



APPLICATION ACCEPTED: February 28, 2014
PLANNING COMMISSION: November 5, 2014
BOARD OF SUPERVISORS: Not Yet Scheduled

County of Fairfax, Virginia

October 23, 2014

STAFF REPORT

APPLICATION RZ 2012-MV-015

MOUNT VERNON DISTRICT



APPLICANT: McShay Communities, Inc.

PRESENT ZONING: R-1: Residential, One Dwelling Unit/Acre

REQUESTED ZONING: R-12: Residential, Twelve Dwelling Units/Acre

PARCEL: 107-4 ((1)) 40A

SITE AREA: 4.903 acres

PROPOSED DENSITY: 8.16 dwelling units per acre (du/ac)

PLAN MAP: Residential; 8-12 du/ac

PROPOSAL: To permit the construction of 40 single family attached dwelling units

STAFF RECOMMENDATIONS:

Staff recommends approval of RZ 2012-MV-015, subject to the execution of proffers consistent with those contained in Appendix 1.

Staff recommends approval of the following waivers and modifications of Sect. 17-201 of the Zoning Ordinance:

- Waiver of the service drive requirement along Richmond Highway;
- Waiver of the on-road bike lane requirement along Richmond Highway; and,

Nick Rogers, AICP

- Waiver of the major trail requirement along Richmond Highway.

It should be noted that it is not the intent of staff to recommend that the Board, in adopting any conditions proffered by the owner, relieve the applicant/owner from compliance with the provisions of any applicable ordinances, regulations, or adopted standards.

It should be further noted that the content of this report reflects the analysis and recommendation of staff; it does not reflect the position of the Board of Supervisors.

The approval of this application does not interfere with, abrogate or annul any easements, covenants, or other agreements between parties, as they may apply to the property subject to this application

For information, contact the Zoning Evaluation Division, Department of Planning and Zoning, 12055 Government Center Parkway, Suite 801, Fairfax, Virginia 22035-5505, (703) 324-1290.



Americans with Disabilities Act (ADA): Reasonable accommodation is available upon 48 hours advance notice. For additional information on ADA call (703) 324-1334 or TTY 711 (Virginia Relay Center).

Rezoning Application

RZ 2012-MV-015



Applicant:
Accepted:
Proposed:
Area:

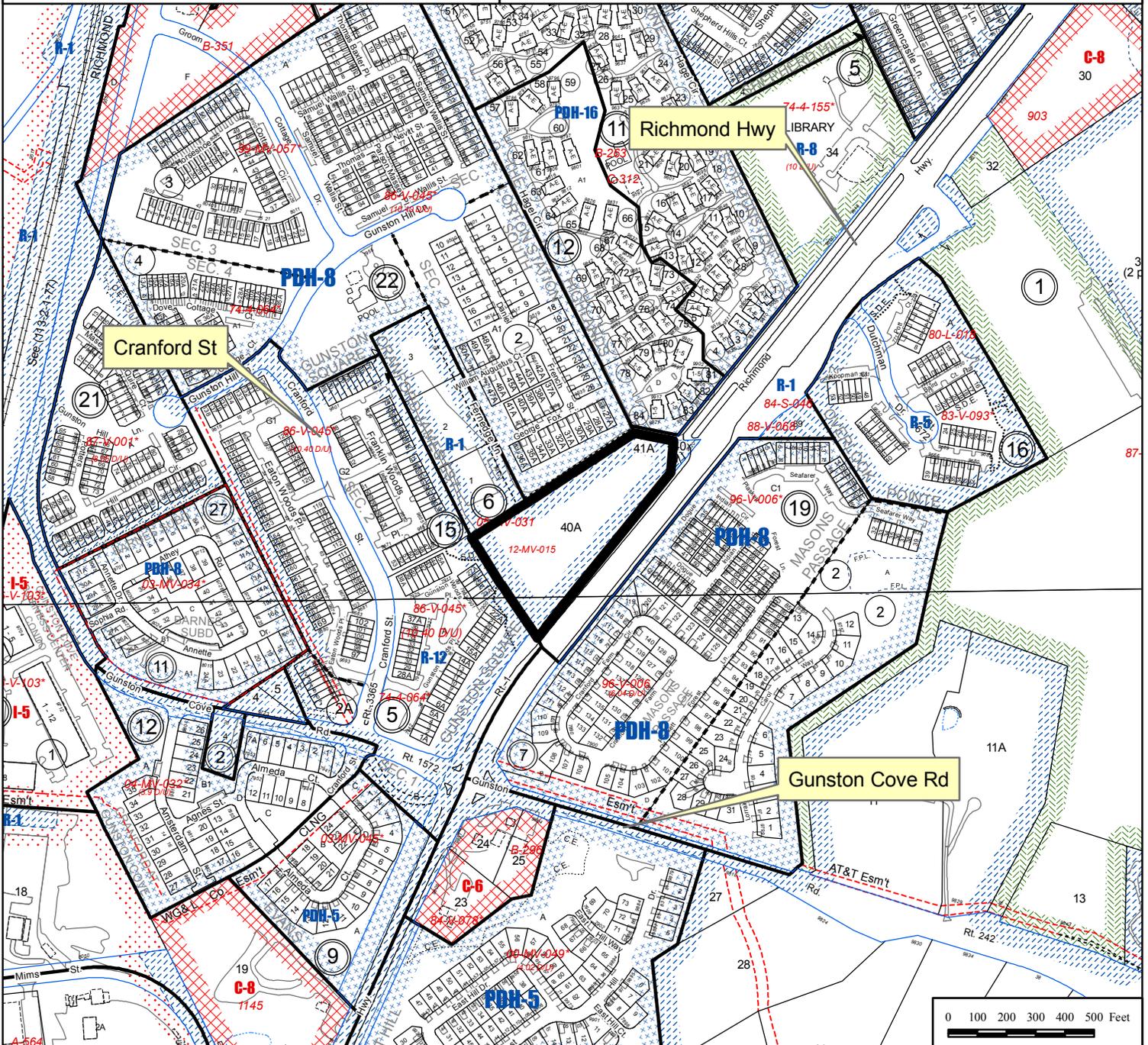
MCSHAY COMMUNITIES, INC.
02/28/2014- AMENDED 06/29/2012
RESIDENTIAL
4.903 AC OF LAND; DISTRICT - MOUNT VERNON

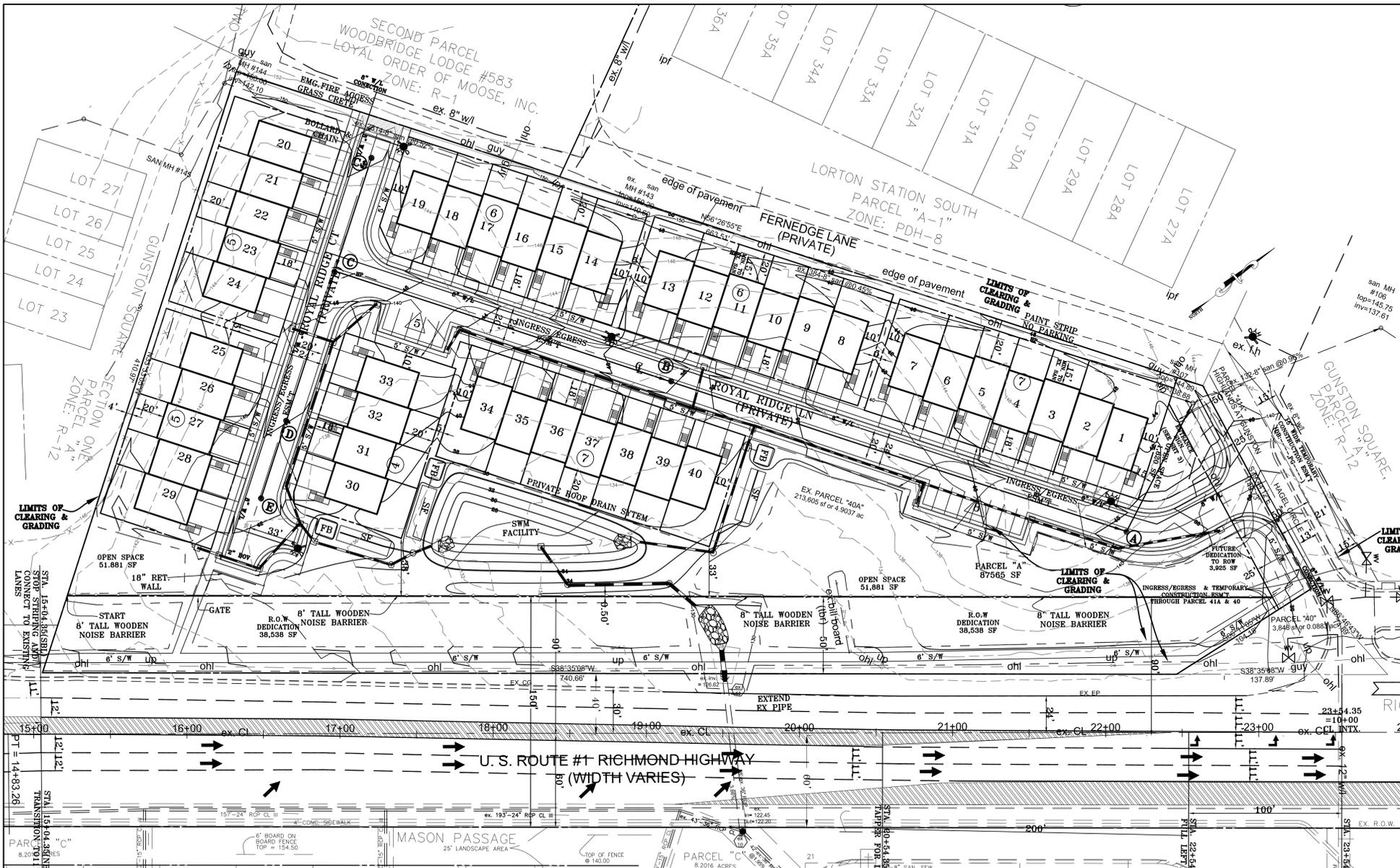
Zoning Dist Sect:
Located:

NORTH SIDE OF RICHMOND HIGHWAY APPROXIMATELY 600 FEET
SOUTH OF DUTCHMAN DRIVE

Zoning:
Overlay Dist:
Map Ref Num:

FROM R- 1 TO R-12
107-4- /01/ /0040A

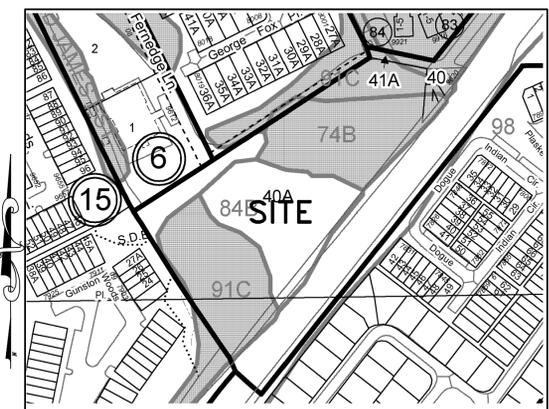




GEOMETRIC PLANVIEW
SCALE: 1" = 40'

R-12 REQUIREMENTS:
SECTION 3-800 OF THE ZONING ORDINANCE
MIN. LOT AREA:
SINGLE FAMILY ATTACHED DU. = NO REQUIREMENT
MIN. LOT WIDTH:
SINGLE FAMILY ATTACHED DU. = 18 FEET MINIMUM
MAX SINGLE FAMILY HEIGHT = 35 FEET
MIN. YARD REQUIREMENTS:
SINGLE FAMILY ATTACHED DU.
FRONT YARD: 15' ANGLE OF BULK PLANE, NOT LESS THAN 5 FEET
SIDE YARD END UNITS: 15' ANGLE OF BULK PLANE, NOT LESS THAN 10 FEET
REAR YARD: 30' ANGLE OF BULK PLANE, NOT LESS THAN 20 FEET
MAX DENSITY = 12 DU./AC.
OPEN SPACE = 25% OF THE GROSS AREA
MINIMUM DISTRICT SIZE: 4 ACRES

PROJECTED FUTURE TRAFFIC ROYAL RIDGE CT.
AREA OF UNDEVELOPED PARCELS(S) TO NORTH = 3.87 AC
COMPARABLE DENSITY IS ASSUMED TO ROYAL RIDGE
TOTAL UNITS FROM NORTH = 3.87 AC X 8.16 DU/AC = 32 UNITS
TOTAL UNITS PROPOSED BY ROYAL RIDGE = 40
TOTAL UNITS PROJECTED = 72
PROJECTED VPD = 72 X 10 TRIPS/UNIT = 720 VPD



SOILS MAP
SCALE 1" = 200'

SOIL ID NUMBERS	SERIES NAME	FOUNDATION SUPPORT	SUBSURFACE DRAINAGE	INFILTRATION TRENCHES	EROSION POTENTIAL	GEOTECHNICAL REPORT REQ'D
74	LUNT MANASSA COMPLEX	POOR	POOR	POOR	MED.	TYPE III
84	PANORAMA LOAM	GOOD	FAIR	FAIR	MED.	TYPE I
91	SASSAFRAS MARINSCO COMPLEX	POOR	POOR	POOR	HIGH	TYPE III

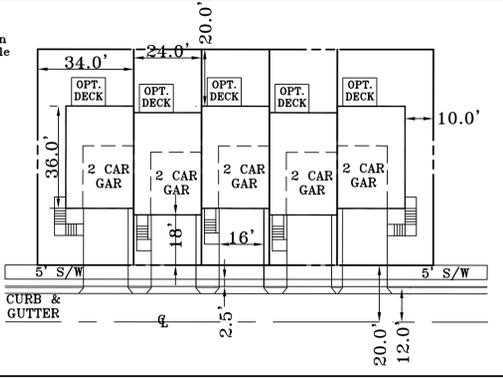
SOIL REPORT WILL BE PROVIDED WITH FINAL ENGINEERING PLANS



VICINITY MAP
(NTS)

PARKING TABULATION:
PARKING REQUIRED = 40 DU. X 2.7 = 108 PARKING PROVIDED
40 DU. X 2 GARAGE SPACES = 80 SPACES
40 DU. X 2 DRIVEWAY SPACES = 80 SPACES
VISITOR PARKING = 13 SPACES
TOTAL PARKING PROVIDED = 173 SPACES
OR 4.33 PER DU. > 2.7 REQUIRED

Note:
Side entry as shown is option with exception of units visible from Richmond hwy.



TYPICAL TOWNHOUSE UNITS
SCALE: 1" = 30'

GENERAL NOTES:
THE PROPERTY DELINEATED ON THE GDP IS LOCATED ON FAIRFAX COUNTY TAX ASSESSMENT MAP #107-4-((01))-0040A ZONED R-1 (4.9037 AC.), PROPOSED R-12. MASTER COMPREHENSIVE PLAN AMENDED FOR 8-12 DU. PER AC. R-12 APPLICATION NOTES AND TABULATIONS PER SECTION 16-202 PARAGRAPH 10, ITEMS "A"- "R"

- A) SCALE AND NORTH ARROW SHOWN HEREON.
- B) GENERALIZED DEVELOPMENT PLAN SHOWN HEREON. MAX DWELLING HEIGHT = 35 FEET.
- C) TRAFFIC CIRCULATION PLAN AND PEDESTRIAN SIDEWALK LOCATIONS SHOWN HEREON.
- D) OPEN SPACE AREAS AND COMMUNITY FACILITIES SHOWN HEREON.
- E) THE PROPOSED SANITARY SEWER LAYOUT IS SHOWN HEREON. A STORM WATER MANAGEMENT AREA IS PROPOSED WITHIN THE OPEN SPACE FOR DPW FAIRFAX COUNTY MAINTENANCE. OWNERSHIP OF OPEN AREA WILL BE CONVEYED TO THE HOMEOWNER'S ASSOCIATION.
- F) THERE ARE NO KNOWN EXISTING UTILITY EASEMENTS HAVING A WIDTH OF TWENTY-FIVE (25) FEET OR MORE.
- G) FOR PARKING SPACES REQUIRED AND PROVIDED (SEE TABULATIONS)
- H) TOPOGRAPHIC SURVEY IS TWO (2) FOOT CONTOUR INTERVAL AND DONE BY APEX SURVEY BASED ON VCS-83 DATUM
- I) THERE ARE NO SCENIC ASSETS OR NATURAL FEATURES DESERVING OF PRESERVATION ON THIS SITE.
- J) THE SITE WILL BE BOUNDED ON THE NORTH BY THE EXISTING MOOSE LODGE ZONED R-1. TO WEST BY GUNSTON SQUARE ZONED R-12. TO EAST BY HIGHLANDS AT GUNSTON ZONED PDH-16 AND TO SOUTH BY RICHMOND HWY.
- K) ACCESS WILL BE BY HAGEL CIRCLE PUBLIC INGRESS/EGRESS EASEMENT. THE PROPOSED DEVELOPMENT WILL BE COMPATIBLE WITH ADJACENT PROPERTIES.
- L) THERE ARE NO EXISTING STRUCTURES LOCATED ON THE SITE.
- M) THE PROPOSED DEVELOPMENT IS FOR RESIDENTIAL DEVELOPMENT; THEREFORE, NO F.A.R. CALCULATIONS ARE REQUIRED. MAXIMUM BUILDING HEIGHT IS 35'
- N) SEE PROPOSED SITE TABULATIONS FOR DENSITY AND OPEN SPACE CALCULATIONS.
- O) NO SPECIAL AMENITIES ARE PROPOSED FOR THIS DEVELOPMENT.
- P) PUBLIC WATER AND SANITARY SEWER WILL BE EXTENDED WITHIN THE SITE.
- Q) THE PROPOSED DEVELOPMENT SCHEDULE IS SUBJECT TO APPROVALS BY THE FAIRFAX COUNTY BOARD OF SUPERVISORS AND D.P.W.E.S., ALSO SUBJECT TO MARKET CONDITIONS.
- R) THIS PROPERTY LIES ENTIRELY WITHIN THE RMA AND OUTSIDE OF ANY DESIGNATED FLOOD PLAIN OR RPA.
- S) A 90 FOOT DEDICATION FOR PUBLIC STREET IS PROPOSED ALONG THE FRONTAGE WITH RICHMOND HWY (RT #1) FOR ENTIRE SOUTHERN BOUNDARY OF THE SITE.
- T) THERE ARE NO VISIBLE GRAVES, OBJECTS OR STRUCTURES MARKING PLACE OF BURIAL LOCATED ON THIS PROPERTY.
- U) LIMITS OF CLEARING AND/OR GRADING SHOWN ARE APPROXIMATE ONLY. FINAL LOCATIONS OF LIMITS OF CLEARING AND/OR GRADING IS TO BE DETERMINED BY FINAL ENGINEERING DESIGN.
- V) THE SINGLE-FAMILY ATTACHED DWELLING FOOTPRINTS REPRESENTED HEREON ARE APPROXIMATE. FEATURES SUCH AS SUNROOMS, DECKS, PATIOS, CHIMNEYS, STAIRS AND STOOPS ARE OPTIONAL FOR EACH DWELLING AND WILL BE SPECIFIED IN THE PLAN REQUIRED TO ACCOMPANY THE APPLICATION FOR BUILDING PERMITS. ALL UNITS WILL HAVE GARAGES.
- W) THE DEVELOPMENT SHALL CONFORM TO ALL CURRENT AND APPLICABLE ORDINANCES, REGULATIONS AND, ADOPTED STANDARDS EXCEPT FOR THOSE WAIVERS, MODIFICATIONS AND/OR VARIANCES REQUESTED AND APPROVED.

WAIVERS
1) WAIVER OF SERVICE DRIVE WILL BE REQUESTED
2) WAIVER OF TRAIL WILL BE REQUESTED ALONG ROOT 1 FRONTAGE.

SITE TABULATION
PARCEL 40A AREA = 213,605 SF OR 4.9037 AC
CURRENT ZONING R1

PROPOSED ZONING = R-12
TOTAL SITE AREA = 213,605 SF OR 4.9037 AC

PROPOSED UNITS 40 UNITS
PROPOSED DENSITY = 8.1571 DU/AC
MASTER PLAN 8-12 DU/AC

DEVELOPER
McShay Communities
6212 B Old Franconia Road
Alexandria, VA 22310
TELL: 703-719-9805
FAX: 703-719-9807
www.mcshaycommunities.com

- SHEET INDEX:**
- COVER SHEET
 - PLANVIEW & BOUNDARY SURVEY
 - PRELIMINARY BMP. CALC.
 - PRELIMINARY BMP. CALC.
 - PRELIMINARY BMP. CALC.
 - PRELIMINARY SWM CALC.
 - SWM ROUTING, OUTFALL CALC. & NARRATIVE
 - EXISTING VEGETATION MAP
 - LANDSCAPE PLAN
 - TREE PRESERVATION PLAN
 - ROUTE #1 STRIPING PLAN (PROP. LEFT TURN LANE)
 - ARCHITECTURAL ELEVATION VIEW

NOTE:
• TO THE BEST OF OUR KNOWLEDGE THERE ARE NO HAZARDOUS OR TOXIC SUBSTANCES AS SET FORTH IN TITLE 40, CODE OF FEDERAL REFS PARTS 116.4, 302.4 & 355 ARE PRESENT ON THIS SITE.
• MINIMUM REAR YARDS PROVIDED ARE 20'X24' AS SHOWN ON THE PLAN AND TYPICAL TOWNHOUSE UNITS (SEE THIS SHEET)
• Left turn lane from north bound Richmond Highway into the site will be provided as described in the proffer statement at the time of site plan.

SOIL & STRUCTURE CONSULTING, INC.
• CIVIL ENGINEERING • LAND PLANNING
1889 Preston White Drive
Reston, VA 20191
PH: 703-391-8911 FAX: 703-995-4680
Email: Resa@soilstructure.com



ROYAL RIDGE TOWN HOUSES
TAX-MAP #107-4-((01)), parcels 0040A
MT VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA
GENERALIZED DEVELOPMENT PLAN
COVER SHEET

SCALE: AS-SHOWN

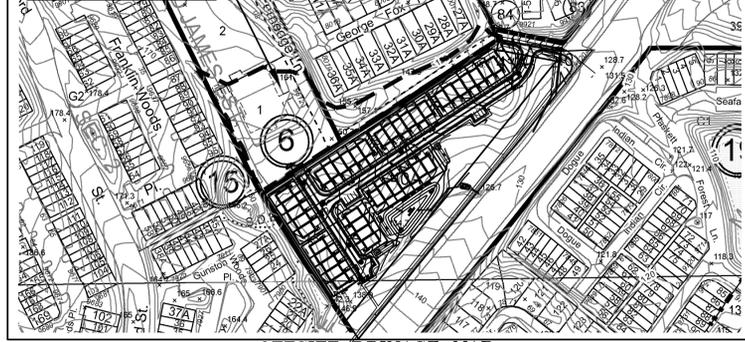
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REVISIONS:

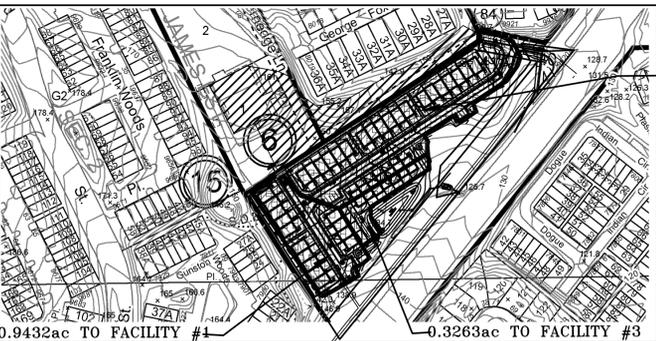
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REV: 03-23-2013
REV: 04-12-2013
REV: 06-24-2013
REV: 08-12-2013
REV: 10-28-2013
REV: 02-08-2014
REV: 02-27-2014
REV: 03-26-2014
REV: 04-10-2014
REV: 10-01-2014

SHEET 1 OF 12
FILE NO. GDP-1094

OFFSITE 2.35 AC



OFFSITE DRAINAGE MAP
SCALE: 1"=200'



2.0541ac TO FACILITY #2

0.9432ac TO FACILITY #1
0.3263ac TO FACILITY #3

OFFSITE = 2.05 ac
ONSITE (CONTROLLED) = 3.2836 ac
0.9432 AC TO FACILITY #1
2.0541 AC TO FACILITY #2
0.3263 AC TO FACILITY #3
ONSITE (UNCONTROLLED) = 1.5801 ac

BMP MAP
SCALE: 1"=200'

BMP FACILITY DESIGN CALCULATIONS

1. WATER QUALITY NARRATIVE

SITE AREA IS 4.9037 ACRES AND IS PROPOSED FOR DEVELOPMENT OF 40 UNIT ATTACHED SINGLE FAMILY UNITS. AFTER ROW DEDICATION TO ROAD THERE WILL BE 0.4136 ACERS OF SITE THAT THREE (3) PROPOSED FILTERING SYSTEM WILL PROVIDE CONTROL FOR 3.3236 ACERS OF THE SITE. THERE IS ALSO WITH 2.05 ACERS OF OFFSITE THAT ALSO DRAIN THROUGH THE FACILITIES. THERE IS NO WATER QUALITY PROVIDED FOR OFFSITE RUNOFF ONLY 0% CREDIT IS TAKEN FOR THE RUNOFF. WATER QUALITY WILL BE PROVIDED UTILIZING THE THREE SAND FILTRATION SYSTEM THAT WILL TREAT FIRST 1/2 INCH OF RAINFALL WITH 65% REMOVAL EFFICIENCY. DETENTION FOR SITE WILL BE PROVIDED UTILIZING A DRY DETENTION FACILITY.

Virginia Runoff Reduction Method New Development Worksheet - v2.8 - June 2014
To be used w/ DRAFT 2013 BMP Standards and Specifications

Site Data

Project Name: Royal Ridge	
Date: 09/19/2014	
data input cells	
calculation cells	
constant values	

1. Post-Development Project & Land Cover Information

Constants	
Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Phosphorus EMC (mg/L)	0.26
Target Phosphorus Target Load (lb/acre/yr P)	0.41
	0.90
Nitrogen EMC (mg/L)	1.86

Land Cover (acres)					
	A soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) - undisturbed, protected forest/open space or reforested land	0.00	0.38	0.70	0.00	1.08
Managed Turf (acres) - disturbed, graded for yards or other turf to be mowed/managed	0.00	0.02	0.38	0.00	0.41
Impervious Cover (acres)	0.00	0.42	1.41	0.00	1.83
				Total	3.32

Rv Coefficients				
	A soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

Land Cover Summary	
Forest/Open Space Cover (acres)	1.08
Weighted Rv(forest)	0.04
% Forest	33%
Managed Turf Cover (acres)	0.41
Weighted Rv(turf)	0.22
% Managed Turf	12%
Impervious Cover (acres)	1.83
Rv(impervious)	0.95
% Impervious	55%
Total Site Area (acres)	3.32
Site Rv	0.56
Post-Development Treatment Volume (acre-ft)	0.16
Post-Development Treatment Volume (cubic feet)	6,784
Post-Development Load (TP) (lb/yr)	4.26
Total Load (TP) Reduction Required (lb/yr)	2.90
Post-Development Load (TN) (lb/yr)	30.49

Drainage Area A																	
Drainage Area A Land Cover (acres)																	
	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover P											
Forest/Open Space (acres)	0.00	0.00	0.32	0.00	0.32	0.04											
Managed Turf (acres)	0.00	0.00	0.13	0.00	0.13	0.22											
Impervious Cover (acres)	0.00	0.00	0.48	0.00	0.48	0.95											
	Total						0.84										
Post-Development Treatment Volume (ac-ft) 1.66																	
Apply Runoff Reduction Practices to Reduce Treatment Volume & Post-Development Load in Drainage Area A																	
Practice	Unit	Description of Credit	Credits	Credit Area (acres)	Volume from Practice (cft)	Runoff Reduction (cft)	Remaining Volume (cft)	Phosphorus Efficiency (%)	Phosphorus Load from Practice (lb)	Unreduced Phosphorus Load (lb)	Phosphorus Removed by Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Treatment to be Employed	Nitrogen Efficiency (%)	Nitrogen Load from Upstream Practice (lb)	Unreduced Nitrogen Load (lb)	Nitrogen Removed by Practice (lb)
1. Vegetated Roof																	
1.a. Vegetated Roof #1 (Spec #1)	acres of green roof	45% runoff volume reduction	0.45	0.00	0	0	0	0	0.00	0.00	0.00	0.00		0	0.00	0.00	0.00
1.b. Vegetated Roof #2 (Spec #1)	acres of green roof	60% runoff volume reduction	0.60	0.00	0	0	0	0	0.00	0.00	0.00	0.00		0	0.00	0.00	0.00
2. Roofing Disconnection																	
2.a. Stormwater Disconnection to A/D Soils (Spec #1)	impervious areas disconnected	50% runoff volume reduction for treated area	0.50	0.00	0	0	0	0	0.00	0.00	0.00	0.00		0	0.00	0.00	0.00
2.b. Stormwater Disconnection to C/D Soils (Spec #1)	impervious areas disconnected	75% runoff volume reduction for treated area	0.25	0.00	0	0	0	0	0.00	0.00	0.00	0.00		0	0.00	0.00	0.00
2.c. To Soil Amended Fiber Path as per manufacturer's instructions (Spec #1)	impervious areas disconnected	50% runoff volume reduction for treated area	0.50	0.00	0	0	0	25	0.00	0.00	0.00	0.00		0	0.00	0.00	0.00
2.d. To Dry Well or French Drain #2 (Spec #1)	impervious areas disconnected	50% runoff volume reduction for treated area	0.90	0.00	0	0	0	25	0.00	0.00	0.00	0.00		15	0.00	0.00	0.00
2.e. To Rain Garden or Stormwater Infiltration #2 (Spec #1)	impervious areas disconnected	40% of volume captured	0.40	0.00	0	0	0	25	0.00	0.00	0.00	0.00		40	0.00	0.00	0.00
2.f. To Rain Garden #2 (Spec #1)	impervious areas disconnected	50% runoff volume reduction for treated area	0.80	0.00	0	0	0	50	0.00	0.00	0.00	0.00		60	0.00	0.00	0.00
2.g. To Rainwater Harvesting (Spec #1)	impervious areas captured	50% runoff volume reduction for treated area	0.60	0.00	0	0	0	0	0.00	0.00	0.00	0.00		0	0.00	0.00	0.00
2.h. To Stormwater Planter (Stormwater Infiltration #2, Appendix A)	impervious areas disconnected	40% runoff volume reduction for treated area	0.40	0.00	0	0	0	25	0.00	0.00	0.00	0.00		40	0.00	0.00	0.00
3. Permeable Pavement																	
3.a. Permeable Pavement #1 (Spec #1)	acres of permeable pavement - areas of "normal" application	45% runoff volume reduction	0.45	0.00	0	0	0	25	0.00	0.00	0.00	0.00		25	0.00	0.00	0.00
3.b. Permeable Pavement #2 (Spec #1)	acres of permeable pavement	75% runoff volume reduction	0.75	0.00	0	0	0	25	0.00	0.00	0.00	0.00		25	0.00	0.00	0.00
4. Grass Channel																	
4.a. Grass Channel A/B Soils (Spec #1)	impervious areas draining to grass channels	50% runoff volume reduction	0.20	0.00	0	0	0	15	0.00	0.00	0.00	0.00		20	0.00	0.00	0.00
4.b. Grass Channel C/D Soils (Spec #1)	impervious areas draining to grass channels	75% runoff volume reduction	0.10	0.00	0	0	0	15	0.00	0.00	0.00	0.00		20	0.00	0.00	0.00
4.c. Grass Channel with Corrugated Sails as per specs (see Spec #4)	impervious areas draining to grass channels	50% runoff volume reduction	0.20	0.00	0	0	0	15	0.00	0.00	0.00	0.00		20	0.00	0.00	0.00
4.d. Grass Channel with Corrugated Sails as per specs (see Spec #4)	impervious areas draining to grass channels	75% runoff volume reduction	0.20	0.00	0	0	0	15	0.00	0.00	0.00	0.00		20	0.00	0.00	0.00
5. Dry Swale																	
5.a. Dry Swale #1 (Spec #1)	impervious areas draining to dry swales	40% runoff volume reduction	0.40	0.00	0	0	0	20	0.00	0.00	0.00	0.00		25	0.00	0.00	0.00
5.b. Dry Swale #2 (Spec #1)	impervious areas draining to dry swales	60% runoff volume reduction	0.60	0.00	0	0	0	40	0.00	0.00	0.00	0.00		25	0.00	0.00	0.00
5.c. Dry Swale #2 (Spec #1)	impervious areas draining to dry swales	80% runoff volume reduction	0.60	0.00	0	0	0	40	0.00	0.00	0.00	0.00		35	0.00	0.00	0.00
6. Bioretention																	
6.a. Bioretention #1 or Urban Bioretention (Spec #1)	impervious areas draining to bioretention	40% runoff volume reduction	0.40	0.00	0	0	0	25	0.00	0.00	0.00	0.00		40	0.00	0.00	0.00
6.b. Bioretention #2 (Spec #1)	impervious areas draining to bioretention	60% runoff volume reduction	0.80	0.00	0	0	0	50	0.00	0.00	0.00	0.00		40	0.00	0.00	0.00
6.c. Bioretention #2 (Spec #1)	impervious areas draining to bioretention	80% runoff volume reduction	0.80	0.00	0	0	0	50	0.00	0.00	0.00	0.00		60	0.00	0.00	0.00
7. Infiltration																	
7.a. Infiltration #1 (Spec #1)	impervious areas draining to infiltration	50% runoff volume reduction	0.50	0.00	0	0	0	25	0.00	0.00	0.00	0.00		15	0.00	0.00	0.00
7.b. Infiltration #2 (Spec #1)	impervious areas draining to infiltration	75% runoff volume reduction	0.50	0.00	0	0	0	25	0.00	0.00	0.00	0.00		15	0.00	0.00	0.00
7.c. Infiltration #2 (Spec #1)	impervious areas draining to infiltration	90% runoff volume reduction	0.90	0.00	0	0	0	25	0.00	0.00	0.00	0.00		15	0.00	0.00	0.00
8. Extended Detention Pond																	
8.a. ED #1 (Spec #1)	impervious areas draining to ED	0% runoff volume reduction	0.00	0.00	1756	0	1756	15	0.37	0.00	0.00	0.32		10	4.21	0.00	0.42
8.b. ED #2 (Spec #1)	impervious areas draining to ED	0% runoff volume reduction	0.00	0.00	104	0	104	15	0.62	0.00	0.00	0.62		10	0.26	0.00	0.63
8.c. ED #2 (Spec #1)	impervious areas draining to ED	15% runoff volume reduction	0.15	0.00	0	0	0	15	0.00	0.00	0.00	0.00		10	0.00	0.00	0.00
8.d. ED #2 (Spec #1)	impervious areas draining to ED	55% runoff volume reduction	0.15	0.00	0	0	0	15	0.00	0.00	0.00	0.00		10	0.00	0.00	0.00
9. Shallowflow to Filter/Over Space																	
9.a. Shallowflow to Conservation Area with A/B Soils (Spec #1)	impervious areas draining to conserved open space	75% runoff volume reduction for treated area	0.75	0.00	0	0	0	0	0.00	0.00	0.00	0.00		0	0.00	0.00	0.00
9.b. Shallowflow to Conservation Area with C/D Soils (Spec #1)	impervious areas draining to conserved open space	50% runoff volume reduction for treated area	0.50	0.00	0	0	0	0	0.00	0.00	0.00	0.00		0	0.00	0.00	0.00
9.c. Shallowflow to Vegetated Filter Strip in a Soils or Corrugated Sails (Spec #1)	impervious areas draining to filter strip	50% runoff volume reduction for treated area	0.50	0.00	0	0	0	0	0.00	0.00	0.00	0.00		0	0.00	0.00	0.00
9.d. Shallowflow to Vegetated Filter Strip in a Soils or Corrugated Sails (Spec #1)	impervious areas draining to filter strip	75% runoff volume reduction for treated area	0.50	0.00	0	0	0	0	0.00	0.00	0.00	0.00		0	0.00	0.00	0.00
TOTAL IMPERVIOUS COVER TREATED (ac-ft) 0.00																	
TOTAL TURF AREA TREATED (ac-ft) 0.00																	
AREA CHECK OK																	
TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr) 2.90																	
TOTAL PHOSPHORUS REMOVAL IN D.A. A (lb/yr) 0																	
PHOSPHORUS REMOVAL FROM RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.06																	
SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS																	
TOTAL NITROGEN REMOVAL REQUIRED ON SITE (lb/yr) 30.49																	
TOTAL NITROGEN REMOVAL IN D.A. A (lb/yr) 0																	
NITROGEN REMOVAL FROM RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00																	
SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS																	
Apply Practices that Remove Pollutants but Do Not Reduce Runoff Volume																	
Practice	Unit	Description of Credit	Credits	Credit Area (acres)	Volume from Practice (cft)	Runoff Reduction (cft)	Remaining Volume (cft)	Phosphorus Efficiency (%)	Phosphorus Load from Practice (lb)	Unreduced Phosphorus Load (lb)	Phosphorus Removed by Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Treatment to be Employed	Nitrogen Efficiency (%)	Nitrogen Load from Upstream Practice (lb)	Unreduced Nitrogen Load (lb)	Nitrogen Removed by Practice (lb)
10. Wet Swale (Coastal Plain)																	
10.a. Wet Swale #1 (Spec #1)	impervious areas draining to wet swales	0% runoff volume reduction	0.00	0.00	0	0	0	20	0.00	0.00	0.00	0.00		25	0.00	0.00	0.00
10.b. Wet Swale #1 (Spec #1)	impervious areas draining to wet swales	0% runoff volume reduction	0.00	0.00	0	0	0	20	0.00	0.00	0.00	0.00		25	0.00	0.00	0.00
10.c. Wet Swale #2 (Spec #1)	impervious areas draining to wet swales	0% runoff volume reduction	0.00	0.00	0	0	0	40	0.00	0.00	0.00	0.00		35	0.00	0.00	0.00
10.d. Wet Swale #2 (Spec #1)	impervious areas draining to wet swales	0% runoff volume reduction	0.00	0.00	0	0	0	40	0.00	0.00	0.00	0.00		35	0.00	0.00	0.00
11. Filtering Practices																	
11.a. Filtering Practice #1 (Spec #1)	impervious areas draining to filter	0% runoff volume reduction	0.00	0.00	0	0	0	60	0.00	0.00	0.00	0.00		30	0.00	0.00	0.00
11.b. Filtering Practice #1 (Spec #1)	impervious areas draining to filter	0% runoff volume reduction	0.00	0.00	0	0	0	60	0.00	0.00	0.00	0.00		30	0.00	0.00	0.00
11.c. Filtering Practice #2 (Spec #1)	impervious areas draining to filter	0% runoff volume reduction	0.00	0.49	0	0	1756	65	0.50	1.57	0.70	0.37	55 ED #1	45	0.00	7.66	3.45
11.d. Filtering Practice #2 (Spec #1)	impervious areas draining to filter	0% runoff volume reduction	0.00	0.15	0	0	104	65	0.60	0.67	0.04	0.02	55 ED #1	45	0.00	0.67	0.21
12. Constructed Wetland																	
12.a. Constructed Wetland #1 (Spec #1)	impervious areas draining to wetland	0% runoff volume reduction	0.00	0.00	0	0	0	50	0.00	0.00	0.00	0.00		25	0.00	0.00	0.00
12.b. Constructed Wetland #1 (Spec #1)	impervious areas draining to wetland	0% runoff volume reduction	0.00	0.00	0	0	0	50	0.00	0.00	0.00	0.00		25	0.00	0.00	0.00
12.c. Constructed Wetland #2 (Spec #1)	impervious areas draining to wetland	0% runoff volume reduction	0.00	0.00	0	0	0	75	0.00	0.00							

Drainage Area B

Drainage Area B Land Cover (Acres)	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)	0.00	0.29	0.38	0.00	0.66	0.04
Managed Turf Areas (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Impervious Cover (acres)	0.00	0.22	0.02	0.00	0.24	0.95
Total	0.00	0.51	0.40	0.00	0.91	0.99

Post Development Treatment Volume (cu ft) **4263**

Apply Runoff Reduction Practices to Reduce Treatment Volume & Post-Development Load in Drainage Area B

