GENERALIZED DEVELOPMENT PLAN
GDP #2005-PR-020

FAIRFAX RIDGE LAND BAY C

Providence Magisterial District
Fairfax County, Virginia

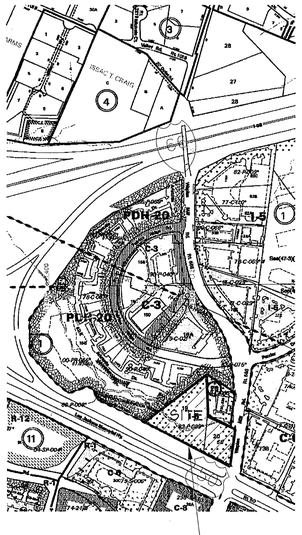
PREPARED FOR

TCR MID ATLANTIC INC.

OCTOBER 7, 2005

INDEX:

COVER	COVER SHEET
1	OVERALL CONTEXT PLAN - FAIRFAX RIDGE
2A	GENERALIZED DEVELOPMENT PLAN
2B	PEDESTRIAN CIRCULATION PLAN
3A	LANDSCAPE PLAN ENLARGEMENT
3B	GENERAL NOTES / SOILS MAP / BULK PLANE DIAGRAM
4A	ARCHITECTURAL ELEVATIONS
4B	SITE SECTION AND PERSPECTIVE
5	EXISTING VEGETATION MAP
6	BMP MAP
6A	POND ROUTINGS
6B	POND ROUTINGS
6C	HYDROGRAPHS
6D	DAM BREACH ANALYSIS
	CERTIFIED PLAT



VICINITY MAP
SCALE: 1"= 500'

REVISION

NOVEMBER 3, 2005
NOVEMBER 30, 2005

Application No. RZ 2005-PR-020 Staff L. Strunk
APPROVED DEVELOPMENT PLAN
(DP) (SDP) (CDP) (FDP)
SEE PROFFERS DATED 1-23-06
Date of (BOS) (PC) approval 1-23-06
Sheet 1 of 15

RECEIVED
Department of Planning & Zoning
DEC 01 2005
Zoning Evaluation Division

DESIGN CONCEPTS ARCHITECTS
A PROFESSIONAL CORPORATION
8618 WESTWOOD CENTER DR. • VIENNA • VIRGINIA 22182
703.281.9600 • FACSIMILE 703.281.9630

COMMONWEALTH OF VIRGINIA
KEVIN J. TANKERSLEY
LICENSE NO.
0406 000983
LANDSCAPE ARCHITECT
11/30/05

WALSH COLUCCI
LUBELEY EMRICH
& TERPAK PC

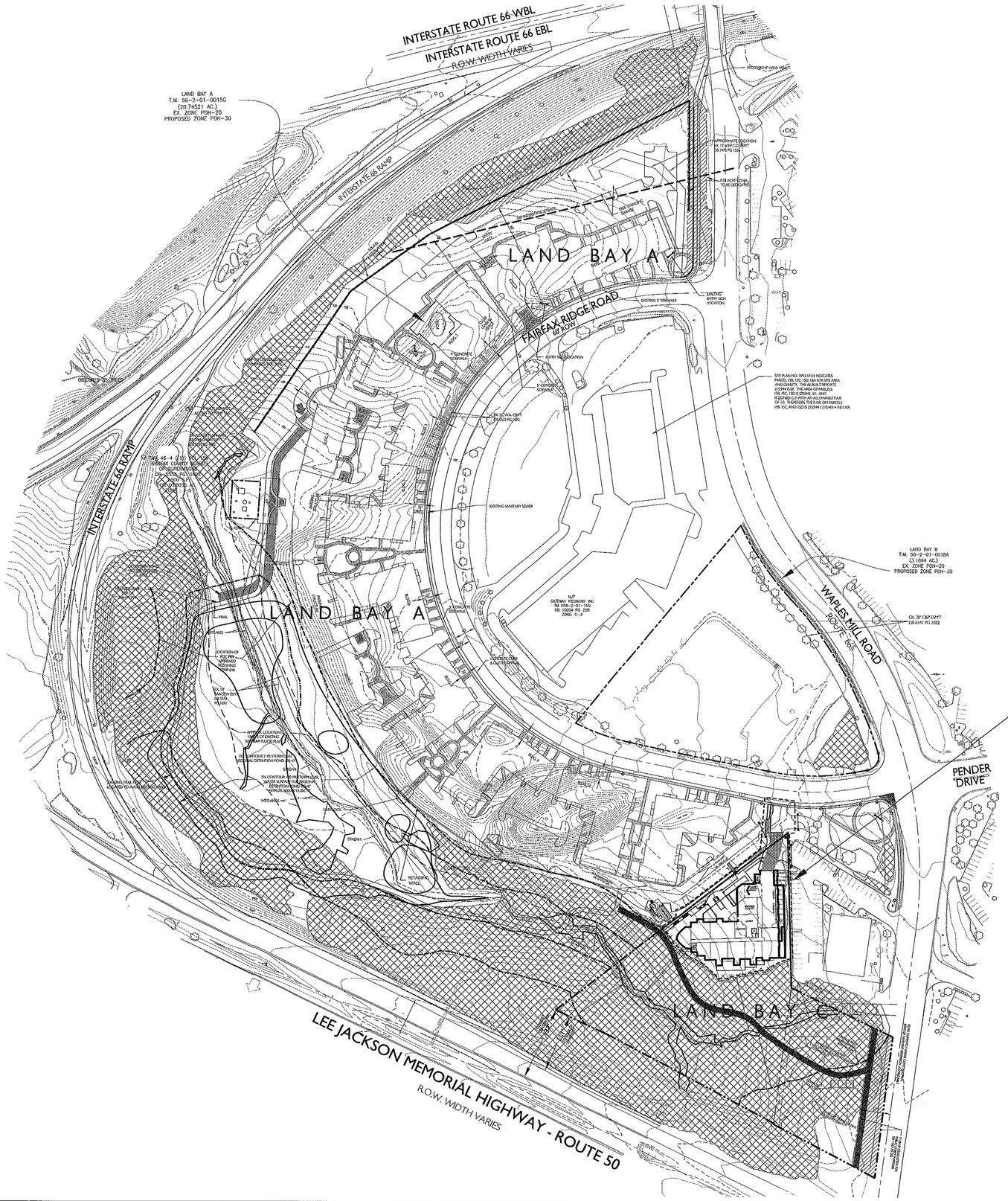
VIKA
ENGINEERS ■PLANNERS ■LANDSCAPE ARCHITECTS ■SURVEYORS ■CONSTRUCTION INSPECTORS
VIKA INCORPORATED
8180 GREENSBORO DRIVE SUITE 200 ■ McLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
McLEAN, VA GAITHERSBURG, MD

PREPARED BY:
LandDesign
200 South Peyton Street Alexandria, VA 22314
V: 703.549.7784 F: 703.549.4984
www.LandDesign.com

LDI# 2005007

SHEET NUMBER:
COVER

Nov 25, 2005 - 3:18pm
G:\2005\2005COT\cos3\branch\Phase 3 fdpcoddp-9-12-05\
COVER.PDP & SEA-C (8-30-05).dwg



LAND BAY C

Application No. RZ-2005-PR-020 Staff t. strunk

APPROVED DEVELOPMENT PLAN

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

SEE PROFFERS DATED 1-23-06

Date of BOS (PC) approval 1-23-06

Sheet 2 of 15

LEGEND

- 200' INTERSTATE SETBACK
- PROPERTY LINE
- STREAM BED
- LIMITS OF CLEARING AND GRADING
- SOUND ATTENUATION WALL
- EXISTING TREES TO REMAIN
- ROW DEDICATION
- DETENTION POND ACCESS WAY WITH GRASSPAVE 2

NORTH

50 0' 50 100 200

LandDesign®
200 South Peyton Street, Alexandria, VA 22314
V: 703.549.7784 F: 703.549.4984
www.LandDesign.com

COMMONWEALTH OF VIRGINIA
KEVIN J. TANKERSLEY
LICENSE NO. 0406 000983
LANDSCAPE ARCHITECT
11/30/05

Fairfax Ridge Land Bay C

GENERALIZED DEVELOPMENT PLAN - GDP #2005-PR-020

TCR Mid Atlantic Inc.; Providence Magisterial District, Fairfax County, Virginia

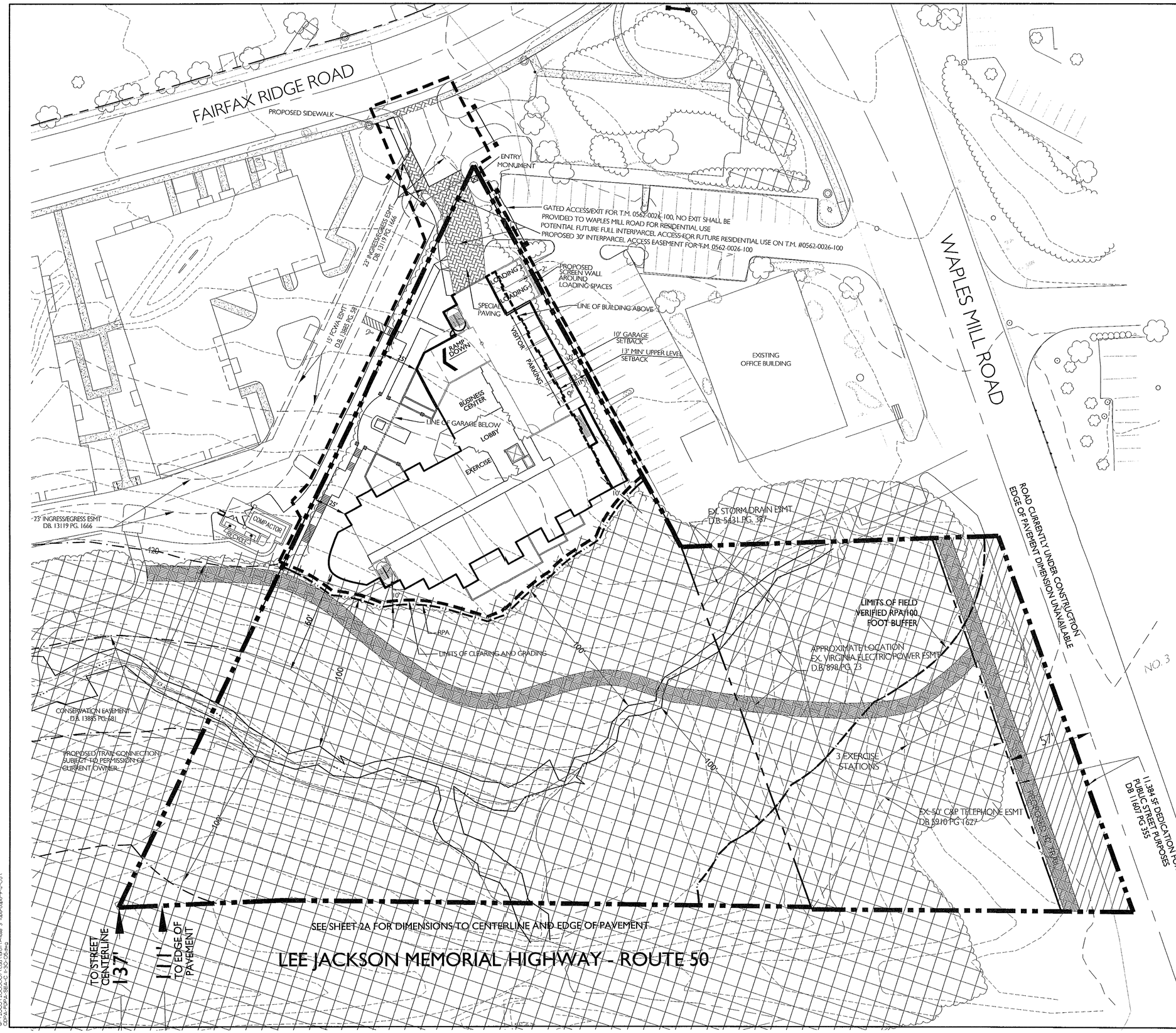
OVERALL CONTEXT PLAN - FAIRFAX RIDGE

REVISIONS:
11-3-05
11-30-05

DATE: 9-12-05
DESIGNED BY: KT
DRAWN BY: CA
CHECKED BY:
Q.C. BY:
SCALE: AS SHOWN
PROJECT #: 2005007

SHEET NUMBER:

Nov 23, 2005 - 3:30pm
J:\2005\2005007\Land Urgnl\Phase 3 rdprovisor-9-12-05\
CDP-FDP-LSBA-C (-30-05.dwg



GENERALIZED DEVELOPMENT PLAN TABULATION

SITE AREA, LAND BAY C:		
T.M. 56-2-001-19		2.67598 AC (116,566 S.F.)
T.M. 56-2-001-20	+	0.91621 AC (39,910 S.F.)
AREA TO BE REZONED TO R-16	=	3.59219 AC (156,476 S.F.)
PREVIOUSLY DEDICATED LAND* :	+	0.26134 AC (11,384 S.F.) D.B. 11607 PG. 355
SITE AREA FOR DENSITY PURPOSES	=	3.85354 AC. (167,860 S.F.)

*DENSITY CREDIT FOR THE AREA DEDICATED TO PUBLIC STREET PURPOSES WAS ESTABLISHED PER ARTICLE 2-308(4)(A)(2) OF THE ZONING ORDINANCE, AND PER D.B. 11607 PG. 355.

PROPOSED ZONING LAND BAY C: R-16 - ADU DEVELOPMENT

NOTE: PROPERTY CONTAINS 36,294 SF (23%) OF ENVIRONMENTAL FEATURES AS DEFINED BY ZONING ORDINANCE 2-308. NO ADJUSTMENT OF PERMITTED DENSITY IS REQUIRED.

PROPOSED USE: MULTI-FAMILY DWELLINGS WITH AFFORDABLE DWELLING UNITS

DENSITY CALCULATIONS:

DENSITY PERMITTED: (R-16)(3.85354 AC) = 61.7 D.U.'S
DENSITY BONUS FOR ADU'S: 61.7 x 1.17 = 72.2 UNITS PERMITTED

MAXIMUM DENSITY PERMITTED: 72 UNITS (18.6 D.U./AC.)
RESIDENTIAL UNITS PROPOSED: 63 UNITS (16.3 D.U./AC.)

MAXIMUM NUMBER OF RESIDENTIAL STORIES: 5 STORIES
MAXIMUM BUILDING HEIGHT: 50 FEET

OPEN SPACE REQUIRED: 24% (0.92 AC)
OPEN SPACE PROVIDED: 80% (2.8 +/- AC)
DEVELOPED RECREATIONAL OPEN SPACE: 0.1+/AC

PARKING SPACES REQUIRED (1.6 SP./D.U.): 101 SPACES
PARKING SPACES PROVIDED: 103 SPACES
PARKING UNDER BUILDING: 103 SPACES
LOADING SPACES REQUIRED: 2 SPACES
LOADING SPACES PROVIDED: 2 SPACES

ONSITE RECREATION FACILITIES ARE AN OUTDOOR AMENITY LANDSCAPED DECK, EXERCISE STATIONS ALONG TRAIL AND AN INDOOR EXERCISE FACILTY. A BUSINESS CENTER FACILITY IS ALSO PLANNED.

AFFORDABLE DWELLING UNIT CALCULATIONS
LAND BAY C

MULTIFAMILY - 4 STORY WITH ELEVATORS (17% BONUS)

ADJUSTED LOW END OF DENSITY RANGE: 16 X 1.17 = 18.72
ADJUSTED HIGH END OF DENSITY RANGE: 20 X 1.17 = 23.40

ADU CALCULATION:

(20.00 - 16.00) / (23.40 - 18.72) = .85 X 5 = 4.25%*

4.25% X 63 = 2.67 3 **ADU'S REQUIRED**/PROVIDED

LEGEND

- PROPERTY LINE
- STREAM BED
- LIMITS OF CLEARING AND GRADING
- LIMITS OF EQC
- EXISTING TREES TO REMAIN
- ROW DEDICATION
- WALK

Application No. RZ 2005-PR-020 Staff t.strunk
APPROVED DEVELOPMENT PLAN
(DP) (BDP) (CDP) (FDP)
SEE PROFFERS DATED 1-23-06
Date of (BOS) (PC) approval 1-23-06
Sheet 3 of 15

NORTH

15 0 15 30 60

LandDesign®
200 South Peyton Street Alexandria, VA 22314
V: 703.549.7784 F: 703.549.4984
www.LandDesign.com

COMMONWEALTH OF VIRGINIA
KEVIN J. TANKERSLEY
LICENSE NO. 0406 000983
LANDSCAPE ARCHITECT
11/30/05

Fairfax Ridge Land Bay C

GENERALIZED DEVELOPMENT PLAN - GDP #2005-PR-020

TCR Mid Atlantic Inc.; Providence Magisterial District, Fairfax County, Virginia

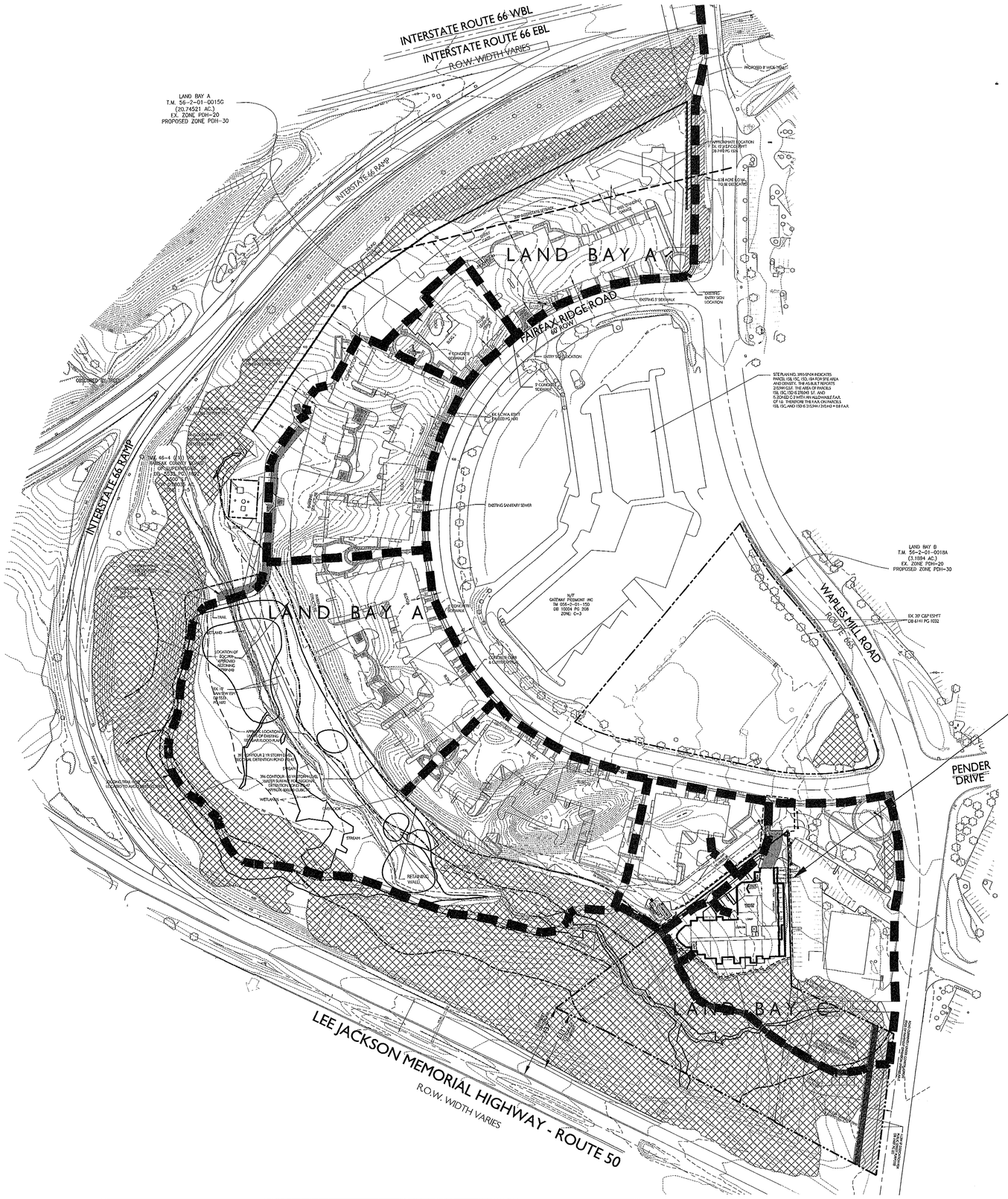
GENERALIZED DEVELOPMENT PLAN

REVISIONS:
11-3-05
11-30-05

DATE: 9/12/05
DESIGNED BY: KT
DRAWN BY: CA
LANDDESIGN QC BY:
Q.C. BY:
SCALE: AS SHOWN
PROJECT #: 2005007

SHEET NUMBER:
2A

Nov 23, 2005 - 11:45am
G:\2005\05-007\Land\Plans 3 \dpcr\dpcr-9-2-05\
GDPA-PDPA-SEA-C 1-30-05.dwg



