

NOTES

1. THE PROPERTY DELINEATED ON THIS PLAT IS LOCATED ON FAIRFAX COUNTY CADASTRAL MAP No. 28-4 ((1)) PARCEL 12 AND CURRENTLY ZONED R-1.
2. THE PROPERTY SHOWN HEREON IS CURRENTLY IN THE NAME OF OAKCREST FARMS, L.C. BY DEED RECORDED IN DEED BOOK 22511, PAGE 1516 AMONG THE LAND RECORDS OF FAIRFAX COUNTY, VIRGINIA. THE APPLICANT IS SEKAS HOMES, LTD.
3. THE BOUNDARY SHOWN HEREON IS BASED ON A FIELD SURVEY BY THIS FIRM PERFORMED ON MARCH 21, 2012. TITLE REPORT FURNISHED BY STEWART TITLE GUARANTY COMPANY, FILE NUMBER 12V-0394 WITH AN EFFECTIVE DATE OF FEBRUARY 24, 2012.
4. THE TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD SURVEY BY THIS FIRM PERFORMED ON MARCH 21, 2012. THE VERTICAL DATUM IS REFERENCED TO NGVD 29. THE CONTOUR INTERVAL IS TWO (2) FEET.
5. THE PROPERTY SHOWN HEREON LIES WITHIN A ZONE "X", AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN AS DELINEATED ON FLOOD INSURANCE RATE MAP, COMMUNITY PANEL No. 51059COM45E, DATED SEPTEMBER 17, 2010.
6. ALL CONSTRUCTION SHALL CONFORM TO THE PROVISIONS OF ALL APPLICABLE ORDINANCES, REGULATIONS AND ADOPTED STANDARDS OF FAIRFAX COUNTY AND VDOT EXCEPT AS REQUESTED HEREIN. THE APPLICANT RESERVES THE RIGHT TO APPLY FOR ANY FUTURE MODIFICATIONS OF PFM DESIGN CRITERIA AT THE TIME OF SUBDIVISION PREPARATION PROVIDED THE MODIFICATIONS ARE IN SUBSTANTIAL CONFORMANCE WITH THE GDP.
7. EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO ANY CLEARING, GRADING, OR CONSTRUCTION AS PER REQUIREMENTS OF THE STATE OF VIRGINIA AND THE CODE OF FAIRFAX COUNTY.
8. LAND DESIGN CONSULTANTS, INC. IS NOT AWARE OF ANY UTILITY EASEMENTS WHICH EXIST ON THE SUBJECT PROPERTY WITH A WIDTH OF 25 FEET OR MORE.
9. ALL UTILITIES INSTALLED AS PART OF THIS PROJECT SHALL BE PLACED UNDERGROUND. THE UTILITY LOCATIONS SHOWN HEREON ARE FOR ILLUSTRATIVE PURPOSES ONLY AND ARE SUBJECT TO CHANGE WITH FINAL ENGINEERING. LIMITS OF CLEARING AND GRADING SHALL BE IN GENERAL CONFORMANCE WITH THOSE SHOWN HEREON.
10. AIR QUALITY PERMITS SHALL BE OBTAINED, IF REQUIRED, AND PROVIDED PRIOR TO ANY CLEARING, GRADING OR CONSTRUCTION.
11. THE SITE WILL BE SERVED BY PUBLIC WATER AND SANITARY SEWER. SANITARY SEWER SERVICE SHALL BE PROVIDED BY INDIVIDUAL LATERAL CONNECTIONS.
12. A RESOURCE PROTECTION AREA (RPA) IS NOT LOCATED ON THE SUBJECT PROPERTY. A RESOURCE MANAGEMENT AREA (RMA) IS LOCATED ON THE SUBJECT PROPERTY.
13. THE COMPREHENSIVE PLAN RECOMMENDS DEVELOPMENT OF THE PROPERTY AS RESIDENTIAL AT A DENSITY OF 1-2 DWELLING UNITS PER ACRE. THE PROPOSED DENSITY OF 2.00 DU/ACRE MEETS THE INTENT OF THE COMPREHENSIVE PLAN. THE SITE DESIGN, DENSITY, ADJOINING USES AND PROPOSED PRESERVATION AND PLANTINGS WILL ENHANCE THIS PROPERTY AND WILL MEET THE APPLICABLE CRITERIA FOR STAFF REVIEW.
14. IN ACCORDANCE WITH THE FAIRFAX COUNTY TRAILS PLAN, A TRAIL IS NOT REQUIRED ON THE SUBJECT PROPERTY. A 5' SIDEWALK IS SHOWN AS DEPICTED HEREIN.
15. LDC IS NOT AWARE OF ANY BURIAL SITES LOCATED ON THE SUBJECT PROPERTY.
16. DREHLAINE DRIVE IS NOT SHOWN ON THE COUNTY'S TRANSPORTATION PLAN OR VDOT 6 YEAR PLAN TO BE WIDENED OR IMPROVED. DREHLAINE DRIVE WILL BE EXTENDED INTO THE SUBJECT PROPERTY AS SHOWN ON SHEET 2.
17. AN ENVIRONMENTAL QUALITY CORRIDOR (EQC) AS DEFINED IN THE ADOPTED COMPREHENSIVE PLAN DOES NOT EXIST ON THE SUBJECT PROPERTY. THE COMPONENTS OF A MAXIMUM DENSITY REDUCTION DO NOT EXIST ON SITE.
18. LDC DOES NOT BELIEVE ANY HAZARDOUS OR TOXIC SUBSTANCES HAVE BEEN GENERATED, UTILIZED, STORED, TREATED, AND/OR DISPOSED OF OR HAVE BEEN OBSERVED ON THE SUBJECT PROPERTY.
19. DEVELOPMENT OF THIS PROJECT SHALL COMMENCE AT SUCH TIME AS APPROPRIATE COUNTY APPROVALS HAVE BEEN OBTAINED AND SUBJECT TO THE DISCRETION OF OWNER/DEVELOPER.
20. A GEOTECHNICAL REPORT SHALL BE SUBMITTED FOR REVIEW BY FAIRFAX COUNTY CONCURRENTLY WITH THE FINAL SUBDIVISION PLAN, IF REQUIRED.
21. THE SUBJECT PROPERTY WILL MEET SWM/BMP REQUIREMENTS THROUGH USE OF AN ONSITE INFILTRATION TRENCH. PLEASE SEE SHEETS 8-BB FOR ADDITIONAL INFORMATION.
22. ALL DIMENSIONS ARE APPROXIMATE AND TYPICAL HOUSE FOOTPRINTS AND ELEVATIONS SHOWN ON THESE LOTS MAY BE MODIFIED PROVIDED THAT MODIFICATIONS ARE IN SUBSTANTIAL CONFORMANCE WITH THE GDP AND THE MINIMUM YARDS ARE PROVIDED.
23. THE APPLICATION HAS BEEN DESIGNED WITH THE PRIMARY FOCUS OF CREATING A DEVELOPMENT THAT IS SIMILAR TO ADJACENT DEVELOPMENTS AND WILL MINIMIZE ADVERSE EFFECTS TO ADJACENT PROPERTY OWNERS. THE APPLICANT WILL BE PRESERVING NATURAL FEATURES ON SITE AS SHOWN ON SHEET 2. ADDITIONAL PLANTING AROUND THE PROPOSED STREET WILL BE PROVIDED. THE APPLICANT WILL ENSURE THAT THE POST DEVELOPMENT RUNOFF IS LESS THAN THE PRE DEVELOPMENT RUNOFF.
24. ADDITIONAL TREE PLANTINGS AND PRESERVATION, AS SHOWN ON THE GDP, WILL PROVIDE ADEQUATE MEASURES OF SCREENING AND PROVIDE AN AMENITY TO THIS COMMUNITY.
25. MINOR ADJUSTMENTS TO THE LOT LINES AND UTILITY LOCATIONS SHALL BE PERMITTED IN ACCORDANCE WITH THE FINAL GRADING AND UTILITY LAYOUT AND SHALL BE IN SUBSTANTIAL CONFORMANCE WITH THAT PROVIDED HEREIN.
26. EXISTING STRUCTURE CONSTRUCTED IN 1957 AND SHALL BE REMOVED PRIOR TO APPROVAL OF THIS REZONING PER 9615-CON-001-1. THE APPROXIMATE HEIGHT OF THE EXISTING STRUCTURE IS 20 FEET.
27. LOCATION OF EXISTING STRUCTURES ON OFFSITE PROPERTIES ARE APPROXIMATE AND FROM INFORMATION OF RECORD.

WAIVERS AND MODIFICATIONS

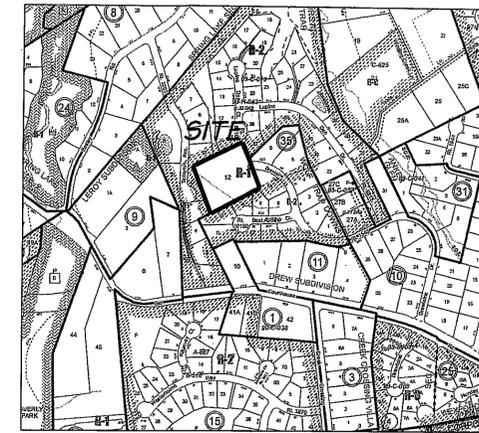
1. THE APPLICANT WILL SUBMIT A SECONDARY STREET ACCEPTANCE REQUIREMENT WAIVER FOR THE PROPOSED DREHLAINE DRIVE EXTENSION AND TERMINATION. THIS WAIVER WILL BE FOR THE MULTIPLE CONNECTIONS REQUIREMENTS.

TABULATIONS

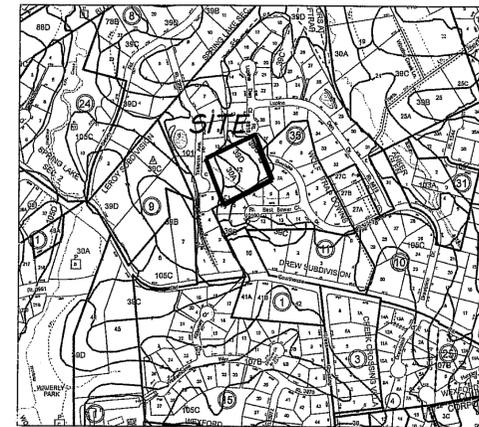
SITE AREA = 109,913 SF. OR 2.5 ACRES
 EXISTING ZONING = R-1
 PROPOSED ZONING = R-2
 PROPOSED USE = SINGLE FAMILY DETACHED
 MAXIMUM BUILDING HEIGHT REQUIRED/PROVIDED. = 35 FEET
 AVERAGE LOT SIZE REQUIRED = 18,000 SF.
 AVERAGE LOT SIZE PROVIDED = ±18,000 SF.
 MINIMUM LOT SIZE REQUIRED = 15,000 SF.
 MINIMUM LOT SIZE PROVIDED = ≥ 15,000 SF.
 MINIMUM LOT WIDTH REQUIRED/PROVIDED = 100' (INTERIOR), 125' (CORNER)
 MINIMUM YARDS:
 REQUIRED/PROVIDED: FRONT YARD: 35'
 SIDE YARD: 15'
 REAR YARD: 25'
 OPEN SPACE REQUIRED: NONE
 OPEN SPACE PROVIDED: ±4,700 SF
 PARKING:
 REQUIRED (2 SPACES/UNIT) = 10 SPACES
 PROVIDED (4 SPACES/UNIT) = 20 SPACES (MIN. 18' DRIVEWAY WITH 2 SP. IN DRIVEWAY & 2 SP. IN GARAGE)
 DENSITY:
 PERMITTED (5 UNITS) = 2.00 DU/AC
 PROPOSED (5 UNITS) = 2.00 DU/AC

GENERAL STATEMENT

THE PROPERTY PROPOSED FOR THIS REZONING IS LOCATED ON FAIRFAX COUNTY TAX MAP 28-4 ((1)) PARCEL 12 AND IS CURRENTLY ZONED R-1. THE TOTAL AREA OF THE PROPERTY SUBJECT TO THIS APPLICATION IS 2.5 ACRES. THE APPLICANT PROPOSES A REZONING OF THE PROPERTY TO THE R-2 DISTRICT FOR THE PURPOSES OF CONSTRUCTING 5 NEW HOUSES.



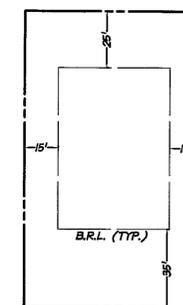
VICINITY MAP
SCALE: 1" = 500'



SOILS MAP
SCALE: 1" = 500'

SOIL INFORMATION

SOIL #	SOIL NAME	PROBLEM CLASS	FOUNDATION SUPPORT	DRAINAGE	EROSION POTENTIAL
30	CODORUS - HATBORO	III	POOR	POOR	LOW
39	GLENELG SILT LOAM	I	GOOD	GOOD	HIGH
101	URBAN LAND-WHEATON COMPLEX	IVB	GOOD	FAIR	HIGH



TYPICAL LOT DETAIL
(N.T.S.)

IN ACCORDANCE WITH SECTION 2-412 OF THE ZONING ORDINANCE, ANY OPEN DECK WITH NO PART OF ITS FLOOR HIGHER THAN 4' ABOVE FINISHED GROUND LEVEL MAY EXTEND INTO THE SIDE YARD 5' BUT NOT CLOSER THAN 5' TO ANY SIDE LOT LINE AND INTO THE REAR YARD 20' BUT NOT CLOSER THAN 5' TO ANY SIDE OR REAR LOT LINE.

IN ACCORDANCE WITH SECTION 2-412 OF THE ZONING ORDINANCE, ANY OPEN DECK WITH ANY PART OF ITS FLOOR HIGHER THAN 4' ABOVE FINISHED GROUND LEVEL MAY NOT EXTEND INTO A SIDE YARD AND MAY EXTEND 12' INTO A REAR YARD, BUT NOT CLOSER THAN 5' TO ANY REAR LOT LINE AND NOT CLOSER THAN A DISTANCE EQUAL TO THE MINIMUM REQUIRED SIDE YARD TO THE SIDE LOT LINE.