Practice	Unit	Description of Credit	Credits	Credit Area (Acres)	Volume from Upstream RR Practice (cu ft)	Runoff Reduction (cu ft)	Remaining Runoff Volume (cu ft)	Phosphorus Load from Upstream RR Practice (lbs)	Unreduced Phosphorus Load to Practice (lbs)	Phosphorus Removed by Practice (lbs)	Remaining Phosphorus Load (lbs)	Downstream Treatment to be Employed
1. Vegetated Roof												
1.a. Vegetated Roof #1 (Spec #1)	acres of green roof	45% runoff volume reduction	0.45	0.00	0	0	0	0	0.00	0.00	0.00	
1.b. Vegetated Roof #2 (Spec #1)	acres of green roof	80% runoff volume reduction	0.60	0.00	0	0	0	0	0.00	0.00	0.00	
2. Roofing Disconnection												
2.a. Single Disconnection to A/B Soils (Spec #1)	impervious acres disconnected	50% runoff volume reduction for treated area	0.50	0.00	0	0	0	0	0.00	0.00	0.00	
2.b. Single Disconnection to C/D Soils (Spec #1)	impervious acres disconnected	20% runoff volume reduction for treated area	0.25	0.00	0	0	0	0	0.00	0.00	0.00	
2.c. To Soil Amended Filter Path as per specifications (see Drainage CD sheet) (Spec #1)	impervious acres disconnected	50% runoff volume reduction for treated area	0.50	0.00	0	0	0	0	0.00	0.00	0.00	
2.d. To Dry Well or French Drain #1 (Micro-infiltration #1) (Spec #1)	impervious acres disconnected	50% runoff volume reduction for treated area	0.50	0.00	0	0	25	0.00	0.00	0.00	0.00	
2.e. To Dry Well or French Drain #2 (Micro-infiltration #2) (Spec #1)	impervious acres disconnected	50% runoff volume reduction for treated area	0.50	0.00	0	0	25	0.00	0.00	0.00	0.00	
2.f. To Rain Garden #1 (Micro-Bioswale #1) (Spec #1)	impervious acres disconnected	40% of volume captured	0.40	0.00	0	0	25	0.00	0.00	0.00	0.00	
2.g. To Rain Garden #2 (Micro-Bioswale #2) (Spec #1)	impervious acres disconnected	80% runoff volume reduction for treated area	0.80	0.00	0	0	50	0.00	0.00	0.00	0.00	
2.h. To Rainwater Harvesting (Spec #1)	impervious acres captured	based on tank size and design specifications (see Spec #1)	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00	
2.i. To Stormwater Ponds (Urban Bioswales) (Spec #1, Appendix A)	impervious acres disconnected	40% runoff volume reduction for treated area	0.40	0.00	0	0	25	0.00	0.00	0.00	0.00	
3. Permeable Pavement												
3.a. Permeable Pavement #1 (Spec #1)	acres of permeable pavement + acres of "natural" (applicable) impervious pavement	45% runoff volume reduction	0.45	0.00	0	0	25	0.00	0.00	0.00	0.00	
3.b. Permeable Pavement #2 (Spec #1)	acres of permeable pavement	75% runoff volume reduction	0.75	0.00	0	0	25	0.00	0.00	0.00	0.00	
4. Grass Channel												
4.a. Grass Channel A/B Soils (Spec #1)	impervious acres draining to grass channels	20% runoff volume reduction	0.20	0.00	0	0	15	0.00	0.00	0.00	0.00	
4.b. Grass Channel C/D Soils (Spec #1)	impervious acres draining to grass channels	10% runoff volume reduction	0.10	0.00	0	0	15	0.00	0.00	0.00	0.00	
4.c. Grass Channel with Compost Amended Soils as per specs (see Spec #1)	impervious acres draining to grass channels	30% runoff volume reduction	0.20	0.00	0	0	15	0.00	0.00	0.00	0.00	
5. Dry Swale												
5.a. Dry Swale #1 (Spec #1)	impervious acres draining to dry swale	40% runoff volume reduction	0.40	0.00	0	0	20	0.00	0.00	0.00	0.00	
5.b. Dry Swale #2 (Spec #1)	turf acres draining to dry swale	80% runoff volume reduction	0.60	0.00	0	0	40	0.00	0.00	0.00	0.00	
6. Bioswale												
6.a. Bioswale #1 or Urban Bioswale (Spec #1)	impervious acres draining to bioswale	40% runoff volume reduction	0.40	0.00	0	0	25	0.00	0.00	0.00	0.00	
6.b. Bioswale #2 (Spec #1)	impervious acres draining to bioswale	80% runoff volume reduction	0.80	0.00	0	0	50	0.00	0.00	0.00	0.00	
7. Infiltration												
7.a. Infiltration #1 (Spec #1)	impervious acres draining to infiltration	50% runoff volume reduction	0.50	0.00	0	0	25	0.00	0.00	0.00	0.00	
7.b. Infiltration #2 (Spec #1)	impervious acres draining to infiltration	80% runoff volume reduction	0.90	0.00	0	0	25	0.00	0.00	0.00	0.00	
8. Extended Detention Pond												
8.a. ED #1 (Spec #1)	impervious acres draining to ED	0% runoff volume reduction	0.00	0.00	3878	0	3878	15	0.85	0.00	0.13	0.72
8.b. ED #2 (Spec #1)	impervious acres draining to ED	0% runoff volume reduction	0.00	0.00	204	0	204	15	0.04	0.00	0.01	0.04
9. Sheeloff to Filter/Open Space												
9.a. Sheeloff to Conservation Area with A/B Soils (Spec #1)	impervious acres draining to conserved open space	75% runoff volume reduction for treated area	0.75	0.00	0	0	0	0.00	0.00	0.00	0.00	
9.b. Sheeloff to Conservation Area with C/D Soils (Spec #1)	impervious acres draining to conserved open space	20% runoff volume reduction for treated area	0.50	0.00	0	0	0	0.00	0.00	0.00	0.00	
9.c. Sheeloff to Vegetated Filter Strip in A Soils or Compost Amended B/C/D Soils (Spec #1 & #2)	impervious acres draining to filter strip	50% runoff volume reduction for treated area	0.50	0.00	0	0	0	0.00	0.00	0.00	0.00	
TOTAL IMPERVIOUS COVER TREATED (in) 0.00												
TOTAL TURF AREA TREATED (in) 0.00												
AREA CHECK OK												
TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr) 2.90												
TOTAL PHOSPHORUS REMOVAL IN D.A. B (lb/yr) 0.13												
PHOSPHORUS REMOVAL FROM RUNOFF REDUCTION PRACTICES IN D.A. B (lb/yr) 0.13												
SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS												
NITROGEN REMOVAL FROM RUNOFF REDUCTION PRACTICES IN D.A. B (lb/yr) 0.25												

Apply Practices that Remove Pollutants but Do Not Reduce Runoff Volume

Practice	Unit	Description of Credit	Credits	Credit Area (Acres)	Volume from Upstream RR Practice (cu ft)	Runoff Reduction (cu ft)	Remaining Runoff Volume (cu ft)	Phosphorus Load from Upstream RR Practice (lbs)	Unreduced Phosphorus Load to Practice (lbs)	Phosphorus Removed by Practice (lbs)	Remaining Phosphorus Load (lbs)	Downstream Treatment to be Employed
10. Wet Swale (Coastal Plain)												
10.a. Wet Swale #1 (Spec #1)	impervious acres draining to wet swale	0% runoff volume reduction	0.00	0.00	0	0	20	0.00	0.00	0.00	0.00	
10.b. Wet Swale #2 (Spec #1)	turf acres draining to wet swale	0% runoff volume reduction	0.00	0.00	0	0	20	0.00	0.00	0.00	0.00	
10.c. Wet Swale #3 (Spec #1)	impervious acres draining to wet swale	0% runoff volume reduction	0.00	0.00	0	0	40	0.00	0.00	0.00	0.00	
10.d. Wet Swale #4 (Spec #1)	turf acres draining to wet swale	0% runoff volume reduction	0.00	0.00	0	0	40	0.00	0.00	0.00	0.00	
11. Filtering Practices												
11.a. Filtering Practice #1 (Spec #1)	impervious acres draining to filter	0% runoff volume reduction	0.00	0.00	0	0	60	0.00	0.00	0.00	0.00	
11.b. Filtering Practice #2 (Spec #1)	turf acres draining to filter	0% runoff volume reduction	0.00	0.00	0	0	60	0.00	0.00	0.00	0.00	
11.c. Filtering Practice #3 (Spec #1)	impervious acres draining to filter	0% runoff volume reduction	0.00	1.12	0	0	3878	65	0.00	2.43	1.68	8.a. ED #1
11.d. Filtering Practice #4 (Spec #1)	turf acres draining to filter	0% runoff volume reduction	0.00	0.26	0	0	204	65	0.13	0.08	0.04	8.a. ED #1
12. Constructed Wetland												
12.a. Constructed Wetland #1 (Spec #1)	impervious acres draining to wetland	0% runoff volume reduction	0.00	0.00	0	0	50	0.00	0.00	0.00	0.00	
12.b. Constructed Wetland #2 (Spec #1)	turf acres draining to wetland	0% runoff volume reduction	0.00	0.00	0	0	50	0.00	0.00	0.00	0.00	
12.c. Constructed Wetland #3 (Spec #1)	impervious acres draining to wetland	0% runoff volume reduction	0.00	0.00	0	0	75	0.00	0.00	0.00	0.00	
12.d. Constructed Wetland #4 (Spec #1)	turf acres draining to wetland	0% runoff volume reduction	0.00	0.00	0	0	75	0.00	0.00	0.00	0.00	
13. Wet Ponds												
13.a. Wet Pond #1 (Spec #1)	impervious acres draining to wet pond	0% runoff volume reduction	0.00	0.00	0	0	50	0.00	0.00	0.00	0.00	
13.b. Wet Pond #2 (Spec #1)	turf acres draining to wet pond	0% runoff volume reduction	0.00	0.00	0	0	50	0.00	0.00	0.00	0.00	
13.c. Wet Pond #3 (Coastal Plain) (Spec #1)	impervious acres draining to wet pond	0% runoff volume reduction	0.00	0.00	0	0	45	0.00	0.00	0.00	0.00	
13.d. Wet Pond #4 (Coastal Plain) (Spec #1)	turf acres draining to wet pond	0% runoff volume reduction	0.00	0.00	0	0	45	0.00	0.00	0.00	0.00	
13.e. Wet Pond #5 (Spec #1)	impervious acres draining to wet pond	0% runoff volume reduction	0.00	0.00	0	0	75	0.00	0.00	0.00	0.00	
13.f. Wet Pond #6 (Spec #1)	turf acres draining to wet pond	0% runoff volume reduction	0.00	0.00	0	0	75	0.00	0.00	0.00	0.00	
13.g. Wet Pond #7 (Coastal Plain) (Spec #1)	impervious acres draining to wet pond	0% runoff volume reduction	0.00	0.00	0	0	65	0.00	0.00	0.00	0.00	
13.h. Wet Pond #8 (Coastal Plain) (Spec #1)	turf acres draining to wet pond	0% runoff volume reduction	0.00	0.00	0	0	65	0.00	0.00	0.00	0.00	
14. Manufactured BMP												
14.a. Inset Name of Device	impervious acres draining to device	0% runoff volume reduction	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00	
14.b. Inset Name of Device	turf acres draining to device	0% runoff volume reduction	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00	
TOTAL IMPERVIOUS COVER TREATED (in) 0.00												
TOTAL TURF AREA TREATED (in) 0.00												
AREA CHECK OK												
PHOSPHORUS REMOVAL BY PRACTICES THAT DO NOT REDUCE RUNOFF VOLUME IN D.A. B 1.67												
TOTAL PHOSPHORUS REMOVAL IN D.A. B (lb/yr) 1.80												
SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS												
NITROGEN REMOVAL BY PRACTICES THAT DO NOT REDUCE RUNOFF VOLUME IN D.A. B 8.25												
TOTAL NITROGEN REMOVAL IN D.A. B (lb/yr) 8.25												

Drainage Area C

Drainage Area C Land Cover (Acres)	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)	0.00	0.10	0.00	0.00	0.10	0.03
Managed Turf Areas (acres)	0.00	0.02	0.00	0.00	0.02	0.00
Impervious Cover (acres)	0.00	0.20	0.00	0.00	0.20	0.97
Total	0.00	0.12	0.00	0.00	0.12	0.03

Post Development Treatment Volume (cu ft) **726**

Apply Runoff Reduction Practices to Reduce Treatment Volume & Post-Development Load in Drainage Area C

Practice	Unit	Description of Credit	Credits	Credit Area (Acres)	Volume from Upstream RR Practice (cu ft)	Runoff Reduction (cu ft)	Remaining Runoff Volume (cu ft)	Phosphorus Load from Upstream RR Practice (lbs)	Unreduced Phosphorus Load to Practice (lbs)	Phosphorus Removed by Practice (lbs)	Remaining Phosphorus Load (lbs)	Downstream Treatment to be Employed
1. Vegetated Roof												
1.a. Vegetated Roof #1 (Spec #1)	acres of green roof	45% runoff volume reduction	0.45	0.00	0	0	0	0	0.00	0.00	0.00	
1.b. Vegetated Roof #2 (Spec #1)	acres of green roof	80% runoff volume reduction	0.60	0.00	0	0	0	0	0.00	0.00	0.00	
2. Roofing Disconnection												
2.a. Single Disconnection to A/B Soils (Spec #1)	impervious acres disconnected	50% runoff volume reduction for treated area	0.50	0.00	0	0	0	0	0.00	0.00	0.00	
2.b. Single Disconnection to C/D Soils (Spec #1)	impervious acres disconnected	20% runoff volume reduction for treated area	0.25	0.00	0	0	0	0	0.00	0.00	0.00	
2.c. To Soil Amended Filter Path as per specifications (see Drainage CD sheet) (Spec #1)	impervious acres disconnected	50% runoff volume reduction for treated area	0.50	0.00	0	0	0	0	0.00	0.00	0.00	
2.d. To Dry Well or French Drain #1 (Micro-infiltration #1) (Spec #1)	impervious acres disconnected	50% runoff volume reduction for treated area	0.50	0.00	0	0	25	0.00	0.00	0.00	0.00	
2.e. To Dry Well or French Drain #2 (Micro-infiltration #2) (Spec #1)	impervious acres disconnected	50% runoff volume reduction for treated area	0.50	0.00	0	0	25	0.00	0.00	0.00	0.00	
2.f. To Rain Garden #1 (Micro-Bioswale #1) (Spec #1)	impervious acres disconnected	40% of volume captured	0.40	0.00	0	0	25	0.00	0.00	0.00	0.00	
2.g. To Rain Garden #2 (Micro-Bioswale #2) (Spec #1)	impervious acres disconnected	80% runoff volume reduction for treated area	0.80	0.00	0	0	50	0.00	0.00	0.00	0.00	
2.h. To Rainwater Harvesting (Spec #1)	impervious acres captured	based on tank size and design specifications (see Spec #1)	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00	
2.i. To Stormwater Ponds (Urban Bioswales) (Spec #1, Appendix A)	impervious acres disconnected	40% runoff volume reduction for treated area	0.40	0.00	0	0	25	0.00	0.00	0.00	0.00	
3. Permeable Pavement												
3.a. Permeable Pavement #1 (Spec #1)	acres of permeable pavement + acres of "natural" (applicable) impervious pavement	45% runoff volume reduction	0.45	0.00	0	0	25	0.00	0.00	0.00	0.00	
3.b. Permeable Pavement #2 (Spec #1)	acres of permeable pavement	75% runoff volume reduction	0.75	0.00	0	0	25	0.00	0.00	0.00	0.00	
4. Grass Channel												
4.a. Grass Channel A/B Soils (Spec #1)	impervious acres draining to grass channels	20% runoff volume reduction	0.20	0.00	0	0	15	0.00	0.00	0.00	0.00	
4.b. Grass Channel C/D Soils (Spec #1)	impervious acres draining to grass channels	10% runoff volume reduction	0.10	0.00	0	0	15	0.00	0.00	0.00	0.00	
4.c. Grass Channel with Compost Amended Soils as per specs (see Spec #1)	impervious acres draining to grass channels	30% runoff volume reduction	0.20	0.00	0	0	15	0.00	0.00	0.00	0.00	
5. Dry Swale												
5.a. Dry Swale #1 (Spec #1)	impervious acres draining to dry swale	40% runoff volume reduction	0.40	0.00	0	0	20	0.00	0.00	0.00	0.00	
5.b. Dry Swale #2 (

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
IMPERVIOUS COVER	0.49	1.13	0.20	0.00	0.00	OK
IMPERVIOUS COVER TREATED	0.49	1.12	0.20	0.00	0.00	OK
TURF AREA	0.13	0.26	0.02	0.00	0.00	OK
TURF AREA TREATED	0.13	0.26	0.02	0.00	0.00	OK
AREA CHECK	OK	OK	OK	OK	OK	

Phosphorus	
TOTAL TREATMENT VOLUME (cf)	6,784
TOTAL PHOSPHORUS LOAD REDUCTION REQUIRED (LB/YEAR)	2.90
RUNOFF REDUCTION (cf)	0
PHOSPHORUS LOAD REDUCTION ACHIEVED (LB/YR)	2.91
ADJUSTED POST-DEVELOPMENT PHOSPHORUS LOAD (TP) (lb/yr)	1.35
REMAINING PHOSPHORUS LOAD REDUCTION (LB/YR) NEEDED	CONGRATULATIONS!! YOU EXCEEDED THE TARGET REDUCTION BY 0 LB/YEAR!!

Nitrogen (for information purposes)	
TOTAL TREATMENT VOLUME (cf)	6,784
RUNOFF REDUCTION (cf)	0
NITROGEN LOAD REDUCTION ACHIEVED (LB/YR)	13.35

Virginia Runoff Reduction Method Worksheet

Virginia Runoff Reduction Method New Development Worksheet - v2.8 - June 2014

Site Data Summary

Total Rainfall = 43 inches

Site Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	0.38	0.70	0.00	1.08	32.58
Turf (acres)	0.00	0.02	0.38	0.00	0.41	12.33
Impervious (acres)	0.00	0.42	1.41	0.00	1.83	55.10
					3.32	100.00

Site Rv	0.56
Post Development Treatment Volume (R3)	6784
Post Development TP Load (lb/yr)	4.26
Post Development TN Load (lb/yr)	30.49
Total TP Load Reduction Required (lb/yr)	2.90

Total Runoff Volume Reduction (ft ³)	0
Total TP Load Reduction Achieved (lb/yr)	3
Total TN Load Reduction Achieved (lb/yr)	13.35
Adjusted Post Development TP Load (lb/yr)	1.35
Remaining Phosphorus Load Reduction (lb/yr) Required	0.00

Drainage Area Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
Forest (acres)	0.32	0.66	0.10	0.00	0.00	1.08
Turf (acres)	0.13	0.26	0.02	0.00	0.00	0.41
Impervious (acres)	0.49	1.13	0.20	0.00	0.00	1.83
						3.32

Drainage Area Compliance Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
TP Load Red. (lb/yr)	0.80	1.80	0.32	0.00	0.00	2.91
TN Load Red. (lb/yr)	3.66	8.25	1.44	0.00	0.00	13.35

Virginia Runoff Reduction Method Worksheet

Drainage Area A Summary

Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	0.00	0.32	0.00	0.32	33.81
Turf (acres)	0.00	0.00	0.13	0.00	0.13	13.75
Impervious (acres)	0.00	0.00	0.49	0.00	0.49	52.44
					0.94	

BMP Selections

Practice	Credit Area (acres)	Downstream Practice
Total Impervious Cover Treated (acres)	0.49	
Total Turf Area Treated (acres)	0.13	
Total TP Load Reduction Achieved in D.A. A (lb/yr)	0.80	
Total TN Load Reduction Achieved in D.A. A (lb/yr)	3.66	

Virginia Runoff Reduction Method Worksheet

Drainage Area B Summary

Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	0.29	0.38	0.00	0.66	32.35
Turf (acres)	0.00	0.00	0.26	0.00	0.26	12.42
Impervious (acres)	0.00	0.22	0.92	0.00	1.13	55.23
					2.05	

BMP Selections

Practice	Credit Area (acres)	Downstream Practice
Total Impervious Cover Treated (acres)	1.12	
Total Turf Area Treated (acres)	0.26	
Total TP Load Reduction Achieved in D.A. A (lb/yr)	1.80	
Total TN Load Reduction Achieved in D.A. A (lb/yr)	8.25	

Virginia Runoff Reduction Method Worksheet

Drainage Area C Summary

Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	0.10	0.00	0.00	0.10	30.46
Turf (acres)	0.00	0.02	0.00	0.00	0.02	7.60
Impervious (acres)	0.00	0.20	0.00	0.00	0.20	61.94
					0.33	

BMP Selections

Practice	Credit Area (acres)	Downstream Practice
Total Impervious Cover Treated (acres)	0.20	
Total Turf Area Treated (acres)	0.02	
Total TP Load Reduction Achieved in D.A. A (lb/yr)	0.32	
Total TN Load Reduction Achieved in D.A. A (lb/yr)	1.44	

Virginia Runoff Reduction Method Worksheet

Drainage Area D Summary

Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Turf (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Impervious (acres)	0.00	0.00	0.00	0.00	0.00	0.00
					0.00	

BMP Selections

Practice	Credit Area (acres)	Downstream Practice
Total Impervious Cover Treated (acres)	0.00	
Total Turf Area Treated (acres)	0.00	
Total TP Load Reduction Achieved in D.A. A (lb/yr)	0.00	
Total TN Load Reduction Achieved in D.A. A (lb/yr)	0.00	

Virginia Runoff Reduction Method Worksheet

Drainage Area E Summary

Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Turf (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Impervious (acres)	0.00	0.00	0.00	0.00	0.00	0.00
					0.00	

BMP Selections

Practice	Credit Area (acres)	Downstream Practice
Total Impervious Cover Treated (acres)	0.00	
Total Turf Area Treated (acres)	0.00	
Total TP Load Reduction Achieved in D.A. A (lb/yr)	0.00	
Total TN Load Reduction Achieved in D.A. A (lb/yr)	0.00	

Channel and Flood Protection

	Weighted CN	1-year storm Adjusted CN	2-year storm Adjusted CN	10-year storm Adjusted CN
Target Rainfall Event (in)		0.00	0.00	0.00
D.A. A CN	85	100	100	100
D.A. B CN	84	100	100	100
D.A. C CN	82	100	100	100
D.A. D CN	0	100	100	100
D.A. E CN	0	100	100	100

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 Reston, VA 20191
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 Email: soil@soilandstructure.com

SOIL & STRUCTURE CONSULTING, INC.



ROYAL RIDGE TOWN HOUSES
 TAX-MAP #107-4-((01)), parcels 0040A
 MT VERNON DISTRICT
 FAIRFAX COUNTY, VIRGINIA

GENERALIZED DEVELOPMENT PLAN
 PRELIMINARY BMP CALC.

SCALE: AS-SHOWN

DATE: 04-10-2012

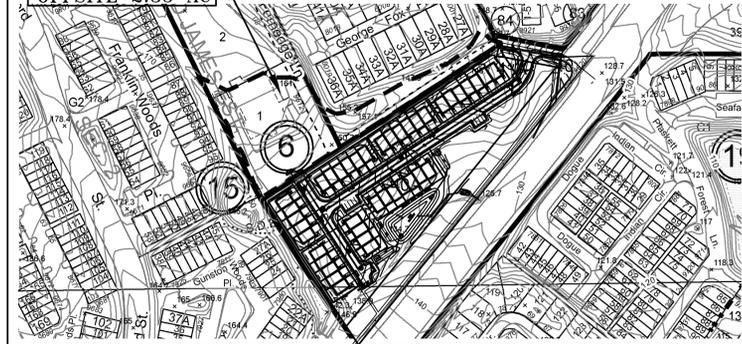
REVISIONS:

REV: 10-01-2014

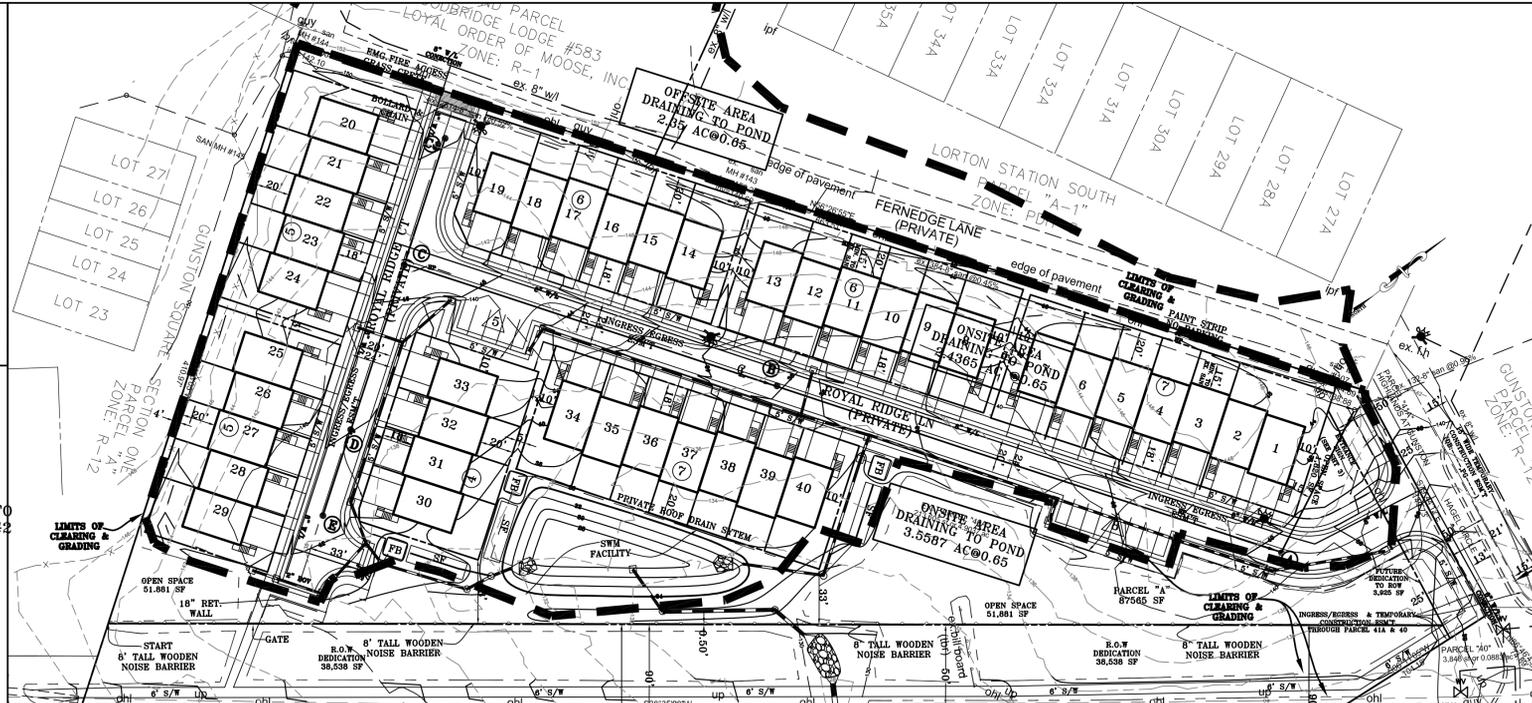
SHEET 5 OF 12

FILE NO. GDP-1094

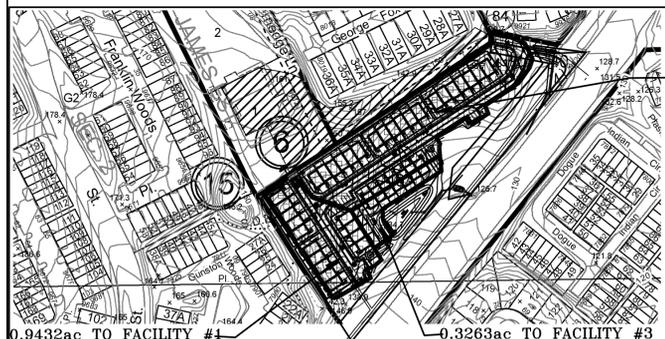
OFFSITE 2.35 AC



OFFSITE DRAINAGE MAP
SCALE: 1"=200'



BMP/SWM PLAN
SCALE: 1"=50'



BMP MAP
SCALE: 1"=200'

- OFFSITE = 2.05 ac
- ONSITE (CONTROLLED) = 3.2836 ac
 - 0.9432 ac TO FACILITY #1
 - 2.0541 ac TO FACILITY #2
 - 0.3263 ac TO FACILITY #3
- ONSITE (UNCONTROLLED) = 1.5801 ac

FOR BMP DESIGN SEE SHEETS 3 TO 5

TOTAL SITE AREA = 213,605 SF OR 4.9037 AC @ 0.65
 OFFSITE AREA TO FACILITY = 102,366 SF OR 2.35 AC @ 0.65
 UNCONTROLLED AREA OF SITE = 58,589 SF OR 1.345 AC @ 0.65

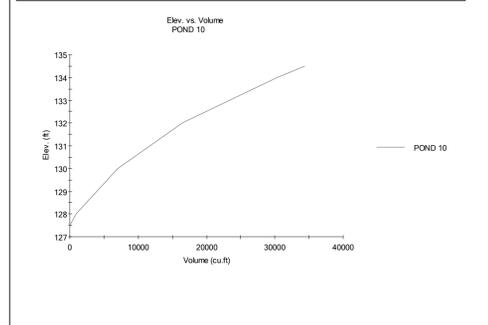
ALLOWABLE DISCHARGE =
 TOTAL SITE (PRE) + OFFSITE (DEV COND.) - UNCONTROLLED (DEV COND.)

2 YEAR STORM EVENT
 C=0.20 Tc=5 min. I2=5.45 in/hr
 (4.9037 ac x 0.20 x 5.45) + (2.35 ac x 0.65 x 5.45) - (1.345 ac x 0.65 x 5.45) =
 5.35 cfs + 8.32 cfs - 4.76 cfs = 8.90 cfs

10 YEAR STORM EVENT
 C=0.30 Tc=5 min. I2=7.27 in/hr
 (4.9037 ac x 0.30 x 7.27) + (2.35 ac x 0.65 x 7.27) - (1.345 ac x 0.65 x 7.27) =
 10.69 cfs + 11.10 cfs - 6.36 cfs = 15.43 cfs

Total area draining to facility
 Offsite area = 2.35 ac @ 0.65
 Onsite area = 3.5587 @ 0.65
 Total area to pond = 5.91 ac @ 0.65

ELEV	AREA(sq)	AVG AREA(sq)	DEPTH(ft)	VOLUME(cf)	TOTAL VOLUME(cf)
127.50	1850.00	0.00	0.00	0.00	0.00
128.00	2113.00	1981.50	0.50	990.75	990.75
130.00	3853.00	2983.00	2.00	5966.00	6956.75
132.00	5670.00	4761.50	2.00	9523.00	16479.75
134.00	8111.00	6890.50	2.00	13781.00	30260.75
134.50	8450.00	8280.50	0.50	4140.25	34401.00



DISCHARGE CALC FOR POND OUTFALL STR.

Min. Elev. = 127.50 ft
 Increment = .50 ft
 Max. Elev. = 134.50 ft

 OUTLET CONNECTIVITY

----> Forward Flow Only (UpStream to DnStream)
 <--- Reverse Flow Only (DnStream to UpStream)
 <---> Forward and Reverse Both Allowed

Structure	No.	Outfall	E1, ft	E2, ft
Inlet Box	1C	CL	131.500	134.500
Orifice-Circular	1B	CL	127.500	134.500
Culvert-Circular	CL	TW	127.450	134.500

OUTLET STRUCTURE INPUT DATA

Structure ID = 1C
 Structure Type = Inlet Box

of Openings = 1
 Invert Elev. = 131.50 ft
 Orifice Area = 12.5700 sq.ft
 Orifice Coeff. = .600
 Weir Length = 12.57 ft
 Weir Coeff. = 2.700
 K, Submerged = .000
 K, Reverse = 1.000
 Kb, Barrel = .000000 (per ft of full flow)
 Barrel Length = .00 ft
 Mannings n = .0000

Structure ID = 1B
 Structure Type = Orifice-Circular

of Openings = 1
 Invert Elev. = 127.50 ft
 Diameter = 1.2500 ft
 Orifice Coeff. = .600

Structure ID = CL
 Structure Type = Culvert-Circular

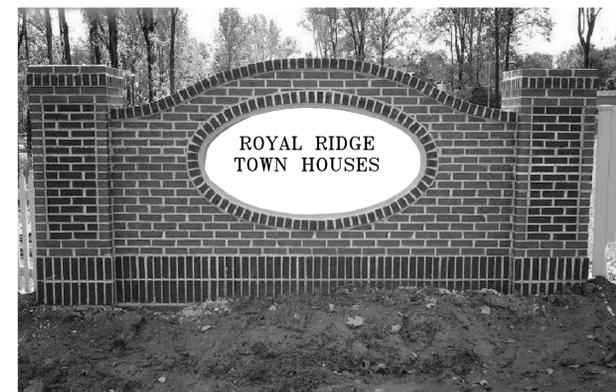
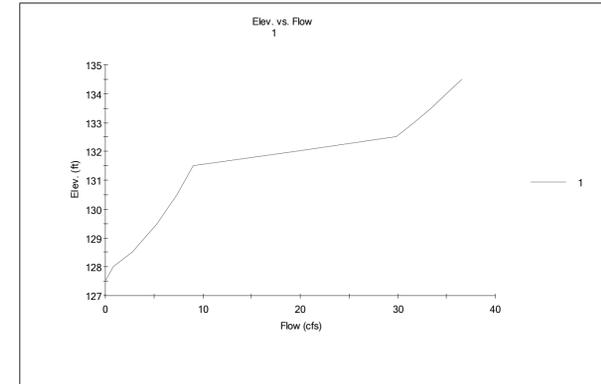
No. Barrels = 1
 Barrel Diameter = 2.0000 ft
 Upstream Invert = 127.45 ft
 Dnstream Invert = 126.62 ft
 Horiz. Length = 105.00 ft
 Barrel Length = 105.00 ft
 Barrel Slope = .00790 ft/ft

OUTLET CONTROL DATA...

Mannings n = .0130
 Ke = .5000 (forward entrance loss)
 Kb = .012411 (per ft of full flow)
 Kr = .5000 (reverse entrance loss)
 HW Convergence = .001 +/- ft

INLET CONTROL DATA...

Equation form = 1
 Inlet Control K = .0098
 Inlet Control M = 2.0000
 Inlet Control c = .03980
 Inlet Control Y = .6700
 T1 ratio (HW/D) = 1.160
 T2 ratio (HW/D) = 1.306
 Slope Factor = -.050



SAMPLE ENTRANCE SIGN
(NTS)

BMP/SWM FACILITY TO BE PRIVATELY MAINTAINED

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SOIL & STRUCTURE CONSULTING, INC.

COMMONWEALTH OF VIRGINIA
 KENNETH G. FRANE
 Lic. No. 031857
 10-06-2014
 PROFESSIONAL ENGINEER

ROYAL RIDGE TOWN HOUSES
 TAX-MAP #107-4-((01)), parcels 0040A
 MT VERNON DISTRICT
 FAIRFAX COUNTY, VIRGINIA

GENERALIZED DEVELOPMENT PLAN
 PRELIMINARY SWM & BMP CALC

SCALE: AS-SHOWN

DATE: 04-10-2012

REVISIONS:

REV: 03-23-2013
 REV: 06-24-2013
 REV: 08-12-2013
 REV: 02-02-2013
 REV: 02-28-2013
 REV: 03-26-2013
 REV: 04-10-2013

SHEET 6 OF 12

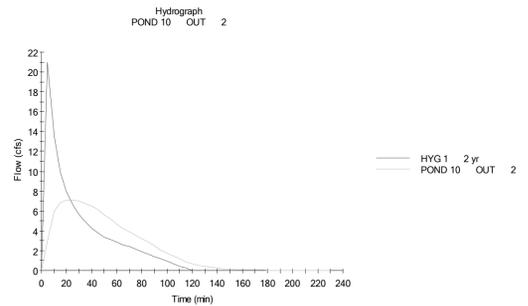
FILE NO. GDP-1094

2 YEAR STORM EVENT ROUTING SUMMARY

INITIAL CONDITIONS
 Starting WS Elev = 127.50 ft
 Starting Volume = 0 cu.ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout = .00 cfs
 Time Increment = 5.00 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = 20.94 cfs at 5.00 min
 Peak Outflow = 7.09 cfs at 25.00 min
 Peak Elevation = 130.39 ft
 Peak Storage = 8797 cu.ft



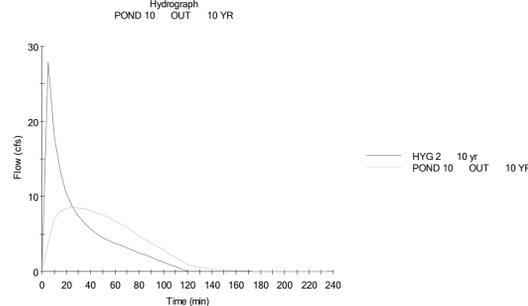
2 YEAR STORM EVENT

10 YEAR STORM EVENT ROUTING SUMMARY

INITIAL CONDITIONS
 Starting WS Elev = 127.50 ft
 Starting Volume = 0 cu.ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout = .00 cfs
 Time Increment = 5.00 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = 27.93 cfs at 5.00 min
 Peak Outflow = 8.57 cfs at 25.00 min
 Peak Elevation = 131.22 ft
 Peak Storage = 12780 cu.ft



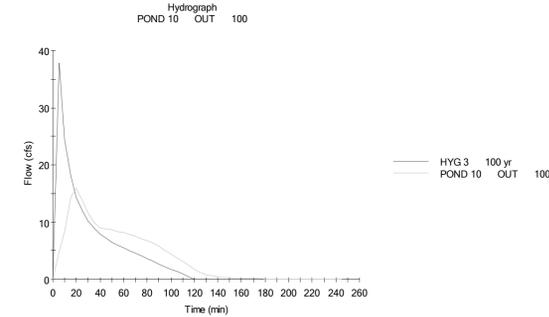
10 YEAR STORM EVENT

100 YEAR STORM EVENT ROUTING SUMMARY

INITIAL CONDITIONS
 Starting WS Elev = 127.50 ft
 Starting Volume = 0 cu.ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout = .00 cfs
 Time Increment = 5.00 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = 37.80 cfs at 5.00 min
 Peak Outflow = 15.88 cfs at 20.00 min
 Peak Elevation = 131.82 ft
 Peak Storage = 15639 cu.ft



100 YEAR STORM EVENT

ALLOWABLE DISCHARGE CALC.

TOTAL SITE AREA = 213,605 SF OR 4.9037 AC @ 0.65
 OFFSITE AREA TO FACILITY = 102,3660 SF OR 2.35 AC @ 0.65
 UNCONTROLLED AREA OF SITE = 58,589 SF OR 1.345 AC @ 0.65

ALLOWABLE DISCHARGE =
 TOTAL SITE (PRE) + OFFSITE (DEV COND.) - UNCONTROLLED (DEV COND.)

2 YEAR STORM EVENT

C=0.20 Tc=5 min. I2=5.45 in/hr
 $(4.9037 \text{ ac} \times 0.20 \times 5.45) + (2.35 \text{ ac} \times 0.65 \times 5.45) - (1.345 \text{ ac} \times 0.65 \times 5.45) = 5.35 \text{ cfs} + 8.32 \text{ cfs} - 4.76 \text{ cfs} = 8.90 \text{ cfs}$

10 YEAR STORM EVENT

C=0.30 Tc=5 min. I2=7.27 in/hr
 $(4.9037 \text{ ac} \times 0.30 \times 7.27) + (2.35 \text{ ac} \times 0.65 \times 7.27) - (1.345 \text{ ac} \times 0.65 \times 7.27) = 10.69 \text{ cfs} + 11.10 \text{ cfs} - 6.36 \text{ cfs} = 15.43 \text{ cfs}$

DISCHARGE FROM POND:

2 YEAR STORM EVENT = 7.09 CFS < 8.90 CFS ALLOWED
 10 YEAR STORM EVENT = 8.57 CFS < 15.43 CFS ALLOWED



PLAN VIEW FOR OUTFALL
 SCALE: 1"=50'

STORM SEWER CALC. FOR EXISTING STORM SEWER SYSTEM @ MASON PASSAGE

STORM SEWER DESIGN COMPUTATIONS

FROM POINT	TO POINT	AREA DRAIN ACRES	RUNOFF COEFF. C	INCREMENT	ACCUMULATED	INLET RAIN FALL IN/HR	RUNOFF C.F.S.	INLET ELEV. FT.	UPPER END	LOWER END	LENGTH FT.	DIA. IN.	SLOPE FT/FT	CAPACITY C.F.S.	VEL. F.P.S.	FLOW TIME MIN.	REMARKS
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
11	10	0.32	0.71	0.23	5.37	5.00	7.27	39.03	119.98	119.76	49.00	36	0.0031	47.63	7.52	5.72	
EX. STR.	10	22.96	0.40	9.03	9.03	10.00	5.82	53.44		122.41							
10	9				14.40	10.00	5.82	85.25	119.81	118.79	42.00	36	0.0171	87.22	14.08	2.99	
9	8	0.06	0.35	0.02	14.42	10.00	5.82	85.36	118.84	116.83	112.00	36	0.0171	87.22	14.08	7.97	
8B	8A	0.22	0.55	0.12	14.54	10.00	5.82	85.51	118.92	119.00	62.00	15	0.0148	7.86	4.22	14.68	
8A	8	0.15	0.57	0.09	14.63	10.00	5.82	85.60	118.75	116.83	25.00	15	0.0148	7.86	4.98	5.84	
8	7	0.40	0.86	0.34	14.97	10.00	5.82	88.62	115.63	115.26	61.00	48	0.0060	111.27	9.83	6.21	
7	6	0.18	0.40	0.15	15.12	10.00	5.82	89.51	115.01	114.64	61.00	48	0.0060	111.27	9.85	6.18	
6	5	1.09	0.70	0.76	15.88	10.00	5.82	94.01	114.39	113.65	86.00	48	0.0088	133.21	11.49	7.48	
5	4	0.53	0.51	0.27	15.15	10.00	5.82	89.69	113.40	112.46	110.00	48	0.0088	133.21	11.53	8.94	
4	3	0.73	0.58	0.15	15.92	10.00	5.82	125.50	112.21	110.81	140.00	48	0.0100	143.64	12.38	10.87	
3	2	0.35	0.52	0.19	16.11	10.00	5.82	127.22	110.56	109.88	68.00	48	0.0100	143.64	12.91	5.27	
2A	2	0.21	0.59	0.12	16.12	10.00	5.82	127.22	110.56	109.88	68.00	48	0.0100	143.64	12.91	5.27	
2	1	0.35	0.62	0.14	16.75	10.00	5.82	128.76	109.63	109.25	38.00	48	0.0100	143.64	12.93	2.94	DISCHARGE TO POND

STORM DRAINAGE & OUTFALL NARRATIVE

Site consist of 4.9037 acres currently zoned R-1 and proposed for R-8 zoning. Property is located on tax map 107-4-((1))-0040A with in the POHICK Creek.

