



APPLICATION ACCEPTED: January 9, 2014
PLANNING COMMISSION: November 13, 2014
BOARD OF SUPERVISORS: Not yet scheduled

County of Fairfax, Virginia

October 31, 2014

STAFF REPORT

RZ 2014-BR-001

BRADDOCK DISTRICT

APPLICANT: Blagoj Skandev (SD Homes LLC)

PRESENT ZONING: R-1 (Residential District - 1 du/ac)

PARCEL: 69-3 ((1)) 31

SITE AREA: 42,209 square feet (sf)

PLAN MAP: Residential at 2-3 dwelling units per acre

PROPOSAL: To rezone 42,209 sf from the R-1 to the R-3 District for the development of two single-family detached houses at a density of 2.06 dwelling units per acre.

STAFF RECOMMENDATIONS:

Staff recommends approval of RZ 2014-BR-001, subject to the execution of proffers consistent with those contained in Appendix 1.

Staff recommends approval of the waiver and deviation, as listed below:

Joe Gorney

Department of Planning and Zoning
Zoning Evaluation Division
12055 Government Center Parkway, Suite 801
Fairfax, Virginia 22035-5505
Phone 703-324-1290 FAX 703-324-3924
www.fairfaxcounty.gov/dpz/



- Waiver of the location requirements of bio retention facilities, pursuant to Section 6-1307 of the Public Facilities Manual, to allow infiltration trenches to be located on individual lots, provided that a private maintenance agreement, in a form acceptable to the County Attorney's Office, is completed for each lot; and
- Deviation of the Tree Preservation Target, pursuant to Section 12-0508 of the Public Facilities Manual, in favor of the alternatives as shown on the proposed plan and as conditioned.

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 rezoning does not interfere with, abrogate, or annul any easement, 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.

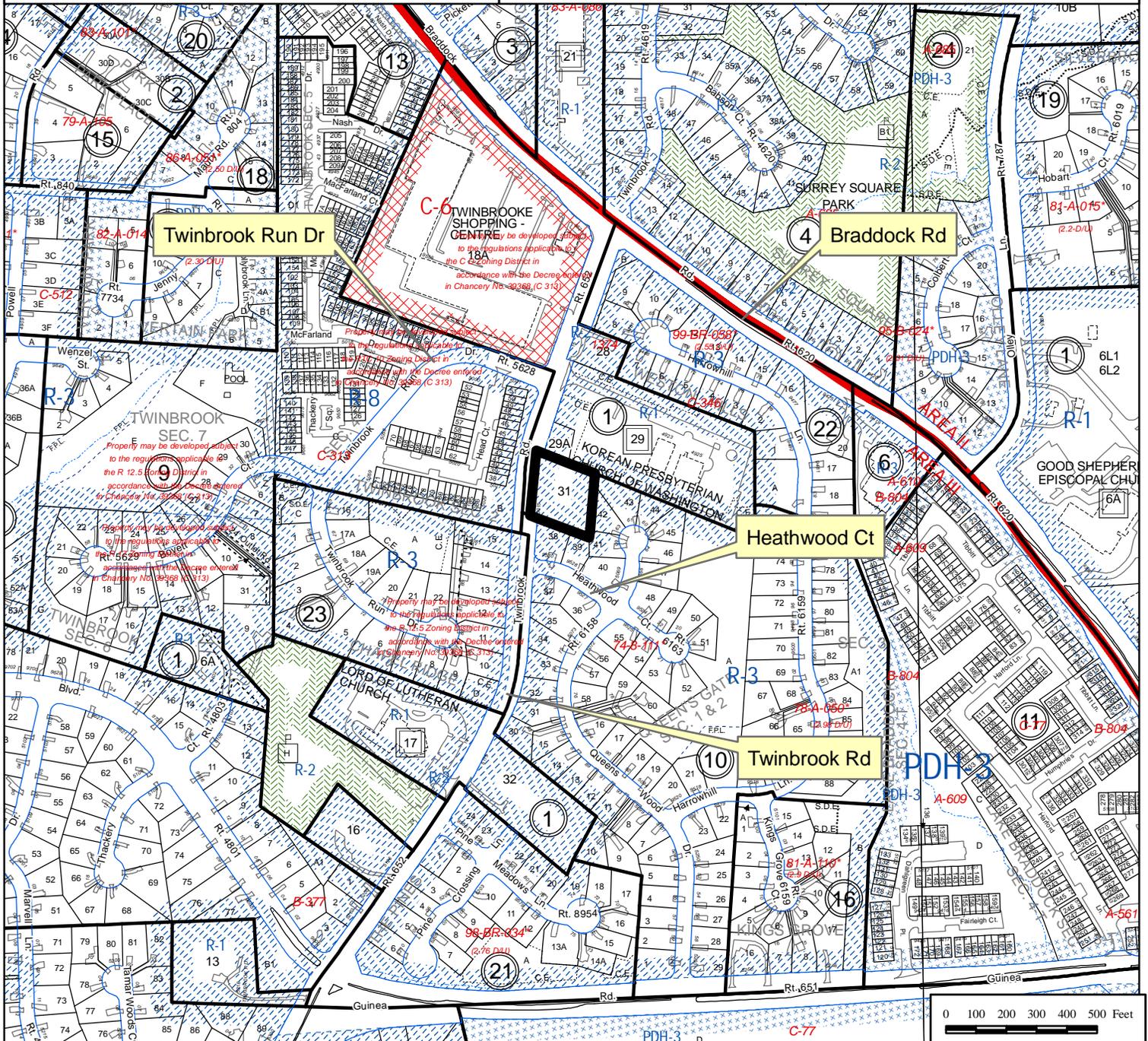


Rezoning Application

RZ 2014-BR-001



Applicant: BLAGOJ SKANDEV (SD HOMES LLC)
Accepted: 01/09/2014
Proposed: RESIDENTIAL
Area: 42209 SF OF LAND; DISTRICT - BRADDOCK
Zoning Dist Sect: EAST SIDE OF TWINBROOK ROAD
Located: APPROXIMATELY 900 FEET SOUTH OF ITS
INTERSECTION WITH BRADDOCK ROAD
Zoning: FROM R- 1 TO R- 3
Overlay Dist:
Map Ref Num: 069-3- /01/ /0031



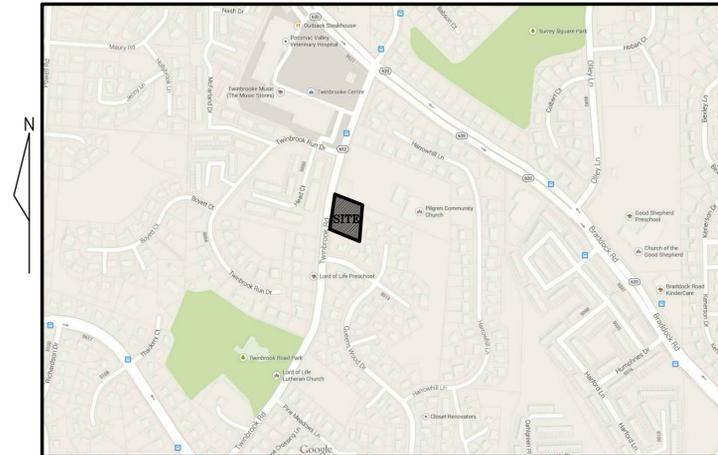
GENERALIZED DEVELOPMENT PLAN (GDP)

FOR

TWINBROOK ROAD SUBDIVISION

Braddock District
Fairfax County, Virginia

PREPARED FOR: SD HOMES, LLC PROPERTY



VICINITY MAP
SCALE: 1" = 500'

SHEET INDEX

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16. PROPOSED DITCH SECTIONS

APPLICANT:

MR. BLAGOJ SKANDEV
SD HOMES, LLC
5315 OX ROAD
FAIRFAX, VA 22032
Tel: 571-201-2330

CIVIL ENGINEER:



GeoEnv Engineers
& Consultants, LLC.

Civil, Environmental & Geotechnical Engineering
10875 Main Street, Suite 213
Fairfax, VA 22030
Tel. 703.591.7170
Fax. 703.591.7074
Web Site: geoenv1.com

ATTORNEY:

GeoEnv Engineers
& Consultants, LLC
Civil, Environmental & Geotechnical Engineering
10875 Main Street, Suite 213
Fairfax, VA 22030
Tel. 703.591.7170
Fax. 703.591.7074
Web Site: geoenv1.com

NO.	DESCRIPTION	REV. BY	APPROVED BY	DATE

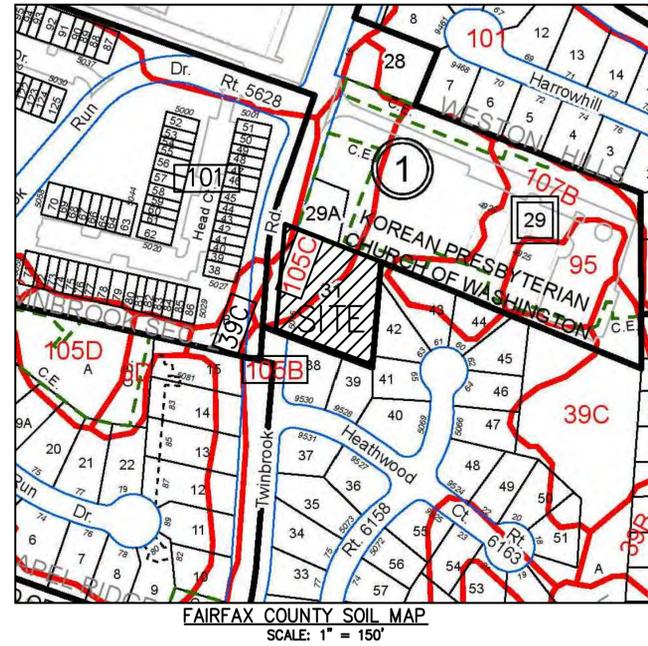


COVER SHEET
PROPOSED LOTS 31A & 31B
SUBDIVISION OF LOT 31
5015 TWINBROOK ROAD, BURKE
FAIRFAX COUNTY, VA 22015
BRADDOCK DISTRICT

TAX MAP:	69-3--(01)--31
DATE:	OCT. 23, 2014
PREP. BY:	BISHESH
CHECKED BY:	ABE
PROJECT #	2013-2634
SCALE:	N/A
SHEET:	1 OF 16

GENERAL NOTES:

- ALL REFERENCES HEREIN TO ZONING ORDINANCE SHALL REFER TO THE FAIRFAX COUNTY ZONING ORDINANCE.
- THE SUBJECT PROPERTY IS LOCATED IN THE BRADDOCK DISTRICT, ON FAIRFAX COUNTY TAX MAP 69-3-((1))-31. ALL REFERENCES HEREIN TO PROPERTY, PARCEL, OR SITE REFER TO THE SUBJECT PROPERTY.
- THE PROPERTY IS CURRENTLY ZONED R-1 AND IS PROPOSED TO BE REZONED TO R-3, PROPOSED DEVELOPMENT IS FOR MAXIMUM OF 2 SINGLE FAMILY DETACHED LOTS.
- THE PROPERTY IS COMPRISED OF PARCELS OWNED BY SD HOMES, LLC.
- THE BOUNDARY INFORMATION SHOWN HEREON IS BASED ON FIELD RUN BOUNDARY SURVEY PERFORMED BY GEOENV ENGINEERS, LLC., DATED AUGUST, 2013.
- THE TOPOGRAPHY SHOWN HEREON IS AT TWO(2) FOOT CONTOUR INTERVALS, BASED ON A FIELD SURVEY PERFORMED BY GEOENV ENGINEERS, LLC., DATED AUGUST, 2013.
- BASED UPON COUNTY MAPPING THERE ARE NO REGULATED FLOODPLAIN ON THE PROPERTY.
- THERE ARE NO KNOWN EASEMENTS 25 FEET OR MORE IN WIDTH ON THE PROPERTY.
- THERE ARE NO AREAS ON THE PROPERTY THAT HAVE SCENIC ASSETS OR NATURAL FEATURES WORTH PROTECTING AND PRESERVING.
- THERE ARE NO KNOWN GRAVE OR BURIAL SITES ON THE PROPERTY.
- THERE ARE NO ENDANGERED OR THREATENED PLANT OR ANIMAL SPECIES ON THE PROPERTY.
- ACCORDING TO THE COUNTYWIDE TRAILS PLAN, THERE ARE NO TRAILS PROPOSED ON THE PROPERTY.
- THE USE AND DENSITY OF THE PROPOSED DEVELOPMENT CONFORMS TO THE RECOMMENDATIONS OF THE FAIRFAX COUNTY COMPREHENSIVE PLAN.
- THE PROPOSED DEVELOPMENT WILL NOT POSE ANY ADVERSE EFFECT ON ADJACENT OR NEIGHBORING PROPERTIES. LOT SIZES, HOMES AND SETBACKS WILL BE COMPATIBLE WITH THOSE OF ADJACENT DEVELOPMENTS.
- NO STRUCTURES EXIST ON THE SUBJECT PROPERTY.
- SPECIAL AMENITIES WILL INCLUDE BMP FACILITIES, PUBLIC SEWER ACCESS AS WELL AS PUBLIC WATER ACCESS.
- THE PROJECT IS ANTICIPATED TO BE DEVELOPED IN A SINGLE PHASE.
- BASED UPON PRELIMINARY SITE INVESTIGATION, THERE ARE NO KNOWN HAZARDOUS OR TOXIC SUBSTANCES AS SET FORTH IN TITLE 40, CODE OF FEDERAL REGULATIONS PARTS 116.4, 302.4 AND 355; ALL HAZARDOUS WASTE AS SET FORTH IN COMMONWEALTH OF VIRGINIA DEPARTMENT OF WASTE MANAGEMENT REGULATIONS VR 872-10-1-VIRGINIA HAZARDOUS WASTE MANAGEMENT REGULATIONS; AND/OR PETROLEUM PRODUCTS AS DEFINED IN TITLE 40, CODE OF FEDERAL REGULATIONS PART 260; EXISTING ON SITE; OR PROPOSED TO BE GENERATED, UTILIZED, STORED, TREATED AND/OR DISPOSED OF ONSITE.
- THE PROPOSED DEVELOPMENT WILL CONFORM TO THE PROVISIONS OF ALL APPLICABLE ORDINANCES, REGULATIONS AND ADOPTED STANDARDS EXCEPT AS MAY BE SPECIFIED OTHERWISE PER THE REQUESTED WAIVERS/MODIFICATIONS.
- PUBLIC SEWER SHALL BE PROVIDED TO THE PROPERTY BY EXTENSION AND USE OF EXISTING 10' SANITARY SEWER EASEMENT LOCATED ON LOT 42, SECTION 2, QUEENS GATE SUBDIVISION. TRASH REMOVAL SHALL BE PROVIDED BY FAIRFAX COUNTY.
- PARKING WILL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE 11 OF THE ZONING ORDINANCE.
- LOT SIZES AND HOUSE FOOTPRINTS REPRESENTED ARE ILLUSTRATIVE AND APPROXIMATE. THE SIZE AND CONFIGURATION OF HOUSE FOOTPRINTS MAY BE REVISED PROVIDED THAT THE REQUIRED MINIMUM SETBACKS ARE NOT DIMINISHED. ANY MODIFICATIONS WILL BE IN ACCORDANCE WITH THE GDP.
- PURSUANT TO SECTION 16-403 OF THE ZONING ORDINANCE, MINOR MODIFICATIONS TO THE HOUSE SIZES, DIMENSIONS, AND/OR FOOTPRINTS AND LOCATIONS OF SIDEWALKS, UTILITIES AND RECREATIONAL FACILITIES MAY OCCUR WITH FINAL SITE ENGINEERING WITHOUT REQUIRING AN AMENDMENT TO THIS GDP.
- LANDSCAPING CONSISTING OF A COMBINATION OF EVERGREEN AND DECIDUOUS TREES WILL BE PROVIDED IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF ARTICLE 13 AND ANY PROFFERS.
- SUBJECT TO MARKET CONDITIONS, IT IS ANTICIPATED THAT CONSTRUCTION WILL COMMENCE AS SOON AS ALL NECESSARY COUNTY APPROVALS AND PERMITS ARE OBTAINED.
- STORMWATER MANAGEMENT FACILITIES WILL CONFORM TO ALL DPWES AND PFM REQUIREMENTS UNLESS WAIVED OR MODIFIED AS MAY BE PERMITTED BY THE DIRECTOR.
- THERE ARE NO AFFORDABLE DWELLING UNITS PROPOSED WITH THIS PLAN.
- PUBLIC IMPROVEMENTS ON-SITE INCLUDE THE EXTENSION OF THE SANITARY SEWER EASEMENT, INSTALLATION OF NEW FIRE HYDRANT, AND AREA TO BE DEDICATED FOR PUBLIC STREET PURPOSES.



SOIL DATA (RATINGS OF NRCS MAPPED SOIL IN FAIRFAX COUNTY)

SOIL ID NUMBERS	SERIES NAME	FOUNDATION SUPPORT	SOIL DRAINAGE	SUITABILITY FOR SEPTIC DRAINFIELDS	SUITABILITY FOR INFILTRATION TRENCHES	SOIL PROBLEM CLASS	EROSION POTENTIAL	SOIL HYDROLOGIC GROUP	% OF SITE	GEOTECH INVESTIGATION REQUIRED
39C	GLENELG SILT LOAM	GOOD	GOOD	GOOD	GOOD	I	HIGH	B	2%	NO **
101	URBAN LAND - WHEATON COMPLEX	GOOD	FAIR	POOR	MARGINAL	IVB	HIGH	D	3%	NO **
105B&C	WHEATON-GLENELG COMPLEX	GOOD	GOOD	GOOD	GOOD	IVB	HIGH	D	95%	NO **

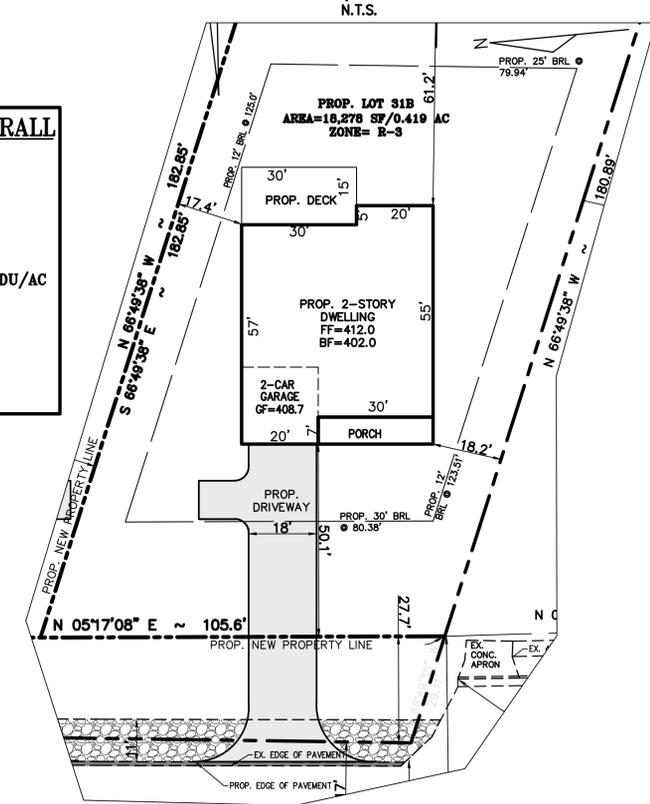
SOIL NOTES:

- SOIL INFORMATION AND MAPPING PROVIDED BY THE OFFICIAL 2011 FAIRFAX COUNTY SOILS MAPS.
- PER FAIRFAX COUNTY REQUIREMENTS FOR SOIL PROBLEM CLASS IVB, GEOTECHNICAL REPORT NOT REQUIRED IF DEEMED SO BY THE GEOTECHNICAL INVESTIGATION PROVIDED AT TIME OF SITE PLAN.

ZONING AND AREA TABULATIONS-OVERALL

TOTAL SITE AREA	=	42,209 SF OR 0.969 AC
EXISTING ZONING	=	R-1
PROPOSED ZONING	=	R-3
PROPOSED DENSITY	=	2 UNITS/0.969 AC = 2.06 DU/AC
AVERAGE LOT AREA	=	18,299 SF OR 0.42 AC
MINIMUM LOT WIDTH PROVIDED	=	105.6 FEET
PROPOSED UNIT HEIGHT	=	32 FEET

TYPICAL LOT/UNIT DETAIL:



TYPICAL LOT/UNIT NOTES:

- THE TYPICAL LOT DETAILS ARE INTENDED TO ESTABLISH MINIMUM YARD AREAS AND SETBACKS. THE FOOTPRINTS SHOWN ARE ILLUSTRATIVE AND MAY NOT NECESSARILY REPRESENT THE ACTUAL FOOTPRINT. ALTERNATIVE FOOTPRINTS MAY BE USED.
- DRIVEWAY LENGTH IS MEASURED FROM FACE OF GARAGE DOOR TO EDGE OF SIDEWALK OR FACE OF CURB IF NO SIDEWALK IS PROVIDED.
- CONSTRUCTION OF ANY DECK, CHIMNEYS, PATIOS, BAY WINDOWS, PORCHES, OVERHANGS, AREAWAY AND HVAC UNITS WILL BE IN COMPLIANCE WITH ZONING ORDINANCE 2-412.
- SIDEWALKS MAY ENCR OACH INTO FRONT YARDS.

REQUESTED WAIVERS/MODIFICATIONS:

- WAIVER TO INSTALL INDIVIDUAL ON-SITE BMP FACILITIES IN LIEU OF A STORMWATER MANAGEMENT POND.

NO.	REVISION BLOCK	DESCRIPTION	REV. BY	APPROVED BY	DATE



NOTES AND DETAILS

5015 TWINBROOK ROAD, BURKE
FAIRFAX COUNTY, VA 22015
BRADDOCK DISTRICT

TAX MAP:	69-3-((01))-31
DATE:	OCT. 23, 2014
PREP. BY:	BISHESH
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PROJECT #	2013-2634
SCALE:	AS SHOWN
SHEET:	2 OF 16

EXISTING VEGETATION SUMMARY

KEY	COVER TYPE	PRIMARY SPECIES	SUCCESSIONAL STAGE	CONDITION	AREA (SF)	COVER TYPE DESCRIPTION
A	Open Field	N/A	N/A	FAIR	18,340	THIS COVER TYPE CONTAINS LOW SHRUBS AND GRASS ON THE PROPERTY. THE CONDITION OF THE LAWNS ARE IN FAIR TO POOR CONDITIONS.
B	Upland Forest	Oak (Quercus), Hickory (Carya), Yellow-Poplar (Liriodendron tulipifera), Virginia Pine (pinus virginiana)	Post-Climax	Fair-Good	23,869	The lot contains majority of Poplars and Oaks. They are fair to good in condition. Most of these trees are located at the front western side of the property and majority of these trees will be removed.
TOTAL					42,209 SF	

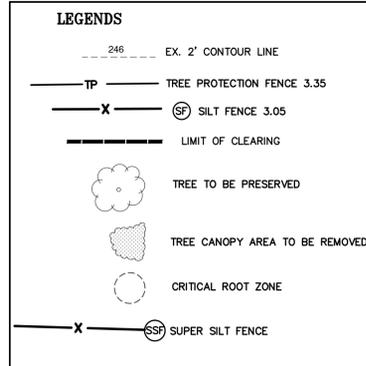
EXISTING CANOPY AREA TABULATIONS:

SITE AREA: 0.969 ACRES OR 42,209 SQ FT
 ZONE: R-1
 TOTAL CANOPY AREA COMPUTATIONS:
 EXISTING ON-SITE CANOPY AREA:
 =TCSA1+TCRA1+TCRA2=(374+22,719+776)SQ FT=23,869 SQ FT
 TREE TO BE REMOVED=TCRA1+TCRA2=23,495 SQ FT
 TREE TO REMAIN=TCSA1=374 SQ FT
 (OFF-SITE TREE CANOPY AREA IS NOT CREDITED)
 CANOPY AREA MEETING 12-400.0 STANDARDS=374 SQ FT

EXISTING SITE CONDITION:

THE LOT CONTAINS ABOUT 42,209 SQ FT OF TOTAL LAND AREA AND IS ZONED R-1. THE SIZE AND CONDITION OF ALL THE TREES WITHIN THE LOT AND OFFSITE AREA (WITHIN 25 FEET FROM THE OUTSIDE PERIMETER OF THE LOD) AND THEIR CANOPY LIMIT ARE SHOWN AND PROVIDED ON THE TABULAR FORM ON THIS SHEET.

ACCORDING TO THE CANOPY AREA DELINEATION, THE LOT CONTAINS ABOUT 23,869 SQ FT OF TOTAL LAND AREA THAT IS COVERED WITH EXISTING ON-SITE TREE CANOPY AND THE REMAINING PART OF THE LOT IS COVERED WITH THE MAINTAINED GRASS AREA. TOTAL OF 374 SF OF ON-SITE TREE CANOPY AREA SHALL BE PRESERVED AND WILL BE CREDITED FOR TREE CANOPY CALCULATION. FOR PROPOSED TREE COVER COMPUTATIONS AND NEW PLANTINGS, PLEASE REFER TO TREE LANDSCAPE PLAN. BEFORE START OF CONSTRUCTION OR DEMOLITION WORK, TREE PROTECTION FENCE AS SHOWN ON THE PLANS SHALL BE INSTALLED AS APPROVED BY COUNTY INSPECTOR. MULCHING PAD OR ROOT PRUNING WILL BE PROVIDED IF REQUIRED, TO PROTECT ROOT ZONES OF THE TREES TO BE SAVED.



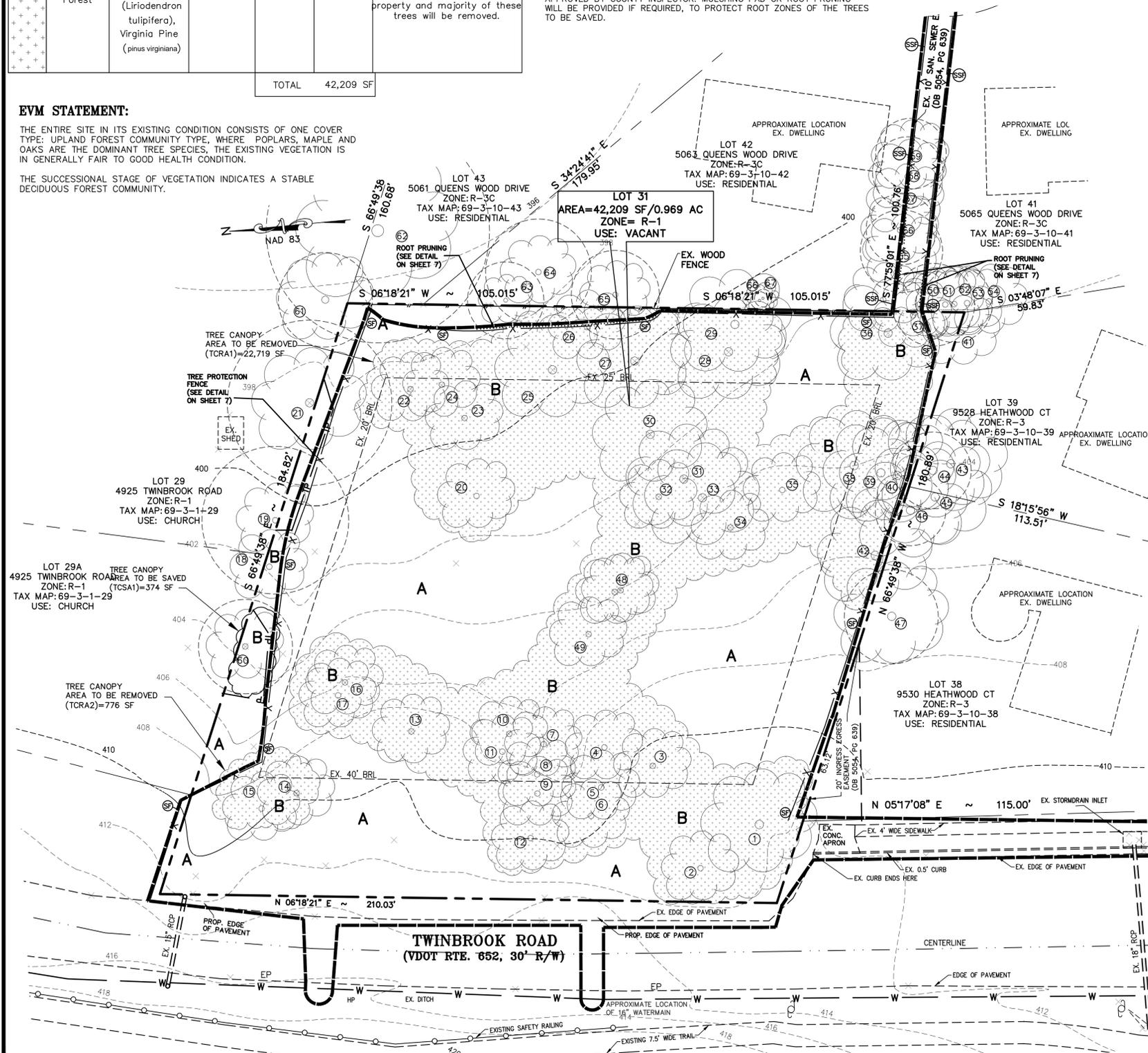
EXISTING TREE INVENTORY:

Tree #	DBH (Diameter at 4.5 feet above grade)	Common Name	Condition Rating	CRZ (Critical Zone Radius in Feet)	Removal	Root Prune	Tree Protection Fence	Mulch	Construction Oversight/Monitor	Remarks
1	36"	Red Maple	Poor	36"	X					Remove, Cannot survive the construction (Many Broken Branches)
2	24"	Red Maple	Poor	24"	X					Remove, Cannot survive the construction
3	40"	Red Maple	Poor/Fair	40"	X					Remove, Cannot survive the construction (Dead Snag/Spare of One lead of multi-lead tree)
4	13"	Tulip Poplar	Fair	13"	X					Remove, Cannot survive the construction
5	15"	Tulip Poplar	Fair	15"	X					Remove, Cannot survive the construction
6	11"	Tulip Poplar	Fair	11"	X					Remove, Cannot survive the construction
7	14"	Tulip Poplar	Fair	14"	X					Remove, Cannot survive the construction
8	11"	Tulip Poplar	Fair	11"	X					Remove, Cannot survive the construction
9	16"	Tulip Poplar	Fair	16"	X					Remove, Cannot survive the construction
10	15"	Black Locust	Fair/Poor	15"	X					Remove, Cannot survive the construction
11	24"	Tulip Poplar	Fair/Good	24"	X					Remove, Cannot survive the construction
12	15"	Tulip Poplar	Poor	15"	X					Remove, Cannot survive the construction (Massive Decay & structural Issues)
13	15"	Tulip Poplar	Fair/Good	15"	X	X	X	X		Run all measures as mentioned in Phase I
14	30"	Tulip Poplar	Fair/Good	30"	X	X	X	X		Run all measures as mentioned in Phase I (Twin Trunk)
15	12"	Tulip Poplar	Fair	12"	X					Remove, Cannot survive the construction
16	21"	Black Locust	Poor	21"	X					Remove, Cannot survive the construction
17	18"	Tulip Poplar	Fair	18"	X					Remove, Cannot survive the construction
18	20"	Red Maple	Poor	20"	X					Remove, Decay at Base, Remove Twin Trunk
19	32"	Black Cherry	Fair	32"	X	X	X	X		Adjoining Tree, Run all measures as mentioned in Phase I
20	22"	Tulip Poplar	Fair/Good	22"	X					Remove, Cannot survive the construction
21	24"	Tulip Poplar	Fair/Good	24"	X	X	X	X		Offsite Tree, Run all measures as mentioned in Phase I
22	16"	Tulip Poplar	Fair	16"	X					Remove, Cannot survive the construction
23	20"	Tulip Poplar	Fair/Good	20"	X					Remove, Cannot survive the construction
24	18"	Tulip Poplar	Fair/Good	18"	X					Remove, Cannot survive the construction
25	14"	Tulip Poplar	Fair/Good	14"	X					Remove, Cannot survive the construction
26	22"	Tulip Poplar	Fair/Good	22"	X					Remove, Cannot survive the construction
27	46"	Black Cherry	Poor	46"	X					Remove, does not survive construction, Broken Storm Damage Lead; lost a lot of canopy
28	22"	Tulip Poplar	Fair/Good	22"	X					Remove, Cannot survive the construction
29	17"	Tulip Poplar	Fair/Good	17"	X					Remove, Cannot survive the construction
30	25"	Tulip Poplar	Fair/Good	25"	X					Remove, Cannot survive the construction
31	25"	White Pine	Fair	25"	X					Remove, Cannot survive the construction
32	14"	Walnut	Fair	14"	X					Remove, Cannot survive the construction
33	12"	Norway Spruce	Fair/Good	12"	X					Remove, Cannot survive the construction
34	13"	Walnut	Fair	13"	X					Remove, Cannot survive the construction
35	23"	Red Maple	Poor	23"	X					Remove, Does not survive construction, Twin Trunk/Decay/ Recommend Removal
36	23"	Tulip Poplar	Fair/Good	23"	X					Remove, Cannot survive the construction
37	13"	Walnut	Poor	13"	X					Remove, Cannot survive the construction, storm damage
38	25"	Tulip Poplar	Fair/Good	25"	X					Remove, Cannot survive the construction
39	24"	Tulip Poplar	Poor	24"	X					Remove, Cannot survive the construction, storm damage, top half missing
40	11"	Norway Spruce	Fair/Good	11"	X					Remove, Cannot survive the construction
41	-	Persimmon	Poor	-						Offsite Tree, Run all measures as mentioned in Phase I
42	13"	Walnut	Poor	13"	X					Remove, Cannot survive the construction
43	10"	Norway Spruce	Fair/Good	10"	X		X			Offsite Tree, Run all measures as mentioned in Phase I
44	16"	Black Cherry	Fair	16"	X					Offsite Tree, Run all measures as mentioned in Phase I
45	8"	Norway Spruce	Fair/Good	8"	X					Offsite Tree, Run all measures as mentioned in Phase I
46	25"	Red Maple	Poor	25"	X					Offsite Tree, Run all measures as mentioned in Phase I, Multi Lead/ dead lead/ dead branches
47	22"	Walnut	Fair	22"	X					Offsite Tree, Run all measures as mentioned in Phase I
48	17"	Tulip Poplar	Fair/Good	17"	X					Remove, Cannot survive the construction
49	26"	Red Maple	Poor	26"	X					Remove, Cannot survive the construction, large broken lead and branches
50	12"	White Pine	Fair/Good	12"	X	X	X	X		Offsite Tree, Run all measures as mentioned in Phase I
51	6"	White Pine	Good	6"	X	X	X	X		Offsite Tree, Run all measures as mentioned in Phase I
52	16"	White Pine	Fair	16"	X					Offsite Tree, Run all measures as mentioned in Phase I
53	7"	White Pine	Poor	7"	X					Offsite Tree, Run all measures as mentioned in Phase I
54	21"	White Pine	Fair/Good	21"	X					Offsite Tree, Run all measures as mentioned in Phase I
55	10"	White Pine	Poor	10"	X	X	X	X		Offsite Tree, Run all measures as mentioned in Phase I
56	11"	White Pine	Poor	11"	X	X	X	X		Offsite Tree, Run all measures as mentioned in Phase I
57	14"	White Pine	Fair	14"	X	X	X	X		Offsite Tree, Run all measures as mentioned in Phase I
58	18"	White Pine	Poor	18"	X	X	X	X		Offsite Tree, Run all measures as mentioned in Phase I
59	16"	White Pine	Fair	16"	X	X	X	X		Offsite Tree, Run all measures as mentioned in Phase I
60	18"	Tulip Poplar	Fair	18"	X					Run all measures as mentioned in Phase I
61	16"	Tulip Poplar	Fair/Good	16"	X					Offsite Tree, No Impact of Construction
62	38"	Tulip Poplar	Fair	38"	X					Run all measures as mentioned in Phase I
63	13"	Maple	Fair/Good	13"	X					Offsite Tree, Run all measures as mentioned in Phase I
64	18"	Tulip Poplar	Good	18"	X					Offsite Tree, Run all measures as mentioned in Phase I
65	15"	Maple	Fair/Good	15"	X					Offsite Tree, Run all measures as mentioned in Phase I
66	3"	Dogwood	Good	3"	X					Offsite Tree, No Impact of Construction
67	3"	Dogwood	Good	3"	X					Offsite Tree, No Impact of Construction

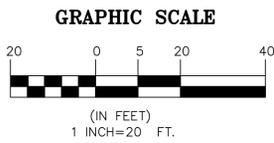
EVM STATEMENT:

THE ENTIRE SITE IN ITS EXISTING CONDITION CONSISTS OF ONE COVER TYPE: UPLAND FOREST COMMUNITY TYPE, WHERE OAKS ARE THE DOMINANT TREE SPECIES. THE EXISTING VEGETATION IS IN GENERALLY FAIR TO GOOD HEALTH CONDITION.