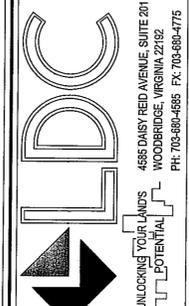
Application No: R2 2012-HM-013 Staff: M. Brady

APPROVED DEVELOPMENT PLAN
 (DP) (GDP) (CDP) (FDP) (PRC) (CP)
 SEE PROFFERS DATED: 12/14/12
 Date of (GDP) (FC) Approval: 1/8/13
 Sheet: 1 of 11
 Comments:

SHEET INDEX

1. COVER SHEET
2. GENERALIZED DEVELOPMENT PLAN
- 2A. LANDSCAPE PLAN
3. EXISTING CONDITIONS PLAN
4. EXISTING VEGETATION MAP
5. TREE PRESERVATION AND PROTECTION PLAN
6. TREE PRESERVATION NARRATIVE
7. ELEVATIONS
8. STORMWATER MANAGEMENT INFORMATION
- 8A-8B. INFILTRATION TRENCH SUPPLEMENTAL INFORMATION

RECEIVED
 Department of Planning & Zoning
 OCT 09 2012
 Zoning Evaluation Division



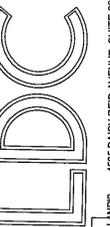
COVER SHEET
WOLF TRAP
DOWNS, SEC. 2
 HUNTER HILL DISTRICT
 FAIRFAX COUNTY, VIRGINIA

DATE	DESCRIPTION	REVISION APPROVED BY:	APPROVED DATE
12/14/12	UPDATE WAIVERS/MODIFICATIONS		
12/14/12	UPDATE OPEN SPACE INFO		
12/14/12	UPDATE SHEET INDEX, NOTE 2		
	DATE DESIGN	NO.	REVIEW BY
	ENGINEER		

I HEREBY CERTIFY THAT OTHER THAN THE REVISIONS SHOWN HEREON, NO OTHER CHANGES HAVE BEEN MADE.



SCALE: N/A
 SHEET 1 of 8
 DATE: MAY, 2012
 DRAFT: KMA CHECK: NITTY
 FILE NUMBER: 12048-1-0 3.0B



UNLOCKING YOUR LANDS
POTENTIAL

4665 DANCY REID AVENUE, SUITE 201
WOODBRIDGE, VIRGINIA 22192
PH: 703-680-4585 FX: 703-680-4775

GENERALIZED
DEVELOPMENT
PLAN

WOLF TRAP
DOWNS, SEC. 2

HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

Application No: R2 2012-HM-013 Staff: M. Brady

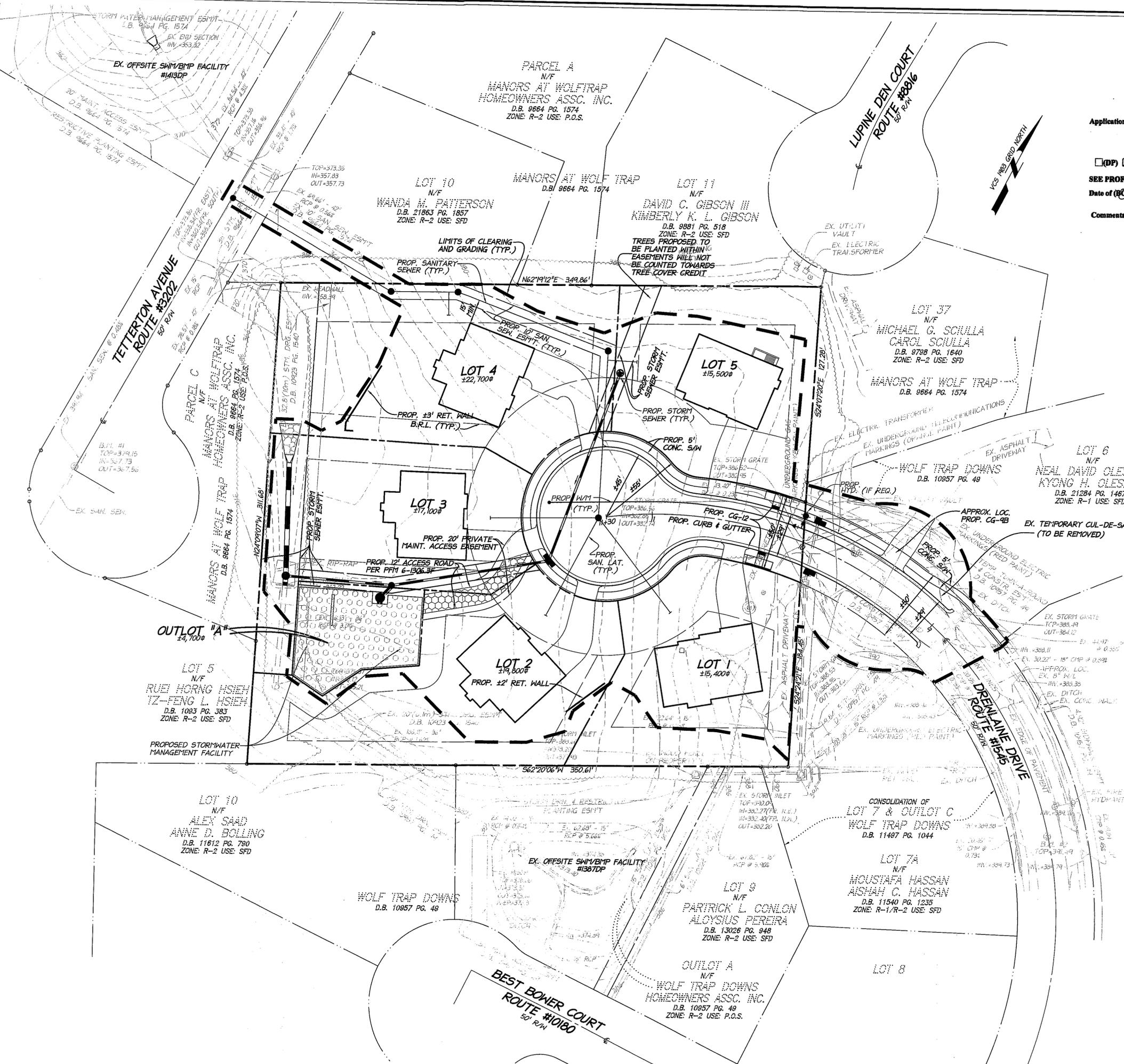
APPROVED DEVELOPMENT PLAN
 (DP) (GBP) (CDP) (FDP) (PRC) (CP)

SEE PROFFERS DATED: 12/14/12

Date of (R03) (PC) Approval: 1/8/13

Sheet: 2 of 11

Comments:



NO.	DATE	DESCRIPTION	REVISION APPROVED BY:
1	7/12	UPDATE LAYOUT WITH SMT	
2	8/12	REVISE LOTS 10, 11, 27, 37, 57, 7A, 9, AND OUTLOT A TO SHEET 2A	
3	9/12	ADD MAINT. ACCESS ROAD	
4	9/12	ADD RET. WALL (TYP.)	

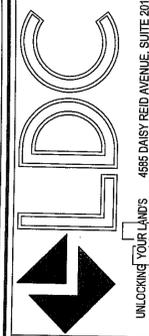
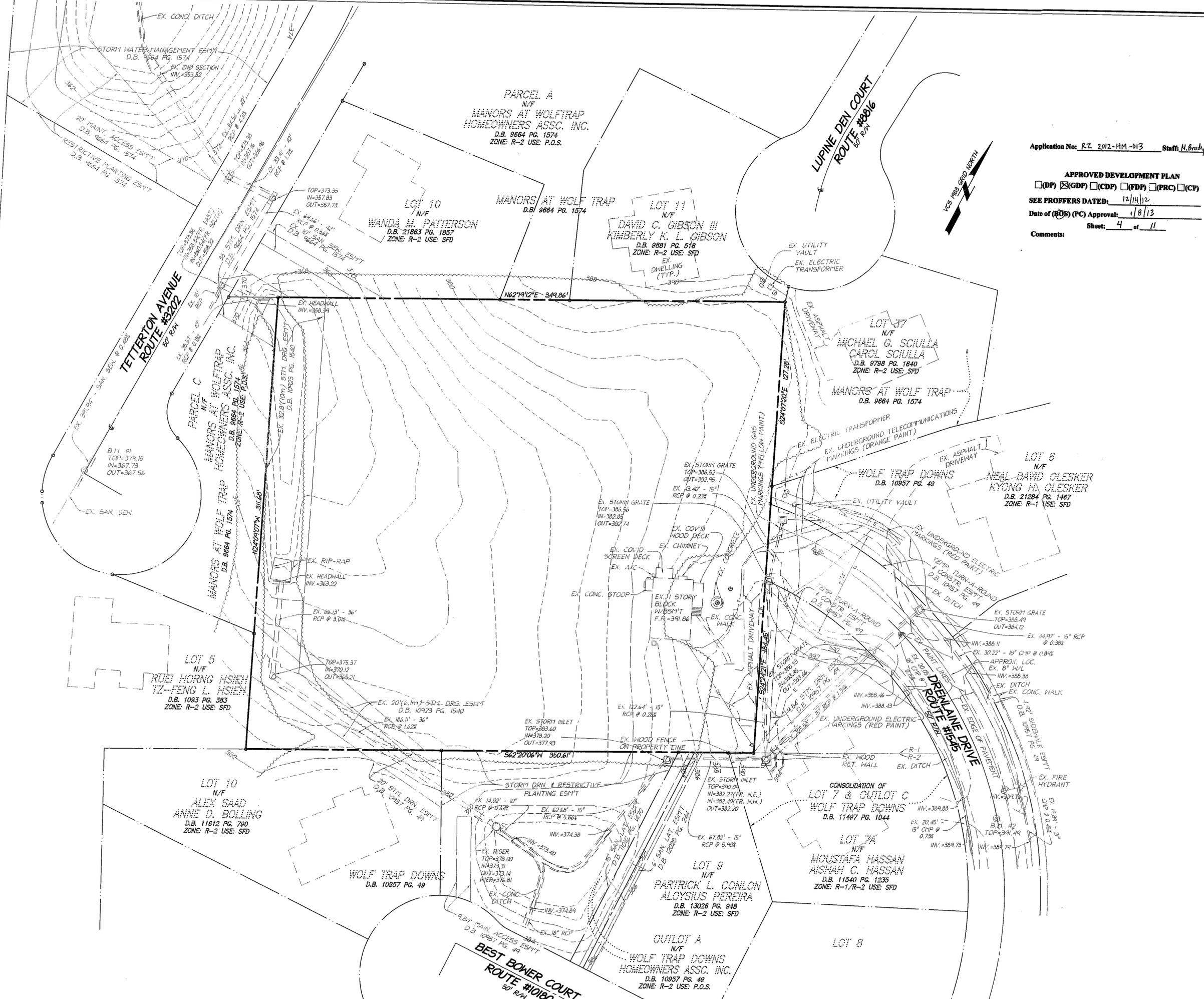
I HEREBY CERTIFY THAT OTHER THAN THE REVISIONS SHOWN HEREON, NO OTHER CHANGES HAVE BEEN MADE.



SCALE:
1" = 30'

SHEET 2 OF 8

DATE: MAY, 2012
 DRAFT: KMA CHECK: MTM
 FILE NUMBER: 12048-1-0 3.05



EXISTING
CONDITIONS
PLAN

WOLF TRAP
DOWNS, SEC. 2
HUNTER HILL DISTRICT

Application No: R.Z. 2012-HM-013 Staff: M. Brady
 APPROVED DEVELOPMENT PLAN
 (DP) (GDP) (CDF) (FDP) (PRC) (CP)
 SEE PROFFERS DATED: 12/11/12
 Date of (GDP) (PC) Approval: 1/8/13
 Sheet: 4 of 11
 Comments:

DATE	DESIGN	NO.	DESCRIPTION	REVISION	BY	APPROVED	DATE

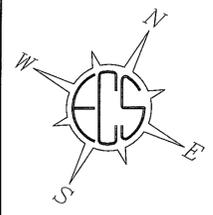
I HEREBY CERTIFY THAT OTHER THAN THE REVISIONS SHOWN HEREON, NO OTHER CHANGES HAVE BEEN MADE.



SCALE: 1" = 30'

SHEET 3 OF 8

DATE: MAY, 2012
 DRAFT: KMA CHECK: MTM
 FILE NUMBER: 12048-1-0 3.03



LEGEND

- TREELINE
- EXISTING CANOPY (2) UPLAND FOREST (95,506-SF)
LONGTERM SUCCESSIONAL FOREST
- CRITICAL ROOT ZONE (CRZ)
- TREE LOCATION
T-16

Application No: RZ 2012-HM-013 Staff: M. Brady

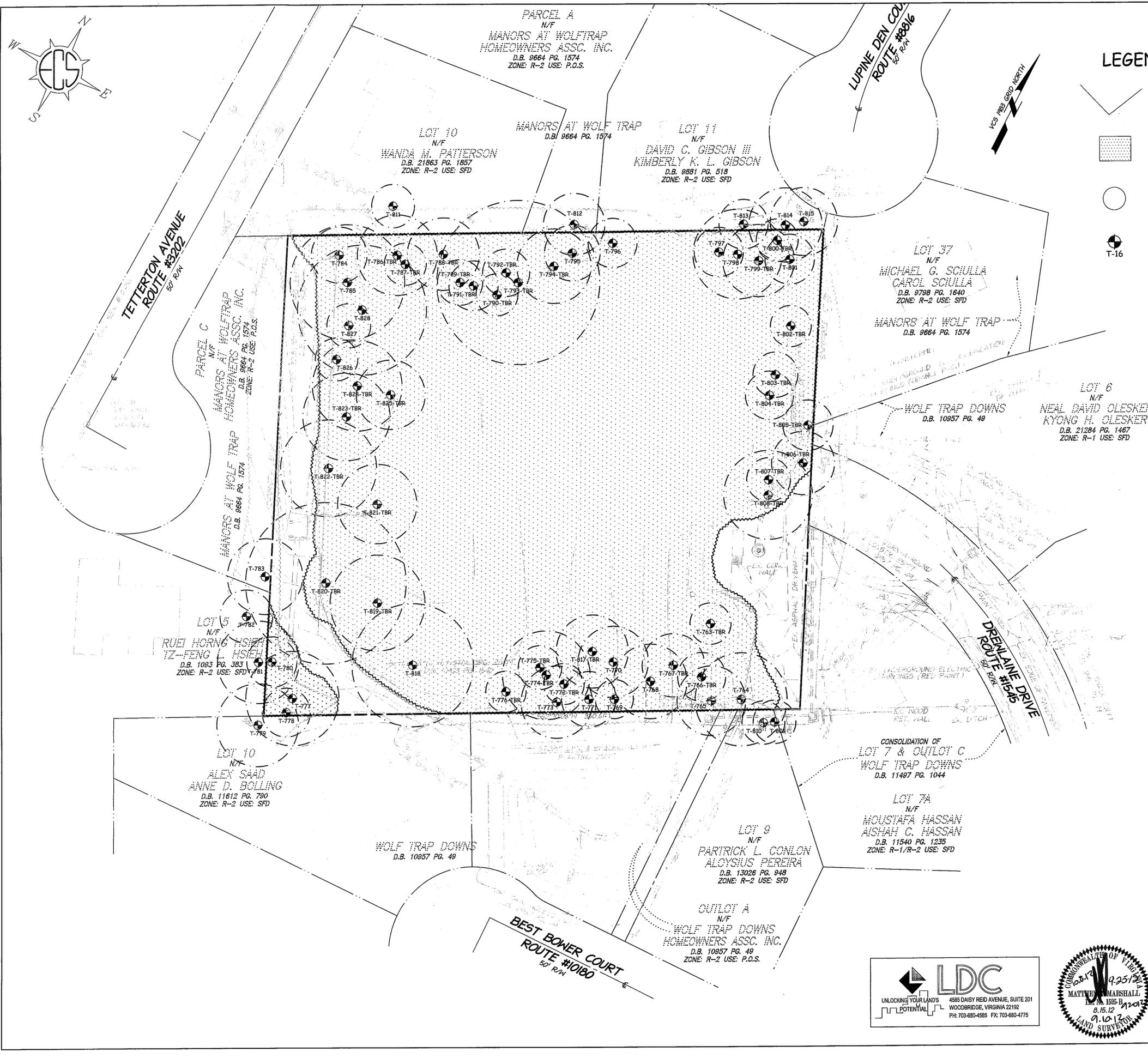
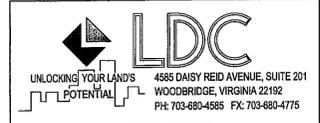
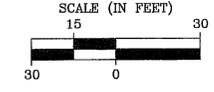
APPROVED DEVELOPMENT PLAN
 (DP) (GDP) (CDF) (FDP) (PRC) (CP)