To control run off from site a dry detention facility has been proposed, this facility will provide detention & reduction in peak discharge for two, ten and 100 year storm event by providing storage volume.

Runoff from site will be into an existing closed system that will convey the flow to a tributary of POHICK Creek. Flow analysis for pre and post development is as follows:

Pre development:
 2 YEAR STORM EVENT
 C=0.20 Tc=5 min. I2=5.45 in/hr
 $(4.9037 \text{ ac} \times 0.20 \times 5.45) = 5.345 \text{ cfs}$

10 YEAR STORM EVENT
 C=0.30 Tc=5 min. I2=7.27 in/hr
 $(4.9037 \text{ ac} \times 0.30 \times 7.27) = 10.695 \text{ cfs}$

post development:
 2 YEAR STORM EVENT
 C=0.65 Tc=5 min. I2=5.45 in/hr
 $(4.9037 \text{ ac} \times 0.65 \times 5.45) = 17.3714 \text{ cfs}$

10 YEAR STORM EVENT
 C=0.65 Tc=5 min. I2=7.27 in/hr
 $(4.9037 \text{ ac} \times 0.65 \times 7.27) = 23.1724 \text{ cfs}$

ALLOWABLE DISCHARGE calc.
 TOTAL SITE (PRE) + OFFSITE (DEV COND.) - UNCONTROLLED (DEV COND.)

2 YEAR STORM EVENT
 C=0.20 Tc=5 min. I2=5.45 in/hr
 $(4.9037 \text{ ac} \times 0.20 \times 5.45) + (2.35 \text{ ac} \times 0.65 \times 5.45) - (1.345 \text{ ac} \times 0.65 \times 5.45) = 5.35 \text{ cfs} + 8.32 \text{ cfs} - 4.76 \text{ cfs} = 8.90 \text{ cfs}$

10 YEAR STORM EVENT
 C=0.30 Tc=5 min. I2=7.27 in/hr
 $(4.9037 \text{ ac} \times 0.30 \times 7.27) + (2.35 \text{ ac} \times 0.65 \times 7.27) - (1.345 \text{ ac} \times 0.65 \times 7.27) = 10.69 \text{ cfs} + 11.10 \text{ cfs} - 6.36 \text{ cfs} = 15.43 \text{ cfs}$

DISCHARGE FROM POND:
 2 YEAR STORM EVENT = 7.09 CFS < 8.90 CFS ALLOWED
 10 YEAR STORM EVENT = 8.57 CFS < 15.43 CFS ALLOWED

Compliance with PFM 6-0203.2 & Letter to Industry # 06-04:

Due to development there is a increase in runoff from site. Utilizing a dry detention facility runoff from site has been reduced to less than pre development condition. For 10 year storm event discharge from site is 45% of the allowable discharge. Flow from site will be into an existing closed system that has capacity to convey the runoff to a tributary of POHICK Creek.

As shown on this sheet discharge from ex. Str #11 to ex. Str. #10 is 53.46 cfs (Calc from approved plan for Mason passage (Fx Co plan # 009395-SP-001-2)). Due to proposed SWM pond on site this runoff has been reduced by (15.43 cfs-8.57 cfs)= 6.86 cfs. Therefore there is capacity available to convey the discharge to an adequate out fall.

In conclusion, through the proposed construction, natural drainage divides and the existing flow runoff patterns are honored. Proposed development and overland runoff will not affect the adjacent lots.

It is the opinion of the engineer that the construction of this addition will have no adverse impact on any adjacent properties or structures located downstream.

Overland Relief Statement:

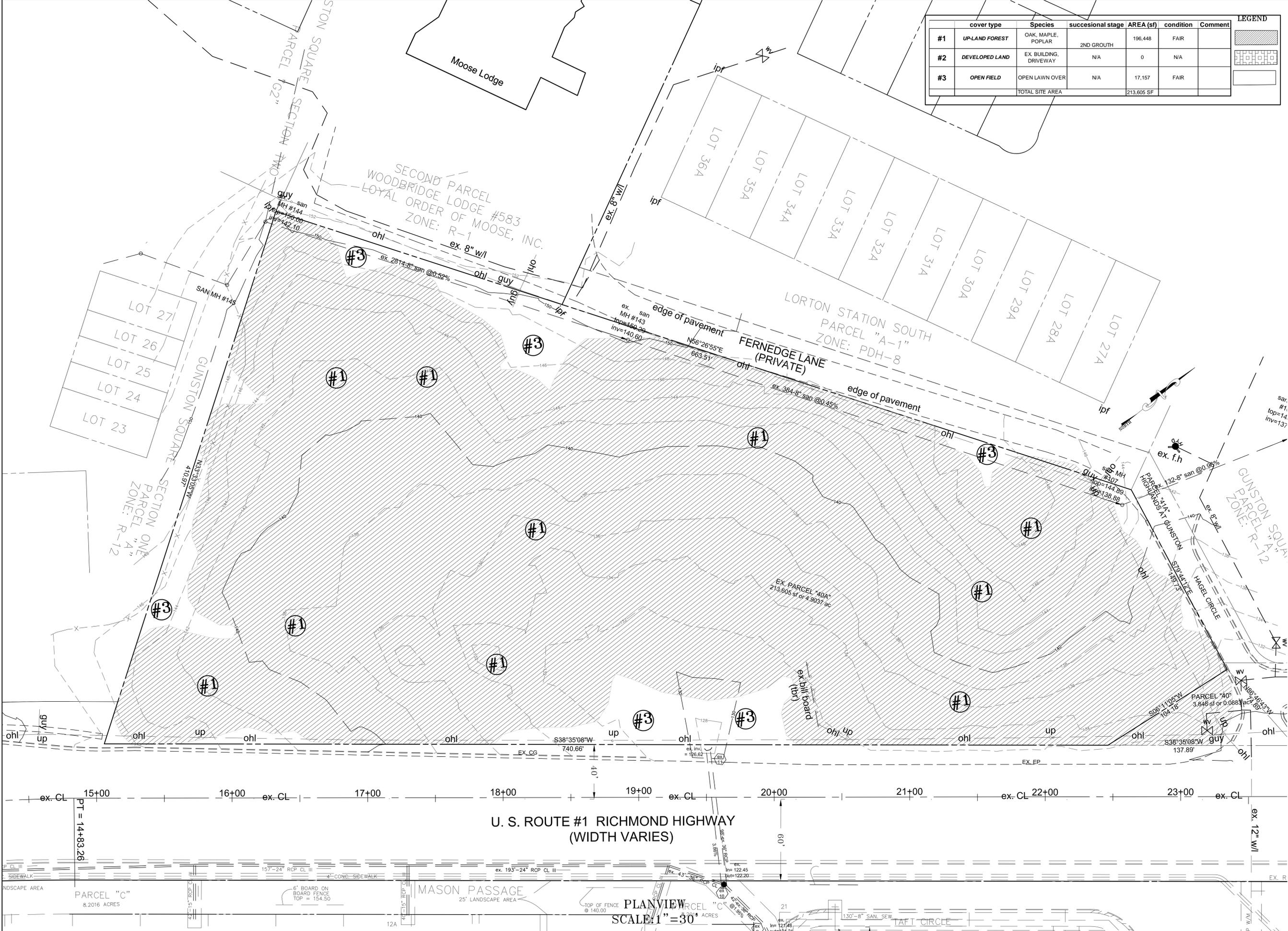
The runoff for 100 Year will sheet flow towards the southern boundary of site into the existing route #1 (Richmond Hwy). Due to proposed SWM facility there is a reduction of approximately 22 cfs in 100 year storm event.

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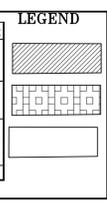
COMMONWEALTH OF VIRGINIA
 KENNETH G. FRANE
 Lic. No. 031857
 10-06-2014
 PROFESSIONAL ENGINEER

ROYAL RIDGE TOWN HOUSES
 TAX-MAP #107-4-((01)), parcels 0040A
 MT. VERNON DISTRICT
 FAIRFAX COUNTY, VIRGINIA
 GENERALIZED DEVELOPMENT PLAN
 SWM ROUTING, OUTFALL CALC. & NARRATIVE

SCALE: AS-SHOWN
 DATE: 04-10-2012
 REVISIONS:
 REV: 03-23-2013
 REV: 06-24-2013
 REV: 08-12-2013
 REV: 02-08-2014
 REV: 02-27-2014
 REV: 03-26-2014
 REV: 04-10-2014
 SHEET 7 OF 12
 FILE NO. GDP-1094



	cover type	Species	successional stage	AREA (sf)	condition	Comment
#1	UP-LAND FOREST	OAK, MAPLE, POPLAR	2ND GROWTH	196,448	FAIR	
#2	DEVELOPED LAND	EX. BUILDING, DRIVEWAY	N/A	0	N/A	
#3	OPEN FIELD	OPEN LAWN OVER	N/A	17,157	FAIR	
TOTAL SITE AREA				213,605 SF		



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 MT VERNON DISTRICT
 FAIRFAX COUNTY, VIRGINIA

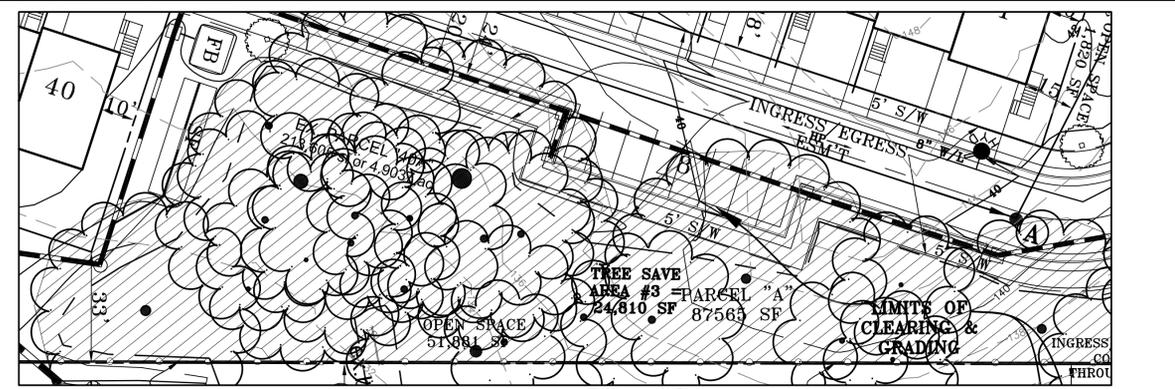
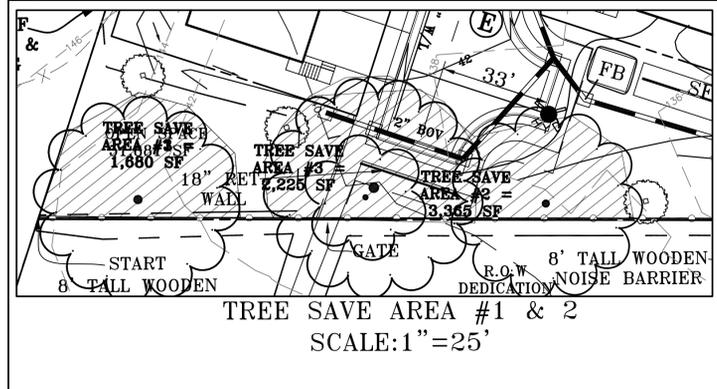
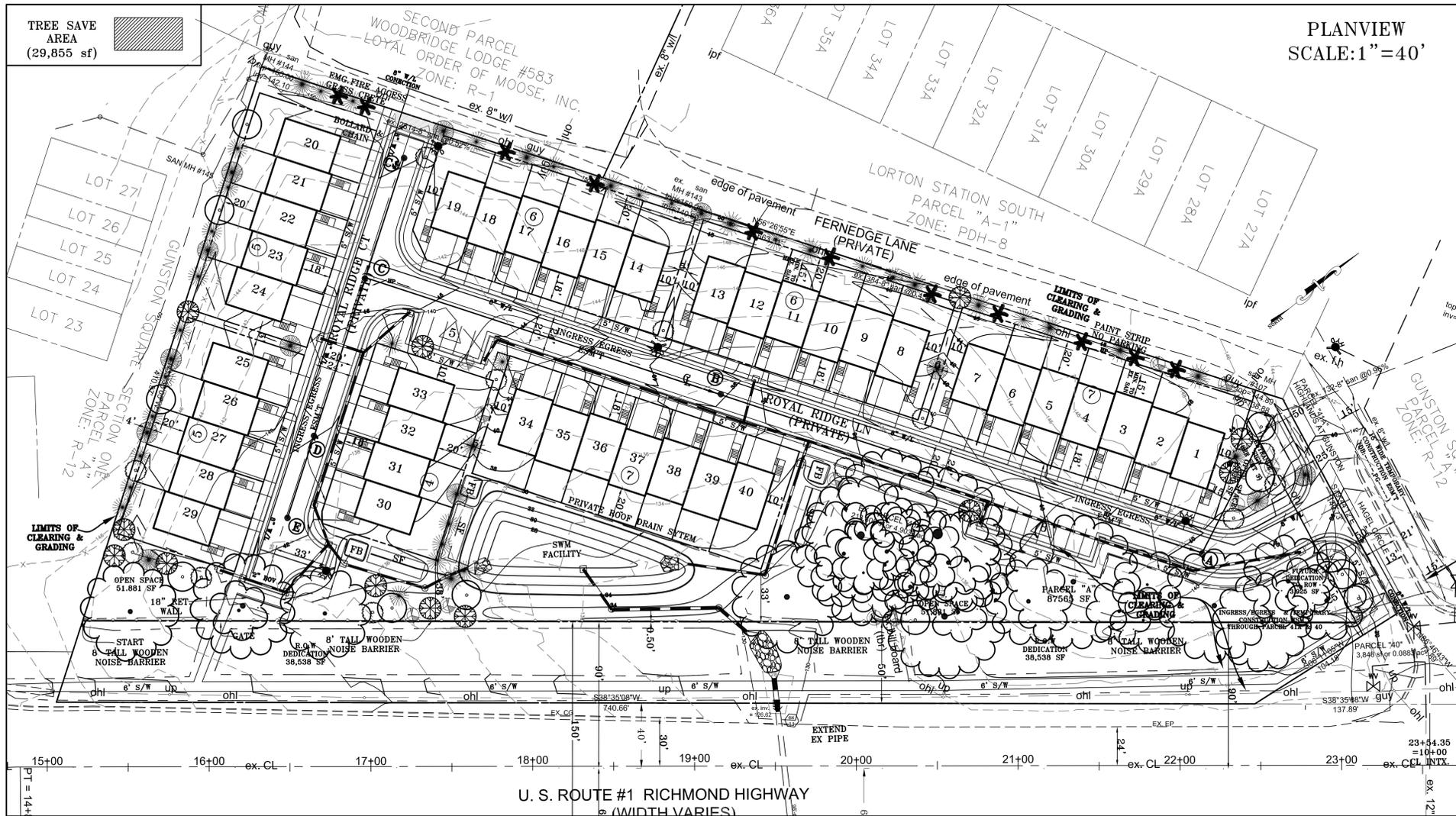
GENERALIZED DEVELOPMENT PLAN
 EXISTING VEGETATION MAP

SCALE: 8 AS-SHOWN
 DATE: 04-10-2012
 REVISIONS:
 REV: 03-23-2013

SHEET 8 OF 12
 FILE NO. GDP-1094

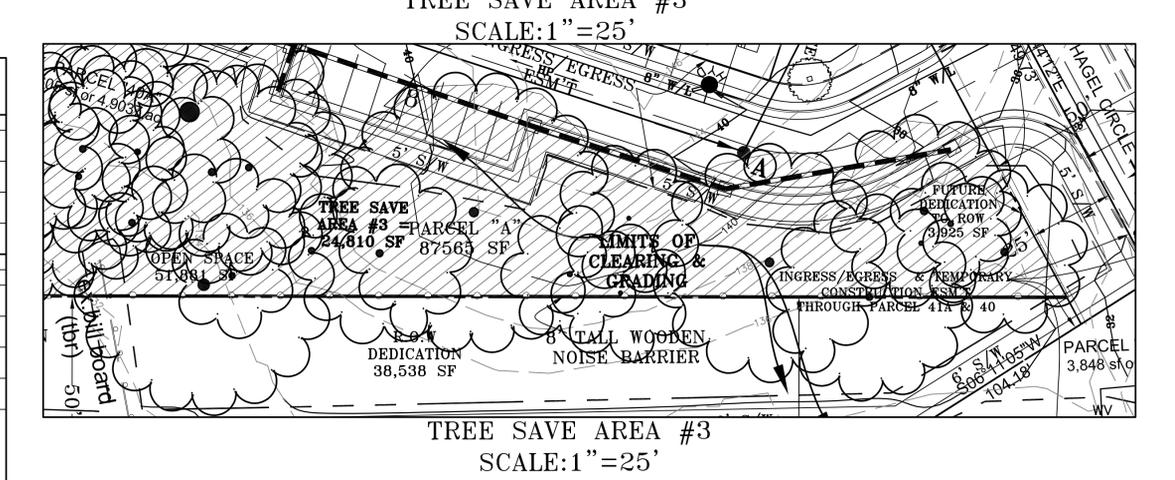
U. S. ROUTE #1 RICHMOND HIGHWAY
 (WIDTH VARIES)

PLANVIEW
 SCALE: 1" = 30'



PLANT SCHEDULE THIS SHEET

KEY	BOTANICAL NAME	COMMON NAME	QTY.	STOCK SIZE (HEIGHT/ CALIPER)	STOCK TYPE	10-YR TREE COVER FT ²	TREE COVER SUB-TOTAL FT ²	REMARKS	LEGEND
TREES									
NS	NYSSA SYLVATICA	BLACKGUM	12	2"-2.5"	B & B	150	1800	SEE NOTES	
LS	LIQUIDAMBER STYRACIFLUA	SWEETGUM	12	2"	B & B	125	1500	SEE NOTES	
AR	ACER RUBRUM	RED MAPLE	12	3"	B & B	200	2400	SEE NOTES	
MV	MAGNOLIA VIRGINIANA	SWEETBAY	12	3"	B & B	125	1500	SEE NOTES	
		TOTAL =	48				7200		
EVERGREEN TREES									
CJ	CRYPTOMERIA JAPONICA	JAPANESE CRYPTOMERIA	12	2"	B & B	100	1200	SEE NOTES	
TO	THUJA 'NIGRA' OCCIDENTALIS	DARK GREEN ARBORVITAE	12	3"	B & B	100	1200	SEE NOTES	
PV	PINUS VIRGINIANA	VIRGINIA PINE	16	2"	B & B	200	3200	SEE NOTES	
PA	PICEA ABIES	NORWAY SPRUCE	26	3"	B & B	100	2600	SEE NOTES	
		TOTAL =	66				8200		
		SUB-TOTAL	114				15,400		

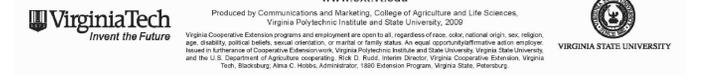


Tree and Shrub Planting Guidelines
Bonnie Lee Appleton, Extension Specialist
Susan French, Extension Technician, AREC, Hampton Roads, Virginia Tech

Plant and Site Selection
Select trees and shrubs well-adapted to conditions of individual planting sites. Poorly-sited plants are doomed from the start, no matter how carefully they're planted.
Test soil drainage before planting. Dig a test hole as deep as your planting hole and fill with water. If water drains at a rate of less than one inch per hour, consider installing drainage to carry water away from the planting hole base, or moving or raising the planting site (barr construction).
Also consider using more water-tolerant species. For trees, try red maple, sycamore, bald cypress, willow oak, or river birch. For shrubs, try inkberry, redwing dogwood and butternut. Avoid dogwoods, azaleas, boxwoods, Japanese hollies, and other plants that don't like "wet feet" where drainage is poor.
Examine soil for compaction before planting. If soils are compacted, consider replacement with a good loam soil, or incorporation of several inches of an organic material such as composted yard waste to a depth of at least 8 inches over the entire planting area. Do not incorporate small quantities of sand - compaction will increase and drainage decrease.

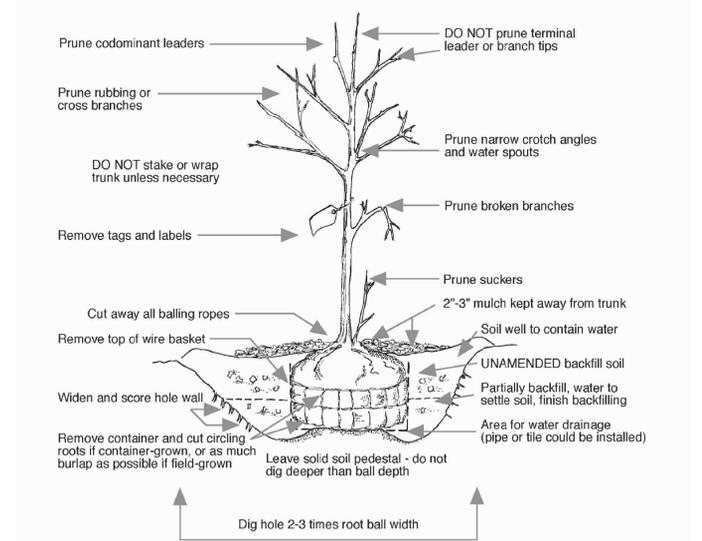
Site Preparation
Dig shallow planting holes two to three times as wide as the root ball. Wide, shallow holes encourage horizontal root growth that trees and shrubs naturally produce.
In well-drained soil, dig holes as deep as the root ball. In poorly-drained heavy clay soil, dig holes one to two inches shallower than the root ball. Cover the exposed root ball top with mulch.
Don't dig holes deeper than root balls or put loose soil beneath roots because loose soil will compact over time, leaving trees and shrubs planted too deep. Widen holes near the soil surface where most root growth occurs. Score walls of machine-dug (auger, backhoe) holes to prevent glazing.
Backfill holes with existing unamended soil. Do not incorporate organic matter such as peatmoss into backfill for individual planting holes. Differences in soil pore sizes will be created causing problems with water movement and root growth between the root ball, planting hole, and surrounding soil.
Backfill half the soil, then water thoroughly to settle out air pockets. Finish backfilling, then water again. Cover any exposed root ball tops with mulch.
Incorporate slow-release granular fertilizers into backfill soil to provide nitrogen, or if a soil test indicates a need for phosphorus or potassium. Avoid using fast-release agronomic fertilizers that can dehydrate tree roots. Use no more than 1/2 actual nitrogen per 1,000 ft. of planting hole surface. (Example - if using 18-6-12 with a 5" diameter hole, incorporate 0.3 oz. per planting hole.)

Tree and Shrub Preparation
Closely inspect the wrapping around root balls of B&B (balled and burlapped) trees and shrubs. Growers use many synthetic materials, as well as burlap treated to retard degradation, to wrap root balls. Many of these materials will not degrade. To insure root growth into surrounding soil, remove pinning nails or rope lacing, then cut away or drop the wrapping material to the bottom of the planting hole, backfilling over it.
Wire baskets used to protect root balls degrade very slowly underground. Remove the top 8-12 inches of wire to keep equipment from getting caught in wire loops, and separate roots from girdling.
Remove all rope, whether jute or nylon, from trunks. Again, degradation is slow or nonexistent, and ropes can girdle trunks and roots.
Remove plastic containers from container-grown trees and shrubs. For plants in fiber pots, break away the top or remove the pot entirely. Many fiber pots are coated to extend their shelf life, but this slows degradation below ground and retards root extension.
If roots are circling around the root ball exterior, cut through the roots in a few places. Cutting helps prevent circling roots from eventually girdling the trunk. Select trees grown in containers with vertical ribs or a copper-treatment on the interior container wall. These container modifications and treatments minimize circling root formation.



Tree Care After Planting
Remove tags and labels from trees and shrubs to prevent girdling branches and trunks.
Good follow-up watering helps promote root growth. Drip irrigation systems and water reservoir devices can facilitate watering.
Mulch, but don't over mulch newly planted trees and shrubs. Two to three inches of mulch is best - less if a fine material, more if coarse. Use either organic mulches (shredded or chunk pine bark, pine straw, compost) or inorganic mulches (volcanic and river rocks).
Keep mulch from touching tree trunks and shrub stems. This prevents disease and rodent problems if using organic mulches, and bark abrasion if using inorganic mulches.
Don't use black plastic beneath mulch around trees and shrubs because it blocks air and water exchange. For added weed control, use landscape fabrics that resist weed root penetration. Apply only one to two inches of mulch atop fabrics to prevent weeds from growing in the mulch.

Only stake trees with large crowns, or those situated on windy sites or where people may push them over. Stake for a maximum of one year. Allow trees a slight amount of flex rather than holding them rigidly in place. Use guying or attaching material that won't damage the bark. To prevent trunk girdling, remove all guying material after one year.
Most trees should not have their trunks wrapped. Wrapping often increases insect, disease, and water damage to trunks. Thin-barked trees planted in spring or summer into hot or paved areas may benefit from wrapping if a white wrap is used. To avoid trunk girdling, do not attach wraps with wire, nylon rope, plastic ties, or electrical tape. If wraps must be used, remove within one year.
For protection against animal or equipment damage, install guards to protect the trunk. Be sure the guards are loose-fitting and permit air circulation.



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Email: Rose@soilandstructure.com

COMMONWEALTH OF VIRGINIA
KENNETH G. FRANE
Lic. No. 031857
10-06-2014
PROFESSIONAL ENGINEER

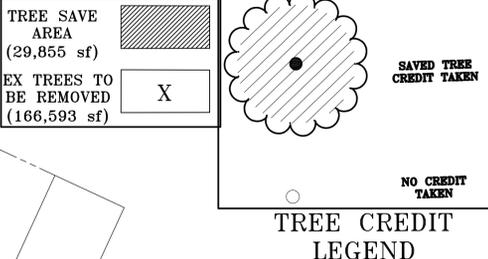
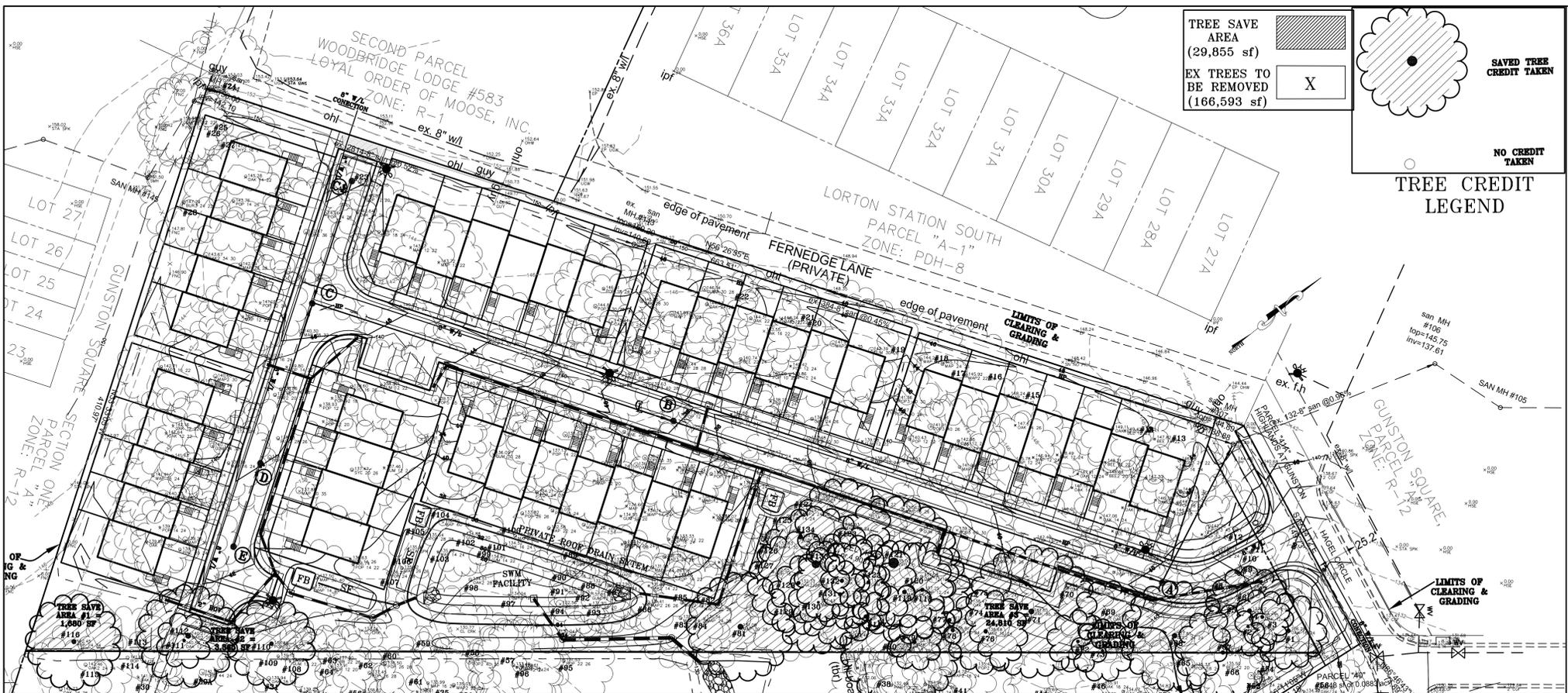
ROYAL RIDGE TOWN HOUSES
TAX-MAP #107-4-((01)), parcels 0040A
MT VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA
GENERALIZED DEVELOPMENT PLAN
LANDSCAPE PLAN

SCALE: AS-SHOWN

DATE: 04-10-2012

REVISIONS:

REV: 03-23-2013
REV: 06-24-2013
REV: 02-08-2014
REV: 02-27-2014
REV: 03-26-2014
REV: 04-10-2014

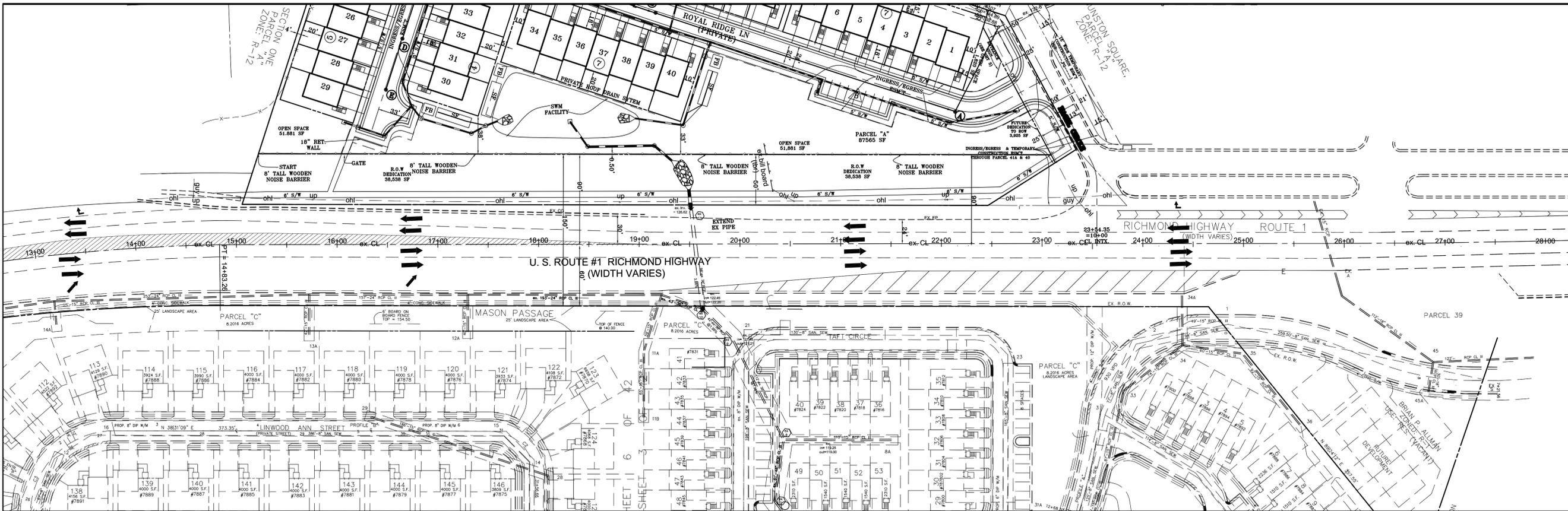


PLANVIEW
SCALE: 1"=40'
FOR DETAIL OF TREE SAVE
REAS SEESHEET 6

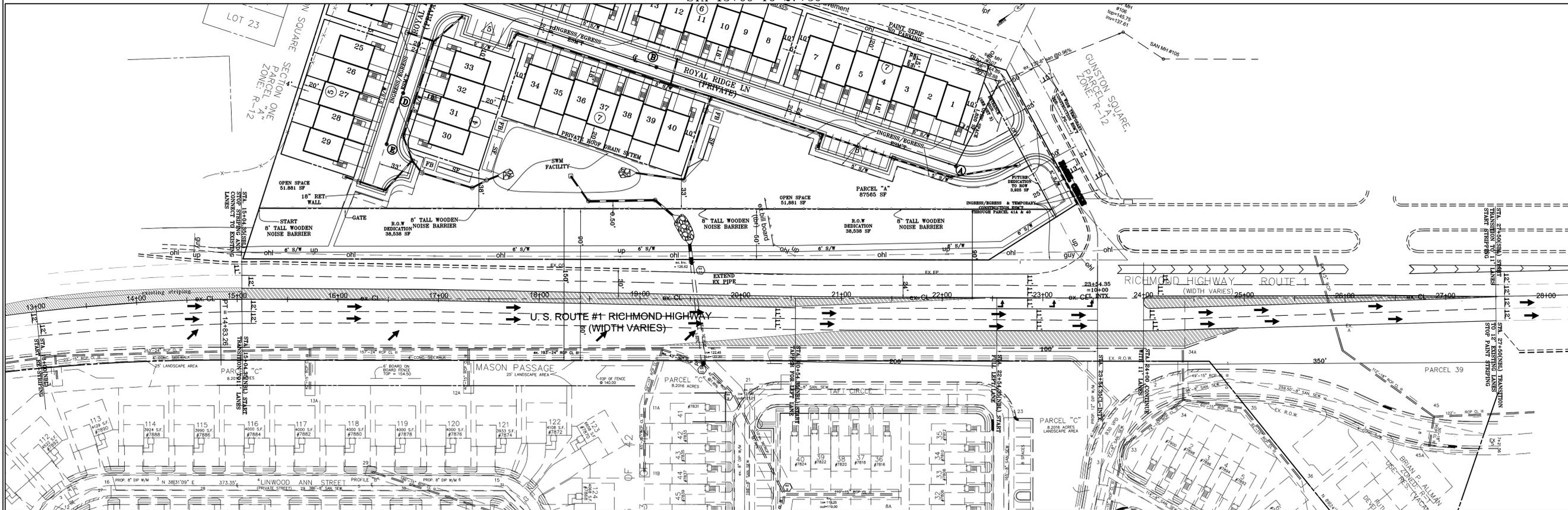
TREE #	COMMON NAME	SCIENTIFIC NAME	DBH (IN)	CONDITION	COMMENTS	STATUS	LOCATION	ROOT PRUNE	MULCH	PRUNE	FERTILIZE	TREAT PESTS	CABLE	CAMBER STAT
1	OAK	Quercus	18	80	GOOD	REMAIN	onsite							
2	OAK	Quercus	15	70	FAIR CONDITION	REMAIN	onsite							
3	OAK	Quercus	15	75	GOOD	REMAIN	onsite							
4	GUM	Eucalyptus	22	85	GOOD	REMAIN	onsite							
5	POPLAR	Populus	12	75	GOOD	REMOVE	onsite							
6	POPLAR	Populus	14	80	GOOD	REMOVE	onsite							
7	POPLAR	Populus	24	75	GOOD	REMOVE	onsite							
8	BEECH	Fagus	14	75	GOOD	REMOVE	onsite							
9	TWIN POPLAR	Populus	40	75	GOOD	REMOVE	onsite							
10	POPLAR	Populus	12	80	GOOD	REMOVE	onsite							
11	TWIN POPLAR	Populus	40	70	FAIR CONDITION	REMOVE	onsite							
12	MAPLE	Acer	12	80	GOOD	REMOVE	onsite							
13	BEECH	Fagus	14	70	FAIR CONDITION	REMOVE	onsite							
14	BEECH	Fagus	12	75	GOOD	REMOVE	onsite							
15	MAPLE	Acer	12	85	GOOD	REMOVE	onsite							
16	TWIN MAPLE	Acer	22	75	GOOD	REMOVE	onsite							
17	MAPLE	Acer	24	80	GOOD	REMOVE	onsite							
18	MAPLE	Acer	22	75	GOOD	REMOVE	onsite							
19	GUM	Eucalyptus	30	75	GOOD	REMOVE	onsite							
20	OAK	Quercus	12	75	GOOD	REMOVE	onsite							
21	OAK	Quercus	12	75	FAIR CONDITION	REMOVE	onsite							
22	TWIN GUM	Eucalyptus	30	75	GOOD	REMOVE	onsite							
23	TWIN MAPLE	Acer	24	80	FAIR CONDITION	REMOVE	onsite							
24	OAK	Quercus	32	70	GOOD	REMAIN	OFFSITE							
25	GUM	Eucalyptus	12	80	GOOD	REMAIN	OFFSITE							
26	POPLAR	Populus	12	80	GOOD	REMAIN	OFFSITE							
27	CHERRY	Prunus	10	70	FAIR CONDITION	REMOVE	onsite							
28	POPLAR	Populus	24	75	GOOD	REMOVE	onsite							
29	BIRCH	Betula	24	70	GOOD	REMOVE	onsite							
30	OAK	Quercus	24	85	GOOD	REMAIN	onsite							
31	TWIN OAK	Quercus	12	75	GOOD	REMOVE	onsite							
30A	TWIN POPLAR	Populus	50	75	GOOD	REMAIN	onsite							
31	OAK	Quercus	28	80	GOOD	REMAIN	onsite							
32	POPLAR	Populus	14	75	GOOD	REMAIN	onsite							
33	TWIN POP	Populus	22	75	GOOD	REMAIN	onsite							
34	OAK	Quercus	12	75	GOOD	REMAIN	onsite							
35	MAPLE	Acer	16	80	GOOD	REMAIN	onsite							
36	TWIN MAPLE	Acer	22	70	FAIR CONDITION	REMAIN	onsite							
37	MAPLE	Acer	12	80	GOOD	REMAIN	onsite							
38	PINE	Pinus	12	75	GOOD	REMAIN	onsite							
39	GUM	Eucalyptus	24	80	FAIR CONDITION	REMAIN	onsite							
40	PINE	Pinus	12	75	GOOD	REMAIN	onsite							
41	TWIN MAPLE	Acer	24	75	GOOD	REMAIN	onsite							
42	MAPLE	Acer	12	75	GOOD	REMAIN	onsite							
43	TWIN POPLAR	Populus	30	80	GOOD	REMAIN	onsite							
44	MAPLE	Acer	16	70	GOOD	REMAIN	onsite							
45	OAK	Quercus	12	80	GOOD	REMAIN	onsite							
46	OAK	Quercus	16	75	GOOD	REMAIN	onsite							
47	OAK	Quercus	20	80	GOOD	REMAIN	onsite							
48	OAK	Quercus	12	75	FAIR CONDITION	REMAIN	onsite							
49	OAK	Quercus	16	75	GOOD	REMAIN	onsite							
50	OAK	Quercus	14	75	GOOD	REMAIN	onsite							
51	GUM	Eucalyptus	24	80	FAIR CONDITION	REMOVE	onsite							
52	MAPLE	Acer	12	70	GOOD	REMAIN	onsite							
53	POPLAR	Populus	24	80	GOOD	REMAIN	onsite							
54	POPLAR	Populus	50	75	GOOD	REMAIN	onsite							
55	POPLAR	Populus	30	80	GOOD	REMAIN	onsite							
56	OAK	Quercus	24	75	GOOD	REMAIN	ONSITE							

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH (IN)	CONDITION	COMMENTS	STATUS	LOCATION	ROOT PRUNE	MULCH	PRUNE	FERTILIZE	TREAT PESTS	CABLE	CAMBER STAT
57	MAPLE	Acer	12	75	GOOD	REMAIN	onsite							
58	POPLAR	Populus	40	80	GOOD	REMAIN	onsite							
59	MAPLE	Acer	50	75	FAIR	REMOVE	onsite							
60	POPLAR	Populus	26	75	GOOD	REMAIN	onsite							
61	MAPLE	Acer	16	75	GOOD	REMAIN	onsite							
62	POPLAR	Populus	26	80	FAIR	REMAIN	onsite							
63	BEECH	Fagus	22	70	GOOD	REMAIN	onsite							
64	POPLAR	Populus	12	80	GOOD	REMAIN	onsite							
65	POPLAR	Populus	18	75	GOOD	REMAIN	onsite							
66	BEECH	Fagus	12	80	GOOD	REMAIN	onsite							
67	POPLAR	Populus	24	75	GOOD	REMAIN	onsite							
68	BEECH	Fagus	24	80	GOOD	REMAIN	onsite							
69	OAK	Quercus	14	70	GOOD	REMAIN	onsite							
70	OAK	Quercus	12	75	GOOD	REMAIN	onsite							
71	OAK	Quercus	36	80	FAIR	REMAIN	onsite							
72	OAK	Quercus	14	70	GOOD	REMAIN	onsite							
73	OAK	Quercus	14	80	GOOD	REMAIN	onsite							
74	OAK	Quercus	12	75	GOOD	REMOVE	onsite							
75	OAK	Quercus	12	80	GOOD	REMOVE	onsite							
76	MAPLE	Acer	16	75	GOOD	REMAIN	onsite							
77	OAK	Quercus	12	80	FAIR	REMOVE	onsite							
78	MAPLE	Acer	12	75	GOOD	REMOVE	onsite							
79	OAK	Quercus	12	75	GOOD	REMAIN	onsite							
80	MAPLE	Acer	30	75	GOOD	REMAIN	onsite							
81	MAPLE	Acer	30	80	FAIR	REMAIN	onsite							
82	MAPLE	Acer	22	70	GOOD	REMOVE	onsite							
83	MAPLE	Acer	24	80	GOOD	REMOVE	onsite							
84	MAPLE	Acer	24	75	GOOD	REMOVE	onsite							
85	MAPLE	Acer	24	80	GOOD	REMOVE	onsite							
86	MAPLE	Acer	26	75	GOOD	REMOVE	onsite							
87	GUM	Eucalyptus	16	80	GOOD	REMOVE	onsite							
88	GUM	Eucalyptus	12	75	FAIR	REMOVE	onsite							
89	GUM	Eucalyptus	12	75	GOOD	REMOVE	onsite							
90	GUM	Eucalyptus	16	75	GOOD	REMOVE	onsite							
91	GUM	Eucalyptus	16	80	GOOD	REMOVE	onsite							
92	GUM	Eucalyptus	12	70	GOOD	REMOVE	onsite							
93	MAPLE	Acer	12	80	GOOD	REMOVE	onsite							
94	POPLAR	Populus	28	75	GOOD	REMOVE	onsite							
95	POPLAR	Populus	22	80	GOOD	REMAIN	onsite							
96	MAPLE	Acer	22	80	GOOD	REMAIN	onsite							
97	BURCH	Fagus	12	80	GOOD	REMOVE	onsite							
98	OAK	Quercus	28	75	GOOD	REMOVE	onsite							
99	GUM	Eucalyptus	14	75	FAIR	REMOVE	onsite							
100	MAPLE	Acer	26	80	FAIR	REMOVE	onsite							
101	OAK	Quercus	16	75	FAIR	REMOVE	onsite							
102	GUM	Eucalyptus	14	75	GOOD	REMOVE	onsite							
103	MAPLE	Acer	14	80	FAIR	REMOVE	onsite							
104	MAPLE	Acer	60	80	GOOD	REMOVE	onsite							
105	MAPLE	Acer	28	75	GOOD	REMOVE	onsite							
106	MAPLE	Acer	26	80	GOOD	REMOVE	onsite							
107	POPLAR	Populus	24	80	GOOD	REMOVE	onsite							
108	GUM	Eucalyptus	12	80	GOOD	REMOVE	onsite							
109	POPLAR	Populus	15	75	GOOD	REMOVE	onsite							
110	POPLAR	Populus	22	75	FAIR	REMAIN	onsite							
111	OAK	Quercus	12	80	FAIR	REMOVE	onsite							
112	MAPLE	Acer	26	75	FAIR	REMAIN	onsite							
113	OAK	Quercus	24	75	GOOD	REMOVE	onsite							
114	POPLAR	Populus	24	80	FAIR	REMOVE	onsite							
115	OAK	Quercus	24	80	FAIR	REMAIN	onsite							
116	POPLAR	Populus	24	70	FAIR	REMAIN	onsite							

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH (IN)	CONDITION	COMMENTS	STATUS	LOCATION	ROOT PRUNE	MULCH	PRUNE	FERTILIZE	TREAT PESTS	CABLE	CAMBER STAT
117	POPLAR	Populus	24	75	GOOD	REMAIN	onsite							
118	MAPLE	Acer	12	80	GOOD	REMAIN	onsite							
119	MAPLE	Acer	24	75	FAIR	REMAIN	onsite							
120	OAK	Quercus	12	75	GOOD	REMOVE	onsite							
121	POPLAR	Populus	70	75	GOOD	REMAIN	onsite							
122	GUM	Eucalyptus	16	80	FAIR	REMAIN	onsite							
123	MAPLE	Acer	12	70	GOOD	REMOVE	onsite							
124	MAPLE	Acer	24	80	GOOD	REMOVE	onsite							
125	GUM	Eucalyptus	14	75	GOOD	REMOVE	onsite							
126	MAPLE	Acer	30	80	GOOD	REMOVE	onsite							
127	POPLAR	Populus	16	75	GOOD	REMOVE	onsite							
128	OAK	Quercus	20	80	GOOD	REMAIN	onsite							
129	MAPLE	Acer	12	75	GOOD	REMAIN	onsite							
130	MAPLE	Acer	12	75</										



PLANVIEW
SCALE: 1" = 50'
EXISTING CONDITION
STA 13+00 TO 27+50



PLANVIEW
SCALE: 1" = 50'
PROPOSED CONDITION
STA 13+00 TO 27+50

Note:
Final striping plan will be provided in accordance with VDOT standards as described in the proffer statement at the time of site plan.

