RETENTION FACILITY AND STABILIZE AREAS DISTURBED BY THIS PROCESS.



**Vicinity Map - Scale: 1" = 2000'**  
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 Map 5054 Grid E-3  
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43ED	N 548525.032	E 1376022.979	210.160

**LEGEND**

- Super Fence Diversion — SFD
- A-2 ED — A-2 ED
- Earth Dike — Earth Dike
- Limit of Disturbance — LOD
- Stabilized Construction Entrance w/ Mountable Berm — Stabilized Construction Entrance w/ Mountable Berm
- Gabion Inflow Protection — GIP
- Super Silt Fence — SSF
- Silt Fence — SF
- Removable Pumping Station — RPS
- Ex. Contours — Ex. Contours
- Prop. Contour — Prop. Contour
- Standard Inlet Protection — SP
- Gabion Inlet Protection — GIP

**HOWARD SOIL CONSERVATION DISTRICT**

**STANDARD SEDIMENT CONTROL NOTES**

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313-1855).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 3 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 7 days as to all other disturbed or graded areas on the project site.
4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
5. 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.
6. Site Analysis:  
 Total Area of Site: 6.87 Acres  
 Area Disturbed: 5.37 Acres  
 Area to be paved: 2.41 Acres  
 Area to be vegetatively stabilized: 3.16 Acres  
 Total Cut: 14548 Cu. Yds.  
 Total Fill: 9847 Cu. Yds.  
 Offsite waste/borrow area location: Unknown.
7. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
8. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
9. 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.
10. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized by the end of each work day, whichever is shorter.
11. Any changes or revisions to the sequence of construction must be reviewed and approved by the plan approval authority prior to proceeding with construction.
12. A project is to be sequenced so that grading activities begin on one grading unit (maximum coverage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the enforcement authority. Unless otherwise specified and approved by the approval authority, no more than 30 acres cumulatively may be disturbed at a given time.

Total Limit of Disturbance: 233,675 S.F. = 5.37 Ac.

**Tesseract**  
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 Towson, Maryland, 21284  
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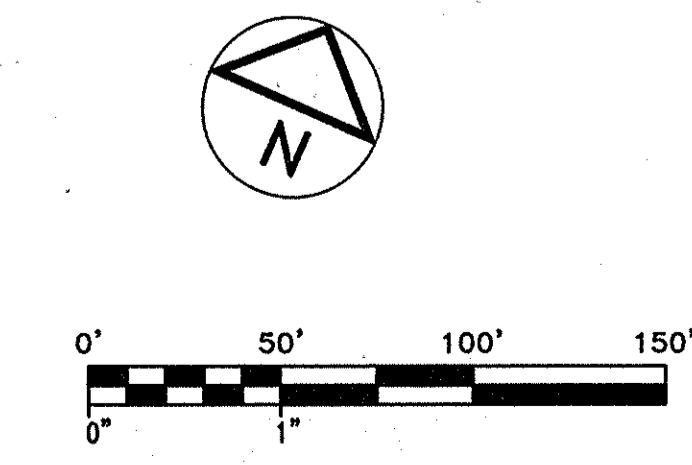
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 Waterloo Fire Station  
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DESIGNER: JLS	DRAWN: MAS	CHECKED: JLS