THE SUCCESSIONAL STAGE OF VEGETATION INDICATES A STABLE DECIDUOUS FOREST COMMUNITY.

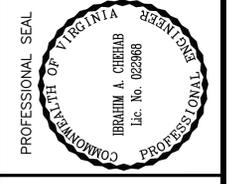


THIS PLAN IS PREPARED OR APPROVED BY:
 RON RUBIN, ISA CERTIFIED ARBORIST
 #MA-0057A



GeoEnv Engineers
 Civil, Environmental & Geotechnical Engineering
 10875 Main Street, Suite 213
 Fairfax, VA 22030
 Tel. 703.591.7170
 Fax. 703.591.7074
 Web Site: geoenr.com

NO.	DESCRIPTION	REV. BY	APPROVED BY	DATE



EXISTING VEGETATION MAP,
 AND TREE INVENTORY
 5015 TWINBROOK ROAD, BURKE
 FAIRFAX COUNTY, VA 22015
 BRADDOCK DISTRICT

TAX MAP: 69-3-((01))-31

DATE:	OCT. 23, 2014
PREP. BY:	BISHESH
CHECKED BY:	ABE
PROJECT #	2013-2634
SCALE:	1"=20'
SHEET:	3 OF 16

LOT SHAPE FACTOR TABLE

LOT	LOT PERIMETER, P (LF)	LOT AREA, A (SF)	SHAPE FACTOR (P ² /A)
PARENT LOT	840.06	42,209	16.72<35
LOT 31A	571.76	18,319	17.84<35
LOT 31B	574.36	18,278	18.04<35

STREET DEDICATION=5,612 SQ FT

PARKING TABULATIONS--OVERALL

TOTAL NUMBER OF LOTS	= 2 LOTS
TOTAL PARKING SPACES	= 4 SPACES MIN. (2 SPACES PER UNIT FOR LOTS WITH FRONTAGE ON A PUBLIC STREET)
TOTAL PARKING SPACES PROVIDED	
GARAGE	= 4 SPACES (2 CAR GARAGE X 2)
DRIVEWAY	= 4 SPACES (2 SPACES ON DRIVEWAY X 2)

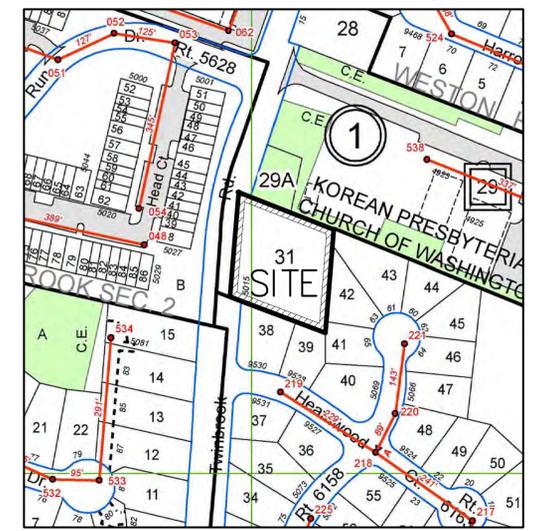
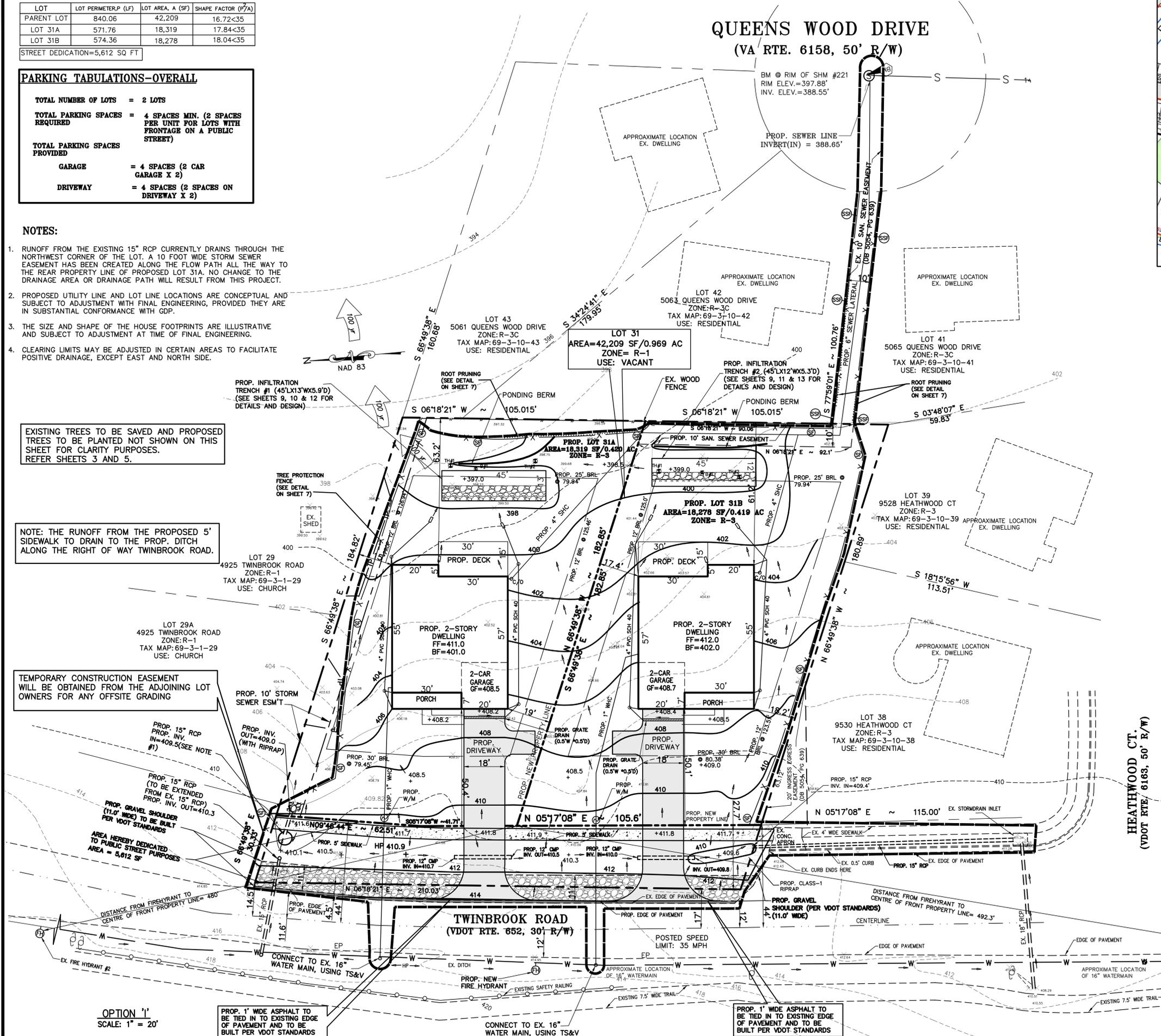
NOTES:

- RUNOFF FROM THE EXISTING 15" RCP CURRENTLY DRAINS THROUGH THE NORTHWEST CORNER OF THE LOT. A 10 FOOT WIDE STORM SEWER EASEMENT HAS BEEN CREATED ALONG THE FLOW PATH ALL THE WAY TO THE REAR PROPERTY LINE OF PROPOSED LOT 31A. NO CHANGE TO THE DRAINAGE AREA OR DRAINAGE PATH WILL RESULT FROM THIS PROJECT.
- PROPOSED UTILITY LINE AND LOT LINE LOCATIONS ARE CONCEPTUAL AND SUBJECT TO ADJUSTMENT WITH FINAL ENGINEERING, PROVIDED THEY ARE IN SUBSTANTIAL CONFORMANCE WITH GDP.
- THE SIZE AND SHAPE OF THE HOUSE FOOTPRINTS ARE ILLUSTRATIVE AND SUBJECT TO ADJUSTMENT AT TIME OF FINAL ENGINEERING.
- CLEARING LIMITS MAY BE ADJUSTED IN CERTAIN AREAS TO FACILITATE POSITIVE DRAINAGE, EXCEPT EAST AND NORTH SIDE.

EXISTING TREES TO BE SAVED AND PROPOSED TREES TO BE PLANTED NOT SHOWN ON THIS SHEET FOR CLARITY PURPOSES. REFER SHEETS 3 AND 5.

NOTE: THE RUNOFF FROM THE PROPOSED 5' SIDEWALK TO DRAIN TO THE PROP. DITCH ALONG THE RIGHT OF WAY TWINBROOK ROAD.

TEMPORARY CONSTRUCTION EASEMENT WILL BE OBTAINED FROM THE ADJOINING LOT OWNERS FOR ANY OFFSITE GRADING



FAIRFAX COUNTY SEWER MAP
SCALE: 1" = 150'

LEGENDS

	EXISTING CONTOUR
	PROPOSED CONTOUR
	EX. TREE TO BE SAVED
	ROOT PRUNING LINE
	TREE PROTECTION FENCE
	PROPOSED LIMIT OF DISTURBANCE
	SILT FENCE
	EXISTING SPOT ELEVATION
	PROPOSED SPOT ELEVATION
	SUPER SILT FENCE
	TEST HOLE LOCATION

OPTION '1'
SCALE: 1" = 20'

PROP. 1' WIDE ASPHALT TO BE TIED IN TO EXISTING EDGE OF PAVEMENT AND TO BE BUILT PER VDOT STANDARDS

PROP. 1' WIDE ASPHALT TO BE TIED IN TO EXISTING EDGE OF PAVEMENT AND TO BE BUILT PER VDOT STANDARDS

GeoEnv Engineers
Civil, Environmental & Geotechnical Engineering
10875 Main Street, Suite 213
Fairfax, VA 22030
Tel. 703.591.7170
Fax. 703.591.7074
Web Site: geoenr.com

NO.	DESCRIPTION	REV. BY	APPROVED BY	DATE

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
BRAHIM A. CHEHAB
Lic. No. 022866
PROFESSIONAL ENGINEER

GENERALIZED DEVELOPMENT PLAN (GDP) OPTION - I
5015 TWINBROOK ROAD, BURKE
FAIRFAX COUNTY, VA 22015
BRADDOCK DISTRICT

TAX MAP: 69-3--(01)--31

DATE:	OCT. 23, 2014
PREP. BY:	BISHESH
CHECKED BY:	ABE
PROJECT #	2013-2634
SCALE:	AS INDICATED
SHEET:	4 OF 16

12-0508.3A(3) TREE PRESERVATION TARGET DEVIATION REQUEST

THE EXISTING TREES WILL NOT SURVIVE IN A HEALTHY AND STRUCTURALLY SOUND MANNER FOR A MINIMUM OF 10 YEARS DUE TO CONSTRUCTION ACTIVITIES. THUS A TREE PRESERVATION TARGET DEVIATION IS REQUESTED AS PER PFM 12-0508.3A(3). REFER SHEET #6 FOR DEVIATION REQUEST LETTER.

SUPER SILT FENCE CAN BE INSTALLED IN LIEU TO SILT FENCE AND TREE PROTECTION FENCE.

THIS PLAN IS PREPARED OR APPROVED BY:
RON RUBIN, ISA CERTIFIED ARBORIST
 #MA-0057A

QUEENS WOOD DRIVE
 (VA RTE. 6158, 50' R/W)

PROPOSED TREE INVENTORY									
KEY	BOTANICAL NAME	COMMON NAME	QTY	STOCK SIZE (HT/CALIPER)	STOCK TYPE	10-YR TREE CANOPY (SF)	TREE CANOPY SUB-TOTAL (SF)	REMARKS	
RM	ACER RUBRUM	RED MAPLE	12	2" CALIPER	BB	200	2400	1.5 WILDLIFE CREDIT	
TP	LIRIODENDRON TULIPIFERA	TULIP POPLAR	10	2" CALIPER	BB	200	2000	1.5 WILDLIFE CREDIT	
WO	QUERCUS PHELLOS	WILLOW OAK	11	2" CALIPER	BB	200	2200	1.5 WILDLIFE CREDIT	
AH	ILEX OPACA	AMERICAN HOLLY	6	6 FT HT	CONT.	75	450	1.5 WILDLIFE CREDIT	
							SUB-TOTAL=	7050 SF	

SEWER LATERAL INSTALLATION NOTES:

THE SEWER LATERAL WITHIN THE ROOTZONE OF THE EXISTING OFFSITE TREES ON THE EAST SIDE OF THE LOT AS SHOWN ON THE PLANS WILL BE INSTALLED UNDER THE DIRECT SUPERVISION OF THE CERTIFIED ARBORIST. APPROXIMATELY, A TRENCH OF 9'-10" DEEP WILL BE EXCAVATED FOR INSTALLATION OF SANITARY SEWER LATERAL. FOLLOWING MEASURES WILL BE TAKEN IN SEQUENTIAL ORDER.

1. THE EXISTING BOARD FENCE WILL BE USED IN LIEU OF TREE PROTECTION FENCE AS SHOWN ON THE PLANS.
2. RUN ROOT PRUNING LINE AS SHOWN ON THE PLAN ALONG THE CRITICAL ROOT ZONE OF THE OFF-SITE TREES.
3. USE TRENCH BOX IF NEEDED DURING THE EXCAVATION FOR INSTALLATION OF THE SEWER LATERAL TO PREVENT ANY POSSIBLE DISTURBANCE TO THE ROOT ZONE.
4. NO DISTURBANCE IS PERMITTED BEYOND THE ROOT PRUNING LINE. THE LIMIT OF DISTURBANCE IS SHOWN AWAY FROM THE ROOT PRUNING LINE FOR GRAPHICAL CLARITY ONLY. ACTUAL DISTURBANCE IS LIMITED UP TO THE ROOT PRUNING LINE.

TREE PRESERVATION NARRATIVE

TREE PROTECTION FENCE AND ROOT PRUNING WILL BE INSTALLED AS SHOWN ON THE PLAN. MULCHING PAD WILL BE USED, IF REQUIRED, TO MINIMIZE THE IMPACTS ON THE ROOT ZONE OF THOSE TREES TO BE PRESERVED BY THIS PLAN. THE CONSTRUCTION VEHICLE SHALL NOT ENCRUSH BEYOND THE LOD AND ALL THE DEBRIS FROM THE DEMOLITION WORK SHALL BE PILED WITHIN THE LOD. NO TRENCHING OR STOCKING OF THE CONSTRUCTION MATERIAL OR EQUIPMENT IS ALLOWED WITHIN THE ROOT ZONE OF THE TREES TO BE PRESERVED.

ABOUT 56.5% OF THE LOT AREA IS COVERED WITH THE EXISTING TREE CANOPY AREA (23,869 SQ FT). THE SITE REQUIRES 30% OF THE LOT AREA TO BE COVERED WITH THE TREE COVER CANOPY PER PFM REQUIREMENT (PER TABLE 12.4 OF PFM). THE PROPOSED PRESERVATION FROM THE EXISTING TREES IS 0.9% OF THE CANOPY REQUIREMENTS THAT WILL BE MET THROUGH TREE PRESERVATION WHICH IS LESS THAN MINIMUM REQUIRED 16.96%. NO CREDITS FROM THE OFFSITE TREE CANOPY AREA IS TAKEN. THIRTY NINE (39) WILDLIFE TREE SPECIES SHALL BE PLANTED TO MEET THE CANOPY AREA REQUIREMENTS. THE SITE WILL RETAIN A TOTAL OF 11,043 SF OF CANOPY AREA (AFTER THE MULTIPLICATION FACTOR ADJUSTMENT), WHICH IS MORE THAN THE MINIMUM REQUIRED CANOPY AREA OF 11,026 SQ FT (30% OF THE GROSS SITE AREA). THE TREE CANOPY COVER REQUIREMENT IS SATISFIED BY THE STUDY SITE BY PLANTING NEW TREES AND PRESERVING THE EXISTING TREE. REFER SHEETS # 6 AND 7 FOR TREE PRESERVATION GUIDELINES AND DEVIATION REQUESTS.

TREE PRESERVATION NOTES:

1. PRIOR TO ANY CONSTRUCTION ACTIVITY, ALL INDIVIDUAL TREES AND GROUPS OF TREES SHOWN TO BE PRESERVED ON THE TREE PRESERVATION PLAN SHALL BE PROTECTED BY FENCING WITH TREE PROTECTION FENCE (A MINIMUM OF FOUR FEET IN HEIGHT) PLACED AT THE LIMITS OF CLEARING AND GRADING, OR AS DETERMINED DURING PRE-CONSTRUCTION MEETING. TREE PROTECTION FENCING SHOULD BE 14 GAUGE STEEL WOVEN WIRE "FARM FENCE" ON 6 FOOT STEEL POSTS DRIVEN IN TO GROUND 18 INCHES AND PLACED MORE THAN 10 FEET APART; OR SUPER SILT FENCE OR CHAIN LINK FENCE. THE TREE PROTECTION FENCING SHALL BE MADE CLEARLY VISIBLE TO ALL CONSTRUCTION PERSONNEL WITH SIGNS POSTED ON IT STATING IN SPANISH AND ENGLISH THAT IT IS A TREE PRESERVATION AREA AND NO ENTRY IS PERMITTED. THE FENCING SHALL BE INSTALLED PRIOR TO ANY WORK BEING CONDUCTED ON THE SITE, INCLUDING REMOVAL OF THE EXISTING TREES FOR SITE CLEARANCE, UNLESS AUTHORIZED BY FAIRFAX COUNTY URBAN FORESTER.
2. CONSTRUCTION ACTIVITY IS NOT PERMITTED BEYOND THE LIMITS OF CLEARING AND GRADING.
3. THE ENGINEER, ARCHITECT OR SITE SUPERINTENDENT SHALL FLAG THE LIMITS OF CLEARING AND GRADING PRIOR TO THE PRE-CONSTRUCTION MEETING.
4. SUPER SILT FENCE AND ROOT PRUNING SHALL BE INSTALLED AS TREE PROTECTION MEASURES TO PROTECT TREES LABELED AS "SAVE" AND TO PROTECT THE OFFSITE TREES.
5. OFF-SITE AND CO-OWNED TREES SHOULD RECEIVE SPECIAL ATTENTION; DISCUSS THE PROJECT WITH ADJOINING OWNERS ABOUT SUCH TREES, BEFORE START OF THE WORK. WITHOUT NEIGHBOR'S WRITTEN CONSENT, REMOVAL OF THE CO-OWNED TREES ARE PROHIBITED.
6. AT BOND RELEASE, THE SITE SHALL BE REVIEWED TO DETERMINE THE NEED FOR FURTHER TREE CARE OR REMOVAL.
7. ALL TREE PRESERVATION MEASURES SHALL BE TAKEN TO SAVE TREES TO BE SAVED AND TO MINIMIZE IMPACT OF THE ROOT ZONES OF THE OFFSITE TREES.

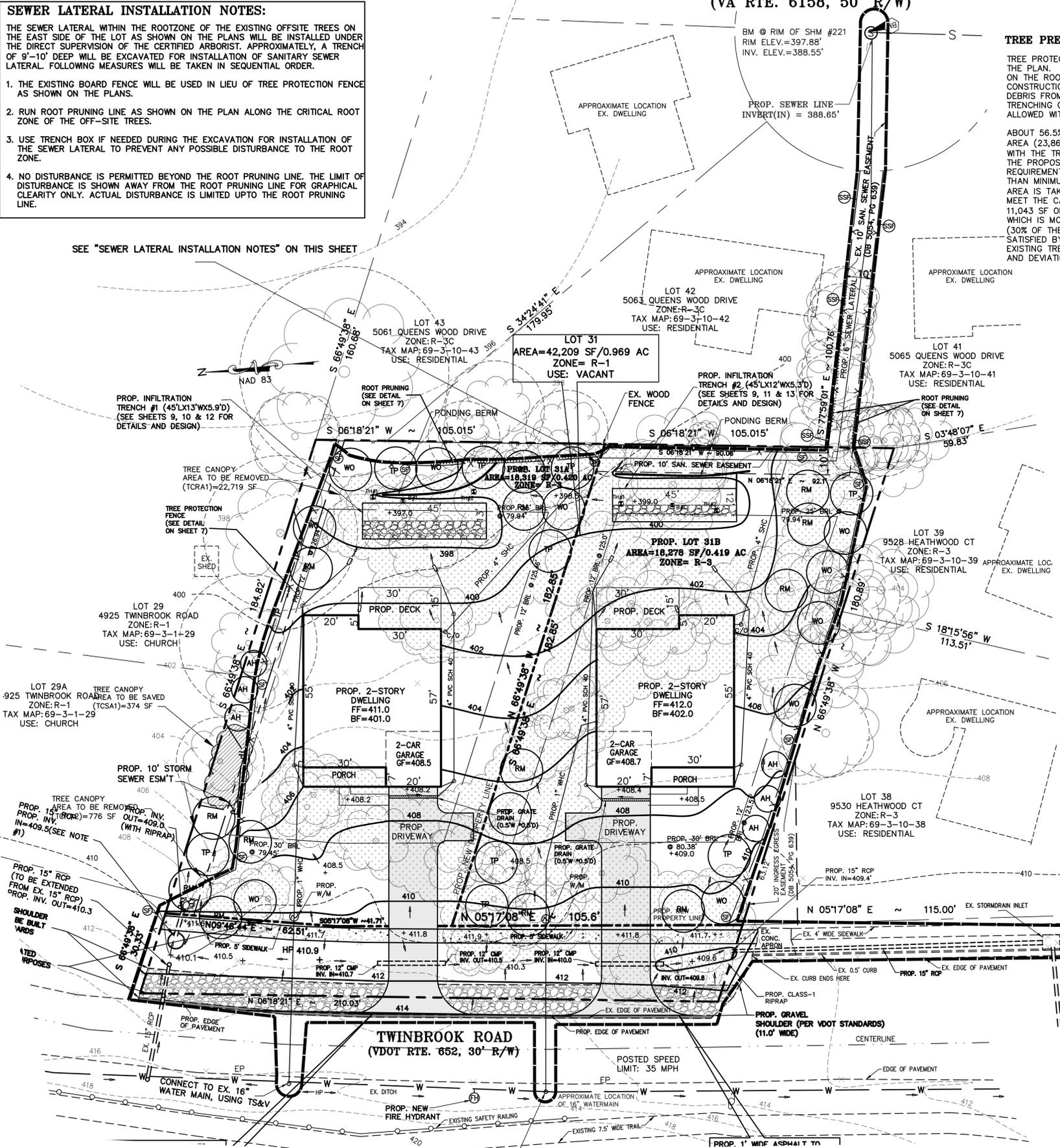
TABLE 12.10 10-YEAR TREE CANOPY CALCULATION WORKSHEET

A. TREE PRESERVATION TARGET AND STATEMENT		
A1	PRE-DEVELOPMENT AREA OF EXISTING TREE CANOPY (FROM EXISTING VEGETATION MAP)=	23869 SF
A2	PERCENTAGE OF GROSS SITE AREA COVERED BY EXISTING TREE CANOPY=	56.5%
A3	PERCENTAGE OF 10-YEAR TREE CANOPY REQUIRED FOR SITE (SEE TABLE 12.4)=	30%
A4	PERCENTAGE OF THE 10-YEAR TREE CANOPY REQUIREMENT THAT SHOULD BE MET THROUGH TREE PRESERVATION=	16.96%
A5	PROPOSED PERCENTAGE OF CANOPY REQUIREMENT THAT WILL BE MET THROUGH TREE PRESERVATION=	0.9%
A6	HAS THE TREE PRESERVATION TARGET MINIMUM BEEN MET?	NO
A7	IF NO FOR A6, THEN SHEET NUMBER WHERE DEVIATION REQUEST IS LOCATED	SHEET 7
A8	IF STEP G REQUIRES A NARRATIVE, IT SHALL BE PREPARED IN ACCORDANCE WITH § 12-0508.3	SHEET 7
B. TREE CANOPY REQUIREMENT		TOTAL
B1	GROSS SITE AREA=	42209 SF
B2	SUBTRACT TO PARKS, ROAD FRONTAGE AND OTHERS=	5456 SF
B3	SUBTRACT AREA OF EXEMPTIONS=	0 SF
B4	ADJUSTED GROSS SITE AREA 9B1-B2)=	36753 SF
B5	SITE ZONE/USE=	R-1
B6	PERCENT OF 10-YEAR TREE CANOPY REQUIREMENT=	30%
B7	AREA OF 10-YEAR TREE CANOPY REQUIRED (B4xB5)=	11028 SF
B8	MODIFICATION OF 10-YEAR TREE CANOPY REQUIREMENT REQUESTED?	YES
B9	IF B8 IS YES, THEN LIST PLAN SHEET WHERE MODIFICATION REQUEST IS LOCATED=	SHEET 7
C. TREE PRESERVATION		
C1	TREE PRESERVATION TARGET AREA=	7161 SF
C2	TOTAL CANOPY AREA MEETING STANDARDS OF § 12-0400=	374 SF
C3	C2x1.25=	468 SF
C4	TOTAL CANOPY AREA PROVIDED BY UNIQUE OR VALUABLE FOREST OR WOODLAND COMMUNITIES=	0 SF
C5	C4x1.5=	0 SF
C6	TOTAL OF CANOPY AREA PROVIDED BY "HERITAGE", "MEMORIAL", "SPECIMEN" OR "STREET" TREES=	0 SF
C7	C6x1.25 OR 1.50=	0 SF
C8	CANOPY OF TREES WITHIN THE RESOURCE PROTECTION AREAS AND 100-YEAR FLOODPLAINS=	0 SF
C9	C8x1.0=	0 SF
C10	TOTAL OF C3, C5, C7 AND C9=	468 SF
D. TREE PLANTING		
D1	AREA OF CANOPY TO BE MET THROUGH TREE PLANTING (B7-C10)=	10558 SF
D2	AREA OF CANOPY PLANTED FOR AIR QUALITY BENEFITS=	0 SF
D3	(D2x1.5)=	0 SF
D4	AREA OF TREE PLANTED FOR ENERGY CONSERVATION=	0 SF
D5	(D4x1.5)=	0 SF
D6	AREA OF TREE PLANTED FOR WATER QUALITY BENEFITS=	0 SF
D7	(D6x1.25)=	0 SF
D8	AREA OF CANOPY PLANTED FOR WILDLIFE BENEFITS=	7050 SF
D9	(D8x1.5)=	10575 SF
D10	AREA OF CANOPY PROVIDED BY NATIVE TREES=	0 SF
D11	(D10x1.5)=	0 SF
D12	AREA OF CANOPY PROVIDED BY IMPROVED CULTIVARS AND VARIETIES=	0 SF
D13	(D12x1.25)=	0 SF
D14	AREA OF CANOPY PROVIDED THROUGH TREE SEEDLINGS=	0 SF
D15	(D14x1.0)=	0 SF
D16	PERCENTAGE OF D14 REPRESENTED BY D15= (MUST NOT EXCEED 33% OF D14)	0 SF
D17	TOTAL OF CANOPY AREA PROVIDED THROUGH TREE PLANTING=	10575 SF
D18	IS AN OFFSITE PLANTING RELIEF REQUESTED?	NO
D19	TREE BANK OR TREE FUND? § 12-0511=	NO
D20	CANOPY AREA REQUESTED TO BE PROVIDED THROUGH OFFSITE BANKING OR TREE FUND=	0 SF
D21	AMOUNT TO BE DEPOSITED INTO THE TREE PRESERVATION AND PLANTING FUND=	0 SF
E. TOTAL OF 10-YEAR TREE CANOPY PROVIDED		
E1	TOTAL OF CANOPY AREA PROVIDED THROUGH TREE PRESERVATION=	468 SF
E2	TOTAL OF CANOPY AREA PROVIDED THROUGH TREE PLANTING=	10575 SF
E3	TOTAL OF CANOPY AREA PROVIDED THROUGH OFFSITE MECHANISM (D19)=	0 SF
E4	TOTAL OF 10-YEAR TREE CANOPY PROVIDED=	11043 SF

TREE CANOPY PROVIDED > TREE CANOPY REQUIRED
 11,043 SF > 11,026 SF

LEGENDS

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED TREES
- EXISTING CANOPY
- TREE PROTECTION FENCE
- PROPOSED LIMIT OF DISTURBANCE
- SILT FENCE 3.05
- SUPER SILT FENCE
- TREE SAVED AREA
- CRITICAL ROOT ZONE
- TREE CANOPY AREA TO BE REMOVED



GeoEnv Engineers
 Civil, Environmental & Geotechnical Engineering
 10875 Main Street, Suite 213
 Fairfax, VA 22030
 Tel: 703.591.7170
 Fax: 703.591.7074
 Web Site: geoenr.com

LANDSCAPE PLAN

5015 TWINBROOK ROAD, BURKE
 FAIRFAX COUNTY, VA 22015
 BRADDOCK DISTRICT

TAX MAP: 69-3-((01))-31
 DATE: OCT. 23, 2014
 PREP. BY: BISHESH
 CHECKED BY: ABE
 PROJECT #: 2013-2634
 SCALE: 1"=20'
 SHEET: 5 OF 16

RECOMMENDED PROFFERS FOR TREE PRESERVATION

Tree Preservation: "The applicant shall submit a Tree Preservation Plan and Narrative as part of the first and all subsequent site plan submissions. The preservation plan and narrative shall be prepared by a Certified Arborist or a Registered Consulting Arborist, and shall be subject to the review and approval of the Urban Forest Management Division, DPWES.

The tree preservation plan shall include a tree inventory that identifies the location, species, critical root zone, size, crown spread and condition analysis percentage rating for all individual trees to be preserved, as well as all on and off-site trees, living or dead with trunks 12 inches in diameter and greater (measured at 4 1/2 -feet from the base of the trunk or as otherwise allowed in the latest edition of the Guide for Plant Appraisal published by the International Society of Arboriculture) located within 25 feet to either side of the limits of clearing and grading. The tree preservation plan shall provide for the preservation of those areas shown for tree preservation, those areas outside of the limits of clearing and grading shown on the GDP and those additional areas in which trees can be preserved as a result of final engineering. The tree preservation plan and narrative shall include all items specified in PFM 12-0507 and 12-0509. Specific tree preservation activities that will maximize the survivability of any tree identified to be preserved, such as: crown pruning, root pruning, mulching, fertilization, and others as necessary, shall be included in the plan."

Tree Appraisal: "The Applicant shall retain a professional arborist with experience in plant appraisal, to determine the replacement value of all trees 12 inches in diameter or greater located on the Application Property that are shown to be saved on the Tree Preservation Plan. These trees and their value shall be identified on the Tree Preservation Plan at the time of the first submission of the respective site plan(s). The replacement value shall take into consideration the age, size and condition of these trees and shall be determined by the so-called "Trunk Formula Method" contained in the latest edition of the Guide for Plant Appraisal published by the International Society of Arboriculture, subject to review and approval by UFMD.

At the time of the respective site plan approvals, the Applicant shall post a cash bond or a letter of credit payable to the County of Fairfax to ensure preservation and/or replacement of the trees for which a tree value has been determined in accordance with the paragraph above (the "Bonded Trees") that die or are dying due to unauthorized construction activities. The letter of credit or cash deposit shall be equal to 50% of the replacement value of the Bonded Trees. At any time prior to final bond release for the improvements on the Application Property constructed adjacent to the respective tree save areas, should any Bonded Trees die, be removed, or are determined to be dying by UFMD due to unauthorized construction activities, the Applicant shall replace such trees at its expense. The replacement trees shall be of equivalent size, species and/or canopy cover as approved by UFMD. In addition to this replacement obligation, the Applicant shall also make a payment equal to the value of any Bonded Tree that is dead or dying or improperly removed due to unauthorized construction activity. This payment shall be determined based on the Trunk Formula Method and paid to a fund established by the County for furtherance of tree preservation objectives. Upon release of the bond for the improvements on the Application Property constructed adjacent to the respective tree save areas, any amount remaining in the tree bonds required by this proffer shall be returned/released to the Applicant."

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 may be removed as part of the clearing operation. 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."

Limits of Clearing and Grading: "The Applicant shall conform strictly to the limits of clearing and grading as shown on the GDP, subject to allowances specified in these proffered conditions and for the installation of utilities and/or trails as determined necessary by the Director of DPWES, as described herein. If it is determined necessary to install utilities and/or trails in areas protected by the limits of clearing and grading as shown on the GDP, they shall be located in the least disruptive manner necessary as determined by the UFMD, DPWES. A replanting plan shall be developed and implemented, subject to approval by the UFMD, DPWES, for any areas protected by the limits of clearing and grading that must be disturbed for such trails or utilities."

Tree Preservation Fencing: "All trees shown to be preserved on the tree preservation plan shall be protected by tree protection fence. Tree protection fencing in the form of four (4) foot high, fourteen (14) gauge welded wire attached to six (6) foot steel posts driven eighteen (18) inches into the ground and placed no further than ten (10) feet apart or, super

silt fence to the extent that required trenching for super silt fence does not sever or wound compression roots which can lead to structural failure and/or uprooting of trees shall be erected at the limits of clearing and grading as shown on the demolition, and phase I & II erosion and sediment control sheets, as may be modified by the "Root Pruning" proffer below.

All tree protection fencing shall be installed after the tree preservation walk-through meeting but prior to any clearing and grading activities, including the demolition of any existing structures. The installation of all tree protection fencing shall be performed under the supervision of a certified arborist, and accomplished in a manner that does not harm existing vegetation that is to be preserved. Three (3) days prior to the commencement of any clearing, grading or demolition activities, but subsequent to the installation of the tree protection devices, the UFMD, DPWES, shall be notified and given the opportunity to inspect the site to ensure that all tree protection devices have been correctly installed. If it is determined that the fencing has not been installed correctly, no grading or construction activities shall occur until the fencing is installed correctly, as determined by the UFMD, DPWES."

Root Pruning: "The Applicant shall root prune, as needed to comply with the tree preservation requirements of these proffers. All treatments shall be clearly identified, labeled, and detailed on the erosion and sediment control sheets of the subdivision plan submission. The details for these treatments shall be reviewed and approved by the UFMD, DPWES, accomplished in a manner that protects affected and adjacent vegetation to be preserved, and may include, but not be limited to the following:

- Root pruning shall be done with a trencher and vibratory plow to a depth of 18 inches.
- Root pruning shall take place prior to any clearing and grading, or demolition of structures.
- Root pruning shall be conducted with the supervision of a certified arborist.
- An UFMD, DPWES, representative shall be informed when all root pruning and tree protection fence installation is complete."

Site Monitoring: "During any clearing or tree/vegetation/structure removal on the Applicant Property, a representative of the Applicant shall be present to monitor the process and ensure that the activities are conducted as proffered and as approved by the UFMD. The Applicant shall retain the services of a certified arborist or Registered Consulting Arborist to monitor all construction and demolition work and tree preservation efforts in order to ensure conformance with all tree preservation development conditions, and UFMD approvals. The monitoring schedule shall be described and detailed in the Landscaping and Tree Preservation Plan, and reviewed and approved by the UFMD, DPWES."

DEVIATION LETTER

DATE: MAY 13, 2014

To,
Keith W. Cline, Director
Department Of Public works and Environmental Services
Forest Conservation Branch
Urban Forest Management Division
12055 Government Center Parkway
Fairfax, Virginia 22035

Subject: Request for Deviation from the Tree Preservation Target

Re: Project Name: RZ 2014-BR-001
LOT 31, BURKE
5015 TWINBROOK ROAD
BRADDOCK DISTRICT, FAIRFAX COUNTY, VA 22015

Dear Mr. Knapp,

On behalf of our client, I would like to request for deviation from the tree preservation target requirement for above referenced property. The property is located at 5015 Twinbrook Road, Burke, Fairfax County, VA 22015. The site is zoned R-1 and contains 42,209 sf of land area. The site is currently vacant and wooded. Approximately 23,869 sf (56.5%) of the lot area is covered by the existing tree canopy area. The tree preservation target area required for this lot is 7,161 sf. Please refer to sheet #5 of 12. However, the new development that includes construction of new houses with a new driveway entrance and utilities connections will allow to preserve only 374 sf of the existing tree canopy area, which is less than tree preservation target area requirements. A super silt fence (will work as a tree protection fence) will be installed along the limits of clearing and grading to protect the off-site trees. Also root pruning shall be done to protect the off-site trees. Special attention will be given to protect the offsite trees. Owner or contractor shall strictly follow the approved Tree Conservation Plan and Tree preservation narrative. A tree preservation target deviation is requested as per PFM 12-0508.3A (3).

12-0508.3A(3): Construction activities could be reasonably expected to impact existing trees or forested areas used to meet the tree preservation target to the extent these would not likely survive in a healthy and structurally sound manner for a minimum of 10 –years in accordance with post-development standards for trees and forested areas provided in 12-0403 and 12-0404.

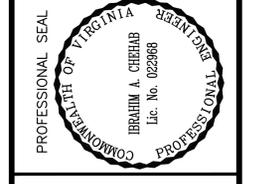
The 10-yr Tree canopy requirements will be met by planting new trees. A total of 30.01% of the tree canopy area will be provided, which is more than minimum required 30% of the total lot area. Please refer to attached tree preservation plan.