Application No. RZ 2005-PR-020 Staff J. Strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 1-23-06
Date of (BOS) (PC) approval 1-23-06
Sheet 4 of 15

LandDesign
200 South Peyton Street Alexandria, VA 22314
V: 703.549.7784 F: 703.549.4984
www.LandDesign.com

COMMONWEALTH OF VIRGINIA
KEVIN J. TANKERSLEY
LICENSE NO. 0406 000983
LANDSCAPE ARCHITECT
11/30/05

Fairfax Ridge Land Bay C

GENERALIZED DEVELOPMENT PLAN - GDP #2005-PR-020

TCR Mid Atlantic Inc.; Providence Magisterial District, Fairfax County, Virginia

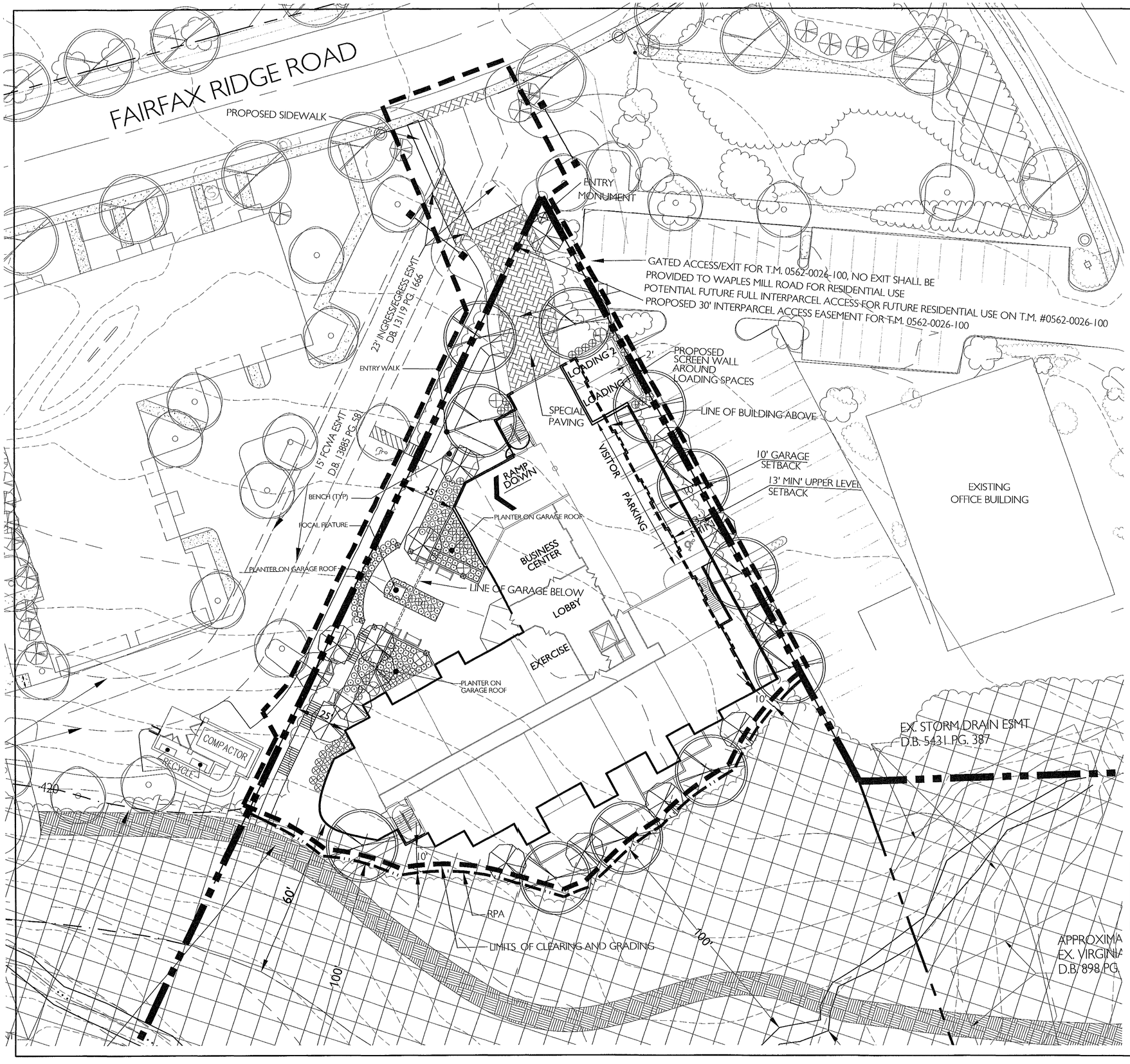
PEDESTRIAN CIRCULATION PLAN - FAIRFAX RIDGE

REVISIONS:
11-3-05
11-30-05

DATE: 9-12-05
DESIGNED BY: KT
DRAWN BY: CA
CHECKED BY:
Q.C. BY:
SCALE: AS SHOWN
PROJECT #: 2005007

SHEET NUMBER:
2B

Nov 23, 2005 - 5:24pm
G:\2005\005007\Road\Land\Phase 3 rdpr-rdsp-9-12-05\
CDP-FDP-SEA-C & 30-05.dwg



PLANT LIST

THE PLANTS SELECTED BELOW ARE REPRESENTATIVE OF THE TYPES OF PLANTS TO BE INSTALLED. ACTUAL FINAL SELECTION WILL DEPEND UPON SITE SPECIFIC OPPORTUNITIES AND CONSTRAINTS INCLUDING ASPECT, ORIENTATION, USE, SOIL CONDITIONS AND PLANTING AREAS.

SHADE/CANOPY TREES (LARGE DECIDUOUS TREES)
MINIMUM 2 ½" MIN. CALIPER
ACER RUBRUM CULTIVARS - RED MAPLE
PLANTANUS ACERIFOLIA 'BLOODGOOD' - LONDON PLANE TREE
FRAXINUS PENNSYLVANICA CULTIVARS - GREEN ASH
QUERCUS RUBRA - RED OAK
GLEDITSIA TRIACANTHOS-HONEY LOCUST
TILIA CORDATA - LITTLELEAF LINDEN

ORNAMENTAL TREES (COMPACT, SMALL & MEDIUM DECIDUOUS TREES)
MIN. 1" CALIPER
BETULA NIGRA- RIVER BIRCH
CERCIDOPHYLLUM JAPONICUM--KATSURA TREE
CORNUS KOUSA--KOUSA DOGWOOD
GINKGO BILOBA--MAIDENHAIR TREE
MAGNOLIA STELLATA--STAR MAGNOLIA
PRUNUS YEDOENSIS--YOSHINO CHERRY

EVERGREEN TREES (COMPACT AND SMALL EVERGREEN TREES)
MIN. 6'-8' HT.
ILEX ATTENUATA 'FOSTERI'--FOSTER HOLLY
ILEX 'NELLIE R. STEVENS'--NELLIE STEVENS HOLLY
JUNIPERUS CHINENSIS CULTIVARS--CHINESE JUNIPER
PICEA ABIES--NORWAY SPRUCE
THUJA OCCIDENTALIS 'EMERALD'--EMERALD ARBORVITAE

EVERGREEN TREES (LARGE)
MIN. 8'-10' HT.
MAGNOLIA GRANDIFLORA--SOUTHERN MAGNOLIA

LARGE SHRUBS
MIN. 30"-36" HT.
HIBISCUS SYRIACUS CULTIVARS--ROSE OF SHARON
ILEX CORNUTA 'BURFORD'--BURFORD HOLLY
RHODODENDRON CATAWBIENSE CULTIVARS--RHODODENDRON
FORSYTHIA X INTERMEDIA--BORDER FORSYTHIA
TAXUS CUSPIDATA 'CAPITATA'--CAPITATA YEW
TAXUS BACCATA 'STRICTA'--IRISH YEW
VIBURNUM PLICATUM 'MARIESII'--MARIESII VIBURNUM

MEDIUM SHRUBS
MIN. 18"-24" HT.
BERBERIS THUNBERGII CULTIVARS--JAPANESE BARBERRY
TAXUS X MEDIA 'DENSIFORMIS'--DENSIFORMIS YEW
ILEX GLABRA CULTIVARS--INKBERRY
ILEX CRENATA CULTIVARS-- JAPANESE HOLLY
RHODODENDRON OBTUSUM CULTIVARS--AZALEAS

SMALL SHRUBS AND GROUNDCOVERS
SIZES VARY: 4" TO 1 GALLON POTS
HEDERA HELIX--ENGLISH IVY
JUNIPERUS CONFERTA--SHORE JUNIPER
JUNIPERUS PROCUMBENS--JAPANESE GARDEN JUNIPER
JUNIPERUS HORIZONTALIS CULTIVARS--SPREADING JUNIPER
PACHYSANDRA TERMINALIS--JAPANESE SPURGE
SARCOCCA HOOKERANA--SWEET BOX
SPIREA X BUMALDA CULTIVARS--BUMALD SPIREA

EXISTING TREES TO REMAIN

Application No. 2005-PR-028 Staff L. Strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 1-23-06
Date of (BOS) (PC) approval 1-23-06
Sheet 5 of 15

TREE COVER TABULATION

FAIRFAX COUNTY TREE COVER CALCULATIONS

TREE COVER REQUIRED

GROSS SITE AREA	3.85224 A.C.	=	167,804	S.F.
ROADWAY DEDICATION		(-)	11,384	S.F.
BUILDING FOOTPRINTS		(-)	23,975	S.F.
ADJUSTED GROSS SITE AREA		(=)	132,445	S.F.
REQUIRED COVERAGE PER ZONING DISTRICT		(x)	10	%
REQUIRED COVERAGE FOR SITE		(=)	13,298	S.F.

TREE COVER PROVIDED
(FROM APPENDIX 12-9 OF PFM)

EXISTING VEGETATION PRESERVED	115,000 S.F. x 1.25		143,750	S.F.
REMAINING COVERAGE TO BE PROVIDED BY PLANTING TREES		(+)	16,550	S.F.
TOTAL COVERAGE PROVIDED			160,300	S.F.

PROPOSED TREES

TREE TYPE	QUANTITY	CALIPER	CREDIT (S.F.)	COVERAGE (S.F.)	
LARGE DECIDUOUS	15	3"	250	3,750	S.F.
MEDIUM DECIDUOUS		1"	125	0	S.F.
SMALL DECIDUOUS	11	1"	75	825	S.F.
COMPACT DECIDUOUS		1"	40	0	S.F.
LARGE EVERGREEN	5	1"	150	750	S.F.
MEDIUM EVERGREEN		1"	125	0	S.F.
SMALL EVERGREEN	75	1"	75	5,625	S.F.
COMPACT EVERGREEN	140	1"	40	5,600	S.F.
			S.F. PROVIDED	16550	

NORTH
10 0' 10 20 40

LandDesign®
200 South Peyton Street Alexandria, VA 22314
V: 703.549.7784 F: 703.549.4984
www.LandDesign.com

COMMONWEALTH OF VIRGINIA
KEVIN J. TANKERSLEY
LICENSE NO. 0406 000983
LANDSCAPE ARCHITECT
11/26/05

Fairfax Ridge Land Bay C

GENERALIZED DEVELOPMENT PLAN - GDP #2005-PR-020

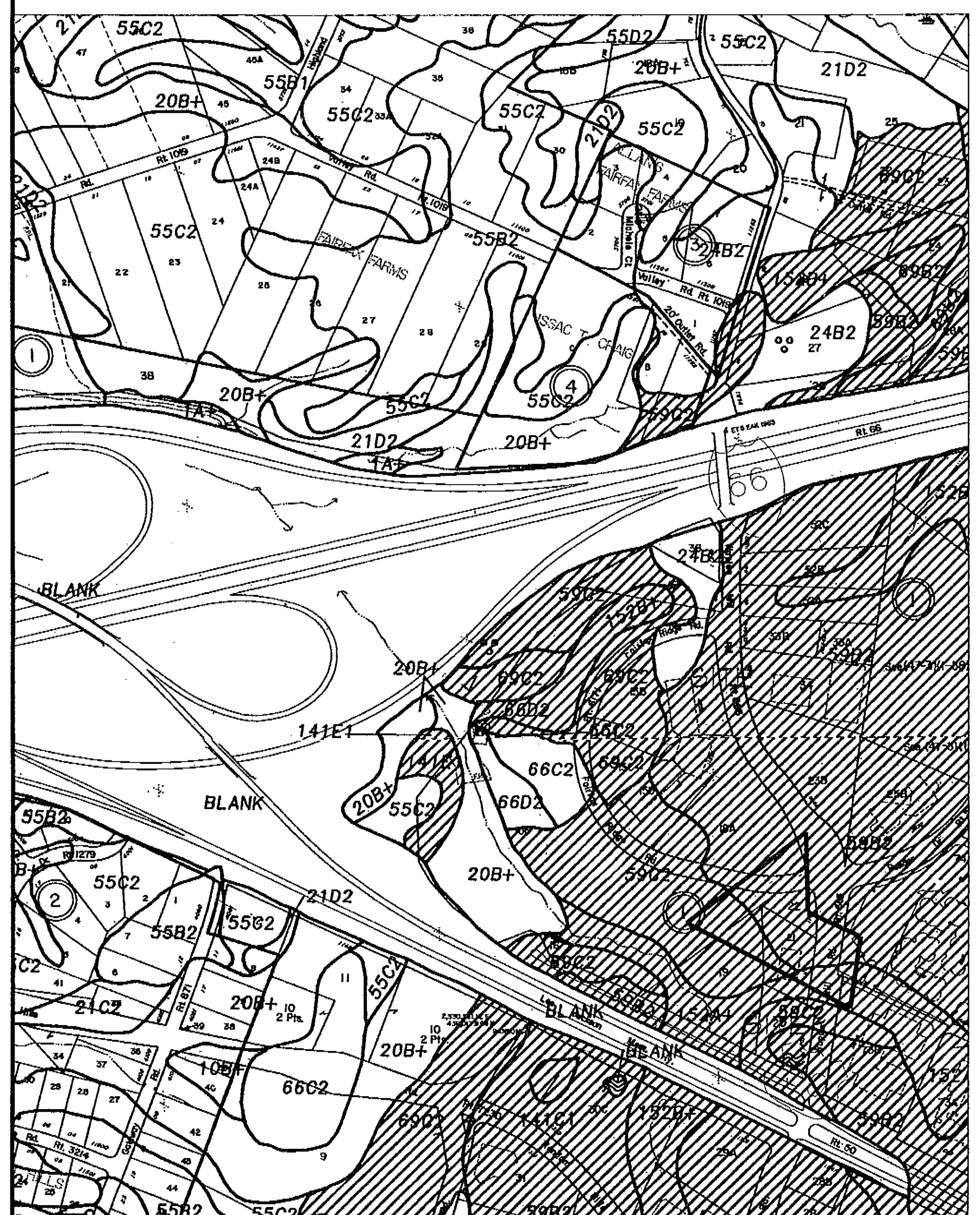
TCR Mid Atlantic Inc.; Providence Magisterial District, Fairfax County, Virginia

Landscape Plan Enlargement

REVISIONS:
11-3-05
11-30-05

DATE: 9-12-05
DESIGNED BY: KT
DRAWN BY: CA
REVIEWED BY:
Q.C. BY:
SCALE: AS SHOWN
PROJECT #: 2005007

SHEET NUMBER:
3A



SOILS MAP
Scale: 1"=500'

SOILS LEGEND

ORANGE SOILS GROUP

20B+ MEADOWVILLE SILT LOAM
24B ELIOAK SILT LOAM
52B+ ELBERT SILT LOAM, UNDULATING PHASE
55C2 GLENELG SILT LOAM, ROLLING PHASE
59B2 ORANGE SILT LOAM, UNDULATING PHASE
59C2 BREMO ORANGE SILT LOAM, ROLLING PHASE
66C2 LLOYD LOAM, ROLLING PHASE
66D2 LLOYD LOAM, HILLY LOAM
69C2 ENON SILT LOAM, ROLLING PHASE
141E1 ROCKY LAND GREENSTONE, 25%+ SLOPES WITH SLIGHT EROSION.
152B2 ELBERT ORANGE GROUP, MODERATE EROSION

ANGLE OF BULK PLANE: MULTI-FAMILY BUILDING: R-16

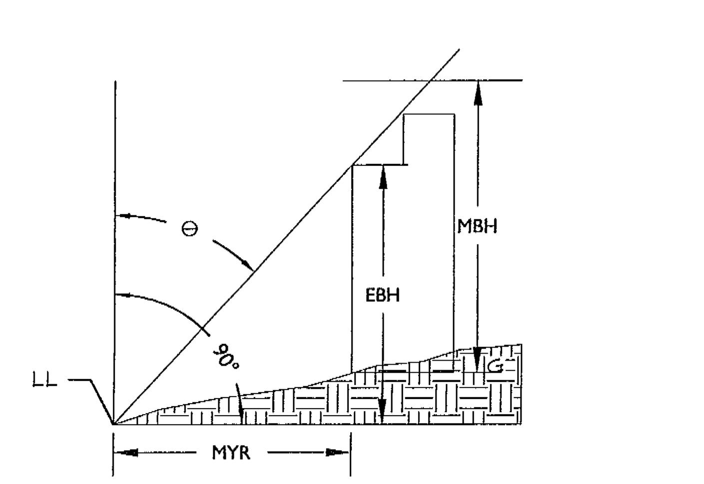
MINIMUM REQUIRED YARD FOR MULTIFAMILY BUILDINGS WITH 50' EFFECTIVE BUILDING HEIGHT AT PERIPHERAL BOUNDARIES IN A R-16 ZONE FOR AFFORDABLE DWELLING UNIT DEVELOPMENTS .

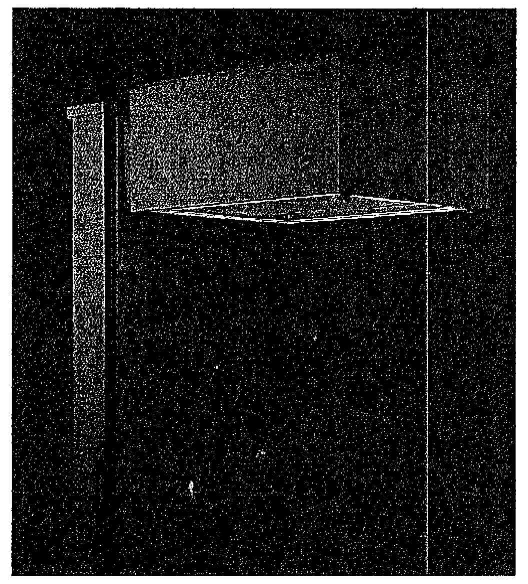
YARD		ANGLE	DISTANCE
FRONT	=	25°	23' (NOT LESS THAN 20')
SIDE	=	15°	13' (NOT LESS THAN 10')
REAR	=	25°	23' (NOT LESS THAN 25')

Θ ANGLE OF BULK PLANE
LL : LOT LINE
MYR : MINIMUM YARD REQUIREMENT
EBH : EFFECTIVE BUILDING HEIGHT
MBH : MAXIMUM BUILDING HEIGHT
G : FINISHED GRADE

MYR = EBH tan 0

EBH = $\frac{\text{MYR}}{\tan 0}$





LUMINAIRE TO BE GARDCO FORM 10 EH/H ARM MOUNT CUTOFF LUMINAIRE OR APPROVED EQUAL WITH METAL HALIDE LAMP. MOUNTED ON 4" SQUARE EXTRUDED ALUMINUM POST. POST SHALL BE GARDCO CATALOG NUMBER CA4-12 COLOR TO BE DETERMINED BY LANDSCAPE ARCHITECT. (COLOR TO BE BLACK)

MANUFACTURED BY:
GARDCO LIGHTING
2661 ALVARADO STREET
SAN LEANDRO, CA 94577
PHONE: (800) 227-0758

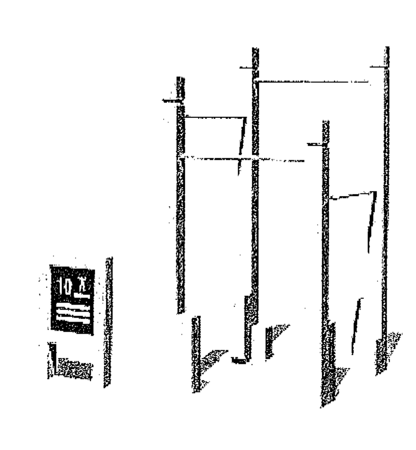
NOTE: FOR USE IN PARKING LOTS AND AREAS REQUIRING CONTROL OF LIGHT SPILL OVER.

