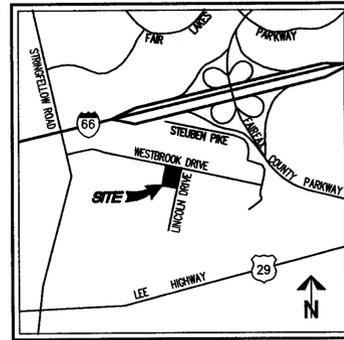


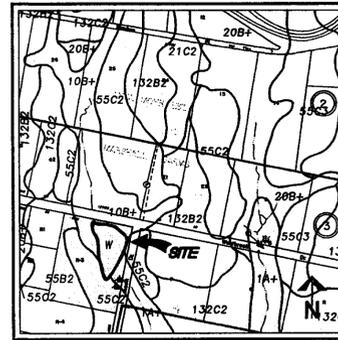
ETHEL'S POND GENERALIZED DEVELOPMENT PLAN

GENERAL NOTES:

- OWNER/ APPLICANT:
BO-BUD RESIDENTIAL, LLC
7615 MCWHORTER PLACE
ANNANDALE, VA 22003
- THE PROPERTY SHOWN ON THIS PLAN IS IDENTIFIED ON THE FAIRFAX COUNTY ZONING MAP 055-2-03-000R-3
- THE PROPERTY IS CURRENTLY ZONED R-1. THIS REZONING APPLICATION REQUESTS THE PROPERTY BE REZONED TO THE R-2 CLUSTER DISTRICT.
- THE BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN HEREON IS TAKEN FROM A FIELD SURVEY BY WALTER L. PHILLIPS, INC. CONTOUR INTERVAL IS TWO (2) FEET.
- THERE ARE NO TRAILS REQUIRED BY THE ADOPTED COMPREHENSIVE PLAN ALONG THE SUBJECT PROPERTY.
- THERE ARE NO COMMUNITY OR PUBLIC FACILITIES PROPOSED WITH THIS DEVELOPMENT.
- THERE ARE SINGLE FAMILY HOMES SURROUNDING THE PROPERTY. THE PROPOSED SINGLE FAMILY DETACHED UNITS WILL NOT POSE ANY ADVERSE EFFECTS ON THE ADJACENT OR NEIGHBORING PROPERTIES.
- EXCEPT FOR THE RESTORATION AND PRESERVATION OF THE EXISTING POND, THERE ARE NO PROPOSED SPECIAL AMENITIES FOR THIS PROPERTY.
- THE DEVELOPER WILL PROVIDE CURB, GUTTER AND SIDEWALKS ON THE NEW INTERIOR STREET. THE DEVELOPER WILL ALSO EXTEND THE SANITARY SEWER AND WATER LINES TO THE SITE. THE TIMING OF THESE IMPROVEMENTS WILL OCCUR DURING CONSTRUCTION OF THE DWELLING UNITS.
- THE PROPOSED NEW DWELLING UNITS WILL BE SERVED BY PUBLIC WATER (FAIRFAX WATER SERVICE AREA) AND SANITARY SEWER (FAIRFAX COUNTY).
- SUBJECT TO MARKET CONDITIONS, IT IS ANTICIPATED THAT CONSTRUCTION OF THE PROPOSED DEVELOPMENT WILL COMMENCE AS SOON AS ALL NECESSARY COUNTY APPROVALS AND PERMITS ARE OBTAINED.
- THERE IS NO FLOOD PLAIN DESIGNATED BY THE FEDERAL INSURANCE ADMINISTRATION, UNITED STATES GEOLOGICAL SURVEY OR FAIRFAX COUNTY, MAPPED RESOURCE PROTECTION AREA (RPA) AND/OR ENVIRONMENTAL QUALITY CORRIDOR (EQC) LOCATED ON THE SUBJECT PROPERTY.
- PURSUANT TO PARAGRAPH 5 OF SECTION 18-204 OF THE ZONING ORDINANCE, MINOR MODIFICATIONS TO THE GDP MAY BE PERMITTED AS DETERMINED BY THE ZONING ADMINISTRATOR. THE APPLICANT RESERVES THE RIGHT TO MAKE MINOR ADJUSTMENTS TO THE LAYOUT, INTERNAL LOT LINES, AND LOT SIZES OF THE PROPOSED SUBDIVISION AT TIME OF SUBDIVISION PLAN SUBMISSION BASED ON FINAL HOUSE LOCATIONS, BUILDING FOOTPRINTS, AND UTILITY LOCATIONS, PROVIDED THAT THERE IS NO DECREASE TO THE AMOUNT OF OPEN SPACE, TREE SAVE, LIMITS OF CLEARING AND GRADING, OR DISTANCES TO PERIPHERAL LOT LINES AS DIMENSIONED ON THE GDP.
- TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO GRAVES LOCATED ON THE SITE.
- STORMWATER MANAGEMENT COMPLYING WITH THE REQUIREMENTS OF THE PUBLIC FACILITIES MANUAL WILL BE PROVIDED WITH THIS DEVELOPMENT. A WAIVER (WV#4606-WSWM-001-1) TO USE REGIONAL POND R-17 WAS APPROVED ON 7/20/05 BY DPWS TO SATISFY THIS REQUIREMENT. (SEE APPROVAL LETTER, THIS SHEET.) IN THE EVENT THAT POND R-17 IS NOT FUNCTIONAL AT THE TIME OF FINAL SUBDIVISION APPROVAL, THE EXISTING POND WILL BE USED TO SATISFY THE STORMWATER MANAGEMENT REQUIREMENTS ON AN INTERIM BASIS UNTIL POND R-17 CAN BE USED.
- WATER QUALITY MEASURES CONFORMING TO THE REQUIREMENTS OF THE CHESAPEAKE BAY PRESERVATION ORDINANCE (CBPO) WILL BE PROVIDED WITH THIS DEVELOPMENT. THE EXISTING POND WILL BE UPGRADED TO PROVIDE BMP STORAGE, IF NEEDED, AND A PORTION OF OUTLOT A WILL BE PLACED IN A CONSERVATION EASEMENT TO SATISFY THIS REQUIREMENT. (SEE SHEET 5 FOR CALCULATIONS).
- ALL EXISTING ON-SITE IMPROVEMENTS EXCEPT THE POND WILL BE REMOVED.
- THERE ARE NO KNOWN UTILITY EASEMENTS ON THE PROPERTY HAVING A WIDTH OF 25 FEET OR MORE.
- PARKING AS REQUIRED BY THE ZONING ORDINANCE SHALL BE PROVIDED ON EACH LOT.
- THIS PROPOSED DEVELOPMENT COMPLIES WITH THE CURRENT COMPREHENSIVE PLAN RECOMMENDATION.
- TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THERE ARE NO HAZARDOUS SUBSTANCES ON THIS PROPERTY.
- EXCEPT FOR THE SANITARY SEWER EXTENSION, NO OFFSITE PUBLIC IMPROVEMENTS ARE PROPOSED.
- THE EXISTING POND WILL BE MAINTAINED AND RESTORED TO PROVIDE WATER QUALITY MEASURES (IF NEEDED), FOR USE AS A WOMA AND A NEIGHBORHOOD AMENITY. POTENTIAL UPGRADES MAY INCLUDE THE PRIMARY AND EMERGENCY SPILLWAYS, EMBANKMENT (IF NEEDED), AND AERATION MEASURES TO IMPROVE WATER QUALITY. PRIVATE WELL(S) MAY ALSO BE PROVIDED AS A SUPPLEMENTAL WATER SOURCE.
- POTENTIAL HOUSE ORIENTATION AND DRIVEWAY ALIGNMENTS SHOWN ON LOTS 3, 5, 6, AND 7 MAY BE ALTERED AT TIME OF GRADING PLAN AND BUILDING PERMIT APPROVAL, PROVIDED THAT THE LIMITS OF CLEARING AND GRADING SHOWN ON THE GDP SHALL NOT BE DIMINISHED.
- THE EXISTING POND WILL BE MAINTAINED BY THE HOA.