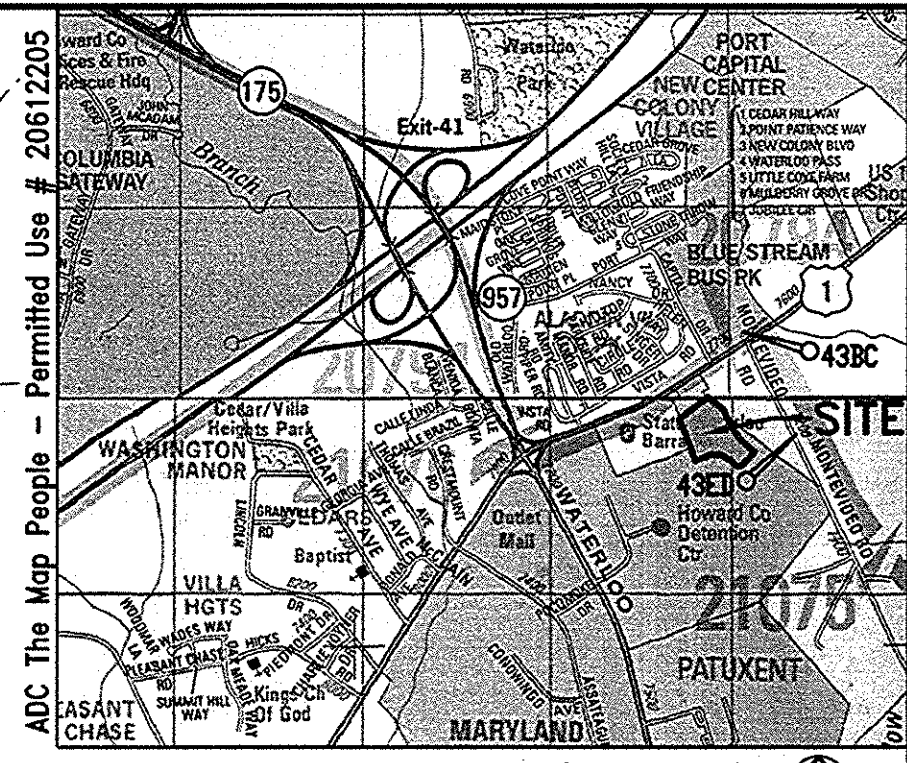
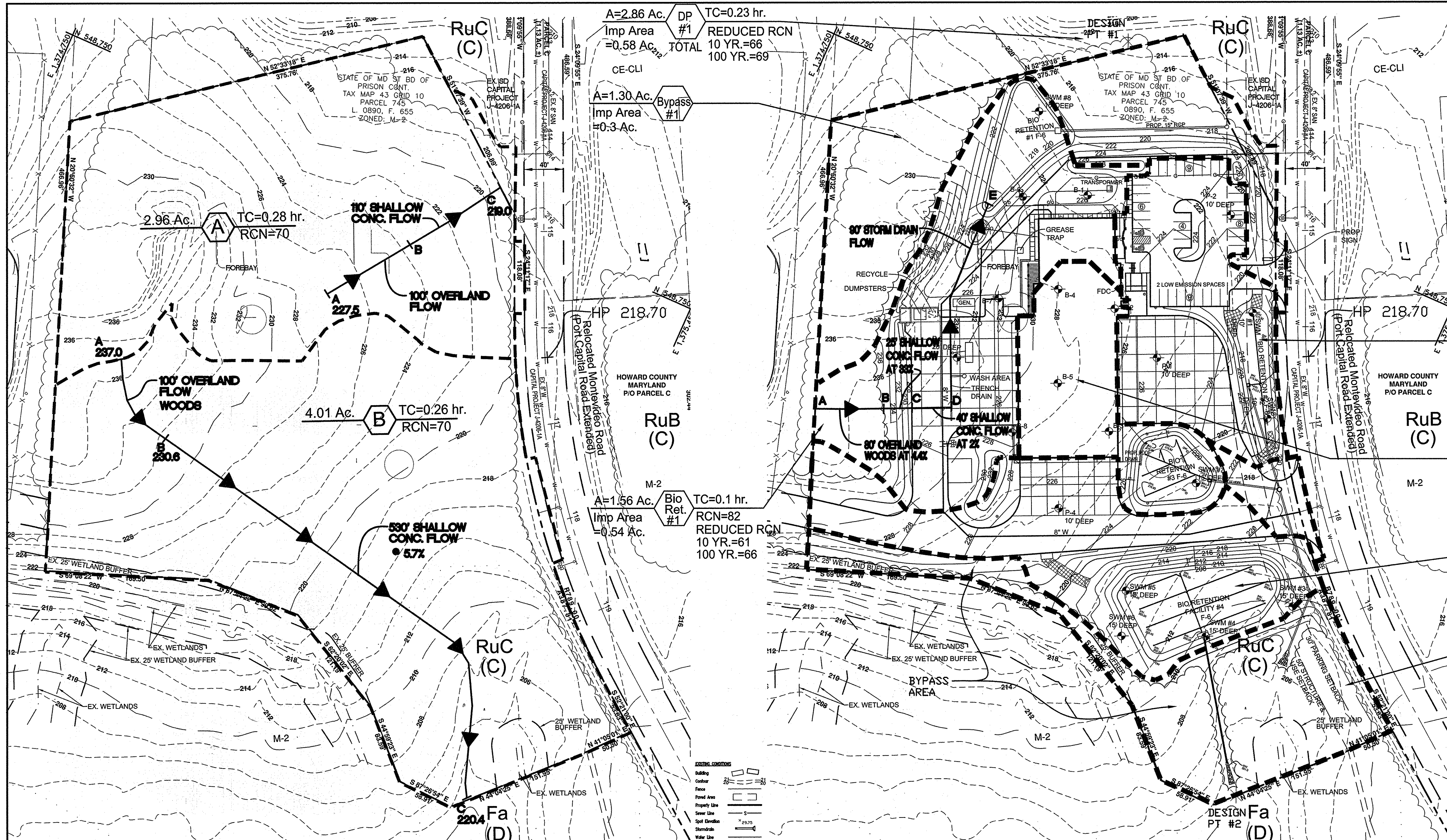
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Phil Edwards*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE: 6/12/14

