

DISCOVERY WOODS LEARNING CENTER

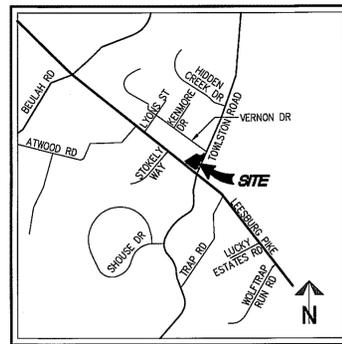
DRANESVILLE DISTRICT FAIRFAX COUNTY, VIRGINIA

SPECIAL EXCEPTION PLAT

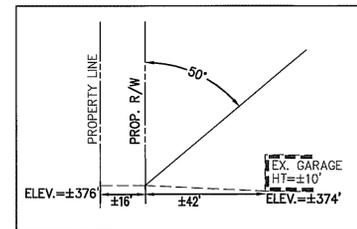
NOTES

- OWNER: STEPHEN Q. THOMPSON
9232 LEESBURG PIKE
GREAT FALLS, VA 22066

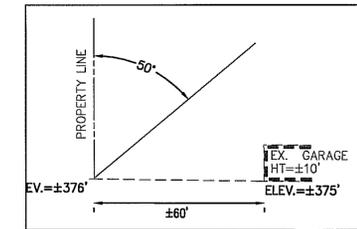
APPLICANT: DISCOVERY WOODS LEARNING CENTER, LLC.
9224 LEESBURG PIKE
MCLEAN, VIRGINIA
- THE PROPERTY SHOWN ON THIS PLAN IS IDENTIFIED AS MAP #19-4-((1)), PARCELS 6 AND 11 ON THE FAIRFAX COUNTY TAX MAP.
- PARCELS 6 AND 11 ARE CURRENTLY ZONED R-1, RESIDENTIAL, 1 DWELLING UNIT PER ACRE. A CATEGORY 3 SPECIAL EXCEPTION IS REQUIRED FOR USE OF A CHILD CARE CENTER AND PRIVATE SCHOOL OF GENERAL EDUCATION IN THIS ZONE.
- THE EXISTING CONDITIONS INFORMATION WAS TAKEN FROM RECORD INFORMATION. CONTOUR INTERVAL IS TWO (2) FOOT.
- THERE ARE NO PROPOSED SPECIAL AMENITIES FOR THIS PROPERTY.
- PROPERTY IS SERVED BY SEPTIC AND WELL. IF REQUIRED, THE SEPTIC FIELD AND WELL WILL BE REMOVED WITH THIS APPLICATION AND CONNECTIONS WILL BE MADE TO THE PUBLIC SANITARY SEWER AND WATERLINE AS SHOWN ON THE PLAN.
- A REVIEW OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBER 515525 0050 D, REVISED MARCH 5, 1990, SHOWS THE PROPERTY TO LIE IN ZONE X, "AREAS DETERMINED TO BE OUT OF THE 500-YEAR FLOODPLAIN".
- TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO GRAVES LOCATED ON THE SITE.
- TO THE BEST OF OUR KNOWLEDGE, ALL UTILITY EASEMENTS HAVING A WIDTH OF 25 FEET OR MORE ON THIS PROPERTY ARE SHOWN.
- THERE ARE NO SCENIC ASSETS OR NATURAL FEATURES ON THIS PROPERTY DESERVING OF PROTECTION AND/OR PRESERVATION.
- ACCORDING TO FAIRFAX COUNTY MAPPING THIS SITE DOES NOT LIE WITHIN A RESOURCE PROTECTION AREA (RPA).
- NO TRASH ENCLOSURE IS NECESSARY OR PROVIDED.
- THE EXISTING HOUSE AND GARAGE ARE TO REMAIN.
- SIGNAGE TO BE PROVIDED IN ACCORDANCE WITH ARTICLE 12 OF THE ZONING ORDINANCE.
- APPLICANT TO PROVIDE CONSTRUCTION EASEMENTS FOR WIDENING OF TOWLSTON ROAD AND LEESBURG PIKE AS NEEDED IN THE FUTURE.
- EXISTING SEPTIC FIELD IS TO REMAIN AND WILL SERVE PROPOSED USE. PER HEALTH DEPARTMENT RECORDS, THE EXISTING FIELD IS RATED FOR 600 GALLONS PER DAY (GPD). THE PROPOSED USE (SCHOOL WITHOUT CAFETERIA) WILL GENERATE APPROXIMATELY 300 GPD (26 STUDENTS AT 10 GPD AND 4 TEACHERS AT 10 GPD).
- APPLICANT WILL PERFORM PHASE 1 ARCHEOLOGICAL STUDY, AROUND THE PRE-1937 BUILDING ALONG THE SOUTHERN PORTION OF THE SUBJECT PROPERTY, ONLY IF POTENTIALLY DISTURBED AREAS DETERMINED TO BE NECESSARY IN THE FUTURE.



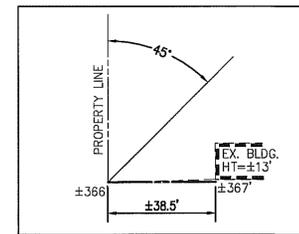
VICINITY MAP SCALE: 1"=2000'



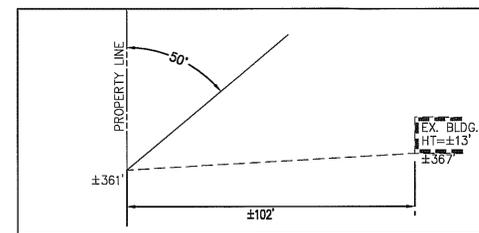
ABP - FRONT YARD
ALONG TOWLSTON ROAD
(SCALE: 1"=30')



ABP - FRONT YARD
ALONG LEESBURG PIKE
(SCALE: 1"=30')



ABP - SIDE YARD
ALONG PARCEL 19
(SCALE: 1"=30')



ABP - REAR YARD
ALONG PARCEL 19
(SCALE: 1"=30')