If you have any questions, please feel free to call me at 703-591-7170. Thank you very much for your quick response and approval of the request in advance.

Thank you,
Regards,
Ibrahim A. Chehab, P.E.
Principal Engineer
703-591-7170.
GeoEnv Engineers

GeoEnv Engineers
Civil, Environmental & Geotechnical Engineering
10875 Main Street, Suite 213
Fairfax, VA 22030
Tel. 703.591.7170
Fax. 703.591.7074
Web Site: geoenv.com

NO.	DESCRIPTION	REV. BY	APPROVED BY	DATE
	REVISION BLOCK			



RECOMMENDED PROFFERS FOR TREE PRESERVATION AND DEVIATION LETTER

5015 TWINBROOK ROAD, BURKE
BRADDOCK DISTRICT
FAIRFAX COUNTY, VA 22015

TAX MAP: 69-3--((01))-31

DATE:	OCT. 23, 2014
PREP. BY:	BISHESH
CHECKED BY:	ABE
PROJECT #	2013-2634

SCALE: N.T.S
SHEET: 6 OF 16

TREE PRESERVATION NARRATIVE

PRE-CONSTRUCTION

1. PRIOR TO THE PRECONSTRUCTION MEETING, ALL ACTIVITIES PRESCRIBED ON AN APPROVED TREE CONSERVATION PLAN THAT ARE TO OCCUR PRIOR TO CONSTRUCTION SHALL BE COMPLETED.
2. WHEN AREAS SHOWN ON THE APPROVED PLANS TO BE PRESERVED DO NOT CONTAIN ANY SIGNIFICANT VEGETATION, IT SHALL BE THE RESPONSIBILITY OF THE PERMITTEE TO OBTAIN APPROVAL FROM THE DIRECTOR FOR AN EXEMPTION FROM PRESERVATION AND PROTECTION REQUIREMENTS PRIOR TO CLEARING THE AREA.
3. TREES LOCATED OUTSIDE OF THE LIMITS OF CLEARING AND WITHIN AREAS DESIGNATED TO BE PRESERVED THAT HAVE BEEN PRE-IDENTIFIED ON APPROVED TREE PRESERVATION PLANS AS "DEAD", "POOR CONDITION" OR "POTENTIAL HAZARD" AS PROVIDED IN § 12-0506 SHALL BE EVALUATED BY URBAN FOREST MANAGEMENT DIVISION STAFF (OR ALTERNATIVE STAFF AS DETERMINED BY THE DIRECTOR) DURING THE PRECONSTRUCTION WALK-THROUGH FOR REMOVAL DURING THE DEVELOPMENT SITE'S INITIAL LAND CLEARING OPERATIONS. IF, DURING THE PRECONSTRUCTION WALK-THROUGH, OR DURING ANY OTHER INSPECTION OF THE SITE, THE DIRECTOR IDENTIFIES ADDITIONAL TREES THAT HAVE BECOME HAZARDOUS OR A MAINTENANCE NUISANCE DUE TO THE INTRODUCTION OF A TARGET SUCH AS A STRUCTURE, OPEN SPACE FREQUENTED BY PEOPLE, OR OTHER IMPROVEMENT, REMOVAL OF THESE TREES SHALL BE REQUIRED.
4. TREES SHALL BE REMOVED BY HAND WITH A CHAIN SAW AND THE STUMP SHALL BE LEFT IN PLACE UNLESS IT IS DEEMED A HAZARD OR A MAINTENANCE NUISANCE. THE REMOVAL OF THE TRUNK OR BRANCHES OF THE FELLED TREE(S) IS NOT REQUIRED WITHIN WOODED AREAS, UNLESS SPECIFICALLY REQUIRED BY THE DIRECTOR.
5. IF DEMOLITION OF EXISTING SITE FEATURES (HOUSES, STRUCTURES, ETC.) IS TO OCCUR NEXT TO TREES TO BE PRESERVED, TREE PROTECTION SHALL BE INSTALLED BEFORE A DEMOLITION PERMIT CAN BE ISSUED.

LAND CLEARING OPERATIONS

1. PRIOR TO LAND DISTURBING ACTIVITIES, ROOT PRUNING WITH A VIBRATORY PLOW, TRENCHER OR OTHER DEVICE APPROVED BY THE DIRECTOR SHALL BE CONDUCTED ALONG THE LIMITS OF CLEARING ADJACENT TO TREE PRESERVATION AREAS.
2. TREES BEING REMOVED SHALL NOT BE FELLED, PUSHED OR PULLED INTO TREE PRESERVATION AREAS. EQUIPMENT OPERATORS SHALL NOT CLEAN ANY PART OF THEIR EQUIPMENT BY SLAMMING IT AGAINST THE TRUNKS OF TREES TO BE RETAINED.
3. TREES ON THE EDGE OF THE LIMITS OF CLEARING SHALL BE CUT DOWN BY HAND WITH A CHAINSAW. REMAINING STUMPS SHALL EITHER BE LEFT IN PLACE OR GROUND DOWN WITH A STUMP GRINDER.
4. TREES APPROVED TO BE REMOVED BY URBAN FOREST MANAGEMENT DIVISION STAFF DURING PRE-CONSTRUCTION WALK-THROUGH AS PROVIDED BY § 12-0701.3 AND § 12-0701.4 SHALL BE REMOVED IN CONJUNCTION WITH THE DEVELOPMENT SITE'S INITIAL LAND CLEARING OPERATION.
5. THE PERMITTEE MAY PRESERVE INDIVIDUAL TREES OR GROUPS OF TREES OVER AND ABOVE THAT REQUIRED BY THE APPROVED PLAN. HOWEVER, ANY ADDITIONAL TREE PRESERVATION AREA(S) SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITY IN ACCORDANCE WITH THE METHODS ALLOWED IN § 12-0703.
6. THE REMOVAL OF ANY INDIVIDUAL TREES OR TREE PRESERVATION AREAS DESIGNATED FOR PRESERVATION ON THE TREE PRESERVATION PLAN AND NARRATIVE MUST BE PRE-APPROVED BY THE DIRECTOR BY MEANS OF A REVISION TO THE APPROVED TREE CONSERVATION PLAN.

TREE AND FORESTED AREA PROTECTION

TREE PROTECTION DEVICE

1. THE PERMITTEE SHALL PROTECT THE ABOVE AND BELOW-GROUND PORTIONS OF ALL VEGETATION SHOWN ON THE APPROVED PLAN TO BE PRESERVED WITHIN AND CONTIGUOUS TO THE SITE.
2. PROTECTIVE DEVICES SHALL BE INSTALLED PRIOR TO ANY CLEARING AND GRADING WITH HEAVY EQUIPMENT.
3. THE DEVICE(S) USED SHALL BE INSTALLED IN CONFORMANCE WITH THE APPROVED TREE PRESERVATION PLAN AND NARRATIVE AND ALL CONSTRUCTION PERSONNEL SHALL BE INSTRUCTED TO HONOR THESE DEVICES.
4. THE PROTECTION DEVICES DESCRIBED SHALL BE INSTALLED AND MAINTAINED ON SITES.
5. ORANGE PLASTIC FENCE, WELDED WIRE FENCE, CHAIN LINK FENCE, SILT FENCE OR SUPER SILT FENCE MAY BE USED AS DEVICES TO PROTECT TREES AND FORESTED AREAS. THE PROTECTIVE DEVICE SHALL BE PLACED WITHIN THE DISTURBED AREA AT THE LIMITS OF CLEARING AND ERRECTED AT A MINIMUM HEIGHT OF 4 FEET (1.2 METERS), EXCEPT FOR SUPER SILT FENCE WHERE HEIGHT MAY BE 3.5 FEET (1.1 METERS). THE FENCING MATERIAL SHALL BE MOUNTED ON 6-FOOT (1.8-METER) TALL STEEL POSTS DRIVEN 1.5 FEET (0.5 METERS) INTO THE GROUND AND PLACED A MAXIMUM OF 6 FEET (1.8 METERS) APART, EXCEPT FOR WELDED WIRE FENCE AND CHAIN LINK FENCE WHERE STEEL POSTS MAY BE PLACED A MAXIMUM OF 10 FEET (3.0 METERS) APART (SEE PLATE 6-12(6M-12)).
6. FILTER FABRIC FENCE OR SILT FENCE. THIS FENCING MAY BE USED FOR TREE PROTECTION WHEN PLACED AT THE LIMITS OF GRADING AND CONSTRUCTED AS SPECIFIED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. THE DIRECTOR MAY ALSO REQUIRE THE PLACEMENT OF ONE OF THE TREE PROTECTIVE DEVICES LISTED IN § 12-0703.1B IF THE FILTER FABRIC FENCE IS NOT DEEMED ADEQUATE TO PROTECT THE TREES SHOWN ON THE APPROVED PLAN TO BE PRESERVED.
7. THE PERMITTEE SHALL POST AND MAINTAIN BILINGUAL SIGNS AT THE LIMITS OF CLEARING AT A MINIMUM OF 50-FOOT (15.2-METER) INTERVALS THAT CLEARLY STATES THAT TREES AND FORESTED AREAS MUST BE PROTECTED AND LEFT UNDISTURBED. SIGNS SHALL REMAIN POSTED THROUGHOUT ALL PHASES OF CONSTRUCTION; SHALL BE ATTACHED TO THE TREE PROTECTION FENCING; AND, SHALL BE NAILED OR IN ANY MANNER ATTACHED TO THE TREES OR VEGETATION TO BE PRESERVED.

TREATMENT OF TREES AND FORESTED AREAS DURING CONSTRUCTION

1. TREES AND FORESTED AREAS SHALL BE PROTECTED AND MANAGED DURING ALL PHASES OF CONSTRUCTION IN ACCORDANCE WITH THE PROVISIONS OF THIS SECTION AND ANY SITE-SPECIFIC GUIDANCE PROVIDED WITHIN THE APPROVED TREE PRESERVATION PLAN AND NARRATIVE.
2. TREES AND FORESTED AREAS SHALL BE PROTECTED AND MANAGED DURING ALL PHASES OF CONSTRUCTION TO RETAIN THEIR PRE-DEVELOP LEVEL OF BIOLOGICAL FUNCTION, HEALTH AND STRUCTURAL CONDITION.
3. THE PERMITTEE SHALL ACTIVELY MONITOR THE CONSTRUCTION SITE TO ENSURE THAT INAPPROPRIATE ACTIVITIES SUCH AS THE STORAGE OF CONSTRUCTION MATERIALS, DUMPING OF CONSTRUCTION DEBRIS, AND TRAFFIC BY CONSTRUCTION EQUIPMENT AND PERSONNEL DO NOT OCCUR WITHIN AREAS SHOWN PRESERVED OUTSIDE OF THE LIMITS OF CLEARING.
4. TREE PROTECTION DEVICES SHALL BE MAINTAINED UNTIL ALL WORK IN THE VICINITY HAS BEEN COMPLETED AND SHALL NOT BE REMOVED OR RELOCATED WITHOUT THE CONSENT OF THE DIRECTOR.
5. IF THE DIRECTOR DEEMS THAT THE PROTECTIVE DEVICES ARE INSUFFICIENT, INSTALLATION OF ADDITIONAL PROTECTIVE DEVICES MAY BE REQUIRED.
6. HEAVY EQUIPMENT, VEHICULAR TRAFFIC, STOCKPILING OF MATERIALS OR DEPOSITION OF SEDIMENT SHALL NOT BE PERMITTED WITHIN TREE PRESERVATION AREAS.
7. NO TOXIC MATERIALS SHALL BE STORED WITHIN 100 FEET (30.5 METERS) OF VEGETATION TO BE RETAINED.
8. NO PROTECTIVE DEVICES, SIGNS, UTILITY BOXES OR OTHER OBJECTS SHALL BE NAILED OR AFFIXED TO TREES TO BE PRESERVED.
9. IN THE EVENT THAT THE DIRECTOR DETERMINES THAT A TREE OR PORTION THEREOF IS DEAD, DECLINING, HAZARDOUS, OR A PROPERTY MAINTENANCE BURDEN DUE TO CONSTRUCTION OR ENVIRONMENTAL CHANGES RESULTING FROM CONSTRUCTION; OR, IS HAZARDOUS TO LIFE OR PROPERTY BECAUSE OF CONDITIONS NOT RELATED TO CONSTRUCTION, THE DIRECTOR SHALL REQUIRE THE PERMITTEE TO REMOVE THE TREE OR PORTION THEREOF.
10. THE MAIN TRUNKS OF DEAD TREES MAY BE ALLOWED TO REMAIN ON SITES WHERE THE DIRECTOR DETERMINES THAT A "TRUNK SNAG" MAY PROVIDE HABITAT OR OTHER WILDLIFE BENEFITS AND HAVE LITTLE OR NO POTENTIAL TO CAUSE PERSONAL INJURY OR PROPERTY DAMAGE, OR TO OBSTRUCT STREAMS OR OTHER DRAINAGE.

TREATMENT OF TREES AND FORESTED AREAS DURING CONSTRUCTION CNTD...

11. WHEN EXCAVATING, TRENCHING, OR TUNNELING, ALL TREE ROOTS GREATER THAN 1 INCH (2.5 CENTIMETERS) IN DIAMETER THAT ARE EXPOSED AND/OR DAMAGED SHALL BE TRIMMED CLEANLY, AND COVERED WITH ORGANIC MULCH, TOPSOIL, OR OTHER SUITABLE MATERIAL TO PREVENT THE EXPOSED ROOTS FROM DRYING OUT. ANY DAMAGE INFLECTED TO THE ABOVE OR BELOW-GROUND PORTIONS OF THE TREES SHOWN TO BE PRESERVED SHALL BE REPAIRED IMMEDIATELY. ALL DAMAGED BRANCHES IN THE CROWN SHALL BE REPAIRED.
12. ANY PORTION OF A TREE PRESERVATION AREA THAT IS DISTURBED WITHOUT PRIOR APPROVAL OF THE DIRECTOR SHALL BE MULCHED IMMEDIATELY WITH A MINIMUM OF 4-INCHES (10.2 CENTIMETERS) OF WOOD CHIPS OR OTHER SUITABLE MATERIAL AS APPROVED BY THE DIRECTOR. TRENCHING SHALL BE DONE ONLY WITHIN THE AREAS SHOWN TO BE DISTURBED ON THE APPROVED PLAN.
13. TREES OR PRESERVATION AREAS THAT ARE DAMAGED BY TRENCHING OR TUNNELING SHALL BE MULCHED WITH WOOD CHIPS OR OTHER SUITABLE MATERIAL IMMEDIATELY AFTER THE WORK IS COMPLETED. MULCH SHALL BE PLACED 4-INCHES (10.2 CENTIMETERS) DEEP AND COVER THE ENTIRE AREA OF DISTURBANCE TO MITIGATE THE IMPACTS OF DISTURBANCE.
14. TREES PLANTED SHALL BE OF THE SPECIES AND SIZE SPECIFIED ON THE APPROVED PLANS. ALL TREE AND SHRUB SIZES SHALL MEET THE STANDARDS SPECIFIED IN THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF NURSERYMEN'S AMERICAN STANDARD FOR NURSERY STOCK, (ANSI Z60.1).
15. TREE SUBSTITUTIONS WITHIN THE TREE CATEGORIES LISTED IN TABLE 12.19 ARE GENERALLY ACCEPTED UNLESS OTHERWISE SPECIFIED BY OFFERED CONDITIONS, DEVELOPMENT CONDITIONS, SPECIAL EXCEPTIONS, SPECIAL PERMITS, OR VARIANCES AND SHALL BE IN CONFORMANCE WITH THE FOLLOWING:
 - THE USE OF SUBSTITUTIONS SHALL NOT RESULT IN EXCEEDING THE GENUS AND SPECIES DIVERSITY LIMITS SPECIFIED IN § 12-0514.1L.
 - A LETTER SIGNED BY THE PERMITTEE SHALL BE PROVIDED TO THE DIRECTOR ACKNOWLEDGING ANY PROPOSED SUBSTITUTIONS TO TREES OR SHRUBS SHOWN ON THE APPROVED TREE CONSERVATION PLAN.
16. TREES AND SHRUBS SHALL BE NURSERY GROWN UNLESS OTHERWISE APPROVED AND SHALL BE HEALTHY AND VIGOROUS.
17. PLANTS SHALL BE FREE FROM DEFECTS, DECAY, DISFIGURING ROOTS, SUN-SCALD, INJURIES, ABRASIONS, DISEASES, INSECT PESTS, AND ALL FORMS OF INFESTATIONS
18. PLANTS SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF AMERICAN STANDARD FOR NURSERY STOCK, (ANSI Z60.1).
19. BALLED AND BURLAPPED TREES AND SHRUBS SHALL BE DUG USING STANDARD SIZES WITH FIRM, NATURAL BALLS OF EARTH AND SECURELY WRAPPED IN ACCORDANCE WITH THE LATEST EDITION OF AMERICAN STANDARD FOR NURSERY STOCK.

DELIVERY AND TEMPORARY STORAGE

1. PLANTS SHALL BE PROTECTED DURING DELIVERY TO PREVENT DESICCATION OF LEAVES. TREES AND SHRUBS SHOULD BE PLANTED ON DAY OF DELIVERY. IF THIS IS NOT POSSIBLE, THE CONTRACTOR SHALL PROTECT UNPLANTED PLANTS BY KEEPING THEM IN SHADE, WATERED AND PROTECTED WITH SOIL, MULCH OR OTHER ACCEPTABLE MATERIAL.
2. TREES AND SHRUBS SHALL NOT REMAIN UNPLANTED FOR MORE THAN TWO WEEKS. ALL TREES AND SHRUBS SHALL BE PLANTED AS SPECIFIED IN THE LATEST EDITION OF THE "TREE AND SHRUB PLANTING GUIDELINES" PREPARED BY THE VIRGINIA COOPERATIVE EXTENSION, VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY.
3. IF PLANTING IN AREAS THAT HAVE BEEN PREVIOUSLY COMPACTED, THE SOIL SHALL BE PROPERLY PREPARED (TILLED AND AMENDED AS NEEDED BASED ON SOIL SAMPLES) TO A DEPTH OF 1 FOOT (0.3 METERS), PRIOR TO INSTALLATION OF LANDSCAPE MATERIAL.
4. SOIL WITHIN INDIVIDUAL PLANTING HOLES SHALL NOT BE AMENDED. THE STAKING AND GUYING OF TREES IS NOT REQUIRED EXCEPT WHERE THE DIRECTOR DETERMINES THAT SITE CONDITIONS WARRANT THEIR USE.
5. MULCHING. ALL TREES AND SHRUBS SHALL BE MULCHED AFTER PLANTING, TO A MINIMUM DEPTH OF 2 INCHES (5.1 CENTIMETERS), BUT NO MORE THAN 3 INCHES (7.6 CENTIMETERS), WITH AN APPROPRIATE MULCH MATERIAL SUCH AS PINE BARK, PINE NEEDLES, WOOD CHIPS OR SHREDDED BARK.

PLANTING OF TRANSPLANTED TREES AND SHRUBS

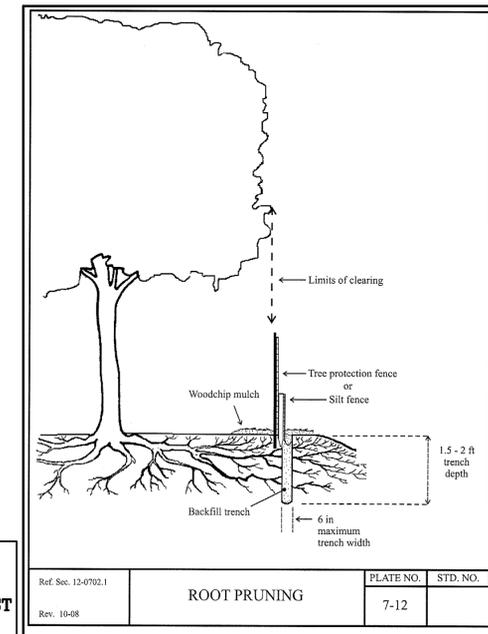
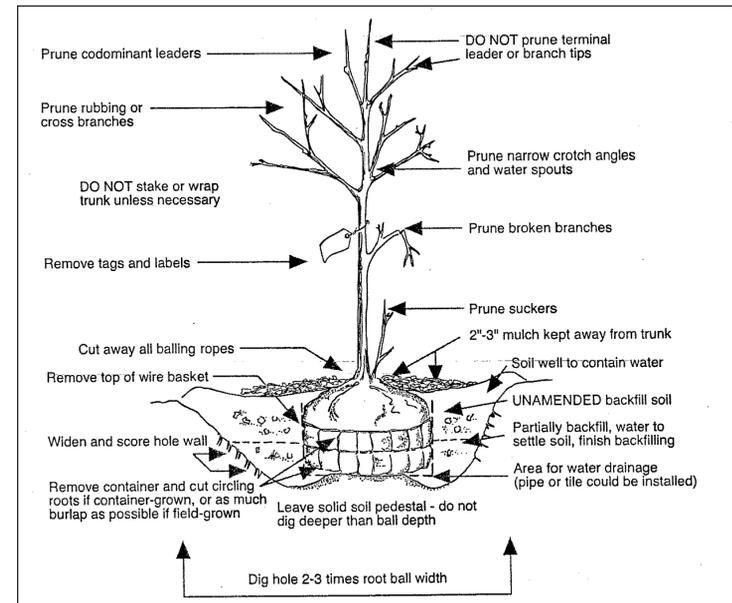
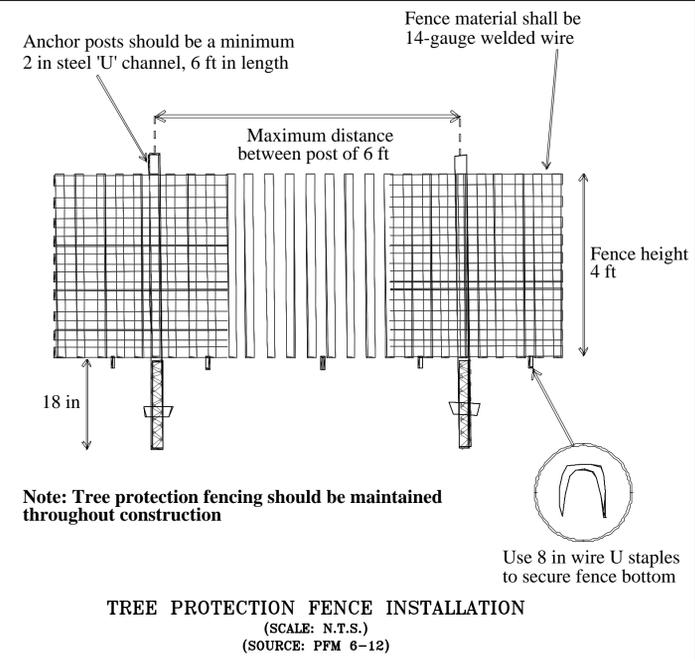
1. TREES TO BE TRANSPLANTED SHALL BE FULL AND HEALTHY WITHOUT ANY SIGNIFICANT DEFECTS AND SHOULD BE ABLE TO OVERCOME ROOT DISTURBANCE.
2. TIMING RELOCATING DECIDUOUS TREES IS BEST CARRIED OUT IN LATE FALL OR EARLY SPRING.
3. RELOCATING EVERGREEN TREES IS BEST CARRIED OUT IN THE EARLY SPRING.
4. TREATMENT BEFORE, DURING AND AFTER TRANSPLANTATION:
 - TREES TO BE TRANSPLANTED SHALL BE PRUNED TO CLEAN DEAD, BROKEN, AND DISEASED LIMBS
 - WATERED HEAVILY BEFORE LIFTING
 - IMMEDIATELY AFTER PLANTING, THE TREE SHALL BE WELL WATERED AND TOP DRESSED WITH 2-3 INCHES OF MULCH
 - A MONITORING AND MAINTENANCE SCHEDULE SHALL BE SPECIFIED IN THE TREE TRANSPLANTING PLAN.

PLANTING OF SEEDLINGS, SHRUBS AND WOODY SEED MIX.

1. DENSITY. SEEDLINGS AND SHRUBS SHALL BE PLANTED AT A DENSITY OF APPROXIMATELY 400 SEEDLINGS PER ACRE (10 SEEDLINGS PER 100 SQUARE METERS) UNLESS OTHERWISE SPECIFIED.
2. SIZE AND AGE. SEEDLINGS SHALL BE AT LEAST THREE YEARS OLD AND 12 INCHES IN HEIGHT. ANY AGE CONFIGURATION IN TERMS OF INITIAL SEEDBED AGE - TO - TRANSPLANT BED AGE SUCH AS 3-0, 2-1, 1-2, ETC. IS PERMISSIBLE SO LONG AS THE TOTAL AGE IS 3 YEARS.
3. QUALITY. PLANTING STOCK SHALL BE HEALTHY AND FREE FROM INSECT AND DISEASE PESTS AND HAVE A SINGLE LEADER. THE ROOT SYSTEM IS TO BE WELL DEVELOPED, FIBROUS, AND KEPT MOIST UNTIL PLANTED.
4. TIME OF PLANTING. SEEDLINGS SHALL BE PLANTED BETWEEN THE DATES OF MARCH 1 AND MAY 15, AND NOVEMBER 15 AND DECEMBER 15 UNLESS OTHERWISE APPROVED BY THE DIRECTOR.
5. PLANTING MULCH BEDS MUST BE KEPT FREE OF ANY GRASS, WEEDS, VINES AND ANY OTHER PLANT OR CONDITION THAT MIGHT HINDER THE ESTABLISHMENT OF THE TREE CANOPY.
6. PRE-PLANTING TREATMENT. SEEDLINGS SHALL BE KEPT MOIST, FRESH, AND PROTECTED FROM WIND AND SUN TO PREVENT STRESS BEFORE PLANTING.
7. PLANTING METHOD. SEEDLINGS SHALL BE PLANTED AT APPROXIMATELY THE SAME DEPTH AS GROWING IN THE NURSERY, I.E., THE ROOT COLLAR SHOULD BE AT GROUND LEVEL. SEEDLINGS SHALL BE PLANTED ERECT. SEEDLING ROOTS SHALL BE SPREAD CAREFULLY IN A NATURAL POSITION IN THE PLANTING HOLE. SEEDLINGS SHALL BE SECURELY PLANTED WITH THE SOIL FIRMLY PACKED AROUND THE ROOTS.
8. WATERING. SEEDLINGS SHALL BE WATERED THE DAY THEY ARE PLANTED AND THEREAFTER AS NECESSARY TO INSURE THAT THE MINIMUM VIABILITY PERCENTAGES ARE MET.
9. SHRUBS PLANTED TO SUPPLEMENT TREE SEEDLINGS FOR TREE CANOPY CREDITS AS PROVIDED IN 12-0509.4D SHALL PLANTED AT THE SAME DENSITY AS SEEDLINGS (400 PLANTS PER ACRE AND SHALL BE PLANTED IN 5-18 INCH (12.7-45.7 CENTIMETERS) SPREAD OR LARGER SIZE OR IN SIZES THE SPECIES NORMALLY OBTAINS WHEN DISTRIBUTED AS 3 GALLON (11.4 LITER) CONTAINER STOCK. SHRUBS SHALL BE PLANTED IN ACCORDANCE WITH THE LATEST EDITION OF THE "TREE AND SHRUB PLANTING GUIDELINES" PREPARED BY VIRGINIA COOPERATIVE EXTENSION, VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY.

END OF CONSTRUCTION

1. INSPECTION. THE DEVELOPER SHALL REQUEST AN INSPECTION WHEN CONSTRUCTION IS COMPLETED TO ENSURE THAT ALL WORK IS IN ACCORDANCE WITH THE APPROVED PLANS.
2. REPAIR. ALL TREES THAT HAVE BEEN DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITY SHALL BE REPAIRED AS SPECIFIED IN § 12-0706.4.
3. TREE REMOVAL. IN THE EVENT THAT THE DIRECTOR DETERMINES THAT A TREE OR PORTION THEREOF IS DEAD, DECLINING, HAZARDOUS, OR A PROPERTY MAINTENANCE BURDEN DUE TO CONSTRUCTION OR ENVIRONMENTAL CHANGES RESULTING FROM CONSTRUCTION; OR, IS A HAZARDOUS TO LIFE OR PROPERTY BECAUSE OF CONDITIONS NOT RELATED TO CONSTRUCTION, THE DIRECTOR SHALL REQUIRE THE PERMITTEE TO REMOVE THE TREE OR PORTION THEREOF. THE PERMITTEE SHALL TAKE SUCH ACTION AS NECESSARY TO ELIMINATE THE TREE OR PORTION THEREOF CAREFULLY. THE PERMITTEE SHALL NOTIFY THE DIRECTOR OF ANY ACTIONS TAKEN OR PROPOSED TO BE TAKEN UNDER THIS SECTION.



**THIS PLAN IS PREPARED OR APPROVED BY:
ON RUBIN, ISA CERTIFIED ARBORIST
#MA-0057A**

GeoEnv Engineers
Civil, Environmental & Geotechnical Engineering
10875 Main Street, Suite 213
Fairfax, VA 22030
Tel. 703.591.7170
Fax. 703.591.7074
Web Site: www.geoenr.com

NO.	DESCRIPTION	REV. BY	APPROVED BY	DATE

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
IRAHIM A. CHEHAB
Lic. No. 022968
PROFESSIONAL ARBORIST

TREE CONSERVATION, PLANTING NOTES & DETAILS

5015 TWINBROOK ROAD, BURKE
FAIRFAX COUNTY, VA 22015
BRADDOCK DISTRICT

TAX MAP: 69-3-((01))-31
DATE: OCT. 23, 2014
PREP. BY: BISHESH
CHECKED BY: ABE
PROJECT #: 2013-2634
SCALE: N.T.S.
SHEET: 7 OF 16

SUB-DRAINAGE AREA LEGENDS

DESCRIPTIONS	SYMBOL
Building area (Controlled)	A1
Grass area (Controlled)	A5
Driveway area (Controlled)	A2
Front Porch (Controlled)	A3
Walkway (Un-Controlled for lot 31A)	A4
Walkway (Controlled for lot 31B)	A4
Grass area (Un-Controlled)	A6

SPILLWAY DESIGN (100 YEAR OVERLAND RELIEF) LOT 31A

ON-SITE AREA TO BMP= 0.237 AC
 OFFSITE AREA= 0.104 AC
 TOTAL = 0.341 AC

I,100= 9.8 IN/HR
 $Q_{100} = (1.25 \times 0.39 \times 9.8 \times 0.340719008264463) = 1.63 \text{ CFS}$
 $Q_{100} = 1.25 \times C_x \times L_x \times H_{\text{provided}}^{3/2}$
 Hprovided= 0.17 FT
 C= 3.3 (PFM 6-1302.11)
 $L_{\text{min}} = Q_{100} / (C_x \times H_{\text{provided}}^{3/2})$
 $L_{\text{min}} = 12.38 / [3.3 \times (0.17)^{3/2}]$
 = 5.6 FT
 Lprovided= 7 FT >5.6FT, THUS OK.

VELOCITY, V,100= DISCHARGE/FLOW AREA
 = 1.09 FPS <SCOURING VELOCITY FOR NORMAL SOIL.

SPILLWAY DESIGN (100 YEAR OVERLAND RELIEF) LOT 31B

ON-SITE AREA TO BMP= 0.251 AC
 OFFSITE AREA= 0.000 AC
 TOTAL = 0.251 AC

I,100= 9.8 IN/HR
 $Q_{100} = (1.25 \times 0.39 \times 9.8 \times 0.251) = 1.2 \text{ CFS}$
 $Q_{100} = 1.25 \times C_x \times L_x \times H_{\text{provided}}^{3/2}$
 Hprovided= 0.17 FT
 C= 3.3 (PFM 6-1302.11)
 $L_{\text{min}} = Q_{100} / (C_x \times H_{\text{provided}}^{3/2})$
 $L_{\text{min}} = 12.35 / [3.3 \times (0.17)^{3/2}]$
 = 4.2 FT
 Lprovided= 5 FT >4.2FT, THUS OK.

VELOCITY, V,100= DISCHARGE/FLOW AREA
 = 1.13 FPS <SCOURING VELOCITY FOR NORMAL SOIL.

WATER QUALITY NARRATIVE

INFILTRATION TRENCH HAS BEEN PROPOSED IN NEW LOTS 31A AND 31B. 10-YEAR 2-HOURS RAINFALL (3" OF RUNOFF) HAS BEEN ACCOUNTED FOR DESIGNING THE TRENCH, REFER TO RUNOFF REDUCTION AND PHOSPHOROUS REMOVAL CALCULATION ON SHEETS # 10 AND 11.

LEGEND (SUB-AREA LEGEND)

	DRAINAGE AREA CONTROLLED
	ON-SITE AREA UNCONTROLLED
	OFF-SITE AREA CONTROLLED BY TRENCH #1
	DRAINAGE AREA

MAINTENANCE NOTE:

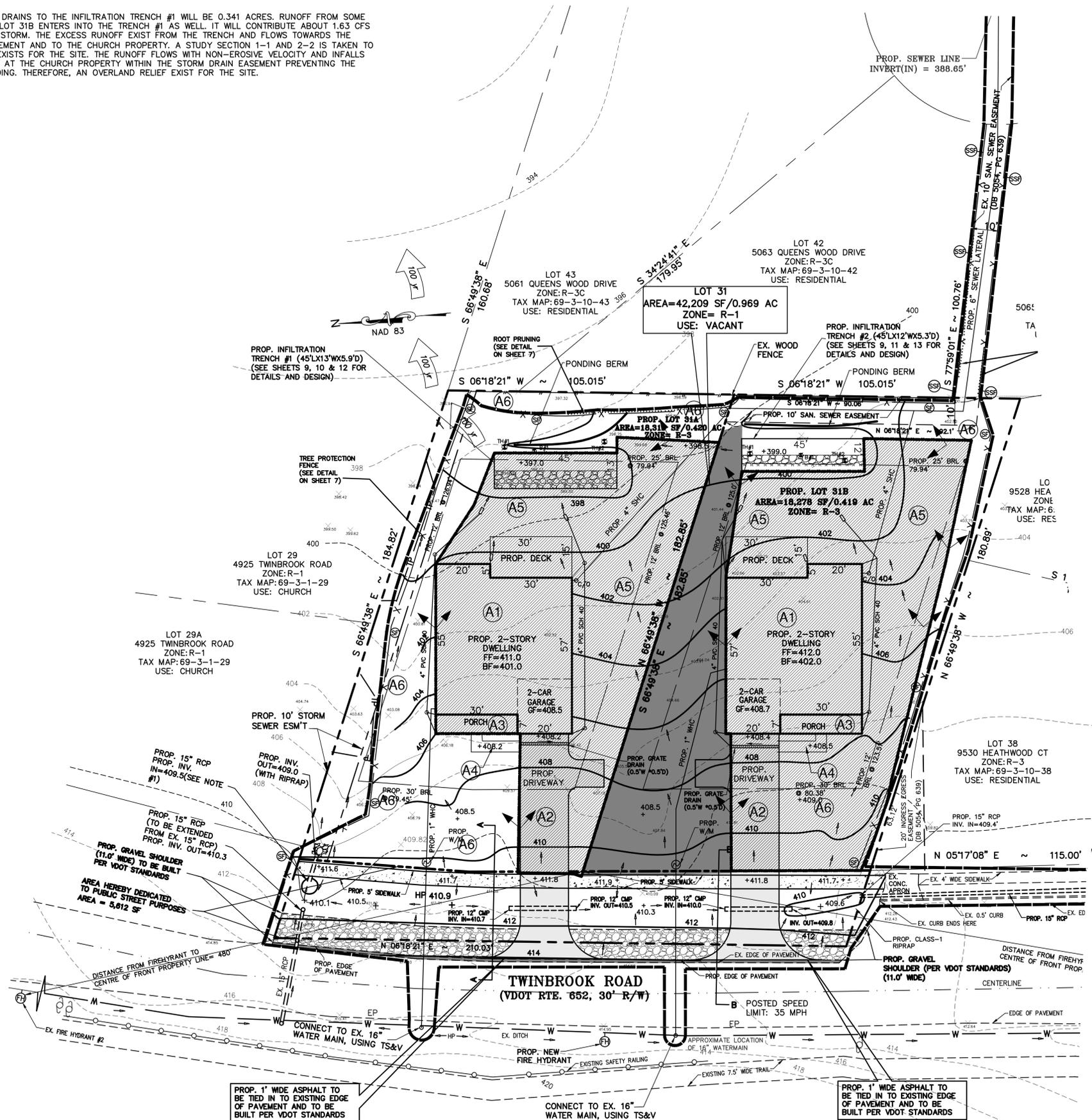
THE BMP FACILITY AND THEIR APPURTENANT STRUCTURES MUST BE PRIVATELY MAINTAINED AND A PRIVATE MAINTENANCE AGREEMENT WILL BE EXECUTED PRIOR TO THE ISSUANCE OF THE PERMIT.

