



APPLICATION ACCEPTED: July 31, 2015
PLANNING COMMISSION: June 23, 2016
BOARD OF SUPERVISORS: Not Yet Scheduled

County of Fairfax, Virginia

June 8, 2016

STAFF REPORT

APPLICATION RZ 2015-DR-009

DRANESVILLE DISTRICT

APPLICANT:	Gulick Group, Inc.
PRESENT ZONING:	R-A
REQUESTED ZONING:	R-1
PARCEL(S):	12-4 ((30)) Z
ACREAGE:	11.00 acres
DENSITY:	0.91 dwelling units/acre
OPEN SPACE:	30%
PLAN MAP:	Residential – 0.5 to 1 unit/acre
PROPOSAL:	To rezone the R-A portion of the property to R-1 to permit development of a 10-lot cluster single family detached dwelling subdivision at a density of 0.91 du/ac.

STAFF RECOMMENDATIONS:

Staff recommends approval of RZ 2015-DR-009, subject to the execution of proffers consistent with those contained in Appendix 1.

Bob H. Katai

Department of Planning and Zoning
Zoning Evaluation Division
12055 Government Center Parkway, Suite 801
Fairfax, Virginia 22035-5509
Phone 703-324-1290 FAX 703-324-3924
www.fairfaxcounty.gov/dpz/



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.

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.

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.

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.

N:\Gulick\Staff Report and Conditions\00 – Consolidated Staff Report for Gulick – RZ 2015-DR-009



Americans with Disabilities Act (ADA): Reasonable accommodation is available upon 7 days advance notice. For additional information on ADA call (703) 324-1334 or TTY 711 (Virginia Relay Center).

Rezoning Application

RZ 2015-DR-009

Applicant:
Accepted:
Proposed:
Area:

GULICK GROUP, INC.
07/31/2015
RESIDENTIAL
11.00108 AC OF LAND; DISTRICT - DRANESVILLE

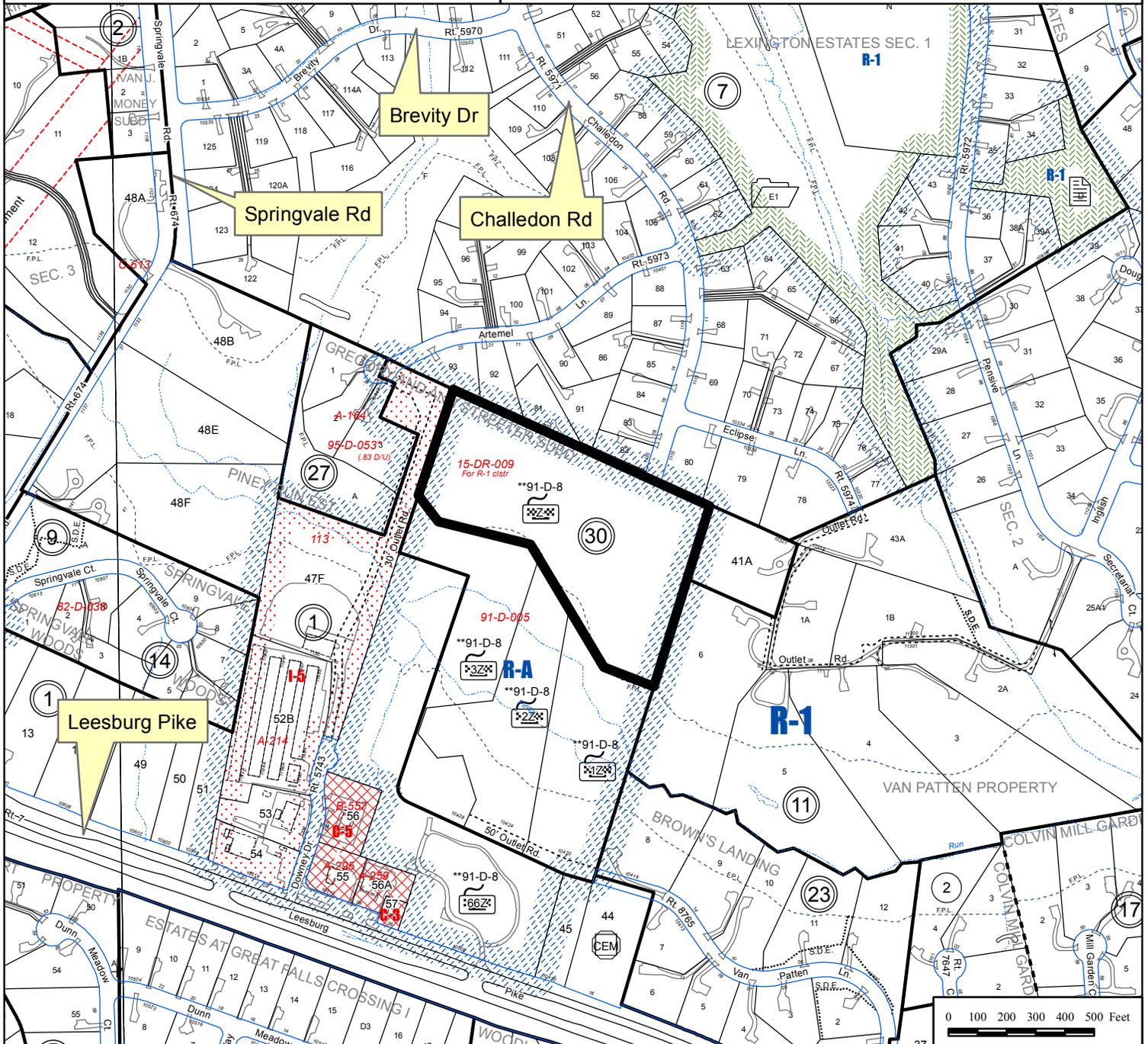


Zoning Dist Sect:
Located:

SOUTH OF THE TERMINUS OF CHALLEDON ROAD

Zoning:
Overlay Dist:
Map Ref Num:

FROM R- A TO R- 1
012-4- /30/ / Z

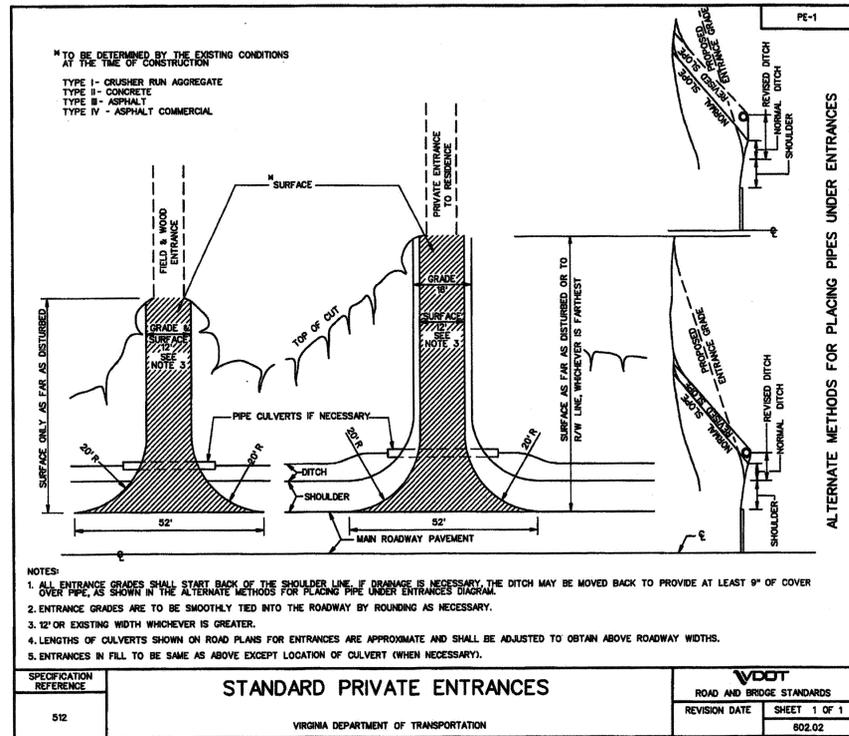


ZONING NOTES

- THIS GENERALIZED DEVELOPMENT PLAN (GDP) ILLUSTRATES THE PROPOSED DEVELOPMENT OF THE PROPERTY IDENTIFIED AS FAIRFAX COUNTY TAX MAP 12-4 ((30)), PARCEL Z AFTER REZONING FROM THE CURRENT RA (AF UNDER 91-D-8) ZONE TO R-1 CLUSTER RESIDENTIAL ZONING.
- THIS GDP IS CONCEPTUAL ONLY AND IS BASED UPON PRELIMINARY LAYOUTS WHICH MAY VARY UNDER FINAL SUBDIVISION DEVELOPMENT. THE PROPOSED DEVELOPMENT WILL SUBSTANTIALLY CONFORM TO THIS GDP BUT LOT CONFIGURATIONS, ROAD ALIGNMENT AND GRADING SHOWN MAY BE ADJUSTED DUE TO ACTUAL HOUSE TYPES PROPOSED FOR THE PROPERTY.
- THE PROPERTY SHOWN ON THIS GDP IS CURRENTLY ZONED RA (RURAL AGRICULTURAL) AND INCLUDES 479,206 SQUARE FEET OR 11.00108 ACRES.
- UNDER THE PROPOSED R-1 ZONING DISTRICT, THE PROPERTY WILL BE DEVELOPED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS OF THE R-1 CLUSTER PROVISIONS OF THE FAIRFAX COUNTY ZONING ORDINANCE:
 - MINIMUM DISTRICT SIZE FOR CLUSTER: 10 ACRES. PROPOSED SITE = 11 AC.
 - USES: SINGLE FAMILY DETACHED DWELLINGS (SFD), ACCESSORY USE S AND HOME OCCUPATIONS
 - AVERAGE LOT AREA FOR CLUSTER SUBDIVISIONS: NO REQUIREMENT; PROPOSED AVERAGE = 29,800 ± SF.
 - MINIMUM LOT AREA FOR CLUSTER SUBDIVISIONS: 25,000 SF -- PROPOSED MINIMUM = 25,000 SF.
 - MINIMUM LOT WIDTH FOR CLUSTER SUBDIVISIONS: INTERIOR LOT -- NO REQUIREMENT; CORNER LOT -- 125 FEET. THERE ARE NO PROPOSED CORNER LOTS.
 - MAXIMUM BUILDING HEIGHT: SFD = 35'; ALL OTHER STRUCTURES = 60'. PROPOSED MAX. HGHT. = SAME.
 - MINIMUM YARD REQUIREMENTS FOR SFDs IN CLUSTER SUBDIVISIONS: FRONT YARD = 30'; SIDE YARD = 12' BUT A TOTAL MINIMUM OF 40'; REAR YARD = 25'. SETBACK LINES ARE SHOWN PER Z.O.
 - MINIMUM YARD REQUIREMENTS FOR OTHER STRUCTURES IN CLUSTER SUBDIVISIONS: FRONT YARD = 50 DEGREE ANGLE OF BULK PLANE BUT NOT LESS THAN 40'; SIDE YARD = 45 DEGREE ANGLE OF BULK PLANE BUT NOT LESS THAN 20'; REAR YARD = 45 DEGREE ANGLE OF BULK PLANE BUT NOT LESS THAN 25'.
 - MAXIMUM DENSITY FOR CLUSTER SUBDIVISIONS: 1.1 DWELLING UNITS PER ACRE. PROPOSED DEVELOPMENT = 10 DWELLINGS ON 11 ACRES OR 0.91 DU/AC.
 - OPEN SPACE FOR CLUSTER SUBDIVISIONS: 30% OF THE GROSS AREA = 143,762 SF. OUTLOTS A, B AND C TOTAL 143,762 SF.
- TRANSITIONAL SCREENING AND BARRIERS: TRANSITIONAL SCREENING AND BARRIERS ARE NOT REQUIRED FOR THE PROPOSED SFD DEVELOPMENT PER SECTIONS 13-302 AND 13-303 OF THE FAIRFAX COUNTY ZONING ORDINANCE.
- 10-YEAR TREE CANOPY REQUIREMENT: IN THE R-1 ZONING DISTRICT THE REQUIRED TREE CANOPY IS 30%, AS SET FORTH IN TABLE 12.4 OF THE PUBLIC FACILITIES MANUAL (PFM) AND WILL BE SATISFIED BY THE PROPOSED VEGETATION BEING PRESERVED ON SITE, AS SHOWN ON THE TREE PRESERVATION & PROTECTION PLAN.
- PARKING REQUIREMENTS: TWO SPACES PER DWELLING UNIT WILL BE PROVIDED IN GARAGES AND DRIVEWAYS WITH THE INDIVIDUAL HOMES.
- FINAL LOT LAYOUT SHALL COMPLY WITH THE SHAPE FACTOR CRITERIA OF SECTION 2-401 OF THE ZONING ORDINANCE. THE INITIAL SHAPE FACTORS FOR THE LOTS ARE INCLUDED IN THE TABULATION ON SHEET 3.
- THIS SITE IS NOT LOCATED WITHIN:
 - A HISTORIC OVERLAY DISTRICT;
 - AN AIRPORT NOISE IMPACT OVERLAY DISTRICT;
 - A SIGN CONTROL OVERLAY DISTRICT;
 - A HIGHWAY CORRIDOR OVERLAY DISTRICT; OR
 - A WATER SUPPLY PROTECTION OVERLAY DISTRICT.
- ACCORDING TO THE COMPREHENSIVE TRAILS PLAN FOR FAIRFAX COUNTY, THERE IS NO PLANNED TRAIL WITHIN 200' OF THE SITE.
- ANY SIGNS, IF PROVIDED, WILL MEET THE APPLICABLE SECTIONS OF ARTICLE 12 OF THE FAIRFAX COUNTY ZONING ORDINANCE.
- AS INDICATED ON THE GDP, ADJACENT PROPERTIES WILL BE PROTECTED FROM ADVERSE EFFECTS BY THE ORIENTATION OF DWELLINGS AND THE LOT SIZES PROPOSED.
- THE PUBLIC STREETS PROPOSED WITH THIS PLAN (THE EXTENSION OF CHALLEDON ROAD) SHALL BE CONSTRUCTED WITH THE FINAL SUBDIVISION OF THE PROPERTY TO FAIRFAX COUNTY AND VDOT STANDARDS.
- NO SPECIAL AMENITIES ARE PROPOSED WITH THIS PLAN, EXCEPT FOR THE PASSIVE RECREATIONAL AREAS OF THE NATURAL, UNDISTURBED STREAM VALLEY COMPONENTS.

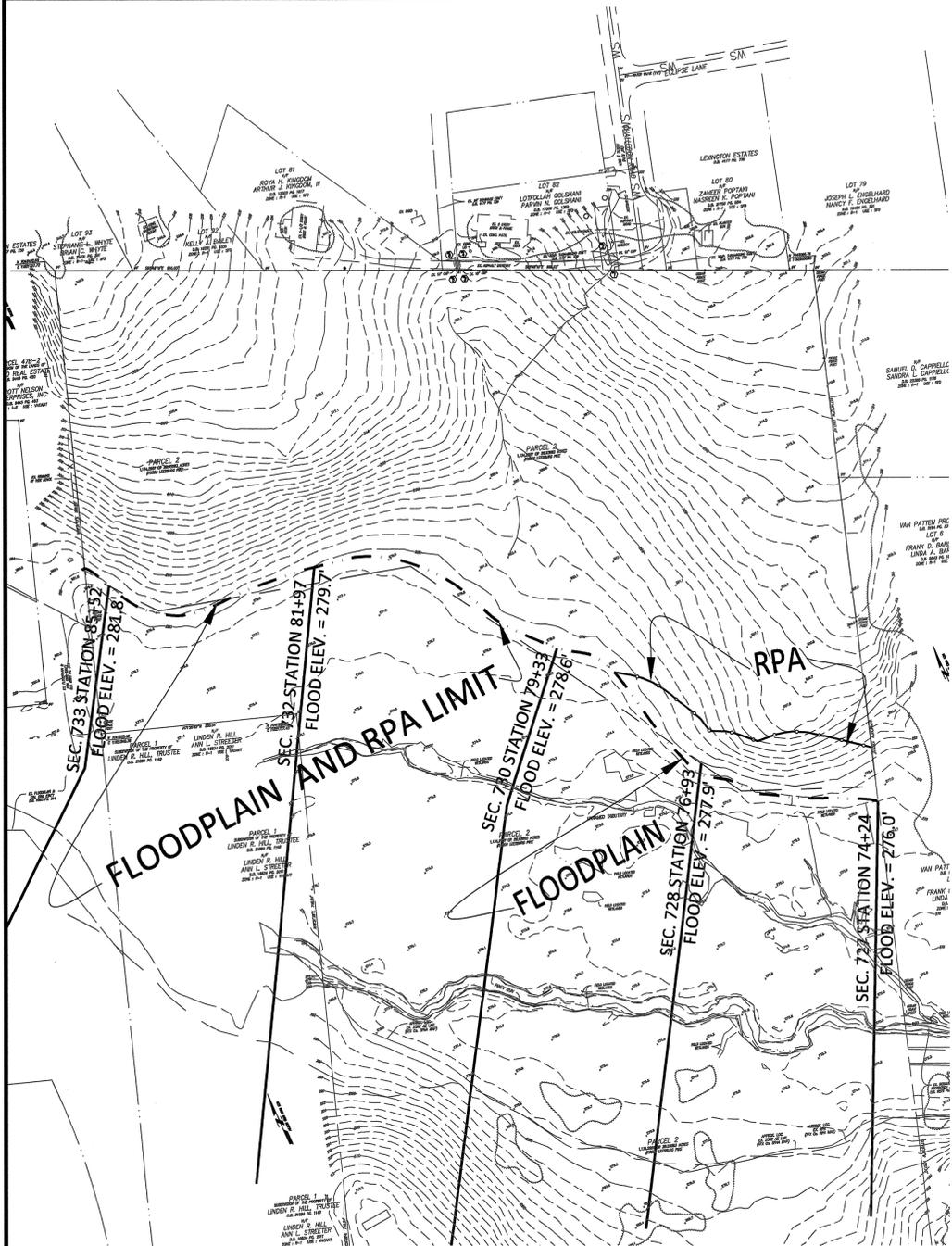
GENERAL NOTES

- THE PROPERTY WILL BE SERVED BY PRIVATE SEPTIC SEWAGE SYSTEMS AND PUBLIC WATER SERVICE EXTENDED WITHIN CHALLEDON ROAD.
- TOPOGRAPHIC AND BOUNDARY INFORMATION WAS OBTAINED WITH PERMISSION FROM LAND DESIGN CONSULTANTS (LDC) OF WOODBRIDGE, VIRGINIA AND APPLICABLE LDC INFORMATION IS PROVIDED HERE.
- THERE ARE NO KNOWN OR VISIBLE GRAVESITES OR BURIAL GROUNDS ON THE PROPERTY.
- THERE IS A RESOURCE PROTECTION AREA (RPA) ON-SITE, AS INDICATED ON THE "OVERVIEW & FLOODPLAIN SECTIONS / RPA MAP" ON THIS SHEET.
- THIS APPLICATION AND GDP PROPOSES THE CREATION OF AN ENVIRONMENTAL QUALITY CORRIDOR ON THE PROPERTY, AS INDICATED ON THE EXISTING CONDITIONS PLAN.
- THE MAJOR FLOODPLAIN SHOWN ON THE SITE HAS BEEN DETERMINED IN ACCORDANCE WITH FAIRFAX COUNTY'S TECHNICAL BULLETIN 12-03, ENTITLED "USE OF EXISTING FLOOD HAZARD DATA TO DELINEATE FLOODPLAIN BOUNDARIES ON PLANS" AND DATED OCTOBER 15, 2012. FLOOD ELEVATIONS AND SECTIONS WERE SELECTED FROM THE USGS REPORT 76-459, FLOOD-PLAIN DELINEATION FOR DIFFICULT RUN BASIN, FAIRFAX COUNTY, VIRGINIA. THE REPORT UTILIZED 2' CONTOUR INTERVAL DATA AND ASSUMED ULTIMATE FULL DEVELOPMENT OF THE DRAINAGE SHED. COMPUTED FLOOD ELEVATIONS WERE PLOTTED BASED UPON THE ACTUAL AERIAL TOPOGRAPHY FOR THE SITE.
- THIS SITE IS LOCATED WITHIN THE DIFFICULT RUN WATERSHED, PINEY RUN.
- TITLE REPORT WAS COMPLETED IN 2013 AS INDICATED IN THE LDC NOTES. THE PROPERTY IS SUBJECT TO ANY ENCUMBRANCES OF RECORD.
- TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THERE ARE NO HAZARDOUS /TOXIC SUBSTANCES OR WASTES AND/OR PETROLEUM PRODUCTS TO BE GENERATED, UTILIZED, STORED, TREATED AND/OR DISPOSED OF ON THE SITE.
- ANY AIR QUALITY PERMITS REQUIRED SHALL BE OBTAINED AND PROVIDED PRIOR TO ANY CLEARING, GRADING OR OTHER CONSTRUCTION ACTIVITY.
- SOLID WASTE FROM RESIDENTIAL DWELLINGS SHALL BE COLLECTED BY PRIVATE CONTRACTOR A MINIMUM OF TWICE WEEKLY. STORAGE SHALL BE IN 30 GALLON OR GREATER INDIVIDUAL HOUSEHOLD CONTAINERS.
- THE CONSTRUCTION CONTRACTOR FOR ANY PROPOSED LAND DISTURBING ACTIVITIES SHALL BE RESPONSIBLE FOR THE PROTECTION AND PRESERVATION OF ALL TREES IDENTIFIED FOR PRESERVATION IN THE FINAL TREE PRESERVATION PLAN APPROVED BY THE COUNTY.
- ALL CONSTRUCTION SHALL CONFORM TO FAIRFAX COUNTY AND VDOT STANDARDS AND SPECIFICATIONS.
- SOILS ON THE SITE ARE GLENELG (39) AND MEADOWVILLE (78) AND SOILS REPORTS ARE ADVISED BUT NOT REQUIRED. SEE THE SOILS MAP AND TABULAR DATA INCLUDED WITH THE EXISTING CONDITIONS PLAN FOR SPECIFIC INFORMATION.
- THE REQUIREMENTS OF THE STORMWATER MANAGEMENT ORDINANCE (CHAPTER 124) OF THE FAIRFAX COUNTY CODE WILL BE SATISFIED AS SET FORTH IN THE PRELIMINARY STORMWATER MANAGEMENT PLAN INCLUDED WITH THIS GENERALIZED DEVELOPMENT PLAN. IN GENERAL TERMS, THE REQUIRED FACILITIES FOR THE SUBDIVISION STREETS AND IMPROVEMENTS WILL BE MET THROUGH A COMBINATION OF THE FEATURES IDENTIFIED AS SWM/BMP FACILITIES 1, AN INFILTRATION FACILITY (OUTLOT B) AND CONSERVATION AREAS WITHIN THE ENVIRONMENTAL QUALITY CORRIDOR (OUTLOT C) AND RPA (OUTLOT B) SHOWN ON THIS PLAN AND THE EXISTING CONDITIONS PLAN.
- TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THERE ARE NO MAJOR UTILITY EASEMENTS LOCATED ON THE SITE.
- OUTLOTS A, B & C SHALL BE UNBUILDABLE LOTS. OUTLOTS ARE PROPOSED TO BE UTILIZED, AS FOLLOWS:
 - OUTLOT A (8,652 SF OR 0.20 AC) : PARCEL FOR LANDSCAPING AND SLOPE MAINTENANCE;
 - OUTLOT B (33,871 SF OR 0.78 AC) : PARCEL FOR SWM/BMP FACILITY #1, LANDSCAPING, SLOPE MAINTENANCE AND RPA PRESERVATION EASEMENT;
 - OUTLOT C (101,239 SF OR 2.32 AC) : CONSERVATION EASEMENT FOR EQC COMPONENTS AS DELINEATED.
- THE ENVIRONMENTAL QUALITY CORRIDOR (EQC) HAS BEEN ESTABLISHED THROUGH THE APPLICATION OF THE GUIDELINES SET FORTH IN THE COMPREHENSIVE PLAN AND AS A RESULT OF DISCUSSIONS WITH COUNTY STAFF. SEE MAPPING AND NARRATIVE ON SHEET 3.
- TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THERE ARE NO EXISTING STRUCTURES LOCATED ON THE PROPERTY.
- TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THE PROPOSED DEVELOPMENT CONFORMS TO ALL APPLICABLE REQUIREMENTS THAT WILL GOVERN THE PROPERTY UNDER THE R-1 CLUSTER ZONING DISTRICT, IF APPROVED BY THE BOARD OF SUPERVISORS OF FAIRFAX COUNTY.
- DEVELOPMENT SCHEDULE: DEVELOPMENT OF THE PROPERTY WILL COMMENCE SUBSEQUENT TO THE COMPLETION OF COUNTY APPROVALS FOR THE REZONING AND SUBDIVISION PLANS.



- NOTES:
- ALL ENTRANCE GRADES SHALL START BACK OF THE SHOULDER LINE IF NECESSARY THE DITCH MAY BE MOVED BACK TO PROVIDE AT LEAST 9" OF COVER OVER PIPE AS SHOWN IN THE ALTERNATE METHODS FOR PLACING PIPE UNDER ENTRANCES DIAGRAM.
 - ENTRANCE GRADES ARE TO BE SMOOTHLY TIED INTO THE ROADWAY BY ROUNDING AS NECESSARY.
 - 12" OR EXISTING WIDTH WHOEVER IS GREATER.
 - LENGTHS OF CULVERTS SHOWN ON ROAD PLANS FOR ENTRANCES ARE APPROXIMATE AND SHALL BE ADJUSTED TO OBTAIN ABOVE ROADWAY WIDTHS.
 - ENTRANCES IN FILL TO BE SAME AS ABOVE EXCEPT LOCATION OF CULVERT (WHEN NECESSARY).

SPECIFICATION REFERENCE	512	VDOT ROAD AND BRIDGE STANDARDS
REVISION DATE		SHEET 1 OF 1
		602.02
STANDARD PRIVATE ENTRANCES		
VIRGINIA DEPARTMENT OF TRANSPORTATION		



OVERVIEW & FLOODPLAIN SECTIONS / RPA MAP

SCALE: 1" = 100'



SHEET INDEX

- COVER SHEET & NOTES
- GENERALIZED DEVELOPMENT PLAN
- EQC, RESOURCE PRESERVATION & SOILS DATA
- EXISTING VEGETATION MAP (EVM)
- TREE PRESERVATION & PROTECTION PLAN -- 1 OF 3
- TREE PRESERVATION & PROTECTION PLAN -- 2 OF 3
- TREE PRESERVATION & PROTECTION PLAN -- 3 OF 3
- TREE PRESERVATION DETAILS & NARRATIVE
- SETBACKS & ROAD DATA
- ILLUSTRATIVE HOUSE AND WALL ELEVATIONS
- STORMWATER MANAGEMENT 1
- STORMWATER MANAGEMENT 2
- STORMWATER MANAGEMENT 3
- STORMWATER MANAGEMENT 4
- STORMWATER MANAGEMENT 5
- STORMWATER MANAGEMENT 6
- REGULATORY VERSUS PROPOSED EQC EXHIBIT
- BUILDING RESTRICTION AREAS
- TRANSITIONAL SCREENING
- ILLUSTRATIVE LOT LANDSCAPE DETAIL

APPLICANT & OWNER INFORMATION

THE PROPERTY WAS CREATED AS PART OF THE "STREETER SUBDIVISION" RECORDED IN DEED BOOK 23997 AT PAGE 214 AMONG THE LAND RECORDS OF FAIRFAX COUNTY VIRGINIA.

OWNER: ANN L. STREETER AND GREGORY C. STREETER, ATTORNEY-IN-FACT FOR ANN L. STREETER.

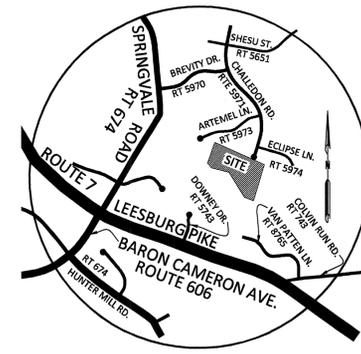
APPLICANT: GULICK GROUP INCORPORATED
11790 SUNRISE VALLEY DRIVE
SUITE 225
RESTON, VIRGINIA 20191
(703) 674-0330

NOTES FROM LDC PLATS

- THE BOUNDARY SHOWN HEREON IS BASED ON A FIELD SURVEY BY THIS FIRM (LDC) PERFORMED ON NOVEMBER 12, 2013.
- REPORT OF TITLE FURNISHED BY NVR SETTLEMENT SERVICES, INC., EFFECTIVE DATE AUGUST 7, 2013.
- THE PLAT OF THE PROPERTY SHOWN HEREON IS REFERENCED TO THE VIRGINIA COORDINATE SYSTEM OF 1983 AS COMPUTED FROM A FIELD SURVEY WHICH TIES THIS BOUNDARY TO THE TOPCON RTK NETWORK. THE COMBINED GRID AND ELEVATION FACTOR 0.99995812.
- THIS TOPOGRAPHIC SURVEY ON THE PROPERTY SHOWN HEREON AND BEING PARCEL 2, SUBDIVISION OF THE PROPERTY OF LINDEN R. HILL, TRUSTEE, WAS COMPLETED UNDER THE DIRECT AND RESPONSIBLE CHARGE OF KEVIN D. VAUGHN, FROM AN ACTUAL GROUND SURVEY MADE UNDER HIS SUPERVISION; THAT THE ORIGINAL DATA WAS OBTAINED ON NOVEMBER 13, 2013 AND DECEMBER 5, 2013; AND THAT THIS PLAT MEETS MINIMUM ACCURACY STANDARDS UNLESS OTHERWISE NOTED. THIS PHOTOGRAMMETRIC SURVEY WAS COMPLETED UNDER THE DIRECT AND RESPONSIBLE CHARGE OF MALCOLM MCKENZIE, MCKENZIE SNYDER, INC., FROM AN ACTUAL AIRBORNE SURVEY MADE UNDER HIS SUPERVISION; THE IMAGERY WAS OBTAINED ON NOVEMBER 15, 2013 AND THIS DIGITAL GEOSPATIAL DATA INCLUDING METADATA MEETS MINIMUM ACCURACY STANDARDS OTHERWISE NOTED. THE VERTICAL DATUM IS BASED ON THE NGVD 1929. THE CONTOUR INTERVAL IS TWO (2) FEET.

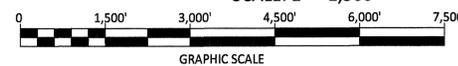
CROSS-REFERENCE NOTES:

- FOR DETAILED DATA AND LEGEND, SEE SHEETS 2 (GENERALIZED DEVELOPMENT PLAN, 1" = 40') AND 3 (EQC, RESOURCE PROTECTION & SOILS DATA).
- FOR SWM MINIMUM REQUIREMENTS CHECKLIST, SEE SHEETS 12 & 16.



VICINITY MAP

SCALE: 1" = 1,500'



PLANNING	1/18/16	COUNTY COMMENTS	GAH	REV. DATE	5/31/16
DESIGN	2/16/16	REV. PER PER 2/19/16 MEETING AT CO.	GAH	REV. DATE	5/31/16
CONSTRUCTION	4/7/16	REV. PER 3/25 MTG - ENV/FLOOD	GAH	REV. DATE	5/31/16
FINAL	4/28/16	SWM COMMENTS	GAH	REV. DATE	5/31/16
AS-BUILT	5/9/16	SWM TC & LOT 5: MISC TYPES	GAH	REV. DATE	5/31/16
REVISIONS	5/31/16	SWM FORMAT CHANGES	GAH	REV. DATE	5/31/16
	No.	DATE	DESCRIPTION	APPROVED	DATE

1451 Dolley Madison Boulevard
Suite 200
McLean, Virginia 22101

Phone: (703) 528-4424
Fax: (703) 528-4426
Cell: (703) 945-5452

Hish and Company, LLC
Civil Engineering Professionals

Professional Engineer
Gerald A. Hish, Sr.
Cert. # 9988
5/31/16

COVER SHEET & NOTES

SUMMER HILL
TAX MAP NO. 12-4 ((30)) LOT Z
DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA

FFX. CO. PLAN: RZ 2015-DR-0009

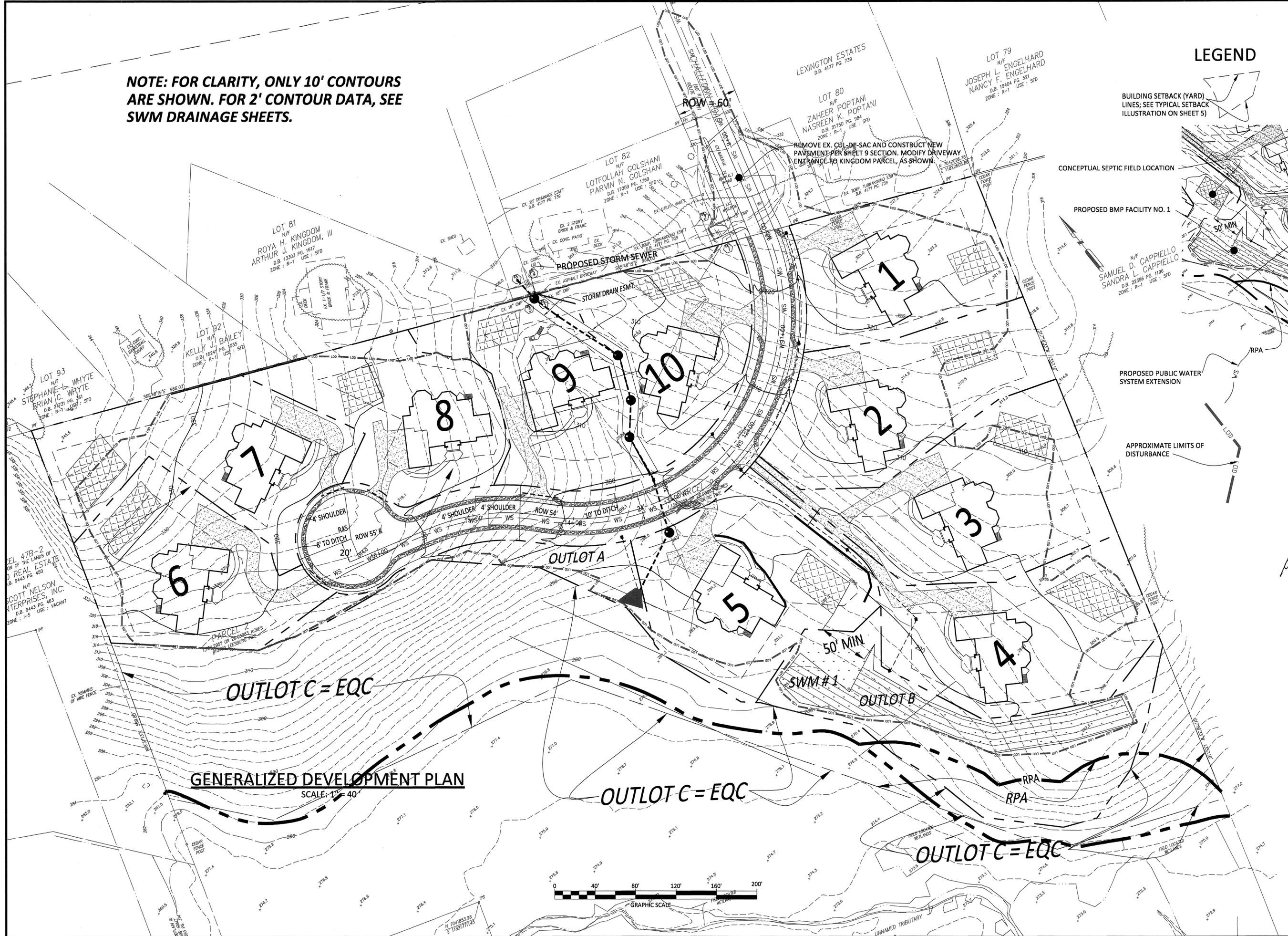
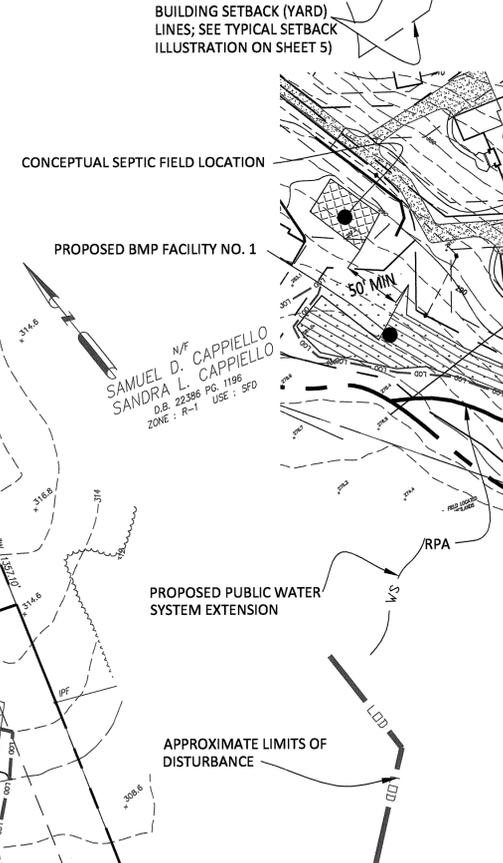
DATE: JUNE 2015

SHEET 1 OF 20

FILE No. GG 15-001-1

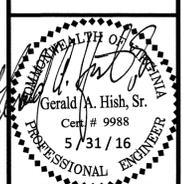
NOTE: FOR CLARITY, ONLY 10' CONTOURS ARE SHOWN. FOR 2' CONTOUR DATA, SEE SWM DRAINAGE SHEETS.

LEGEND



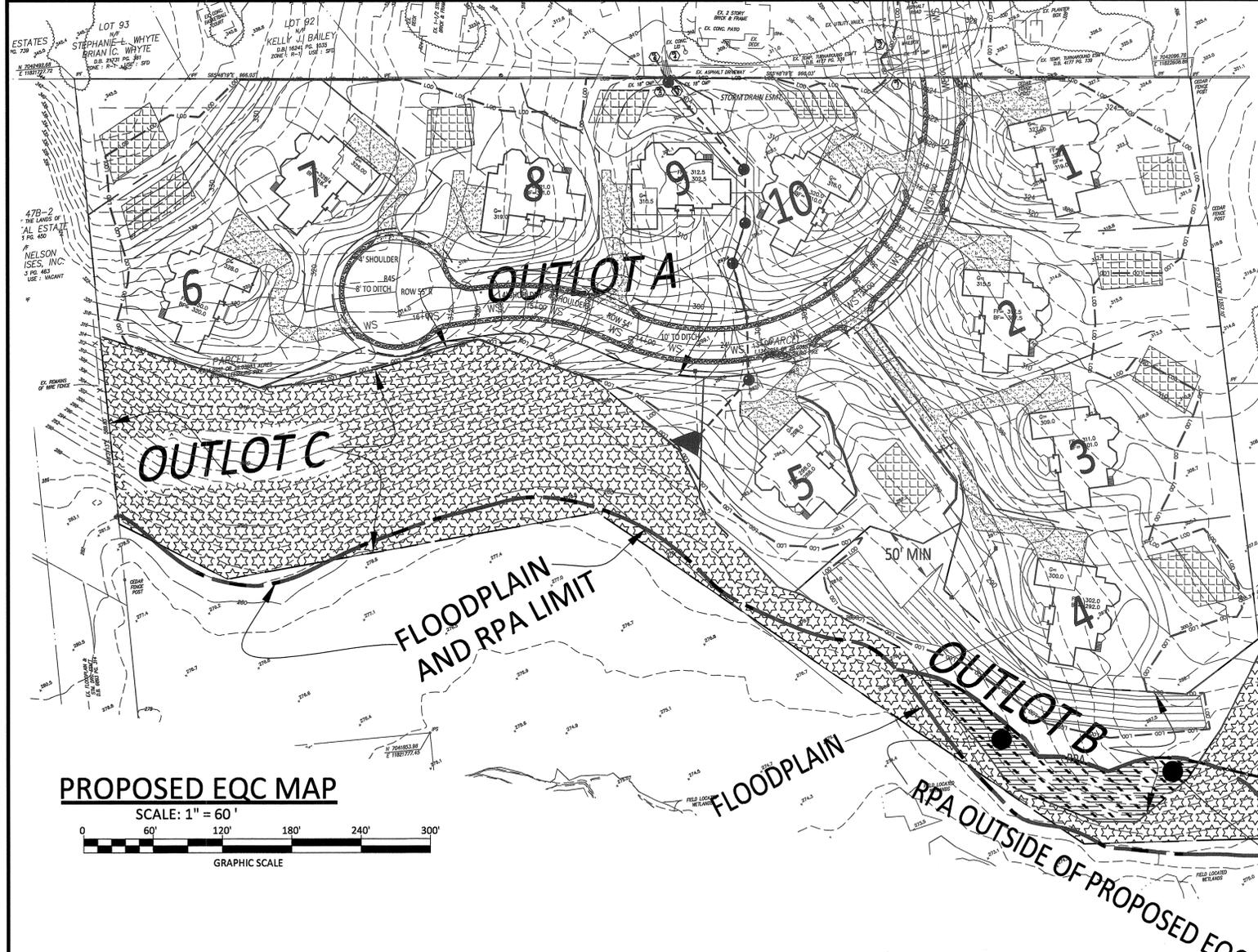
NO.	DATE	DESCRIPTION	REVISIONS
1	5/31/16	SWM FORMAT CHANGES	GAH
2	5/31/16	SWM COMMENTS	GAH
3	4/28/16	REV. PER 3/25 MTS - ENV/CDOT	GAH
4	4/17/16	REV. PER 2/19/16 MEETING AT CO.	GAH
5	2/26/16	REV. PER 1/19/16 MEETING AT CO.	GAH
6	1/18/16	COUNTY COMMENTS	GAH

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 Fax: (703) 528-4426
 Cell: (703) 945-5452



GENERALIZED DEVELOPMENT PLAN
 SUMMER HILL
 TAX MAP NO. 12-4 ((300)) LOT Z
 DRANESVILLE DISTRICT
 FAIRFAX COUNTY, VIRGINIA
 FFX. CO. PLAN: RZ 2015-DR-0009
 DATE: JUNE 2015
 SCALE: GRAPHIC
 SHEET 2 OF 20
 FILE No. GG 15-001-1

Hish and Company PROJECTS/Guided Group Projects/Under Hill/CURRENT/GDP FILE/2016 GDP/DR-0009 SHEET 2 - GDP, 5/30/2016 12:13:33 PM



PROPOSED EQC MAP
SCALE: 1" = 60'
GRAPHIC SCALE

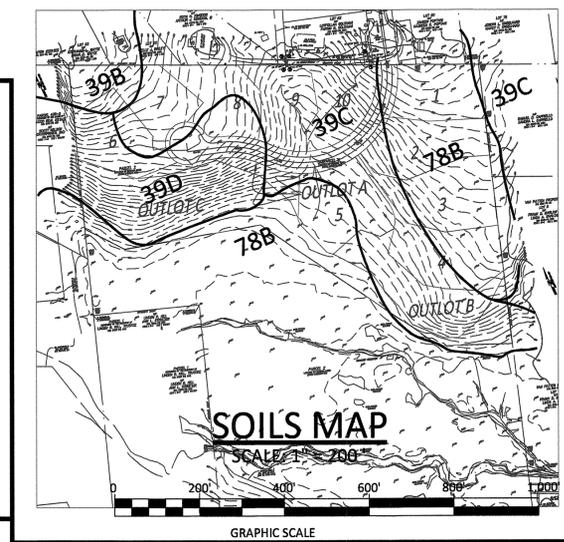
SOIL DATA TABULATION

SOILS ID NUMBER	SOIL NAME	SOIL PROBLEM CLASS	SOIL HYDROLOGIC GROUP	SOIL DRAINAGE	FOUNDATION SUPPORT	EROSION POTENTIAL	SUITABILITY FOR SEPTIC	SUITABILITY FOR INFILTRATION TRENCHES	OTHER NOTES
39B	GLENELG SILT LOAM	I	B	GOOD	GOOD	HIGH	GOOD	GOOD	As**
39C	GLENELG SILT LOAM	I	B	GOOD	GOOD	HIGH	GOOD	GOOD	As**
39D	GLENELG SILT LOAM	I	B	GOOD	GOOD	HIGH	GOOD	GOOD	As**
78B	MEADOWVILLE LOAM	II	B	MARGINAL-w	FAIR-w,b	MEDIUM	MARGINAL-w	MARGINAL-w	As**

As** Small portion of soils mapped over asbestos bedrock
 b Low bearing values for foundation support
 w High seasonal groundwater tables in drainage way or low lying areas

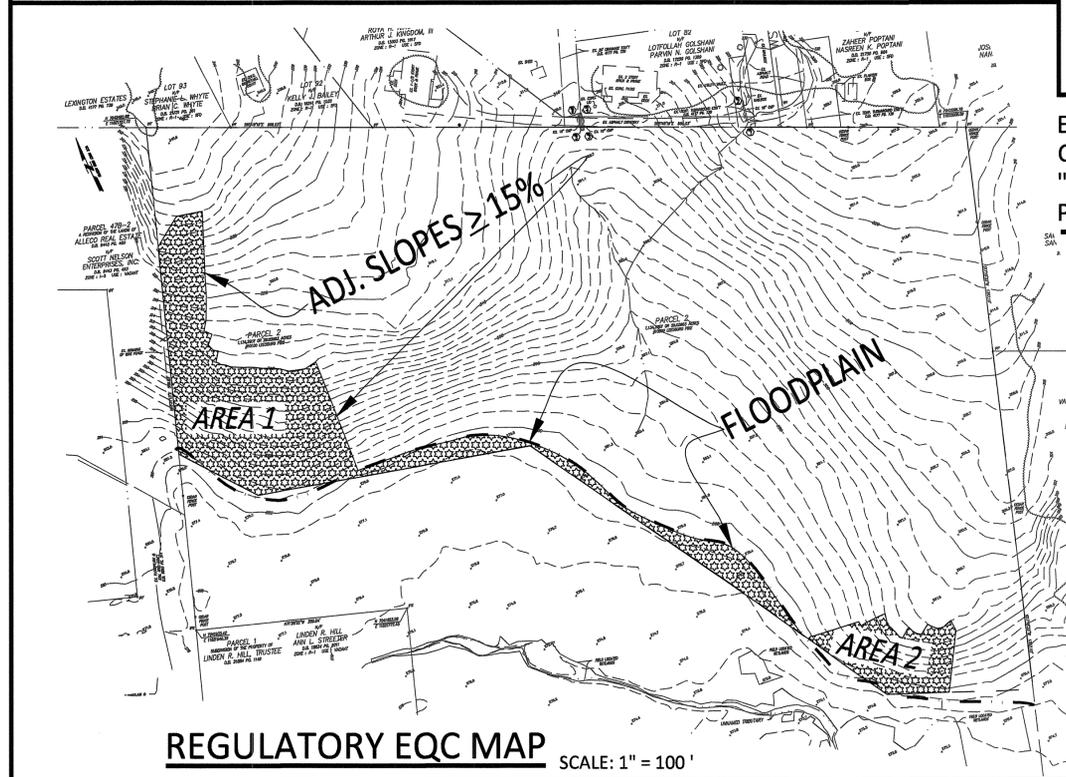
SITE AREA TABULATION

PARCEL	AREA [A]	ACRES	PERIMETER [P]	SHAPE FACTOR [(P x P) / A]	P x P
1	26,237	0.60	670	17.1	448,552
2	30,486	0.70	770	19.5	593,054
3	35,110	0.81	915	23.9	838,012
4	34,627	0.79	1,100	34.9	1,209,252
5	32,868	0.75	770	18.0	592,146
6	28,683	0.66	665	15.4	442,172
7	31,573	0.72	683	14.8	466,434
8	25,199	0.58	639	16.2	407,899
9	25,371	0.58	718	20.3	515,007
10	25,092	0.58	754	22.7	568,335
OUTLOT A	8,652	0.20	AREA FOR ROAD CONSTRUCTION -- ULTIMATE PLANTING AREA		
OUTLOT B	33,871	0.78	LOCATION OF INFILTRATION BMP FACILITY -- SWM/BMP AND RPA CONSERVATION EASEMENTS		
OUTLOT C	101,239	2.32	ENCLOSES PROPOSED EQC LIMITS -- CONSERVATION EASEMENT		
R.O.W.	40,200	0.92	CHALLEDON ROAD EXTENSION DEDICATION		
TOTAL	479,206	11.00			



SOILS MAP
SCALE: 1" = 200'
GRAPHIC SCALE

- NOTES:
- EQC IS CONTAINED ENTIRELY WITHIN OUTLOT C AND OUTLOT C CONTAINS SOLELY EQC AREAS.
 - RPA CONSISTS OF FLOODPLAIN AND BUFFERS FROM REGULATORY WETLANDS AND IS 28,024 SF (0.64 ACRES) IN AREA.
 - FOR COMPOSITE MAP OF REGULATORY AND PROPOSED EQC, SEE SHEET 15.