SEE PROFFERS DATED: 12/14/12
 Date of (RDS) (PC) Approval: 1/8/13
 Sheet: 5 of 11

Comments:

Tree Number	Common Name	Size (inches DBH)	Critical Root Zone (feet)	Condition	Remove	Notes
763	Northern Red Oak	13.4	13.4	63%	x	
764	Northern Red Oak	30.0	30.0	72%		Prune dead limbs
765	Northern Red Oak	22.4	22.4	63%		Prune dead limbs at the top
766	Northern Red Oak	15.7	15.7	63%	x	Few dead limbs
767	Chestnut Oak	20.4	20.4	81%	x	
768	Chestnut Oak	24.0	24.0	75%		
769	White Oak	12.5	12.5	69%		
770	Chestnut Oak	23.0	23.0	59%		Prune large dead limbs
771	Chestnut Oak	17.6	17.6	78%		
772	Chestnut Oak	13.2	13.2	76%	x	
773	Red Maple	23.2	23.2	72%		Double trunk, cavity at base
774	Red Maple	28.8	28.8	64%	x	
775	Black Gum	14.2	14.2	75%	x	
776	Black Gum	13.2	13.2	Dead	x	Dead, to be removed
777	White Oak	30.5	30.5	72%		Prune large dead limbs
778	Chestnut Oak	15.8	15.8	75%		
779	White Oak	26.7	26.7	69%		Offsite Tree
780	White Oak	16.4	16.4	72%		Prune dead limbs
781	Tulip Poplar	26.7	26.7	69%		Offsite Tree
782	Black Gum	17.2	17.2	69%		Offsite Tree, many dead limbs
783	White Oak	24.6	24.6	78%		Offsite Tree
784	White Oak	19.2	19.2	47%		
785	Chestnut Oak	37.4	37.4	63%		Double trunk, weak crotch
786	Tulip Poplar	26.1	26.1	84%	x	
787	Chestnut Oak	13.7	13.7	78%	x	
788	Northern Red Oak	23.5	23.5	84%	x	
789	Chestnut Oak	14.8	14.8	69%	x	Disease at base
790	White Oak	13.7	13.7	59%	x	
791	Chestnut Oak	16.1	16.1	69%	x	Rot at base
792	Northern Red Oak	15.4	15.4	59%	x	Disease at base
793	Chestnut Oak	53.2	53.2	53%	x	Double trunk, weak crotch, many dead limbs
794	Chestnut Oak	24.2	24.2	72%	x	
795	White Oak	18.1	18.1	94%		
796	Northern Red Oak	16.0	16.0	63%		Slight lean, prune dead limbs
797	Chestnut Oak	16.0	16.0	72%		
798	Red Maple	29.1	29.1	64%		
799	Tulip Poplar	23.4	23.4	65%	x	
800	Big-Toothed Aspen	13.8	13.8	Dead	x	Dead, to be removed
801	Northern Red Oak	16.2	16.2	53%		Prune dead limbs
802	Big-Toothed Aspen	13.4	13.4	Dead	x	Dead, to be removed
803	Chestnut Oak	14.7	14.7	75%	x	
804	White Oak	15.7	15.7	56%	x	Many dead limbs
805	Northern Red Oak	16.4	16.4	78%	x	
806	Chestnut Oak	20.6	20.6	76%	x	
807	Chestnut Oak	14.3	14.3	79%	x	
808	Northern Red Oak	29.0	29.0	73%	x	Lichen, some large dead limbs
809	Virginia Pine	14.0	14.0	Dead		Offsite Tree
810	Black Gum	14.0	14.0	81%		Offsite Tree
811	White Oak	14.0	14.0	47%		Offsite Tree
812	Chestnut Oak	20.0	20.0	59%		Offsite Tree
813	Big-Toothed Aspen	16.0	16.0	69%		Offsite Tree
814	Tulip Poplar	24.0	24.0	81%		Offsite Tree
815	Weeping Willow	22.0	22.0	78%		Offsite Tree
817	Northern Red Oak	23.6	23.6	69%	x	
818	Chestnut Oak	39.7	39.7	72%		Triple trunk, weak crotch
819	White Oak	31.0	31.0	72%		Some dead limbs
820	Chestnut Oak	52.5	52.5	72%	x	Triple trunk, weak crotch
821	White Oak	25.9	25.9	69%	x	Slight lean
822	White Oak	31.4	31.4	63%	x	Trunk disease, prune dead limbs
823	White Oak	26.5	26.5	69%	x	Some dead limbs
824	Chestnut Oak	23.3	23.3	69%	x	Double trunk, some disease
825	White Oak	22.5	22.5	59%	x	Broken trunk, some dead limbs
826	Red Maple	13.6	13.6	66%		Small root cavities, one-sided
827	Northern Red Oak	14.3	14.3	75%		Grinding root, one sided
828	Chestnut Oak	42.1	42.1	59%		Double trunk, weak crotch, some disease

NOTES:
 1. SHARED TREES SHALL NOT BE REMOVED WITHOUT WRITTEN PERMISSION FROM AFFECTED ADJACENT PROPERTY OWNERS.
 2. OFF-SITE TREES TO THE NORTHEAST WERE NOT LOCATED DUE TO ADJACENT PROPERTY OWNER ISSUES.



CELEBRATING 20 YEARS OF EXCELLENCE

EGS - MID-ATLANTIC, LLC
 14026 THUNDERBOLT PLACE
 SUITE 100
 CHANTOY, VA 22021
 1-800-822-3489
 703-971-8400
 (FAX) 703-934-9277

SETTING THE STANDARD FOR SERVICE

**DREWLAIN DRIVE
 VIENNA, VIRGINIA
 FAIRFAX COUNTY**

**EXISTING VEGETATION
 MAP**

SEKAS HOMES, LTD.

ENGINEER: AMS
 DRAFTING: AEA

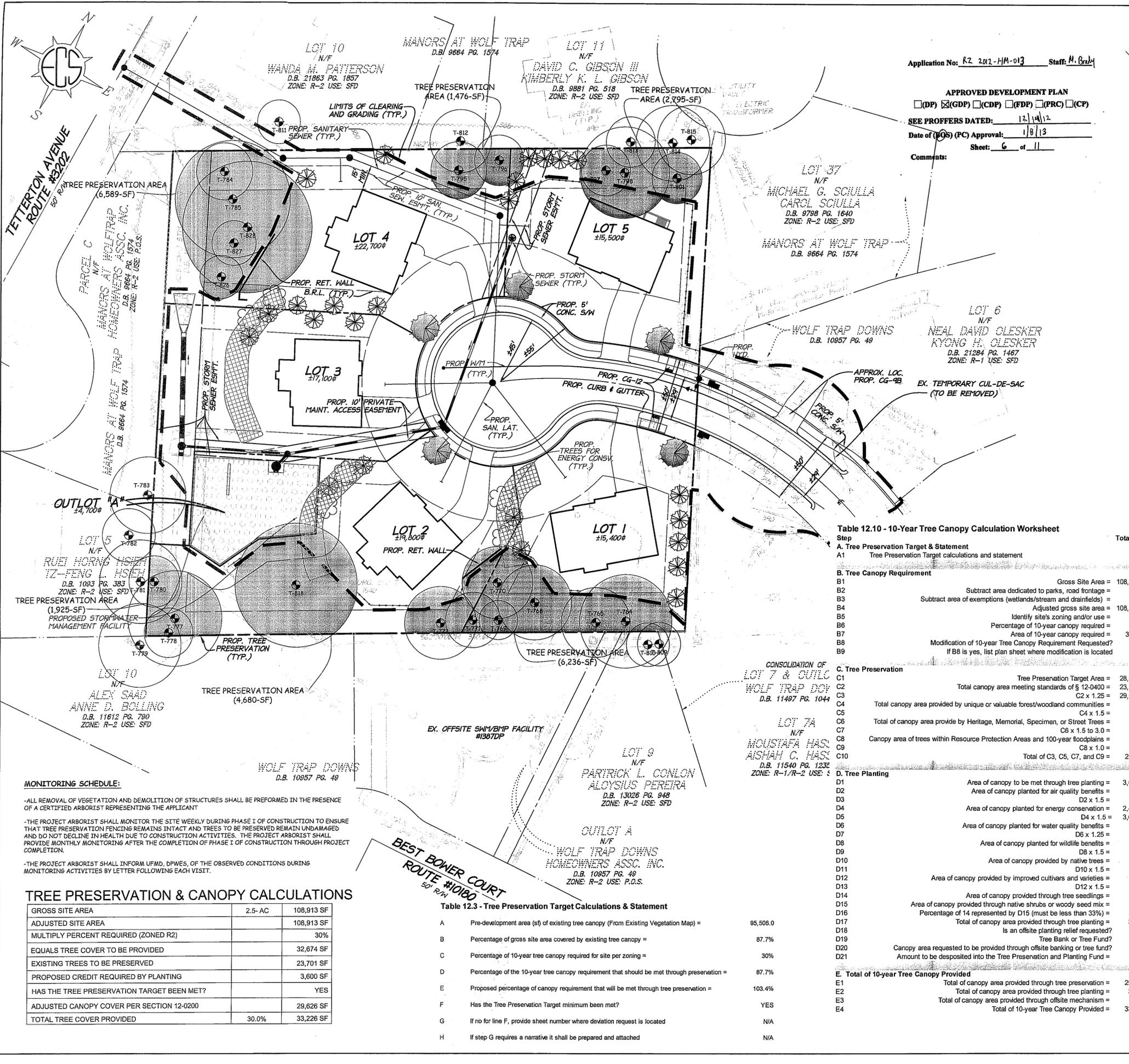
SCALE: 1" = 30'

PROJECT NO.: 01:19528

SHEET: 4 of 8

DATE: 05/07/12

ECS REVISIONS:



LEGEND

- TREELINE
- EXISTING CANOPY (2) UPLAND FOREST (95,506-SF)
LONGTERM SUCCESSIONAL FOREST
- TREE PRESERVATION AREA (2) UPLAND FOREST (23,701-SF)
LONGTERM SUCCESSIONAL FOREST
- CRITICAL ROOT ZONE (CRZ)
- TREE LOCATION
- TREE PROTECTION FENCING & ROOT PRUNING
- NO TREES IN PROPOSED EASEMENTS WILL BE COUNTED FOR TREE COVER CREDIT.



Application No: R2 2012-HM-013 Staff: M. Brady
 APPROVED DEVELOPMENT PLAN
 (DP) (GDP) (CDF) (FDP) (PRC) (CP)
 SEE PROFFERS DATED: 12/14/12
 Date of (GOS) (PC) Approval: 1/8/13
 Sheet: 6 of 11
 Comments:

Table 12.10 - 10-Year Tree Canopy Calculation Worksheet

Step	Description	Value
A. Tree Preservation Target & Statement		
A1	Tree Preservation Target calculations and statement	
B. Tree Canopy Requirement		
B1	Gross Site Area =	108,913.0
B2	Subtract area dedicated to parks, road frontage =	0.0
B3	Subtract area of exemptions (wetlands/stream and drainfields) =	0.0
B4	Adjusted gross site area =	108,913.0
B5	Identify site's zoning and/or use =	R-2
B6	Percentage of 10-year canopy required =	30%
B7	Area of 10-year canopy required =	32,674
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 =	28,651.7
C2	Total canopy area meeting standards of § 12-0400 =	23,701.0
C3	C2 x 1.25 =	29,626.3
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 =	0.0
C9	C8 x 1.0 =	0.0
C10	Total of C3, C5, C7, and C9 =	29,626
D. Tree Planting		
D1	Area of canopy to be met through tree planting =	3,047.7
D2	Area of canopy planted for air quality benefits =	0.0
D3	D2 x 1.5 =	0.0
D4	Area of canopy planted for energy conservation =	2,400.0
D5	D4 x 1.5 =	3,600.0
D6	Area of canopy planted for water quality benefits =	0.0
D7	D6 x 1.25 =	0.0
D8	Area of canopy planted for wildlife benefits =	0.0
D9	D8 x 1.5 =	0.0
D10	Area of canopy provided by native trees =	0.0
D11	D10 x 1.5 =	0.0
D12	Area of canopy provided through tree seedlings =	0.0
D13	D12 x 1.5 =	0.0
D14	Area of canopy provided through native shrubs or woody seed mix =	0.0
D15	Percentage of 14 represented by D15 (must be less than 33%) =	0.0%
D16	Total of canopy area provided through tree planting =	3,600
D17	Is an offsite planting relief requested? =	No
D18	Tree Bank or Tree Fund? =	No
D19	Canopy area requested to be provided through offsite banking or tree fund? =	No
D20	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 =	29,626
E2	Total of canopy area provided through tree planting =	3,600
E3	Total of canopy area provided through offsite mechanism =	0
E4	Total of 10-year Tree Canopy Provided =	33,226