VICINITY MAP SCALE: 1"=2000'



SOILS MAP SCALE: 1"=500'

SOILS DATA

SOIL ID NUMBERS	SERIES NAME	FOUNDATION SUPPORT	SUBSURFACE DRAINAGE	SLOPE STABILITY	ERODABILITY	GEOTECH REPORT REQ'D
10+	GLENVILLE	FAIR	MARGINAL	GOOD	MODERATE	NO
5A	GLENVILLE	GOOD	GOOD	GOOD	SEVERE	NO
1A	MIXED ALLUVIAL	POOR	POOR	GOOD	SLIGHT	YES

SOIL INFORMATION SHOWN, IS TAKEN FROM FAIRFAX COUNTY SOILS MAP.

ZONING TABULATION

REQUIRED	PROVIDED
SITE AREA:	±220,067 SF OR 5.05 AC
EXISTING ZONING:	R-1
PROPOSED ZONING:	R-2 CLUSTER
PROPOSED NUMBER OF LOTS:	7
MIN. LOT AREA	13,000 SF
AVG. LOT AREA	NONE
MIN. LOT WIDTH	INTERIOR - NONE
	CORNER - 100 FEET
MAX. BUILDING HEIGHT	35 FEET
YARD REQUIREMENTS	
FRONT	25 FEET
SIDE	8' MIN, 24' MIN. TOTAL FEET
REAR	25 FEET
MAXIMUM DENSITY	2.0 DU/AC
OPEN SPACE	25%
	±14,200 SF
	±16,250 SF
	N/A
	±100 FEET
	35 FEET
	±25 FEET
	±8 FEET, 24 FOOT MINIMUM
	±25 FEET
	±1.4 DU/AC
	±25%

AREA TABULATION

OUTLOT A:	±7,250 SF
OUTLOT B:	±75,600 SF
DEDICATED STREET AREA:	±23,330 SF
LOT AREA:	±113,800 SF

SHEET INDEX

- COVER SHEET
- GENERALIZED DEVELOPMENT PLAN
- CONCEPTUAL LANDSCAPE PLAN
- EXISTING VEGETATION MAP
- PRELIMINARY SWM AND BMP COMPUTATIONS

Application No. RZ-2005-SP-012 Staff CDL
APPROVED DEVELOPMENT PLAN
 (DP) (GDP) (CDP) (FDP)
SEE PROPPERS DATED 11-9-2005
 Date of (BOS) (PC) approval 11-21-2005
 Sheet 1 of 5

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 (9-015 1G & 1N) Commercial Revitalization Districts (9-022 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 ____.
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)
R-17 regional pond whole site area	N/A	N/A	N/A	(County regional pond under construction, completion date: June 2006)		
Totals						
4. On-site drainage channels, outfalls and pipe systems are shown on Sheet ____.
Pond inlet and outlet pipe systems are shown on Sheet ____.
5. Maintenance access (road) to stormwater management facility(ies) are shown on Sheet ____.
Type of maintenance access road surface noted on the plat is ____ (asphalt, geoblock, gravel, etc.).
6. Landscaping and tree preservation shown in and near the stormwater management facility is shown on Sheet 4.
7. A 'stormwater management narrative' which contains a description of how detention and best management practices requirements will be met is provided on Sheet 3.
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 3.
9. A description of how the outfall requirements, including contributing drainage areas of the Public Facilities Manual will be satisfied is provided on Sheet 3.
10. Existing topography with maximum contour intervals of two (2) feet and a note as to whether it is an air survey or field run is provided on Sheets 1.
11. A submission waiver is requested for WV#4606-WSWM-001-1.
12. Stormwater management is not required because N/A.

* APPROVED 7/20/05 (SEE SHEET 1.)