WAIVERS AND MODIFICATIONS REQUESTED

- REQUEST A WAIVER OF THE ONROAD BIKE ROUTE ALONG TOWLSTON ROAD.
- REQUEST A WAIVER OF THE FRONTAGE IMPROVEMENTS ALONG LEESBURG PIKE AND TOWLSTON ROAD.
- REQUEST A WAIVER OF THE TRANSITIONAL SCREENING AND BARRIER REQUIREMENT ALONG LEESBURG PIKE.
- REQUEST A WAIVER OF THE BARRIER REQUIREMENT ALONG PARCEL 19.
- REQUEST A WAIVER OF THE SERVICE DRIVE REQUIREMENT ALONG LEESBURG PIKE.
- REQUEST A WAIVER OF TRAIL REQUIREMENT ALONG LEESBURG PIKE.
- REQUEST A WAIVER OF TRAIL REQUIREMENT ALONG TOWLSTON ROAD.
- APPLICANT WILL REQUEST WAIVER OF BMP REQUIREMENTS, IF APPLICABLE.
- APPLICANT WILL REQUEST WAIVER OF STORMWATER MANAGEMENT REQUIREMENTS, IF APPLICABLE.

ZONING TABULATION

EXISTING ZONE: R-1, RESIDENTIAL (1 DU/AC)
SITE AREA: ±64,603 SF OR ±1.48 ACRES*

	R-1 REQUIREMENTS	PROVIDED
MIN. LOT AREA:	36,000 SF	±64,603 SF
MIN. LOT WIDTH:	150 FT (INT) 175 FT (COR)	N/A ± FT
AVERAGE LOT AREA:	NONE	N/A
MAX. BLD. HT.:	60 FT	±13 FT
MIN. YARD REQUIREMENTS:		
FRONT	50'; BUT NOT LESS THAN 40 FT	±42 FT (TOWLSTON ROAD) ±60 FT (LEESBURG PIKE)
SIDE	45'; BUT NOT LESS THAN 20 FT	±38 FT
REAR	45'; BUT NOT LESS THAN 25 FT	±102 FT
MAX. FAR:	0.15	±0.04
OPEN SPACE	NONE	N/A

*SITE AREA IS BASED ON PRE RIGHT-OF-WAY DEDICATION

PARKING TABULATION

REQUIRED

USE: CHILD CARE CENTER
RATE: 0.19 SPACES PER CHILD
(0.19 x 26 = 5)
USE: PRIVATE SCHOOL OF GENERAL EDUCATION
RATE: 1 SPACE/STAFF MEMBER, PLUS 4 SPACES FOR VISITORS
(4 STAFF AND 4 VISITORS = 8)
TOTAL REQUIRED = 13 SPACES (SEE NOTE BELOW)

PROVIDED
TOTAL PROVIDED = 10 SPACES

NOTE

THE CHILD CARE AND PRIVATE SCHOOL OF GENERAL EDUCATION WILL NOT OPERATE DURING THE SAME HOURS AND THEREFORE THE TOTAL PARKING REQUIRED AT ANY TIME WILL BE A MINIMUM OF 8 SPACES.

SITE AREA TABULATION

TAX MAP#: 019-4-01-0006	20,967 SF
TAX MAP#: 019-4-01-0011	43,636 SF
TOTAL	64,603 SF

Application No. SE 2010-DR-024 Staff S.Z.

APPROVED (SE) (SP) PLAN

SEE DEV CONDS. DATED Mar 23, 2011
Date of (BOS) (BZA) Approval Mar 29, 2011

Sheet 1 of 7

SHEET INDEX

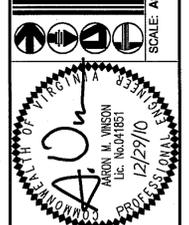
- P-0101 COVER SHEET
- P-0201 EXISTING CONDITIONS EXHIBIT/EXISTING VEGETATION MAP
- P-0301 SPECIAL EXCEPTION PLAT
- P-0501 PRELIMINARY OUTFALL ANALYSIS
- P-0502 PRELIMINARY OUTFALL ANALYSIS
- P-0503 PRELIMINARY OUTFALL ANALYSIS
- P-0504 PRELIMINARY STORMWATER MANAGEMENT PLAN

RECEIVED
Department of Planning & Zoning
DEC 29 2010
Zoning Evaluation Division

WALTER L. PHILLIPS
INCORPORATED
CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS

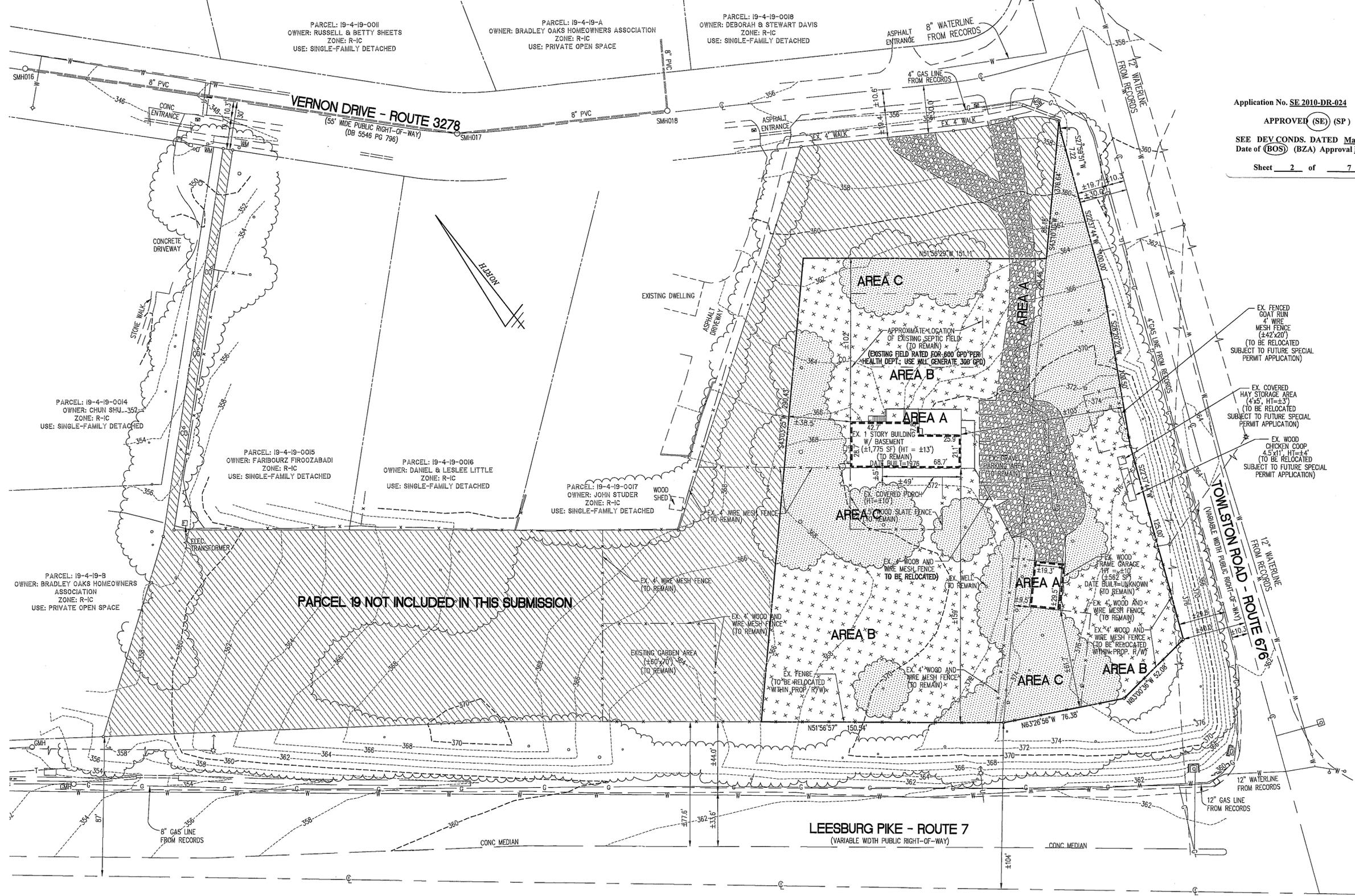
207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046
(703) 532-6163 FAX (703) 535-1301
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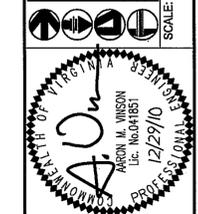
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COVER SHEET
DISCOVERY WOODS
LEARNING CENTER
DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA



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 (703) 532-6163 FAX (703) 533-1301
 DATE: 4/27/10 REV: 8/28/10; 12/17/10; 12/29/10
 SCALE: 1"=30'



NO.	DESCRIPTION	DATE	REVISION APPROVED BY	DATE

EXISTING CONDITIONS EXHIBIT/EXISTING VEGETATION MAP
DISCOVERY WOODS LEARNING CENTER
 DRANESVILLE DISTRICT
 FAIRFAX COUNTY, VIRGINIA

PARCEL 19 NOT INCLUDED IN THIS SUBMISSION

TABLE 12.3

TABLE 12.3 TREE PRESERVATION TARGET CALCULATIONS AND STATEMENT

A.	PRE-DEVELOPMENT AREA OF EXISTING TREE CANOPY (FROM EVM):	±26,041 SF	TOTAL SITE AREA	±64,603 S.F.
B.	PERCENTAGE OF GROSS SITE AREA COVERED BY EXISTING TREE CANOPY:	40.5%	RIGHT OF WAY DEDICATION	- ±7,075 S.F.
C.	PERCENTAGE OF 10-YEAR TREE CANOPY REQUIRED FOR SITE:	30%	ADJUSTED SITE AREA	±57,528 S.F.
D.	PERCENTAGE OF 10 YEAR TREE CANOPY REQUIREMENT THAT SHOULD BE MET THROUGH TREE PRESERVATION:	40.5% = 6,989 SF		
E.	PROPOSED PERCENTAGE OF CANOPY REQUIREMENT THAT WILL BE MET THROUGH TREE PRESERVATION:	20,873/17,258 = 121%		
F.	HAS THE TREE PRESERVATION TARGET MINIMUM BEEN MET?	YES		

