DESIGN NARRATIVE

The property is currently consists of 3 parcels, each with an existing driveway and house on them. The house on Parcels 402 & 403 have been removed. There are two existing wetland / stream systems on or adjacent to the property and there are steep slopes associated with them, however the area of these slopes is less than 20,000 SF and less than 10 feet in height in some areas. These wetland systems and their buffers will be impacted by the proposed fire station. Stormwater Management for the proposed Fire Station is provided by environmental site design to the maximum extent practical and will consist of a green roof, and 2 micro bioretention and 2 bioretention facilities located on the site to minimize the impacts to the perennial and intermittent streams at the south of the property. Due to the size of the drainage areas and the large areas of paving necessary for the station, 2 structural practices are required. Existing natural resources have been protected to the maximum extent possible while still achieving the goals of the project to construct a new fire station. The natural flow patterns have been maintained by maintaining the existing drainage patterns to the 2 wetland / stream systems and by maintaining the drainage pattern to the existing culvert under Montgomery Road by construction of storm drainage. Impervious areas have been reduced to the maximum extent practical and still achieve the project goals, or a new fire station with response pads and parking for the public for the hall, located within the station. The soils onsite are clay and prohibit the use of alternative paving. However a green roof has been proposed to reduce rooftop runoff. Sediment and Erosion Control measures have been provided using a trap constructed within the graded area, SSF and SFD to reduce the LOD and forest clearing. Sediment and erosion will be coordinated with the installation of the storm drainage. (As noted in the sequence of construction)

SITE ANALYSIS CHART

1. Proposed Use: Fire Station
2. Area Tabulations: Total: 5.68 Ac Floodplain: 0 Ac
   Wetlands Impact: 0.11 Ac. & Buffers Impact: 0.47 Ac
   Steep Slopes: 0.45 Ac > 25% There are no 15%-24.99% Slopes
   Forests: Prop. 1.63 Ac. Exist. 4.36 Ac.
   Limit of Disturbance 4.77 Ac. Proposed Impervious: 2.57 Ac
   Green Space 3.08 Ac. Erodible Soils: 5.68 Ac.
3. This property will be served by public water and sewer.
4. Wetland and Forest Stand Delineation and report prepared by Eco Science Professionals Dated 2/22/13.
5. 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.
6. No cemeteries exist onsite.
7. No floodplains exists onsite.
8. There are no historic structures onsite.
9. Approval of the ECP does not constitute approval of any subsequent and associated subdivision plat or site development plan and/or redline 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.
10. Erosion control matting shall be provided in all swales.
11. Topography shown hereon was field run by Shanaberger & Lane in February, 2013. The other topography shown hereon is Howard County Aerial Topography.
12. Ho. Co. DPZ Files WP-14-010. CAPITAL PROJECT F-5964
13. On June 5, 2013, the Elkridge Volunteer Fire Department held a meeting with the community to discuss the new fire station project.
14. Waiver Petition WP-14-010 was approved October 29, 2013 for the following:

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

As of the date of this letter, the Planning Director **approved** your request to waive;

- Section 16.116 – Restricting grading activities and the removal of vegetation within wetlands and streams (and associated buffers), as well as on steep slopes (25%+ over 10 vertical feet)
- Section 16.117 – Design in accordance with existing topography and to minimize clearing
- Section 16.1205(a) – Avoid forest removal in priority retention areas and avoid removal of trees with a 30" dbh or greater (specimen trees)