DEPARTMENT OF PUBLIC WORKS
AND ENVIRONMENTAL SERVICES
Land Development Services
Environmental and Site Review Division
12655 Government Center Parkway, Suite 535
Fairfax, Virginia 22035-5505
Phone 703-324-1720 • Fax 703-324-8359 • TTY 703-324-1877

VIRGINIA

JUL 20 2005

Charles E. Dunlap, LS
Walter L. Phillips, Incorporated
207 Park Avenue
Falls Church, VA 22046

Subject: Ethel's Pond, RZ 2005-SP-012, Tax Map #055-2-03-00-0000-R3,
Springfield District

Reference: Stormwater Detention Waiver #04606-WSWD-001-1

Dear Mr. Dunlap:

In response to your request, a waiver of standard on-site County stormwater detention requirements for the subject site is hereby approved.

There is sufficient justification to approve this waiver because off-site regional facility R-17 (055-3-01-00-0027-A1) will provide detention for the subject site.

This approval in no way relieves you of any other county drainage requirements including adequacy of outfall and pro-rata share payments. Compliance with Chesapeake Bay Preservation Ordinance and Water Supply Protection Overlay District is also required.

This waiver shall automatically expire, without notice, twenty-four (24) months after the date of this letter, unless the subject plan has been approved.

Please ensure that a copy of this letter is made a part of the subject plan.

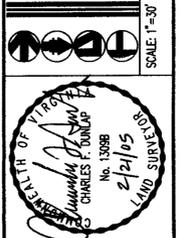
Charles E. Dunlap, LS
Stormwater Detention Waiver #04606-WSWD-001-1
Page 2

If further assistance is desired, please contact Elifatih Salim, Stormwater Engineer, Site Review West, Environmental and Site Review Division (ESRD) at 703-324-1720 (voice), 703-324-8359 (fax), or e-mail: elifatih.salim@fairfaxcounty.gov.

Sincerely,

Qayyum Khan
Chief Stormwater Engineer
Site Review West

WALTER L. PHILLIPS
INCORPORATED
CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046
(703) 532-6163 FAX (703) 532-8301
WWW.WLPHINC.COM
DATE: 7/21/05, 7/22/05, 7/19/05, 7/18/05, 7/17/05, 10/28/05
DRAWN: MW



NO.	DESCRIPTION	DATE	APPROVED BY

GENERALIZED DEVELOPMENT PLAN
ETHEL'S POND
SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA
RECEIVED
Department of Planning & Zoning
OCT 28 2005
Zoning Evaluation Division

HEATHERBROOK
ZONE: R-2, CLUSTER
USE: RESIDENTIAL

WESTBROOK DRIVE - ROUTE 1258
(VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)

FOULGER AND BOLDOG
ZONE: R-2, CLUSTER
USE: RESIDENTIAL

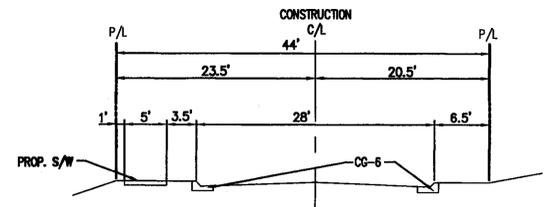
PARCEL N-1, SEC 1
MARSHALL FARMS
ZONE: R-1
USE: RESIDENTIAL

LOT 1
HOLLAND PROPERTY
ZONE: R-2 CLUSTER
USE: RESIDENTIAL

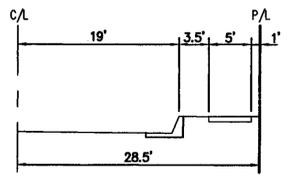
TREGARON
ZONE: R-2, CLUSTER
USE: RESIDENTIAL