Tree Number	Common Name	Size (inches DBH)	Critical Root Zone (feet)	Condition	Remove	Notes
763	Northern Red Oak	13.4	13.4	63%	x	
764	Northern Red Oak	30.0	30.0	72%		Prune dead limbs
765	Northern Red Oak	22.4	22.4	63%		Prune dead limbs at the top
766	Northern Red Oak	15.7	15.7	69%	x	Few dead limbs
767	Chestnut Oak	20.4	20.4	91%		
768	Chestnut Oak	24.0	24.0	75%		
769	White Oak	12.5	12.5	59%		
770	Chestnut Oak	23.0	23.0	59%		Prune large dead limbs
771	Chestnut Oak	17.8	17.8	78%		
772	Chestnut Oak	13.2	13.2	72%	x	
773	Red Maple	23.2	23.2	72%		Double trunk, cavity at base
774	Chestnut Oak	28.6	28.6	84%	x	
775	Black Gum	14.2	14.2	75%	x	
776	Black Gum	13.2	13.2	62%	x	Dead, to be removed
777	White Oak	30.5	30.5	72%	x	Prune large dead limbs
778	Chestnut Oak	15.8	15.8	75%		
779	White Oak	28.7	28.7	69%		Offsite Tree
780	White Oak	16.4	16.4	72%		Prune dead limbs
781	Tulip Poplar	28.7	28.7	68%		Offsite Tree
782	Black Gum	17.2	17.2	69%		Offsite Tree, many dead limbs
783	White Oak	24.6	24.6	78%		Offsite Tree
784	White Oak	18.2	18.2	47%		
785	Chestnut Oak	37.4	37.4	63%		Double trunk, weak crotch
786	Tulip Poplar	28.1	28.1	84%	x	
787	Chestnut Oak	33.7	33.7	78%	x	
788	Northern Red Oak	23.6	23.6	64%	x	
789	Chestnut Oak	14.8	14.8	59%	x	Disease at base
790	White Oak	13.7	13.7	59%	x	
791	Chestnut Oak	16.1	16.1	69%	x	Rot at base
792	Northern Red Oak	15.4	15.4	59%	x	Disease at base
793	Chestnut Oak	63.2	63.2	53%	x	Double trunk, weak crotch, many dead limbs
794	Chestnut Oak	24.2	24.2	79%	x	
795	White Oak	18.1	18.1	54%		
796	Northern Red Oak	16.0	16.0	53%		Slight lean, prune dead limbs
797	Chestnut Oak	16.0	16.0	72%		
798	Red Maple	28.1	28.1	84%		
799	Tulip Poplar	23.4	23.4	62%		
800	Big-Toothed Aspen	13.8	13.8	Dead	x	Dead, to be removed
801	Northern Red Oak	16.2	16.2	53%		Prune dead limbs
802	Big-Toothed Aspen	13.4	13.4	Dead	x	Dead, to be removed
803	Chestnut Oak	14.7	14.7	75%	x	
804	White Oak	15.7	15.7	56%	x	Many dead limbs
805	Northern Red Oak	16.4	16.4	78%	x	
806	Chestnut Oak	20.2	20.2	72%	x	
807	Chestnut Oak	14.3	14.3	75%	x	
808	Northern Red Oak	29.0	29.0	78%	x	Lichen, some large dead limbs
809	Virginia Pine	14.0	14.0	Dead		Offsite Tree
810	Black Gum	14.0	14.0	97%		Offsite Tree
811	White Oak	14.0	14.0	97%		Offsite Tree
812	Chestnut Oak	20.0	20.0	59%		Offsite Tree
813	Big-Toothed Aspen	16.0	16.0	89%		Offsite Tree
814	Tulip Poplar	24.0	24.0	61%		Offsite Tree
815	Weeping Willow	22.0	22.0	76%		Offsite Tree
817	Northern Red Oak	23.6	23.6	69%	x	
818	Chestnut Oak	39.7	39.7	72%		Triple trunk, weak crotch
819	White Oak	31.0	31.0	72%	x	Some dead limbs
820	Chestnut Oak	52.5	52.5	72%	x	Triple trunk, weak crotch
821	White Oak	25.9	25.9	69%	x	Slight lean
822	White Oak	31.4	31.4	63%	x	Trunk disease, prune dead limbs
823	White Oak	28.5	28.5	69%	x	Some dead limbs
824	Chestnut Oak	29.3	29.3	66%	x	Double trunk, some disease
825	White Oak	22.5	22.5	59%	x	Broken trunk, some dead limbs
826	Red Maple	13.9	13.9	66%		Small root cavities, one-sided
827	Northern Red Oak	14.3	14.3	74%		Girdling root, one sided
828	Chestnut Oak	42.1	42.1	56%		Double trunk, weak crotch, some disease

NOTES:
 1. SHARED TREES SHALL NOT BE REMOVED WITHOUT WRITTEN PERMISSION FROM AFFECTED ADJACENT PROPERTY OWNERS.
 2. OFF-SITE TREES TO THE NORTHEAST WERE NOT LOCATED DUE TO ADJACENT PROPERTY OWNER ISSUES.

MONITORING SCHEDULE:

- ALL REMOVAL OF VEGETATION AND DEMOLITION OF STRUCTURES SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED ARBORIST REPRESENTING THE APPLICANT
- THE PROJECT ARBORIST SHALL MONITOR THE SITE WEEKLY DURING PHASE I OF CONSTRUCTION TO ENSURE THAT TREE PRESERVATION FENCING REMAINS INTACT AND TREES TO BE PRESERVED REMAIN UNHARMED AND DO NOT DECLINE IN HEALTH DUE TO CONSTRUCTION ACTIVITIES. THE PROJECT ARBORIST SHALL PROVIDE MONTHLY MONITORING AFTER THE COMPLETION OF PHASE I OF CONSTRUCTION THROUGH PROJECT COMPLETION.
- THE PROJECT ARBORIST SHALL INFORM UFMD, DPWES, OF THE OBSERVED CONDITIONS DURING MONITORING ACTIVITIES BY LETTER FOLLOWING EACH VISIT.

TREE PRESERVATION & CANOPY CALCULATIONS

Category	Value	Percentage
GROSS SITE AREA	2.5-AC	108,913 SF
ADJUSTED SITE AREA		108,913 SF
MULTIPLY PERCENT REQUIRED (ZONED R2)		30%
EQUALS TREE COVER TO BE PROVIDED		32,674 SF
EXISTING TREES TO BE PRESERVED		23,701 SF
PROPOSED CREDIT REQUIRED BY PLANTING		3,600 SF
HAS THE TREE PRESERVATION TARGET BEEN MET?		YES
ADJUSTED CANOPY COVER PER SECTION 12-0200		29,626 SF
TOTAL TREE COVER PROVIDED		33,226 SF

Table 12.3 - Tree Preservation Target Calculations & Statement

Letter	Description	Value
A	Pre-development area (sf) of existing tree canopy (From Existing Vegetation Map) =	95,506.0
B	Percentage of gross site area covered by existing tree canopy =	87.7%
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 =	87.7%
E	Proposed percentage of canopy requirement that will be met through tree preservation =	103.4%
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

CELEBRATING 20 YEARS OF EXCELLENCE

ECS-MID-ATLANTIC, LLC
 14025 THUNDERBOLT PLACE
 SUITE 300
 CHANTILLY, VA 20151
 703-471-8400
 (FAX) 703-584-2927

SETTING THE STANDARD FOR SERVICE

**DREWLAIN DRIVE
 VIENNA, VIRGINIA
 FAIRFAX COUNTY**

**TREE PRESERVATION
 & PROTECTION PLAN
 SEKAS HOMES, LTD.**

ECS REVISIONS

7/24/12 - LAW

8/10/12 - AMS

ENGINEER AMS

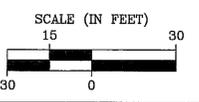
DRAFTING AEA

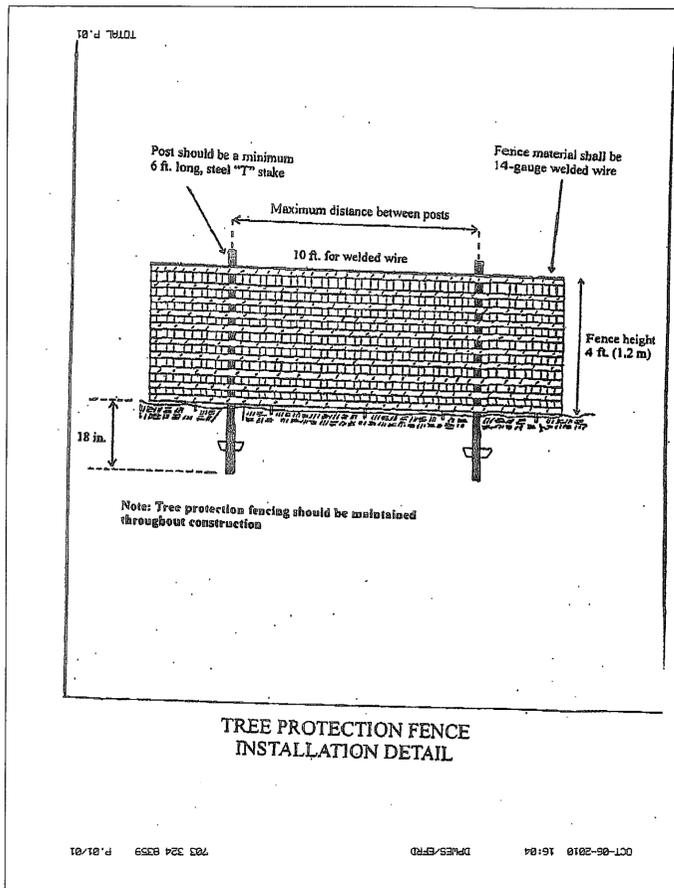
SCALE 1" = 30'

PROJECT NO. 01:19528

SHEET 5 OF 8

DATE 05/07/12





TREE CONDITION ANALYSIS

ECS Mid-Atlantic, LLC (ECS) conducted a site reconnaissance to evaluate the wooded habitat on the project site in April and May 2012. The undeveloped portions of the site are comprised primarily of Upland Hardwoods (i.e. Oak species) and Softwoods (i.e. Virginia Pine). The species of trees assessed near the limits of clearing are listed in the Tree Table on the Existing Vegetation Map. In addition to those species, Eastern Hemlock, Sassafras, Black Cherry, American beech, Mountain Laurel, and American Holly were also observed onsite.

Based on our site reconnaissance, invasive and/or noxious species (i.e.: Japanese Honeysuckle) are present throughout the project site. Invasive species located within the areas to be preserved should be removed by hand wherever practicable to minimize site disturbance. The trees onsite are in Fair/Good condition, except where otherwise noted on the EVM (i.e.: Poor or 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 Existing Vegetation Map. 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

§ 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.: Japanese Honeysuckle) are present throughout the site. Invasive species located within the areas to be preserved should be removed by hand wherever practicable to minimize site disturbance. See the previous sheet for species-specific control measures. Most of the forested areas within the tree preservation area do not contain invasive plant species at levels that endanger the long-term ecological functionality, health, and regenerative capacity of any native plant communities present onsite.

§ 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 §12-0506.2D(1).

§ 12-0509.3G: 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 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.

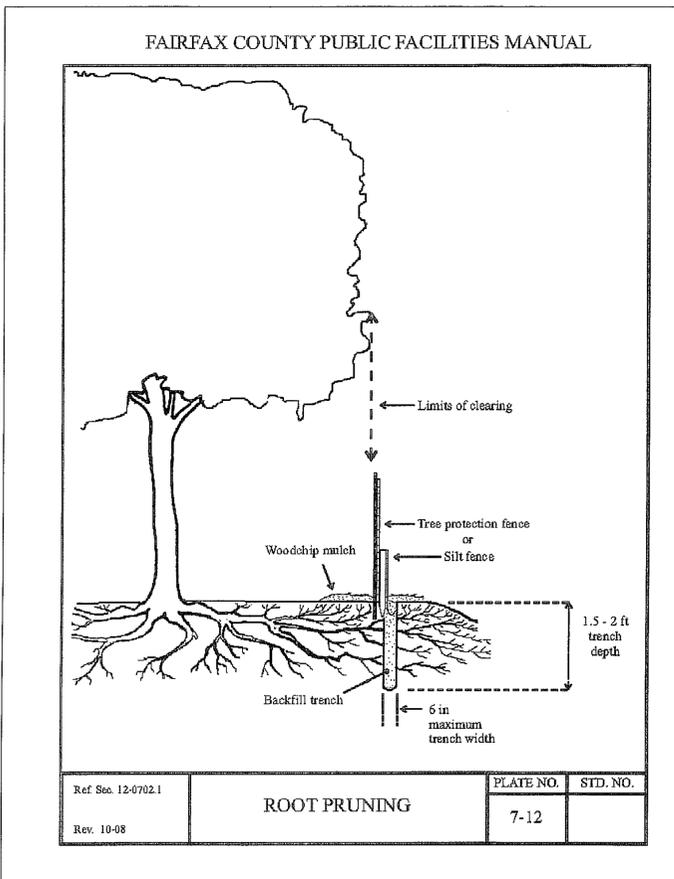
§ 12-0509.3J: No work shall occur within the areas to be protected. Onsite trees within the limits of clearing and grading will be removed. No trees outside this area shall be removed unless indicated on the plan. Trees in preservation areas indicated on the plan to be removed shall be removed by hand. Dead or hazardous trees within this area may be limbed or topped, rather than removing the entire tree and left as snags.

INVASIVE SPECIES CONTROL NARRATIVE:

1. 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. INVASIVE SPECIES CONTROL SHALL BE CONDUCTED UNTIL THE PLANTS NOTED ABOVE ARE NO LONGER IN ABUNDANCE OR UNTIL BOND RELEASE, WHICHEVER IS LATER.