ADDITIONAL LIGHTING NOTES

1. THE HEIGHT OF THE POLES AND FIXTURES (INCLUDING MOUNTING BASE, IF ANY SHALL NOT EXCEED THE HEIGHT OF THE BUILDINGS OR 25 FEET, WHICHEVER IS LESS.

2. ALL PARKING LOT LIGHTING SHALL CONSIST OF FULL CUT-OFF FIXTURES.

PARKING LOT/DECK LIGHT
NTS



TIMBERFORM FITNESS EQUIPMENT

MODEL: FITNESS ROUTE #5110
OR APPROVED EQUAL

COLOR: IVORY, DOUGLAS FIR

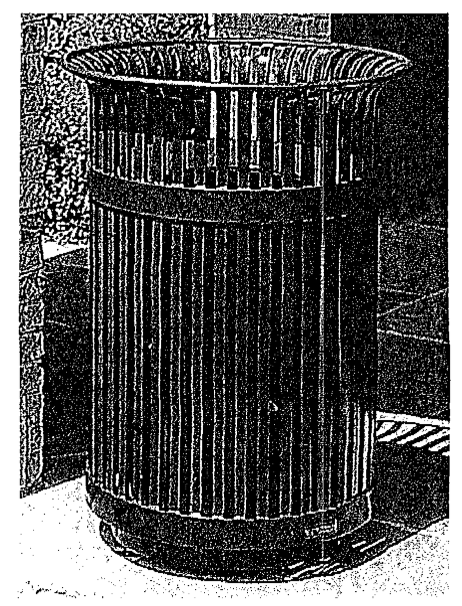
MANUFACTURER:
COLUMBIA CASCADE
1975 S.W. FIFTH AVENUE
PORTLAND, OREGON 97201-5293
USA
TEL: (503) 223-1157
FAX: (503) 223-4530

SUPPLIER:
MID-ATLANTIC PRODUCTS
3 CHURCH CIRCLE, SUITE 252
ANNAPOLIS, MARYLAND 21401
TEL: (800) 544-7529
FAX: (410) 757-9275

INSTALL PER MANUFACTURER'S INSTRUCTIONS.

NOTES:
1. OTHER EXERCISE STATION EQUIPMENT TO VARY. OTHER OPTIONS INCLUDE; SIT-UP BENCH, LEG LIFT, CHIN-UP BAR.

TYPICAL EXERCISE STATION
NTS

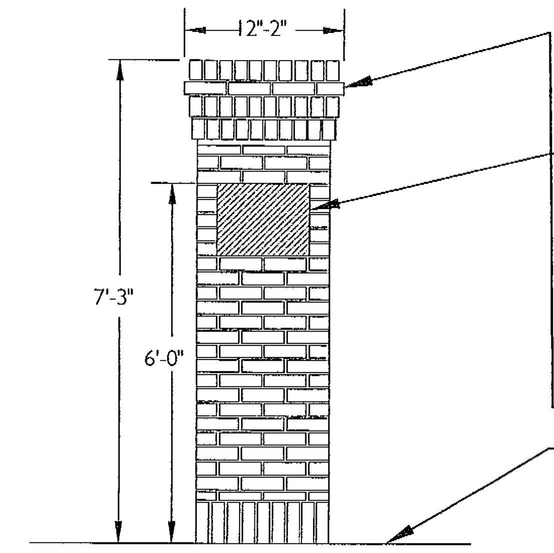


MANUFACTURER:
VICTOR STANLEY, INC.
BRICK HOUSE ROAD
DUNKIRK, MARYLAND 20754
TEL: (301)-855-8300
FAX: (410)-257-7579
TOLL FREE: (800)-368-2573

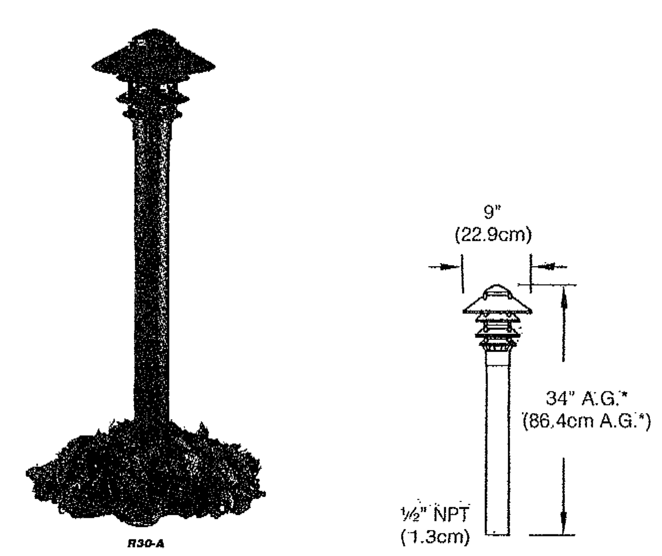
STYLE:
IRONSITES MODEL NUMBER ES-342 (36 GAL.)
OR APPROVED EQUAL
FRAME COLOR: COLOR TO BE DETERMINED BY LANDSCAPE ARCHITECT

NOTE:
RECEPTACLE TO BE MOUNTED IN GROUND PER MANUFACTURERS INSTRUCTIONS.

WASTE RECEPTACLE
NTS



ENTRY MONUMENT
NTS



PATH LIGHT TO BE:
HADCO R30-A

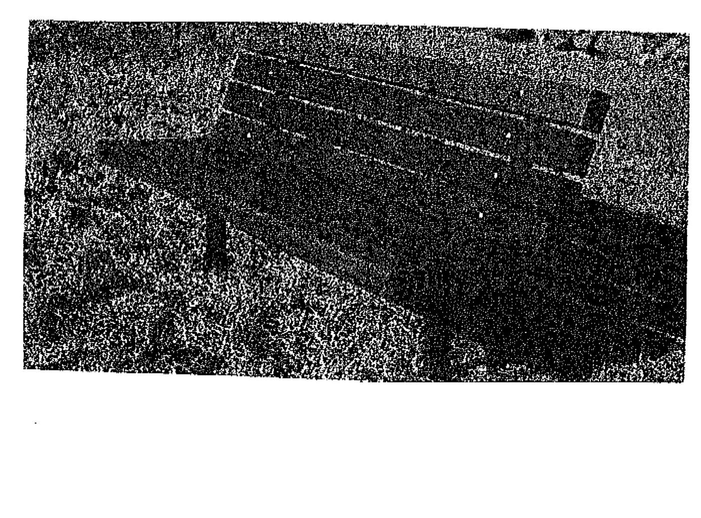
COORDINATE LOCATIONS WITH LOCATIONS SHOWN ON PLAN.

ALL JUNCTION BOXES TO BE BELOW GRADE.

PATH LIGHT
COLOR TO BE BLACK.

MANUFACTURED BY:
HADCO
P.O. BOX 128
100 CRAFTWAY
LITTLESTOWN, PA
(717) 359-7131
OR APPROVED EQUAL

SIDEWALK / PATH LIIGHT
NTS

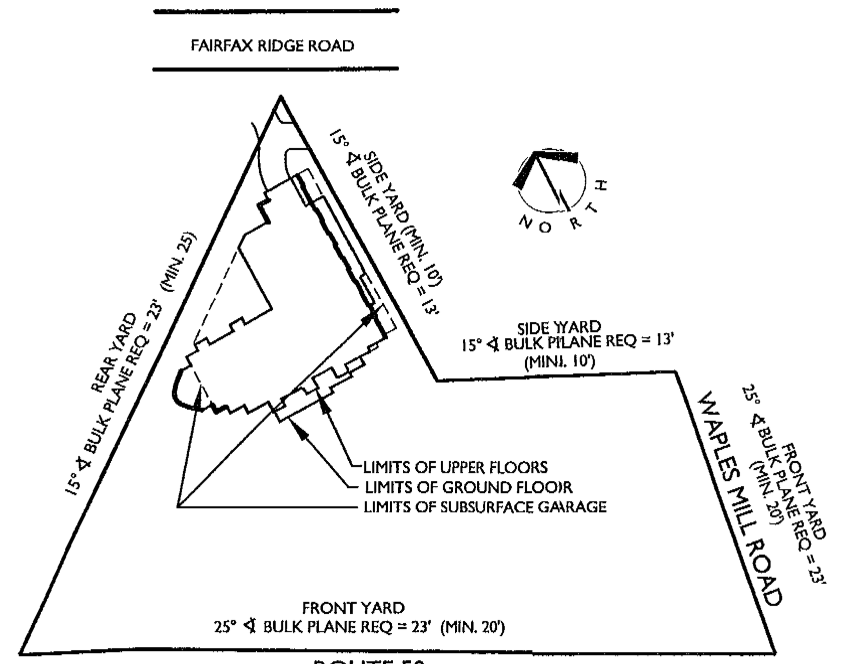


MANUFACTURER:
VICTOR STANLEY, INC.
BRICK HOUSE RD.
DUNKIRK, MD. 20754
301-855-8300
410-257-7579 FAX

STYLE:
-MODEL NUMBER 28, 3" X 4" SLATS
-CENTER POST STYLE. COLOR-BLACK
-STANDARD SURFACE MOUNT WITH TAMPER PROOF BOLTS.
-MAHOGANY NATURAL FINISH

NOTES:
1. OR APPROVED EQUAL
2. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

BENCH
NTS



MINIMUM REQUIRED YARDS DETAIL
NOT TO SCALE

R2
Application No. 2005-PR-020 Staff L. Strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 1-23-06
Date of (BOS) (PC) approval 1-23-06
Sheet 6 of 15

NOTES:

1. THE PROPERTY SHOWN HEREON IS ALL OF THE PROPERTY OWNED BY PALUMBO FAMILY L.L.C. IDENTIFIED BY TAX REFERENCE AS 56-2 ((01)) 19 AND 56-2 ((01)) 0020 WHICH IS CURRENTLY ZONED I-5.

2. THE PURPOSE OF THIS APPLICATION IS TO REZONE TAX MAP REFERENCE 56-2 ((01)) 19 AND 20 OWNED BY PALUMBO FAMILY L.L.C. FROM I-5 TO R-16 TO PERMIT MULTIFAMILY DEVELOPMENT.

3. BOUNDARY INFORMATION PREPARED BY VIKA, INC THROUGH FIELD SURVEY JANUARY, 2005. TOPOGRAPHY IS FROM AN AERIAL SURVEY AND IS AT A TWO (2) FOOT CONTOUR INTERVAL. LANDDESIGN, INC. ASSUMES NO RESPONSIBILITY FOR DESIGN OR CONSTRUCTION CHANGES CAUSED BY INACCURACIES IN THE TOPOGRAPHIC INFORMATION

4. THE BUILDING FOOTPRINT REPRESENTED HEREON IS APPROXIMATE. THE BUILDING FOOTPRINT MAY BE MODIFIED AND/OR THE NUMBER OF RESIDENTIAL UNITS MODIFIED SO LONG AS THE PERMITTED DENSITY IS NOT EXCEEDED, OPEN SPACE PROVIDED, MINIMUM DIMENSIONS TO THE PERIPHERAL LOT LINES AND LANDSCAPING AS SHOWN ON THIS PLAN ARE NOT DIMINISHED, AND IS IN SUBSTANTIAL CONFORMANCE WITH THIS APPROVED GDP. THE APPLICANT RESERVES THE RIGHT TO DEVELOP A LESSER NUMBER OF DWELLING UNITS OR SQUARE FEET THAN THAT NUMBER REPRESENTED IN THE TABULATION AND RESERVES THE RIGHT TO REDUCE THE NUMBER OF PARKING SPACES AND ADUs ACCORDINGLY.

5. AFFORDABLE DWELLING UNITS WILL BE PROVIDED IN ACCORDANCE WITH ARTICLE 2-800 OF THE ZONING ORDINANCE.

6. PARKING WILL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE 11 OF THE ZONING ORDINANCE IN EFFECT AT THE TIME OF APPROVAL OF THIS REZONING. THE NUMBER OF PARKING SPACES PROVIDED MAY BE ADJUSTED BASED ON THE ACTUAL NUMBER OF UNITS CONSTRUCTED. THE APPLICANT RESERVES THE RIGHT TO PROVIDE MORE THAN THE MINIMUM REQUIRED PROVIDED OPEN SPACE IS NOT DECREASED OR THE PARKING LOCATED CLOSER TO THE PROPERTY LINE, PROVIDED SUCH CHANGE IS IN SUBSTANTIAL CONFORMANCE WITH THIS APPROVED GDP.

7. IN ACCORDANCE WITH PARAGRAPH 5 OF SECTION 18-204 OF THE ZONING ORDINANCE, MINOR MODIFICATIONS TO THE SIZES, DIMENSIONS, FOOTPRINTS AND LOCATIONS OF BUILDINGS, SIDEWALKS, TRAILS AND UTILITIES MAY OCCUR WITH FINAL ENGINEERING AND DESIGN WITHOUT REQUIRING AN AMENDMENT TO THIS GDP, PROVIDED CHANGES ARE IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED GDP.

8. THERE ARE EXISTING FLOOD PLAIN, STORM DRAINAGE AND SANITARY SEWER EASEMENTS SHOWN ON THE GRAPHIC. THE RESOURCE PROTECTION AREA (RPA) IS SHOWN HEREON.

9. THE LIMITS OF CLEARING AND GRADING AND THE LANDSCAPED OPEN SPACE AREA REPRESENTED ON THE GRAPHIC ARE PRELIMINARY AND SUBJECT TO MODIFICATION AT THE TIME OF FINAL ENGINEERING AND DESIGN (EXCEPTING THOSE AREAS ADJACENT TO THE EXISTING RPA). LANDSCAPING AND TREE COVER CONSISTING OF A COMBINATION OF EVERGREEN AND DECIDUOUS TREES WILL BE PROVIDED IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF ARTICLE 13 AND IN CONFORMANCE WITH THIS GDP PLAT.

10. STORMWATER MANAGEMENT (SWM) WILL BE PROVIDED FOR THE SITE IN REGIONAL DRY POND #47 PREVIOUSLY CONSTRUCTED IN THE EQC AREA IN ACCORDANCE WITH THE REQUIREMENTS OF THE FAIRFAX COUNTY REGIONAL STORMWATER MANAGEMENT PLAN PREPARED BY CAMP DRESSER AND McKEE DATED NOVEMBER 1988. BEST MANAGEMENT PRACTICES (BMP'S) WILL BE PROVIDED IN ACCORDANCE WITH FAIRFAX COUNTY ORDINANCES UNLESS MODIFIED BY PROFFERED CONDITIONS AND/OR WAIVED BY THE DIRECTOR OF DPWES AS ALLOWED WITHIN THE ORDINANCE. THE REGIONAL POND #47 HAS BEEN CONSTRUCTED ON LAND BAY A PURSUANT TO THE APPROVED REGIONAL POND SITE PLAN. THE ADEQUACY OF DOWNSTREAM DRAINAGE IMPROVEMENTS AND CAPACITY OF STORM DRAINAGE PIPES THAT WILL CARRY RUNOFF FROM THE SITE HAS BEEN DEMONSTRATED WITH THE APPROVED PLANS. LANDSCAPING AND AND TREE PRESERVATION AREAS IN AND NEAR THE STORMWATER MANAGEMENT FACILITY HAVE BEEN PROVIDED.

11. THERE IS A VIRGINIA POWER EASEMENT LOCATED ON TAX MAP PARCEL 56-2 ((01)) 0020 THAT HAS A WIDTH OF MORE THAN TWENTY-FIVE FEET. EXISTING UTILITY EASEMENTS ARE SHOWN ON THIS GDP.

12. THERE ARE NO KNOWN GRAVES LOCATED ON THE SUBJECT PROPERTY.

13. THE PROPERTY IS LOCATED WITHIN LAND UNIT K WITHIN THE FAIRFAX CENTER AREA OF AREA III. THE PROPOSED DEVELOPMENT COMPLIES WITH THE APPLICABLE DEVELOPMENT CRITERIA WITHIN THE COMPREHENSIVE PLAN.

14. THE PROPOSED DEVELOPMENT ON THE SUBJECT PROPERTY WILL NOT POSE ANY ADVERSE EFFECT ON ADJACENT OR NEIGHBORING PROPERTIES.

15. ADDITIONAL SITE AMENITIES SUCH AS GAZEBOS, TRELLISES, ENTRANCE SIGNS, GATEHOUSES, FENCES AND/OR WALLS NOT REPRESENTED HEREON MAY BE PROVIDED IN ACCORDANCE WITH THE ZONING ORDINANCE, PROVIDED THEY ARE IN SUBSTANTIAL CONFORMANCE WITH THIS APPROVED GDP.

16. THE PROPOSED DEVELOPMENT INCLUDES ACTIVE AND PASSIVE RECREATION FACILITIES: AMENITY LANDSCAPED DECK WITH SEATING AREAS, AN INDOOR, OUTDOOR EXERCISE STATIONS, EXERCISE ROOM AND CONNECTION AND EXTENSION TO THE EXISTING TRAIL.

17. SUBJECT TO MARKET CONDITIONS, IT IS CURRENTLY ANTICIPATED THAT CONSTRUCTION OF THE PROPOSED DEVELOPMENT WILL COMMENCE AS SOON AS ALL NECESSARY COUNTY APPROVALS AND PERMITS ARE OBTAINED.

18. THERE ARE NO KNOWN HAZARDOUS OR TOXIC SUBSTANCES STORED ON THE SUBJECT PROPERTY. FURTHER, THE PROPOSED USE WILL NOT GENERATE, UTILIZE, STORE, TREAT OR DISPOSE OF SUCH SUBSTANCES ON THE PROPERTY.

19. THE MAXIMUM RESIDENTIAL BUILDING HEIGHT IS FIFTY FEET (50'). THE BUILDING MAY HAVE ONE LEVEL OF DWELLING UNITS WHICH WILL BE BELOW OR PARTIALLY BELOW FINISHED GRADE, OR TWO LEVELS OF PARKING WHICH WILL BE BELOW OR PARTIALLY BELOW FINISHED GRADE.

20. PUBLIC WATER AND SEWER SHALL BE PROVIDED. ALL OTHER PUBLIC UTILITIES SHALL BE PROVIDED TO THE SITE BY EXTENSION OF EXISTING SERVICE IN THE AREA. SOLID WASTE REMOVAL SHALL BE PROVIDED BY PRIVATE CONTRACTOR. DUMPSTER WILL BE LOCATED IN THE GARAGE.

21. IF AN AMENDMENT TO ANY PORTION OF THIS GDP BECOMES NECESSARY AT A LATER DATE, THE APPLICANT RESERVES THE RIGHT TO SUBMIT ONLY THAT PORTION WHICH IS AFFECTED BY THE AMENDMENT FOR PLANNING COMMISSION REVIEW AND APPROVAL.