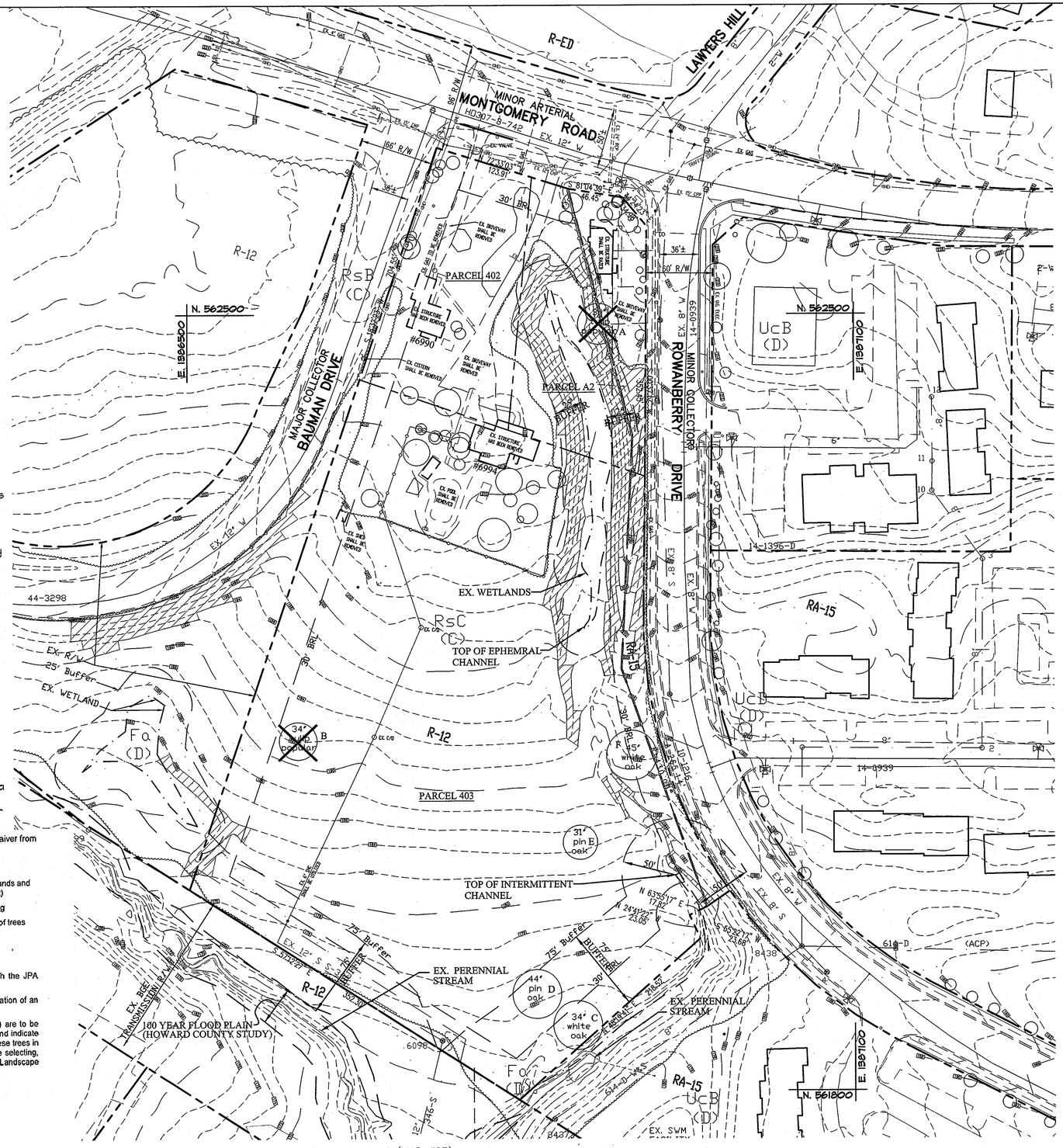
Approval is subject to the following conditions:

1. Obtain a permit from MDE for the wetland and wetland buffer impacts in conjunction with the JPA submitted on June 28, 2013.
2. Maintain groundwater flow to the ephemeral stream and remaining wetlands with the installation of an underdrain to pipe the groundwater through the site to maintain the flow pattern.
3. For each of the specimen trees removed, 2 shade trees of the same species (tulip poplar) are to be planted for a total of 4 trees. Please show these replacement trees on the landscape plan and indicate their purpose. Since tulip poplars are not recommended for landscape trees, please place these trees in the interior of the site near the southern extent of the LOD. If a safe planting area cannot be selecting, please provide another large shade tree species within the Recommended Plant List of the Landscape Manual.
4. Submission of a site development plan in compliance with the above conditions.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11.4.13