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Email: Res@soilandstructure.com



ROYAL RIDGE TOWN HOUSES
TAX-MAP #107-4-((01)), parcels 0040A
MT VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA
GENERALIZED DEVELOPMENT PLAN
ROUTE #1 STRIPING PLAN (PROP. LEFT TURN LANE)

SCALE:	AS-SHOWN
DATE:	02-08-2014
REVISIONS:	
REV:	02-08-2014
REV:	02-27-2014
REV:	03-26-2014
REV:	04-10-2014
REV:	10-02-2014

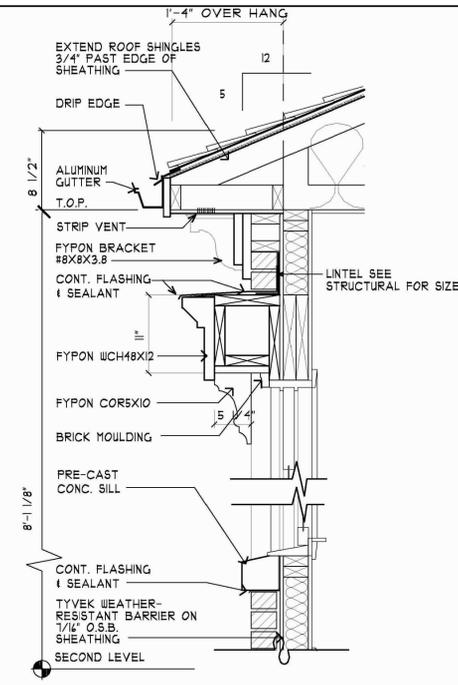
SHEET
11 of 12
FILE NO.
GDP-1094

01.22.01	PERMIT
10.04.01	PERMIT
12.30.01	▲
01.06.01	▲



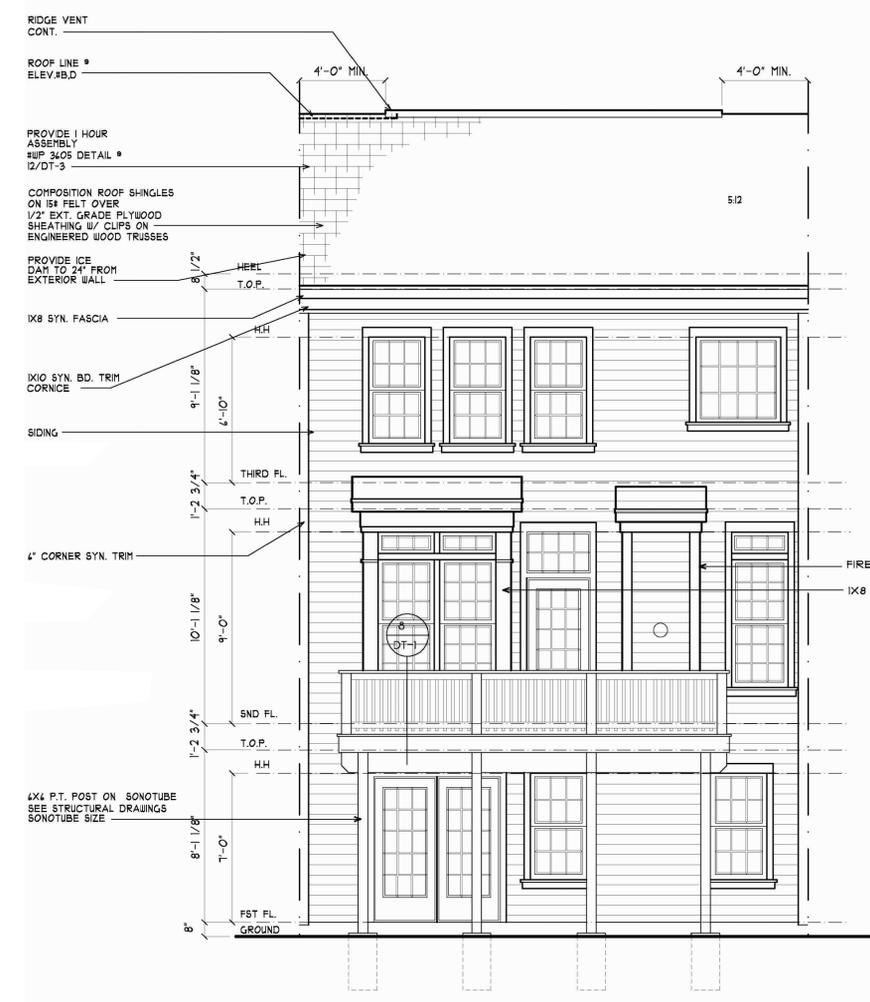
3224.2195

- BRICK ANCHORS TO BE 1/2" ON CENTER EACH WAY (10#10 BY HOHMANN AND BARNARD OF EQUAL) FOR AREAS HIGHER THAN 30 FEET ABOVE THE FOUNDATION
- GENERAL NOTES:
1. CHIMNEY OUTLETS SHALL BE LOCATED A MINIMUM OF 3'-0" ABOVE THE HIGHEST POINT WHICH THE CHIMNEY PENETRATES THE ROOF. CHIMNEY OUTLETS SHALL BE A MINIMUM OF 2'-0" HIGHER THAN ANY PORTION OF THE ROOF WITHIN 10'-0"
 2. ROOF SHALL BE OF COMPOSITION SHINGLES ON 15# FELT OVER 1/2" PLYWOOD DECK WITH PLYWOOD CLIPS.
 3. PROVIDE ICE DAM FROM THE EAVE UP THE ROOF TO A LINE 24" INSIDE THE EXTERIOR WALL LINE OF THE BUILDING
 4. PROVIDE CONTINUOUS FLASHING AND SEALANT AROUND ALL DOOR AND WINDOW OPENINGS. PROVIDE CAP FLASHING AT ALL DOOR AND WINDOW HEADS.
 5. INSTALL ALL GUTTERS AND DOWNSPOUTS AS PER MANUFACTURER'S SPECIFICATIONS

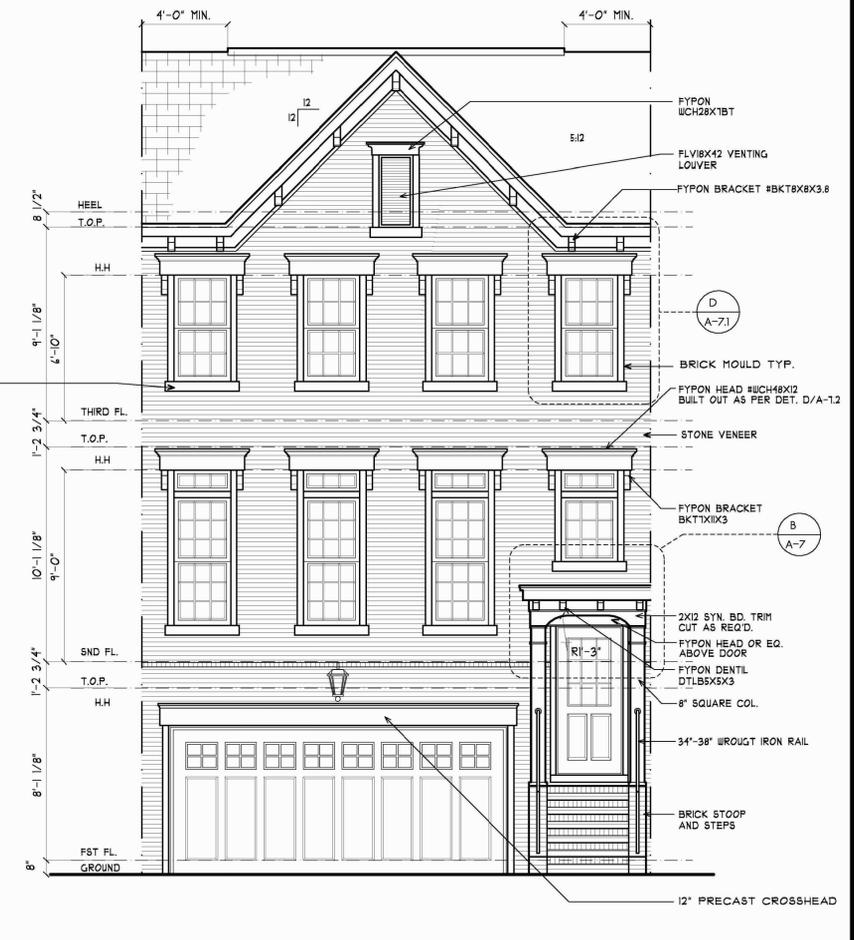


NOTE: DETAIL SHOWN FOR ARCHITECTURAL PURPOSES ONLY. STRUCTURAL INFORMATION TO BE VERIFIED BY STRUCTURAL ENGINEER.

D WINDOW HEAD
 1" = 1'-0"

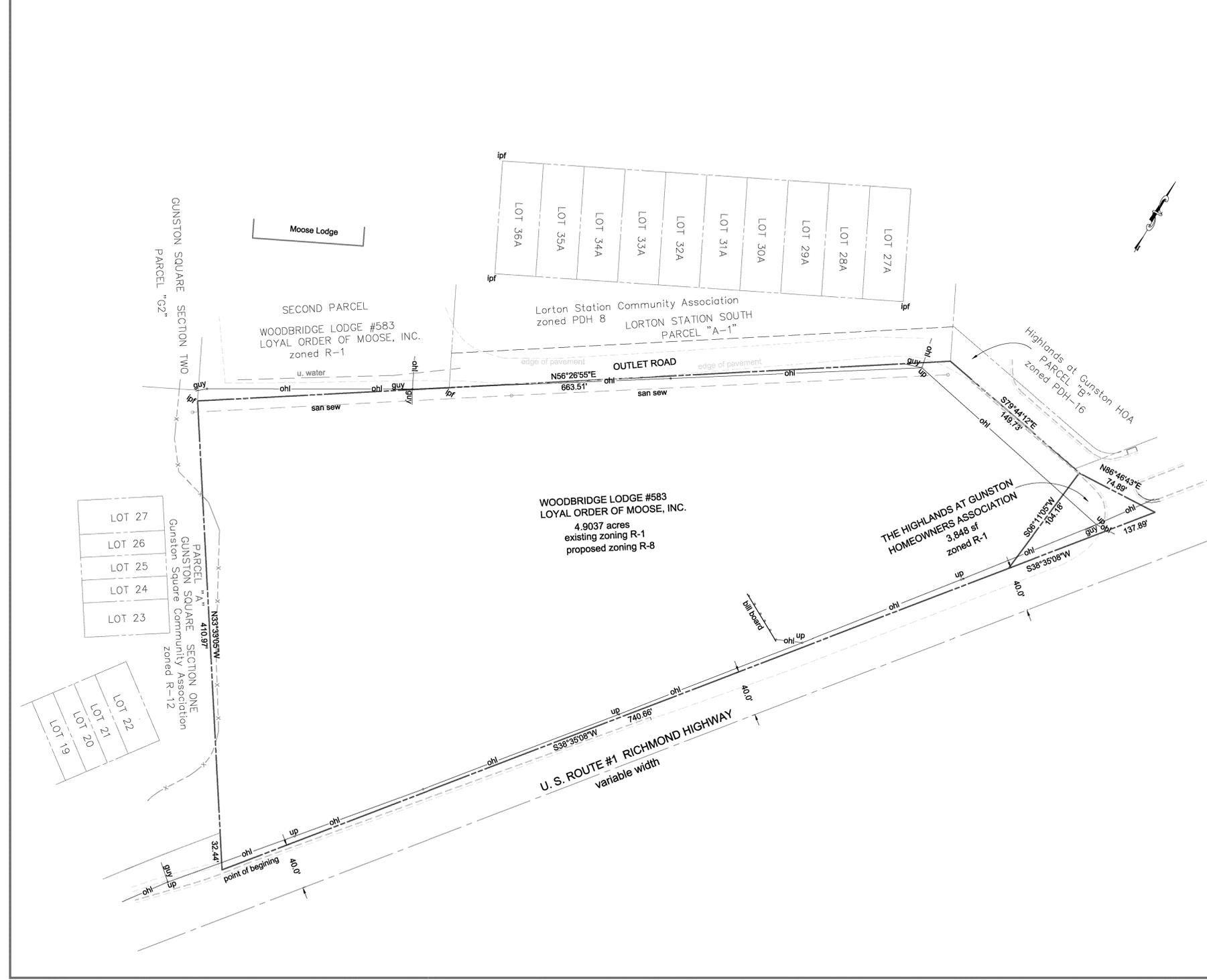


REAR ELEVATION
 1/4" = 1'-0"



ELEVATION E
 1/4" = 1'-0"

FOR INFORMATION ONLY.



rev. JUNE 28, 2012
 APRIL 30, 2012
 SCALE: 1"=50'
 JOB 11-0157

BOUNDARY SURVEY OF THE LANDS OF
WOODBRIDGE LODGE NO. 583, LOYAL ORDER OF MOOSE, INC.
THE HIGHLANDS AT GUNSTON HOMEOWNERS ASSOCIATION

APEX SURVEYS
 MOUNT VERNON DISTRICT

7720 VICEROY STREET SPRINGFIELD, VIRGINIA 22151 703 866-1236
 FAIRFAX COUNTY, VIRGINIA

DESCRIPTION OF THE APPLICATION

The applicant, McShay Communities, Inc., has requested the rezoning of 4.903 acres from the R-1: Residential District (One Dwelling Unit/Acre) to the R-12: Residential District (Twelve Dwelling Units/Acre). The applicant proposes to construct 40 single family attached dwellings. Each dwelling would be 3-stories and 35 feet tall.

The dwellings would be served by private streets with access to Hagel Circle, which also serves the nearby communities of Highlands at Gunston and Terrace Townhomes of Gunston. Hagel Circle connects these existing communities to Richmond Highway.

The applicant proposes to dedicate approximately 38,538 square feet along Richmond Highway for public street purposes. This dedication would conform to the Comprehensive Plan's recommendation for Richmond Highway to be widened for six lanes of traffic. The applicant would also provide a 6-foot wide sidewalk within this dedicated right-of-way to serve pedestrians until Richmond Highway is widened.

The applicant has proposed to meet the Public Facilities Manual's (PFM's) stormwater quantity control requirements through the use of an on-site dry detention pond. To improve water quality, the applicant would use three sand filters designed to remove phosphorus from stormwater leaving the site.

Finally, the applicant has submitted three requests for waivers and modifications:

- Waiver of the on-road bike lane requirement along Richmond Highway;
- Waiver of the service drive requirement along Richmond Highway; and,
- Waiver of the trail requirement along Richmond Highway

Copies of the draft proffers, applicant's statement of justification, and affidavit are included in Appendices 1, 2, and 3, respectively. A reduced copy of the applicant's Generalized Development Plan (GDP) is included at the beginning of this staff report.

LOCATION AND CHARACTER

The subject property is a wooded parcel located on the western side of Richmond Highway, approximately 600 feet north of Richmond Highway's intersection with Gunston Cove Road and Gunston Road. The site is approximately one quarter mile south of the Lorton Community Library.

The property is owned by the Loyal Order of Moose, Woodbridge Moose Lodge #583, which purchased the subject property in 1973. The Moose Lodge, a private club, is located to the immediate west. The lodge building and associated parking lot occupy parcels 107-4 ((6)) 1, 2 and 3.

Members and guests visiting the Moose Lodge use Fernedge Lane, a 15-foot wide access driveway adjacent to the subject property that traverses the common area of Lorton Station South to connect the Moose Lodge to Hagel Circle and ultimately Richmond Highway.

Figure 1 provides an aerial view of the subject property in context with the surrounding communities. The zoning and residential density have been included for reference.



Figure 1: Aerial photograph of subject property's surroundings (Source: Fairfax County DPZ GIS)

BACKGROUND

The subject property has not been previously rezoned, nor are there valid Special Exceptions or Special Permits associated with the property. Staff has included much of the property history background on the adjacent parcels for reference in Appendix 4. This includes a more detailed description of Fernedge Lane's history, the creation of nearby Parcel 40 (107-4 ((1)) 40), the creation of Parcel 41A (107-4 ((1)) 41A), and the Route 1 Location Study for Richmond Highway's future widening. An excerpt image from the Route 1 Location Study is enclosed as Appendix 5.

COMPREHENSIVE PLAN PROVISIONS

The subject property is located within the Lower Potomac Planning District, as identified in Area IV of the Comprehensive Plan. The Plan calls for this portion of Fairfax to be developed with residential uses at the identified density ranges shown on the Comprehensive Plan Land Use Map. The Map identifies this parcel as appropriate for residential development at 8-12 dwelling units per acre (du/ac). The Plan recommends that new or infill development “be of a compatible use, type and intensity to surrounding existing residential developments”¹. There is no site specific text associated with the subject property.

DESCRIPTION OF THE GENERALIZED DEVELOPMENT PLAN (GDP)

Proposed Dwelling Units

The applicant’s GDP depicts 40 single family attached dwelling units adjacent to Richmond Highway (Figure 2). Twenty-six of the dwellings would front on Royal Ridge Lane, a private street running through the center of the site. Nineteen of these dwellings would have rear yards facing Fernedge Lane and/or the Moose Lodge’s, with the remaining seven dwellings backing up to the site’s stormwater management pond.

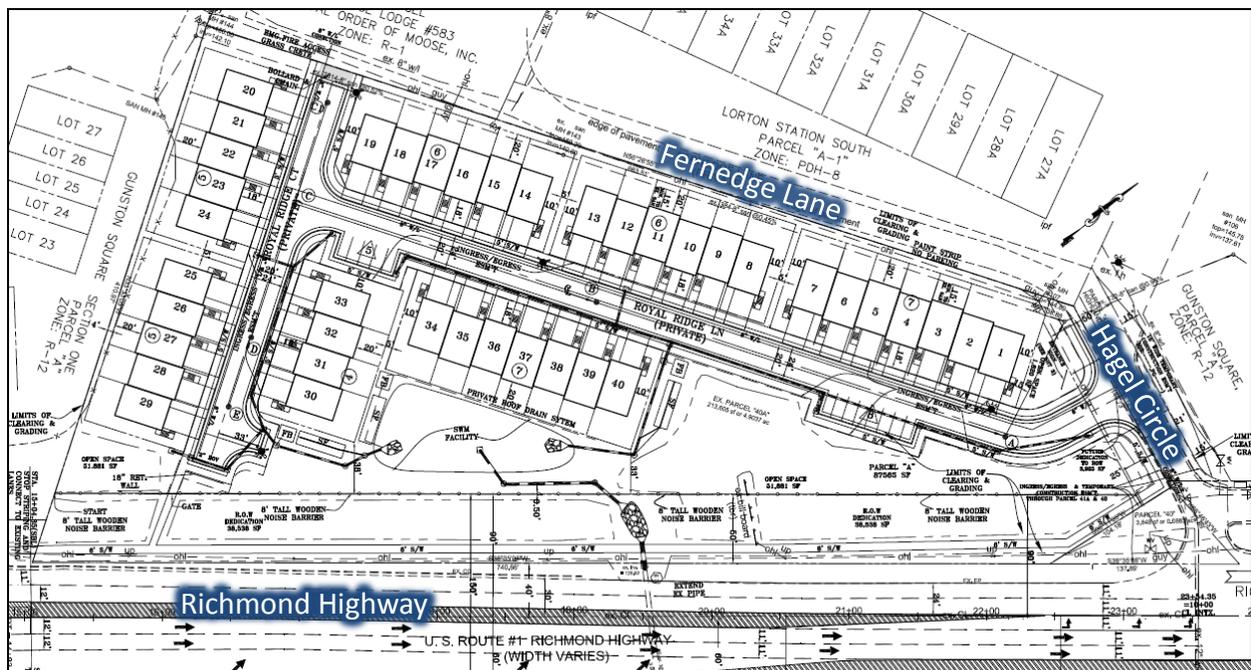


Figure 2: The applicant’s site layout (Source: Soil and Structure Consulting, Inc., 10/8/2014)

1 Fairfax County Comprehensive Plan, 2013 Edition, as amended through June 3, 2014; Area IV, Lower Potomac Planning District, Lorton-South Route 1 Planning Sector, Land Unit E, Sub-Unit E-9, p. 90.

The remaining 14 dwellings would be located along Royal Ridge Court, a private street at the southwestern end of the site, with 10 of the dwellings having rear yards facing the adjacent Gunston Square community.

Access and Parking

The applicant has proposed private streets to be maintained by a future homeowners association. The sole vehicular access point would be to Hagel Circle via a private street. The site’s internal streets would have five-foot wide sidewalks.

The GDP proposes an emergency vehicle access point between Lots 19 and 20 at the end of Royal Ridge Court. The access would provide fire and emergency vehicles additional connectivity if either Royal Ridge Lane or Fernedge Lane were inaccessible in an emergency situation. The applicant’s proffer statement commits to providing full interparcel access between the subject property and the adjacent Moose Lodge property holdings should the Moose Lodge choose to redevelop their three remaining parcels.

For parking, the applicant would provide 13 common area spaces for use by visitors to the site. Each townhouse would have a two-car garage with space in the driveways for two additional parked cars.

Roadways

Roadway Dedications: The applicant has outlined a 38,583 square foot portion of the site along Richmond Highway to be dedicated to the Board of Supervisors for public street purposes (Figure 3). The new right-of-way would be dedicated, according to the proposed proffers, at recordation of final site plan. The dedication would set the property line 90 feet from the existing centerline of Richmond Highway.

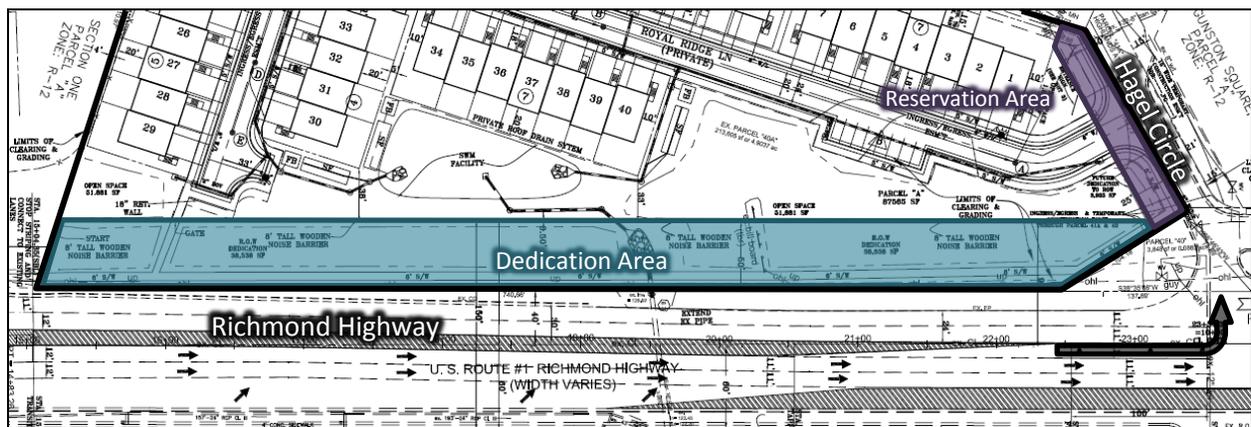


Figure 3: Sheet 2 of the GDP identifies the acreage to be dedicated for public street purposes, the acreage reserved upon demand for future right-of-way, and the proposed left turn lane from northbound Richmond Highway (Source: Soil and Structure Consulting, Inc., 10/8/2014)

In addition, the applicant has delineated 3,925 square feet adjacent to Hagel Circle that would be reserved for future dedication. This reservation area would be 25-feet wide. The applicant's proffers stipulate that the reservation would be made at recordation of final site plan, with dedication to occur upon demand by either Fairfax County or the Virginia Department of Transportation (VDOT).

Left-Turn Lane: The applicant has included a restriping plan on Sheet 11 of the GDP that shows a new northbound left turn lane on Richmond Highway. The additional lane would facilitate left turns into Hagel Circle. This new movement is shown on Figure 3.

Currently, the northbound traffic on Richmond Highway travelling from the Gunston Cove Road intersection use two travel lanes. A third northbound lane begins at the intersection for cars that have turned right from Gunston Road to head north. This third lane transitions into the two northbound through lanes.

To create the left turn lane, the applicant would restripe the northbound portion of Richmond Highway between the Gunston Cove Road intersection and the subject property. Instead of the farthest right lane transitioning into the right northbound through lane, the left through lane would transition into the right through lane.

Frontage Improvements: Along Richmond Highway, the applicant would provide a six-foot wide sidewalk within the portion of the property to be dedicated for public street purposes. While this sidewalk would not correspond to the pedestrian recommendations in the Route 1 Location Study, the applicant's intent would be for the sidewalk to serve pedestrians on an interim bases until Richmond Highway's widening commences at a future date. The applicant would connect the interim sidewalk to the townhouses' internal sidewalk network at the southern end of the site.

Fencing: The GDP depicts an eight-foot high board-on-board fence beginning at the southern property boundary and extending north along the acreage to be dedicated for public street purposes. This fence generally corresponds with the location of a proposed noise wall identified in the Route 1 Location Study.

Stormwater Management

The applicant has proposed a dry detention pond to comply with the Public Facilities Manual's (PFM) water quantity control requirements. According to the applicant, the pond would detain and reduce the peak stormwater discharge by providing storage volume for 2-year, 10-year, and 100-year storm events.

To meet the PFM's minimum requirements for stormwater pollutant removal, the applicant would provide three sand filtration systems that would treat stormwater prior to entering the detention pond. According to the preliminary calculations provided on the GDP, the sand filters would remove 40.66% of the phosphorus in the stormwater.

Landscaping

Tree Preservation: The applicant's tree preservation plan notes that 91.97% of the site is currently covered in tree canopy. The PFM requires that the applicant provide 15% canopy coverage throughout the proposed development. This coverage must be achieved by preserving 15% of the site's current canopy coverage, which would equate to 29,467 square feet. The applicant's tree preservation target calculations indicate that the preserved landscaping would provide 34,425 square feet of coverage (Figure 4). This calculation does not take into account the canopy that would overhang the acreage proposed for right-of-way dedication along Richmond Highway. The PFM prevents applicants from taking credit for tree canopy that would be within dedicated acreage under the assumption that future transportation improvements would remove the overhanging vegetation.

Tree Canopy: The applicant would provide 15,400 square feet of tree canopy coverage through new plantings. This supplemental tree planting would encompass 114 new trees, including 48 deciduous and 66 evergreen trees. These new trees would generally be planted along the southern and western boundary of the development area, with additional trees planted near the dry detention pond and at the site's access point to Hagel Circle.

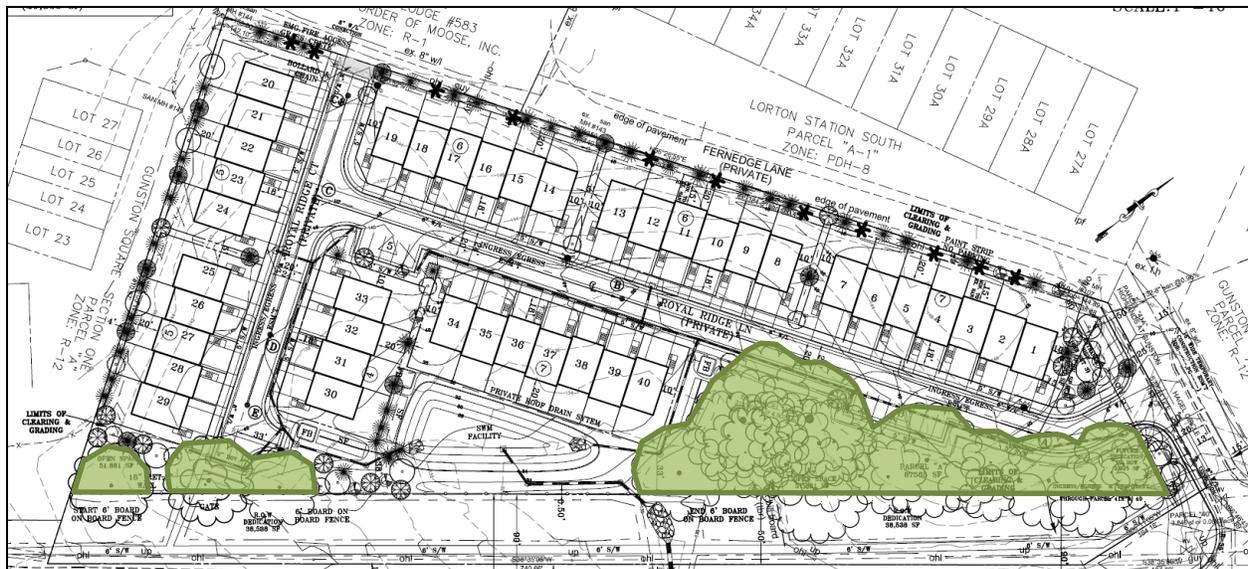


Figure 4: The shaded areas represent the existing tree canopy to be preserved after development (Source: Soil and Structure Consulting, Inc., 10/8/2014)

Architecture

Sheet 12 of the GDP shows the proposed architecture for the single family attached dwellings. The applicant has included front and rear façade images. The façades are displayed below in Figure 5.



Figure 5: The front façade is on the left, while the rear façade is on the right. (Source: Devereaux and Associates, 1/5/2007)

RESIDENTIAL DEVELOPMENT CRITERIA

Fairfax County expects new residential development to enhance the community by fitting into the fabric of the neighborhood, respecting the environment, addressing transportation impacts, addressing impacts on public facilities, respecting the County's historic heritage, contributing to the provision of affordable housing, and being responsive to the unique site specific considerations of the property. To that end, the Comprehensive Plan requires the following criteria (Appendix 6) to be used in evaluating zoning requests for new residential development:

Site Design (Development Criterion #1)

All rezoning applications for residential development should be characterized by high quality site design. Rezoning proposals for residential development, regardless of the proposed density, will be evaluated based upon the following principles, although not all of the principles may be applicable for all developments.

Consolidation: Although the Moose Lodge currently owns the subject property along with the three properties upon which their current lodge building is located, only the subject property is included in this rezoning application. Based on feedback from the applicant and verified by the Department of Tax Administration, a rezoning of 107-4 ((6)) 1, 2 and 3 would jeopardize the Moose Lodge's tax exempt status as a public benefit organization. The tax exempt status would be voided even if the development plan was phased to allow the subject property to develop while the Moose Lodge continued to operate on Parcels 1-3. If the Moose Lodge were to lease the land from the applicant, they would be ineligible for tax exempt status because only property owners are eligible for the status.

The applicant has addressed the Comprehensive Plan's recommendation for consolidation by committing to emergency access between the subject property and the Moose Lodge in the interim, and full interparcel access upon future redevelopment of the Moose Lodge to a residential use. This would allow the redevelopment to access Richmond Highway via Hagel Circle, and obviate the need for the applicant to pursue a Proffered Condition Amendment (PCA) of the proffers governing Lorton Station South, since the rezoning did not contemplate or allow any widening or upgrades to Fernedge Lane.

Layout: The proposed layout would provide appropriate relationships between the proposed dwellings and their respective front and rear yards. While the dry detention ponds location is visible from Richmond Highway, its location has been selected based on the natural low point for outfall and discharge for the site.

- The layout provides logical, functional, and appropriate relationships among dwelling units, landscaping, and street network. The tree preservation areas buffer some of the dwellings, which are set back from Richmond Highway.
- The proposed dwelling units would be oriented appropriately to the adjacent streets and homes. The rear yards of the southern units face the rear yards of the Gunston Square community, and the rear yards along the western boundary face the fencing and rear yards of Lorton Station South.
- The site layout provides approximately 430 square feet in the rear yard of the proposed dwellings, which gives ample space for the future construction of decks or other accessory structures.
- Through the use of the three sand filters and the dry detention pond filters, conservation easements, and the underground gravel storage facility, the applicant

has demonstrated that the proposed layout can accommodate the existing and proposed utilities needed to serve the units.

Open Space: The proposed layout would provide 25.14% open space and exceed the Zoning Ordinance's minimum open space requirement of 25% for R-12 Districts. The site's open space is largely preserved tree canopy coverage.

Landscaping: The applicant's landscape plan would add new vegetation to the site's periphery, between the townhouse groups, at the site's Hagel Circle access, and at other scattered locations on site. No landscaping is shown on the individual lots. The applicant's site design, coupled with the dry detention pond, tree preservation areas, and road network provide minimal opportunities for supplementary landscaping.

Amenities: The Comprehensive Plan recommendations on-site amenities with new residential development such as benches, gazebos, recreational amenities, children's play areas, walls and fences, special paving treatments, street furniture and lighting. The applicant has not selected any such amenity for inclusion into the development.

Based on the features discussed above, Criterion #1 has been met. However, the applicant should consider amending the proffers to provide additional amenities to the prospective residents.

Neighborhood Context (Development Criterion #2)

All rezoning applications for residential development, regardless of the proposed density, should be designed to fit into the community within which the development is to be located. Developments should fit into the fabric of their adjacent neighborhoods, as evidenced by an evaluation of:

Transitions to abutting and adjacent uses: The proposed dwellings are a compatible use when compared to the surrounding residential development.

Lot sizes, particularly along the periphery: The proposed lot sizes are of a similar size and shape as those located within Gunston Square and Highlands at Gunston.

Bulk/mass of the proposed dwelling units: The applicant proposes to construct three-story, 35-foot tall dwellings which would exceed the bulk and mass of the Gunston Square dwelling units. Lorton Station South was developed with single-family detached dwelling units. Highlands at Gunston's dwelling units are clustered in groups of five units each, with the tallest units being three stories. Given the mixed residential pattern of the surrounding communities, direct comparisons with the bulk and mass are not practical given that each community has incrementally developed in a piecemeal fashion for the past 30 years. However, the applicant has met the bulk and mass requirements of the R-12 District with the design shown on the GDP.

Setbacks (front, side and rear): The proposed front, side and rear setbacks all would meet the minimum standards for lots in a R-12 District.

Orientation of the proposed dwelling units to adjacent streets and homes: As previously discussed, the proposed orientation is appropriate given the orientation of the surrounding residential communities.

Architectural elevations and materials: The architectural elevations on Sheet 12 of the GDP show that the design and style of the proposed units would differ from the surrounding neighborhoods. As previously discussed, direct comparisons are difficult given the different building typologies and development eras for each community.

Pedestrian, bicycle and vehicular connections to off-site trails, roadways, transit facilities and land uses: The applicant proposes to connect the subject properties to Richmond Highway via a sidewalk linking the interim sidewalk to be constructed along Richmond Highway and the site's internal sidewalk network. This link is near the southeastern corner of the subject property. Residents would have access to the existing sidewalks along the Richmond Highway service drive for reaching destinations north of the site, such as the Lorton Community Library, that also currently serve Highlands at Gunston.

Despite the close proximity to Gunston Square and Lorton Station South, there are no convenient opportunities for establishing pedestrian links between the two communities. At the southern end of the site bordering Gunston Square, there is a dry detention pond and swale that separates Gunston Square from the subject property. The immediately adjacent portion of Lorton Station South is separated by a board-on-board fence. Further staff research into the as-built site plan for Lorton Station South revealed that no interparcel access easements were recorded to allow ingress or egress between Parcels 1-3 or the subject property. Given these constraints, the applicant has implemented reasonable pedestrian links to the surrounding features.

The Route 1 Location Study calls for an asphalt trail along southbound Richmond Highway. The applicant has requested a modification of this requirement in lieu of the interim six-foot wide sidewalk. This waiver request is discussed in greater detail in the Modifications and Waivers section later in this report.

Existing topography and vegetative cover and proposed changes to them as a result of clearing and grading: The applicant proposes to clear the vast majority of the subject property, leaving 34,425 square feet of the site's current canopy of 196,448. However, this remaining canopy amount would exceed the PFM's minimum required canopy coverage via tree preservation by just over 5,000 square feet.

Based on the features discussed above, Criterion #2 has been met.

Environment (Development Criterion #3)

All rezoning applications for residential development should respect the environment. Rezoning proposals for residential development, regardless of the proposed density, should be consistent with the policies and objectives of the environmental element of the Policy Plan, and will also be evaluated on the following principles, where applicable.