22. TITLE REPORTS HAVE BEEN PROVIDED FOR LAND BAY C AND HAVE BEEN INCORPORATED INTO THE CERTIFIED PLAT.

23. THE DEVELOPER RESERVES THE RIGHT TO LOCATE TEMPORARY CONSTRUCTION/SALES/LEASING TRAILERS ON THE SITE.

24. THE DEVELOPER RESERVES THE RIGHT TO PROVIDE ACCESS CONTROL FEATURES FOR THE RESIDENTIAL COMPONENT WHICH MAY CONSIST OF ONE OR MORE OF THE FOLLOWING: ENTRY AND EGRESS GATES, GUARDHOUSE(S), PERIPHERAL FENCING AND PEDESTRIAN GATE(S).

25. THE PROPOSED DEVELOPMENT CONFORMS TO THE PROVISIONS OF ALL APPLICABLE ORDINANCES, REGULATIONS AND ADOPTED STANDARDS WITH THE EXCEPTION OF:
   A. WAIVER OF SERVICE DRIVE REQUIREMENT ALONG ROUTE 50.
   B. WAIVER OF ON-SITE STORMWATER MANAGEMENT FOR LAND BAY C.
   C. WAIVER OF MINIMUM DISTRICT SIZE FOR IR-16

27. THE DEVELOPMENT ON LAND BAY A PURSUANT TO THE APPROVED SITE PLAN IS SUBSTANTIALLY COMPLETE. NO DEVELOPMENT IS PROPOSED FOR LAND BAY A, EXCEPT FOR THAT SHOWN HEREON WHICH IS NECESSARY TO INTEGRATE LAND BAY'S A AND C APPROPRIATELY.

28. THE NATURAL FEATURES AND SCENIC ASSETS ON LAND BAY C, TO INCLUDE FLOODPLAINS, WETLANDS, EQC AND WATERCOURSES WILL BE PROTECTED AND PRESERVED, AND A PEDESTRIAN TRAIL PROVIDED, AS SHOWN HEREON.

29. VISITOR PARKING WILL BE PROVIDED IN THE PARKING GARAGE, AND ACCESS WILL BE PROVIDED THROUGH USE OF A CALL BOX.

30. THE APPLICANT WILL DILIGENTLY PURSUE PERMISSION TO CONNECT TO TRAIL ON THE ADJACENT LAND BAY A.

LandDesign®
200 South Peyton Street Alexandria, VA 22314
V: 703.549.7784 F: 703.549.4984
www.LandDesign.com

COMMONWEALTH OF VIRGINIA
KEVIN J. TANKERSLEY
LICENSE NO. 0406 000983
LANDSCAPE ARCHITECT
11/30/05

Fairfax Ridge Land Bay C
GENERALIZED DEVELOPMENT PLAN - GDP #2005-PR-020
TCR Mid Atlantic Inc.; Providence Magisterial District, Fairfax County, Virginia

General Notes/Soils Map/Bulk Plane Diagram

DATE: 9-12-05
DESIGNED BY: KT
DRAWN BY: CA
CHECKED BY:
Q.C. BY:
SCALE: AS NOTED
PROJECT #: 2005007

REVISIONS:
11-3-05
11-30-05

SHEET NUMBER:
3B

REAR ELEVATION
FACING ROUTE 50

TCR
TRAMMELL CROW RESIDENTIAL

FAIRFAX RIDGE LAND BAY C
FAIRFAX, VIRGINIA
10.05.2005

DESIGN CONCEPTS ARCHITECTS

FRONT ELEVATION
FACING FAIRFAX RIDGE - LAND BAY A

TCR
TRAMMELL CROW RESIDENTIAL

FAIRFAX RIDGE LAND BAY C
FAIRFAX, VIRGINIA
10.05.2005

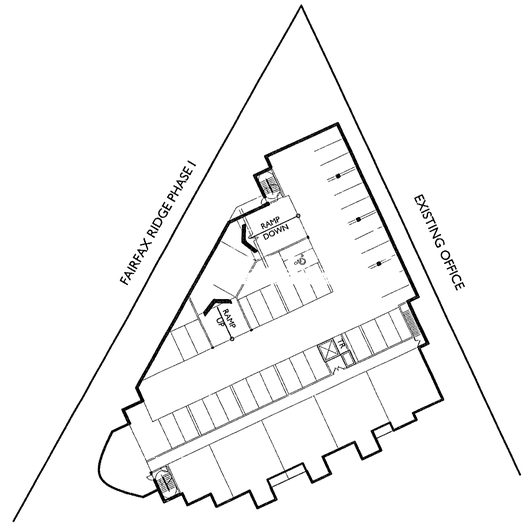
DESIGN CONCEPTS ARCHITECTS

SIDE ELEVATION
FACING EXISTING OFFICE

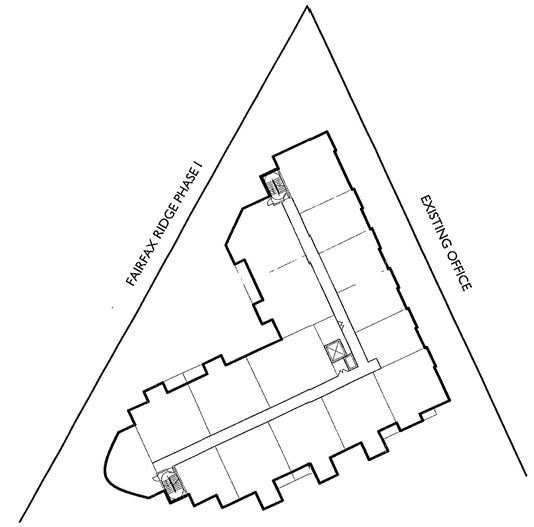
TCR
TRAMMELL CROW RESIDENTIAL

FAIRFAX RIDGE LAND BAY C
FAIRFAX, VIRGINIA
10.05.2005

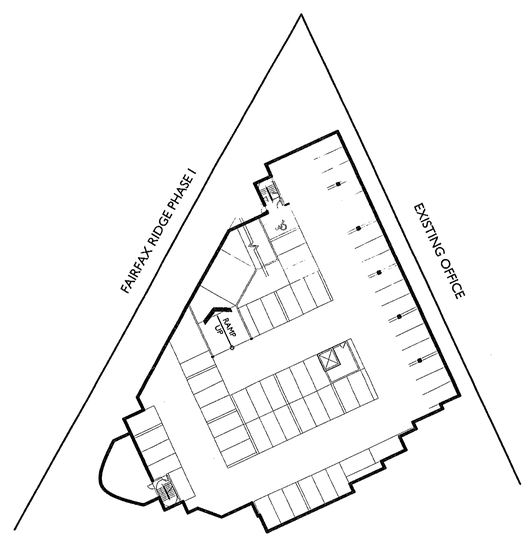
DESIGN CONCEPTS ARCHITECTS



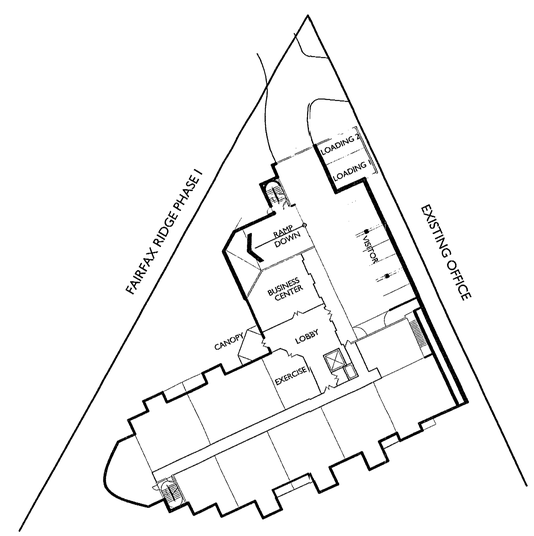
UPPER GARAGE PLAN



TYPICAL FLOOR PLAN



LOWER GARAGE PLAN



FIRST FLOOR PLAN

EXTERIOR BUILDING MATERIALS TO MATCH FAIRFAX RIDGE PHASE A

Application No. 2005-PR-020 Staff L. Strunk
APPROVED DEVELOPMENT PLAN
(OP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 1-23-06
Date of (POS) (PC) approval 1-23-06
Sheet 7 of 15

CONCEPTUAL ARCHITECTURAL FLOOR PLAN DETAILS
1' = 40'

LandDesign®
200 South Peyton Street Alexandria, VA 22314
V: 703.549.7784 F: 703.549.4984
www.LandDesign.com

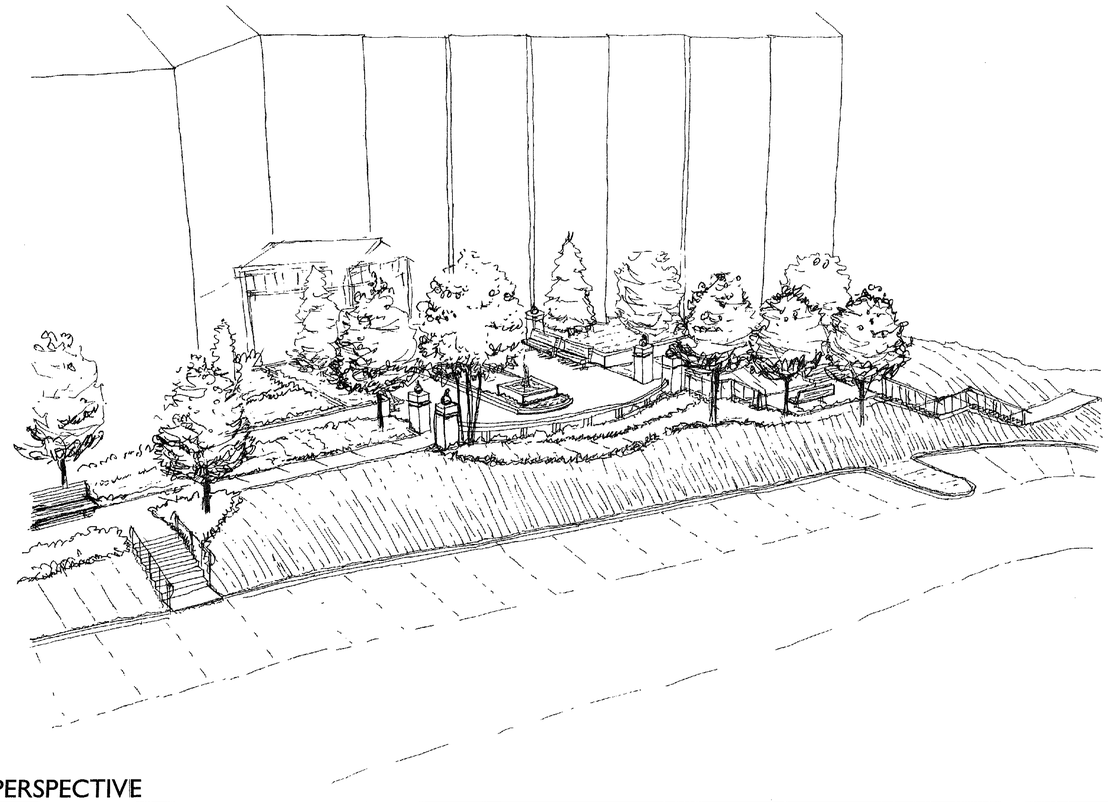
COMMONWEALTH OF VIRGINIA
KEVIN J. TANKERSLEY
LICENSE NO.
0406 000983
LANDSCAPE ARCHITECT
1/24/05

Fairfax Ridge Land Bay C
GENERALIZED DEVELOPMENT PLAN - GDP #2005-PR-020
TCR Mid Atlantic Inc.; Providence Magisterial District, Fairfax County, Virginia
ARCHITECTURAL ELEVATIONS AND DETAILS

REVISIONS:
1-3-05
1-30-05

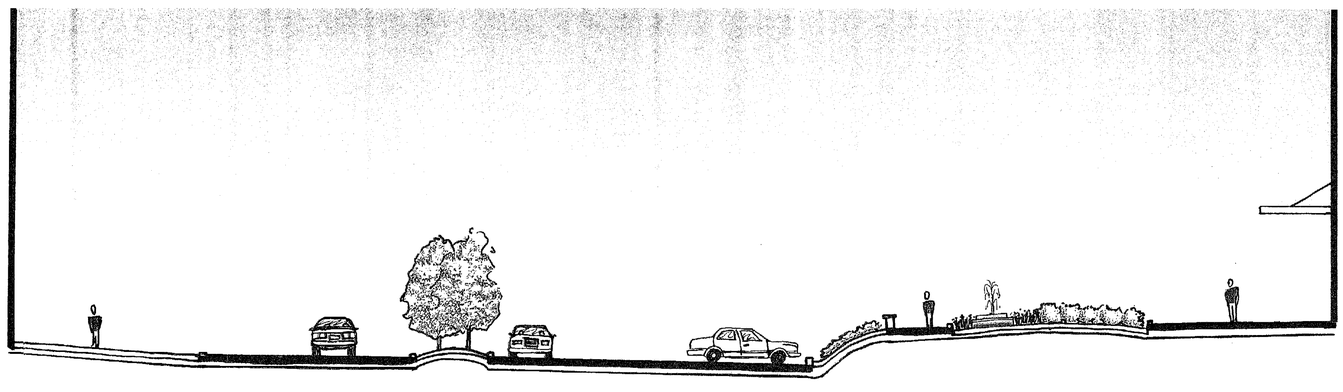
DATE: 1-2-05
DESIGNED BY: DCA
DRAWN BY: DCA
CHECKED BY:
QC BY:
SCALE: AS NOTED
PROJECT #: 2005007

SHEET NUMBER:
4A



1 / 4B PLAZA PERSPECTIVE
PERSPECTIVE

NTS



2 / 4B A-A'
SECTION

1"=10'

Application No. RZ 2005-PR020 Staff t. strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 1-23-06
Date of (BOS) (PC) approval 1-23-06
Sheet 8 of 15

LandDesign®
200 South Peyton Street, Alexandria, VA 22314
V: 703.549.7784 F: 703.549.4984
www.LandDesign.com

COMMONWEALTH OF VIRGINIA
KEVIN J. TANKERSLEY
LICENSE NO. 0406 000983
LANDSCAPE ARCHITECT
1/30/06

Fairfax Ridge Land Bay C

GENERALIZED DEVELOPMENT PLAN - GDP #2005-PR-020

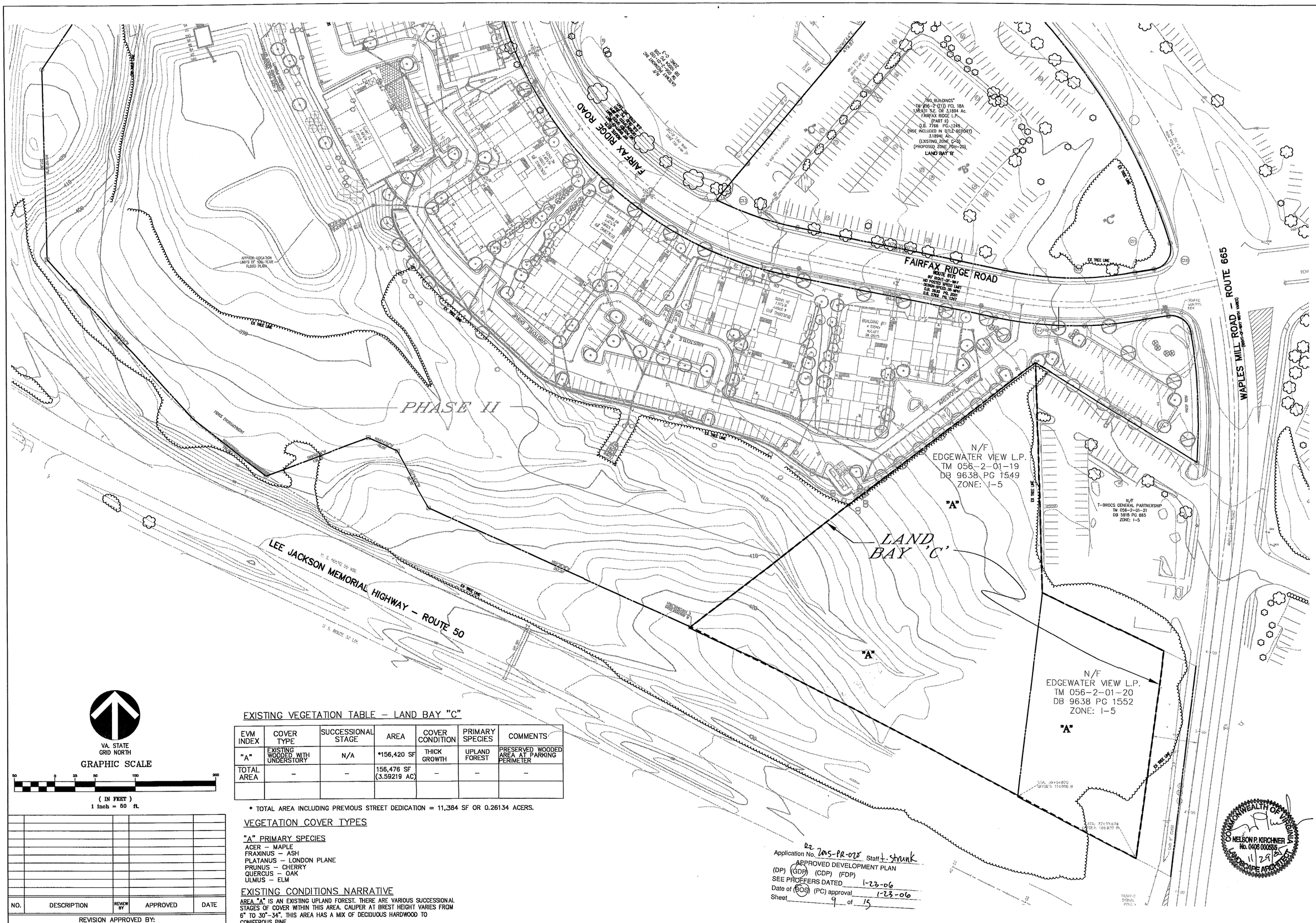
TCR Mid Atlantic Inc.; Providence Magisterial District, Fairfax County, Virginia

PERSPECTIVES AND SECTIONS

REVISIONS:
11-3-05
11-30-05

DATE: 9-12-05
DESIGNED BY: DCA
DRAWN BY: DCA
CHECKED BY:
QC BY:
SCALE: 1/16"=1'
PROJECT #: 2005007

SHEET NUMBER:
4B



EXISTING VEGETATION TABLE – LAND BAY "C"

EVM INDEX	COVER TYPE	SUCCESSIONAL STAGE	AREA	COVER CONDITION	PRIMARY SPECIES	COMMENTS
"A"	EXISTING WOODED WITH UNDERSTORY	N/A	*156,420 SF	THICK GROWTH	UPLAND FOREST	PRESERVED WOODED AREA AT PARKING PERIMETER
TOTAL AREA	–	–	156,476 SF (3.59219 AC)	–	–	–

* TOTAL AREA INCLUDING PREVIOUS STREET DEDICATION = 11,384 SF OR 0.26134 ACERS.

VEGETATION COVER TYPES

"A" PRIMARY SPECIES

ACER – MAPLE
FRAXINUS – ASH
PLATANUS – LONDON PLANE
PRUNUS – CHERRY
QUERCUS – OAK
ULMUS – ELM

EXISTING CONDITIONS NARRATIVE

AREA "A" IS AN EXISTING UPLAND FOREST. THERE ARE VARIOUS SUCCESSIONAL STAGES OF COVER WITHIN THIS AREA. CALIPER AT BREST HEIGHT VARIES FROM 6" TO 30"-34". THIS AREA HAS A MIX OF DECIDUOUS HARDWOOD TO CONIFEROUS PINE.