Application No: RZ 2012 - HM-013 Staff: M. Brady

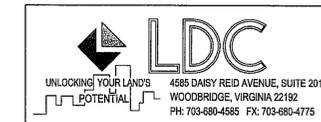
APPROVED DEVELOPMENT PLAN

(DP) (GDP) (CDP) (FDP) (PRC) (CP)

SEE PROFFERS DATED: 12/14/12

Date of (RCS) (PC) Approval: 1/8/13

Comments: Sheet: 7 of 11



**DREWLAINE DRIVE
VIENNA, VIRGINIA
FAIRFAX COUNTY**

**TREE PRESERVATION
NARRATIVES
SEKAS HOMES, LTD.**

ECS REVISIONS	
7/24/12 - LAW	
8/10/12 - AMS	
ENGINEER	DRAFTING
AMS	AEA
SCALE	NTS
PROJECT NO.	01:19528
SHEET	6 OF 8
DATE	05/07/12

CELEBRATING
20 YEARS
OF EXCELLENCE

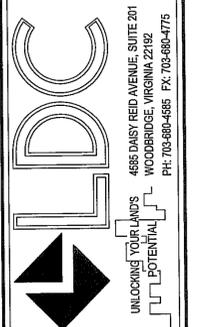
ECS - MID-ATLANTIC, LLC
1408 THUNDERBOLT PLACE
SUITE 100
CHANTILLY, VA 20151
1-800-852-3489
703-680-4585
703-680-4775

SETTING THE STANDARD FOR SERVICE



Application No: RZ 2012-HM-013 Staff: M. Brady

APPROVED DEVELOPMENT PLAN
 (DP) (GDP) (CDP) (FDP) (PRC) (CP)
 SEE PROFFERS DATED: 12/14/12
 Date of (RDS) (PC) Approval: 1/8/13
 Sheet: 8 of 11
 Comments:



ELEVATIONS

WOLF TRAP
 DOWNS, SEC. 2
 HUNTER MILL DISTRICT
 FAIRFAX COUNTY, VIRGINIA

DATE	DESIGN NO.	DESCRIPTION	REVISION APPROVED BY:	APPROVED DATE

I HEREBY CERTIFY THAT OTHER THAN THE REVISIONS SHOWN HEREON, NO OTHER CHANGES HAVE BEEN MADE.



SCALE: N/A
 SHEET 7 OF 8
 DATE: MAY, 2012
 DRAFT: KMA CHECK: MTT
 FILE NUMBER: 12048-1-0 3.0B

FOR ILLUSTRATIVE PURPOSES ONLY!

STORMWATER MANAGEMENT NARRATIVE

THE STORMWATER MANAGEMENT REQUIREMENTS FOR THE SUBJECT PROPERTY SHALL BE SATISFIED VIA THE CONSTRUCTION OF AN INFILTRATION TRENCH. THIS FACILITY SHALL BE DESIGNED IN ACCORDANCE WITH THE PUBLIC FACILITIES MANUAL (PFM).

THE INFILTRATION TRENCH HAS BEEN DESIGNED FOR THE 10 YEAR 2 HOUR STORM IN ORDER TO PROVIDE DETENTION FOR THE 1, 2 & 10 YEAR STORM EVENTS AND TO MEET BMP REQUIREMENTS. THE SITE CURRENTLY HAS SEVERAL EXISTING BUILDINGS, PAVED SURFACES, AND SOME TREES. CURRENTLY, APPROXIMATELY 7.27 CFS OF RUNOFF IS LEAVING THE SUBJECT PROPERTY UNCONTROLLED AND UNTREATED. WITH THE PROPOSED ATTENUATION, THE POST DEVELOPMENT RUNOFF WILL BE REDUCED SUBSTANTIALLY. THEREFORE, THERE WILL BE A REDUCTION IN RUNOFF LEAVING THE PROPERTY AS A RESULT OF THE PROPOSAL. THE TRENCH HAS BEEN SIZED TO PROVIDE WATER QUALITY AND QUANTITY CONTROL FOR THE SUBJECT PROPERTY AND TO PROVIDE STORAGE FOR THE 1-YEAR STORM VOLUME AS OUTLINED IN "THE DETENTION METHOD" FOR ADEQUATE OUTFALL, PFM SECTION 6-0203.4C.

ON JULY 23, 2012, TERRA ENGINEERING SERVICES, INC. COMPLETED INFILTRATION TESTING IN THE VICINITY OF THE INFILTRATION TRENCH. PER THIS FIELD INVESTIGATION, NO ROCK OR GROUNDWATER WAS ENCOUNTERED THROUGH A DEPTH OF 11 FEET, WHICH IS APPROX. 4.0 FEET BELOW THE PROPOSED BOTTOM OF THE INFILTRATION TRENCH. AN AVERAGE INFILTRATION RATE GREATER THAN THE MINIMUM REQUIRED (2.8 INCHES/HOUR OBSERVED) WAS OBSERVED, THEREFORE LDC BELIEVES THE RESULTS OF THIS SUBSURFACE EXPLORATION ILLUSTRATES ADEQUACY OF THE PROPOSED INFILTRATION TRENCH.

THE FINAL DESIGN OF THE INFILTRATION TRENCH IS SUBJECT TO FURTHER REVIEW BY A GEOTECHNICAL ENGINEER AND FINAL ENGINEERING. ADDITIONAL INFILTRATION TESTING WILL OCCUR AT THE TIME OF SUBDIVISION PLAN SUBMISSION PER THE REQUIREMENTS OF THE PFM. ALL MAINTENANCE SHALL BE CONDUCTED IN ACCORDANCE WITH CHAPTER 3, STANDARD 3.10 OF THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK.

THE FACILITY SHALL BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION AND THE MAINTENANCE SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS.

THE PROPOSED DWELLING ON LOT 2 IS NOT WITHIN THE DAM BREACH INUNDATION ZONE OF THE EXISTING UPSTREAM POND.

DRAINAGE DIVIDE DIVERSION STATEMENT:

THE PROJECT IS LOCATED WITHIN THE DIFFICULT RUN WATERSHED. MINOR CHANGES IN THE NATURAL DRAINAGE DIVIDES ARE PROPOSED AS A PART OF THIS PROJECT. THE CHANGES ARE INTENDED TO ASSIST IN COLLECTING STORMWATER DISCHARGE IN ORDER TO MEET DETENTION, BMP & ADEQUATE OUTFALL REQUIREMENTS AS OUTLINED IN THE PFM. DETENTION RELEASE RATE COMPUTATIONS WILL BE PROVIDED ON THE SUBDIVISION PLAN THAT DEMONSTRATE THAT THE POST DEVELOPED FLOW TO ALL OUTFALLS IS LESS THAN THE PREDEVELOPED AND NO ADVERSE IMPACTS WILL BE EXPERIENCED BY ANY DOWNSTREAM PROPERTIES. NO CHANGES ARE PROPOSED TO ANY MAJOR DRAINAGE SHED DIVIDES. THESE MINOR DIVERSIONS WITHIN AN INDIVIDUAL MAJOR WATERSHED AREA ARE ALLOWED PER PFM SECTION 6-0202.2A (SEE THE OUTFALL ANALYSIS ON THIS SHEET).

STORMWATER MANAGEMENT CHECKLIST

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

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

This information is required under the following Zoning Ordinance paragraphs:
 Special Permits (8-011 2J & 2L) Special Exceptions (9-011 2J & 2L)
 Cluster Subdivision (9-615 1G & 1N) Commercial Revitalization Districts (9-622 2A (12) & (14))
 Development Plans PRC District (16-302 3 & 4L) PRC Plan (16-303 1E & 1O)
 FDP P Districts (except PRC) (16-502 1F & 1Q) Amendments (18-202 10F & 10I)

- 1. Plat is at a minimum scale of 1"=50' (unless it is depicted on one sheet with a minimum scale of 1"=100').
- 2. A graphic depicting the stormwater management facility(ies) and limits of clearing and grading accommodate the stormwater management facility(ies), storm drainage pipe systems and outlet protection, pond spillways, access roads, site outfalls, energy dissipation devices, and stream stabilization measures as shown on Sheet 2.
- 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)
INFILTRATION TRENCH #1 (16-502.1F & 1Q)	21.61 AC.	0.00 AC.	22.18 AC.	34,240 SF	28,480 CF	N/A
Totals						
- 4. Onsite drainage channels, outfalls and pipe systems are shown on Sheet 2 & 6
 Pond inlet and outlet pipe systems are shown on Sheet N/A.
- 5. Maintenance access (road) to stormwater management facility(ies) are shown on Sheet 2.
 Type of maintenance access road surface noted on the plat is GRASS (asphalt, geoblock, gravel, etc.).
- 6. Landscaping and tree preservation shown in and near the stormwater management facility is shown on Sheet 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 6.
- 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 6.
- 9. A description of how the outfall requirements, including contributing drainage areas of the Public Facilities Manual will be satisfied is provided on Sheet 6.
- 10. Existing topography with maximum contour intervals of two (2) feet and a note as to whether it is an air survey or field run is provided on Sheets 1-2.
- 11. A submission waiver is requested for _____.
- 12. Stormwater management is not required because _____.

OUTFALL NARRATIVE

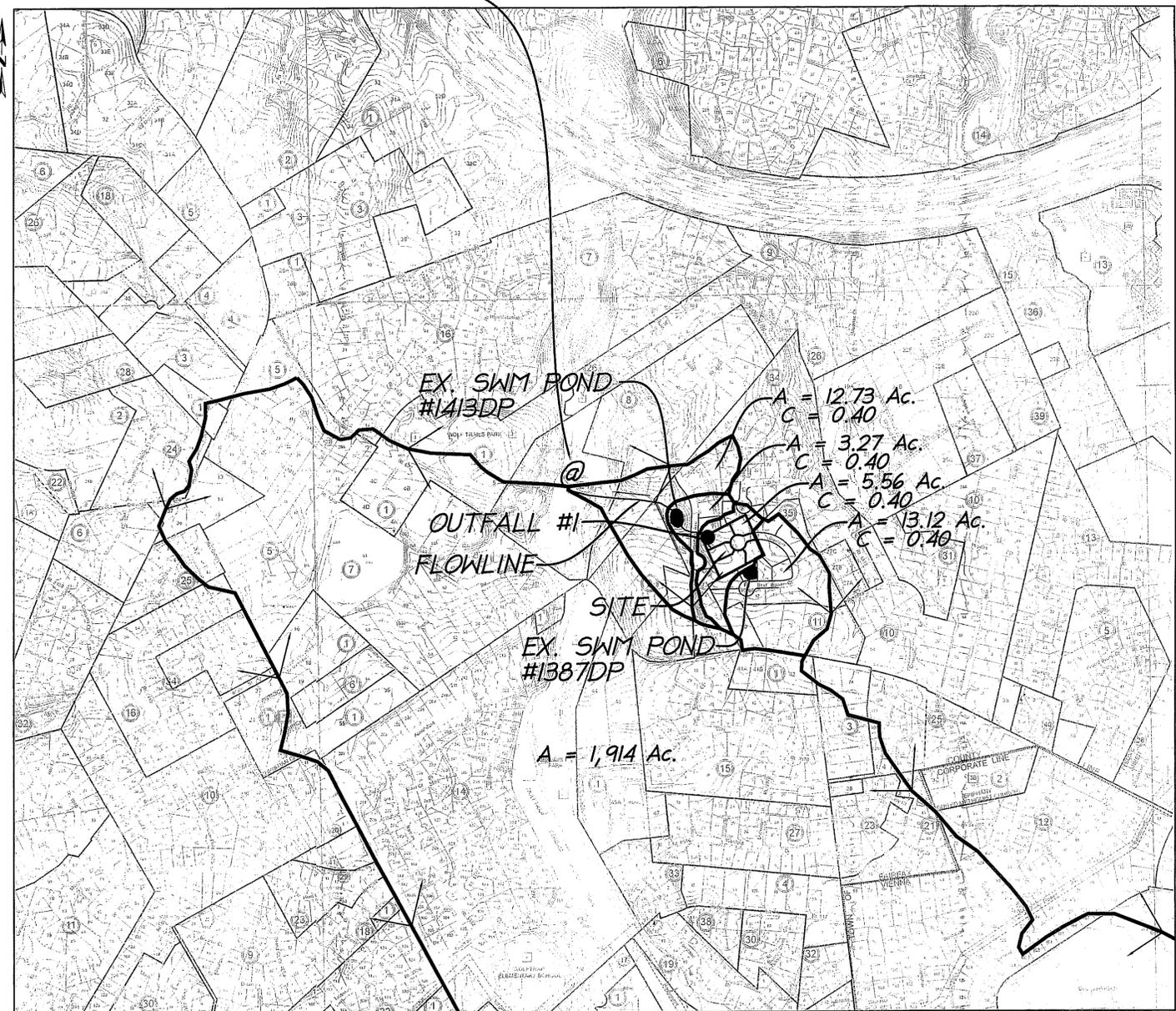
THE SUBJECT PROPERTY IS LOCATED WITHIN THE DIFFICULT RUN WATERSHED. THE SUBJECT PROPERTY MAINTAINS ONE STORM DRAINAGE OUTFALL. THERE ARE NO EXISTING FLOODPLAIN OR RPA AREAS ON THE SUBJECT PROPERTY. AS A RESULT OF THE DEVELOPMENT OF THE SUBJECT PROPERTY AN INCREASE IN RUNOFF WILL BE EXPERIENCED. AN INFILTRATION TRENCH IS PROPOSED TO MEET DETENTION REQUIREMENTS FOR THE SUBJECT PROPERTY. THE LAYOUT OF THE SITE HAS BEEN DESIGNED TO MINIMIZE THE IMPACTS TO DOWNSTREAM PROPERTIES. THE INTENT SHALL BE TO MAINTAIN THE EXISTING DRAINAGE PATTERNS AND TO NOT HAVE A NEGATIVE IMPACT ON ADJACENT PROPERTIES. NO DOWNSTREAM WATER IMPOUNDMENTS ARE WITHIN THE INFLUENCE AREA OF THE PROPOSED PROJECT AND NO BATHYMETRIC NOTIFICATIONS OR SURVEYS ARE REQUIRED.