REGULATORY EQC MAP
SCALE: 1" = 100'
GRAPHIC SCALE

ENVIRONMENTAL QUALITY CORRIDOR (EQC) AS DEFINED UNDER OBJECTIVE 9 OF THE "WATER QUALITY" SUBSECTION OF THE "ENVIRONMENT" SECTION OF THE CURRENT POLICY PLAN (A PORTION OF THE COMPREHENSIVE PLAN) OF FAIRFAX COUNTY:

- FLOODPLAIN & ADJACENT SLOPES GREATER THAN 15%
 AREA 1 = 44,067 SF
 AREA 2 = 9,827 SF
 TOTAL = 53,894 SF OR 1.24 ACRES = 11.25% OF 492,206 SF (TOTAL SITE)
- ALL WETLANDS CONNECTED TO THE STREAM VALLEY
 THERE ARE NO WETLANDS ON THE PROPERTY THAT ARE CONNECTED TO THE STREAM VALLEY.
- A BUFFER CORRIDOR MEASURED FROM THE STREAM BANK BASED UPON AVERAGE SLOPE.
 THE CALCULATED BUFFER FOR THE SITE DOES NOT EXTEND BEYOND THE FLOODPLAIN & ADJACENT SLOPES SHOWN ABOVE.

GRAPHIC SCALE

PROPOSED ENVIRONMENTAL QUALITY CORRIDOR (EQC) AND RESOURCE PROTECTION NARRATIVE

THE EQC PROPOSED WITH THIS APPLICATION IS THE RESULT OF PRELIMINARY DISCUSSIONS WITH FAIRFAX COUNTY'S ENVIRONMENTAL STAFF AND THE APPLICATION OF THE PRINCIPLES SET FORTH IN THE COMPREHENSIVE PLAN, INCLUDING,

- INCREASES IN THE WIDTH OF THE CORRIDOR ALONG THE STREAM VALLEY TO SUPPORT HABITAT QUALITY AND BREEDING AREAS DUE TO LESS FRAGMENTATION OF THE RESOURCES;
- GREATER CONNECTIVITY OF OPEN SPACE ALONG THE STREAM VALLEY AND ADJACENT PROPERTIES TO FACILITATE WILDLIFE MOVEMENT AND BIODIVERSITY; AND
- ADDITIONAL BUFFER OVER LARGER LENGTHS FOR VEGETATIVE STABILIZATION, POLLUTANT TRAPPING, HYDROLOGIC PROTECTION AND SEPARATION OF RESIDENTIAL USES FROM THE STREAM PROPER.

ADDITIONALLY, THE DESIGN INCLUDES THE "CLUSTER" PROVISIONS OF THE ZONING ORDINANCE TO PERMIT SMALLER LOTS (25,00 SF MIN. VERSUS 36,000 SF CONVENTIONAL R-1) AND LESS ROAD RIGHT OF WAY TO SATISFY FRONTAGE REQUIREMENTS, RESULTING IN GREATER PRESERVATION OPPORTUNITIES.

AS SHOWN ON THE PROPOSED EQC MAP, RESOURCE PROTECTION IS BEING PROVIDED OVER THE ENTIRETY OF OUTLOT C (EQC [hatched]) AND A PORTION OF OUTLOT B (RPA OUTSIDE OF EQC [hatched]) TO ALLOW A CONNECTED BUFFER ALONG THE STREAM VALLEY WITH A SIGNIFICANTLY GREATER LENGTH AND AREA THAN THE MINIMUM CRITERIA REQUIRE. A TABULATION OF THE LOT AREAS IS INCLUDED ABOVE AND DEMONSTRATES THAT THE ACTUAL PROPOSED EQC (OUTLOT C) IS 101,239 SF IN SIZE, WHICH IS 21% OF THE TOTAL SITE AND 1.87 TIMES THE 53,894 SF MANDATED BY THE ORDINANCE. FINALLY, AS SHOWN ON THIS SHEET AND THE TREE PROTECTION & PRESERVATION PLAN, RESOURCE PROTECTION AND BUFFER AREAS ARE PROPOSED ON INDIVIDUAL LOTS AND OUTLOTS TO THE GREATEST EXTENT PRACTICABLE.

1/18/16	COUNTY COMMENTS	PLAN DATE	1/18/16	DATE	1/18/16
2/16/16	REV. TYP PER UPRID COMMENTS		2/16/16	REVISED	2/16/16
2/29/16	REV. PER 2/29/16 MEETING AT CO.		2/29/16	REVISED	2/29/16
4/7/16	REV. PER 3/25 MTG - ENV/FOOT		4/7/16	REVISED	4/7/16
4/28/16	SWM COMMENTS		4/28/16	REVISED	4/28/16
5/9/16	SWM TC & LOT 5; MISC TYP		5/9/16	REVISED	5/9/16
5/31/16	SWM FORMAT CHANGES		5/31/16	REVISED	5/31/16
	NO. DATE	DESCRIPTION		REVISED	

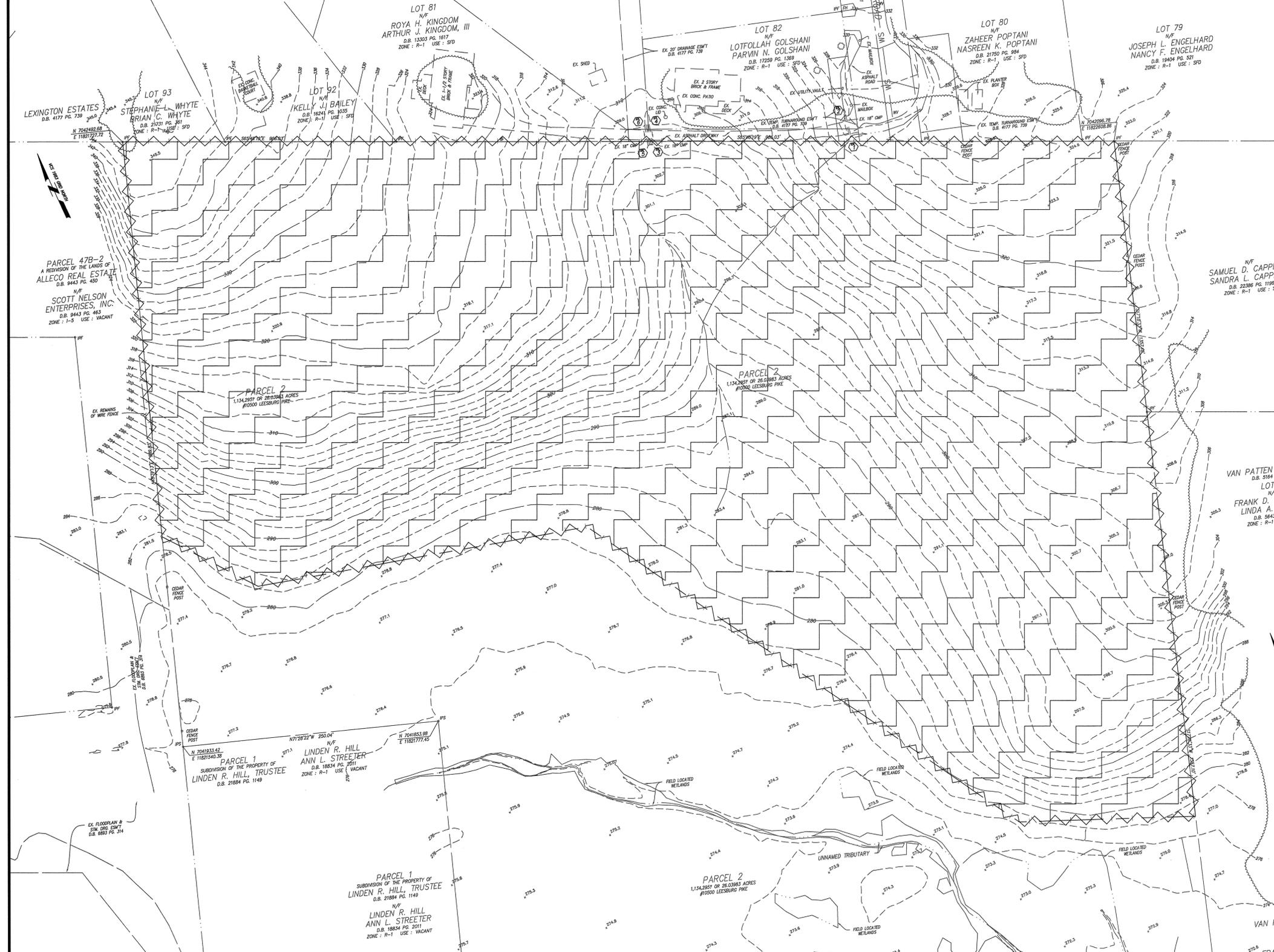
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 Cell: (703) 945-5452

PROFESSIONAL ENGINEER
 Gerald A. Hish, Sr.
 Cert. # 9988
 5/31/16

EQC, RESOURCE PRESERVATION & SOILS DATA
 SUMMER HILL
 TAX MAP NO. 12-4 (30) LOT 7
 DRANESVILLE DISTRICT
 FAIRFAX COUNTY, VIRGINIA
 FFX. CO. PLAN: RZ 2015-DR-0009
 DATE: JUNE 2015
 SCALE: GRAPHIC

SHEET 3 OF 20
 FILE No. GG 15-001-1

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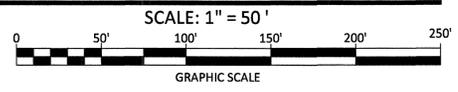
LEGEND

-  EXISTING TREELINE
-  EXISTING CANOPY (2) UPLAND FOREST (479,207 SF)
LONGTERM SUCCESSIONAL FOREST
-  SITE AREA

NOTES:

1. THE ONSITE (2) UPLAND FOREST CONSISTS PRIMARILY OF TULIP POPLAR, NORTHERN RED OAK, RED MAPLE, WHITE OAK, VIRGINIA PINE, AND MOCKERNUT HICKORY IN THE OVERSTORY. THE UNDERSTORY CONSISTS OF AMERICAN HOLLY, TULIP POPLAR AND RED MAPLE. BOTH THE OVERSTORY AND UNDERSTORY ARE IN FAIR TO GOOD CONDITION. THE HERBACEOUS LAYER CONSISTS OF LEZPEDEZA, GREENBRIER, MIRCOSTEGIUM, CINNAMON FERN AND VIRGINIA CREEPER.
2. INVASIVE SPECIES ARE PRESENT THROUGHOUT THE UPLAND FOREST AND INCLUDE JAPANESE HONEYSUCKLE.

EXISTING VEGETATION MAP

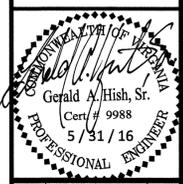



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PLAN DATE	DESCRIPTION	REVISIONS
1/18/16	COUNTY COMMENTS	GAH
2/16/16	REV. PER PER UPRID COMMENTS	JAD/MS
2/16/16	REV. PER 2/19/16 MEETING AT CO.	GAH
4/1/16	REV. PER 3/25 MTG - ENV/FCOBT	GAH
4/28/16	SWM COMMENTS	GAH
5/9/16	SWM TC & LOT 5; MISC TYPUS	GAH
5/31/16	SWM FORMAT CHANGES	GAH
No.	DATE	DESCRIPTION

PLAN DATE	DESCRIPTION	REVISIONS

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EXISTING VEGETATION MAP (EVM)
SUMMER HILL
TAX MAP NO. 12-4 (30) LOT Z
DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA
SCALE: GRAPHIC
FFX. CO. PLAN: RZ 2015-DR-0009
DATE: JUNE 2015



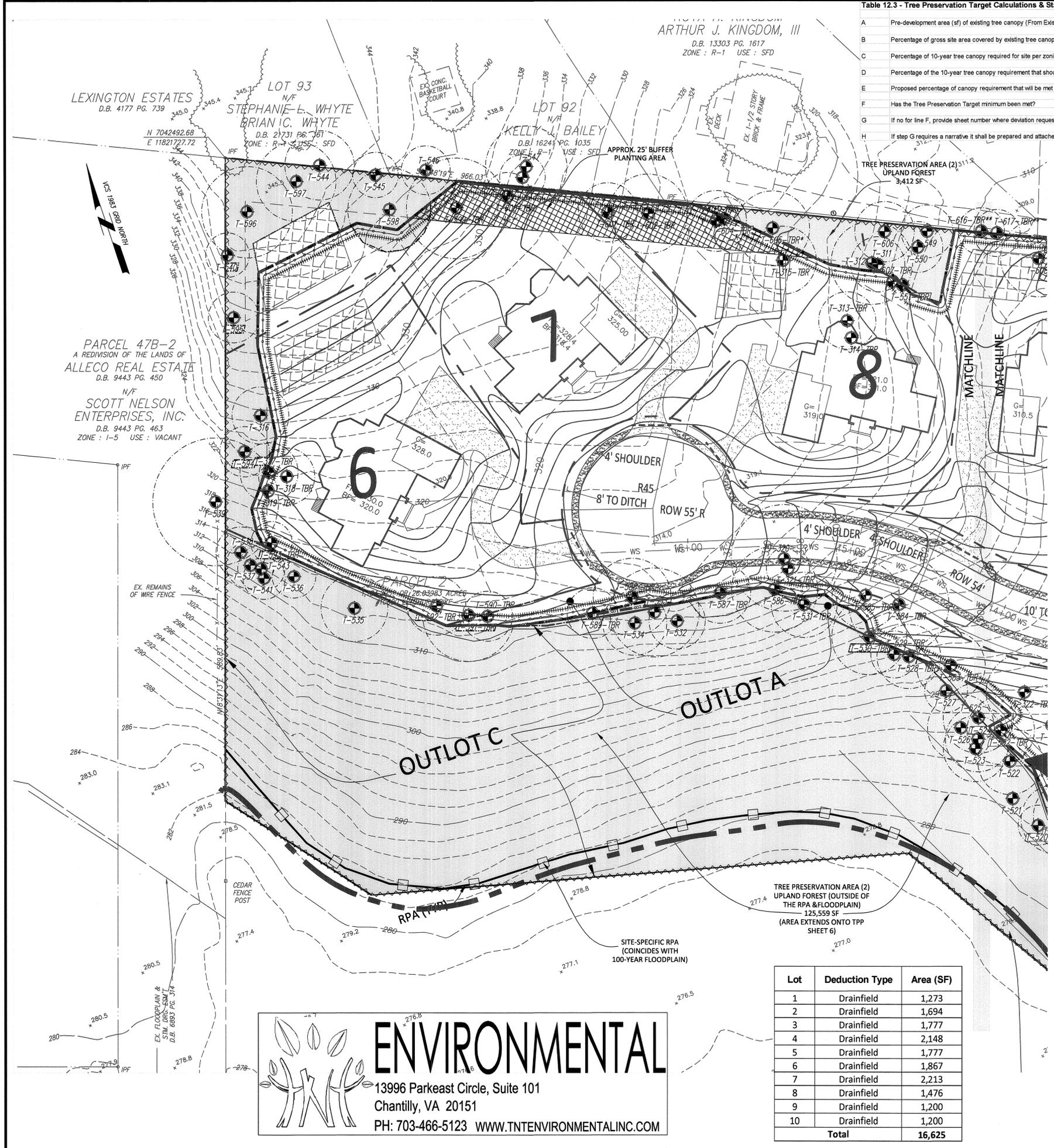


Table 12.3 - Tree Preservation Target Calculations & Statement

A	Pre-development area (sf) of existing tree canopy (From Existing Vegetation Map) =	479,207.0
B	Percentage of gross site area covered by existing tree canopy =	100.0%
C	Percentage of 10-year tree canopy required for site per zoning =	30%
D	Percentage of the 10-year tree canopy requirement that should be met through preservation =	100.0%
E	Proposed percentage of canopy requirement that will be met through tree preservation =	138.6%
F	Has the Tree Preservation Target minimum been met?	YES
G	If no for line F, provide sheet number where deviation request is located	N/A
H	If step G requires a narrative it shall be prepared and attached	N/A

LEGEND

- TREELINE
- EXISTING CANOPY (2) UPLAND FOREST (479,207 SF) LONGTERM SUCCESSIONAL FOREST
- TREE PRESERVATION AREA (2) UPLAND FOREST (160,198 SF)
- PROPOSED DRAINFIELDS
- PROPOSED 25-FOOT BUFFER PLANTING AREA
- CRITICAL ROOT ZONE (CRZ)
- TREE LOCATION
- TREE PROTECTION FENCING
- ROOT PRUNING

FOR ILLUSTRATIVE SCREENING AND LOT LANDSCAPING CONCEPTS, SEE SHEETS 19 AND 20.

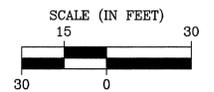
- NOTES:
 **1. *SHARED TREES SHALL NOT BE REMOVED WITHOUT WRITTEN PERMISSION FROM AFFECTED ADJACENT PROPERTY OWNERS.
 **2. *TREES NOTED FOR REMOVAL WITHIN THE SAVE AREAS SHALL BE DONE SO BY HAND WITHOUT THE USE OF HEAVY MACHINERY.
 3. OFFSITE TREES WERE ASSESSED FROM THE SUBJECT PROPERTY SO NOT TO TRESPASS ONTO ADJACENT PROPERTY. DBH MEASUREMENTS ARE APPROXIMATE.
 4. TREES LOCATED WITHIN OR ON THE LIMITS OF DISTURBANCE, OR RATED AS BEING "POOR" IN CONDITION, ARE RECOMMENDED FOR REMOVAL BY TNT ARBORISTS DUE TO THE LIKELIHOOD OF TREE FAILURE. HOWEVER, AT THE DISCRETION OF THE APPLICANT, SOME OF THESE MAY BE PRESERVED DURING CONSTRUCTION WITH THE APPROVAL OF URBAN FORESTRY.

Table 12.10 - 10-Year Tree Canopy Calculation Worksheet

Step	Totals
A. Tree Preservation Target & Statement	
A1	Tree Preservation Target calculations and statement
B. Tree Canopy Requirement	
B1	Gross Site Area = 479,207.0
B2	Subtract area dedicated to right-of-way = 0.0
B3	Subtract area of exemptions (drainfields) = 16,625.0
B4	Adjusted gross site area = 462,582.0
B5	Identify site's zoning and/or use = R-1
B6	Percentage of 10-year canopy required = 30%
B7	Area of 10-year canopy required = 138,775
B8	Modification of 10-year Tree Canopy Requirement Requested? No
B9	If B8 is yes, list plan sheet where modification is located N/A
C. Tree Preservation	
C1	Tree Preservation Target Area = 138,774.6
C2	Total canopy area meeting standards of § 12-0400 = 128,971.0
C3	C2 x 1.25 = 161,213.8
C4	Total canopy area provided by unique or valuable forest/woodland communities = 0.0
C5	C4 x 1.5 = 0.0
C6	Total of canopy area provide by Heritage, Memorial, Specimen, or Street Trees = 0.0
C7	C6 x 1.5 to 3.0 = 0.0
C8	Canopy area of trees within Resource Protection Areas and 100-year floodplains = 31,227.0
C9	C8 x 1.0 = 31,138.0
C10	Total of C3, C5, C7, and C9 = 192,352
D. Tree Planting	
D1	Minimum area of canopy to be met through tree planting = 0.0
D2	Minimum area of canopy planted for air quality benefits = 0.0
D3	D2 x 1.5 = 0.0
D4	Minimum area of canopy planted for energy conservation = 0.0
D5	D4 x 1.5 = 0.0
D6	Minimum area of canopy planted for water quality benefits = 0.0
D7	D6 x 1.25 = 0.0
D8	Minimum area of canopy planted for wildlife benefits = 0.0
D9	D8 x 1.5 = 0.0
D10	Minimum area of canopy provided by native trees = 0.0
D11	D10 x 1.5 = 0.0
D12	Minimum area of canopy provided by improved cultivars and varieties = 0.0
D13	D12 x 1.5 = 0.0
D14	Area of canopy provided through tree seedlings = 0.0
D15	Area of canopy provided through native shrubs or woody seed mix = 0.0
D16	Percentage of 14 represented by D15 (must be less than 33%) = 0.0%
D17	Minimum total of canopy area provided through tree planting = 0
D18	Is an offsite planting relief requested? No
D19	Tree Bank or Tree Fund? No
D20	Canopy area requested to be provided through offsite banking or tree fund? No
D21	Amount to be deposited into the Tree Preservation and Planting Fund = \$0.0
E. Total of 10-year Tree Canopy Provided	
E1	Total of canopy area provided through tree preservation = 192,352
E2	Minimum total of canopy area provided through tree planting = 0
E3	Total of canopy area provided through offsite mechanism = 0
E4	Total of 10-year Tree Canopy Provided = 192,352

Lot	Deduction Type	Area (SF)
1	Drainfield	1,273
2	Drainfield	1,694
3	Drainfield	1,777
4	Drainfield	2,148
5	Drainfield	1,777
6	Drainfield	1,867
7	Drainfield	2,213
8	Drainfield	1,476
9	Drainfield	1,200
10	Drainfield	1,200
Total		16,625

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Winash M. Sareen
 Certified Arborist
 Certification # MA-4727A

I certify this plan meets both the tree preservation target (PFM 12-0501) and the tree conservation plan (PFM 12-0502) submittal requirements; no deviations or modifications to these requirements are being requested.

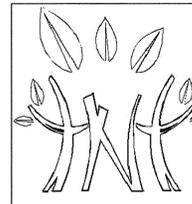
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 5/31/16

TREE PRESERVATION & PROTECTION PLAN
 SUMMER HILL
 TAX MAP NO. 12-4 (30) LOT Z
 DRANESVILLE DISTRICT
 FAIRFAX COUNTY, VIRGINIA
 FFX. CO. PLAN: RZ 2015-DR-0009
 DATE: JUNE 2015
 SCALE: GRAPHIC

SHEET 5 OF 20
 FILE No. GG 15-001-1

Tree Number	Common Name	Size (inches DBH)	Critical Root Zone (feet)	Condition	Remove	Notes & Arborist Recommendations
311	Tulip Poplar	16.4	16.4	71.9%		Prune small dead limbs
312	Tulip Poplar	24.7	24.7	75.0%		Prune small dead limbs
313	Black Cherry	17.3	17.3	50.0%	x	Many dead limbs
314	Dead	-	-	0.0%	x	Dead Tree
315	White Oak	20.2	20.2	68.8%	x	Some dead limbs
316	Virginia Pine	17.2	17.2	62.5%		One-sided. Prune dead limbs
317	Virginia Pine	17.6	17.6	62.5%	x	Some dead limbs
318	Red Maple	17.0	17.0	68.8%	x	Small dead limbs
319	Dead	-	-	0.0%	x	
320	Northern Red Oak	32.0	32.0	59.4%	x	Small dead limbs
321	Red Maple	13.1	13.1	71.9%	x	Some dead limbs
322	Tulip Poplar	23.2	23.2	78.1%	x	
323	Tulip Poplar	24.2	24.2	68.8%	x	Small dead limbs
324	Tulip Poplar	15.6	15.6	71.9%	xX	Some dead limbs
325	Tulip Poplar	15.4	15.4	68.8%		Few scaffold branches
326	Tulip Poplar	26.8	26.8	78.1%	x	Vines in canopy
339	White Oak	26.8	26.8	0.0%	x	Mostly dead
343	Tulip Poplar	32.0	32.0	59.4%	x	Bark stress and water sprouts
344	Dead	-	-	0.0%	x	Dead
345	Mockernut Hickory	13.0	13.0	71.9%	x	Some dead limbs
346	Tulip Poplar	19.3	19.3	75.0%	x	Small dead limbs
347	Tulip Poplar	15.8	15.8	65.6%	x	Crooked trunk
348	Tulip Poplar	15.0	15.0	62.5%	x	Small scaffold branches
349	White Oak	27.8	27.8	59.4%	x	Many large dead limbs
350	Tulip Poplar	18.2	18.2	75.0%	x	Small dead limbs
351	Tulip Poplar	20.6	20.6	71.9%	x	Some dead limbs
352	Tulip Poplar	16.7	16.7	65.6%		Brush at the base - remove brush by hand
353	Red Maple	14.2	14.2	50.0%		Many cavities
354	Tulip Poplar	23.1	23.1	71.9%		
355	Tulip Poplar	19.3	19.3	71.9%		
356	Tulip Poplar	28.2	28.2	62.5%	x	Some dead limbs, bark stress and water sprouts
357	Tulip Poplar	14.0	14.0	68.8%	x	Water sprouts
501	Tulip Poplar	22.7	22.7	65.6%		Shared, Prune dead limbs
502	Dead	-	-	-	x	
503	Red Maple	30.7	30.7	68.8%		Prune dead limbs
504	Dead	-	-	-		Offsite
505	Northern Red Oak	42.7	42.7	46.9%		Shared, Many dead limbs, disease on trunk - Leave in place per site walk with UFMD
506	White Oak	14.1	14.1	59.4%	x	Many dead limbs, vines
507	Tulip Poplar	14.1	14.1	78.1%		Prune small dead limbs, large shallow root
508	Dead	-	-	-		Leave in place due to distance from targets
509	Dead	-	-	-		Leave in place due to distance from targets
510	Northern Red Oak	36.0	36.0	37.5%		Many dead limbs, swelling at base, vines, Leave in place due to distance from targets
511	Northern Red Oak	34.0	34.0	37.5%		Many dead limbs, swelling at base, vines, Leave in place due to distance from targets
512	Northern Red Oak	33.0	33.0	37.5%		Many dead limbs, swelling at base, vines - Leave in place due to distance from targets
513	Tulip Poplar	17.7	17.7	87.5%		
514	Black Gum	14.1	14.1	62.5%		Prune small dead limbs
515	Tulip Poplar	14.6	14.6	56.3%	x	Dead wood up trunk, trunk failing
516	White Oak	14.5	14.5	59.4%	x	Leaning, some dead limbs
517	White Oak	16.7	16.7	75.0%		Prune dead limbs
518	Dead	-	-	-		Leave in place due to distance from targets
519	Black Gum	18.6	18.6	59.4%		Prune small dead limbs
520	Tulip Poplar	12.1	12.1	65.6%		Prune dead limbs
521	Dead	-	-	-		Leave in place due to distance from targets
522	Tulip Poplar	19.6	19.6	81.3%		Prune small dead limbs
523	Tulip Poplar	19.5	19.5	68.8%		Prune dead limbs
524	Tulip Poplar	19.7	19.7	68.8%		Prune dead limbs
525	Tulip Poplar	21.3	21.3	68.8%		Prune dead limbs
526	Tulip Poplar	20.2	20.2	84.4%		
527	Tulip Poplar	13.0	13.0	78.1%		Prune dead limbs
528	White Oak	19.3	19.3	68.8%	x	Some dead limbs
529	Black Gum	14.1	14.1	68.8%	x	Some dead limbs
530	Tulip Poplar	22.7	22.7	62.5%	x	Some insect damage in trunk, some swelling at base
531	Tulip Poplar	19.9	19.9	68.8%	x	Some dead limbs, mostly one-sided
532	Tulip Poplar	17.0	17.0	78.1%		Prune small dead limbs
533	Tulip Poplar	27.0	27.0	62.5%		Double-trunk, weak crotch, Prune dead limbs
534	Tulip Poplar	19.4	19.4	75.0%		Prune dead limbs
535	White Oak	20.2	20.2	59.4%		Prune dead limbs
536	Red Maple	13.2	13.2	65.6%		Poor form, Prune dead limbs
537	Cottonwood	14.6	14.6	71.9%		Prune dead limbs
538	Cottonwood	15.0	15.0	78.1%		Prune dead limbs
539	Southern Red Oak	38.0	38.0	46.9%		Offsite, Many large dead limbs, swelling at base



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Tree Number	Common Name	Size (inches DBH)	Critical Root Zone (feet)	Condition	Remove	Notes & Arborist Recommendations
540	Southern Red Oak	13.2	13.2	43.8%		Prune dead limbs, one-sided
541	Cottonwood	12.8	12.8	78.1%		Prune dead limbs
542	Cottonwood	14.8	14.8	75.0%		Prune dead limbs
543	Cottonwood	14.2	14.2	65.6%		Prune dead limbs
544	Black Cherry	21.0	21.0	68.8%		Shared, Prune dead limbs
545	White Oak	13.8	13.8	84.4%		Prune small dead limbs
546	White Oak	13.8	13.8	84.4%		Offsite, Some small dead limbs
547	Tulip Poplar	24.6	24.6	65.6%		Offsite, Some dead limbs
548	Pignut Hickory	12.2	12.2	78.1%		Offsite, Some small dead limbs
549	Pignut Hickory	15.7	15.7	50.0%		Prune dead limbs, Woodpecker damage
550	Pignut Hickory	15.1	15.1	50.0%		Prune dead limbs, Woodpecker damage
551	Dead	-	-	-	x	
552	Red Maple	13.7	13.7	65.6%	x	One-sided
553	Red Maple	19.2	19.2	62.5%	x	Poor form, large dead limbs
554	Red Maple	15.5	15.5	59.4%	x	Leaning, several small dead limbs
555	Northern Red Oak	30.8	30.8	37.5%	x**	Shared, Vines, many large dead limbs, one-sided. Permission needed for removal
556	Tulip Poplar	21.7	21.7	56.3%	x	Leaning, several dead limbs, one-sided
557	Northern Red Oak	25.6	25.6	59.4%	x	Vines, leaning, one-sided, several dead limbs
558	Pignut Hickory	29.7	29.7	81.3%	x	Some dead limbs
559	Tulip Poplar	21.3	21.3	59.4%		Some dead limbs, leaning
560	Northern Red Oak	26.8	26.8	68.8%		Prune dead limbs
561	Tulip Poplar	43.0	43.0	53.1%		Double trunk, swollen crotch, several dead limbs, insect damage
562	Tulip Poplar	15.3	15.3	65.6%	x	Some small dead limbs
563	Black Cherry	13.2	13.2	68.8%	x	Some dead limbs, slight lean
564	Pignut Hickory	14.8	14.8	53.1%		Swelling at base, leaning. Prune dead limbs
565	Tulip Poplar	16.1	16.1	75.0%		Prune small dead limbs
566	Pignut Hickory	18.2	18.2	68.8%		Prune dead limbs
567	Tulip Poplar	21.5	21.5	59.4%	x*	Dead wood up trunk, several dead limbs, cavity
568	Tulip Poplar	21.6	21.6	68.8%		Prune dead limbs
569	Pignut Hickory	17.5	17.5	62.5%		Prune dead limbs
570	Black Gum	14.6	14.6	56.3%	x	Several dead limbs, vines
571	White Oak	23.1	23.1	43.8%		Mostly dead - Leave in place due to distance from targets
572	Tulip Poplar	17.0	17.0	59.4%	x	Several dead limbs, lichen
573	Tulip Poplar	13.6	13.6	31.3%	x	Failing, snapped in half
574	Dead	-	-	-		Leave in place due to distance from targets
575	Tulip Poplar	15.6	15.6	65.6%		Prune dead limbs
576	Tulip Poplar	17.2	17.2	78.1%		Prune small dead limbs
577	Sycamore	26.4	26.4	65.6%		Prune large dead limbs
578	Tulip Poplar	39.0	39.0	59.4%		Prune dead limbs. Some insect damage
579	Tulip Poplar	23.3	23.3	68.8%		Prune dead limbs
580	Tulip Poplar	20.6	20.6	65.6%	x	Several dead limbs
581	Tulip Poplar	20.8	20.8	65.6%	x	Several dead limbs
582	Tulip Poplar	20.4	20.4	75.0%	x	Some dead limbs
583	Tulip Poplar	20.8	20.8	75.0%	x	Some dead limbs
584	Tulip Poplar	30.3	30.3	65.6%	x	Double trunk, several dead limbs
585	Tulip Poplar	20.3	20.3	87.5%	x	
586	Tulip Poplar	26.0	26.0	65.6%	x	Shallow roots with damage, some dead limbs
587	Red Maple	18.4	18.4	62.5%	x	Double trunk, shallow roots, some dead limbs
588	Tulip Poplar	23.6	23.6	78.1%	x	Some dead limbs
589	Virginia Pine	15.3	15.3	68.8%	x	Some dead limbs
590	Tulip Poplar	15.1	15.1	59.4%	x	Several dead limbs
591	Red Maple	27.8	27.8	56.3%	x	Poor form, several wounds, several dead limbs
592	Cottonwood	17.8	17.8	59.4%	x	Several dead limbs
593	Pignut Hickory	12.5	12.5	68.8%	x	Some girdling roots, some dead limbs
594	Black Gum	15.0	15.0	59.4%	x	Several dead limbs
595	Loblolly Pine	15.3	15.3	56.3%		Several dead limbs, leaning
596	Red Maple	27.4	27.4	59.4%		Small cavity at base, double trunk. Prune dead limbs
597	Virginia Pine	24.1	24.1	59.4%	x	Several dead limbs, leaning
598	White Oak	25.2	25.2	65.6%		Prune large dead limbs
599	Northern Red Oak	30.2	30.2	56.3%	x	Several large dead limbs, wounds up trunk
600	Red Maple	14.4	14.4	59.4%	x	Insect damage at base, some dead limbs
601	Red Maple	17.8	17.8	62.5%	x	Some girdling, some dead limbs
602	Black Gum	23.8	23.8	65.6%	x	Large cavity at base, some dead limbs
603	Red Maple	18.2	18.2	71.9%	x	
604	Black Cherry	13.4	13.4	65.6%	x	
605	Red Maple	22.4	22.4	56.3%	x*	Poor form, some dead limbs
606	Red Maple	18.0	18.0	59.4%		Top missing, several dead limbs
607	Dead	-	-	-	x	Shallow roots, several dead limbs
608	Tulip Poplar	23.0	23.0	84.4%	x	
609	Tulip Poplar	27.6	27.6	71.9%	x	Some dead limbs, debris at base
610	Red Maple	16.8	16.8	56.3%	x	Leaning, one-sided, rotting, dead limbs
611	Red Maple	12.1	12.1	56.3%	x	Leaning
612	Tulip Poplar	24.7	24.7	59.4%	x	Several dead limbs
613	Red Maple	12.7	12.7	62.5%	x	Some swelling at base, many dead limbs
614	Northern Red Oak	26.7	26.7	68.8%	x	Several dead limbs
615	Tulip Poplar	48.0	48.0	43.8%	x	Double trunk, failing crotch, many large dead limbs
616	Pignut Hickory	14.0	14.0	50.0%	x**	Permission for removal needed - Shared, Woodpecker damage, several large dead limbs
617	Tulip Poplar	14.0	14.0	65.6%	x**	Permission for removal needed - Shared, Vines, poor form

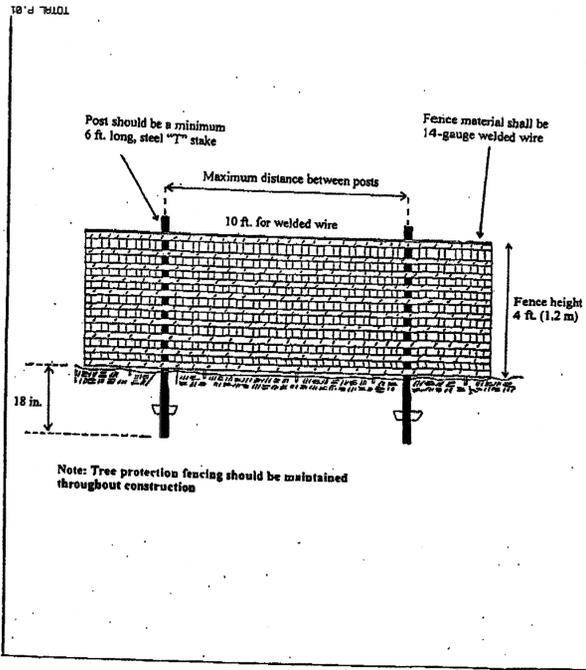
FOR ILLUSTRATIVE SCREENING AND LOT LANDSCAPING CONCEPTS, SEE SHEETS 19 AND 20.



Vinash M. Sareen
 Certified Arborist
 Certification # MA-4727A

I certify this plan meets both the tree preservation target (PFM 12-0501) and the tree conservation plan (PFM 12-0502) submittal requirements; no deviations or modifications to these requirements are being requested.

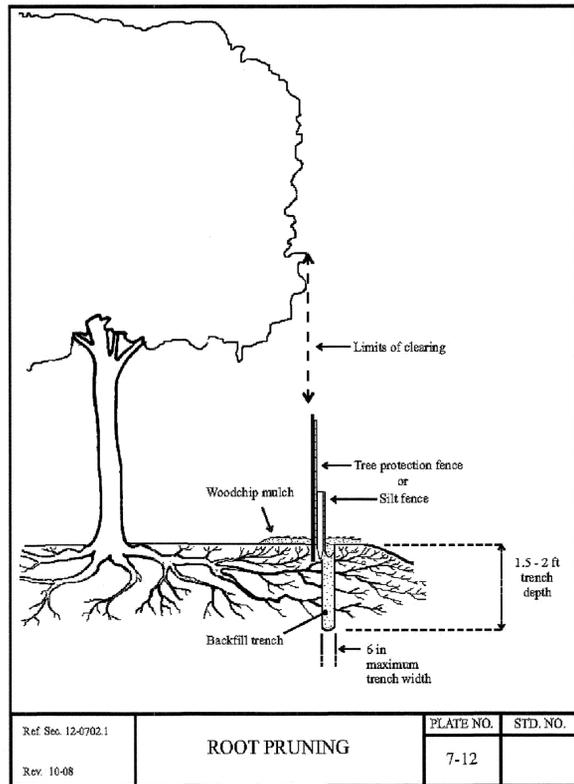
1/18/16	COUNTY COMMENTS	2/16/16	REV. PER UFMD COMMENTS	3/16/16	REV. PER UFMD COMMENTS	4/28/16	REV. PER 3/25 MTS - ENV/FCDD	5/19/16	SWM COMMENTS	5/19/16	SWM T.E. & LOT 5; MISC. TYPES	5/31/16	SWM FORMAT CHANGES	DATE	APPROVED	REVISIONS
<p>Hish and Company, LLC Civil Engineering Professionals 1451 Dolley Madison Boulevard Suite 200 McLean, Virginia 22101 Phone: (703) 528-4424 Fax: (703) 528-4426 Cell: (703) 945-5452</p>																
<p>TREE PRESERVATION & PROTECTION PLAN SUMMER HILL TAX MAP NO. 12-4 ((300)) LOT Z DRANESVILLE DISTRICT FAIRFAX COUNTY, VIRGINIA FFX. CO. PLAN: RZ 2015-DR-0009 DATE: JUNE 2015</p>																
<p>ENVIRONMENTAL 13996 Parkeast Circle, Suite 101 Chantilly, VA 20151 PH: 703-466-5123 WWW.TNTENVIRONMENTALINC.COM</p>																
<p>SHEET 7 OF 20 FILE No. GG 15-001-1</p>																



TREE PROTECTION FENCE INSTALLATION DETAIL

10:10 P.M. 6/28/16 6:52:24 2016 16:10:04

FAIRFAX COUNTY PUBLIC FACILITIES MANUAL



TREE CONDITION ANALYSIS
 TNT ENVIRONMENTAL, INC. (TNT) CONDUCTED SITE RECONNAISSANCES TO EVALUATE THE WOODED HABITAT ON THE PROJECT SITE IN OCTOBER 2015 AND JANUARY 2016. THE UNDEVELOPED PORTIONS OF THE SITE ARE COMPRISED PRIMARILY OF UPLAND SOFTWOODS AND HARDWOODS (I.E. POPLAR, OAKS, MAPLES, PINE, CHERRY). THE SPECIES OF TREES ASSESSED NEAR THE LIMITS OF CLEARING ARE LISTED IN THE TREE TABLE ON THE PREVIOUS SHEET.