NO.	DESCRIPTION	REVIEW BY	APPROVED	DATE

REVISION APPROVED BY:
DIVISION OF DESIGN REVIEW

Application No. 2005-PR-025 Staff J. Strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 1-23-06
Date of (BOS) (PC) approval 1-23-06
Sheet 9 of 15

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

ALEXAN AT FAIRFAX RIDGE LAND BAY 'C'

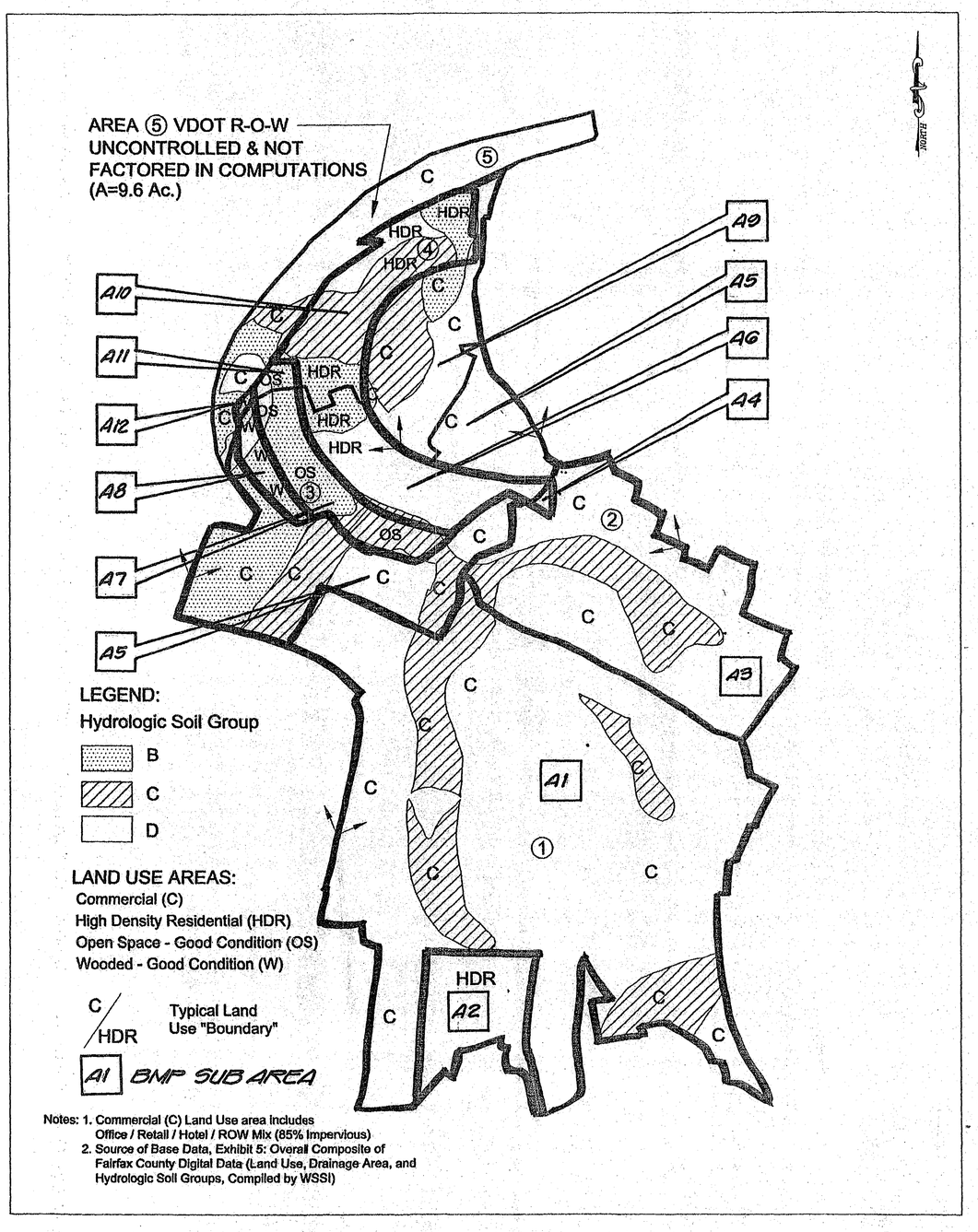
PROVIDENCE DISTRICT
FAIRFAX COUNTY, VIRGINIA

EXISTING VEGETATION MAP

VIKA REVISIONS

DATE: FEB 2005	
DES. NPK	DWN. NPK/RWS
SCALE: 1"=50'	
PROJECT/FILE NO. 6301	
SHEET NO. 5	

P:\LDEV\Proj\6301\SUBD\PHASE III\SUBDIVIS\Vikaeg 11/29/2006 4:05:54 PM EST



Notes: 1. Commercial (C) Land Use area includes Office / Retail / Hotel / ROW Mix (85% Impervious)
2. Source of Base Data, Exhibit 5: Overall Composite of Fairfax County Digital Data (Land Use, Drainage Area, and Hydrologic Soil Groups, Compiled by WSSI)

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

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

This information is required under the following Zoning Ordinance paragraphs:

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

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

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

☑ 3. Provide:

Facility Name/ Type & No.	On-site area served (acres)	Off-site area served (acres)	Drainage area (acres)	Footprint area (sf)	Storage Volume (cf)	If pond, dam height (ft)
(e.g. dry pond A, roof, swale, underground vault, etc.)						
Totals						

* Stormwater management for this project is to occur in regional pond #47.

☑ 4. Onsite drainage channels, outfalls and pipe systems are shown on Sheet L-2.
Pond inlet and outlet pipe systems are shown on Sheet L-2.

☑ 5. Maintenance access (road) to stormwater management facility(ies) are shown on Sheet L-2.
Type of maintenance access road surface noted on the plat is L-2 (asphalt, geoblock, gravel, etc.).

☑ 6. Landscaping and tree preservation shown in and near the stormwater management facility is shown on Sheet L-2.

☑ 7. A 'stormwater management narrative' which contains a description of how detention and best management practices requirements will be met is provided on Sheet 6.

☑ 8. A description of the existing conditions of each numbered site outfall extended downstream from the site to a point which is at least 100 times the site area or which has a drainage area of at least one square mile (640 acres) is provided on Sheet 6 → 6D.

☑ 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 → 6D.

☑ 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 L-2 & L-3.

☐ 11. A submission waiver is requested for N/A

☐ 12. Stormwater management is not required because N/A

RZ
Application No. 2005-PR-023 Staff t. shmuk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 1-23-06
Date of (SE) (SPA) (PC) approval 1-23-06
Sheet 10 of 15

STORMATER MANAGEMENT NARRATIVE

STORMWATER MANAGEMENT FOR THE SUBJECT PROPERTY IS PROVIDED IN REGIONAL STORMWATER MANAGEMENT POND #47.

ADEQUACY OF OUTFALL NARRATIVE

THE PROPOSED OUTFALL FOR THE SUBJECT SITE IS AN UNNAMED TRIBUTARY OF DIFFICULT RUN. THIS TRIBUTARY IS AN EXISTING STREAM WITH DEFINED BED AND BANKS AND APPEARS TO BE IN SATISFACTORY CONDITION. THIS TRIBUTARY IS LOCATED IMMEDIATELY UPSTREAM OF REGIONAL STORMWATER MANAGEMENT POND NO-47, WHICH PROVIDES BOTH BMP AND STORMWATER MANAGEMENT FOR THE SUBJECT SITE. THE ADEQUACY OF OUTFALL OF THE REGIONAL POND WAS DEMONSTRATED WITH PLAN NO. 3993-SP-006.

COMMONWEALTH OF VIRGINIA
EDMUND J. IGNACIO
No. 025670
12/10/01
PROFESSIONAL ENGINEER

THIS SHEET FOR INFORMATION ONLY

VIKA
ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES
VIKA INCORPORATED
6180 GREENSBORO DRIVE, SUITE 200 ■ McLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2787
McLEAN, VA GERMANTOWN, MD

FAIRFAX RIDGE
REGIONAL STORMWATER MANAGEMENT POND #D-47
PROVIDENCE MAGISTERIAL DISTRICT
FAIRFAX COUNTY, VIRGINIA

BMP MAP

VIKA REVISIONS

DATE: DEC., 2001	
DES. EJI	DWN. CAD
SCALE: AS SHOWN	
PROJECT/FILE NO. 6301	
SHEET NO. 19A OF 46	

6 OF 6

TR-20 ROUTINGS (PREDEVELOPED CONDITIONS)

```
*****************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****************

JOB TR-20                    FULLPRINT          SUMMARY
TITLE     FAIRFAX RIDGE REGIONAL SWM POND - EXISTING CONDITIONS
TITLE     FILE NAME: X:     \DATA \6301 \EXCONDR.DAT
 6 RUNOFF 1 001        1        0.2278        73.5       0.53
   ENDATA
 7 INCREM 6          .10
 7 COMPUT 7 001  01                3.2          1.0      2 2  01  02
   ENDCMP 1
 7 COMPUT 7 001  01                5.2          1.0      2 2  01  10
   ENDCMP 1
 7 COMPUT 7 001  01                7.3          1.0      2 2  01  00
   ENDCMP 1
   ENDJOB 2

*****************************END OF 80-80 LIST*****************************

EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .100 HOURS


EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION   1
   STARTING TIME =   .00      RAIN DEPTH =  3.20      RAIN DURATION =  1.00
   ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
   ALTERNATE NO. = 1           STORM NO. = 2           RAIN TABLE NO. = 2


OPERATION RUNOFF    XSECTION   1
        OUTPUT HYDROGRAPH = 1       AREA =    .23 SQ MI
        INPUT RUNOFF CURVE = 74.    TIME OF CONCENTRATION =    .53 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0707 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.23                        111.5                          (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =     .00 CFS)
                 1.01 WATERSHED INCHES;      148 CFS-HRS;       12.3 ACRE-FEET.


EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1

EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION   1
   STARTING TIME =   .00      RAIN DEPTH =  5.20      RAIN DURATION =  1.00
   ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
   ALTERNATE NO. = 1           STORM NO. =10           RAIN TABLE NO. = 2


OPERATION RUNOFF    XSECTION   1
        OUTPUT HYDROGRAPH = 1       AREA =    .23 SQ MI
        INPUT RUNOFF CURVE = 74.    TIME OF CONCENTRATION =    .53 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0707 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.21                        290.1                          (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =     .00 CFS)
                 2.48 WATERSHED INCHES;      365 CFS-HRS;       30.1 ACRE-FEET.


EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   2
1
```

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 3.20 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 1 STORM 2							
XSECTION 1	RUNOFF	.23	1.01	---	12.23	111	482.6
RAINFALL OF 5.20 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 10							
XSECTION 1	RUNOFF	.23	2.48	---	12.21	290	1260.9
RAINFALL OF 7.30 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 0							
XSECTION 1	RUNOFF	.23	4.25	---	12.20	509	2213.0

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 0	2	10
XSECTION 1	.23		2 YR. PREDEVELOPED FLOW	10 YR. PREDEVELOPED FLOW
ALTERNATE 1		509	111	290

TR-20 ROUTINGS (UNCONTROLLED AREA - ULTIMATE CONDITIONS)

```
*****************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****************

JOB TR-20                    FULLPRINT          SUMMARY
TITLE     FAIRFAX RIDGE REGIONAL SWM POND - UNCONTROLLED AREA
TITLE     FILE NAME: X:     \DATA \6301 \UNCONTR.DAT
 6 RUNOFF 1 001        1        0.0259        90.7       0.16
   ENDATA
 7 INCREM 6          .10
 7 COMPUT 7 001  01                3.2          1.0      2 2  01  02
   ENDCMP 1
 7 COMPUT 7 001  01                5.2          1.0      2 2  01  10
   ENDCMP 1
   ENDJOB 2

*****************************END OF 80-80 LIST*****************************

EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .100 HOURS


EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION   1
   STARTING TIME =   .00      RAIN DEPTH =  3.20      RAIN DURATION =  1.00
   ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
   ALTERNATE NO. = 1           STORM NO. = 2           RAIN TABLE NO. = 2


OPERATION RUNOFF    XSECTION   1
        OUTPUT HYDROGRAPH = 1       AREA =    .03 SQ MI
        INPUT RUNOFF CURVE = 91.    TIME OF CONCENTRATION =    .16 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0213 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      11.98                         49.5                          (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =     .00 CFS)
                 2.23 WATERSHED INCHES;       37 CFS-HRS;        3.1 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (  .100) IS GREATER THAN 50          % OF THE
              TIME OF CONCENTRATION (  .16) FOR SUBWATERSHED XSECTION   1.
              THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT  -.3          %          ***


EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1


EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION   1
   STARTING TIME =   .00      RAIN DEPTH =  5.20      RAIN DURATION =  1.00
   ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
   ALTERNATE NO. = 1           STORM NO. =10           RAIN TABLE NO. = 2
```

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

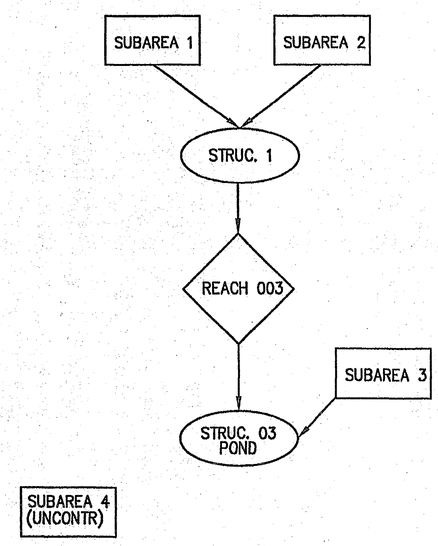
XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 3.20 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 1 STORM 2							
XSECTION 1	RUNOFF	.03	2.23	---	11.98	50	1666.7
RAINFALL OF 5.20 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 10							
XSECTION 1	RUNOFF	.03	4.14	---	11.98	89	2966.7

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 2	10
XSECTION 1	.03	2 YR. UNCONTROLLED FLOW (ULTIMATE)	10 YR. UNCONTROLLED FLOW (ULTIMATE)
ALTERNATE 1		50	89

THIS SHEET FOR INFORMATION ONLY

TR-20 SCHEMATIC



Application No. RZ 2005-PR-020 Staff t. strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 1-23-06
Date of (GDP) (PC) approval
Sheet 11 of 15

BMP ORIFICE SIZING

$Q_{AVG} = \frac{V_{WQ}}{(40\ HR)(3600\ SEC/HR)}$

$Q_{AVG} = \frac{324{,}000}{(40\ HR)(3600\ SEC/HR)}$

$Q_{AVG} =$ 2.25 CFS

$Q_{MAX} = 2*Q_{AVG} = 2*2.25 = 4.50$ CFS

FROM STAGE STORAGE CHART
324,000 CF AT ELEV. =388.00

$H_{MAX} =$ 9 FT

$Q = CA\sqrt{2GH}$ ORIFICE EQUATION

$A = \frac{Q}{C\sqrt{2GH}}$

$A = \frac{4.5}{0.6\sqrt{2*32.2*9}}$

A = 0.3115 SF

D = 0.63 FT = 7.5 INCH DIA ORIFICE

COMMONWEALTH OF VIRGINIA
EDMUND J. IGNACIO
No. 033579
PROFESSIONAL ENGINEER
8/23/02

BMP FACILITY DESIGN FORMAT

PLAN NAME: FAIRFAX RIDGE REGIONAL POND DATE: 12/9/01

PLAN NUMBER: 3993-SP-06 ENGINEER: EJI

WATER QUALITY CONTROL NARRATIVE

REGIONAL STORMWATER MANAGEMENT POND NO. D-47 IS LOCATED IN THE DIFFICULT RUN WATERSHED AND IS BEING CONSTRUCTED IN CONJUNCTION WITH THE ALEXAN AT FAIRFAX RIDGE SITE PLAN (3993-SP-05). DUE TO THE REGIONAL NATURE OF THIS FACILITY, A CONSIDERABLE AMOUNT OF OFFSITE AREA IS TO BE CONTROLLED BY THIS FACILITY.
THE EXTENDED DETENTION DRY POND HAS BEEN DESIGNED TO MEET THE 40% PHOSPHOROUS REDUCTION REQUIRED FOR SITES NOT LOCATED IN THE WATERSHED OVERLAY PROTECTION DISTRICT. THE FACILITY PROVIDES 324,000 CU. FT. OF BMP STORAGE AT ELEVATION 388.00. THE BMP ORIFICE HAS BEEN SIZED TO PROVIDE A *40* HR. DRAWDOWN PER THE PLAN PROFFERS. THE FACILITY WILL BE OWNED AND MAINTAINED BY FAIRFAX COUNTY.

WATERSHED DATA

PART 1 LIST ALL OF THE SUBAREAS AND "C" FACTORS USED IN THE BMP COMPUTATIONS

	SUBAREA DESIGNATION & DESCRIPTION	"C"	ACRES
A1	Subarea I - Commerical (Controlled)	0.81	71.10
A2	Subarea I - Residential (Controlled)	0.69	6.10
A3	Subarea II - Commerical (Controlled)	0.81	22.10
A4	Subarea II - Residential (Controlled)	0.69	0.20
A5	Subarea III - Commerical (Controlled)	0.81	17.10
A6	Subarea III - Residential (Controlled)	0.69	6.70
A7	Subarea III - Open Space - (Qualifying open space)	0.20	3.20
A8	Subarea III - Woods (Qualifying open space)	0.20	2.70
A9	Subarea IV - Commerical (Uncontrolled)	0.81	8.40
A10	Subarea IV - Residential (Uncontrolled)	0.69	7.60
A11	Subarea IV - Open Space - (Uncontrolled)	0.20	0.50
A12	Subarea IV - Woods (Uncontrolled)	0.20	0.1

PHOSPHORUS REMOVAL

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

A AREA OF SITE A 145.80 ACRES

	B SUBAREA DESIGNATION	"C"	X ACRES	=PRODUCT
A1	Subarea I - Commerical (Controlled)	0.81	71.1	57.59
A2	Subarea I - Residential (Controlled)	0.69	6.1	4.21
A3	Subarea II - Commerical (Controlled)	0.81	22.1	17.90
A4	Subarea II - Residential (Controlled)	0.69	0.2	0.14
A5	Subarea III - Commerical (Controlled)	0.81	17.1	13.85
A6	Subarea III - Residential (Controlled)	0.69	6.7	4.62
A7	Subarea III - Open Space - (Qualifying open space)	0.20	3.2	0.64
A8	Subarea III - Woods (Qualifying open space)	0.20	2.7	0.54
A9	Subarea IV - Commerical (Uncontrolled)	0.81	8.4	6.80
A10	Subarea IV - Residential (Uncontrolled)	0.69	7.6	5.24
A11	Subarea IV - Open Space - (Uncontrolled)	0.20	0.5	0.10
A12	Subarea IV - Woods (Uncontrolled)	0.20	0.1	0.02
			B TOTAL =	111.65
C	WEIGHTED AVERAGE "C" FACTOR B/A		C	0.77

PART 3 COMPUTE THE TOTAL PHOSPHORUS REMOVAL FOR THE SITE

SUBAREA DESIGNATION	BMP TYPE	REMOVAL EFF. %		AREA RATIO		"C" FACTOR RATIO		PRODUCT
A1	ENHANCED EXT. DET DRY POND	55	X	0.488	X	1.05	=	28.18
A2	ENHANCED EXT. DET DRY POND	55	X	0.042	X	0.90	=	2.08
A3	ENHANCED EXT. DET DRY POND	55	X	0.152	X	1.05	=	8.78
A4	ENHANCED EXT. DET DRY POND	55	X	0.001	X	0.90	=	0.05
A5	ENHANCED EXT. DET DRY POND	55	X	0.117	X	1.05	=	6.76
A6	ENHANCED EXT. DET DRY POND	55	X	0.046	X	0.90	=	2.28
A7	OPEN SPACE	100	X	0.022	X	1.00	=	2.19
A8	OPEN SPACE	100	X	0.019	X	1.00	=	1.85
A9	UNCONTROLLED	0	X	0.058	X	1.05	=	0.00
A10	EXT. DET DRY POND	0	X	0.052	X	0.90	=	0.00
A11	EXT. DET DRY POND	0	X	0.003	X	0.39	=	0.00
A12	EXT. DET DRY POND	0	X	0.001	X	0.39	=	0.00
A	SELECT REQUIREMENT				A	TOTAL	=	52.17

PART 4 DETERMINE COMPLIANCE WITH PHOSPHORUS REMOVAL REQUIREMENT

A SELECT REQUIREMENT A 40.0 %

WATER SUPPLY OVERLAY DISTRICT (OCCOQUAN) 50.0 %

(NEW DEVELOPMENT)
CHESAPEAKE BAY RESOURCE PRESERVATION AREA 40.0 %

(REDEVELOPMENT) %

B IF LINE 3A 47.8% > LINE 4A 40.0% , THEN PHOSPHORUS REMOVAL REQUIREMENT IS SATISFIED.

