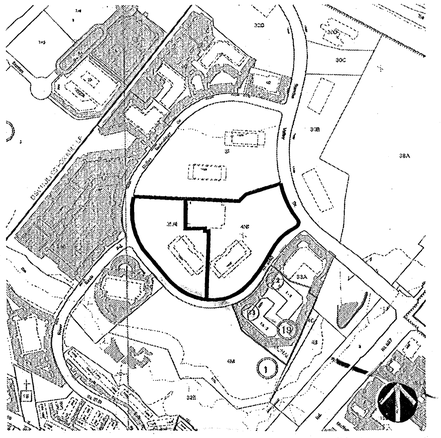
DULLES EXECUTIVE PLAZA

GENERALIZED DEVELOPMENT PLAN

HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

MAY 8, 2006
(REVISED JUNE 13, 2006)
(REVISED NOVEMBER 22, 2006)
(REVISED JANUARY 5, 2007)
(REVISED FEBRUARY 2, 2007)



VICINITY MAP
SCALE: 1"=500'

TM NO. 16-3 ((1))4N1
TM NO. 16-3 ((1))31A1

SHEET INDEX

1. COVER SHEET
2. GDP NOTES AND TABULATIONS
3. EXISTING CONDITIONS
4. GENERALIZED DEVELOPMENT PLAN
5. LANDSCAPE PLAN
6. STORMWATER MANAGEMENT NARRATIVES
7. STORMWATER COMPUTATIONS (PART 1)
8. STORMWATER COMPUTATIONS (PART 2)
9. STORMWATER MANAGEMENT PLAN & NARRATIVES
10. FLOOD PLAIN STUDY (PART 1)
11. STORMWATER COMPUTATIONS
12. FLOOD PLAIN STUDY (PART 2)
13. EXISTING VEGETATION MAP
14. EXISTING LANDSCAPE PLAN
15. TREE PRESERVATION PLAN
16. BUILDING PERSPECTIVE
17. BUILDING PLAN
18. BUILDING SECTIONS
19. BUILDING ELEVATIONS

OWNER/APPLICANT
MB HERNDON, LLC
C/O INLAND REAL ESTATE GROUP
2901 BUTTERFIELD RD.
OAK BROOK, IL 60523

ATTORNEY
WALSH, COLUCCI, LUBELEY, EMRICH & WALSH P.C.
COURTHOUSE PLAZA
2200 CLARENDON BLVD.
13TH FLOOR
ARLINGTON, VIRGINIA 22201
CONTACT: MARTIN D. WALSH
(703) 528-4700

ARCHITECTS
DAVIS CARTER SCOTT, LTD
1676 INTERNATIONAL DRIVE
SUITE 500
MCLEAN, VIRGINIA 22102
CONTACT: ROBERT ATKINSON
(703) 556-9275

ENGINEER
VIKA INC.
8180 GREENSBORO DRIVE
SUITE 200
MCLEAN, VIRGINIA 22102
CONTACT: ROBERT R. COCHRAN
(703) 442-7800

LANDSCAPE ARCHITECT
LEWIS, SCULLY, AND GIONET
1919 GALLOWS ROAD
SUITE 110
MCLEAN, VIRGINIA 22102
CONTACT: ROBERT A. ESSELBURN
(703) 821-2045

COMMONWEALTH OF VIRGINIA
2/2/07
ROBERT R. COCHRAN
No. 2011
LAND SURVEYOR

Application No. RZ 2006-HM-018 Staff JDM/KA
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 7-10-07
Date of (BOS) (PC) approval 9-10-07
Sheet 1 of 19

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006	
DES. RO	DWN. JA
SCALE:	
PROJECT/FILE NO. 6188F	
SHEET NO. 1 OF 19	

P:\LDS\Projects\6188F\Planning\dwg\6188F-CDV.dwg 2/1/2007 2:49:08 PM EST

NOTES

1. THE PROPERTIES THAT ARE THE SUBJECT OF THE PCA/RZ ARE IDENTIFIED ON THE FAIRFAX COUNTY TAX ASSESSMENT MAP AS 016-3 ((1)) 4 N1 AND 016-3 ((1)) 31A1. THE PROPERTY IS OWNED BY MB HERNDON, LLC BY DEED BOOK 18643 AT PG. 839 AND ARE CURRENTLY ZONED I-4.
2. THE HORIZONTAL DATUM IS VIRGINIA STATE GRID NORTH.
3. THE TOPOGRAPHY SHOWN HEREON WAS FIELD RUN BY VIKA, INC. AND THE CONTOUR INTERVAL IS TWO (2) FEET.
4. THE BOUNDARY INFORMATION WAS PREPARED BY VIKA, INC.
5. THE PROPERTY IS LOCATED WITHIN LAND UNIT A OF THE DULLES SUBURBAN CENTER AREA OF THE FAIRFAX COUNTY COMPREHENSIVE PLAN AND THE PROPOSED DEVELOPMENT IS CONSISTENT WITH THE DEVELOPMENT CRITERIA FOUND THEREIN.
6. PUBLIC WATER AND SANITARY SEWER ARE AVAILABLE TO SERVE THE DEVELOPMENT.
7. TO THE BEST OF OUR KNOWLEDGE, NO GRAVE SITES OR STRUCTURES MARKING A BURIAL SITE ARE PRESENT ON THE SUBJECT PROPERTY.
8. TO THE BEST OF OUR KNOWLEDGE, NO HAZARDOUS OR TOXIC SUBSTANCES ARE KNOWN TO EXIST ON THE SUBJECT PROPERTY.
9. THREE (3) STRUCTURES CURRENTLY EXIST ON THE PARCELS AND WERE CONSTRUCTED IN 2001.
10. THE ENTIRE SUBJECT PROPERTY IS LOCATED WITHIN AN RMA ZONE. NO FLOODPLAIN, R.P.A. OR ENVIRONMENTAL QUALITY CORRIDOR CURRENTLY EXIST ON THIS PROPERTY.
11. LIMITS OF CLEARING AND GRADING SHOWN ON THE GDP ARE PRELIMINARY AND ARE SUBJECT TO MODIFICATION WITH FINAL ENGINEERING. THE DEVELOPMENT OF THE SITE WILL BE IN GENERAL CONFORMANCE WITH THESE LIMITS. FINAL LIMITS OF CLEARING AND GRADING WILL TAKE INTO CONSIDERATION FINAL SITE ENGINEERING AND SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY THE COUNTY URBAN FORESTER AT THE TIME OF FINAL SITE REVIEW.
12. THE ANGLES OF BULK PLANE AND YARDS INDICATED ON THIS SHEET ARE FOR C-3.
13. DEVELOPMENT WILL COMMENCE UPON COMPLETION OF REQUIRED FAIRFAX COUNTY PLAN PROCESSING AND APPROVALS.
14. THE PROPOSED DEVELOPMENT CONFORMS TO THE PROVISIONS OF ALL APPPLICABLE ORDINANCES, REGULATIONS AND ADOPTED STANDARDS. THERE ARE NO WAIVERS OR MODIFICATIONS PROPOSED.
15. LANDSCAPED OPEN SPACE AREAS SHOWN HEREON MAY BE MODIFIED AT THE TIME OF FINAL ENGINEERING, AS LONG AS THE AREA OF LANDSCAPED OPEN SPACE AND THE QUALITY AND CHARACTER OF THE PLANTING IS MAINTAINED PER THE URBAN FORESTER.
16. THE FOOTPRINTS REPRESENTED HEREON ARE APPROXIMATE. BUILDING FOOTPRINTS MAY BE INCREASED OR DECREASED AND THE NUMBER OF PARKING SPACES OUTSIDE AND IN THE STRUCTURES MAY BE MODIFIED, SO LONG AS THE MINIMUM OPEN SPACE PROVIDED IN THE TABULATION, AND THE AMOUNT OF LANDSCAPING AND THE MINIMUM DIMENSIONS TO THE PERIPHERAL LOT LINES ARE NOT DIMINISHED. THE DEVELOPER RESERVES THE RIGHT TO ADJUST THE AMOUNT OF PARKING PROVIDED AS LONG AS IT MEETS ZONING ORDINANCE REQUIREMENTS.
17. ADDITIONAL SITE FEATURES SUCH AS PLAZA DEVELOPMENT, GAZEBOS, FENCING, RETAINING WALLS, CORNICES, TRELLISES, ENTRANCE SIGNS, LIGHTS AND/OR WALLS NOT REPRESENTED HEREON MAY BE PROVIDED.
18. THE PROPOSED DEVELOPMENT ON THE SUBJECT PROPERTY WILL NOT POSE ANY ADVERSE EFFECT ON ADJACENT OR NEIGHBORING PROPERTIES.
19. SIGNAGE WILL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE 12 OF THE ZONING ORDINANCE. UNLESS WAIVED OR MODIFIED BY THE BOARD.
20. THERE ARE NO SCENIC ASSETS OR NATURAL FEATURES ON THIS SITE WORTHY OF DELINEATION.
21. PARKING LOT LANDSCAPING AND TREE COVER REQUIREMENTS WILL BE PROVIDED IN ACCORDANCE WITH ARTICLE 13 UNLESS WAIVED BY THE DIRECTOR OF DPWES.
22. THERE ARE NO EXISTING UTILITY EASEMENTS HAVING A WIDTH OF TWENTY FIVE (25) FEET OR MORE, NOR ANY MAJOR UNDERGROUND UTILITY EASEMENTS LOCATED ON THIS SITE.
23. STORMWATER MANAGEMENT NARRATIVE, BMP (WATER QUALITY) NARRATIVE, ADEQUACY OF OUTFALL NARRATIVE, AND CHECKLIST ARE FOUND ON SHEETS 6 THROUGH 6F.
24. AN EXISTING TYPE-1 BICYCLE TRAIL ALONG SUNRISE VALLEY DRIVE IS CONSISTENT WITH THE ADOPTED COMPREHENSIVE PLAN. THERE ARE NO PROPOSED CHANGES TO THE EXISTING ROAD NETWORK. PUBLIC IMPROVEMENTS WILL BE PROVIDED AS STATED IN THE PROFFERS.
25. TREES AND EXISTING VEGETATION TO BE REMOVED IS FOUND ON SHEET 15. THE LANDSCAPE PLAN ON SHEET 5 ILLUSTRATES THE COMBINATION OF EXISTING VEGETATION TO BE SAVED AND PROPOSED NEW PLANTINGS.

SITE TABULATIONS

EXISTING ZONING: I-4 PROPOSED ZONING: C-3

MINIMUM LOT AREA REQUIRED: 20,000 SF
MIMIMUM LOT AREA PROVIDED: 640,331 SF OR 14.7 ACRES

MINIMUM LOT WIDTH REQUIRED: 100'
MINIMUM LOT WIDTH PROVIDED: 318'

MAXIMUM BUILDING HEIGHT ALLOWED: 90'
MAXIMUM BUILDING HEIGHT EXISTING AND PROPOSED:
- EXISTING BUILDING 13560 DULLES TECHNOLOGY DRIVE: 74.5'±
- EXISTING BUILDING 13530 DULLES TECHNOLOGY DRIVE: 74.5'±
- EXISTING 3 STORY PARKING GARAGE: 24.5'±
- PROPOSED 7-STORY OFFICE BUILDING: 89'±
- PROPOSED 7-STORY PARKING GARAGE: 64'±

YARD REQUIRED (C-3 ZONING DISTRICT):
FRONT: "CONTROLLED BY A 25° ANGLE OF BULK PLANE, BUT NOT LESS THAN 40 FEET"
REAR: N/A
SIDE: NONE

YARDS PROVIDED (FRONT ONLY):
- EXISTING BUILDING 13560 DULLES TECHNOLOGY DRIVE: 137.5'±
- EXISTING BUILDING 13530 DULLES TECHNOLOGY DRIVE: 133.6'±
- PROPOSED 7-STORY PARKING GARAGE: 75.9'±
- PROPOSED 7-STORY OFFICE BUILDING: 71.1'±

OPEN SPACE REQUIRED: 15%
OPEN SPACE PROVIDED: 31.8%

GROSS FLOOR AREA

EXISTING= 395,368 SF
PROPOSED= 244,963 SF
TOTAL= 640,331 SF

FLOOR AREA RATIO

EXISTING= 0.62
PROPOSED= 1.00

LOADING SPACES

LOADING RATIO= STANDARD C: ONE (1) SPACE FOR THE FIRST 10,000 FEET OF GROSS FLOOR AREA, PLUS ONE (1) SPACE FOR EACH ADDITIONAL 20,000 SQUARE FEET OR MAJOR FRACTION THEREOF.

LOADING REQUIRED= 15 SPACES
LOADING PROVIDED= 15 SPACES (5 SPACES/BUILDING)

PARKING CALCULATIONS: OFFICE

PARKING RATIO REQUIRED: 2.6 SPACES/1000 SF OF GFA
PARKING REQUIRED: 1,665 SPACES
EXISTING PARKING: 1,495 SPACES (INCLUDING HANDICAP SPACES)
PARKING RATIO PROPOSED: 3.39 SPACES/1000 SF OF GFA
PROPOSED ADDITIONAL PARKING: 674 SPACES*

2,169 (TOTAL PROPOSED PARKING = 535 SURFACE + 1,634 GARAGE)
2,130 STANDARD SPACES
39 HANDICAP SPACES

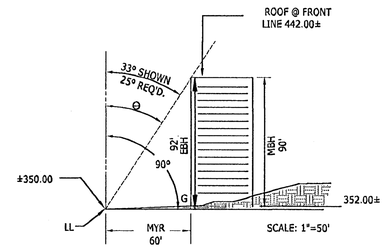
*(SOME EXISTING PARKING TO BE REMOVED FOR CONSTRUCTION OF NEW BUILDING AND TO BE REPLACED IN NEW GARAGE.)

WAIVERS/MODIFICATIONS REQUESTED

1. NONE

COMMONWEALTH OF VIRGINIA
2/2/07
ROBERT R. COCHRAN
No. 2012
LAND SURVEYOR

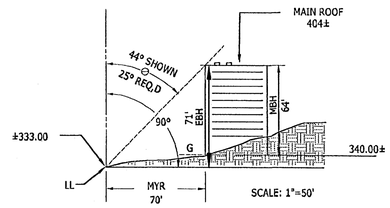
BULK PLANE: PROPOSED CONDITIONS



Θ : ANGLE OF BULK PLANE = 25° (FRONT YARD) (MIN 40 FEET)
LL : LOT LINE (ELEV =350'±)
EBH : EFFECTIVE BUILDING HEIGHT (92'±)
MYR : MINIMUM YARD REQUIREMENT (43'±)
MYR PROVIDED: 60' (33° BULK PLANE)
MBH : MAXIMUM BUILDING HEIGHT (90')
G : GRADE FOR HEIGHT CALCULATIONS=352.00'±
MYR = EBH tan Θ
EBH = MYR / tan Θ

C-3 FRONT YARD BULK PLANE "E" ILLUSTRATION DULLES TECHNOLOGY DRIVE (PROPOSED 7 STORY OFFICE BUILDING)

SEE REFERENCE MAP BELOW FOR SECTION LOCATION.



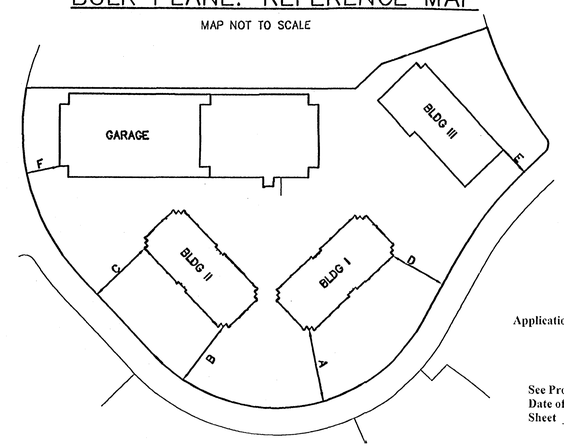
Θ : ANGLE OF BULK PLANE = 25° (FRONT YARD) (MIN 40 FEET)
LL : LOT LINE (ELEV = 333.00±)
EBH : EFFECTIVE BUILDING HEIGHT (71' ±)
MYR : MINIMUM YARD REQUIREMENT (33'±)
MYR PROVIDED: 70' (44° BULK PLANE)
MBH : MAXIMUM BUILDING HEIGHT (64±)
G : GRADE FOR HEIGHT CALCULATIONS=340.00±
MYR = EBH tan Θ
EBH = MYR / tan Θ

C-3 FRONT YARD BULK PLANE "F" ILLUSTRATION DULLES TECHNOLOGY DRIVE (PROPOSED 7 STORY PARKING GARAGE)

SEE REFERENCE MAP BELOW FOR SECTION LOCATION

BULK PLANE: REFERENCE MAP

MAP NOT TO SCALE



Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (GDP) (CDP) (FDP)

See Proffers Dated 7-10-2007

Date of (BOS) (PC) Approval 9-10-2007

Sheet 2 of 19

BULK PLANE: EXISTING CONDITIONS

Building Number	Yard	* Designation	Θ Angle of Bulk Plane	Lot Line Elevation	Roof Elevation	(EBH) Effective Building Height	Minimum Yard Requirement
I	front	A	45	104.50m (342.85)	129.09m (423.52)	24.59m (80.68')	24.59m (80.68')
I	front	D	45	106.95m (350.88)	129.09m (423.52)	22.14m (72.64')	22.14m (72.64')
II	front	B	45	103.12m (338.32)	129.09m (423.52)	25.97m (85.20')	25.97m (85.20')
II	front	C	45	102.29m (335.60)	129.09m (423.52)	26.80m (87.93')	26.80m (87.93')

* SEE LOCATIONS ON MAP ABOVE (INFORMATION TAKEN FROM THE APPROVED SITE PLAN ON FILE AT FAIRFAX COUNTY)

VIKA
ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES
VIKA INCORPORATED
8180 GREENSBORO DRIVE, SUITE 200 MCLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
MCLEAN, VA GERMANTOWN, MD LEESBURG, VA

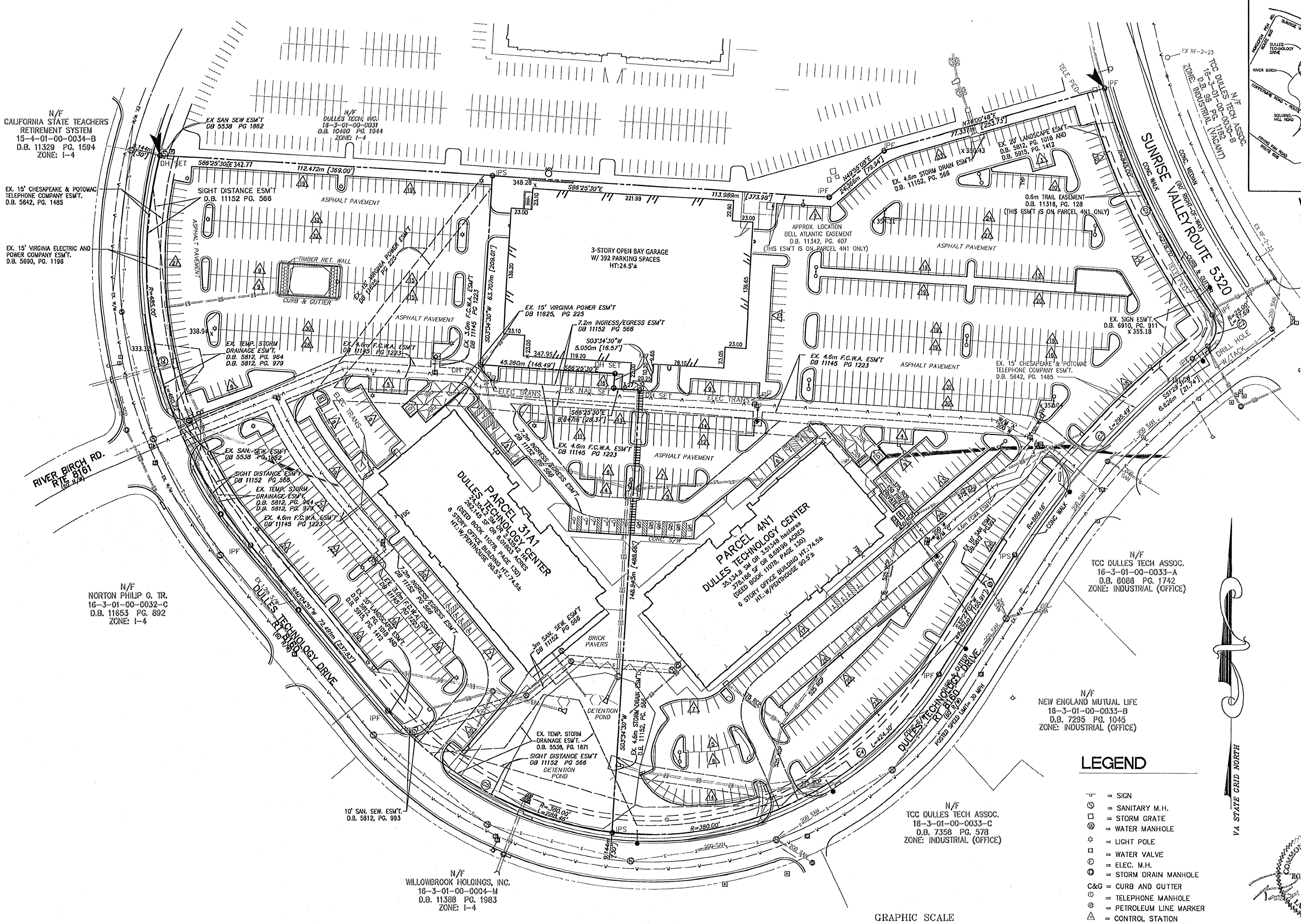
DULLES EXECUTIVE PLAZA
HUNTER MILL DISTRICT
FAIRFAX COUNTY VIRGINIA

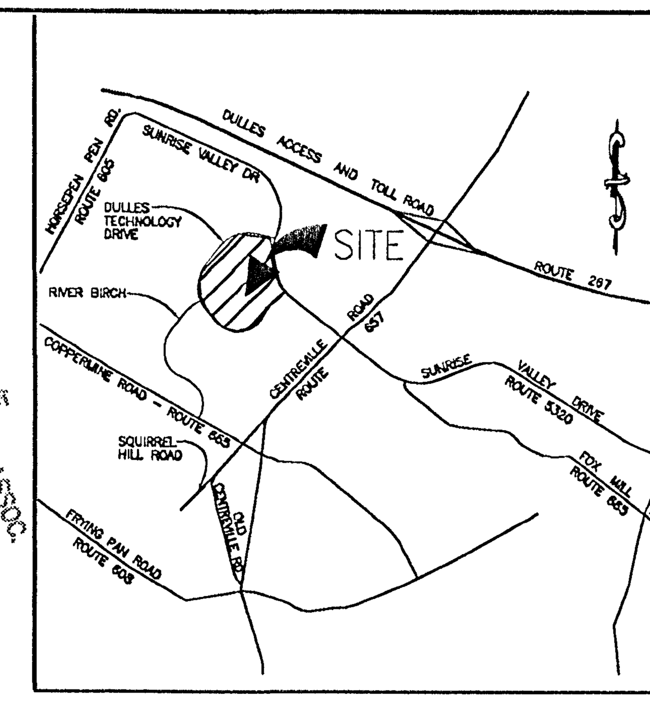
GDP
NOTES AND TABULATIONS

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006
DES. RO
DWN. JA
SCALE:
PROJECT/FILE NO. 6188F
SHEET NO. 2 OF 19

P:\LDDJ\Projects\6188f\Planning\dwg\6188F-NOT-TAB.dwg 2/1/2007 2:22:50 PM EST





VICINITY MAP
SCALE : 1"=2000'