BASED ON OUR SITE RECONNAISSANCE, INVASIVE AND/OR NOXIOUS SPECIES (I.E.: BARBERRY, JAPANESE STILTGRASS AND JAPANESE HONEYSUCKLE) ARE PRESENT ONSITE. INVASIVE SPECIES LOCATED WITHIN THE AREAS TO BE PRESERVED SHOULD BE REMOVED BY HAND WHEREVER PRACTICABLE TO MINIMIZE SITE DISTURBANCE. SEE THE INVASIVE SPECIES CONTROL NARRATIVE FOR SPECIES-SPECIFIC CONTROL MEASURES. THE TREES ONSITE ARE GENERALLY IN FAIR/GOOD CONDITION, EXCEPT WHERE OTHERWISE NOTED ON THE EVM (I.E.: POOR, DEAD). ONSITE TREES WITHIN 150-FEET OF THE PROPOSED LIMITS OF CLEARING MEET THE STANDARDS FOR STRUCTURAL INTEGRITY AND HEALTH IDENTIFIED IN § 12-0403.2A AND 12-0403.2B AND ARE IDENTIFIED ON THE EVM. AT THE TIME OF INSPECTION THERE WERE POOR AND DEAD TREES LOCATED WITHIN 150-FEET OF THE PROPOSED LIMITS OF CLEARING, WHICH ARE IDENTIFIED ON THE EXISTING VEGETATION MAP.

IN ACCORDANCE WITH § 12-0507.E2(1), TREES DESIGNATED FOR PRESERVATION SHALL BE PROTECTED DURING CONSTRUCTION.

TREE PRESERVATION NARRATIVE
 IN GENERAL ACCORDANCE WITH THE PFM, TREES WITHIN 25-FEET OF THE UNDISTURBED AREA BEHIND THE LIMITS OF CLEARING AND GRADING (LCG) ARE SHOWN ON THE PLAN. TREES WITHIN 10-FEET OF THE DISTURBED AREA WITHIN THE LCG ARE ALSO SHOWN ON THE PLAN.

§ 12-0509.3B: DEAD OR POTENTIALLY HAZARDOUS TREES SHALL BE REMOVED UPON THEIR DISCOVERY IF THEY ARE LOCATED WITHIN 100-FEET OF THE PROPOSED LIMITS OF CLEARING. DEAD TREES NOT WITHIN THIS AREA SHALL BE LEFT IN PLACE TO SERVE AS WILDLIFE HABITAT. DEAD OR POTENTIALLY HAZARDOUS TREES WILL BE REMOVED BY HAND (I.E.: CHAINSAW) WHEREVER PRACTICAL AND WILL BE CONDUCTED IN A MANNER THAT INCURS THE LEAST AMOUNT OF DAMAGE TO SURROUNDING TREES AND VEGETATION PROPOSED FOR PRESERVATION. FELLED TREES SHALL BE LEFT IN PLACE AND BRUSH SHOULD BE REMOVED BY HAND. NO HEAVY EQUIPMENT SHALL BE USED WITHIN TREE PRESERVATION AREAS.

§ 12-0509.3C: BASED ON THE CURRENT CONDITION OF THE EXISTING WOODED AREAS, NO ADVERSE HUMAN HEALTH RISKS ARE ANTICIPATED PROVIDED THAT TREES WHICH POSE A HAZARD TO HUMAN HEALTH AND SAFETY ARE PROPERLY REMOVED FROM AREAS WHERE THEY COULD POSE SUCH A RISK.

§ 12-0509.3D: INVASIVE AND/OR NOXIOUS SPECIES (I.E.: BARBERRY, JAPANESE STILTGRASS AND JAPANESE HONEYSUCKLE) ARE PRESENT ON THE SITE. INVASIVE SPECIES LOCATED WITHIN THE AREAS TO BE PRESERVED SHOULD BE REMOVED BY HAND WHEREVER PRACTICABLE TO MINIMIZE SITE DISTURBANCE.

§ 12-0509.3E: THE APPLICANT IS NOT REQUESTING OFFICIAL SPECIMEN TREE DESIGNATION FOR ANY OF THE LARGE TREES LOCATED ONSITE AND IS NOT USING A MULTIPLIER FOR TREE CANOPY CALCULATIONS.

§ 12-0509.3F: NON-IMPACTED SPECIMEN TREES LOCATED ON AND OFF-SITE SHALL BE PROTECTED THROUGHOUT ALL PHASES OF CONSTRUCTION BY UTILIZING TREE PROTECTION FENCING AS REQUIRED BY §12-0507.2E(1).

§ 12-0509.3G: 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. ROOT PRUNING SHALL BE CONDUCTED ALONG THE PROPOSED LIMITS OF CLEARING AND GRADING ADJACENT TO THE WOODED HABITAT TO BE PRESERVED AND ALONG PROPERTY BOUNDARIES WHERE THE CRZ OF OFF-SITE TREES WILL BE IMPACTED. LOCATIONS OF ROOT PRUNING AND TREE PROTECTION FENCING (TRENCHLESS SUPER SILT FENCE) ARE SHOWN ON THE TREE PRESERVATION & PROTECTION PLAN.

§ 12-0509.3H: NO TREES WILL BE TRANSPLANTED AS PART OF THE PROPOSED CONSTRUCTION ACTIVITIES.

§ 12-0509.3I: TREE PROTECTION FENCING AND SIGNAGE SHALL BE PLACED SUBSEQUENT TO THE STAKING OF THE LIMITS OF CLEARING IN THE FIELD PRIOR TO CONSTRUCTION IN ACCORDANCE WITH CURRENT FAIRFAX COUNTY ORDINANCES. 14-GAUGE WELDED WIRE FENCE SHALL 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 ERECTED AT A MINIMUM HEIGHT OF 4 FEET, EXCEPT FOR SUPER SILT FENCE WHERE HEIGHT MAY BE 3.5 FEET. THE FENCING MATERIAL SHALL BE MOUNTED ON 6-FOOT TALL STEEL POSTS DRIVEN 1.5 FEET INTO THE GROUND AND PLACED A MAXIMUM OF 10 FEET APART.

§ 12-0509.3J: NO WORK SHALL OCCUR WITHIN THE AREAS TO BE PROTECTED. ONSITE TREES WITHIN THE LIMITS OF CLEARING AND GRADING WILL BE REMOVED. NO TREES OUTSIDE THIS AREA SHALL BE REMOVED UNLESS INDICATED ON THE PLAN. TREES IN PRESERVATION AREAS INDICATED ON THE PLAN TO BE REMOVED SHALL BE REMOVED BY HAND. DEAD OR HAZARDOUS TREES WITHIN THIS AREA MAY BE LIMBED OR TOPPED, RATHER THAN REMOVING THE ENTIRE TREE AND LEFT AS SNAGS.

§ 12-0509.3K: THERE ARE NO KNOWN PROFFER CONDITIONS WHICH WOULD REQUIRE ADDITIONAL TREE INVENTORY, TREE CONDITION, TREE VALUATION OR TREE BONDING INFORMATION.

**TREE PROTECTION ZONE
KEEP OUT**

OFF LIMITS TO CONSTRUCTION EQUIPMENT,
MATERIALS, AND WORKERS

(COMPANY NAMES AND CONTACT NUMBERS)

PENALTY FOR VIOLATIONS STRICTLY ENFORCED

SPECIFICATIONS

- MINIMUM DIMENSION: 11 X 8 INCHES (W X H)
- BACKGROUND COLOR: RED OR YELLOW
- MINIMUM LETTER SIZE: LARGE = 0.48 INCHES
SMALL = 0.26 INCHES
- SIGNS MADE OF WEATHERPROOF MATERIAL

TREE PRESERVATION SIGN DETAIL

TREE PRESERVATION SIGN NOTE:

WEATHERPROOF TREE PRESERVATION AREA SIGNS SHALL BE POSTED ON TREE PROTECTION FENCING PER PFM 12-0703.3. THE PERMITTEE SHALL POST AND MAINTAIN BILINGUAL SIGNS AT THE LIMITS OF CLEARING AT A MINIMUM OF 50 FOOT INTERVALS. SIGNS SHALL BE POSTED IN ENGLISH AND SPANISH.

INVASIVE SPECIES CONTROL NARRATIVE:

1. INVASIVE SPECIES ONSITE WITHIN THE PROPOSED TREE PRESERVATION AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE SHALL BE MANAGED UNDER THE SUPERVISION OF THE PROJECT ARBORIST. ANY APPLICATION OF ENVIRONMENTALLY SENSITIVE APPROVED HERBICIDES SHALL BE APPLIED BY A VIRGINIA CERTIFIED APPLICATOR OR REGISTERED TECHNICIAN.
2. JAPANESE HONEYSUCKLE: SHALL BE REMOVED BY HAND TO MINIMIZE SITE DISTURBANCE. IN THE GROWING SEASON, AN APPLICATION OF AN ENVIRONMENTALLY SENSITIVE APPROVED HERBICIDE MAY BE APPLIED BY A VIRGINIA CERTIFIED APPLICATOR. TO REDUCE DAMAGE TO NON-TARGET PLANTS, HERBICIDES SUCH AS GLYPHOSATE AND TRICLOPYR MAY BE APPLIED TO FOLIAGE BY A CERTIFIED APPLICATOR IN AUTUMN, SINCE JAPANESE HONEYSUCKLE CONTINUES TO PHOTOSYNTHESIZE AFTER MANY OTHER SPECIES LOSE THEIR LEAVES.
3. JAPANESE STILTGRASS: STILTGRASS SHALL BE REMOVED BY HAND OR MOWN DOWN WITH A WEED WHACKER IN MID-TO-LATE SUMMER BEFORE THE PLANTS SET SEED. FOR EXTENSIVE INFESTATIONS, AN APPLICATION OF ENVIRONMENTALLY SENSITIVE APPROVED HERBICIDES SHALL BE APPLIED BY A VIRGINIA CERTIFIED APPLICATOR OR REGISTERED TECHNICIAN, ALSO IN LATE SUMMER.
4. JAPANESE BARBERRY: BARBERRY SHALL BE CUT AS CLOSE TO GROUND LEVEL AS POSSIBLE OR PULLED OUT OF THE GROUND BY HAND WHERE ABLE. APPLY A 20-25% SOLUTION OF GLYPHOSATE OR TRICLOPYR AND WATER TO THE STUMP IMMEDIATELY FOLLOWING CUTTING. APPLICATION IS BEST DONE LATE IN THE GROWING SEASON (AUGUST-OCTOBER). CUT STEMS AND ANY RE-SPROUTS AND FOLLOW-UP WITH OTHER APPLICATIONS OF HERBICIDE AS NECESSARY TO CONTROL THE POPULATION.
5. INVASIVE SPECIES CONTROL SHALL BE CONDUCTED UNTIL THE PLANTS NOTED ABOVE ARE NO LONGER IN ABUNDANCE OR UNTIL BOND RELEASE, WHICHEVER IS LATER.

FOR ILLUSTRATIVE SCREENING AND LOT LANDSCAPING CONCEPTS, SEE SHEETS 19 & 20.

TNT ENVIRONMENTAL

13996 Parkeast Circle, Suite 101
 Chantilly, VA 20151
 PH: 703-466-5123 WWW.TNTENVIRONMENTALINC.COM

Vinash M. Sareen
 Certified Arborist
 Certification # MA-4727A

PLAN DATE	PLAN NO.	DESCRIPTION	APPROVED	DATE
1/19/16	1	COUNTY COMMENTS	GAH	
2/16/16	2	REV. TYP PER UFM COMMENTS	LAD/MS	
2/16/16	3	REV. PER 2/19/16 MEETING AT CO	GAH	
4/1/16	4	REV. PER 3/25 MTG - ENV/FCDD	GAH	
4/28/16	5	SWM COMMENTS	GAH	
5/19/16	6	SWM TC & LOT 5: MISC TYP	GAH	
5/31/16	7	SWM FORMAT CHANGES	GAH	
			REV/BJ	

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 McLean, Virginia 22101

TREE PRESERVATION & PROTECTION PLAN

SUMMER HILL
 TAX MAP NO. 12-4 (30) LOT Z
 DRANESVILLE DISTRICT
 FAIRFAX COUNTY, VIRGINIA
 FFX. CO. PLAN: RZ 2015-DR-0009

DATE: JUNE 2015

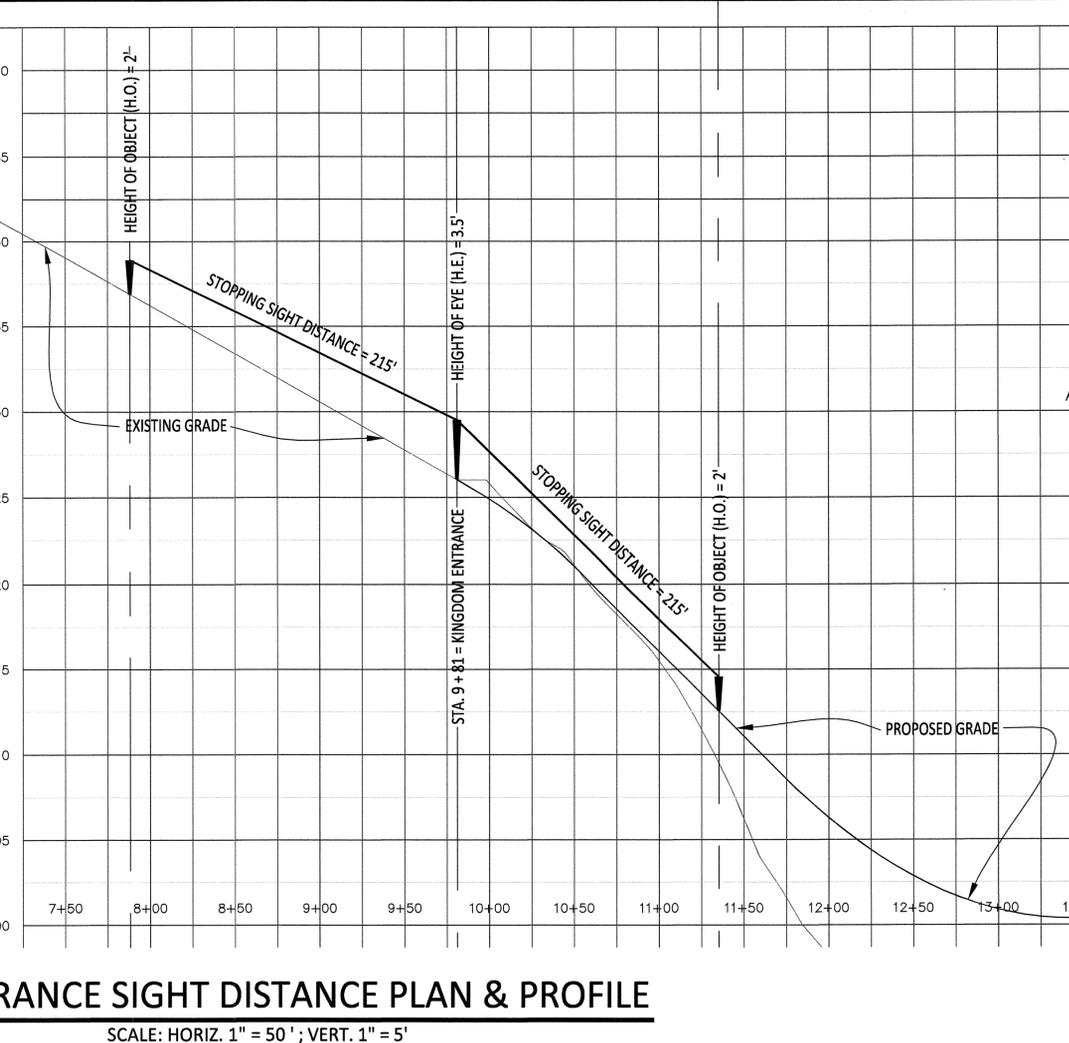
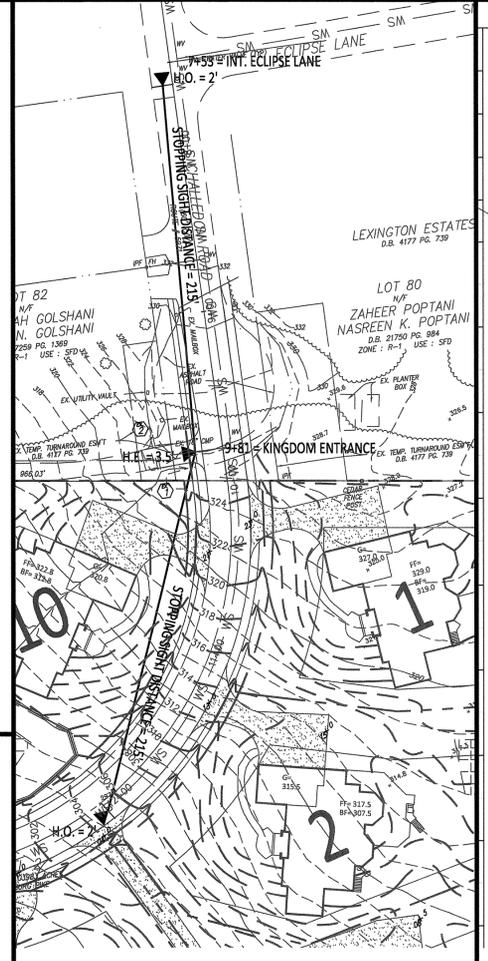
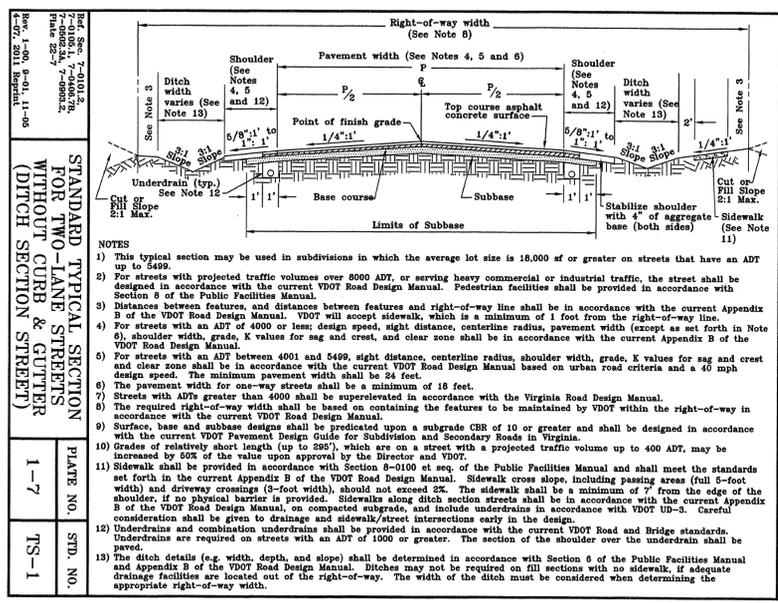
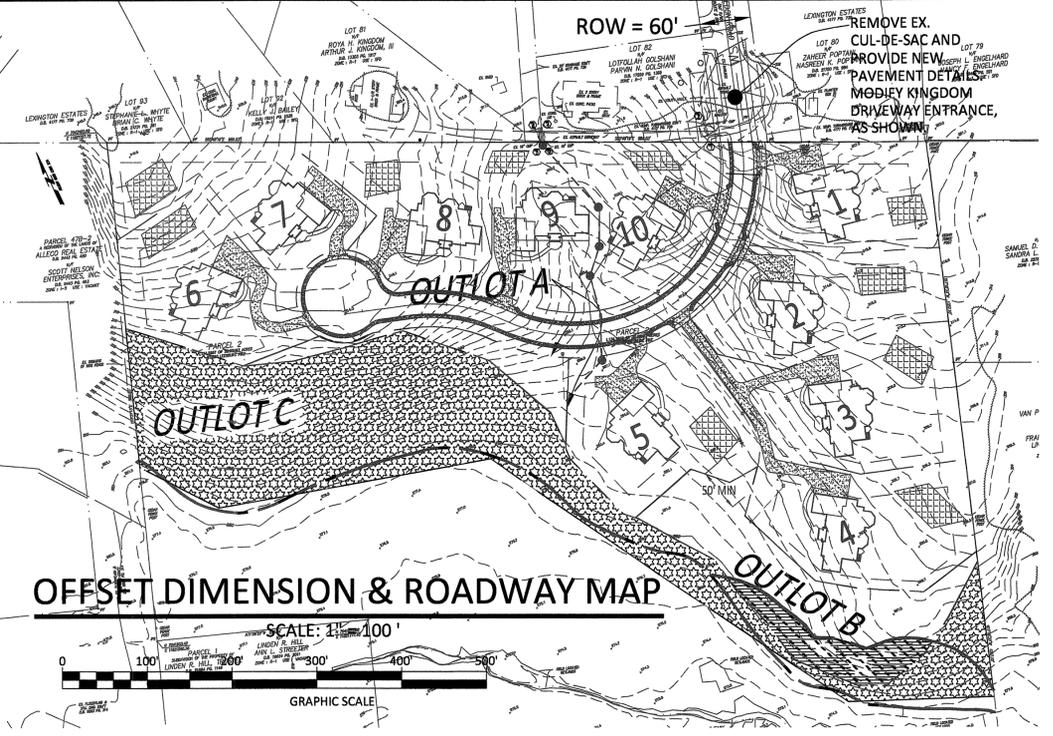
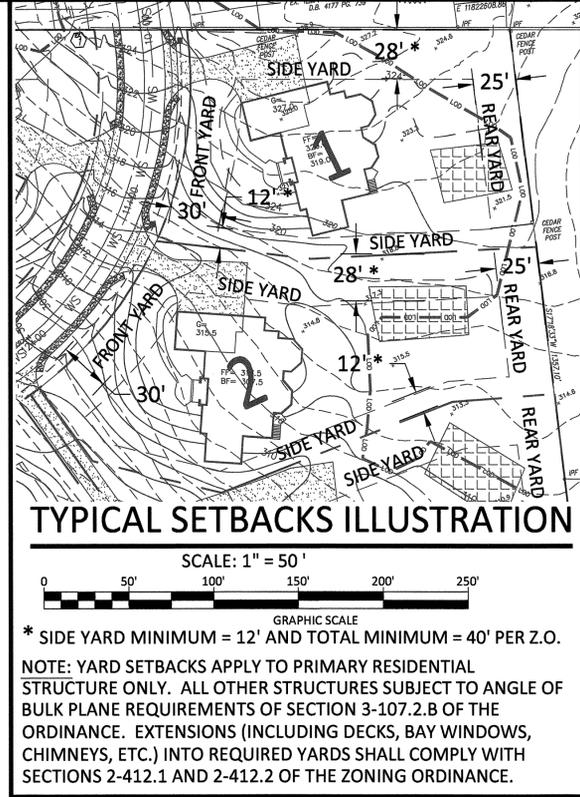
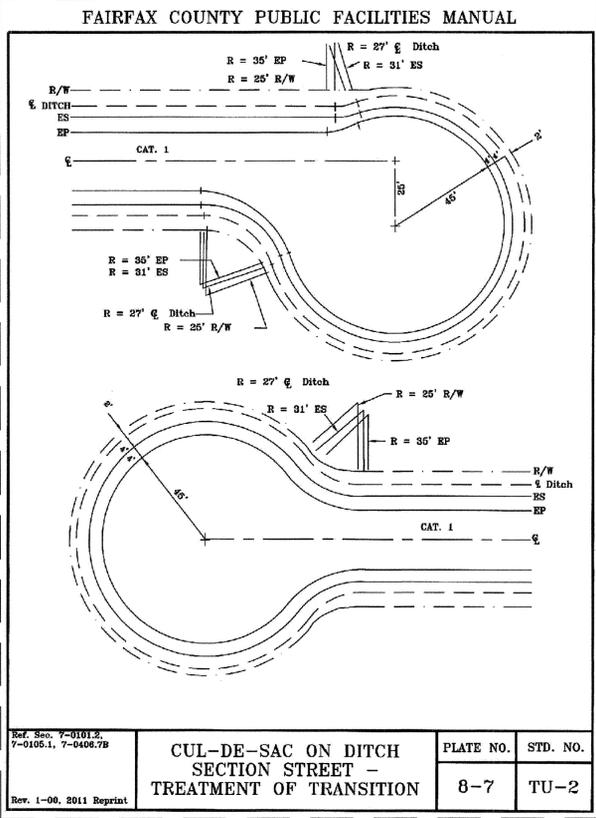
SCALE: GRAPHIC

SHEET
8
OF
20

FILE No.
GG 15-001-1

I certify this plan meets both the tree preservation target (PFM 12-0501) and the tree conservation plan (PFM 12-0502) submittal requirements; no deviations or modifications to these requirements are being requested.

H:\Hish and Company\Projects\Quick Group Projects\Judson Hill\CURRENT\GWP FILE\016.GWP\MODIFY 05-31-16\GWP SHEETS 5-8.TPP - Camp_SHEET 8_5/30/2016 12:33:25 PM



CHALLEDON ROAD EXTENDED -- SECTION

ROAD SECTION SHALL COMPLY WITH FAIRFAX COUNTY PFM PLATE NO. 1-7, STANDARD TS-1 (ABOVE), MODIFIED FOR PAVEMENT AND SHOULDER WIDTHS, AS SHOWN. AS INDICATED ON THE GDP (SHEET 2), THE PROPOSED CUL-DE-SAC WILL COMPLY WITH FAIRFAX COUNTY PFM PLATE NO. 8-7, STANDARD TU-2, AS AGREED UPON WITH VDOT. [SEE PLATE 8-7 ABOVE].

PLAN DATE		COUNTY COMMENTS		REVISIONS	
1/18/16	GAH	REV. PER 2/19/16 MEETING AT CO.	GAH	NO.	DATE
2/26/16	JAJ/MS	REV. PER 3/25 MISC. TYP.	GAH	DESCRIPTION	APPROVED
4/7/16	GAH	SWM COMMENTS	GAH	REVISIONS	DATE
5/9/16	GAH	SWM T.C. & LOT 5	GAH		
5/31/16	GAH	SWM FORMAT CHANGES	GAH		

SETBACKS & ROAD DATA

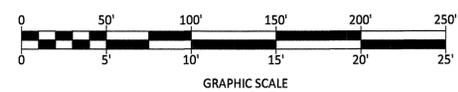
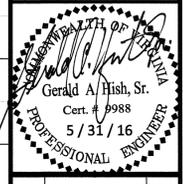
SUMMER HILL
TAX MAP NO. 12-4 ((30)) LOT Z
DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA
FFX. CO. PLAN: RZ 2015-DR-0009

DATE: JUNE 2015

SCALE: GRAPHIC

SHEET 9 OF 20
FILE No. GG 15-001-1

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FRONT ELEVATION A



ILLUSTRATIVE RETAINING WALL ELEVATION



FRONT ELEVATION B

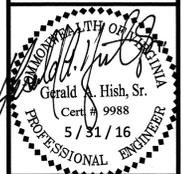


FRONT ELEVATION C

THESE ELEVATIONS ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ARCHITECTURAL DESIGN OF THE DWELLINGS SHALL BE IN GENERAL CONFORMANCE WITH THE BULK, MASS AND TYPE AND QUALITY OF MATERIALS SHOWN.

PLANNING DATE	REVISIONS
1/18/16	COUNTY COMMENTS
2/16/16	REV. TPP PER UPD COMMENTS
2/26/16	REV. PER 2/19/16 MEETING AT CO.
4/7/16	REV. PER 3/25 MTG - ENV/FCOOT
4/28/16	SWM COMMENTS
5/9/16	SWM TC & LOT 5; MISC TYPES
5/31/16	SWM FORMAT CHANGES
No.	DATE
	DESCRIPTION
	REV. BY
	APPROVED
	DATE

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 McLean, Virginia 22101



ILLUSTRATIVE HOUSE & WALL ELEVATIONS
 SUMMER HILL
 TAX MAP NO. 12-4 ((300)) LOT Z
 DRANESVILLE DISTRICT
 FAIRFAX COUNTY, VIRGINIA
 SCALE: GRAPHIC
 DATE: JUNE 2015
 FFX. CO. PLAN: RZ 2015-DR-0009

SHEET
 10
 OF
 20
 FILE No.
 GG 15-001-1

PRELIMINARY STORMWATER MANAGEMENT NARRATIVE

INTRODUCTION

THE SUBJECT PROPERTY IS AN 11.0 ACRE UNDEVELOPED PARCEL WITHIN THE PINEY RUN TRIBUTARY OF THE DIFFICULT RUN DRAINAGE SHED. CURRENTLY THE PROPERTY CONTAINS MATURE WOODLANDS AND UNDERSTORY VEGETATION THAT PROVIDES OVER 90% COVERAGE OF THE SITE. THE PROPOSED DEVELOPMENT OF THE PARCEL UNDER PARCEL 1 (CLUSTER) PROVISIONS OF THE COUNTY ORDINANCE WILL RESULT IN A MINOR EXTENSION OF CHALLEDON ROAD INTO A NEW CUL-DE-SAC ON THE SITE AND THE CREATION OF TEN (10) SINGLE FAMILY DWELLING RESIDENCES. THE PRELIMINARY DESIGN OF THE PROPERTY HAS BEEN ACCOMPLISHED TO MINIMIZE THE HYDROLOGIC IMPACTS OF THE DEVELOPMENT THROUGH A PROPOSED 54' R.O.W. FOR THE ROAD EXTENSION (24' TRAVELWAY AND 4' GRAVEL SHOULDERS) AND A GRADING CONCEPT TO MAXIMIZE SHEET FLOW CONDITIONS, PROVIDE INFILTRATIVE PRACTICE OPPORTUNITIES AND CONTROL RUNOFF AT THE HIGHEST POINTS OF THE DIVIDES. THE SITE CONTAINS ONLY HYDROLOGIC SOILS GROUP (HSG) "B" CONDITIONS; AFFORDS OPPORTUNITIES FOR THE PROTECTION OF EQC ELEMENTS ALONG THE STREAM VALLEY; AND IS SITUATED ADJACENT TO A MAJOR FLOODPLAIN ALONG ITS ENTIRE DOWNSTREAM BOUNDARY.

STORMWATER MANAGEMENT (SWM) AND BEST MANAGEMENT PRACTICES (BMP) DESIGN CONCEPT SUMMARY

SEE ILLUSTRATIVE LAYOUTS AND DETAILS, SHEET 15.
AS SHOWN ON THESE SWM SHEETS OF THE GDP PLAN SET, SWM AND BMP MEASURES ARE PROPOSED FOR THE SITE IN ACCORDANCE WITH THE REQUIREMENTS AND GUIDELINES OF CHAPTER 124 OF THE FAIRFAX COUNTY CODE OF ORDINANCES AND THE VIRGINIA RUNOFF REDUCTION METHOD (VRRM) STIPULATED BY THE PFM AND THE VIRGINIA DEC. INITIAL INVESTIGATIONS BY THE APPLICANT INCLUDED TWO DIFFERENT ALTERNATIVE DESIGN CONCEPTS TO MEET THE PROJECT REQUIREMENTS. AS A RESULT OF MEETINGS AND DISCUSSIONS WITH COUNTY STAFF, THE APPLICANT HAS DECIDED TO PROPOSE A SINGLE DESIGN CONCEPT FOR THE DEVELOPMENT WHICH INCLUDES A CENTRALIZED INFILTRATION FACILITY ON OUTLOT B TO SATISFY THE SWM AND BMP CRITERIA.
THE PROPOSED DESIGN INVOLVES THE CONSTRUCTION OF A SINGLE INFILTRATION TRENCH AS BMP FACILITY NO. 1 IN THE LOCATION SHOWN. THE SOILS DATA FOR THE SITE INDICATES THAT MOST OF THIS AREA IS GLENELG SILT-LOAM SOILS WHICH ARE RATED "GOOD" FOR INFILTRATION FACILITIES. THE SOILS REPORT PERFORMED FOR THE PROPERTY INDICATES THAT THE GROUND WATER TABLE IN THE VICINITY OF BMP # 1 IS LOCATED AT A DEPTH OF OVER 8.3' (DRY) BELOW GRADE (SEE BORING LOCATION B-7 ON THE SHEET 11 PLAN AND THE BORING LOG). ACCORDINGLY, THE DESIGN CONCEPT INCLUDES THE PROVISION OF AN INFILTRATION FACILITY (VA DEC SPEC # 8) ON OUTLOT B WHICH WILL PROVIDE COMPLETE RETENTION OF THE 10 YEAR STORM RUNOFF VOLUME.
THE DRAINAGE AREA MAP # 1 IS SHOWN ON THE DRAINAGE AREA MAP ON THIS SHEET AS AREA "A" AND INCLUDES 3.99 ACRES OF THE SUBJECT PROPERTY AND 1.47 ACRES OF OFFSITE AREAS WHICH DRAIN THROUGH THE SITE. THE OFFSITE AREA IS CONVEYED BY A NEW DITCH AND PIPE SYSTEM WITHIN CHALLEDON ROAD WHICH IS DIRECTED TO THE FACILITY. THE MAJORITY OF THE ON-SITE DRAINAGE AREAS WILL SHEET FLOW INTO THE FACILITY VIA WIDE GRASSED SWALES. CHANNEL AND PIPE SYSTEM COMPUTATIONS ARE PROVIDED IN THE PLAN SET AS SET FORTH BELOW.

AS SET FORTH IN CHAPTER 124-4-2 OF THE FAIRFAX COUNTY CODE, PRELIMINARY VRRM COMPUTATIONS HAVE BEEN COMPLETED (SEE DETAILS BELOW) FOR NEW DEVELOPMENT AND INDICATE THAT THE WATER QUALITY COMPLIANCE TARGETS ARE EXCEEDED BY THIS APPROACH AND THAT NO ADDITIONAL RUNOFF STORAGE VOLUME ON SITE IS REQUIRED. THE COMPUTATIONS FOR THE FACILITY INDICATE (BASED UPON AN ASSUMED DESIGN INFILTRATION RATE OF 1" PER HOUR) THAT AN UNDERGROUND STORAGE VOLUME OF JUST OVER 26,300 CF (SEE TABLE K) WILL BE NECESSARY TO MEET THE REQUIREMENTS. THE FACILITY WOULD REQUIRE UNDERGROUND PERFORATED PIPING OR # 57 STONE AND CAN BE ACCOMMODATED IN THE BMP # 1 AREA SHOWN, WHILE REMAINING A MINIMUM OF 4' ABOVE ANY DETECTED WATER SURFACE. THE FACILITY IS LOCATED A MINIMUM DISTANCE OF 50' DOWNGRADE FROM THE LOT'S SEPTIC FIELD, AS REQUIRED BY VDEQ SPEC. # 8. HENCE, IT IS THE OPINION OF THE ENGINEER THAT SWM AND BMP ORDINANCE REQUIREMENTS CAN REALISTICALLY BE SATISFIED UNDER THE PROPOSED DESIGN CONCEPT. CALCULATIONS FOR BMP # 1 ARE SHOWN ON SHEET 15.

PRELIMINARY SWM AND BMP DESIGN COMPUTATIONS AND ANALYSES

DRAINAGE AREA MAPS ARE INCLUDED WITHIN THIS PLAN INCLUDING EXISTING AND PROPOSED DIVIDES, OFFSITE CONTRIBUTING AREAS AND THE DRAINAGE AREAS UTILIZED IN THE SWM/BMP DESIGN AND ANALYSES. TABLES A, B AND C INCLUDE THE AREA OF EACH MAJOR DRAINAGESHED AND SIGNIFICANT SUBSHEDS AND ESTABLISH THE BASIS FOR THE VRRM, PIPE AND DITCH COMPUTATIONS FOR THE DESIGN. THE CURRENT VRRM WORKSHEET FOR NEW DEVELOPMENT WAS UTILIZED IN THE ANALYSIS AND TABLE D INCLUDES THE SITE INPUT DATA FOR THE PROJECT. TWO DRAINAGESHEDS WERE IDENTIFIED AS AREAS A AND B AND USED IN THE MODELLING PROCEDURES OF THE METHODOLOGY.

AREA A IS A MAJOR PORTION OF THE SITE DEVELOPMENT (3.99 ACRES ON-SITE) AND INCLUDES AREAS OF PUBLIC ROADWAY, DRIVEWAYS, ROOFS AND WALKWAYS. THE DESIGN PROPOSED WILL CAPTURE THE ENTIRETY OF THIS AREA IN A SINGLE INFILTRATION FACILITY ON OUTLOT B. IN RESPONSE TO QUESTIONS FROM COUNTY STAFF, THE COMPUTATIONS WERE MODIFIED TO SHOW CREDIT FOR WATER QUALITY IMPROVEMENT ONLY FOR THE ON-SITE AND VDOT CONTROLLED OFF-SITE PORTIONS OF DRAINAGE AREA "A". A 0.62 ACRE AREA OF OFF-SITE RESIDENTIAL LOTS IS NOT UTILIZED IN THE CALCULATIONS.

AREA B INCLUDES THE BALANCE OF THE SUMMER HILL PROPERTY (7.01 ACRES) WHICH WILL DISCHARGE INTO THE MAJOR FLOODPLAIN ON THE SITE, WITHOUT CONTROLS. WHILE THE MAJORITY OF THE ON-SITE AREAS WILL DISCHARGE AS SHEET FLOW IN UNDISTURBED AREAS (OUTLOTS A AND C), A SIGNIFICANT OFF-SITE FLOW (AREA B.1) AND MUCH OF THE DEVELOPED PORTIONS OF THE PROPERTY WILL BE CONVEYED TO THE NEW DITCHES WITHIN THE RIGHT-OF-WAY AND INLETS CONNECTED TO THE PIPE NETWORK PROPOSED FROM EX. STRUCTURES 4 AND 6 AND DRAINAGE AREA B.1.

TABLES E, F AND G OF THIS PLAN SET INCLUDE THE INDIVIDUAL WORKSHEETS FOR THE VRRM COMPUTATIONS FOR WATER QUALITY COMPLIANCE (E), CHANNEL AND FLOODPLAIN PROTECTION (F), AND THE SITE DATA SUMMARY INFORMATION (G). THESE WORKSHEETS CONFIRM THAT:

- (A) THE PROPOSED FACILITY PROVIDES A PHOSPHORUS LOAD REDUCTION WHICH EXCEEDS THE TARGET REDUCTION BY 0.7 LB/YR (TABLE E);
- (B) THE PROPOSED FACILITIES PROVIDE A RUNOFF REDUCTION OF 6,233 CUBIC FEET (TABLE E); AND
- (C) THE WEIGHTED ON FOR AREAS A AND B (TO BE USED IN 10 YEAR RUNOFF CALCULATIONS) ARE 69 AND 64 (TABLE F), RESPECTIVELY.

A MASS DIAGRAM ANALYSIS OF THE 10 YEAR POST-DEVELOPMENT STORM FOR THE 5.46 ACRE DRAINAGE AREA TO THE FACILITY (CN = 69) WILL REQUIRE A STORAGE VOLUME OF NEARLY 25,000 CF (CONSISTENT WITH TABLE K) TO CONTAIN THE 10 YEAR, 24 HOUR STORM VOLUME. A LAYOUT UTILIZING 42" PERFORATED PIPE AND # 57 STONE STORAGE AROUND THE PIPE SYSTEM WILL PROVIDE IN EXCESS OF 28,000 CUBIC FEET OF STORAGE AND SATISFY THE DEMAND REQUIREMENT. AS A RESULT, THE ENTIRE RUNOFF VOLUME FROM THE 10 YEAR STORM OVER DRAINAGE AREA A WILL BE ELIMINATED FROM SURFACE RUNOFF CONDITIONS.

PRELIMINARY DRAINAGE DETERMINATIONS

ALL RUNOFF FROM THE SITE (ON-SITE AND OFF-SITE) WILL OUTFLOW INTO THE EXISTING MAJOR FLOODPLAIN OF PINEY RUN. STORM RUNOFF CONVEYANCES HAVE BEEN DESIGNED TO ACCOMMODATE THE PEAK SHED DISCHARGES, TO PRECLUDE EROSION CONDITIONS DUE TO THE 2 YEAR STORM AND TO PROVIDE BED-AND-BANKS CONTAINMENT FOR 10 YEAR PEAK DISCHARGES, AS REQUIRED BY THE PUBLIC FACILITIES MANUAL. WHILE SHEET FLOW CONDITIONS ARE THE GOAL OF THE DESIGN CONCEPT, THE EXISTING OFF-SITE DRAINAGE AREA FROM THE NORTH (B.1) WHICH TRAVERSES THE SITE WILL REQUIRE THE PIPE SYSTEM SHOWN TO CARRY THE CONCENTRATED FLOWS ONTO AND THROUGH THE PROPERTY. THE DISCHARGE OF THIS CONCENTRATED FLOW IS LOCATED IN CLOSE PROXIMITY OF THE 100 YEAR FLOODPLAIN OF THE STREAM. IT IS THE APPLICANT'S INTENT TO FULLY COMPLY WITH THE REQUIREMENTS OF THE PUBLIC FACILITIES MANUAL FOR ALL OUTFALL CONDITIONS, TO INCLUDE THE DEMONSTRATION OF THE ADEQUACY OF THE DOWNSTREAM DRAINAGE SYSTEM, AS SET FORTH IN PFM SECTION 6-0203.

FOR THIS CONCEPTUAL DESIGN, SEVERAL KEY PIPE AND CHANNEL CALCULATIONS HAVE BEEN PERFORMED AND ARE INCLUDED IN THIS SET TO DEMONSTRATE THE ADEQUACY OF THE APPROACH. SPECIFICALLY, COMPUTATIONS HEREIN INCLUDE:

- TABLE H -- A SUMMARY OF THE DRAINAGE AREAS, RATIONAL C VALUES, INTENSITIES AND COMPUTED PEAK FLOWS FOR THE 2 YEAR AND 10 YEAR STORM EVENTS AT POINTS OF INTEREST IN THE ANALYSIS;
- TABLE I -- A COMPILED OF THREE DIFFERENT PIPE SECTIONS PROPOSED FOR THE PROJECT UNDER TABLE H FLOW CONDITIONS;
- TABLE J -- THE RESULTS OF DITCH SECTION ANALYSES PERFORMED AT TWO SELECTED LOCATIONS (A-A & B-B);

PRE AND POST-DEVELOPMENT PEAK DISCHARGES AND RUNOFF VOLUMES (RV) AT CRITICAL SHEET FLOW AND OUTFALL LOCATIONS, ALONG WITH ILLUSTRATIVE FLOW PATHS, CHANNEL SECTIONS AND NARRATIVES HAVE BEEN PREPARED AS SHOWN ON SHEETS 15 AND 16 OF THE PLAN SET TO DEMONSTRATE THAT THE PROPOSED DESIGN CAN AND WILL BE ATTAINED IN FULL COMPLIANCE WITH APPLICABLE COUNTY REQUIREMENTS.