Preservation: There are no natural environmental resources located on the subject properties that warrant preservation other than existing trees. The applicant has included several tree preservation and protection commitments in the proffer statement that would grant the Urban Forest Management Division (UFMD) of the Department of Public Works and Environmental Services (DPWES) broad oversight and inspection privileges to any tree protection measures used on site. These commitments align with the adequate measures typically used by applicants undertaking similar development projects and recommended by UFMD.

Slopes and Soils: Staff from the Department of Planning and Zoning's Environment and Development Review Branch highlighted the possibility of Sassafras Marumsco and Lunt Manassas soil types on the subject property based on the soils information included in the GDP (Appendix 7). Both of these soils types provide constraints to development due to the potential for instability that they create for structural foundations. To address the stability issues that these soil types could cause, the applicant has committed to providing a geotechnical analysis to DPWES for review and approval, while implementing the construction recommendations of the geotechnical analysis.

Water Quality: The applicant's GDP proposes three sand filters to address the PFM's water quality standards. Phosphorus removal levels would be achieved through the use of a Stormfilter device. For controlling water volumes, the applicant would use an on-site detention pond. DPWES highlighted several items for the applicant to examine and consider during site plan review (Appendix 8). The applicant has supplemented the management strategies shown on the GDP with a proffer to implement stormwater management techniques in accordance with the PFM as determined by DPWES.

Drainage: The applicant's dry detention pond, like the sand filtration system, would be reviewed by DPWES during site plan review to ensure that the required volume and rate reductions can be achieved upon implementation of the GDP. Should modifications be needed to the stormwater management features that would require the applicant to substantially modify the site layout shown on the GDP, the applicant would be required to submit a PCA for additional review of the new layout.

Noise: The Environment Section of the Comprehensive Plan's Policy Plan contains recommended levels for transportation generated noise in residential settings. Specifically, the Policy Plan recommends transportation noise impacts be mitigated so that internal noise levels inside homes do not exceed 45 dBA and 65 dBA for outdoor

recreation areas for homes. For homes impacted by a day-night average sound level (DNL) of 65-75 dBA, the Comprehensive Plan recommends mitigation.

Transportation generated noise from Richmond Highway would impact the proposed dwellings, as shown by the noise contours seen on Sheet 2 of the GDP. The applicant commissioned a noise study to determine the extent of these impacts. The traffic volume would create noise impacts beyond the Comprehensive Plan's recommended limits for the townhouses' rear yards and within several of the dwellings.

To mitigate these impacts, the applicant has committed to using specific Sound Transmission Class (STC) ratings for the building materials to be used in the townhouses. The applicant's goal would be to reduce transportation generated noise to below the Comprehensive Plan's recommended maximum levels. The applicant has included STC specifications for the townhouses located within the DNL 65-70 dBA² range as well as the 70-75 dBA range.

The Environment and Development Review Branch expressed concerns with whether the acoustical analysis accounted for the proposed westward shift of Richmond Highway's centerline approved with the Route 1 Location Study. This shift would bring vehicular traffic closer to the proposed townhouses, particularly once Richmond Highway is widened. Staff noted particular concerns highlighted in the applicant's acoustical analysis for Lots 29 and 30.

Staff highlighted other noise impacts that were not adequately addressed by the applicant's initial proffer statement:

- The applicant's acoustical analysis recommended a board-on-board, solid wood fence measuring eight feet in height along Richmond Highway to mitigate noise impacts. The applicant's GDP showed a 6-foot high fence along a portion of the property's Richmond Highway frontage.
- The proffer should provide a commitment to submitting a refined acoustical analysis at site plan submission to ensure that the final engineered grading of the site would not create a scenario where internal noise in the dwellings would exceed 45 dBA.

Since the publication of the Environment and Development Review Branch's analysis memorandum, the applicant has revised the proffer statement to provide an 8-foot tall board-on-board fence along the recommended portion of the Richmond Highway frontage. The applicant has also committed to providing the refined acoustical analysis at site plan submission. In staff's opinion, the previously identified issues have been resolved by the applicant.

² dBA is an abbreviation standing for decibels calculated with A-weighting; it is the unit of measurement used in the Comprehensive Plan for measuring noise impacts

Lighting: Any lighting proposed by the applicant will need to meet the performance standards specified in Article 14 of the Zoning Ordinance, which reduce the impacts of glare and overlighting.

Energy: The applicant has proffered to certifying the proposed dwellings in accordance with the 2012 National Green Building Standard using the Energy Star Qualified Homes path for energy performance. The applicant has also included flexibility in the proffer statement to use the EarthCraft House Program as an alternative. Prior to the issuance of the first Residential Use Permit (RUP), the applicant would provide documentation to the Environment and Development Review Branch that each dwelling had attained the proper energy efficiency certification.

Based on the features discussed above, Criterion #3 has been met.

Tree Preservation and Tree Cover Requirements (Development Criterion #4)

All rezoning applications for residential development, regardless of the proposed density, should be designed to take advantage of the existing quality tree cover. If quality tree cover exists on site as determined by the County, it is highly desirable that developments meet most or all of their tree cover requirement by preserving and, where feasible and appropriate, transplanting existing trees. Tree cover in excess of ordinance requirements is highly desirable. Proposed utilities, including stormwater management and outfall facilities and sanitary lines, should be located to avoid conflicts with tree preservation and planting areas. Air quality-sensitive tree preservation and planting efforts are also encouraged.

As previously discussed, the applicant has included several proffers related to tree preservation, construction monitoring, root pruning, and tree protection that are typically recommended by UFMD. However, UFMD staff listed three outstanding issues in their analysis (Appendix 9). The applicant has placed new trees along the rear property line of Lots 30-34 on the GDP. UFMD recommends that these trees be relocated, as they would likely encroach on the rear yards of the townhouses and either restrict the use of the rear yard or conflict with any fencing installed to enclose the rear yards.

The applicant has chosen Sweetgum trees for areas that would create a maintenance nuisance for future residents and/or the homeowners association. Sweetgums are more appropriate near the dry detention pond due to their tolerance of wetter soils; this also would limit their maintenance footprint on the neighborhood. The applicant also shows Virginia Pines and Norway Spruce along the subject property's boundary with Fernedge Lane. With their close proximity to overhead power lines, UFMD expressed concerns with the long term viability of these trees that would likely be significantly pruned to avoid conflicts with the power lines. UFMD suggested alternative species for these plantings near Fernedge Lane.

The applicant's landscaping proffer provides UFMD with broad latitude to determine more appropriate tree types, locations, and species during the site plan review process. Staff is comfortable with the applicant resolving these matters during site plan review.

Based on the features discussed above, Criterion #4 has been met.

Transportation (Development Criterion #5)

All rezoning applications for residential development should implement measures to address planned transportation improvements. Applicants should offset their impacts to the transportation network. Accepted techniques should be utilized for analysis of the development's impact on the network. Residential development considered under these criteria will range widely in density and, therefore, will result in differing impacts to the transportation network. Some criteria will have universal applicability while others will apply only under specific circumstances. Regardless of the proposed density, applications will be evaluated based upon the following principles, although not all of the principles may be applicable

Transportation Improvements:

- *Dedication/Reservation:* The applicant has proposed to dedicate right-of-way for Richmond Highway consistent with the Route 1 Location Study to accommodate its future widening. The dedication would be the site's acreage within 90 feet of the existing centerline for Richmond Highway. The applicant has also included a proffer to reserve for future dedication a portion of the subject property adjacent to Hagel Circle. This reservation facilitates the installation of a traffic signal at the Hagel Circle access point as contemplated in the Route 1 Location Study.
- *Transition for Left Turn Lane:* Both the Fairfax County Department of Transportation (FCDOT) and the Virginia Department of Transportation (VDOT) expressed concerns with the proposed design for the lane transitions of the northbound Richmond Highway lanes (Appendices 10 and 11, respectively). The proposed design would create a potentially unsafe situation with motorists traveling through the Richmond Highway/Gunston Cove Road intersection at full speed, then having to make a confusing transition into the adjacent through lane.

The applicant conducted a warrant analysis to determine whether a northbound left turn lane would be necessary based on the existing traffic levels as well as based on the increased traffic generated by the proposed single family attached dwellings. This warrant analysis identified an existing need for a left turn lane at the Hagel Circle access point, and further noted that the vehicle trips generated by the proposed development would increase the need for a left turn lane.

VDOT reviewed and concurred with the applicant's warrant analysis. The applicant initially pursued a design waiver from VDOT to avoid constructing the left-turn lane.

In the waiver request, the applicant cited the disproportionate cost of providing channelized tapers 600 feet to the north and south of Hagel Circle as rationale for granting a waiver. These modifications to Richmond Highway would require additional paving and grading, which would incur increased costs beyond what was initially anticipated by the applicant.

VDOT was unable to approve the waiver due to safety concerns with vehicles waiting to make left turns from northbound lanes that would conflict with higher speed through traffic. According to VDOT, this section of Richmond Highway experiences approximately 40,000 vehicular trips per day³. Motorists making a left turn into Hagel Circle from one of Richmond Highway's through lanes could create an unsafe situation with the potential for rear-end collisions for northbound traffic, as well as make left turns with little room to spare within heavy traffic volumes travelling southbound.

Knowing that the left turn lane requirement would not be waived, the applicant has since collaborated with VDOT on a refined striping plan that would provide lane transitions and lane widths within the existing right-of-way in a manner that would be cost effective for the applicant, but meet safety standards acceptable to VDOT. The refined striping plan would need design modifications approved by VDOT as it would not meet the strict application of the VDOT Road Design Manual. However, given the recent collaboration with the applicant on this issue, VDOT is comfortable with reviewing those modifications during site plan review.

The applicant's proffer statement commits to achieving VDOT approval for the refined striping plan prior to final site plan approval. The proffer states that the restriping would be completed prior to the issuance of building permits for Lots 8-40, and prior to the issuance of RUPs for Lots 2-40. This would give the applicant the flexibility to construct the first section of seven single family detached dwellings, and obtain occupancy for a model unit to run an on-site sales office. All other RUPs and the remaining building permits would not be approved until the refined striping plan was fully implemented. Staff is comfortable with this proffer language since the applicant has committed to providing the improvements prior to residential occupancy of any dwelling unit.

Transit/Transportation Management: Staff did not identify a need for transportation management measures given the minimal impacts the proposed dwelling units would have on the nearby transportation network. Given the pedestrian improvements proposed with the Route 1 Location Study, FCDOT staff does not oppose the applicant's trail waiver request along Richmond Highway. This waiver is discussed in greater detail in the Waivers and Modifications section of the staff report.

3 Virginia Department of Transportation – Traffic Engineering Division: 2013 Annual Average Daily Traffic Volume Estimates by Section of Route, Fairfax Maintenance Area (http://www.virginiadot.org/info/resources/Traffic_2013/AADT_029_Fairfax_2013.pdf)

Interconnection of Street Network: The applicant examined several scenarios for vehicular access to the subject property. Access from Fernedge Lane was ruled out early on in review due to the need to reconstruct and widen Fernedge Lane to meet modern day standards for road design, and for the need to submit a PCA because Fernedge Lane traverses open spaces owned by the Lorton Station South homeowners association. The applicant also discussed the prospect of direct access to Richmond Highway. Staff could not support direct access due to lack of conformity with the Route 1 Location Study, concerns about sight distance, and issues with adding superfluous access points along Richmond Highway.

The applicant has collaborated with the homeowners association for Highlands at Gunston on an agreement for access on Hagel Circle through Parcels 40 and 41A in order to connect the proposed dwellings with Richmond Highway. This is the ideal connectivity scenario since this is where a traffic signal would be installed per the Route 1 Location Study.

As previously discussed, the applicant has committed to providing interparcel access between the subject property and the Moose Lodge. The access would only be for emergency purposes in the interim, and for full vehicle and pedestrian movement upon residential redevelopment. This would allow future residents to access the private streets proposed with this rezoning to reach Hagel Circle and ultimately Richmond Highway.

If RZ 2012-MV-015 is approved, future residential development on Parcels 1-3 should pursue annexation into the subject property's homeowners association in order to share maintenance costs of the roadways, open space and stormwater management facilities.

Streets: The applicants have proposed to use private streets, which is appropriate given that much of the surrounding residential street network is private.

Non-motorized Facilities: As previously discussed, the lack of connection opportunities to Gunston Square and Lorton Station South constrain the applicant's ability to provide non-motorized connections with these adjacent neighborhoods. The applicant's commitment to providing the interparcel access mentioned above would allow better connectivity for both pedestrian and motor vehicle access.

The applicant has proposed an adequate sidewalk network for the GDP, with ample driveway lengths that provide clear pedestrian zones that would not conflict with parked cars. Discussion of the recommendations for this site on the Countywide Trails Plan is made in the Modifications and Waivers section.

Alternative Street Designs: No alternative street designs were proposed.

Based on the features discussed above, Criterion #5 has been met.

Public Facilities (Development Criterion #6)

All rezoning applications for residential development are expected to offset their public facility impact and to address public facility needs in the vicinity of the proposed development. Impact offset may be accomplished through the dedication of land suitable for the construction of an identified public facility need, the construction of public facilities, the contribution of specified in-kind goods, services or cash earmarked for those uses, and/or monetary contributions to be used toward funding capital improvements projects. Selection of the appropriate offset mechanism should maximize the public benefit of the contribution.

Fairfax County Park Authority (FCPA): To mitigate the adverse impacts on off-site recreational facilities, FCPA has calculated a recommended contribution of \$116,090 for development of park facilities in the area. The applicant has included this contribution amount in the draft proffers (Appendix 12).

Fairfax County Public Schools (FCPS): The Fairfax County Public Schools' Office of Facilities Planning Services anticipates that the 40 dwelling units proposed by the applicants would generate 15 new students attending County schools (Appendix 13). In order to address the need for capital improvements associated with the new students, a proffer contribution of \$157,320 has been recommended to offset this impact. The applicant has included a commitment to contribute this amount for capital improvements to schools within the attendance pyramid serving the subject property.

Fairfax County Water Authority (FCWA): FCWA notes adequate domestic water service is available to the subject property from existing 10-inch and 8-inch water mains located at the property (Appendix 14).

Sanitary Sewer Analysis: DPWES has indicated in Appendix 15 that ample sanitary sewer capacity is available in the immediate sewer network. The proposed rezoning would not adversely impact nearby sanitary sewer capacity.

Based on the features discussed above, Criterion #6 has been met.

Affordable Housing (Development Criterion #7)

Ensuring an adequate supply of housing for low and moderate income families, those with special accessibility requirements, and those with other special needs is a goal of the County. Part 8 of Article 2 of the Zoning Ordinance requires the provision of Affordable Dwelling Units (ADUs) in certain circumstances. Criterion #7 is applicable to all rezoning applications and/or portions thereof that are not required to provide any Affordable Dwelling Units, regardless of the planned density range for the site.

The Zoning Ordinance specifies that rezoning applicants should provide ADUs for single family attached development plans proposing 50 or more dwelling units. While the Zoning Ordinance would not require ADUs in this instance, the Comprehensive Plan recommends a contribution to the County's Housing Trust Fund in rezoning applications where the Zoning Ordinance's ADU provisions are not applicable. The applicant has satisfied the guidelines in the Comprehensive Plan by committing in the proffers to contribute 0.5% of the anticipated sales price of each new single family attached dwelling unit.

Based on the features discussed above, Criterion #7 has been met.

Heritage Resources (Development Criterion #8)

Heritage resources are those sites or structures, including their landscape settings, that exemplify the cultural, architectural, economic, social, political, or historic heritage of the County or its communities.

FCPA noted in their memo that the property has a moderate to high potential to contain archaeological sites. FCPA's recommendation is for a Phase I archaeological survey to be conducted prior to land disturbance activities, and if any significant archaeological sites were found, a Phase II testing should occur. If any tested sites are eligible for inclusion into the National Register of Historic Places, FCPA recommends avoiding the site or conducting a Phase III archaeological recovery.

The applicant has included a proffer that mirrors FCPA's recommendation for archaeological study, which would be conducted in consultation with FCPA's Cultural Resources Management and Protection section. With this proffer, Criterion #8 has been met.

MODIFICATIONS AND WAIVERS

Trail/bike lane/service drive

Section 17-201 of the Zoning Ordinance requires applicants to provide a variety of improvements including pedestrian walkways, trails, and widening of roads that are called for in the Comprehensive Plan. Service drives, which provide interparcel access between properties separate from the main roadway, are required by this section when development occurs adjacent to a primary highway. These improvements may be waived or modified by the Director of DPWES based on information provided by the applicant and upon a determination that such improvements are unnecessary or will not adversely affect other required improvements and compliance with all other applicable requirements.

The applicant has requested waivers in order to avoid construction of the service drive that would be required by the Zoning Ordinance, the trail that would be required by the Route 1 Location Study, and the on-road bike lane recommended by the Countywide Trails Map. The applicant has not included these improvements on the GDP.

The Route 1 Location Study provides the framework for Richmond Highway's eventual widening. The improvements proposed in the Study are best accomplished as part of a comprehensive project effort instead of in piecemeal parts that would only provide limited capacity along the property frontage. While there is a service drive adjacent to the subject property, the Route 1 Location Study calls for its elimination due to the road widening. FCDOT has reviewed the applicant's requests and supports them.

FCDOT staff is nearing completion on the development of a Countywide Bicycle Master Plan which would revise the recommendation for bicycle facilities along Richmond Highway. The Master Plan recommends shared-use paths for the northbound and southbound sides of Richmond Highway. These paths would take the form of 10-foot wide, 2-way smooth surface sidepaths devoid of bumps and potholes that are separated from the vehicular travel lanes by a 5-foot landscaped buffer. The Master Plan intends for shared-use paths to be used by both bicyclists and pedestrians.

The recommendations in the Bicycle Master Plan closely conform to those approved in the Route 1 Location Study's cross section. The cross section depicts a 10-foot wide shared use path along the southbound lanes, which would be along the subject property's Richmond Highway frontage. The northbound lane is depicted with a 6-foot wide concrete sidewalk. Each pathway would meet the recommended buffering provisions in the Bicycle Master Plan. Since the applicant's right of way dedication conforms to the improvements proposed with the Route 1 Location Study, the applicant's proposal would also conform to the Bicycle Master Plan's recommendations.

CONCLUSIONS AND RECOMMENDATIONS

Staff Conclusions

The applicant's site design would conform to the applicable provisions of the Zoning Ordinance and meet the Comprehensive Plan's recommendations for noise attenuation, energy efficiency, land use compatibility, and housing affordability. In staff's opinion, the applicant has committed to providing safe, convenient access for both vehicles and pedestrians to the proposed dwellings. The proposal would complement future redevelopment of the Moose Lodge's remaining property and future transportation improvements along Richmond Highway.

Recommendations

Staff recommends approval of RZ 2012-MV-015, subject to the execution of proffers

consistent with those contained in Appendix 1.

Staff recommends approval of the following waivers and modifications of Sect. 17-201 of the Zoning Ordinance:

- Waiver of the service drive requirement along Richmond Highway;
- Waiver of the on-road bike lane requirement along Richmond Highway; and,
- Waiver of the major trail requirement along Richmond Highway.

It should be noted that it is not the intent of staff to recommend that the Board, in adopting any conditions proffered by the owner, relieve the applicant/owner from compliance with the provisions of any applicable ordinances, regulations, or adopted standards.

It should be further noted that the content of this report reflects the analysis and recommendation of staff; it does not reflect the position of the Board of Supervisors.

The approval of this application does not interfere with, abrogate or annul any easements, covenants, or other agreements between parties, as they may apply to the property subject to this application

APPENDICES

1. Draft Proffers
2. Applicant's Statement of Justification
3. Affidavit
4. Background Information
5. Route 1 Location Study – Sheet 26.1
6. Residential Development Criteria
7. Environmental Analysis
8. Stormwater Analysis
9. Urban Forest Management Analysis
10. Fairfax County Department of Transportation Analysis
11. Virginia Department of Transportation Analysis
12. Park Authority Analysis
13. Schools Analysis
14. Fairfax County Water Authority Analysis
15. Sanitary Sewer Analysis
16. Glossary of Terms

**RZ 2012 MV-015
MCSHAY COMMUNITIES
PROFFER STATEMENT**

October 20, 2014

Pursuant to Section 15.32-2303(A) of the Code of Virginia, as amended, and subject to the Fairfax County Board of Supervisors' (the "Board") approval of rezoning application RZ 2012-MV-015, as proposed, for rezoning from the R-1 District to the R-12 District, McShay Communities (the "Applicant"), and the Loyal Order of Moose, Woodbridge Lodge No. 583, Inc. (the Title Owner) for their selves and their successors and assigns, hereby proffer that development of Tax Map Parcel 107-4((1)) 40A (the "Property"), containing approximately 4.9037 acres, shall be in accordance with the following proffered conditions:

1. Substantial Conformity. The Property shall be developed in substantial conformance with the Generalized Development Plan ("GDP") consisting of 12 sheets prepared by Soil & Structure Consulting and dated April 26, 2012 revised through October 8, 2014, as further modified by these proffered conditions.
2. Minor Modifications to Design. Pursuant to Paragraph 5 of Section 18-204 of the Zoning Ordinance, minor modifications from the approved GDP may be permitted as determined by the Zoning Administrator. The Applicant may have the flexibility to modify the layout shown on the GDP provided such changes are in substantial conformance with the GDP and proffers, and do not increase the total number of units, change the unit type, or decrease the minimum amount of open space or peripheral setbacks shown to be provided on the Property.
3. Maximum Density. A maximum of forty (40) single family attached dwelling units at a maximum density of 8.16 dwelling units per acre shall be permitted on the Property. The Applicant reserves the right to develop fewer than this maximum number of units referenced in this paragraph without the need for a Proffered Condition Amendment ("PCA") application.
4. Establishment of HOA. Prior to final site plan approval, the Applicant shall either provide the Department of Public Works and Environmental Services (DPWES) with documentation that the subject property has been incorporated into an adjacent Homeowners Association (HOA) or the Applicant has established a HOA in accordance with Sect. 2-700 of the Zoning Ordinance. The purpose of the HOA shall be, among other things, establishing the necessary residential covenants governing the use and operation of common open space and other facilities of the approved development and to provide a mechanism for ensuring the ability to complete the maintenance obligations and other provisions noted in these proffer conditions, including an estimated budget for such common maintenance items.

5. Disclosure. Prior to entering into a contract of sale, prospective purchasers shall be notified in writing by the Applicant of the maintenance responsibility for the private roadways, stormwater management facilities, common area landscaping, and any other open space amenities and shall acknowledge receipt of this information in writing. The initial deeds of conveyance and HOA governing documents shall expressly contain these disclosures and an estimated budget for such common maintenance items.

6 Stormwater Management/Best Management Practices.

a. The Applicant shall implement stormwater management (SWM) and Best Management Practices (BMP) techniques to control the quantity and quality of stormwater runoff from the Application Property in accordance with the standards of the Fairfax County Public Facilities Manual (PFM) as determined by DPWES and in substantial conformance with the GDP.

b. Low-Impact Development (“LID”) Techniques. Supplementary innovative measures may be used on the subject Property, such as a bio-retention facility (rain garden) infiltration trenches, rain barrels, and/or grassy swales, subject to DPWES approval, to meet water quality requirements if necessary.

7 Transportation.

a. The Applicant shall dedicate and convey in fee simple to the Board of Supervisors, without encumbrances and at no cost to Fairfax County, right-of-way up to a width of ninety (90) feet from the centerline along the Application Property’s Richmond Highway frontage as shown on the GDP. The dedication shall be made at recordation of final site plan approval.

b. The Applicant shall reserve for future dedication to the Board of Supervisors right-of-way up to a width of 25 feet from the property line along the Application Property’s frontage with Parcel 41 contiguous to Hagel Circle as shown on the GDP. The reservation shall be made at recordation of final site plan. Ultimately, the dedication shall be made without encumbrances and at no cost to Fairfax County, and shall be dedicated upon demand by either Fairfax County or Virginia Department of Transportation (VDOT), whichever should first occur.

c. At the time of record plat recordation, the Applicant shall cause to be recorded among the land records a public access easement running to the benefit of Fairfax County, in a form acceptable to the County Attorney, over the private road and sidewalks as generally shown on the GDP. Members and guest of the Moose Lodge shall not use the private streets to access the Lodge property, unless permission is granted by the Royal Ridge HOA.

d. In the event that Tax Map as 107-4 ((6)) 1-3 are redeveloped to residential dwelling units by the Applicant, the Applicant (or successor HOA) shall grant all necessary easement for interparcel access easement to permit Tax Map as 107-4 ((6)) 1-3

access to Hagel Circle. The potential for interparcel access for Tax Map 107-4 ((6)) 1-3 shall be stated in the HOA documents. Prior to the redevelopment of parcels 107-4 ((6)) 1-3, the applicant shall permit emergency access for emergency vehicles to use the interparcel access easement in a manner acceptable to the Fire Marshal.

e. Prior to final site plan approval, the applicant shall seek a VDOT approved plan for the restriping of the existing pavement of northbound Route 1 so as to provide for a left turn lane at Hagel Circle.

f. Prior to the issuance of building permits for Lots 8-40, and prior to the issuance of Residential Use Permits (RUPs) for Lots 2-40, the Applicant shall restripe the existing pavement to provide a northbound left turn lane on Route 1 at Hagel Circle as approved by VDOT. If VDOT's approval of the restriping plan is withheld, the Applicant may provide an alternative design for the restriping of the existing pavement for the purpose of providing a left turn lane as agreed upon by VDOT via their design waiver/modification process. The Applicant shall also have the option to submit a request for a proffered condition amendment (PCA) to bring the GDP into substantial conformance with the road improvements necessary to make the project work. The Applicant reserves the right to seek VDOT approval to have the left turn lane requirement eliminated and/or to have VDOT bear the cost of providing for a left turn lane in either event without proffered condition amendment.

g. Upon demonstration by the applicant that, despite diligent efforts or due to factors beyond the applicant's control, the applicant will be or has been delayed in the completion of one or more of the obligations or improvements required by these conditions beyond the timeframes set forth in these conditions, the Zoning Administrator may agree to a later date for the fulfillment/completion of such obligations or improvements, provided the applicant otherwise is in substantial conformance with these conditions.

- 8 Limits of Clearing and Grading. Development of the Property shall conform to the limits of clearing and grading shown on the GDP, subject only to the installation of utilities, trails and roadways, if necessary, as approved by DPWES. All limits of clearing and grading shall be protected by temporary wire fencing that is a minimum of four (4) feet in height, in accordance with Urban Forest Management Division (UFMD) standards. Any necessary disturbance for utilities beyond that shown on the GDP shall be coordinated with UFMD and accomplished in the least disruptive manner reasonably possible given engineering, cost, and site design constraints, as determined by UFMD. Any area protected by the limits of clearing and grading that must be disturbed due to the installation of water lines shall be replanted with the application of straw, mulch, grass seed and/or a mix of native vegetation as determined by UFMD, to return the area as nearly as reasonably possible to its condition prior to the disturbance, as determined by UFMD.

- 9 Geotechnical Investigation. The Applicant shall submit a geotechnical investigation of the site for the review and approval of DPWES and implement such measures as determined by the investigation, subject to the satisfaction of DPWES.
10. Tree Preservation.
- A. Plan. The Applicant shall contract with a certified arborist to prepare a tree preservation plan to be submitted as part of the first and all subsequent subdivision submissions. The plan shall be reviewed and approved by UFMD in accordance with all applicable PFM and Zoning Ordinance requirements, as such may be modified by appropriate approvals set forth in this rezoning application. The certified arborist responsible for the preparation of the tree preservation plan shall be referred to as the "Project Arborist." Said tree preservation plan shall provide for preservation of specific quality trees or stands of trees within the tree save areas depicted on the GDP to the maximum extent reasonably feasible, subject to the potential installation of utilities, and to the maximum extent reasonably feasible without precluding the development of a single family home typical to this project on each of the building envelopes and lots shown on the GDP. UFMD may require reasonable modifications of such plan to the extent these modifications do not alter the number of dwelling units shown on the GDP, reduce the size of the proposed units, significantly move their location on the lot, or require the installation of retaining walls. The tree preservation plant shall consist of a tree survey which includes the locations, species, size, crown spread, and condition rating percent of all trees measuring twelve (12) inch diameter at breast height (dbh") or greater located within ten feet (10) inside and twenty-five (25) feet outside the limits of clearing areas depicted on the GDP. Additionally, included in the tree preservation plan shall be a condition analysis and rating for all trees measuring twelve (12) inch dbh or greater located within ten (10) feet of the inside and twenty-five (25) feet outside of the limits of clearing and grading for all tree buffer areas shown to be preserved on the GDP. The condition analysis shall be prepared using methods outlined in the latest edition of "The Guide for Plant Appraisal." Specific tree preservation activities shall be incorporated into the tree preservation plan. Activities should include, but no be limited to, crown pruning, root pruning, mulching and fertilization.
- B. Tree Preservation Walk-Through. The Applicant shall retain the services of a Certified Arborist or Registered Consulting Arborist, and shall have the limits of clearing and grading marked with a continuous line of flagging prior to the walk-through meeting. During the tree preservation walk-through meeting, the Applicant's certified arborist or landscape architect shall walk the limits of clearing and grading with an UFMD, DPWES, representative to determine where adjustments to the clearing limits can be made to increase the area of tree preservation and/or to increase the survivability of trees at the edge of the limits of clearing and grading, and such adjustment shall be implemented. Trees that are identified as dead or dying or potentially hazardous may be removed as part of the clearing operation with approval of UFMD. Any tree that is so designated shall

be removed using a chain saw and such removal shall be accomplished in a manner that avoids damage to surrounding trees and associated understory vegetation. If a stump must be removed, this shall be done using a stump-grinding machine in a manner causing as little disturbance as possible to adjacent trees and associated understory vegetation and soil conditions.

- C. Tree Preservation Fencing. All trees and buffers shown to be preserved on the tree preservation plan shall be protected by fencing. Tree protection fencing shall be erected at the limits of clearing and grading. Materials and installation of tree protection fencing shall consist of four foot-high, 14-gauge welded wire, attached to six foot steel posts, driven 18 inches into the ground and placed no further than 10 feet apart. The tree protection fencing shall be installed after the tree preservation walk-through meeting and prior to the performance of any clearing and grading activities on-site. All tree preservation activities, including the installation of tree protection fencing, shall be performed under the supervision of the Project Arborist and accomplished in a manner that does not harm existing vegetation to be preserved. Prior to commencement of any clearing and grading activities on-site, the Project Arborist shall verify in writing that the tree protection fencing has been properly installed.
 - D. Signage. Signage shall be surely attached to the protective fencing, identifying the tree preservation area and made clearly visible to all construction personnel. Signs shall measure a minimum of 10x12 inches and read: "TREE PRESERVATION AREA – KEEP OUT." Three days prior to the commencement of any clearing, grading or demolition activities, UFMD shall be notified and given the opportunity to inspect the site to ensure that all tree protection fencing has been installed properly.
 - E. The HOA documents shall require that no structures (other than utilities, utility lines, and/or trails as provided herein above) or fences shall be erected in the tree save area, and that trees in HOA open space areas and the tree save area will not be disturbed except as approved by UFMD for (i) the removal of disease, dead, dying or hazardous trees or parts thereof; and/or (ii) selective maintenance to remove noxious and poisonous weeds.
11. Landscaping. Landscaping shall be generally consistent with the quality, quantity and the locations shown illustratively on Sheet 9 of the GDP. At the time of planting, the minimum caliper for deciduous trees shall be two (2) to two and one-half (2 ½) inches and the minimum height for evergreen trees shall be six (6) feet. Actual types, locations and species of vegetation shall be determined pursuant to more detailed landscape plans submitted at the time of submission of site plan for review and approval by UFMD. Such landscape plans shall provide tree coverage and species diversity consistent with the PFM criteria, as determined by UFMD. The Applicant reserves the right to make minor modifications to such landscaping to reasonably accommodate utilities and other design considerations, provided such relocated landscaping shall retain a generally equivalent number of plantings as shown on the approved GDP.

12. Public Schools Contribution.
 - A. At the time of issuance of the first building permit, Applicant shall contribute to Fairfax County a maximum of \$157,320.00 for capital improvements to schools located within the pyramid serving the subject Property.
 - B. Adjustment to Contribution Amounts. Following approval of this Application and prior to the Applicant's payment of the amount(s) set forth in this Proffer, if Fairfax County should increase the ratio of students per unit or the amount of contribution per student, the Applicant shall increase the amount of the contribution for that phase of development to reflect the then-current ratio and/or contribution. If the County should decrease the ratio or contribution amount, the Applicant shall provide the greater of the two amounts.
 - C. The Applicant shall notify Fairfax County Public Schools (FCPS) when the site plan has been filed in order to allow the school system adequate time to plan for anticipated student growth to ensure classroom availability.
13. Recreational Facility Contribution. The Applicant shall provide a contribution of \$116,090.00 to the Fairfax County Park Authority for recreational facilities ("Park Contribution"). This contributions shall be adjusted for inflation in conformance with the consumer Price Index, occurring subsequent to the date of subject rezoning approval and up to the date of payment of the contribution.
14. Garages and Driveways. The Applicant shall place a covenant on each residential lot that prohibits the use of the garage for any purpose which would preclude motor vehicle storage. This covenant shall be recorded among the land records of Fairfax County prior to the sale of lots and shall run to the benefit of the HOA and to the Board. Prior to recordation, the covenant shall be approved by the Fairfax County Attorney's office. The HOA documents shall expressly state this use restriction. The driveway provided for each home shall be a minimum of eighteen (18) feet in length and sixteen (16) feet in width.
15. Architectural Elevations.
 - a. Illustrative building elevations for the proposed units shall be generally consistent in character, as to architectural style and quality, with the conceptual elevations as shown in the GDP. As determined by the Applicant, sides and rears of the houses will be vinyl siding, and the fronts will be brick or stone products and/or similar materials.
 - b. Houses on Lots 1, 40, 29 and 30 will have brick on side facing Route 1.
 - c. Houses on Lots 34 through 40 will all have rear decks as a standard feature and not an option. The future homeowners may, at their discretion, modify or remove the decks.

16. Energy Efficiency. All new dwelling units shall be designed and constructed to achieve one of the following:

- Certification in accordance with the 2012 National Green Building Standard (NGBS) using the ENERGY STAR® Qualified Homes path for energy performance, as demonstrated through documentation submitted to the Environment and Development Review Branch (EDRB) of the Department of Planning and Zoning (DPZ) from a home energy rater certified through the Home Innovation Research Labs that demonstrates that each dwelling unit has attained the certification prior to the issuance of the Residential Use Permit (RUP) for each dwelling.
- As an alternative, each new house shall be designed and constructed to achieve certification in accordance with the Earth Craft House Program as demonstrated through documentation provided to DPWES and DPZ prior to the issuance of a RUP.

17. Noise Attenuation. The applicant commits to reducing noise in interior areas of new residential use to not exceed 45 decibels. The applicant also commits to reducing noise in outdoor recreational areas or the rear yards of new homes to not exceed 65 decibels. In order to achieve this commitment, at the time of site plan submission, the Applicant shall submit a refined acoustical analysis based on final site grades and future traffic volumes and future roadway improvements on Richmond Highway to DPZ and DPWES for review and approval in accordance with the established guidelines for noise analysis at time of site plan approval.

For future residences which fall within a highway noise impact zone of DNL 65-70 dBA Ldn, the Applicant shall employ the use of building materials which possess the following noise reduction specifications:

- i. Exterior walls shall have a laboratory sound transmission class (STC) rating of at least 39.
- ii. Doors and windows shall have a laboratory STC rating of at least 28 unless windows constitute more than 20% of any façade exposed to noise levels of DNL 65 dBA or above. If glazing constitutes more than 20% of an exposed façade, then the windows should have a STC rating of at least 39.
- iii. All surfaces shall be sealed and caulked in accordance with methods approved by the American Society for Testing and Materials (ASTM) to minimize sound transmission.

For future residences which fall within the highway noise impact zone of DNL 70-75 dBA Ldn, the Applicant shall employ the use of building materials which possess the following noise reduction specifications:

- i. Exterior walls should have a laboratory sound transmission class (STC) rating of at least 45.

- ii. Doors and windows should have a laboratory STC rating of at least 37. If windows constitute more than 20% of any façade they should have the same laboratory STC rating as walls.
- iii. Measures to seal the caulk between surfaces should follow methods approved by the American Society for Testing and Materials to minimize sound transmission.

No residences shall be constructed in highway noise impact zones of above DNL 75 dBA Ldn.

Prior to the issuance of building permits, the Applicant reserves the right to pursue other methods of mitigating noise impacts that can be demonstrated through an independent noise study, as reviewed and approved by DPWES and DPZ, that demonstrates the proposed methods will be effective in reducing interior noise levels to DNL 45 dBA Ldn or less in interior areas.

18. Screening. An 8-foot high board on board fence shall be constructed and maintained on HOA property as shown on the GDP until the planned future VDOT sound wall parallel to Route 1 is constructed. Thereafter the 8-foot high fence can be removed by the HOA at any time.
19. ADU Contribution. Prior to building permit approval for each group of townhouses, the Applicant shall contribute to the Fairfax County Housing Trust Fund an amount equivalent to one-half percent (0.5%) of the anticipated sales price of each new dwelling unit in that group actually constructed on the Application Property to assist Fairfax County's low and moderate income housing goals.
20. Phase I Archaeological. At least 30 days prior to any land disturbing activities on the Property, Applicant shall conduct a Phase I archaeological study on the Property and provide the results of such study to the Cultural Resources Management and Protection Section of the Fairfax County Park Authority (CRMP) for review and approval. The study shall be conducted by a qualified archaeological professional approved by CRMP. No land disturbance activities shall be conducted until this study is submitted to CRMP. If the Phase I study concludes that an additional Phase II study of the Property is warranted, the Applicant shall complete said study and provide the results to CRMP. If the Phase II study concludes that additional Phase III evaluation and/or recovery is warranted, the Applicant shall also complete said work in consultation and coordination with CRMP.
21. Universal Design. At the time of initial purchase, the Applicant shall offer each purchaser the following universal design options at no additional cost:
 - Front entrance doors that are a minimum of 36" wide;
 - Level door handles instead of knobs;
 - Light switches 44"-48" high;
 - Thermostats a maximum of 48" high; and/or

- Electrical outlets a minimum of 18” high

At the time of initial purchase, the Applicant shall offer each purchaser additional universal design options at the purchaser’s sole cost. These additional options may include, but not be limited to:

- A curb-less shower, or a shower with a curb of less than 4.5” high;
- Grab bars in the bathrooms that are ADA compliant; and /or,
- A first floor bathroom console sink in lieu of a cabinet/style vanity.

22. HOA Documents. At the time the HOA is turned over to the home owners one of the officers or a witness shall sign a document stating that the following applicable items below have been turned over to the HOA:

- i) A copy of the latest available approved plans and specifications for all improvements in the project or as-built plans if available.
- ii) All association insurance policies currently in force.
- iii) Written unexpired warranties of the contractors, subcontractors, suppliers, and manufacturers, if any, relative to all common area improvements.
- iv) Any contracts in which the association is a contracting party.
- v) A list of manufacturers of paints, roofing materials and other similar materials if specified for use on the association property.

23. Construction Access and Hours. The hours of initial construction shall be posted in English and in Spanish and shall be limited to the hours identified within Chapter 108 of Fairfax County Code of Ordinances, including as to §108-4-1(b) as to hours for operation of construction equipment. The initial hours of construction shall be limited to 7 am to 9 pm Monday through Friday and 8 am to 9 pm on Saturday. No construction shall occur on Sunday or Federal Holidays. This shall be disclosed to all contractors and subcontractors who perform work on the subject property during site construction.

24. Construction Management. Prior to the commencement of construction on the property, the Mt. Vernon District Supervisor and the presidents or other representatives of the homeowners associations as requested by the Supervisor shall be provided with the name, title and phone number of a person to whom comments and/or complaints regarding construction activities may be directed. Such correspondence shall be sent by US Mail, return receipt requested and copies of the receipts and responses shall be made available to County Staff upon request.

MCSHAY COMMUNITIES, INC.

By: _____
Mike McGhan, President

**LOYAL ORDER OF MOOSE
WOODBIDGE LODGE NO. 583, INC.**

By: _____,
its President

OFFICERS:

By: _____
Name: _____
Title: _____

By: _____
Name: _____
Title: _____

By: _____
Name: _____
Title: _____

TRAMONTE, YEONAS, ROBERTS & MARTIN PLLC
ATTORNEYS AND COUNSELLORS AT LAW

Appendix 2

8245 BOONE BOULEVARD, SUITE 400
VIENNA, VIRGINIA 22182
TELEPHONE: 703-734-4800
FACSIMILE: 703-442-9532

RECEIVED
Department of Planning & Zoning
FEB 25 2014
Zoning Evaluation Division

February 5, 2014

Ms. Barbara Berlin
Dept. of Planning & Zoning
12055 Govt. Center Pkwy., Suite 801
Fairfax, VA 22035

Re: Amended Rezoning Application RZ 2012-MV-015 from R-1 District to R-12 District on
Tax Map 107-4((1)) 40A
Applicant: McShay Communities, Inc.

Dear Ms. Berlin:

The following is an amended statement of justification for the above referenced rezoning request. The Subset Property consists of 4.903 acres and is situated on the north side of Richmond Highway. It is in the Area IV recommendations planned for residential use at 8-12 dwelling units per acre.

The Generalized Development Plan (GDP) proposes 40 single family lots at a density of 8.15 units per acre, at the low end of the Plan's density range. Approximately 37.1% of the site will be preserved in homeowners association open space. Access for the development will be provided by a private street system connecting to Richmond Highway. The proposed development abuts the Highlands at Gunston a PDH-5 zoned townhouse development. Therefore, the proposed development will serve as an appropriate transition between the higher density townhouse development to the north.