NOTE

- THE DOWNSPOUTS AS SHOWN ON THE PLANS TO BE DIRECTED TO THE ON-SITE INFILTRATION TRENCH THROUGH 4" PVC SCH 40.
- THE INFILTRATION TRENCH WILL BE CONSTRUCTED AFTER ALL THE SITE WORK HAS BEEN COMPLETED AND FINAL STABILIZATION MEASURES HAVE BEEN IMPLEMENTED.

OVERLAND RELIEF STATEMENT

THE TOTAL DRAINAGE AREA THAT DRAINS TO THE INFILTRATION TRENCH #1 WILL BE 0.341 ACRES. RUNOFF FROM SOME OFF-SITE AREA FROM PROPOSED LOT 31B ENTERS INTO THE TRENCH #1 AS WELL. IT WILL CONTRIBUTE ABOUT 1.63 CFS OF RUNOFF FROM THE 100-YEAR STORM. THE EXCESS RUNOFF EXIST FROM THE TRENCH AND FLOWS TOWARDS THE PROPOSED 10' STORM SEWER EASEMENT AND TO THE CHURCH PROPERTY. A STUDY SECTION 1-1 AND 2-2 IS TAKEN TO CHECK IF THE OVERLAND RELIEF EXISTS FOR THE SITE. THE RUNOFF FLOWS WITH NON-EROSIVE VELOCITY AND INFALLS TO THE SHALLOW SWALE LOCATED AT THE CHURCH PROPERTY WITHIN THE STORM DRAIN EASEMENT PREVENTING THE NEARBY STRUCTURES FROM FLOODING. THEREFORE, AN OVERLAND RELIEF EXIST FOR THE SITE.



NO.	DESCRIPTION	REV. BY	APPROVED BY	DATE



BMP COMPUTATION AND SUB-DRAINAGE MAP

5015 TWINBROOK ROAD, BURKE
 FAIRFAX COUNTY, VA 22015
 BRADDOCK DISTRICT

TAX MAP: 69-3-((01))-31
DATE: OCT. 23, 2014
PREP. BY: BISHESH
CHECKED BY: ABE
PROJECT #: 2013-2634
SCALE: 1"=20'
SHEET: 8 OF 16

1. Post-Development Project & Land Cover Information

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

Land Cover (acres)	A soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) – undisturbed, protected forest/open space or reforested land	0.0000	0.0000	0.0000	0.0000	0.0000
Managed Turf (acres) – disturbed, graded for yards or other turf to be mowed/managed	0.3305	0.0000	0.0000	0.0000	0.3305
Impervious Cover (acres)	0.0901	0.0000	0.0000	0.0000	0.0901
				Total	0.4205

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)	0.0000
Weighted Rv(forest)	0.0000
% Forest	0%
Managed Turf Cover (acres)	0.3305
Weighted Rv(turf)	0.1500
% Managed Turf	79%
Impervious Cover (acres)	0.0901
Rv(imperious)	0.95
% Impervious	21%
Total Site Area (acres)	0.4205
Site Rv	0.32
Post-Development Treatment Volume (acre-ft)	0.01
Post-Development Treatment Volume (cubic feet)	491
Post_Development Load (TP) (lb/yr)	0.31
Total Load (TP) Reduction Required (lb/yr)	0.14
	Post_Development Load (TN) (lb/yr) 2.21

Drainage Area A						
Drainage Area A Land Cover (acres)	A soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)	0.0000	0.0000	0.0000	0.0000	0.0000	0.00
Managed Turf (acres)	0.3305	0.0000	0.0000	0.0000	0.3305	0.15
Impervious Cover (acres)	0.0901	0.0000	0.0000	0.0000	0.0901	0.95
				Total	0.4205	
						Post Development Treatment Volume (cf) 491

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

Practice	Unit	Description of Credit	Credit	Credit Area (acres)	Volume from Upstream RR Practice (cf)	Runoff Reduction (cf)	Remaining Runoff Volume (cf)	Phosphorus Efficiency (%)	Phosphorus Load from Upstream RR Practices (lbs)	Untreated Phosphorus Load to Practice (lbs.)	Phosphorus Removed By Practice (lbs.)	Remaining Phosphorus Load (lbs.)	Downstream Treatment to be Employed
7. Infiltration													
7.a. Infiltration #1 (Spec #8)	imperious acres draining to infiltration	50% runoff volume reduction	0.50	0.0882	0	152	152	25	0.00	0.19	0.12	0.07	
	turf acres draining to infiltration	50% runoff volume reduction	0.50	0.1493	0	41	41	25	0.00	0.05	0.03	0.02	
7.b. Infiltration #2 (Spec #8)	imperious acres draining to infiltration	90% runoff volume reduction	0.90	0.0000	0	0	0	25	0.00	0.00	0.00	0.00	
	turf acres draining to infiltration	90% runoff volume reduction	0.90	0.0000	0	0	0	25	0.00	0.00	0.00	0.00	

TOTAL IMPERVIOUS COVER TREATED (ac)	0.0882
TOTAL TURF AREA TREATED (ac)	0.1493
AREA CHECK OK.	
TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr)	0.14
TOTAL RUNOFF REDUCTION IN D.A. A (cf)	193
PHOSPHORUS REMOVAL FROM RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	0.15

Nitrogen Efficiency (%)	Nitrogen Load from Upstream RR Practices (lbs)	Untreated Nitrogen Load to Practice (lbs.)	Nitrogen Removed By Practice (lbs.)	Remaining Nitrogen Load (lbs.)
7. Infiltration				
15	0.00	1.37	0.78	0.58
15	0.00	0.36	0.21	0.16
15	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00

TOTAL IMPERVIOUS COVER TREATED (ac)	0.0882
TOTAL TURF AREA TREATED (ac)	0.1493
AREA CHECK OK.	
PHOSPHORUS REMOVAL BY PRACTICES THAT DO NOT REDUCE RUNOFF VOLUME IN D.A. A	0.00
TOTAL PHOSPHORUS REMOVAL IN D.A. A (lb/yr)	0.15
NITROGEN REMOVAL BY PRACTICES THAT DO NOT REDUCE RUNOFF VOLUME IN D.A. A	0.00
TOTAL NITROGEN REMOVAL IN D.A. A (lb/yr)	1.73

TOTAL RUNOFF REDUCTION IN D.A. A (cf)	193
NITROGEN REMOVAL FROM RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	1.73

ON-SITE AREA

Site Results	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
IMPERVIOUS COVER	0.0901	0.0000	0.0000	0.0000	0.0000	OK.
IMPERVIOUS COVER TREATED	0.0882	0.0000	0.0000	0.0000	0.0000	OK.
TURF AREA	0.3305	0.0000	0.0000	0.0000	0.0000	OK.
TURF AREA TREATED	0.1493	0.0000	0.0000	0.0000	0.0000	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	OK.

Phosphorus	
TOTAL TREATMENT VOLUME (cf)	491
TOTAL PHOSPHORUS LOAD REDUCTION REQUIRED (LB/YEAR)	0.14
RUNOFF REDUCTION (cf)	193
PHOSPHORUS LOAD REDUCTION ACHIEVED (LB/YR)	0.15
ADJUSTED POST-DEVELOPMENT PHOSPHORUS LOAD (TP) (lb/yr)	0.16
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)	491
RUNOFF REDUCTION (cf)	193
NITROGEN LOAD REDUCTION ACHIEVED (LB/YR)	1.73
ADJUSTED POST-DEVELOPMENT NITROGEN LOAD (TN) (lb/yr)	0.47

OFF-SITE AREA

Site Results	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
IMPERVIOUS COVER	0.0000	0.0000	0.0000	0.0000	0.0000	OK.
IMPERVIOUS COVER TREATED	0.0000	0.0000	0.0000	0.0000	0.0000	OK.
TURF AREA	0.1037	0.0000	0.0000	0.0000	0.0000	OK.
TURF AREA TREATED	0.1037	0.0000	0.0000	0.0000	0.0000	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	OK.

Phosphorus	
TOTAL TREATMENT VOLUME (cf)	56
TOTAL PHOSPHORUS LOAD REDUCTION REQUIRED (LB/YEAR)	-0.01
RUNOFF REDUCTION (cf)	28
PHOSPHORUS LOAD REDUCTION ACHIEVED (LB/YR)	0.02
ADJUSTED POST-DEVELOPMENT PHOSPHORUS LOAD (TP) (lb/yr)	0.01
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)	56
RUNOFF REDUCTION (cf)	28
NITROGEN LOAD REDUCTION ACHIEVED (LB/YR)	0.25
ADJUSTED POST-DEVELOPMENT NITROGEN LOAD (TN) (lb/yr)	0.00

NO.	DESCRIPTION	REV. BY	APPROVED BY	DATE



RUNOFF REDUCTION COMPUTATIONS (LOT 31A)
5015 TWINBROOK ROAD, BURKE
 BRADDOCK DISTRICT
 FAIRFAX COUNTY, VA 22015

TAX MAP: 69-3--(01)--31

DATE: OCT. 23, 2014

PREP. BY: BISHESH

CHECKED BY: ABE

PROJECT # 2013-2634

SCALE: N/A

SHEET: 9 OF 16

1. Post-Development Project & Land Cover Information

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

Land Cover (acres)	A soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) – undisturbed, protected forest/open space or reforested land	0.0000	0.0000	0.0000	0.0000	0.0000
Managed Turf (acres) – disturbed, graded for yards or other turf to be mowed/managed	0.3295	0.0000	0.0000	0.0000	0.3295
Impervious Cover (acres)	0.0901	0.0000	0.0000	0.0000	0.0901
Total					0.4196

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)	0.0000
Weighted Rv(forest)	0.0000
% Forest	0%
Managed Turf Cover (acres)	0.3295
Weighted Rv(turf)	0.1500
% Managed Turf	79%
Impervious Cover (acres)	0.0901
Rv(imperious)	0.95
% Imperious	21%
Total Site Area (acres)	0.4196
Site Rv	0.32
Post-Development Treatment Volume (acre-ft)	0.01
Post-Development Treatment Volume (cubic feet)	490
Post_Development Load (TP) (lb/yr)	0.31
Post_Development Load (TN) (lb/yr)	2.20

Drainage Area A						
Drainage Area A Land Cover (acres)						
	A soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)	0.0000	0.0000	0.0000	0.0000	0.0000	0.00
Managed Turf (acres)	0.3295	0.0000	0.0000	0.0000	0.3295	0.15
Impervious Cover (acres)	0.0901	0.0000	0.0000	0.0000	0.0901	0.95
Total					0.4196	
					Post Development Treatment Volume (cf)	490

Apply Runoff Reduction Practices to Reduce Treatment Volume & Post-Development Load in Drainage Area A													
Practice	Unit	Description of Credit	Credit	Credit Area (acres)	Volume from Upstream RR Practice (cf)	Runoff Reduction (cf)	Remaining Runoff Volume (cf)	Phosphorus Efficiency (%)	Phosphorus Load from Upstream RR Practices (lbs)	Untreated Phosphorus Load to Practice (lbs.)	Phosphorus Removed By Practice (lbs.)	Remaining Phosphorus Load (lbs.)	Downstream Treatment to be Employed
7. Infiltration													
7.a. Infiltration #1 (Spec #8)	impervious acres draining to infiltration	50% runoff volume reduction	0.50	0.0870	0	150	150	25	0.00	0.19	0.12	0.07	
	turf acres draining to infiltration	50% runoff volume reduction	0.50	0.1644	0	45	45	25	0.00	0.06	0.04	0.02	
7.b. Infiltration #2 (Spec #8)	impervious acres draining to infiltration	90% runoff volume reduction	0.90	0.0000	0	0	0	25	0.00	0.00	0.00	0.00	
	turf acres draining to infiltration	90% runoff volume reduction	0.90	0.0000	0	0	0	25	0.00	0.00	0.00	0.00	

TOTAL IMPERVIOUS COVER TREATED (ac)	0.0870
TOTAL TURF AREA TREATED (ac)	0.1644
AREA CHECK OK.	
TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr)	0.14
TOTAL RUNOFF REDUCTION IN D.A. A (cf)	195
PHOSPHORUS REMOVAL FROM RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	0.15

Nitrogen Efficiency (%)	Nitrogen Load from Upstream RR Practices (lbs)	Untreated Nitrogen Load to Practice (lbs.)	Nitrogen Removed By Practice (lbs.)	Remaining Nitrogen Load (lbs.)
15	0.00	1.35	0.77	0.57
15	0.00	0.40	0.23	0.17
15	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00

TOTAL RUNOFF REDUCTION IN D.A. A (cf)	195
NITROGEN REMOVAL FROM RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	1.75

TOTAL IMPERVIOUS COVER TREATED (ac)	0.0870
TOTAL TURF AREA TREATED (ac)	0.1644
AREA CHECK OK.	
PHOSPHORUS REMOVAL BY PRACTICES THAT DO NOT REDUCE RUNOFF VOLUME IN D.A. A	0.00
TOTAL PHOSPHORUS REMOVAL IN D.A. A (lb/yr)	0.15
NITROGEN REMOVAL BY PRACTICES THAT DO NOT REDUCE RUNOFF VOLUME IN D.A. A	0.00
TOTAL NITROGEN REMOVAL IN D.A. A (lb/yr)	1.75

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
IMPERVIOUS COVER	0.0901	0.0000	0.0000	0.0000	0.0000	OK.
IMPERVIOUS COVER TREATED	0.0870	0.0000	0.0000	0.0000	0.0000	OK.
TURF AREA	0.3295	0.0000	0.0000	0.0000	0.0000	OK.
TURF AREA TREATED	0.1644	0.0000	0.0000	0.0000	0.0000	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Phosphorus	
TOTAL TREATMENT VOLUME (cf)	490
TOTAL PHOSPHORUS LOAD REDUCTION REQUIRED (LB/YEAR)	0.14
RUNOFF REDUCTION (cf)	195
PHOSPHORUS LOAD REDUCTION ACHIEVED (LB/YR)	0.15
ADJUSTED POST-DEVELOPMENT PHOSPHORUS LOAD (TP) (lb/yr)	0.16
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)	490
RUNOFF REDUCTION (cf)	195
NITROGEN LOAD REDUCTION ACHIEVED (LB/YR)	1.75
ADJUSTED POST-DEVELOPMENT NITROGEN LOAD (TN) (lb/yr)	0.45

GeoEnv Engineers
 Civil, Environmental & Geotechnical Engineering
 10875 Main Street, Suite 213
 Fairfax, VA 22030
 Tel. 703.591.7170
 Fax. 703.591.7074
 Web Site: geoenr.com

NO.	DESCRIPTION	REV. BY	APPROVED BY	DATE



RUNOFF REDUCTION COMPUTATIONS (LOT 31B)
 5015 TWINBROOK ROAD, BURKE
 BRADDOCK DISTRICT, FAIRFAX COUNTY, VA 22015

TAX MAP:	69-3--(01)--31
DATE:	OCT. 23, 2014
PREP. BY:	BISHESH
CHECKED BY:	ABE
PROJECT #	2013-2634
SCALE:	N/A
SHEET:	1 OF 16

INFILTRATION TRENCH DESIGN

TOTAL RAINFALL ACCUMULATION = 3 INCHES
[FFM, FAIRFAX COUNTY VA, 2003 6-1303.4A]

AREA OF IMPERVIOUS AREA TO BE TREATED = 3841 SF
INFILTRATION RATE AS MEASURED IN THE FIELD= 2.28 INCH/HR
INFILTRATION RATE PER VIRGINIA STORMWATER MANAGEMENT HANDBOOK: 3 (1010 B-3) = 1.14 IN/HR
VOLUME IN = 3841 x 3/12 x 0.9 = 865 CF
FLOW FROM PERVIOUS AREA = 11020 SF x 0.25x3/12 = 689 CF

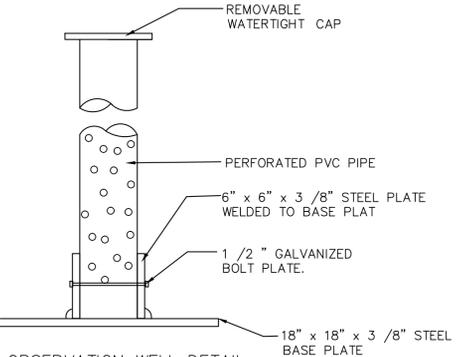
TOTAL FLOW = 1.554 CF
NUMBER OF TRENCH PROVIDED = 1 NOS.
TRENCH RECEIVES = 1554 CF

SURFACE AREA OF TRENCH = 45 x 13 = 585 SF
VOLUME OUT (EXFILTRATION)
= 1.14 INCHES/HR x 3 (H) x 11/12 x 585 SF = 167 CF

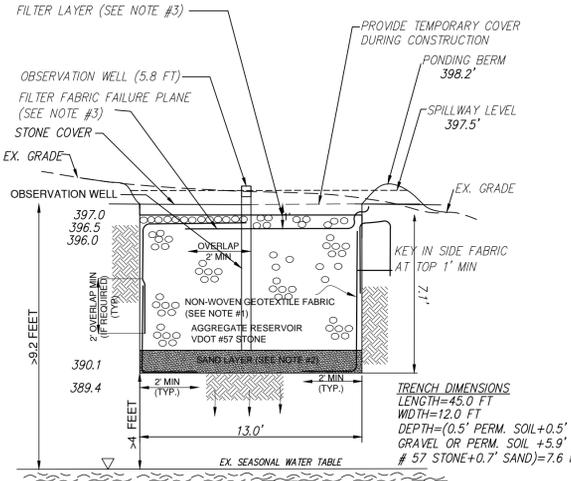
STORAGE VOL. REQUIRED = 1554 - 167 = 1387 CF
USING #57 STONE @ 40% VOID, VOLUME OF TRENCH
= 1389 / 0.40 = 3,468 CF
DEPTH OF TRENCH = (3488 / (45 x 13)) FEET = 5.9 FT
USE 1 TRENCH(S) OF EACH SIZE (45L x 13' W x 5.9' D)
RATE OF DISCHARGE, Q(OUT)
= 1.14 INCHES/HR x 11/12 x 585 SF = 55.6 CF/HR

INFILTRATION TIME REQUIRED = 1389 / 55.6 = 25 HRS < 48 HRS, OK.

TRENCH DIMENSIONS PROVIDED
LENGTH = 45 FEET.
WIDTH = 13 FEET.
DEPTH OF #57 STONE = 5.9 FEET.
(SEE OVERALL DEPTH OF THE SECTION DETAIL.)



OBSERVATION WELL DETAIL
N.T.S.



NOTES:

- USE NON-WOVEN GEOTEXTILE FABRIC WITH AOS OF 70-100 US SIEVE OR 0.2 MM - 0.15 MM AS DETERMINED BY ASTM D4751 AND A TRAPEZOIDAL TEAR STRENGTH OF 45 LB OR 0.2 KN AS DETERMINED BY ASTM D4313.
- AN 8-IN. DEEP BOTTOM SAND LAYER (VOID FINE AGGREGATE, GRADING A OR B) IS REQUIRED.
- FOR AN AGGREGATE SURFACE TRENCH, FILTER FABRIC SHALL SURROUND ALL OF THE AGGREGATE. FILL MATERIAL EXCEPT THE TOP ONE FOOT. A SEPARATE PIECE OF FABRIC SHALL BE USED FOR THE TOP LAYER TO ACT AS A FAILURE PLANE. THIS TOP PIECE CAN THEN BE REPLACED UPON CLOSING. THE TOP 1 FOOT LAYER CAN BE COMPLETELY GRAVEL FILTER OR CAN BE SPLIT INTO TWO LAYERS (TOP 6 INCHES OF GRANULAR TOP SOIL AND 6 INCHES OF CLEAN GRAVEL FILTER WITH AN FILTER FABRIC IN BETWEEN THESE TWO LAYERS).
- GEOTEXTILE FABRIC SHALL NOT BE EXPOSED TO DIRECT SUNLIGHT FOR MORE THAN 24 HOURS PRIOR TO INSTALLATION.

INFILTRATION TRENCH DETAIL
SCALE: N.T.S.

INFILTRATION TRENCH CONSTRUCTION SPECIFICATION

- TIMING**
THE INFILTRATION TRENCHES SHALL NOT BE CONSTRUCTED OR PLACED IN SERVICE UNTIL ALL OF THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED AND APPROVED BY THE INSPECTOR.
- TRENCH PREPARATION**
EXCAVATE THE TRENCHES TO THE DESIGN DIMENSIONS. EXCAVATED MATERIALS SHALL BE PLACED AWAY FROM THE TRENCH SIDES TO ENHANCE TRENCH WALL STABILITY. LARGE TREE ROOTS MUST BE TRIMMED FLUSH WITH THE TRENCH SIDES IN ORDER TO PREVENT FABRIC PUNCTURING OR TEAR DURING THE INSTALLATION PROCEDURES. THE SIDE WALL OF THE TRENCH SHALL BE ROUGHENED WHERE SHEARED AND SEALED BY HEAVY EQUIPMENT.
- FABRIC LAY DOWN**
THE FILTER FABRIC ROLL MUST BE CUT TO THE PROPER WIDTH PRIOR TO INSTALLATION. THE CUT WIDTH MUST INCLUDE SUFFICIENT MATERIAL TO CONFORM TO TRENCH PERIMETER IRREGULARITIES AND FOR 6-INCH MINIMUM OVERLAP. PLACE THE FABRIC ROLL OVER THE TRENCH AND UNROLL A SUFFICIENT LENGTH TO ALLOW PLACEMENT OF THE FABRIC DOWN INTO THE TRENCH. STONES OR OTHER ANCHORING OBJECTS SHOULD BE PLACED ON THE FABRIC AT THE EDGE OF THE TRENCH TO KEEP THE LINED TRENCH OPEN DURING WINDY PERIODS. WHEN OVERLAPS ARE REQUIRED BETWEEN ROLLS, THE UPSTREAM ROLL SHOULD OVERLAP A MINIMUM OF 2 FEET OVER THE DOWNSTREAM ROLL IN ORDER TO PROVIDE A SHINGLED EFFECT. THE OVERLAP ENSURES FABRIC CONTINUITY AND THAT THE FABRIC CONFORMS TO THE EXCAVATION SURFACE DURING AGGREGATE PLACEMENT AND COMPACTION.
- STONE AGGREGATE PLACEMENT AND COMPACTION**
THE STONE AGGREGATE SHOULD BE PLACED IN LIFTS AND COMPACTED, IF REQUIRED USING PLATE COMPACTORS. AS A RULE OF THUMB, A MAXIMUM LOOSE LIFT THICKNESS OF 8 INCHES IS RECOMMENDED. THE COMPACTION PROCESS ENSURES FABRIC CONFORMITY TO THE EXCAVATION SIDES, THEREBY REDUCING THE POTENTIAL FOR SOIL PIPING, FABRIC CLOGGING, AND SETTLEMENT PROBLEMS.
- OVERLAPPING AND COVERING**
FOLLOWING THE STONE AGGREGATE PLACEMENT, THE FILTER FABRIC SHALL BE FOLDED OVER THE STONE AGGREGATE TO FORM A 6-INCH MINIMUM LONGITUDINAL LAP. THE DESIRED FILL SOIL OR STONE AGGREGATE SHALL BE PLACED OVER THE LAP AT SUFFICIENT INTERVALS TO MAINTAIN THE LAP DURING SUBSEQUENT BACKFILLING.
- CONTAMINATION**
CARE SHOULD BE EXERCISED TO PREVENT NATURAL OR FILL SOILS FROM INTERMIXING WITH THE STONE AGGREGATES. ALL CONTAMINATED STONE AGGREGATES SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED STONE AGGREGATES.
- VOIDS BEHIND FABRIC**
VOIDS CAN BE CREATED BETWEEN THE FABRIC AND EXCAVATION SIDES AND SHALL BE AVOIDED. REMOVING BOULDERS OR OTHER OBSTACLES IN A FIELD IS ONE SOURCE OF SUCH VOID. NATURAL SOILS SHOULD BE PLACED IN THESE VOIDS AT THE MOST CONVENIENT TIME DURING CONSTRUCTION TO ENSURE FABRIC CONFORMITY TO THE EXCAVATION SIDE. SOIL PIPING, FABRIC CLOGGING, AND POSSIBLE SURFACE SUBSIDENCE WILL BE AVOIDED BY THIS REMEDIAL PROCESS.
- UNSTABLE EXCAVATION SIDES**
VERTICALLY EXCAVATED WALLS MAY BE DIFFICULT TO MAINTAIN IN AREAS WHERE THE SOIL MOISTURE IS HIGH OR WHERE SOFT COHESIVE OR COHESION LESS SOILS PREDOMINATE. THESE CONDITIONS MAY REQUIRE LAYING BACK OF THE SIDE SLOPES TO MAINTAIN STABILITY. TRAPEZOIDAL RATHER THAN RECTANGULAR CROSS SECTIONS MAY RESULT. THIS MUST BE EVALUATED BY THE ENGINEER DURING CONSTRUCTION.
- OBSERVATION WELL**
AN OBSERVATION WELL, SHALL BE PROVIDED FOR EACH TRENCH. THE DEPTH OF THE WELL AT THE TIME OF INSTALLATION WILL BE CLEARLY MARKED ON THE WELL CAP.

MAINTENANCE RESPONSIBILITY & SCHEDULE

- THE HOME OWNER IS RESPONSIBLE FOR THE MAINTENANCE OF THE INFILTRATION TRENCHES.
- INFILTRATION TRENCHES ARE DESIGNED TO MINIMIZE MAINTENANCE REQUIREMENTS. HOWEVER, IT IS RECOGNIZED THAT ALL INFILTRATION FACILITIES ARE SUBJECT TO PERIODIC CLOGGING BY SEDIMENT, OIL, GREASE, GRIT AND OTHER DEBRIS. A MONITORING OBSERVATION WELL IS INSTALLED FOR ALL INFILTRATION STRUCTURES.
- THE OBSERVATION WELL SHALL BE MONITORED PERIODICALLY FOR THE FIRST YEAR AFTER THE COMPLETION OF CONSTRUCTION. THE WELL SHOULD BE MONITORED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM. IT IS RECOMMENDED THAT A DEDICATED LOG BOOK BE MAINTAINED INDICATING THE RATE AT WHICH THE FACILITY DE-WATERS AFTER LARGE STORMS AND THE DEPTH OF THE WELL FOR EACH OBSERVATION. ONCE THE PERFORMANCE CHARACTERISTICS OF THE STRUCTURE HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS, UNLESS THE PERFORMANCE DATA INDICATE THAT A MORE FREQUENT SCHEDULE IS REQUIRED.
- SEDIMENT BUILD-UP IN THE TOP FOOT OF STONE AGGREGATE OR THE SURFACE INLET SHOULD BE MONITORED ON THE SAME SCHEDULE AS THE OBSERVATION WELL. SEDIMENT DEPOSITED SHALL NOT BE ALLOWED TO BUILD UP TO THE POINT WHERE IT WILL REDUCE THE RATE OF INFILTRATION INTO THE TRENCH.

GeoEnv Engineers & Consultants, LLC
10875 Main Street, Suite 213 Fairfax Virginia 22030 Tel: (703) 591-7170 Fax: (703) 591-7074

SOIL BORING PROFILE & EVALUATION REPORT-LOT 31A

DATE: March 28, 2014
PROJECT: Infiltration Study
LOCATION: 5015 Twinbrook Rd. Burke, Fairfax County, Virginia 22015
Tax Map No.: 69-3-((01))-0031
District Name: Braddock

HOLE NO.	SOIL HORIZON	DEPTH (FT)	SOIL DESCRIPTION (USDA CLASSIFICATION & MUNSELL CHART)	TEXTURE GROUP
B-1	A	0-0.67	(10YR 3/3) Dark Brown Loam Topsoil with roots, very moist.	II
	Bt	0.67-2.17	(7.5YR 5/8, 4/6) Strong Brown Clay Loam, Moist, Friable, with trace of quartz.	III
	C1	2.17-6.0	(10YR 5/6, 5/8) Yellowish Brown to (7.5YR 4/6) Strong Brown, fine Sandy Loam to Loam; friable, moist, with few parent mineral colors.	II
	C2	6.0-8.0	(10R 4/6) Red, fine Sandy Loam, moist, friable, mica, lithochromic parent colors.	II
	C3	8.0-10.0	(10YR 8/1) White, moist, fine micaceous Sandy Loam, friable.	II
		10.0	Boring Terminated at 10.0 feet BGS	
TH-1	A	0-5	(10YR 3/3) Dark Brown Loam Topsoil with roots, very moist.	II
	Bt	0.5-2.5	(7.5YR 5/8, 4/6) Strong Brown Clay Loam, Moist, Friable, with few quartz.	III
	C	2.5-5.0	(7.5YR 4/6) Strong Brown, fine Sandy Loam to Loam; friable, moist, with few parent mineral colors.	II
		5.0	Terminated at 5.0 ft for infiltration test	

BORING LOG NOTES:
DEPTH TO WATER TABLE: - Not encountered within the investigated depth at the time of the field investigations. - More than 10.0 feet BGS
DEPTH TO HARD ROCK: >10.0 feet.

10875 Main Street, Suite 213 Fairfax Virginia 22030 Tel: (703) 591-7170 Fax: (703) 591-7074

INFILTRATION TESTING
5015 TWINBROOK RD, LOT 31A
BURKE, FAIRFAX COUNTY, VIRGINIA 22015
TAX MAP NO. 69-3-((01))-0031
GEE PROJECT NO. 2013-2634

PAGE 2

SOIL BORINGS REMARKS:

Soil profile borings were performed to map the soils within the limits of the proposed BMP facility at the referenced property. The soil boring was advanced to a maximum depth of 10.0 feet BGS, where auger refusal was met, in the center of the proposed facility. The subsurface soils were classified in accordance with USDA System (Triangular Chart). Associated Soil Horizon, Color, Chroma, and Texture Group are included on the above Boring Logs.

RECOMMENDATIONS: Based on the USDA Classification and Munsell Soil Color Chart, the onsite soils are considered generally suitable for the installation of an onsite BMP facility, subject to the results of the field infiltration tests and the onsite inspections by the third-party Geotechnical Engineer. The BMP facility must be designed in accordance with the latest Fairfax County Public Facility Manual (PFM) and Northern Virginia Stormwater Management requirements. No perched water table, visible mottles, or other signs of water table indicators were noted within the investigated depth. In accordance with the USDA, the subgrade soil at the bottom of the BMP facility is classified as a Fine Sandy Loam to Loam, with Texture Group II. In accordance with the Munsell Soil Color Chart, the soil Color Value is 3 to 6, and the Chroma Value is 3 to 8. It should be noted that for the encountered parent materials (HUE 10YR, 7.5YR, 10R), the soil value ranges from 0 (absolute black) to 10 (absolute white), and the Chroma number range from 0 (neutral grays) and increases at equal interval to 8. Based on the USDA classification and Munsell Chart Value and Chroma, the encountered materials are considered generally suitable for an onsite BMP facility (i.e. infiltration trench) or rain garden facility.

Based on the investigated depth, the Proposed BMP facility should not be set any deeper than 6.0 feet below the existing surface grades in order to maintain the required 4 foot separation. If changes are required, then GEE should be contacted for additional field investigations. Typically, a BMP facility may not be placed in fill materials or on a slope steeper than 15%.

Note: The proposed BMP facility must be constructed by a qualified contractor and under the direct supervision of the Geotechnical Engineer of Record (GER). The inspecting engineer must verify the in situ field conditions, including suitability of the subgrade soils and presence of water table indicators (if any). If the facility is to be constructed under the direction by someone other than the GER, then the inspecting engineer must review the field records and design data and check the records with the insitu soils. Any noted deviation from recorded field conditions must be brought to the attention of the GER and the design engineer prior to placing the BMP facility. The GER is not responsible for the performance of the BMP facility if he was not given the opportunity to review the design and if the facility was not constructed under his supervision.

10875 Main Street, Suite 213 Fairfax Virginia 22030 Tel: (703) 591-7170 Fax: (703) 591-7074

INFILTRATION TESTING
5015 TWINBROOK RD, LOT 31A
BURKE, FAIRFAX COUNTY, VIRGINIA 22015
TAX MAP NO. 69-3-((01))-0031
GEE PROJECT NO. 2013-2634

PAGE 4

computed for use in the design.

As noted on the Infiltration Test Report Tables (page 3), the infiltration test revealed average readings of 2.28 inch/hr for Test Hole #1 and 2.51 inch/hr for Test Hole #2. These rates are considered consistent with the type of soil encountered and the USDA Texture Group. Based on obtained field infiltration data, we recommend the use of the lowest 4 hour test average of 2.28 inch/hr to size the BMP facility. This is the average test reading from TH-2.

Please note that the design rate in Fairfax County is taken as 50% of the obtained average field rate. Therefore, the recommended design rate for the BMP facility is 1.14 inch/hr. The BMP facility may not be installed in fill materials, steep slope, and the bottom of the facility may not extend more than 6.0 feet below the existing surface grades. Adequate outfall shall be present for the BMP facility.

The proposed BMP facility must be constructed by a qualified contractor and be under the direct supervision of the Geotechnical Engineer of Record (GER), and the GER must provide a certificate of completion to Fairfax County. If the BMP facility is constructed under the supervision of someone other than the GER, then the inspecting engineer should be hired directly by the owner and not by the installing contractor. At the completion of the BMP installation, the inspecting engineer must provide a final inspection statement confirming that the facility was constructed in accordance with the approved design and accepted practices. Any noted change in the field conditions stated above or deviation from the design plans and specifications must be noted on the final inspection report.

The GER must be given an opportunity to review the design in order to insure compliance with the above recommendations. The GER will not be responsible for the adequacy or performance of the BMP facility, if it is not constructed under his direction.

We appreciate this opportunity to be of service to you. Should you have any questions, please contact either of the undersigned below at (703) 593-8000 or (703) 591-7170.