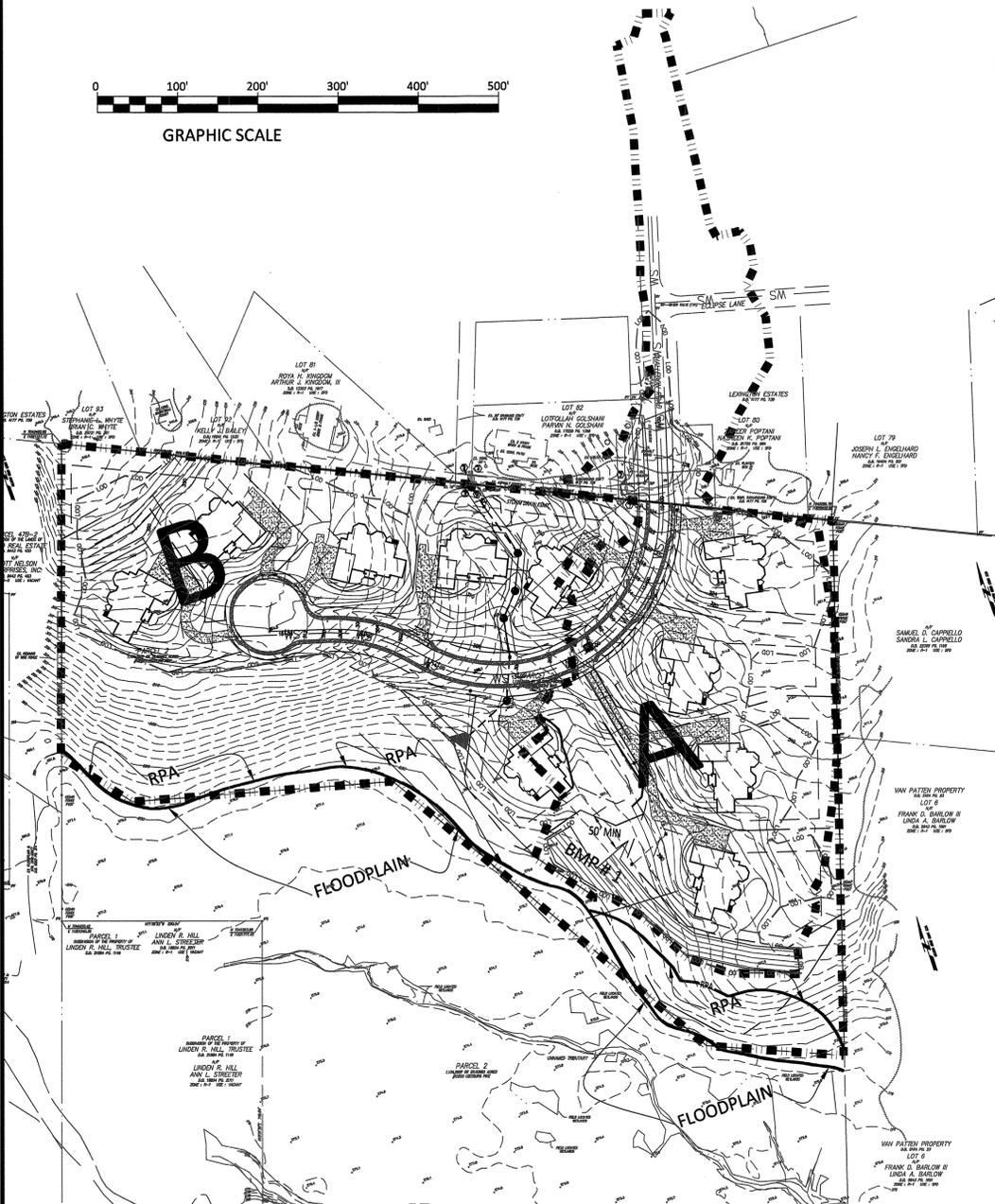
A REVIEW OF TABLE "I" DEMONSTRATES THAT THE ENTIRE DRAINAGE AREA TO THE BMP # 1 FACILITY (5.46 ACRES) WHICH RESULTS IN A MODIFIED RATIONAL FORMULA 10 YEAR PEAK OF 17.88 CFS CAN BE CONVEYED IN A 24" RCP PIPE AT A 1% SLOPE. WHILE THE ACTUAL PEAK ANTICIPATED FOR THE STORM SEWER SYSTEM FROM P-15 TO P-10 WILL BE SIGNIFICANTLY LESS THAN THIS VALUE (SINCE THE MAJORITY OF DRAINAGE AREAS A.3, A.4 AND 7OFF DISCHARGE BELOW THE RIGHT-OF-WAY), THE COMPUTATION IS EVIDENCE THAT NOMINAL STORM SEWER ALONG THIS ROUTE WILL ADEQUATELY CONVEY THE ANTICIPATED STORM RUNOFF. WITH A MINIMUM 15" PIPE IN THE VDOT R.O.W., MINIMAL SLOPES ARE EXPECTED TO SATISFY THE DRAINAGE SYSTEM REQUIREMENTS. FINALLY, THE PIPE DISCHARGE AT P-10 WILL BE DESIGNED TO INCLUDE ADEQUATE MEASURES TO REDUCE VELOCITIES ENTERING THE BMP FACILITY TO ACCEPTABLE NON-EROSIVE LEVELS (I.E. LESS THAN 3 FPS).

ADDITIONALLY, TABLE "I" SHOWS THAT THE PROPOSED STORM SEWER SYSTEM BETWEEN THE EX-6 STRUCTURE (IN AN EXISTING EASEMENT OFF-SITE) AND THE PROPOSED P-9 REQUIRE A 24" RCP PIPE AT 1% MINIMUM SLOPE (GREATER SLOPE IS AVAILABLE TO ELIMINATE BACKWATER, IF NEEDED). THIS PEAK FLOW OF 21.30 CFS IN THE 10 YEAR EVENT IS SOLELY FROM THE OFF-SITE AREA B.1. AS THE PIPE SYSTEM CONTINUES THROUGH THE SITE TO ITS DISCHARGE AT P-1, AN ADDITIONAL 12.31 CFS (FROM TABLE H) ENTERS THE SYSTEM FOR A TOTAL OF 33.61 CFS AT THE 10 YEAR PEAK. THIS FLOW CAUSES A PROJECTED INCREASE IN THE OUTLET PIPE TO A 30" RCP CONFIGURATION. BOTH OF THESE PIPES, AS SET FORTH IN THE PFM, WILL BE INCLUDED IN A 15' STORM DRAINAGE EASEMENT THROUGHOUT THEIR RUNS. FURTHER, THE OUTLET AT P-1 WILL BE DESIGNED TO INCLUDE ENERGY DISSIPATION AND LEVEL SPREADING FEATURES TO PROVIDE NON-EROSIVE SHEET FLOW CONDITIONS AT THE DISCHARGE TO OUTLOT C AND ITS ENCLOSED MAJOR FLOODPLAIN.

TABLE J INCLUDES A SUMMARY OF THE CHANNEL ANALYSES PERFORMED AT LOCATIONS A-A AND B-B ON THE PROPERTY. SECTION A-A IS THE TYPICAL ROADWAY DITCH AND THE CALCULATIONS SHOW NON-EROSIVE 2 YEAR PEAK FLOW CONDITIONS AND "BED AND BANKS" FLOW UNDER 10 YEAR CONDITIONS. THE ANTICIPATED FLOWS ARE WELL WITHIN THE DITCH AND BELOW THE ADJACENT ROADSIDE SHOULDER, AS REQUIRED BY VDOT. SECTION B-B IS AN EXAMPLE OF SHEET FLOW IN THE YARDS OF THE RESIDENTIAL LOTS AND WAS INTENTIONALLY SELECTED DUE TO ITS LARGE (1 ACRE) DRAINAGE SHED COMPARED TO THE REST OF THE PARCELS. AS SHOWN, THE VELOCITIES AND DEPTHS DURING THE 2 YEAR AND 10 YEAR PEAK EVENTS ARE INDICATIVE OF NON-EROSIVE SHEET FLOW CONDITIONS, AS DESIRED.

TABLE K IS A SPREADSHEET PREPARED BY THE ENGINEER TO ILLUSTRATE COMPLIANCE WITH THE REGULATORY REQUIREMENT THAT THE POST-DEVELOPMENT CONDITION OF THE SITE (IN TERMS OF RUNOFF VOLUME, RV) WILL BE HYDROLOGICALLY EQUAL TO OR LESS THAN THE "GOOD FORESTED" CONDITION. AS SHOWN, EACH OF THE THREE DRAINAGE AREAS -- 3.99 ACRES OF ON-SITE SHED A; 1.47 ACRES OF OFF-SITE SHED A; AND SHED B (THE BALANCE OF THE 11 ACRE SITE) -- IS INCLUDED AND THE TOTAL RUNOFF VOLUME IS TABULATED FOR THE 1 YEAR, 2 YEAR AND 10 YEAR STORMS, UTILIZING THE APPROPRIATE CURVE NUMBERS. IN COMPARISON TO THE "GOOD FORESTED" CONDITION FOR THE SITE RESULTS IN A TOTAL RUNOFF VOLUME OF 54,988 CF (COLUMN 10 -- 10 YEAR EVENT) WHILE THE NON-ADJUSTED POST DEVELOPMENT VOLUME FROM DRAINAGE SHEDS A & B IS 85,738 CF (COLUMN 18). WITH THE FULL RETENTION OF THE POST-DEVELOPMENT PEAKS FROM AREA A, THE 10 YEAR RUNOFF VOLUME FROM AREA B IS 43,513 CF -- LESS THAN THE "GOOD FORESTED" CONDITION.

WITH THE DEMONSTRATED CAPABILITY OF THE PROPOSED FACILITIES ON SITE, THE ULTIMATE SITE OUTFALL DISCHARGES FOR THE 10 YEAR RECURRENCE INTERVAL STORM WILL BE LESS THAN OR EQUAL TO THE RUNOFF FROM A SITE WITH A "GOOD, FORESTED" CONDITION THROUGH THE APPLICATION OF THE VRRM CONCEPTS. FURTHER, ALL DISCHARGES FROM THE PROPERTY ARE LESS THAN 1% OF THE TOTAL OF THE FLOODPLAIN WHICH RECEIVES THE RUNOFF AND ESTABLISHES THE EXTENT OF REVIEW.



SWM/BMP DRAINAGE AREAS

SCALE: 1" = 100'
FOR USE IN VIRGINIA RUNOFF REDUCTION METHOD (VRRM)

TABLE C

SWM/ BMP APPROACH = CENTRALIZED INFILTRATION FACILITY

SWM / BMP DRAINAGE AREAS	FOREST (RCN 55)			MANAGED TURF (RCN 61)			IMPERVIOUS (RCN 98)			TOTAL			
	SF	AC	A X RCN	SF	AC	A X RCN	SF	AC	A X RCN	SF	AC	RCN	
A	0	0.00	0.00	183,337	4.21	256.74	54,563	1.25	122.75	237,900	5.46	89	
B	UNCONTROLLED	109,481	2.51	138.23	167,036	3.83	233.91	39,181	0.90	88.15	315,698	7.25	84
TOTALS	553,598	109,481	2.51	138.23	350,373	8.04	490.65	93,744	2.15	210.90	553,598	12.71	86

FOR SWM MINIMUM REQUIREMENTS CHECKLIST, SEE SHEET 13.

TABLE D-- SITE DATA

Virginia Runoff Reduction Method New Development Worksheet v2.8 June 2014
To be used with 2011 BMP Standards and Specifications

Site Data

Project Name: Summer Hill RZ 2015-DR-0009
Date: May 31, 2016

Post-ReDevelopment 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	0.00	2.51	0.00	0.00	2.51
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed	0.00	7.80	0.00	0.00	7.80
Impervious Cover (acres)	0.00	2.15	0.00	0.00	2.15
Total					12.47

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)	2.51
Weighted Rv (forest)	0.03
% Forest	20%
Managed Turf Cover (acres)	7.80
Weighted Rv(turf)	0.20
% Managed Turf	63%
Impervious Cover (acres)	2.15
Rv(impervious)	0.95
% Impervious	17%
Total Site Area (acres)	12.47
Site Rv	0.30
Post-Development Treatment Volume (acre-ft)	0.31
Post-Development Treatment Volume (cubic feet)	13,360
Post-Development Load (TP) (lb/yr)	8.39
Total Load (TP) Reduction Required (lb/yr)	3.28
Post-Development Load (TN) (lb/yr)	60.05

TABLE E -- WATER QUALITY COMPLIANCE

Site Results

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
IMPERVIOUS COVER	1.25	0.90	0.00	0.00	0.00	OK
IMPERVIOUS COVER TREATED	1.25	0.00	0.00	0.00	0.00	OK
TURF AREA	4.21	3.59	0.00	0.00	0.00	OK
TURF AREA TREATED	3.59	0.00	0.00	0.00	0.00	OK
AREA CHECK	OK	OK	OK	OK	OK	

Phosphorus	
TOTAL TREATMENT VOLUME (cf)	13,360
TOTAL PHOSPHOROUS LOAD REDUCTION REQUIRED (LB/YEAR)	3.28
RUNOFF REDUCTION (cf)	6,233
PHOSPHOROUS LOAD REDUCTION ACHIEVED (LB/YR)	4.02
ADJUSTED POST-DEVELOPMENT PHOSPHOROUS LOAD (TP) (lb/yr)	4.37

REMAINING PHOSPHOROUS LOAD REDUCTION (LB/YR) NEEDED: CONGRATULATIONS!! YOU EXCEEDED THE TARGET REDUCTION BY 0.7 LB/YR!!

Nitrogen (for information purposes)	
TOTAL TREATMENT VOLUME (cf)	13,360
RUNOFF REDUCTION (cf)	6233
NITROGEN LOAD REDUCTION ACHIEVED (LB/YR)	31.09
ADJUSTED POST-DEVELOPMENT NITROGEN LOAD (TP) (lb/yr)	28.96

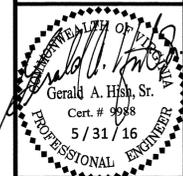
CONTINUED ON SHEET 13

SWM NARRATIVE IS CONTINUED ON SHEET 14

1/18/16	COUNTY COMMENTS	REVISIONS
2/16/16	REV. TYP PER UPRM COMMENTS	
2/16/16	REV. PER 2/19/16 MEETING AT CO.	
4/1/16	REV. PER 3/25 MTS - ENV/FCOT	
4/18/16	SWM COMMENTS	
5/9/16	SWM TC & LOT 5: MISC TYPDS	
5/31/16	SWM FORMAT CHANGES	
No.	DATE	DESCRIPTION

PLAN DATE	DATE

Hish and Company, LLC
Civil Engineering Professionals
Phone: (703) 528-4424
Fax: (703) 528-4426
Cell: (703) 945-5452
1451 Doleys Madison Boulevard
Suite 200
McLean, Virginia 22101



STORMWATER MANAGEMENT 2
SUMMER HILL
TAX MAP NO. 12-4 (30) LOT 7
DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA
FFX. CO. PLAN: RZ 2015-DR-0009
SCALE: GRAPHIC
DATE: JUNE 2015

TABLE F -- CHANNEL & FLOOD PROTECTION

Target Rainfall Event (in)	1-year storm	2-year storm	10-year storm
	2.70	3.20	5.20

Drainage Area A

Drainage Area (acres)	5.46
Runoff Reduction Volume (cf)	6,233

Drainage Area B

Drainage Area (acres)	7.01
Runoff Reduction Volume (cf)	0

Based on the use of Runoff Reduction practices in the selected drainage areas, the spreadsheet calculates an adjusted RVD developed and adjusted Curve Number.

Drainage Area A

	A soils	B Soils	C Soils	D Soils
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	0.00	0.00	0.00	0.00
Area (acres)	0.00	0.00	0.00	0.00
CN	30	55	70	77
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	0.00	4.21	0.00	0.00
Area (acres)	0.00	4.21	0.00	0.00
CN	39	61	74	80
Impervious Cover	0.00	1.25	0.00	0.00
Area (acres)	0.00	1.25	0.00	0.00
CN	98	98	98	98
Weighted CN s	69	4.9		

	1-year storm	2-year storm	10-year storm
RVD Developed (in) with no Runoff Reduction	0.52	0.78	2.10
RVD Developed (in) with Runoff Reduction	0.20	0.47	1.79
Adjusted CN	59	62	65

Drainage Area B

	A soils	B Soils	C Soils	D Soils
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	0.00	2.51	0.00	0.00
Area (acres)	0.00	2.51	0.00	0.00
CN	30	55	70	77
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	0.00	3.59	0.00	0.00
Area (acres)	0.00	3.59	0.00	0.00
CN	39	61	74	80
Impervious Cover	0.00	0.90	0.00	0.00
Area (acres)	0.00	0.90	0.00	0.00
CN	98	98	98	98
Weighted CN s	64	5.63		

	1-year storm	2-year storm	10-year storm
RVD Developed (in) with no Runoff Reduction	0.34	0.56	1.71
RVD Developed (in) with Runoff Reduction	0.34	0.56	1.71
Adjusted CN	64	64	64

Site Data Summary

Total Rainfall = 43 inches

Site Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	2.51	0.00	0.00	2.51	19.78
Turf (acres)	0.00	7.80	0.00	0.00	7.80	63.29
Impervious (acres)	0.00	2.15	0.00	0.00	2.15	16.93
					12.47	100.00

Site Rv	0.30
Post Development Treatment Volume (ft3)	13,360
Post Development TP Load (lb/yr)	8.39
Post Development TN Load (lb/yr)	60.05
Total TP Load Reduction Required (lb/yr)	3.28

Total Runoff Volume Reduction (ft3)	6,233
Total TP Load Reduction Achieved (lb/yr)	4.00
Total TN Load Reduction Achieved (lb/yr)	31.09
Adjusted Post Development TP Load (lb/yr)	4.37
Remaining Phosphorous Load Reduction (Lb/yr) Required	0.00

Drainage Area Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
Forest (acres)	0.00	2.51	0.00	0.00	0.00	2.51
Turf (acres)	4.21	3.59	0.00	0.00	0.00	7.80
Impervious (acres)	1.25	0.90	0.00	0.00	0.00	2.15
						12.47

Drainage Area Compliance Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
TP Load Red. (lb/yr)	4.02	0.00	0.00	0.00	0.00	4.02
TN Load Red. (lb/yr)	31.09	0.00	0.00	0.00	0.00	31.09

Drainage Area A Summary

Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Turf (acres)	0.00	4.21	0.00	0.00	4.21	77.06
Impervious (acres)	0.00	1.25	0.00	0.00	1.25	22.94
					5.46	

BMP Selections

Practice	Credit Area (acres)	Downstream Practice
7.a. Infiltration # 2 (Spec #8)	Impervious: 1.25 Turf: 3.59 (Pervious):	

Total Impervious Cover Treated (acres)	1.25
Total Turf Area Treated (acres)	3.59
Total TP Load Reduction Achieved in D.A. A (lb/yr)	4.02
Total TN Load Reduction Achieved in D.A. A (lb/yr)	31.09

Drainage Area B Summary

Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	2.51	0.00	0.00	2.51	35.87
Turf (acres)	0.00	3.59	0.00	0.00	3.59	51.30
Impervious (acres)	0.00	0.90	0.00	0.00	0.90	12.84
					7.01	

BMP Selections

Practice -- NONE	Credit Area (acres)	Downstream Practice
	Impervious: 0.00 Turf: 0.00 (Pervious):	

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

Channel and Flood Protection

	Weighted CN	1-year storm Adjusted CN	2-year storm Adjusted CN	10-year storm Adjusted CN
Target Rainfall Event (in)		2.70	3.20	5.20
D.A. A CN	69	59	62	65
D.A. B CN	64	64	64	64

TABLE G -- SITE DATA SUMMARY

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 the 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 3 & 4L)
- FDP P Districts (except PRC) (16-502 1F & 1Q)
- Special Exceptions (9-011 2J & 2L)
- Commercial Revitalization Districts (9-622 2A (12) & (14))
- PRC Plan (16-303 1E & 1O)
- 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'). Plat is included on Sheet 2 at a scale of 1" = 40' and on Sheet 11 at a scale of 1" = 100' for drainage areas.

2. A graphic depicting the stormwater management facility(ies) and limits of clearing and grading 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 Sheets 2 & 11.

Stormwater quality control (BMP) is provided through an infiltration facility (VDEQ Spec # 8) on Outlot B.

As indicated in the SWM Narrative on Sheet 12, the VRRM worksheet indicates that the phosphorous load reduction requirements are exceeded by the proposed methods. Calculations have been completed and are summarized on Sheets 12, 13 & 14 to confirm that the proposed facilities are adequate for the required runoff reduction requirements, as well.

3. Provide:

Facility Name/ Type & No.	On-site area served (acres)	Off-site area served (acres)	Drainage area (acres)	Footprint area (sf)	Storage Volume (cf)	If pond, dam height (ft)
1- OUTLOT "B" -- Infiltration Facility (VDEQ Spec # 8)	3.99	0.85 (VDOT ROW)	4.84	12,200	28,600	N/A
Totals	3.99	0.85	4.84	12,200	28,600	

4. Onsite drainage channels, outfalls and pipe systems are shown on Sheets 2, 14 & 15. Pond inlet and outlet pipe systems are shown on Sheet N/A. No proposed ponds.

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

6. Landscaping and tree preservation shown in and near the stormwater management facility is shown on Sheets 2.

7. A "stormwater management narrative" which contains a description of how detention and best management practices requirements will be met is provided on Sheet 12 & 14.

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 12, 14 & 15.

The entire 11 acre site discharges directly to the major floodplain along Piney Run Branch. Site grading has been accomplished to provide sheet flow discharges from the lots. The only existing defined channel on the site (conveying 6.5 acres of off-site development) will be piped through the parcel to an adequate channel and the floodplain.

9. A description of how the outfall requirements, including contributing drainage areas of the Public Facilities Manual will be satisfied is provided on Sheet 14.

10. Existing topography with maximum contour interval of two (2) feet and a note as to whether it is an air survey or field run is provided on Sheet 1. See General Notes on Sheet 1.

11. A submission waiver is requested for NONE.

12. Stormwater management is not required because: SWM is provided as required by Chapter 124 of the Fairfax County Code.

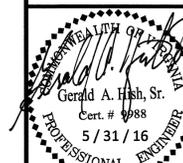
PREPARED BY:

Gerald A. Hish, Sr., P.E.
5/27/2016

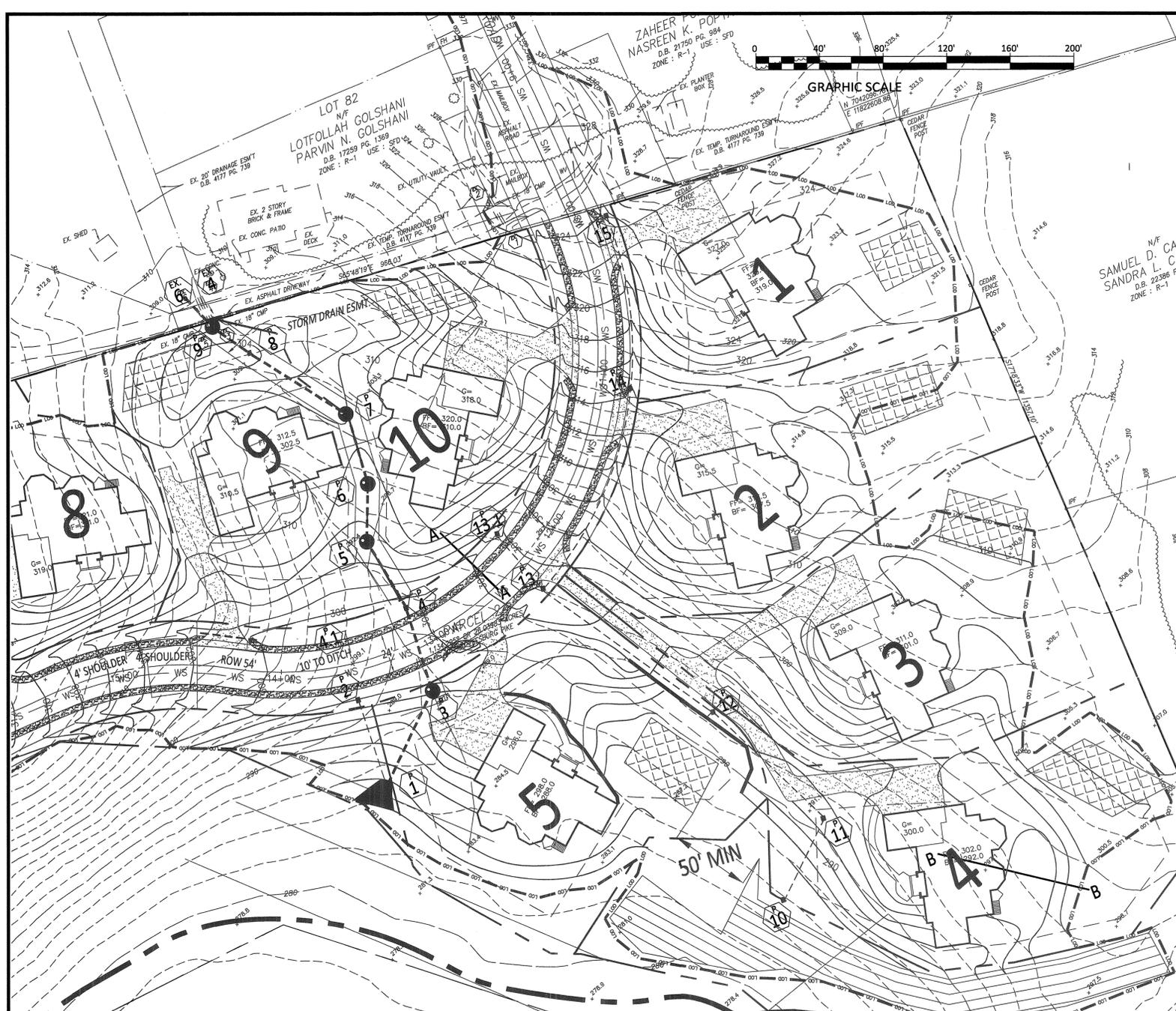
1/18/16	COUNTY COMMENTS	2/16/16	REV. PER PERMID COMMENTS	3/16/16	REV. PER 3/25 MTS - EN/FCDD	4/17/16	REV. PER 3/25 MTS - EN/FCDD	4/28/16	SWM COMMENTS	5/9/16	SWM TC & LOT 5; MISC TYPDS	5/31/16	SWM FORMAT CHANGES	NO.	DATE	DESCRIPTION	REVISIONS

PLAN DATE	PLAN NO.

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STORMWATER MANAGEMENT 3
SUMMER HILL
TAX MAP NO. 12-4 ((30)) LOT 2
DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA
FFX. CO. PLAN: RZ 2015-DR-0009
SCALE: GRAPHIC
DATE: JUNE 2015



DRAINAGE SYSTEM CONCEPT LAYOUT

SCALE: 1" = 40'

TABLE J

TABLE J -- CHANNEL COMPUTATIONS

SECTION I.D.	Roughness Coefficient	Channel Slope (ft/ft)	Invert Elev. (ft)	Normal Depth D (ft)	WSE (ft)	Left Side Slope (ft/ft (H:V))	Right Side Slope (ft/ft (H:V))	Bottom Width W (ft)	Side Width Ws (ft)	Discharge (ft ³ /s)	Flow Area (ft ²)	Wetted Perimeter (ft)	Top Width (ft)	Critical Depth (ft)	Velocity (ft/s)	Notes
SECTION A-A 2-YR	0.035	0.066	301.90	0.77	302.67	3	3	1	3	1.64	2.55	5.87	5.62	0.32	0.64	Non-erosive Velocity
SECTION A-A 10-YR	0.035	0.066	301.90	0.88	302.78	3	3	1	3	2.18	0.32	1.6	1.13	0.84	8.04	Within 1' Channel Depth
SECTION B-B 2-YR	0.035	0.033	292.40	0.48	292.88	3	VERT	30	1	1.62	5.76	24.01	23.99	0.20	0.28	Non-erosive Velocity
SECTION B-B 10-YR	0.035	0.033	292.40	0.54	292.94	3	VERT	30	1	2.17	7.29	27.01	26.99	0.22	0.30	Within 0.6' Channel Depth

TABLE K

TABLE K -- SWM - Volume Analysis

COL--	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]
ROW :	Subarea	Area (Ac)	CNPre	SPre	Q1-Pre (in)	RV1-Pre (cf)	Q2-Pre (in)	RV2-Pre (cf)	Q10-Pre (in)	RV10-Pre (cf)	CNPost	SPost	Q1-Post (in)	RV1-Post (cf)	Q2-Post (in)	RV2-Post (cf)	Q10-Post (in)	RV10-Post (cf)	RR3 (cf)	RV1-Ult (cf)	RV2-Ult (cf)	RV10-Ult (cf)	Controlled?	DV1 (cf)	DV2 (cf)	DV10 (cf)
1	Aon	3.99	55	8.18	0.12	1,738	0.25	3,621	1.08	15,642	69	4.49	0.52	7,532	0.78	11,297	2.11	30,561	6,233	1,299	5,064	24,328	Yes	X	X	Y
2	Aoff	1.47	70	4.29	0.55	2,943	0.83	4,441	2.18	11,664	70	4.29	0.55	2,943	0.83	4,441	2.18	11,664	0	2,943	4,441	11,664	Yes	X	X	X
3	B	7.01	55	8.18	0.12	3,054	0.25	6,362	1.08	27,482	64	5.63	0.34	13,995	0.56	21,120	1.71	43,513	0	13,995	21,120	43,513	No	Y	Y	Y
	SITE	12.47	57	8.18	0.12	7,735	0.25	14,424	1.08	54,788	66	4.49	0.52	24,470	0.78	36,858	2.11	85,738	0	18,237	30,625	79,505		10,502	16,201	24,717

Notes:
 1 HSG "B" - Woods in Good Condition (TR-55 Manual)
 2 Weighted CN from VRRM Spreadsheet (NOT the Adjusted CN)
 3 Runoff Reduction Volume from VRRM Spreadsheet
 4 Can sufficient water be collected in the subarea to satisfy the DV?

Abbreviations Used
 DVn = Detention Volume = (Post-RR)-Pre
 RVn = Runoff Volume = Q/12 * 43560

TABLE H

TABLE H -- POST-DEVELOPMENT PEAK DESIGN FLOWS FOR STORM DRAINAGE SYSTEM

DRAINAGE ANALYSIS NODE	DRAINAGE AREA	RUNOFF COEFFICIENT	C X A	TIME OF CONCENTRATION	2 YEAR STORM		10 YEAR STORM		COMMENTS
					RAINFALL INTENSITY	PEAK RUNOFF	RAINFALL INTENSITY	PEAK RUNOFF	
[1]	A	C	[4]	Tc	I-2	Q-2	I-10	Q-10	SEE TABLE B FOR DRAINAGE AREAS
	ACRES		[2] X [3]	MIN.	CFS	CFS	CFS	CFS	
					[6]	[7]	[8]	[9]	
					[4] X [6]	[4] X [8]			
P15	5.46	0.45	2.46	5	5.45	13.40	7.27	17.88	DRAINAGE AREA A = A.1 + A.1 PART + A.2 + A.2 PART + A.3 + A.4 + A.5 + 7off
EX 4 + EX 6	6.51	0.45	2.93	5	5.45	15.97	7.27	21.30	OFF SITE = B.1
P1	3.76	0.45	1.69	5	5.45	9.23	7.27	12.31	DRAINAGE AREAS = B.2 + B.2 PART + B.3 + B.4 + B.7 + B.11
DITCH SECTION A-A	0.46	0.65	0.30	5	5.45	1.64	7.27	2.18	DRAINAGE AREAS = PORTION OF LOT 10 + A.2 PART
DITCH SECTION B-B	0.99	0.30	0.30	5	5.45	1.62	7.27	2.17	DRAINAGE AREAS = PORTION OF A.4 + 7off

TABLE I

TABLE I -- PROPOSED STORM SEWER SYSTEM ANALYSIS

FROM POINT	TO POINT	RUNOFF Q 10 CFS	DIA. (EQUIV) IN	SLOPE FT/FT	n	CAPACITY C.F.S.	VEL F.P.S.	DEPTH OF FLOW FT	REMARKS
P15	P10	17.88	24	0.0100	0.013	22.61	8.00	1.34	24" RCP or equivalent -- Q10
EX 6	P9	21.30	24	0.0100	0.013	22.61	8.18	1.54	24" RCP or equivalent -- Q10
P9	P1	33.61	30	0.0100	0.013	41.00	9.32	1.70	30" RCP or equivalent -- Q10

PRELIMINARY STORMWATER MANAGEMENT NARRATIVE

(CONTINUED FROM SHEET 12)

PRELIMINARY CHANNEL, FLOODPLAIN AND OUTFALL ADEQUACY ANALYSES

AS SHOWN ON SHEETS 15 OF THE PLAN SET, ON-SITE DETAILED DRAINAGE SUBSHEDS HAVE BEEN DEVELOPED FOR THE PROPERTY AND RUNOFF FLOW PATHS ARE DEPICTED AND ANALYZED AT KEY LOCATIONS ON THE SITE. THE SCS HYDROLOGIC CALCULATIONS FOR THESE ANALYSES ARE BASED UPON COMPUTED Tc AND RCN NUMBERS IN ACCORDANCE WITH STANDARD PROCEDURES AND RESULT IN A DESIGN BASE LINE OF: (1) Tc FOR ALL AREAS ARE 5 MINUTES, EXCEPT FOR THE LARGE OFF-SITE SHED (B.1) WHICH WAS CALCULATED AT 10 MINS.; (2) OFF-SITE DRAINAGE AREAS WERE ASSIGNED AN RCN # OF 68 (1 ACRE RESIDENTIAL) WHILE ON-SITE AREAS USE AN RCN OF 70 (1/2 ACRE LOTS).

THESE SUBSHEDS ARE IDENTIFIED AS PORTIONS OF THE TWO MAJOR DRAINAGE AREAS (A AND B) FROM THE OVERALL ANALYSES. SUBSHEDS A.1 THRU A.5 ALL CONTRIBUTE TO BMP #1 AND TOTAL 5.46 ACRES. SUBSHEDS B.1 THRU B.11 INCLUDE THE 7.01 ACRES OF THE PROPOSED DEVELOPMENT SITE AND 6.97 ACRES OF CONTRIBUTING OFF-SITE AREA. SCS HYDROGRAPHS FOR THE PERTINENT SUBSHEDS ARE COMPUTED AND FOUR SEPARATE DRAINAGE CHANNEL SECTIONS WERE EVALUATED FOR ADEQUACY, AS FOLLOWS:

SECTION 1-1 ON SHEET 15 IS A PROPOSED SURFACE CHANNEL BETWEEN THE RESIDENCES ON LOTS 9 AND 10 AND IS IMPORTANT SINCE IT PROVIDES OVERLAND RELIEF FROM THE SWAMP AT STRUCTURE P-8. IN THE EVENT THAT THE MAJOR PIPE SYSTEM WERE CLOGGED, THIS SECTION PROVIDES OVERLAND RELIEF ON THE SURFACE ABOVE THE NEW PIPE SYSTEM. AS SHOWN IN THE CALCULATIONS, THIS SECTION WILL CONVEY THE 100 YEAR PEAK FLOW OF 41.12 CFS AT A DEPTH OF 0.68' AND A TOP WIDTH OF 16.25'. THE RESIDENTIAL UNITS ARE GREATER THAN 25' APART AT THIS LOCATION AND THE LOWEST POSSIBLE OPENING ON EITHER LOT IS APPROXIMATELY 2' ABOVE THE PROJECTED WATER SURFACE ELEVATION. [SEE ADDITIONAL COMPUTATION ON SHEET 16.]

SECTION 2-2 ON SHEET 15 IS A PROPOSED RIP-RAP LINED SURFACE CHANNEL AT THE DOWNSTREAM TERMINUS OF THE MAJOR STORM SEWER THROUGH THE SITE. THE RIP-RAP CHANNEL TRAVELERS AN EXISTING SLOPE OF 12.5% GRADE AND RECEIVES A LARGE PORTION OF DRAINAGE AREA B, INCLUDING THE UPSTREAM OFF-SITE RUNOFF FROM 6.51 ACRES AT EX. STRUCTURES 4 & 6. THE TWO YEAR PEAK DISCHARGE AT OUTLET STRUCTURE P-1 WILL RESULT IN A COMPUTED SURFACE FLOW DEPTH OF NEARLY 6" (0.43'), A FLOW WIDTH OF 21' AND A VELOCITY OF 2.38 FPS. THIS VELOCITY IS NOT EROSION ON EITHER LOT IS APPROXIMATELY 2' ABOVE THE PROJECTED WATER SURFACE ELEVATION. [SEE ADDITIONAL COMPUTATION ON SHEET 16.]

IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 124-4-4, THE OUTFALL LIMIT OF ANALYSIS FOR CHANNEL ADEQUACY MUST EXTEND DOWNSTREAM TO THE FIRST OF SEVERAL POINTS. IN OUR CASE, THE CONTROLLING LIMIT IS APPROXIMATELY 100' BELOW THE OUTLET PIPE AT THE MAJOR FLOODPLAIN NEAR THE SITE BOUNDARY. AT THIS POINT, THE TOTAL DRAINAGE AREA CONTRIBUTING TO THE TRIBUTARY IS IN EXCESS OF 3,000 ACRES. ACCORDINGLY, THE SITE AREA OF 11 ACRES IS LESS THAN 1% OF THE TOTAL WATERSHED AREA AND SECTIONS 124-4-4.(b)(5)a. AND 124-4-4.(b)(6)a. ESTABLISH THE REVIEW EXTENT. TWO SECTIONS (3-3 AND 4-4) HAVE BEEN SELECTED AT 50' STATIONING ALONG THE DISCHARGE CHANNEL AND WERE ANALYZED FOR THE PROJECTED TWO YEAR AND 10 YEAR STORM PEAKS, AS SHOWN.

EACH OF THE TWO CHANNELS RESULT IN PEAK VELOCITIES OF LESS THAN 2.0 FEET PER SECOND IN THE TWO YEAR STORM AND THE TEN YEAR PEAK FLOW IS CONTAINED WITHIN THE BED AND BANKS IN EACH CASE. ACCORDINGLY, THE PROPOSED OUTFALL IS CONSIDERED TO BE ADEQUATE.

CONCLUSION

BASED UPON THE ANALYSES PERFORMED AND THE COMPUTATIONS PROVIDED, IT IS THE OPINION OF THE ENGINEER THAT THE PROPOSED PROJECT CAN EFFECTIVELY AND COMPLETELY BE FULLY DESIGNED TO COMPLY WITH ALL OF THE REQUIREMENTS OF CHAPTER 124 OF THE COUNTY CODE AND SECTION 600 OF THE PUBLIC FACILITIES MANUAL.

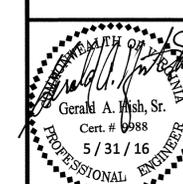
SUPPLEMENTAL HYDROLOGIC AND HYDRAULIC INFORMATION

IN DISCUSSIONS WITH THE COUNTY STAFF AND ADJACENT PROPERTY OWNERS WITHIN THE LEXINGTON ESTATES SUBDIVISION, IT HAS BECOME OBVIOUS THAT DRAINAGE ADEQUACY IS A MAJOR AREA OF CONCERN FOR THE PROPOSED DEVELOPMENT. IN RESPONSE TO THOSE CONCERNS, SHEET 16 HAS BEEN ADDED TO THE PLAN SET TO ESTABLISH A CLEAR UNDERSTANDING OF THE DESIGN BASIS AND THE CONSERVATIVE ASSUMPTIONS THAT HAVE BEEN IMPLEMENTED.