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. A= 123.3

	B SUBAREA DESIGNATION	"C"	X ACRES	= PRODUCT
A1	Subarea I - Commerical (Controlled)	0.81	71.1	57.59
A2	Subarea I - Residential (Controlled)	0.69	6.1	4.21
A3	Subarea II - Commerical (Controlled)	0.81	22.1	17.90
A4	Subarea II - Residential (Controlled)	0.69	0.2	0.14
A5	Subarea III - Commerical (Controlled)	0.81	17.1	13.85
A6	Subarea III - Residential (Controlled)	0.69	6.7	4.62
			B TOTAL =	98.31
C	WEIGHTED AVERAGE "C" FACTOR B/A = C			0.80

PART 8

A EXTENDED DETENTION
CHART A6-40 VALUE FOR BMP STORAGE PER ACRE
[(4375 X "C") - 875] OR [31.25 X % IMP.] = 3500 CF/AC

VOLUME REQUIRED= 2625 X 123.3 = 323663 CF

x: \data\6301c\bmpcomp.xls

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

FAIRFAX RIDGE
REGIONAL STORMWATER MANAGEMENT POND
#D-47
PROVIDENCE MAGISTERIAL DISTRICT
FAIRFAX COUNTY, VIRGINIA

POND ROUTINGS
(TR-20 COMPUTATIONS)
AND BMP COMPUTATIONS

VIKA REVISIONS

DATE: DEC., 2001
DES. EJI DWN. CAD
SCALE: AS SHOWN
PROJECT/FILE NO. 6301
SHEET NO. 20 OF 44

6301pond903.dwg 12-10-01 1:22:21 pm EST

6A of 6

```
*****************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

JOB TR-20                        FULLPRINT          SUMMARY
TITLE      FAIRFAX RIDGE REGIONAL SWM POND - PROPOSED CONDITIONS
TITLE      FILE NAME: X:\DATA\6301\PROP4.DAT
 2 XSECTN   003              1.
 8                           394.0      0.0        0.0
 8                           396.0      249.9      56.0
 8                           398.0      1419.9     212.0
 8                           400.0      4258.3     448.0
 8                           402.0      8836.8     724.0
 8                           404.0      14571.8    1037.0
 8                           406.0      22086.4    1393.0
 8                           408.0      31715.3    1783.0
 8                           410.0      42558.8    2026.0
 9 ENDTBL
 3 STRUCT       01           425.0      0.0        0.0
 9 ENDTBL
 3 STRUCT       03
 8                           378.00     0.0        0.000
 8                           379.00     1.070      0.328
 8                           380.00     1.660      0.637
 8                           382.00     2.450      2.117
 8                           384.00     3.040      3.984
 8                           386.00     3.530      6.216
 8                           387.00     3.750      7.540
 8                           388.00     6.050      8.877
 8                           390.00     8.350      12.24
 8                           391.00     9.200      14.50
 8                           392.70     11.24      18.57
 8                           393.00     21.00      19.72
 8                           393.50     55.610     21.20
 8                           394.00     103.55     22.66
 8                           394.60     174.68     24.46
 8                           395.00     284.20     26.26
 8                           396.00     745.46     29.85
 8                           397.00     937.37     34.08
 8                           398.00     968.11     38.30
 8                           399.00     997.97     43.11
 9 ENDTBL
 6 RUNOFF 1     01        1 0.1206      94.6       0.32
 6 RUNOFF 1     01        2 0.0348      94.7       0.25
 6 ADDHYD 4     01 1 2 5
 6 REACH  3 003    5      6 1250.
 6 RUNOFF 1     03        3 0.0464      87.3       0.17
 6 ADDHYD 4     03 3 6 7                                     1 1  1 1 1
 6 RESVOR 2     03 7      5 378.00                           1 1  1 1 1
   ENDATA
 7 INCREM 6                 0.10
 7 COMPUT 7     01     03               2.7        1.        2 2  01  01
   ENDCMP 1
 7 COMPUT 7     01     03               3.2        1.        2 2  01  02
1
```

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

RAINFALL OF 2.70 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.
RAINTABLE NUMBER 2, ARC 2
MAIN TIME INCREMENT .100 HOURS

ALTERNATE 1 STORM 1

XSECTION/ STRUCTURE ID		STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
STRUCTURE	1	RUNOFF	.12	2.12	---	12.07	169	1408.3
STRUCTURE	1	RUNOFF	.03	2.13	---	12.03	55	1833.3
STRUCTURE	1	ADDHYD	.16	2.12	---	12.06	222	1387.5
XSECTION	3	REACH	.16	2.12	395.74	12.17	217	1356.3
STRUCTURE	3	RUNOFF	.05	1.50	---	11.99	60	1200.0
STRUCTURE	3	ADDHYD	.20	1.98	394.86	12.14	246	1230.0
STRUCTURE	3	RESVOR	.20	1.56	390.91	15.60F	9F	45.0

RAINFALL OF 3.20 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 2

XSECTION/ STRUCTURE ID		STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
STRUCTURE	1	RUNOFF	.12	2.60	---	12.07	207	1725.0
STRUCTURE	1	RUNOFF	.03	2.61	---	12.03	66	2200.0
STRUCTURE	1	ADDHYD	.16	2.60	---	12.06	271	1693.8
XSECTION	3	REACH	.16	2.60	396.03	12.17	267	1668.8
STRUCTURE	3	RUNOFF	.05	1.94	---	11.99	77	1540.0
STRUCTURE	3	ADDHYD	.20	2.45	395.04	12.13	304	1520.0
STRUCTURE	3	RESVOR	.20	1.91	392.45	15.60F	11F	55.0

RAINFALL OF 5.20 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 10

XSECTION/ STRUCTURE ID		STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
STRUCTURE	1	RUNOFF	.12	4.57	---	12.07	353	2941.7
STRUCTURE	1	RUNOFF	.03	4.58	---	12.03	113	3766.7
STRUCTURE	1	ADDHYD	.16	4.57	---	12.06	461	2881.3
XSECTION	3	REACH	.16	4.57	396.36	12.16	460	2875.0
STRUCTURE	3	RUNOFF	.05	3.78	---	11.99	148	2960.0

1
TR20 -- SCS -

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

ALTERNATE 1 STORM 10

XSECTION/ STRUCTURE ID		STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
STRUCTURE	3	ADDHYD	.20	4.39	395.54	12.12	534	2670.0
STRUCTURE	3	RESVOR	.20	3.74	394.66	12.45	192	960.0

```
1
TR20 ------------------------------------------------------------ SCS -
            FAIRFAX RIDGE REGIONAL SWM POND - PROPOSED CONDITIONS      VERSION
07/24/**           FILE NAME: X:\DATA\6301\PROP4.DAT                   2.04TEST
10:55:48                  SUMMARY, JOB NO.   1                         PAGE 17
```

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

BASEFLOW IS .0 CFS

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	INFLOW PEAK (CFS)	INFLOW TIME (HR)	OUTFLOW PEAK (CFS)	OUTFLOW TIME (HR)	Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
ALTERNATE 1 STORM 1											
3	1250		216	12.1	215	12.2	1.31	1.31	.038	.993	.90?
ALTERNATE 1 STORM 2											
3	1250		264	12.1	262	12.2	1.31	1.31	.036	.995	.92?
ALTERNATE 1 STORM 10											
3	1250		449	12.1	448	12.2	1.31	1.31	.029	.999	.98?

```
1
TR20 ------------------------------------------------------------ SCS -
            FAIRFAX RIDGE REGIONAL SWM POND - PROPOSED CONDITIONS      VERSION
07/24/**           FILE NAME: X:\DATA\6301\PROP4.DAT                   2.04TEST
10:55:48                  SUMMARY, JOB NO.   1                         PAGE 18
```

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS.......... 1	2	10
STRUCTURE 3	.20			
ALTERNATE 1		9	11	192
STRUCTURE 1	.16			
ALTERNATE 1		222	271	461
XSECTION 3	.16			
ALTERNATE 1		217	267	460

1 YEAR ROUTED FLOW (9) — 2 YEAR ROUTED FLOW (11) — 10 YEAR ROUTED FLOW (192)

```
*****************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****************

JOB TR-20                        FULLPRINT          SUMMARY
TITLE      FAIRFAX RIDGE REGIONAL SWM POND - PROPOSED CONDITIONS - SDF & FBH
TITLE      FILE NAME: X:\DATA\6301\PROPSDF.DAT
 2 XSECTN   003              1.
 8                           394.0      0.0        0.0
 8                           396.0      249.9      56.0
 8                           398.0      1419.9     212.0
 8                           400.0      4258.3     448.0
 8                           402.0      8836.8     724.0
 8                           404.0      14571.8    1037.0
 8                           406.0      22086.4    1393.0
 8                           408.0      31715.3    1783.0
 8                           410.0      42558.8    2026.0
 9 ENDTBL
 3 STRUCT       01           425.0      0.0        0.0
 9 ENDTBL
 3 STRUCT       03
 8                           392.70     0.00       0.00
 8                           393.00     10.19      0.93
 8                           394.00     91.90      4.37
 8                           394.60     162.38     6.38
 8                           395.00     271.16     7.79
 8                           396.00     731.14     11.54
 8                           397.00     1235.07    15.61
 8                           398.00     1270.88    19.99
 8                           399.00     1305.71    24.68
 8                           400.00     1339.63    29.60
 9 ENDTBL
 6 RUNOFF 1     01        1 0.1206      94.6       0.32      1        1
 6 RUNOFF 1     01        2 0.0348      94.7       0.25      1        1
 6 ADDHYD 4     01 1 2 5                                     1        1
 6 REACH  3 003    5      6 1250.                            1        1
 6 RUNOFF 1     03        3 0.0464      87.3       0.17      1 1  1 1 1
 6 ADDHYD 4     03 3 6 7                                     1 1  1 1 1
 6 RESVOR 2     03 7      5 392.70                           1 1  1 1 1
   ENDATA
 7 INCREM 6                 0.10
 7 COMPUT 7     01     03               7.2        1.        2 2  01  10
   ENDCMP 1
 7 COMPUT 7     01     03               10.95      1.        2 2  01  15
   ENDCMP 1
 7 COMPUT 7     01     03               18.25      1.        2 2  01  25
   ENDCMP 1
   ENDJOB 2

*******************************END OF 80-80 LIST********************************
```

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

RAINFALL OF 7.20 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.
RAINTABLE NUMBER 2, ARC 2
MAIN TIME INCREMENT .100 HOURS

ALTERNATE 1 STORM 10

XSECTION/ STRUCTURE ID		STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
STRUCTURE	1	RUNOFF	.12	6.55	---	12.07	494	4116.7
STRUCTURE	1	RUNOFF	.03	6.56	---	12.02	159	5300.0
STRUCTURE	1	ADDHYD	.16	6.55	---	12.06	646	4037.5
XSECTION	3	REACH	.16	6.55	396.68	12.06	646	4037.5
STRUCTURE	3	RUNOFF	.05	5.70	---	11.99	217	4340.0
STRUCTURE	3	ADDHYD	.20	6.36	396.22	12.03	844	4220.0
STRUCTURE	3	RESVOR	.20	6.37	395.99	12.13	726	3630.0

RAINFALL OF 10.95 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 15

XSECTION/ STRUCTURE ID		STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
STRUCTURE	1	RUNOFF	.12	10.28	---	12.07	760	6333.3
STRUCTURE	1	RUNOFF	.03	10.30	---	12.02	245	8166.7
STRUCTURE	1	ADDHYD	.16	10.29	---	12.06	994	6212.5
XSECTION	3	REACH	.16	10.29	397.27	12.06	994	6212.5
STRUCTURE	3	RUNOFF	.05	9.37	---	11.98	348	6960.0
STRUCTURE	3	ADDHYD	.20	10.08	399.22	12.03	1313	6565.0
STRUCTURE	3	RESVOR	.20	10.07	396.83	12.12	1147	5735.0

RAINFALL OF 18.25 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 25

XSECTION/ STRUCTURE ID		STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
STRUCTURE	1	RUNOFF	.12	17.56	---	12.07	1274	10616.7
STRUCTURE	1	RUNOFF	.03	17.58	---	12.02	410	13666.7
STRUCTURE	1	ADDHYD	.16	17.56	---	12.05	1667	10418.8
XSECTION	3	REACH	.16	17.56	398.17	12.05	1667	10418.8
STRUCTURE	3	RUNOFF	.05	16.60	---	11.98	596	11920.0

```
1
TR20 ------------------------------------------------------------ SCS -
       FAIRFAX RIDGE REGIONAL SWM POND - PROPOSED CONDITIONS - SDF &   VERSION
08/26/**           FILE NAME: X:\DATA\6301\PROPSDF.DAT                 2.04TEST
13:40:41                  SUMMARY, JOB NO.   1                         PAGE 17
```

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

ALTERNATE 1 STORM 25

XSECTION/ STRUCTURE ID		STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
STRUCTURE	3	ADDHYD	.20	17.34	425.73	12.03	2212	11060.0
STRUCTURE	3	RESVOR	.20	17.40	399.93	12.20	1337	6685.0

```
1
TR20 ------------------------------------------------------------ SCS -
       FAIRFAX RIDGE REGIONAL SWM POND - PROPOSED CONDITIONS - SDF &   VERSION
08/26/**           FILE NAME: X:\DATA\6301\PROPSDF.DAT                 2.04TEST
13:40:41                  SUMMARY, JOB NO.   1                         PAGE 18
```

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

BASEFLOW IS .0 CFS

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	INFLOW PEAK (CFS)	INFLOW TIME (HR)	OUTFLOW PEAK (CFS)	OUTFLOW TIME (HR)	Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
ALTERNATE 1 STORM 10											
3	1250		627	12.1	627	12.1	1.31	1.31	.025	1.000	1.00?
ALTERNATE 1 STORM 15											
3	1250		964	12.1	964	12.1	1.31	1.31	.022	1.000	1.00?
ALTERNATE 1 STORM 25											
3	1250		1615	12.1	1615	12.1	1.24	1.32	.017	1.000	1.00?

```
1
TR20 ------------------------------------------------------------ SCS -
       FAIRFAX RIDGE REGIONAL SWM POND - PROPOSED CONDITIONS - SDF &   VERSION
08/26/**           FILE NAME: X:\DATA\6301\PROPSDF.DAT                 2.04TEST
13:40:41                  SUMMARY, JOB NO.   1                         PAGE 19
```

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS.......... 10	15	25
STRUCTURE 3	.20			
ALTERNATE 1		726	1147	1337
STRUCTURE 1	.16			
ALTERNATE 1		646	994	1667
XSECTION 3	.16			
ALTERNATE 1		646	994	1667

1
TR20

100 YEAR ROUTED FLOW (726) — SDF (1.5 X 100 YEAR) ROUTED FLOW (1147) — FBH (2.5 X 100 YEAR) ROUTED FLOW (1337)

DETENTION ANALYSIS

I. PREDEVELOPED Q_2 AND Q_{10}
Q_{2PRE} = 111 CFS (FROM TR-20 - SEE SHEET 20)
Q_{10PRE} = 290 CFS (FROM TR-20 - SEE SHEET 20)

II. POST DEVELOPED Q (UNCONTROLLED AREA)
Q_{2POST} = 50 CFS (FROM TR-20 - SEE SHEET 21)
Q_{10POST} = 89 CFS (FROM TR-20 - SEE SHEET 21)

III. ALLOWABLE RELEASE (Q_{ALLOW}) FROM POND
Q_{ALLOW} = (PREDEVELOPED FLOW - UNCONTROLLED FLOW)
Q_{2ALLOW} = 111 - 50
Q_{2ALLOW} = 61 CFS
$Q_{10ALLOW}$ = 290 - 89
$Q_{10ALLOW}$ = 201 CFS

VI. ROUTING RESULTS
Q_{2ROUTE} = 11 CFS (FROM TR-20 - SEE SHEET 21)
$Q_{10ROUTE}$ = 192 CFS (FROM TR-20 - SEE SHEET 21)
Q_{2POST} = 50 + 11 = 61 CFS
Q_{10POST} = 89 + 192 = 281 CFS

(Q_{2POST} = 61 CFS) < (Q_{2PRE} = 111 CFS)
THE 2 YR FLOW HAS BEEN REDUCED TO A LEVEL THAT IS 55% OF THE 2 YR PREDEVELOPED FLOW

(Q_{10POST} = 281 CFS) < (Q_{10PRE} = 290 CFS)
THE 10 YR FLOW HAS BEEN REDUCED TO A LEVEL LESS THAN THE 10 YR PREDEVELOPED FLOW.

Application No. RZ 2015-PR-025 Staff t. Strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 1-23-06
Date of (BOS) (PC) approval 1-23-06
Sheet 12 of 15

COMMONWEALTH OF VIRGINIA
EDMUND J. IGNACIO
No. 033579
8/20/02
PROFESSIONAL ENGINEER

THIS SHEET FOR INFORMATION ONLY

NO.	DESCRIPTION	REVIEW BY	APPROVED	DATE

REVISION APPROVED BY:
DIVISION OF DESIGN REVIEW

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

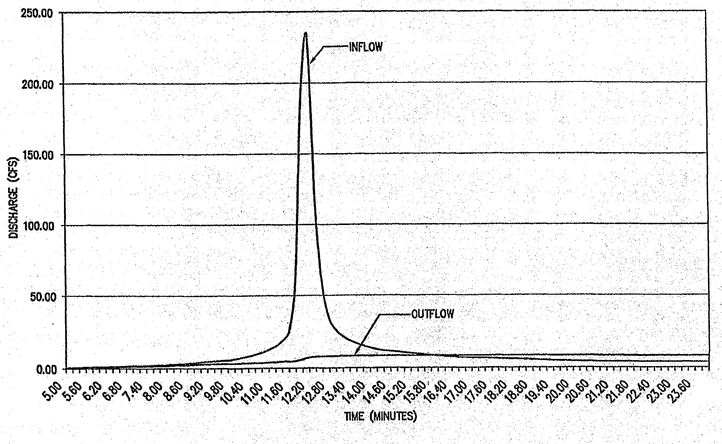
FAIRFAX RIDGE
REGIONAL STORMWATER MANAGEMENT POND
#D-47
PROVIDENCE MAGISTERIAL DISTRICT
FAIRFAX COUNTY, VIRGINIA

POND ROUTINGS (TR-20 COMPUTATIONS)