It is submitted that the proposed rezoning satisfies the Policy Plan Residential Criteria as follows:

1. Site Design:

All rezoning applications for residential development should be characterized by high quality site design. Rezoning proposals for residential development, regardless of the proposed density, will be evaluated based upon the following principles, although not all of the principles may be applicable for all developments.

a. *Consolidation:* Developments should provide parcel consolidation in conformance with any site specific text and applicable policy recommendations of the comprehensive Plan. Should the Plan text not specifically address consolidation, the

nature and extent of any proposed parcel consolidation should further the integration of the development with adjacent parcels. In any event, the proposed consolidation should not preclude nearby properties from developing as recommended by the Plan.

The proposed development consists of 40 lots. Efforts to consolidate the entire Moose Lodge assemblage are ongoing. The design will not preclude the property from redeveloping. The GDP shows an interparcel access along its northern border.

b. *Layout:* The layout should:

- provide logical, functional and appropriate relationships among the various parts (e.g. dwelling units, yards, streets, open space, stormwater management facilities, existing vegetation, noise mitigation measures, sidewalks and fences);
- provide dwelling units that are oriented appropriately to adjacent streets and homes;
- include usable yard areas within the individual lots that accommodate the future construction of decks, sunrooms, porches, and/or accessory structures in the layout of the lots, and that provide space for landscaping to thrive and for maintenance activities;
- provide logical and appropriate relationships among the proposed lots including the relationships of yards, the orientation of the dwelling units, and the use of pipestem lots;
- provide convenient access to transit facilities;
- identify all existing utilities and make every effort to identify all proposed utilities and stormwater management outfall areas; encourage utility collocation where feasible.

The proposed layout orients fronts and sides of units toward Richmond Highway. All lots include useable yard areas that accommodate future decks, porches and landscaping. The design provides for a logical relationship among lots with a centralized open space area. There is convenient access to Richmond Highway.

c. *Open Space:* Development should provide usable, accessible, and well-integrated open space. This principle is applicable to all projects where open space is required by the Zoning Ordinance and should be considered, where appropriate, in other circumstances.

There is 37.1% open space, the majority of which is a central open space area.

d. *Landscaping:* Developments should provide appropriate landscaping: for example, in parking lots, in open space areas, along streets, in and around stormwater management facilities, and on individual lots.

The proposed landscaping plan provides additional planting to supplement the possible tree preservation.

e. *Amenities:* Developments should provide amenities such as benches, gazebos, recreational amenities, play areas for children, walls and fences, special paving treatments, street furniture and lighting.

The Applicant has provided an enlarged play area within the open space areas.

2. Neighborhood Context:

All rezoning applications for residential development, regardless of the proposed density, should be designed to fit into the community within which the development is to be located. Developments should fit into the fabric of their adjacent neighborhoods, as evidenced by an evaluation of:

- transitions to abutting and adjacent uses;
- lot sizes, particularly along the periphery;
- bulk/mass of the proposed dwelling units;
- setbacks (front, side and rear);
- orientation of the proposed dwelling units to adjacent streets and homes;
- architectural elevations and materials;
- pedestrian, bicycle and vehicular connections to off-site trails, roadways, transit facilities and land uses;
- existing topography and vegetative cover and proposed changes to them as a result of clearing and grading.

The proposed density is at the low end of the Plan's density range which allows for space between rows of units, ample open space, larger Lot sizes, R-12 yard setbacks and orientation of the units toward Richmond Highway.

3. Environment:

All rezoning applications for residential development should respect the environment. Rezoning proposals for residential development, regardless of the proposed density, should be consistent with the policies and objectives of the environmental element of the Policy Plan, and will also be evaluated on the following principles, where applicable.

a. *Preservation:* Developments should conserve natural environmental resources by protecting, enhancing, and/or restoring the habitat value and pollution reduction potential of floodplains, stream valleys, EQCs, RPAs, woodlands, wetlands and other environmentally sensitive areas.

There are no floodplains, EQCs, RPAs or wetlands on the Property.

b. *Slopes and Soils*: The design of developments should take existing topographic conditions and soil characteristics into consideration.

There are no slope or soil conditions which impact development.

c. *Water Quality*: Developments should minimize off-site impacts on water quality by commitments to state of the art best management practices for stormwater management and better site design and low impact development (LID) techniques.

A SWM/BMP facility is proposed to minimize off-site impacts.

d. *Drainage*: The volume and velocity of stormwater runoff from new development should be managed in order to avoid impacts on downstream properties. Where drainage is a particular concern, the applicant should demonstrate that off-site drainage impacts will be mitigated and that stormwater management facilities are designed and sized appropriately. Adequate drainage outfall should be verified, and the location of drainage outfall (on-site or off-site) should be shown on development plans.

Adequate outfall has been verified. Off-site drainage impacts will be mitigated by on-site SWM/BMP facility.

e. *Noise*: Developments should protect future and current residents and others from the adverse impacts of transportation generated noise.

Homes have been setback and oriented to minimize noise impacts from highway traffic on Richmond Highway.

f. *Lighting*: Development should commit to exterior lighting fixtures that minimize neighborhood glare and impacts to the night sky.

Applicant will proffer to low impact exterior lighting.

g. *Energy*: Developments should use site design techniques such as solar orientation and landscaping to achieve energy savings, and should be designed to encourage and facilitate walking and bicycling. Energy efficiency measures should be incorporated into building design and construction.

Applicant will proffer to energy efficient appliances in houses.

4. Tree Preservation and Tree Cover Requirements:

All rezoning applications for residential development, regardless of the proposed density, should be designed to take advantage of the existing quality tree cover. If quality tree cover exists on site as determined by the County, it is highly desirable that developments meet most or all of their tree cover requirements by preserving and, where

feasible and appropriate, transplanting existing trees. Tree cover in excess of ordinance requirements is highly desirable. Proposed utilities, including stormwater management and outfall facilities and sanitary sewer lines, should be located to avoid conflicts with tree preservation and planting areas. Air quality-sensitive tree preservation and planting efforts (see Objective 1, Policy c in the Environment section of this document).

The proposed design preserves many of the mature trees on the Property, thereby meeting the tree cover requirements.

5. Transportation:

All rezoning applications for residential development should implement measures to address planned transportation improvements. Applicants should offset their impacts to the transportation network. Accepted techniques should be utilized for analysis of the development's impact on the network. Residential development considered under these criteria will range widely in density and, therefore, will result in differing impacts to the transportation network. Some criteria will have universal applicability while other will apply only under specific circumstances. Regardless of the proposed density, applications will be evaluated based upon the following principles, although not all of the principles may be applicable.

a. *Transportation Improvements:* Residential development should provide safe and adequate access to the road network, maintain the ability of local streets to safely accommodate traffic, and offset the impact of additional traffic through commitments to the following:

- capacity enhancements to nearby arterial and collector streets;
- street design features that improve safety and mobility for non-motorized forms of transportation;
- signals and other traffic control measures;
- development phasing to coincide with identified transportation improvements;
- right-of-way dedication;
- construction of other improvements beyond ordinance requirements;
- monetary contributions for improvements in the vicinity of the development.

The Applicant will proffer to dedicate right-of-way along its Richmond Highway frontage. The addition of 40 units will have no impacts on the road system requiring improvements or contributions, other than constructing a service drive.

b. *Transit/Transportation Management:* Mass transit usage and other transportation measures to reduce vehicular trips should be encouraged by:

- provision of bus shelters;
- implementation and/or participation in a shuttle bus service;

- participation in programs designed to reduce vehicular trips;
- incorporation of transit facilities within the development and integration of transit with adjacent areas;
- provision of trails and facilities that increase safety and mobility for non-motorized travel.

As stated above, 40 additional units will have no impact which generates the need for transit facilities.

c. *Interconnection of the Street Network:* Vehicular connections between neighborhoods should be provided as follows:

- local streets within the development should be connected with adjacent local streets to improve neighborhood circulation;
- When appropriate, existing stub streets should be connected to adjoining parcels. If street connections are dedicated but not constructed with development, they should be identified with signage that indicates the street is to be extended;
- streets should be designed and constructed to accommodate safe and convenient usage by buses and non-motorized forms of transportation;
- traffic calming measures should be implemented where needed to discourage cut-through traffic, increase safety and reduce vehicular speed.

An interparcel connection to the north is provided.

d. *Streets:* Public streets are preferred. If private streets are proposed in single family detached developments; the applicant shall demonstrate the benefits for such streets. Applicants should make appropriate design and construction commitments for all private streets so as to minimize maintenance costs which may accrue to future property owners. Furthermore, convenience and safety issues such as parking on private streets should be considered during the review process.

The common private street serving is designed to minimize impervious surface while providing convenient access to parking spaces.

e. *Non-motorized Facilities:* Non-motorized facilities, such as those listed below, should be provided:

- connections to transit facilities;
- connections between adjoining neighborhoods;
- connections to existing non-motorized facilities;
- connections to off-site retail/commercial uses, public/community facilities; and natural and recreational areas;
- an internal non-motorized facility network with pedestrian and natural amenities, particularly those included in the Comprehensive Plan;

- offsite non-motorized facilities, particularly those included in the Comprehensive Plan;
- driveways to residences should be of adequate length to accommodate passenger vehicles without blocking walkways;
- Construction of non-motorized facilities on both sides of the street is preferred. If construction on a single side of the street is proposed, the applicant shall demonstrate the public benefit of a limited facility.

All three driveways are of sufficient length to avoid blocking the common access drive.

6. Public Facilities.

Residential development impacts public facility systems (i.e., schools, parks, libraries, police, fire and rescue, stormwater management and other publicly owned community facilities). These impacts will be identified and evaluated during the development review process. For schools, a methodology approved by the Board of supervisors, after input and recommendation by the School Board, will be used as a guideline for determining the impact of additional students generated by the new development.

Given the variety of public facility needs throughout the County, on a case-by-case basis, public facility needs will be evaluated so that local concerns may be addressed.

All rezoning applications for residential development are expected to offset their public facility impact and to first address public facility needs in the vicinity of the proposed development. Impact offset may be accomplished through the dedication of land suitable for the construction of an identified public facility need, the construction of public facilities, the contribution of specified in-kind goods, services or cash earmarked for those uses, and/or monetary contributions to be used toward funding capital improvement projects. Selection of the appropriate offset mechanism should maximize the public benefit of the contribution.

Furthermore, phasing of development may be required to ensure mitigation of impacts.

The Applicant is prepared to proffer contributions to mitigate any impacts generated by 40 lots on public facilities.

7. Affordable Housing:

Ensuring an adequate supply of housing for low and moderate income families, those with special accessibility requirements, and those with other special needs is a goal of the County. Part 8 of Article 2 of the Zoning Ordinance requires the provision of Affordable Dwelling Units (ADUs) in certain circumstances. Criterion #7 is applicable

to all rezoning applications and/or portions thereof that are not required to provide any Affordable Dwelling Units, regardless of the planned density range for the site.

a. *Dedication of Units or Land:* If the applicant elects to fulfill this criterion by providing affordable units that are not otherwise required by the ADU Ordinance: a maximum density of 20% above the upper limit of the Plan range could be achieved if 12.5% of the total number of single family detached and attached units are provided pursuant to the Affordable Dwelling Unit Program; and, a maximum density of 10% or 20% above the upper limit of the Plan range could be achieved if 6.25% or 12.5%, respectively of the total number of multifamily units are provided to the Affordable Dwelling Unit Program. As an alternative, land, adequate and ready to be developed for an equal number of units may be provided to the Fairfax County Redevelopment and Housing Authority or to such other entity as may be approved by the Board.

b. *Housing Trust Fund Contributions:* Satisfaction of this criterion may also be achieved by a contribution to the Housing Trust Fund or, as may be approved by the Board, a monetary and/or in-kind contribution to another entity whose mission is to provide affordable housing in Fairfax County, equal to 0.5% of the value of all of the units approved on the property except those that result in the provision of ADUs. This contribution shall be payable prior to the issuance of the first building permit. For for-sale projects, the percentage set forth above is based upon the aggregate sales price of all of the units subject to the contribution, as if all of those units were sold at the time of the issuance of the first building permit, and is estimated through comparable sales of similar type units. For rental projects, the amount of the contribution is based upon the total development cost of the portion of the project subject to the contribution for all elements necessary to bring the project to market, including land, financing, soft costs and construction. The sales price or development cost will be determined by the Department of Housing and Community Development, in consultation with the Applicant and the Department of Public Works and Environmental Services. If this criterion is fulfilled by a contribution as set forth in this paragraph, the density bonus permitted in “a” above does not apply.

The Applicant will proffer to a Housing Trust Fund Contribution.

8. Heritage Resources:

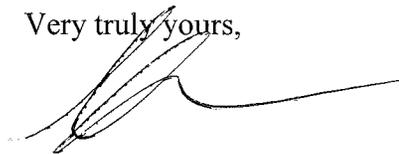
Heritage resources are those sites or structures, including their landscape settings, that exemplify the cultural, architectural, economic, social, political, or historic heritage of the County or its communities. Such sites or structures have been 1) listed on, or determined eligible for listing on, the National Register of Historic Places or the Virginia Landmarks Register; 2) determined to be a contributing structure within a district so listed or eligible for listing; 3) located within and considered as a contributing structure within a Fairfax County Historic Overlay District; or 4) listed on, or having a reasonable potential as determined by the County, for meeting the criteria for listing on, the Fairfax County Inventories of Historic or Archaeological Sites.

In reviewing rezoning applications for properties on which known or potential heritage resources are located, some or all of the following shall apply:

- a. protect heritage resources from deterioration or destruction until they can be documented, evaluated, and/or preserved;
- b. conduct archaeological, architectural, and/or historical research to determine the presence, extent, and significance of heritage resources;
- c. submit proposals for archaeological work to the County for review and approval and, unless otherwise agreed, conduct such work in accordance with state standards;
- d. preserve and rehabilitate heritage resources for continued or adaptive use where feasible;
- e. submit proposals to change the exterior appearance of, relocate, or demolish historic structures to the Fairfax County Architectural Review Board for review and approval;
- f. document heritage resources to be demolished or relocated;
- g. design new structures and site improvements, including clearing and grading, to enhance rather than harm heritage resources;
- h. establish easements that will assure continued preservation of heritage resources with an appropriate entity such as the County's Open Space and Historic Preservation Easement Program; and
- i. Provide a Fairfax County Historical Marker or Virginia Historical Highway Marker on or near the site of a heritage resource, if recommended and approved by the Fairfax County Historic Commission.

There haven't been any Historical Resources identified on the Property.

Very truly yours,

A handwritten signature in black ink, appearing to read "Keith C. Martin", with a long horizontal flourish extending to the right.

Keith C. Martin

cc: Mike McGhan

REZONING AFFIDAVIT

DATE: October 10, 2014
(enter date affidavit is notarized)

I, Keith C. Martin, Agent, do hereby state that I am an
(enter name of applicant or authorized agent)

(check one) [] applicant
[✓] applicant's authorized agent listed in Par. 1(a) below

1169526

in Application No.(s): RZ 2012-MV-015
(enter County-assigned application number(s), e.g. RZ 88-V-001)

and that, to the best of my knowledge and belief, the following information is true:

1(a). The following constitutes a listing of the names and addresses of all APPLICANTS, TITLE OWNERS, CONTRACT PURCHASERS, and LESSEES of the land described in the application,* and, if any of the foregoing is a TRUSTEE,** each BENEFICIARY of such trust, and all ATTORNEYS and REAL ESTATE BROKERS, and all AGENTS who have acted on behalf of any of the foregoing with respect to the application:

(NOTE: All relationships to the application listed above in BOLD print must be disclosed. Multiple relationships may be listed together, e.g., Attorney/Agent, Contract Purchaser/Lessee, Applicant/Title Owner, etc. For a multiparcel application, list the Tax Map Number(s) of the parcel(s) for each owner(s) in the Relationship column.)

Table with 3 columns: NAME, ADDRESS, RELATIONSHIP(S). Rows include McShay Communities, Inc.; Michael F. McGhan; Tramonte, Yeonas, Roberts & Martin PLLC; Soil & Structure Consulting, Inc.; Reza A. Hakimi.

(check if applicable) [✓] There are more relationships to be listed and Par. 1(a) is continued on a "Rezoning Attachment to Par. 1(a)" form.

* In the case of a condominium, the title owner, contract purchaser, or lessee of 10% or more of the units in the condominium.
** List as follows: Name of trustee, Trustee for (name of trust, if applicable), for the benefit of: (state name of each beneficiary).

Rezoning Attachment to Par. 1(a)

DATE: October 10, 2014
(enter date affidavit is notarized)

for Application No. (s): RZ 2012-MV-015
(enter County-assigned application number (s))

1169526

(NOTE): All relationships to the application are to be disclosed. Multiple relationships may be listed together, e.g., **Attorney/Agent, Contract Purchaser/Lessee, Applicant/Title Owner**, etc. For a multiparcel application, list the Tax Map Number(s) of the parcel(s) for each owner(s) in the Relationship column.

NAME (enter first name, middle initial, and last name)	ADDRESS (enter number, street, city, state, and zip code)	RELATIONSHIP(S) (enter applicable relationships listed in BOLD above)
*Silver and Brown	10621 Jones St. Suite 101 Fairfax, VA 22030	Attorneys/Agents
Glenn H. Silver		Attorney/Agent
American Eagle Title & Escrow Services Inc.	4103 Chain Bridge Rd, Suite 400 Fairfax, VA 22030	Attorneys/Agents
Marco Lopez		Attorney/Agent

(check if applicable) There are more relationships to be listed and Par. 1(a) is continued further on a "Rezoning Attachment to Par. 1(a)" form.

REZONING AFFIDAVIT

DATE: October 10, 2014
(enter date affidavit is notarized)

for Application No. (s): RZ 2012-MV-015
(enter County-assigned application number(s))

1169526

1(b). The following constitutes a listing*** of the **SHAREHOLDERS** of all corporations disclosed in this affidavit who own 10% or more of any class of stock issued by said corporation, and where such corporation has 10 or less shareholders, a listing of all of the shareholders, **and if the corporation is an owner of the subject land, all of the OFFICERS and DIRECTORS of such corporation:**

(NOTE: Include **SOLE PROPRIETORSHIPS, LIMITED LIABILITY COMPANIES, and REAL ESTATE INVESTMENT TRUSTS** herein.)

CORPORATION INFORMATION

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)

McShay Communities, Inc.
6212 B Old Franconia Rd
Alexandria, VA 22310

DESCRIPTION OF CORPORATION: (check one statement)

- There are 10 or less shareholders, and all of the shareholders are listed below.
- There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
- There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF SHAREHOLDERS: (enter first name, middle initial, and last name)

Michael F. McGhan

NAMES OF OFFICERS & DIRECTORS: (enter first name, middle initial, last name & title, e.g. **President, Vice President, Secretary, Treasurer,** etc.)

Michael F. McGhan- President/Secretary

(check if applicable) There is more corporation information and Par. 1(b) is continued on a "Rezoning Attachment 1(b)" form.

*** All listings which include partnerships, corporations, or trusts, to include the names of beneficiaries, must be broken down successively until: (a) only individual persons are listed or (b) the listing for a corporation having more than 10 shareholders has no shareholder owning 10% or more of any class of stock. *In the case of an APPLICANT, TITLE OWNER, CONTRACT PURCHASER, or LESSEE* of the land that is a partnership, corporation, or trust, such successive breakdown must include a listing and further breakdown of all of its partners, of its shareholders as required above, and of beneficiaries of any trusts. Such successive breakdown must also include breakdowns of any partnership, corporation, or trust owning 10% or more of the APPLICANT, TITLE OWNER, CONTRACT PURCHASER, or LESSEE* of the land. Limited liability companies and real estate investment trusts and their equivalents are treated as corporations, with members being deemed the equivalent of shareholders; managing members shall also be listed.* Use footnote numbers to designate partnerships or corporations, which have further listings on an attachment page, and reference the same footnote numbers on the attachment page.

Rezoning Attachment to Par. 1(b)

DATE: October 10, 2014
(enter date affidavit is notarized)

for Application No. (s): RZ 2012-MV-015
(enter County-assigned application number (s))

1169526

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)
Loyal Order of Moose Woodbridge Lodge No. 583, Inc.

DESCRIPTION OF CORPORATION: (check one statement)

- There are 10 or less shareholders, and all of the shareholders are listed below.
- There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
- There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDER: (enter first name, middle initial, and last name)
No shareholders- Non-stock Corp.

NAMES OF OFFICERS & DIRECTORS: (enter first name, middle initial, last name, and title, e.g. President, Vice-President, Secretary, Treasurer, etc.)
Terry Tredwell-Governor
Kenneth R. Head-Administrator

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)
Tramonte, Yeonas, Roberts & Martin PLLC
8245 Boone Blvd #400
Vienna, VA 22182

DESCRIPTION OF CORPORATION: (check one statement)

- There are 10 or less shareholders, and all of the shareholders are listed below.
- There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
- There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDERS: (enter first name, middle initial, and last name)

Vincent A. Tramonte II
George P. Yeonas
Jill J. Roberts
Keith C. Martin

NAMES OF OFFICERS & DIRECTORS: (enter first name, middle initial, last name, and title, e.g. President, Vice-President, Secretary, Treasurer, etc.)

(check if applicable) There is more corporation information and Par. 1(b) is continued further on a "Rezoning Attachment to Par. 1(b)" form.

Rezoning Attachment to Par. 1(b)

DATE: October 10, 2014
(enter date affidavit is notarized)

1169526

for Application No. (s): RZ 2012-MV-015
(enter County-assigned application number (s))

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)
Soil & Structure Consulting, Inc.
1900 Campus Common DR. Suite 100
Reston, VA 20191

DESCRIPTION OF CORPORATION: (check one statement)
 There are 10 or less shareholders, and all of the shareholders are listed below.
 There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
 There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDER: (enter first name, middle initial, and last name)

Kenneth G. Fraine

NAMES OF OFFICERS & DIRECTORS: (enter first name, middle initial, last name, and title, e.g. President, Vice-President, Secretary, Treasurer, etc.)

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)
Silver and Brown
10621 Jones St. Suite 101
Fairfax, VA 22030

DESCRIPTION OF CORPORATION: (check one statement)
 There are 10 or less shareholders, and all of the shareholders are listed below.
 There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
 There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDERS: (enter first name, middle initial, and last name)

C. Thomas Brown
Glenn H. Silver

NAMES OF OFFICERS & DIRECTORS: (enter first name, middle initial, last name, and title, e.g. President, Vice-President, Secretary, Treasurer, etc.)

(check if applicable) There is more corporation information and Par. 1(b) is continued further on a "Rezoning Attachment to Par. 1(b)" form.

Rezoning Attachment to Par. 1(b)

DATE: October 10, 2014
(enter date affidavit is notarized)

1169526

for Application No. (s): RZ 2012-MV-015
(enter County-assigned application number (s))

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)
American Eagle Title & Escrow Services Inc.
4103 Chain Bridge Rd Suite 101
Fairfax, VA 22030

DESCRIPTION OF CORPORATION: (check one statement)

- There are 10 or less shareholders, and all of the shareholders are listed below.
- There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
- There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDER: (enter first name, middle initial, and last name)

William L. Schmidt

NAMES OF OFFICERS & DIRECTORS: (enter first name, middle initial, last name, and title, e.g. President, Vice-President, Secretary, Treasurer, etc.)

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)

DESCRIPTION OF CORPORATION: (check one statement)

- There are 10 or less shareholders, and all of the shareholders are listed below.
- There are more than 10 shareholders, and all of the shareholders owning 10% or more of any class of stock issued by said corporation are listed below.
- There are more than 10 shareholders, but no shareholder owns 10% or more of any class of stock issued by said corporation, and no shareholders are listed below.

NAMES OF THE SHAREHOLDERS: (enter first name, middle initial, and last name)

NAMES OF OFFICERS & DIRECTORS: (enter first name, middle initial, last name, and title, e.g. President, Vice-President, Secretary, Treasurer, etc.)

(check if applicable) There is more corporation information and Par. 1(b) is continued further on a "Rezoning Attachment to Par. 1(b)" form.

REZONING AFFIDAVIT

DATE: October 10, 2014
(enter date affidavit is notarized)

1169526

for Application No. (s): RZ 2012-MV-015
(enter County-assigned application number(s))

1(c). The following constitutes a listing*** of all of the PARTNERS, both GENERAL and LIMITED, in any partnership disclosed in this affidavit:

PARTNERSHIP INFORMATION

PARTNERSHIP NAME & ADDRESS: (enter complete name, number, street, city, state and zip code)

(check if applicable) [] The above-listed partnership has no limited partners.

NAMES AND TITLE OF THE PARTNERS (enter first name, middle initial, last name, and title, e.g. General Partner, Limited Partner, or General and Limited Partner)

(check if applicable) [] There is more partnership information and Par. 1(c) is continued on a "Rezoning Attachment to Par. 1(c)" form.

*** All listings which include partnerships, corporations, or trusts, to include the names of beneficiaries, must be broken down successively until: (a) only individual persons are listed or (b) the listing for a corporation having more than 10 shareholders has no shareholder owning 10% or more of any class of stock. In the case of an APPLICANT, TITLE OWNER, CONTRACT PURCHASER, or LESSEE* of the land that is a partnership, corporation, or trust, such successive breakdown must include a listing and further breakdown of all of its partners, of its shareholders as required above, and of beneficiaries of any trusts. Such successive breakdown must also include breakdowns of any partnership, corporation, or trust owning 10% or more of the APPLICANT, TITLE OWNER, CONTRACT PURCHASER or LESSEE* of the land. Limited liability companies and real estate investment trusts and their equivalents are treated as corporations, with members being deemed the equivalent of shareholders; managing members shall also be listed. Use footnote numbers to designate partnerships or corporations, which have further listings on an attachment page, and reference the same footnote numbers on the attachment page.

REZONING AFFIDAVIT

DATE: October 10, 2014
(enter date affidavit is notarized)

1169526

for Application No. (s): RZ 2012-MV-015
(enter County-assigned application number(s))

1(d). One of the following boxes **must** be checked:

In addition to the names listed in Paragraphs 1(a), 1(b), and 1(c) above, the following is a listing of any and all other individuals who own in the aggregate (directly and as a shareholder, partner, and beneficiary of a trust) 10% or more of the **APPLICANT, TITLE OWNER, CONTRACT PURCHASER, or LESSEE*** of the land:

Other than the names listed in Paragraphs 1(a), 1(b), and 1(c) above, no individual owns in the aggregate (directly and as a shareholder, partner, and beneficiary of a trust) 10% or more of the **APPLICANT, TITLE OWNER, CONTRACT PURCHASER, or LESSEE*** of the land.

2. That no member of the Fairfax County Board of Supervisors, Planning Commission, or any member of his or her immediate household owns or has any financial interest in the subject land either individually, by ownership of stock in a corporation owning such land, or through an interest in a partnership owning such land.

EXCEPT AS FOLLOWS: (NOTE: If answer is none, enter "NONE" on the line below.)

None.

(check if applicable) There are more interests to be listed and Par. 2 is continued on a "Rezoning Attachment to Par. 2" form.

REZONING AFFIDAVIT

DATE: October 10, 2014
(enter date affidavit is notarized)

1169526

for Application No. (s): RZ 2012-MV-015
(enter County-assigned application number(s))

3. That within the twelve-month period prior to the public hearing of this application, no member of the Fairfax County Board of Supervisors, Planning Commission, or any member of his or her immediate household, either directly or by way of partnership in which any of them is a partner, employee, agent, or attorney, or through a partner of any of them, or through a corporation in which any of them is an officer, director, employee, agent, or attorney or holds 10% or more of the outstanding bonds or shares of stock of a particular class, has, or has had any business or financial relationship, other than any ordinary depositor or customer relationship with or by a retail establishment, public utility, or bank, including any gift or donation having a value of more than \$100, singularly or in the aggregate, with any of those listed in Par. 1 above.

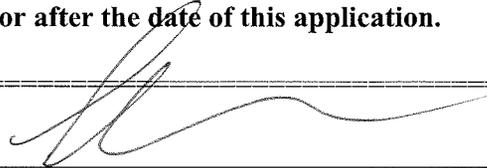
EXCEPT AS FOLLOWS: (NOTE: If answer is none, enter "NONE" on line below.)
None.

(NOTE: Business or financial relationships of the type described in this paragraph that arise after the filing of this application and before each public hearing must be disclosed prior to the public hearings. See Par. 4 below.)

(check if applicable) [] There are more disclosures to be listed and Par. 3 is continued on a "Rezoning Attachment to Par. 3" form.

4. That the information contained in this affidavit is complete, that all partnerships, corporations, and trusts owning 10% or more of the APPLICANT, TITLE OWNER, CONTRACT PURCHASER, or LESSEE* of the land have been listed and broken down, and that prior to each and every public hearing on this matter, I will reexamine this affidavit and provide any changed or supplemental information, including business or financial relationships of the type described in Paragraph 3 above, that arise on or after the date of this application.

WITNESS the following signature:

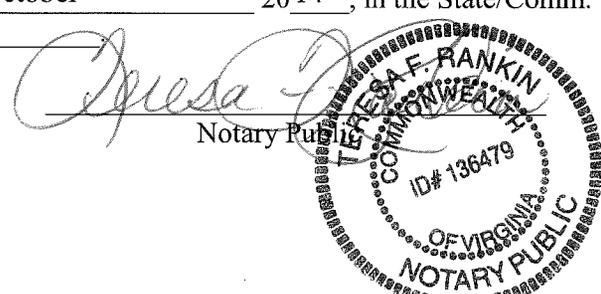


(check one) [] Applicant [x] Applicant's Authorized Agent

Keith C. Martin, Agent
(type or print first name, middle initial, last name, and title of signee)

Subscribed and sworn to before me this 10th day of October 2014, in the State/Comm. of Virginia, County/City of Fairfax

My commission expires: 1.31.17



Appendix 4 – Supplementary Background

Fernedge Lane

According to staff research of the Fairfax County land records, an access easement creating an outlet road was recorded in 1926 to serve three 9-acre parcels that were created from a larger 27-acre parcel subdivided in 1925 to settle the estate of James H. Cranford. The outlet road provided access across each of the properties and ultimately reached Richmond Highway. The deed did not identify the outlet road as Fernedge Lane by name, but this outlet road is used today by the Moose Lodge to connect their property to Richmond Highway.

The western parcel of the three 9-acre parcels was subdivided again in 1951 to settle the estate of Wesley H. Cranford, who had owned the parcel and received it with the 1925 subdivision. The 9-acre parcel was split amongst seven heirs, with each heir receiving 1.288 acres according to the deed. The deed also noted that each of the seven parcels created by the subdivision would access the outlet road, and that its right-of-way would be 30 feet wide and be located along the eastern boundary of the seven parcels. Figure 1 displays the 1962 tax map for this portion of Fairfax County.



Figure 1: The 1962 Property Map shows the parent parcels of today's tax maps, and a glimpse of the surrounding property boundaries during that time (Source: Fairfax County Digital Map Viewer)

Parcels 4-7 of the 1951 subdivision, along with Parcels 41 and 42 of the 1925 subdivision as identified in Figure 1, were ultimately developed as part of the Lorton

Station South community. The remaining three parcels (1-3) from the 1951 subdivision are today occupied by the Moose Lodge. The total acreage of these three parcels is 3.87 acres.

Creation of Parcel 40

The subject property is adjacent to 107-4 ((1)) 40, which has been owned by the adjacent Highlands at Gunston Homeowners Association (HOA) since 1989. The parcel is a remnant parcel of land that was developed across Richmond Highway as part of the Mason's Passage community. Figure 1 displays the original boundaries of the parent parcel that Parcel 40 was originally part of, but then separated from with the construction and dedication of Richmond Highway. Parcel 40 has no structures on it, but does include a vehicular access point connecting Hagel Circle to Richmond Highway.

Establishment of Moose Lodge

The Board of Zoning Appeals approved Special Use Permit #13690 on September 25, 1956 for the Moose Lodge to operate a lodge hall, swimming pool and recreation area on 107-4 ((6)) 1, or Parcel 1 as discussed above. The Board concurrently approved a modification of the use limitations to allow a reduction of the 100-foot minimum setback requirement.

The Board of Zoning Appeals approved the Moose Lodge's second Special Use Permit in 1967 to construct an addition to their primary structure. The addition required the same modification for setback reduction as was previously requested in 1956. The Moose Lodge had only constructed the lodge hall and not the swimming pool or recreation area, nor did they intend to move forward with those previously approved plans. By this time, the Moose Lodge had purchased the adjacent Parcel 2 and was in negotiations to purchase Parcel 3 just to its north to increase the site's parking capacity. The Board of Zoning Appeals approved the request, S-685-67, on October 10, 1967 conditioned on the provision of at least 200 paved parking spaces no closer than 25 feet from any property line. The Board's resolution stipulated that the Moose Lodge would be required to use a dust-free surface for the parking. This action incorporated Parcel 2 into the approved Special Permit Area for the Moose Lodge's private club use, but did not include Parcel 3. Figure 2 displays the various parcels owned by the Moose Lodge in relation to the other key parcels previously mentioned.



Figure 2: The Moose Lodge is situated on Parcels 1-3 and can be accessed from Fernedge Lane. The Lodge also owns Parcel 40A, the subject property in this rezoning (Source: Fairfax County DPZ GIS and 2013 aerial photography)

Creation of Parcel 41A

Fernedge Lane is linked to Richmond Highway via Hagel Circle. Hagel Circle traverses both the aforementioned Parcel 40 as well as 107-4 ((1)) 41A (Parcel 41A), which like Parcel 40 is owned by Highlands at Gunston's HOA. Parcel 41A was created with the 1976 subdivision associated with Highlands at Gunston's development. Parcel 41A is listed as "Parcel B" on the subdivision plat. A portion of the plat is shown in Figure 3. The plat lists the following note associated with this parcel:

Parcel "B" to be automatically dedicated for public street purposes at such time as adjacent properties dedicate and construct remaining street section.

Parcel 41A has been owned by Highlands at Gunston, like Parcel 40, since 1989. Despite this note from the plat, no dedication for public street purposes has occurred. The adjacent properties were developed as part of the Lorton Station South community in 2004. However, Lorton Station South's road network was designed to use Gunston Cove Road for access to Richmond Highway, not Fernedge Lane or Hagel Circle.

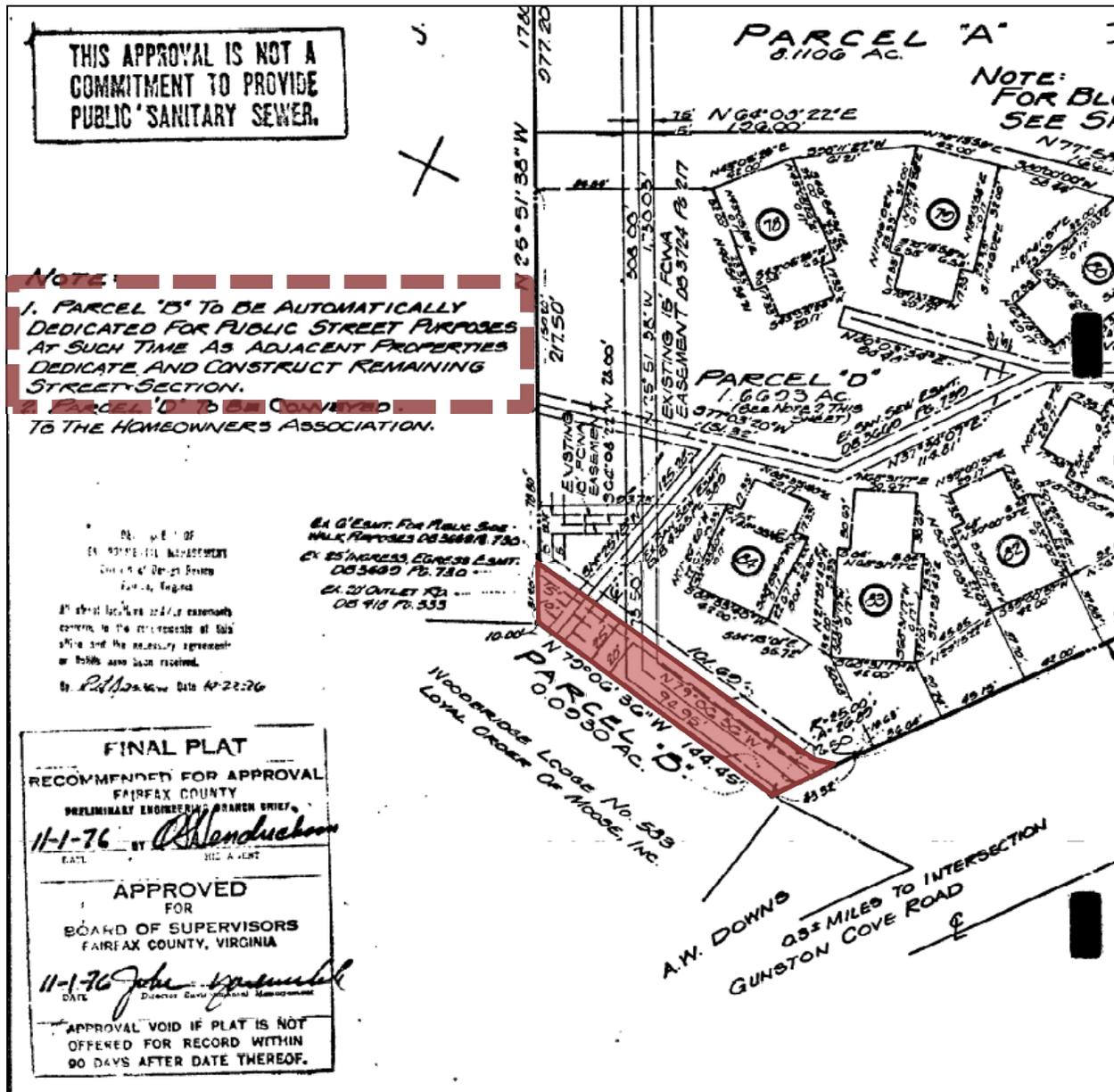


Figure 3: Parcel 41A is highlighted above. The parcel was labelled as "Parcel B" on the recorded subdivision plat. The dedication trigger note is shown within the dashed box (Source: Fairfax County Court Public Access Network)

Moose Lodge Parking and Softball Field

The Moose Lodge submitted Special Exception (SE) 86-V-084 in 1986 to add Parcel 3 and 107-4 ((1)) 40A, which is the subject property in this rezoning application (Parcel 40A). According to the staff report that accompanied the Special Exception case, Parcel 3 was primarily forested at the time. The proposal called for 100 new parking spaces to be added to Parcel 3. The Special Exception Plat submitted by the Moose Lodge depicted a softball field at the southern end of Parcel 40A.

The applicant had concurrently requested Special Permit (SP) 86-V-046 to modify the dustless surface waiver requirement for the existing and proposed parking; at the time, dustless surface waivers were only permitted with the approval of a Group 9 Special Permit. Although the 1967 Special Permit had required a dustless surface, the applicant had never paved the previously approved parking. The applicant indicated in the statement of justification that the Lodge's desire was to keep the parking lot as a grass and gravel surface as it had been since the 1950s. The Zoning Ordinance has since been amended to remove dustless surface waivers from the list of Group 9 Special Permits; such waivers are now reviewed by the Department of Public Works and Environmental Services (DPWES) during the site plan review process.

The Board of Supervisors approved SE 86-V-064 on November 24, 1986. The Board of Zoning Appeals approved SP 86-V-084 on December 9, 1986. Although the parking lot has since been paved, the Moose Lodge never implemented the Special Exception for the softball field. The Department of Planning and Zoning (DPZ) notified the Moose Lodge that the Special Exception had expired in writing on August 8, 1997.

Redevelopment Attempt

In 2005, Winchester Homes submitted RZ 2005-MV-031 and SE 2005-MV-029. Winchester Homes proposed to rezone Parcels 1-3 and Parcel 40A from R-1 to R-12 to construct 65 townhouses. The first phase of development would have been on Parcel 40A, allowing the Moose Lodge to continue its operations for an additional three years after the rezoning's approval. A second phase would have constructed additional townhouses on Parcels 1-3 after the demolition of the lodge building.

Since the Moose Lodge's initial approvals in 1956 and 1967, the Zoning Ordinance has been revised to permit private clubs through the Special Exception process instead of by Special Permit. SE 2005-MV-029 was limited to Parcels 1-3 and proposed the continuation of the Moose Lodge's use of the properties for an interim period of three years.

Ultimately, Winchester Homes withdrew the applications on April 18, 2007 prior to the publication of a staff report or a public hearing before the Planning Commission.

Route 1 Location Study

On April 15, 2004, the Commonwealth Transportation Board (CTB) approved a resolution adopting the location of new improvements to the Richmond Highway corridor from Gordon Boulevard in Prince William County to Armistead Road in Fairfax County. The ultimate location approved by the CTB, identified in their motion as Lorton Option 1, shifted the existing Richmond Highway centerline 20 feet west toward the subject property. This shift was chosen to create distance between the recreation fields, businesses, and residences along the eastern side of the highway and any new travel lanes.

The study gives general guidance on how Richmond Highway's widening would impact the subject property. Figure 4 shows an inset from Sheet 26.1 of the Route 1 Location Study. The inset shows the current property boundary, the proposed right-of-way line, a proposed noise wall, and the approximately location of temporary easements needed for construction.