OUTFALL #1 DISCHARGE LEAVES THE SUBJECT PROPERTY VIA AN EXISTING STORM SEWER SYSTEM BUILT IN ASSOCIATION WITH THE "MANORS AT WOLF TRAP" SUBDIVISION PLAN (#9162-SD-001). THE EXISTING STORM SEWER SYSTEM HAS ADEQUATE CAPACITY FOR THE DISCHARGE FROM THE SUBJECT PROPERTY AND CONVEYS THE DISCHARGE TO AN EXISTING SWM POND ALSO BUILT IN ASSOCIATION WITH THE "MANORS AT WOLF TRAP" SUBDIVISION PLAN (SWM POND #1413DP). THE EXISTING DRY DETENTION POND DISCHARGES INTO AN EXISTING CONVEYANCE CHANNEL WITHIN AN EXISTING STORMWATER MANAGEMENT EASEMENT (D.B. 9664, PG. 1574) AND THEN OUTFALLS TO THE NORTH-WEST INTO AN EXISTING DRAINAGE EASEMENT ON THE LEROY SUBDIVISION (D.B. 1716, PG. 73) AND THEN INTO AN EXISTING STORM DRAINAGE EASEMENT ON THE SPRING LAKE SECTION 2 SUBDIVISION (D.B. 1734, PG. 22) AND THEN INTO THE WOLFTRAP CREEK FLOODPLAIN (D.B. 5040, PG. 368). STORMWATER MANAGEMENT AND BEST MANAGEMENT PRACTICES FOR THE SITE ARE PROVIDED BY THE PROPOSED INFILTRATION TRENCH (SEE "STORMWATER MANAGEMENT INFORMATION" ON THIS SHEET FOR INFILTRATION TRENCH INFORMATION). CROSS-SECTIONS WILL BE PROVIDED FOR THE CONVEYANCE CHANNEL TO WOLFTRAP CREEK TO DEMONSTRATE THAT AN ADEQUATE OUTFALL EXISTS FOR THE SUBJECT PROPERTY PER PFM SECTION 6-0203.

THIS OUTFALL CONVEYS 2.50 ACRES OF DRAINAGE FROM THE SUBJECT PROPERTY IN THE PRE-DEVELOPED CONDITION. AS A RESULT OF THE PROPOSED INFILTRATION TRENCH, DETENTION OF THE TWO AND TEN YEAR STORM EVENT WILL BE PROVIDED. THE DETENTION METHOD FOR ADEQUATE OUTFALL WILL BE USED AS OUTLINED IN PFM SECTION 6-0203.4C. STORAGE OF THE 1-YEAR STORM VOLUME WILL BE PROVIDED IN THE PROPOSED INFILTRATION TRENCH AND THE DISCHARGE FROM THE SITE SHALL BE REDUCED BY THE REQUIRED PROPORTIONAL IMPROVEMENT AMOUNT OUTLINED IN PFM SECTION 6-0203.4C. DEFINED CHANNEL OUTFALL REQUIREMENTS FOR THIS OUTFALL WILL BE DEMONSTRATED BY CROSS-SECTIONS FROM THE OUTFALL OF THE SITE TO THE WOLFTRAP CREEK FLOODPLAIN AND THE EXISTENCE OF AN EXISTING STORM SEWER SYSTEM. THE EXTENT OF REVIEW FOR THE SITE IS WHERE THE CONVEYANCE CHANNEL JOINS THE WOLFTRAP CREEK FLOODPLAIN AS DEFINED BY THE TOTAL DRAINAGE AREA BEING 100 TIMES THE SUBJECT PROPERTY AREA AS OUTLINED IN PFM SECTIONS 6-0203.3 & 6-0203.2B. AT THE POINT WHERE THE CONVEYANCE CHANNEL FROM THE EXISTING SWM POND JOINS WITH WOLFTRAP CREEK, THE TOTAL DRAINAGE AREA IS 1,950 ACRES WHICH IS GREATER THAN 100 TIMES THE DEVELOPMENT SITE AREA OF 2.50 ACRES MAKING THIS THE EXTENT OF THE STUDY AREA FOR THE OUTFALL. THE EXISTING FLOODPLAIN CHANNEL WAS INVESTIGATED AND FOUND TO HAVE A DEFINED BED AND BANKS CHANNEL. THIS OUTFALL IS ADEQUATE IN ACCORDANCE WITH SECTIONS 6-0203.2B, 6-0203.3 & 6-0203.4C OF THE PUBLIC FACILITIES MANUAL.

IT IS OUR PROFESSIONAL OPINION THAT ALL OUTFALLS ARE ADEQUATE IN ACCORDANCE WITH THE PFM.

@= EXTENT OF REVIEW FOR OUTFALL #1
 SEE THIS SHEET FOR "OUTFALL NARRATIVE"



DRAINAGE AREA MAP

SCALE: 1" = 500'

STORMWATER MANAGEMENT INFORMATION

TYPE OF FACILITY = INFILTRATION TRENCH
 FACILITY MAINTENANCE = PRIVATE/HOA
INFILTRATION TRENCH #1
 APPROXIMATE REQUIRED 10-YEAR VOLUME = 28,480 C.F.
 APPROXIMATE AVAILABLE VOLUME = 28,480 C.F.
 APPROXIMATE SURFACE AREA = 34,240 S.F.
 APPROXIMATE FINISHED GRADE = 1360.5
 APPROXIMATE GRADE TRENCH BOTTOM = 1363.0

PRE-DEVELOPMENT SUBJECT PROPERTY

A=2.50 AC, C=0.40, Tc=5 MIN, I₂=5.45 IN/HR, I₁₀=7.27 IN/HR
 $Q_2 = (0.40)(5.45)(2.50) = 5.45$ CFS
 $Q_{10} = (0.40)(7.27)(2.50) = 7.27$ CFS

POST-DEVELOPMENT SUBJECT PROPERTY

A=2.50 AC, C=0.50, Tc=5 MIN, I₂=5.45 IN/HR, I₁₀=7.27 IN/HR
 $Q_2 = (0.50)(5.45)(2.50) = 6.81$ CFS (DETENTION PROVIDED BY INFILTRATION TRENCH #1)
 $Q_2 = 22.09$ AFTER DETENTION
 $Q_{10} = (0.50)(7.27)(2.50) = 9.09$ CFS (DETENTION PROVIDED BY INFILTRATION TRENCH #1)
 $Q_{10} = 22.78$ AFTER DETENTION

● - DENOTES OUTFALL

Application No: RZ 2012-HM-013 Staff: M. Brady

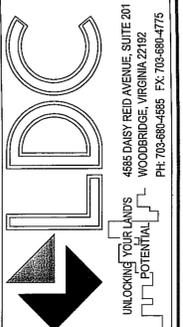
APPROVED DEVELOPMENT PLAN
 (DP) (GDP) (CDP) (FDP) (PRC) (CFP)

SEE PROFFERS DATED: 12/14/12

Date of (R)S (PC) Approval: 1/8/13

Sheet: 9 of 11

Comments:



STORMWATER MANAGEMENT INFORMATION
 WOLF TRAP DOWNS, SEC. 2
 HUNTER MILL DISTRICT
 FAIRFAX COUNTY, VIRGINIA

DATE	DESCRIPTION	REVISION APPROVED BY:	REVIEW BY	APPROVED DATE

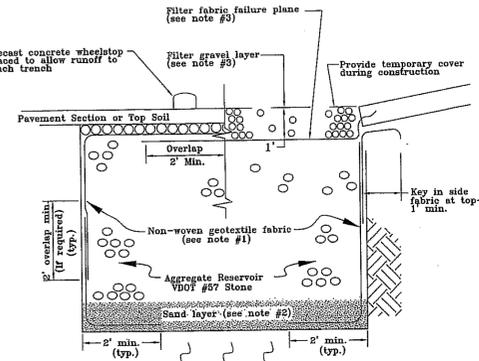
I HEREBY CERTIFY THAT OTHER THAN THE REVISIONS SHOWN HEREON, NO OTHER CHANGES HAVE BEEN MADE.

MATTHEW T. MARSHALL
 Lic No. 1885-B
 9/25/12
 LAND SURVEYOR

SCALE: N/A

SHEET 8 OF 8

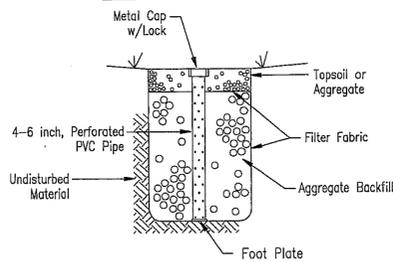
DATE: MAY, 2012
 DRAFT: KMA CHECK: MTM
 FILE NUMBER: 12046-1-0 3.0B



- NOTES:**
1. Use non-woven geotextile fabric with AOS of 70-100 US Sieve or 0.2 mm - 0.15 mm as determined by ASTM D4751 and a trapezoidal tear strength of 45 LB. or 0.2 kN as determined by ASTM D4853.
 2. An 8-in. deep bottom sand layer (VDOT Fine Aggregate, Grading A or B) is required.
 3. For an aggregate surface trench, filter fabric shall surround all of the aggregate fill material except the top one foot. A separate piece of fabric shall be used for the top layer to act as a failure plane. This top piece can then be removed and replaced upon clogging.
 4. Geotextile fabric shall not be exposed to direct sunlight for more than 24 hours prior to installation.

Ref. Sec. 6-1903.7B, 6-1905.107, 6-1905	PLATE NO.	STD. NO.
Rev. 7-08	PERCOLATION TRENCH	41A-6

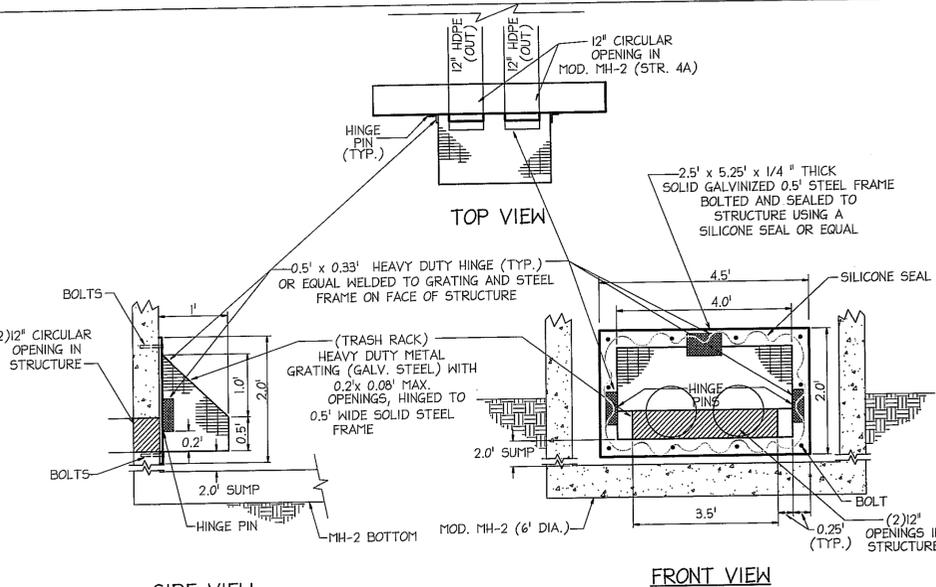
MONITORING WELL



OVERLAND RELIEF

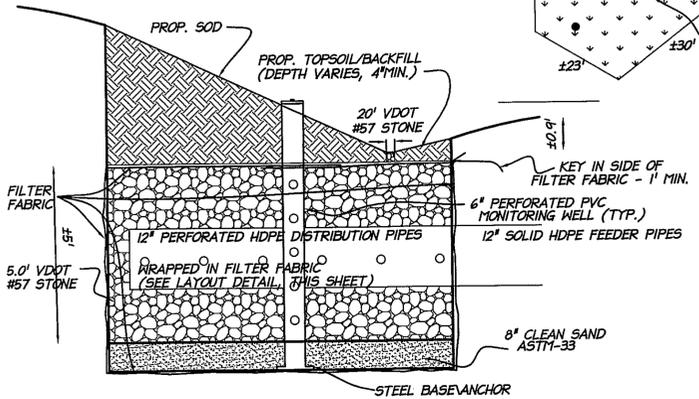
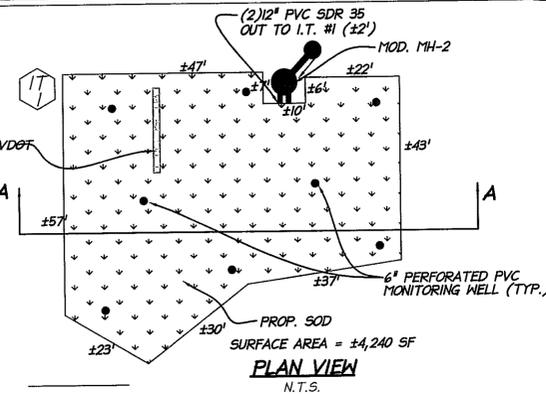
RATIONAL FORMULA: $Q = CICA$
 $T = 5 \text{ min}, I_{100} = 9.84 \text{ in/hr}, A = 2.18 \text{ Acres}, C = 0.50, Cf = 1.25$
 $Q_{100} = (1.25)(9.84)(2.18) = 13.41 \text{ CFS}$

WEIR EQUATION: $Q = CWH^{3/2}$
 $13.41 \text{ CFS} = (3)(10')H^{3/2}, H = 0.30' (370.70)$
 100 YEAR PONDING DEPTH = 0.30', 100 YEAR MSE = 370.70



- NOTES**
1. ALTERNATE CAGE CONFIGURATIONS ARE ACCEPTABLE AS LONG AS THE FLOW VELOCITY THRU THE CAGE AT THE MAX. HEAD ELEV. IS LESS THAN 0.15 FPS.
 2. SPOT WELD 0.5" x 0.33" GALV. HINGES ON METAL GRATING AND SOLID STEEL FRAME AS SHOWN IN DETAIL. FOR MAINTENANCE PURPOSES, REMOVE HINGE PINS FROM THE TWO HINGES LOCATED AT THE BOTTOM ON THE GRATING AND SWING GRATING UP.