Sincerely,

Brian H. Phillips
Professional Soil Scientist

Ibrahim (Abe) Chehab, P.E.
Principal Engineer

10875 Main Street, Suite 213 Fairfax Virginia 22030 Tel: (703) 591-7170 Fax: (703) 591-7074

INFILTRATION TESTING
5015 TWINBROOK RD, LOT 31A
BURKE, FAIRFAX COUNTY, VIRGINIA 22015
TAX MAP NO. 69-3-((01))-0031
GEE PROJECT NO. 2013-2634

PAGE 3

INFILTRATION TEST REPORT - Lot 31A

DATE OF PRESOAK: MARCH 27, 2014
DATE OF INFILTRATION TEST: MARCH 28, 2014
TEST HOLE DIAMETER: 5 INCHES
TEST DURATION: 4 HOURS
DEPTH: 5.0 FEET BGS
WEATHER: PARTLY CLOUDY, LIGHT RAIN; 1.60'S DEG F

Infiltration Test: TH-1

READING TIME	ELAPSED TIME (HR)	INFILTRATION RATE (INCH/HR)	COMMENT
10:00 AM	0	---	
11:00 AM	1.0	3.1	
12:00 PM	2.0	2.5	
1:00 PM	3.0	2.0	
2:00 PM	4.0	1.5	Last 1-HR reading= 1.5 Inch/HR
AVERAGE FOR 4 HOURS (INCH/HR)		2.28	Test performed after a 24-hr presoak period

Infiltration Test: TH-2

READING TIME	ELAPSED TIME (HR)	INFILTRATION RATE (INCH/HR)	COMMENT
10:01 AM	0	---	
11:01 AM	1.0	3.2	
12:01 PM	2.0	2.8	
1:01 PM	3.0	2.3	
2:01 PM	4.0	1.75	Last 1-HR reading= 1.75 Inch/HR
AVERAGE FOR 4 HOURS (INCH/HR)		2.51	Test performed after a 24-hr presoak period

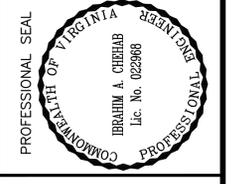
INFILTRATION TEST RESULTS, RECOMMENDATIONS AND REMARKS:

The infiltration test were performed at 5.0 feet BGS after a 24-hour pre-soak period, and filling the test holes with 24 inches of water. After 24 hours, the hole was cleaned and two inches of pea gravel was placed in the bottom of each hole to prevent scouring of the bottom. A standpipe was then inserted, and the holes were filled with 24 inches of clean water, and the drop in the water level was recorded every one (1) hour for four (4) hours, as noted on the above Infiltration Test Tables. The water level was refilled to 24 inches after each reading was taken. Upon completion of the field tests, the last hour reading and the average hourly infiltration rate for each test were

10875 Main Street, Suite 213 Fairfax Virginia 22030 Tel: (703) 591-7170 Fax: (703) 591-7074

GeoEnv Engineers
Civil, Environmental & Geotechnical Engineering
10875 Main Street, Suite 213
Fairfax, VA 22030
Tel: 703.591.7170
Fax: 703.591.7074
Web Site: geoenv.com

NO.	DESCRIPTION	REV. BY	APPROVED BY	DATE



BMP NOTES & DESIGN, SOIL PROFILE AND INFILTRATION TEST REPORT (LOT 31A)

5015 TWINBROOK ROAD, BURKE
FAIRFAX COUNTY, VA 22015
BRADDOCK DISTRICT

TAX MAP: 69-3-((01))-31

DATE: OCT. 23, 2014
PREP. BY: BISHESH
CHECKED BY: ABE
PROJECT #: 2013-2634

SCALE: AS NOTED
SHEET: 11 OF 16

INFILTRATION TRENCH DESIGN

TOTAL RAINFALL ACCUMULATION = 3 INCHES
(PFM, FAIRFAX COUNTY VA, 2003 6-1303.4A)

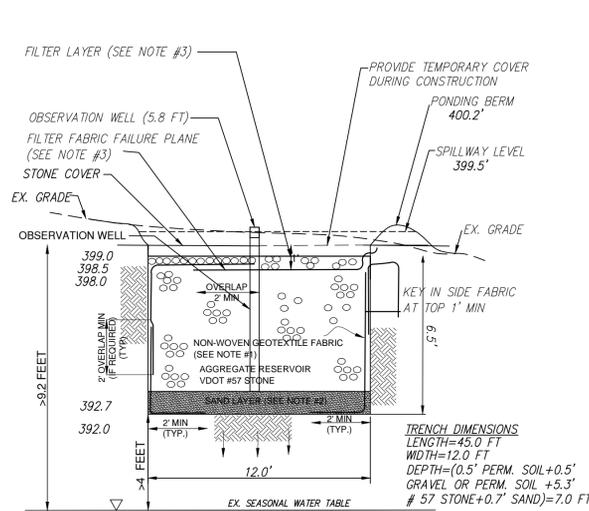
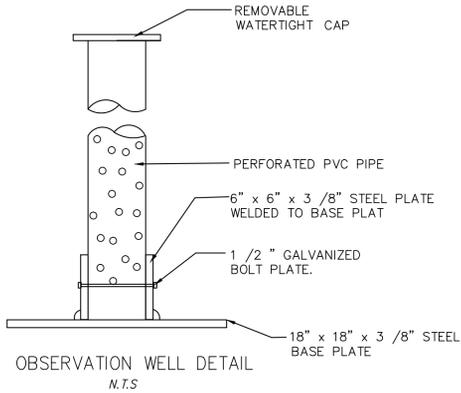
AREA OF IMPERVIOUS AREA TO BE TREATED = 3788 SF.
INFILTRATION RATE AS MEASURED IN THE FIELD = 2.28 INCH/HR.
INFILTRATION RATE (PER VIRGINIA STORMWATER MANAGEMENT HANDBOOK: 3.1010 B-3) = 1.14 IN/HR
VOLUME IN = 3788 x 3/12 x 0.9 = 853 CF.
FLOW FROM PERVIOUS AREA = 7160 SF x 0.25x312 = 448 CF
TOTAL FLOW = 1,301 CF
NUMBER OF TRENCH PROVIDED = 1 NOS.
TRENCH RECEIVES = 1301 CF

SURFACE AREA OF TRENCH = 45 x 12 = 540 SF.
VOLUME OUT (EXFILTRATION) = 1.14 INCHES/HR x 3(H) x 11N/12 x 540 SF = 154 CF

STORAGE VOL. REQUIRED = 1301 - 154 = 1147 CF.
USING # 57 STONE @ 40% VOID, VOLUME OF TRENCH = 1147 / 0.40 = 2,867 CF

DEPTH OF TRENCH = (2867 / (45 x 12)) FEET = 5.3 FT
USE 1 TRENCH(S) OF EACH SIZE (45L x 12' W x 5.3' D)
RATE OF DISCHARGE, Q(out) = 1.14 INCHES/HR x 11N/12 x 540 SF = 51.3 CF/Hrs
INFILTRATION TIME REQUIRED = 1147 / 51.3 = 22.4 HRS = < 48 HRS, OK.

TRENCH DIMENSIONS PROVIDED
LENGTH = 45 FEET.
WIDTH = 12 FEET.
DEPTH OF #57 STONE = 5.3 FEET.
(SEE OVERALL DEPTH OF THE SECTION DETAIL)



- NOTES:
1. USE NON-WOVEN GEOTEXTILE FABRIC WITH ADS OF 70-100 US SIEVE OR 0.2 MM- 0.15 MM AS DETERMINED BY ASTM D4751 AND A TRAPEZOIDAL TEAR STRENGTH OF 45 LB OR 0.2 IN AS DETERMINED BY ASTM D4533.
 2. AN 8-IN. DEEP BOTTOM SAND LAYER (VOID FINE AGGREGATE, GRADING A OR B) IS REQUIRED.
 3. FOR AN AGGREGATE SURFACE TRENCH, FILTER FABRIC SHALL SURROUND ALL OF THE AGGREGATE FILL MATERIAL EXCEPT THE TOP ONE FOOT. A SEPARATE PIECE OF FABRIC SHALL BE USED FOR THE TOP LAYER TO ACT AS A FAILURE PLANE. THIS TOP PIECE CAN THEN BE REPLACED UPON CLOGGING. THE TOP 1 FOOT LAYER CAN BE COMPLETELY GRAVEL FILTER OR CAN BE SPLIT INTO TWO LAYERS (TOP 6 INCHES OF GRANULAR TOP SOIL AND 6 INCHES OF CLEAN GRAVEL FILTER WITH AN FILTER FABRIC IN BETWEEN THESE TWO LAYERS).
 4. GEOTEXTILE FABRIC SHALL NOT BE EXPOSED TO DIRECT SUNLIGHT FOR MORE THAN 24 HOURS PRIOR TO INSTALLATION.

INFILTRATION TRENCH DETAIL
SCALE: N.T.S.

1. TIMING
THE INFILTRATION TRENCHES SHALL NOT BE CONSTRUCTED OR PLACED IN SERVICE UNTIL ALL OF THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED AND APPROVED BY THE INSPECTOR.
2. TRENCH PREPARATION
EXCAVATE THE TRENCHES TO THE DESIGN DIMENSIONS. EXCAVATED MATERIALS SHALL BE PLACED AWAY FROM THE TRENCH SIDES TO ENHANCE TRENCH WALL STABILITY. LARGE TREE ROOTS MUST BE TRIMMED FLUSH WITH THE TRENCH SIDES IN ORDER TO PREVENT FABRIC PUNCTURING OR TEAR DURING THE INSTALLATION PROCEDURES. THE SIDE WALL OF THE TRENCH SHALL BE ROUGHENED WHERE SHEARED AND SEALED BY HEAVY EQUIPMENT.
3. FABRIC LAY DOWN
THE FILTER FABRIC ROLL MUST BE CUT TO THE PROPER WIDTH PRIOR TO INSTALLATION. THE CUT WIDTH MUST INCLUDE SUFFICIENT MATERIAL TO CONFORM TO TRENCH PERIMETER IRREGULARITIES AND FOR 6-INCH MINIMUM OVERLAP. PLACE THE FABRIC ROLL OVER THE TRENCH AND UNROLL A SUFFICIENT LENGTH TO ALLOW PLACEMENT OF THE FABRIC DOWN INTO THE TRENCH. STONES OR OTHER ANCHORING OBJECTS SHOULD BE PLACED ON THE FABRIC AT THE EDGE OF THE TRENCH TO KEEP THE LINED TRENCH OPEN DURING WINDY PERIODS. WHEN OVERLAPS ARE REQUIRED BETWEEN ROLLS, THE UPSTREAM ROLL SHOULD OVERLAP A MINIMUM OF 2 FEET OVER THE DOWNSTREAM ROLL IN ORDER TO PROVIDE A SHINGLED EFFECT. THE OVERLAP ENSURES FABRIC CONTINUITY AND THAT THE FABRIC CONFORMS TO THE EXCAVATION SURFACE DURING AGGREGATE PLACEMENT AND COMPACTION.
4. STONE AGGREGATE PLACEMENT AND COMPACTION
THE STONE AGGREGATE SHOULD BE PLACED IN LIFTS AND COMPACTED, IF REQUIRED USING PLATE COMPACTORS. AS A RULE OF THUMB, A MAXIMUM LOOSE LIFT THICKNESS OF 8 INCHES IS RECOMMENDED. THE COMPACTION PROCESS ENSURES FABRIC CONFORMITY TO THE EXCAVATION SIDES, THEREBY REDUCING THE POTENTIAL FOR SOIL PIPING, FABRIC CLOGGING, AND SETTLEMENT PROBLEMS.
5. OVERLAPPING AND COVERING
FOLLOWING THE STONE AGGREGATE PLACEMENT, THE FILTER FABRIC SHALL BE FOLDED OVER THE STONE AGGREGATE TO FORM A 6-INCH MINIMUM LONGITUDINAL LAP. THE DESIRED FILL SOIL OR STONE AGGREGATE SHALL BE PLACED OVER THE LAP AT SUFFICIENT INTERVALS TO MAINTAIN THE LAP DURING SUBSEQUENT BACKFILLING.
6. CONTAMINATION
CARE SHOULD BE EXERCISED TO PREVENT NATURAL OR FILL SOILS FROM INTERMIXING WITH THE STONE AGGREGATES. ALL CONTAMINATED STONE AGGREGATES SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED STONE AGGREGATES.
7. VOIDS BEHIND FABRIC
VOIDS CAN BE CREATED BETWEEN THE FABRIC AND EXCAVATION SIDES AND SHALL BE AVOIDED. REMOVING BOULDERS OR OTHER OBSTACLES IN A FIELD IS ONE SOURCE OF SUCH VOIDS. NATURAL SOILS SHOULD BE PLACED IN THESE VOIDS AT THE MOST CONVENIENT TIME DURING CONSTRUCTION TO ENSURE FABRIC CONFORMITY TO THE EXCAVATION SIDE. SOIL PIPING, FABRIC CLOGGING, AND POSSIBLE SURFACE SUBSIDENCE WILL BE AVOIDED BY THIS REMEDIAL PROCESS.
8. UNSTABLE EXCAVATION SIDES
VERTICALLY EXCAVATED WALLS MAY BE DIFFICULT TO MAINTAIN IN AREAS WHERE THE SOIL MOISTURE IS HIGH OR WHERE SOFT COHESIVE OR COHESION LESS SOILS PREDOMINATE. THESE CONDITIONS MAY REQUIRE LAYING BACK OF THE SIDE SLOPES TO MAINTAIN STABILITY; TRAPEZOIDAL RATHER THAN RECTANGULAR CROSS SECTIONS MAY RESULT. THIS MUST BE EVALUATED BY THE ENGINEER DURING CONSTRUCTION.
9. OBSERVATION WELL
AN OBSERVATION WELL SHALL BE PROVIDED FOR EACH TRENCH. THE DEPTH OF THE WELL AT THE TIME OF INSTALLATION WILL BE CLEARLY MARKED ON THE WELL CAP.

MAINTENANCE RESPONSIBILITY & SCHEDULE

1. THE HOME OWNER IS RESPONSIBLE FOR THE MAINTENANCE OF THE INFILTRATION TRENCHES.
2. INFILTRATION TRENCHES ARE DESIGNED TO MINIMIZE MAINTENANCE REQUIREMENTS. HOWEVER, IT IS RECOGNIZED THAT ALL INFILTRATION FACILITIES ARE SUBJECT TO PERIODIC CLOGGING BY SEDIMENT, OIL, GREASE, GRIT AND OTHER DEBRIS. A MONITORING OBSERVATION WELL IS INSTALLED FOR ALL INFILTRATION STRUCTURES.
3. THE OBSERVATION WELL SHALL BE MONITORED PERIODICALLY. FOR THE FIRST YEAR AFTER THE COMPLETION OF CONSTRUCTION, THE WELL SHOULD BE MONITORED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM. IT IS RECOMMENDED THAT A DEDICATED LOG BOOK BE MAINTAINED INDICATING THE RATE AT WHICH THE FACILITY DE-WATERS AFTER LARGE STORMS AND THE DEPTH OF THE WELL FOR EACH OBSERVATION. ONCE THE PERFORMANCE CHARACTERISTICS OF THE STRUCTURE HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS, UNLESS THE PERFORMANCE DATA INDICATE THAT A MORE FREQUENT SCHEDULE IS REQUIRED.
4. SEDIMENT BUILD-UP IN THE TOP FOOT OF STONE AGGREGATE OR THE SURFACE INLET SHOULD BE MONITORED ON THE SAME SCHEDULE AS THE OBSERVATION WELL. SEDIMENT DEPOSITED SHALL NOT BE ALLOWED TO BUILD UP TO THE POINT WHERE IT WILL REDUCE THE RATE OF INFILTRATION INTO THE TRENCH.

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SOIL BORING PROFILE & EVALUATION REPORT—LOT 31B

DATE: March 28, 2014
PROJECT: Infiltration Study
LOCATION: 5015 Twinbrook Rd. Burke, Fairfax County, Virginia 22015
Tax Map No.: 69-3-(011)-0031
District Name: Braddock

HOLE No.	SOIL HORIZON	DEPTH (FT)	SOIL DESCRIPTION (USDA CLASSIFICATION & MUNSELL CHART)	TEXTURE GROUP
B-1	A	0-0.67	(10YR 3/3) Dark Brown Loam Topsoil with roots, very moist.	II
	BC	0.67-3.1	(10YR 6/3) Pale Brown, to (2.5Y 8/4) Pale Yellow, Silt Loam, Moist, Friable, with trace of quartz and lithochromic parent colors.	III
	C1	3.1-8.0	(10R 4/6) Red, fine Sandy Loam to Loam; friable, moist, with few parent mineral colors, with few quartz and rock fragments from 6.0-8.0 feet BGS.	II
	C2	8.0-9.0	(7.5R 4/6) Strong Brown, fine Sandy Loam, moist, friable, mica, lithochromic parent colors, few rock fragments.	II
	C3	9.0-10.0	(10YR 8/8) Yellow, moist, fine micaceous Sandy Loam, friable, with lithochromic parent colors and rock fragments.	II
		10.0	Boring Terminated at 10.0 feet BGS	
	SOIL HORIZON	DEPTH (FT)	SOIL DESCRIPTION (USDA CLASSIFICATION & MUNSELL CHART)	TEXTURE GROUP
TH-1	A	0-5	(10YR 3/3) Dark Brown Loam Topsoil with roots, very moist.	II
	Bt	0.5-2.5	(7.5YR 5/8, 4/6) Strong Brown Clay Loam, Moist, Friable, with few quartz.	III
	C	2.5-5.0	(7.5YR 4/6) Strong Brown, fine Sandy Loam to Loam; friable, moist, with few parent mineral colors.	II
		5.0	Terminated at 5.0 ft for infiltration test	

BORING LOG NOTES:
DEPTH TO WATER TABLE: Not encountered within the investigated depth at the time of the field investigations. - More than 10.0 feet BGS
DEPTH TO HARD ROCK: >10.0 feet.

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INFILTRATION TESTING
5015 TWINBROOK RD, LOT 31B
BURKE, FAIRFAX COUNTY, VIRGINIA 22015
TAX MAP NO. 69-3-(011)-0031
GEE PROJECT NO. 2013-2634
PAGE 2

SOIL BORINGS REMARKS:
Soil profile borings were performed to map the soils within the limits of the proposed BMP facility at the referenced property. The soil boring was advanced to a maximum depth of 10.0 feet BGS, where auger refusal was met, in the center of the proposed facility. The subsurface soils were classified in accordance with USDA System (Triangular Chart), Associated Soil Horizon, Color, Chromo, and Texture Group are included on the above Boring Logs.

RECOMMENDATIONS: Based on the USDA Classification and Munsell Soil Color Chart, the onsite soils are considered generally suitable for the installation of an onsite BMP facility, subject to the results of the field infiltration tests and the onsite inspections by the third-party Geotechnical Engineer. The BMP facility must be designed in accordance with the latest Fairfax County Public Facility Manual (PFM) and Northern Virginia Stormwater Management requirements. No perched water table, visible mottles, or other signs of water table indicators were noted within the investigated depth. In accordance with the USDA, the subgrade soil at the bottom of the BMP facility is classified as a **Fine Sandy Loam to Loam**, with Texture Group II. In accordance with the Munsell Soil Color Chart, the soil Color Value is 3 to 6, and the Chroma Value is 3 to 8. It should be noted that for the encountered parent materials (HUE 10YR, 7.5YR, 10R), the soil value ranges from 0 (absolute black) to 10 (absolute white), and the Chroma number range from 0 (neutral grays) and increases at equal interval to 8. Based on the USDA classification and Munsell Chart Value and Chroma, the encountered materials are considered generally suitable for an onsite BMP facility (i.e. infiltration trench or rain garden facility).

Based on the investigated depth, the Proposed BMP facility should not be set any deeper than 6.0 feet below the existing surface grades in order to maintain the required 4:1 slope separation. If changes are required, then GEE should be contacted for additional field investigations. Typically, a BMP facility may not be placed in fill materials or on a slope steeper than 15%.

Note: The proposed BMP facility must be constructed by a qualified contractor and under the direct supervision of the Geotechnical Engineer of Record (GER). The inspecting engineer must verify the in situ field conditions, including suitability of the subgrade soils and presence of water table indicators (if any). If the facility is to be constructed under the direction by someone other than the GER, then the inspecting engineer must review the field records and design data and check the records with the insitu soils. Any noted deviation from recorded field conditions must be brought to the attention of the GER and the design engineer prior to placing the BMP facility. The GER is not responsible for the performance of the BMP facility if he was not given the opportunity to review the design and if the facility was not constructed under his supervision.

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INFILTRATION TESTING
5015 TWINBROOK RD, LOT 31B
BURKE, FAIRFAX COUNTY, VIRGINIA 22015
TAX MAP NO. 69-3-(011)-0031
GEE PROJECT NO. 2013-2634
PAGE 3

INFILTRATION TEST REPORT—Lot 31B

DATE OF PRESOAK: MARCH 27, 2014
DATE OF INFILTRATION TESTS: MARCH 28, 2014
TEST HOLE DIAMETER: 5 INCHES
TEST DURATION: 4 HOURS
DEPTH: 5.0 FEET BGS
WEATHER: PARTLY CLOUDY, LIGHT RAIN; 1.69" DFG F

Infiltration Test: TH-1

READING TIME	ELAPSED TIME (HR)	INFILTRATION RATE (INCH/HR)	COMMENT
10:05 AM	0	----	
11:05 AM	1.0	3.7	
12:05 PM	2.0	2.6	
1:05 PM	3.0	2.4	
2:05 PM	4.0	1.9	Last 1-HR reading= 1.9 Inch/HR
AVERAGE FOR 4 HOURS (INCH/HR)		2.65	Test performed after a 24-hr presoak period

Infiltration Test: TH-2

READING TIME	ELAPSED TIME (HR)	INFILTRATION RATE (INCH/HR)	COMMENT
10:06 AM	0	----	
11:06 AM	1.0	3.9	
12:06 PM	2.0	2.2	
1:06 PM	3.0	2.0	
2:06 PM	4.0	1.6	Last 1-HR reading= 1.6 Inch/HR
AVERAGE FOR 4 HOURS (INCH/HR)		2.43	Test performed after a 24-hr presoak period

INFILTRATION TEST RESULTS, RECOMMENDATIONS AND REMARKS:
The infiltration test were performed at 5.0 feet BGS after a 24-hour pre-soak period, and filling the test holes with 24 inches of water. After 24 hours, the hole was cleaned and two inches of pea gravel was placed in the bottom of each hole to prevent scouring of the bottom. A standpipe was then inserted, and the holes were filled with 24 inches of clean water, and the drop in the water level was recorded every one (1) hour for four (4) hours, as noted on the above Infiltration Test Tables. The water level was refilled to 24 inches after each reading was taken. Upon completion of the field tests, the last hour reading and the average hourly infiltration rate for each test were

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INFILTRATION TESTING
5015 TWINBROOK RD, LOT 31B
BURKE, FAIRFAX COUNTY, VIRGINIA 22015
TAX MAP NO. 69-3-(011)-0031
GEE PROJECT NO. 2013-2634
PAGE 4

computed for use in the design.
As noted on the Infiltration Test Report Tables (page 3), the infiltration test revealed average readings of 2.65 in/hr for Test Hole #1 and 2.43 in/hr for Test Hole #2. These rates are considered consistent with the type of soil encountered and the USDA Texture Group. Based on obtained field infiltration data, we recommend the use of the lowest 4 hour test average of 2.43 in/hr to size the BMP facility. This is the average test reading from TH-2.

Please note that the design rate in Fairfax County is taken as 50% of the obtained average field rate. Therefore, the recommended design rate for the BMP facility is 1.21 in/hr. The BMP facility may not be installed in fill materials, steep slope, and the bottom of the facility may not extend more than 6.0 feet below the existing surface grades. Adequate outfall shall be present for the BMP facility.

The proposed BMP facility must be constructed by a qualified contractor and be under the direct supervision of the Geotechnical Engineer of Record (GER), and the GER must provide a certificate of completion to Fairfax County. If the BMP facility is constructed under the supervision of someone other than the GER, then the inspecting engineer should be hired directly by the owner and not by the installing contractor. At the completion of the BMP installation, the inspecting engineer must provide a final inspection statement confirming that the facility was constructed in accordance with the approved design and accepted practices. Any noted change in the field conditions stated above or deviation from the design plans and specifications must be noted on the final inspection report.

The GER must be given an opportunity to review the design in order to insure compliance with the above recommendations. The GER will not be responsible for the adequacy or performance of the BMP facility, if it is not constructed under his direction.

We appreciate this opportunity to be of service to you. Should you have any questions, please contact either of the undersigned below at (703) 593-8090 or (703) 591-7170.

Sincerely,

Brian H. Phillips
Professional Soil Scientist

Ibrahim (Abu) Chehab, P.E.
Principal Engineer

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GeoEnv Engineers
Civil, Environmental & Geotechnical Engineering
10875 Main Street, Suite 213
Fairfax, VA 22030
Tel: 703.591.7170
Fax: 703.591.7074
Web Site: geoenv1.com

NO.	DESCRIPTION	REV. BY	APPROVED BY	DATE



BMP NOTES AND DESIGN, SOIL PROFILE AND INFILTRATION TEST REPORT (LOT 31B)
5015 TWINBROOK ROAD, BURKE
FAIRFAX COUNTY, VA 22015
BRADDOCK DISTRICT

TAX MAP: 69-3-(011)-31
DATE: OCT. 23, 2014
PREP. BY: BISHESH
CHECKED BY: ABE
PROJECT # 2013-2634
SCALE: AS NOTED
SHEET: 12 OF 16

LOT 31A

IMPERVIOUS AREA COMPUTATION (SQ FT)

DESCRIPTION	PRE-DEV	POST-DEV
BUILDING	-	2,740
DRIVEWAY	-	891
FRONT PORCH	-	210
WALK	-	83
TOTAL IMPERVIOUS AREA (SQ FT)	-	3,924
PERVIOUS AREA/GRASS-AREA (SQ FT)	18,319	14,395
TOTAL SITE AREA (SQ FT)	18,319	18,319

INCREASE IN IMPERVIOUSNESS = 3924 SQ FT OR OF THE EXISTING IMP. AREA
 TOTAL % OF IMPERVIOUS AREA = $\frac{(3924 \times 100\%)}{18319} = 21.42\%$ >18% (MAX. ALLOWABLE BY CBPO) THE BMP IS REQUIRED.

"C" FACTORS CALCULATION

A. PRE-DEVELOPMENT
 $= (0 \times 0.9 + 18319 \times 0.25) = 0.25$
 18319

B. POST-DEVELOPMENT
 $= (3924 \times 0.9 + 14395 \times 0.25) = 0.39$
 18319

RUNOFF COMPUTATION (Q=CIA)

A. PRE-DEVELOPMENT
 (5 MIN Tc) Q2 = (0.25 x 5.45 x 0.421) = 0.57 CFS
 Q10 = (0.25 x 7.27 x 0.421) = 0.77 CFS
Q100 = (1.25 x 0.25 x 9.84 x 0.421) = 1.30 CFS

B. POST-DEVELOPMENT
 (5 MIN Tc) Q2 = (0.39 x 5.45 x 0.421) = 0.89 CFS
 Q10 = (0.39 x 7.27 x 0.421) = 1.19 CFS
Q100 = (1.25 x 0.39 x 9.84 x 0.421) = 2.03 CFS

C. CHANGE IN RUNOFF
 Q10 = 1.19 - 0.77 = 0.42 CFS
 Q2 = 0.89 - 0.57 = 0.32 CFS
Q100 = 2.03 - 1.30 = 0.73 CFS

D. CHANGE IN RUNOFF (100YRS) WITH BMP
= 2.03 - 1.30 - (1.25 x 3841 x 0.9 / 43560 x 9.84 + 1.25 x 11,020 / 43560 x 0.25 x 9.84) = -1.026 CFS DECREASE

MINIMUM STORMWATER INFORMATION FOR REZONING, SPECIAL EXCEPTION, SPECIAL PERMIT AND DEVELOPMENT PLAN APPLICATIONS

The following information is required to be shown or provided in all zoning applications, or a waiver request of the submission requirement with justification shall be attached. Note: Waivers will be acted upon separately. Failure to adequately address the required submission information may result in a delay in processing this application.

This information is required under the following Zoning Ordinance paragraphs:

Special Permits (8-011 2J & 2L)
 Cluster Subdivision (9-615 1G & 1N)
 Development Plans PRC District (16-302 2 & 4L)
 FDP - P Districts (except PRC) 916-302 1F & 1Q)

Special Exceptions (9-011 2J & 2L)
 Commercial Revitalization Districts (9-622 2A (12)&(14))
 PRC Plan (16-303 1E & 10)
 Amendments (18-202 10F & 10I)

1. Plat is at a minimum scale of 1"=50' (unless it is depicted on one sheet with a minimum scale of 1"=100).

2. A graphic depicting the stormwater management facility(ies) and limits of clearing and grading to accommodate the stormwater management facility(ies), storm drainage pipe systems and outlet protection, pond spillways, access roads, site outfalls, energy dissipation devices, and stream stabilization measures as shown on Sheet N/A.

3. Provide:

Facility Name/ Type & No.	On-Site area served (acres)	Off-Site area served (acres)	Drainage area (acres)	Footprint area (sq ft)	Storage Volume (cf.)	If pond, dam height (ft.)
1. INFILTRATION TRENCH #1	0.237	0.104	0.341	585	3,451	N/A
2. INFILTRATION TRENCH #2	0.251	0	0.251	540	2,862	N/A
Totals						

4. Onsite drainage channels, outfalls and pipe systems are shown on Sheet 4.
 Pond inlet and outlet pipe systems are shown on Sheet N/A.

5. Maintenance access (road) to stormwater management facility(ies) are shown on Sheet N/A.
 Type of maintenance access road surface noted on the plat is N/A (asphalt, geoblock, gravel, etc.)

6. Landscaping and tree preservation shown in and near the stormwater management facility is shown on Sheet 5.

7. A 'stormwater management narrative' which contains a description of how detention and best management practices requirements will be met is provided on Sheet 8.

8. A description of the existing conditions of each numbered 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) is provided on Sheet 14.

9. A description of how the outfall requirements, including known changes to contributing drainage areas (i.e. drainage diversions), of the Public Facilities Manual will be satisfied is provided on Sheet 14.

10. Existing topography with maximum contour intervals of two (2) feet and a note as to whether it is an air survey or field run is provided on Sheets 3, 4.

11. A submission waiver is requested for WAIVER WILL BE REQUESTED.

12. Stormwater management is not required because INFILTRATION TRENCHES WITH STORAGE CAPACITY ARE PROVIDED.

LOT 31B

IMPERVIOUS AREA COMPUTATION (SQ FT)

DESCRIPTION	PRE-DEV	POST-DEV
BUILDING	-	2,740
DRIVEWAY	-	891
FRONT PORCH	-	210
WALK	-	83
TOTAL IMPERVIOUS AREA (SQ FT)	-	3,924
PERVIOUS AREA/GRASS-AREA (SQ FT)	18,278	14,354
TOTAL SITE AREA (SQ FT)	18,278	18,278

INCREASE IN IMPERVIOUSNESS = 3924 SQ FT OR OF THE EXISTING IMP. AREA
 TOTAL % OF IMPERVIOUS AREA = $\frac{(3924 \times 100\%)}{18278} = 21.47\%$ >18% (MAX. ALLOWABLE BY CBPO) THE BMP IS REQUIRED.

"C" FACTORS CALCULATION

A. PRE-DEVELOPMENT
 $= (0 \times 0.9 + 18278 \times 0.25) = 0.25$
 18278

B. POST-DEVELOPMENT
 $= (3924 \times 0.9 + 14354 \times 0.25) = 0.39$
 18278

RUNOFF COMPUTATION (Q=CIA)

A. PRE-DEVELOPMENT
 (5 MIN Tc) Q2 = (0.25 x 5.45 x 0.42) = 0.57 CFS
 Q10 = (0.25 x 7.27 x 0.42) = 0.76 CFS
Q100 = (1.25 x 0.25 x 9.84 x 0.42) = 1.29 CFS

B. POST-DEVELOPMENT
 (5 MIN Tc) Q2 = (0.39 x 5.45 x 0.42) = 0.89 CFS
 Q10 = (0.39 x 7.27 x 0.42) = 1.19 CFS
Q100 = (1.25 x 0.39 x 9.84 x 0.42) = 2.01 CFS

C. CHANGE IN RUNOFF
 Q10 = 1.19 - 0.76 = 0.43 CFS
 Q2 = 0.89 - 0.57 = 0.32 CFS
Q100 = 2.01 - 1.29 = 0.72 CFS

D. CHANGE IN RUNOFF (100YRS) WITH BMP
= 2.01 - 1.29 - (1.25 x 3788 x 0.9 / 43560 x 9.84 + 1.25 x 7,160 / 43560 x 0.25 x 9.84) = -0.75 CFS DECREASE

GeoEnv Engineers
 Civil, Environmental & Geotechnical Engineering
 10875 Main Street, Suite 213
 Fairfax, VA 22030
 Tel. 703.591.7170
 Fax. 703.591.7074
 Web Site: geoenr.com

NO.	DESCRIPTION	REV. BY	APPROVED BY	DATE



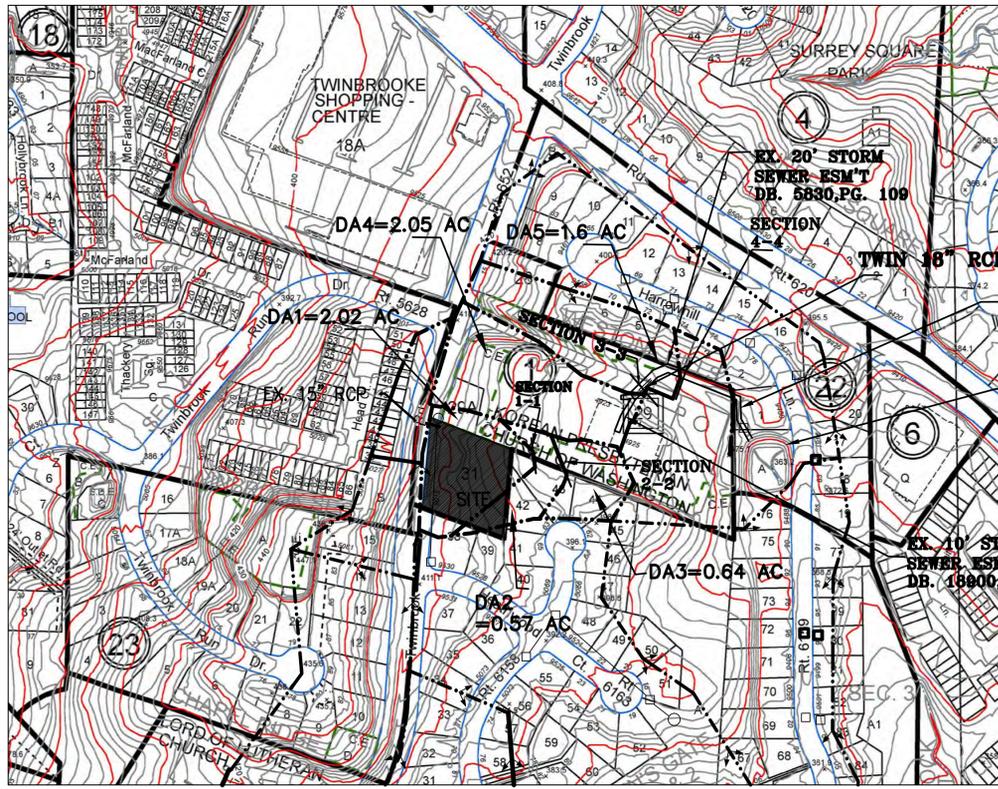
STORMWATER COMPUTATIONS

5015 TWINBROOK ROAD, BURKE
 BRADDOCK DISTRICT
 FAIRFAX COUNTY, VA 22015

TAX MAP: 69-3-((01))-31

DATE:	OCT. 23, 2014
PREP. BY:	BISHESH
CHECKED BY:	ABE
PROJECT #	2013-2634

SCALE: AS NOTED
 SHEET: 13 OF 16



DRAINAGE AREA MAP
SCALE: 1"=200'

OUTFALL NARRATIVE

THIS PLAN PROPOSES THE REZONING OF ONE LOT ZONED R-1 TO TWO LOTS ZONED R-3. THE STUDY LOT FALLS WITHIN POHICK CREEK WATERSHED. THE SITE CONSISTS OF MAINLY ONE DRAINAGE AREA AND ONE OUTFALL LOCATION. THE RUNOFF FROM THE ENTIRE LOT SHEET FLOWS TOWARDS THE NATURAL DRAINAGE WAY TO NORTHEAST DIRECTION TOWARDS LOT 29. THERE IS 15" RCP RUNNING ACROSS THE TWINBROOK ROAD AND OUTFALLS AT THE NORTHWEST CORNER OF THE SUBJECT PROPERTY. THE RUNOFF FROM THIS DRAINAGE PIPE FLOWS TO THE SAME NATURAL DRAINAGE WAY TOWARDS LOT 29. THE RUNOFF FROM THE SITE SHEET FLOWS TOWARDS NORTHEAST DIRECTION AT THE CHURCH PROPERTY WHICH IS THE NATURAL DRAINAGE WAY AND PASSES THROUGH EXISTING SWALES AND CULVERTS LOCATED WITHIN THE STORMDRAIN EASEMENTS AT THE CHURCH PROPERTY, BEFORE IT OUTFALLS AT THE STORMWATER POND, WHICH IS LOCATED ABOUT 550 FT NORTHEAST FROM THE PROPERTY. THEN THE POND DISCHARGES THE RUNOFF TO THE UNDERDRAIN STORMWATER SYSTEM.

A STUDY SECTION 1-1 IS TAKEN AT THE SHALLOW GRASS SWALE. ABOUT 2.02 ACRES OF DRAINAGE AREA, DA1 OUTFALLS AT THE SECTION 1-1. THE DRAINAGE AREA CONTRIBUTES ABOUT 9.93 CFS OF RUNOFF FROM THE 100-YEAR STORM, AND IT CREATES ABOUT 0.50 FEET OF WATER DEPTH, AND IT FLOWS WITH NON-EROSIVE VELOCITY OF 4.09 FPS, PLEASE REFER TO SECTION 1-1 ON THIS SHEET. THE RUNOFF CONTINUES TO FLOW DOWNSTREAM WITHIN SHALLOW GRASS SWALE AND INFALLS TO THE SHALLOW DITCH LOCATED WITHIN THE EXISTING 10' STORM DRAIN EASEMENT AT THE CHURCH PROPERTY. PLEASE REFER TO THE DRAINAGE MAP ON THIS SHEET. SIMILARLY, STUDY SECTIONS 2-2, 3-3 AND 4-4 ARE TAKEN ALONG THE DRAINAGE WAY. ALL THE SECTIONS REVEAL THE EXISTING DRAINAGE WAY IS ADEQUATE TO HANDLE THE RUNOFF FROM THE STUDY SITE. THE DITCH THEN CONVEYS THE RUNOFF FURTHER NORTHEAST DIRECTION AND PASSES THROUGH THE TWIN 18" RCP, WHICH THEN TAKES THE RUNOFF ACROSS THE DRIVEWAY AND OUTFALLS INTO THE GRASS DITCH LOCATED WITHIN THE STORM DRAIN EASEMENT. REFER TO DRAINAGE MAP ON THIS SHEET. THE DITCH FINALLY CONVEYS THE RUNOFF TO THE STORMWATER MANAGEMENT POND.

THE RUNOFF CONTINUES TO FLOW DOWNSTREAM WITHIN THE BEDS AND BANKS OF THE SHALLOW SWALE, WHICH IS ALL GRASS. HENCE, THERE WILL NOT BE ANY NEGATIVE IMPACT ON DOWNSTREAM PROPERTIES. THERE WILL NOT BE ANY DRAINAGE PROBLEM ON SITE AND OFFSITE. IT WILL NOT HAVE ADVERSE IMPACT SUCH AS DOWNSTREAM EROSION, PONDING, SEDIMENTATION OR INADEQUATE OVERLAND RELIEF AS PER 6-202.6B.1. ALSO THE INCREASED IN RUNOFF RATE WILL NOT AGGRAVATE ANY EXISTING DRAINAGE PROBLEM OR CAUSE NEW PROBLEM IN THE DOWNSTREAM PROPERTY AS MENTIONED IN PFM SECTION 6-202.6B.2.