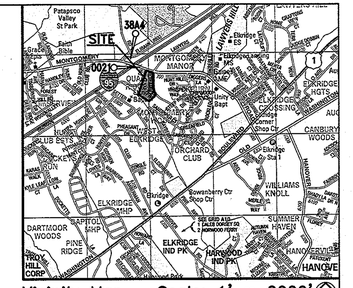
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-04-13



LEGEND

EXISTING

- Boundary
- Contours
- Tree Lines
- Buildings
- Road Edge
- Steep Slopes ≥ 25%
- Specimen Tree
- Specimen Tree To Be Removed
- Wetland
- Wetland Buffer



Vicinity Map – Scale: 1' = 2000'

ADC Map 4937-B7 & C7

ADC The Map People – Permitted Use # 20612205

BENCHMARK DESCRIPTIONS

The existing topography within the limit of disturbance is based on a field run survey by Shanaberger and Lane, dated January 16, 2013. The courses and coordinates shown hereon are based on the following Howard County monuments:

Point	Northing	Easting	Elevation
38A4	562977.6414	1386288.0606	223.372
0021	562745.8233	1386542.0529	226.190

Specimen Trees

Howard County's Forest Conservation Program defines specimen trees as trees having a diameter measured at 4.5 feet above the ground of 30 inches or more; trees having 75 percent or more of the diameter of the current state champion tree of that species; or trees designated as national, state, or county champions. Six (6) specimen trees are present on the project site. The location of these trees is shown on the enclosed Wetland and Forest Stand Delineation Plan. Below find a brief description of each tree.

A. Tulip poplar - 37" DBH

This tree is in fair condition. Moderate dieback is evident in the crown.

B. Tulip poplar - 34" DBH

This tree, which consists of two co-dominant stems, is in fair condition. Dieback was noted in the crown.

C. White oak - 34" DBH

This tree is in good condition with no major issues noted.

D. Pin oak - 44" DBH

This tree, which consists of two co-dominant stems, is in very poor condition. The tree has major trunk rot.

E. Pin oak - 31" DBH

This tree is in fairly good condition. Some dieback is evident in the crown.

F. White oak - 45" DBH

This tree is in fair condition. The tree contains a small trunk cavity and exhibits some dieback in the crown.

SHEET INDEX

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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	0.2	3.5%	.02	.02
RsB	Russett fine sandy loam, 2 to 5 percent slopes (Highly Erodible)	0.8	14.1%	.28	.24
RsC	Russett fine sandy loam, 5 to 10 percent slopes (Highly Erodible)	4.5	79.2%	.28	.24
UcB	Urban land-Chillum-Beltsville complex, 0 to 5 percent slopes	0.1	1.8%		
UcD	Urban land-Chillum-Beltsville complex, 5 to 15 percent slopes	0.1	1.8%		

N

0' 50' 150' 300'

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Environmental Concept Plan Existing Conditions Elkridge Volunteer Fire Station

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.

LOT/PARCEL:		LIBER/FOLIO:		PLAT:
402 403 A2		14101/512 13842/358		N/A
GRID#	ZONE	TAX/ZONE MAP	ELECT.DISTRICT	CENSUS TRACT:
12	R-12, RA15	38	1ST	