TRASH RACK DETAIL
(NOT TO SCALE)



CROSS SECTION A-A SEE PLATE 41-6 (THIS SHEET) FOR I.T. & FILTER FABRIC NOTES & DETAIL

INFILTRATION TRENCH DESIGN CALCULATIONS OUTLOT A (I.T.-1)

TOTAL DRAINAGE AREA TO I.T. #1 = 2.18 AC, $C^i = 0.50$
 ON-SITE CONTROLLED DRAINAGE AREA TO I.T. #1 = 1.61 AC, $C^i = 0.54$
 INFILTRATION RATE = 2.80 IN/HR (0.25 FT/HR) BASED ON FIELD RATE TEST
 (GEOTECHNICAL TESTING INFORMATION WILL BE PROVIDED AT THE TIME OF THE SUBDIVISION PLAN)
 RUNOFF VOLUME = 1.61 AC(0.54)(43560 SF/AC) (1.25)(1 FT/12 IN) = 9,468 CF
 AN INFILTRATION TRENCH DESIGNED FOR 3 IN/CA 15 70% EFFICIENT
 FOR BMP REMOVAL AND PROVIDES DETENTION FOR THE 1, 2 & 10 YEAR STORM.
 WATER QUALITY VOLUME (WQV), DESIGN 3 NORTHERN VA. BMP HANDBOOK = 2 YR, 2 HR STORM (2 IN) = 1.61 AC(0.54)(43560 SF/AC)(2 IN)(1 FT/12 IN) = 6,312 CF
 WQV = 6,312 CF < 9,468 CF REQUIRED FOR 10 YEAR DETENTION;
 THEREFORE STORAGE FOR WQV IS PROVIDED BY INFILTRATION FACILITY
 1 YR. VOLUME FOR DETENTION METHOD = 4,749 CF < 9,468 CF REQUIRED ABOVE
 TRENCH AREA = 4,240 SF
 RUNOFF VOLUME OUT BASED UPON INFILTRATION = $F_d = 0.5(F)$ WHERE $F = 2.8 \text{ IN/HR} (0.233 \text{ FT/HR})$;
 THUS, $0.5(0.233) = 0.117 \text{ FT/HR}$
 MAX. DEPTH TO DRAIN IN 48 HOURS = $(F_d) \times 48 \text{ HR} = 0.117 \times 48 = 5.6 \text{ FT}$
 FINALLY, THE TOTAL VOLUME OUT = $(0.117 \text{ FT/HR})(2 \text{ HR})(4,240 \text{ SF})$
 THEREFORE $(0.117)(8,480) = 989 \text{ CF}$
 STORAGE VOLUME REQUIRED = 9,468 - 989 = 8,479 CF
 STORAGE DEPTH = 5.0' (ELEVATION AT TRENCH BOTTOM = 363.00)
 STORAGE VOLUME PROVIDED = 4,240 SF(5.0') = 21,200 CF(0.40 VOID%) = 8,480 CF PROVIDED \geq 8,479 CF REQ.
 ** STONE INFILTRATION SYSTEM - VOID RATIO = 40% **
 TIME FOR INFILTRATION FACILITY TO EMPTY, RUNOFF OUT BASED ON INFILTRATION RATE = 0.117 FT/HR (SEE ABOVE)
 DEPTH OF FACILITY = 5.0'; TIME TO EMPTY, T = DEPTH/RATE OF DISCHARGE
 $T = (5.0 \text{ FT}) / (0.117 \text{ FT/HR}) = 42.9 \text{ HOURS} < \text{MAX } 48 \text{ HOURS FOR WQV AND } 72 \text{ HOURS FOR ENTIRE VOLUME}$

PERFORATION CAPACITY

THIS IS AN ORIFICE COMPUTATION FOR A 1" OPENING WITH MINIMAL DRIVING HEAD FOR A CONSERVATIVE RESULT.
 ORIFICE EQUATION $Q = 6A(2gh)^{1/2}$
 AREA, A = AREA OF PERFORATION OPENING
 $A = 0.0055 \text{ SF}(1.0" \text{ CIRCULAR OPENING})$
 AVAILABLE HEAD, $H = 0.7 \text{ FT}(\text{MIN. OUT OF } 15" \text{ RCP - CROWN OF } 18" \text{ DISTRIBUTION PIPE})$
 $Q = 6(A)(64.4 \times H)^{1/2} = 6(0.0055)(64.4 \times 0.7)^{1/2} = 0.02 \text{ CFS}$

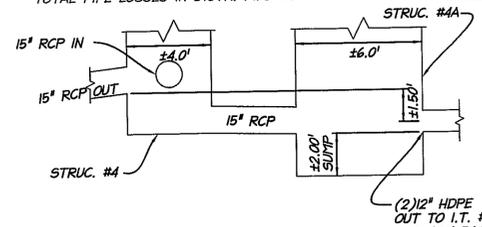
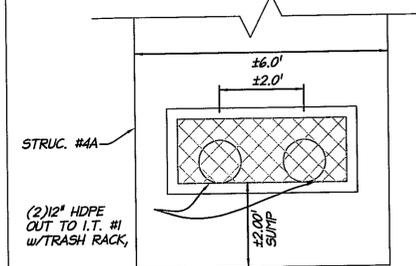
CAPACITY OF 1" PERF. = 0.02 CFS
 THE TOTAL NUMBER OF PERFORATIONS PROVIDED IS BASED UPON 1" PERFORATIONS, 12" O.C. WITH 2 PERFORATIONS PER 12" LENGTH PERFORATIONS SHALL BE ON THE HORIZONTAL AXIS (SIDE) OF THE DISTRIBUTION PIPE LENGTH OF DISTRIBUTION PIPE = 360', THEREFORE TOTAL NUMBER OF PERF. = $(360/12) \times 2 = 1,080$
 THUS, $0.02 \text{ CFS} \times 1,080 = 21.6 \text{ CFS}$ AND THE MAXIMUM $Q_{10} = 9.2 \text{ CFS}$ TO THE TRENCH. THEREFORE, NO FLOODING SHOULD BE EXPERIENCED.

HDPE DISTRIBUTION PIPE COMPUTATION:

STRUCTURE #4 & #4A
 $Q_{10} = 4.44 \text{ cfs}$ (SEE STORM SENER COMPUTATIONS, SHEET ---)
 MODIFIED MH-2s WITH EXTENDED BOTTOMS AND (2) 12" HDPE DISTRIBUTION PIPES TO INFILTRATION TRENCH #1
 ORIFICE EQUATION $Q = 6A(2gh)^{1/2}$
 AREA, A = AREA OF HDPE PIPE OPENING
 $A = 1.57 \text{ SF}(2-1.0" \text{ CIRCULAR OPENINGS})$
 AVAILABLE HEAD, $H = 0.41 \text{ FT}(\text{INV. OUT OF } 15" \text{ RCP - CENTROID } 12" \text{ HDPE - PIPE LOSSES IN DISTRIBUTION PIPE SYSTEM})$
 $Q = 6(A)(64.4 \times H)^{1/2} = 6(1.57)(64.4 \times 0.41)^{1/2} = 4.84 \text{ CFS}$
 Q CAPACITY OF ORIFICE & PIPE SYSTEM = 4.84 CFS $>$ 4.44 CFS = Q_{10}

DISTRIBUTION PIPE LOSS CALCULATIONS

$Q_{10} = 4.44 \text{ cfs} = 1,993 \text{ GPM}$
 FLOW SPLIT BETWEEN TWO 12" HDPE PIPES
 FLOW TO EACH PIPE = 2.22 cfs = 996 GPM
 HAZEN-WILLIAMS FORMULA, $hf = 0.002083(L)(100/C)^{1.85}(Q^{1.85}/d^{4.8655})$
 L = LENGTH OF DISTRIBUTION PIPE = 360'
 C = FRICTION COEFFICIENT = 140 FOR PLASTIC PIPE
 Q = FLOW IN GPM = 996 GPM
 d = INSIDE DIAMETER OF PIPE IN INCHES = 12", $A = 0.79 \text{ SF}$
 $hf = 0.002083(360)(100/140)^{1.85}(996^{1.85}/12^{4.8655}) = 0.80 \text{ FT}$
 MINOR LOSS, $hk = K(v^2/2g)$
 K = LOSS COEFFICIENT = 0.2 FOR TEE/CROSS, 0.3 FOR 90° BEND
 v = VELOCITY IN FPS = $Q/A = (2.22 \text{ CFS}) / (0.79 \text{ SF}) = 2.8 \text{ FPS}$
 g = GRAVITY = 32.2, $v^2/2g = (2.8)^2 / 64.4 = 0.12 \text{ FT}$
 DISTRIBUTION SYSTEM HAS 6-TEE/CROSS & 4-45/90° BENDS
 MINOR LOSSES, $hk = 6(0.2)(0.12) + 4(0.3)(0.12) = 0.24 \text{ FT}$
 TOTAL PIPE LOSSES IN DISTR. PIPE SYSTEM = $0.80 + 0.24 = 1.04 \text{ FT}$



FOR INFORMATIONAL PURPOSES ONLY!

THE INFORMATION PROVIDED ON THIS SHEET IS FOR INFORMATION PURPOSES ONLY. THE FINAL DESIGN OF THE STORMWATER MANAGEMENT/BEST MANAGEMENT PRACTICES FACILITY WILL OCCUR AT TIME OF FINAL SUBDIVISION PLAN. THE INFORMATION SHOWN HEREON IS APPROXIMATE. THE APPLICANT RESERVES THE RIGHT TO MAKE ADJUSTMENTS TO THIS INFORMATION AND THE DESIGN WITHOUT THE NEED FOR A PROFFER CONDITION AMENDMENT OR PROFFER INTERPRETATION, PROVIDED IT IS IN ACCORDANCE WITH THE PUBLIC FACILITIES MANUAL.

Application No. RZ 2012-HM-013 Staff: M. Brady

APPROVED DEVELOPMENT PLAN

(DP) (GDP) (CDF) (FDP) (PRC) (CP)
 SEE PROFFERS DATED: 12/14/12
 Date of (BOB) (PC) Approval: 1/8/13
 Sheet: 10 of 11
 Comments:

GENERAL NOTES

1. PLEASE SEE THE GEOTECHNICAL REQUIREMENTS FOR ANY PERTINENT SOIL SPECIFICATIONS, ETC.
2. THE PROPOSED TRENCH SHALL COMPLY WITH THE REQUIREMENTS SET FORTH IN THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL.
3. IN THE EVENT OF A FAILURE THE RUNOFF WILL NOT ADVERSELY IMPACT ANY DOWNSTREAM STRUCTURES.
4. THE PROPOSED TRENCH SHALL BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION.

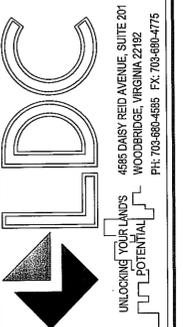
MAINTENANCE NARRATIVE

THE MAINTENANCE OF THIS FACILITY IS PRIVATE AND BY THE HOMEOWNERS ASSOCIATION AND IS AS FOLLOWS:
 THIS FACILITY SHALL NOT BE CONSTRUCTED UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN SATISFACTORILY STABILIZED. UPON CONSTRUCTION AND UTILIZATION OF THIS FACILITY AN INSPECTION SHOULD OCCUR AFTER ANY LARGE STORM DURING ITS FIRST YEAR OF OPERATION TO ENSURE PROPER FUNCTIONING. DURING THESE INSPECTIONS A LOG BOOK SHOULD BE UTILIZED AND THE DEPTH OF WATER IN THE MONITORING WELL AS WELL AS ANY SURFACE DAMAGE SHOULD BE PROPERLY NOTED.

THIS INSPECTION AND UTILIZATION OF THE LOGBOOK SHALL CONTINUE FOR ONE YEAR. SUBSEQUENTLY, INSPECTION OF THE FACILITY SHALL OCCUR ANNUALLY. DURING ALL INSPECTIONS THE SURFACE STONE/GRAVEL SHALL BE REVIEWED AND ANY VOIDED OR DENUDED AREAS SHALL BE PROPERLY FIXED WITH THE ADDITION OF NEW STONE. IN ADDITION, THE SODDED AREA MUST BE MONITORED AND IF ANY DENUDED AREAS ARE NOTED ADDITIONAL SOD OR SEED SHOULD BE APPLIED AS NECESSARY.

CONSTRUCTION NARRATIVE

THE CONSTRUCTION OF THIS FACILITY SHALL BE PHASED SUCH THAT SEDIMENT DOES NOT ENTER THE AREA. IF SEDIMENT ENTERS THE FACILITY THE FILTER MATERIAL MAY REQUIRE REPLACEMENT. THE UTILIZATION AND THE PROPER INSTALLATION OF THE FILTER FABRIC IS IMPERATIVE IN ORDER TO PREVENT THE ENTRANCE OF ROOTS, ETC. INTO THE FACILITIES OVER TIME AND AN ULTIMATE REDUCTION IN THE AVAILABLE TREATMENT VOLUME. ALL STONE AGGREGATE SHALL BE WASHED. IN ADDITION, CONSTRUCTION TRAFFIC SHALL NOT BE PERMITTED ON TOP OF THE FACILITY IN ORDER TO PREVENT DAMAGE TO THE FILTER MEDIA.

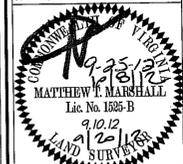


INFILTRATION TRENCH SUPPLEMENTAL INFORMATION

WOLF TRAP DOWNS, SEC. 2

DATE	DESIGN NO.	REVISION	APPROVED BY:
12/12/12	1074	3	MEV SHEET

I HEREBY CERTIFY THAT OTHER THAN THE REVISIONS SHOWN HEREON, NO OTHER CHANGES HAVE BEEN MADE.



SCALE: N/A
 SHEET 8A OF 8
 DATE: AUG, 2012
 DRAFT: SDR CHECK: PTM
 FILE NUMBER: 12048-1-0 3.0B

FOR INFORMATIONAL PURPOSES ONLY!

THE INFORMATION PROVIDED ON THIS SHEET IS FOR INFORMATION PURPOSES ONLY. THE FINAL DESIGN OF THE STORMWATER MANAGEMENT/BEST MANAGEMENT PRACTICES FACILITY WILL OCCUR AT TIME OF FINAL SUBDIVISION PLAN. THE INFORMATION SHOWN HEREON IS APPROXIMATE. THE APPLICANT RESERVES THE RIGHT TO MAKE ADJUSTMENTS TO THIS INFORMATION AND THE DESIGN WITHOUT THE NEED FOR A PROFFER CONDITION AMENDMENT OR PROFFER INTERPRETATION, PROVIDED IT IS IN ACCORDANCE WITH THE PUBLIC FACILITIES MANUAL.