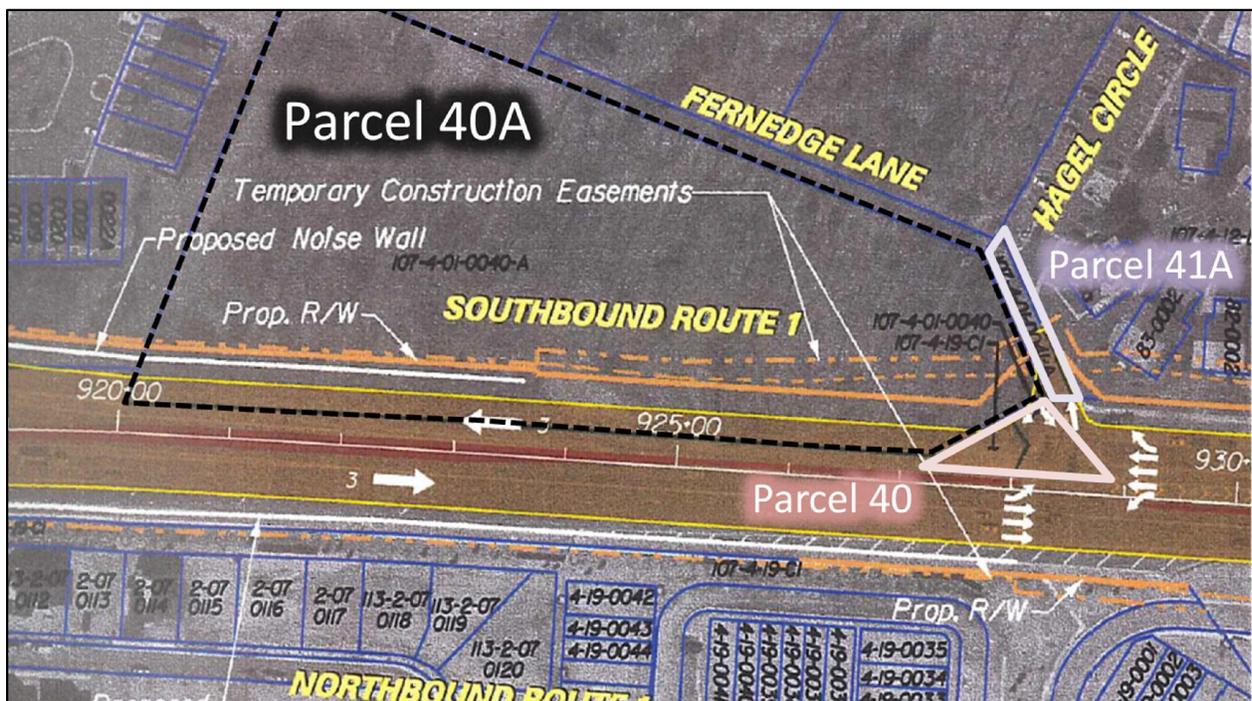


Figure 4: Sheet 26.1 of the Route 1 Location Study, with Parcels 40A, 40, and 41A outlined for clarity purposes by DPZ staff (Source: Virginia Department of Transportation)

The study assumes that Parcel 40 and a portion of Parcel 41A would be acquired as right-of-way for the project. Both of these parcels constitute a portion of the privately owned Hagel Circle. Parcels 40 and 41A are owned by the adjacent Highlands at Gunston homeowners' association.

Figure 5 shows the typical cross section for Richmond Highway once the Route 1 Location Study is implemented. Richmond Highway's total right-of-way would be 150 feet wide, with 75 feet devoted to northbound and southbound movements. For the

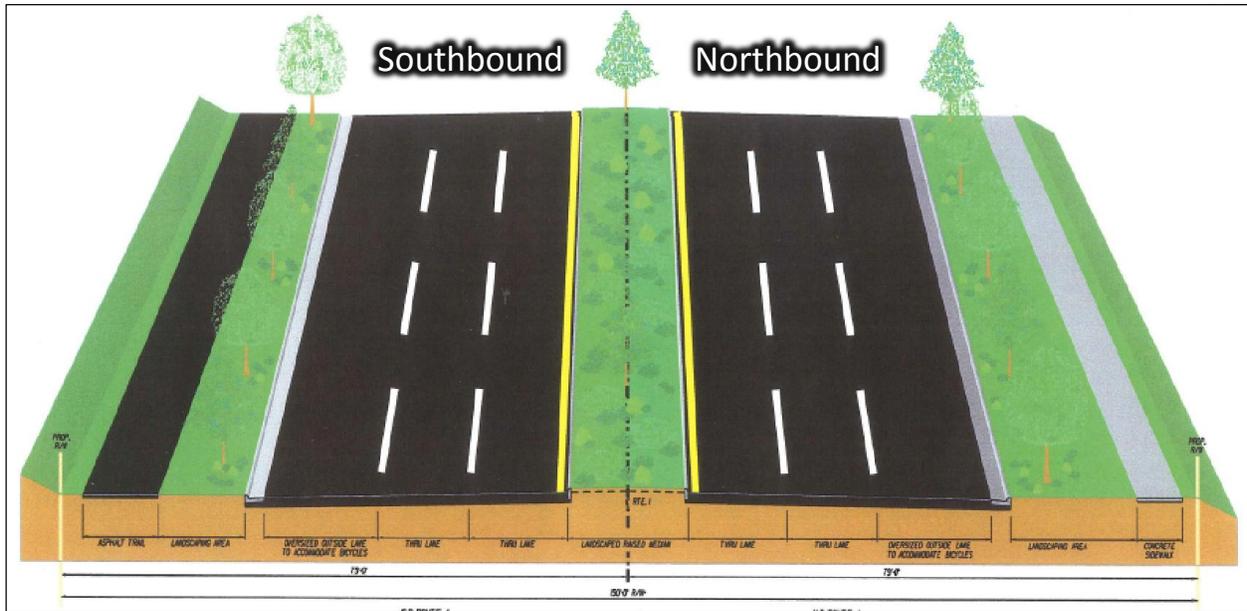


Figure 5: The approved cross section for this section of Richmond Highway's widening shows six lanes with pedestrian zones and a central median (Source: Virginia Department of Transportation)

southbound lanes that would be adjacent to the subject property, the three southbound lanes would occupy 40 feet of this right-of-way. Eight feet would be devoted to the 16-foot wide median. The 27-foot pedestrian zone includes an 11.5-foot landscaped area between the travel lanes and a 10-foot wide asphalt trail, along with a 3-foot clear zone between the asphalt trail and the subject property.

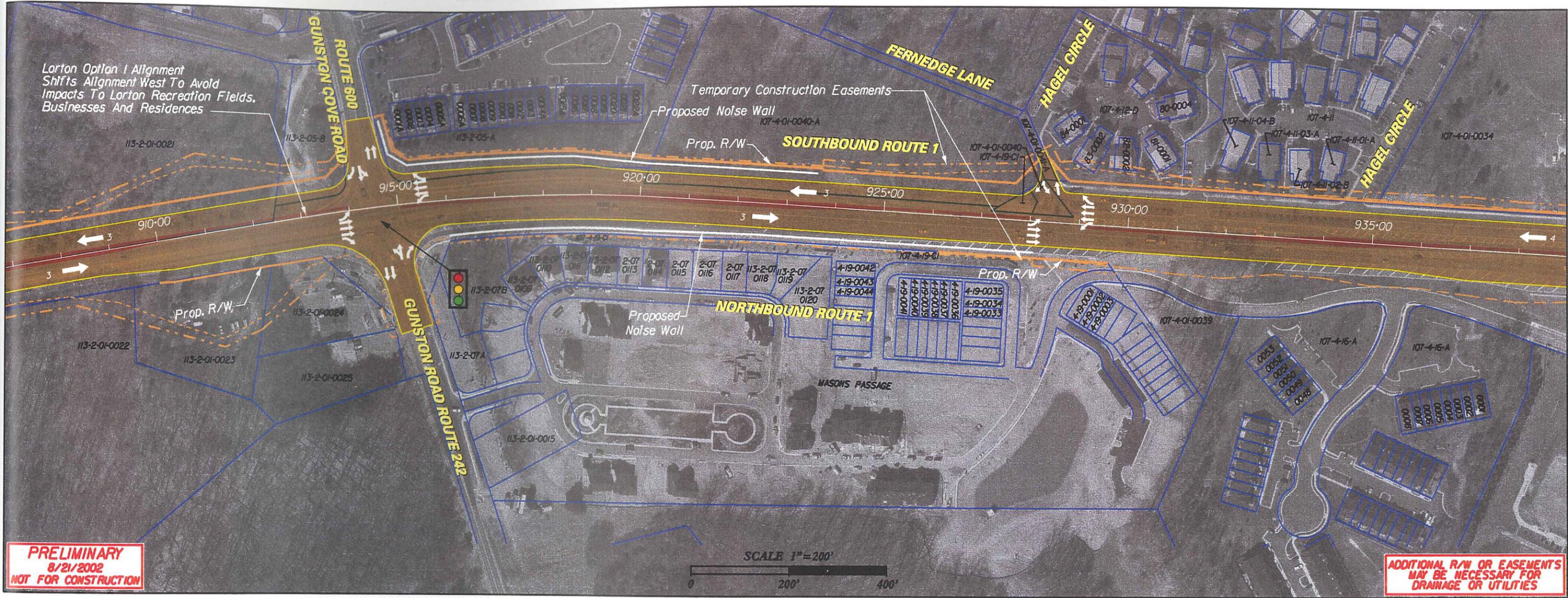


Appendix 5

LORTON OPTION 1 ROUTE 1 / GUNSTON ROAD (ROUTE 242)

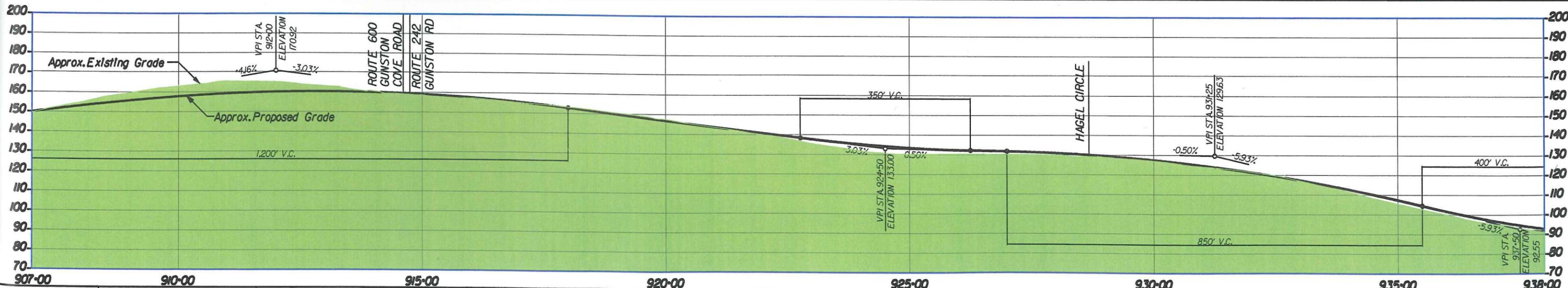
Route 1 Location Study

0001-96A-103, PE-100
From: Prince William / Stafford County Line
To: I-495, Capital Beltway
Prince William County
Fairfax County



PRELIMINARY
8/21/2002
NOT FOR CONSTRUCTION

**ADDITIONAL R/W OR EASEMENTS
MAY BE NECESSARY FOR
DRAINAGE OR UTILITIES**



LEGEND	Proposed Pavement	Proposed Raised Median	Work Proposed By Others	Temporary Construction Easement	Cut	Fill	Limits of Construction	SCALE	Project B	FX-26.1
	Proposed Bridge	Recent Improvements	Traffic Signal	Proposed Right-of-Way (R/W)			Existing Parcel Line	1" = 200' Horizontal / 1" = 50' Vertical		

APPENDIX 9

RESIDENTIAL DEVELOPMENT CRITERIA

Fairfax County expects new residential development to enhance the community by: fitting into the fabric of the neighborhood, respecting the environment, addressing transportation impacts, addressing impacts on other public facilities, being responsive to our historic heritage, contributing to the provision of affordable housing and, being responsive to the unique site specific considerations of the property. To that end, the following criteria are to be used in evaluating zoning requests for new residential development. The resolution of issues identified during the evaluation of a specific development proposal is critical if the proposal is to receive favorable consideration.

Where the Plan recommends a possible increase in density above the existing zoning of the property, achievement of the requested density will be based, in substantial part, on whether development related issues are satisfactorily addressed as determined by application of these development criteria. Most, if not all, of the criteria will be applicable in every application; however, due to the differing nature of specific development proposals and their impacts, the development criteria need not be equally weighted. If there are extraordinary circumstances, a single criterion or several criteria may be overriding in evaluating the merits of a particular proposal. Use of these criteria as an evaluation tool is not intended to be limiting in regard to review of the application with respect to other guidance found in the Plan or other aspects that the applicant incorporates into the development proposal. Applicants are encouraged to submit the best possible development proposals. In applying the Residential Development Criteria to specific projects and in determining whether a criterion has been satisfied, factors such as the following may be considered:

- the size of the project
- site specific issues that affect the applicant's ability to address in a meaningful way relevant development issues
- whether the proposal is advancing the guidance found in the area plans or other planning and policy goals (e.g. revitalization).

When there has been an identified need or problem, credit toward satisfying the criteria will be awarded based upon whether proposed commitments by the applicant will significantly advance problem resolution. In all cases, the responsibility for demonstrating satisfaction of the criteria rests with the applicant.

1. Site Design:

All rezoning applications for residential development should be characterized by high quality site design. Rezoning proposals for residential development, regardless of the proposed density, will be evaluated based upon the following principles, although not all of the principles may be applicable for all developments.

- a) *Consolidation*: Developments should provide parcel consolidation in conformance with any site specific text and applicable policy recommendations of the Comprehensive Plan. Should the Plan text not specifically address consolidation, the nature and extent of any proposed parcel consolidation should further the integration of the development with adjacent parcels. In any event, the proposed consolidation should not preclude nearby properties from developing as recommended by the Plan.

- b) *Layout*: The layout should:
- provide logical, functional and appropriate relationships among the various parts (e. g. dwelling units, yards, streets, open space, stormwater management facilities, existing vegetation, noise mitigation measures, sidewalks and fences);
 - provide dwelling units that are oriented appropriately to adjacent streets and homes;
 - include usable yard areas within the individual lots that accommodate the future construction of decks, sunrooms, porches, and/or accessory structures in the layout of the lots, and that provide space for landscaping to thrive and for maintenance activities;
 - provide logical and appropriate relationships among the proposed lots including the relationships of yards, the orientation of the dwelling units, and the use of pipestem lots;
 - provide convenient access to transit facilities;
 - Identify all existing utilities and make every effort to identify all proposed utilities and stormwater management outfall areas; encourage utility collocation where feasible.
- c) *Open Space*: Developments should provide usable, accessible, and well-integrated open space. This principle is applicable to all projects where open space is required by the Zoning Ordinance and should be considered, where appropriate, in other circumstances.
- d) *Landscaping*: Developments should provide appropriate landscaping: for example, in parking lots, in open space areas, along streets, in and around stormwater management facilities, and on individual lots.
- e) *Amenities*: Developments should provide amenities such as benches, gazebos, recreational amenities, play areas for children, walls and fences, special paving treatments, street furniture, and lighting.

2. Neighborhood Context:

All rezoning applications for residential development, regardless of the proposed density, should be designed to fit into the community within which the development is to be located. Developments should fit into the fabric of their adjacent neighborhoods, as evidenced by an evaluation of:

- transitions to abutting and adjacent uses;
- lot sizes, particularly along the periphery;
- bulk/mass of the proposed dwelling units;
- setbacks (front, side and rear);
- orientation of the proposed dwelling units to adjacent streets and homes;
- architectural elevations and materials;
- pedestrian, bicycle and vehicular connections to off-site trails, roadways, transit facilities and land uses;
- existing topography and vegetative cover and proposed changes to them as a result of clearing and grading.

It is not expected that developments will be identical to their neighbors, but that the development fit into the fabric of the community. In evaluating this criterion, the individual circumstances of the property will be considered: such as, the nature of existing and planned development surrounding and/or adjacent to the property; whether the property provides a transition between different uses or densities; whether access to an infill development is through an existing neighborhood; or, whether the property is within an area that is planned for redevelopment.

3. Environment:

All rezoning applications for residential development should respect the environment. Rezoning proposals for residential development, regardless of the proposed density, should be consistent with the policies and objectives of the environmental element of the Policy Plan, and will also be evaluated on the following principles, where applicable.

- a) *Preservation:* Developments should conserve natural environmental resources by protecting, enhancing, and/or restoring the habitat value and pollution reduction potential of floodplains, stream valleys, EQCs, RPAs, woodlands, wetlands and other environmentally sensitive areas.
- b) *Slopes and Soils:* The design of developments should take existing topographic conditions and soil characteristics into consideration.
- c) *Water Quality:* Developments should minimize off-site impacts on water quality by commitments to state of the art best management practices for stormwater management and better site design and low impact development (LID) techniques.
- d) *Drainage:* The volume and velocity of stormwater runoff from new development should be managed in order to avoid impacts on downstream properties. Where drainage is a particular concern, the applicant should demonstrate that off-site drainage impacts will be mitigated and that stormwater management facilities are designed and sized appropriately. Adequate drainage outfall should be verified, and the location of drainage outfall (onsite or offsite) should be shown on development plans.
- e) *Noise:* Developments should protect future and current residents and others from the adverse impacts of transportation generated noise.
- f) *Lighting:* Developments should commit to exterior lighting fixtures that minimize neighborhood glare and impacts to the night sky.
- g) *Energy:* Developments should use site design techniques such as solar orientation and landscaping to achieve energy savings, and should be designed to encourage and facilitate walking and bicycling. Energy efficiency measures should be incorporated into building design and construction.

4. Tree Preservation and Tree Cover Requirements:

All rezoning applications for residential development, regardless of the proposed density, should be designed to take advantage of the existing quality tree cover. If quality tree cover exists on site as determined by the county, it is highly desirable that developments meet most or all of their tree cover requirement by preserving and, where feasible and appropriate, transplanting existing trees. Tree cover in excess of ordinance requirements is highly desirable. Proposed utilities, including stormwater management and outfall facilities and

sanitary sewer lines, should be located to avoid conflicts with tree preservation and planting areas. Air quality-sensitive tree preservation and planting efforts (see Objective 1, Policy c in the Environment section of this document) are also encouraged.

5. Transportation:

All rezoning applications for residential development should implement measures to address planned transportation improvements. Applicants should offset their impacts to the transportation network. Accepted techniques should be utilized for analysis of the development's impact on the network. Residential development considered under these criteria will range widely in density and, therefore, will result in differing impacts to the transportation network. Some criteria will have universal applicability while others will apply only under specific circumstances. Regardless of the proposed density, applications will be evaluated based upon the following principles, although not all of the principles may be applicable.

- a) *Transportation Improvements:* Residential development should provide safe and adequate access to the road network, maintain the ability of local streets to safely accommodate traffic, and offset the impact of additional traffic through commitments to the following:
 - Capacity enhancements to nearby arterial and collector streets;
 - Street design features that improve safety and mobility for non-motorized forms of transportation;
 - Signals and other traffic control measures;
 - Development phasing to coincide with identified transportation improvements;
 - Right-of-way dedication;
 - Construction of other improvements beyond ordinance requirements;
 - Monetary contributions for improvements in the vicinity of the development.
- b) *Transit/Transportation Management:* Mass transit usage and other transportation measures to reduce vehicular trips should be encouraged by:
 - Provision of bus shelters;
 - Implementation and/or participation in a shuttle bus service;
 - Participation in programs designed to reduce vehicular trips;
 - Incorporation of transit facilities within the development and integration of transit with adjacent areas;
 - Provision of trails and facilities that increase safety and mobility for non-motorized travel.
- c) *Interconnection of the Street Network:* Vehicular connections between neighborhoods should be provided, as follows:
 - Local streets within the development should be connected with adjacent local streets to improve neighborhood circulation;
 - When appropriate, existing stub streets should be connected to adjoining parcels. If street connections are dedicated but not constructed with development, they should be identified with signage that indicates the street is to be extended;
 - Streets should be designed and constructed to accommodate safe and convenient usage by buses and non-motorized forms of transportation;
 - Traffic calming measures should be implemented where needed to discourage cut-through traffic, increase safety and reduce vehicular speed;

- The number and length of long, single-ended roadways should be minimized;
 - Sufficient access for public safety vehicles should be ensured.
- d) *Streets*: Public streets are preferred. If private streets are proposed in single-family detached developments, the applicant shall demonstrate the benefits for such streets. Applicants should make appropriate design and construction commitments for all private streets so as to minimize maintenance costs which may accrue to future property owners. Furthermore, convenience and safety issues such as parking on private streets should be considered during the review process.
- e) *Non-motorized Facilities*: Non-motorized facilities, such as those listed below, should be provided:
- Connections to transit facilities;
 - Connections between adjoining neighborhoods;
 - Connections to existing non-motorized facilities;
 - Connections to off-site retail/commercial uses, public/community facilities, and natural and recreational areas;
 - An internal non-motorized facility network with pedestrian and natural amenities, particularly those included in the Comprehensive Plan;
 - Offsite non-motorized facilities, particularly those included in the Comprehensive Plan;
 - Driveways to residences should be of adequate length to accommodate passenger vehicles without blocking walkways;
 - Construction of non-motorized facilities on both sides of the street is preferred. If construction on a single side of the street is proposed, the applicant shall demonstrate the public benefit of a limited facility.
- f) *Alternative Street Designs*: Under specific design conditions for individual sites or where existing features such as trees, topography, etc. are important elements, modifications to the public street standards may be considered.

6. Public Facilities:

Residential development impacts public facility systems (i.e., schools, parks, libraries, police, fire and rescue, stormwater management and other publicly owned community facilities). These impacts will be identified and evaluated during the development review process. For schools, a methodology approved by the Board of Supervisors, after input and recommendation by the School Board, will be used as a guideline for determining the impact of additional students generated by the new development.

Given the variety of public facility needs throughout the county, on a case-by-case basis, public facility needs will be evaluated so that local concerns may be addressed.

All rezoning applications for residential development are expected to offset their public facility impact and to first address public facility needs in the vicinity of the proposed development. Impact offset may be accomplished through the dedication of land suitable for the construction of an identified public facility need, the construction of public facilities, the contribution of specified in-kind goods, services or cash earmarked for those uses, and/or monetary contributions to be used toward funding capital improvement projects. Selection of the appropriate offset mechanism should maximize the public benefit of the contribution.

Furthermore, phasing of development may be required to ensure mitigation of impacts.

7. Affordable Housing:

Ensuring an adequate supply of housing for low and moderate income families, those with special accessibility requirements, and those with other special needs is a goal of the county.

Part 8 of Article 2 of the Zoning Ordinance requires the provision of Affordable Dwelling Units (ADUs) in certain circumstances. Criterion #7 is applicable to all rezoning applications and/or portions thereof that are not required to provide any Affordable Dwelling Units, regardless of the planned density range for the site.

- a) *Dedication of Units or Land:* If the applicant elects to fulfill this criterion by providing affordable units that are not otherwise required by the ADU Ordinance: a maximum density of 20% above the upper limit of the Plan range could be achieved if 12.5% of the total number of single-family detached and attached units are provided pursuant to the Affordable Dwelling Unit Program; and, a maximum density of 10% or 20% above the upper limit of the Plan range could be achieved if 6.25% or 12.5%, respectively of the total number of multifamily units are provided to the Affordable Dwelling Unit Program. As an alternative, land, adequate and ready to be developed for an equal number of units may be provided to the Fairfax County Redevelopment and Housing Authority or to such other entity as may be approved by the Board.
- b) *Housing Trust Fund Contributions:* Satisfaction of this criterion may also be achieved by a contribution to the Housing Trust Fund or, as may be approved by the Board, a monetary and/or in-kind contribution to another entity whose mission is to provide affordable housing in Fairfax County, equal to 0.5% of the value of all of the units approved on the property except those that result in the provision of ADUs. This contribution shall be payable prior to the issuance of the first building permit. For for-sale projects, the percentage set forth above is based upon the aggregate sales price of all of the units subject to the contribution, as if all of those units were sold at the time of the issuance of the first building permit, and is estimated through comparable sales of similar type units. For rental projects, the amount of the contribution is based upon the total development cost of the portion of the project subject to the contribution for all elements necessary to bring the project to market, including land, financing, soft costs and construction. The sales price or development cost will be determined by the Department of Housing and Community Development, in consultation with the Applicant and the Department of Public Works and Environmental Services. If this criterion is fulfilled by a contribution as set forth in this paragraph, the density bonus permitted in a) above does not apply.

8. Heritage Resources:

Heritage resources are those sites or structures, including their landscape settings, that exemplify the cultural, architectural, economic, social, political, or historic heritage of the county or its communities. Some of these sites and structures have been 1) listed in, or determined eligible for listing in, the National Register of Historic Places or the Virginia Landmarks Register; 2) determined to be a contributing structure or site within a district so listed or eligible for listing; 3) located within and considered as a contributing structure within a Fairfax County Historic Overlay District; or 4) listed in, or having a reasonable potential as determined by the county, for meeting the criteria for listing in, the Fairfax County Inventory of Historic Sites.

In reviewing rezoning applications for properties on which known or potential heritage resources are located, some or all of the following shall apply:

- a) Protect heritage resources from deterioration or destruction until they can be documented, evaluated, and/or preserved;
- b) Conduct archaeological, architectural, and/or historical research to determine the presence, extent, and significance of heritage resources;
- c) Submit proposals for archaeological work to the county for review and approval and, unless otherwise agreed, conduct such work in accordance with state standards;
- d) Preserve and rehabilitate heritage resources for continued or adaptive use where feasible;
- e) Submit proposals to change the exterior appearance of, relocate, or demolish historic structures to the Fairfax County Architectural Review Board for review and approval;
- f) Document heritage resources to be demolished or relocated;
- g) Design new structures and site improvements, including clearing and grading, to enhance rather than harm heritage resources;
- h) Establish easements that will assure continued preservation of heritage resources with an appropriate entity such as the county's Open Space and Historic Preservation Easement Program; and
- i) Provide a Fairfax County Historical Marker or Virginia Historical Highway Marker on or near the site of a heritage resource, if recommended and approved by the Fairfax County History Commission.

ROLE OF DENSITY RANGES IN AREA PLANS

Density ranges for property planned for residential development, expressed generally in terms of dwelling units per acre, are recommended in the Area Plans and are shown on the Comprehensive Plan Map. Where the Plan text and map differ, the text governs. In defining the density range:

- the “base level” of the range is defined as the lowest density recommended in the Plan range, i.e., 5 dwelling units per acre in the 5-8 dwelling unit per acre range;
- the “high end” of the range is defined as the base level plus 60% of the density range in a particular Plan category, which in the residential density range of 5-8 dwelling units per acre would be considered as 6.8 dwelling units per acre and above; and,
- the upper limit is defined as the maximum density called for in any Plan range, which, in the 5-8 dwelling unit per acre range would be 8 dwelling units per acre.
- In instances where a range is not specified in the Plan, for example where the Plan calls for residential density up to 30 dwelling units per acre, the density cited in the Plan shall be construed to equate to the upper limit of the Plan range, and the base level shall be the upper limit of the next lower Plan range, in this instance, 20 dwelling units per acre.



County of Fairfax, Virginia

MEMORANDUM

DATE: October 3, 2014

TO: Barbara Berlin, Director
Zoning Evaluation Division, DPZ

FROM: Pamela G. Nee, Chief *PAN*
Environment and Development Review Branch, DPZ

SUBJECT: Environmental Assessment: RZ 2012-MV-015
McShay Communities, Inc.

This memorandum, prepared by Mary Ann Welton, includes citations from the Comprehensive Plan that provide guidance for the evaluation of the subject rezoning application (RZ) revised through April 10, 2014, proffers revised through March 21, 2014 and Traffic Noise Impact Analysis revised through April 25, 2014. The extent to which the application conforms to the applicable guidance contained in the Comprehensive Plan is noted. Possible solutions to remedy identified issues are suggested. Other solutions may be acceptable, provided that they achieve the desired degree of mitigation and are in harmony with Plan policies.

COMPREHENSIVE PLAN CITATIONS:

The Comprehensive Plan is the basis for the evaluation of this application. The assessment of the proposal for conformity with the environmental recommendations of the Comprehensive Plan is guided by the following citations from the Plan:

The Fairfax County Comprehensive Plan, Policy Plan, 2013 Edition, Environment section as amended through July 1, 2014, page 7-8 states:

“Objective 2: Prevent and reduce pollution of surface and groundwater resources. Protect and restore the ecological integrity of streams in Fairfax County.

Policy a. Maintain a best management practices (BMP) program for Fairfax County and ensure that new development and redevelopment



complies with the County's best management practice (BMP) requirements. . . .

Policy k. For new development and redevelopment, apply better site design and low impact development (LID) techniques such as those described below, and pursue commitments to reduce stormwater runoff volumes and peak flows, to increase groundwater recharge, and to increase preservation of undisturbed areas. In order to minimize the impacts that new development and redevelopment projects may have on the County's streams, some or all of the following practices should be considered where not in conflict with land use compatibility objectives:

- Minimize the amount of impervious surface created.
- Site buildings to minimize impervious cover associated with driveways and parking areas and to encourage tree preservation. . . .
- Encourage cluster development when designed to maximize protection of ecologically valuable land. . . .
- Encourage fulfillment of tree cover requirements through tree preservation instead of replanting where existing tree cover permits. Commit to tree preservation thresholds that exceed the minimum Zoning Ordinance requirements.
- Where appropriate, use protective easements in areas outside of private residential lots as a mechanism to protect wooded areas and steep slopes. . . .
- Encourage the use of innovative BMPs and infiltration techniques of stormwater management where site conditions are appropriate, if consistent with County requirements.
- Apply nonstructural best management practices and bioengineering practices where site conditions are appropriate, if consistent with County requirements."

The Fairfax County Comprehensive Plan, Policy Plan, 2013 Edition, Environment section as amended through July 1, 2014, page 10 states:

“Objective 3: Protect the Potomac Estuary and the Chesapeake Bay from the avoidable impacts of land use activities in Fairfax County.

Policy a. Ensure that new development and redevelopment complies with the County's Chesapeake Bay Preservation Ordinance. . . .”

The Fairfax County Comprehensive Plan Policy Plan, 2013 Edition, Environment section as amended through July 1, 2014, page 11-12 states:

“Objective 4: Minimize human exposure to unhealthful levels of transportation generated noise.

Policy a: Regulate new development to ensure that people are protected from unhealthful levels of transportation noise....

New development should not expose people in their homes, or other noise sensitive environments, to noise in excess of DNL 45 dBA, or to noise in excess of DNL 65 dBA in the outdoor recreation areas of homes. To achieve these standards new residential development in areas impacted by highway noise between DNL 65 and 75 dBA will require mitigation. New residential development should not occur in areas with projected highway noise exposures exceeding DNL 75 dBA.”

The Fairfax County Comprehensive Plan Policy Plan, 2013 Edition, Environment section as amended through July 1, 2014, page 12 states:

“Objective 6: Ensure that new development either avoids problem soil areas, or implements appropriate engineering measures to protect existing and new structures from unstable soils.

Policy a: Limit densities on slippage soils, and cluster development away from slopes and potential problem areas...

Policy b: Require new development on problem soils to provide appropriate engineering measures to ensure against geotechnical hazards.”

The Fairfax County Comprehensive Plan Policy Plan, 2013 Edition, Environment section as amended through July 1, 2014, page 12 states:

“Objective 10: Conserve and restore tree cover on developed and developing sites. Provide tree cover on sites where it is absent prior to development.

Policy a: Protect or restore the maximum amount of tree cover on developed and developing sites consistent with planned land use and good silvicultural practices. . . .”

The Fairfax County Comprehensive Plan, 2013 Edition, Policy Plan, Environment, as amended through July 1, 2014, page 19-21 states:

Objective 13: Design and construct buildings and associated landscapes to use energy and water resources efficiently and to minimize short- and long-term negative impacts on the environment and building occupants.

Policy a. In consideration of other Policy Plan objectives, encourage the application of energy conservation, water conservation and other green building practices in the design and construction of new development and redevelopment projects. These practices may include, but are not limited to:

- Environmentally-sensitive siting and construction of development;
- Application of low impact development practices, including minimization of impervious cover (See Policy k under Objective 2 of this section of the *Policy Plan*);
- Optimization of energy performance of structures/energy-efficient design;
- Use of renewable energy resources;
- Use of energy efficient appliances, heating/cooling systems, lighting and/or other products;
- Application of best practices for water conservation, such as water efficient landscaping and innovative wastewater technologies, that can serve to reduce the use of potable water and/or reduce stormwater runoff volumes;
- Reuse of existing building materials for redevelopment projects;
- Recycling/salvage of non-hazardous construction, demolition, and land clearing debris;
- Use of recycled and rapidly renewable building materials;
- Use of building materials and products that originate from nearby sources;
- Reduction of potential indoor air quality problems through measures such as increased ventilation, indoor air testing and use of low-emitting adhesives, sealants, paints/coatings, carpeting and other building materials;

- Reuse, preservation and conservation of existing buildings, including historic structures;
- Retrofitting of other green building practices within existing structures to be preserved, conserved and reused;
- Energy and water usage data collection and performance monitoring;
- Solid waste and recycling management practices; and
- Natural lighting for occupants.

Encourage commitments to implementation of green building practices through certification under established green building rating systems for individual buildings (e.g., the U.S. Green Building Council's Leadership in Energy and Environmental Design for New Construction [LEED-NC[®]] or the U.S. Green Building Council's Leadership in Energy and Environmental Design for Core and Shell [LEED-CS[®]] program or other equivalent programs with third party certification). An equivalent program is one that is independent, third-party verified, and has regional or national recognition or one that otherwise includes multiple green building concepts and overall levels of green building performance that are at least similar in scope to the applicable LEED rating system. Encourage commitments to the attainment of the ENERGY STAR[®] rating where available. Encourage certification of new homes through an established residential green building rating system that incorporates multiple green building concepts and has a level of energy performance that is comparable to or exceeds ENERGY STAR qualification for homes. Encourage the inclusion of professionals with green building accreditation on development teams. Encourage commitments to the provision of information to owners of buildings with green building/energy efficiency measures that identifies both the benefits of these measures and their associated maintenance needs. . . .

Policy c. Ensure that zoning proposals for residential development that are not otherwise addressed in Policy b above will incorporate green building practices sufficient to attain certification under an established residential green building rating system that incorporates multiple green building concepts and that includes an ENERGY STAR Qualified Homes designation or a comparable level of energy performance. Where such zoning proposals seek development at or above the mid-point of the Plan density range, ensure that county expectations regarding the incorporation of green building practices are exceeded in two or more of the following measurable categories: energy efficiency; water conservation; reusable and recycled building materials; pedestrian orientation and alternative transportation strategies; healthier indoor air quality; open space and habitat conservation and restoration; and greenhouse gas emission reduction. As

intensity or density increases, the expectations for achievement in the area of green building practices would commensurately increase.”

ENVIRONMENTAL ANALYSIS

This section characterizes the environmental concerns raised by an evaluation of this site and the proposed development. Solutions are suggested to remedy the concerns that have been identified by staff. There may be other acceptable solutions. Particular emphasis is given to opportunities provided by this application to conserve the county’s remaining natural amenities. This application seeks approval for 40 single-family attached homes on 4.9 acres of land at a density of 8.15 dwelling units per acre on land which is proposed to be rezoned from R-1 to the R-8 Zoning District.

Stormwater Quality Best Management Practices: The 4.9 acre subject property falls within the Pohick Creek Watershed on the west side of Richmond Highway approximately five hundred feet north of its intersection with Gunston Road. The subject property is currently densely vegetated with upland forest species which includes oak, maple and poplar. The stormwater narrative indicates that water quality and water control quantity requirements will be met by the installation of a dry stormwater detention pond located central on the triangular shaped site between the proposed homes and Richmond Highway. In addition, runoff from the site will also be treated by several sand filtration systems before that runoff leaves the site. Ultimately drainage will be directed into a closed conduit and conveyed under Richmond Highway to Pohick Creek. The adequacy of stormwater management/best management practice (SWM/BMP) facilities and outfall will be subject to review and approval by the Department of Public Works and Environmental Services (DPWES).

On May 24, 2011, the Virginia Soil and Water Conservation Board adopted Final Stormwater Regulations, which became effective September 13, 2011. The regulations require all local governments in Virginia to adopt and enforce new stormwater management requirements; these new requirements must be effective on July 1, 2014. In support of this legislation, the Fairfax County Board of Supervisors adopted the Stormwater Management Ordinance as an amendment to the Code of Fairfax County on January 28, 2014.

http://www.fairfaxcounty.gov/dpwes/stormwaterordinance/chapter_124.pdf

Staff from the DPWES administers the stormwater management ordinance, which became effective July 1, 2014.

Transportation Generated Noise: The subject property is located immediately adjacent to Richmond Highway and it will be affected by transportation generated noise. The applicant has provided a preliminary noise study with two revisions, # 5445 performed by Polysonics, revised through April 25, 2014. The revised acoustical analysis indicates that proposed lots 1, 28-29, 30-33, and 34-40 will be affected by future unmitigated transportation generated noise particularly on the upper stories which exceeds 65 dBA Ldn. Twenty-four hour noise measurement was performed on May 17 – 18, 2012. Factoring in the widening of Richmond Highway from 4 lanes

to 6 lanes, and considering traffic volume increases to the year 2043, the acoustical consultant concluded that, in the worst case, the homes and yards closest to the roadway will be affected by noise levels between 65-69.9 dBA Ldn. The April 25, 2014 acoustical analysis recommends a board on board, solid wood fence measuring 8 feet in height along the property line to mitigate noise from Richmond Highway for the affected homes. The consultant recommends that homes located on lots 1-10, 26-29, 30-33 and 34-40 which are located within the 65-70 noise decibel contour be constructed with walls on affected façades which possess a sound transmission class (STC) of 36, the windows on affected façades should possess a STC ranging between 28-34 STC and glass doors should possess a STC of 28-34.

The most current revision of the development plan depicts the projected noise contours 75 dBA Ldn, 70 dBA Ldn, and 65 dBA Ldn locations on the development plan as determined from the acoustical analysis. This information is important because it defines the location of affected units in relationship to the various noise levels from the roadway. Even though the noise study indicated that future conditions were accounted for by the study, the depiction of the subject property in relationship to the roadway and the noise contour levels does raise the concern that when the roadway is widened, the proximity of Richmond Highway will become significantly closer to the homes, particularly the homes on lots 29 and 30. In addition, the applicant and the acoustical consultant should clarify whether or not the acoustical analysis accommodated for any shift of the center line of the roadway with the future widening. This could be a problem if the noise contour locations, now shown on the plan, will shift resulting in higher noise levels closer to homes than what is shown on the plan.

The acoustical analysis determined that a board on board fence is an appropriate measure to mitigate exterior noise in the rear yards of lots 27-32, 34 -40 and lots 1-10. However, it appears that the front yards of lots 1-10 face Richmond Highway and the rear yards will be shielded by buildings from traffic noise from Richmond Highway. The development plan depicts a 480 linear foot, six foot high, board on board fence located outside of the VDOT right of way along the future property line. The revised noise study recommends a solid wood fence measuring 8 feet in height and the development plan depicts a 6 foot fence (Sheet 2 of 9).

The applicant has provided a proffered commitment in support of Policy Plan guidance regarding noise mitigation for new residential use which incorporates the appropriate building materials specifications capable of mitigating noise to the appropriate level for affected dwelling units located within the 65-70 decibel noise impact area. However, staff recommends that the proffer be modified to include specific lots cited for each category of noise decibel level to ensure that all affected homes are cited for appropriate building materials to mitigate in the 70-75 decibel noise impact area in the event that traffic conditions change with the Richmond Highway widening. In addition, the proffer should also commit to perform a refined acoustical analysis at site plan submission to ensure that final grading and design have been accommodated to ensure conformance to the Policy Plan guidance that noise in interior areas of new residential development will not exceed 45 decibels. It is noted that the February 24, 2014 proffer statement committed to a 6 foot noise barrier and the March 24, 2014 statement has omitted the commitment to a noise barrier.

If the applicant provides clarification on the height of the proposed barrier and the reason that it has been omitted in the proffer statement, as well as a proffer commitment to a refined acoustical analysis at site plan submission, this issue will be resolved.

Soil Constraints: Sheet 1 of the development plan depicts a current soil map identification insert. Much of the subject property is characterized by Sassafras Marumscos and Lunt Manassas soil types both of which pose constraints to development. The applicant is encouraged to perform a geotechnical analysis at site plan submission to ensure future foundation stability for the proposed new homes. Staff encourages the applicant to provide a proffer commitment to address this issue.

Green Building Practices: The 4.9 acre site is planned for residential development at 8-12 dwelling units per acre and the application requests approval for the R-8 Zoning District to construct 40 dwelling units at a density of 8.15 dwelling units per acre. The applicant has a draft proffered commitment for the attainment of Energy Star Qualified Homes, Earthcraft House or 2012 National Green Building Standard (NGBS) using the Energy Star Qualified Homes for energy performance. However, the green building policy in the Comprehensive Plan was recently revised to recommend attainment of residential ratings systems incorporating multiple green building concepts such as Earthcraft and NGBS with Energy Star path for energy performance. As the Energy Star rating system focuses only on energy performance, it should not be included as a certification option.