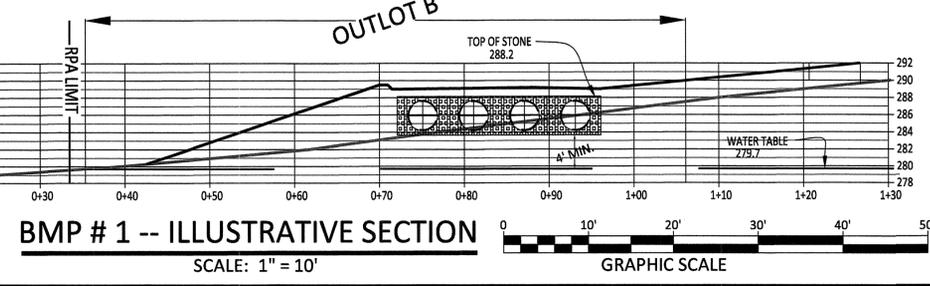
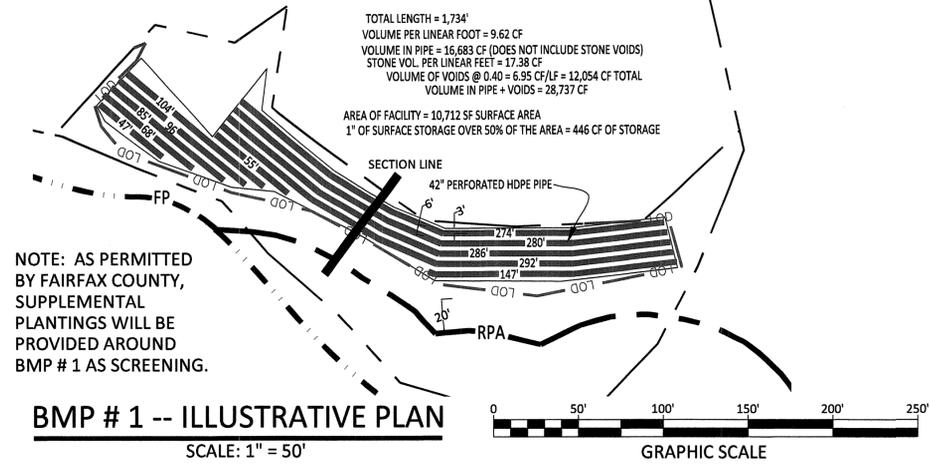
1/18/16	COUNTY COMMENTS	GAH	REVISED	DATE
2/19/16	REV. TYP PER UPRD COMMENTS	GAH		
2/19/16	REV. PER 2/19/16 MEETING AT CO.	GAH		
4/17/16	REV. PER 3/25 MTG - ENV/FCOBT	GAH		
4/28/16	SWM COMMENTS	GAH		
5/9/16	SWM TC & LOT 5; MISC TYPES	GAH		
5/31/16	SWM FORMAT CHANGES	GAH		
No.	DATE	DESCRIPTION	APPROVED	DATE

PLAN DATE	REVISIONS

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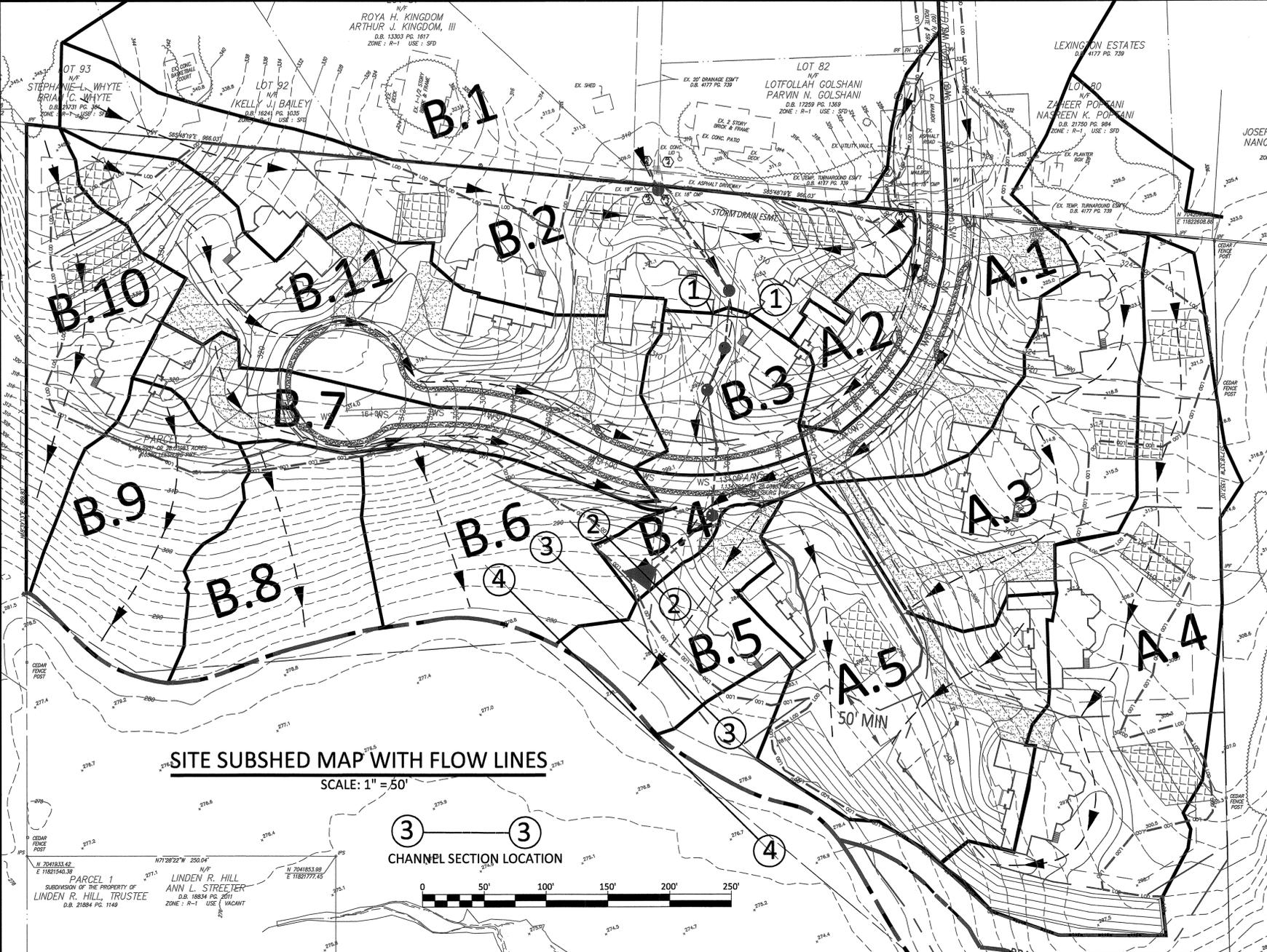


STORMWATER MANAGEMENT 4
SUMMER HILL
 TAX MAP NO. 12-4 (30) LOT Z
 DRANESVILLE DISTRICT
 FAIRFAX COUNTY, VIRGINIA
 DATE: JUNE 2015
 FFX. CO. PLAN: RZ 2015-DR-0009
 SCALE: GRAPHIC



DETAILED DRAINAGE SHED ANALYSES:
 THE TWO MAJOR DRAINAGE AREAS FOR THE SITE HAVE BEEN BROKEN DOWN INTO SUBSHEDS FOR ANALYSIS PURPOSES AND IDENTIFIED ON THE MAP ON THIS SHEET.

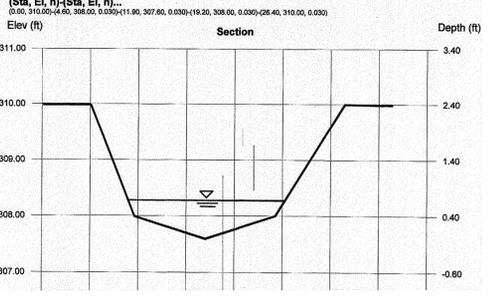
- STORM RUNOFF DRAINAGE AREA "A" AND ITS CONSTITUENT PARTS IS CONVEYED VIA WIDE SWALES AND A MINOR PIPE SYSTEM IN THE ROAD R.O.W. AS SHOWN. THESE FLOWS ULTIMATELY ENTER BMP FACILITY # 1, AN INFILTRATION FACILITY WITH ADEQUATE SIZE AND CHARACTERISTICS TO RETAIN THE 10 YEAR PEAK DISCHARGE FROM D.A. "A". AS SHOWN ON SHEET 14, THE CHANNEL FLOW BEHIND THE LOT 4 RESIDENCE WAS ANALYZED AS SECTION B-B AND IS SHOWN TO REPRESENT NON-EROSIVE VELOCITIES AND ADEQUATE CAPACITY UNDER DESIGN STANDARDS. RUNOFF FROM AREAS A.1, A.2, AND A.3 ARE INTERCEPTED BY DRAIN INLETS WITHIN DITCHES AND TRANSPORTED IN A PIPE TO THEIR OUTFALL AT THE RETENTION FACILITY.
- THE DRAINAGE SYSTEM PROPOSED FOR AREA "B" INCLUDES A 24" TO 30" STORM SEWER THROUGH THE PARCEL TO CONVEY THE UPSTREAM RUNOFF FROM AREA B.1 TO A DISCHARGE AT NEW STRUCTURE P-1 IN DRAINAGE SUBSHED B.4. AS THE LINE TRAVERSES THE SITE, RUNOFF FROM AREAS B.2, B.3, B.4, B.7 AND B.11 ARE ADDED TO THE NETWORK THROUGH STORM INLETS ALONG THE ROADWAY AND IN THE REAR OF LOT 9. THE BALANCE OF DRAINAGE AREA B (I.E., B.5, B.6, B.8, B.9 AND B.10) DISCHARGES UNDER SHEET FLOW CONDITIONS TO OUTLET C AND ULTIMATELY THE FLOODPLAIN ALONG THE SOUTHERN PARCEL BOUNDARY. DRAINAGE INLET P-8 IS LOCATED IN A SUMP CONDITION AND COLLECTS SURFACE STORM RUNOFF FROM THE REAR OF LOTS 7 THROUGH 10 WITH SMALL OFF-SITE CONTRIBUTIONS. GRADING HAS BEEN ACCOMPLISHED TO ALLOW FOR OVERLAND RELIEF ALONG THE PIPE ALIGNMENT IN THE EVENT THAT THE MAJOR PIPE SYSTEM WERE TO BECOME CLOGGED. SECTION 1-1 ON THIS SHEET WAS SELECTED AT THE MOST NARROW SEGMENT BETWEEN THE HOUSES ON LOTS 9 AND 10 AND IS ANALYZED HERE FOR THE 100 YEAR STORM EVENT. THE DRAINAGE AREA TO THIS SECTION (AREAS B.1, B.2 PART & B.2) IS 7.83 ACRES IN SIZE AND WITH A RCN VALUE OF 68, RESULTS IN A 100 YEAR PEAK FLOW OF 41.42 CFS AT 12 HOURS INTO THE STORM. A CHANNEL REPORT FOR THE 100 YEAR OVERLAND RELIEF SECTION IS INCLUDED ON THIS SHEET AND DEMONSTRATES THAT THE MAXIMUM WSE IS 308.28' AND A TOP WIDTH OF 16.25'. WITH FLOOR ELEVATIONS OF 310' TO 320' ON THE ADJACENT LOTS AND A SEPARATION BETWEEN THE STRUCTURES OF 25'+, FLOODING OF THE RESIDENCES IS NOT EXPECTED AND ADEQUATE OVERLAND RELIEF EXISTS HERE. IT IS ALSO NOTED THAT THE RESIDENCES ON THE UPSTREAM ADJACENT PARCELS (KINGDOM & GOLSHANI) INCLUDE FINISHED FLOOR ELEVATIONS ABOVE THE 310' MARK.
- THE CALCULATED DISCHARGE TO THE OUTFALL AT STRUCTURE P-1 IS BASED UPON A 6.51 ACRE OFF-SITE AREA (B.1) FROM THE LEXINGTON ESTATES AND 3.39 ACRES OF ON-SITE DEVELOPMENT (B.2 + B.3 + B.4 + B.7 + B.11). 24-HOUR, TYPE II SCSA HYDROGRAPHS FOR THE 2-YEAR AND 10-YEAR EVENTS FOR A TC OF 10 MINS. FOR AREA B.1 AND 5 MINS. FOR THE ON-SITE AREAS, YIELDS A COMBINED HYDROGRAPH NO. 19 ON SHEET 16 WITH PEAK FLOWS OF 9.87 CFS (2 YEAR) AND 29.46 CFS (10 YEAR). THREE CHANNEL SECTIONS (2-2, 3-3 AND 4-4) WERE ANALYZED FOR THESE FLOWS AND DO NOT INDICATE EITHER EROSION 2 YEAR VELOCITIES OR OUT OF BED-AND-BANKS CAPACITY ISSUES. THE LAST SECTION 4-4 IS LOCATED AT THE MAJOR FLOODPLAIN WITH A DRAINAGE AREA OF MORE THAN 3,000 ACRES. WITH A SITE OF 11 ACRES, THIS POINT QUALIFIES AS THE REGULATORY EXTENT OF ANALYSIS PER SECTION 124-4-4 OF THE COUNTY'S STORMWATER MANAGEMENT ORDINANCE.



SECTION 1-1 UNDER TOTAL SYSTEM CLOGGING B.1 TC 10 MIN

User-defined	Highlighted
Invert Elev (ft) = 307.60	Depth (ft) = 0.68
Slope (%) = 4.16	Q (cfs) = 41.12
N-Value = 0.030	Area (sqft) = 7.24
	Velocity (ft/s) = 5.98
	Wetted Perim (ft) = 16.37
Calculations	Crit Depth, Yc (ft) = 0.83
Compute by: Known Q	Top Width (ft) = 16.25
Known Q (cfs) = 41.12	EGL (ft) = 1.18

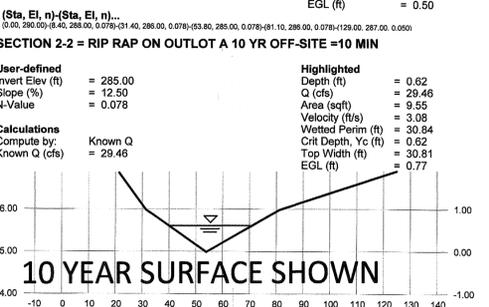
(Sta, El, n)-(Sta, El, n)...



SECTION 2-2 = RIP RAP ON OUTLOT A 2 YR OFF-SITE = 10 MIN.

User-defined	Highlighted
Invert Elev (ft) = 285.00	Depth (ft) = 0.42
Slope (%) = 12.50	Q (cfs) = 9.87
N-Value = 0.078	Area (sqft) = 4.38
	Velocity (ft/s) = 2.25
	Wetted Perim (ft) = 20.89
Calculations	Crit Depth, Yc (ft) = 0.40
Compute by: Known Q	Top Width (ft) = 20.87
Known Q (cfs) = 9.87	EGL (ft) = 0.50

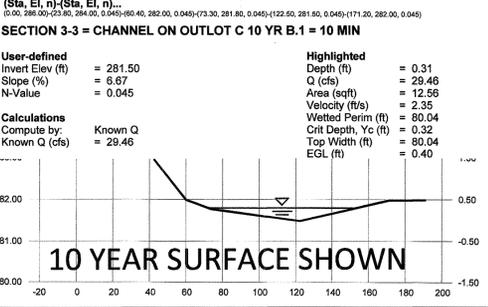
(Sta, El, n)-(Sta, El, n)...



SECTION 3-3 = CHANNEL ON OUTLOT C 2 YEAR B.1 = 10 MIN

User-defined	Highlighted
Invert Elev (ft) = 281.50	Depth (ft) = 0.21
Slope (%) = 6.67	Q (cfs) = 9.87
N-Value = 0.045	Area (sqft) = 5.76
	Velocity (ft/s) = 1.71
	Wetted Perim (ft) = 54.89
Calculations	Crit Depth, Yc (ft) = 0.21
Compute by: Known Q	Top Width (ft) = 54.89
Known Q (cfs) = 9.87	EGL (ft) = 0.26

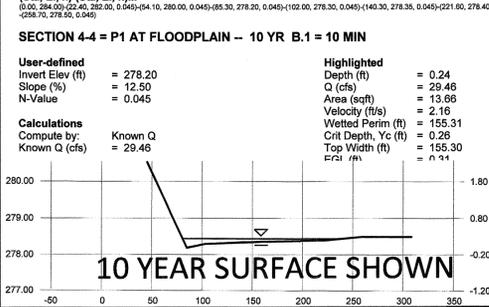
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SECTION 4-4 = P1 AT FLOODPLAIN -- 2 YR B.1 = 10 MIN

User-defined	Highlighted
Invert Elev (ft) = 278.20	Depth (ft) = 0.21
Slope (%) = 6.67	Q (cfs) = 9.87
N-Value = 0.045	Area (sqft) = 9.17
	Velocity (ft/s) = 1.08
	Wetted Perim (ft) = 143.66
Calculations	Crit Depth, Yc (ft) = 0.20
Compute by: Known Q	Top Width (ft) = 143.65
Known Q (cfs) = 9.87	EGL (ft) = 0.23

(Sta, El, n)-(Sta, El, n)...



PLAN DATE	REVISIONS
5/18/16	1
2/16/16	2
4/17/16	3
5/19/16	4
5/31/16	5

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Professional Engineer
 Gerald A. Hish, Sr.
 Cert. # 9988
 5/31/16

STORMWATER MANAGEMENT 5

SUMMER HILL
 TAX MAP NO. 12-4 (300) LOT Z
 DRAVESVILLE DISTRICT
 FAIRFAX COUNTY, VIRGINIA

FFX. CO. PLAN: RZ 2015-DR-0009
 DATE: JUNE 2015

SCALE: GRAPHIC

SHEET 15 OF 20
 FILE No. GG 15-001-1

SUPPLEMENTAL DESIGN DATA

DURING THE DESIGN PROCESS FOR THE PROJECT, SEVERAL ASSUMPTIONS AND DETERMINATIONS WERE MADE WHICH SERVE AS THE BASES FOR ALL OF THE ANALYSES PERFORMED IN THIS SUBMITTAL PACKAGE. OF PARTICULAR INTEREST AND CONCERN ARE THE DECISIONS RELATIVE TO THE TIME OF CONCENTRATION (Tc) FOR VARIOUS DRAINAGE SHEDS AS WELL AS THE RUNOFF COEFFICIENTS (C-VALUES) AND CURVE NUMBERS (RCNs) DERIVED FOR THE PROJECT. THESE VALUES CAN HAVE A SIGNIFICANT INFLUENCE ON DESIGN PEAK FLOWS AND THE RESULTANT COMPUTATIONS FOR ANY PROJECT. IN ACCORDANCE WITH NORMAL DESIGN STANDARDS OF PRACTICE, THE MAJORITY OF ALL OF THE Tc VALUES ASSUMED FOR DRAINAGE SHEDS ON THIS PROJECT WERE ESTABLISHED AS 5 MINUTES, THE MOST SEVERE RUNOFF CONDITION. FOR THE 6.51 ACRES OF OFF-SITE AREA FROM LEXINGTON ESTATES, HOWEVER, THE DESIGN PREMISE OF Tc = 10 MINUTES WAS UTILIZED IN THE ANALYSES. THIS VALUE WAS ESTABLISHED THROUGH THE APPLICATION OF TR-55 METHODOLOGIES AND A REVIEW OF THE UPSTREAM FLOW LENGTH OF APPROXIMATELY 650' FROM THE TOP OF THE DIVIDE TO THE EXISTING CULVERTS # 4 AND # 6. UNDER TR-55 METHODS, THE RESULTANT Tc WAS ESTIMATED AT 11.6 MINUTES WHICH WAS ROUNDED DOWN TO 10 MINUTES FOR OUR EFFORTS. FOR RUNOFF C-VALUES AND RCNs, THE DESIGN STANDARDS OF THE PFM AND THE NRCS TECHNICAL MANUALS ESTABLISH PRELIMINARY VALUES OF 0.30 TO 0.40 (C-VALUES) AND 68 (RCN IN B SOILS) FOR RESIDENTIAL AREAS PLANNED AT 1 DWELLING UNIT PER ACRE. WHILE THE VRRM ALLOWS A REDUCTION IN THE RCN NUMBER, OUR ANALYSES HAVE BEEN PERFORMED USING MORE CONSERVATIVE VALUES OF 0.45 (C-VALUE FOR 1/2 ACRE LOTS) AND 70 (RCN FOR 1/2 ACRE LOTS IN B SOILS). HENCE, THE COMPUTATIONS SHOWN IN THIS PLAN SET DEPICT A REASONABLE AND REALISTIC APPROACH TO PRELIMINARY DESIGN OF THE SITE DRAINAGE SYSTEM.

NOTWITHSTANDING THESE CONDITIONS, WE ARE AWARE OF THE SERIOUS NATURE OF OUR OBLIGATION TO PROTECT THE SAFETY OF THE PROPOSED HOMES AND THE ADJACENT PARCELS BOTH UP AND DOWNSTREAM OF THE SITE. ACCORDINGLY, WE HAVE PERFORMED ADDITIONAL SUPPLEMENTAL ANALYSES FOR PORTIONS OF THE SYSTEM, AS FOLLOWS:

- WE HAVE RE-CALCULATED THE STORM SEWER SYSTEM FROM LEXINGTON ESTATES TO OUR ULTIMATE OUTFALL AT SECTION 4-4 (SEE SHEET 15) USING A 5 MINUTE Tc FOR THE OFF-SITE AREA AND AN RCN OF 70. THIS EFFORT INCLUDES AN EVALUATION OF THE PROPOSED CULVERTS ON THE KINGDOM PROPERTY AND THE DOWNSTREAM PIPE CONVEYANCE TO OUR PROPOSED STRUCTURE P-1.
- WE HAVE ALSO USED THE HIGHER FLOW VALUES TO EVALUATE SECTIONS 2-2, 3-3 AND 4-4 TO DETERMINE THE OUTFALL ADEQUACY.
- FURTHER, WE HAVE GENERATED A 100-YEAR OVERLAND RELIEF ANALYSIS UNDER THESE CONDITIONS AT SECTION 1-1 TO DETERMINE THE POTENTIAL WATER SURFACE ELEVATION DURING THE 100 YEAR STORM EVENT, WITH AN ASSUMED FAILURE OF THE PIPE NETWORK.
- AS A FINAL EXERCISE, WE HAVE PERFORMED CROSS-SECTION ANALYSES WITHIN AND ADJACENT TO LOT 5 USING AN RCN VALUE OF 70 AND Tc = 5 MINUTES FOR BOTH THE ENTIRETY OF AREA A AND THE PORTION OF DRAINAGE AREA B THAT IS CONVEYED THROUGH THE PIPE SYSTEM. THE RESULTANT PEAK FLOW VALUES ARE USED TO EVALUATE THE FLOOD POTENTIAL FOR THE RESIDENCE ON LOT 5.

AS SHOWN ON THIS SHEET, THE SUPPLEMENTAL ANALYSES INDICATE THAT EVEN UNDER THE PRESUMED "WORST CASE" CONDITIONS, THE DRAINAGE SYSTEM SATISFIES AND EXCEEDS THE INDUSTRY STANDARDS FOR THIS SITE.

A. UTILIZE Tc OF 5 MINS. AND RCN OF 70 TO DETERMINE 2 YEAR AND 10 YEAR PEAK FLOWS FOR PIPE SYSTEM

AS PREVIOUSLY INDICATE IN TABLE "I" ON SHEET 14, THE 10 YEAR PEAK FLOW TO EXISTING STRUCTURES 4 & 6 IS CALCULATED AS 21.30 CFS WITH A 5 MINUTE Tc USING RATIONAL FLOW METHODS. WHEN SCS METHODS ARE EMPLOYED, THE 10-YEAR FLOW INCREASES TO 24.14 CFS FOR THE RCN VALUE OF 70 OVER THE 6.51 ACRE AREA. WHEN COMBINED WITH AN IDENTICAL Tc AND RCN ON THE ON-SITE 3.73 ACRES, THE COMPOSITE PEAK DISCHARGE IS 36.71 CFS VERSUS THE ORIGINAL VALUE OF 33.61. THE STORM SEWER ANALYSIS BELOW SHOWS THAT A 30" RCP PIPE AT A MINIMAL SLOPE OF 1% WILL CONVEY BOTH PEAK IN LESS THAN FULL FLOW CONDITIONS.

PROPOSED STORM SEWER SYSTEM ANALYSIS WITH B.1 AT RCN 70 AND Tc = 5 MINUTES

FROM POINT	TO POINT	RUNOFF Q 10 CFS	DIA. (EQUIV) IN	SLOPE FT/FT	n	C.F.S.	VEL F.P.S.	DEPTH OF FLOW FT	REMARKS
EX 6	P9	24.14	30	0.0100	0.013	41.00	8.71	1.38	30" RCP OR EQUIVALENT -- Q10
P9	P1	36.71	30	0.0100	0.013	41.00	9.45	1.85	30" RCP OR EQUIVALENT -- Q10

B. UTILIZE Tc OF 5 MINS. AND RCN OF 70 TO DETERMINE 2 YEAR AND 10 YEAR PEAK FLOWS FOR P-1 OUTFALL ADEQUACY

WITH THE HIGHER PEAK FLOWS FOR THE 2 YEAR AND 10 YEAR CONDITIONS ESTABLISHED IN PARAGRAPH A ABOVE, THE OUTFALL SECTIONS AT 2-2, 3-3 AND 4-4 HAVE BEEN CALCULATED FOR COMPARISON WITH THE PREVIOUSLY DETERMINED VALUES AND A SUMMARY OF THOSE RESULTS ARE PROVIDED BELOW. IN ALL CASES, THE OUTFALL IS ADEQUATE FROM BOTH EROSION VELOCITY AND CHANNEL CAPACITY STANDPOINTS.

OUTFALL CHANNEL COMPARISON COMPUTATION RESULTS

SECTION	STORM	ORIGINAL DESIGN				REVISED DESIGN			
		PEAK Q CFS	FLOW DEPTH (FT)	VELOCITY FPS	TOP WIDTH (FT)	PEAK Q CFS	FLOW DEPTH (FT)	VELOCITY FPS	TOP WIDTH (FT)
2-2	2 YEAR	9.87	0.42	2.25	20.87	13.68	0.47	2.49	23.36
	10 YEAR	29.46	0.82	3.08	30.81	36.71	0.88	3.19	33.80
3-3	2 YEAR	9.87	0.21	1.71	54.89	13.68	0.23	1.98	60.13
	10 YEAR	29.46	0.31	2.35	80.04	36.71	0.33	2.59	83.28
4-4	2 YEAR	9.87	0.21	1.08	143.65	13.68	0.22	1.29	147.54
	10 YEAR	29.46	0.24	2.16	155.30	36.71	0.25	2.41	159.19

C. UTILIZE Tc OF 5 MINS. AND RCN OF 70 TO DETERMINE 100 YEAR PEAK FLOW AT SECTION 1-1 (LOTS 9 & 10) FOR OVERLAND RELIEF EVALUATION

THE ORIGINAL SECTION 1-1 DESIGN FOR OVERLAND RELIEF ON SHEET 15 IS BASED UPON THE CALCULATION THAT THE OFF-SITE DRAINAGE AREA (B.1) TO THE SECTION HAS A Tc AND AN RCN OF 68 (1 ACRE RESIDENTIAL LOTS). TO INCREASE THE CONFIDENCE FACTOR IN THIS SECTION, WE HAVE ALSO PERFORMED COMPUTATIONS BASED UPON A 5 MINUTE Tc FOR B.1 AND AN INCREASED RCN OF 70 (1/2 ACRE PARCELS). THE RESULTANT PEAK FLOW RISES FROM 41.12 CFS TO A MORE CONSERVATIVE 50.95 CFS DURING THE 100 YEAR EVENT. IN THE EVENT THAT THE ENTIRE MAJOR PIPE SYSTEM FAILS, THE SECTION 1-1 SHOWN HERE RESULTS IN A MAXIMUM WATER SURFACE ELEVATION OF 308.34' AND A WIDTH OF 16.61', ALL WITHIN THE REQUIRED LIMITS.

Hydroflow Express by Intellisoive Monday, May 30 2016, 2:51 PM

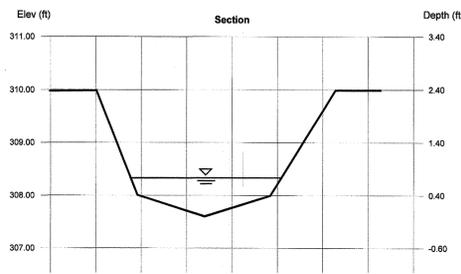
SECTION 1-1 UNDER TOTAL SYSTEM CLOGGING B.1 Tc 5 MIN

User-defined
 Invert Elev (ft) = 307.60
 Slope (%) = 4.16
 N-Value = 0.030

Highlighted
 Depth (ft) = 0.74
 Q (cfs) = 50.95
 Area (sqft) = 8.22
 Velocity (ft/s) = 6.19
 Wetted Perim (ft) = 18.74
 Crit Depth, Yc (ft) = 0.92
 Top Width (ft) = 16.61
 EGL (ft) = 1.34

Calculations
 Compute by: Known Q
 Known Q (cfs) = 50.95

(Sta, El, n)-(Sta, El, n)...
 (505.310;0.040;0.020;308.00;0.030;11.95;307.60;0.030;419.20;308.00;0.030;0.00;0.00;0.00;0.00;0.00)



D. PERFORM OVERLAND RELIEF EVALUATION IN LOT 5 FOR DRAINAGE AREAS A & B

DURING THE DESIGN REVIEW BY COUNTY STAFF, SOME CONCERN WAS EXPRESSED REGARDING THE FLOOD POTENTIAL AROUND THE LOT 5 RESIDENCE DUE TO ITS LOCATION. IN ADDRESSING THESE CONCERNS, TWO SEPARATE SECTIONS HAVE BEEN DEVELOPED AND EVALUATED AS SECTION 5-5 AND 6-6 AS SHOWN BELOW. RUNOFF TO SECTION 5-5 IS THE SAME AREA AS CALCULATED FOR THE PIPE SYSTEM TO STRUCTURE P-1 OR 3.39 ACRES OF ON-SITE AREA AND 6.51 ACRES OF OFF-SITE CONTRIBUTION. UTILIZING Tc = 5 MIN. AND RCN = 70 FOR THE ENTIRE SHED, THE CALCULATED 100 YEAR STORM WILL RESULT IN A DISCHARGE OF 64.42 CFS. THIS DISCHARGE IS CONVEYED IN THE SURFACE CHANNEL AT A DEPTH OF 0.6' (7"+) OVER A CHANNEL WIDTH OF 25.86' AND DOES NOT JEOPARDIZE THE RESIDENCE ON LOT 5. IN A SIMILAR FASHION THE 100 YEAR RUNOFF FOR DRAINAGE AREA A, AT 5.46 ACRES, RCN = 70 AND Tc = 5 MIN. RESULTS IN A PROJECTED PEAK FLOW OF 35.53 CFS, WHICH IS APPLIED TO SECTION 6-6, BETWEEN THE RETAINING WALLS ON LOT 5. THE RESULTANT OVERLAND RELIEF FLOW PATH AT THIS LOCATION IS 0.57' DEEP OVER A WIDTH OF 15.52 AND POSES NO FLOOD HAZARD TO THE RESIDENCE.

Hydrograph Report

Hydroflow Hydrograph by Intellisoive v8.22 Sunday, May 8, 2016

Hyd. No. 6
 5 - 5 TO P-1

Hydrograph type = Combine
 Storm frequency = 100 yrs
 Time interval = 2 min
 Inflow hyds. = 3, 5

Peak discharge = 64.42 cfs
 Time to peak = 716 min
 Hyd. volume = 130,355 cuft
 Contrib. drain. area = 9,900 ac

Channel Report

Hydroflow Express by Intellisoive Sunday, May 8 2016, 4:47 PM

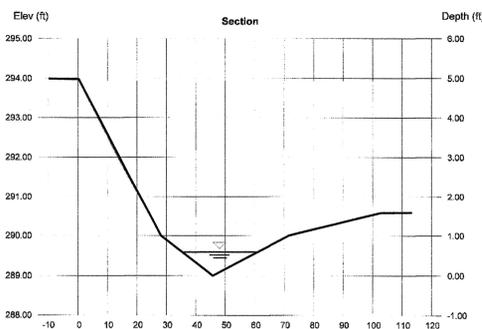
SECTION 5-5 WITH 100 YEAR PEAK

User-defined
 Invert Elev (ft) = 289.00
 Slope (%) = 15.20
 N-Value = 0.030

Highlighted
 Depth (ft) = 0.60
 Q (cfs) = 64.42
 Area (sqft) = 7.76
 Velocity (ft/s) = 8.30
 Wetted Perim (ft) = 25.89
 Crit Depth, Yc (ft) = 0.89
 Top Width (ft) = 25.89
 EGL (ft) = 1.67

Calculations
 Compute by: Known Q
 Known Q (cfs) = 64.42

(Sta, El, n)-(Sta, El, n)...
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Hydrograph Report

Hydroflow Hydrograph by Intellisoive v8.22 Sunday, May 8, 2016

Hyd. No. 7
 AREA A

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 2 min
 Drainage area = 5,460 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 7.30 in
 Storm duration = 24 hrs

Peak discharge = 35.53 cfs
 Time to peak = 716 min
 Hyd. volume = 71,893 cuft
 Curve number = 70
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type II
 Shape factor = 484

Channel Report

Hydroflow Express by Intellisoive Sunday, May 8 2016, 4:48 PM

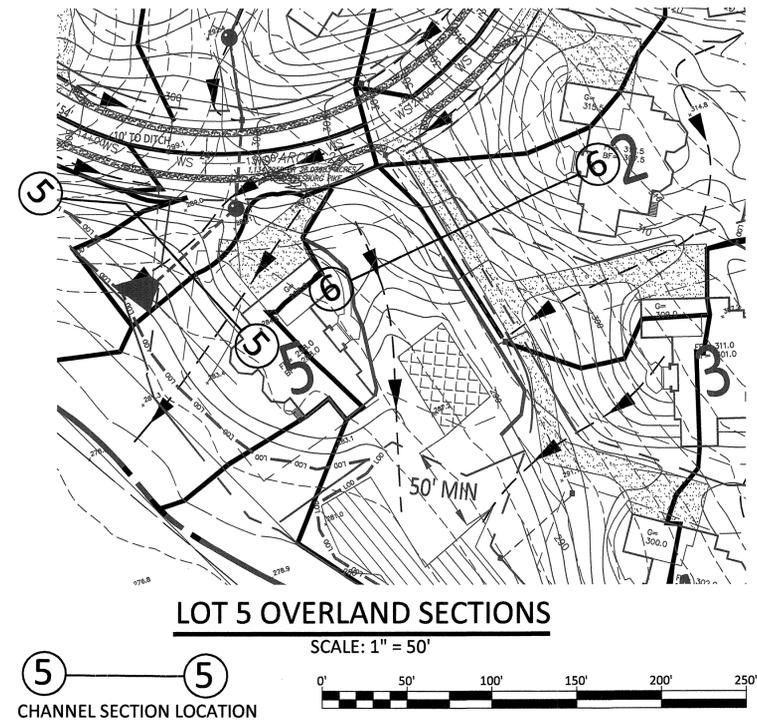
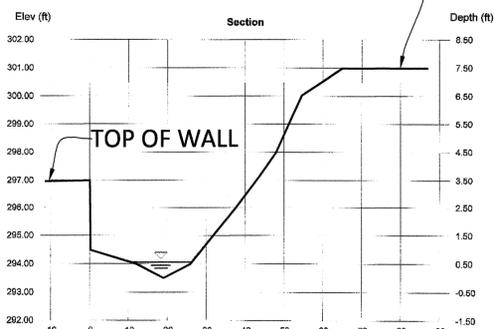
SECTION 6-6 WITH 100 YEAR PEAK

User-defined
 Invert Elev (ft) = 293.50
 Slope (%) = 15.20
 N-Value = 0.030

Highlighted
 Depth (ft) = 0.57
 Q (cfs) = 35.53
 Area (sqft) = 4.36
 Velocity (ft/s) = 8.14
 Wetted Perim (ft) = 15.57
 Crit Depth, Yc (ft) = 0.85
 Top Width (ft) = 15.52
 EGL (ft) = 1.60

Calculations
 Compute by: Known Q
 Known Q (cfs) = 35.53

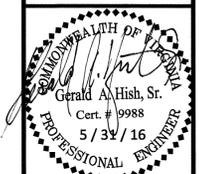
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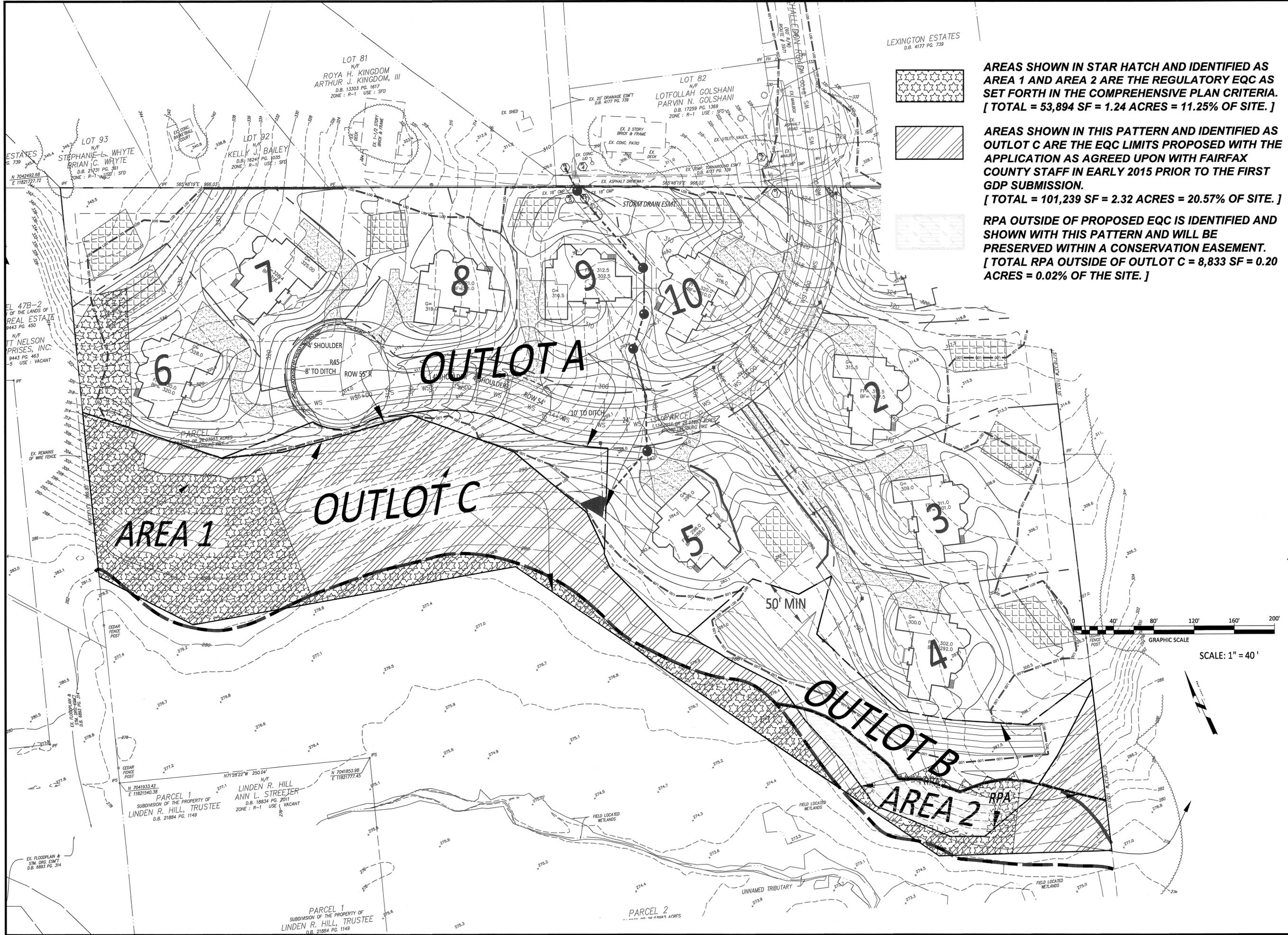
1/18/16	COUNTY COMMENTS	GAH	DATE
2/16/16	REV. TYP PER UP/MD COMMENTS	GAH	APPROVED
2/26/16	REV. PER 2/19/16 MEETING AT CO.	GAH	APPROVED
4/17/16	REV. PER 3/25 MTE - ENV/ECDDT	GAH	APPROVED
4/28/16	SWM COMMENTS	GAH	APPROVED
5/9/16	SWM T.C. & LOT 5, MISC. TYPDS	GAH	APPROVED
5/31/16	SWM FORMAT CHANGES	GAH	APPROVED

PLAN DATE	REVISIONS
	No. DATE DESCRIPTION REV. BY

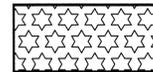
Hish and Company, LLC
 Civil Engineering Professionals
 Phone: (703) 628-4424
 Fax: (703) 628-4426
 Cell: (703) 945-5452
 1451 Doleys Madison Boulevard
 Suite 200
 McLean, Virginia 22101



STORMWATER MANAGEMENT 6
 SUMMER HILL
 TAX MAP NO. 12-4 ((30)) LOT Z
 DRANESVILLE DISTRICT
 FAIRFAX COUNTY, VIRGINIA
 FFX. CO. PLAN: RZ 2015-DR-0009
 DATE: JUNE 2015
 SCALE: GRAPHIC
 SHEET 16 OF 20
 FILE No. GG 15-001-1



LEXINGTON ESTATES
D.B. 4177 PG. 739



AREAS SHOWN IN STAR HATCH AND IDENTIFIED AS AREA 1 AND AREA 2 ARE THE REGULATORY EQC AS SET FORTH IN THE COMPREHENSIVE PLAN CRITERIA.
[TOTAL = 53,894 SF = 1.24 ACRES = 11.25% OF SITE.]



AREAS SHOWN IN THIS PATTERN AND IDENTIFIED AS OUTLOT C ARE THE EQC LIMITS PROPOSED WITH THE APPLICATION AS AGREED UPON WITH FAIRFAX COUNTY STAFF IN EARLY 2015 PRIOR TO THE FIRST GDP SUBMISSION.
[TOTAL = 101,239 SF = 2.32 ACRES = 20.57% OF SITE.]

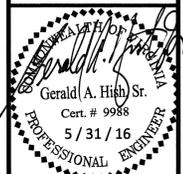


RPA OUTSIDE OF PROPOSED EQC IS IDENTIFIED AND SHOWN WITH THIS PATTERN AND WILL BE PRESERVED WITHIN A CONSERVATION EASEMENT.
[TOTAL RPA OUTSIDE OF OUTLOT C = 8,833 SF = 0.20 ACRES = 0.02% OF THE SITE.]

NO.	DATE	DESCRIPTION	REV. BY	APPROVED	DATE
1/18/16	COUNTY COMMENTS				
2/16/16	REV. TYP PER UPD COMMENTS				
2/16/16	REV. PER 2/19/16 MEETING AT CO.				
4/17/16	REV. PER 3/25 MTS - EN/ECOT				
4/28/16	SWM COMMENTS				
5/9/16	SWM T. & LOT 5; MISC TYPES				
5/31/16	SWM FORMAT CHANGES				

PLAN DATE	PLAN NO.

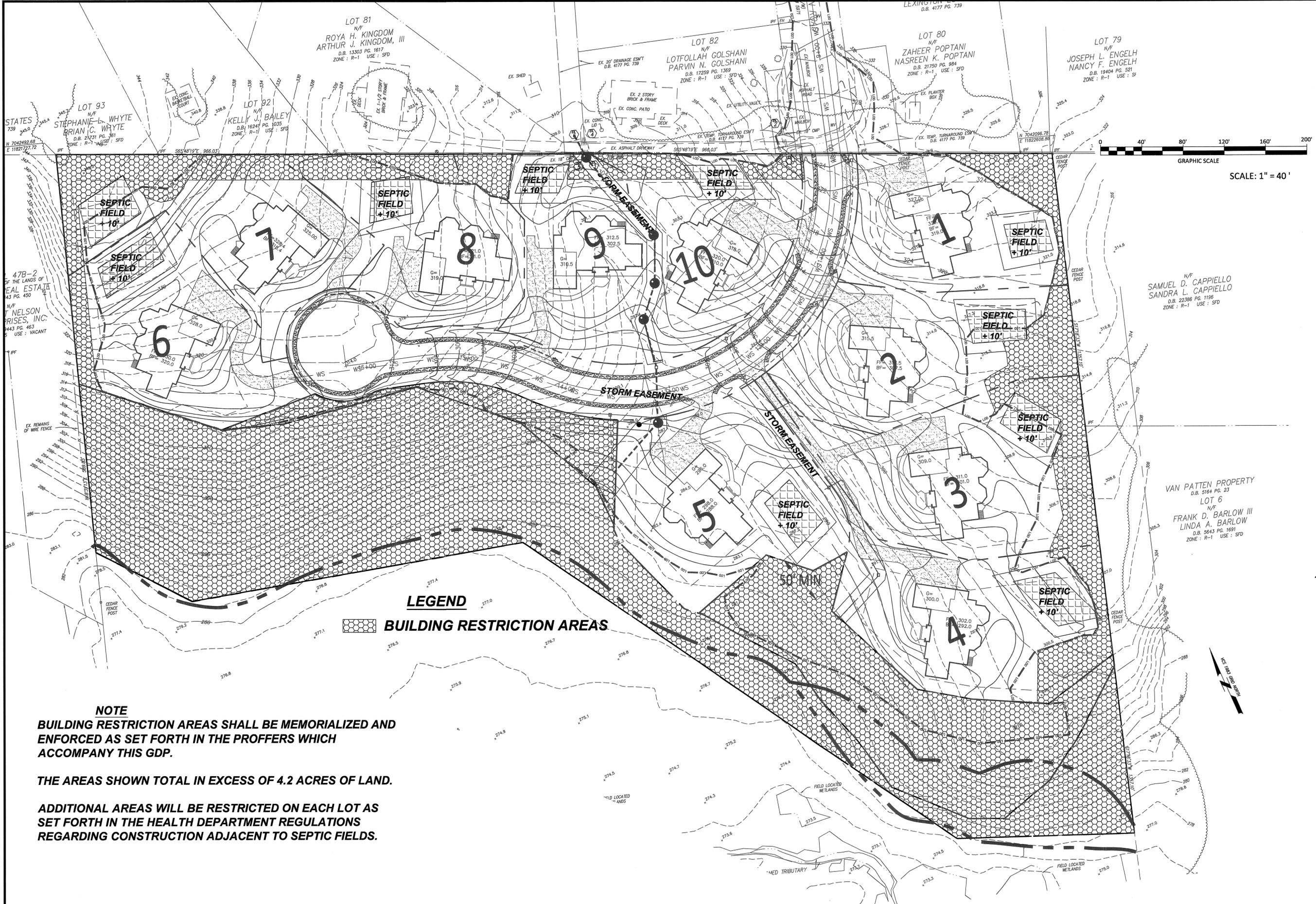
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Civil Engineering Professionals
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Cell: (703) 945-6462
1451 Dolley Madison Boulevard
Suite 200
McLean, Virginia 22101



REGULATORY VS. PROPOSED EQC EXHIBIT
SUMMER HILL
TAX MAP NO. 12-4 ((30)) LOT Z
DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA
FFX. CO. PLAN: RZ 2015-DR-0009
DATE: JUNE 2015

SHEET 17 OF 20
FILE No. GG 15-001-1

Hish and Company Projects\Gulick Group Projects\Linden Hill\CURRENT\GDP Filer\2016 GDP\MODIFY 05-31-16\GDP SHEET 17 - EQC REGULATORY, 5/30/2016 1:58:58 PM

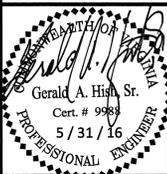


LEGEND
 **BUILDING RESTRICTION AREAS**

NOTE
BUILDING RESTRICTION AREAS SHALL BE MEMORIALIZED AND ENFORCED AS SET FORTH IN THE PROFFERS WHICH ACCOMPANY THIS GDP.
THE AREAS SHOWN TOTAL IN EXCESS OF 4.2 ACRES OF LAND.
ADDITIONAL AREAS WILL BE RESTRICTED ON EACH LOT AS SET FORTH IN THE HEALTH DEPARTMENT REGULATIONS REGARDING CONSTRUCTION ADJACENT TO SEPTIC FIELDS.