LEGEND

PROPOSED	DESCRIPTION	EXISTING
EP	EDGE OF PAVEMENT	EP
MH	MANHOLE	MH
WV	WATER VALVE	WV
WM	WATER METER	WM
GM	GAS METER	GM
TCB	TRAFFIC CONTROL BOX	TCB
LP	LIGHT POLE	LP
LP/S	LIGHT POLE WITH SIGNALS	LP/S
CG-2	CURB & GUTTER	CG-2
CG-6	TRANSITION FROM CG-6 TO CG-6R	CG-6
CG-6R	SANITARY SEWER	S
SL	SANITARY LATERAL	SL
C.O.	CLEAN OUT	C.O.
SS	STORM SEWER	SS
W	WATER MAIN	W
FH	FIRE HYDRANT	FH
PLUG	PLUG	PLUG
OW	OVERHEAD WIRES	OW
UP	UTILITY POLE	UP
UE	UNDERGROUND ELECTRIC	UE
T	TELEPHONE	T
G	GAS MAIN	G
E	ELECTRICAL	E
TR	TRANSFORMER	TR
HR	HANDICAP RAMP (CG-12)	HR
GF	GUARDRAIL FENCE	GF
TF	TRAFFIC FLOW	TF
L	LIGHT	L
T	TREES	T
LC	LIMITS OF CLEARING AND GRADING	LC



PROPOSED MODIFIED TS-2 CAT 1 ROAD
INTERIOR ROAD SECTION DETAIL
NTS

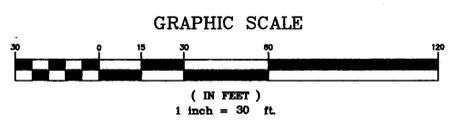


PROPOSED WESTBROOK DR. IMPROVEMENTS
HALF-SECTION ROAD DETAIL
NTS

- NOTES:**
- POTENTIAL HOUSE ORIENTATION AND DRIVEWAY ALIGNMENT SHOWN ON LOT 3, 5, 6 AND 7 MAY BE ALTERED AT TIME OF GRADING PLAN AND BUILDING PERMIT APPROVAL, PROVIDED THAT THE LIMITS OF CLEARING AND GRADING SHOWN ON THE GDP SHALL NOT BE DIMINISHED.
 - PRIMARY SPILLWAY STRUCTURE TO BE DESIGNED TO PROVIDE BMP COVERAGE AND SWM PURPOSES ON AN INTERIM BASIS IN THE EVENT THAT POND R-17 IS NOT FUNCTIONAL BY THE TIME OF FINAL SUBDIVISION PLAN APPROVAL.
 - IF REQUIRED, EXISTING POND EMBANKMENT SHALL BE REVIEWED BY A GEOTECHNICAL ENGINEER; AND IF NEEDED, SHALL BE UPGRADED TO MEET THE MINIMUM SAFETY STANDARDS OUTLINED IN THE GEOTECHNICAL ENGINEER'S REPORT.

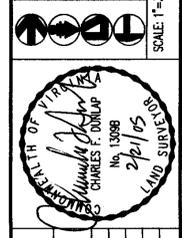
CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHORD BEARING
1	25.00'	39.27'	90°00'00"	25.00'	35.36'	S33°51'43"E



Application No. **RT 2005-SP-012** Staff **CDL**
APPROVED DEVELOPMENT PLAN
 (DP) (GDP) (CDP) (FDP)
 SEE PROFFERS DATED **11-9-2005**
 Date of (BOS) (PC) approval **11-21-2005**
 Sheet **2** of **5**

WALTER L. PHILLIPS
INCORPORATED
CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046
(703) 532-6163 FAX (703) 533-1801
WWW.WLPHINC.COM
DRAWN: JLI
DATE: 2/21/05, REV. 3/23/05, 6/29/05, 10/17/05, 10/28/05, 10/29/05, 11/17/05, 9/22/05, 9/22/05, 10/17/05, 10/28/05



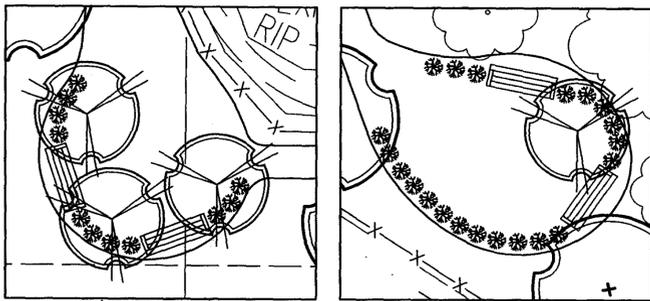
REVISION APPROVED BY

NO.	DESCRIPTION	DATE	APPROVED

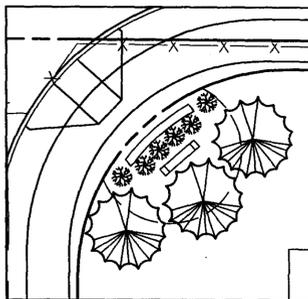
GENERALIZED DEVELOPMENT PLAN
ETHEL'S POND
SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