Date: 10/30/13

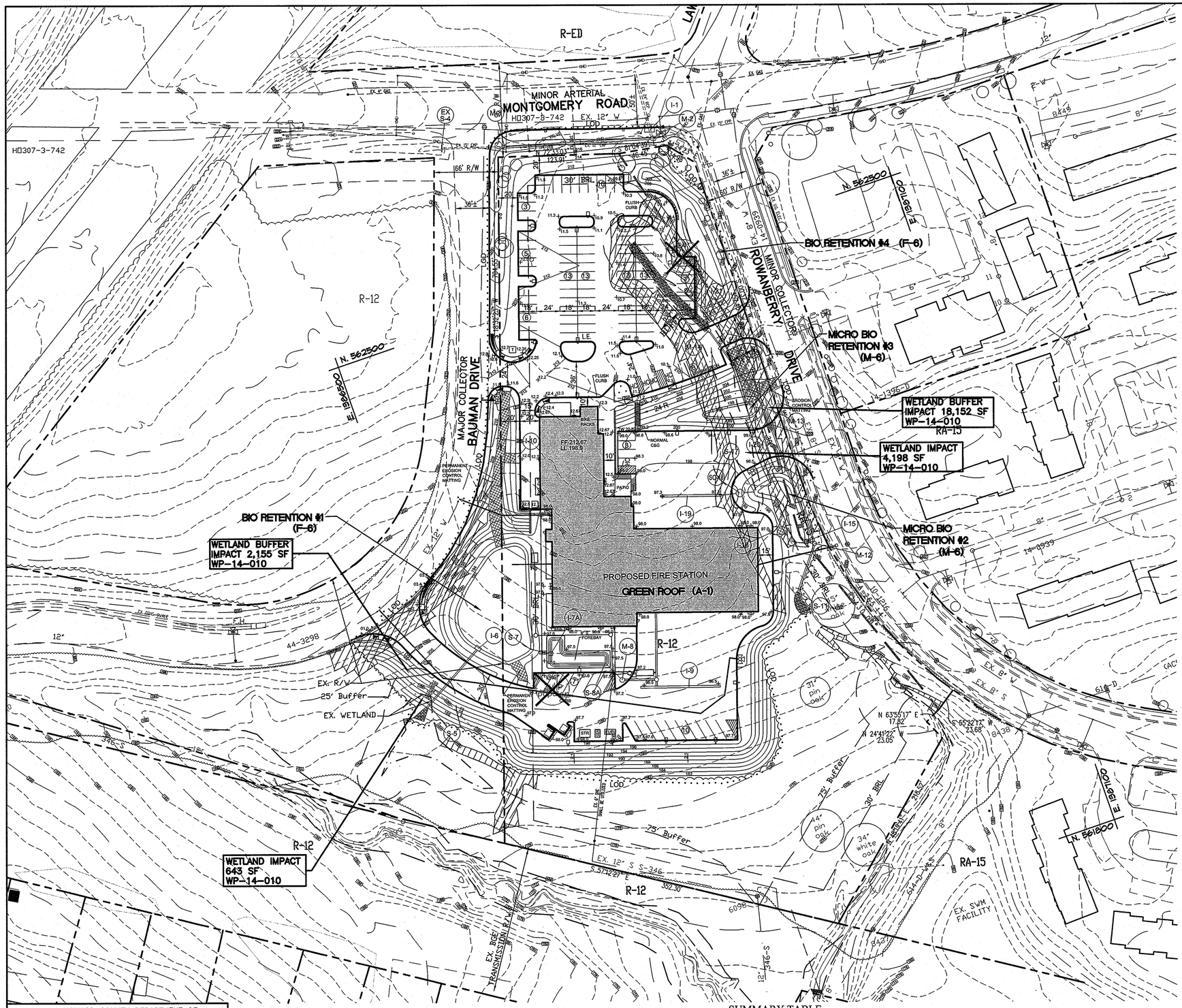
Proj. #: 10020

Scale: 1" = 50'

C-1

DESIGN: DRAWN: MAS CHKED: XXX

ECP 13-076



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11.4.13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-04-13

SUMMARY TABLE

FACILITY	DA	ESDv PROVIDED	ESDv REQUIRED	RECHARGE REQUIRED	RECHARGE PROVIDED
F-6 BIO RETENTION #1	2.02 Ac.	13263 CF			
M-6 MICRO BIO RETENTION #2	0.51 Ac.	2444 CF			
M-6 MICRO BIO RETENTION #3	0.47 Ac.	1846 CF			
F-6 BIO RETENTION #4	1.06 Ac.	3715 CF			
A-1 6" GREEN ROOF A-6	0.512 Ac.	2119 CF			
TOTAL		23387 CF	19637 CF	1276 CF	2079 CF