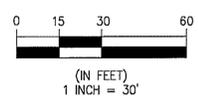
TREE COVER CALCULATIONS

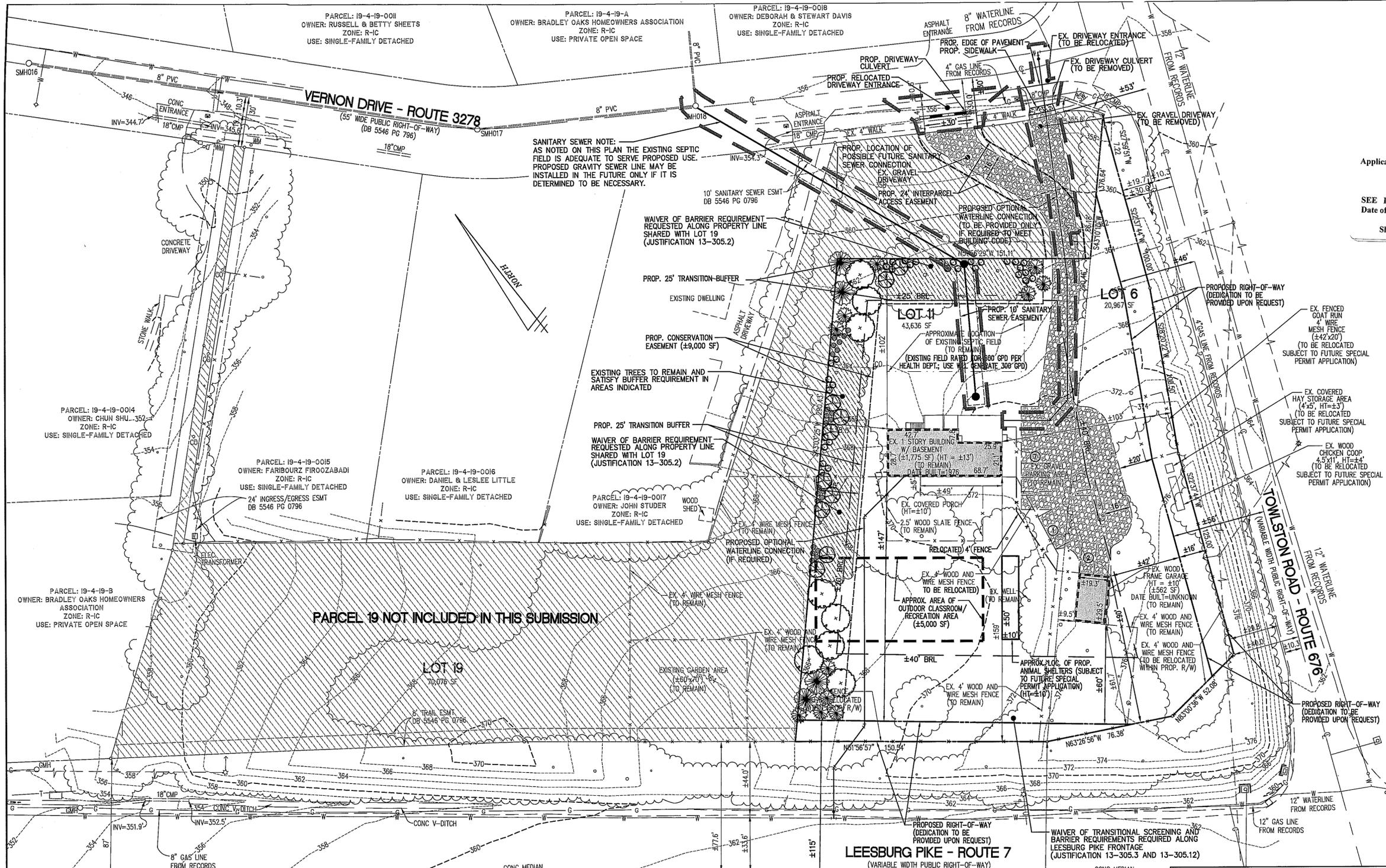
TOTAL SITE AREA	±64,603 S.F.
AREA TO BE DEDICATION	- ±7,075 S.F.
ADJUSTED SITE AREA	±57,528 S.F.
PERCENT REQUIRED	X 30 %
TREE COVER REQUIRED	±17,258 S.F.
PROPOSED TREE COVERAGE PLANTED	0 S.F.
EXISTING TREE COVERAGE (±26,041 SF)	+ ±26,041 S.F.
LESS: TREE COVERAGE IN DEDICATION	±5,168
TOTAL TREE COVERAGE	±20,873 S.F.

EXISTING VEGETATION MAP INFORMATION

KEY	COVER TYPE	PRIMARY SPECIES	SUCCESSIONAL STAGE	CONDITION	ACREAGE
A	DEVELOPED	N/A	N/A	N/A	±8,481 SF OR ±0.19 AC
B	MAINTAINED GRASSLANDS	N/A	N/A	N/A	±30,081 SF OR ±0.69 AC
C	UPLAND FOREST	MAPLE, CHERRY, POPLAR, LOCUST, WHITE PINE	EARLY SUCCESSIONAL TO LONG-TERM SUB-CLIMAX	FAIR TO GOOD	±26,041 SF OR ±0.60 AC

TOTAL SITE AREA: ±64,603 SF OR ±1.48 AC

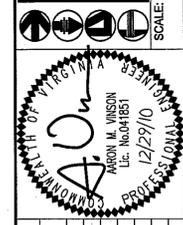




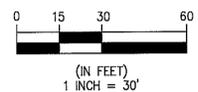
SANITARY SEWER NOTE:
 AS NOTED ON THIS PLAN THE EXISTING SEPTIC FIELD IS ADEQUATE TO SERVE PROPOSED USE. PROPOSED GRAVITY SEWER LINE MAY BE INSTALLED IN THE FUTURE ONLY IF IT IS DETERMINED TO BE NECESSARY.

Application No. **SE 2010-DR-024** Staff **S.Z.**
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 Sheet **3** of **7**

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 SCALE: 1"=30'