LEGEND

- = SIGN
- = SANITARY M.H.
- = STORM GRATE
- = WATER MANHOLE
- = LIGHT POLE
- = WATER VALVE
- = ELEC. M.H.
- = STORM DRAIN MANHOLE
- C&G = CURB AND GUTTER
- = TELEPHONE MANHOLE
- = PETROLEUM LINE MARKER
- = CONTROL STATION

COMMONWEALTH OF VIRGINIA
ROBERT R. COCHRAN
No. 2012
LAND SURVEYOR
2/2/07

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (GDP) (CDP) (FDP)

See Proffers Dated 7-10-2007

Date of (BOS) (PC) Approval 9-10-2007

Sheet 3 of 19

VIKA

ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES

VIKA INCORPORATED
8180 GREENSBORO DRIVE SUITE 200 ■ McLEAN, VIRGINIA 22102
(703) 442-7800 ■ FAX (703) 761-2787
McLEAN, VA FREDERICK, MD

DULLES EXECUTIVE PLAZA
LOT 4N1 & 31A1
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

EXISTING CONDITIONS

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006

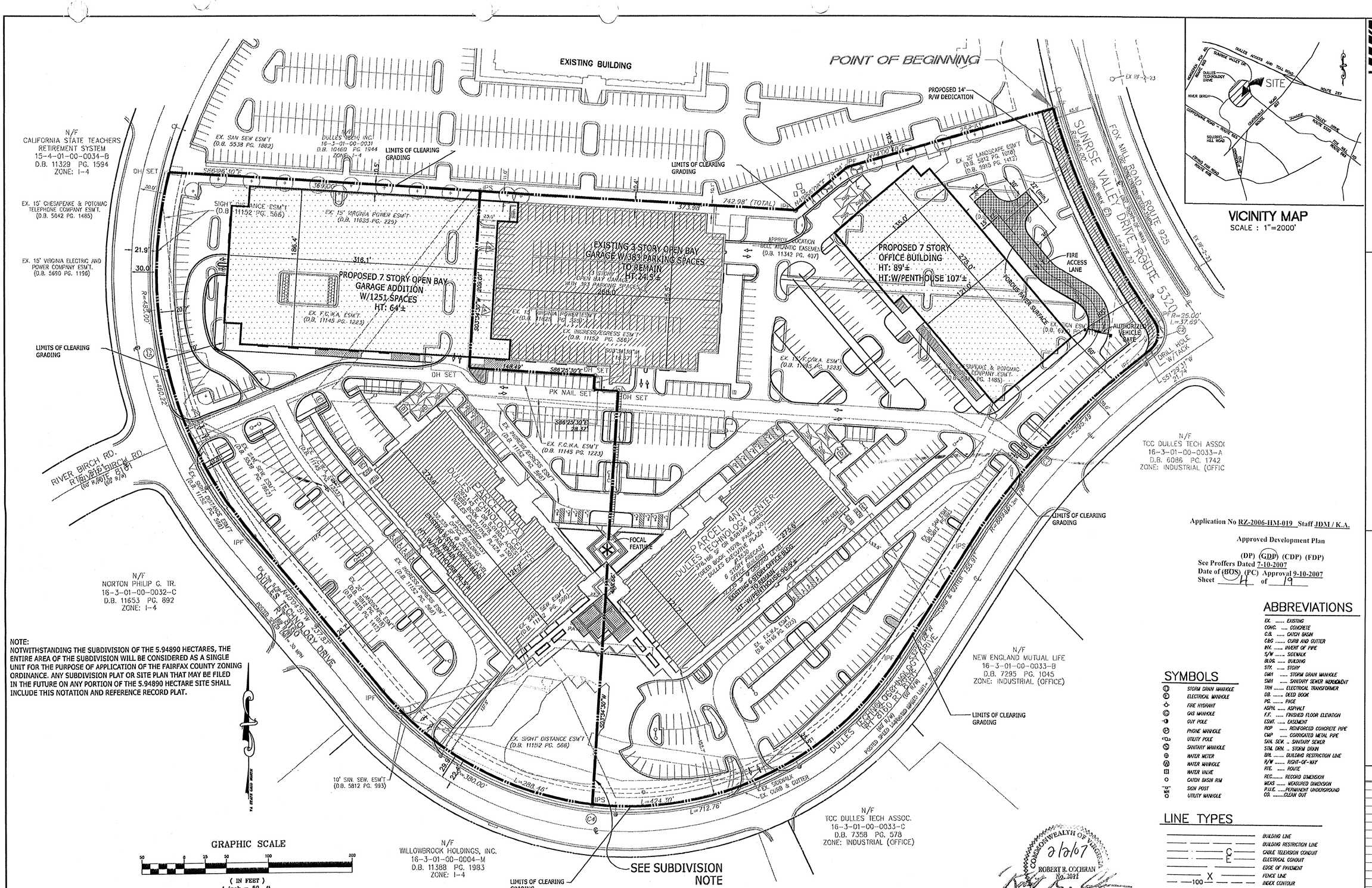
DES. RO | DWN. JA

SCALE: 1"=50'

PROJECT/FILE NO. 6188F

SHEET NO. 3 OF 19

P:\LDD3\Projects\6188F\Planning\dwg\6188-ex-con.dwg 12/28/2006 2:02:48 PM EST



VICINITY MAP

SCALE : 1"=2000'

NOTE:
NOTWITHSTANDING THE SUBDIVISION OF THE 5.94890 HECTARES, THE ENTIRE AREA OF THE SUBDIVISION WILL BE CONSIDERED AS A SINGLE UNIT FOR THE PURPOSE OF APPLICATION OF THE FAIRFAX COUNTY ZONING ORDINANCE. ANY SUBDIVISION PLAT OR SITE PLAN THAT MAY BE FILED IN THE FUTURE ON ANY PORTION OF THE 5.94890 HECTARE SITE SHALL INCLUDE THIS NOTATION AND REFERENCE RECORD PLAT.

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (GDP) (CDP) (FDP)

See Proffers Dated 7-10-2007

Date of (BOS) (PC) Approval 9-10-2007

Sheet 4 of 19

ABBREVIATIONS

EX. ..... EXISTING
CONC. ..... CONCRETE
C.B. ..... CATCH BASIN
C&G ..... CURB AND GUTTER
INV. ..... INVERT OF PIPE
S/W ..... SIDEWALK
BLDG. ..... BUILDING
STY. ..... STORY
DMH ..... STORM DRAIN MANHOLE
SMH ..... SANITARY SEWER MANHOLE
TRN ..... ELECTRICAL TRANSFORMER
DB. ..... DEED BOOK
PG. ..... PAGE
ASPH. ..... ASPHALT
F.F. ..... FINISHED FLOOR ELEVATION
ESMT. ..... EASEMENT
RCP ..... REINFORCED CONCRETE PIPE
CMP ..... CORRUGATED METAL PIPE
SAN. SEW. .. SANITARY SEWER
STM. DRN. .. STORM DRAIN
BRL ..... BUILDING RESTRICTION LINE
R/W ..... RIGHT-OF-WAY
RTE. ..... ROUTE
REC. ..... RECORD DIMENSION
MEAS ..... MEASURED DIMENSION
P.U.E. .....PERMANENT UNDERGROUND
CO. .....CLEAN OUT

SYMBOLS

STORM DRAIN MANHOLE
ELECTRICAL MANHOLE
FIRE HYDRANT
GAS MANHOLE
GUY POLE
PHONE MANHOLE
UTILITY POLE
SANITARY MANHOLE
WATER METER
WATER MANHOLE
WATER VALVE
CATCH BASIN RIM
SIGN POST
UTILITY MANHOLE

LINE TYPES

BUILDING LINE
BUILDING RESTRICTION LINE
C — CABLE TELEVISION CONDUIT
E — ELECTRICAL CONDUIT
EDGE OF PAVEMENT
X — FENCE LINE
100 — INDEX CONTOUR
102 — INTERMEDIATE CONTOUR
G — NATURAL GAS CONDUIT
OHW — OVERHEAD WIRES
P — TELE/COMM CONDUIT
PROPERTY LINES
PUBLIC UTILITIES EASEMENTS
S — SANITARY SEWER CONDUIT
SD — STORM DRAIN CONDUIT
W — WATER CONDUIT
TREE LINE

COMMONWEALTH OF VIRGINIA
2/2/07
ROBERT R. COCHRAN
No. 2012
LAND SURVEYOR

VIKA

ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES

VIKA INCORPORATED
8180 GREENSBORO DRIVE, SUITE 200 ■ MCLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
MCLEAN, VA FREDERICK, MD

DULLES EXECUTIVE PLAZA

LOT 4N1 & 31A1

HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

GENERALIZED DEVELOPMENT PLAN

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006

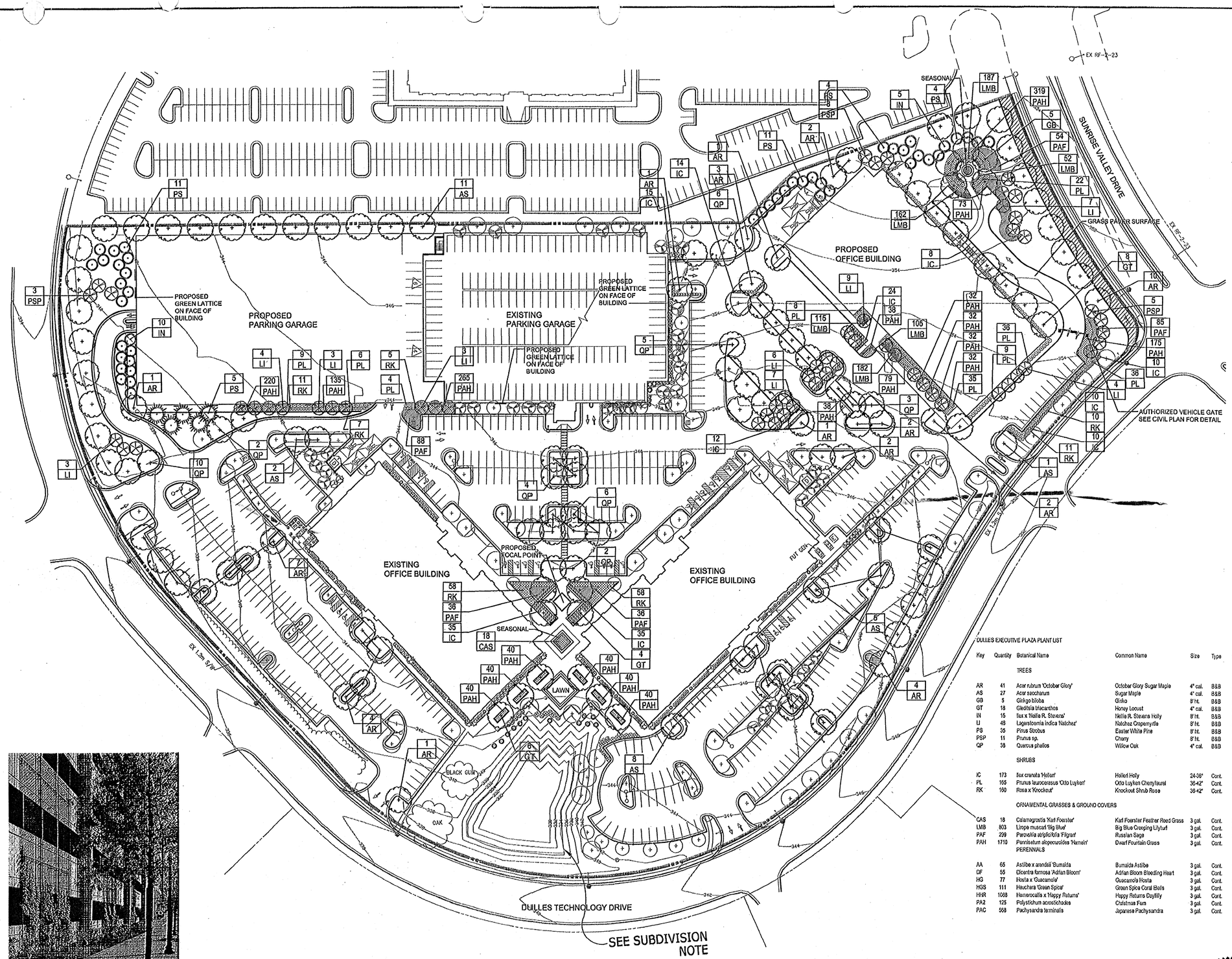
DES.	DWN.
RO	JA

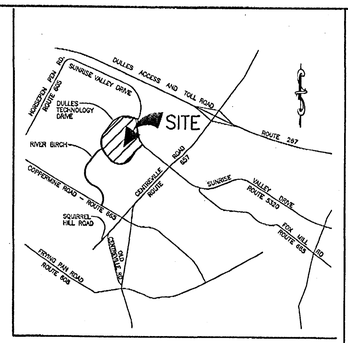
SCALE: 1"=50'

PROJECT/FILE NO. 6188F

SHEET NO. 4 OF 19

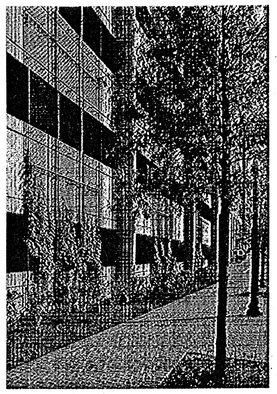
P:\LDD3\Projects\6188f\Planning\dwg\6188100.dwg 2/1/2007 2:23:52 PM EST





VICINITY MAP

SCALE : 1"=2000'



PROPOSED GREEN LATTICE

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (GDP) (CDP) (FDP)

See Proffers Dated 7-10-2007

Date of (BOS) (PC) Approval 9-10-2007

Sheet 5 of 19

DULLES EXECUTIVE PLAZA PLANT LIST

Key	Quantity	Botanical Name	Common Name	Size	Type	Spacing	Remark	Remark
		TREES						
AR	41	Acer rubrum 'October Glory'	October Glory Sugar Maple	4" cal.	B&B	as shown	Full, strong central leader	Full, strong central leader
AS	27	Acer saccharum	Sugar Maple	4" cal.	B&B	as shown	Full, strong central leader	Full, strong central leader
GB	5	Ginkgo biloba	Ginko	8' ht.	B&B	as shown	Full to ground, dense, Male only	Full to ground, dense, Male only
GT	18	Gleditsia triacanthos	Honey Locust	4" cal.	B&B	as shown	Full, strong central leader	Full, strong central leader
IN	15	Ilex x 'Nellie R. Stevens'	Nellie R. Stevens Holly	8' ht.	B&B	as shown	Full to ground, dense	Full to ground, dense
LI	49	Lagerstroemia indica 'Natchez'	Natchez Crapemyrtle	8' ht.	B&B	as shown	Multi-stem, 3 stem min., full	Multi-stem, 3 stem min., full
PS	35	Pinus Strobus	Eastar White Pine	8' ht.	B&B	as shown	Full to ground, dense	Full to ground, dense
PSP	11	Prunus sp.	Cherry	8' ht.	B&B	as shown	Full, strong central leader	Full, strong central leader
QP	38	Quercus phellos	Willow Oak	4" cal.	B&B	as shown	Full, strong central leader	Full, strong central leader
		SHRUBS						
IC	173	Ilex crenata 'Helleri'	Helleri Holly	24-36"	Cont.	30" o.c.	Full & Dense	Full & Dense
PL	165	Prunus laurocerasus 'Otto Luyken'	Otto Luyken Cherrylaurel	36-42"	Cont.	36" o.c.	Full & Dense	Full & Dense
RK	160	Rosa x 'Knockout'	Knockout Shrub Rose	36-42"	Cont.	36" o.c.	Full & Dense	Full & Dense
		ORNAMENTAL GRASSES & GROUND COVERS						
CAS	18	Calamagrostis 'Karl Foerster'	Karl Foerster Feather Reed Grass	3 gal.	Cont.	30" o.c.	Mature, Well Rooted	Mature, Well Rooted
LMB	803	Liriope muscari 'Big Blue'	Big Blue Creeping Lilyturf	3 gal.	Cont.	9" o.c.	Mature, Well Rooted	Mature, Well Rooted
PAF	299	Perovskia atriplicifolia 'Filigran'	Russian Sage	3 gal.	Cont.	30" o.c.	Mature, Well Rooted	Mature, Well Rooted
PAH	1710	Pennisetum alopecuroides 'Hameln'	Dwarf Fountain Grass	3 gal.	Cont.	18" o.c.	Mature, Well Rooted	Mature, Well Rooted
		PERENNIALS						
AA	65	Astilbe x arendsii 'Bumalda	Bumalda Astilbe	3 gal.	Cont.	18" o.c.	Mature, Well Rooted	Mature, Well Rooted
DF	55	Dicentra formosa 'Adrian Bloom'	Adrian Bloom Bleeding Heart	3 gal.	Cont.	12" o.c.	Mature, Well Rooted	Mature, Well Rooted
HG	77	Hosta x 'Guacamole'	Guacamole Hosta	3 gal.	Cont.	18" o.c.	Mature, Well Rooted	Mature, Well Rooted
HGS	111	Heuchera 'Green Spice'	Green Spice Coral Bells	3 gal.	Cont.	12" o.c.	Mature, Well Rooted	Mature, Well Rooted
HHR	1068	Hemerocallis x 'Happy Returns'	Happy Returns Daylily	3 gal.	Cont.	12" o.c.	Mature, Well Rooted	Mature, Well Rooted
PA2	125	Polystichum acrostichoides	Christmas Fern	3 gal.	Cont.	12" o.c.	Mature, Well Rooted	Mature, Well Rooted
PAC	568	Pachysandra terminalis	Japanese Pachysandra	3 gal.	Cont.	12" o.c.	Mature, Well Rooted	Mature, Well Rooted

COMMONWEALTH OF VIRGINIA
Robert Karl Boulburn
No. 001087
REGISTERED LANDSCAPE ARCHITECT
10-04-07

LEWIS LANDSCAPE ARCHITECTS
SCULLY GIONET
1919 Gallows Road, Suite 110
Vienna, Virginia 22182
Tel.(703)821-2045,Fax.(703)448-0597

VIKA
ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES
VIKA, INCORPORATED
8180 GREENSBORO DRIVE, SUITE 200 ■ MCLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
MCLEAN, VA FREDERICK, MD

DULLES EXECUTIVE PLAZA
LOT 4N1 & 31A1
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

LANDSCAPE PLAN

REVISIONS
6-13-06
11-22-06
1-05-07
2-02-07

DATE: 8 MAY 2006
DES. BC
DWN. WB
SCALE: 1"=50'
PROJECT/FILE NO. 6188F
SHEET NO. 5 OF 19

RP/SP:

STORMWATER MANAGEMENT NARRATIVE:
PER APPROVED FAIRFAX COUNTY PLAN NO. 5574-SP-10 "#13530 & #13560 DULLES TECHNOLOGY CENTER", STORMWATER MANAGEMENT FOR THE SITE SUBJECT TO THE REZONING APPLICATION IS CURRENTLY PROVIDED IN AN OFF-SITE POND CONSTRUCTED WITH PLAN NO. #3717-RGP-04 DATED APRIL 26, 1986. THE REZONING APPLICATION DOES NOT INCREASE THE AMOUNT OF IMPERVIOUS AREA IN THE APPROVED SITE PLAN AND IS CONTROLLED BY THE EXISTING POND, THEREFORE THE STORMWATER MANAGEMENT REQUIREMENTS MET WITH PLAN NO. 5574-SP-10 ARE NOT AFFECTED. SEE SHEETS 6A THRU 6F FOR COMPUTATIONS, ETC. THESE SHEETS ARE FROM PLAN NO. 5574-SP-10.

BMP (WATER QUALITY) NARRATIVE:
PER APPROVED FAIRFAX COUNTY PLAN NO. 5574-SP-10 "#13530 & #13560 DULLES TECHNOLOGY CENTER", BMP (WATER QUALITY) FOR THE SITE SUBJECT TO THE REZONING APPLICATION IS CURRENTLY PROVIDED IN TWO SEPARATE FACILITIES, AN EXISTING ON-SITE WET POND AND FUTURE REGIONAL POND #H-9. 40% PHOSPHOROUS REMOVAL IS PROVIDED WITH THESE FACILITIES (SEE SHEET 6C FOR BMP COMPUTATIONS). AS PREVIOUSLY NOTED, THERE IS NO INCREASE IN THE AMOUNT OF IMPERVIOUS AREA IN THE APPROVED SITE PLAN AND IS CONTROLLED BY THESE FACILITIES, THEREFORE THE BMP REQUIREMENTS MET WITH PLAN NO. 5574-SP-10 ARE NOT AFFECTED.

ADEQUACY OF OUTFALL:
APPROVED PLAN NO. 5574-SP-10 DEMONSTRATED THE ADEQUACY OF THE OUTFALLS ASSOCIATED WITH THE SUBJECT SITE. REFER TO SHEETS 6A AND 6B FOR THIS ANALYSIS. THERE IS NO INCREASE IN IMPERVIOUSNESS WITH THE SUBJECT REZONING APPLICATION THEREFORE THERE IS NO INCREASE IN RUNOFF.

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)

[X] 1. Plat is at a minimum scale of 1"=50' (unless it is depicted on one sheet with a minimum scale of 1"=100'). **SEE SHEET 4.**

[X] 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 4, 6D.

[X] 3. Provide: **ALL FACILITIES APPROVED WITH #5574-SP-10, #3717-RGP-04, REGIONAL POND H-9.**

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)
(e.g. dry pond A, infil. trench, underground vault, etc.)						
Totals						

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

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

[X] 6. Landscaping and tree preservation shown in and near the stormwater management facility is shown on Sheet N/A.

[X] 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.

[X] 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 6,6A,6B

[X] 9. A description of how the outfall requirements, including contributing drainage areas of the Public Facilities Manual will be satisfied is provided on Sheet 6,6A,6B

[X] 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 4.