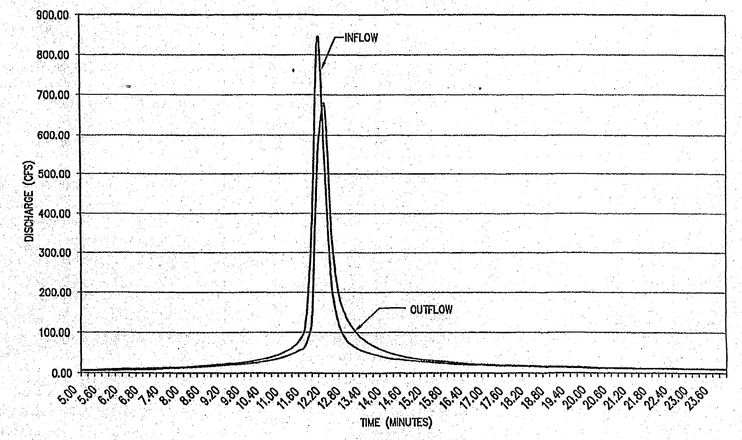
VIKA REVISIONS

DATE: DEC., 2001
DES. EJI | DWN.
SCALE: AS SHOWN
PROJECT/FILE NO. 6301

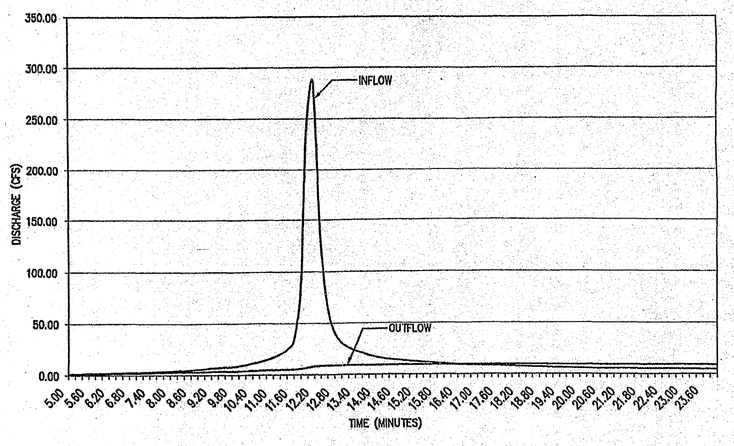
1 – YEAR HYDROGRAPHS



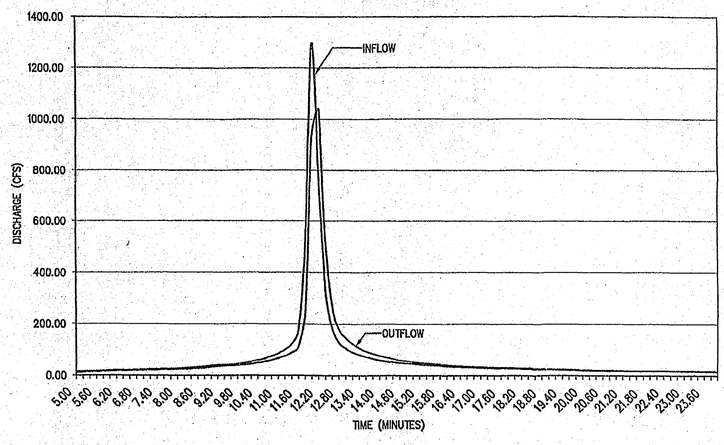
100 YEAR HYDROGRAPHS



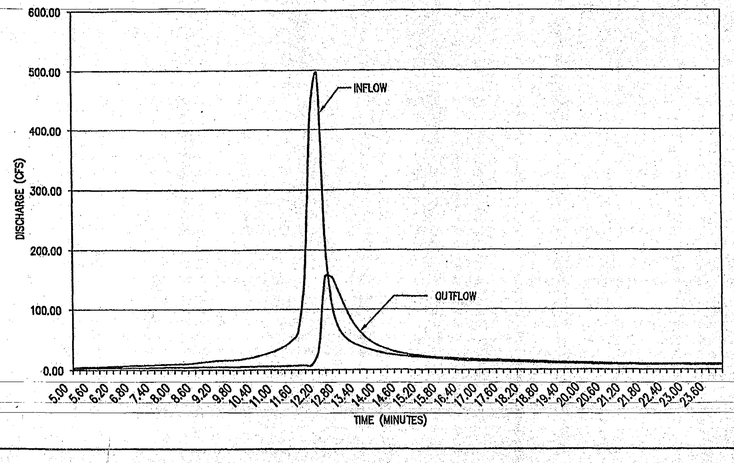
2 – YEAR HYDROGRAPHS



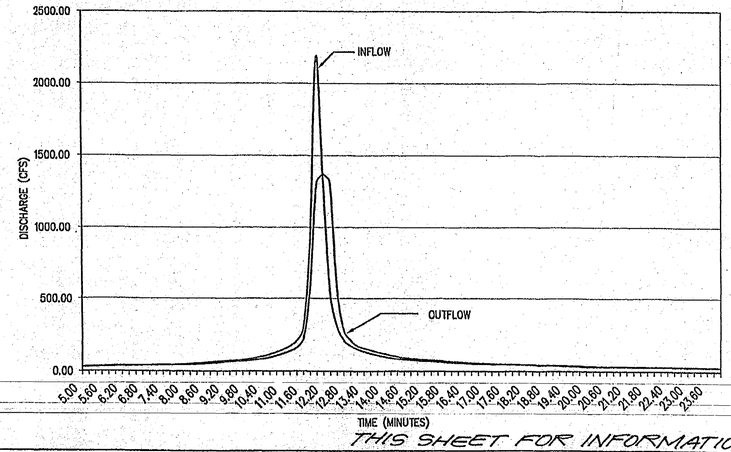
SDF (1.5X100 YEAR) HYDROGRAPHS



10 – YEAR HYDROGRAPHS



FBH (2.5X100 YEAR) HYDROGRAPHS



THIS SHEET FOR INFORMATION ONLY

Application No. R2 2005-PR-025 Staff t. Strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 1-23-06
Date of (BOS) (PC) approval 1-23-06
Sheet 13 of 15

COMMONWEALTH OF VIRGINIA
EDMUND J. IGNACIO
No. 033379
8/13/02
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	REVIEW BY	APPROVED	DATE

REVISION APPROVED BY:
DIVISION OF DESIGN REVIEW

VKA
ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES
VKA, INCORPORATED
8180 GREENSBORO DRIVE SUITE 200 ■ McLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)761-2797
McLEAN, VA GERMANTOWN, MD

FAIRFAX RIDGE
REGIONAL STORMWATER MANAGEMENT POND
#D-47
PROVIDENCE MAGISTERIAL DISTRICT
FAIRFAX COUNTY, VIRGINIA

HYDROGRAPHS

VIKA REVISIONS

DATE: DEC., 2001
DES. EJI | DWN. MMW
SCALE: AS SHOWN
PROJECT/FILE NO. 6301
SHEET NO. 22 OF 44

6301pond903.dwg 12-10-01 12:21 pm EST

6C OF 6

```
*****************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY******************

JOB TR-20                       FULLPRINT          SUMMARY
TITLE      FAIRFAX RIDGE REGIONAL SWM POND - PROPOSED CONDITIONS - SDF & FBH
TITLE      FILE NAME: X:\DATA\6301\PROPSDF.DAT
 2 XSECTN    003           1.
 8                         394.0       0.0          0.0
 8                         396.0       249.9        56.0
 8                         398.0       1419.9       212.0
 8                         400.0       4258.3       448.0
 8                         402.0       8836.8       724.0
 8                         404.0       14571.8      1037.0
 8                         406.0       22086.4      1393.0
 8                         408.0       31715.3      1783.0
 8                         410.0       42558.8      2026.0
 9 ENDTBL
 3 STRUCT       01         425.0       0.0          0.0
 9 ENDTBL
 3 STRUCT       03
 8                         394.60       0.00         0.00
 8                         395.00       70.58        1.41
 8                         396.00      462.16        5.16
 8                         397.00      805.52        9.41
 8                         398.00     1312.05       13.65
 8                         399.00     1360.00       18.45
 8                         400.00     1399.38       23.25
 8                         401.00     2670.00       27.00
 9 ENDTBL
 6 RUNOFF 1     01      1 0.1206       94.6         0.32        1        1
 6 RUNOFF 1     01      2 0.0348       94.7         0.25        1        1
 6 ADDHYD 4     01 1 2 5                                        1        1
 6 REACH  3 003    5    6 1250.                                 1        1
 6 RUNOFF 1     03      3 0.0464       87.3         0.17        1        1
 6 ADDHYD 4     03 3 6 7                                        1        1
 6 RESVOR 2     03 7    5 394.60                                1        1
   ENDATA
 7 INCREM 6               0.10
 7 COMPUT 7     01     03              25.55        1.          2 2  01  35
   ENDCMP 1
   ENDJOB 2

*********************************END OF 80-80 LIST**********************************
                              SUMMARY TABLE 1
                              ---------------
   SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
   A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH   T-TRUNCATED HYDROGRAPH   R-RISING TRUNCATED HYDROGRAPH

XSECTION/  STANDARD                                       PEAK DISCHARGE
STRUCTURE   CONTROL    DRAINAGE  RUNOFF   ----------------------------------------
   ID      OPERATION    AREA     AMOUNT   ELEVATION   TIME      RATE     RATE
                       (SQ MI)    (IN)      (FT)      (HR)     (CFS)    (CSM)

RAINFALL OF  25.55 inches AND  24.00 hr DURATION, BEGINS AT    .0 hrs.
RAINTABLE NUMBER  2,    ARC 2
MAIN TIME INCREMENT   .100 HOURS

    ALTERNATE    1   STORM   35
  ---------------------------
STRUCTURE  1  RUNOFF     .12    24.86      ---      12.07    1796  14966.7
STRUCTURE  1  RUNOFF     .03    24.87      ---      12.02     575  19166.7
STRUCTURE  1  ADDHYD     .16    24.86      ---      12.06    2345  14656.3
XSECTION   3  REACH      .16    24.86    398.65     12.06    2345  14656.3
STRUCTURE  3  RUNOFF     .05    23.86      ---      11.98     842  16840.0

STRUCTURE  3  ADDHYD     .20    24.63    401.35     12.03    3111  15555.0


STRUCTURE  3  RESVOR     .20    24.90    401.40     12.11    3174  15870.0

RAINFALL OF  29.20 inches AND  24.00 hr DURATION, BEGINS AT    .0 hrs.

                       SUMMARY TABLE 2
                       ---------------
           MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
   QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
                            LENGTH FACTOR - VALUE K* GREATER THAN  1.0;
                            ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

                  HYDROGRAPH INFORMATION          ROUTING PARAMETERS
                 ------------------------   ----------------------------
            FLOOD   INFLOW      OUTFLOW      Q-A EQ.             PEAK  ATT-
XSEC REACH  PLAIN  ----------  -----------  ----------- LENGTH  RATIO  KIN
 ID  LENGTH LENGTH PEAK  TIME  PEAK  TIME  COEFF POWER FACTOR   Q/I  COEFF
      (FT)   (FT)  (CFS) (HR)  (CFS) (HR)   (X)   (M)   (k*)    (Q*)  (C)

BASEFLOW IS    .0 CFS

  ALTERNATE    1   STORM   35
  ---------------------------
 3  1250         2275  12.1   2275  12.1   1.06  1.35   .013  1.000  1.00?

  ALTERNATE    1   STORM   40
  ---------------------------
 3  1250         2589  12.1   2589  12.1   1.00  1.36   .012  1.000  1.00?
1
TR20 ---------------------------------------------------------------- SCS -
       FAIRFAX RIDGE REGIONAL SWM POND - PROPOSED CONDITIONS - SDF &  VERSION
08/26/**            FILE NAME: X:\DATA\6301\PROPSDF.DAT                2.04TEST
23:24:20                     SUMMARY, JOB NO.   1                      PAGE   9

                       SUMMARY TABLE 3
                       ---------------
     STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
     QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/           DRAINAGE
STRUCTURE             AREA       STORM NUMBERS.........
   ID               (SQ MI)          35


STRUCTURE   3            .20
-----------------------------
   ALTERNATE    1                   3174

STRUCTURE   1            .16
-----------------------------
   ALTERNATE    1                   2345

XSECTION    3            .16
-----------------------------
   ALTERNATE    1                   2345
1
TR20                   *** TR-20 RUN COMPLETED ***
```

DAM BREACH SUMMARY

STORM CAUSING THE DAM OVERTOPPING: 3.5 X 100 YR (SEE THIS SHEET FOR ROUTING)

FOR 3.5 X 100 YR EVENT, THE PEAK ELEVATION IS 401.40 FT (1.40 FT ABOVE THE DAM TOP)

NWS SIMPLIFIED DAM–BREAK FORMULA

PEAK FLOW FOLLOWING THE POTENTIAL DAM FAILURE:

Qbmax = Qo + 3.1*Br* ((C/((tf/60) + C/(sqrt(H)))))^3) (CFS); C=(23.4*As)/Br

As = RESERVOIR SURFACE AREA (ACRES) AT THE MAXIMUM ELEVATION OF POOL LEVEL.

H = ELEVATION (ft) OF MAXIMUM POOL LEVEL MINUS (–) FINAL BREACH BOTTOM ELEVATION; THIS IS CALLED "THE HEAD ON THE BREACH".

Br = AVERAGE FINAL BREACH WIDTH (ft). (2.5*H EARTH DAMS)

tf = TIME OF FAILURE (MINUTES). (H/2 EARTH DAMS)

Qo = ADDITIONAL (NONBREACH) OUTFLOW (cfs) AT TIME T (i.e. SPILLWAY FLOW, TURBINE FLOW, AND/OR CREST OVERFLOW) (OPTIONAL DATA VALUE, MAY BE SET TO 0).

POND D–47
OVERTOPPING DAM BREACH

THE CREST OF THE RISER AT THE TIME OF THE POTENTIAL DAM FAILURE IS 401.40 FT.
SO THE HEIGHT OF THE WATER:
H = 401.40 = 376.00 = 25.4 FT.

Br = (2 TO 3 TIMES DAM HEIGHT, PFM 4–1603.RD) 2 * 25.4 = 50.8

tf = (2 FT/MIN PER PFM 1–1603.4D) 25.4/2 = 12.70

Qo = 3174 CFS (SEE 3.5 X 100 –YR ROUTING THIS SHEET)

THE CORRESPONDING SURFACE AREA AS:
AS = 220,414 FT2 = 5.06 AC

THEREFORE, THE PEAK FLOW FOR THE POTENTIAL DAM FAILURE IS:

Qbmax = Qo + 3.1*BR* ((C/((tf/60) + C/(sqrt(H)))))^3) (CFS); C=(23.4*As)/Br

Qbmax =3174 + 3.1*50.80 * ((2.33/(12.70/60) + (2.33/(5.04))))^3) (CFS);
C=(23.4*5.06)/50.80=2.33

Qbmax = 9600 CFS

POND D–47
SUNNY DAY BREACH

THE CREST OF THE RISER AT THE TIME OF THE POTENTIAL DAM FAILURE IS 178.13 FT.
SO THE HEIGHT OF THE WATER:
H = 394.60 – 376.00 = 18.60 FT.

Br = (2 TO 3 TIMES DAM HEIGHT, PFM 4–1603.RD) 2. * 18.60 = 37.20

tf = (2 FT/MIN PER PFM 1–1603.4D) 18.60/2 = 9.30

Qo = 0.0 CFS

THE CORRESPONDING SURFACE AREA AS:
AS = 114,000 FT2 = 2.61 AC

THEREFORE, THE PEAK FLOW FOR THE POTENTIAL DAM FAILURE IS:

Qbmax = QO + 3.1*BR* ((C/((tf/60) + C/(sqrt(H)))))^3) (CFS); C=(23.4*As)/Br

Qbmax =0.00 + 3.1*37.2 * ((2.33/((9.30/60) + (2.33/(4.31))))^3) (CFS);
C=(23.4*5.06)/50.8=2.33

Qbmax = 4330 CFS

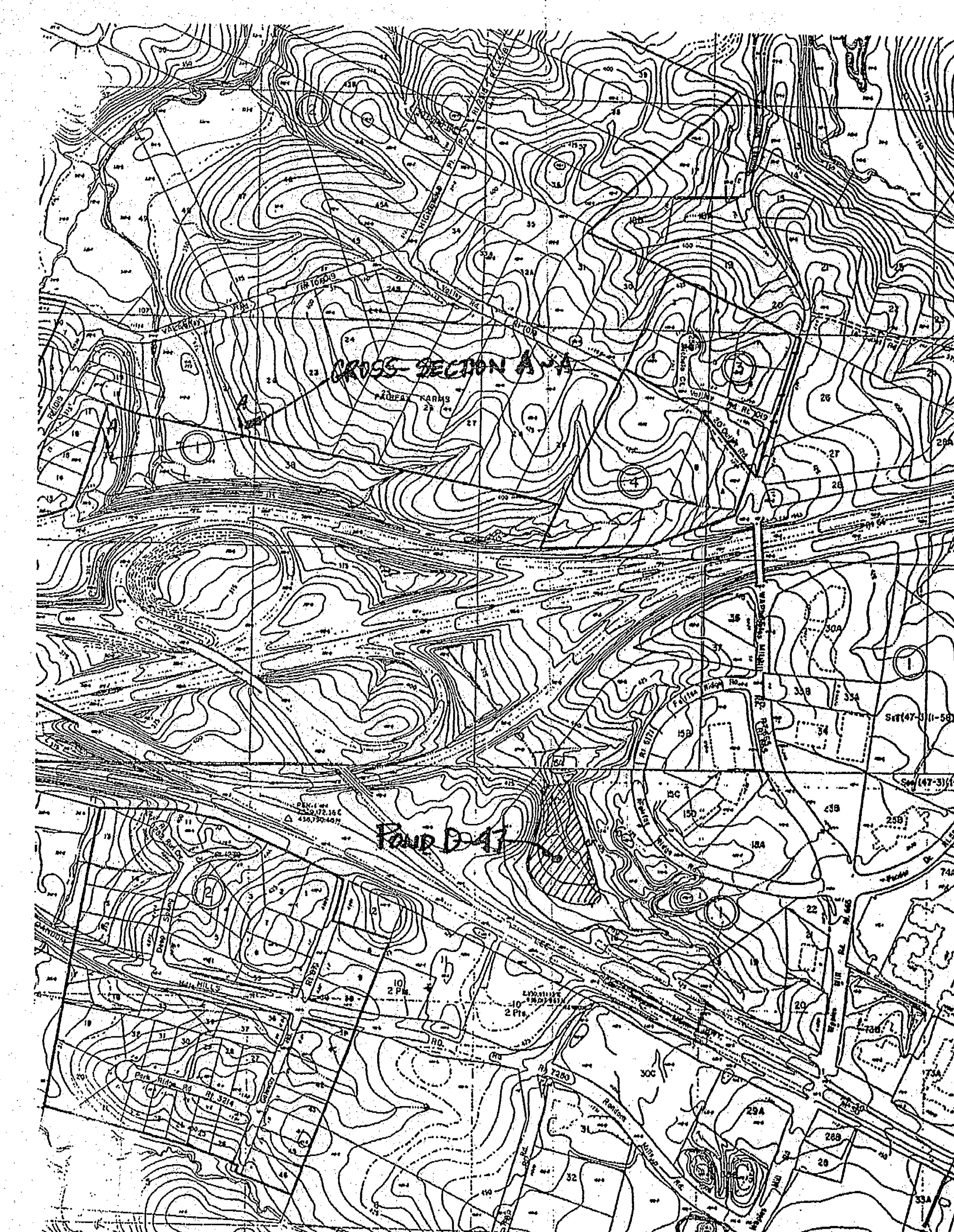
DAM BREACH NARRATIVE

ANALYSIS CRITERIA AND ASSUMPTIONS

1. THIS ANALYSIS HAS BEEN PERFORMED TO STUDY THE EFFECT OF A DAM FAILURE ON THE EXISTING DOWNSTREAM PROPERTY.
2. THE POTENTIAL FOR DAM FAILURE WAS ANALYZED FOR BOTH THE SUNNY DAY AND OVERTOPPING STORMS.
3. IT WAS DETERMINED THAT THE DAM WOULD OVERTOP DURING THE 3.5 X 100 YEAR EVENT AND THAT THE DEPTH OF THE OVERTOPPING WATER WOULD BE 1.16 FEET (SEE DAM BREACH SUMMARY ON THIS SHEET).
4. THE NATIONAL WEATHER SERVICE SIMPLIFIED DAM–BREAK FLOOD FORECASTING MODEL WAS USED TO COMPUTE THE DAM BREACH FLOWS (SEE CALCULATIONS, THIS SHEET).
5. THE SUNNY DAY BREACH ANALYSIS WAS CONDUCTED DOWNSTREAM TO A POINT, WHERE THE DAM BREACH FLOOD DEPTH WOULD BE LESS THAN THE 100–YR FLOOD DEPTH THAT WOULD BE EXPERIENCED WITHOUT THE DAM. THE ANALYSIS WAS TERMINATED AT THIS POINT, BASED ON THE PFM CRITERIA (SEE 6–1603.4A). IN THE EVENT OF A SUNNY DAY BREACH, NO FLOODING OF STRUCTURES WILL OCCUR.
6. THE OVERTOPPING BREACH ANALYSIS WAS CONDUCTED DOWNSTREAM TO A POINT, WHERETHE DAM BREACH FLOOD DEPTH WOULD ATTENUATE TO WITHIN +1.0 FOOT OF THE FLOOD DEPTH THAT WOULD BE EXPERIENCED WITHOUT THE DAM. THE ANALYSIS WAS TERMINATED AT THIS POINT, BASED ON THE PFM CRITERIA (SEE 6–1603.4B). IN THE EVENT OF A DAM FAILURE DUE TO THE 5.0 X 100 YEAR EVENT, NO FLOODING OF STRUCTURES WILL OCCUR.
7. PLATE 46–6 OF THE PFM REQUIRES SAFE PASSAGE OF 1.5 X 100 YEAR EVENT. THE SPILLWAY CONFORMS TO THE REQUIREMENT OF INCREASED SPILLWAY SIZE AND POND VOLUME AS REQUIRED BY 6–1603.4E OF THE PFM.