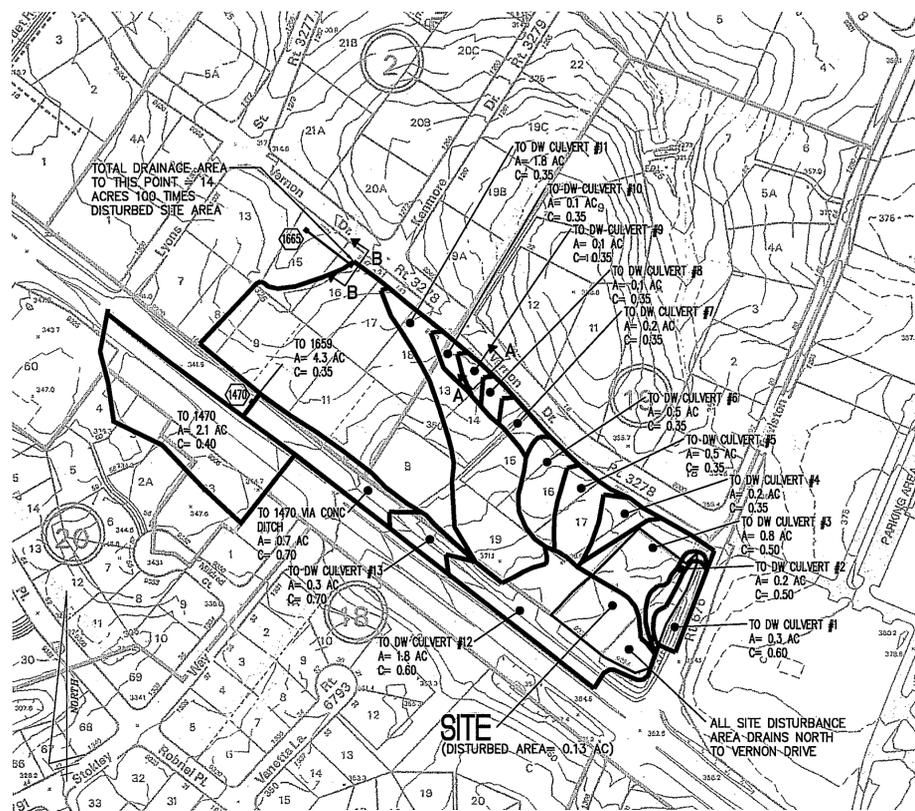


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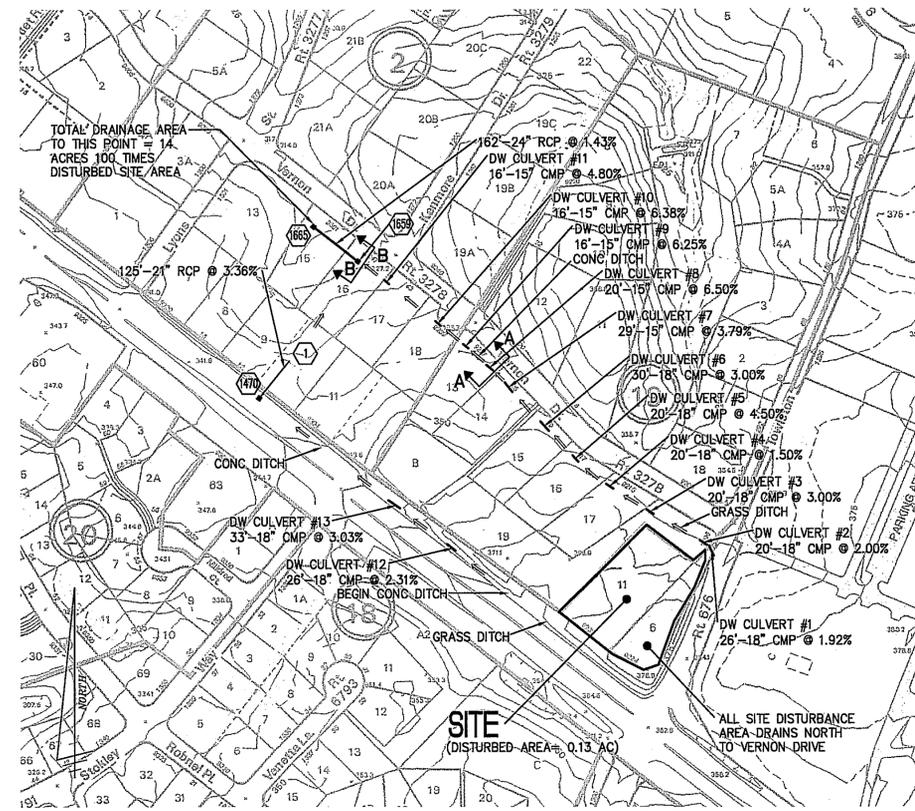


TRANSITIONAL SCREENING BUFFER REQUIREMENT			
TRANSITIONAL SCREENING REQUIREMENT: 1			
COVERAGE REQUIRED: ±9,560 SF (BUFFER AREA) X 75% = ±7,170 SF			
	CANOPY TREE: SUGGESTED SPECIES: RED OAK, WILLOW OAK, BLACK TUPELO 2-2.5" CAL @ 200 SF	8	±1,600 SF
	LARGE EVERGREEN TREE: SUGGESTED SPECIES: MAGNOLIA GRANDIFLORA, NORWAY SPRUCE 8-10' HT @ 200 SF	4	±800 SF
	SMALL EVERGREEN TREE: SUGGESTED SPECIES: AMERICAN HOLLY, EASTERN RED CEDAR 8-10' HT @ 100	11	±1,100 SF
	SMALL ORNAMENTAL TREE: SUGGESTED SPECIES: SERVICEBERRY, FRINGETREE, REDBUD 2-2.5" CAL @ 100	11	±1,100 SF
	SHRUBS - MIXTURE OF LARGE AND MEDIUM EVERGREEN AND DECIDUOUS 24-30" CAL	54	±3,150 SF
	EXISTING LARGE DECIDUOUS TREE TO REMAIN AND BE USED AS BUFFER PLANTING COVERAGE		±3,150 SF
TOTAL COVERAGE PROVIDED = ±7,650 SF (80%)			

SPECIAL EXCEPTION PLAT
DISCOVERY WOODS LEARNING CENTER
 DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA



OUTFALL DRAINAGE AREA MAP
1" = 200'



OUTFALL STORM SEWER AND CHANNEL MAP
1" = 200'

OUTFALL NARRATIVE:

THIS SITE IS LOCATED IN THE DIFFICULT RUN WATERSHED. RUNOFF FROM THIS SITE IS CONVEYED VIA ONSITE SHEET AND SWALE FLOW TO ROADSIDE DITCHES LOCATED TO THE NORTH AND SOUTH OF THE SITE.

ONE PORTION OF THE SITE DRAINS TO THE NORTH INTO A SYSTEM OF DRIVEWAY CULVERTS AND ROADSIDE GRASS AND CONCRETE DITCHES LOCATED ADJACENT TO VERNON DRIVE. ANOTHER PORTION OF THE SITE DRAINS TO THE SOUTH AND INTO A SYSTEM OF DRIVEWAY CULVERTS AND ROADSIDE GRASS AND CONCRETE DITCHES LOCATED ADJACENT TO LEESBURG PIKE. THIS RUNOFF IS ULTIMATELY PICKED UP IN STORM INLET #1470 LOCATED NEXT TO LEESBURG PIKE AND FLOWS VIA PIPE AND CHANNEL TO STRUCTURE #1659. ALL RUNOFF IS ULTIMATELY PICKED UP IN STORM INLET #1659 LOCATED NEXT TO VERNON DRIVE. THIS EXISTING DITCH, CULVERT, AND STORM SEWER SYSTEM HAVE BEEN ANALYZED AND WERE FOUND TO BE ADEQUATE TO CONVEY THE 10 YEAR STORM TO A POINT WHERE THE TOTAL DRAINAGE AREA IS 100 TIMES THE SITE DISTURBED AREA.

THE ROADSIDE GRASS DITCHES ARE PLANTED WITH TALL FESCUE AND HAVE AN ALLOWABLE VELOCITY OF 5 FPS. THE GRASS DITCHES WERE ANALYZED FOR CAPACITY USING THE 10 YEAR STORM AND VELOCITY USING THE 2 YEAR STORM. THE GRASS LINED DITCH SECTIONS WERE FOUND TO HAVE NON-EROSIVE VELOCITIES (<5 FPS FOR TALL FESCUE). ALL OTHER SWALES, CULVERTS AND STORM SEWER WERE ANALYZED USING THE 10 YEAR STORM. AS SHOWN BY COMPUTATIONS ON THIS SHEET AND FOLLOWING SHEETS, ALL CONVEYANCES WERE FOUND TO BE ADEQUATE.