[X] 11. A submission waiver is requested for N/A.

[X] 12. Stormwater management is not required because **THE EXISTING FACILITIES HAVE BEEN DESIGNED, APPROVED,AND CONSTRUCTED TO ACCOMMODATE SWM FOR THE PROPOSED SITE IMPROVEMENTS.**

COMMONWEALTH OF VIRGINIA
2/2/07
ROBERT B. COCHRAN
No. 2012
LAND SURVEYOR

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (GDP) (CDP) (FDP)
See Proffers Dated 7-10-2007
Date of (BOS) (PC) Approval 9-10-2007
Sheet 10 of 19

VIKA
ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES
VIKA INCORPORATED
8180 GREENSBORO DRIVE SUITE 200 ■ McLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
McLEAN, VA FREDERICK, MD

DULLES EXECUTIVE PLAZA
LOT 4N1 & 31A1
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

STORMWATER MANAGEMENT NARRATIVES

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006
DES. EJI | DWN. EJI
SCALE: 1"=20'
PROJECT/FILE NO. 6188F
SHEET NO. 6 of 19

P:\LDD3\Projects\6188f\Planning\dwg\6188f-SWM.dwg 11/9/2006 8:11:35 AM EST

STORM WATER INLET COMPUTATIONS

INLET NUMBER	INLET TYPE	SIDE	STATION	DRAINAGE AREA (AC)	"C"	"T" (IN./HR.)	CA	Q (CFS)	BYPASS FROM INLET NO.	BYPASS Q (CFS)	GUTTER FLOW Q (CFS)	STREET SLOPE (%) So/Sx	SPREAD (FT.)	INTERCEPT (%)	INTERCEPT Q (CFS)	BYPASS Q (CFS)	BYPASS TO INLET NO.	INLET CAP. (CFS)	REMARKS
D-3	DI-7	----	----	0.84	0.65	7.27	4.73	3.97	-	0	3.97	5.6/4.3	0.68	100	3.97	----	----		TYPE B GRATE d=0.23'
D-4	DI-3C	----	----	0.74	0.74	7.27	5.38	3.98	-	0	3.98	2.8/4.0	7.97	100	3.98	----	----	7.2	8' THROAT d=0.32'
D-5	DI-3C	----	----	0.44	0.78	7.27	5.67	2.50	-	0	2.50	1.6/3.8	6.15	100	2.50	----	----	5.4	6' THROAT d=0.23'
D-7	DI-3CC	----	----	0.30	0.85	7.27	6.18	1.85	-	0	1.85	4.0/2.0	9.57	100	1.85	----	----	5.4	6' THROAT d=0.19
D-8	DI-3B	----	----	0.07	0.85	7.27	6.18	0.43	D-19	0.05	0.48	2.0/2.5	1.83	100	0.48	----	----	5.4	6' THROAT
D-9	DI-3B	----	----	0.30	0.80	7.27	5.82	1.74	-	0	1.74	1.7/1.5	12.24	100	1.74	----	----	5.4	6' THROAT d=0.18
D-11	DI-3C	----	----	0.72	0.74	7.27	5.38	3.87	-	0	3.87	1.8/1.5	15.09	100	3.87	----	----	10.8	12' THROAT d=0.23
D-12	DI-3B	----	----	0.65	0.81	7.27	5.89	3.83	-	0	3.83	2.6/2.9	9.45	100	3.83	----	----	7.2	8' THROAT d=0.27
D-13	DI-3C	----	----	0.65	0.81	7.27	5.89	1.83	-	0	1.83	2.0/2.5	7.60	100	1.83	----	----	5.4	6' THROAT d=0.19
D-14	T.D.	----	----	0.77	0.80	7.27	5.82	4.48	-	0	4.48	3.7/5.6	4.01	100	4.48	----	----		d=0.13
D-17	DI-3C	----	----	0.25	0.72	7.27	5.23	1.31	-	0	1.31	1.7/3.0	5.07	100	1.31	----	----	5.4	6' THROAT d=0.15
D-19	DI-3B	----	----	0.35	0.71	7.27	5.16	0.99	-	0	0.99	2.0/2.5	3.27	94	0.94	0.05	D-8	5.4	6' THROAT
D-21	DI-3B	----	----	0.18	0.73	7.27	5.31	0.96	-	0	0.96	4.5/3.0	4.12	100	0.96	----	----	5.4	6' THROAT d=0.12
D-22	DI-3B	----	----	0.42	0.90	7.27	6.54	2.75	-	0	2.75	2.9/1.8	6.56	100	2.75	----	----	5.4	6' THROAT d=0.25
D-23	DI-3CC	----	----	1.09	0.86	7.27	6.25	6.81	D-24	1.89	8.70	4.0/4.5	10.52	100	8.70	----	----	5.4	10' THROAT d=0.47
D-24	DI-3B	----	----	0.69	0.87	7.27	6.32	4.36	-	0	4.36	2.1/4.5	5.61	57	5.47	1.89	D-23	5.4	6' THROAT
D-25	DI-3B	----	----	0.58	0.82	7.27	5.96	3.46	-	0	3.46	2.0/2.5	10.24	100	3.46	----	----	7.2	8' THROAT d=0.26
D-26	DI-3C	----	----	1.33	0.81	7.27	5.89	7.83	-	0	7.83	2.0/3.3	12.03	100	7.83	----	----	9.0	10' THROAT d=0.40
D-27	DI-3B	----	----	0.21	0.70	7.27	5.09	1.07	-	0	1.07	2.5/2.8	3.05	100	1.07	----	----	5.4	6' THROAT

STORM DRAINAGE STRUCTURE SCHEDULE

STR. NO.	TYPE	REMARKS
D-1	END SECTION	ES-1 525MM (102.01)
D-2	MANHOLE	MH-1 1220MM (106.01)
D-3	MEDIAN DROP INLET	DI-7 TYPE B GRATE (104.23)
D-4	CURB DROP INLET	DI-3C L=2.44M (104.09)
D-5	CURB DROP INLET	DI-3C L=1.83M (104.09)
D-6	END SECTION	ES-1 675MM (102.01)
D-7	CURB DROP INLET	DI-3CC L=1.83M (104.09)
D-8	CURB DROP INLET	DI-3B L=1.83M (104.09)
D-9	CURB DROP INLET	DI-3B L=1.83M (104.09)
D-10	MANHOLE	MH-1 1220MM (106.01)
D-11	CURB DROP INLET	DI-3C L=3.66M (104.09)
D-12	CURB DROP INLET	DI-3B L=2.44M (104.09)
D-13	CURB DROP INLET	DI-3C L= 1.83m (104.09)
D-14	TRENCH DRAIN	SEE DETAIL SHEET 5
D-17	CURB DROP INLET	DI-3C L=1.83M (104.09)
D-19	CURB DROP INLET	DI-3B L=1.83M (104.09)
D-20	END SECTION	ES-1 375MM (102.01)
D-21	CURB DROP INLET	DI-3B L=1.83M (104.09)
D-22	CURB DROP INLET	DI-3B L=1.83M (104.09)
D-23	CURB DROP INLET	DI-3CC L=3.05M (104.09)
D-24	CURB DROP INLET	DI-3B L=1.83M (104.09)
D-25	CURB DROP INLET	DI-3B L=2.44M (104.09)
D-26	CURB DROP INLET	DI-3C L=3.05M (104.09)
D-27	CURB DROP INLET	DI-3B L=1.83M (104.09)

	DESCRIPTION	REVIEW BY	APPROVED	DATE

REVISION APPROVED BY:
DIVISION OF DESIGN REVIEW

STORM DRAIN COMPUTATIONS

FROM	TO	INC. AREA ACRES	TOTAL AREA ACRES	C	A*C	ACUM. A*C	Tc MIN-SEC	I 10 YR IN/HR	Q CFS	MIN SLOPE %	ACT SLOPE %	n	PIPE SIZE IN	F.F. VEL FPS	ACT VEL FPS	LENGTH FEET	TIME IN PIPE MIN-SEC
D-26	EX-16	1.33	1.33	0.81	1.08	1.08	5.00	7.27	7.83	0.56	0.50	0.013	18	4.20	4.73	28	0.10
D-24	D-23	0.69	0.69	0.87	0.60	0.60	5.00	7.27	4.37	0.46	2.00	0.013	15	7.44	7.34	64	0.15
D-25	D-23	0.58	0.58	0.82	0.48	0.48	5.00	7.27	3.46	0.29	0.50	0.013	15	3.72	4.05	107	0.44
D-23	EX-26	1.09	2.36	0.86	0.94	2.01	5.44	7.14	14.37	0.12	0.50	0.013	30	5.91	5.88	25	0.07
D-14	D-12	0.77	0.77	0.80	0.62	0.62	5.00	7.27	4.48	0.48	0.50	0.013	15	3.72	4.17	81	0.32
D-13	D-12	0.40	0.40	0.63	0.25	0.25	5.00	7.27	1.83	0.08	1.62	0.013	15	6.70	5.28	210	0.66
D-12	D-11	0.65	1.82	0.81	0.53	1.39	5.66	7.05	9.83	0.38	0.50	0.013	21	4.66	5.22	27	0.09
D-11	D-10	0.72	2.54	0.74	0.53	1.93	5.75	7.02	13.52	0.36	0.50	0.013	24	5.09	5.69	65	0.19
D-10	D-9	0.00	2.54	0.00	0.00	1.93	5.94	6.95	13.39	0.35	0.50	0.013	24	5.09	5.68	181	0.53
D-17	D-9	0.25	0.25	0.72	0.18	0.18	5.00	7.27	1.31	0.04	0.50	0.013	15	3.72	3.08	81	0.44
D-9	D-8	0.30	3.09	0.80	0.24	2.35	6.47	6.77	15.88	0.49	0.50	0.013	24	5.09	5.78	75	0.22
D-8	D-7	0.07	3.16	0.85	0.06	2.41	6.69	6.70	16.12	0.51	0.52	0.013	24	5.19	5.90	139	0.39
D-7	D-6	0.30	3.46	0.85	0.26	2.66	7.08	6.58	17.52	0.32	0.55	0.013	27	5.78	6.36	36	0.09
D-22	D-21	0.42	0.42	0.90	0.38	0.38	5.00	7.27	2.75	0.18	0.50	0.013	15	3.72	3.88	64	0.28
D-21	D-20	0.18	0.60	0.73	0.13	0.51	5.28	7.18	3.66	0.32	0.64	0.013	15	4.21	4.56	46	0.17
D-RD	D-4	0.70	0.70	0.90	0.63	0.63	5.00	7.27	4.58	0.50	0.50	0.013	15	3.72	4.18	25	0.10
D-4	D-3	0.74	1.44	0.74	0.55	1.18	5.10	7.24	8.52	0.66	1.00	0.013	18	5.94	6.80	157	0.40
D-RD	D-27	1.26	1.26	0.90	1.13	1.13	5.00	7.27	8.25	0.62	1.00	0.013	18	5.94	6.57	40	0.10
D-27	D-5	0.21	1.47	0.70	0.15	1.28	5.10	7.24	9.27	0.34	0.50	0.013	21	4.66	5.18	102	0.33
D-RD	D-5	0.69	0.69	0.90	0.62	0.62	5.00	7.27	4.52	0.49	0.50	0.013	15	3.72	4.21	44	0.17
D-5	D-3	0.44	2.60	0.78	0.34	2.25	5.43	7.14	16.04	0.50	0.57	0.013	24	5.44	6.16	162	0.44
D-3	D-2	0.84	4.88	0.65	0.55	3.97	5.87	6.97	27.67	0.46	0.50	0.013	30	5.91	6.71	130	0.32
D-2	D-1	0.00	4.88	0.00	0.00	3.97	6.19	6.86	27.22	0.44	4.32	0.013	30	17.37	15.41	65	0.07

HYDROLOGIC AND CHANNEL INFORMATION

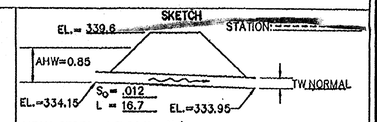
Q_{10} = 55.6 TW_1 = N/A

Q_2 = ---- TW_2 = ----

Q_1 = DESIGN DISCHARGE, SAY Q_{25}

Q_2 = DESIGN DISCHARGE, SAY Q_{25} OR Q_{100}

SKETCH



MEAN STREAM VELOCITY= N/A

MAX. STREAM VELOCITY= ----

CULVERT DESCRIPTION	Q	SIZE	HEADWATER COMPUTATION: INLET CONT. Hw/D	(HW)	OUTLET CONTROL HW=H + h_o - LS_o: K_e	H	d_c	$\frac{d_c+D}{2}$	TW	h_o	LS_o	HW	CONTROLLING Hw	OUTLET VELOCITY	COST	COMMENTS
RCP	55.6	36"	1.5	4.5	0.5	2.1	2.4	2.7	4.6	2.7	0.2	4.6	0	---	---	10 YR WS= 338.75
----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

SUMMARY & RECOMMENDATIONS:

* OUTLET CONTROL BASED ON HEADWATER FROM STRUCTURE EX-1

ADEQUATE OUTFALL NARRTIVE

THERE ARE THREE OUTFALL CONDITIONS ON THIS SITE REQUIRING EVIDENCE OF ADEQUACY OF OUTFALL. THE FIRST OUTFALL AT PROPOSED STRUCTURE D25 IS AT THE NORTH-EAST CORNER OF THE SITE AND CONNECTS TO A CLOSED SYSTEM THAT RUNS THROUGH THE ADJACENT SITE FOR BUILDINGS 3 AND 4 OF THE DULLES TECHNOLOGY CENTER. THIS SITE PROPOSES TO CONTRIBUTE 0.2217 CM/SEC TO AND THROUGH THE ADJACENT SITE. THE PROVIDED STORM COMPUTATIONS ON SHEET 16 (FOR INFORMATION ONLY) ALLOWS FOR 0.3319 CM/SEC, DEMONSTRATING THE ADEQUACY OF THIS OUTFALL.

THE SECOND OUTFALL IS A 900 MM R.C.P TAKING THE FLOW OUT OF BMP WET POND #1. SINCE THERE IS NO DETENTION PROVIDED IN BMP POND #1, THIS CULVERT CONDITION MUST MEET NORMAL 10 YEAR STORM CULVERT HEADWATER REQUIREMENTS OR 450 MM BELOW THE RIGHT-OF-WAY ELEVATION 103.33 FOR A MAXIMUM HEADWATER ELEVATION OF 102.88. CULVERT COMPUTATIONS ARE PROVIDED ON THIS SHEET DEMONSTRATING THE ADEQUACY.

THE THIRD OUTFALL IS AT THE WESTERN END OF THE SITE WHERE THE EXISTING 750MM CLOSED SYSTEM D-23 TO EX. STORM STRUCTURE #26 ACCOMMODATES THE FLOW FROM THIS SITE AS DEMONSTRATED ON THE STORM DRAIN COMPUTATIONS PRESENTED ON THIS SHEET.

IT IS THE OPINION OF THE SUBMITTING ENGINEER THAT ADEQUATE OUTFALLS EXIST FOR THE ENTIRE PROJECT AS DEFINED BY THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL.

OVERLAND RELIEF NARRATIVE

THE 100 YEAR OVERLAND RELIEF HAS BEEN STUDIED AND HAS PROVEN TO BE OF NO CONSEQUENCE TO THE PROPOSED ON-SITE FACILITIES, OR THE ADJACENT SURROUNDING AREAS.
THERE WILL BE NO ADVERSE IMPACT DUE TO OVERLAND RELIEF. IT IS OUR OPINION THAT THE OVERLAND RELIEF IS ADEQUATE.

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (GDP) (CDP) (FDP)

See Proffers Dated 7-10-2007

Date of (BOS) (PC) Approval 9-10-2007

Sheet 7 of 19

COMMONWEALTH OF VIRGINIA
8/2/07
ROBERT R. COCHRAN
No. 2012
LAND SURVEYOR

NOTE: FOR INFORMATIONAL PURPOSES ONLY

VIKA
ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES
VIKA INCORPORATED
8180 GREENSBORO DRIVE, SUITE 200 ■ McLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
McLEAN, VA FREDERICK, MD

DULLES EXECUTIVE PLAZA

LOT 4N1 & 31A1

HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

STORMWATER COMPUTATIONS
PART 1

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006
DES. EJI DWN. EJI
SCALE: 1"=20'
PROJECT/FILE NO. 6188F
SHEET NO. 7 of 19

RP/SP:

P:\LDD3\Projects\6188\Planning\dwg\6188-SWM.dwg 2/1/2007 2:31:08 PM EST

BMP/STORMWATER MANAGEMENT NARRATIVE

STORMWATER DETENTION IS PROVIDED BY AN OFF-SITE POND LOCATED WITHIN DULLES TECHNOLOGY CENTER. THIS FACILITY WAS APPROVED AND CONSTRUCTED PER FAIRFAX COUNTY PLAN NO. 3717-RGP-04 DATED APRIL 25, 1986. A COPY OF THE STORM DETENTION COMPUTATIONS IS ENCLOSED FOR INFORMATIONAL PURPOSES ONLY (SEE SHEET 20). AN ON-SITE STORMWATER DETENTION WAIVER HAS BEEN SUBMITTED TO PERMIT THIS OFF-SITE FACILITY TO SERVE THE STORMWATER DETENTION REQUIREMENTS OF THIS SITE (SEE SHEET 20 FOR WAIVER REQUEST LETTER).

BEST MANAGEMENT PRACTICES (BMPs) TO CONTROL WATER QUALITY WILL BE PROVIDED BY AN OFF-SITE REGIONAL STORMWATER MANAGEMENT/BMP DRY POND (POND #H09). THE DEPARTMENT OF PUBLIC WORKS HAS PREVIOUSLY APPROVED BMP CREDIT FOR SIMILAR SITES WITHIN THIS DRAINAGE SHED. THE ENTIRE SITE (4.91 ha) WILL DRAIN INTO AN EXISTING 1500mm CULVERT THAT CROSSES DULLES TECHNOLOGY CENTER DRIVE, WHICH WILL EVENTUALLY FLOW INTO THE PROPOSED REGIONAL FACILITY (SEE DRAINAGE MAP AND BMP COMPUTATIONS THIS SHEET). FOR THIS REASON BMPs ARE NOT BEING PROPOSED ONSITE.

ADEQUATE OUTFALL NARRATIVE

STORM DRAINAGE FROM THIS PROPOSED DEVELOPMENT DRAINS TO AND EXISTING 1500mm RCP CULVERT. THIS PLAN PROPOSES A TEN YEAR POST DEVELOPMENT FLOW OF 6.13 CMS. THIS FLOW INCLUDES BOTH THE ONSITE AND OFF-SITE DRAINAGE AREAS. THE EXISTING 1500mm CULVERT HAS A SLOPE OF 0.75% AND A CAPACITY OF 6.37 CMS.

THE EXISTING PIPE HAS THE CAPACITY TO CARRY THE FLOW FROM THE PROPOSED STORM DRAINAGE FOR BOTH THE TWO AND THE TEN YEAR STORMS. ADDITIONALLY THE EXISTING STORM LINE IS WITHIN AN EXISTING STORM DRAINAGE EASEMENT THAT EXTENDS INTO THE VDOT RIGHT-OF-WAY. FOR THESE REASONS, IT IS OUR OPINION THAT AN ADEQUATE STORM DRAINAGE OUTFALL EXISTS FOR THIS SITE.

BEST MANAGEMENT (BMP) COMPUTATIONS

Northern Virginia BMP Handbook 11/6/92

Part 1: List of the Subareas and "C" Factors used in the BMP Computations

Subarea Designation and Description (1)	"C" (2)	Hectares (3)
A: FUTURE OFF-SITE REGIONAL BMP POND (H-9)	0.76	4.79
B: UNCONTROLLED	0.35	0.12

Part 2: Compute the Weighted Average "C" Factor for the Site

(A) Area of the site (a) 4.91 Hectares

(B) Subarea Designation (1)	"C" (2)		Hectares (3)		Product (4)
A	0.76	x	4.79	=	3.64
B	0.35	x	0.12	=	0.42

(b) Total = 4.06

(C) Weighted average "C" factor (b) / (a) = (c) = 0.83

Part 3: Compute the Total Phosphorus Removal for the Site

Subarea Designation (1)	BMP Type (2)	Removal Eff(%) (3)	Area Ratio (4)	"C" Factor Ratio (5)	Product (6)
A	REGIONAL	50	x 4.79/4.91=0.98	x 0.76/0.83=0.91	= 44.60
B	NONE	0	x 0.13/4.91=0.03	x 0.35/0.83=0.29	= 0.00

(a) Total = 44.6 %

ADEQUATE OUTFALL COMPUTATIONS

Up Node	Dn Node	Inlet A (ha)	C	Inlet CA (ha)	Ext CA (ha)	Tot CA (ha)	I (mm/hr)	Inlet Q (m³/s)	Q (m³/s)	Size	Length (m)	Cap (m³/s)	S (%)	Velocity (m/s)	Up Invert (m)	Dn Invert (m)	Gr Elev (m)	Up HGL (m)	Dn HGL (m)	Roughness
1	EX. 35	0.41	0.79	0.32	9.68	10.00	184.66	0.1661	5.1297	1500 mm	30.43	6.3694	0.76	3.40	101.024	100.797	103.940	102.199	101.857	0.013