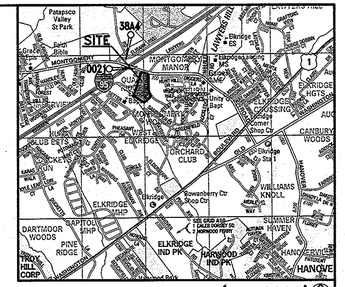
LEGEND

EXISTING

- Boundary
- Streams
- Contours (350)
- Tree Lines
- Buildings
- Road Edge
- Steep Slopes ≥ 25%

PROPOSED

- Contours
- Fire Station
- Road Edge
- Limit of Disturbance (LOD)
- Storm drain
- Pervious Concrete
- Spot Elevation (336.4)
- Specimen Trees to be Removed



Vicinity Map – Scale: 1' = 2000'

ADC Map 4937-B7 & C7

ADC The Map People – Permitted Use # 20612205

BENCHMARK DESCRIPTIONS

The existing topography within the limit of disturbance is based on a field run survey by Shanaberger and Lane, dated January 16, 2013. The courses and coordinates shown hereon are based on the following Howard County monuments:

Point	Northing	Easting	Elevation
38A4	562977.6414	1386288.0606	223.372
0021	562745.8233	1386542.0529	226.190

NOTES:

The intermittent stream was reclassified as an ephemeral stream during a site visit with MDE and delineation of wetlands was also adjusted based on this site visit.

Flow to the ephemeral channel will be maintained by the proposed underdrains.

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0' 50' 150' 300'

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Environmental Concept Plan Proposed Conditions Elkridge Volunteer Fire Station

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.

LOT/PARCEL:		LIBER/FOLIO:		PLAT:
402 403 A2		14101/512 13842/358		N/A
GRID	ZONE	TAX/ZONE MAP	ELECT.DISTRICT	CENSUS TRACT:
12	R-12, RA15	38	1ST	