1-YEAR STORM VOLUME COMPUTATION FOR I.T.-1

- PER CHAPTER 5 - VIRGINIA SWM HANDBOOK VOLUME II
- 1-YEAR RAINFALL DEPTH (P) FOR FAIRFAX COUNTY = 2.7 IN
 - SOILS DRAINING TO INFILTRATION TRENCH ARE HYDROLOGIC SOIL GROUP "B" & "D" (GLENELG, CODORUS & HATBORO, URBAN-WHEATON, & WHEATON-GLENELG)
 - RCN = 76 (0.56 AC OF IMPERVIOUS RCN=98, 0.88 AC OF "B" GRASS RCN=61, 0.17 AC OF "D" GRASS RCN=80)
 - TOTAL CONTROLLED DRAINAGE AREA TO INFILTRATION TRENCH = 1.61 ACRES
 - $S = (1000/RCN) - 10 = (1000/76) - 10 = 3.18$
 - $RUNOFF Q = ((P - 2.5)^2)(P + .85) = ((2.7 - 2(3.18))^2)(2.7 + .8(3.18)) = 0.813 IN$
 - $V_{60} = AREA * RUNOFF Q = 1.61 AC * (0.813 IN(1 FT/12 IN)) = 0.109 AC-FT = 4,749 CF$

VOLUME IS LESS THAN VOLUME (9,468 CF) REQUIRED FOR INFILTRATION TRENCH (SEE COMPUTATIONS, THIS SHEET); THEREFORE, STORAGE WILL BE PROVIDED FOR THE 1-YEAR STORM.

2 & 10 YR. STORM VOL COMP. - OUTFALL #1 (EX. FORESTED COND.)

- PER CHAPTER 5 - VIRGINIA SWM HANDBOOK VOLUME II
- RAINFALL DEPTH (P) FOR FAIRFAX COUNTY = 3.2 IN (2 YR), 5.2 IN (10 YR)
 - SOILS DRAINING TO OUTFALL ARE HYDROLOGIC SOIL GROUP "B" & "D" (GLENELG, CODORUS & HATBORO, URBAN-WHEATON, & WHEATON-GLENELG)
 - WEIGHTED RCN FOR GOOD FORESTED CONDITION = 62
 - (1.76 AC SOIL GROUP "B" RCN=85, 0.74 AC SOIL GROUP "D" RCN=77)
 - TOTAL DRAINAGE AREA OF SITE TO OUTFALL #1 = 2.50 ACRES
 - $S = (1000/RCN) - 10 = (1000/62) - 10 = 6.26$
 - 2 YEAR: $RUNOFF Q = ((P - 2.5)^2)(P + .85) = ((3.2 - 2(6.26))^2)(3.2 + .8(6.26)) = 0.46 IN$
 - $V_f = AREA * RUNOFF Q = 2.50 AC * (0.46 IN(1 FT/12 IN)) = 0.096 AC-FT$
 - 10 YEAR: $RUNOFF Q = ((P - 2.5)^2)(P + .85) = ((5.2 - 2(6.26))^2)(5.2 + .8(6.26)) = 1.53 IN$
 - $V_f = AREA * RUNOFF Q = 2.50 AC * (1.53 IN(1 FT/12 IN)) = 0.318 AC-FT$

2 & 10 YR. STORM VOLUME COMP. - OUTFALL #1 (DEVELOPED)

- PER CHAPTER 5 - VIRGINIA SWM HANDBOOK VOLUME II
- RAINFALL DEPTH (P) FOR FAIRFAX COUNTY = 3.2 IN (2 YR), 5.2 IN (10 YR)
 - SOILS DRAINING TO OUTFALL ARE HYDROLOGIC SOIL GROUP "B" & "D" (GLENELG, CODORUS & HATBORO, URBAN-WHEATON, & WHEATON-GLENELG)
 - WEIGHTED RCN FOR DEVELOPED SITE = 76
 - (0.69 AC IMPERVIOUS RCN=98, 1.18 AC GRASS SOIL GROUP "B" RCN=61, 0.63 AC GRASS SOIL GROUP "D" RCN=80)
 - TOTAL DRAINAGE AREA OF SITE TO OUTFALL #1 = 2.50 ACRES
 - $S = (1000/RCN) - 10 = (1000/76) - 10 = 3.16$
 - 2 YEAR: $RUNOFF Q = ((P - 2.5)^2)(P + .85) = ((3.2 - 2(3.16))^2)(3.2 + .8(3.16)) = 1.15 IN$
 - $V_d = AREA * RUNOFF Q = 2.50 AC * (1.15 IN(1 FT/12 IN)) = 0.240 AC-FT$
 - 10 YEAR: $RUNOFF Q = ((P - 2.5)^2)(P + .85) = ((5.2 - 2(3.16))^2)(5.2 + .8(3.16)) = 2.70 IN$
 - $V_d = AREA * RUNOFF Q = 2.50 AC * (2.70 IN(1 FT/12 IN)) = 0.563 AC-FT$

REDUCTION REQUIRED FOR PROPORTIONAL IMPROVEMENT PER PFM SECTION 6-0203.AC(1)(ii):

$R_i = (1 - (V_f/V_d)) * 100$

2 YEAR: $R_i = (1 - (0.096/0.240)) * 100 = 60\%$

10 YEAR: $R_i = (1 - (0.318/0.563)) * 100 = 43\%$

SEE DETENTION RELEASE RATE COMPUTATIONS FOR REDUCTION.

DETENTION RELEASE RATES - OUTFALL #1:

PREDEVELOPMENT SITE CONDITIONS - OUTFALL #1:

EXISTING ONSITE AREA DRAINING TO OUTFALL #1
AREA= 2.50 AC, C= 0.40, T = 5 MIN.

2 YEAR STORM (60% REDUCTION REQUIRED, SEE COMP.)
C= 0.40, I= 5.45 IN/HR, A= 2.50 AC
Q= CIA = (0.40)(5.45)(2.50) = 5.45 CFS + 0.40 = 2.18 CFS

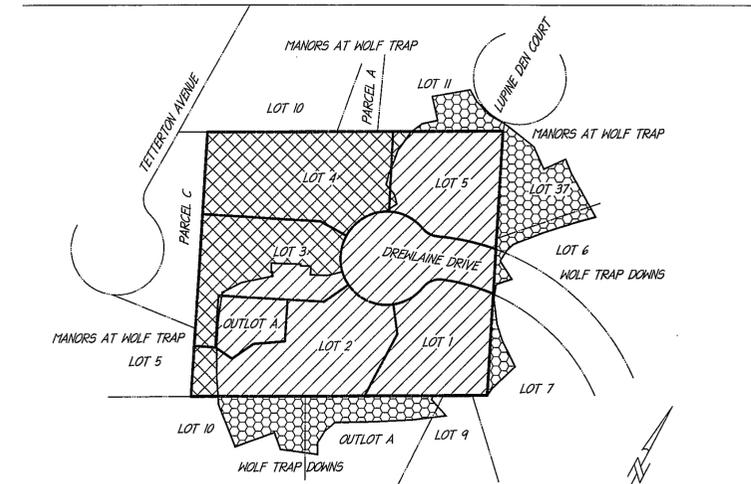
10 YEAR STORM (43% REDUCTION REQUIRED, SEE COMP.)
C= 0.40, I= 7.27 IN/HR, A= 2.50 AC
Q= CIA = (0.40)(7.27)(2.50) = 7.27 CFS + 0.57 = 4.14 CFS

POST DEVELOPMENT SITE CONDITIONS - OUTFALL #1:

ONSITE AREA DRAINING OFF UNCONTROLLED TO OUTFALL #1
INFILTRATION TRENCH #1 (1.61 AC ON-SITE) PROVIDES DETENTION FOR THE 1, 2 & 10 YEAR STORM EVENTS.
TOTAL POST DRAINAGE AREA = 2.50 AC
UNCONTROLLED AREA = 0.89 AC, C= 0.43, T = 5 MIN.

2 YEAR STORM
C= 0.43, I= 5.45 IN/HR, A= 0.89 AC
Q= CIA = (0.43)(5.45)(0.89) = 2.09 CFS (REDUCED PREDEVELOPED = 2.18 CFS)
#PROPORTIONAL IMPROVEMENT PROVIDED PER PFM SECTION 6-0203.AC##

10 YEAR STORM
C= 0.43, I= 7.27 IN/HR, A= 0.89 AC
Q= CIA = (0.43)(7.27)(0.89) = 2.78 CFS (REDUCED PREDEVELOPED = 4.14 CFS)
#PROPORTIONAL IMPROVEMENT PROVIDED PER PFM SECTION 6-0203.AC##



BMP FACILITY DESIGN CALCULATIONS

1. WATERSHED INFORMATION

SUBAREA DESIGNATION AND DESCRIPTION	%	ACRES	BMP MAP HATCH
A ₁ - DEVELOPED W/ CONTROLS (INFILTRATION TRENCH #1)	0.54	1.61	[Hatched]
A ₂ - DEVELOPED W/OUT CONTROLS (OUTFALL #1)	0.43	0.89	[Hatched]
A ₃ - OFF-SITE UNCONTROLLED TO I.T. #1	0.40	0.57	[Hatched]

2. WEIGHTED % FACTOR FOR THE SITE

(A) AREA OF THE SITE (a) 2.50 ACRES

SUBAREA DESIGNATION AND DESCRIPTION	%	ACRES	PRODUCT
A ₁ - DEVELOPED W/ CONTROLS (INFILTRATION TRENCH #1)	0.54	1.61	0.87
A ₂ - DEVELOPED W/OUT CONTROLS (OUTFALL #1)	0.43	0.89	0.38

(C) WEIGHTED AVERAGE % FACTOR (b) / (a) = (c) 0.50 (b) TOTAL = 1.25

3. PHOSPHORUS REMOVAL FOR THE SITE:

SUBAREA DESIGNATION	BMP TYPE	REMOVAL EFF. (%)	AREA (X)	% FACTOR RATIO (Y)	PRODUCT (Z) = (Y) * (Z)
(1)	(2)	(3)	(4)	(5)	(6)
A ₁ -	INFIL. TRENCH	70%	1.61/2.50	0.54/0.50	48.6
A ₂ -	UNCONTROLLED	-	-	-	-
A ₃ -	UNCONTROLLED	-	-	-	-

(a) TOTAL = 48.6%

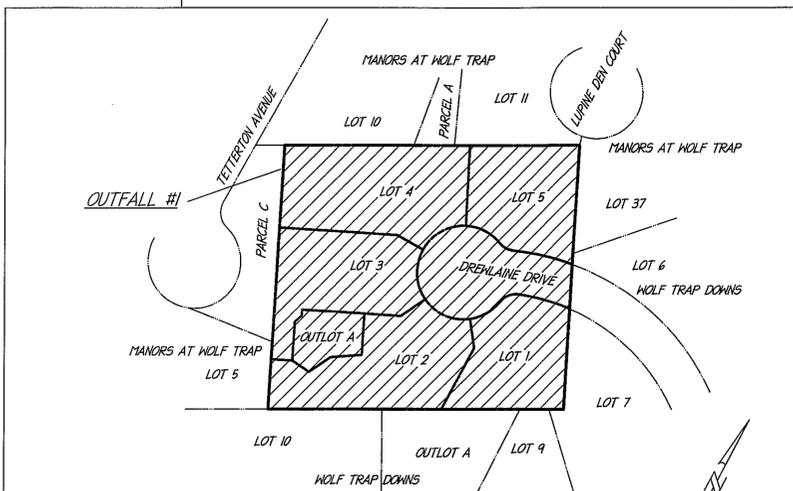
* NOTE: AN INFILTRATION TRENCH DESIGNED FOR THE 1, 2 & 10 YEAR STORM EVENTS PROVIDES 70% PHOSPHORUS REMOVAL EFFICIENCY & PROVIDES DETENTION FOR THE 1, 2 & 10 YEAR STORM EVENTS. *

4. COMPLIANCE WITH PHOSPHORUS REMOVAL REQUIREMENT

REQUIRED PHOSPHORUS REMOVAL FOR WATERSHED = 40%

PHOSPHORUS REMOVED FROM LINE 4(a) ABOVE = 48.6%

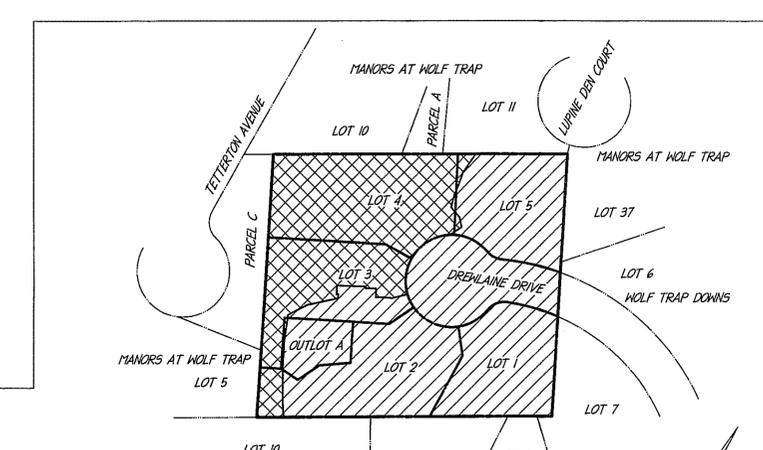
* PHOSPHORUS REMOVAL REQUIREMENT HAS BEEN MET *



AREA DESCRIPTION ACRES % MAP HATCH

PREDEVELOPED SITE AREA TO OUTFALL #1 2.50 0.40 [Hatched]

PREDEVELOPED DRAINAGE AREA MAP 1"=100'



UNCONTROLLED AREA NOT DRAINING TO I.T. #1 DRAINING TOWARDS OUTFALL #1 = 0.89 ACRES, %=0.43

CONTROLLED AREA DRAINING TO INFILTRATION TRENCH #1 DRAINING TOWARDS OUTFALL #1 = 2.11 AC, %=0.56

POST DEVELOPED DRAINAGE AREA MAP 1"=100'

Application No: RZ 2012-HM-013 Staff: M. Brady

APPROVED DEVELOPMENT PLAN

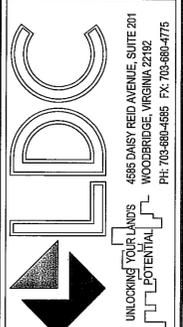
(DP) (GDP) (CDF) (FDP) (PRC) (CF)

SEE PROFFERS DATED: 12/14/12

Date of (BOS) (PC) Approval: 1/8/13

Sheet: 11 of 11

Comments:



INFILTRATION TRENCH SUPPLEMENTAL INFORMATION
 WOLF TRAP DOWNS, SEC. 2
 HUNTER MILL DISTRICT
 FAIRFAX COUNTY, VIRGINIA

DATE	DESIGNER	REVISION	APPROVED BY
9/10/12	MATTHEW T. MARSHALL	1	

I HEREBY CERTIFY THAT OTHER THAN THE REVISIONS SHOWN HEREON, NO OTHER CHANGES HAVE BEEN MADE.

SCALE: N/A

SHEET 8B OF 8

DATE: AUG., 2012

DRAFT: SDR CHECK: PTTM

FILE NUMBER: 12046-1-0 3.0B