STORM SEWER INLET COMPUTATIONS

INLET NUMBER	INLET TYPE	INLET LENGTH (ft.)	LENGTH (m)	DRAINAGE AREA (ha)	DRAINAGE AREA (Ac.)	C	CA	I IN/HR	Q INCR (CFS)	Q CARRY-OVER (CFS)	Q GUTTER (CFS)	S GUTTER SLOPE (ft./ft.)	Sx CROSS SLOPE (ft./ft.)
										STANDARD C G-6			.0208
										STANDARD C G-2			.0208
1	DI-4CC	8.0	2.44	0.409	1.010	0.790	0.798	7.27	5.801	0.0	-	0.0100	0.0364
2	DI-4B	4.0	1.22	.0820	0.203	.730	0.148	7.27	1.077	0.0	-	0.0326	0.0166
3A	DI-3B	12	3.66	0.183	0.452	.90	0.407	7.27	2.957	0.0	-	0.0135	0.0200
4	DI-4C	4.0	1.22	0.111	0.274	0.740	0.203	7.27	1.474	0.0	-	0.0133	0.0510
4A	DI-1			0.332	0.820	0.70	0.574	7.27	4.17	0.0	-	-	-
5	DI-4BB	4.0	1.22	0.118	0.292	0.75	0.219	7.27	1.592	0.0	-	0.0113	0.0210
6	DI-4B	4.0	1.22	0.196	0.482	0.670	0.323	7.27	2.348	0.0	-	0.0100	0.0270
6A	AREA DRAIN			0.026	0.064	0.35	0.022	7.27	0.183	0.0	-	-	-
8	DI-4BB	6..0	1.83	0.209	0.516	0.74	0.382	7.27	2.776	0.0	-	0.0186	0.0250
8B	DI-3B	10.0	3.05	0.123	0.304	0.820	0.249	7.27	1.812	0.0	-	0.0138	0.0157
8C	DI-3C	4.0	1.22	0.227	0.561	0.75	0.421	7.27	3.059	0.0	-	0.204	0.0449
9	DI-3CC	4.0	1.22	0.097	0.240	0.71	0.170	7.27	1.329	0.0	-	0.0236	0.0225
10	DI-1			0.214	0.531	0.77	0.409	7.27	2.97	0.0	-	-	-
11	DI-1			0.113	0.280	0.79	0.221	7.27	1.61	0.0	-	-	-
12	DI-3B	8.0	2.44	0.181	0.447	0.66	0.295	7.27	2.145	0.0	-	0.0072	0.0167
13	DI-3B	8.0	2.44	0.106	0.262	0.75	0.197	7.27	1.429	0.0	-	0.0100	0.0198
13A	DI-3C	4.0	1.22	0.131	0.324	0.670	0.217	7.27	1.578	0.0	-	0.0467	0.0364
14	DI-3C	6.0	1.83	0.163	0.404	0.79	0.319	7.27	2.320	0.0	-	0.0198	0.0208
15	DI-3B	10.0	3.05	0.218	0.539	0.54	0.291	7.27	2.116	0.0	-	0.0102	0.0150
16	YI-1	16	4.88	0.809	2.00	0.80	1.601	7.27	11.63	0.0	-	-	-
17	DI-3BB	14.0	4.27	0.205	0.507	0.79	0.401	7.27	2.912	0.0	-	0.0159	0.0113
17A	DI-3B	6.0	1.83	0.072	0.178	0.70	0.125	7.27	0.906	0.0	-	0.0108	0.0200
18	DI-3B	4.0	1.22	0.135	0.334	0.81	0.271	7.27	1.967	0.0	-	0.0100	0.0401
19	DI-3B	12.0	3.66	0.470	1.161	0.82	0.952	7.27	6.921	0.0	-	0.0086	0.0230
20	DI-3B	8.0	2.44	0.242	0.600	0.87	0.522	7.27	3.795	0.0	-	0.0085	0.0232

INLET NUMBER	T(SPREAD) (ft.)	W(ft.)	W/T	Sw (ft./ft.)	Sw/Sx	Eo(#10)	a=12W(Sw-Sx)+Loc Dep	Sw=a/(12W)	Se(m/m)= Sx-Sw Eo	Lt(m) #15
		2'		.0833	4.0		3.5"	.146		
		1'		.0208	1.0		1"	.0833		
1	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-
3A	8.21	2.0	0.24	0.0833	4.2	0.67	3.5	0.147	0.118	12.70
4	-	-	-	-	-	-	-	-	-	-
4A	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-
6A	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-
8B	-	-	-	-	-	-	-	-	-	-
8C	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-
13	6.07	2.0	0.33	0.0833	4.3	0.81	3.5	0.147	0.139	7.8
13A	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-
17A	4.28	2.0	0.47	0.0833	4.2	0.93	3.5	0.147	0.157	6.1
18	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-

INLET NUMBER	P EFFEC LENGTH ft.	L/Lt	d(ft.)	E(#16)	h(ft.)	Qi INTER-CEPTED CFS	d/h	Qc CARRY-OVER CFS	T(SPREAD) @ SAG (ft.)	T(SPREAD) @ SAG (m)	REMARKS
	P=L+1.8W		#17 WIER FLOW #8 ORIFICE FLOW								
1	11.60	1.0	0.36	1.0	0.458	5.801	0.786	0.0	9.93	3.03	
2	7.60	1.0	0.16	1.0	0.458	1.077	0.349	0.0	9.39	2.88	
3A	-	-	-	-	-	-	-	-	-	2.50	
4	7.60	1.0	0.19	1.0	0.458	1.474	0.0414	0.0	3.77	1.15	
4A	10	1.0	0.42	1.0	-	4.17	-	0.0	21.00	6.40	50% CLOGGED
5	7.60	1.0	0.20	1.0	.458	1.592	0.437	0.0	9.63	2.94	
6	7.60	1.0	0.26	1.0	0.458	2.348	0.568	0.0	9.71	2.96	
6A	0.59	1.0	0.20	1.0	-	0.183	-	0.0	1.84	0.56	50% CLOGGED
8	9.60	1.0	0.25	1.0	0.458	2.776	0.546	0.0	10.03	3.06	
8B	13.60	1.0	0.15	1.0	0.458	1.812	0.328	0.0	9.53	2.90	
8C	7.60	1.0	0.31	1.0	0.458	3.059	0.677	0.0	6.98	2.12	
9	7.60	1.0	0.17	1.0	0.458	1.239	0.371	0.0	7.60	2.32	
10	10	1.0	0.41	1.0	-	2.97	-	0.0	27.32	8.33	50% CLOGGED
11	10	1.0	0.42	1.0	-	1.61	-	0.0	21.00	6.40	50% CLOGGED
12	11.60	1.0	0..19	1.0	0.458	2.145	0.415	0.0	11.14	3.40	
13	-	-	-	-	-	-	-	-	-	1.85	
13A	7.60	1.0	0.20	1.0	0.458	1.578	0.437	0.0	5.52	1.88	
14	9.60	1.0	0.22	1.0	0.458	2.320	0.480	0.0	10.70	3.26	
15	13.60	1.0	0.17	1.0	0.458	2.116	0.371	0.0	11.06	3.37	
16	-	1.0	0.43	1.0	0.60	11.63	0.66	0.0	6.47	1.87	50% CLOGGED
17	17.60	1.0	0.17	1.0	.0458	2.912	0.371	0.0	15.29	4.66	
17A	-	-	-	-	-	-	-	-	-	1.30	
18	7.60	1.0	0.23	1.0	0.458	1.967	0.502	0.0	5.61	1.77	
19	15.60	1.0	0.33	1.0	0.458	6.921	0.721	0.0	14.51	4.42	
20	11.60	1.0	0.27	1.0	0.458	3.795	0.590	0.0	11.74	3.58	

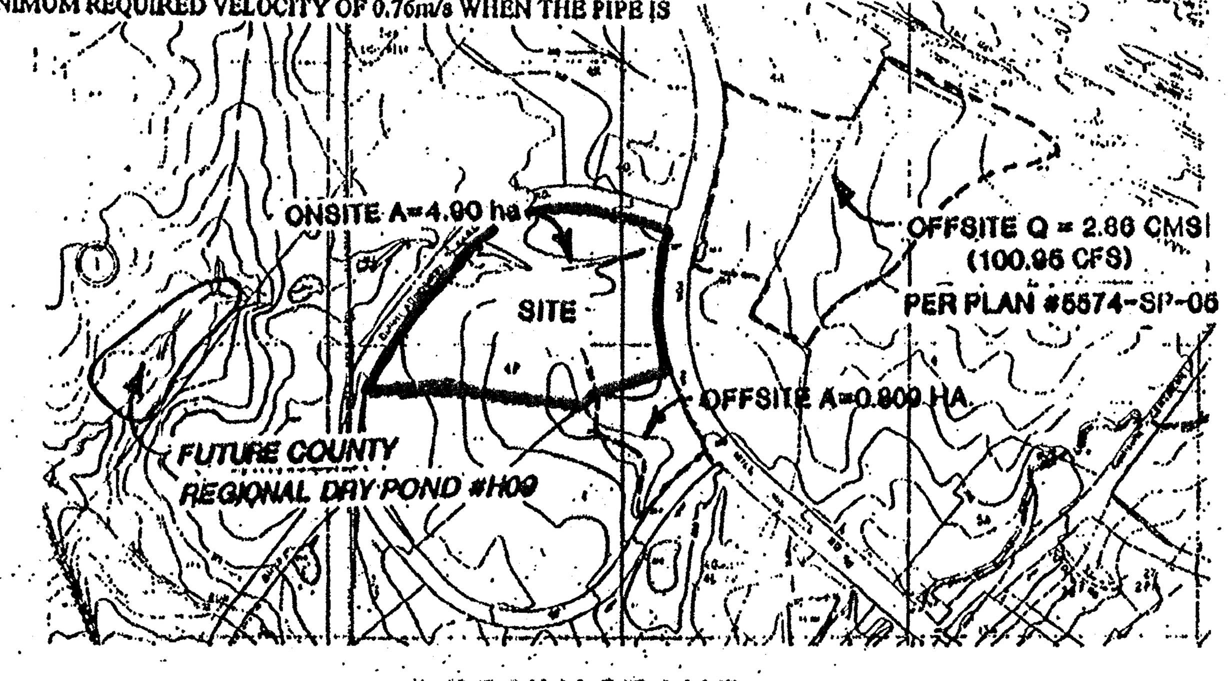
NOTES:
1. INLET COMPUTATION WERE DONE USING ENGLISH UNITS. INLET AND SAG LENGTHS WERE CONVERTED TO METRIC EQUIVALENT.
2. AREA DRAINS USE A NEENAH R-2535 OR APPROVED EQUAL.

Up Node	Dn Node	Inlet A (ha)	C	Inlet CA (ha)	Ext CA (ha)	Tot CA (ha)	I (mm/hr)	Inlet Q (m³/s)	Q (m³/s)	Roughness	Size	Length (m)	Cap (m³/s)	S (%)	*Velocity (m/s)	Up Invert (m)	Dn Invert (m)	Up HGL (m)	Dn HGL (m)	Rim (m)
3A	3	0.183	0.90	0.165	0.000	0.165	218.95	0.1001	0.1001	0.013	375 mm	26.31	0.4332	5.61	1.38	104.62	103.20	104.85	103.32	105.67
4A	4	0.332	0.70	0.232	0.000	0.232	184.66	0.1192	0.1192	0.013	375 mm	16.60	0.1655	0.72	1.48	103.71	103.59	103.96	103.84	104.74
6A	6	0.026	0.35	0.009	0.000	0.009	184.66	0.0047	0.0047	0.013	375 mm	31.54	0.1303	0.51	0.54	104.51	104.35	104.56	104.53	105.55
7	6	7.330	0.77	5.644	0.000	5.644	184.66	2.8942	2.8942	0.013	1050 mm	48.78	3.0250	1.13	3.46	104.22	103.67	105.16	104.51	107.00
6	5	0.195	0.67	0.131	0.000	5.784	173.18	0.0670	2.7814	0.013	1050 mm	16.62	2.8812	1.02	3.37	103.60	103.43	104.53	104.29	105.45
5	4	0.118	0.75	0.089	0.000	5.872	172.63	0.0454	2.8150	0.013	1050 mm	49.65	2.9154	1.05	3.39	103.40	102.88	104.33	103.73	105.88
4	3	0.111	0.74	0.082	0.000	6.187	171.03	0.0421	2.9383	0.013	1050 mm	29.93	3.0806	1.17	3.50	102.85	102.50	103.80	103.35	105.07
3	2	N/A	N/A	N/A	N/A	6.352	170.10	N/A	3.0001	0.013	1050 mm	39.61	3.1360	1.21	3.56	102.47	101.99	103.42	102.84	105.28
2	1	0.082	0.73	0.060	0.000	6.411	168.89	0.0307	3.0069	0.013	1200 mm	42.04	4.3006	1.12	3.08	101.83	101.36	102.78	102.13	103.94

OUTFALL COMPUTATION

Up Node	Dn Node	Inlet A (ha)	C	Inlet CA (ha)	Ext CA (ha)	Tot CA (ha)	I (mm/hr)	Inlet Q (m³/s)	Q (m³/s)	Roughness	Size	Length (m)	Cap (m³/s)	S (%)	*Velocity (m/s)	Up Invert (m)	Dn Invert (m)	Up HGL (m)	Dn HGL (m)	Rim (m)
17A	18	0.072	0.70	0.050	0.000	0.050	184.66	0.0258	0.0258	0.013	375 mm	6.88	0.1395	0.58	0.90	102.44	102.40	102.55	102.51	103.47
20	19	0.243	0.87	0.211	0.000	0.211	184.66	0.1084	0.1084	0.013	450 mm	3.83	0.2149	0.52	0.96	101.98	101.96	102.28	102.27	103.09
19	18	0.470	0.82	0.385	0.000	0.597	184.19	0.1976	0.3053	0.013	525 mm	59.93	0.3477	0.60	1.73	101.88	101.52	102.27	102.06	103.09
18	17	0.135	0.81	0.109	0.000	0.757	179.76	0.0561	0.3777	0.013	600 mm	35.19	0.4040	0.40	1.29	101.44	101.30	102.06	101.93	103.54
17	8	0.205	0.79	0.162	0.000	0.919	176.65	0.0830	0.4606	0.013	600 mm	6.21	0.5141	0.64	1.64	101.27	101.23	101.93	101.90	104.52
8C	8B	0.227	0.75	0.170	0.000	0.170	218.95	0.1035	0.1035	0.013	375 mm	59.21	0.1841	1.01	1.40	104.60	104.00	104.84	104.24	105.66
8B	8A	0.123	0.82	0.101	0.000	0.271	184.66	0.0517	0.1390	0.013	375 mm	14.46	0.2356	1.66	1.58	103.97	103.73	104.24	104.05	105.50
8A	8	0.224	0.90	0.202	0.000	0.473	183.54	0.1034	0.2409	0.013	375 mm	66.65	0.2615	1.89	2.21	103.70	102.44	104.05	102.74	105.90
3B	9	0.224	0.90	0.202	0.000	0.202	184.66	0.1034	0.1034	0.013	375 mm	38.66	0.3341	3.34	1.40	104.72	103.43	104.98	103.58	106.00
12	11	0.181	0.66	0.119	0.000	0.119	184.66	0.0613	0.0613	0.013	375 mm	28.33	0.2996	2.68	1.16	104.67	103.91	104.85	104.18	105.80
11	10	0.280	0.79	0.221	0.000	0.341	181.19	0.1134	0.1714	0.013	375 mm	53.50	0.1904	1.08	1.76	103.88	103.30	104.18	103.58	104.90
10	9	0.215	0.77	0.168	0.000	0.506	177.84	0.0849	0.2500	0.013	450 mm	38.40	0.2997	1.02	1.85	103.22	102.83	103.57	103.22	105.08
13A	13	0.131	0.67	0.088	0.000	0.088	184.66	0.0450	0.0450	0.013	375 mm	25.30	0.2954	2.61	1.06	104.40	103.74	104.55	104.04	105.45
16	15	0.809	0.80	0.647	0.000	0.647	184.66	0.3319	0.3319	0.013	450 mm	10.49	0.3673	1.53	2.19	104.94	104.78	105.34	105.13	106.00
15	14	0.218	0.54	0.118	0.000	0.765	184.15	0.0604	0.3911	0.013	450 mm	34.84	0.3669	1.52	2.46	104.75	104.22	105.18	104.66	106.31
14	13	0.285	0.79	0.225	0.000	0.990	182.51	0.1155	0.5018	0.013	525 mm	51.87	0.4665	1.18	2.41	104.19	103.58	104.66	104.03	105.60
13	9	0.106	0.76	0.080	0.000	1.157	180.08	0.0408	0.5787	0.013	525 mm	41.57	0.6263	1.95	2.69	103.55	102.74	104.04	103.14	105.55
9	8	0.097	0.71	0.069	0.000	1.934	175.37	0.0353	0.9418	0.013	675 mm	74.96	0.8772	1.00	2.62	102.58	101.83	103.22	102.43	105.36
8	1	0.209	0.74	0.155	0.000	3.480	172.17	0.0793	1.6637	0.013	1200 mm	28.87	2.8324	0.48	2.38	101.20	101.06	101.90	101.73	103.77

*NOTE: VELOCITIES SHOWN IN COMPUTATIONS ARE THE ACTUAL VELOCITY IN THE PIPE, NOT THE VELOCITY WHEN THE PIPE IS RUNNING FULL. ALL STORM RUNS EXCEED THE MINIMUM REQUIRED VELOCITY OF 0.76m/s WHEN THE PIPE IS FULL.



DRAINAGE MAP

SCALE: 1"=500'
(METRIC MAP UNAVAILABLE)
TOPOGRAPHIC INFORMATION FROM FAIRFAX COUNTY
CONTOUR INTERVAL 5 FEET

SECTION A-A 100 YEAR STORM
Worksheet for Irregular Channel

Project Description	
Project File	untitled.fm2
Worksheet	SECTION A-A 100 YEAR
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Input Data

Channel Slope 0.037200 m/m

Elevation range: 105.37 m to 106.05 m.

Station (m)	Elevation (m)	Start Station	End Station	Roughness
0.00	106.05	0.00	24.00	0.015
1.60	106.00			
7.00	105.50			
13.20	105.52			
13.20	105.37			
13.80	105.42			
22.00	105.58			
22.60	105.63			
22.60	105.78			
24.00	105.61			

Discharge 0.19 m³/s

Results		
Wtd. Mannings Coefficient	0.015	
Water Surface Elevation	105.48	m
Flow Area	0.13	m²
Wetted Perimeter	3.63	m
Top Width	3.52	m
Height	0.11	m
Critical Depth	105.51	m
Critical Slope	0.006998	m/m
Velocity	1.41	m/s
Velocity Head	0.10	m
Specific Energy	105.58	m
Froude Number	2.33	

Flow is supercritical.

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

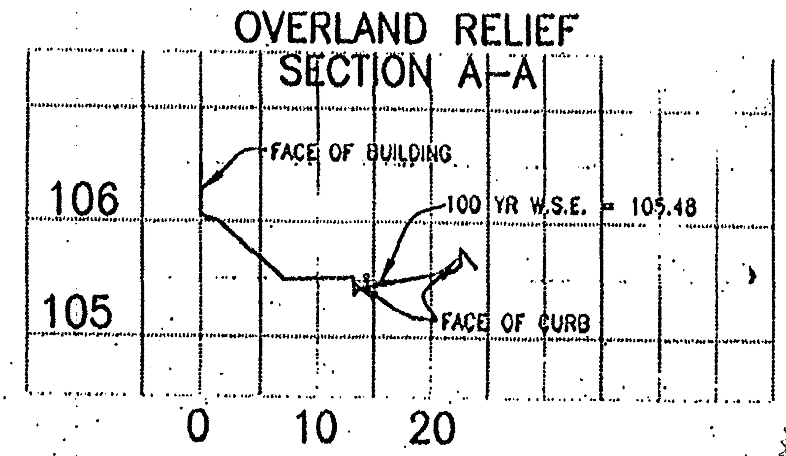
(DP) (GDP) (CDP) (FDP)

See Proffers Dated 7-10-2007

Date of (BOS) (PC) Approval 9-10-2007

Sheet 8 of 19

OVERLAND RELIEF SECTION A-A



COMMONWEALTH OF VIRGINIA LAND SURVEYOR 3/2/07

COMMONWEALTH OF VIRGINIA ROBERT R. COCHRAN LAND SURVEYOR 3/2/07

NOTE: FOR INFORMATIONAL PURPOSES ONLY

VIKA
ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES
VIKA INCORPORATED
8180 GREENSBORO DRIVE SUITE 200 ■ McLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
McLEAN, VA FREDERICK, MD

DULLES EXECUTIVE PLAZA
LOT 4N1 & 31A1
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

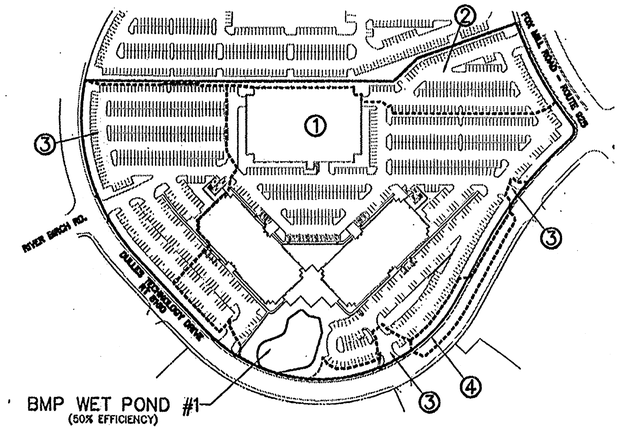
STORMWATER COMPUTATIONS PART 2

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006
DES. EJI DWN. EJI
SCALE: 1"=20'
PROJECT/FILE NO. 6188F

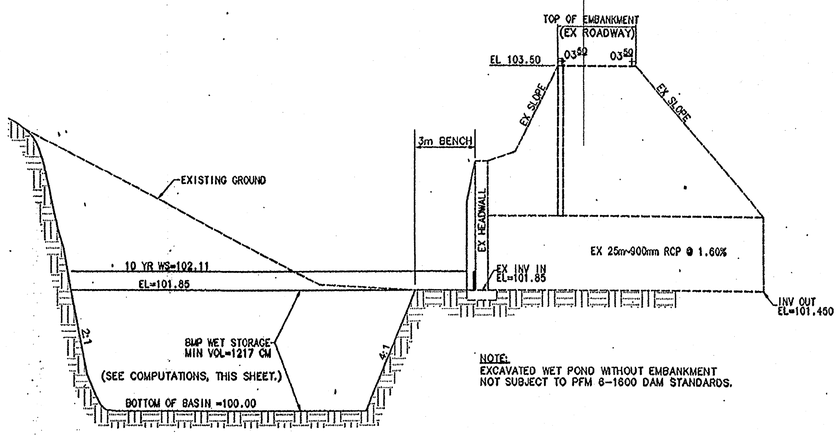
RP/SP:

P:\LDD3\Projects\6188f\Planning\dwg\6188f-SWM.dwg 2/1/2007 2:31:08 PM EST



BMP COVERAGE MAP

NOT TO SCALE



1/23 CROSS SECTION
BMP WET POND #1

NOT TO SCALE

BMP FACILITY DESIGN FORMAT

PLAN NAME: DULLES TECHNOLOGY CENTER DATE: MARCH 17, 1999

PLAN NUMBER: 5574-SP-10 ENGINEER: VIKA, INC.

WATER QUALITY CONTROL NARRATIVE

B.M.P's ARE PROVIDED IN TWO SEPARATE FACILITIES, AN ON-SITE WET POND WITH STORAGE CAPACITY TO PROVIDE 50% EFFICIENCY RATING, AND AN OFF-SITE FUTURE REGIONAL DRY POND #H-9 WHICH PROVIDES FOR A 50% EFFICIENCY RATING. THESE TWO FACILITIES PROVIDE FOR AN OVERALL 40% PHOSPHORUS REMOVAL FOR THIS SITE BASED UP THE COMPUTATIONS SHOWN BELOW.