STATE OF MARYLAND — JEFFREY TYRE SCHWAB — 14230 — PROFESSIONAL ENGINEER — 10/30/13

Date: 10/30/13

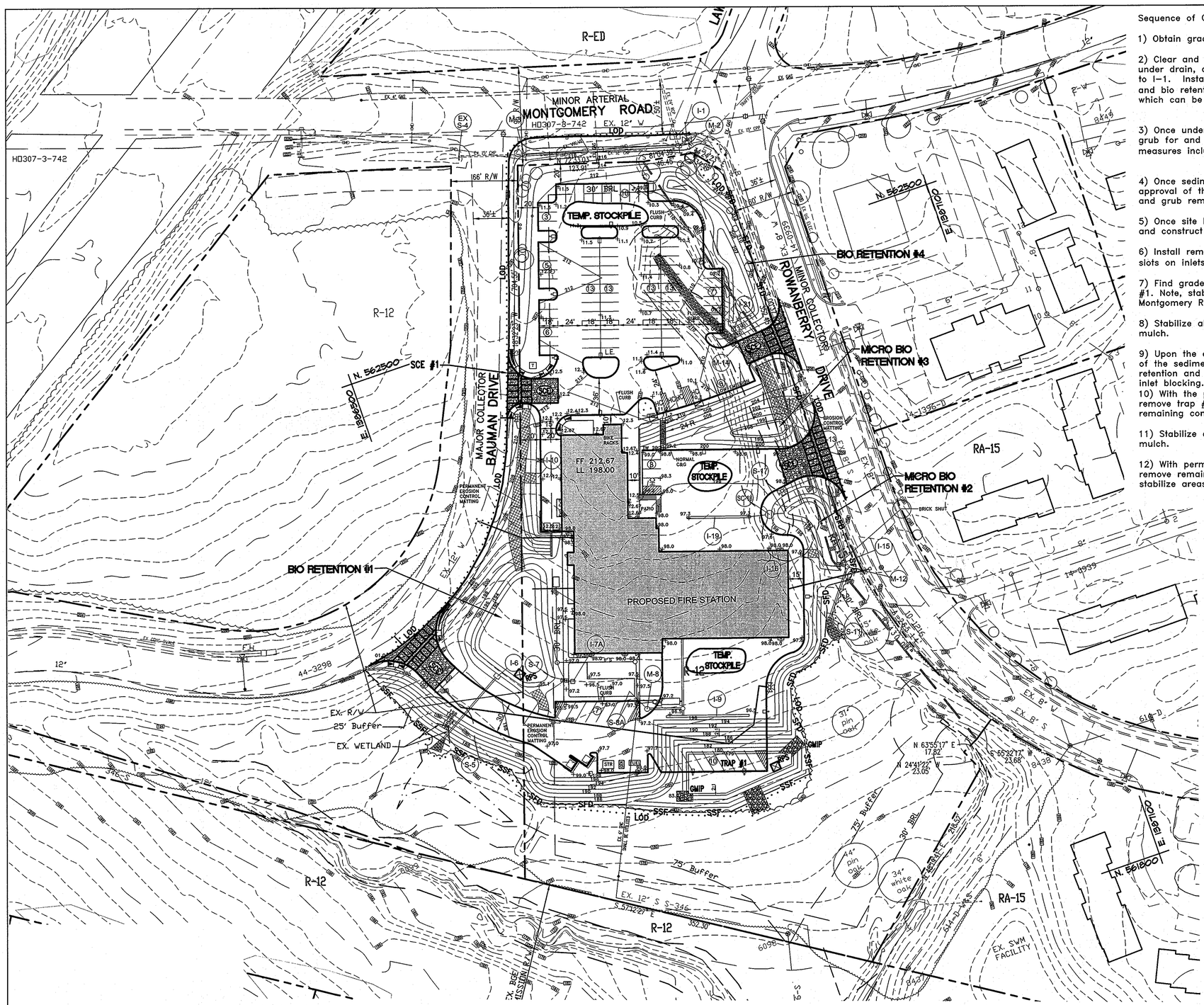
Proj. #: 12021

Scale: 1" = 50'

C-2

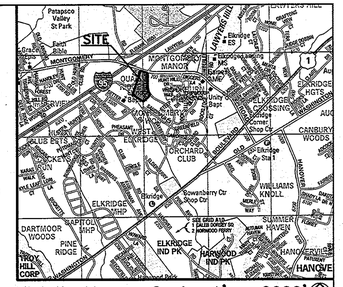
DESIGN: | DRAWN: MAS | CHKED: XXX

ECP 13-076



Sequence of Construction

1) Obtain grading permit and joint federal state permit.	7 Days
2) Clear and grub only that area required to install SCE #1, under drain, and storm drainage M-14 through S-11 and S-4 to I-1. Install inlet blocking for inlets in micro bio retention and bio retention facilities. Only install/distribute that area which can be stabilized the same day.	21 Days
3) Once underdrain and storm drainage are installed, clear and grub for and install remaining sediment and erosion control measures included SEC's, SFD, SSF, and sediment trap #1.	14 Days
4) Once sediment control measures are installed and with the approval of the sediment and erosion control inspector clear and grub remaining site and beginning rough grading.	7 Days
5) Once site has been rough graded, excavate for foundations and construct proposed building.	180 Days
6) Install remaining storm drainage and utilities. Brick shut slots on inlets draining bioretention/micro biotretention facilities.	60 Days
7) Find grade and construct paving except in the area of trap #1. Note, stabilize disturbed areas on Bauman Drive and Montgomery Road the same day.	60 Days
8) Stabilize all remaining disturbed areas on site with seed and mulch.	14 Days
9) Upon the establishment of vegetation and with the approval of the sediment erosion control inspector, construct micro bio retention and bio retention facilities and stabilize and remove inlet blocking.	60 Days
10) With the permission of the sediment control inspector, remove trap #1 and install SSF, place fill, and construct the remaining concrete pad.	14 Days
11) Stabilize all remaining disturbed areas with seed and mulch.	14 Days
12) With permission of the sediment/erosion control inspector remove remaining sediment and erosion control measures and stabilize areas disturbed by this process.	14 Days



LEGEND

- Super Fence Diversion —SFD—
- Super Silt Fence —SSF—
- Limit of Disturbance . . . . . .
- Stabilized Construction Entrance w/ Mountable Berm
- Ex. Contours
- Prop. Contour 196
- Gabion Mattress Inflow Protection GMIP
- Removable Pumping Station RPS

Limit of Disturbance: 210,395 SF = 4.83 Ac.