Tree Preservation/Restoration: The subject property is currently densely vegetated, but very little existing vegetation is proposed for preservation. The applicant is encouraged to work with the Urban Forestry Management Division (UFMD) of DPWES to identify more areas of the site for preservation, as well as to demonstrate ways to best protect the existing canopy and root systems on the site.

COUNTYWIDE TRAILS MAP:

The Countywide Trails Plan depicts a major paved trail (described as asphalt or concrete; 8 feet or more in width) and a bike lane along Richmond Highway. The development plan depicts a 6 foot wide sidewalk proposed for a portion of the Richmond Highway frontage. Analysis of current orthophotography shows that the sidewalk currently exists close to the current roadway alignment.

PGN/MAW



County of Fairfax, Virginia

MEMORANDUM

DATE: October 20, 2014

TO: Nick Rogers, AICP; Staff Coordinator
Zoning Evaluation Division
Department of Planning and Zoning

FROM: Bel Pachhai, Senior Engineer III 
Site Development and Inspections Division
Department of Public Works and Environmental Services

SUBJECT: Rezoning Plat #RZ 2013-MV-015, Royal Ridge Town Houses, GDP Plat dated November 5 2013, LDS Project #5395-ZONA-001-1, Tax Map #107-4-01-0040A; Pohick Creek Watershed; Mount Vernon District

We have reviewed the subject plan and offer the following Stormwater management comments.

Chesapeake Bay Preservation Ordinance (CBPO)

There are no Resource Protection Areas on the site.

Floodplain

There are no regulated floodplains on the site.

Downstream Drainage Complaints

There are no recent downstream flooding complaints on file. Detention is mandatory when there are downstream drainage complaints.

Stormwater Detention

Detention requirements must be met if not waived (PFM 6-0301.3). Applicant indicated that detention requirement will be met by onsite dry detention pond. For routing through the pond, 2 hour storms were used but as per the Stormwater Ordinance 124-4-4d, 24 hour storms shall be used to route the flow. A detailed design and detention computations must be provided on the site plan.

Water Quality Control

Applicant stated on sheet 3 that phosphorus removal requirements will be met for this development using Stormfilter. The location of Stormfilter has been depicted in the plan. Use of LID practice is recommended if feasible. BMP narrative needs to be corrected to comply with new regulations.

In site plan submission, a detail BMP computation must be provided. Furthermore, every effort shall be made to provide BMP more than that of minimum necessary.

Onsite Major Storm Drainage System and Overland Relief

Applicant needs show that no buildings will be flooded during the 100-year storm event assuming that the minor system fails due to blocking. Applicant needs to provide an overland relief narrative and arrows showing runoff flow path for the 100-year storm event. Cross-sections at key locations including the building entrances must be shown on the site plan.

Downstream Drainage System

The outfall narrative has been provided but the adequacy of the system is not the part of the statement. The minimum Stormwater information for rezoning, special exception, special permit, and development plan applications require a description of the existing conditions of each site outfall extended downstream from the site to a point which is at least 100 times the site area or which has a drainage area of at least one square mile (640 acres), whichever comes first. (ZO 9-011-2J, 2L)

Drainage Diversion

During the development, the natural drainage divide shall be honored. If natural drainage divides cannot be honored, a drainage diversion justification narrative must be provided. The increase and decrease in discharge rates, volumes, and durations of concentrated and non-concentrated Stormwater runoff leaving a development site due to the diverted flow shall not have an adverse impact (e.g., soil erosion; sedimentation; yard, dwelling, building, or private structure flooding; duration of ponding water; inadequate overland relief) on adjacent or downstream properties. (PFM 6-0202.2A)

Stormwater Planning Comments

This case is located in Pohick Creek Watershed. There are no watershed management plans near the subject site.

Dam Breach

None of this property is within the dam breach inundation zone.

Stormwater Management Proffers

Comments on the draft proffers will be provided separately once we receive the draft proffers.

Please contact me at 703-324-1698 if you require additional information.

BP/

cc: Fred Rose, Chief, Watershed Planning & Assessment Branch, Stormwater Planning
Division, DPWES
Don Demetrius, Chief, Watershed Evaluation Branch, SPD, DPWES
Bijan Sistani, Chief, South Branch, SDID, DPWES
Zoning Application File





County of Fairfax, Virginia

MEMORANDUM

DATE: March 24, 2014

TO: Nicholas Rogers, Staff Coordinator
Zoning Evaluation Division, DPZ

FROM: Hugh Whitehead, Urban Forester II
Forest Conservation Branch, DPWES *HUW*

SUBJECT: Royal Ridge Town Houses, Tax Map #107-4-01-0040A
RZ 2012-MV-015

I have reviewed the proposed GDP for the above referenced rezoning application stamped as received by the Zoning Evaluation Division on March 4, 2014. The following comments are based on this review and site visits conducted earlier in the review process for this case.

1. **Comment:** The landscape plan shows proposed trees at the rear of units 30-34 where they will likely encroach on homeowners' use of the available space on their private lots. Space is available to plant the SWM facility more intensively.

Recommendation: Trees shown at the rear of Lots 30-34 should be relocated to areas along slopes of the SWM pond north of the proposed storm drain pipe behind units 30-33 and southeast of units 34-40.

2. **Comment:** Sweetgum (*Liquidambar styraciflua*) is proposed on and adjacent to private lots where the messy fruit (a spikey ball) will likely be a maintenance liability. This species is more appropriate for planting in the SWM facility as it has good tolerance for wet soils and foot traffic will be limited.

Recommendation: Proposed sweetgum trees should be restricted to planting in the SWM facility.

3. **Comment:** Virginia pines and Norway spruce proposed along Fernedge Lane will likely encroach on the street. There are also overhead lines along the road with which the trees will ultimately conflict. Proposed planting along Fernedge Lane should not conflict with vehicle traffic or overhead lines.

Department of Public Works and Environmental Services
Urban Forest Management Division
12055 Government Center Parkway, Suite 518
Fairfax, Virginia 22035-5503
Phone 703-324-1770, TTY: 703-324-1877, Fax: 703-803-7769
www.fairfaxcounty.gov/dpwes



Royal Ridge Town Houses, Tax Map #107-4-01-0040A
RZ 2012-MV-015
March 24, 2014
Page 2 of 2

Recommendation: Require the use of trees or large shrubs along Fernedge Lane that will not exceed 20 feet in height and ten feet in spread. Suggested trees include Nellie Stevens holly, American arborvitae, and leatherleaf viburnum.

If there are any questions, please contact me at (703)324-1770.

HCW/
UFMDID #: 172661

cc: DPZ File

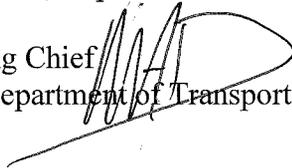


County of Fairfax, Virginia

MEMORANDUM

DATE: March 17, 2014

TO: Barbara Berlin, Director
 Zoning Evaluation Division, Department of Planning & Zoning

FROM: Michael A. Davis, Acting Chief 
 Site Analysis Section, Department of Transportation

FILE: RZ 2012-MV-015

SUBJECT: McShay Communities Inc. (Royal Ridge Townhomes)
 Tax Map: #107-4 ((1)) 40A

This department has reviewed the subject application including the General Development Plan (GDP) dated April 10, 2012, revised through February 28, 2014, and offers the following comments:

- Route 1 (Richmond Highway) is a principal arterial with a posted speed limit of 55mph. In addition it is a designated route within the National Highway System. The Comprehensive Plan calls for Route 1 to be widened from four to six lanes along the subject site. The proposed development plan depicts a right-of-way dedication of 50 feet from the existing property line in order to provide a total right-of-way width of 150 feet for Route 1, which is in keeping with VDOT's Route 1 Location Study (revised Sheet 26.1).
- The proposed left turn lane on Route 1 (Richmond Highway) needs to be designed to meet VDOT standards based on the design speed of the roadway. The applicant may need to extend the proposed lane transition before the Gunston Road/ Gunston Cove Road intersection in order to provide a safe transition for the two through lanes around the proposed left turn lane. The design also needs to take into account the vehicles weaving onto Route 1 from the existing free right turn/acceleration lane from Gunston Road onto Route 1. VDOT has requested more engineering detail.
- The applicant has designed the site to provide access to/from the proposed development via Hagel Circle, which is also in keeping with the Route 1 Location Study and staff's preferred option. However, the plan depicts an existing ingress/egress easement for Parcels 40 & 41A (Hagel Circle) with no deed book or page number shown. Access to the proposed development over Parcel 40 & 41A (Hagel Circle) has been a major unresolved issue throughout the review of this application. It is unclear if legal access is available using Parcel 14A (Hagel Circle). No documentation was submitted with the latest revision to demonstrate how this matter has been resolved nor is the issue addressed in the proffer language dated February 24, 2014.



Barbara Berlin, Director

March 17, 2014

Page 2 of 2

- The applicant should remove the proposed acceleration lane and taper along the site's Route 1 frontage adjacent to Hagel Circle.
- The proposed 25-foot reservation of right-of-way adjacent to Parcel 41A (Hagel Circle) should be extended to the site's rear property line.
- Staff supports the proposed service drive waiver based on the preferred access to the proposed development from Hagel Circle. However, the legal access issue previously cited needs to be resolved.
- Staff supports the proposed trail waiver as the proposed sidewalk would be considered an interim condition until the roadway was widened. In addition, the proposed sidewalk would tie into the existing sidewalks on the adjacent properties.
- Staff supports the proposed on-road bicycle lane waiver as the development has provided dedication of right-of-way in lieu of constructing frontage improvements along the property's frontage as an interim condition until the roadway was widened.
- Comments on the proffer language will follow under separate cover as there are many items remaining to be addressed.

MAD/EAI



COMMONWEALTH of VIRGINIA
DEPARTMENT OF TRANSPORTATION

GREGORY A. WHIRLEY
COMMISSIONER

4975 Alliance Drive
Fairfax, VA 22030

March 10, 2014

To: Ms. Barbara Berlin
Director, Zoning Evaluation Division

From: Noreen H. Maloney
Virginia Department of Transportation – Land Development

Subject: **RZ 2012-MV-015**
Royal Ridge

All submittals subsequent to the first submittal shall provide a response letter to the previous VDOT comments. Submittals without comment response letters are considered incomplete and will be returned without review.

This office has reviewed the subject application and offers the following comments.

- Sight distance for Hagel Circle and Route 1 should be verified.
- Additional engineering detail should be provided for the transitioning of the proposed left turn lane north and south along Route 1. The transitioning detail should be in accordance with the design speed of Route 1.
- The acceleration taper along Route 1 at Hagel Circle should be removed to allow for a hard right.
- The future widening of Route 1 along the frontage of the property should be given consideration for a shoulder detail rather than curb and gutter.



FAIRFAX COUNTY PARK AUTHORITY



M E M O R A N D U M

TO: Barbara Berlin, AICP, Director
Zoning Evaluation Division
Department of Planning and Zoning

FROM: Sandy Stallman, AICP, Manager
Park Planning Branch, PDD 

DATE: March 27, 2014

SUBJECT: RZ 2012-MV-015, Royal Ridge Town Houses, REVISED
Tax Map Number: 107-4 ((1)) 40A

BACKGROUND

The Park Authority staff has reviewed the proposed Development Plan dated February 27, 2014 for the above referenced application. The Development Plan shows 40 new single family attached units on a 4.9 acre parcel to be rezoned from R-1 to R-12. Based on an average single family attached (town house) household size of 3.26 in the Lower Potomac Planning District, the development could add 130 new residents to the Mount Vernon Supervisory District.

COMPREHENSIVE PLAN GUIDANCE

The County Comprehensive Plan includes both general and specific guidance regarding parks and resources. The Policy Plan describes the need to mitigate adverse impacts to park and recreation facilities caused by growth and development; it also offers a variety of ways to offset those impacts, including contributions, land dedication, development of facilities, and others (Parks and Recreation, Objective 6, p.8). Resource protection is addressed in multiple objectives, focusing on protection, preservation, and sustainability of resources (Parks and Recreation Objectives 2 and 5, p.5-7).

The Lorton-South Route 1 Community Planning Sector (LP-2) recommendations in the Area IV Plan describes preserving green space through land acquisition and through promoting clustering of development and encouraging greater set-asides of open space (Area IV, Lower Potomac Planning District, LP-2 Lorton-South Route 1, Major Objectives, p 66). Additionally, the Lower Potomac District chapter of the Great Parks, Great Communities Park Comprehensive Plan echoes recommendations in the Countywide Comprehensive Plan and describes encouraging development of local parks and facilities in conjunction with residential development.

ANALYSIS AND RECOMMENDATIONS

Park Needs:

Using adopted service level standards, staff has identified a need for all types of parkland and recreational facilities in this area. Existing nearby parks (Lorton, Pohick Stream Valley, and Southgate parks) meet only a portion of the demand for parkland generated by residential development in the Lorton-Route 1 South Corridor. In addition to parkland, the recreational facilities in greatest need in this area include adult softball fields, a neighborhood skate park, basketball courts, rectangle fields, an additional adult softball field, playgrounds, and trails.

Recreational Impact of Residential Development:

With the Countywide Comprehensive Policy Plan as a guide (Appendix 9, #6 of the Land Use section, as well as Objective 6, Policy a, b and c of the Parks and Recreation section), the Park Authority requests a fair share contribution of \$893 per new resident with any residential rezoning application to offset impacts to park and recreation service levels. This allows the Park Authority to build additional facilities needed as the population increases. To offset the additional impact caused by the proposed development, the applicant should contribute \$116,090 to the Park Authority for recreational facility development at one or more park sites located within the service area of the subject property.

Cultural Resources Impact:

The parcels were subjected to archival cultural resources review. The parcel has moderate to high potential to contain archaeological sites. The Park Authority recommends a Phase I archaeological survey be conducted on the site. If significant sites are found, a Phase II archaeological testing is recommended in order to determine if sites are eligible for inclusion into the National Register of Historic Places. If sites are found eligible, avoidance or Phase III archaeological data recovery is recommended.

At the completion of any cultural resource studies, The Park Authority requests that the applicant provide one copy of the archaeology report as well as field notes, photographs and artifacts to the Park Authority's Resource Management Division (Attention: Liz Crowell) within 30 days of completion of the study.

Trails:

Staff recommends safe pedestrian and bike access be provided from the proposed development along Route 1/Richmond Highway either through provision of an asphalt trail or an enhanced sidewalk. This will help future residents reach nearby public amenities, the Lorton Library and Park located just north of the site.

The Countywide Trails Plan Map shows a major paved trail (defined as 8' or more in width) along the length of the property fronting on Richmond Highway. The applicant's plan shows a 6' wide sidewalk along Route 1/Richmond Highway. Staff does not support the applicant's requested waiver of this trail requirement and recommends an enhanced/widened sidewalk or trail.

SUMMARY OF RECOMMENDATIONS

This section summarizes the recommendations included in the preceding analysis section. Following is a table summarizing recreation contribution amounts consistent with the Zoning Ordinance and Comprehensive Plan guidance:

Proposed Uses	P-District Onsite Expenditure	Requested Park Proffer Amount	Total
Townhouse units	N/A	\$116,090	\$116,090

In addition, the Park Authority recommends the following:

- Conduct a Phase I archaeological study
- Provide safe pedestrian and bike access along Richmond Highway, consistent with the Countywide Trails Plan Map which recommends an 8' wide trail

Please note the Park Authority would like to review and comment on proffers related to park and recreation issues. We request that draft and final proffers be submitted to the assigned reviewer noted below for review and comment prior to completion of the staff report and prior to final Board of Supervisors approval.

FCPA Reviewer: Anna Bentley
DPZ Coordinator: Nick Rogers

Copy: Cindy Walsh, Director, Resource Management Division
Liz Crowell, Manager, Cultural Resource Management & Protection Section
Nick Rogers, DPZ Coordinator
Chron File
File Copy



**FAIRFAX COUNTY
PUBLIC SCHOOLS**

Department of Facilities and Transportation Services

Office of Facilities Planning Services
8115 Gatehouse Road, Suite 3300
Falls Church, Virginia 22042

March 25, 2014

TO: Barbara Berlin, Director, Zoning Evaluation Division
Fairfax County Department of Planning & Zoning
Zoning Evaluation Division

FROM: Ajay Rawat, Coordinator *AR*
Office of Facilities Planning Services

SUBJECT: RZ 2012-MV-015, McShay Communities (Updated)

ACREAGE: 4.9037 acres

TAX MAP: 107-4 ((1)) 40A

PROPOSAL:

The application proposes the rezoning of an existing undeveloped property owned by the adjacent Moose Lodge. This application would rezone the property from R-1 to R-12 to permit the construction of 40 townhouse units.

ANALYSIS:

School Capacities

The schools serving this area are Laurel Hill Elementary and South County Middle and High schools. The chart below shows the existing school capacity, enrollment, and projected enrollment.

School	Capacity 2013 / 2014	Enrollment (9/30/13)	Projected Enrollment 2014-15	Capacity Balance 2014-15	Projected Enrollment 2018-19	Capacity Balance 2018-19
Laurel Hill ES	924 / 924	935	932	-8	935	-11
South County MS	1,304 / 1,304	1,095	1,016	288	1,086	218
South County HS	2,408 / 2,408	2,080	2,204	204	2,066	342

Capacities based on 2015-2019 Capital Improvement Program (December 2013)

Project Enrollments based on 2013-14 to 2018-19 6-Year Projections (April 2013)

The school capacity chart above shows a snapshot in time for student enrollments and school capacity balances. Student enrollment projections are done on a six year timeframe, currently through school year 2017-18 and are updated annually. At this time, if development occurs within the next five years, Laurel Hill Elementary is projected to have capacity deficit; South County Middle and High schools appear to have sufficient capacity. Beyond the six year projection horizon, enrollment projections are not available.

FCPS will be undertaking a review of schools in the Richmond Highway corridor in the near future. This review will likely include schools served by the development. Currently, there are several schools in the area that are over capacity; projections indicate this trend will likely continue in out years.

Capital Improvement Program Projects

The 2015-19 Capital Improvement Program (CIP) does not recommend any projects at the impacted schools at this time. Capacity deficit at Laurel Hill could be accommodated with temporary facilities and/or interior modifications.

Development Impact

Based on the number of residential units proposed, the chart below shows the number of anticipated students by school level based on the current countywide student yield ratio.

School level	Single Family Detached ratio	Proposed # of units	Student yield	Single Family Detached ratio	Current # of units permitted by-right	Student yield	
Elementary	0.273	0	0	0.273	4	1	
Middle	0.086	0	0	0.086	4	0	
High	0.177	0	0	0.177	4	1	
			0 total				2 total

2012 Countywide student yield ratios (August 2013)

School level	Townhouse ratio	Proposed # of units	Proposed Student yield	Townhouse ratio	Existing # of units	Existing Student yield	
Elementary	.243	40	10	.243	0	0	
Middle	.060	40	2	.060	0	0	
High	.127	40	5	.127	0	0	
			17 total				0 total

2012 Countywide student yield ratios (August 2013)

RECOMMENDATIONS:

Proffer Contribution

A total of 15 new students are anticipated (9 Elementary, 2 Middle and 4 High School). Based on the approved Residential Development Criteria, a proffer contribution of \$157,320 (15 x \$10,488) is recommended to offset the impact that new student growth will have on surrounding schools. It is recommended that all proffer contributions be directed to the South County HS pyramid and/or to Cluster V schools that encompass this area at the time of site plan approval or building permit approval. A proffer contribution at the time of occupancy is not recommended since this does not allow the school system adequate time to use the proffer contribution to offset the impact of new students.

In addition, an "escalation" proffer is recommended. The suggested per student proffer contribution is updated on an annual basis to reflect current market conditions. The amount has decreased over the last several years because of the down turn in the economy and lower construction costs for FCPS. As a result, an escalation proffer would allow for payment of the school proffer based on either the current suggested per student proffer contribution at the time of zoning approval or the per student proffer contribution in effect at the time of development, whichever is greater. This would better offset the impact that new student yields will have on surrounding schools at the time of development. For your reference, below is an example of an escalation proffer that was included as part of an approved proffer contribution to FCPS.

Adjustment to Contribution Amounts. Following approval of this Application and prior to the Applicant's payment of the amount(s) set forth in this Proffer, if Fairfax County should increase the ratio of students per unit or the amount of contribution per student, the Applicant shall increase the amount of the contribution for that phase of development to reflect the then-current ratio and/or contribution. If the County should decrease the ratio or contribution amount, the Applicant shall provide the greater of the two amounts.

Proffer Notification

It is also recommended that the developer proffer that notification to FCPS will be provided when development is likely to occur or when a site plan has been filed with the County. This will allow the school system adequate time to plan for anticipated student growth to ensure classroom availability.

Attachment: Locator Map

cc: Dan Storck, School Board Member, Mount Vernon District
Elizabeth Schultz, School Board Member, Springfield District
Ilryong Moon, Chairman, School Board Member, At-Large
Ryan McElveen, School Board Member, At-Large
Ted Velkoff, School Board Member, At-Large
Jeffrey Platenberg, Assistant Superintendent, Facilities and Transportation Services
Frances Ivey, Cluster V, Assistant Superintendent
Kevin Sneed, Director, Design and Construction Services
Jane Lipp, Principal, South County High School
Marsha Manning, Principal, South County Middle School
Suzie Montgomery, Principal, Laurel Hill Elementary School



FAIRFAX COUNTY WATER AUTHORITY
8560 Arlington Boulevard, Fairfax, Virginia 22031
www.fairfaxwater.org

**PLANNING & ENGINEERING
DIVISION**

Jamie Bain Hedges, P.E.
Director
(703) 289-6325
Fax (703) 289-6382

July 11, 2012

Ms. Barbara Berlin, Director
Fairfax County Department of Planning and Zoning
12055 Government Center Parkway, Suite 801
Fairfax, Virginia 22035-5505

Re: RZ 2012-MV-015
Royal Ridge Townhouses
Tax Map: 107-4

Dear Ms. Berlin:

The following information is submitted in response to your request for a water service analysis for the above application:

1. The property can be served by Fairfax Water.
2. Adequate domestic water service is available at the site from existing 10-inch and 8-inch water mains located at the property. See the enclosed water system map.
3. Depending upon the configuration of the on-site water mains, additional water main extensions may be necessary to satisfy fire flow requirements and accommodate water quality concerns.

If you have any questions regarding this information please contact Dave Guerra at (703) 289-6343.

Sincerely,

A handwritten signature in cursive script that reads "Traci K. Goldberg".

Traci K. Goldberg, P.E.
Manager, Planning Department

Enclosure

cc: Keith Marin, Tramonte, Yeonas, Roberts & Martin



County of Fairfax, Virginia

MEMORANDUM

DATE: July 12, 2012

TO: Nick Rogers
Zoning Evaluation Division
Department of Planning and Zoning

FROM: Gilbert Osei-Kwadwo, P.E.
Engineering Analysis and Planning Branch

SUBJECT: Sanitary Sewer Analysis Report

REF: **Application No. RZ 2012-MV-015**
Tax Map No. 107-4- ((01)) – 0040A

The following information is submitted in response to your request for a sanitary sewer analysis for above referenced application:

- The application property is located in Pohick Creek (N1) watershed. It would be sewerred into the Noman M. Cole Pollution Control Plant (NMCCP).
- Based upon current and committed flow, there is excess capacity in the NMCCP. For purposes of this report, committed flow shall be deemed that for which fees have been paid, building permits have been issued, or priority reservations have been established by the Board of Supervisors. No commitment can be made, however, as to the availability of treatment capacity for the development of the subject property. Availability of treatment capacity will depend upon the current rate of construction and the timing for development of this site.
- An existing 8 inch line located in an easement and on the property is adequate for the proposed use at this time.
- The following table indicates the condition of all related sewer facilities and the total effect of this application.

<u>Sewer Network</u>	<u>Existing Use +Application</u>		<u>Existing Use + Application +Previous Applications</u>		<u>Existing Use + Application + Comp Plan</u>	
	<u>Adeq.</u>	<u>Inadeq</u>	<u>Adeq.</u>	<u>Inadeq</u>	<u>Adeq.</u>	<u>Inadeq</u>
Collector	X		X		X	
Submain	X		X		X	
Main/Trunk	X		X		X	

5. **Other pertinent comments:**



GLOSSARY

This Glossary is provided to assist the public in understanding the staff evaluation and analysis of development proposals. It should not be construed as representing legal definitions. Refer to the Fairfax County Zoning Ordinance, Comprehensive Plan or Public Facilities Manual for additional information.

ABANDONMENT: Refers to road or street abandonment, an action taken by the Board of Supervisors, usually through the public hearing process, to abolish the public's right-of-passage over a road or road right-of way. Upon abandonment, the right-of-way automatically reverts to the underlying fee owners. If the fee to the owner is unknown, Virginia law presumes that fee to the roadbed rests with the adjacent property owners if there is no evidence to the contrary.

ACCESSORY DWELLING UNIT (OR APARTMENT): A secondary dwelling unit established in conjunction with and clearly subordinate to a single family detached dwelling unit. An accessory dwelling unit may be allowed if a special permit is granted by the Board of Zoning Appeals (BZA). Refer to Sect. 8-918 of the Zoning Ordinance.

AFFORDABLE DWELLING UNIT (ADU) DEVELOPMENT: Residential development to assist in the provision of affordable housing for persons of low and moderate income in accordance with the affordable dwelling unit program and in accordance with Zoning Ordinance regulations. Residential development which provides affordable dwelling units may result in a density bonus (see below) permitting the construction of additional housing units. See Part 8 of Article 2 of the Zoning Ordinance.

AGRICULTURAL AND FORESTAL DISTRICTS: A land use classification created under Chapter 114 or 115 of the Fairfax County Code for the purpose of qualifying landowners who wish to retain their property for agricultural or forestal use for use/value taxation pursuant to Chapter 58 of the Fairfax County Code.

BARRIER: A wall, fence, earthen berm, or plant materials which may be used to provide a physical separation between land uses. Refer to Article 13 of the Zoning Ordinance for specific barrier requirements.

BEST MANAGEMENT PRACTICES (BMPs): Stormwater management techniques or land use practices that are determined to be the most effective, practicable means of preventing and/or reducing the amount of pollution generated by nonpoint sources in order to improve water quality.

BUFFER: Graduated mix of land uses, building heights or intensities designed to mitigate potential conflicts between different types or intensities of land uses; may also provide for a transition between uses. A landscaped buffer may be an area of open, undeveloped land and may include a combination of fences, walls, berms, open space and/or landscape plantings. A buffer is not necessarily coincident with transitional screening.

CHESAPEAKE BAY PRESERVATION ORDINANCE: Regulations which the State has mandated must be adopted to protect the Chesapeake Bay and its tributaries. These regulations must be incorporated into the comprehensive plans, zoning ordinances and subdivision ordinances of the affected localities. Refer to Chesapeake Bay Preservation Act, Va. Code Section 10.1-2100 et seq and VR 173-02-01, Chesapeake Bay Preservation Area Designation and Management Regulations.

CLUSTER DEVELOPMENT: Residential development in which the lots are clustered on a portion of a site so that significant environmental/historical/cultural resources may be preserved or recreational amenities provided. While smaller lot sizes are permitted in a cluster subdivision to preserve open space, the overall density cannot exceed that permitted by the applicable zoning district. See Sect. 2-421 and Sect. 9-615 of the Zoning Ordinance.

COUNTY 2232 REVIEW PROCESS: A public hearing process pursuant to Sect. 15.2-2232 (Formerly Sect. 15.1-456) of the Virginia Code which is used to determine if a proposed public facility not shown on the adopted Comprehensive Plan is in substantial accord with the plan. Specifically, this process is used to determine if the general or approximate location, character and extent of a proposed facility is in substantial accord with the Plan.

dBA: The momentary magnitude of sound weighted to approximate the sensitivity of the human ear to certain frequencies; the dBA value describes a sound at a given instant, a maximum sound level or a steady state value. See also Ldn.

DENSITY: Number of dwelling units (du) divided by the gross acreage (ac) of a site being developed in residential use; or, the number of dwelling units per acre (du/ac) except in the PRC District when density refers to the number of persons per acre.

DENSITY BONUS: An increase in the density otherwise allowed in a given zoning district which may be granted under specific provisions of the Zoning Ordinance when a developer provides excess open space, recreation facilities, or affordable dwelling units (ADUs), etc.

DEVELOPMENT CONDITIONS: Terms or conditions imposed on a development by the Board of Supervisors (BOS) or the Board of Zoning Appeals (BZA) in connection with approval of a special exception, special permit or variance application or rezoning application in a "P" district. Conditions may be imposed to mitigate adverse impacts associated with a development as well as secure compliance with the Zoning Ordinance and/or conformance with the Comprehensive Plan. For example, development conditions may regulate hours of operation, number of employees, height of buildings, and intensity of development.

DEVELOPMENT PLAN: A graphic representation which depicts the nature and character of the development proposed for a specific land area: information such as topography, location and size of proposed structures, location of streets trails, utilities, and storm drainage are generally included on a development plan. A development plan is a submission requirement for rezoning to the PRC District. A **GENERALIZED DEVELOPMENT PLAN (GDP)** is a submission requirement for a rezoning application for all conventional zoning districts other than a P District. A development plan submitted in connection with a special exception (SE) or special permit (SP) is generally referred to as an SE or SP plat. A **CONCEPTUAL DEVELOPMENT PLAN (CDP)** is a submission requirement when filing a rezoning application for a P District other than the PRC District; a CDP characterizes in a general way the planned development of the site. A **FINAL DEVELOPMENT PLAN (FDP)** is a submission requirement following the approval of a conceptual development plan and rezoning application for a P District other than the PRC District; an FDP further details the planned development of the site. See Article 16 of the Zoning Ordinance.

EASEMENT: A right to or interest in property owned by another for a specific and limited purpose. Examples: access easement, utility easement, construction easement, etc. Easements may be for public or private purposes.

ENVIRONMENTAL QUALITY CORRIDORS (EQCs): An open space system designed to link and preserve natural resource areas, provide passive recreation and protect wildlife habitat. The system includes stream valleys, steep slopes and wetlands. For a complete definition of EQCs, refer to the Environmental section of the Policy Plan for Fairfax County contained in Vol. 1 of the Comprehensive Plan.

ERODIBLE SOILS: Soils that wash away easily, especially under conditions where stormwater runoff is inadequately controlled. Silt and sediment are washed into nearby streams, thereby degrading water quality.

FLOODPLAIN: Those land areas in and adjacent to streams and watercourses subject to periodic flooding; usually associated with environmental quality corridors. The 100 year floodplain drains 70 acres or more of land and has a one percent chance of flood occurrence in any given year.

FLOOR AREA RATIO (FAR): An expression of the amount of development intensity (typically, non-residential uses) on a specific parcel of land. FAR is determined by dividing the total square footage of gross floor area of buildings on a site by the total square footage of the site itself.

FUNCTIONAL CLASSIFICATION: A system for classifying roads in terms of the character of service that individual facilities are providing or are intended to provide, ranging from travel mobility to land access. Roadway system functional classification elements include Freeways or Expressways which are limited access highways, Other Principal (or Major) Arterials, Minor Arterials, Collector Streets, and Local Streets. Principal arterials are designed to accommodate travel; access to adjacent properties is discouraged. Minor arterials are designed to serve both through traffic and local trips. Collector roads and streets link local streets and properties with the arterial network. Local streets provide access to adjacent properties.

GEOTECHNICAL REVIEW: An engineering study of the geology and soils of a site which is submitted to determine the suitability of a site for development and recommends construction techniques designed to overcome development on problem soils, e.g., marine clay soils.

HYDROCARBON RUNOFF: Petroleum products, such as motor oil, gasoline or transmission fluid deposited by motor vehicles which are carried into the local storm sewer system with the stormwater runoff, and ultimately, into receiving streams; a major source of non-point source pollution. An oil-grit separator is a common hydrocarbon runoff reduction method.

IMPERVIOUS SURFACE: Any land area covered by buildings or paved with a hard surface such that water cannot seep through the surface into the ground.

INFILL: Development on vacant or underutilized sites within an area which is already mostly developed in an established development pattern or neighborhood.

INTENSITY: The magnitude of development usually measured in such terms as density, floor area ratio, building height, percentage of impervious surface, traffic generation, etc. Intensity is also based on a comparison of the development proposal against environmental constraints or other conditions which determine the carrying capacity of a specific land area to accommodate development without adverse impacts.

Ldn: Day night average sound level. It is the twenty-four hour average sound level expressed in A-weighted decibels; the measurement assigns a "penalty" to night time noise to account for night time sensitivity. Ldn represents the total noise environment which varies over time and correlates with the effects of noise on the public health, safety and welfare.

LEVEL OF SERVICE (LOS): An estimate of the effectiveness of a roadway to carry traffic, usually under anticipated peak traffic conditions. Level of Service efficiency is generally characterized by the letters A through F, with LOS-A describing free flow traffic conditions and LOS-F describing jammed or grid-lock conditions.

MARINE CLAY SOILS: Soils that occur in widespread areas of the County generally east of Interstate 95. Because of the abundance of shrink-swell clays in these soils, they tend to be highly unstable. Many areas of slope failure are evident on natural slopes. Construction on these soils may initiate or accelerate slope movement or slope failure. The shrink-swell soils can cause movement in structures, even in areas of flat topography, from dry to wet seasons resulting in cracked foundations, etc. Also known as slippage soils.

OPEN SPACE: That portion of a site which generally is not covered by buildings, streets, or parking areas. Open space is intended to provide light and air; open space may function as a buffer between land uses or for scenic, environmental, or recreational purposes.

OPEN SPACE EASEMENT: An easement usually granted to the Board of Supervisors which preserves a tract of land in open space for some public benefit in perpetuity or for a specified period of time. Open space easements may be accepted by the Board of Supervisors, upon request of the land owner, after evaluation under criteria established by the Board. See Open Space Land Act, Code of Virginia, Sections 10.1-1700, et seq.

P DISTRICT: A "P" district refers to land that is planned and/or developed as a Planned Development Housing (PDH) District, a Planned Development Commercial (PDC) District or a Planned Residential Community (PRC) District. The PDH, PDC and PRC Zoning Districts are established to encourage innovative and creative design for land development; to provide ample and efficient use of open space; to promote a balance in the mix of land uses, housing types, and intensity of development; and to allow maximum flexibility in order to achieve excellence in physical, social and economic planning and development of a site. Refer to Articles 6 and 16 of the Zoning Ordinance.

PROFFER: A written condition, which, when offered voluntarily by a property owner and accepted by the Board of Supervisors in a rezoning action, becomes a legally binding condition which is in addition to the zoning district regulations applicable to a specific property. Proffers are submitted and signed by an owner prior to the Board of Supervisors public hearing on a rezoning application and run with the land. Once accepted by the Board, proffers may be modified only by a proffered condition amendment (PCA) application or other zoning action of the Board and the hearing process required for a rezoning application applies. See Sect. 15.2-2303 (formerly 15.1-491) of the Code of Virginia.

PUBLIC FACILITIES MANUAL (PFM): A technical text approved by the Board of Supervisors containing guidelines and standards which govern the design and construction of site improvements incorporating applicable Federal, State and County Codes, specific standards of the Virginia Department of Transportation and the County's Department of Public Works and Environmental Services.

RESOURCE MANAGEMENT AREA (RMA): That component of the Chesapeake Bay Preservation Area comprised of lands that, if improperly used or developed, have a potential for causing significant water quality degradation or for diminishing the functional value of the Resource Protection Area. See Fairfax County Code, Ch. 118, Chesapeake Bay Preservation Ordinance.

RESOURCE PROTECTION AREA (RPA): That component of the Chesapeake Bay Preservation Area comprised of lands at or near the shoreline or water's edge that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may result in significant degradation of the quality of state waters. In their natural condition, these lands provide for the removal, reduction or assimilation of sediments from runoff entering the Bay and its tributaries, and minimize the adverse effects of human activities on state waters and aquatic resources. New development is generally discouraged in an RPA. See Fairfax County Code, Ch. 118, Chesapeake Bay Preservation Ordinance.

SITE PLAN: A detailed engineering plan, to scale, depicting the development of a parcel of land and containing all information required by Article 17 of the Zoning Ordinance. Generally, submission of a site plan to DPWES for review and approval is required for all residential, commercial and industrial development except for development of single family detached dwellings. The site plan is required to assure that development complies with the Zoning Ordinance.

SPECIAL EXCEPTION (SE) / SPECIAL PERMIT (SP): Uses, which by their nature, can have an undue impact upon or can be incompatible with other land uses and therefore need a site specific review. After review, such uses may be allowed to locate within given designated zoning districts if appropriate and only under special controls, limitations, and regulations. A special exception is subject to public hearings by the Planning Commission and Board of Supervisors with approval by the Board of Supervisors; a special permit requires a public hearing and approval by the Board of Zoning Appeals. Unlike proffers which are voluntary, the Board of Supervisors or BZA may impose reasonable conditions to assure, for example, compatibility and safety. See Article 8, Special Permits and Article 9, Special Exceptions, of the Zoning Ordinance.

STORMWATER MANAGEMENT: Engineering practices that are incorporated into the design of a development in order to mitigate or abate adverse water quantity and water quality impacts resulting from development. Stormwater management systems are designed to slow down or retain runoff to re-create, as nearly as possible, the pre-development flow conditions.

SUBDIVISION PLAT: The engineering plan for a subdivision of land submitted to DPWES for review and approved pursuant to Chapter 101 of the County Code.

TRANSPORTATION DEMAND MANAGEMENT (TDM): Actions taken to reduce single occupant vehicle automobile trips or actions taken to manage or reduce overall transportation demand in a particular area.

TRANSPORTATION SYSTEM MANAGEMENT (TSM) PROGRAMS: This term is used to describe a full spectrum of actions that may be applied to improve the overall efficiency of the transportation network. TSM programs usually consist of low-cost alternatives to major capital expenditures, and may include parking management measures, ridesharing programs, flexible or staggered work hours, transit promotion or operational improvements to the existing roadway system. TSM includes Transportation Demand Management (TDM) measures as well as H.O.V. use and other strategies associated with the operation of the street and transit systems.

URBAN DESIGN: An aspect of urban or suburban planning that focuses on creating a desirable environment in which to live, work and play. A well-designed urban or suburban environment demonstrates the four generally accepted principles of design: clearly identifiable function for the area; easily understood order; distinctive identity; and visual appeal.

VACATION: Refers to vacation of street or road as an action taken by the Board of Supervisors in order to abolish the public's right-of-passage over a road or road right-of-way dedicated by a plat of subdivision. Upon vacation, title to the road right-of-way transfers by operation of law to the owner(s) of the adjacent properties within the subdivision from whence the road/road right-of-way originated.

VARIANCE: An application to the Board of Zoning Appeals which seeks relief from a specific zoning regulation such as lot width, building height, or minimum yard requirements, among others. A variance may only be granted by the Board of Zoning Appeals through the public hearing process and upon a finding by the BZA that the variance application meets the required Standards for a Variance set forth in Sect. 18-404 of the Zoning Ordinance.

WETLANDS: Land characterized by wetness for a portion of the growing season. Wetlands are generally delineated on the basis of physical characteristics such as soil properties indicative of wetness, the presence of vegetation with an affinity for water, and the presence or evidence of surface wetness or soil saturation. Wetland environments provide water quality improvement benefits and are ecologically valuable. Development activity in wetlands is subject to permitting processes administered by the U.S. Army Corps of Engineers

TIDAL WETLANDS: Vegetated and nonvegetated wetlands as defined in Chapter 116 Wetlands Ordinance of the Fairfax County Code: includes tidal shores and tidally influenced embayments, creeks, and tributaries to the Occoquan and Potomac Rivers. Development activity in tidal wetlands may require approval from the Fairfax County Wetlands Board.

Abbreviations Commonly Used in Staff Reports

A&F	Agricultural & Forestal District	PDH	Planned Development Housing
ADU	Affordable Dwelling Unit	PFM	Public Facilities Manual
ARB	Architectural Review Board	PRC	Planned Residential Community
BMP	Best Management Practices	RC	Residential-Conservation
BOS	Board of Supervisors	RE	Residential Estate
BZA	Board of Zoning Appeals	RMA	Resource Management Area
COG	Council of Governments	RPA	Resource Protection Area
CBC	Community Business Center	RUP	Residential Use Permit
CDP	Conceptual Development Plan	RZ	Rezoning
CRD	Commercial Revitalization District	SE	Special Exception
DOT	Department of Transportation	SEA	Special Exception Amendment
DP	Development Plan	SP	Special Permit
DPWES	Department of Public Works and Environmental Services	TDM	Transportation Demand Management
DPZ	Department of Planning and Zoning	TMA	Transportation Management Association
DU/AC	Dwelling Units Per Acre	TSA	Transit Station Area
EQC	Environmental Quality Corridor	TSM	Transportation System Management
FAR	Floor Area Ratio	UP & DD	Utilities Planning and Design Division, DPWES
FDP	Final Development Plan	VC	Variance
GDP	Generalized Development Plan	VDOT	Virginia Dept. of Transportation
GFA	Gross Floor Area	VPD	Vehicles Per Day
HC	Highway Corridor Overlay District	VPH	Vehicles per Hour
HCD	Housing and Community Development	WMATA	Washington Metropolitan Area Transit Authority
LOS	Level of Service	WS	Water Supply Protection Overlay District
Non-RUP	Non-Residential Use Permit	ZAD	Zoning Administration Division, DPZ
OSDS	Office of Site Development Services, DPWES	ZED	Zoning Evaluation Division, DPZ
PCA	Proffered Condition Amendment	ZPRB	Zoning Permit Review Branch
PD	Planning Division		
PDC	Planned Development Commercial		