WATERSHED DATA

PART 1 LIST ALL OF THE SUBAREAS AND "C" FACTORS USED IN THE BMP COMPUTATIONS SUBAREA DESIGNATION & DESCRIPTION

Area		"C"	Area (Ac)
1)	ON-SITE CONTROLLED - BMP POND #1	.75	9.84
2)	ON-SITE CONTROLLED - OFF-SITE REGIONAL H-9	.71	1.64
3)	ON-SITE UNCONTROLLED	.78	3.14
4)	ON-SITE / OFF-SITE RIGHT-OF-WAY CONTROLLED	.71	0.35

NOTE: RATIONAL FORMULA "C" FACTORS ARE TAKEN FROM THE GENERAL ZONING VALUES LISTED IN PFM CHART A6-19.

PHOSPHORUS REMOVAL

PART 2 COMPUTE THE WEIGHTED AVERAGE "C" FACTOR FOR THE SITE.

		(A) "C"	x	ACRES	=	PRODUCT
(A) (B)	AREA OF SITE / SUBAREA DESIGNATION			ACRES		
	(1)	(2)		(3)		(4)
1.		.75		9.84		7.64
2.		.71		1.64		1.16
3.		.78		3.14		2.45
4.	ON-SITE	.30		.09		2.42
				(B) TOTAL		.03

(C) WEIGHTED AVERAGE "C" FACTOR (B) / (A) (C) 11.04 / 14.70 = 0.75

PART 3 COMPUTE THE TOTAL PHOSPHORUS REMOVAL FOR THE SITE

SUBAREA DESIGNATION	BMP TYPE	REMOVAL EFF. (%)		AREA RATIO		"C" FACTOR RATIO	PRODUCT
(1)	(2)	(3)		(4)		(5)	(6)
1	BMP WET POND	50%	x	9.84 / 14.70	x	.75 / .75	33.50%
2	OFF-SITE REGIONAL DAY POND	50%	x	1.64 / 14.70	x	.71 / .75	5.30%
3	NONE	0	x	0	x	0	0
4	BMP WET POND	50%	x	.35 / 14.70	x	.71 / .75	1.2%

(A) SELECT. REQUIREMENT (A) TOTAL = 40.0%

PART 4 DETERMINE COMPLIANCE WITH PHOSPHORUS REMOVAL REQUIREMENT

(A) SELECT REQUIREMENT (A) %

WATER SUPPLY OVERLAY DISTRICT (OCCOQUAN) %

(NEW DEVELOPMENT)
CHESAPEAKE BAY RESOURCE PRESERVATION AREA 40%

(REDEVELOPMENT) %

(B) IF LINE 3 (A) > LINE 4 (A) , THEN PHOSPHORUS REMOVAL REQUIREMENT IS SATISFIED.

PART 5 DETERMINE THE OFF-SITE AREAS FOR WHICH COVERAGE IS REQUIRED

(A) FOR THE OFF-SITE AREAS LISTED IN PART 1 WHICH FLOW TO PROPOSED ON-SITE BMPS, COMPUTE THE EQUIVALENT AREAS.

(B) SUBAREA DESIGNATION	"C"	x	ACRES	=	PRODUCT
(1)	(2)		(3)		(4)
PART 4	.85		.26		.22
			TOTAL	=	0.22

STORAGE

PART 7 COMPUTE THE WEIGHTED AVERAGE "C" FACTOR FOR EACH PROPOSED BMP FACILITY

(A) LIST THE AREAS TO BE CONTROLLED BY THE PROPOSED BMP.

(B) SUBAREA DESIGNATION	"C"	x	ACRES	=	PRODUCT
(1)	(2)		(3)		(4)
1. ONSITE CONTROLLED-BMP POND #1	.75		9.84		7.38
		(B)	TOTAL	=	7.38
(C) WEIGHTED AVERAGE "C" FACTOR (B)/(A)=(C)			7.38/9.84	=	.75

PART 8

(A) EXTENDED DENTENTION (N/A)
CHART A6-40 VALUE FOR BMP STORAGE PER ACRE
[(4375 x "C")-875] OR [31.25 x %IMP.] = (A)CF/AC

DESIGN 1 (48 HOUR DRAWDOWN)
LINE 7(A) x LINE 8 (A) = C/F

(B) WET POND
VOLUME OF RUNOFF PER ACRE FROM MEAN STORM
[1452 x "C"]-1452 x LINE 7 (C) =(B) 1089 CF/AC

DESIGN 1 (2.5 x VOLUME OF RUNOFF FROM MEAN STORM IN WEST STORAGE WITH EXTENDED DETENTION ABOVE THE PERMANENT POOL)

INFOR

WET STORAGE
2.5 x LINE 7(A) x LINE 8(B) = CF
EXTENDED DETENTION
LINE 7(A) x LINE 8(A) = CF

DESIGN 2 (4.0 x VOLUME OF RUNOFF FROM MEAN STORM)
4.0 x LINE 7(A) 9.84 x LINE 8(B) 1089 = 42863 CF
OR 1213 CM

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (GDP) (CDP) (FDP)
See Proffers Dated 7-10-2007
Date of (BOS) (PC) Approval 9-10-2007
Sheet 9 of 19

STORMWATER MANAGEMENT NARRATIVE

STORMWATER DETENTION IS PROVIDED BY AN OFF-SITE POND LOCATED WITHIN DULLES TECHNOLOGY CENTER. THIS FACILITY WAS APPROVED AND CONSTRUCTED PER FAIRFAX COUNTY PLAN #3717-RGP-04 DATED APRIL 25, 1988. A COPY OF THE STORM DETENTION COMPUTATIONS IS ENCLOSED FOR INFORMATIONAL PURPOSES ONLY (SEE SHEET 26-28). AN ON-SITE STORMWATER DETENTION WAIVER HAS BEEN SUBMITTED TO PERMIT THIS OFF-SITE FACILITY TO SERVE THE STORMWATER DETENTION REQUIREMENTS OF THIS SITE (SEE SHEET 25 FOR WAIVER REQUEST LETTER). FOR NARRATIVE REGARDING BMP FACILITIES SEE COMPUTATIONS ON THIS SHEET.

WATER QUALITY CONTROL NARRATIVE

B.M.P's ARE PROVIDED IN TWO SEPARATE FACILITIES, AN ON-SITE WET POND WITH STORAGE CAPACITY TO PROVIDE 50 % EFFICENCY RATING, AND AN OFF-SITE FUTURE REGIONAL DRY POND #H-9 WHICH PROVIDES FOR A 50 % EFFICIENCY RATING. THESE TWO FACILITIES PROVIDE FOR AN OVERALL 40 % PHOSPHORUS REMOVAL FOR THIS SITE BASED UP THE COMPUTATIONS SHOWN HEREON. THE BMP WET POND #1 IS TO BE PRIVATELY OWNED AND MAINTAINED.

COMMONWEALTH OF VIRGINIA
EDWARD WEAVER
No. 1437-B
3/2/07
LAND SURVEYOR B

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

COMMONWEALTH OF VIRGINIA
3/2/07
ROBERT R. COCHRAN
No. 2012
LAND SURVEYOR

NOTE: FOR INFORMATIONAL PURPOSES ONLY

VIKA
ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES
VIKA INCORPORATED
8180 GREENSBORO DRIVE, SUITE 200 ■ McLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
McLEAN, VA ■ FREDERICK, MD

DULLES EXECUTIVE PLAZA
LOT 4N1 & 31A1
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

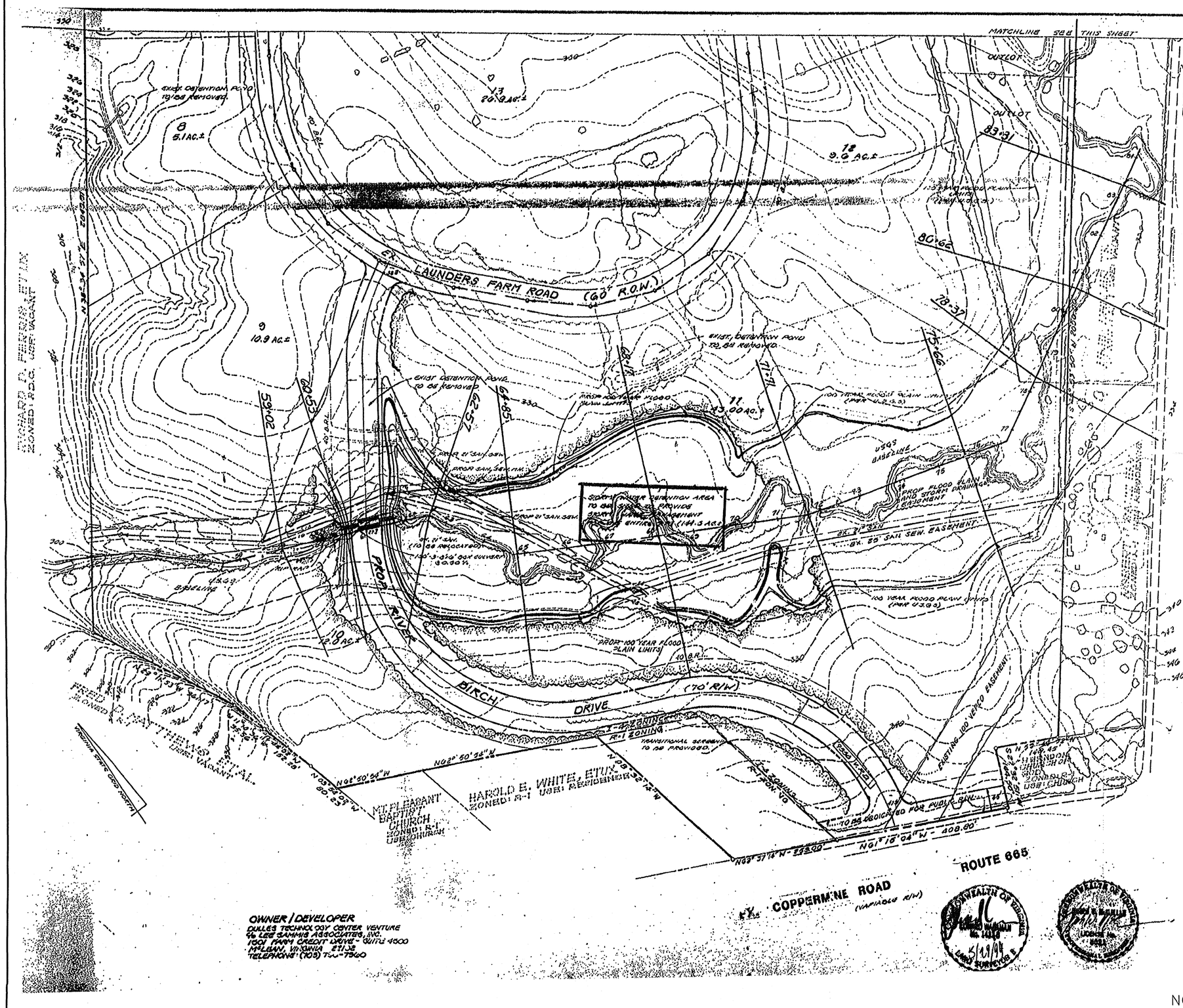
STORMWATER MANAGEMENT PLAN & NARRATIVES

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006
DES. EJI DWN. EJI
SCALE: 1"=20'
PROJECT/FILE NO. 6188F
SHEET NO. 9 of 19

RP/SP:

P:\LDD3\Projects\6188f\Planning\dwg\6188f-SWM.dwg 2/1/2007 2:31:08 PM EST



NOTES

1. THE PROPERTY DELINEATED ON THIS PAGE IS LOCATED ON FAIRFAX COUNTY ASSESSMENT MAP #16-3 ((1)), PARCELS 4A, 4B, 4C, 4D, 4E, 4F, 4G AND 4H.
2. TOPO INFORMATION SHOWN BY DEWBERRY AND DAVIS.
3. BOUNDARY INFORMATION SHOWN BY DEWBERRY AND DAVIS.
4. NO USE SHALL BE MADE OF, NOR SHALL ANY IMPROVEMENTS BE MADE IN THE FLOOD PLAIN EASEMENT WITHOUT SPECIFIC AUTHORIZATION FROM FAIRFAX COUNTY.

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (GDP) (CDP) (FDP)

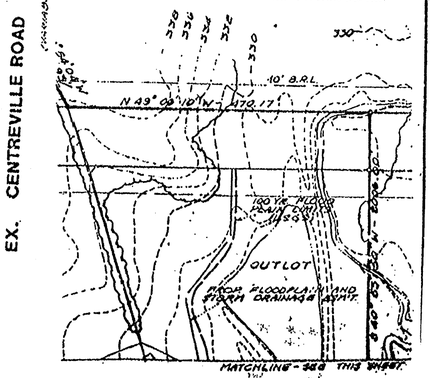
See Proffers Dated 7-10-2007

Date of (BOS) (PC) Approval 9-10-2007

Sheet 10 of 19

LEGEND

- EXISTING SANITARY SEWERS
- PROPOSED SANITARY SEWERS
- PROPOSED MAJOR STORM SEWER
- PROPOSED SPOT ELEVATIONS
- APPROXIMATE LIMITS OF CLEARING AND/OR GRADING
- PROPOSED 100-YEAR FLOOD PLAIN LIMITS
- EXISTING 100-YEAR FLOOD PLAIN LIMITS (PER USGS)



NOTE: FOR INFORMATIONAL PURPOSES ONLY

VIKA

ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES

VIKA INCORPORATED
8180 GREENSBORO DRIVE - SUITE 200 ■ McLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2797
McLEAN, VA FREDERICK, MD

DULLES EXECUTIVE PLAZA

LOT 4N1 & 31A1

HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

FLOOD PLAIN STUDY PART 1

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006

DES.	DWN.
EJI	EJI

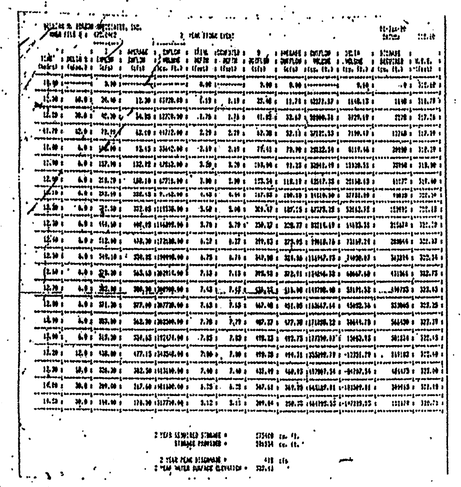
SCALE: 1"=20'

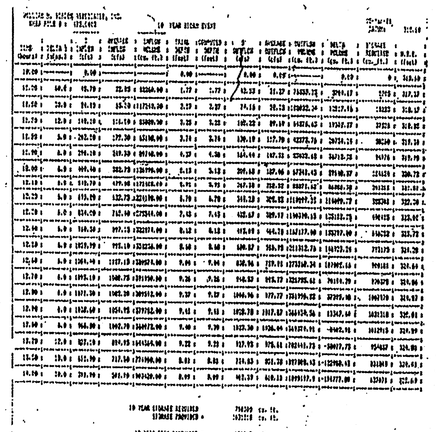
PROJECT/FILE NO. 6188F

SHEET NO. 10 of 19

RP/SP:

P:\LDD3\Projects\6188\Planning\dwg\6188-SWM.dwg 2/1/2007 2:31:08 PM EST





AREA OF ENTIRE WATERSHED = 685.6 AC
= 1.07 SQ. MI.

SCS PEAK DISCHARGE METHOD

LAND USE	SOILS GROUP B	C	D
COMMERCIAL	1% x 92 = 92	-	-
INDUSTRIAL	11% x 88 = 968	21% x 91 = 2184	35% x 93 = 3255
SCHOOL	-	1% x 94 = 94	2% x 95 = 190
1/8 AC. RES.	2% x 85 = 170	4% x 90 = 360	2% x 92 = 184
1/4 AC. RES.	1% x 75 = 75	1% x 83 = 83	-
1/3 AC. RES.	1% x 72 = 72	3% x 81 = 243	4% x 86 = 344
1/2 AC. RES.	3% x 70 = 210	-	-
TOTAL	18% = 1588	36% = 3266	46% = 4163

$$CN = \frac{1588 + 3266 + 4163}{100} = 90.0$$

$$S = \frac{1000}{CN} - 10 = \frac{1000}{90} - 10$$

$$S = 1.11$$

= HYDRAULIC LENGTH OF WATERSHED = 9100 L.F.
Y = AVG. WATERSHED SLOPE
$Y = \frac{4605 - 318}{9100} \times 100$

Y = 1.05

$$\text{LAG TIME} = L = \frac{9.0\,(S + 1)^{0.7}}{1900\,(Y)^{0.5}} = \frac{(9100)^{0.8}\,(1.11)^{0.7}}{1900\,(1.05)^{0.5}}$$

L = 1.30 HRS

LAND USE	% AREA	% IMPERVIOUS
COMMERCIAL	6	85
INDUSTRIAL	31	72
SCHOOL	3	65
1/8 AC RES	8	65
1/4 AC RES	9	38
1/3 AC RES	8	30
1/2 AC RES	5	25

$$\text{COMPOSITE \% IMPERVIOUS} = \frac{7(85) + 31(72) + 3(65) + 8(65) + 9(38) + 8(30) + 5(25)}{100}$$

= 67.5 %

*LAG FACTOR = 0.72

SCS INFLOW HYDROGRAPHS (2 + 10 YR ULTIMATE, 685.6 AC)

TIME (HR)	Q_2 (CFS)	Q_{10} (CFS)
11.0	24.6	45.7
11.5	45.3	84.9
11.7	78.9	148.1
11.8	108.0	202.5
11.9	157.9	296.1
12.0	218.1	409.1
12.1	292.6	548.7
12.2	371.5	696.8
12.3	444.4	834.0
12.4	512.0	960.7
12.5	569.1	1075.9
12.6	578.2	1084.4
12.7	567.8	1093.1
12.8	571.2	1071.3
12.9	563.8	1038.6
13.0	515.5	966.8
13.5	438.8	827.1
14.0	309.0	581.9
14.5	164.0	330.0
15.0	106.8	200.3
16.0	70.8	132.8
18.0	46.4	87.1
20.0	31.0	49.7

2 YEAR OUTFLOW: COMBINATION RECTANGULAR AND V-NOTCH WEIRS

2 YEAR RECTANGULAR $Q = CLH^{1.5}$

C = 3.00
L = 6.00 ft.

2 YEAR V-NOTCH: $Q = 2.5 \tan(\theta/2)(H-4.75)^{2.5}$

L = 7.90 ft
h = 3.10 ft

$\tan(\theta/2) = 2.42$

OUTFLOW EQUATION:

$Q = (3.00)(6.00)(H)^{1.5} + 2.5(2.42)(H-4.75)^{2.5}$

$= 18H^{1.5} + 6.05\,(H-4.75)^{2.5}$

10 YEAR OUTFLOW: 2 YEAR OUTFLOW + RECTANGULAR WEIR + V-NOTCH WEIR

10 YEAR RECTANGULAR $Q = CL\,(H - 7.85)^{1.5}$

C = 3.00
L = 61.00 ft

10 YEAR V-NOTCH: $Q = 2.5 \tan(\theta/2)(H-7.85)^{2.5}$

L = 8.00 ft
h = 1.55 ft

$\tan(\theta/2) = 5.16$

10 YEAR OUTFLOW EQUATION:

$Q = 18H^{1.5} + 6.05\,(H-4.75)^{1.5} + (3.00)(61.00)(H-7.85)^{1.5} + 2.5(5.16)(H-7.85)^{2.5}$

$Q = 18H^{1.5} + 6.05\,(H-4.75)^{1.5} + 183\,(H-7.85)^{1.5} + 12.90\,(H-7.85)^{2.5}$

100 YEAR OUTFLOW = 10 YEAR OUTFLOW + 100 YEAR WEIR

100 YEAR RECTANGULAR WEIR $Q = CL\,(H-9.40)^{1.5}$

C = 3.00
L = 42 ft.

$Q_{100} = 18H^{1.5} + 6.05\,(H-4.75)^{1.5} + 183\,(H-7.85)^{1.5} + 12.90\,(H-7.85)^{2.5} + 126\,(H-9.40)^{1.5}$

SOLVE BY TRIAL AND ERROR FOR 100 YEAR WSE WHEN Q = 1800 cfs (FROM USGS FLOOD PLAIN STUDY)

H	Q
10.5	1596
10.6	1808
10.65	1909
10.7	1802

100 YEAR WSE = 315.6 + 10.7 = 326.30

CHECK FOR CULVERT CONTROL OF 100 YEAR USE:

3 - 8' x 6' CON CULVERTS

INV. EL = 315.2

INLET CONTROL

Q = 1800 cfs

= 600 cfs/culvert

HS/D = 1.7 (H.P.R. Chart 1, V.D.H & T Drainage Manual, Chapter 5)

HS = 1.7 (6) = 10.20'

100 YEAR WSE = 315.2 + 10.20
= 325.40 326.30

OUTLET CONTROL

100 YR. TAILWATER = 322.4 (USGS)
h_o = 322.4 - 315.2
= 7.07 FT.

LS_o = 135 (.005) = 0.67

FROM HDR CHART 8 (VDOT DRAINAGE MANUAL, CHAPTER 5)

GIVEN Q = 1800 / 3 = 600 cfs

A = 8 x 6 = 48 FT²

K_e = 0.5
L = 135 FT

FIND H = 4.0 FT

100 YR. HW = h_o + H - LS_o

= 7.07 + 4.0 - 0.67
= 11.40 FT.

100 YEAR WSE = 315.2 + 11.20
= 326.40 326.30 CONTROLS

100 YEAR WSE = 326.40

RIVER BIRCH DRIVE
STORM WATER MANAGEMENT SUMMARY

STAGE - STORAGE RELATIONSHIP

EL.	AREA (FT²)	$(A_1 + A_2)/2$	H (FT)	V (FT³)	Y (FT³)
315.6	0				
316	340	170	0.4	68	68
318	10600	5370	2	10740	10808
320	45800	28150	2	56300	67108
322	153000	109450	2	218900	306008
324	301800	227400	2	454800	760808
326	461900	381850	2	763700	1524508
328	682700	542300	2	1084600	2609108

POWER CURVE FIT $H = AV^B$

A = 0.17

B = 0.32

FROM FAIRFAX CO. HYDROGRAPH:

REQUIRED 2 YR. STORAGE = 375400 CU. FT.
REQUIRED 10 YR. STORAGE = 788300 CU. FT.

PRE - DEVELOPMENT PEAK DISCHARGE (OH-511E)

SITE AREA = 141.6 AC

C = 0.20

h = 58', L = 2900' t_c = 34 min

I_2 = 2.3 in/hr

I_{10} = 3.3 in/hr

I_{100} = 4.8 in/hr

Q = CIA

Q_2 = (0.20)(2.3)(141.6) = 65.7 cfs

Q_{10} = (0.20)(3.3)(141.6) = 116.8 cfs

Q_{100} = (0.20)(4.8)(141.6) = 169.9 cfs

POST - DEVELOPMENT PEAK DISCHARGE (OH-511E)

A = 141.6 AC.