0' 50' 150' 300'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11.4.13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-04-13

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Preliminary Sediment & Erosion Control Plan
Elkridge Volunteer Fire Station
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.

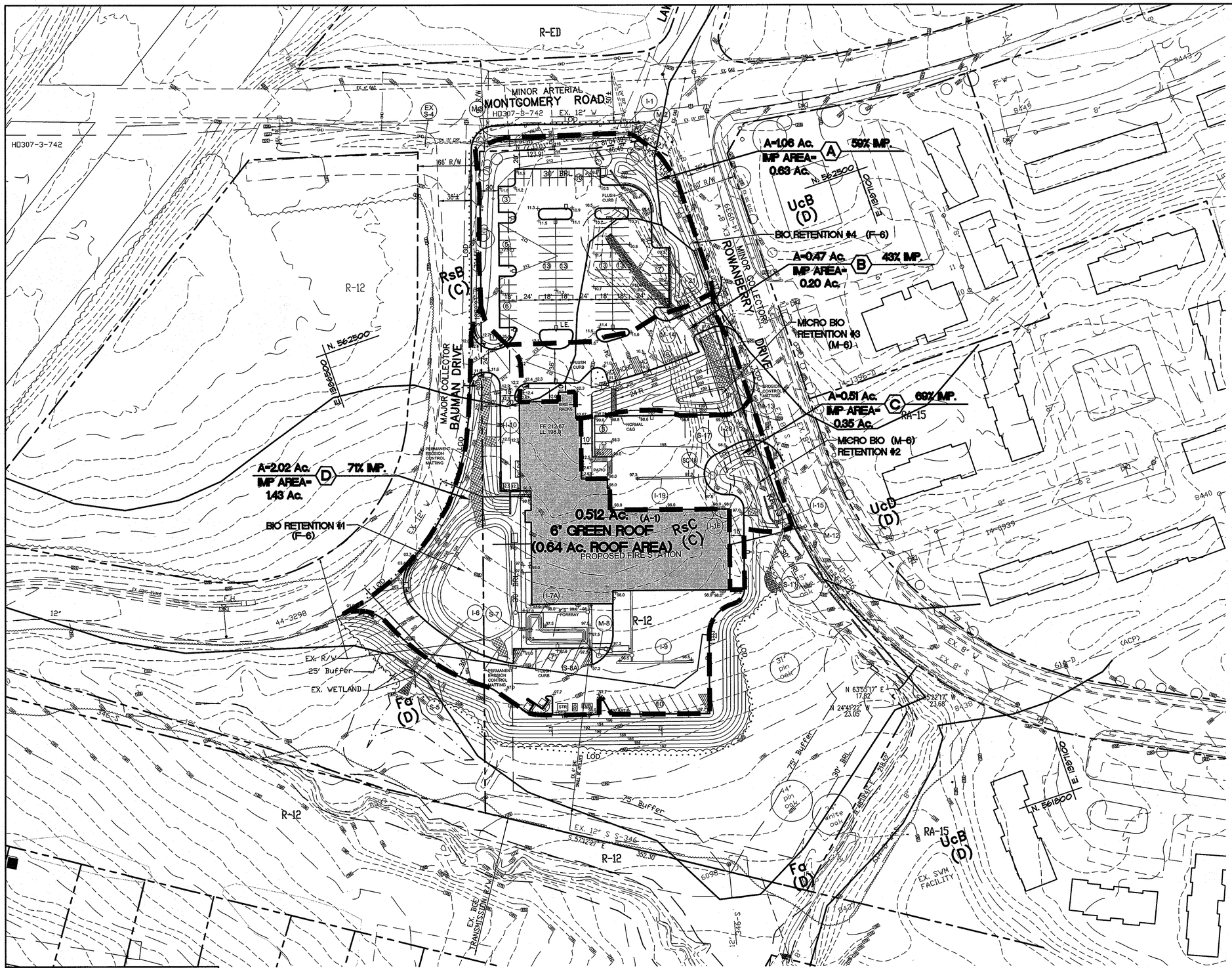
LOT/PARCEL:		LIBER/FOLIO:		PLATS:
402 403 A2		14101/512 13842/358		N/A
ZONE	ZONE	TAX/ZONE MAP	ELECT.DISTRICT	CENSUS TRACT:
12	R-12, RA15	38	1ST	