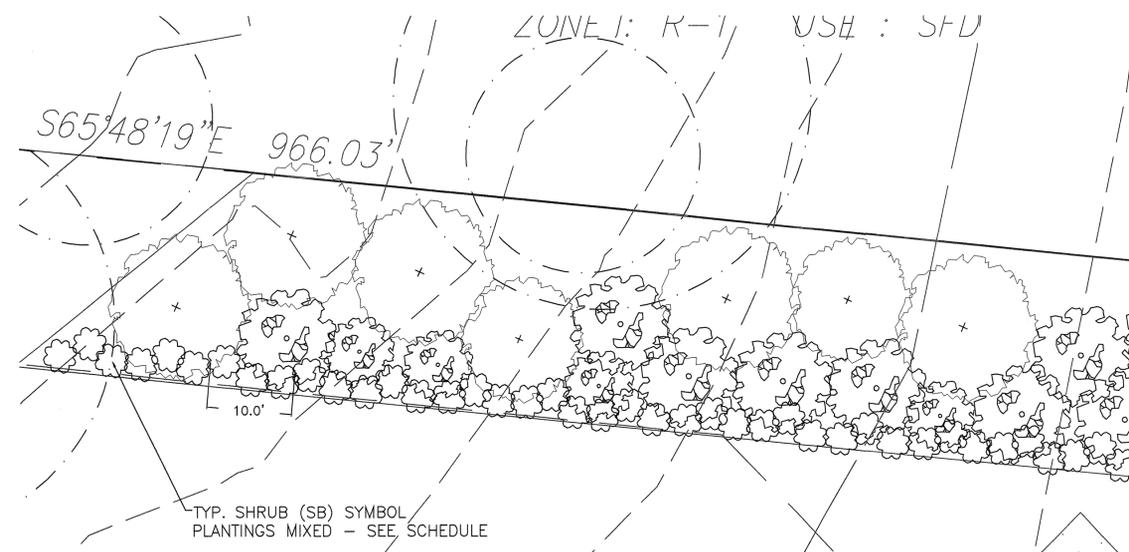
PLN DATE	NO.	DATE	DESCRIPTION	REVISIONS

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BUILDING RESTRICTION AREAS
SUMMER HILL
 TAX MAP NO. 12-4 ((30)) LOT Z
 DRAVESVILLE DISTRICT
 FAIRFAX COUNTY, VIRGINIA
 SCALE: GRAPHIC
 FFX. CO. PLAN: RZ 2015-DR-0009
 DATE: JUNE 2015

Hish and Company Projects\Guido Group Projects\Hish\GDP\15-001-1\GDP SHEET 18 - BLDG RESTRICT, 5/30/2016 10:24:47 PM



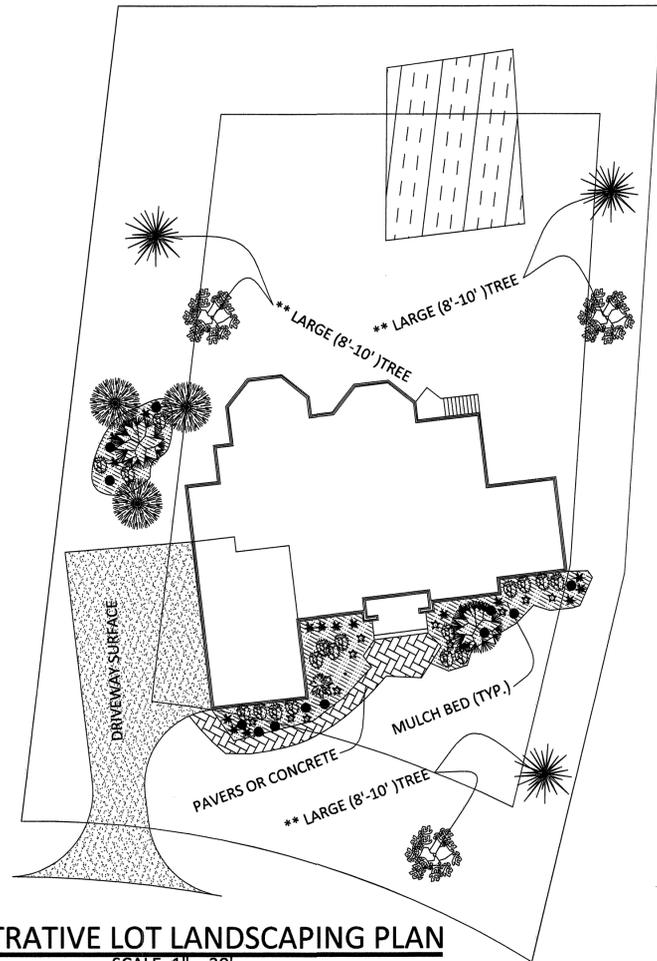
TYPICAL EVERGREEN SHRUB SPACING AND PLANTING AT TRANSITIONAL BUFFER: (3) 4' DIA. SHRUBS PER 10 LN. FT., STAGGERED ARRANGEMENT.

Plant schedule								
TREES								
sf./Tree @ 10 yrs.**	Symbol	Common Name	Bot. Name	E/D	NATIVE	Quant.	Install Size	sf. coverage
200	FA	American Beech	Fagus americana	D	Y	3	2"	600
200	QP	Pin Oak	Quercus phellos	D	Y	6	2"	1200
200	PV	Virginia Pine	Pinus Virginiana	E	Y	8	2"	1600
150	TD	Bald Cypress	Taxodium Distichum	D	Y	5	2"	750
100	LS	Sweetgum	Liquidambar styraciflua	D	Y	5	2"	500
100	IO	American Holly	Ilex opaca	E	Y	11	2"	1100
100	JV	Eastern Red Cedar	Juniperus virginiana	E	Y	5	2"	500
50	CT	Atlantic Whitecedar	Chamaecyparis thyoides	E	N	14	2"	700
						TOTAL	54	6350
**Per FFX. CO. Code						% Coverage of Buffer	75%	
SHRUBS								
	SB	Burkwood Viburnum	Viburnum x burkwoodii	E	Y	60	3-4" W/H	
		Cherry Laurel	Prunus laurocerasus	E	N	60	3-4" W/H	
**Mix Species Randomly						TOTAL	120	(400 LN.FT. of buffer)

LEGEND	
	TREELINE
	TREE PROTECTION FENCING
	TREE TO BE SAVED - SEE TREE SAVE PLAN
	200 SF
	FA FAGUS AMERICANA
	QP QUERCUS PHELLOS
	PV PINUS VIRGINIANA
	150 SF
	TD TAXODIUM DISTICHUM
	100 SF
	LS LIQUIDAMBAR STYRACIFLUA
	IO ILEX OPACA
	JV JUNIPERUS VIRGINIANA
	50 SF
	TC TSUGA CANADENSIS

TRANSITIONAL SCREENING SUMMER HILL TAX MAP NO. 12-4 ((30)) LOT Z DRANESVILLE DISTRICT FAIRFAX COUNTY, VIRGINIA FFX. CO. PLAN: RZ 2015-DR-0009	COUNTY COMMENTS 2/16/16 REV. PER 2/19/16 MEETING AT CO. 4/17/16 REV. PER 3/25 MTG - ENV/PCDD 4/28/16 SWM COMMENTS 5/9/16 SWM Tc & LOT 5; MISC TYPES 5/31/16 SWM FORMAT CHANGES	COUNTY COMMENTS 2/16/16 REV. PER 2/19/16 MEETING AT CO. 4/17/16 REV. PER 3/25 MTG - ENV/PCDD 4/28/16 SWM COMMENTS 5/9/16 SWM Tc & LOT 5; MISC TYPES 5/31/16 SWM FORMAT CHANGES	COUNTY COMMENTS 2/16/16 REV. PER 2/19/16 MEETING AT CO. 4/17/16 REV. PER 3/25 MTG - ENV/PCDD 4/28/16 SWM COMMENTS 5/9/16 SWM Tc & LOT 5; MISC TYPES 5/31/16 SWM FORMAT CHANGES	
	PLAN DATE 1/18/16	COUNTY COMMENTS 2/16/16 REV. PER 2/19/16 MEETING AT CO. 4/17/16 REV. PER 3/25 MTG - ENV/PCDD 4/28/16 SWM COMMENTS 5/9/16 SWM Tc & LOT 5; MISC TYPES 5/31/16 SWM FORMAT CHANGES	COUNTY COMMENTS 2/16/16 REV. PER 2/19/16 MEETING AT CO. 4/17/16 REV. PER 3/25 MTG - ENV/PCDD 4/28/16 SWM COMMENTS 5/9/16 SWM Tc & LOT 5; MISC TYPES 5/31/16 SWM FORMAT CHANGES	COUNTY COMMENTS 2/16/16 REV. PER 2/19/16 MEETING AT CO. 4/17/16 REV. PER 3/25 MTG - ENV/PCDD 4/28/16 SWM COMMENTS 5/9/16 SWM Tc & LOT 5; MISC TYPES 5/31/16 SWM FORMAT CHANGES
	Hish and Company, LLC Civil Engineering Professionals 1451 Dolley Madison Boulevard Suite 200 McLean, Virginia 22101 Phone: (703) 528-4424 Fax: (703) 528-4426 Cell: (703) 945-5452	COUNTY COMMENTS 2/16/16 REV. PER 2/19/16 MEETING AT CO. 4/17/16 REV. PER 3/25 MTG - ENV/PCDD 4/28/16 SWM COMMENTS 5/9/16 SWM Tc & LOT 5; MISC TYPES 5/31/16 SWM FORMAT CHANGES	COUNTY COMMENTS 2/16/16 REV. PER 2/19/16 MEETING AT CO. 4/17/16 REV. PER 3/25 MTG - ENV/PCDD 4/28/16 SWM COMMENTS 5/9/16 SWM Tc & LOT 5; MISC TYPES 5/31/16 SWM FORMAT CHANGES	COUNTY COMMENTS 2/16/16 REV. PER 2/19/16 MEETING AT CO. 4/17/16 REV. PER 3/25 MTG - ENV/PCDD 4/28/16 SWM COMMENTS 5/9/16 SWM Tc & LOT 5; MISC TYPES 5/31/16 SWM FORMAT CHANGES
	SHEET 19 OF 20 FILE No. GG 15-001-1	COUNTY COMMENTS 2/16/16 REV. PER 2/19/16 MEETING AT CO. 4/17/16 REV. PER 3/25 MTG - ENV/PCDD 4/28/16 SWM COMMENTS 5/9/16 SWM Tc & LOT 5; MISC TYPES 5/31/16 SWM FORMAT CHANGES	COUNTY COMMENTS 2/16/16 REV. PER 2/19/16 MEETING AT CO. 4/17/16 REV. PER 3/25 MTG - ENV/PCDD 4/28/16 SWM COMMENTS 5/9/16 SWM Tc & LOT 5; MISC TYPES 5/31/16 SWM FORMAT CHANGES	COUNTY COMMENTS 2/16/16 REV. PER 2/19/16 MEETING AT CO. 4/17/16 REV. PER 3/25 MTG - ENV/PCDD 4/28/16 SWM COMMENTS 5/9/16 SWM Tc & LOT 5; MISC TYPES 5/31/16 SWM FORMAT CHANGES

Hish and Company Projects\GG 15-001-1\GG 15-001-1-161019 - LANDSCAPE BUFFER-COMP. SHEET 19, 5/30/2016 1:08:28 PM



ILLUSTRATIVE LOT LANDSCAPING PLAN
SCALE: 1" = 20'

- MULCH BED PLANTINGS WILL TYPICALLY INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, SHRUBS, MEDIUM TREES AND PLANTINGS AND WILL CONSIST OF A MIXTURE OF NELLIE STEVENS HOLLY (8'-10'), DEODARA CEDAR (10'-12'), DYNAMITE CREPE MYRTLE (5'-6'), DRAGON LADY HOLLY (4'-5'), FALL BLOOMING CAMELIA, BLACK DRAGON CRYPTOMERIA, LEATHERLEAF VIBURNUM, SNOWFLAKE AND LIMELIGHT HYDRANGEA, STEED HOLLY, SHAMROCK INKBERRY, FROSTPROOF GARDINEA, DWARF BOXWOOD, LITTLE PRINCESS SPIREAKARLEY ROSE PINNISSETUM, WINTER JASMINE AND SIMILAR SPECIES.
- ** WHERE DEEMED APPROPRIATE BY THE APPLICANT AND THE HOMEOWNERS WITHIN THE DEVELOPMENT, INDIVIDUAL LARGE DECIDUOUS AND EVERGREEN TREES WILL BE PLACED WITHIN YARDS TO PROVIDE SHADE TO OPEN SPACES AND PRIVACY SCREENING FOR THE HOMEOWNERS AND NEIGHBORS ON ADJACENT PARCELS. TREES WILL INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, JAPANESE CRYPTOMERIA, WHITE PINE, WEEPING WILLOW, REDBUD, UPRIGHT JUNIPER, WILLOW OAK, RED MAPLE, AMERICAN HOLLY AND SIMILAR SPECIES.
- THE LOT LANDSCAPING SHOWN IS ILLUSTRATIVE OF THE TYPE AND GENERAL ARRANGEMENT OF TYPICAL LOT LANDSCAPING TO BE PROVIDED BY THE DEVELOPER BUT IS SUBJECT TO CHANGE AT THE DEVELOPER'S SOLE DISCRETION BASED UPON DISCUSSIONS WITH HOMEBUYERS ONCE THE RESIDENCE IS UNDER CONSTRUCTION. INDIVIDUAL LOT LANDSCAPING IS NOT INTENDED FOR COUNTY REVIEW OR APPROVAL BUT IS PRESENTED TO CONFIRM THE DEVELOPER'S GENERAL INTENT AND PRACTICES.



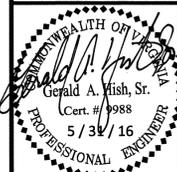
ILLUSTRATIVE LOT LANDSCAPE DETAIL

SUMMER HILL
TAX MAP NO. 12-4 ((30)) LOT Z
DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA
FFX. CO. PLAN: RZ 2015-DR-0009

SCALE: GRAPHIC DATE: JUNE 2015

SHEET
20
OF
20

FILE No.
GG 15-001-1



Hish and Company, LLC
Civil Engineering Professionals
1451 Doiley Madison Boulevard
Suite 200
McLean, Virginia 22101
Phone: (703) 528-4424
Fax: (703) 528-4426
Cell: (703) 945-5452

PLAN DATE	COUNTY COMMENTS	GAH
1/18/16	REV. PER 2/19/16 MEETING AT CO.	GAH
2/26/16	REV. PER 3/25 MTG. - ENV/ECOT	GAH
4/17/16	SWM COMMENTS	GAH
5/9/16	SWM Tc & LOT 5; MISC. TYPES	GAH
5/31/16	SWM FORMAT CHANGES	GAH
No. DATE	DESCRIPTION	REVISION
		APPROVED
		DATE

DESCRIPTION OF THE APPLICATION

The applicant, Gulick Group, Inc., requests rezoning of 11.00 acres of land from the R-A (Residential-Agriculture) zoning district to the R-1 zoning district to permit a cluster development of 10 single family detached dwelling units. The development has a proposed density of 0.91 dwelling units per acre with approximately 30 percent of the site retained in open space. The average lot size will be 29,524 square feet and the lots will range in size from 25,092 square feet (0.58 acres) to 35,110 square feet (0.81 acres). Access to the proposed development will be provided by extension of Challedon Road, a public street.

The applicant's proposed Proffers, Affidavit, and Statement of Justification can be found in Appendices 1, 2, and 3, respectively.

LOCATION & CHARACTER

The subject property is an undeveloped, forested 11-acre parcel that is composed of moderate slopes that steepen towards the Piney Run floodplain. The southern boundary of the property coincides with the northern edge of a segment of the Piney Run floodplain. An 11.25 percent portion of the site contains slopes that are in excess of 15 percent and are adjacent to the floodplain. The floodplain and its adjacent slopes are identified as a Resource Protection Area (RPA) and an Environmental Quality Corridor (EQC). An incised stormwater channel that drains to Piney Run bisects the site approximately at its midpoint from the north property line to the south property line. Although the site contains a floodplain, it does not contain any wetlands.



Exhibit 1: Aerial of Site

The site is currently accessed from the north via Challedon Road, a paved Virginia Department of Transportation (VDOT)-maintained road. Challedon Road runs northward, to connect to Brevity Drive, which runs westward to connect to Springvale Road. There is a temporary cul-de-sac at the current terminus of Challedon Road.

The properties to the north and east of the subject property are zoned R-1. The houses to the north, Lexington Estates, are part of a cluster development characterized by half acre residential lots with mature trees and landscaping interspersed with public/community open spaces. The residential development to the east consists of conventional R-1 lots. Abutting the site to the west is a narrow strip of property that is zoned I-5 and is vacant. However, to the immediate west of the I-5 property is R-1 zoned property that is developed with conventional R-1 lots (Piney Run Estates).

In summary, the site is surrounded by the following uses and land use designations:

SURROUNDING AREA DESCRIPTION			
Direction	Use	Zoning	Plan Map
North	Single Family Detached Residential (Lexington Estates)	R-1	Residential, .5-1 du/ac (1 dwelling unit per 1 – 2 acres)
East	Single Family Detached Residential (Van Patten Property)	R-1	Residential, .5-1 du/ac
South	Floodplain, Vacant	R-A	Private Open Space; Residential, .2-.5 du/ac (1 dwelling unit per 2 - 5 acres)
West	Vacant	I-5	Residential, .5-1 du/ac

BACKGROUND

The 11-acre subject parcel is the northernmost portion of a 36-acre property which extends southwards across Piney Run and fronts on Route 7 (Leesburg Pike). On October 28, 1991, the Board of Supervisors approved RZ 91-D-005, which rezoned this 36 acres from the R-1 district to the R-A district. Concurrent with the rezoning, the Board approved Special Exception, SE 91-D-035, permitting a plant nursery on the portion of the property fronting on Route 7. (The northern portion of the property, including the subject property, was not utilized as part of the nursery operation.) At the same time as the zoning actions, the 36-acre property was placed into an Agricultural/Forestral (A & F) District which expired on December 31, 2015. The plant nursery is no longer operational and the 36-acre property has been subdivided into several five-acre+ lots with the subject property being the northernmost.

COMPREHENSIVE PLAN PROVISIONS

Plan Area:	Area III
Planning District:	Upper Potomac Planning District
Planning Sector:	UP3 Hickory Community Planning Sector
Plan Map:	Residential, .5-1 du/ac

Comprehensive Plan Text

The Planning District Land Use recommendation preface states that infill development should be of compatible use, type and intensity per Fairfax County Policy Plan Land Use Objectives 8 and 14. The Land Use Plan map further recommends that the subject property be developed with residential properties at a density of .5 to 1 dwelling unit per acre.

Hickory Community Planning Sector Land Use Recommendations 2 and 5, Page 47

- 2. The area bounded by Leesburg Pike, Georgetown Pike, Walker Road and Piney Run is planned for residential use at .5-1 dwelling unit per acre, as shown on the Plan map, to reflect existing and committed development. New development should be generally consistent with existing zoning and should provide for ample landscaping, buffering and substantial building setbacks to ensure that the present relatively low density character of the area will be preserved when viewed from the collector and arterial roadways serving the sector.*

- 5. Cluster subdivisions may be appropriate in this sector if the following criteria are met and are rigorously applied: 1) Wherever possible the proposed open space should provide connections with existing or planned trails; 2) Individual lots, buildings, streets, utilities and parking areas are designed and situated to minimize the disruption of the site's natural drainage and topography, and to promote the preservation of important view sheds, historic resources, steep slopes, stream valleys and desirable vegetation; 3) Site design and building location are done in a manner that is compatible with surrounding development; 4) Modifications to minimum district size, lot area, lot width or open space requirements of a cluster subdivision in the R-E and R-1 Districts are not appropriate, unless significant benefits can be achieved in the preservation of the natural environment, scenic view shed(s) or historic resources by permitting such modifications; and 5) Lot yield shall be limited to that which could reasonably result under conventional development.*

ANALYSIS**Generalized Development Plan (GDP)** (Copy at front of staff report)**Title of GDP:** Summer Hill**Prepared By:** Hish and Company, LLC**Original and Revision Dates:** July 3, 2015, as revised through May 31, 2016

GDP INDEX	
Sheet # of 36	Contents
1	Cover Sheet including Applicant and Owner Information, Floodplain and RPA Map, Zoning Notes, General Notes, Driveway Entrance Details, and Vicinity Map
2	Generalized Development Plan (GDP)
3	EQC Delineation, RPA Details, EQC/RPA Narrative, Site Tabulations, and Soils Map
4	Existing Vegetation Map
5 – 8	Tree Preservation and Protection Plan
9	Setback Typicals and Road Section and Details
10	Illustrative Dwelling and Retaining Wall Elevations
11 - 16	Stormwater Management (SWM) and Best Management Practices (BMP) Details and Data
17	Regulatory Versus Proposed EQC Areas Map
18	Building Restriction Areas Map
19	Transitional Screening Map and Planting Schedule
20	Illustrative Lot Landscaping

Site Layout

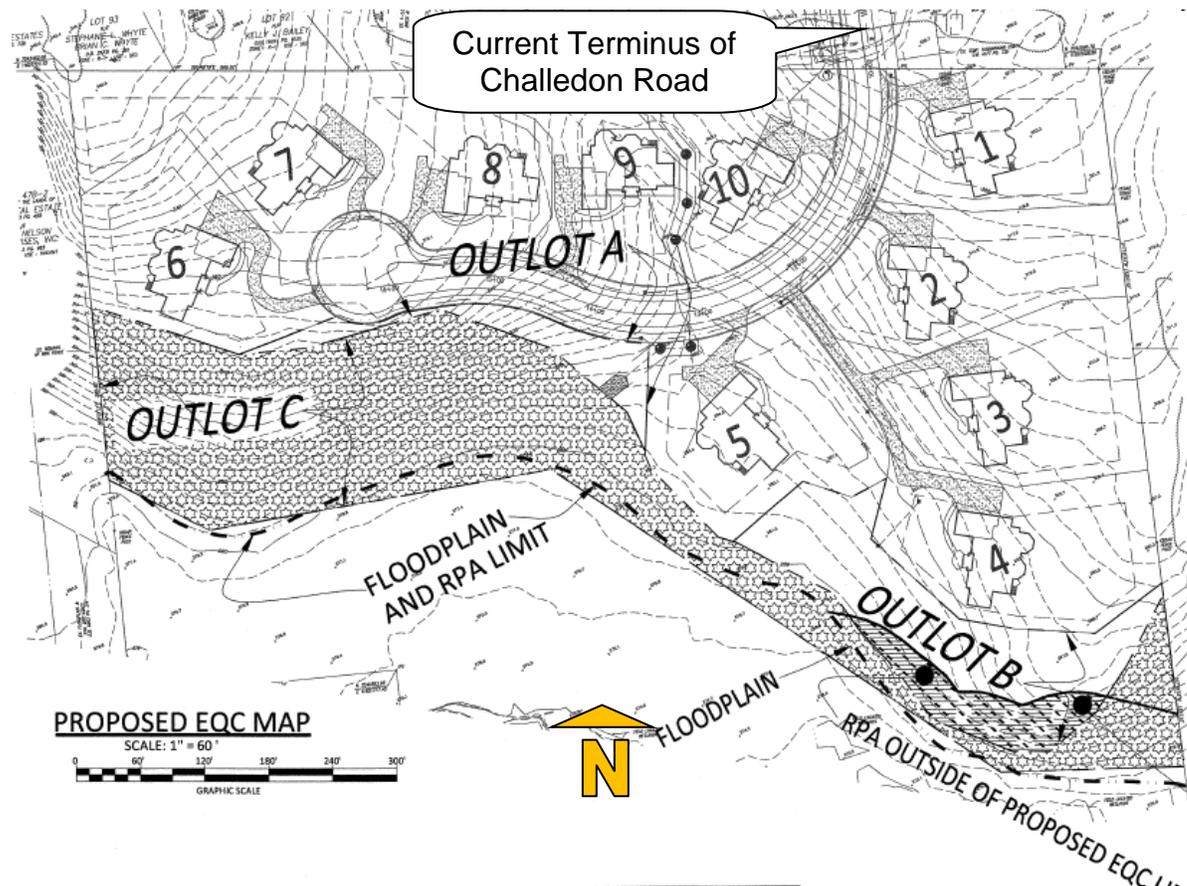


Figure 2: Site Layout

As shown on the Figure 2 above, the development will obtain access from an extension of Challedon Road. Challedon Road's current temporary cul-de-sac will be removed and the roadway will be extended 800 feet in a gentle curve to the southwest, terminating in a new cul-de-sac. Eight of the 10 proposed lots will have driveways with direct access to the new roadway. The remaining two lots, Lots 3 and 4, will obtain access via a shared driveway. The northern portion of the subject property will be developed, while the southern third, consisting primarily of Environmental Quality Corridor (EQC) or Resource Protection Area (RPA), will be retained as open space. In addition to the EQC and RPA, the two stormwater treatment areas, Outlots A and B, will be designated as open space as well. The overall onsite open space will comprise 30 percent (3.3 acres) of the property and be maintained by the future development's homeowners association.

The lots will range in size from 25,092 square feet (0.58 acres) to 35,110 square feet (0.81 acres). The GDP shows preservation areas of existing trees and tree stands along much of the perimeter boundary of the proposed development area. This tree preservation buffer varies in width from 15 to 125 feet. Along most of the northern boundary, the GDP shows a 25-foot wide planting strip, which is an area to be landscaped with trees and shrubs to enhance the screening effectiveness of

the existing mature trees designated for preservation. Street 18 of the GDP includes a landscaping typical that represents the applicant's commitment to work with the future homebuyers to landscape the individual lots for shade and privacy.

Sheet 2 of the GDP shows the proposed septic drainfield locations, which are sized for both primary and secondary fields, for the individual lots. Sheet 16 of the GDP identifies areas on each of the individual lots that are not available to future buyers for structures due to drainfield siting, tree preservation, or tree buffer planting.

Circulation

The extension of Challedon Road will necessitate the elimination of the existing, temporary cul-de-sac at the terminus of the roadway and the realignment of several of the existing private driveways currently accessing the cul-de-sac. All of the proposed retrofit work will be accomplished in the existing Challedon Road right-of-way.

The proposed roadway extension will contain two 12-foot wide travel lanes that are lined with 4-foot wide gravel shoulders, and 9-foot wide ditches, all located in a 54-foot wide right-of-way. The proposed roadway will permit parking on one side of the street and that parking will be identified by signage. The proposed cul-de-sac at the terminus of the extension, with its 45-foot radius of pavement and 55-foot right-of-way, will provide adequate turn around space for emergency and service vehicles. Like the existing Challedon Road, the proposed extension will not be lined with sidewalks or trails.

Parking for each of the proposed homes will be provided by a minimum of two spaces located in attached garages. Additional spaces will be provided in the driveways.

Stormwater

As shown on Sheet 12 of the GDP, the proposal divides the site into two stormwater drainage areas to address the impacts associated with circulating the quantity and treating the quality of stormwater runoff. Stormwater Area A will collect runoff from the southern end of the current terminus of Challedon Road, as well as runoff from proposed Lots 1 through 4 and a portion of Lot 5. Most of this stormwater will be directed through a series of pipes and ditches into an infiltration basin located in Outlot B. The remaining stormwater, primarily from the rear portions of the proposed Lots 1 through 4, will sheetflow into that infiltration basin. This grass-lined basin, underlined with gravel, will facilitate infiltration of the collected stormwater into the ground.

Stormwater Area B will address runoff from much of the remainder of the site, as well as accommodate existing runoff from 6.69 acres of the adjoining Lexington Estates to the north. Currently, a pair of pipes, located at the mid-point of the subject property's northern boundary, discharge the offsite stormwater onto the

site, where it is currently incising a deep channel. As part of the proposed development's stormwater system, this offsite run-off will be routed through an underground pipe located between Lots 9 and 10, then under the Challedon Road extension, and finally out onto Outlot A, where the water will be routed through a dissipater over the adjoining EQC/RPA. The dissipater is located in a relatively flat, forested portion of the floodplain, where the released stormwater is anticipated to filter through the forested land and join Piney Run or infiltrate into the ground. The western and southern portions of Stormwater Area B, primarily yards and open space, are designed to allow the stormwater to sheet flow directly into the floodplain.

The ditches along the Challedon Road extension will be sized to accommodate the runoff from adjoining Lots 7 through 10 and a portion of Lot 6, as well as the proposed roadway extension. The roadway will be constructed so that its low point will be the crossing of the aforementioned underground stormwater pipe. The stormwater pipe will be designed to intercept the stormwater collected in the roadside ditches, as well as the offsite runoff generated from portions of Lexington Estates, and direct it towards the adjoining EQC/RPA for dissipation.

Open Space

As previously mentioned, 30 percent of the site (3.3 acres) is designated as open space. The open space consists of the property's portions of the Piney Run floodplain, a RPA, and the steep slopes and forestlands adjoining the floodplain (which are designated as an EQC). The open space also contains Outlots A and B, which are to be developed with stormwater facilities. The open space and its facilities will be maintained by the future development's homeowners association.

Water and Septic Systems

Community water service for the proposed lots will be provided by the Fairfax County Water Authority. As community sewer is not available in this area of the County, the proposed lots will be served by individual wastewater disposal systems.

The applicant proposes the use of individual Alternative On-site Sewerage Systems (AOSS). Unlike a conventional septic system which simply settles out solids prior to directing the effluent to drainfields, an AOSS system treats the effluent prior to it being eventually pressure-dosed to a subsurface soil treatment area. Due to this pre-treatment, an AOSS system requires a substantially smaller drainfield than a conventional one. A conventional septic system removes only about 25 percent of the impurities and bacteria in sewage and provides very little nitrogen reduction, while the AOSS system is projected to remove 85 to 99 percent of the impurities and to reduce nitrogen by at least 50 percent.

Comprehensive Plan Analysis

The applicant seeks to rezone the property to the R-1 district, which allows a maximum density of 1 dwelling unit per acre. This density is consistent with the recommended land use designation of Residential, .5-1 du/ac shown on the Comprehensive Plan's Land Use Plan Map. The proposed density of 0.91 dwelling unit per acre falls within the recommended density range for the site.

Policy Plan

Besides the land use designation, an application should be consistent with the applicable policy recommendations of the Comprehensive Plan. The applicable policies from the Fairfax County Comprehensive Plan, 2013 Edition, Policy Plan, Land Use, amended through April 29, 2014, are listed below. These land use policies (specifically Land Use Objective 8 and 14 found in the Land Use section of the Policy Plan) provide guidance in reviewing this application.

Objective 8: Fairfax County should encourage a land use pattern that protects, enhances and/or maintains stability in established residential neighborhoods.

Policy a. Protect and enhance existing neighborhoods by ensuring that infill development is of compatible use, and density/intensity, and that adverse impacts on public facility and transportation systems, the environment and the surrounding community will not occur.

Objective 14: Fairfax County should seek to achieve a harmonious and attractive development pattern which minimizes undesirable visual, auditory, environmental and other impacts created by potentially incompatible uses.

Policy a. Locate land uses in accordance with the adopted guidelines contained in the Land Use Appendix.

Policy b. Encourage infill development in established areas that is compatible with existing and/or planned land use and that is at a compatible scale with the surrounding area and that can be supported by adequate public facilities and transportation systems.

Policy c. Achieve compatible transitions between adjoining land uses through the control of height and the use of appropriate buffering and screening.

Policy j. Use cluster development as one means to enhance environmental preservation when the smaller lot sizes permitted would complement surrounding development.

Staff finds the proposed development of a density of 0.91 dwelling unit per acre compatible with the surrounding area. The proposed lots are comparable in size to those the surrounding lots along the site's northern boundary. Some of the lots in close proximity to the eastern and western boundaries are larger (one to five acres in size) than those proposed under this application. However,

some of these surrounding larger lots count RPAs and EQCs as part of their acreage; these environmental features are not included in any of the proposed residential lots. Nonetheless, the applicant is proposing preservation of perimeter trees to provide a vegetative buffer/screen along all boundaries adjoining existing residential development. As such, staff believes that this development enhances the surrounding neighborhood.

The Residential Development Criteria of the Policy Plan states that it is not expected that adjoining developments will be identical to their neighbors; however, all developments should fit into the fabric of the community. As recommended by Objective 14, staff believes that the proposed development fits into the context of the surrounding area by virtue of having a comparable density and layout with the existing neighborhoods. Also, like those surrounding developments, the proposal incorporates existing environmentally significant features (steep slopes, floodplain, and perimeter mature trees) into its design and preserves and supplements trees and other vegetation in the EQC/RPA. The development's layout and its compatibility is further analyzed under the Residential Development Criteria section later in this report.

Upper Potomac District Plan

The following Upper Potomac Planning District policies are found on page 47 of the Fairfax Comprehensive Plan, 2013 edition, as amended through October 2015. Staff's analysis of the proposal against these policies is provided below:

2. *The area bounded by Leesburg Pike, Georgetown Pike, Walker Road and Piney Run is planned for residential use at .5-1 dwelling unit per acre, as shown on the Plan map, to reflect existing and committed development. New development should be generally consistent with existing zoning and should provide for ample landscaping, buffering and substantial building setbacks to ensure that the present relatively low density character of the area will be preserved when viewed from the collector and arterial roadways serving the sector.*

The proposed density of 0.91 falls within the recommended planned density of 0.5 and 1 dwelling unit per acre. The proposed development is consistent with the adjoining existing residential zoning to the north and east and as proffered, mitigates impacts to the R-A zoned floodplains to the south. The development will have vegetative landscaping along its perimeters, providing buffering from surrounding properties and roadways. The development will not be visible from Route 7 or Springvale Road, the nearest collector and arterial streets.

5. *Cluster subdivisions may be appropriate in this sector if the following criteria are met and are rigorously applied: 1) Wherever possible the proposed open space should provide connections with existing or planned trails; 2) Individual lots, buildings, streets, utilities and parking areas are designed and situated to minimize the disruption of the site's natural drainage and topography, and to promote the preservation of important view sheds, historic resources, steep slopes, stream*

valleys and desirable vegetation; 3) Site design and building location are done in a manner that is compatible with surrounding development; 4) Modifications to minimum district size, lot area, lot width or open space requirements of a cluster subdivision in the R-E and R-1 Districts are not appropriate, unless significant benefits can be achieved in the preservation of the natural environment, scenic view shed(s) or historic resources by permitting such modifications; and 5) Lot yield shall be limited to that which could reasonably result under conventional development.

- *Wherever possible the proposed open space should provide connections with existing or planned trails.*

To the south, the development's open space abuts the Piney Run floodplain. Currently, there are no existing or planned trails in this floodplain. Although the proposed development did not initially propose any trail or open space connections, the applicant has now committed to grant a public trail easement from the extension for the Challedon Road extension to the southern property line of the subject site through the open space to provide connection to any future offsite trail which may traverse the Piney Run stream valley.

- *Individual lots, buildings, streets, utilities and parking areas are designed and situated to minimize the disruption of the site's natural drainage and topography, and to promote the preservation of important view sheds, historic resources, steep slopes, stream valleys and desirable vegetation.*

The clustering of the lots in the northern portion of the site results in the preservation of the RPA and its associated EQC. The applicant is also proposing to retain a number of the site's mature trees along boundaries of the development area. Staff believes that retaining these features reduces disruption of the site's natural drainage and topography and preserves desirable vegetation. Additionally, the proffered removal of invasive plant species from the RPA and EQC will aid in the overall health of site's natural system. As detailed later in this report, under Development Criteria 3, Environment, the proposed dissipater facility will address a current drainage problem and, as planned, replicate a more natural drainage system.

- *Site design and building location are done in a manner that is compatible with surrounding development.*

As discussed earlier in this report, staff believes the development of single family detached lots fronting on a public street extension terminating in a cul-de-sac is consistent and compatible with development patterns in the area. The proposed lots will be comparable in size to the neighboring lots to the north.

- *Modifications to minimum district size, lot area, lot width or open space requirements of a cluster subdivision in the R-E and R-1 Districts are not appropriate, unless significant benefits can be achieved in the preservation of*

the natural environment, scenic view shed(s) or historic resources by permitting such modifications.

No modifications to district size, lot area, lot width, or open space requirements for a cluster subdivision in the R-1 District are requested.

- *Lot yield shall be limited to that which could reasonably result under conventional development. In addition, measures such as agricultural and forestal districts, conservation, open space and scenic easements should be encouraged to preserve the rural character of this environmentally sensitive area, provided that their use provides a public benefit and furthers the intent of the Plan.*

Even with the preservation of the site's RPA, the applicant has demonstrated that the site could accommodate up to 10 lots meeting the conventional R-1 zoning standards. However, the use of the cluster layout will result in more the site (30 percent), including RPA and EQC, being retained in open space, which meets the R-1 cluster zoning requirement. Of the open space, 2.32 acres will be placed under a conservation easement, an action that furthers the intent of the Plan to maintain the rural character of the area and to protect and enhance the environmentally sensitive area of the site.

Comprehensive Plan Appendices

In addition to the specific Plan text recommendations, the Policy Plan of the Comprehensive Plan includes a number of appendices containing criteria and guidelines to assist in the evaluation of specific development applications. The Residential Development Criteria (Appendix 9) and the Guidelines for Cluster Development (Appendix 4) address residential rezonings and cluster developments, respectively. In applying these criteria and guidelines to this rezoning application, staff analyzes the land use, environmental, urban forestry, transportation, public facilities, affordable housing, heritage resources, and clustering impacts associated with the proposal. In its discussion of these appendices, staff starts with each of the appendix's introductory statements to provide the intended purpose and envisioned utilization of the criteria/guideline. The introductions are followed by summaries or listings (in italics) of each of the criteria or guidelines and follows of them with an analysis showing how the proposal addresses the specific provision. Both of the applicable Comprehensive Plan Appendices have been attached to this staff report as Appendix 4.

Residential Development Criteria

The Policy Plan of the Comprehensive Plan includes eight criteria which are to be used in evaluating zoning request for new residential development. Below is staff's analysis of the applicant's proposal against these criteria.

Development Criterion 1, Site Design

Criterion 1 states that all rezoning applications for residential development should be characterized by high quality site design. The criterion then identifies the principles of desired site design. These principles and how the application addresses these principles are described below:

Consolidation/Integration

This criterion states that developments should provide parcel consolidations in conformance with any site specific Plan text and applicable policy recommendations of the Comprehensive Plan. The criterion further states that 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.

There are no text or policy recommendations in the Comprehensive Plan regarding parcel consolidation applicable to the subject property. The adjoining properties to the north and east are developed with single-family detached dwellings. The properties to the south are part of the extensive Piney Run floodplain. The property to the west consists primarily of a 30-foot wide vacant strip of I-5 zoned property bordered further to the west by R-1 zoned properties that have been developed with single family detached dwellings. Given the surrounding uses, staff does not feel that additional consolidation is necessary.

Layout

This criterion states that proposed layouts should provide logical, functional and appropriate relationships among the proposed dwelling units, yards, streets, open space, adjacent development, transit facilities, and utilities.

These concepts are covered in detail under Development Criterion 2, below.

Open Space

This criterion states that developments should contain open space that is usable, accessible, and well-integrated.

Under the proposed development, 30 percent of the site remains as open space. This open space consists of a single, large contiguous area comprised of floodplain and its adjoining steep slopes and riparian corridor (Outlot C) and the development's stormwater facilities (Outlots A and B). The consolidated open space will help preserve the integrity of the Piney Run Stream Valley. Although visually accessible from the road and the proposed dwellings, the open space will not be physically accessible for the future homeowners or neighboring residents due to a lack of a trail through the densely forested slope or public access easement underlying any such trail. However, as previously

mentioned above, the applicant has proffered to grant a public trail easement from the future extension of Challedon Road to the southern property line of the parcel through the open space to provide connection to any future offsite trail which may traverse the Piney Run stream valley.

Landscaping

This criterion states that developments should include landscaping in open space areas, along streets, in and around stormwater management facilities, and on individual lots.

The GDP shows a variety of preserved and new vegetation as shown on Sheets 5 through 8 and 17 and 18 as follows:

- Placing the site's EQC areas, approximately 2.32 acres of mature forest lands, in common open space and preserving its vegetation with a conservation easement;
- Identifying mature trees and tree stands along the site's western, northern, and eastern boundaries as "no disturbance" tree preservation areas on the proposed lots;
- Creating a 25-foot wide buffer planting area along most of the site's northern perimeter boundary line to supplement the existing vegetation that is shown to be preserved in that area;
- Installing native species plantings along the northern edge of the proposed stormwater management facility on Outlot B; and
- Devising landscaping plans for the individual lots as illustrated by Sheet 18 of the GDP.

The proffers stipulate that all landscaping shall consist of non-invasive species.

In terms of landscaping around the stormwater management facilities, the facility located on Outlot B will be an infiltration basin covered with grass, with the basin's northern edge landscaped as noted above with native species. Outlot A will be a grassed sloped area with a stormwater dissipater installation. Staff continues to encourage the applicant to landscape Outlot A with plantings beyond grasses, as long as such plantings do not interfere with the proposed stormwater functions.

Amenities

This criterion states that developments should provide amenities such as benches, gazebos, recreational amenities, play areas for children, and lighting.

The applicant has committed to dedicate a 15-foot wide public trail easement from Challedon Road to the southern property line to provide access to any future Piney Run stream valley trails network that may be developed.

Based on this evaluation, staff believes Criterion 1 has been met.

Development Criterion 2, Neighborhood Context

This criterion states that residential developments should fit into adjacent neighborhoods based on evaluation of elements such as: lot sizes, particularly along the periphery; bulk/mass of the proposed dwelling units; the setbacks; orientation of the proposed dwelling units to streets and adjacent homes; architectural elevations and materials; vehicular connections and non-vehicular connections to off-site trails, roadways, and transit facilities; and existing topography and vegetative cover and proposed changes to them as a result of clearing and grading. The criterion goes on to further state that it is not expected that developments be identical to their neighbors, but that developments fit into the fabric of the community.