BATHOMETRIC SURVEY IS REQUIRED PURSUANT TO SW-10, AND LETTER TO INDUSTRY 03-05 (BATHOMETRIC SURVEY) FOR THE IMPOUNDMENT LOCATED ON THE DOWNSTREAM OF OUTFALL WILL BE SUBMITTED DURING THE FINAL SITE PLAN SUBMISSIONS. THE DISTURBED AREA ASSOCIATED WITH THE OUTFALL IS MORE THAN AN ACRE.

POST-DEVELOPMENT CONDITIONS WITHIN DRAINAGE AREA

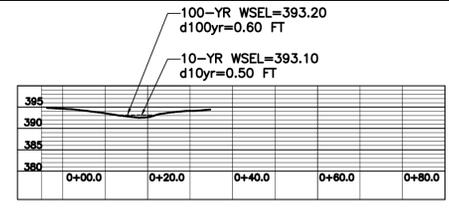
TWO NEW INFILTRATION TRENCHES WILL BE BUILT AT THE LOW LAYING AREA, AND EACH OF THEM HAS BEEN DESIGNED TO CAPTURE 3 INCHES OF RUNOFF FROM STUDY DRAINAGE AREA. BOTH THE TRENCHES HAVE BEEN DESIGNED TO WORK AS A DETENTION SYSTEM WITH ADEQUATE STONE DEPTH. THE INFILTRATION TRENCH WILL CAPTURE ALL THE RUNOFF FROM THE PROPOSED BUILDINGS, DRIVEWAYS, FRONT PORCHES AND SOME PERVIOUS AREAS. PLEASE REFER TO SHEETS 8, 9 AND 10 FOR DETAILS AND DESIGN OF INFILTRATION TRENCHES. THERE WILL BE A NET DECREASE OF RUNOFF FROM THE 100-YEAR STORM IN LOTS 31A AND 31B RESPECTIVELY BY PROVIDING THE INFILTRATION TRENCHES. REFER TO CALCULATIONS ON SHEET #11.

THE RUNOFF FROM ALMOST ALL THE IMPERVIOUS AREA FROM BOTH THE LOTS WILL BE DIRECTED TO THE RESPECTIVE TRENCHES VIA 4" PVC PIPE. NO CONCENTRATED FLOW WILL BE GENERATED DURING AND AFTER THE CONSTRUCTION IS COMPLETED.

DURING THE CONSTRUCTION PERIOD

THE TOTAL DISTURBED AREA DUE TO PROPOSED DEVELOPMENT IS 1.009 ACRES, WHICH WILL RESULT (0.6X7.27X1.009 = 4.4 CFS) AND (0.6X5.45X1.009 = 3.3 CFS) FROM 10-YR AND 2-YR STORM EVENT RESPECTIVELY. ALMOST ALL THE RUNOFF FROM THE IMPERVIOUS AREA WILL BE DIRECTED TOWARDS THE INFILTRATION TRENCHES. THE SILT FENCE AND SUPER SILT FENCE WILL TRAP THE SEDIMENTS FROM FLOWING INTO THE NON DISTURBED AREA AND ADJACENT DOWNSTREAM PROPERTIES. THE SEDIMENT WILL REMAIN WITHIN THE DISTURBED AREA ON SITE AND CLEAR WATER FREE FROM SEDIMENT WILL FLOW TO THE NON DISTURBED AREA AS SHEET FLOW. ALL SEDIMENT AND EROSION CONTROL DEVICES WILL BE KEPT FUNCTIONAL IN ACCORDANCE WITH THE APPROVED SITE PLAN AND IN ACCORDANCE WITH THE COUNTY STANDARDS AND SPECIFICATIONS. NO DEBRIS OR DIRT FROM THE CONSTRUCTION SITE SHALL BE PERMITTED TO THE STREET. THE STREET AND ENTRANCE SHALL BE KEPT NEAT AND CLEAN DAILY AND NO VEHICULAR TRAFFIC SHALL BE OBSTRUCTED DURING CONSTRUCTION PERIOD. THE CONSTRUCTION VEHICLES SHALL BE CLEANED PRIOR TO ENTERING INTO STREET. CONTRACTOR SHALL MANAGE WATER FOR CLEANING CONSTRUCTION VEHICLES.

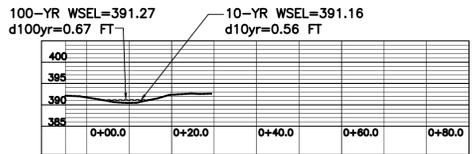
THE PROPOSED TREE AREA AT THE NORTHEAST AND NORTH SIDE OF THE PROPERTY WILL NOT ONLY IMPROVE WATER QUALITY OF THE SURFACE RUNOFF, BUT ALSO CONTROL FLOWS OF SEDIMENTS FROM THE PROJECT SITE TO THE DOWNSTREAM PROPERTIES. THE PROPOSED GRADING WILL HONOR THE NATURAL DRAINAGE PATTERN (6-0202.2A). THUS IT IS OUR OPINION THAT AN ADEQUATE OUTFALL EXISTS FOR THE SITE AND NO EROSION FLOW OCCUR DURING CONSTRUCTION ACTIVITIES.



SECTION 1-1

Q=CIA
DRAINAGE AREA=DA1=2.02 ACRES
"C" FACTOR= 0.40 (PFM TABLE 6.5)
TIME OF CONCENTRATION, Tc=5 MIN (AVERAGE)
RAINFALL INTENSITY, I2yr=5.45 IN/HR (PLATE 3-6)
RAINFALL INTENSITY, I10yr=7.27 IN/HR (PLATE 3-6)
Q2yr=0.40 X 5.45 X 2.02=4.4 CFS
Q10yr= 0.40 X 7.27 X 2.02=5.87 CFS
Q100yr=1.25x0.40x9.84x2.02=9.93 CFS

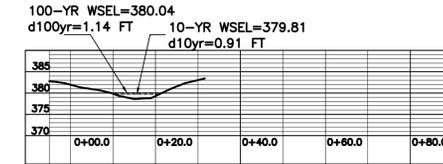
HYDRAULIC COMPUTATIONS (OUTPUT FROM FLOW MASTER)
SHAPESHALLOW SWALE (IRREGULAR CHANNEL)
SLOPE 0.062 FT/FT
C=0.035 (ROUGH EARTH)
FLOW DEPTH, d10yr=0.50 FT<1.1 FT [OK]
VELOCITY, V=4.09 FPS
10yr W.S.EL=393.10
100yr W.S. EL=393.20



SECTION 2-2

Q=CIA
DRAINAGE AREA=DA1+DA2=2.59 ACRES
"C" FACTOR= 0.40 (PFM TABLE 6.5)
TIME OF CONCENTRATION, Tc=5 MIN (AVERAGE)
RAINFALL INTENSITY, I2yr=5.45 IN/HR (PLATE 3-6)
RAINFALL INTENSITY, I10yr=7.27 IN/HR (PLATE 3-6)
Q2yr=0.40 X 5.45 X 2.59=5.6 CFS
Q10yr= 0.40 X 7.27 X 2.59=7.5 CFS
Q100yr=1.25x0.40x9.84x2.59=12.7 CFS

HYDRAULIC COMPUTATIONS (OUTPUT FROM FLOW MASTER)
SHAPESHALLOW SWALE
SLOPE 0.045 FT/FT
C=0.055 (ROUGH EARTH)
FLOW DEPTH, d10yr=0.56 FT<1.2 FT [OK]
VELOCITY, V=4.05 FPS
10yr W.S.EL=391.16
100yr W.S. EL=391.27



SECTION 4-4

Q=CIA
DRAINAGE AREA=DA1+DA2+DA3+DA4+DA5=6.88 ACRES
"C" FACTOR= 0.40 (PFM TABLE 6.5)
TIME OF CONCENTRATION, Tc=5 MIN (AVERAGE)
RAINFALL INTENSITY, I2yr=5.45 IN/HR (PLATE 3-6)
RAINFALL INTENSITY, I10yr=7.27 IN/HR (PLATE 3-6)
Q2yr=0.40 X 5.45 X 6.88=15.0 CFS
Q10yr= 0.40 X 7.27 X 6.88=20.0 CFS
Q100yr=1.25x0.40x9.84x6.88=33.84 CFS

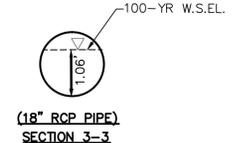
HYDRAULIC COMPUTATIONS (OUTPUT FROM FLOW MASTER)
SHAPESWALE (IRREGULAR CHANNEL)
SLOPE 0.055 FT/FT
C=0.04 (NATURAL WEEDY SWALE)
FLOW DEPTH, d10yr=0.91 FT<2.5 FT
VELOCITY, V=4.97 FPS
10yr W.S.EL=379.81
100YR W.S.EL=380.04

EX. TWIN 18" RCP PIPE @ SECTION 3-3

SHAPE CIRCULAR
SLOPE (AVERAGE)..... 0.021 FT/FT
MANNING'S N 0.013 (PFM 6-TABLE 6-9)
SIZE 1.5 FT OR 18"
C = 0.35 (PFM TABLE 6.6)
DRAINAGE AREA A, DA1+DA2+DA3+DA4=5.28 ACRES
TC = 5 MIN
I = 7.27 IN/HR, I2 = 5.45 IN/HR
Q10 (FOR TWIN 18" RCP)=0.40 X 7.27 X 5.28 = 15.35 CFS
Q10 (FOR SINGLE PIPE)=7.68 CFS
Q2 = 0.40 X 5.45 X 5.28 = 11.5 CFS
Q100 = 1.25X0.40X9.84X5.28=25.97 CFS (FOR TWIN 18" RCP)
Q100 (FOR SINGLE PIPE)=12.98 CFS

COMPUTATION RESULTS (OUTPUT FROM FLOW MASTER)

Roughness Coefficient: 0.013
Channel Slope: 0.021 ft/ft
Normal Depth: 1.06 ft (100 YR)
Normal Depth: 0.75 (10 yr)
Diameter: 1.5 ft
Velocity: 8.64 ft/s (10 yr)
Velocity: 9.67 (100 yr)



(18" RCP PIPE) SECTION 3-3

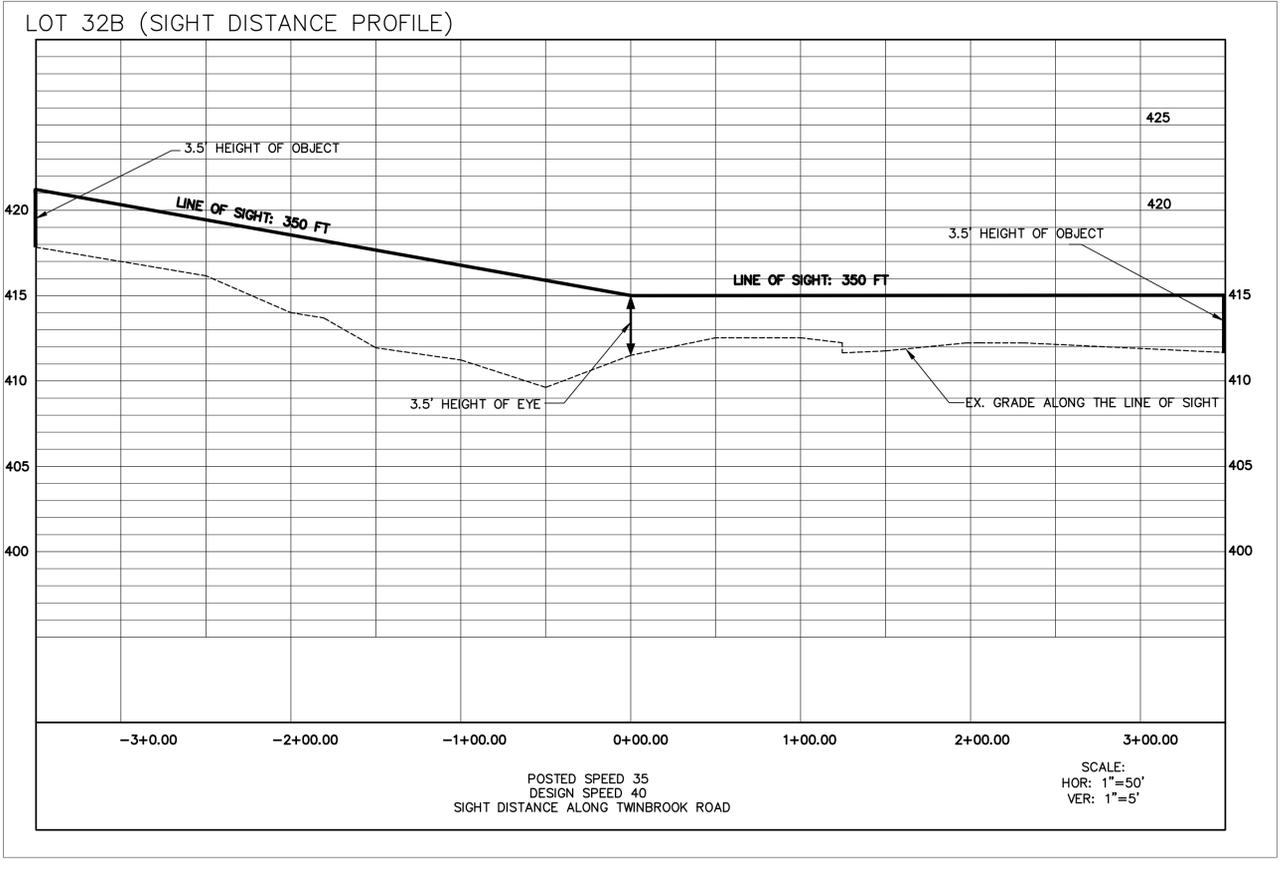
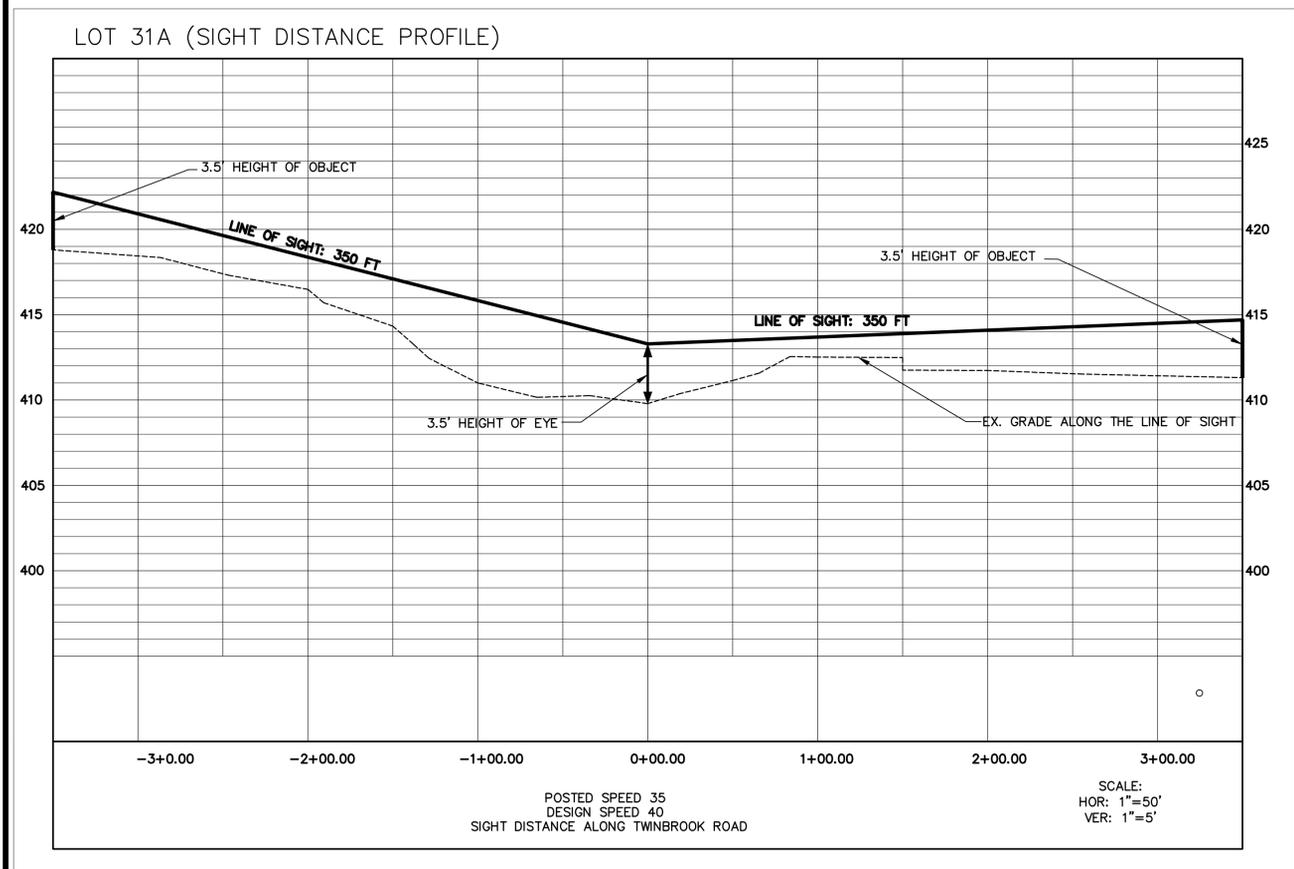
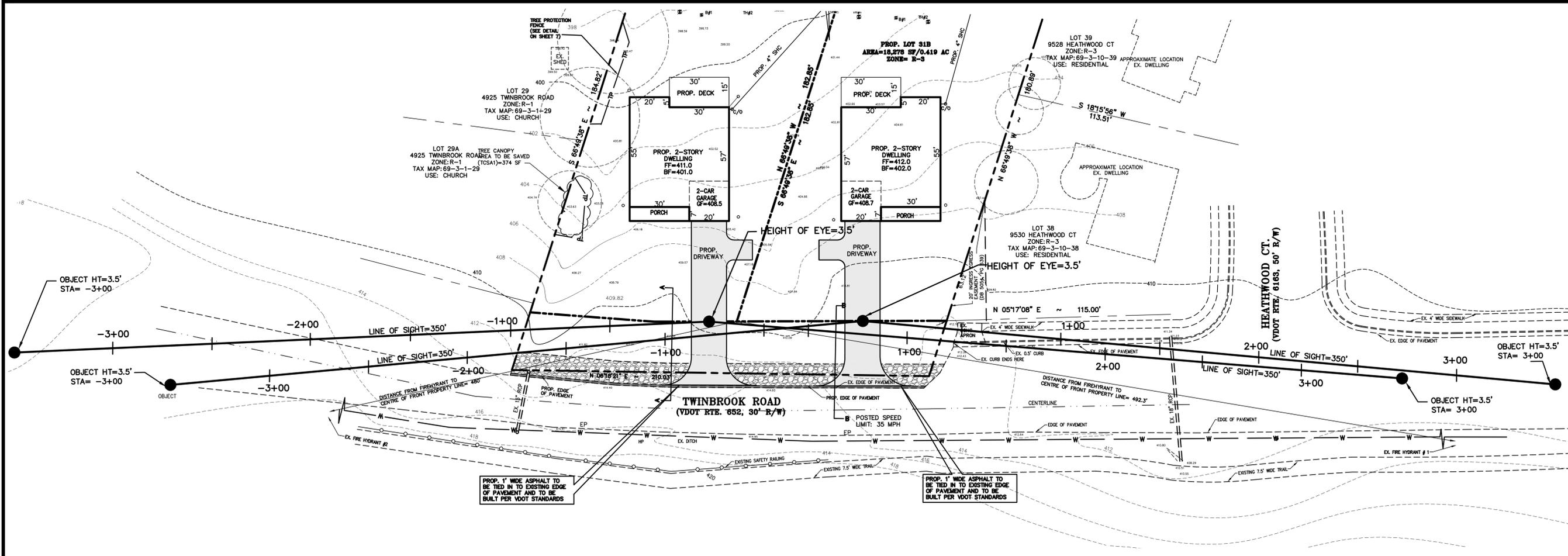
OVERLAND RELIEF STATEMENT

THE TOTAL DRAINAGE AREA THAT DRAINS TO THE INFILTRATION TRENCH #1 WILL BE 0.341 ACRES. RUNOFF FROM SOME OFF-SITE AREA FROM PROPOSED LOT 31B ENTERS INTO THE TRENCH #1 AS WELL. IT WILL CONTRIBUTE ABOUT 1.63 CFS OF RUNOFF FROM THE 100-YEAR STORM. THE EXCESS RUNOFF EXIST FROM THE TRENCH AND FLOWS TOWARDS THE PROPOSED 10' STORM SEWER EASEMENT AND TO THE CHURCH PROPERTY. A STUDY SECTION 1-1 AND 2-2 IS TAKEN TO CHECK IF THE OVERLAND RELIEF EXISTS FOR THE SITE. THE RUNOFF FLOWS WITH NON-EROSIVE VELOCITY AND INFALLS TO THE SHALLOW SWALE LOCATED AT THE CHURCH PROPERTY WITHIN THE STORM DRAIN EASEMENT PREVENTING THE NEARBY STRUCTURES FROM FLOODING. THEREFORE, AN OVERLAND RELIEF EXIST FOR THE SITE.

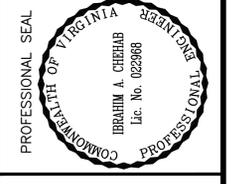
NO.	DESCRIPTION	REV. BY	APPROVED BY	DATE



DRAINAGE MAP AND OUTFALL ANALYSIS
5015 TWINBROOK ROAD, BURKE
FAIRFAX COUNTY, VA 22015
BRADDOCK DISTRICT

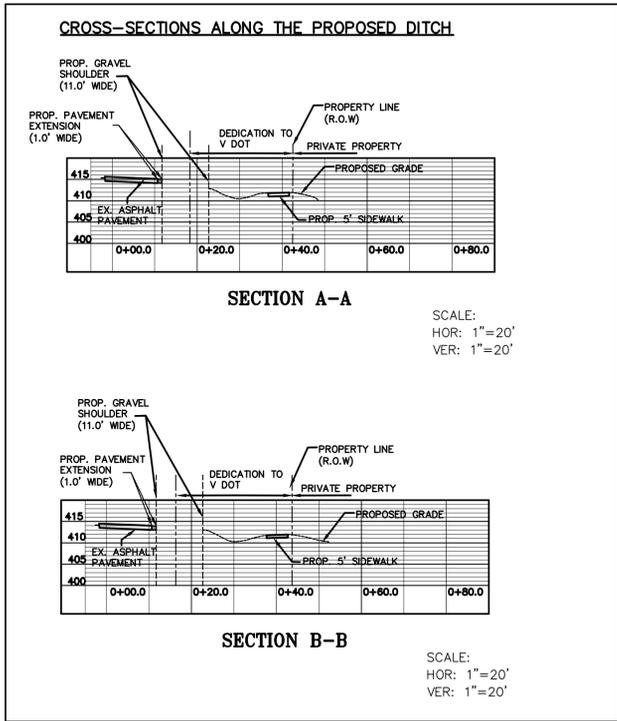
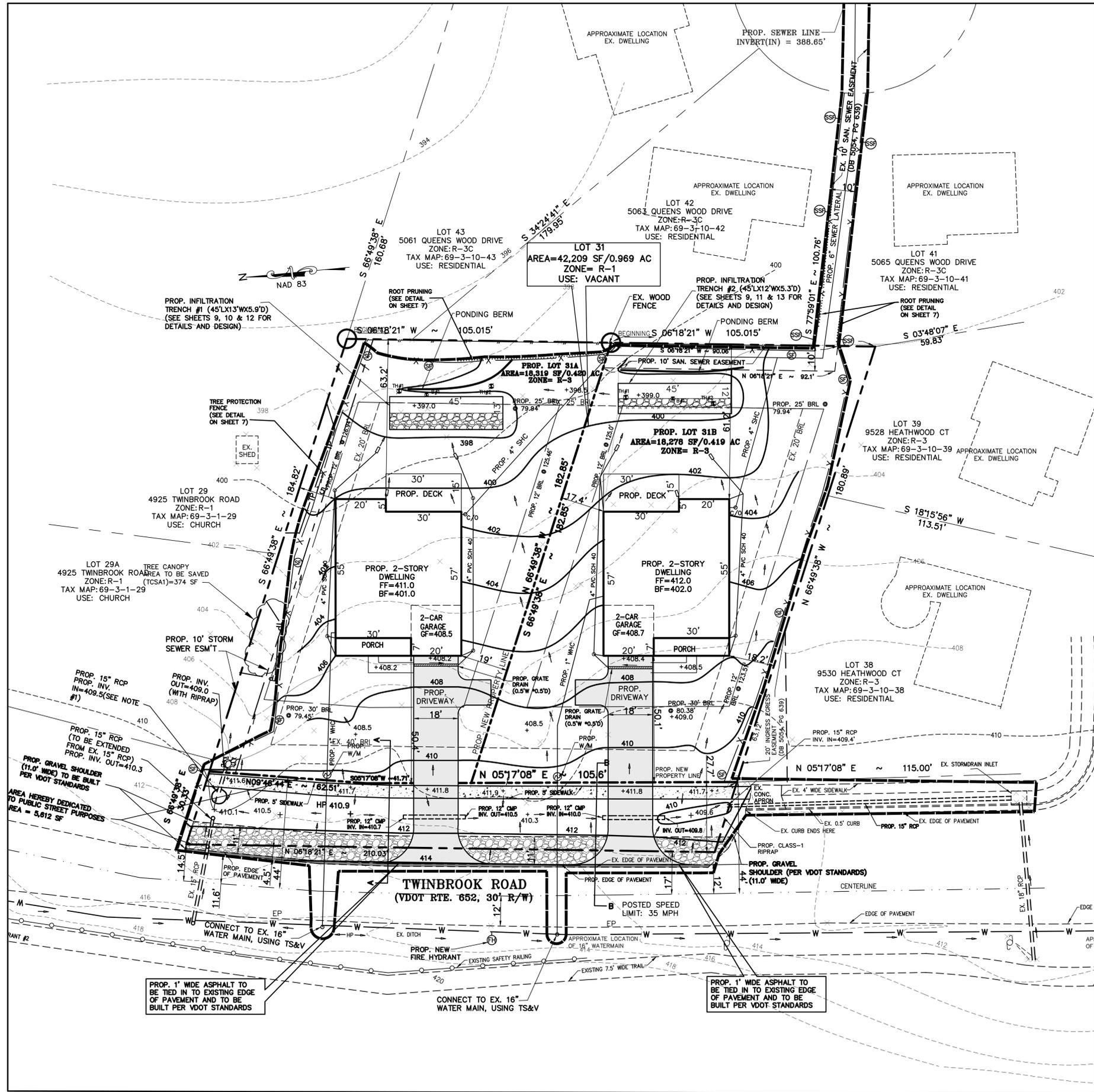


NO.	DESCRIPTION	REV. BY	APPROVED BY	DATE



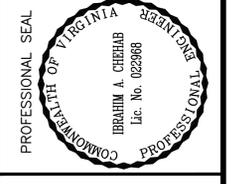
SIGHT DISTANCE PROFILE
5015 TWINBROOK ROAD, BURKE
BRADDOCK DISTRICT
FAIRFAX COUNTY, VA 22015

TAX MAP: 69-3-((01))-31
DATE: OCT. 23, 2014
PREP. BY: BISHESH
CHECKED BY: ABE
PROJECT #: 2013-2634



GeoEnv Engineers
 Civil, Environmental & Geotechnical Engineering
 10875 Main Street, Suite 213
 Fairfax, VA 22030
 Tel. 703.591.7170
 Fax. 703.591.7074
 Web Site: geoenr.com

NO.	DESCRIPTION	REV. BY	APPROVED BY	DATE



PROPOSED DITCH SECTIONS

5015 TWINBROOK ROAD, BURKE
 FAIRFAX COUNTY, VA 22015
 BRADDOCK DISTRICT

TAX MAP: 69-3-((01))-31

DATE: OCT. 23, 2014

PREP. BY: BISHESH

CHECKED BY: ABE

PROJECT #: 2013-2634

SCALE: 1"=20'

SHEET: 16 OF 16

**A GLOSSARY OF TERMS FREQUENTLY
USED IN STAFF REPORTS WILL BE
FOUND AT THE BACK OF THIS REPORT**

APPLICATION DESCRIPTION

The applicant, Blagoj Skandev (SD Homes, LLC), requests approval of a rezoning of one parcel of approximately 42,209 square feet from the R-1 (Residential) District to the R-3 District to permit the development of two single-family detached dwellings at a density of 2.06 dwelling units per acre (du/ac). The parcel is located on the east side of Twinbrook Road, approximately 900 feet south of the intersection of Twinbrook Road and Braddock Road. The two proposed lots measure 18,278 square feet and 18,319 square feet, with an average lot size of approximately 18,299 square feet. Both lots would have driveways with direct access onto Twinbrook Road. The applicant proposes the dedication of a 26-foot wide area (5,612 square feet) along the Twinbrook Road frontage for right-of-way purposes. The applicant proposes the construction of a 5-foot wide sidewalk within the right-of-way, one foot from the proposed residential lot lines. The sidewalk would connect to an existing 4-foot wide sidewalk to the south, which was constructed along a residential parcel, and a planned 5-foot wide sidewalk to the north. The northern sidewalk would be constructed in coordination with the development conditions of SPA 81-A-002-06, a Special Permit Amendment for the adjacent Pilgrim Community Church. The applicant proposes a shoulder and ditch between the proposed sidewalk and the existing Twinbrook Road pavement to convey most of roadway drainage to an existing curb inlet, south of the project site along Twinbrook Road.

Aerial View of the Project Site (view to the north)



Waiver and Deviation:

The applicant requests the following waiver and deviation:

- Waiver of the bioretention facility location requirements, pursuant to Section 6-1307 of the Public Facilities Manual, to allow bioretention facilities to be located on individual lots, in favor of the alternatives as shown on the proposed plan and as conditioned.
- Deviation of the Tree Preservation Target, pursuant to Section #12-0508 of the Public Facilities Manual, in favor of the alternatives as shown on the proposed plan and as conditioned.

A reduced copy of the submitted Generalized Development Plan (GDP) is included at the front of this report. Copies of the applicant's proposed proffers, affidavit, and statement of justification are included in Appendices 1, 2 and 3, respectively. Staff analyses are included in Appendices 4 through 14. Residential Development Criteria of the Comprehensive Plan are provided in Appendix 15.

LOCATION AND CHARACTER**Site Description:**

The subject property is located in the Braddock Magisterial District, on the east side of Twinbrook Road, and approximately 900 feet south of the intersection of Twinbrook Road and Braddock Road. The site is vacant with scattered upland forest species in fair to good condition. The highest point of the property is at Twinbrook Road. The elevation drops approximately 14 feet from this point to the eastern property boundary. There is an asphalt trail on the west side of Twinbrook Road. Because of the slope, the trail is higher than the road surface and features an iron fence between it and the road. Twinbrook Road has a shoulder and ditch section along each side.

SURROUNDING AREA DESCRIPTION			
Direction	Use	Zoning	Comprehensive Plan Recommendation
North	Church	R-1	Residential at 2-3 du/ac
East	Single-family detached dwellings	R-3	Residential at 2-3 du/ac
South	Single-family detached dwellings	R-3	Residential at 2-3 du/ac
West	Single-family attached dwellings	R-8	Residential at 5-8 du/ac

BACKGROUND

The project site is currently vacant with scattered trees. There are no previous rezoning or special exception applications associated with the site.

COMPREHENSIVE PLAN PROVISIONS

Plan Area:	III
Planning District:	Pohick
Planning Sector:	P-2 – Main Branch
Plan Map:	Residential at 2-3 du/ac
Plan Text:	

FAIRFAX COUNTY COMPREHENSIVE PLAN, 2013 Edition, Area III, Pohick Planning District, Amended through 6-3-2014, P2-Main Branch Community Planning Sector, Page 30

Land Use Recommendations

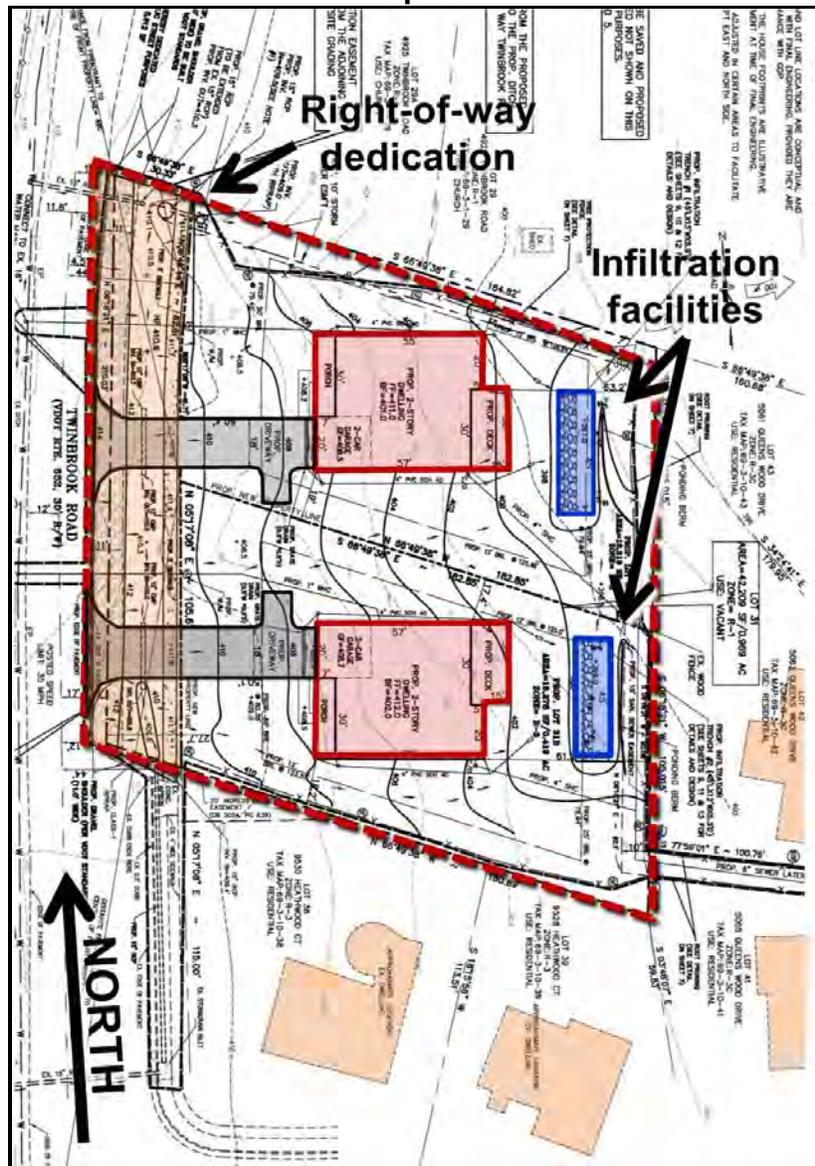
“The Main Branch Community Planning Sector is largely developed as stable residential neighborhoods. Infill development in these neighborhoods should be of a compatible use, type and intensity in accordance with the guidance provided by the Policy Plan under Land Use Objectives 8 and 14.”

PLAN DESCRIPTION

Generalized Development Plan:	copy at front of staff report
Title:	Twinbrook Road Subdivision
Prepared by:	GeoEnv Engineers & Consultants, LLC
Date:	October 23, 2014
Number of Pages:	16

The GDP depicts the development of two single-family detached dwellings on a 42,209-square foot parcel at a density of 2.06 du/ac. The two proposed lots are 18,278 square feet and 18,319 square feet, with an average lot size of approximately 18,299 square feet. Both of the lots would have driveways with direct access onto Twinbrook Road. Sheet 4 of the GDP depicts a minimum front yard setback of 30 feet, a side yard setback of 12 feet, and a rear yard setback of 25 feet. These setbacks comply with the requirements of the R-3 District.

Proposal



Vehicular and Pedestrian Access: The applicant proposes individual driveway access for the two lots onto Twinbrook Road and the dedication of a 26-foot wide area (5,612 square feet) along the Twinbrook Road frontage for right-of-way purposes. A 5-foot wide sidewalk would be built along the east side of Twinbrook Road within the area to be dedicated as right-of-way, one foot from the proposed residential lot lines. The sidewalk would connect to an existing 4-foot wide sidewalk to the south, which was constructed along a residential parcel, and a planned 5-foot wide sidewalk to the north. The northern sidewalk would be constructed in coordination with the development conditions of SPA 81-A-002-06, a Special Permit Amendment for the adjacent Pilgrim Community Church.

Stormwater Management: Stormwater management requirements would be met through the construction of an on-site infiltration trench at the rear of each lot (45 feet x 13 feet for the northern lot; and 45 feet x 12 feet for the southern lot).