IN SUMMARY, THE ADEQUATE OUTFALL REQUIREMENTS HAVE BEEN MET AND THE DOWNSTREAM EXTENT OF REVIEW WAS DETERMINED BY ANALYZING DOWNSTREAM CONVEYANCES TO A POINT WHERE THE TOTAL DRAINAGE AREA IS 100 TIMES THE SITE DISTURBED AREA.

THIS PRELIMINARY OUTFALL ANALYSIS IS SUBJECT TO CHANGE WITH FUTURE ENGINEERING AND WILL BE REEVALUATED AND VERIFIED AS REQUIRED WITH FUTURE PLANS.

THE CULVERT COMPUTATIONS WERE DONE BOTH BY HAND USING THE METHOD OUTLINED IN THE VDOT DRAINAGE MANUAL AND ALSO USING THE HY-8 CULVERT ANALYSIS PROGRAM CREATED BY THE FEDERAL HIGHWAY ADMINISTRATION.

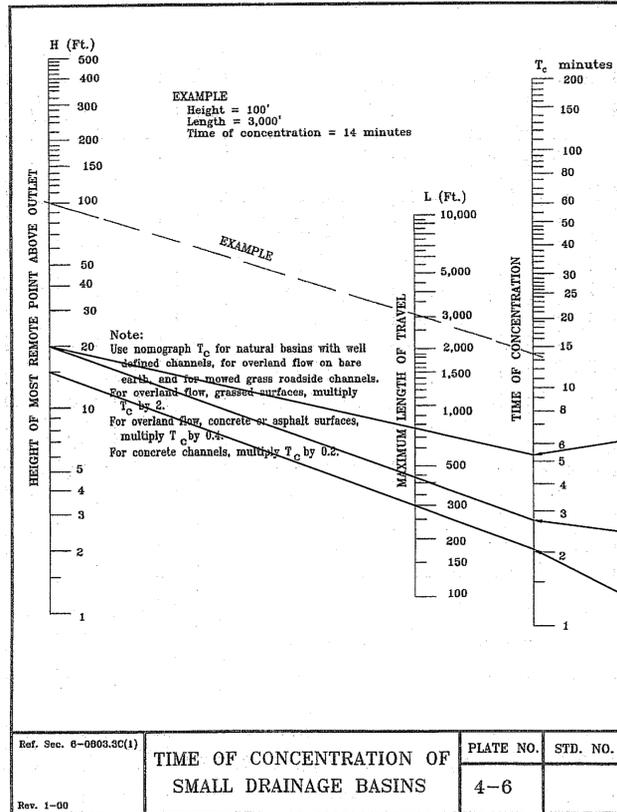
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FAIRFAX COUNTY PUBLIC FACILITIES MANUAL



TIME OF CONCENTRATION TO CULVERT #11

OUTFALL PATH FROM SITE TO THE NORTHWEST ALONG VERNON DRIVE
TOTAL TIME OF CONCENTRATION = 5.3 + 0.6 + 4.2 = 10.1 MINUTES
SUBJECT TO CHANGE WITH FUTURE EVALUATION/ENGINEERING OF THE SITE

OUTFALL CHANNEL SECTION COMPUTATIONS

SECTION	CHANNEL TYPE	CAPACITY ANALYSIS		VELOCITY ANALYSIS	
		Q10 (CFS)	CHANNEL CAPACITY (CFS)	STORM USED FOR VELOCITY CALCULATION	Q2 VELOCITY (FPS)
A-A	GRASS	10.94	49.89	2 YR	4.54
B-B	CONCRETE	15.18	42.52	10 YR	13.04

NOTE:
THE ROADSIDE GRASS DITCHES ARE PLANTED WITH TALL FESCUE AND HAVE AN ALLOWABLE VELOCITY OF 5 FPS. THE GRASS DITCHES WERE ANALYZED FOR CAPACITY USING THE 10 YEAR STORM AND VELOCITY USING THE 2 YEAR STORM. ALL OTHER SWALES, CULVERTS AND STORM SEWER WERE ANALYZED USING THE 10 YEAR STORM ONLY.

OUTFALL STORM SEWER COMPUTATIONS

from point	to point	area (A) acres	C	CA	inlet time (minutes)	rainfall (in/hr)	runoff (CFS) increment	runoff (CFS) accumulated	length (ft)	slope (ft/ft)	diameter (in)	capacity (CFS)
1659	1665	4.3	0.35	1.51	15	5.10	7.68	34.07	162	0.0143	24	29.10

NOTE:
SEE HYDRAULIC GRADE LINE COMPUTATIONS BELOW FOR ADEQUACY OF STRUCTURE 1659.

OUTFALL HYDRAULIC GRADELINE COMPUTATIONS

Inlet Station	Structure Type (M)	Outlet Water Surface Elevation	Junction Loss													Inlet Water Surface Elevation	Max Water Surface Elevation			
			D_1 (ft)	D_2 (ft)	L_1	L_2	H_1	H_2	V_1	V_2	V_1/V_2	H_1/H_2	Angle (°)	H_{sum}	Ht			1.3Ht	5(Ht)	Final H
1659	1	312.65	24	34.07	162	0.023	3.67	10.84	0.46										316.62	316.77

EX. STRUCTURE 1659 HAS A RIM ELEVATION OF APPROXIMATELY 324. AS SHOWN, THE HYDRAULIC GRADE LINE STAYS APPROXIMATELY 7 FEET BELOW THE RIM ELEVATION; THEREFORE, THE EXISTING PIPE RUN IS ADEQUATE.

Project DISCOVERY WOODS DRIVEWAY CULVERT #1
Plan Sheet No. Designer _____ Sheet _____ of _____
Rev. Date _____ Date 12/29/10

HYDROLOGICAL DATA:
D.A. = 0.3 AC.