The lots will range in size from 25,092 square feet (0.58 acres) to 35,110 square feet (0.81 acres). The proposed lots are slightly smaller than some of the surrounding lots, but staff believes that is a consequence of 30 percent of the environmentally sensitive areas of the site being set aside as community open space as opposed to those areas being included within the proposed lots. The overall density of the proposed development, 0.91 dwellings per acre, is comparable to nearby development.

As shown on the above diagram, lots are oriented along the extension of Challedon Road. This proposed layout of residential lots along a curving, suburban roadway (no curb, gutter, sidewalk, or streetlights) mimics existing developments in the area.

Sheet 10 of the GDP includes typical architectural elevations of the proposed residences. The future residences are depicted as 2-story structures constructed of brick, stone, siding, or shingles. The proffers commit to the use of these and/or similar materials. The garage entrances will be located on the sides of the dwellings so as minimize the garages' prominence on the facades of the residences. These elevations depict the type of architecture that will be utilized for the custom homes, which can be modified by option choices selected by the future buyers and individual siting factors, such as lot slope and existing vegetation.

Individual front yard setbacks will vary, ranging from 30 to 60 feet from the street. These varied setbacks reflect the established residential development pattern of the area. The GDP shows retention and enhancement of a 25-foot wide perimeter vegetative buffer to provide transitions to neighboring properties, as well as planting of trees and shrubs between the proposed dwellings. Except to remove the temporary Challedon Road cul-de-sac and to retrofit its existing driveway accesses, the limits of clearing and grading do not extend beyond the property's boundaries and therefore will not alter the adjoining vegetation or topography.

Staff believes Criterion 2 has been satisfied.

Development Criterion 3, Environment (Appendices 7, 8, and 9)

This criterion states that 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; preservation, slopes and stormwater management, noise, lighting, and energy.

Preservation

The subject property slopes towards the Piney Run stream valley, with the southern edge of the property defined by the northern boundary of the stream's floodplain. The site's gradients become more pronounced as the site slopes down from the northern property line (2 to 8 percent slope) to the edge of floodplain along the southern property line (15+ percent slope). The land within the floodplain is relatively flat. An incised stormwater channel leading to Piney Run traverses the subject property from north to south, providing drainage for a portion of Lexington Estates to the north.

The Policy Plan of the Comprehensive Plan recommends the identification and protection of EQCs. The EQC is more extensive than the RPA because it includes the steeply sloping forested land along the northern bank of the stream valley. The applicant has correctly delineated the EQC/RPA on the GDP and identifies these areas as common open space.

Stormwater Management

The GDP's stormwater narrative shows that the water quality and quantity requirements for the proposed 11-acre development will be addressed by two stormwater facilities and by surface flows. The development's stormwater system is divided into two main drainage areas. As shown on Sheet 12 of the GDP, Drainage Area A will handle stormwater from the southern portion of the existing Challedon Road, the eastern portion of the proposed Challedon Road extension, Lots 1 through 4, and a portion of Lot 5. Most of the stormwater runoff will be collected in ditches and pipes along the roadway and directed to an infiltration basin installed in Outlot B. This grass-lined basin will allow the water to percolate into the ground via a system of perforated pipes, a substrate of rocks, and engineered soil.

The remaining stormwater will flow to Drainage Area B. As shown on Sheet 12 of the GDP, most of this water will be conveyed by ditches along the road extension into an underground pipe that will transport the water to a dissipater located on the south side of the roadway, to the immediate west of Lot 5. As envisioned, the stormwater will then be distributed over the adjoining sloped EQC lands where the runoff will filter its way to the floodplain. Drainage Area B also includes a portion of the adjoining Lexington Estates. These offsite stormwater volumes are

included in the calculations for Drainage Area B. Based on staff's review of the GDP data, the proposed stormwater dissipater will distribute the anticipated water over the flat, vegetated area of the floodplain and mimic natural conditions, which is the goal of these types of systems. A slow rate of stormwater disbursement allows for eventual infiltration into the soil and prevention of creation of channels that are harmful to the preservation of the existing vegetation. Staff's analysis of the proposed stormwater management plan and the accompanying data indicate the system will handle the requisite 1-, 2-, and 10-year storm events.

Lighting

As noted earlier, similar to the abutting neighborhoods, no street lights are proposed with this development.

Energy

The applicant has provided the below commitment, contained in Proffer 27, as a means to satisfy the Comprehensive Plan's recommendations related to energy conservation and green building techniques.

The Applicant shall select one of the following programs, within its sole discretion at the time of subdivision submission.

- A. Certification in accordance with the Earthcraft House Program as demonstrated through documentation provided to the Environment and Development Review Branch of the Department of Planning and Zoning (EDRB) prior to the issuance of a RUP; or*
- B. Certification in accordance with the 2012 National Green Building Standard (NGBS), Bronze Level, as demonstrated through documentation submitted to EDRB from a home energy rater certified through Home Innovation Research Labs that demonstrates that the dwelling unit has attained the certification prior to the issuance of the RUP for each dwelling.*

Staff notes that above Option 27B does not reference utilizing the Energy Star Qualified Home path for energy performance. Without utilizing the Energy Star methodologies, demonstration of energy conservation under Option 27B is not in conformance with the policy which specifically references ENERGY STAR as the expectation for energy component of a residential green building rating system. This issue can be addressed through either removal of the NGBS proffer or addition of the ENERGY STAR language for the energy component of NGBS. Staff believes it is vital that the applicant prove some method for the County to verify that energy conservation has been achieved.

As previously discussed, staff believes that the proposal's stormwater management designs and proffers satisfy the applicable environmental

recommendations of the Comprehensive Plan. Therefore, staff believes Criterion 3 has been met.

Development Criterion 4, Tree Preservation (Appendix 9)

This criterion states that all rezoning applications for residential development should be designed to take advantage of existing quality tree cover and notes that if quality tree cover exists onsite, it is highly desirable that developments meet most or all of their tree cover requirement by preserving existing trees. The criterion encourages the preservation of tree cover in excess of ordinance requirements.

The entire 11-acre site is characterized by a dense and diverse deciduous canopy which includes maple, oak, hickory, tulip poplar, and black cherry among others. Those areas proposed for development, including the roadway, house sites and environs, drainfields, and stormwater facility sites, will be cleared and graded. Regarding the non-development areas, the applicant has committed to preserve the 2.33 acres of EQC as forested open space with the recording of a conservation easement. The applicant has also designated other tree preservation areas in the vicinity of the perimeter of the development area, along the rear property lines of seven of 10 proposed lots. These tree save areas are shown on the GDP and the proffers provide that information regarding the non-buildable areas on each lot, including tree save areas, shall be conveyed to new homeowners as part of the homeowners association package and that the initial deeds of conveyance and homeowners association governing documents shall expressly contain these disclosures.

The GDP shows enhancement planting within a 25-foot wide strip along most of the northern property line, within the designated tree save areas, to add to the screening effectiveness of the existing, preserved trees. Additionally, for those trees identified for preservation, the applicant has proffered the tree protection measures recommended by the Urban Forestry Management Division of DPWES regarding clearing and grading practices, root pruning, and tree preservation fencing, appraisals, and monitoring. Finally, an invasive species management plan commitment is included in the GDP, as recommended by staff.

Based on PFM requirements, 30 percent of the site (approximately 3.30 acres) must be covered by 10-year tree canopy, at least 10 percent of which must be met through tree preservation. The Tree Preservation and Protection Plan contained in Sheet 5 of the GDP show that the full 10-year tree canopy will be satisfied through tree preservation, far exceeding the preservation minimum required by the Public Facilities Manual (PFM).

Staff believes Criterion 4 has been satisfied.

Development Criterion 5, Transportation (Appendix 6)

The transportation criterion states that all rezoning applications for residential development should; implement measures to address planned transportation improvements; offset impacts to the transportation network; utilize accepted techniques for analyzing a development's impact on the network; provide transportation measures to reduce vehicular trips; provide interconnections between neighborhoods; provide public streets unless specific benefits are demonstrated for private streets; provide non-motorized facilities, and utilize alternative street design to reflect topography or vegetation.

The Comprehensive Plan contains no planned transportation improvements to the road network in the vicinity of the proposed development. The 10 proposed residential lots do not exceed the threshold for requiring a traffic impact analysis.

The Challedon Road extension will be constructed to PFM standards and be eligible for acceptance and dedication into the Virginia Department of Transportation (VDOT) secondary road system. The turn-around at the cul-de-sac has been sized to facilitate U-turns by emergency and service vehicles. Four-foot wide shoulders will be provided on either side of the extension of Challedon Road and will provide non-motorized options for traversing the site, as well as for parking on one side of the roadway.

Section 33-2.334 of the Code of Virginia requires that newly constructed secondary streets, such as the Challedon Road, meet the State's Secondary Streets Acceptance Requirements (SSAR). One requirement is that all developments have at least two external connections, which should involve multiple directions whenever possible, or obtain an exception. On December 28, 2015, VDOT issued a SSAR Exception for the proposed project. As such, the applicant will not be required to extend or enable the potential extension of Challedon Road to neighboring properties.

Staff believes this criterion has been satisfied.

Development Criterion 6, Public Facilities (Appendices 10 through 12)

This criterion states that the addition of residential uses impacts public facility systems, such as schools and parks, and that such impacts should be identified, evaluated, and addressed.

Schools Analysis (Appendix 10)

Based on Fairfax County Public Schools (FCPS) multipliers for calculating future enrollment for new residential development, the proposed 10 single family detached dwellings would generate a net of six new students. The applicant has proffered a contribution of \$11,749 per student, subject to any escalations due to

the increase in the ratio of students per unit or the amount of contribution per student.

Parks (Appendix 11)

The Fairfax County Park Authority (FCPA) provided the following comments:

- The applicant should provide a fair share contribution of \$27,683 to offset impacts to parks due to the increase in demand generated by new residents.
- The applicant should complete a Phase I archaeological survey for the entire site, along with any follow-up studies, as needed.

The applicant has proffered to contribute the fair share amount to the Fairfax County Park Authority for use at off-site recreational facilities in the Dranesville District. As discussed below under Development Criterion 8, Heritage Resources, the applicant completed the Phase I archaeological survey for the site.

Health Department Review

The development will be served by individual septic systems. The applicant sent soil evaluations to the Health Department for approval of the subsurface disposal areas for the proposed lots. Based on these soil evaluations, the Health Department approved the individual lots for percolation tests, the next step in the process. The percolation tests will be conducted by the applicant's contractor during the summer and fall. Subsequent to submittal of the percolation test results and approval of the subdivision, the Health Department will "footprint" the final location of the subsurface disposal areas on the proposed 10 lots.

Water Authority Analysis (Appendix 12)

Domestic and fire flow water service will be provided by Fairfax Water. Fairfax Water reports that adequate domestic water service is available at the site from an existing eight-inch water main located in Challedon Road. Fairfax Water further notes that depending on the configuration of the proposed on-site water mains, additional water main extensions may be necessary to satisfy fire flow requirement and accommodate water quality concerns.

Based on input from these agencies, staff believes that this criterion has been met.

Development Criterion 7, Affordable Housing

Criterion 7 states that ensuring an adequate supply of housing for low and moderate income families, for those with special accessibility requirements, and for those with other special needs is a goal of the County. This criterion may be achieved by the construction of units, by contribution of land, or by a contribution to the Housing Trust Fund.

The applicant is meeting this criterion by proffering the contribution of a sum, equal to one-half of one percent of the project sales price for each of the proposed dwelling units, to the Fairfax County Housing Trust Fund, in accordance with the Board of Supervisors policy.

Staff believes that this criterion has been satisfied.

Development Criterion 8, Heritage Resources (Appendix 11)

Criterion 8 encourages the investigation, documentation, rehabilitation, and preservation of the County's heritage resources. The criterion lists the methods that these goals may be achieved.

The applicant has submitted a copy of the "Phase I Cultural Resource Survey of the ±4.4 Hectare (±11-Acre) Linden Hill Project Area", dated November 2015, in which the authors concluded that no further archaeological investigation of the project area is warranted. A copy of the survey was submitted to the Park Authority's Resource Management Division and filed with the Virginia Department of Historic Resources.

Staff believes that this criterion has been satisfied.

Guidelines for Cluster Development

In addition to the cluster subdivision recommendations specific to the Hickory Community Planning Sector that were analyzed earlier in this report, Appendix 4 of the Comprehensive Plan contains guidelines for cluster development that are addressed below.

Cluster Development Guideline 1

Individual lots, buildings, streets, and parking areas should be designed and situated to minimize disruptions to the site's natural drainage and topography.

None of the proposed lots contain any RPA or EQC lands. The proposed house sites avoid the steepest sloped areas of the site. The stormwater management system has been designed to convey, detain, infiltrate, and distribute stormwater runoff in a manner that would minimize impacts to the site's topography and vegetation.

Cluster Development Guideline 2

Environmental Quality Corridor (EQC) lands should be preserved and should be dedicated to the county whenever such dedication is in the public interest.

All recognized EQC lands will be maintained as common open space and preserved in accordance with the proffered conservation easement which identifies the County as the easement’s beneficiary. The EQC does not connect to any public lands, nor is it shown on the County Park Plan as an area of potential public parkland.

Cluster Development Guideline 3

Site design should take advantage of opportunities to preserve high quality open space or to provide active or passive recreation and should be sensitive to surrounding properties, in order to be compatible with and to complement surrounding development.

The proposed layout preserves all of the site’s RPA and EQC lands, which are part of the extensive Piney Run floodplain system. The layout seeks to buffer surrounding properties by retention of perimeter mature trees between the planned dwellings and the offsite, existing residences. Additionally, along the site’s northern boundary, the applicant is proposing a 25-foot wide planting strip to enhance the existing vegetation to provide better screening to abutting properties. The applicant proposes dedication of a public trail easement to provide access to any future Piney Run stream valley trail system that may be developed.

Cluster Development Guideline 4

No cluster development should be considered when the primary purpose of the clustering is to maximize density on the site.

The applicant has demonstrated that the site could accommodate up to 10 lots meeting the conventional R-1 zoning standards.

Zoning Ordinance Provisions

R-1 Residential District Regulations

Sect. 3-106 and Sect. 3-107 contain the lot size requirements and bulk regulations for R-1 developments, including those being developed under the district’s clustering provisions. The comparison between the R-1 single family detached residential standards for cluster developments and the proposal are summarized below.

Zoning Ordinance Provisions for R-E Cluster		
Standard	Required	Provided
Bulk Standards		
Minimum District Size for Cluster Subdivisions	10 acres	11.00 acres

Zoning Ordinance Provisions for R-E Cluster		
Standard	Required	Provided
<u>Lot Size</u> Average lot area Minimum lot area	No requirement 25,000 square feet	Not applicable 25,091 square feet
<u>Lot Width</u> Interior lot Corner lot	No requirement 175 feet	Not applicable Not applicable
Building Height	35 feet maximum	35 feet maximum
Front Yard	30 feet	30 feet minimum
Side Yards	12 feet, but a total minimum of 40 feet	12 feet minimum, minimum of 40 feet total
Rear Yard	25 feet	25 feet minimum
Maximum Density	1 dwelling units per acre	0.91 dwelling units per acre
Open Space	30% of gross area	30% of gross area
Parking Spaces	2 spaces/dwelling	2 spaces/dwelling

No transitional screening or barriers are required as surrounding properties are developed with single family detached dwellings.

CONCLUSIONS AND RECOMMENDATIONS

Staff Conclusions

Staff finds that the application is consistent with the recommendations of the Comprehensive Plan and conforms to the requirements of the Zoning Ordinance. The requested waivers are supportable based on design details of the proposal.

Staff Recommendations

Staff recommends approval of RZ 2015-DR-009, subject to the draft proffers consistent with those contained in Appendix 1.

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.

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.

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.

APPENDICES

1. Draft Proffers for RZ 2015-DR-009
2. Affidavit
3. Statement of Justification
4. Comprehensive Plan Appendices 9 and 4
5. Environmental Analysis
6. Transportation Analysis
7. Stormwater Analysis
8. Urban Forest Management Analysis
9. Fairfax County Public Schools Analysis
10. Fairfax County Park Authority Analysis
11. Fairfax Water Authority Analysis
12. Zoning Ordinance Part 1 3-100 R-1 Residential District
13. Glossary of Terms

**Proffered Conditions
Gulick Group, Inc.
RZ 2015-DR-009
November 30, 2015
January 19, 2016
February 26, 2016
April 1, 2016
May 9, 2016
May 31, 2016**

Pursuant to Section 15.2-2303(A), Code of Virginia, 1950 as amended, the undersigned Owners and the Applicant, in this rezoning proffer that the development of the parcel under consideration and shown on the Fairfax County Tax Map as Tax Map Reference 12-4((30))Z (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-1 (Cluster) Zoning District is granted. In the event said rezoning request is denied, these Proffered Conditions shall be null and void. The Owners and the 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:

I. GENERAL

1. Substantial Conformance. Subject to the provisions of Section 18-204 of the Fairfax County Zoning Ordinance (hereinafter referred to as the "Zoning Ordinance"), development of the Property shall be in substantial conformance with the Generalized Development Plan (GDP), prepared by Hish and Company, LLC consisting of 20 sheets, dated June, 2015, revised through May 31, 2016.
2. Maximum Lot Yield. The development shall consist of a maximum of 10 single family detached units.
3. Minor Modifications. Pursuant to Paragraph 5 of Section 18-204 of the Zoning Ordinance, minor modifications to the GDP, such as, but not limited to locations of utilities, minor adjustments of property lines and the general location of dwellings and driveways on the proposed lots may be permitted when it is determined by the Zoning Administrator that such modifications are in substantial conformance with the GDP and provided that the modifications do not increase the total number of dwelling units, decrease the amount of open space, tree save, or distances to peripheral lot lines, change the points of access to the Property, or significantly alter the limits of clearing and grading as shown on the GDP.
4. Establishment of HOA. Prior to record plat approval, the Applicant shall provide the Department of Public Works and Environmental Services (DPWES) with documentation that the Applicant has established a Homeowners Association (HOA) in accordance with Sect. 2-700 of the Zoning Ordinance. The purpose of the HOA shall be, among other

things, establishing the necessary residential covenants governing the use and operation of common open space and other facilities of the approved development and to provide a mechanism for ensuring the ability to complete the maintenance obligations and other provisions noted in these proffer conditions.

5. Dedication to HOA. At the time of record plat recordation, the open space shall be dedicated to the HOA and maintained by the same.
6. Disclosure. Prior to entering into a contract of sale, prospective purchasers shall be notified in writing by the Applicant of the maintenance responsibility for the stormwater management facilities, common area landscaping, retaining walls and any other open space amenities and shall acknowledge receipt of this information in writing. Additionally, information regarding the non-buildable areas on each lot, as shown on Sheet 18 of the GDP, to include those areas designated as tree save shall be conveyed to new homeowners as part of the HOA package. The initial deeds of conveyance and HOA governing documents shall expressly contain these disclosures.
7. Architectural Design. The architectural design of the dwellings shall be in substantial conformance with the bulk, mass and type and quality of materials and elevations shown on the GDP. The primary building materials, exclusive of trim shall be limited to brick, stone, cementitious siding, shingles or other similar masonry materials. The Applicant reserves the right to add extensions, porches and other structural components appurtenant to the elevations as permitted by the Zoning Ordinance. Modifications may be made with the final architectural designs provided such modifications are in substantial conformance with the elevations shown on the GDP.
8. Setbacks. The minimum front, side and rear yards shall be consistent with that shown on the "Typical Setbacks Illustration" depicted on the GDP. Decks, deck related "additions" such as pergolas, lattice, privacy screens, deck benches, and deck planters, bay windows, pools, patios, chimneys, areaways, mechanical equipment and other similar appurtenances may encroach into the minimum side and rear yard as established on the "Typical Setbacks Illustration" and in this proffer provided such appurtenances meet the regulations of Sect. 2-412 and Article 10 of the Zoning Ordinance and in no instance shall the be closer than 5 feet to any lot line. The minimum setbacks and the restrictions of this proffer shall be disclosed to all prospective homeowners in a disclosure memorandum prior to entering into a contract of sale.
9. Construction Hours. The hours of construction shall be posted in English and Spanish and shall be limited to the hours between 7 am and 9 pm Monday through Friday and 8 am to 9 pm on Saturdays. No construction shall occur on Sundays or Federal Holidays. This shall be disclosed to all contractors and sub-contractors who perform work on the Property during site construction.
10. Construction Management. Prior to commencement of construction on the property, the Dranesville District Supervisor and the presidents of the adjacent homeowners association shall be provided with the name, title and phone number of the person to whom comments and/or complaints regarding construction activities may be directed. A

sign with this information shall be posted on-site prior to commencement of construction activities and shall be updated and retained through construction activities. Prior to construction commencing and periodically throughout the site work phase, the Applicant shall coordinate with the Lexington Estates HOA to share information such as construction schedules and anticipated type and volume of truck traffic. Dump truck size vehicles and larger associated with development on the Property shall not utilize Brevity Drive or Challedon Road prior to 8:45 am on weekdays while public school is in session.

II. TRANSPORTATION

11. Connection to Challedon Road. The Applicant shall remove the existing temporary cul-de-sac and restore the area to include grassed areas and matching of the existing ditch section. These improvements will commence as part of the construction of the extension of Challedon Road and will be concluded at the time of base paving of the constructed roadway. In connection with the removal of the cul-de-sac, the Applicant shall prepare the plat and the deed of vacation necessary for the Lexington Estates HOA and Fairfax County to extinguish the portions of the existing easements associated with the temporary cul-de-sac. Upon completion, such deed and plat shall be furnished to DPWES and to Lexington Estates HOA.
12. Extension of Challedon Road. The Applicant shall dedicate and convey in fee simple without encumbrances to the Board right-of-way for public street purposes in the general location shown on Sheet 2 of the GDP. The dedication shall occur at the time of subdivision plan approval. Subject to VDOT approval, the Applicant shall construct a public road in the dedicated right-of-way. Construction of the road shall be substantially completed prior to issuance of the first Residential Use Permit (RUP) for the Property that is not the model. For purposes of this proffer, the term “substantially completed” is defined as constructed and available for use by the public but not necessarily accepted for maintenance by the Virginia Department of Transportation (VDOT).
13. On-street Parking. Parking shall be allowed on one side of the proposed public road to be determined at subdivision plan. “No parking” signs shall be installed on the other side.
14. Existing Driveways. If necessary, within existing easements on Challedon Road, the Applicant shall reconstruct any existing driveways along Challedon Road that need to be altered due to the removal of the temporary turn-around. Prior to any construction work within the easement areas, the Applicant shall also provide written notice to those landowners having an affected driveway. Such notice shall provide a description of the necessary work and a timeline for its completion.
15. Trail Easement. At such time as an access easement is granted for a public trail associated with the stream valley to the south of the property, the Applicant/HOA shall record within the Land Records of Fairfax County, a public access easement, fifteen (15) feet in width, to provide access from the proposed extension of Challedon Road to the

southern lot line of the Property through homeowners open space, in a form approved by the County Attorney. This easement shall run in the benefit of the Fairfax County Board of Supervisors and shall be field located at the time of subdivision plan review in a location that will result in the least disturbance to existing trees. The purpose of the easement shall be to provide a connection to any future offsite trail which may traverse the stream valley.

III. ENVIRONMENTAL

16. Lighting. If streetlights are installed on the property, such lighting shall conform to the requirements of Part 9 of Article 14 of the Zoning Ordinance and shall be subject to the approval of the Director, DPWES in accordance with the provisions of the Public Facilities Manual. Streetlights shall be consistent in design throughout the property and be of a design and character consistent with the architecture of the dwellings.
17. Landscaping. Landscaping shall be generally consistent with the quality, quantity and the locations shown on the GDP and shall be non-invasive, predominantly native species. The intent of the buffer area, as shown on the GDP, along the majority of the northern lot line, is to supplement the existing vegetation that is shown to be preserved in that area with plantings to the equivalent of Transitional Screening 1. Actual types, locations and species of vegetation shall be determined pursuant to more detailed landscape plans submitted at the time of submission of the subdivision plans for review and approval by the Urban Forestry Management Division (UFMD), provided that, to the extent possible, all species are locally common native species. Such landscape plans shall provide tree coverage and species diversity consistent with the PFM criteria, as determined by the Urban Forester. The Applicant reserves the right to make minor modifications to such landscaping to reasonably accommodate utilities and other design considerations, as approved by UFMD, provided such relocated landscaping shall retain a generally equivalent number of plantings as the Transitional Screening 1 standard. Additionally, notwithstanding that shown on the GDP, the Applicant shall install native species plantings along the northern edge of the proposed stormwater management facility on Outlot B, the exact type and location to be determined in consultation with the UFMD at the time of subdivision plan review.
18. Limits of Clearing and Grading. The Applicant shall conform to the limits of clearing and grading as shown on the GDP, subject to allowances 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 utilities. Any trees impacted within the limits of clearing and grading as specified above shall be replaced on the site as determined by UFMD.

19. 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, a Registered Consulting Arborist or a Professional Landscape Architect, and shall be subject to the review and approval of the UFMD. 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 individual trees, living or dead, with trunks 12 inches in diameter and greater (measured at 4 ½ -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) and with 25 feet to both sides of the proposed 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 disturbance 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, determined by the certified arborist shall be included in the plan.

20. Tree Preservation Walk-Through. The Applicant shall retain the services of a certified arborist, a Registered Consulting Arborist or a Professional Landscape Architect, 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 or designated representative 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, increasing 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.

21. 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 is done per the root pruning guidelines contained in these proffers. Fencing shall be erected at the limits of clearing and grading as shown on the demolition, and phase I & II erosion and sediment control sheets.

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 or professional landscape architect, 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.

22. Root Pruning. The Applicant shall root prune, as needed to comply with the tree preservation requirements of these proffers. Root pruning shall be clearly identified, labeled, and detailed on the erosion and sediment control sheets of the site plan submission. Root pruning shall be 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 minimum depth of 18 inches.
 - Root pruning shall take place prior to any clearing and grading, or demolition of structures and in conjunction with the installation of all super silt fence being used as tree protection fence.
 - 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.
23. 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 conditioned and as approved by the UFMD. The Applicant shall retain the services of a certified arborist, a Registered Consulting Arborist, or a Professional Landscape Architect 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.
24. Stormwater Management Facilities and Best Management Practices Stormwater management shall be provided as generally depicted on the GDP and as approved by DPWES.
25. Invasive Species Management. As part of the first and all subsequent subdivision plan submissions, 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 elements and shall be implemented as noted:

- 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, identify impacts on trees identified for preservation and indicate how 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) such as 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.
26. Conservation Easement. The Applicant shall record within the Land Records of Fairfax County, a conservation easement over the portions of Outlot C outside of the trail easement described in Proffer 15, in a form approved by the County Attorney, to run in the benefit of the Fairfax County Board of Supervisors on the land so shown on the GDP as Outlot C. The conservation easement shall be for the purpose of conserving and preserving undisturbed the natural vegetation, topography, habitat and other natural features within those areas.
27. Energy Conservation. The Applicant shall select one of the following programs, within its sole discretion at the time of subdivision plan submission.
- A. Certification in accordance with the Earthcraft House Program as demonstrated through documentation provided to the Environment and Development Review Branch of the Department of Planning of Zoning (EDRB) prior to the issuance of a RUP; or
 - B. Certification in accordance with the 2012 National Green Building Standard (NGBS), Bronze Level, as demonstrated through documentation submitted to EDRB from a home energy rater certified through Home Innovation Research Labs that demonstrates that the dwelling unit has attained the certification prior to the issuance of the RUP for each dwelling.

IV. CONTRIBUTIONS

28. Maintenance Fund. Prior to the issuance of the first residential use permit, the Applicant shall contribute a sum of \$10,000 to the Lexington Estates Homeowners Association for the purpose of maintaining community open space within Lexington Estates.
29. Housing Trust Fund. At the time of the first building permit issuance, the Applicant shall contribute a sum equal to one-half of one percent (0.5%) of the projected sales price for each dwelling unit on the Property to the Fairfax County Housing Trust Fund, as determined by the Department of Housing and Community Development in consultation with the Applicant to assist the County in its goal to provide affordable dwellings. The projected sales price shall be based upon the aggregate sales price of all of the units, as if 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.
30. Recreation Contribution. At the time of subdivision approval, the Applicant shall contribute the sum of \$27,683 to the Fairfax County Park Authority for use at off-site recreational facilities intended to serve the future residents of the Dranesville District, as determined by the Fairfax County Park Authority in consultation with the Dranesville District Supervisor.
31. Public Schools. A contribution of \$11,749 per projected student for the total number of units constructed, based on methodology for calculating the number of students outlined by the Office of Facilities Planning Services, Fairfax County Public Schools, shall be made to the Board of Supervisors for transfer to Fairfax County Public Schools (FCPS) and designated for capital improvements at the public schools serving the development. The contribution shall be made at the time of, or prior to, subdivision plan approval. Following approval of this Application and prior to the Applicant's payment of the amount set forth in this Proffer, if Fairfax County should increase the ratio of students per unit or the amount of the contribution per student, the Applicant shall increase the amount of the contribution for that phase of development to reflect the then-current contribution. In addition, notification shall be given to FCPS when construction is anticipated to commence to assist FCPS by allowing for the timely projection of future students as a part of the Capital Improvement Program.
32. Escalation. All monetary contributions required by these proffers, with the exception of the proffer relating to the Housing Trust Fund and the proffer relating to the public school contribution, shall escalate on a yearly basis from the base year of 2016, and change effective each January 1 thereafter, based on the Consumer Price Index as published by the Bureau of Labor Statistics, the U.S. Department of Labor for the Washington-Baltimore, MD-VA-DC-WV Consolidated Metropolitan Statistical Area (the "CPI"), as permitted by Virginia State Code Section 15.2-2303.3.

Successors and Assigns

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

Counterparts

These proffers may be executed in one or more counterparts, each of which when so executed and delivered shall be deemed an original document and all of which taken together shall constitute but one and the same instrument.

TITLE OWNERS AND APPLICANTS SIGNATURES TO FOLLOW ON THE NEXT PAGE:

Gulick Group, Inc.

By: _____

Printed Name: Peter W. Gulick
Title: President/CEO

Gregory C. Streeter,
For himself and as Power of Attorney for Ann L. Streeter pursuant
to that certain Specific Power of Attorney dated September 30,
2013

Name _____
Co-owners of 12-4((30))Z



County of Fairfax, Virginia

MEMORANDUM

Office of the County Attorney
Suite 549, 12000 Government Center Parkway
Fairfax, Virginia 22035-0064
Phone: (703) 324-2421; Fax: (703) 324-2665
www.fairfaxcounty.gov

DATE: March 15, 2016

TO: Bob Katai, Staff Coordinator
Zoning Evaluation Division
Department of Planning and Zoning

FROM: Jo Ellen Groves, Paralegal 
Office of the County Attorney

SUBJECT: Affidavit
Application No.: RZ 2015-DR-009
Applicant: Gulick Group, Inc.
PC Hearing Date: 4/14/16
BOS Hearing Date:

REF.: 131007

Attached is an affidavit which has been approved by the Office of the County Attorney for the referenced case. Please include this affidavit dated 3/15/16, which bears my initials and is numbered 131007a, when you prepare the staff report.

Thank you for your cooperation.

Attachment

cc: (w/attach) Domenic Scavuzzo, Planning Technician I (Sent via e-mail)
Zoning Evaluation Division
Department of Planning and Zoning

REZONING AFFIDAVIT

DATE: MAR 15 2016
(enter date affidavit is notarized)

131007a

I, Lori R. Greenlief, do hereby state that I am an
(enter name of applicant or authorized agent)

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

in Application No.(s): RZ 2015-DR-009
(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)
✓ Gulick Group, Inc. Agent: Peter W. Gulick	11790 Sunrise Valley Drive, Suite 225 Reston, VA 20191	Applicant/Contract Purchaser of Tax Map 12-4 ((30)) Z
✓ Certified Real Estate Services/CRES II, LTD Agent: John F. Veatch, Sr.	1831 Wiehle Avenue, Suite 105 Reston, VA 20190	Land Surveyor/Agent for Applicant
• Ann L. Streeter Gregory C. Streeter, attorney-in-fact for Ann L. Streeter	605 Utterback Store Road Great Falls, VA 22066	Title Owners of Tax Map 12-4 ((30)) Z

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

* In the case of a condominium, the title owner, contract purchaser, or lessee of 10% or more of the units in the condominium.

** List as follows: Name of trustee, Trustee for (name of trust, if applicable), for the benefit of: (state name of each beneficiary).

Rezoning Attachment to Par. 1(a)

DATE: MAR 15 2016
(enter date affidavit is notarized)

131007a

for Application No. (s): RZ 2015-DR-009
(enter County-assigned application number (s))

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

NAME (enter first name, middle initial, and last name)	ADDRESS (enter number, street, city, state, and zip code)	RELATIONSHIP(S) (enter applicable relationships listed in BOLD above)
Hish and Company, LLC Agent: Gerald A. Hish, Sr.	1451 Dolley Madison Boulevard, Suite 200 McLean, VA 22101	Engineer/Agent for Applicant
Gordon Consulting, LLC Agent: Michael G. Gordon	14326 Compton Village Drive Centreville, VA 20121	Agent for Applicant/Contract Purchaser
McGuireWoods LLP Agents: Scott E. Adams David R. Gill Jonathan P. Rak Gregory A. Riegle Kenneth W. Wire Sheri L. Akin Lori R. Greenlief	McGuireWoods LLP 1750 Tysons Boulevard, Suite 1800 Tysons Corner, VA 22102	Attorney/Agent for Applicant Attorney Attorney Attorney Planner Planner

(check if applicable)

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

REZONING AFFIDAVIT

DATE: MAR 15 2016
(enter date affidavit is notarized)

131007 a

for Application No. (s): RZ 2015-DR-009
(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)
Gulick Group, Inc.
11790 Sunrise Valley Drive, Suite 225
Reston, VA 20191

DESCRIPTION OF CORPORATION: (check one statement)

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

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

Peter W. Gulick, sole shareholder

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

Peter W. Gulick, President/CEO/Secretary

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

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

Rezoning Attachment to Par. 1(b)

DATE: MAR 15 2016
(enter date affidavit is notarized)

131007a

for Application No. (s): RZ 2015-DR-009
(enter County-assigned application number (s))

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)
Certified Real Estate Services/CRES II, LTD
1831 Wiehle Avenue, Suite 105
Reston, VA 20190

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)
John W. Veatch
Alan D. Veatch
John F. Veatch, Sr.

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

=====
NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)
Hish and Company, LLC
1451 Dolley Madison Boulevard, Suite 200
McLean, VA 22101

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)
Gerald A. Hish, Sr., sole member

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

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

Rezoning Attachment to Par. 1(b)

DATE: MAR 15 2016
(enter date affidavit is notarized)

131007a

for Application No. (s): RZ 2015-DR-009
(enter County-assigned application number (s))

NAME & ADDRESS OF CORPORATION: (enter complete name, number, street, city, state, and zip code)
Gordon Consulting, LLC
14326 Compton Village Drive
Centreville, VA 20121

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)

Michael G. Gordon, sole member

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

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

DESCRIPTION OF CORPORATION: (check one statement)

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

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

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

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

REZONING AFFIDAVIT

DATE: MAR 15 2016
(enter date affidavit is notarized)

131007a

for Application No. (s): RZ 2015-DR-009
(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)

McGuireWoods LLP
1750 Tysons Boulevard, Suite 1800
Tysons Corner, VA 22102

(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**)

Equity Partners of McGuireWoods LLP

- | | | |
|-------------------------|--------------------|---------------------|
| Adams, John D. | Barrett, John M. | Brose, R. C. |
| Allen, Joel S. | Becker, Scott L. | Burk, Eric L. |
| Anderson, Arthur E., II | Belcher, Dennis I. | Busch, Stephen D. |
| Anderson, James M., III | Bell, Craig D. | Cabaniss, Thomas E. |
| Anderson, Mark E. | Bilik, R. E. | Cairns, Scott S. |
| Andre-Dumont, Hubert | Blank, Jonathan T. | Capwell, Jeffrey R. |
| Atty, Lisa A. | Boardman, J. K. | Cason, Alan C. |
| Bagley, Terrence M. | Brenner, Irving M. | Chaffin, Rebecca S. |
| Barger, Brian D. | Brooks, Edwin E. | Chapman, Jeffrey J. |

(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 Attachment to Par. 1(c)

DATE: MAR 15 2016
(enter date affidavit is notarized)

131007a

for Application No. (s): RZ 2015-DR-009
(enter County-assigned application number (s))

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

McGuireWoods LLP
1750 Tysons Boulevard, Suite 1800
Tysons Corner, VA 22102

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

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

- | | | |
|------------------------|-------------------------|---------------------------|
| Clark, Jeffrey C. | Fox, Charles D., IV | Hilton, Robert C. |
| Cockrell, Geoffrey C. | Franklin, Ronald G. | Horne, Patrick T. |
| Collins, Darren W. | Fratkin, Bryan A. | Hornyak, David J. |
| Covington, Peter J. | Freedlander, Mark E. | Hosmer, Patricia F. |
| Cramer, Robert W. | Freeman, Jeremy D. | Howard, Justin D. |
| Cromwell, Richard J. | Fuhr, Joy C. | Hughes, John L., Jr. |
| Culbertson, Craig R. | Gambill, Michael A. | Jackson, J. B. |
| Cullen, Richard (nmi) | Glassman, Margaret M. | Jewett, Bryce D., III |
| Daglio, Michael R. | Gold, Stephen (nmi) | Jordan, Hilary P. |
| De Ridder, Patrick A. | Goldstein, Philip (nmi) | Justus, J. B. |
| Dickerman, Dorothea W. | Grant, Richard S. | Kahn, Brian A. |
| DiMattia, Michael J. | Greenberg, Richard T. | Kanazawa, Sidney K. |
| Dooley, Kathleen H. | Greene, Christopher K. | Kane, Matthew C. |
| Dossa, Mehboob R. | Greenspan, David L. | Kang, Franklin D. |
| Downing, Scott P. | Gresham, A. B. | Kannensohn, Kimberly J. |
| Edwards, Elizabeth F. | Grieb, John T. | Katsantonis, Joanne (nmi) |
| Ensing, Donald A. | Haas, Cheryl L. | Keeler, Steven J. |
| Evans, Gregory L. | Hampton, Charles B. | Kelly, Brian J. |
| Evans, Jason D. | Harmon, Jonathan P. | Kilpatrick, Gregory R. |
| Ey, Douglas W., Jr. | Harmon, T. C. | King, Donald E. |
| Farrell, Thomas M. | Hartsell, David L. | Kobayashi, Naho (nmi) |
| Feller, Howard (nmi) | Hatcher, J. K. | Konia, Charles A. |
| Finger, Jon W. | Hayden, Patrick L. | Kratz, Timothy H. |
| Finkelson, David E. | Hayes, Dion W. | Kromkowski, Mark A. |
| Foley, Douglas M. | Hedrick, James T., Jr. | Krueger, Kurt J. |

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

Rezoning Attachment to Par. 1(c)DATE: MAR 15 2016
(enter date affidavit is notarized)

131007a

for Application No. (s): RZ 2015-DR-009
(enter County-assigned application number (s))**PARTNERSHIP NAME & ADDRESS:** (enter complete name & number, street, city, state & zip code)McGuireWoods LLP
1750 Tysons Boulevard, Suite 1800
Tysons Corner, VA 22102(check if applicable) The above-listed partnership has no limited partners.**NAMES AND TITLES OF THE PARTNERS:** (enter first name, middle initial, last name, and title, e.g.,
General Partner, Limited Partner, or General and Limited Partner)

Kutrow, Bradley R.	McIntyre, Charles W.	Pryor, Robert H.
La Fratta, Mark J.	McKinnon, Michele A.	Pumphrey, Brian E.
Lamb, Douglas E.	McLean, David P.	Pusateri, David P.
Lapp, David R.	McLean, J. D.	Rak, Jonathan P.
Lias-Booker, Ava E.	McNab, S. K.	Reid, Joseph K., III
Link, Vishwa B.	McRill, Emery B.	Richardson, David L.
Little, Nancy R.	Michalik, Christopher M.	Riegle, Gregory A.
Long, William M.	Milanti, Peter A.	Riley, James B., Jr.
Lukitsch, Bethany G.	Miller, Amy E.	Riopelle, Brian C.
Maddock, John H., III	Moldovan, Victor L.	Roach, Derek A.
Mandel, Michael D.	Muckenfuss, Robert A.	Roberts, Manley W.
Manning, Amy B.	Mullins, P. T.	Roesenthaler, Michael J.
Marianes, William B.	Murphy, Sean F.	Rogers, Marvin L.
Marshall, Gary S.	Nahal, Hardeep S.	Rohman, Thomas P.
Marshall, Harrison L., Jr.	Natarajan, Rajsekhar (nmi)	Ronn, David L.
Marsico, Leonard J.	Neale, James F.	Rosen, Gregg M.
Martin, Cecil E., III	Nesbit, Christopher S.	Russo, Angelo M.
Martin, George K.	Newhouse, Philip J.	Rust, Dana L.
Martinez, Peter W.	O'Grady, John B.	Satterwhite, Rodney A.
Mason, Richard J.	Oakey, David N.	Scheurer, Philip C.
Mathews, Eugene E., III	Older, Stephen E.	Schewel, Michael J.
Mayberry, William C.	Oostdyk, Scott C.	Sellers, Jane W.
McDonald, John G.	Padgett, John D.	Sethi, Akash D.
McFarland, Robert W.	Perzek, Philip J.	Shelley, Patrick M.
McGinnis, Kevin A.	Phillips, Michael R.	Simmons, L. D., II

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

Rezoning Attachment to Par. 1(c)

DATE: MAR 15 2016
(enter date affidavit is notarized)

131007a

for Application No. (s): RZ 2015-DR-009
(enter County-assigned application number (s))

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

McGuireWoods LLP
1750 Tysons Boulevard, Suite 1800
Tysons Corner, VA 22102

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

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

- | | |
|------------------------------------|---------------------------|
| Slone, Daniel K. | Walker, Thomas R. |
| Spahn, Thomas E. | Walker, W. K., Jr. |
| Spitz, Joel H. | Walsh, Amber M. |
| Spitzer, Mark A. | Westwood, Scott E. |
| Spivey, Angela M. | Whelpley, David B., Jr. |
| Stallings, Thomas J. | White, H. R., III |
| Steen, Bruce M. | White, Walter H., Jr. |
| Steggerda, Todd R. | Wilburn, John D. |
| Stein, Marta A. | Williams, Steven R. |
| Stone, Jacquelyn E. | Woodard, Michael B. |
| Swan, David I. | Wren, Elizabeth G. |
| Symons, Noel H. | |
| Tarry, Samuel L., Jr. | |
| Taylor, R. T. | |
| Thanner, Christopher J. | *Does not own 10% or more |
| Thornhill, James A. | of McGuireWoods LLP |
| Van Horn, James E. | |
| Vance, Robin C. | |
| Vaughn, Scott P. | |
| Vick, Howard C., Jr. | |
| Viola, Richard W. | |
| Visconsi Law Corporation, John R.* | |
| Wade, H. L., Jr. | |
| Walker, Barton C. | |
| Walker, John T., IV | |

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

Rezoning Attachment to Par. 1(c)

DATE: MAR 15 2016
(enter date affidavit is notarized)

131007a

for Application No. (s): RZ 2015-DR-009
(enter County-assigned application number (s))

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

McGuireWoods LLP
1750 Tysons Boulevard, Suite 1800
Tysons Corner, VA 22102

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

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

√(Former Equity Partner List)

- .Boland, J. W.
- Cacheris, Kimberly Q.
- Glickson, Scott L.
- Hutson, Benne C.
- Isaf, Fred T.
- Parker, Brian K.
- Robinson, Stephen W.
- Schmidt, Gordon W.
- Simmons, Robert W.
- Slaughter, D. F.
- √Tackley, Michael O.