Forest Resources: Approximately 56 percent (23,869 square feet) of the site contains upland forest resources, consisting primarily of tulip poplars, maples, and oaks, in fair to good condition. The balance of the site contains open field, consisting of low shrubs and grasses. Nearly all of the trees would be removed as part of site development. Given the impacts to on-site forest resources, the applicant proposes a deviation of the tree preservation target and the planting of 39 native trees to meet canopy area requirements, generally in peripheral areas of the site.

Parking: Each residential lot would contain sufficient area for four parking spaces in the driveway and a minimum of two spaces within an attached garage, for a total of six parking spaces per residence. The driveways for each residence would be a minimum of 18 feet in width and approximately 83 feet in length. Driveways would feature a turnaround of approximately 13 feet long and 10 feet wide.

ANALYSIS

Land Use Analysis

There is no site-specific Plan text for the property, but the Comprehensive Plan map designates the subject parcel as Residential at 2-3 du/ac. The applicant proposes two residential lots at a density of 2.06 du/ac. The Countywide Trails Plan depicts a trail on the west side of Twinbrook Road. A 7.5-foot wide trail has been constructed on the west side of Twinbrook Road. The proposed use and density are consistent with the recommendations of the Comprehensive Plan.

Residential Development Criteria (Appendix 15)

New residential development is expected 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.” The following criteria are to be used in evaluating zoning requests for new residential development.

In applying these Residential Development Criteria, several factors may be considered, including:

- The size of the project;
- Site specific issues that affect the applicant’s ability to address in a meaningful way relevant development issues; and

- Whether the proposal is advancing the guidance found in the area plans or other planning and policy goals, such as revitalization.

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.

- Consolidation: The parcel is surrounded by developed residential parcels to the east, south, and west and a developed church parcel to the north, such that consolidation is not an option.
- Layout: The application proposes two lots of 18,278 square feet and 18,319 square feet with an average size of 18,299 square feet. Each lot would have individual driveway access onto Twinbrook Road. Sheet 4 of the GDP depicts a minimum front yard setback of 30 feet, a side yard setback of 12 feet, and a rear yard setback of 25 feet. These setbacks comply with the requirements of the R-3 District and provide usable yard areas within the individual lots that may accommodate the future construction of decks in accordance with Section 2-412 of the Zoning Ordinance. Stormwater management requirements would be met through the construction of an on-site infiltration trench at the rear of each lot (45 feet x 13 feet on the northern lot; and 45 feet x 12 feet on the southern lot).
- Terrain: The terrain slopes downward to the east at a slope of approximately seven percent. Grading is proposed that would direct the majority of storm flows to the northeastern corner of the project site. The majority of stormwater flows from Twinbrook Road would be directed through a shoulder-and-ditch section along the property frontage to a stormsewer inlet, south of the project site. Stormwater flows from the northwest corner of the site would be directed along the northern property line to the northeast corner of the project site.
- Open Space, Landscaping, and Amenities: The R-3 District does not have an open space requirement for conventional subdivisions.

Based on the features described above, the application satisfies Criterion #1.

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 application property is surrounded primarily by residential uses, including areas zoned R-3 to the east and south and an area zoned R-8 to the west. A church, zoned R-1, is located to the north. The density of the proposed development is 2.06 du/ac, which is consistent with the recommended land use densities of the Comprehensive Plan. The applicant proposes the planting of canopy trees around the lot peripheries to transition to the adjacent uses and address tree coverage concerns.

By means of tree plantings, the bulk and mass of the proposed dwellings, and the orientation of the dwellings, the applicant has responded to the community context. The proposal is consistent with the lots and dwellings surrounding the project site and satisfies Criterion #2.

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.

- Preservation: The project site contains scattered upland forest resources, with approximately 23,689 square feet of canopy, in fair to good condition. The applicant has incorporated approximately 374 square feet of canopy into a tree preservation area. The majority of the trees would be removed, due to impacts associated with construction of the houses and infiltration trenches. However, the applicant would replace the impacted trees with new plantings. These resources are discussed more fully below.
- Slopes and Soils: The site slopes to the east and contains Wheaton-Glenelg Complex soils. Slopes range from seven to 15 percent near Twinbrook Road and two to seven percent near the eastern boundary. Soils have a slow infiltration rate due to a shallow impermeable layer of bedrock or a permanent high water table near the surface and, therefore, have a high runoff potential. Soils are also characteristically highly erodible if not adequately protected during construction. The applicant has designed the site to channel stormwater runoff to the infiltration trenches and, subsequently, to the northeast corner of the lot. The applicant will be required to install erosion and sediment control measures before active clearing for construction. These measures must be maintained throughout the construction phase until all disturbed areas are stabilized. The proposed uses would be required to conform to provisions of applicable ordinances, regulations, and standards regarding site preparation and construction.

- Water Quality and Drainage: An infiltration trench would be installed at the rear of each lot (45 feet by 13 feet on Lot 31A to the north; and 45 feet by 12 feet on Lot 31B to the south). These trenches would contain rock media to a depth of 5.9 and 5.3 feet, respectively, to manage stormwater flows. (See Stormwater Analysis below).
- Traffic Noise: The proposed residences would be sited approximately 50 feet from the Twinbrook Road right-of-way and approximately 83 feet from the existing pavement. Environmental Planning staff analysis recommended a commitment to the use of windows, walls, and doors along the Twinbrook Road facade which would mitigate the traffic-generated sound to an interior level of 45 dBA. However, due to relatively low traffic speeds in the area, further staff review indicates that traffic noise is not expected to have major impacts on the proposed dwelling units, such that a noise study and noise mitigation beyond traditional building standards would not be necessary.
- Lighting: The Policy Plan states that developments should commit to exterior lighting fixtures that minimize neighborhood glare and impacts to the night sky. The proposed use would be required to conform to provisions of applicable ordinances, regulations, and standards.
- Energy: A proposed proffer states that the residences would be constructed to achieve either certification in accordance with the National Green Building Standard using the ENERGY STAR[®] Qualified Homes path for energy performance; or certification in accordance with the Earth Craft House Program.

Based on the details described above, Criterion #3 has been satisfied.

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.

The majority of the on-site trees would be removed, due to impacts associated with construction of the houses and infiltration trenches.

The plans were reviewed by the Urban Forest Management Division (UFMD) (see Appendix 8). Staff noted that the tree inventory was incomplete and did not include off-site trees to the east of the proposed limits of clearing and grading. Staff also raised concerns regarding the limits of clearing and grading along the eastern property line, due to minimal protection to the critical root zones of off-site trees due to the placement of the infiltration trenches near the eastern lot

line, which would have impacted the critical root zones of trees on the neighboring properties. Staff also noted that it was unclear how deep the sewer lateral to the southeast of the site would be trenched and, therefore, it was unclear how nearby trees would be impacted.

In response to staff comments, the applicant submitted a revised tree inventory that included off-site trees within 25 feet of the proposed limits of clearing and grading. Additionally, the applicant shifted the BMP facilities to the west and adjusted the limits of clearing and grading, to provide additional protection for off-site trees. The applicant also provided information on Sheet 5 of the GDP regarding tree protection measures to be taken during the installation of the off-site sanitary sewer connection, which runs southeast of the site to Queens Wood Drive.

Staff notes that the applicant proposes the replacement of impacted trees with 39 new plantings along the periphery of the lots to enhance compatibility with the surrounding properties.

Based on the details described above, Criterion #4 has been satisfactorily met.

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: transportation improvements, transit/transportation management, interconnection of the street network, streets, non-motorized facilities, and alternative street designs.

The proposed development would subdivide one existing residential lot into two residential lots, at a density of 2.06 du/ac, which is at the low end of the recommended Plan density. Twinbrook Road is classified by the County as a Minor Arterial Type B, having a 2-lane cross-section, within an 87-foot wide right-of-way road section. FCDOT reviewed the applicant's original submission, which consisted of two options: a shoulder-and-ditch section and a curb-and-gutter section. Optimally, and consistent with County policies, the applicant should provide dedication for and construction of full frontage improvements, including curb, gutter and sidewalk, with the appropriate transitions to the north and south. However, staff recognizes that there are a number of unique circumstances at play in this case. The application property has approximately 210 feet of frontage on Twinbrook Road. To the immediate south is a subdivision that was

rezoned in the 1970s and built in the 1980s, which provided full frontage improvements within a larger right-of-way dedication, which staff believes was to provide for a future left-turn lane on Twinbrook Road which was never constructed. To the north is a church which remains zoned R-1 and which does not have full frontage improvements to today's standards.

While the applicant could provide the optimal, standard frontage improvements, transitioning them to the existing conditions to the north and south would create a less than ideal situation. Additional pavement, which could invite on-street parking proximate to the driveways, may cause potential safety conflicts for the new residents exiting from the upward-sloping driveways onto Twinbrook Road.

Consequently, staff has worked with the applicant to achieve a design for frontage improvements which would maximize the safety, both for vehicles using Twinbrook Road and vehicles entering and exiting the proposed residences. The applicant has revised the plan to depict full right-of-way dedication along Twinbrook Road to create a 44-foot wide half section. The plan depicts improvements consisting of one additional foot of pavement for the existing travel lane and an 11-foot wide gravel shoulder, which should allow adequate room for delivery vehicles to pull off to service the site without having to either back out onto the road from the driveways or to impede traffic on the road if they pull over to the edge of the paved road. The applicant will also construct a standard 5-foot wide sidewalk, one foot inside the dedicated right-of-way and will tie it into the existing and planned sidewalks to the south and north, respectively. All improvements will be to VDOT standards, and the applicant will demonstrate that adequate sight distance will be achieved from each driveway. The proposed shoulder-and-ditch section will tie into an existing stormwater inlet to the south.

Staff believes that these improvements, as depicted on the GDP and reflected in the commitments in the applicant's proffer statement, are adequate to address the applicant's development and will adequately mitigate safety concerns for the Twinbrook Road frontage; therefore Criterion #5 is addressed.

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.

The applications were reviewed by the Department of Facilities and Transportation Services of the Fairfax County Public Schools (FCPS). Based on current projections, the elementary, middle, and high schools are expected to have adequate capacity to serve the proposed residences. The two proposed residences are expected to generate a total yield of one student. Based on the approved Residential Development Criteria, a proffer contribution of \$10,825 per student is recommended to offset the impact of the student growth on the surrounding schools. FCPS staff also recommended an escalation clause to 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. Staff also recommended that proffer payments be made at Subdivision Plan or no later than building permit to allow the school system lead time before the arrival of students.

The applicant proposes a public school contribution of \$10,825 at the time of the first building permit approval and an escalation clause, per staff recommendations.

Staff finds that this criterion has been adequately addressed.

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.

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.

The applicant has proffered contributions to the Housing Trust Fund, such that, prior to the issuance of the first building permit, the applicant would contribute a sum equal to one-half percent of the value of the unit being developed above the current by-right density.

Criterion #7 has been satisfactorily met.

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.

Staff of the Fairfax County Park Authority (FCPA) reviewed the application and noted that the project site has been previously developed. Based on the condition of the site, the County Archaeologist determined that the parcel has very low potential to contain significant cultural resources, so that there are no outstanding cultural resource issues and no archaeological work is warranted.

Based on an average single-family detached household size in the Pohick Planning District, the development is expected to add six new residents to the Braddock Supervisory District. Using adopted service level standards, staff has identified a need for various types of parkland and recreational facilities in this area. 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, for a total fair-share contribution of \$5,358. The applicant proposes a monetary contribution of \$2,679 to the Park Authority to offset the proposal's impacts to County park and recreation facilities. The proposed contribution was based on an increase of one dwelling unit, above the one dwelling unit allowed by-right.

Stormwater Management Analysis

Staff of DPWES reviewed the application and had the following comments:

- The applicant proposes infiltration trenches located on individual lots to satisfy the SWM/BMP requirements for the proposed two-lot rezoning. Such individual lot facilities are not normally allowed within subdivisions, unless specifically approved by the Director of DPWES in writing (with conditions) in accordance with PFM 6-1307.2A.

- Infiltration trenches may be a viable means for providing the required stormwater detention for the site, although they might be undersized. Adjustments (possibly to the design infiltration rate), updates to drainage areas and impervious surfaces, and other details for the final design must be generated during final engineering and subdivision plans development.
- Offsite areas that drain through the site must be accounted for in the BMP design considerations and calculations.
- A private maintenance agreement must be submitted for review and approval during the final subdivision plan review process.
- It is recommended that a proper Adequate Outfall analysis be done in conjunction with the rezoning process rather than with the final engineering and subdivision plans development, in the interest of determining whether the proposed treatment scheme is adequate.
- An appropriate drainage easement to encompass the flowpath of the culvert discharge from Twinbrook Road has not been shown. A 10-foot wide easement along the northern property line would be sufficient.
- Preliminary estimates of the required phosphorus reduction for the site and the proposed reductions afforded by the selected BMPs are needed, along with a reevaluation of the adequate outfall requirements. There are also additional design requirements for infiltration facilities (including design for a 10-year/24-hour storm volume of 4.9-inch +/-, rather than a 10-year/2-hour storm volume of 3 inches +/-).
- There is a future County stream restoration project proposed for the Pohick Creek tributary channel segment that ultimately receives the stormwater from the subject site. The applicant's proposed project is anticipated to have little to no impact on this project.

NVSWCD staff noted that the proposed ground elevations should be provided so that flow patterns could be determined.

In response to staff comments, the applicant updated the stormwater analysis to take into account off-site drainage. A 10-foot wide stormsewer easement is proposed along the northern property boundary to encompass the flowpath from the discharge from Twinbrook Road and the plans now reflect the final ground elevations. Grading is proposed so that surface flows are directed away from neighboring residential properties. The applicant has also updated the outfall calculations. Additionally, the applicant has updated the GDP to provide information regarding maintenance responsibility for the infiltration trenches.

The Public Facilities Manual (PFM 6-1307.2A) states that:

“In residential areas, bioretention facilities and their appurtenant structures must be located on homeowner association (or “common”) property and may not be located on individual buildable single-family attached or detached residential lots or any part thereof for the purpose of satisfying the detention, water quantity, or water quality control (BMP) requirements of the Stormwater

Management Ordinance except as noted herein. The Director may approve the location of bioretention facilities on individual buildable single-family detached lots for subdivisions creating no more than seven lots where it can be demonstrated that the requirement is not practical or desirable due to constraints imposed by the dimensions or topography of the property and where adequate provisions for maintenance are provided. Such approval by the Director shall be in writing and shall specify such conditions deemed necessary to ensure the effectiveness, reliability, and maintenance of the proposed facilities.”

Although locating a common SWM facility on a common lot maintained by a two-lot home owners' association (HOA) is a possibility, such a scenario does not guarantee that the HOA would continue to operate or that the facility would be adequately maintained. Locating SWM facilities on individual lots may be an acceptable solution, provided that a private maintenance agreement, in a form acceptable to the County Attorney's Office, is completed for each lot to ensure that the facilities are properly maintained. Such an agreement would bind each owner and would run with the land, avoiding any issues associated with joint ownership of a common parcel. A proffer is proposed which would require that the stormwater management facilities be privately maintained and that a private maintenance agreement be executed.

To allow flexibility in meeting stormwater requirements, staff recommends that the proffers allow: i) flexibility in the siting of the infiltration facilities so that minor expansion or relocation of these facilities within the limits of clearing and grading is allowed without the need for a Proffered Condition Amendment (PCA); ii) an option for the applicant to combine the two proposed driveways into a shared driveway to allow flexibility in treating stormwater along the roadway frontage without the need for a PCA; and iii) an option to locate a stormwater facility between the two houses without the need for a PCA, if necessary to fulfill stormwater management requirements. Staff is continuing to work with the applicant to address these recommendations.

Water, Sanitary Sewer, and Fire & Rescue Analyses (Appendices 12, 13, & 14)

FCWA staff reviewed the application and found that adequate domestic water service is available to serve the site. Staff noted that additional water main extensions may be necessary to satisfy fire flow requirements and accommodate water quality concerns. DPWES staff found that an existing 8-inch sanitary sewer line located in Queens Wood Drive and approximately 170 feet to the east of the property is adequate to serve the proposed use. Fire and Rescue staff noted that the subject property is serviced by the Station #414, Burke.

ZONING ORDINANCE ANALYSIS

Lot Size Requirements, Bulk Regulations, and Parking

R-3 Residential Lot Requirements & Parking (§3-306, §3-307, & Article 11, Part 1)		
Standard	Required	Provided
Min. Lot Area	10,500 sf	18,278 sf
Avg. Lot Area	11,500 sf	18,299 sf
Min. Lot Width	80 feet	105.6 feet
Max. Building Height	35 feet	32 feet
Front Yard	30 feet	30 feet
Side Yard	12 feet	12 feet
Rear Yard	25 feet	25 feet
Parking	4 spaces at a minimum (2 spaces per dwelling)	(min. 2 spaces in garage & 4 spaces in driveway per dwelling)

This application meets all of the lot and bulk requirements of the R-3 district and all parking requirements as listed above.

Transitional Screening and Barrier Requirements

Transitional screening and barriers are not required.

WAIVER AND DEVIATION

The applicant requests a waiver of the PFM, so that individual stormwater management facilities are allowed on individual lots, pursuant to Section 6-1307 of the PFM, and a deviation to the Tree Preservation Target, pursuant to Section 12-0508 of the PFM, as discussed below.

Bioretention Facilities on Individual Lots

Section 6-1307.2A of the Public Facilities Manual states that “[t]he Director may approve the location of bioretention facilities on individual buildable single-family detached lots for subdivisions creating no more than seven lots where it can be demonstrated that the requirement is not practical or desirable due to constraints imposed by the dimensions or topography of the property and where adequate provisions for maintenance are provided.”

As previously discussed, the applicant proposes infiltration trenches located on individual lots to satisfy the SWM/BMP requirements for the proposed two-lot rezoning. Staff supports the waiver request in favor of facilities on individual lots.

Staff recommends that the Board of Supervisors direct the Director of DPWES to approve the placement of bioretention facilities on individual lots, provided that a private maintenance agreement, in a form acceptable to the County Attorney's Office, is completed for each lot to ensure that the facilities are appropriately maintained.

Tree Preservation Target

Section 12-0508.3 of the Public Facilities Manual states that the Director may approve a deviation from the site's Tree Preservation Target when meeting the Target would require the preservation of trees that do not meet standards for health and structural condition and other vegetation and risk management requirements of the Public Facilities Manual.

Construction activities can be expected to impact existing trees, some of which do not meet standards for health and structural condition, so that few trees are expected to survive in a healthy and structurally sound manner. Accordingly, the applicant is requesting a deviation of the Tree Preservation Target pursuant to Section 12-0508 of the Public Facilities Manual. Ten-Year Tree Canopy requirements would be met through the planting of 39 new trees. Given the condition of the existing trees and the expected construction impacts, staff supports the deviation request in favor of the proposed plantings as shown on the plan and as conditioned.

CONCLUSIONS AND RECOMMENDATIONS

Staff Conclusions

Staff concludes that a rezoning to the R-3 District for the development of two single-family detached dwellings at a density of 2.06 du/ac is consistent with the Comprehensive Plan's recommended residential density range and is in general conformance with the Zoning Ordinance standards. Additionally, the applicant proposes proffers for school contributions, parks contributions commensurate with one new dwelling, energy efficiency, and affordable housing. Staff is continuing to work with the applicant to revise the proffers.

Recommendations

Staff recommends approval of RZ 2014-BR-001, subject to the execution of proffers consistent with those contained in Appendix 1 of this report.

Staff recommends approval of the waiver and deviation, as listed below:

- Waiver of the location requirements of bioretention facilities, pursuant to Section 6-1307 of the Public Facilities Manual, to allow infiltration trenches to be located on individual lots, provided that a private maintenance agreement,

in a form acceptable to the County Attorney's Office, is completed for each lot; and

- Deviation of the Tree Preservation Target, pursuant to Section 12-0508 of the Public Facilities Manual, in favor of the alternatives as shown on the proposed plan and as conditioned.

It should be noted that it is not the intent of staff to recommend that the Board of Supervisors, in adopting any conditions proffered by the owner, relieve the applicants from compliance with the provisions of any applicable ordinances, regulations, or adopted standards. The approval of these applications do not and would 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.

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

APPENDICES

1. Proposed Proffers
2. Affidavit
3. Statement of Justification
4. Transportation Analysis - FCDOT
5. Transportation Analysis - VDOT
6. Stormwater Analysis - DPWES/SDID
7. Environmental Analysis - DPZ
8. Urban Forestry Analysis - DPWES/UFMD
9. Conservation Analysis - NVSWCD
10. Schools Analysis - FCPS
11. Parks Analysis - FCPA
12. Water Analysis - FCWA
13. Sanitary Sewer Analysis - DPWES/WPMD
14. Fire and Rescue Analysis - F&R
15. Residential Development Criteria
16. Glossary of Terms

PROFFER STATEMENT

October 23, 2014

RZ 2014-BR-001

Blagoj Skandev/SD Homes, LLC

Pursuant to Section 15.2-2303(A), Code of Virginia, 1950 as amended, the undersigned Owner/Applicant, in this rezoning proffers that the development of the parcel under consideration and shown on the Fairfax County Tax Map as Tax Map 069-3-01-0031 (hereinafter referred to as the "Property") will be in accordance with the following conditions (the "Proffered Conditions"), if and only if, said rezoning request for the R-3 Zoning District is granted. In the event that said rezoning request is denied, these Proffered Conditions shall be null and void. The Owner/Applicant, for themselves, their successors and assigns hereby agree that these Proffered Conditions shall be binding on the future development of the Property unless modified, waived or rescinded in the future by the Board of Supervisors of Fairfax County, Virginia, in accordance with applicable County and State statutory procedures. The Proffered Conditions are:

1. Generalized Development Plan. The Property shall be developed in substantial conformance with the Generalized Development Plan ("GDP ") entitled "5015 Twinbrook Rd. Burke," prepared by GeoEnv Engineers, dated March, 2014 and revised through October 23, 2014, consisting of 16 sheets. A maximum of two (SFH) dwelling units shall be constructed on the Property.

2. Minor Modifications. Pursuant to Paragraph 5 of Section 18-204 of the Zoning Ordinance, minor modifications from the GDP may be permitted when it is determined by the Zoning Administrator that such modifications are in substantial conformance with the GDP.

3. Universal Design. At the time of initial purchase, the Applicant shall offer each purchaser the following universal design options at no additional cost:

- A. Front entrance doors that are a minimum of 36 inches wide;
- B. Clear knee space under the sink in the kitchen;
- C. Level door handles instead of knobs;
- D. Light switches 44-48 inches high;
- E. Thermostats a maximum of 48" high; and
- F. 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:

- G. Step-less entry from the garage to the house and/or into the front door;
- H. A curb-less shower, or a shower with a curb of less than 4.5" high;

- I. A turning radius of five feet near the first floor bathroom commode;
- J. Grab bars in the bathrooms that are ADA compliant; and
- K. A first-floor bathroom console sink in lieu of a cabinet-style vanity.

4. Architectural Design. The architectural design of the proposed dwellings shall generally conform to the character and quality of the illustrative elevation, but the Applicant reserves the right to modify these elevations and revise architectural ornamentation based on final architectural design. The building materials shall be a combination of brick, stone, cementations siding and stucco supplemented with trim and detail features. Dwellings shall incorporate a brick, stone or stucco water table on all facades visible from public streets.

5. Transportation Facilities. The Applicant shall do frontage improvement:

- A. Construct of swell that will pick up the runoff water from the road as shown on the GDP, or similar drainage of the road runoff water constructed when final grading is available and acceptable to VDOT.
- B. Construct shoulder of the Twinbrook road including 12" asphalt attached to the existing edge of the road and add 11' of gravel shoulder per VDOT standards.
- C. The driveway locations shall provide adequate sight distances for entering the public street;
- D. Vegetation across the site frontage shall be trimmed or removed to eliminate sight line obstructions;
- E. A concrete sidewalk a minimum of five feet wide shall be constructed by the applicant within the area to be dedicated as right-of-way along Twinbrook Road. The eastern edge of the sidewalk shall generally be located approximately one (1) foot from and parallel to the proposed eastern limit of the right-of-way, in accordance with Virginia Department of Transportation ("VDOT") roadway design standards, with the final location of the sidewalk to be determined during site plan review, as approved by the Department of Public Works and Environmental Services ("DPWES") and VDOT;
- F. The Applicant shall extend the concrete sidewalk to the south to connect with the existing concrete apron along the Twinbrook Road frontage of Tax Map 0693 10 0038, and shall cooperate with the adjoining property owner (0693 01 0029A) regarding the sidewalk location at the common property line and the clearing and grading necessary to construct the facility.

6. Construction Hours. Construction shall occur only between the hours of 7:00 a.m. until 7:00 p.m., Monday through Friday, and 9:00 a.m. until 6:00 p.m., Saturday and Sunday. Construction activities shall not occur on the holidays of Memorial Day, July 4th, Labor Day, Thanksgiving, Christmas, Easter, and New Year's Day. The allowable hours of construction as specified in this proffer shall be listed within any contract with future sub-contractors associated with initial construction on the site.

7. Tree Preservation: The applicant shall submit a Tree Preservation Plan and Narrative as part of the first and all subsequent site plan submissions. The preservation plan and narrative shall be prepared by a Certified Arborist or a Registered Consulting Arborist, and shall be subject to the review and approval of the Urban Forest Management Division, DPWES.

The tree preservation plan shall include a tree inventory that identifies the location, species, critical root zone, size, crown spread and condition analysis percentage rating for all individual trees to be preserved, as well as all on and off-site trees, living or dead with trunks 12 inches in diameter and greater (measured at 4 1/2 -feet from the base of the trunk or as otherwise allowed in the latest edition of the Guide for Plant Appraisal published by the International Society of Arboriculture) located within 25 feet to either side of the limits of clearing and grading. The tree preservation plan shall provide for the preservation of those areas shown for tree preservation, those areas outside of the limits of clearing and grading shown on the GDP and those additional areas in which trees can be preserved as a result of final engineering. The tree preservation plan and narrative shall include all items specified in PFM 12-0507 and 12-0509. Specific tree preservation activities that will maximize the survivability of any tree identified to be preserved, such as: crown pruning, root pruning, mulching, fertilization, and others as necessary, shall be included in the plan.

Tree Appraisal. The Applicant shall retain a professional arborist with experience in plant appraisal, to determine the replacement value of all trees 12 inches in diameter or greater located on the Application Property that are shown to be saved on the Tree Preservation Plan. These trees and their value shall be identified on the Tree Preservation Plan at the time of the first submission of the respective site plan(s). The replacement value shall take into consideration the age, size and condition of these trees and shall be determined by the so-called "Trunk Formula Method" contained in the latest edition of the Guide for Plan Appraisal published by the International Society of Arboriculture, subject to review and approval by UFMD.

At the time of the respective site plan approvals, the Applicant shall post a cash bond or a letter of credit payable to the County of Fairfax to ensure preservation and/or replacement of the trees for which a tree value has been determined in accordance with the paragraph above (the "Bonded Trees") that die or are dying due to unauthorized construction activities. The letter of credit or cash deposit shall be equal to 50% of the replacement value of the Bonded Trees. At any time prior to final bond release for the improvements on the Application Property constructed adjacent to the respective tree save areas, should any Bonded Trees die, be removed, or are determined to be dying by UFMD due to unauthorized construction activities, the Applicant shall replace such trees at its expense. The replacement trees shall be of equivalent size, species and/or canopy cover as approved by UFMD. In addition to this replacement obligation, the Applicant shall also make a payment equal to the value of any Bonded Tree that is dead or dying or improperly removed due to unauthorized construction activity. This payment shall be determined based on the Trunk Formula Method and paid to a fund established by the County for furtherance of tree preservation objectives. Upon release of the bond for the improvements on the Application Property constructed adjacent to the respective tree save areas, any amount remaining in the tree bonds required by this proffer shall be returned/released to the Applicant.

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 may be removed as part of the clearing operation. 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.

8. Limits of Clearing and Grading. The Applicant shall conform strictly to the limits of clearing and grading as shown on the GDP, subject to allowances specified in these proffered conditions and for the installation of utilities and/or trails as determined necessary by the Director of DPWES, as described herein. If it is determined necessary to install utilities and/or trails in areas protected by the limits of clearing and grading as shown on the GDP, they shall be located in the least disruptive manner necessary as determined by the UFMD, DPWES. A replanting plan shall be developed and implemented, subject to approval by the UFMD, DPWES, for any areas protected by the limits of clearing and grading that must be disturbed for such trails or utilities." Tree Preservation Fencing: "All trees shown to be preserved on the tree preservation plan shall be protected by tree protection fence. Tree protection fencing in the form of four (4) foot high, fourteen (14) gauge welded wire attached to six (6) foot steel posts driven eighteen (18) inches into the ground and placed no further than ten (10) feet apart or, super silt fence to the extent that required trenching for super silt fence does not sever or wound compression roots which can lead to structural failure and/or uprooting of trees shall be erected at the limits of clearing and grading as shown on the demolition, and phase I & II erosion and sediment control sheets, as may be modified by the "Root Pruning" proffer below. All tree protection fencing shall be installed after the tree preservation walk-through meeting but prior to any clearing and grading activities, including the demolition of any existing structures. The installation of all tree protection fencing shall be performed under the supervision of a certified arborist, and accomplished in a manner that does not harm existing vegetation that is to be preserved. Three (3) days prior to the commencement of any clearing, grading or demolition activities, but subsequent to the installation of the tree protection devices, the UFMD, DPWES, shall be notified and given the opportunity to inspect the site to ensure that all tree protection devices have been correctly installed. If it is determined that the fencing has not been installed correctly, no grading or construction activities shall occur until the fencing is installed correctly, as determined by the UFMD, DPWES.

9. Root Pruning. The Applicant shall root prune, as needed to comply with the tree preservation requirements of these proffers. All treatments shall be clearly identified, labeled, and detailed on the erosion and sediment control sheets of the subdivision plan submission. The details for these treatments shall be reviewed and approved by the UFMD, DPWES, accomplished in a manner that protects affected and adjacent vegetation to be preserved, and may include, but not be limited to the following:

- Root pruning shall be done with a trencher or vibratory plow to a depth of 18 inches.

Root pruning shall take place prior to any clearing and grading, or demolition of structures.

- Root pruning shall be conducted with the supervision of a certified arborist.
- An UFMD, DPWES, representative shall be informed when all root pruning and tree protection fence installation is complete."

Site Monitoring. "During any clearing or tree/vegetation/structure removal on the Applicant Property, a representative of the Applicant shall be present to monitor the process and ensure that the activities are conducted as proffered and as approved by the UFMD. The Applicant shall retain the services of a certified arborist or Registered Consulting Arborist to monitor all construction and demolition work and tree preservation efforts in order to ensure conformance with all tree preservation development conditions, and UFMD approvals. The monitoring schedule shall be described and detailed in the Landscaping and Tree Preservation Plan, and reviewed and approved by the UFMD, DPWES.

10. Energy Conservation. The dwelling units shall be constructed to achieve one of the following:

- A. Certification in accordance with the 2012 National Green Building Standard (NGBS) using the ENERGY STAR® (version 3.0) Qualified Homes path for energy performance, as demonstrated through a preliminary report submitted to the Environment and Development review Branch of the Department of Planning and Zoning (DPZ) prior to the issuance of the Residential Use Permit (RUP) for each dwelling from a home energy rater certified through the Home Innovation Research Labs that demonstrates that each dwelling unit has attained the certification and the final report submitted to DPZ within Thirty (30) Days after the issuance of the RUP of each dwelling ; or
- B. Certification in accordance with the Earth Craft House Program, as demonstrated through documentation provided to DPWES and DPZ prior to the issuance of the RUP for each dwelling.

11. Vegetation Management Plan. An invasive and undesirable vegetation management plan should be provided detailing how the invasive and/or undesirable plant species will be removed and managed from these areas, without damaging trees proposed for preservation, to promote the long-term ecological functionality, health, and regenerative capacity of the early successional forest community. Proffer language related to invasive and undesirable vegetation management should be obtained similar to the following:

An invasive and undesirable vegetation management plan shall be developed that provides for the management and treatment of invasive and undesirable plants, growing in all areas shown to be preserved, that are likely to endanger the long-term ecological functionality, health, and regenerative capacity of the early successional forest communities, for review and approval by the Urban Forest Management Division. The management plan shall incorporate the following information:

- Identify targeted invasive plant species to be suppressed and managed.
- Identify targeted area of invasive plant management plan, which shall be clearly identified on the landscape or tree preservation plan.
- Recommended government and industry method(s) of management, i.e. hand

removal, mechanical equipment, chemical control, other. Identify potential impacts of recommended method(s) on surrounding trees and vegetation not targeted for suppression/management and identify how these trees and vegetation will be protected (for example, if mechanical equipment is proposed in save area, what will be the impacts to trees identified for preservation and how will these impacts be reduced).

- Identify how targeted species will be disposed.
- If chemical control is recommended, treatments shall be performed by or under direct supervision of a Virginia Certified Pesticide Applicator or Registered Technician and under the general supervision of Project Arborist).
 - Provide information regarding timing of treatments, (hand removal, mechanical equipment or chemical treatments) when will treatments begin and end during a season and proposed frequency of treatments per season.
 - Identify potential areas of reforestation and provide recommendation
 - Monthly monitoring reports provided to UFMD and SDID staff.
 - Duration of Invasive program; until Bond release or release of Conservation Deposit or prior to release if targeted plant(s) appear to be eliminated based on documentation provided by Project Arborist and an inspection by UFMD staff

12. Garage Conversion. The applicant will construct for each dwelling up to three car garage and driveway will accommodate four more cars to park.

13. Recreation Contribution. The Applicant shall contribute \$2,679 to the Park Authority prior to subdivision plan approval to offset this development's impacts on County Park and Recreation facilities to be utilized for the development of off-site recreational facilities intended to serve the future residents.

14. Public School Contribution. Per the Residential Development Criteria Implementation Motion adopted by the Board of Supervisors on September 9, 2002, and revised September 1, 2012, the Applicant shall contribute \$10,825 to the Fairfax County School Board to be utilized for capital improvements or capacity enhancements to schools that students generated by the Property will attend. Such contribution shall be made at the time of the first building permit approval for the Property. Following approval of this Application and prior to the Applicant's payment of the contribution, 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.

15. Housing Trust Fund. Prior to the issuance of the first building permit, the Applicant shall contribute to the Fairfax County Housing Trust Fund ("HTF") the sum equal to one half percent (1/2%) of the value of one of the units approved at the time of site plan on the Property. The percentage shall be based on the assessed value of the unit subject to the contribution, the sales price of the unit, or an estimate derived from comparable sales of similar type units. The value shall be proposed by the Applicant in consultation with the Fairfax County Department of Housing and Community Development ("HCD") and shall be approved by HCD.

16. Proffer Notification. The Applicant shall notify the Office of Facilities Planning Services of Fairfax County Public Schools within 30 days of filing a site plan with the County to allow the school system adequate time to plan for anticipated student growth and to ensure classroom availability.

17. Storm water management. The applicant will construct BMP facility as shown on the GDP which will be within the limits of the new Storm water regulation effective July 2014. The BMP Facility (infiltration trench) and their appurtenant structures must be privately maintained and private maintenance agreement will be executed prior to the issuance of the permit.

18. Adjustments in Contribution Amounts. For all proffers specifying contribution amounts, with the exception of Proffer 17 related to the public school contribution, the contribution shall adjust on a yearly basis from the base year of 2014 and change effective each January 1 thereafter, based on changes in the Consumer Price Index for all urban consumers (not seasonally adjusted) ("CPI-U"), both as permitted by Virginia State Code Section 15.2-2303.3.

SUCCESSORS AND ASSIGNS

Successors and Assigns.

These proffers shall bind and inure to the benefit of the Applicant and his/her successors and assigns.

APPLICANT/CONTRACT PURCHASER OF TAX MAP
Tax Map 069-3-01-0031



Blagoj Skandev/SD Homes, LLC

TITLE OWNER OF TAX MAP
Tax Map 069-3-01-0031

REZONING AFFIDAVIT

DATE: 03/11/14
 (enter date affidavit is notarized)

I, BLAGOJ SKANDEV / SD HOMES LLC, do hereby state that I am an
 (enter name of applicant or authorized agent)

123995

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

in Application No.(s): RZ 2014-BR-001
 (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.)

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)
SD HOMES LLC	5315 OX ROAD FAIRFAX, VA, 22030	APPLICANT / TITLE OWNER
BLAGOJ SKANDEV	5315 OX ROAD FAIRFAX, VA, 22030	CO-APPLICANT
GEO ENV ENGINEERS & CONSULTANTS LLC AGENT: IBRAHIM A. CHEHAB, ALSO KNOWN OF RECORD AS ABRAHIM CHEHAB AND ABC CHEHAB	10875 MAIN ST. #213 FAIRFAX, VA, 22030	ENGINEER / AGENT FOR APPLICANT / TITLE OWNER

(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 AFFIDAVIT

DATE: 03/11/14
(enter date affidavit is notarized)

123995

for Application No. (s): RZ 2014-BR-001
(enter County-assigned application number(s))

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)

SD HOMES LLC
5315 OK ROAD, 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 SHAREHOLDERS: (enter first name, middle initial, and last name)

BLAGOJ SKANDGV
DARVO DOMBROVSKI

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

BLAGOJ SKANDGV OWNER / MANAGING MEMBER
DARVO DOMBROVSKI OWNER / MEMBER

(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)

123995

DATE: 03/11/14
(enter date affidavit is notarized)

for Application No. (s): RZ 2014-BR-001
(enter County-assigned application number (s))

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

GEO ENV ENGINEERS & CONSULTANTS LLC.
10875 MAIN ST. #213, 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)

IBRAHIM A. CHEHAB

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

IBRAHIM A. CHEHAB, PRESIDENT.