AWH Controls STATION
100YR FLOOD PLAIN ELEV. _____
DESIGN AHW DEPTH ELEV. _____
STRUCTURES ELEV. _____

SHOULDER ELEV. 358.0
SKEW COVER
INV. EL. 356.1 So = 1.92% INV. EL. 355.6
ORIG. GR. ELEV. N/A L = 26 FT. ORIG. GR. ELEV. N/A

DISCHARGE'S USED
Q10 YR = 1.31 CFS
Q = _____ CFS
Q = _____ CFS
Q = _____ CFS

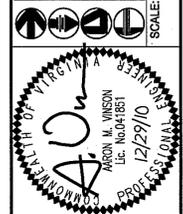
RISK ASSESSMENT
ADT _____
DETOURS AVAILABLE _____ LENGTH _____
OVER TOPPING STAGE _____
FLOOD PLAN MANAGEMENT _____
CRITERIA AND SIGNIFICANT IMPACT _____

CULVERT TYPE & SIZE	Q	Q/B	INLET CONT.		OUTLET CONTROL		CONT. HW ELEV.	OUTLET VELOCITY	END TREAT.	COMMENTS				
			HW/D	HW	ke	dc					ho	H		
EX. 18" CMP	1.31	1.31	0.35	0.53	0.9	0.5	1.0	1.0	0	0.5	356.63	4.5 FPS		

NOTE: CULVERT IS ADEQUATE TO CARRY 10 YEAR DESIGN FLOW WITHOUT FLOWING OVER ROAD

DESIGN FLOOD EXCEED. PROB. _____ ELEV. _____
OVERTOP FLOOD EXCEED. PROB. _____ ELEV. _____
BASE FLOOD 1% EXCEED. PROB. _____ ELEV. _____

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SCALE: AS NOTED
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NO.	DESCRIPTION	DATE	REV. BY	APPROVED

PRELIMINARY OUTFALL ANALYSIS
DISCOVERY WOODS LEARNING CENTER
DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA

Project **DISCOVERY WOODS DRIVEWAY CULVERT #8** Plan Sheet No. Designer _____ Sheet _____ of _____
 Rev. Date Date **12/29/10**

HYDROLOGICAL DATA:
 D.A. = **2.8** AC.

AHW Controls STATION _____
 100YR FLOOD PLAIN ELEV. _____
 DESIGN AHW DEPTH ELEV. _____
 STRUCTURES ELEV. _____

SHOULDER ELEV. **339.0** C ELEV. **339.4**

SKWEW COVER

INV. EL. **337.3** So = **6.5%** INV. EL. **336.0**
 ORIG. GR. ELEV. **N/A** L = **20 FT** ORIG. GR. ELEV. **N/A**

DISCHARGE'S USED **Q10 YR = 10.94** CFS
 RISK ASSESSMENT ADT _____
 DETOURS AVAILABLE _____ LENGTH _____
 OVER TOPPING STAGE _____
 FLOOD PLAIN MANAGEMENT _____
 CRITERIA AND SIGNIFICANT IMPACT _____

CULVERT TYPE & SIZE	Q	Q/B	HEADWATER COMPUTATIONS										CONT. HW ELEV.	OUTLET VELOCITY	END TREAT.	COMMENTS
			INLET CONT.	HW		Ke	dc	OUTLET CONTROL		ho	H	LSo				
EX. 15' CMP	10.94		SEE HY-8 OUTPUT TABLE BELOW													

NOTE: CULVERT IS ADEQUATE TO CARRY 10 YEAR DESIGN FLOW WITHOUT FLOWING OVER VERNON DRIVE.

DESIGN FLOOD EXCEED. PROB. _____ ELEV. _____
 OVERTOP FLOOD EXCEED. PROB. _____ ELEV. _____
 BASE FLOOD 1% EXCEED. PROB. _____ ELEV. _____

Project **DISCOVERY WOODS DRIVEWAY CULVERT #9** Plan Sheet No. Designer _____ Sheet _____ of _____
 Rev. Date Date **12/29/10**

HYDROLOGICAL DATA:
 D.A. = **2.9** AC.

AHW Controls STATION _____
 100YR FLOOD PLAIN ELEV. _____
 DESIGN AHW DEPTH ELEV. _____
 STRUCTURES ELEV. _____

SHOULDER ELEV. **334.9** C ELEV. **334.9**

SKWEW COVER

INV. EL. **332.2** So = **6.25%** INV. EL. **331.3**
 ORIG. GR. ELEV. **N/A** L = **16 FT** ORIG. GR. ELEV. **N/A**

DISCHARGE'S USED **Q10 YR = 11.20** CFS
 RISK ASSESSMENT ADT _____
 DETOURS AVAILABLE _____ LENGTH _____
 OVER TOPPING STAGE _____
 FLOOD PLAIN MANAGEMENT _____
 CRITERIA AND SIGNIFICANT IMPACT _____

CULVERT TYPE & SIZE	Q	Q/B	HEADWATER COMPUTATIONS										CONT. HW ELEV.	OUTLET VELOCITY	END TREAT.	COMMENTS
			INLET CONT.	HW		Ke	dc	OUTLET CONTROL		ho	H	LSo				
EX. 15' CMP	11.20		SEE HY-8 OUTPUT TABLE BELOW													

NOTE: CULVERT IS ADEQUATE TO CARRY 10 YEAR DESIGN FLOW WITHOUT FLOWING OVER VERNON DRIVE.

DESIGN FLOOD EXCEED. PROB. _____ ELEV. _____
 OVERTOP FLOOD EXCEED. PROB. _____ ELEV. _____
 BASE FLOOD 1% EXCEED. PROB. _____ ELEV. _____

Project **DISCOVERY WOODS DRIVEWAY CULVERT #10** Plan Sheet No. Designer _____ Sheet _____ of _____
 Rev. Date Date **12/29/10**

HYDROLOGICAL DATA:
 D.A. = **3.0** AC.