*Kevin Schuchman*  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE: 6/12/14



OWNER AND DEVELOPER:  
 HOWARD COUNTY, MD  
 4250 BENDIX ROAD  
 COLUMBIA, MD 21045  
 CONTACT: MARK STROMDAHL  
 410-313-5757

ENGINEER:  
 TESSERACT SITES, INC.  
 401 WASHINGTON AVE., SUITE 303  
 TOWSON, MD 21286  
 CONTACT: JEFFREY SCHWAB  
 410-321-7600



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- A=2.86 Ac. DP #1 TC=0.23 hr.  
Imp Area =0.58 Ac. REDUCED RCN  
10 YR.=66  
100 YR.=69
- A=1.30 Ac. Bypass #1  
Imp Area =0.3 Ac.
- A=0.98 Ac. Bio Ret. #2 TC=0.1 hr.  
Imp Area =0.72 Ac. RCN=92  
REDUCED RCN  
10 YR.=66  
100 YR.=71
- A=0.65 Ac. Bio Ret. #3 TC=0.1 hr.  
Imp Area =0.45 Ac. RCN=91  
REDUCED RCN  
10 YR.=48  
100 YR.=59
- A=1.33 Ac. Bio Ret. #4 TC=0.1 hr.  
Imp Area =0.54 Ac. RCN=84  
REDUCED RCN  
10 YR.=40  
100 YR.=40
- A=1.15 Ac. Bypass TC=0.1 hr.  
Imp Area =0.12 Ac. RCN=75

Existing Conditions

Proposed Conditions

TOTAL AREA TO DP#2 4.11 Ac.

- EXISTING CONDITIONS
- Building
  - Contour
  - Fence
  - Forest Area
  - Property Line
  - Street Line
  - Spot Elevation
  - Stormdrain
  - Water Line
  - Spot Elevation
  - Woods Line
  - Slopes 15-24%
  - Slope Slopes: 25% for more than 10' vertical feet
  - Slopes 25% less than 10' vertical feet
  - Ex. Wetland
- EXISTING UTILITIES
- Sanitary Line
  - Sanitary Cleanout
  - Sanitary Manhole
  - Water Line
  - Water Valve
  - Fire Hydrant Connection
  - Fire Hydrant
  - Gas Manhole
  - Underground Gas Line
  - Utility Pole
  - Overhead Electric Line
  - Underground Electric Line
  - Underground Fiber Optic Service

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
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 Waterloo Fire Station**

Howard County, Maryland

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PARCEL:	543 / 745	LIBRARY:	L 104 F.384	PLANS:	N/A
ZONE:	M-2	TRACEDISTRICT:	43	CONTRACT:	2
DATE:	6/3/2014				
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SCALE:	1" = 50'				
DESIGN:	JLS	DRAWING:	MAS	CHECKED:	JLS

OWNER AND DEVELOPER  
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