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

REZONING AFFIDAVIT

DATE: MAR 15 2016
(enter date affidavit is notarized)

131007a

for Application No. (s): RZ 2015-DR-009
(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: MAR 15 2016
(enter date affidavit is notarized)

131007a

for Application No. (s): RZ 2015-DR-009
(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)

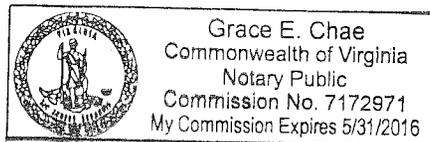
Lori R. Greenleaf
[] Applicant [x] Applicant's Authorized Agent

Lori R. Greenleaf, Sr. Land Use Planner
(type or print first name, middle initial, last name, and title of signee)

Subscribed and sworn to before me this 15th day of March 2016, in the State/Comm. of Virginia, County/City of Fairfax

Grace E. Chae
Notary Public

My commission expires: 5/31/2016



WRITTEN STATEMENT

Rezoning Application
Gulick Group Inc.
For Property Located at Fairfax County Tax Map 12-4((30))Z
June 9, 2015
Revised April 18, 2016

EXECUTIVE SUMMARY

On behalf of the Gulick Group, Inc, we are pleased to present this rezoning application to the County for consideration. This application proposes to rezone property currently zoned R-A to a zoning district that is consistent with the Comprehensive Plan designation for the property and one that is compatible with the adjacent zoning and pattern of development. The flexibility inherent in the cluster development provisions are properly used in the design of this development to preserve and protect existing environmentally sensitive Resource Protection Areas (RPA) and Environmental Quality Corridor (EQC) areas and attain significant tree preservation in open areas. The application meets or exceeds all requirements set forth in the Ordinance for approval of a rezoning as discussed in detail within this written statement.

INTRODUCTION/BACKGROUND

The property consists of 11.00108 acres (the "Property") and is zoned R-A pursuant to RZ 91-D-005 which was approved by the Board of Supervisors on October 28, 1991 and which included this parcel as well as others totaling approximately 36 acres. The rezoning was concurrent with a special exception (SE 91-D-035) for a plant nursery. The nursery operation was concentrated on the land which fronts Rt. 7 and the subject Property was not utilized as part of the actual nursery operation. At that time, the Property was also placed into an agricultural/forestral district which expires in October of 2016. It is the intent of the owner to allow the agricultural/forestal district to expire in its normal timeframe. The plant nursery is no longer operational and the dissolution/status of the special exception will be addressed prior to the approval of the proposed rezoning. The application requests a rezoning to the R-1 District and proposes a 10 lot subdivision developed under the cluster provisions of the Ordinance.

The property is located in an area east of Springvale Road and at the terminus of Challedon Road. The property is surrounded by the Lexington Estates subdivision to the north, zoned R-1 and developed under the cluster/alternate density provisions of the Zoning Ordinance, land zoned I-5 and developed with a contractor's office to the west, land zoned R-1 and developed with single family

detached dwellings to the east and to the south with land zoned R-A that was part of the original zoning and nursery use.

GENERAL DEVELOPMENT PLAN

The General Development Plan (GDP), prepared by Hish and Company LLC, shows ten (10) lots to be developed with single family detached dwellings accessed via a public street, which is an extension of existing Challedon Road. The proposed density is 0.91 dwelling units per acre. The property contains a significant area of RPA and EQC. The lot layout has been designed to preserve this sensitive area. Stormwater management will be handled through a centralized infiltration facility on Outlot B. Specifics on stormwater management and adequate outfall are included on Sheets 11 through 14 of the plan set. The tree canopy and tree preservation target percentage will both be met on the Property.

COMPREHENSIVE PLAN

Plan Language

The subject property is located within Area III, UP-3, Hickory Community Planning Sector of the Upper Potomac Planning District. The Plan recommends that infill development be of a compatible use, type and intensity as stipulated in Objectives 8 and 14 of the Policy Plan. The Plan Map shows the property is planned for residential use at .5 to 1 dwelling units per acre.

Land Use Objective 8, policy a: “Protect and enhance existing neighborhoods by ensuring that infill development is of compatible use, and density/intensity, and that adverse impacts on public facility and transportation systems, the environment and the surrounding community will not occur.”

Land Use Objective 14, policy b: “Encourage infill development in established areas that is compatible with existing and/or planned land use and that is a compatible scale with the surrounding area and that can be supported by adequate public facilities and transportation systems.”

The Hickory Community Planning Sector language also acknowledges that cluster subdivisions are appropriate in the sector provided certain criteria are met. Specifically:

- 1) Wherever possible the proposed open space should provide connections with existing or planned trails.

There are no planned or existing trails on the subject property on the adjoining properties.

2) Individual lots, buildings, streets, utilities and parking areas are designed and situated to minimize the disruption of the site's natural drainage and topography, and to promote the preservation of important view sheds, historic resources, steep slopes, stream valleys and desirable vegetation.

The design of the lot layout has been specifically created to preserve the existing environmental features of the property. This particular site is an excellent example of an instance where utilization of the cluster provisions results in an environmentally sensitive lot layout.

3) Site design and building location are done in a manner that is compatible with surrounding development.

The lot layout has been designed to create a one to one ratio of proposed homes to offsite homes in the Lexington Estates subdivision which is developed under a similar development pattern.

4) Modifications to minimum district size, lot area, lot width or open space requirements of a cluster subdivision in the R-E and R-1 Districts are not appropriate, unless significant benefits can be achieved in the preservation of the natural environment, scenic view shed(s) or historic resources by permitting such modifications.

In this application, significant preservation of the natural environmental is achieved without any modifications to the above mentioned district requirements.

5) Lot yield shall be limited to that which could reasonably result under conventional development. In addition, measures such as agricultural and forestal districts, conservation, open space and scenic easements should be encouraged to preserve the rural character of this environmentally sensitive area, provided that their use provides a public benefit and furthers the intent of the Plan.

This project provides an excellent example of the benefit of utilizing the cluster pattern of development. The pure density calculation for a conventional subdivision on this 11 acre property would be 11 lots. Ten (10) lots are proposed in this cluster subdivision. Clustering increases the amount of open space within

the development and decreases the amount of roadway over that which would be realized in a conventional subdivision.

The application also complies with the Comprehensive Plan objectives outlined in the Residential Development Criteria as explained below.

Residential Development Criteria

- Site Design:

Consolidation: The proposed rezoning consolidates the only available lot given the fact that the RPA/EQC bisects the property and thus the application includes all the land that is available to consolidate in the area.

Layout: The proposed layout provides a logical, functional and rational pattern for development of the property. The proposed zoning district matches that of the surrounding neighborhoods.

Open Space: More than the required percentage of open space is provided.

Landscaping: The property will be extensively landscaped.

Amenities: The proposed lot sizes in this conventional district allow for appropriate on-lot recreational areas.

- Neighborhood Context

The proposed community is consistent with the established context in terms of use, intensity and character. While the properties to the east are larger lots, the property is zoned R-1 like all of the subdivisions in the area.

- Environment

Preservation: The tree preservation target is met with this application through significant tree preservation.

Slopes and Soils: The lot layout has been sensitively designed taking into account the areas of steep slopes on the Property. Where possible, retaining walls are proposed on lots to minimize land and steep slope disturbance activities.

Water Quality and Drainage: Stormwater management/Best Management Practices is being handled via a combination of the design of an engineered level spreader (ELS) for sheet flow into a conserved area on

Outlot B and six individual infiltration trenches on Lots 5 through 10, where permeable conditions allow. The facilities proposed will all be privately maintained and will exceed the requirements of the County and VA DEQ regulations. Predicted phosphorus removal for the project exceeds the target values by 1.5 pounds per year.

Noise, Lighting: The addition of these 10 homes should not create a noise or lighting issue for the existing residences. No street lights are proposed on the plan or required in accordance with Section 7-1002.1B(1) of the PFM.

Energy: The homes are sited to respect the existing topography as much as possible. The connection to Chaledon Road will provide accessibility for walking throughout that large neighborhood.

- Tree Preservation and Tree Cover: Tree preservation and tree cover requirements will be met with the Final Subdivision Plan and House Grading Plans.
- Transportation: The site will be accessed via an existing right-of-way stub which was provided with the subdivision/development of the adjacent Lexington Estates subdivision, clearly envisioning the extension of this road and future development of the subject property.
- Public Facilities
The applicant plans to offset the public facility impact with appropriate proffers.
- Affordable Housing
The provision of affordable dwelling units is not applicable to this development. The applicant will proffer to a contribution to the Housing Trust Fund equal to 0.5% of the value of all the units approved on the property.
- Heritage Resources
To the best of our knowledge, there are no areas of heritage resources on the Property.

In summary, regarding the applicable Comprehensive Plan recommendations, the proposed development conforms to the adopted Comprehensive Plan with respect to type, character and density of use. Development under the cluster provisions of the Ordinance creates the ability to preserve existing vegetation and other environmentally sensitive features in dedicated open space.

ZONING ORDINANCE

Sect. 2-421, Cluster Subdivisions

Par. 5 of Sect. 2-421 allows the Board of Supervisors to approve a cluster subdivision in the R-1 District.

Sect. 9-615, Provisions for a Cluster Subdivision

Section 9-615 of the Ordinance stipulates that a cluster development may be approved by the Board of Supervisors in the R-1 as part of a rezoning provided certain provisions are met. The application includes the submissions required for a cluster development as listed in this section. Further, as required by these provisions, development under the cluster provisions clearly allows for the preservation of the environmental integrity of the site by protecting the existing stream valley and associated environmental features such as trees, steep slopes, and other vegetation. As stated previously, although based on this section, the Board may approve modifications to the minimum lot size or yard requirement, no modifications are requested with this application.

Sect. 2-309, Open Space

Par. 4 of Sect. 2-309 requires that in cluster subdivisions, at least seventy-five (75) percent of the minimum required open space or one acre, whichever is less, shall be provided as a contiguous area of open space which has no dimension less than fifty (50) feet. The lesser of the two areas is one acre and the application meets the requirement of providing at least an acre of contiguous open space that is dimensioned more than 50 feet. This section further states that in cluster subdivisions where the required open space will be more than 5 acres in size, that open space should be so located and dimensioned as to be usable open space.

Sect. 3-100, Residential District

The application meets or exceeds the minimum bulk requirements of the R-1 District. Specifically, the proposed lots exceed the minimum lot size specified in the Ordinance for a cluster subdivision and the minimum open space requirement for cluster subdivision is satisfied. The minimum yard and lot width requirements for the R-1 District are met.

CONCLUSION

To the best of our knowledge, the proposed development of the subject property conforms to all currently applicable land development ordinances, regulations and adopted standards as discussed in this statement.

There are no known hazardous or toxic substances to be generated, utilized, stored, treated nor disposed of on this site.

For the reasons set forth within this statement of justification, the Applicant respectfully requests approval of this rezoning proposal.

Respectfully submitted,

Lori Greenlief
Senior Land Use Planner
McGuireWoods LLP

APPENDIX 9

RESIDENTIAL DEVELOPMENT CRITERIA

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

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

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

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

1. Site Design:

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

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

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

2. Neighborhood Context:

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

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

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

3. Environment:

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

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

4. Tree Preservation and Tree Cover Requirements:

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

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

5. Transportation:

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

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

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

6. Public Facilities:

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

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

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

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

7. Affordable Housing:

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

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

8. Heritage Resources:

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

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

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

ROLE OF DENSITY RANGES IN AREA PLANS

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

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

APPENDIX 4

GUIDELINES FOR CLUSTER DEVELOPMENT

The preservation of open space, the protection of environmentally sensitive lands, the provision of opportunities for active and passive recreation, the reduction of the impact of storm water runoff and erosion, the achievement of high quality design, and the provision of efficient development are fundamental to the preservation of our Quality of Life, the primary goal of Fairfax County's policies and priorities. Cluster development is one tool that may be used to further this goal. The following criteria will be considered when reviewing a cluster subdivision:

1. Individual lots, buildings, streets and parking areas should be designed and situated to minimize disruption to the site's natural drainage and topography.
2. Environmental Quality Corridor (EQC) lands should be preserved and should be dedicated to the county whenever such dedication is in the public interest.
3. Site design should take advantage of opportunities to preserve high quality open space or to provide active or passive recreation and should be sensitive to surrounding properties, in order to be compatible with and to complement surrounding development.
4. No cluster development should be considered when the primary purpose of the clustering is to maximize density on the site.



County of Fairfax, Virginia

MEMORANDUM

DATE: March 15, 2016

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

FROM: Denise M. James, Chief *DMJ*
Environment and Development Review Branch, DPZ

SUBJECT: Environmental Analysis Addendum for: RZ 2015-DR-009
Summer Hill

The memorandum, prepared by John Bell, includes guidance for the evaluation of the development plans as revised through February 26, 2016. 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 also compatible with Plan policies.

The Environmental Assessment dated January 5, 2016 identified several areas of concern for the proposed cluster subdivision as noted below.

Issue: Environmental Quality Corridor (EQC)

While the RPA delineation was based on County maps, the initial EQC delineation by the applicant raised some concerns since it appeared that not all of the steep slope areas which should have been noted as EQC were included. Staff further questioned the slope analysis and potential implications for the density penalty based on Zoning Ordinance Section 2—308.

Discussion: Based on the revised plans, staff accepts the EQC line noted for “Outlot C”, however, the inset noted as “Regulatory EQC Map” appears to depict another variation of the EQC area, which could lead to confusion. As noted in the prior staff assessment, there remain many areas where it is difficult to determine the limits of the EQC, RPA and Outlots as the lines for each seem to run together in a number of areas and are not readily distinguishable from one another. The applicant should provide clarification on the lines and include a clear legend depicting the designation for each line used. If “Outlot B” may be used for stormwater management, if required, then a pond area and access road should be depicted on the plans at this time. It should also be noted that “Outlot B” does not appear on all sheets. It appears on sheet 3 of 16, but does not appear on sheet 6 of 16. Similarly, the EQC line should be consistently depicted throughout the drawings. It does not appear on sheet 5 of 16 or sheet 6 of 16. Staff had raised concerns regarding the possible application of a density penalty based on Section 2-308 of the Zoning Ordinance due to the area of steep slopes and 100-year floodplain area of the proposed development. After further review, it was determined that Section 2-308 of the Zoning Ordinance was not applicable in this instance.

Issue: Septic Fields

The location and viability of the proposed septic fields was a previously identified concern. The proposed development will depend on individual septic fields to provide waste water treatment for each dwelling.

Discussion: While the general locations for the proposed septic fields have been depicted on the drawings, staff has not received any determination from the Fairfax County Health Department indicating that the septic fields as noted will meet the needs of the proposed dwellings. At a minimum, staff feels that the applicant should provide a preliminary determination from the Health Department that the proposed septic fields are anticipated to meet Code requirements.

Issue: Green Building The applicant had provided a commitment to attain either Earthcraft, National Green Building Standard (NGBS) with the ENERGY STAR path or National Association of Home Builder (NAHB) National Green Building Program, Bronze Level. Staff recommended that the NAHB, National Green Building Program, Bronze Level, be deleted from the proffers as this option no longer exists.

Discussion: Rather than make the recommended clarification to the proffers as noted above, the applicant makes no provision in the revised proffers to address the Green Building policy. The issue remains outstanding.

Issue: Tree Preservation. Staff noted that although tree cover within the EQC and RPA would be preserved, minimal tree cover will be retained outside of this area. The Policy Plan encourages the preservation and restoration of tree cover and staff had recommended that a tree preservation plan be submitted for review as part of the rezoning application.

Discussion: The revised proffers commit to the provision of a tree preservation plan and narrative at the time of site/subdivision plan submission. Identification of tree preservation and/or restoration within the individual lots continues to be strongly encouraged to better address the intent of the cluster provisions to 'preserve the environmental integrity of the site by protecting and/or promoting the preservation of such features as steep slopes, stream valleys, desirable vegetation or farmland'. This concern remains outstanding.

DMJ: JRB



County of Fairfax, Virginia

MEMORANDUM

DATE: April 15, 2016

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 2015-DR-009

SUBJECT: RZ 2015-DR-009 Gulick Group, Inc.
10500 Leesburg Pike, Vienna, VA 22182
Tax Map: 12-4 ((30)) Z

Transmitted herewith are the comments from the Department of Transportation with respect to the referenced application and Generalized Development Plan (GDP). These comments are based on the application material, dated June 2015, and revised through April 1, 2016.

- The applicant should include in the proffers that the proposed public street extension of Challedon Road shall be a shoulder and ditch section road constructed per the VDOT Road Design Manual and PFM standards, and as having a 54-foot wide right-of-way street section and a 55-foot radius right-of-way section for the turnaround.
- The applicant has addressed these previous issues from FCDOT:
 - A proffer was added stating that the applicant shall reconstruct any adjacent offsite driveways that are impacted by the extension of Challedon Road and that notification will be sent to the property owners with an affected driveway informing them of the construction and timeline for completion.
 - That the applicant, via proffer, will prepare a plat and deed for DPWES and the adjacent Lexington Estates HOA to use for vacating portions of the existing easements associated with the Challedon Road temporary turnaround once it has been extended.
- The Applicant submitted a Secondary Streets Acceptance Requirements (SSAR) waiver for multiple streets connectivity to VDOT for review. VDOT approved this waiver on December 28, 2015; FCDOT is agreeable to this waiver.

Proffer comments were provided under separate cover.

cc: Bob Katai, DPZ

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





DEPARTMENT OF TRANSPORTATION

4975 Alliance Drive
Fairfax, VA 22030

Charlie Kilpatrick
COMMISSIONER

April 19, 2016

To: Ms. Barbara Berlin
Director, Zoning Evaluation Division

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

Subject: RZ 2015-DR-009; Summer Hill

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

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

- The typical section of Challedon Road should be shown per the PFM. Why is a typical section also shown from the VDOT *Road Design Manual*?



County of Fairfax, Virginia

MEMORANDU

DATE: 06/01/2016

TO: Bob Katai
Zoning Evaluation Division
Department of Planning and Zoning

FROM: Camylyn Lewis, Senior Engineer III (Stormwater) *cmc*
Site Development and Inspections Division
Department of Public Works and Environmental Services

SUBJECT: Rezoning Application # RZ 2015-DR-009 (Gulick Group), Summer Hill Property, Generalized Development Plan dated May 31st, 2016; LDS Project #25427-ZONA-001-1, Tax Map #012-4-30 Z, Dranesville District

We have reviewed the subject application, dated May 31st, 2016, and offer the following stormwater management comments.

Chesapeake Bay Preservation Ordinance (CBPO)

There is Resource Protection Area (RPA) on the property. The RPA delineation plan #25427-RPA-001-1 was approved. The site specific RPA delineation is reflected in the generalized development plan. No disturbance to the RPA is proposed.

Floodplain

There is regulated floodplain on the property; FEMA zone AE. The floodplain is delineated in accordance with Technical Bulleting 12-03.

Water Quality Control Requirements (124-4-2)

- There is an increase in impervious area and the design criteria for new development apply; Stormwater Management Ordinance Chapter 124-4-2. The applicant provided the summary sheet from the VRRM spreadsheet to show that water quality requirements could be met with an infiltration facility. See sheets 12 and 13.
- The applicant provided approximate sizing computations. See sheet 14, table K, column 26 for the required storage volume. See sheet 15, BMP illustrative plan, for the estimate of the volume which could be provided.
- The applicant provided cross sections at key locations to demonstrate that adequate overland relief could be provide and buildings will not be flooded.
- The detailed review will be with the subdivision plan.

Department of Public Works and Environmental Services
Land Development Services,
12055 Government Center Parkway, Suite 444
Fairfax, Virginia 22035-5503
Phone: 703-324-1780 • TTY: 711 • FAX: 703-653-6678



Bob Katai
Page 2 of 2

Water Quantity and Adequacy of Outfall Requirements 124-4-4.

- The applicant provided rough grading to show how the flow will be picked up in the pipe system. See sheet 15.
- The subdivision plan will be required to show adequate drainage through the lots and that sheet flow is actually sheet flow; with supporting computations as necessary.
- The applicant provided narratives how they intend to comply with the PFM and Chapter 124-4-4(3): See sheet 12, Preliminary Drainage Determinations.
- The applicant clarified the drainage area maps, see sheet 11.

Downstream Drainage Complaints

There are no downstream drainage complaints on file.

Stormwater Planning Comments

There are no comments from stormwater planning at this time.

Please contact Camylyn Lewis or at 703-324-1808 if you require additional information.

CML/mk

cc: Fred Rose, Chief, Watershed Planning & Assessment Branch, Storm water Planning Division,
Department of Public Works and Environmental Services, (DPWES)
Shahab Baig, Chief, North Branch, Site Development and Inspections Division, DPWES
Zoning Application File



County of Fairfax, Virginia

MEMORANDUM

DATE: April 11, 2016

TO: Bobby Katai, Staff Coordinator
Zoning Evaluation Division, DPZ

FROM: Craig Herwig, Urban Forester III
Forest Conservation Branch, DPWES

SUBJECT: Summer Hill; Gulick Group, Inc., RZ 2015-DR-009

This review is based on the GDP plan stamped, "Received, Department of Planning and Zoning, April 1, 2016.

General Comment: It appears the Applicant has addressed all of the Urban Forest Management Division (UFMD) concerns previously discussed however, there are two remaining concerns regarding the proposed transitional screening 1 at the Northern property boundary.

1. **Comment:** The Applicant proposes to use Canadian hemlock as one of the evergreen trees in the transitional screening yard as shown and identified on the landscape plan and plant schedule. This tree has serious insect problems and would not be suitable in this location.

Recommendation: The Applicant should provide a suitable native, non-invasive evergreen tree as a replacement for the proposed Canadian hemlock trees. This could be done at time of site plan submittal.

2. **Comment:** There is a shrub component associated with transitional screening identified in Zoning Ordinance 13-303.3A(3) which has not been provided on the landscape plan.

Recommendation: The Applicant should provide the shrub component identified in ZO 13-303.3A(3) for the proposed transitional screening 1 along the northern property boundary.

Please feel free to contact me with any questions or concerns.

CSH/

UFMDID #: 203000

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: 711, Fax: 703-653-9550
www.fairfaxcounty.gov/dpwes



cc: DPZ File

Department of Public Works and Environmental Services
Land Development Services, Environmental and Site Review Division
12055 Government Center Parkway, Suite 535
Fairfax, Virginia 22035-5503
Phone 703-324-1720, TTY: 703-324-1877, Fax: 703-324-8359
www.fairfaxcounty.gov/dpwes





FAIRFAX COUNTY
PUBLIC SCHOOLS

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

August 19, 2015

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

FROM: Aimee Holleb, Assistant Director *AH*
Office of Facilities Planning Services

SUBJECT: RZ 2015-DR-009, Gulick Group, Inc.

ACREAGE: 11

TAX MAP: 12-4 ((30)) Z

RECEIVED
Department of Planning & Zoning

AUG 27 2015

Zoning Evaluation Division

PROPOSAL:

The rezoning application requests to rezone the site from the R-A District to R-1 Cluster District. The proposal would permit a maximum of 10 Single Family Detached units. Under the existing R-A one single family home would be permitted.

ANALYSIS:

The schools serving this area are Colvin Run Elementary, Cooper Middle, and Langley High schools. The chart below shows the existing school capacity, enrollment, and projected enrollment.

School	Capacity 2014 / 2019	Enrollment (9/30/14)	Projected Enrollment 2015-2016	Capacity Balance 2015-2016	Projected Enrollment 2019-20	Capacity Balance 2019-20
Colvin Run ES	908 / 908	871	873	35	786	122
Cooper MS	1,080 / 1,080	727	723	357	702	378
Langley HS	1,970 / 2,100	1,996	1,960	10	1,889	211

*Capacities based on 2016-20 Capital Improvement Program (December 2014)
Project Enrollments based on 2014-15 to 2019-20 6-Year Projections (April 2014)*

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 2019-20 and are updated annually. At this time, if development occurs within the next five years, all three schools are projected to have surplus capacity. Beyond the six year projection horizon, enrollment projections are not available.

Capital Improvement Program Projects

The 2016-20 Capital Improvement Program (CIP) includes: a new AAP Center at Cooper Middle School and a renovation and capacity enhancement for Langley High School to be completed in school year 2017-18.

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

School level	Single-family detached ratio	Possible # of units	Possible Student yield
Elementary	.270	1	0
Middle	.085	1	0
High	.175	1	0

0 total

2013 Countywide student yield ratios (November 2014)

Proposed

School level	Single-family detached ratio	Proposed # of units	Proposed Student yield
Elementary	.270	10	3
Middle	.085	10	1
High	.175	10	2

6 total

2013 Countywide student yield ratios (November 2014)

RECOMMENDATIONS:

Proffer Contribution

A net of 6 new students is anticipated (3 Elementary, 1 Middle, and 2 High). Based on the approved Residential Development Criteria, a proffer contribution of \$70,494 (6 x \$11,749) 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 that 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. As a result, an escalation proffer would allow for payment of the school proffer based on the current suggested per student proffer contribution in effect at the time of development. 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 modify the ratio of students per unit or the amount of contribution per student, the Applicant shall pay the modified contribution amount for that phase of development to reflect the then-current ratio and/or contribution.

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.

Barbara Berlin
August 19, 2015
Page 3
RZ 2015-DR-009, Gulick Group, Inc.

AJH/sm

Attachment: Locator Map

cc: Jane Strauss, School Board Member, Dranesville District
Pat Hynes, Chairman, School Board Member, Hunter Mill District
Patty Reed, School Board Member, Providence District
Ted Velkoff, School Board Member, At-Large
Ilryong Moon, School Board Member, At-Large
Ryan McElveen, School Board Member, At-Large
Jeffrey Platenberg, Assistant Superintendent, Facilities and Transportation Services
Douglas Tyson, Assistant Superintendent, Region 1
Kevin Sneed, Special Projects Administrator, Capital Projects and Planning
Fred Amico, Principal, Langley High School
Arlene Randall, Principal, Cooper Middle School
Kenneth Junge, Principal, Colvin Run 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 *SS*
Park Planning Branch, PDD

DATE: September 24, 2015

SUBJECT: RZ 2015-DR-009, Summer Hill (Gulick Group, Inc)
Tax Map Number: 12-4((30)) Z

BACKGROUND

The Park Authority staff has reviewed the proposed Development Plan dated June 2015, for the above referenced application. The Development Plan shows 10 new single-family dwelling units on an eleven-acre parcel to be rezoned from R-A to R-1 with proffers. Based on an average single-family household size of 3.13 in the Upper Potomac Planning District, the development could add 31 new residents (10 new – 0 existing = $10 \times 3.13 = 31.3$) to the Dranesville Supervisory District.

COMPREHENSIVE PLAN GUIDANCE

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

The Upper Potomac Districtwide recommendations in the Area III Plan describe the importance of neighborhood parks and trails, to provide additional recreational opportunities for the entire community. It also stresses the need to identify, preserve and promote awareness of heritage resources through research, survey and community involvement. (Area III, Upper Potomac Planning District, Overview, pp. 4). “Prior to any zoning action, heritage resource staff from the Department of Planning and Zoning should be consulted as to what architectural surveys are necessary to document any on-site cultural resources. Staff from the Cultural Resource Management and Protection Branch of the Park Authority should be consulted to develop a scope of work for any on-site archaeological surveys prior to any development or ground

disturbing activity. Should architectural or archaeological resources be discovered that are potentially eligible for inclusion in the National Register, further survey and testing should occur to evaluate these resources as to their eligibility. If such resources are found to be eligible, mitigation measures should be developed that may include avoidance, documentation, data recovery excavation and interpretation (Area III, Upper Potomac Planning District, Overview, pp. 23). In addition, recommendations for the sub-unit containing this application site specifically cite the importance of archaeological investigations prior to any land disturbing activities to the satisfaction of the Cultural Resources Management and Protection branch of the Park Authority. (Area III, Upper Potomac Planning District, UP3, Hickory Planning Sector, Heritage Resources Sector, pp. 49).

Finally, text from the Upper Potomac Planning District chapter of the Great Parks, Great Communities Park Comprehensive Plan echoes recommendations in the Countywide Comprehensive Plan. Specific District chapter recommendations include “Incorporate new facility needs into the development review and proffer request process”, adding basketball courts, playgrounds, athletic fields, and trails at parks, as well as protecting remaining cultural resources in the district. “Cultural Resources should be identified and evaluated prior to any proposed construction activity.” “...a cultural resource survey will be conducted and mitigation measures will be developed, as necessary.”

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 (Colvin Run Mill Historic Site, Colvin Run Mill Stream Valley, Difficult Run Stream Valley, Great Falls Nike, Hickory Run, Lake Fairfax, Lexington Estates, Lockmeade, and Turner Farm) meet only a portion of the demand for parkland generated by residential development in the Route 7 Corridor. In addition to parkland, the recreational facilities in greatest need in this area include basketball courts, playgrounds, diamond fields, rectangle fields, reservable picnic shelters with amenities, and trails.

Recreational Impact of Residential Development:

With the Countywide Comprehensive Policy Plan as a guide (Appendix 9, #6 of the Land Use section, as well as Objective 6, Policy a, b and c of the Parks and Recreation section), the Park Authority requests a fair share contribution of \$893 per new resident with any residential rezoning application to offset impacts to park and recreation service levels. This allows the Park Authority to build additional facilities needed as the population increases. To offset the additional impact caused by the proposed development, the applicant should contribute \$27,683 to the Park Authority for recreational facility development at one or more park sites located within the service area of the subject property.

Cultural Resources Impact:

The parcel was subjected to cultural resources review, which found that the site contains one known archaeological site (44FX2449). The parcel has an extremely high potential to contain additional Native American archaeological or historical archaeological sites. The Park Authority recommends a Phase I archaeological survey of the entire site. If significant sites are found, Phase II archaeological testing is recommended in order to determine if sites are eligible for

inclusion on the National Register of Historic Places. If sites are found eligible, avoidance or Phase III archaeological data recovery is recommended.

At the completion of any cultural resource studies, the Park Authority requests that the applicant provide two copies (one hard copy, one digital copy) of the archaeology report as well as field notes, photographs, and artifacts to the Park Authority's Resource Management Division (Attention: Liz Crowell) within 30 days of completion of the study. Materials can be sent to 2855 Annandale Road Falls Church, VA 20110 for review and concurrence. For artifact catalogues, please include the database in Access™ format, as well as digital photography, architectural assessments, including line drawings. If any archaeological, architectural or other sites are found during cultural resources assessments, the applicant should update files at VDHR, using the VCRIS system.

SUMMARY OF RECOMMENDATIONS

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

- Provide \$27,683 to the Park Authority for the construction of additional park facilities nearby to offset impacts to park and recreation service levels.
- Conduct a Phase I archaeological study, with follow up studies, as needed.

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

FCPA Reviewer: Andy Galusha
DPZ Coordinator: Bob Katai

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

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2015-DR-009\RZ 2015-DR-009 FCPA.docx



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

Appendix 11

RECEIVED
Department of Planning & Zoning

AUG 10 2015

Zoning Evaluation Division

**PLANNING & ENGINEERING
DIVISION**

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

August 7, 2015

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

Re: RZ 2015-DR-009
Summer Hill
Tax Map: 12-4

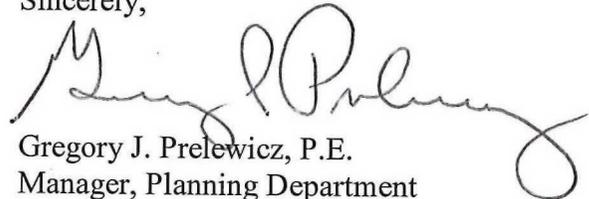
Dear Ms. Berlin:

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

1. The property can be served by Fairfax Water.
2. Adequate domestic water service is available at the site from an existing 8-inch water main located in Challedon 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, Chief, Site Plan Review at (703) 289-6385.

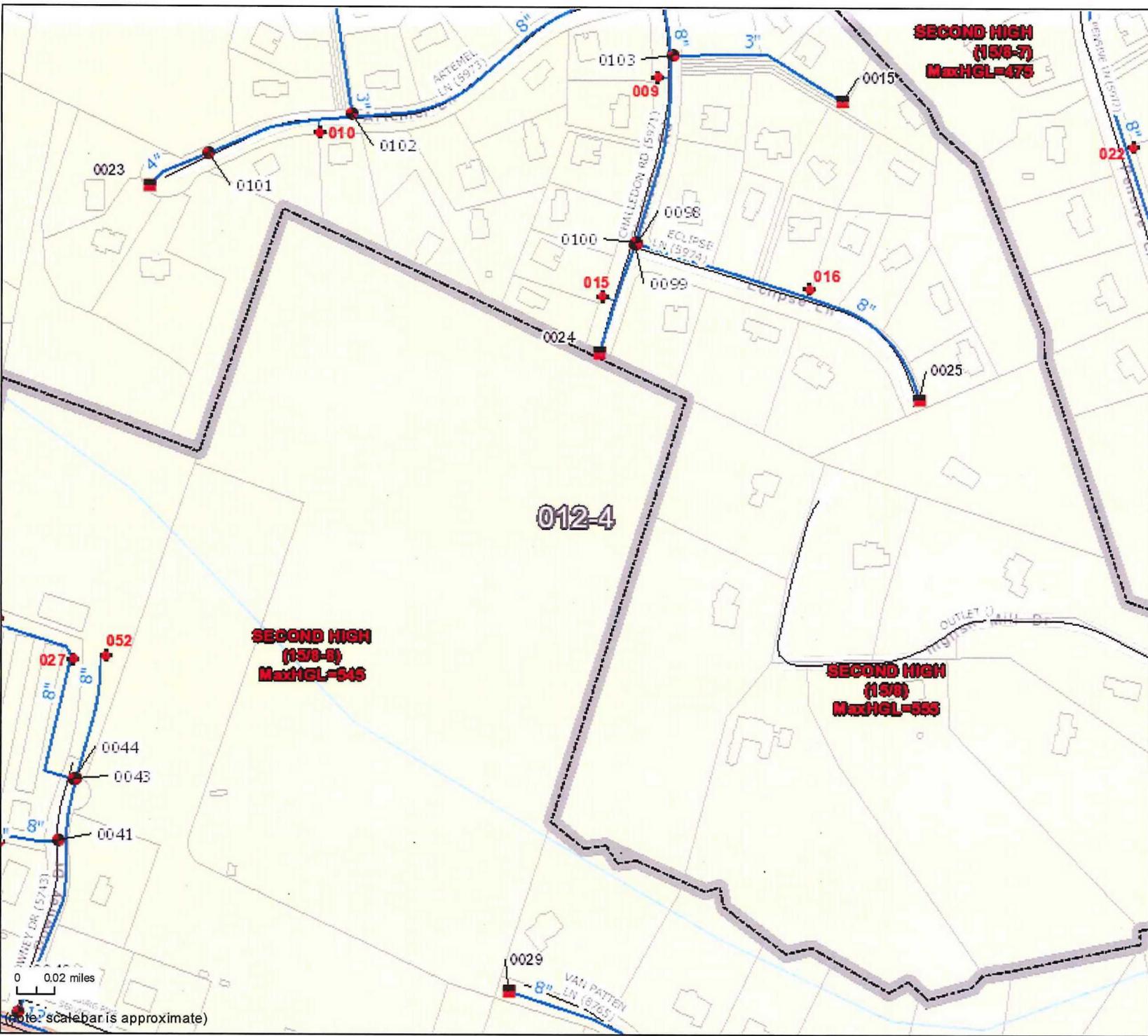
Sincerely,



Gregory J. Prelewicz, P.E.
Manager, Planning Department

Enclosure

Title:



Legend

- Hydrants**
 - ◆ Fairfax Water, Active
 - ◆ Other, Active
 - ◇ Fairfax Water, Inactive
- Hydrant Valves**
 - Fairfax Water
 - Other
- System Valves**
 - Gate, Open, Fairfax Water
 - Gate, Closed, Fairfax Water
 - Gate, Open, Other
 - Gate, Closed, Other
 - Butterfly, Open, Fairfax Water
 - Butterfly, Closed, Fairfax Water
 - Butterfly, Open, Other
 - Butterfly, Closed, Other
- Main Breaks**
 - ⊗ Main Breaks
- Pressurized Mains - Private**
 - ▬ Private, In Service
 - ▬ Private, Approved
- Pressurized Mains**
 - ▬ Approved
 - ▬ Transmission Main, CastIron
 - ▬ Transmission Main, DuctileIron
 - ▬ Transmission Main, Steel
 - ▬ Transmission Main, Plastic
 - ▬ Transmission Main, AsbestosCement
 - ▬ Transmission Main, PCCP
 - ▬ Transmission Main, Unknown
 - ▬ DistributionMain, CastIron
 - ▬ DistributionMain, DuctileIron
 - ▬ DistributionMain, Steel
 - ▬ DistributionMain, Plastic
 - ▬ DistributionMain, PolyVinylChloride
 - ▬ DistributionMain, AsbestosCement
 - ▬ DistributionMain, PCCP
 - ▬ DistributionMain, Copper
 - ▬ DistributionMain, Galvanized
 - ▬ DistributionMain, HDP
 - ▬ DistributionMain, Unknown

PART 1 3-100 R-1 RESIDENTIAL DISTRICT, ONE DWELLING UNIT/ACRE**3- 01 Purpose and Intent**

The R-1 District is established to provide for single family detached dwellings; to allow other selected uses which are compatible with the low density residential character of the district; and otherwise to implement the stated purpose and intent of this Ordinance.

3-102 Permitted Uses

1. Accessory uses and home occupations as permitted by Article 10.
2. Agriculture, as defined in Article 20.
3. Dwellings, single family detached.
4. Public uses.

3-103 Special Permit Uses

For specific Group uses, regulations and standards, refer to Article 8.

1. Group 2 - Interment Uses.
2. Group 3 - Institutional Uses.
3. Group 4 - Community Uses.
4. Group 5 - Commercial Recreation Uses, limited to:
 - A. Commercial swimming pools, tennis courts and similar courts
5. Group 6 - Outdoor Recreation Uses.
6. Group 7 - Older Structures.
7. Group 8 - Temporary Uses, limited to:
 - A. Carnival, circus, festival, fair, horse show, dog show, steeplechase, music festival, turkey shoot, sale of Christmas trees or other seasonal commodities and other similar activities
 - B. Construction material yards accessory to a construction project
 - C. Contractors' offices and equipment sheds to include trailers accessory and adjacent to an active construction project
 - D. Subdivision and apartment sales and rental offices
 - E. Temporary dwellings or mobile homes
 - F. Temporary farmers' markets
 - G. Temporary mobile and land based telecommunications testing facility
 - H. Temporary portable storage containers
8. Group 9 - Uses Requiring Special Regulation, limited to:
 - A. Barbershops or beauty parlors as a home occupation
 - B. Home professional offices
 - C. Sawmilling of timber
 - D. Veterinary hospitals
 - E. Accessory dwelling units

3-104 Special Exception Uses

For specific Category uses, regulations and standards, refer to Article 9.

1. Category 1 - Light Public Utility Uses.

2. Category 2 - Heavy Public Utility Uses, limited to:
 - A. Electrical generating plants and facilities
 - B. Landfills
 - C. Water purification facilities
3. Category 3 - Quasi-Public Uses, limited to:
 - A. Alternate uses of public facilities
 - B. Child care centers and nursery schools
 - C. Churches, chapels, temples, synagogues and other such places of worship with a child care center, nursery school or private school of general or special education
 - D. Colleges, universities
 - E. Congregate living facilities
 - F. Cultural centers, museums and similar facilities
 - G. Dormitories, fraternity/sorority houses, rooming/boarding houses, or other residence halls
 - H. Independent living facilities
 - I. Medical care facilities
 - J. Private clubs and public benefit associations
 - K. Private schools of general education
 - L. Private schools of special education
 - M. Quasi-public parks, playgrounds, athletic fields and related facilities
4. Category 4 - Transportation Facilities.
5. Category 5 - Commercial and Industrial Uses of Special Impact, limited to:
 - A. Baseball hitting and archery ranges, outdoor
 - B. Bed and breakfasts
 - C. Commercial off-street parking in Metro Station areas as a temporary use
 - D. Establishments for scientific research and development
 - E. Funeral chapels
 - F. Golf courses, country clubs
 - G. Golf driving ranges
 - H. Kennels, animal shelters
 - I. Marinas, docks and boating facilities, commercial
 - J. Miniature golf courses ancillary to golf driving ranges
 - K. Offices
 - L. Plant nurseries
 - M. Veterinary hospitals, but only ancillary to kennels
6. Category 6 – Miscellaneous Provisions Requiring Board of Supervisors’ Approval:

Refer to Article 9, Special Exceptions, Part 6, Miscellaneous Provisions Requiring Board of Supervisors’ Approval, for provisions which may qualify or supplement these district regulations.

3-105 Use Limitations

1. No sale of goods or products shall be permitted, except as accessory and incidental to a permitted, special permit or special exception use.
2. All uses shall comply with the performance standards set forth in Article 14.
3. Cluster subdivisions may be permitted in accordance with the provisions of Sect. 9-615.

3-106 Lot Size Requirements

1. Minimum district size for cluster subdivisions: 10 acres
2. Average lot area: No Requirement
3. Minimum lot area
 - A. Conventional subdivision lot: 36,000 sq. ft.
 - B. Cluster subdivision lot: 25,000 sq. ft.
4. Minimum lot width
 - A. Conventional subdivision lot:
 - (1) Interior lot - 150 feet
 - (2) Corner lot - 175 feet
 - B. Cluster subdivision lot:
 - (1) Interior lot - No Requirement
 - (2) Corner lot - 125 feet
5. The minimum district size requirement presented in Par. 1 above may be waived by the Board in accordance with the provisions of Sect. 9-610.

3-107 Bulk Regulations

1. Maximum building height
 - A. Single family dwellings: 35 feet
 - B. All other structures: 60 feet
2. Minimum yard requirements
 - A. Single family dwellings
 - (1) Conventional subdivision lot
 - (a) Front yard: 40 feet
 - (b) Side yard: 20 feet
 - (c) Rear yard: 25 feet
 - (2) Cluster subdivision lot
 - (a) Front yard: 30 feet
 - (b) Side yard: 12 feet, but a total minimum of 40 feet
 - (c) Rear yard: 25 feet
 - B. All other structures
 - (1) Front yard: Controlled by a 50° angle of bulk plane, but not less than 40 feet
 - (2) Side yard: Controlled by a 45° angle of bulk plane, but not less than 20 feet
 - (3) Rear yard: Controlled by a 45° angle of bulk plane, but not less than 25 feet
3. Maximum floor area ratio:
 - A. 0.15 for uses other than residential or public
 - B. 0.20 for public uses

3-108 Maximum Density

1. Conventional subdivisions: One (1) dwelling unit per acre.
2. Cluster subdivisions: 1.1 dwelling units per acre for cluster subdivisions approved by special exception and one (1) dwelling unit per acre for cluster subdivisions that are the result of a proffered rezoning from a district that allows a permitted maximum density of less than one (1) dwelling unit per acre.

3-109 Open Space

In subdivisions approved for cluster development, 30% of the gross area shall be open space.

3-110 Additional Regulations

1. Refer to Article 2, General Regulations, for provisions which may qualify or supplement the regulations presented above, including the shape factor limitations contained in Sect. 2-401. The shape factor limitations may be modified by the Board in accordance with the provisions of Sect. 9-626.
2. Refer to Article 11 for off-street parking, loading and private street requirements.
3. Refer to Article 12 for regulations on signs.
4. Refer to Article 13 for landscaping and screening requirements.
5. Refer to Article 17 for uses and developments which are subject to site plan provisions

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		