AHW Controls STATION _____
 100YR FLOOD PLAIN ELEV. _____
 DESIGN AHW DEPTH ELEV. _____
 STRUCTURES ELEV. _____

SHOULDER ELEV. **329.7** C ELEV. **329.8**

SKWEW COVER

INV. EL. **326.8** So = **6.38%** INV. EL. **325.7**
 ORIG. GR. ELEV. **N/A** L = **16 FT** ORIG. GR. ELEV. **N/A**

DISCHARGE'S USED **Q10 YR = 11.45** CFS
 RISK ASSESSMENT ADT _____
 DETOURS AVAILABLE _____ LENGTH _____
 OVER TOPPING STAGE _____
 FLOOD PLAIN MANAGEMENT _____
 CRITERIA AND SIGNIFICANT IMPACT _____

CULVERT TYPE & SIZE	Q	Q/B	HEADWATER COMPUTATIONS										CONT. HW ELEV.	OUTLET VELOCITY	END TREAT.	COMMENTS
			INLET CONT.	HW		Ke	dc	OUTLET CONTROL		ho	H	LSo				
EX. 15' CMP	11.45		SEE HY-8 OUTPUT TABLE BELOW													

NOTE: CULVERT IS ADEQUATE TO CARRY 10 YEAR DESIGN FLOW WITHOUT FLOWING OVER VERNON DRIVE.

DESIGN FLOOD EXCEED. PROB. _____ ELEV. _____
 OVERTOP FLOOD EXCEED. PROB. _____ ELEV. _____
 BASE FLOOD 1% EXCEED. PROB. _____ ELEV. _____

HY-8 OUTPUT TABLE

Table 7 - Summary of Culvert Flows at Crossing: culvert 8

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 8 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
339.06	8.00	4.04	3.95	7
339.07	8.40	4.08	4.31	3
339.08	8.80	4.11	4.68	3
339.09	9.20	4.14	5.05	3
339.70	9.60	4.17	5.42	3
339.71	10.00	4.20	5.79	3
339.72	10.40	4.23	6.16	3
339.73	10.80	4.26	6.53	2
339.74	10.94	4.27	6.66	3
339.75	11.20	4.32	7.28	3
339.76	12.00	4.34	7.62	2

HY-8 OUTPUT TABLE

Table 10 - Summary of Culvert Flows at Crossing: culvert 9

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 9 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
334.17	10.00	5.81	4.18	5
334.18	10.30	5.83	4.46	3
334.19	10.60	5.85	4.74	3
334.19	10.90	5.86	5.03	3
334.20	11.20	5.88	5.31	3
334.21	11.50	5.90	5.59	3
334.21	11.80	5.91	5.84	2
334.22	12.10	5.93	6.10	3
334.23	12.40	5.95	6.41	2
334.23	12.70	5.97	6.73	3
334.24	13.00	5.98	6.98	2

HY-8 OUTPUT TABLE

Table 13 - Summary of Culvert Flows at Crossing: culvert 10

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 10 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
329.12	9.00	6.63	2.34	9
329.13	9.40	6.65	2.71	3
329.14	9.80	6.68	3.09	3
329.15	10.20	6.70	3.47	3
329.16	10.60	6.72	3.85	3
329.17	11.00	6.74	4.24	3
329.18	11.40	6.77	4.62	3
329.18	11.45	6.77	4.66	2
329.20	12.20	6.81	5.37	3
329.21	12.60	6.83	5.75	3
329.22	13.00	6.84	6.15	3

Project **DISCOVERY WOODS DRIVEWAY CULVERT #11** Plan Sheet No. Designer _____ Sheet _____ of _____
 Rev. Date Date **12/29/10**

HYDROLOGICAL DATA:
 D.A. = **4.8** AC.

AHW Controls STATION _____
 100YR FLOOD PLAIN ELEV. _____
 DESIGN AHW DEPTH ELEV. _____
 STRUCTURES ELEV. _____

SHOULDER ELEV. **322.1** C ELEV. **322.1**

SKWEW COVER

INV. EL. **319.4** So = **4.8%** INV. EL. **318.6**
 ORIG. GR. ELEV. **N/A** L = **16 FT** ORIG. GR. ELEV. **N/A**

DISCHARGE'S USED **Q10 YR = 15.18** CFS
 RISK ASSESSMENT ADT _____
 DETOURS AVAILABLE _____ LENGTH _____
 OVER TOPPING STAGE _____
 FLOOD PLAIN MANAGEMENT _____
 CRITERIA AND SIGNIFICANT IMPACT _____

CULVERT TYPE & SIZE	Q	Q/B	HEADWATER COMPUTATIONS										CONT. HW ELEV.	OUTLET VELOCITY	END TREAT.	COMMENTS
			INLET CONT.	HW		Ke	dc	OUTLET CONTROL		ho	H	LSo				
EX. 15' CMP	15.18		SEE HY-8 OUTPUT TABLE BELOW													

NOTE: CULVERT IS ADEQUATE TO CARRY 10 YEAR DESIGN FLOW WITHOUT FLOWING OVER VERNON DRIVE.

DESIGN FLOOD EXCEED. PROB. _____ ELEV. _____
 OVERTOP FLOOD EXCEED. PROB. _____ ELEV. _____
 BASE FLOOD 1% EXCEED. PROB. _____ ELEV. _____

HY-8 OUTPUT TABLE

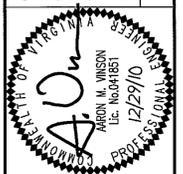
Table 16 - Summary of Culvert Flows at Crossing: culvert 11

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 11 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
321.73	13.00	6.62	6.35	7
321.73	13.40	6.64	6.75	3
321.74	13.80	6.66	7.13	3
321.75	14.20	6.68	7.51	3
321.76	14.60	6.69	7.90	3
321.77	15.00	6.71	8.28	3
321.77	15.18	6.72	8.43	2
321.78	15.80	6.74	9.05	3
321.79	16.20	6.76	9.39	2
321.80	16.60	6.78	9.82	3
321.81	17.00	6.79	10.17	2

Application No. **SE 2010-DR-024** Staff **S.Z.**
 APPROVED (SE) (SP) PLAN
 SEE DEV. CONDS. DATED **Mar 23, 2011**
 Date of (BOS) (BZA) Approval **Mar 29, 2011**

PRELIMINARY OUTFALL ANALYSIS

DISCOVERY WOODS LEARNING CENTER
 DRANESVILLE DISTRICT
 FAIRFAX COUNTY, VIRGINIA



WALTER L. PHILLIPS
 INCORPORATED
 CIVIL ENGINEERS, LAND SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS
 207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046
 (703) 532-6163 FAX (703) 533-1301
 DATE: 4/27/10 REV: 6/26/10; 12/10; 12/28/10
 DRAWN: MRYV CHECKED: AV
 WLPINC.COM