C = 0.80

t_c = 10 MIN

I_2 = 4.2

I_{10} = 5.92

I_{100} = 8.3

Q = CIA

Q_2 = (0.80)(4.2)(141.6) = 475.0 CFS

Q_{10} = (0.80)(5.92)(141.6) = 670.6 CFS

Q_{100} = (0.80)(8.3)(141.6) = 940.2 CFS

SCS INFLOW HYDROGRAPHS (2 + 10 YR ULTIMATE, 685.6 AC)

SCS INFLOW HYDROGRAPHS (2 + 10 YR ULTIMATE, 685.6 AC)

TIME OF CONCENTRATION t_c = 1.67L
t_c = 1.37 HRS

RAINFALL = P

P_2 = 3.2"
P_{10} = 5.2"
P_{100} = 7.5"

$$\text{RUNOFF} = Q' = \frac{(P - 0.2S)^2}{P + 0.8S}$$

Q_2' = 2.13"
Q_{10}' = 4.03"
Q_{100}' = 6.12

T_c = 1.37 HR

PEAK DISCHARGE = 251 CSM/MI

Q_2 = 251 (1.07)(2.13) = 583.0 cfs
Q_{10} = 251 (1.07)(4.03) = 1093.1 cfs
Q_{100} = 251 (1.07)(6.12) = 1643.7 cfs

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (GDP) (CDP) (FDP)
See Proffers Dated 7-10-2007
Date of (BOS) (PC) Approval 9-10-2007
Sheet 11 of 19

COMMONWEALTH OF VIRGINIA
EDWARD NAGHAM
No. 1437-B
LAND SURVEYOR
9/10/07

FOR INFORMATION ONLY !!!

COMMONWEALTH OF VIRGINIA
9/10/07
ROBERT R. COCHRAN
No. 2012
LAND SURVEYOR

COMMONWEALTH OF VIRGINIA
LICENSE NO.
8821
PROFESSIONAL ENGINEER

NOTE: FOR INFORMATIONAL PURPOSES ONLY

VIKA
ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES
VIKA INCORPORATED
8180 GREENSBORO DRIVE, SUITE 200 ■ McLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
McLEAN, VA FREDERICK, MD

DULLES EXECUTIVE PLAZA
LOT 4N1 & 31A1
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

STORMWATER COMPUTATIONS

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006
DES. EJI | DWN. EJI
SCALE: 1"=20'
PROJECT/FILE NO. 6186F
SHEET NO. 11 of 19

RP/SP:

P:\LDD3\Projects\6186f\Planning\dwg\6186f-SWM.dwg 2/1/2007 2:31:08 PM EST

REQUIRED STORAGE COMPUTATIONS

PRE - DEVELOPMENT PEAK DISCHARGE (ON-SITE)

SITE AREA = 141.6 AC

C = 0.25

H = 30', L = 2000', t_c = 30 min

I_2 = 2.3 in/hr

I_{10} = 3.3 in/hr

I_{100} = 4.8 in/hr

Q = CIA

Q_2 = (0.25)(2.3)(141.6) = 81.4 cfs

Q_{10} = (0.25)(3.3)(141.6) = 116.8 cfs

Q_{100} = (0.25)(4.8)(141.6) = 169.9 cfs

POST - DEVELOPMENT PEAK DISCHARGE (ON-SITE)

A = 141.6 AC.

C = 0.80

t_c = 10 MIN

I_2 = 4.2

I_{10} = 5.92

I_{100} = 8.3

Q = CIA

Q_2 = (0.80)(4.2)(141.6) = 475.8 CFS

Q_{10} = (0.80)(5.92)(141.6) = 670.6 CFS

Q_{100} = (0.80)(8.3)(141.6) = 940.2 CFS

POST DEVELOPMENT INFLOW HYDROGRAPH (ON-SITE)

TIME (MIN)	Q_2 (CFO)	Q_{10} (CFS)
0	0	0
5	291.1	380.6
10	503.0	670.6
15	375	499.6
20	263.9	351.2
25	206.2	275.3
30	168.8	224.3
35	139.3	185.8
40	118.9	158.6
45	104.2	138.2
50	90.6	120.1
55	79.3	105.4
60	70.2	92.9

REQUIRED STORAGE

2 YR. REQUIRED STORAGE V_2 = 575,400 FT^3

10 YR. REQUIRED STORAGE V_{10} = 798,300 FT^3

SCS PEAK DISCHARGE COMPUTATIONS

AREA OF ENTIRE WATERSHED = 685.6 AC. = 1.07 SQ. MI.

SCS PEAK DISCHARGE METHOD

	SOILS GROUP		
LAND USE	B	C	D
COMMERCIAL	1% x 92 = 92	-	-
INDUSTRIAL	11% x 88 = 968	24% x 91 = 2184	35% x 93 = 3255
SCHOOL	-	1% x 94 = 94	2% x 95 = 190
1/8 AC. RES.	2% x 85 = 170	4% x 90 = 360	2% x 92 = 184
1/4 AC. RES.	1% x 75 = 75	1% x 83 = 83	-
1/3 AC. RES.	1% x 72 = 72	[illegible] = 243	4% x 86 = 344
1/2 AC. RES.	3% x 70 = 210	-	-
TOTAL	19% = 1588	36% = 3246	45% = 4163

$$CN = \frac{1588 + 3246 + 4163}{100} = 90.0$$

$$S = \frac{1000}{CN} - 10 = \frac{1000}{90} - 10$$

S = 1.11

ℓ = HYDRAULIC LENGTH OF WATERSHED = 9100 L.F.

Y = AVG. WATERSHED SLOPE

$Y = \frac{405 - 318}{9100} \times 100$

Y = 1.0%

$$\text{LAG TIME} = L = \frac{\ell^{0.8}(S+1)^{0.7}}{1900\,(Y)^{0.5}} = \frac{(9100)^{0.8}(2.11)^{0.7}}{1900\,(1)^{0.5}}$$

L = 1.30 HRS

LAND USE	% AREA	% IMPERVIOUS
COMMERCIAL	6	.85
INDUSTRIAL	71	.72
SCHOOL	3	.85
1/8 AC RES	8	.65
1/4 AC RES	1	.38
1/3 AC RES	8	.30
1/2 AC RES	3	[illegible]

COMPOSITE % IMPERVIOUS = 7(85) + 71(72) + 3(85) + 8(65) + 1(38) + [illegible] / 100

= 67.5 %

LAG FACTOR = 0.72

30% HYDRAULIC LENGTH MODIFIED, LAG FACTOR = 0.88

L = (1.30)(0.72)(0.88)

L = 0.82 HRS

TIME OF CONCENTRATION, t_c = 1.67L

t_c = 1.37 HRS

RAINFALL = P

P_2 = 3.2"

P_{10} = 5.2"

$$\text{RUNOFF} = Q' = \frac{(P - 0.2S)^2}{P + 0.8S}$$

Q_2' = 2.17"

Q_{10}' = 4.07"

T_c = 1.37 HR PEAK DISCHARGE = 255 CSM/IN

Q_2 = 255 (1.07)(2.17) = 592 CFS

Q_{10} = 255 (1.07)(4.07) = 1110 CFS

DETENTION POND 100 YEAR WATER SURFACE ELEVATION

BASED UPON Q = 1800 CFS (FROM USGS FLOOD PLAIN STUDY OPEN FILE REPORT 78-1028)

CASE 1

OUTLET STRUCTURE CONTROL

$1800 = 3.09\,(7)(h)^{1.5} + 3.09(83)(h - 7.77)^{1.5} + 3.09(10)(h - 9.2)^{1.5}$

SOLVE BY TRIAL & ERROR FOR h:

h	Q
10.35	1827
10.30	1783
10.32	1790 ←

100-YEAR WSE = 315.6 + 10.32 = 325.92

CASE 2

INLET CONTROL: 3 - 8' x 6' BOX CULVERTS, INV. IN = 315.2

Q = 1800, 600 CFS/CULVERT

HW/D = 1.7   HW = 1.7 x 6 = 10.20'

100 YR WSE = 315.2 + 10.2 = 325.4

CASE 3

CULVERT UNDER OUTLET CONTROL

100 YR. TAILWATER = 322.4 (USGS)

h_o = 322.4 - 314.55 = 7.85 FT.

LS_o = 130 (.005) = 0.65

FROM HW CHART 8 (VDOT DRAINAGE MANUAL, CHAPTER 5)

GIVEN Q = 1800/2 = 900 CFS

A = 8 x 6 = 48 FT²

K_e = 0.5

L = 130 FT.

SCS INFLOW HYDROGRAPHS

(2 + 10 YR. ULTIMATE, 685.6 AC.)

TIME (HR)	Q_2 (CFS)	Q_{10} (CFS)
11.3	24.4	45.7
11.5	45.3	[illegible]
11.7	78.9	146.1
11.8	106.0	[illegible]
11.9	157.9	[illegible]
12.0	218.3	[illegible]
12.1	292.6	[illegible]
12.2	371.5	[illegible]
12.3	444.6	[illegible]
12.4	512.0	[illegible]
12.5	545.1	[illegible]
12.6	578.2	[illegible]
12.7	582.8	[illegible]
12.8	571.2	[illegible]
12.9	[illegible]	[illegible]
13.0	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

WILLIAM H. GORDON ASSOCIATES, INC. **RIVER BIRCH DRIVE DETENTION POND - 2 YEAR STORM ROUTING** WHGA FILE 4472-0302 SEPTEMBER 24, 1985

TIME	10.00	11.00	11.50	11.70	11.80	11.90	12.00	12.10	12.20	12.30	12.40
t (min.)	0	60	30	12	6	6	6	6	6	6	6
Inflow Rate (cfs)	0	24.40	45.30	78.90	106.09	157.90	218.30	292.60	371.50	444.60	512.00
Average Inflow Rate (cfs)		12.20	34.85	62.16	93.45	132.45	186.10	255.45	332.05	408.05	478.30
Inflow Volume (cu. ft.)		43,920.00	62,730.00	44,712.00	33,642.00	47,862.00	67,716.00	91,962.00	119,538.00	146,898.00	172,188.00
Trial Water Depth, H (ft.)		1.66	1.58	2.09	2.30	2.56	3.54	4.15	4.73	5.34	5.90
Outflow Depth (ft.)		1.66	1.58	2.09	2.30	2.56	3.54	4.15	4.73	5.34	5.90
Outflow (cfs)		23.61	42.96	65.35	85.50	116.15	144.67	182.86	222.51	266.91	309.96
Average Outflow Rate (cfs)		11.80	33.28	54.16	75.43	97.83	131.13	165.47	202.65	244.71	288.45
Outflow Volume (cu. ft.)		42,490.11	59,907.00	38,992.00	27,157.00	35,217.45	45,759.31	58,847.43	72,947.23	88,695.87	103,841.76
Delta S (cu. ft.)		1,429.89	2,823	5,719.54	6,466.16	12,644.55	21,956.65	27,114.57	46,376.77	58,602.13	68,347.56
Storage Required (cu. ft.)	0	1,430	4,253	9,972	16,461	29,105	51,061	84,176	130,747	189,549	257,897
Corresponding W.S.E. (ft.)	[illegible]	1.12	1.59	2.09	2.46	2.95	3.52	4.14	4.77	5.37	5.93

TIME	12.50	12.60	12.70	12.80	12.90	13.00	13.20	13.50	14.00	14.50
t (min.)	6	6	6	6	6	6	12	18	30	30
Inflow Rate (cfs)	545.10	578.20	582.00	571.20	555.80	515.30	436.00	326.30	209.60	144.00
Average Inflow Rate (cfs)	530.55	563.65	580.50	577.00	562.50	534.65	477.15	382.50	267.60	176.80
Inflow Volume (cu. ft.)	190,998.00	202,914.00	208,980.00	207,720.00	202,500.00	192,474.00	343,548.00	413,100.00	481,680.00	317,700.00
Trial Water Depth, H (ft.)	6.44	6.82	7.15	7.40	7.60	7.76	7.75	7.45	6.25	4.68
Outflow Depth (ft.)	6.44	6.82	7.15	7.40	7.60	7.76	7.75	7.45	6.25	4.68
Outflow (cfs)	336.21	385.24	411.06	435.42	453.19	462.16	466.67	439.86	337.77	215.99
Average Outflow Rate (cfs)	330.66	367.72	398.32	423.43	444.30	457.65	464.41	453.25	388.90	276.40
Outflow Volume (cu. ft.)	118,834.01	132,380.77	143,460.24	152,499.59	159,948.29	164,762.41	334,378.50	489,512.85	700,024.42	501,263.34
Delta S (cu. ft.)	72,165.99	70,533.05	65,511.76	55,226.41	42,551.68	27,711.99	9,169.42	-76,412.85	-218,344.42	-183,563.34
Storage Required (cu. ft.)	330,066	400,599	466,135	521,326	563,877	591,589	600,758	524,345	306,001	122,438
Corresponding W.S.E. (ft.)	6.45	6.82	7.17	7.43	7.62	7.73	7.77	7.44	6.26	4.67

PEAK DISCHARGE = 466.7 cfs
MAXIMUM STORAGE = 600,758 cf

STORAGE REQUIRED = 575,400 C.F.

STORAGE REQUIRED = 600,758 C.F.

WILLIAM H. GORDON ASSOCIATES, INC. **RIVER BIRCH DRIVE DETENTION POND - 10 YEAR STORM ROUTING** WHGA FILE 4472-0302 SEPTEMBER 24, 1985

TIME	10.00	11.00	11.50	11.70	11.80	11.90	12.00	12.10	12.20	12.30	12.40
t (min.)	0	60	30	12	6	6	6	6	6	6	6
Inflow Rate (cfs)	0	45.70	64.90	146.16	204.50	290.10	405.40	545.70	690.00	834.00	949.30
Average Inflow Rate (cfs)		22.85	55.30	114.50	175.34	249.56	352.75	475.05	622.75	763.40	897.15
Inflow Volume (cu. ft.)		82,260.00	117,540.00	82,656.00	63,108.00	89,748.00	126,990.00	172,458.00	224,190.00	275,544.00	322,974.00
Trial Water Depth, H (ft.)		1.59	2.32	3.00	3.45	4.06	4.82	5.56	6.37	7.14	7.87
Outflow Depth (ft.)		1.59	2.32	3.00	3.45	4.06	4.82	5.56	6.37	7.14	7.87
Outflow (cfs)		42.37	76.47	112.39	138.61	178.26	226.09	288.11	347.75	412.67	485.36
Average Outflow Rate (cfs)	0	21.x	59.x	94.41	125.56	158.43	202.57	257.06	316.43	380.29	447.45
Outflow Volume (cu. ft.)		76,050.31	107,829.5x	67,977.7x	45,199.9x	57,035.53	72,926.56	92,519.46	113,914.04	136,903.55	161,094.6x
Delta S (cu. ft.)		6,209.69	9,715	13,962.24	17,926.04	32,712.47	53,765.56	79,936.52	110,275.9x	138,646.45	161,879.31
Storage Required (cu. ft.)	0	6,2[illegible]	15,926	29,882	47,758	80,463	134,166	214,105	324,381	463,049	624,928
Corresponding W.S.E. (ft.)	0.00	1.35	2.33	2.97	3.46	4.06	4.81	5.59	6.36	7.15	7.87

TIME	12.50	12.60	12.70	12.80	12.90	13.00	13.20	13.50	14.00	14.50
t (min.)	6	6	6	6	6	6	12	18	30	30
Inflow Rate (cfs)	1,025.90	1,084.40	1,093.10	1,071.30	1,037.60	966.00	823.10	611.90	391.90	270.00
Average Inflow Rate (cfs)	993.10	1,057.15	1,086.75	1,082.20	1,054.95	1,002.70	858.95	717.50	501.90	330.95
Inflow Volume (cu. ft.)	358,236.00	380,574.00	391,950.00	389,592.00	379,782.00	360,972.00	644,364.00	774,900.00	903,420.00	595,710.00
Trial Water Depth, H (ft.)	8.42	8.86	9.05	9.1x	9.20	9.20	9.00	8.46	7.92	6.95
Outflow Depth (ft.)	8.42	8.86	9.05	9.1x	9.20	9.20	9.00	8.46	7.92	6.96
Outflow (cfs)	657.00	821.12	947.31	1,006.42	1,026.43	1,028.43	921.15	729.03	492.77	398.86
Average Outflow Rate (cfs)	569.98	739.35	884.22	976.87	1,017.42	1,028.43	974.79	825.09	610.90	445.82
Outflow Volume (cu. ft.)	205,193.4x	266,162.4x	318,317.99	351,678.42	366,272.42	370,234.05	701,847.53	891,094.73	1,099,116.45	802,482.1x
Delta S (cu. ft.)	153,042.54	114,392.59	73,632.10	37,920.58	13,509.58	-9,262.05	-57,483.53	-116,194.73	-196,196.05	-206,772.18
Storage Required (cu. ft.)	777,971	892,364	965,996	1,003,916	1,017,426	1,00[illegible]	950,680	834,486	638,289	431,517
Corresponding W.S.E. (ft.)	8.44	8.82	9.05	9.16	9.20	9.17	9.06	8.63	7.87	6.9[illegible]

PEAK DISCHARGE = 1,026.4 cfs
MAXIMUM STORAGE = 1,017,426 cf

STORAGE REQUIRED = 798,300 C.F.

STORAGE REQUIRED = 1,017,426 C.F.

STAGE - STORAGE RELATIONSHIP

EL.	AREA (FT²)	$(A_1 + A_2)/2$	H (FT)	V (FT³)	V (FT³)
315.6	0				
316	340	170	0.4	68	68
318	10400	5370	2	10740	10808
320	65900	38150	2	76300	87108
322	153000	109450	2	218900	306008
324	301800	227400	2	454800	760808
326	461900	381850	2	763700	1524508
328	622700	542300	2	1084600	2609108

POWER CURVE FIT $H = AV^B$

A = 0.17

B = 0.32

OUTFLOW STRUCTURE DESIGN

L_2 = 2-YEAR WEIR LENGTH = 7 FT.

L_{10} = 10-YEAR WEIR LENGTH = 83 FT.

L_{100} = 100-YEAR WEIR LENGTH = 10 FT.

H_2 = 2-YEAR WEIR CREST ELEVATION = 315.60

H_{10} = 10-YEAR WEIR CREST ELEVATION = 323.37

H_{100} = 100-YEAR WEIR CREST ELEVATION = 324.80

OUTFLOW EQUATIONS: (BROAD-CRESTED WEIR, $Q = CLH^{1.5}$)

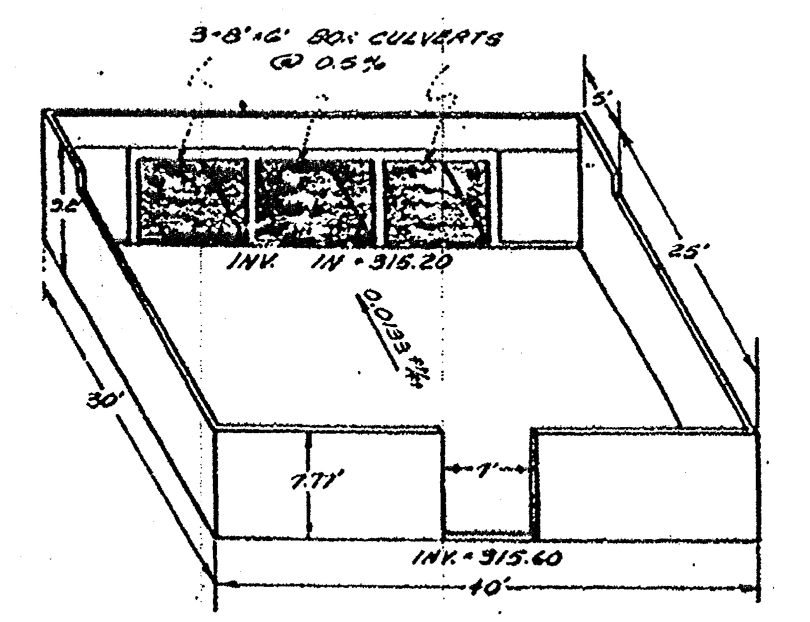
2-YEAR OUTFLOW $Q_2 = 3.09\,L_2\,(h)^{1.5}$

10-YEAR OUTFLOW $Q_{10} = 3.09\,L_2\,(h)^{1.5} + 3.09\,L_{10}\,(h-7.77)^{1.5}$

100-YEAR OUTFLOW $Q_{100} = 3.09\,L_2\,(h)^{1.5} + 3.09\,L_{10}\,(h-7.77)^{1.5} + 3.09\,L_{100}\,(h-9.2)^{1.5}$

OUTFLOW STRUCTURE DETAIL

NOT TO SCALE



2 YR. WSE = 323.37
10 YR. WSE = 324.80
100 YR. WSE = 326.10 (CONTROLLED BY CULVERT UNDER OUTLET CONTROL)

MAR 1 2 1986

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (GDP) (CDP) (FDP)

See Proffers Dated 7-10-2007

Date of (BOS) (PC) Approval 9-10-2007

Sheet 12 of 19

GDP

COMMONWEALTH OF VIRGINIA
ROBERT B. COCHRAN
No. 2012
LAND SURVEYOR
2/2/07

NOTE: FOR INFORMATIONAL PURPOSES ONLY

VIKA
VIKA INCORPORATED
8180 GREENSBORO DRIVE, SUITE 200 ■ MCLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
MCLEAN, VA   FREDERICK, MD
ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES

DULLES EXECUTIVE PLAZA

LOT 4N1 & 31A1

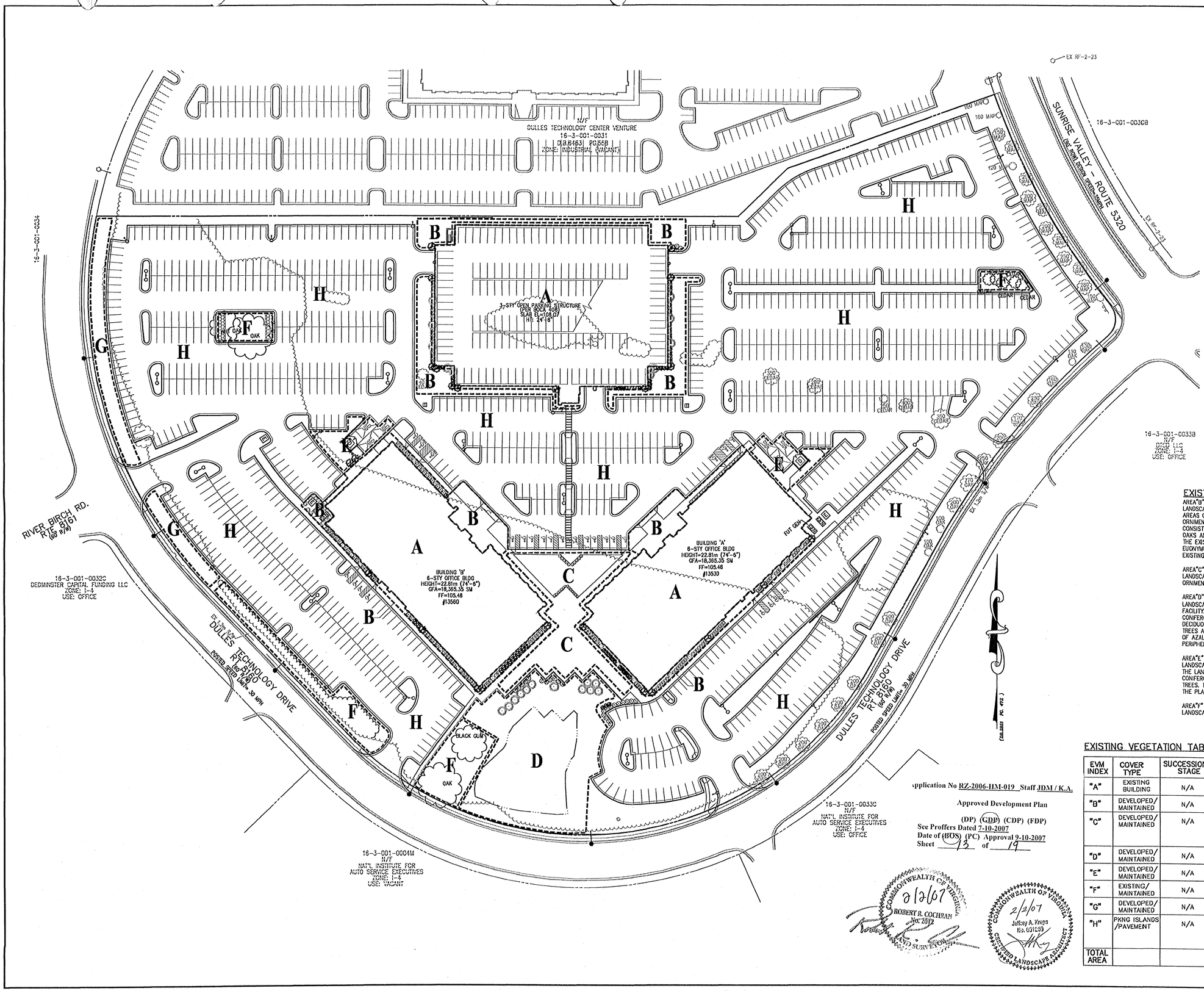
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

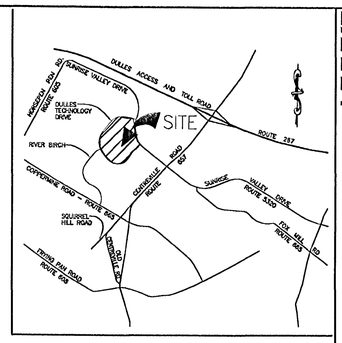
FLOOD PLAIN STUDY PART 2

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006
DES. EJI DWN. EJI
SCALE: 1"=20'
PROJECT/FILE NO. 6188F

P:\LDD3\Projects\6188\Planning\dwg\6188F-SWM.dwg 2/1/2007 2:31:08 PM EST





VICINITY MAP
SCALE : 1"=2000'

CONDITION DESCRIPTIONS:

COVER TYPE B:
ACER – MAPLE
ILEX– HOLLY
JUNIPERUS – CEDAR
CUPRESSOCYPARIS – CYPRESS

COVER TYPE F:
JUNIPERUS – CEDAR
QUERCUS – OAK
NYSSA – TUPELO

COVER TYPE "C":
PRUNUS – CHERRY
TURF

COVER TYPE "G":
TURF

COVER TYPE "D":
PRUNUS – CHERRY
JUNIPERUS – CEDAR
ILEX– HOLLY
QUERCUS – OAK

COVER TYPE "H":
ACER – MAPLE
QUERCUS – OAK
PRUNUS – CHERRY
JUNIPERUS – CEDAR
CEDRUS – CEDAR

COVER TYPE "E":
ACER – MAPLE
JUNIPERUS – CEDAR

EXISTING CONDITIONS NARRATIVE

AREA"B" IS CLASSIFIED AS DEVELOPED AND CONSISTS OF MAINTAINED LANDSCAPED AREAS SURROUNDING EXISTING STRUCTURES. THE LANDSCAPED AREAS CONSIST OF LAWN AREA, DECIDUOUS AND CONIFEROUS TREES, ORNIMENTAL TREES, AND FOUNDATION PLANTINGS. THE LANDSCAPED AREAS CONSIST LARGELY OF EVERGREEN SHRUBS. THE DECIDUOUS TREES ARE MAPLES, OAKS AND DOGWOODS. THE EXISTING EVERGREEN TREES ARE PRIMARILY CYPRESS. THE EXISTING SHRUB PLANTINGS ARE VARIETIES OF AZALEAS, ILEX AND EUONYMUS. THESE SHRUB PLANTINGS ARE LOCATED AT THE FOUNDATION OF THE EXISTING BUILDING. THE REMAINING AREA IS GRASS LAWN AREAS.

AREA"C" IS CLASSIFIED AS DEVELOPED AND CONSISTS OF SHARED MAINTAINED LANDSCAPED AREAS AND PAVED PATIO. THE AREA CONSIST OF LAWN AREA, WITH ORNIMENTAL TREES. THE ORNAMENTAL TREES ARE CHERRY.

AREA"D" IS CLASSIFIED AS DEVELOPED AND CONSISTS OF MAINTAINED LANDSCAPED AREAS SURROUNDING AN EXISTING WATER FEATURE/RETENTION FACILITY. THE LANDSCAPED AREAS CONSIST OF LAWN AREA, DECIDUOUS AND CONIFEROUS TREES, ORNIMENTAL TREES, AND EVERGREEN AND SHRUBS. THE DECIDUOUS TREES ARE OAK AND ORNAMENTAL CHERRY. THE EXISTING EVERGREEN TREES ARE PRIMARILY CYPRESS. THE EXISTING SHRUB PLANTINGS ARE VARIETIES OF AZALEAS, ILEX AND ROSE. THESE SHRUB PLANTINGS ARE LOCATED AT THE PERIPHERY OF THE ZONE. THE REMAINING AREA IS GRASS LAWN.

AREA"E" IS CLASSIFIED AS DEVELOPED AND CONSISTS OF MAINTAINED LANDSCAPED AREAS SURROUNDING BUILDING SERVICE AMMENITIES AND PAVING. THE LANDSCAPED AREAS CONSIST OF LAWN AREA, AND DECIDUOUS AND CONIFEROUS TREES THE LANDSCAPED AREAS CONSIST LARGELY OF EVERGREEN TREES. THE EXISTING EVERGREEN TREES ARE PRIMARILY CEDARS AND CYPRESS. THE PLANTINGS ACT AS A SCREENING ELEMENT.

AREA"F" IS CLASSIFIED AS DEVELOPED AND CONSISTS OF MAINTAINED LANDSCAPED AREAS WITH PRE-EXISTING TREE SPECIMINES.

EXISTING VEGETATION TABLE

EVM INDEX	COVER TYPE	SUCCESSIONAL STAGE	AREA	COVER CONDITION	PRIMARY SPECIES	COMMENTS
"A"	EXISTING BUILDING	N/A	112,923 sf	IMPERVIOUS PAVEMENT	N/A	EXISTING CONDITION
"B"	DEVELOPED/ MAINTAINED	N/A	24,767 sf	GENERALLY GOOD	(SEE VEG TYPE COVERS)	SEE DESCRIPTIONS
"C"	DEVELOPED/ MAINTAINED	N/A	10,466 sf	GENERALLY GOOD IMPERVIOUS PAVEMENT	(SEE VEG TYPE COVERS)	SEE DESCRIPTIONS
"D"	DEVELOPED/ MAINTAINED	N/A	22,881 sf	GENERALLY GOOD	(SEE VEG TYPE COVERS)	SEE DESCRIPTIONS
"E"	DEVELOPED/ MAINTAINED	N/A	5,551 sf	GENERALLY GOOD	(SEE VEG TYPE COVERS)	SEE DESCRIPTIONS
"F"	EXISTING/ MAINTAINED	N/A	13,297 sf	GENERALLY GOOD	(SEE VEG TYPE COVERS)	LAWN
"G"	DEVELOPED/ MAINTAINED	N/A	6,560 sf	GENERALLY GOOD	(SEE VEG TYPE COVERS)	SEE DESCRIPTIONS
"H"	PKNG ISLANDS /PAVEMENT	N/A	330,964 sf	GENERALLY GOOD IMPERVIOUS PAVEMENT	(SEE VEG TYPE COVERS)	EXISTING CONDITION
TOTAL AREA			640,331 sf			

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (GDP) (CDP) (FDP)

See Proffers Dated 7-10-2007

Date of (BOS) (PC) Approval 9-10-2007

Sheet 13 of 19

COMMONWEALTH OF VIRGINIA
2/2/07
ROBERT R. COCHRAN
No. 2012
LAND SURVEYOR

COMMONWEALTH OF VIRGINIA
2/2/07
Jeffrey A. Kreps
No. 031299
CERTIFIED LANDSCAPE ARCHITECT

VIKA
ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES
VIKA, INCORPORATED
8180 GREENSBORO DRIVE, SUITE 200 ■ MCLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
McLEAN, VA FREDERICK, MD

DULLES EXECUTIVE PLAZA

LOT 4N1 & 31A1

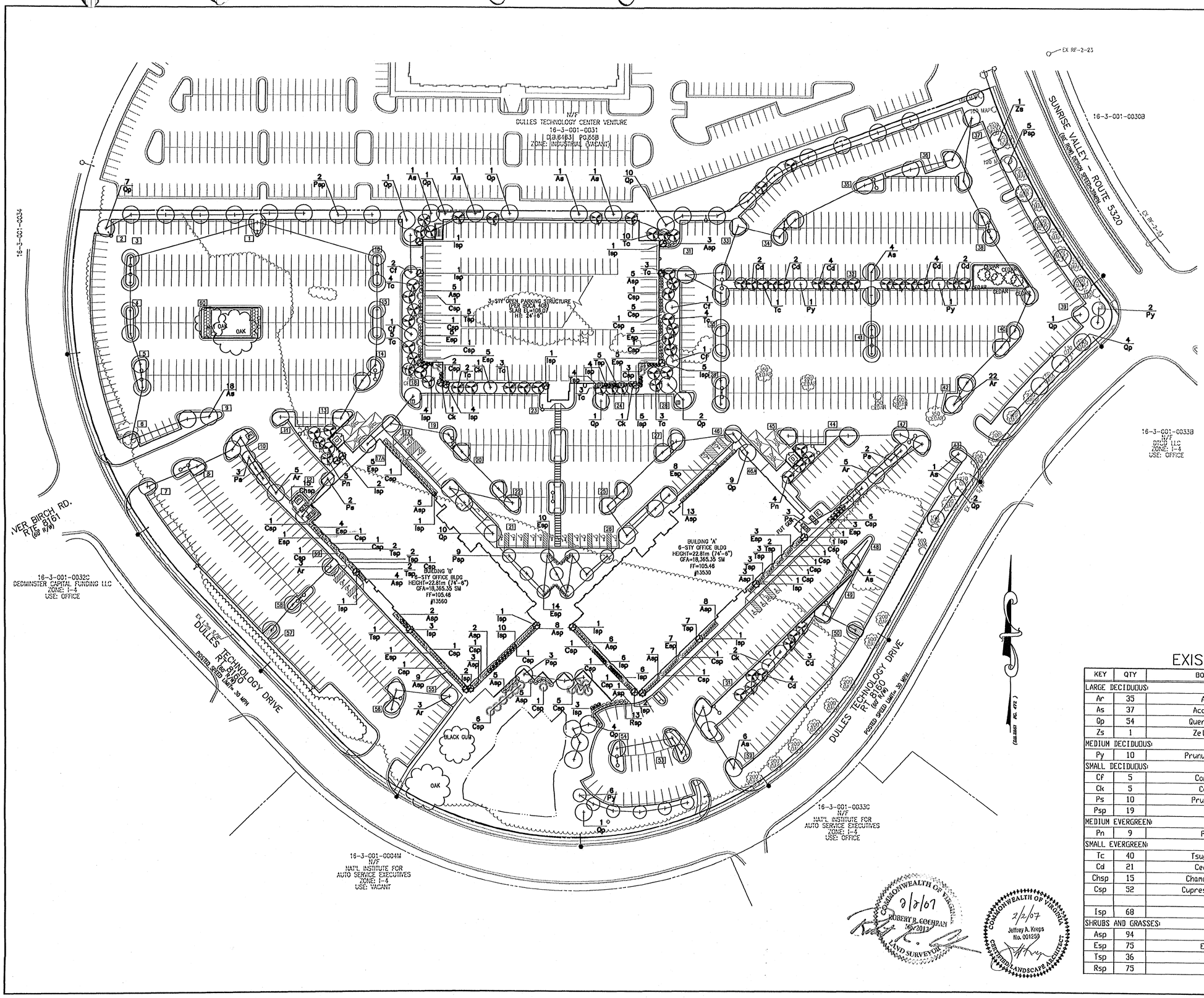
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

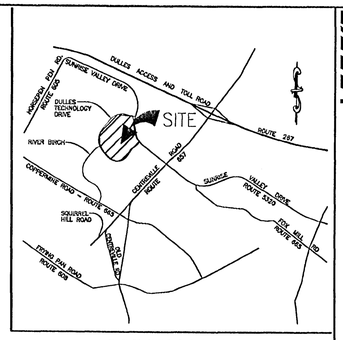
EXISTING VEGETATION MAP

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006
DES. RO DWN. JA
SCALE: 1"=50'
PROJECT/FILE NO. 6188F
SHEET NO. 13 of 19

P:\LDD3\Projects\6188F\Planning\dwg\6188F-EVM AND EXIST-LS PLAN.DWG 11/9/2006 8:05:46 AM EST





VICINITY MAP
SCALE : 1"=2000'

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (CDP) (CDP) (FDP)
See Proffers Dated 7-10-2007
Date of (BOS) (PC) Approval 9-10-2007
Sheet 14 of 19

EXISTING PLANT LIST

KEY	QTY	BOTANICAL NAME	COMMON NAME
LARGE DECIDUOUS:			
Ar	35	Acer Rubrum	Red Maple
As	37	Accer saccharum	Sugar Maple
Qp	54	Quercus palustris	Pin Oak
Zs	1	Zelkova serrata	Japanese Zelkova
MEDIUM DECIDUOUS:			
Py	10	Prunus x. yedoensis	Yoshino Cherry
SMALL DECIDUOUS:			
Cf	5	Cornus florida	Flowering Dogwood
Ck	5	Cornus kousa	Kousa Dogwood
Ps	10	Prunus sargentii	Sargent Cherry
Psp	19	Prunus sp.	Cherry
MEDIUM EVERGREEN:			
Pn	9	Pinus nigra	Austrian Pine
SMALL EVERGREEN:			
Tc	40	Tsuga canadensis	Canadian Hemlock
Cd	21	Cedrus deodara	Deodara Cedar
Chsp	15	Chamaecyparis sp.	Cypress
Csp	52	Cupressocyparis sp.	Cypress
Isp	68	Ilex sp.	Holly
SHRUBS AND GRASSES:			
Asp	94	Azalea sp.	Azalea
Esp	75	Euonymus sp.	Burning Bush
Tsp	36	Taxus sp.	Yew
Rsp	75	Rosa sp.	Rose

COMMONWEALTH OF VIRGINIA
2/2/07
ROBERT B. COCHRAN
167-2013
LAND SURVEYOR

COMMONWEALTH OF VIRGINIA
2/2/07
Jeffrey A. Kreps
No. 001259
CERTIFIED LANDSCAPE ARCHITECT

VIKA
ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES
VIKA INCORPORATED
8180 GREENSBORO DRIVE, SUITE 200 ■ McLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)764-2787
McLEAN, VA FREDERICK, MD

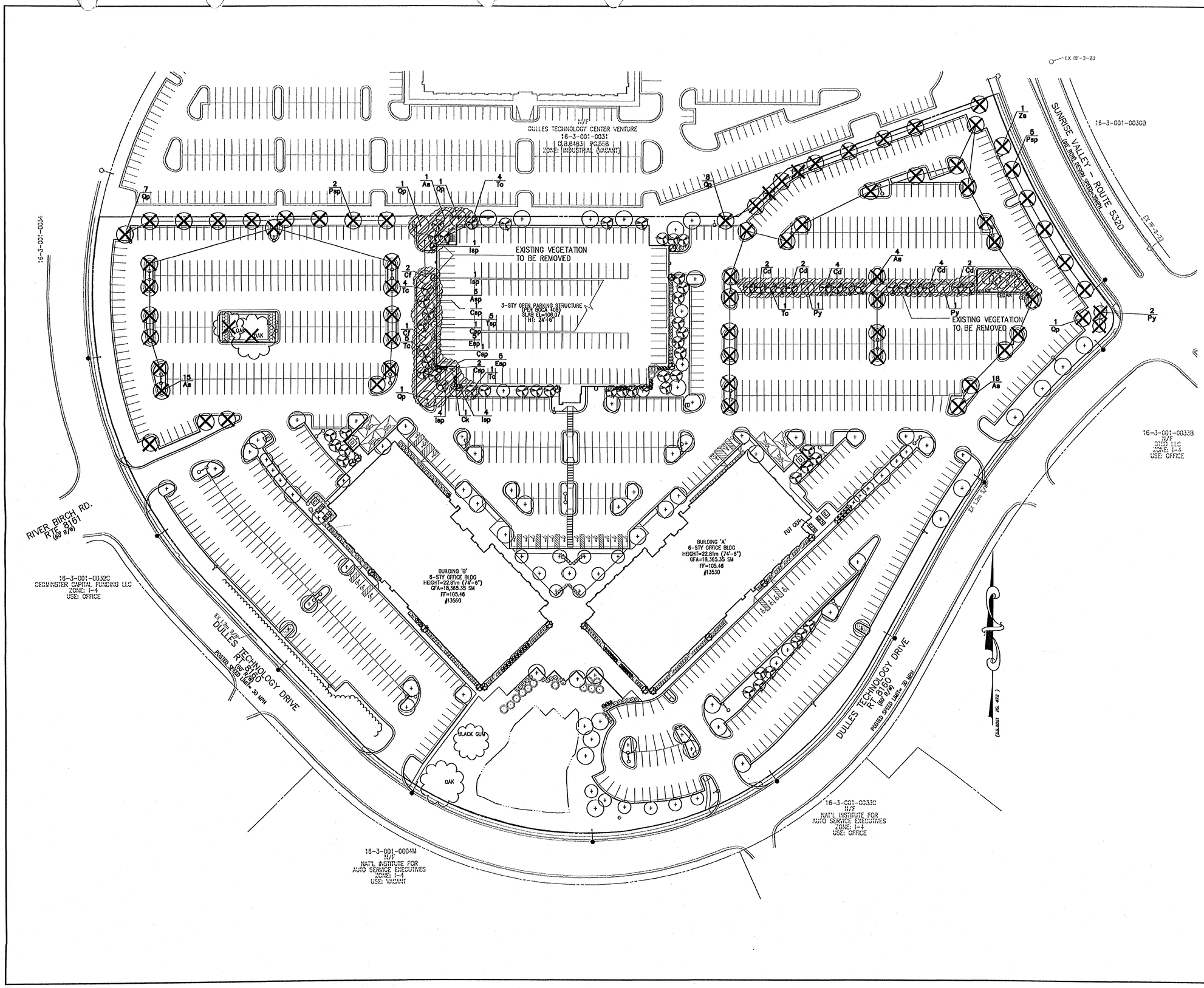
DULLES EXECUTIVE PLAZA
LOT 4N1 & 31A1
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

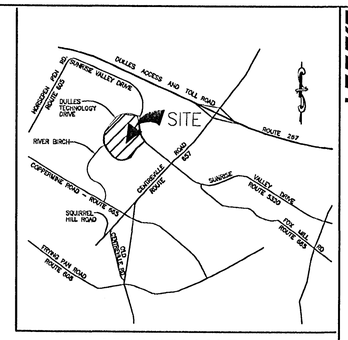
EXISTING LANDSCAPE PLAN

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006
DES. RO
DWN. JA
SCALE: 1"=50'
PROJECT/FILE NO. 6188F
SHEET NO. 14 of 19

P:\LDD3\Projects\6188f\Planning\dwg\6188f-EVM AND EXIST-LS PLAN.DWG 2/1/2007 2:43:50 PM EST





VICINITY MAP
SCALE : 1"=2000'

KEY

VEGETATION TO BE REMOVED

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (GDP) (CDP) (FDP)
See Proffers Dated 7-10-2007
Date of (BOS) (PC) Approval 9-10-2007
Sheet 15 of 19

COMMONWEALTH OF VIRGINIA
2/2/07
ROBERT R. COCHRAN
No. 2012
LAND SURVEYOR

COMMONWEALTH OF VIRGINIA
2/2/07
Jeffrey A. Kreps
No. 001259
CERTIFIED LANDSCAPE ARCHITECT

VIKA

ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES

VIKA INCORPORATED
8180 GREENSBORO DRIVE, SUITE 200 ■ McLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
McLEAN, VA FREDERICK, MD