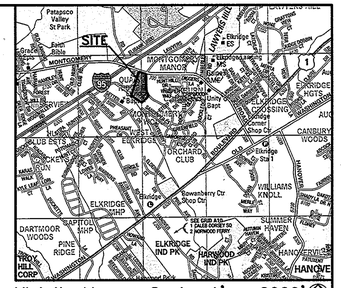
Date: 10/30/13
Proj. #: 12021
Scale: 1" = 50'

C-3

DESIGN: DRAWN: MAS CHKED: XXX

ECP 13-076





Vicinity Map – Scale: 1' = 2000'

ADC Map 4937-B7 & C7

ADC The Map People – Permitted Use # 20612205

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

1) No excess fill, construction material, or debris shall be stockpiled or stored in nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
2) Place materials in a location and manner which does not adversely impact surface or subsurface water flow into or out of nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
3) Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material, or any other deleterious substance. If additional backfill is required, use clean material free of waste metal products, unsightly debris, toxic material, or any other deleterious substance.
4) Place heavy equipment on mats or suitably operate the equipment to prevent damage to nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
5) Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetlands, nontidal wetland buffers, or waterways, or permanent modification of the 100-year floodplain in excess of that lost under the originally authorized structure or fill.
6) Rectify any nontidal wetlands, wetland buffers, waterways, or 100-year floodplain temporarily impacted by any construction.
7) All stabilization in the nontidal wetland and nontidal wetland buffer shall consist of the following species: Annual Ryegrass (Lolium multiflorum), Millet (Setaria italica), Barley (Hordeum sp.), Oats (Uniola sp.), and/or Rye (Secale cereale). These species will allow for the stabilization of the site while also allowing for the voluntary revegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Nontidal Wetlands and Waterways Division. **Kentucky 31 fescue shall not be utilized in wetland or buffer areas.** The area should be seeded and mulched to reduce erosion after construction activities have been completed.
8) After installation has been completed, make post-construction grades and elevations the same as the original grades and elevations in temporarily impacted areas.
9) To protect aquatic species, in-stream work is prohibited as determined by the classification of the stream:

   Use I waters: In-stream work shall not be conducted during the period March 1 through June 15, inclusive, during any year.
   Use III waters: In-stream work shall not be conducted during the period October 1 through April 30, inclusive, during any year.
   Use IV waters: In-stream work shall not be conducted during the period March 1 through May 31, inclusive, during any year.

10) Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.
11) Culverts shall be constructed and any riprap placed so as not to obstruct the movement of aquatic species, unless the purpose of the activity is to impound water.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11.4.13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11-04-13

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SWM Facility Drainage Area Map
Elkridge Volunteer Fire Station
Howard County, Maryland

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LOT/PARCEL:	LIBER/FOLIO:		PLATS:
402 403 A2	14101/512	13842/358	N/A

GRID	ZONE	TAX/ZONE MAP	ELECT.DISTRICT	CENSUS TRACT:
12	R-12, RA15	38	1ST	

Date: 10/30/13
Proj. #: 12021
Scale: 1" = 50'

C-4

DESIGN: DRAWN: MAS CHKED: XXX

ECP 13-076