CONCLUSION

THE OVERTOPPING DEPTH OF WATER IS SIGNIFICANTLY LOWER THAN THE DEPTHS CONSIDERED DAM DAMAGING (1 TO 5 FEET) AND THE EVENT REQUIRED TO CAUSE THE OVERTOPPING (350 YEAR STORM) IS EXTREMELY UNLIKELY. THEREFORE, THE PROBABILITY OF THE DAM FAILURE IN THIS CASE IS NEGLIGIBLE. BOTH THE SUNNY DAY AND OVERTOPPING DAM BREACH ANALYSIS SHOWED NO EXISTING STRUCTURES WERE FLOODED.



FAIRFAX COUNTY TOPOGRAPHIC MAP
SCALE: 1"=500'

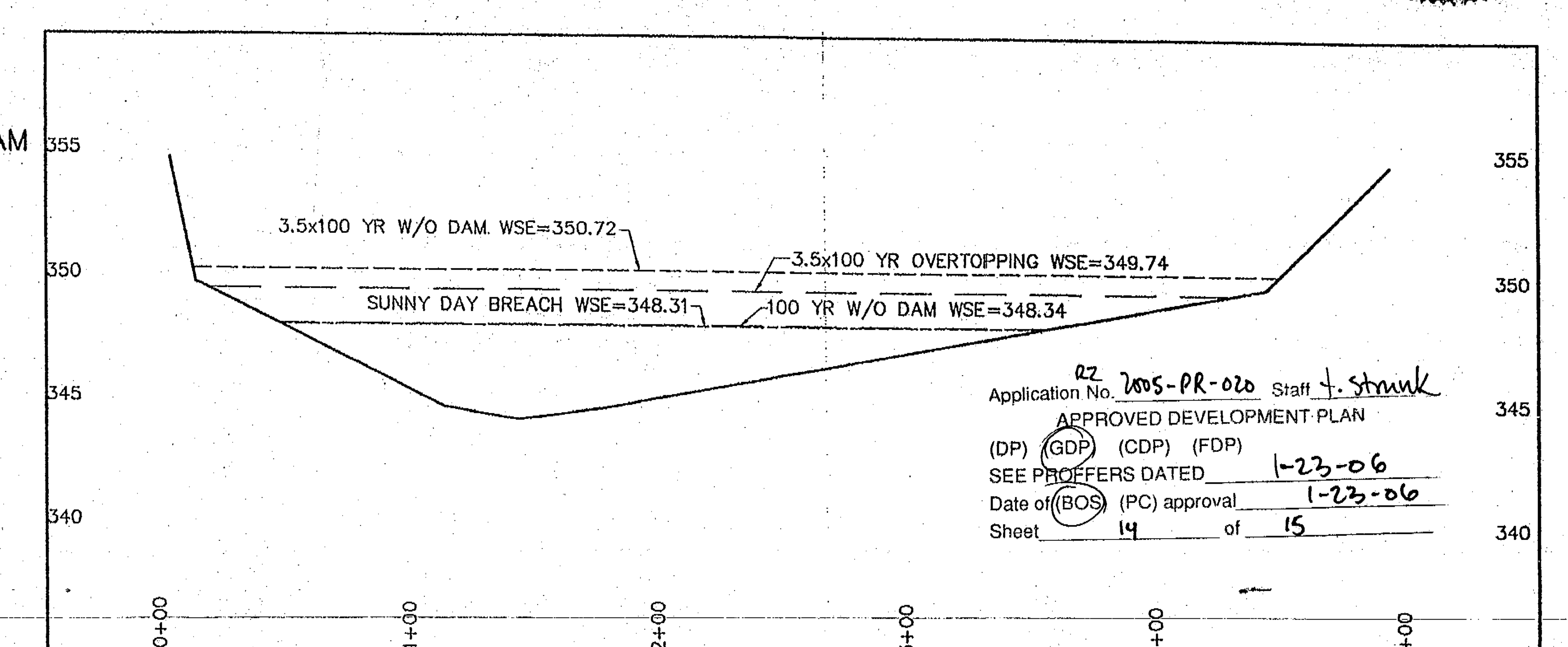
COMMONWEALTH OF VIRGINIA
EDMUND J. IGNACIO
No. 033579
8/26/02
PROFESSIONAL ENGINEER

3.5X100 YEAR STORM EVENT W/O DAM

RATIONAL METHOD CALCULATIONS
Q=Cf x C x i x A
Cf = 1.25 (100 YEAR EVENT)
Cf = 0.6
I = 9.84 (100 YEAR EVENT)
A = 600 AC (AT SELECTED CROSS–SECTION)
Q = 15500 CFS

100 YEAR STORM EVENT W/O DAM

RATIONAL METHOD CALCULATIONS
Q=Cf x C x i x A
Cf = 1.25 (100 YEAR EVENT)
Cf = 0.6
I = 9.84 (100 YEAR EVENT)
A = 600 AC (AT SELECTED CROSS–SECTION)
Q = 4428 CFS



Application No. RZ 2005-PR-020 Staff J. Strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 1-23-06
Date of (BOS) (PC) approval 1-23-06
Sheet 14 of 15

(WATER SURFACE ELEVATIONS GENERATED THROUGH FLOWMASTER)

SECTION A~A

SCALE: 1"=50' (H); 1"=5'(V)

THIS SHEET FOR INFORMATION ONLY

NO.	DESCRIPTION	REVIEW BY	APPROVED	DATE

REVISION APPROVED BY:
DIVISION OF DESIGN REVIEW

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.

FAIRFAX RIDGE
REGIONAL STORMWATER MANAGEMENT POND
#D-47
PROVIDENCE MAGISTERIAL DISTRCIT
FAIRFAX COUNTY, VIRGINIA

DAM BREACH ANALYSIS

VIKA REVISIONS

DATE: DEC., 2001
DES. EJI
DWN. CADD
SCALE: AS SHOWN
PROJECT/FILE NO. 6301
SHEET NO. 23 OF 44

6D OF 6

ABBREVIATIONS

EX.	EXISTING
CNC	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
TRV	ELECTRICAL TRANSFORMER
DB.	DEED BOOK
PG.	PAGE
ASPH.	ASPHALT
F. F.	FINISHED FLOOR ELEVATION
ESMT.	EASEMENT
RCP	REINFORCED CNC PIPE
CMP	CORRUGATED METAL PIPE
SAN. SEW.	SANITARY SEWER
STM. DRN.	STORM DRAIN
BRL	BUILDING RESTRICTION LINE
R/W	RIGHT-OF-WAY
RTE.	ROUTE
TR.	TREADS
AC.	AIR VENT

SYMBOLS

- SANITARY CLEANOUT
- STORM DRAIN MANHOLE
- FIRE DEPARTMENT CONNECTION
- FIRE HYDRANT
- GAS MANHOLE
- GUY POLE
- GAS VALVE
- LIGHT POLE
- PHONE PEDESTAL
- PHONE MANHOLE
- UTILITY POLE
- SANITARY MANHOLE
- TRAFFIC CONTROL BOX
- TRAFFIC SIGNAL POLE
- CABLE TELEVISION PEDESTAL
- UNKNOWN UTILITY MANHOLE
- WATER METER
- WATER MANHOLE
- WATER VALVE
- BOLLARD
- IRON PIPE FOUND
- IRON RE-BAR FOUND
- PK NAIL FOUND
- PARKING METER
- CATCH BASIN RIM
- SIGN POST
- TREE
- ELECTRIC MANHOLE
- COLUMN

AREA TABULATION: DENSITY CALCULATION

(EX. ZONE I-5)

T.M. 56-2-01-0019 116,566 S.F. OR 2.67598 AC.
T.M. 56-2-01-0020 39,910 S.F OR 0.91621 AC.
PREVIOUS STREET DEDICATION (D.B. 11607 PG. 355) 11,384 SF. OR 0.261340 AC*
*DOES NOT INCLUDE 533 S.F. STREET DEDICATION PER D.B. 16645 PG. 1134

TOTAL AREA EXISTING ZONE I-5 – 167,860 S.F. OR 3.85354 AC
TOTAL AREA PROPOSED ZONE PDH-20 – 167,860 S.F. OR 3.85354 AC

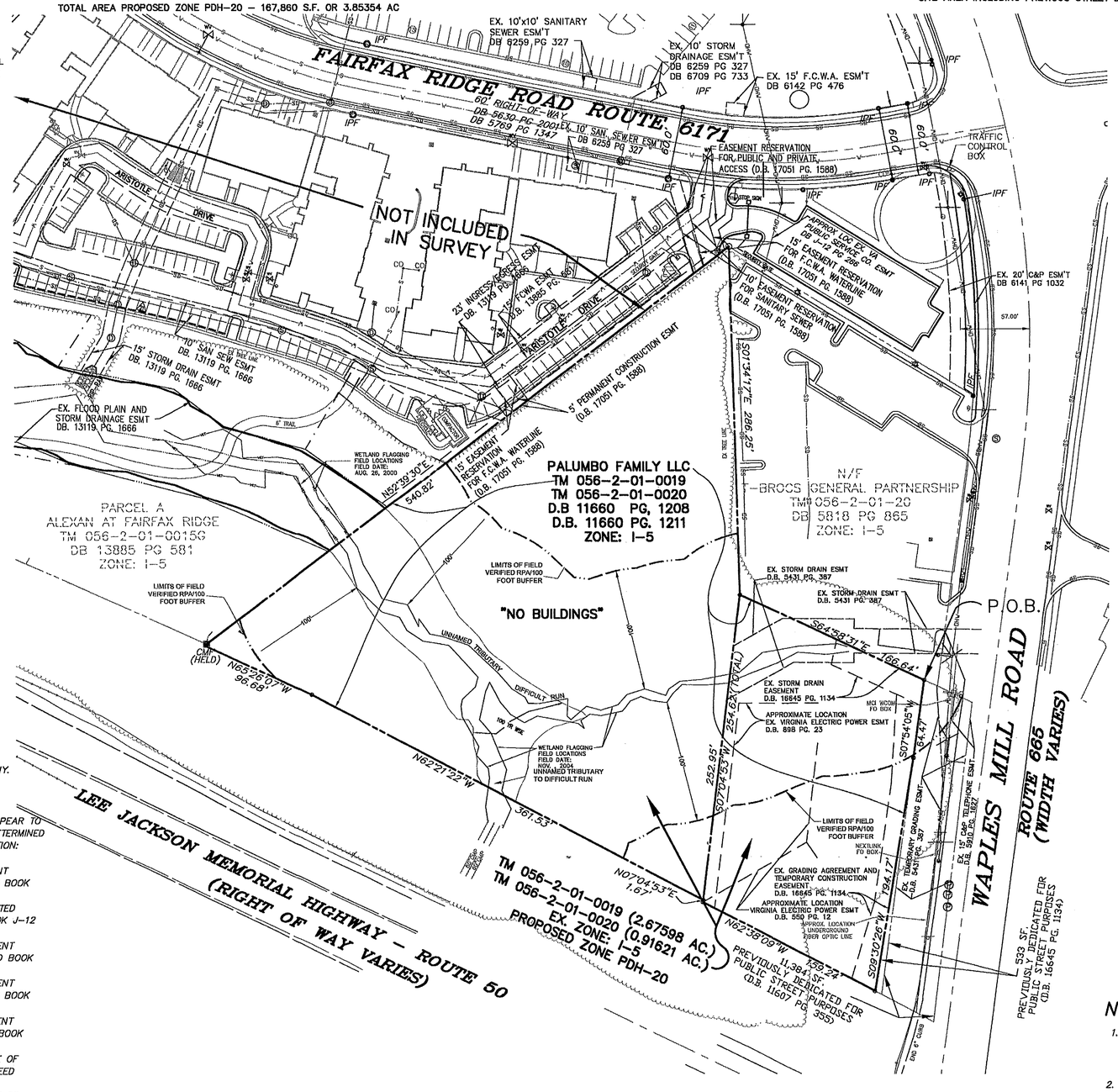
REAL PROPERTY TABULATION

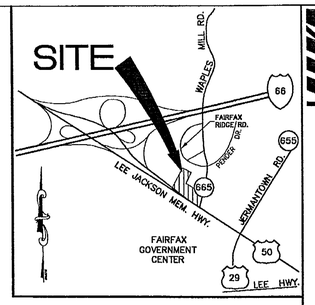
T.M. 56-2-01-0019 – 116,566 S.F. OR 2.67598 AC.
T.M. 56-2-01-0020 – 39,910 SF OR 0.91621 AC.

TOTAL AREA – 156,476 S.F. OR 3.59219 AC.

TOTAL PREVIOUS STREET DEDICATION – 11,384 SF. OR 0.26134 AC.

SITE AREA INCLUDING PREVIOUS STREET DEDICATION 167,860 SF. OR 3.85354 A.C.





VICINITY MAP

SCALE : 1" = 2000'

LINE TYPES

- BUILDING LINE
- CABLE TELEVISION CONDUIT
- CENTERLINE
- EDGE OF PAVEMENT
- FENCE LINE
- NATURAL GAS CONDUIT
- OVERHEAD WIRES
- TELEPHONE CONDUIT
- PROPERTY LINES
- PUBLIC UTILITIES EASEMENTS
- SANITARY SEWER CONDUIT
- STORM DRAIN CONDUIT
- WATER CONDUIT

TRUE NORTH
DB 8608 PG 1914

TITLE REPORT NOTE:

TITLE REPORT FURNISHED BY COMMONWEALTH LAND TITLE INSURANCE COMPANY. EFFECTIVE DATE FEBRUARY 16, 2004 COMMITMENT NUMBER: 030754 HAS BEEN INCORPORATED INTO THIS SURVEY.

THE FOLLOWING INSTRUMENTS OF RECORD LISTED IN SCHEDULE B – SECTION 2 APPEAR TO AFFECT THE SUBJECT PROPERTY, BUT THEIR LOCATION CAN NOT BE PRECISELY DETERMINED DUE TO THE LACK OF ADEQUATE DIMENSIONS OR A METES AND BOUNDS DESCRIPTION:

ITEM 6.) EASEMENT GRANTED VIRGINIA PUBLIC SERVICE COMPANY IN INSTRUMENT DATED JANUARY 3, 1933 AND RECORDED JANUARY 20, 1933 IN DEED BOOK F-11 AT PAGE 526.

ITEM 7.) EASEMENTS GRANTED VIRGINIA PUBLIC SERVICE COMPANY IN DEED DATED NOVEMBER 25, 1935 AND RECORDED DECEMBER 5, 1936 IN DEED BOOK J-12 AT PAGE 264.

ITEM 8.) EASEMENTS GRANTED VIRGINIA PUBLIC SERVICE COMPANY IN INSTRUMENT DATED DECEMBER 16, 1941 AND RECORDED JANUARY 9, 1942 IN DEED BOOK L-15 AT PAGE 495.

ITEM 9.) EASEMENTS GRANTED VIRGINIA PUBLIC SERVICE COMPANY IN INSTRUMENT DATED FEBRUARY 25, 1942 AND RECORDED MARCH 12, 1942 IN DEED BOOK O-15 AT PAGE 506.

ITEM 10.) EASEMENTS GRANTED VIRGINIA PUBLIC SERVICE COMPANY IN INSTRUMENT DATED DECEMBER 2, 1941 AND RECORDED MARCH 12, 1942 IN DEED BOOK O-15 AT PAGE 507.

ITEM 13.) EASEMENTS IN FAVOR OF THE COMMONWEALTH OF VIRGINIA BY VIRTUE OF CERTIFICATE DATED JULY 2, 1959 AND RECORDED JULY 3, 1959 IN DEED BOOK 1786 AT PAGE 46.

ITEM 14.) EASEMENTS IN FAVOR OF THE COMMONWEALTH OF VIRGINIA BY VIRTUE OF CERTIFICATE DATED SEPTEMBER 23, 1959 AND RECORDED OCTOBER 12, 1959 IN DEED BOOK 1819 AT PAGE 309.

ITEM 15.) EASEMENTS IN FAVOR OF THE COMMONWEALTH OF VIRGINIA BY VIRTUE OF CERTIFICATE DATED OCTOBER 7, 1959 AND RECORDED NOVEMBER 5, 1959 IN DEED BOOK 1827 AT PAGE 363.

ITEM 19.) EASEMENT GRANTED FAIRFAX RIDGE ASSOCIATES, A VIRGINIA GENERAL PARTNERSHIP IN EASEMENT AGREEMENT DATED NOVEMBER 11, 1985 AND RECORDED JANUARY 8, 1986 IN DEED BOOK 6297 AT PAGE 812.

ITEM 20.) TERMS, PROVISIONS AND CONDITIONS OF EASEMENT AGREEMENT DATED NOVEMBER 11, 1985 AND RECORDED JANUARY 8, 1986 IN DEED BOOK 6297 AT PAGE 812.

COMMONWEALTH OF VIRGINIA
10/28/2005
J. THOMAS HARDING
NO. 1036
LAND SURVEYOR

Application No. RZ 2005-PR-028 Staff t. strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 1-23-06
Date of (BOS) (PC) approval 1-23-06
Sheet 15 of 15

NOTES:

1. *THE PROPERTY SHOWN HEREON IS THE PROPERTY ACQUIRED BY PALUMBO FAMILY LLC, RECORDED IN DEED BOOK 11660 AT PAGE 1208 AND 1211 AMONG THE LAND RECORDS OF FAIRFAX COUNTY, VIRGINIA AND IS IDENTIFIED BY TAX REFERENCE AS 56-2 ((01)) PARCEL 0019 AND 0020 IS ZONED I-5.*
2. *THE BOUNDARY INFORMATION SHOWN HEREON IS THE RESULT OF FIELD RUN BOUNDARY SURVEY PERFORMED BY VIKA, INC. ON MARCH 7, 2002, VERIFIED AS NOTE ON CERTIFICATION.*
3. *THE HORIZONTAL DATUM SHOWN HEREON IS BASED ON ACTUAL FIELD RUN TRAVERSE PERFORMED BY VIKA, INC.USING ACCEPTED SURVEYING TECHNIQUES AND IS TIED TO THE VIRGINIA STATE PLANE GRID, NAD '83.*
4. *DENSITY CREDIT FOR THE AREA DEDICATED TO PUBLIC STREET PURPOSES WAS ESTABLISHED PER ARTICLE 2-308(4)(A)(2) OF THE ZONING ORDINANCE, PER D.B. 13119 PG. 1666.*

(ALSO SEE STREET DEDICATION D.B. 11607 PG. 355)

VIKA
ENGINEERS ■ PLANNERS ■ LANDSCAPE ARCHITECTS ■ SURVEYORS ■ GPS SERVICES
VIKA, INCORPORATED
8180 GREENSBORO DRIVE, SUITE 200 ■ MCLEAN, VIRGINIA 22102
(703)442-7800 ■ FAX (703)759-2787
McLEAN, VA FREDERICK, MD

PALUMBO FAMILY LLC.

D.B. 11660 PG. 1208
D.B. 11660 PG. 1211
PROVIDENCE DISTRICT
FAIRFAX COUNTY, VIRGINIA

CERTIFIED PLAT

VIKA REVISIONS
REVISED 3/3/2005
REVISED 4/28/2005
REVISED TABS 9/9/2005
REVISED TABS 10/28/2005

DATE: SEPT., 2000	
DES. JTH	DWN. KED/AFW
SCALE: 1" = 50'	
PROJECT/FILE NO. 6301	
SHEET NO. 1 OF 1	

DWG P:/SURVEYS/PROJECTS/DWG/6301705.DWG
DATE: OCTOBER 28, 2005
INFO: ADDED TAX PARCEL 18A

S#520