DULLES EXECUTIVE PLAZA

LOT 4N1 & 31A1
HUNTER MILL DISTRICT
FAIRFAX COUNTY, VIRGINIA

TREE PRESERVATION PLAN

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006

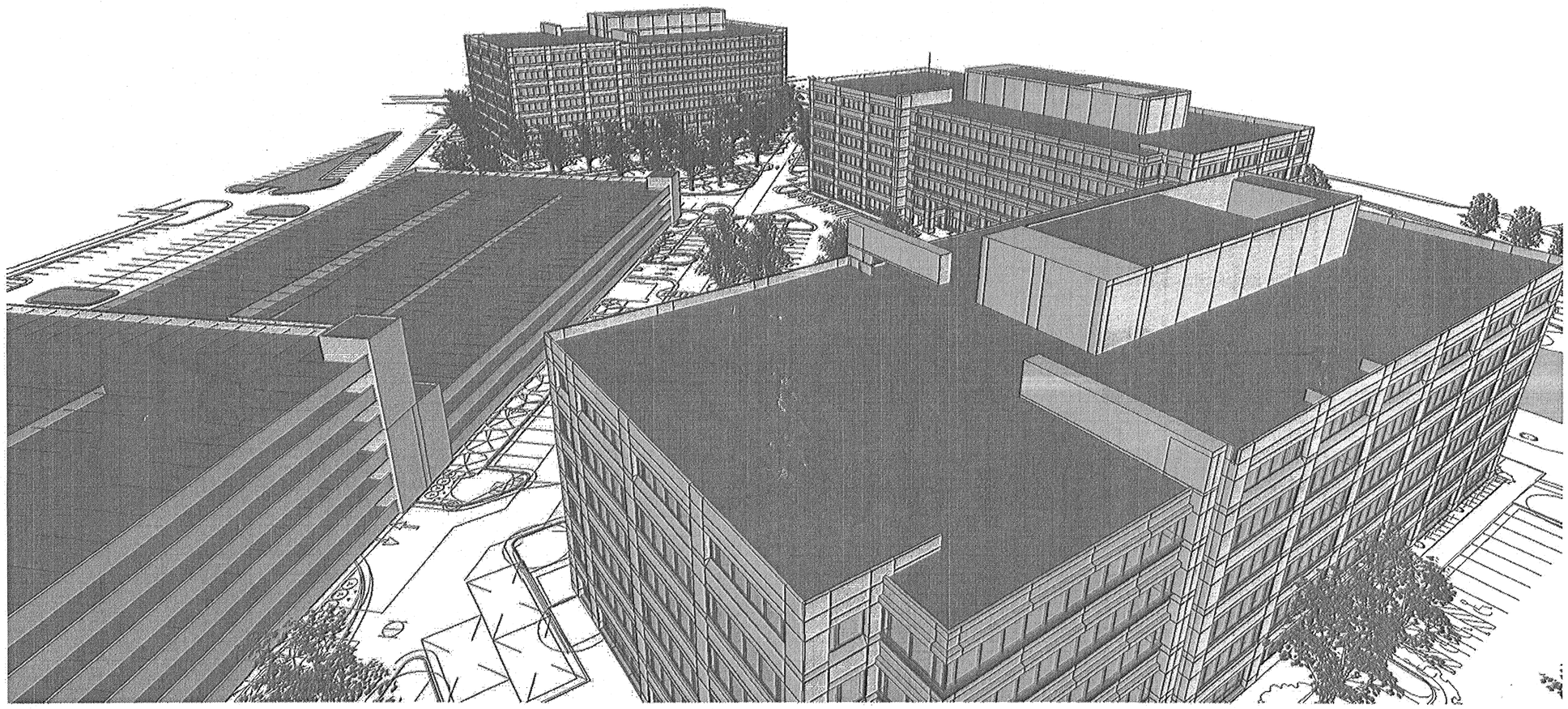
DES.	DWN.
RO	BR

SCALE: 1"=50'

PROJECT/FILE NO. 6188F

SHEET NO. 15 of 19

P:\LDD3\Projects\6188F\Planning\dwg\6188F-PLANT REMOVAL.dwg 2/1/2007 2:47:16 PM EST



DULLES EXECUTIVE PLAZA I, II & III

COMMONWEALTH OF VIRGINIA
2/2/07
ROBERT R. COCHRAN
No. 2012
LAND SURVEYOR

DCS DESIGN
DAVIS CARTER SCOTT

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (GDP) (CDP) (FDP)

See Proffers Dated 7-10-2007

Date of (BOS) (PC) Approval 9-10-2007

Sheet 16 of 19

VIKA

ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES

VIKA INCORPORATED
8180 GREENSBORO DRIVE SUITE 200 ■ McLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2797
McLEAN, VA GERMANTOWN, MD LEESBURG, VA

DULLES EXECUTIVE PLAZA

HUNTER MILL DISTRICT
FAIRFAX COUNTY VIRGINIA

BUILDING PERSPECTIVE

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006

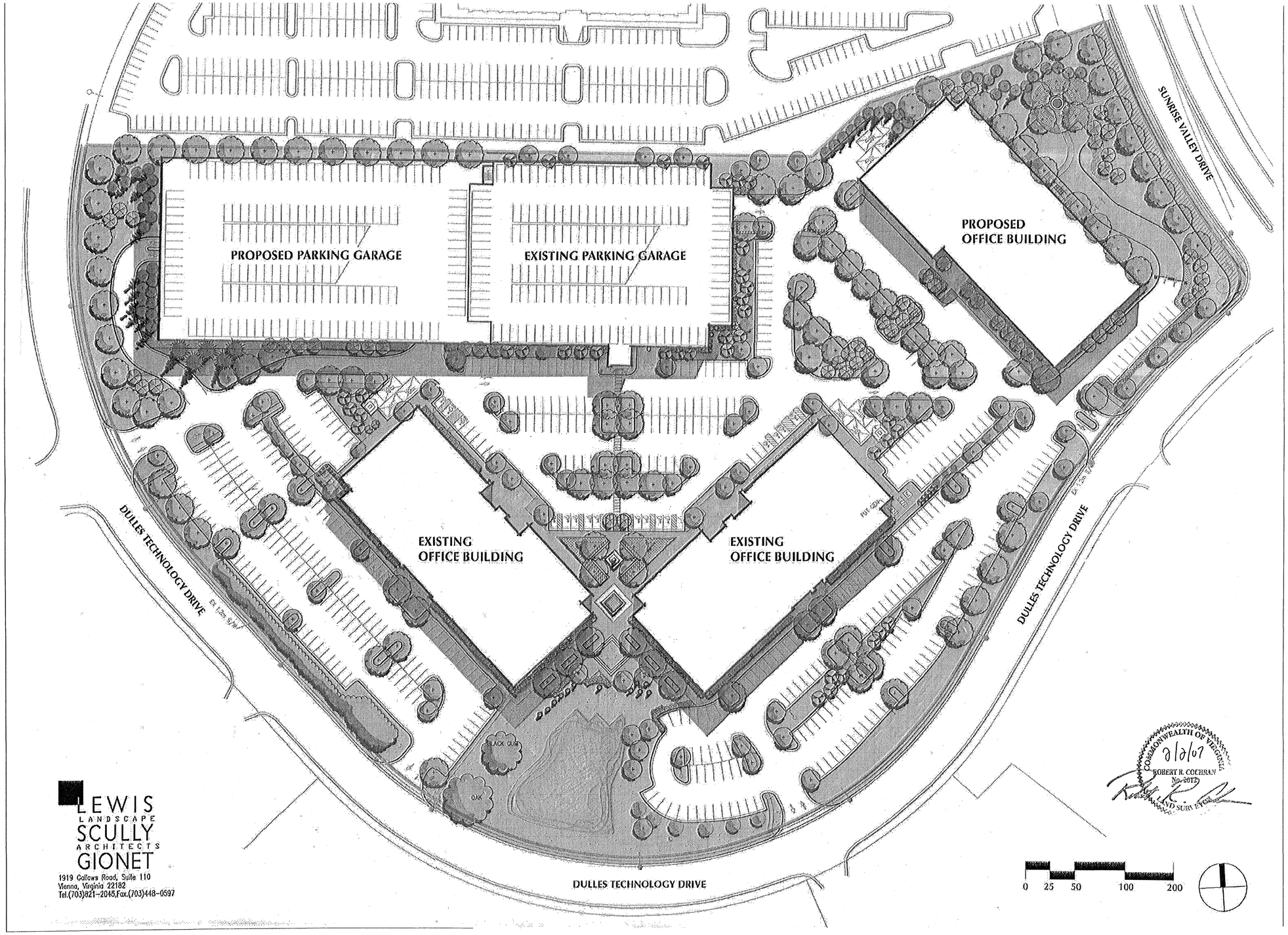
DES.	DWN.
RO	JA

SCALE:

PROJECT/FILE NO. 618BF

SHEET NO. 16 of 19

P:\LDDS\Projects\618BF\Planning\dwg\618BF-BUILDING SECTIONS.dwg 2/1/2007 2:50:32 PM EST



LEWIS LANDSCAPE ARCHITECTS
SCULLY GIONET
1919 Gallows Road, Suite 110
Vienna, Virginia 22182
Tel.(703)821-2045,Fax.(703)448-0597

COMMONWEALTH OF VIRGINIA
8/2/07
ROBERT R. COCHRAN
No. 2012
LAND SURVEYOR

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (GDP) (CDP) (FDP)
See Proffers Dated 7-10-2007
Date of (BOS) (PC) Approval 9-10-2007
Sheet 17 of 19

VIKA
ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES
VIKA INCORPORATED
8180 GREENSBORO DRIVE, SUITE 200 ■ McLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
McLEAN, VA GERMANTOWN, MD LEESBURG, VA

DULLES EXECUTIVE PLAZA

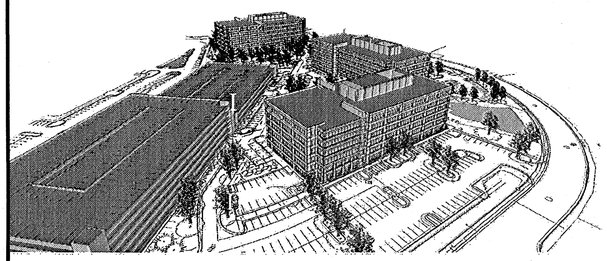
HUNTER MILL DISTRICT
FAIRFAX COUNTY VIRGINIA

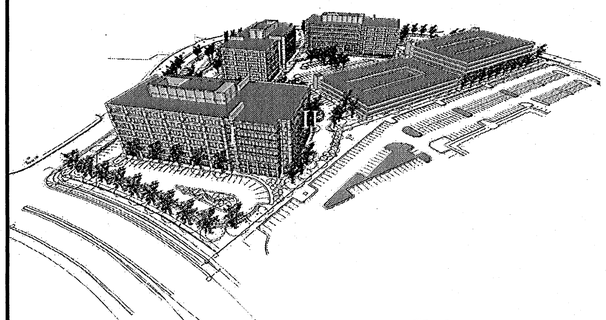
BUILDING PLAN

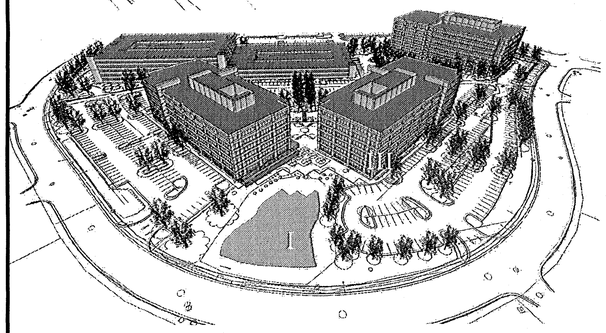
REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

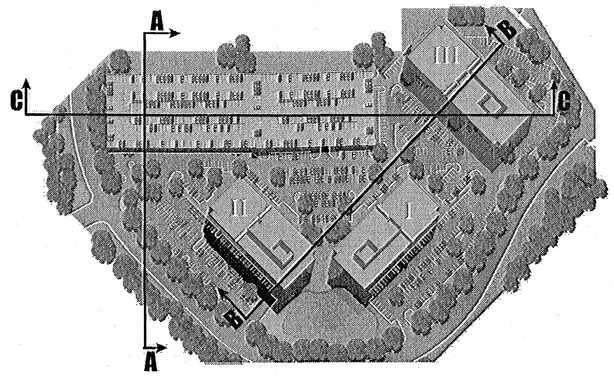
DATE: 8 MAY 2006
DES. RO
DWN. JA
SCALE:
PROJECT/FILE NO. 6188F
SHEET NO. 17 of 19

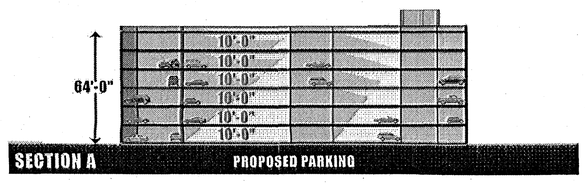
P:\LDDG\Projects\6188F\Planning\dwg\6188F-BUILDING SECTIONS.dwg 2/1/2007 2:50:53 PM EST



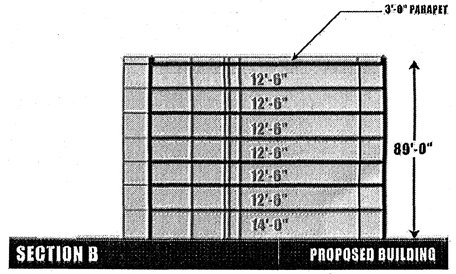




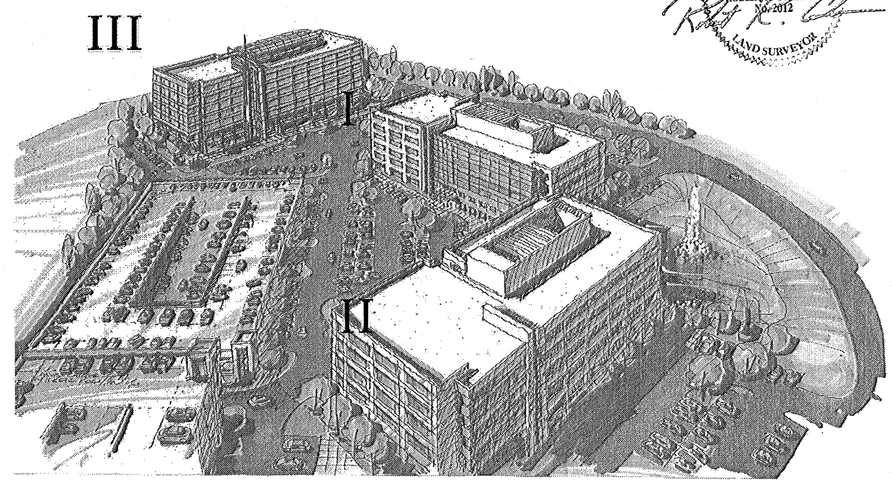


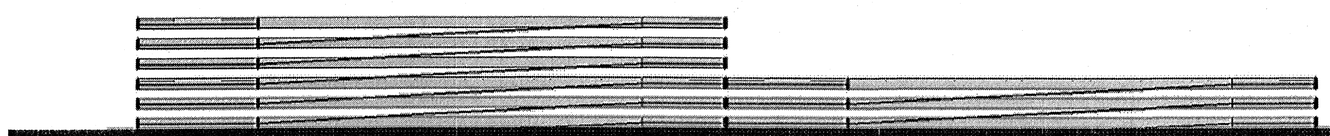


SECTION A PROPOSED PARKING

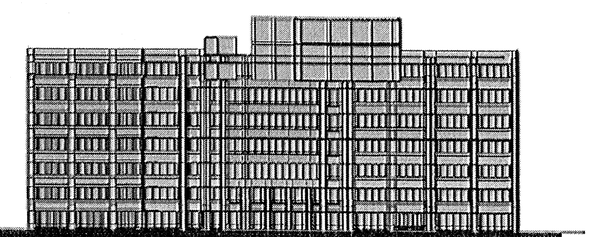


SECTION B PROPOSED BUILDING





SECTION C



DULLES EXECUTIVE PLAZA I, II & III

dcs DESIGN
DAVIS CARTER SCOTT

COMMONWEALTH OF VIRGINIA
2/2/07
ROBERT K. COLLIRAN
No. 2012
LAND SURVEYOR

VIKA
ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES
VIKA INCORPORATED
8180 GREENSBORO DRIVE, SUITE 200 ■ McLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
McLEAN, VA GERMANTOWN, MD LEESBURG, VA

DULLES EXECUTIVE PLAZA
HUNTER MILL DISTRICT
FAIRFAX COUNTY VIRGINIA

BUILDING SECTIONS

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

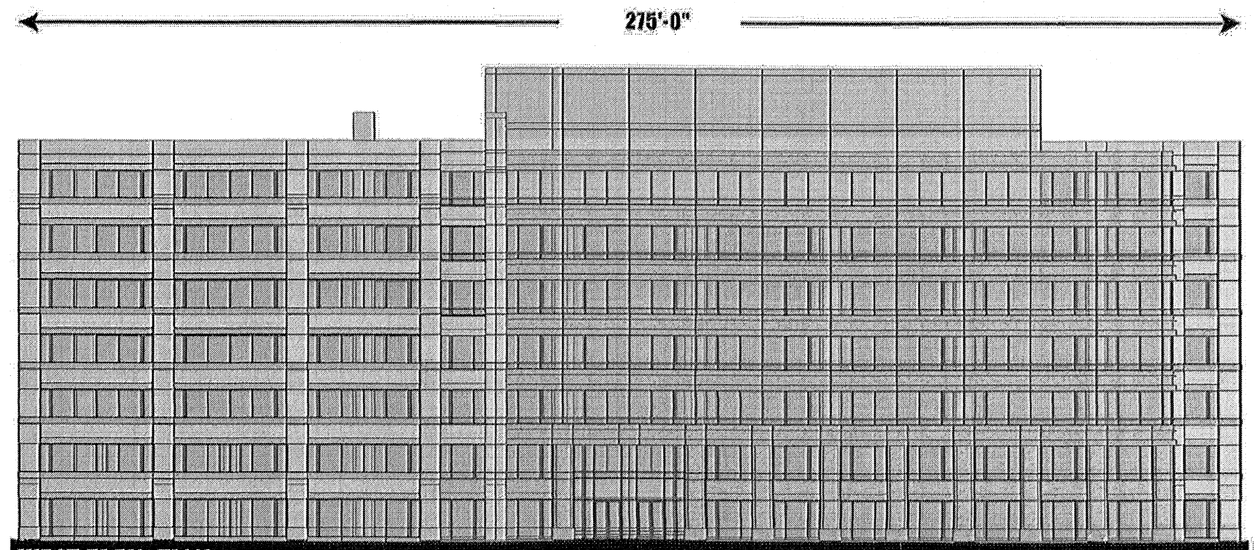
DATE: 8 MAY 2006
DES. RO
DWN. JA
SCALE:
PROJECT/FILE NO. 6188F
SHEET NO. 18 of 19

P:\L1123\Projects\6188F\Planning\dwg\6188F-BUILDING SECTIONS.dwg 2/1/2007 2:50:33 PM EST

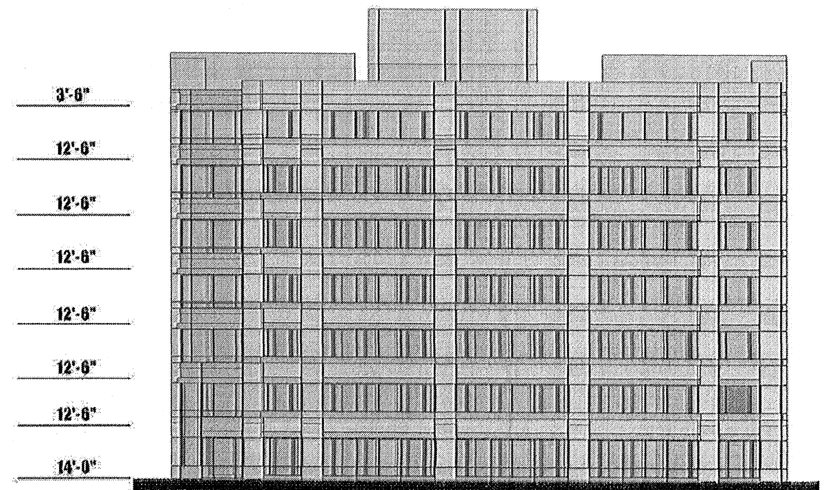
Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

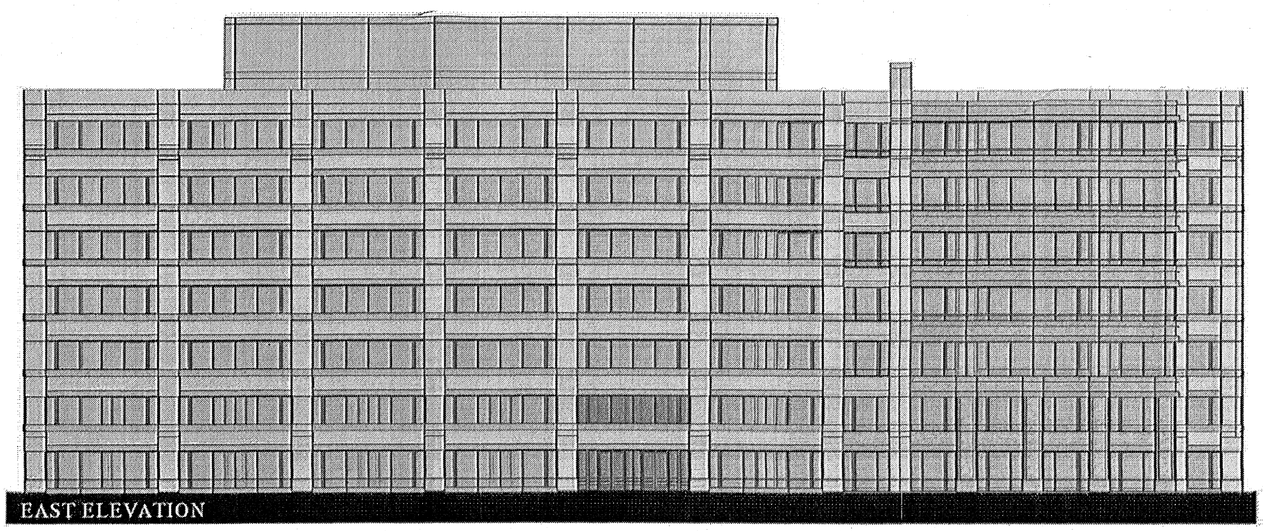
(DP) (GDP) (CDP) (FDP)
See Proffers Dated 7-10-2007
Date of (BOS) (PC) Approval 9-10-2007
Sheet 18 of 19



WEST ELEVATION



NORTH ELEVATION



EAST ELEVATION

SOUTH ELEVATION

DULLES EXECUTIVE PLAZA III

COMMONWEALTH OF VIRGINIA
8/2/07
ROBERT R. COCHRAN
No. 2012
LAND SURVEYOR

dcs DESIGN

Application No RZ-2006-HM-019 Staff JDM / K.A.

Approved Development Plan

(DP) (GDP) (CDP) (FDP)
See Proffers Dated 7-10-2007
Date of (BOS) (PC) Approval 9-10-2007
Sheet 19 of 19

VIKA

ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES

VIKA, INCORPORATED
8180 GREENSBORO DRIVE, SUITE 200 ■ MCLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
McLEAN, VA GERMANTOWN, MD LEESBURG, VA

DULLES EXECUTIVE PLAZA

HUNTER MILL DISTRICT
FAIRFAX COUNTY VIRGINIA

BUILDING ELEVATIONS

REVISIONS
6-13-06
11-22-06
01-05-07
02-02-07

DATE: 8 MAY 2006
DES. RO
DWN. JA
SCALE:
PROJECT/FILE NO. 6188F
SHEET NO. 19 of 19

P:\LDS\Projects\6188F\Planning\dwg\6188F-BUILDING SECTIONS.dwg 8/1/2007 2:50:33 PM EST