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

123995

DATE: 03/11/14
(enter date affidavit is notarized)

for Application No. (s): RZ 2014 BR-001
(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: 03/11/14
(enter date affidavit is notarized)

123995

for Application No. (s): RZ 2014 BR-001
(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: 03/11/14
(enter date affidavit is notarized)

123995

for Application No. (s): RZ 2014-BR-001
(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

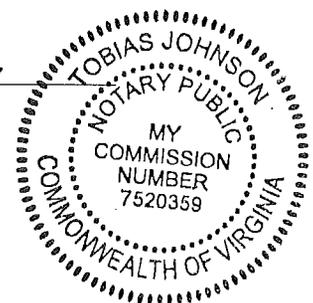
[] Applicant's Authorized Agent

BLAGOJ SKANDEV, OWNER/MANAGING MEMBER.
(type or print first name, middle initial, last name, and title of signee)

Subscribed and sworn to before me this 11th day of MARCH, 20 14, in the State/Comm. of VIRGINIA, County/City of Fairfax.

My commission expires: 4/30/16

Tobias Johnson
Notary Public





RE-ZONING STATEMENT OF JUSTIFICATION

**LOT 31 BURKE; 5015 TWINBROOK ROAD
 BURKE, BRADDOCK DISTRICT, FAIRFAX COUNTY, VIRGINIA
 Tax Map No. 69-3-((1))-31**

The project site is identified as Lot 31 Burke, and known as 5015 Twinbrook Road, Burke, Braddock District, Fairfax County, Virginia 22105. The property is identified on Tax Map No. 69-3-((1))-31 and recorded in Deed Book 23308 at Page 1879 among the land records of Fairfax County, Virginia. According to recorded deed, the study lot has an irregular shapes and contains a total of approximately 1.0123 acres (0.96914 acres according to the survey plat) of undeveloped lands, and located on the eastern side of Twinbrook Road (VA Route 652), in Burke, Braddock District, Fairfax County, Virginia. Currently the site is mostly wooded and vacant of known aboveground structures. Access to the site is thru existing Twinbrook Road (VA Route 652), which is a paved public right-of-way as shown on the attached drawings. The new structures will be serviced by the public water and sewer systems and onsite stormwater management system (quality and quantity control). The public water is located within the right-of-way of Twinbrook Road. The Electrical services connected to the Virginia Power Lines which is also located within the right-of-way of Twinbrook Road.

The property is currently zoned R-1 (Residential 1DU/Acre per dwelling). Adjacent properties to the east and south are zoned R-3 and occupied by single-family residential dwellings, while the adjacent lot to the north is zoned R-1 and occupied by a Church under a special use permit. Adjacent and nearby properties are mostly occupied by single-family residential dwellings. The property is intended to be re-zoned into R-3 zone (residential at 3 DU/acre) and planned to be developed into two residential dwellings.

The development of the properties will be in accordance with current Fairfax County Zoning Ordinances. The proposed 2-story residential dwellings will be in harmony with the setting and use of the adjacent properties. A tree conservation plan will be prepared for each lot in compliance with Fairfax PFM. A proposed tree save and reforestation area of 30 percent (minimum) will be provided for each new lot. Large trees outside the building footprints and required limit of clearings will be preserved to the extent practical. Also, as a part of this re-zoning, the owner is willing to convey to the public right-of-way required frontage to meet the future road expansion, as shown on the GDP. The followings items address the re-zoning Statement of Justification:

A. Type of Operation:

The property is planned for a new simple subdivision into two (2) residential lots in accordance with Fairfax County Zoning Ordinances, and DPW development requirements.

B. Hours of Operation:

The property is planned for single-family residential dwellings and no special use or unusual

operation are planned.

C. Estimated Number of Patrons/Clients/Patients/Pupils/etc.

Each of the two proposed residential lot will be occupied a single-family. Each dwelling will have up to five (5) bedrooms. No special operation is planned. Construction activities will be limited by those approved by Fairfax County, and other than residential use is anticipated.

D. Proposed Number of Employees/Attendants/Teachers, etc.

No employees, attendants, or patients, or public sector employees are anticipated.

E. Estimated Traffic Impact of the Proposed Use, including the maximum expected trip generation and the distribution of such trips by mode and time of day.

Based on the proposed use, we estimate that a maximum of less than 10 trips (maximum) will be generated by each dwelling.

F. Vicinity or General Area to be Served by the Use

The existing residential structures are average size colonial dwellings. The new dwellings will be consistent with the existing.

Description of Building Facade and Architectural of Proposed New Buildings or Additions.

The new dwellings will be 2-story structures with partially below-grade basements, and attached two car garages. They will be wood frame with brick and stone finishes. An architectural rendering is shown on the attached GDP. The average building height will not exceed 35 feet. The interior will be wood framing and the materials will be from those locally available.

A listing, if known of all hazardous waste or Toxic substances as Set Forth in Title 40, Code of Federal Regulations Parts 116.4, 302.4 and 335.

The dwellings will be use strictly for residential occupation. No hazardous waste or Toxic Waste Substances will be used or generated. No hazardous or Toxic Substances will be generated, used, or stored at the site. The heating and cooling systems will be either natural gas or electric, and no aboveground or underground fuel storage tanks will be utilized at the site.

G. A statement of how the proposed use conforms to the provisions of all applicable ordinance, regulations, adopted standards, and any applicable conditions

The development plans will be prepared in accordance with current zoning ordinance, regulations, and adopted standards as approved by the proposed re-zoning and subdivision resolutions. No known exceptions or variances will be required or requested.

Name: IBRAHIM CHEHAR Date: 11/20/2013

10875 Main Street, Suite 213 ♦ Fairfax ♦ Virginia ♦ 22030 □□□ Tel (703) 591-7070





County of Fairfax, Virginia

MEMORANDUM

DATE: September 11, 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 2014-BR-001

SUBJECT: ADDENDUM RZ 2014-BR-001 Blagoj Skandev (SD Homes LLC)
5015 Twinbrook Road, Burke VA 22105
Tax Map: 69-3 ((1)) 31

This Department has reviewed the subject application and General Development Plan (GDP) dated December 14, 2013, and revised through August 11, 2014, and proffers statement revised through June 20, 2014, and offers the following comments. Proffer commitments to address these comments should be provided.

- The applicant has proposed two options for frontage improvements on Twinbrook Road. We recommend construction of a curb and gutter section (Option 2) as the sole commitment. This improvement will provide an adequate cross-section to tie-in to future off-site improvements likely needed to accommodate left turns from Twinbrook Road north of the site. Further, constructing this option will provide safer vehicle ingress/egress for future homeowners, will provide other vehicles on Twinbrook Road a greater reaction time to turning movements associated with the new driveways, and will provide positive stormwater drainage to an inlet south of the property. The proposed ROW dedication should parallel the Twinbrook Road centerline and roadway improvements should meet VDOT standards.
- The applicant should coordinate the proposed sidewalk transition and connection to the pedestrian pathway proposed for the adjacent church property located to the north, at Tax Map 69-3 ((1)) 29 and 29A. The sidewalk should meet VDOT standards.
- Applicant should provide sight distance measurements according to VDOT standards conforming to the proposed ROW dedication and recommended Option 2 pavement section as described above. The applicant should review the sight distance clearance of the adjacent properties and coordinate to mitigate any sight visibility obstructions.
- The applicant should vacate the 20-foot ingress/egress easement located near the southwest corner of the site, adjacent to the parcel located at Tax Map 69-3 ((1)) 38. The existing concrete apron located within the Twinbrook Road ROW at this location should be removed and the sidewalk, curb and gutter be restored.

MAD/RP

Fairfax County Department of Transportation
4050 Legato Road, Suite 400
Fairfax, VA 22033-2895
Phone: (703) 877-5600 TTY: 711
Fax: (703) 877-5723
www.fairfaxcounty.gov/fcdot





COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

4975 Alliance Drive
Fairfax, VA 22030

August 29, 2014

CHARLES A. KILPATRICK, P.E.
COMMISSIONER

To: Ms. Barbara Berlin
Director, Zoning Evaluation Division

From: Kevin Nelson
Virginia Department of Transportation – Land Development Section

Subject: RZ 2014-BR-001 Blagoj Skandev (SD Homes LLC)
Tax Map # 69-3((01))0031

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.

I have reviewed the above plan submitted on August 12, 2014, and received on August 13, 2014. Only Option 2 is supported regarding the frontage improvements. The other detail items listed in the previous submittals should be addressed when the site plan is submitted.

If you have any questions, please call me.

cc: Ms. Angela Rodeheaver
fairfaxrezoning2014-BR-001rz4BlagojSkandev8-29-14BB



County of Fairfax, Virginia

MEMORANDUM

DATE: May 15, 2014

TO: Joseph C. Gorney, Staff Coordinator
Zoning Evaluation Division
Department of Planning and Zoning

FROM: William J. Veon, Jr., Senior Engineer III (Stormwater)
Central Branch, Site Development and Inspections Division
Department of Public Works and Environmental Services

SUBJECT: Zoning Application No.: RZ 2014-BR-001
Blagoj Skandev (SD Homes LLC)
General Development Plan (REVISED dated March, 2014)
LDS Project No.: 001736-ZONA-003-1
Tax Map No.: 069-3-01-0031
Braddock District

The subject revised application has been reviewed and the following stormwater management comments are offered at this time:

The Stormwater Information Sheet provided on Sheet 11 of the plan set will need to be corrected and updated for this project.

Chesapeake Bay Preservation Ordinance (CBPO)

There is no Resource Protection Area (RPA) on this site.

Water quality controls are required for this proposed development (PFM 6-0401). Infiltration trenches located on individual lots have been proposed to satisfy the SWM/BMP requirements for the proposed two-lot subdivision. However, such individual lot facilities are not normally allowed within subdivisions, unless specifically approved by the Director in writing (with conditions) in accordance with PFM 6-1307.2A. (Please note that: the request for a PFM Waiver/Modification is a process that is separate from the Zoning process, and, at this stage, there is no actual or implied guarantee the waiver/modification needed for this project will be approved.) A Private Maintenance Agreement will also need to be submitted and approved during the final subdivision plan review process.

Preliminary design calculations and sketches have been provided for the proposed infiltration trenches. A 70% phosphorus reduction factor has been assumed in the calculations, so the proposed trenches will need to have enough storage capacity for the 2-yr/2-hr storm.

Department of Public Works and Environmental Services
Land Development Services, Site Development and Inspections Division
12055 Government Center Parkway, Suite 535
Fairfax, Virginia 22035-5503
Phone 703-324-1720 • TTY 711 • FAX 703-324-8359



Unfortunately the preliminary BMP calculations were not done correctly, so the potential for the proposed SWM/BMP facilities to provide the required 40% phosphorus removal for the site cannot be assessed at this time. The engineer should refer to Chapter 4 of the “Northern Virginia BMP Handbook” for the proper BMP calculation process.

Also, all offsite areas that drain through the site must be accounted for in the BMP design considerations and calculations, including any such portions of the proposed R/W dedication, Twinbrook Road or adjacent properties. There is contributing offsite area that not only drains through the property, but to the proposed SWM/BMP facilities. This area must be incorporated into the analysis.

Floodplains

There are no regulated floodplains on the property/site.

Downstream Drainage Complaints

There are no significant, contemporary downstream drainage complaints on file. However, an adjacent property owner has contacted the County via email to formalize concerns with current and future drainage from the site. Therefore, care must be taken to ensure site discharge onto the neighboring residential properties is not increased.

Stormwater Detention

Stormwater detention is required, if not waived (PFM 6-0301.3). Infiltration trenches located on individual lots have been proposed to satisfy the SWM/BMP requirements for the proposed two-lot subdivision. However, such individual lot facilities are not normally allowed within subdivisions, unless specifically approved by the Director in writing (with conditions) in accordance with PFM 6-1307.2A. (Please note that: the request for a PFM Waiver/Modification is a process that is separate from the Zoning process, and, at this stage, there is no actual or implied guarantee the waiver/modification needed for this project will be approved.) A Private Maintenance Agreement will also need to be submitted and approved during the final subdivision plan review process.

Preliminary design calculations and sketches have been provided for the proposed infiltration trenches. The preliminary designs are appropriately based on the 10-yr/2-hr storm. From the provided information, it appears the infiltration trenches are a potentially viable means for providing the required stormwater detention for the site, although they may currently be a little undersized. Adjustments (perhaps to the design infiltration rate), updates (to drainage areas and impervious surfaces) and other details for the final design will need to be generated during final engineering and subdivision plans development.

Individual facility drainage area will need to be updated, as indicated above, since all offsite areas that drain through the site must be accounted for in the SWM design considerations and calculations - including any such portions of the proposed R/W dedication, Twinbrook Road or

adjacent properties. There is contributing offsite area that not only drains through the property, but to the proposed SWM/BMP facilities. This area must be incorporated into the analysis.

Site Outfall

A preliminary Outfall Narrative has been provided, although no details were provided regarding the capacity or flow velocity in the generally described downstream outfall conveyance system, nor was any quantitative data given to support the assumed "extent of analysis." However, more importantly, and contrary to the Narrative statement that "No concentrated flow will be generated during and after the construction is completed," the concentrated discharge of overflow or bypass runoff from the proposed SWM/BMP facilities cannot be avoided. The stormwater management concept itself is predicated on concentrating the runoff from a larger drainage area into a smaller facility where treatment and/or attenuation can be provided. However, once the flow is concentrated as inflow to a facility it remains concentrated as it bypasses a facility at capacity or a facility with collection rate less than inflow rate. Also, please note that the County does not allow the use of "spreader swales" or "spreader berms" to attempt to convert concentrated flow to sheetflow at an outfall.

Concentrated surface flow cannot be discharged onto or into an offsite property unless an easement is obtained to legally allow such a discharge (PFM 6-0202.5). Demonstrating an Adequate Outfall for the site may, then, not be possible without acquiring an appropriate drainage easement (or easements) for the site outfall. And the site plans will not be approved without demonstration of an Adequate Outfall. Therefore, it is still recommended that a proper and formal Adequate Outfall analysis be done now rather than with the final engineering and subdivision plans development, in the interest of minimizing expenditures on a project that might not be approvable.

Stormwater Planning Comments

This site is located in the Pohick Creek Watershed and the Pohick-Upper Watershed Management Area. There is a future County stream restoration project proposed for the Pohick Creek tributary channel segment that ultimately receives the stormwater from the subject site. However, the applicant's proposed project should have little to no impact on this future County project.

Dam Breach

The property is not located within a dam breach inundation zone.

Miscellaneous

The Twinbrook Road culvert and outfall located along the northwest property line has been included on the plans. However, an appropriate drainage easement to encompass the flowpath of the culvert discharge has not been shown. A 10'-wide easement along the northwest property line should be sufficient.

Joseph C. Gorney, Staff Coordinator
Zoning Application No.: RZ 2014-BR-001
May 15, 2014
Page 4 of 4

The preceding comments are based on the 2011 version of the Fairfax County Public Facilities Manual (PFM). However, a new stormwater ordinance and updates to the PFM's stormwater requirements were adopted by the County's Board of Supervisors on January 28, 2014. The effective date of implementation of these new regulations is scheduled for July 1, 2014, but is subject to possible change pending the outcome of the review of the regulations by the State's Department of Environmental Quality. The site plan for this application may be required to conform to the updated PFM and the new ordinance.

Please contact me at 703-324-1648 or William.Veon@fairfaxcounty.gov, if you have any questions or require additional information.

WJV/

cc: Don Demetrius, Chief, Watershed Projects Evaluation Branch, SPD, DPWES
Fred Rose, Chief, Watershed Planning & Assessment Branch, SPD, DPWES
Durga Kharel, Chief, Central Branch, SDID, DPWES
Hani Fawaz, Senior Engineer III, Central Branch, SDID, DPWES
Zoning Application File



County of Fairfax, Virginia

MEMORANDUM

DATE: June 30, 2014

TO: Barbara Berlin, Director
Zoning Evaluation Division, DPZ

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

SUBJECT: Environmental Assessment: RZ 2014-BR-001
Twinbrook Road

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) and General Development Plan (GDP) revised through May 22, 2014 and proffers, revised through May 20, 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 March 4, 2014, page 7-9 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 March 4, 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, 2013 Edition, Policy Plan, Environment, as amended through March 4, 2014, page 18 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 Policy Plan, 2013 Edition, Environment section as amended through March 4, 2014, pages 11 and 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, 2013 Edition, Policy Plan, Environment, as amended through March 4, 2014, page 19 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. Consistent with 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 can 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 water conservation techniques such as water efficient landscaping and innovative wastewater technologies
- 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.

Encourage commitments to implementation of green building practices through certification under established green building rating systems (e.g., the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED[®]) program or other comparable programs with third party certification). Encourage commitments to the attainment of the ENERGY STAR[®] rating where applicable and to 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 will qualify for the ENERGY STAR Qualified Homes designation, where such zoning proposals seek development at the high end of the Plan density range and where broader commitments to green building practices are not being applied.”

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 2 single-family homes on 42,209 square feet of land at a density of 2.06 dwelling units per acre on land which is proposed to be rezoned from R-1 to the R-3 Zoning District.

Water Quality Water Protection and Best Management Practices: The 42,209 square feet subject property falls within the Pohick Creek Watershed. The application proposes two single family homes on the subject property. Two infiltration best management practice facilities are proposed on each lot to meet water quality control and water quantity control requirements. It is not clear from the stormwater narrative how much of the total site runoff will be captured by these facilities. The narrative states that the two facilities will be maintained by the individual property owners.

The outfall narrative further describes that runoff from the subject property discharges northeast of the site toward the church property and ultimately drains toward a stormwater pond located east of the church. The engineer for the applicant states that the runoff from the subject property is not erosive and that outfall for the subject property is adequate. Stormwater management/best management practice measures and outfall adequacy are subject to the 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. Staff from the DPWES will administer the stormwater management ordinance, effective July 1, 2014. The applicant will be required to comply with the new requirements for this development if the applicant has not, prior to July 1, 2014, obtained VSMP permit coverage under the Virginia Stormwater Management Program General Permit for Discharges of Stormwater from Construction Activities. This proposed development may not be grandfathered from the new ordinance as a result of approval of this zoning application. The applicant should, therefore, design the proposed stormwater management system consistent with new stormwater management requirements. A link to the recently adopted ordinance is below.

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

Transportation Generated Noise: To ensure conformance to the Policy Plan guidance for the that noise in interior areas of the proposed new homes will not exceed 45 DBA Ldn, staff recommends that the applicant provide a proffer that commits to use windows, walls and doors on the Twinbrooke Road façades which possess sound transmission capability to mitigate transportation generated noise.

Green Building Practices: This 42,209 square feet property is planned for residential development at 2-3 dwelling units per acre. The current proposal seeks approval for 2 dwelling units, at an overall density of 2.06 dwelling units per acre which is at the low end of the Plan's density range. In support of the County's green building policy, the applicant has made a

proffered commitment to the attainment of Energy Star Qualified Homes for the proposed new homes to be demonstrated prior to the issuance of the residential use permit (RUP) for each dwelling.

Tree Preservation/Restoration: The subject property is densely vegetated with an existing canopy of hardwood trees throughout the property. The current revised plan depicts only one small tree save area of on the northern edge of the site. No other tree preservation areas are identified. Staff encourages the applicant to work with the Urban Forestry Management Division (UFMD) of DPWES to identify additional tree preservation opportunities as well as landscaping opportunities for this proposed redevelopment in order to enhance both the site drainage as well as to provide a visual amenity for the proposed new homes.

COUNTYWIDE TRAILS MAP:

The Countywide Trails Plan depicts a major paved trail (described as asphalt or concrete, 8' or more in width) on the west side of Twinbrooke Road opposite the subject property. The development plan depicts a proposed 5' wide sidewalk adjacent to the subject property.

PGN/MAW



County of Fairfax, Virginia

MEMORANDUM

DATE: July 11, 2014

TO: Joe Gorney, Staff Coordinator
Department of Planning and Zoning

FROM: Samantha Wangsgard, Urban Forester II
Forest Conservation Branch, DPWES

RE: Comments requested by Department of Planning and Zoning on July 11, 2014 for the resubmission of Burke; RZ 2014-BR-001 on June 23, 2014

SUBJECT: Burke; RZ 2014-BR-001

The following comments are based on a review of the resubmission of RZ/FDP Application RZ 2014-BR-001 date stamped "Received Department of Planning and Zoning, June 23, 2014". A site visit was conducted on July 11, 2014.

- 1. Comment:** The tree inventory that has been provided is incomplete. It does not include off-site trees to the east of the proposed limits of clearing and grading.

Recommendation: A revised tree inventory should be provided that includes off-site trees within 25 feet of the limits of clearing and grading.

- 2. Comment:** The limits of clearing and grading along the east will provide minimal protection to off-site trees.

Recommendation: The BMP facilities should be shifted to the west and the limits of clearing and grading should also be revised to be located farther west, to provide additional protection to off-site trees.

- 3. Comment:** It is unclear how deep the sewer lateral will be trenched and therefore unclear how it will impact trees proposed for preservation and those shown off-site.

Recommendation: Details should be provided on the depth of the sewer lateral trenching.

SW/

UFMDID #: 189680

cc: DPZ File

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



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 Laura T. Grape, Executive Director

**Contact**

703-324-1460, TTY 711
 Fax: 703-324-1421
 ConservationDistrict@fairfaxcounty.gov

Working for Clean Streams and Protected Natural Resources in Fairfax County

March 7, 2014

TO: Barbara C. Berlin
 Director, Zoning Evaluation Division, DPZ

FROM: Wilfred D. Woode,
 Senior Conservation Specialist

RE: Conservation Report on RZ 2014-BR-001

This rezoning application refers to an approximately one acre parcel, located at 5015 Twinbrook Road in the Pohick Creek Watershed. The parcel is undeveloped, and can be identified in the Fairfax County tax map system as 69-3 ((1)) -31.

The applicant requests a change in zoning from R-1 to R-3, for the purpose of building two single-family homes on the undeveloped lot. On the east and south sides of the parcel is a community of single family lots, zoned R-3. On the west is a community of townhomes zoned R-8, and on the north is a church on a parcel zoned R-1.

There is no county delineated Chesapeake Bay Resource Protection Area (RPA) or Environmental Quality Corridor (EQC) within the parcel limits. Existing mature trees outside of the proposed building footprints, and approved limits of clearing are planned to be saved.

The slope of the land suggests that runoff from portions of Twinbrook Road and within the property flows uncontrolled toward the northern corner and eventually into the church's yard.

Dominant soil type is mapped as Wheaton-Glenelg Complex (105 B&C). This soil is characteristically highly erodible if not adequately protected during construction. Therefore, all approved perimeter erosion and sediment control measures must be installed and inspected before active clearing for construction starts. All E&S control measures must be maintained throughout the construction phase until all disturbed areas are stabilized. Otherwise, there may be risk of offsite pollution in the back yards of lots 42, 43 of the eastern residential community and into the church yard.

It should be the responsibility of the developer to ensure that no disturbed area is left unprotected longer than 14 days. Except for portions of the site in which earth moving activities are planned beyond that period.

RZ-2014-BR-001

Page 2

March 6, 2014

Concerns and recommendations:

- 1) The document seems to provide no information of the developer's intention to address runoff from Twinbrook Road, entering the area of proposed development lot. A facility that may capture and/or convey such runoff into the existing stormdrain system at the nearby Heathwood Court may be considered. The existing system on Heathwood Court passes through two dry ponds before it is discharged into an open channel.
- 2) The submitted plan details showed no indication of proposed final ground elevations (i.e., cut and fill areas) for a reviewer to decipher conceptual flow patterns at post-construction stage. Therefore, it is almost impossible to determine what percentage of surface flows will be intercepted by the proposed rain gardens.
- 3) If the proposed rain gardens will be designed to capture mainly pipe runoff, there remain concerns about how much sheet flow will impact lots 42, 43 and the church yard.
- 4) Considering the lay of the land, concerns about the design of the rain gardens may become a significant issue. Would they be designed with underdrain systems? If so, into which area(s) would the drainage be discharged?
- 5) With respect to the proposed rain garden on lot 31A, its footprint appears to be so close to the saved trees, that it becomes a concern about how its existence might impact the health and success of the trees in its vicinity.
- 6) In as much as the computations of the rain gardens may indicate that the development will meet and even exceed its stormwater quality control requirements, the developer may be encouraged to think of other appropriate BMPs that may help in intercepting surface flows, especially if the rain gardens mainly captures pipe flow such as, roof runoff. An infiltration trench along the northern and upper western limits of the parcel may provide some additional insurance for excess flows impacting the parcels of concern. .

Please contact me if you have any questions on these recommendations.

cc: Pam Nee, Branch Chief, Environmental and Development Review Branch, Planning Division, DPZ.

Joe Gorney, Staff Coordinator, DPZ



FAIRFAX COUNTY
PUBLIC SCHOOLS

Department of Facilities and Transportation Services

Office of Facilities Planning Services
8115 Gatehouse Road, Suite 3200
Falls Church, Virginia 22042

February 4, 2014

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

FROM: Lee Ann Pender, Director *lap*
Office of Facilities Planning Services

SUBJECT: RZ 2014-BR-001, SD Homes

ACREAGE: 0.97 acres

TAX MAP: 69-3 ((1)) 31

PROPOSAL:

The application requests to rezone the site from R-1 to R-3 district. This project would split the site into two lots to be developed with single family homes. The site currently is currently vacant but could be developed with one single family home.

ANALYSIS:

School Capacities

The schools serving this area are Kings Park and Kings Glen Elementary and Lake Braddock Secondary schools. Kings Park and Kings Glen are paired elementary schools serving grades K-3 and 4-6 respectively. The chart below shows the existing school capacity, enrollment, and projected enrollment.

School	Capacity 2013 / 2018	Enrollment (9/30/13)	Projected Enrollment 2014-15	Capacity Balance 2014-15	Projected Enrollment 2018-19	Capacity Balance 2018-19
Kings Park ES (K-3)	771 / 771	677	727	44	750	21
Kings Glen ES (4-6)	560 / 560	482	428	132	493	67
Lake Braddock MS	1,636 / 1,636	1,386	1,507	129	1,529	107
Lake Braddock HS	2,952 / 2,952	2,657	2,615	337	2,702	250

Capacities based on DRAFT 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 2018-19 and are updated annually. At this time, if development occurs within the next five years, all four schools are projected to have surplus capacity. Beyond the six year projection horizon, enrollment projections are not available.

Capital Improvement Program Projects

The proposed 2015-19 Capital Improvement Program (CIP) does not include any major capital projects at the subject schools. However, the proposed CIP identifies Lake Braddock is a potential receiving school for new programs, such as the George Mason University School Lab.

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.

Existing (Potential By-right)

School level	Single Family Detached ratio	Proposed # of units	Estimated Student yield
Elementary	.273	1	0
Middle	.086	1	0
High	.177	1	0

0 total

2012 Countywide student yield ratios (September 2013)

Proposed

School level	Single Family Detached ratio	Proposed # of units	Estimated Student yield
Elementary	.273	2	1
Middle	.086	2	0
High	.177	2	0

1 total

2012 Countywide student yield ratios (September 2013)

RECOMMENDATIONS:

Proffer Contribution

A net of 1 new student is anticipated (1 Elementary School). Based on the approved Residential Development Criteria, a proffer contribution of \$10,825 (1 x \$10,825) is recommended to offset the impact that new student growth will have on surrounding schools. It is recommended that the proffer contribution funds be directed as follows:

...to be utilized for capital improvements to Fairfax County public schools to address impacts on the school division resulting from [the applicant's development].

It is also recommended proffer payment occur at the time of site plan or first 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 notification be provided to FCPS 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.

LAP/gjb

Attachment: Locator Map

cc: Megan McLaughlin, School Board Member, Braddock 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
Angela Atwater, Cluster VI, Assistant Superintendent
Kevin Sneed, Director, Design and Construction Services
David Thomas, Principal, Lake Braddock Secondary School
Samuel L. Elson, Principal, Kings Glen Elementary School
Dotty Lin, Principal, Kings Park Elementary School



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 *AS*

DATE: June 3, 2014

SUBJECT: RZ 2014-BR-001-3 Twinbrook Road Subdivision
Tax Map Number: 69-3((1)) 31

BACKGROUND

The Park Authority staff has reviewed the proposed Development Plan and proffers dated May 22 and May 20, 2014, for the above referenced application. We have also commented on two previous versions of this case with a comment memo sent on March 7, 2014 and an email on May 21, 2014. The Development Plan shows two new single-family dwelling units, on a 42,000 square foot parcel to be rezoned from R-1 to R-3 with proffers. Based on an average single-family household size of 3.10 in the Pohick Planning District, the development could add 6 new residents (2 new residences x 3 = 6) to the Braddock 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).

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 (Crooked Creek, George Mason, Greenfield, Herzell Woods, Kings Park West, Lake Braddock, Lakeside, Monticello, Olde Forge, Red Fox Forest, Royal Lake, Surrey Square, Twinbrook Road, Long Branch Stream Valley, and Pohick Stream Valley) meet only a portion of the demand for parkland generated by residential development in this area of the Braddock District. In addition to parkland, the recreational

facilities in greatest need in this area include basketball courts, playgrounds, rectangle fields, diamond fields, neighborhood skate parks, a dog park, picnic shelters w/amenities, and trails.

Recreational Impact of Residential Development:

The Countywide Comprehensive Policy Plan (Appendix 9, #6 of the Land Use section, as well as Objective 6, Policy a, b and c of the Parks and Recreation section), specifies that any residential rezoning application shall contribute a fair share contribution of \$893 per new resident to the Park Authority 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 \$5,358 to the Park Authority for recreational facility development at park sites located within the service area of the subject property.

SUMMARY OF RECOMMENDATIONS

This section summarizes the recommendations included in the preceding analysis section.

- Contribute \$5,358 to the Park Authority for recreational facility development

Please note the Park Authority would like to review and comment on proffers and/or development conditions related to park and recreation issues. We request that draft and final proffers and/or development conditions 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: Andy Galusha
DPZ Coordinator: Joe Gorney

Copy: Cindy Walsh, Director, Resource Management Division
Joe Gorney, DPZ Coordinator
Chron File
File Copy



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

APPENDIX 12

RECEIVED
Department of Planning & Zoning

JAN 24 2014

Zoning Evaluation Division

PLANNING & ENGINEERING
DIVISION

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

January 22, 2014

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

Re: RZ 2014-BR-001
5015 Twinbrook Road
Tax Map: 69-3

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 an existing 16-inch water main located in Twinbrook Road. See the enclosed water system map.
3. Depending upon the configuration of any proposed on-site water mains, additional water main extensions may be necessary to satisfy fire flow requirements and accommodate water quality concerns.

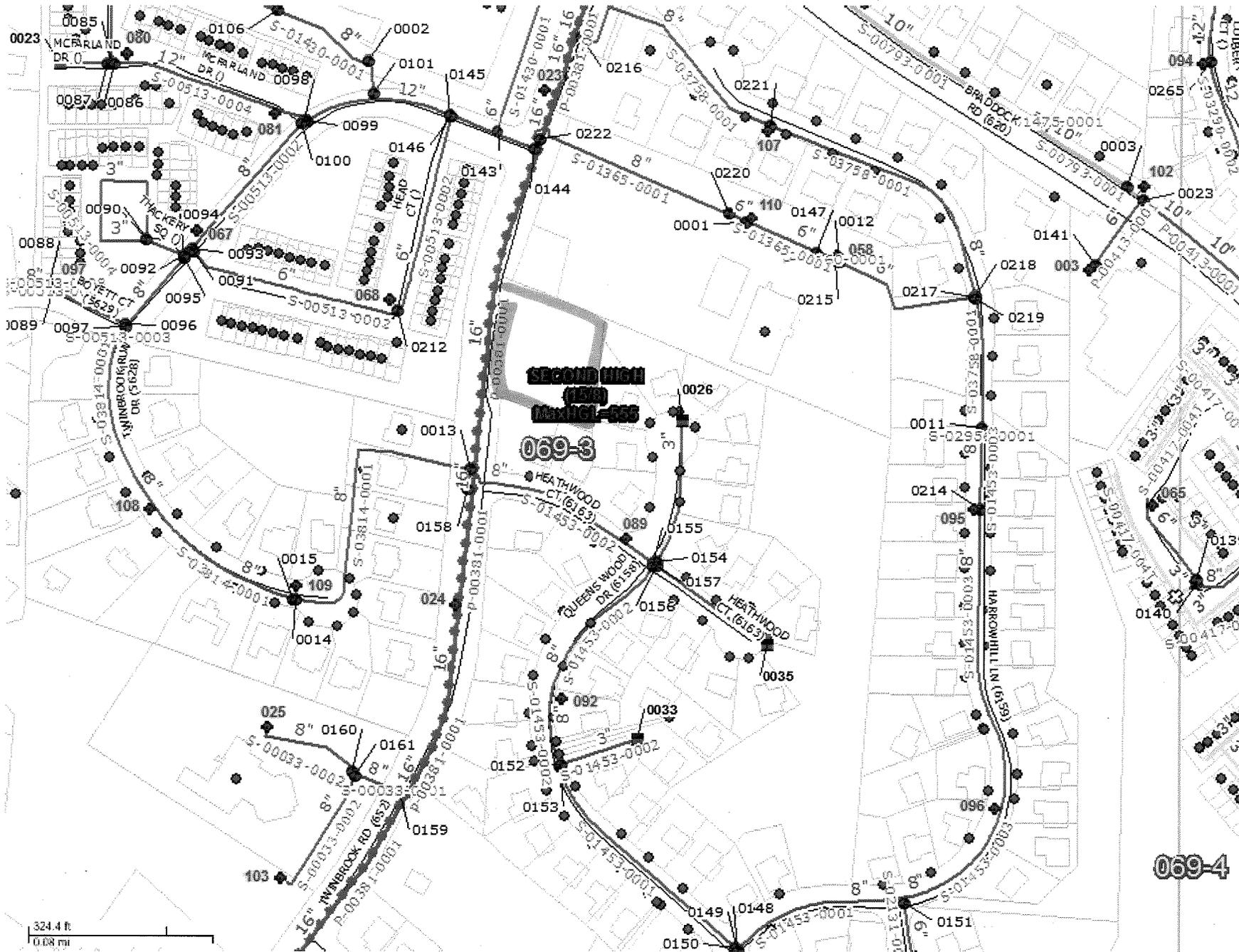
If you have any questions regarding this information please contact Ross Stilling at (703) 289-6385.

Sincerely,

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

Enclosure

The information contained on this page is NOT to be construed or used as a "legal description". Fairfax Water does not provide any guaranty of accuracy or completeness regarding the map information. Any errors or omissions should be reported to the Technical Services Branch of the Planning and Engineering Division. In no event will Fairfax Water be liable for any damages, including but not limited to loss of data, lost profits, business interruption, loss of business information or any other pecuniary loss that might arise from the use of this map or information it contains.



324.4 ft
0.08 mi

(note: scalebar is approximate)

069-4



County of Fairfax, Virginia

MEMORANDUM

DATE: September 30, 2013

TO: Joe Gorney
Zoning Evaluation Division
Department of Planning and Zoning

FROM: Sharad Regmi, P.E.
Engineering Analysis and Planning Branch

SUBJECT: Sanitary Sewer Analysis Report

REF: **Application No. RZ 2014-BR-001**
Tax Map No. 069-3-((01))-0031

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 (N-1) watershed. It would be sewer into the Noman M. Cole Pollution Control Plant (NMCPCP).
- Based upon current and committed flow, there is excess capacity in the NMCPCP. 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 the Queens Wood Drive and approximately 170 ft from 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	

- Other pertinent comments:**





County of Fairfax, Virginia

MEMORANDUM

DATE: March 27, 2014

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

FROM: Eric Fisher, GIS Coordinator
Information Technology Section
Fire and Rescue Department

SUBJECT: Fire and Rescue Department Preliminary Analysis of Rezoning Application
RZ 2014-BR-001

The following information is submitted in response to your request for a preliminary Fire and Rescue Department analysis for the subject:

1. The application property is serviced by the Fairfax County Fire and Rescue Department Station #414, **Burke**
2. After construction programmed ___(n/a)___ this property will be serviced by the fire station _____(n/a)_____



**FAIRFAX COUNTY COMPREHENSIVE PLAN, 2013 Edition, POLICY PLAN,
Land Use – Appendix, Amended through 4-29-2014, Pages 24-30**

**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 forsale 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. 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 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.

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		