HEATHERBROOK
ZONE: R-2, CLUSTER
USE: RESIDENTIAL

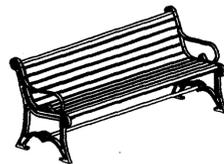
WESTBROOK DRIVE - ROUTE 1258
(VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)



PROPOSED SITTING AREA DETAILS
SCALE: 1"=10'



PROPOSED SIGN DETAIL
PROPOSED 4'x4' WOOD SIGN, APPROX. 4' TALL
WITH 2x4 WOOD POSTS WITH METAL CAPS
AND A SMALL (12") STONE ACCENT WALL
SCALE: 1"=10'



BENCH DETAIL
(OR SIMILAR BENCH)

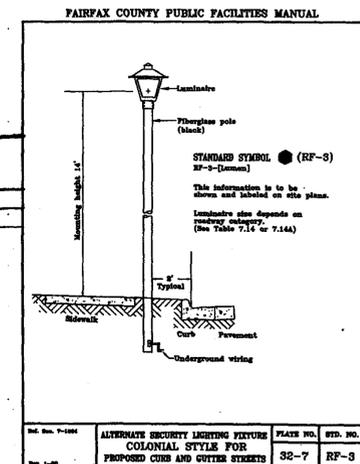
PARCEL N-1, SEC 1
MARSHALL FARMS
ZONE: R-1
USE: RESIDENTIAL

LOT 1
HOLLAND PROPERTY
ZONE: R-2 CLUSTER
USE: RESIDENTIAL

- LEGEND**
- PROPOSED DECIDUOUS TREES (250 SF COVERAGE)
 - PROPOSED FLOWERING TREE
 - PROPOSED EVERGREEN
 - PROPOSED SHRUBS (12"-18" HT)

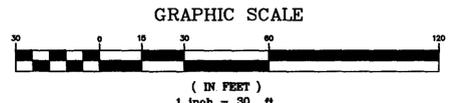
TREE COVER CALCULATION

SITE AREA	±220,067 SF
STREET DEDICATION	±21,760 SF
POND AREA	±41,943 SF
ADJUSTED SITE AREA	±156,364 SF
20% REQUIREMENT	±31,272 SF
EXISTING TREE COVER TO REMAIN	±13,200 SF
EX. TREE COVER CREDIT (±13,200 x 1.25)	±16,500 SF
PROPOSED PLANTING	±14,950 SF
TOTAL TREE COVER PROVIDED	±31,450 SF

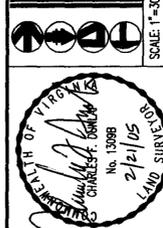


CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHORD BEARING
1	25.00'	39.27'	90°00'00"	25.00'	35.36'	S33°51'43"E



WALTER L. PHILLIPS
INCORPORATED
CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
207 PARK AVENUE, FALLS CHURCH, VIRGINIA 22046
(703) 552-6163 FAX (703) 553-1801
WWW.WLPHINC.COM
DATE: 2/21/05, REV. 3/23/05, 6/15/05, 10/11/05, 6/22/05, 10/11/05
SCALE: 1"=30'
DRAWN: JH

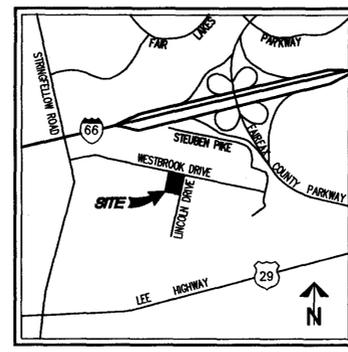
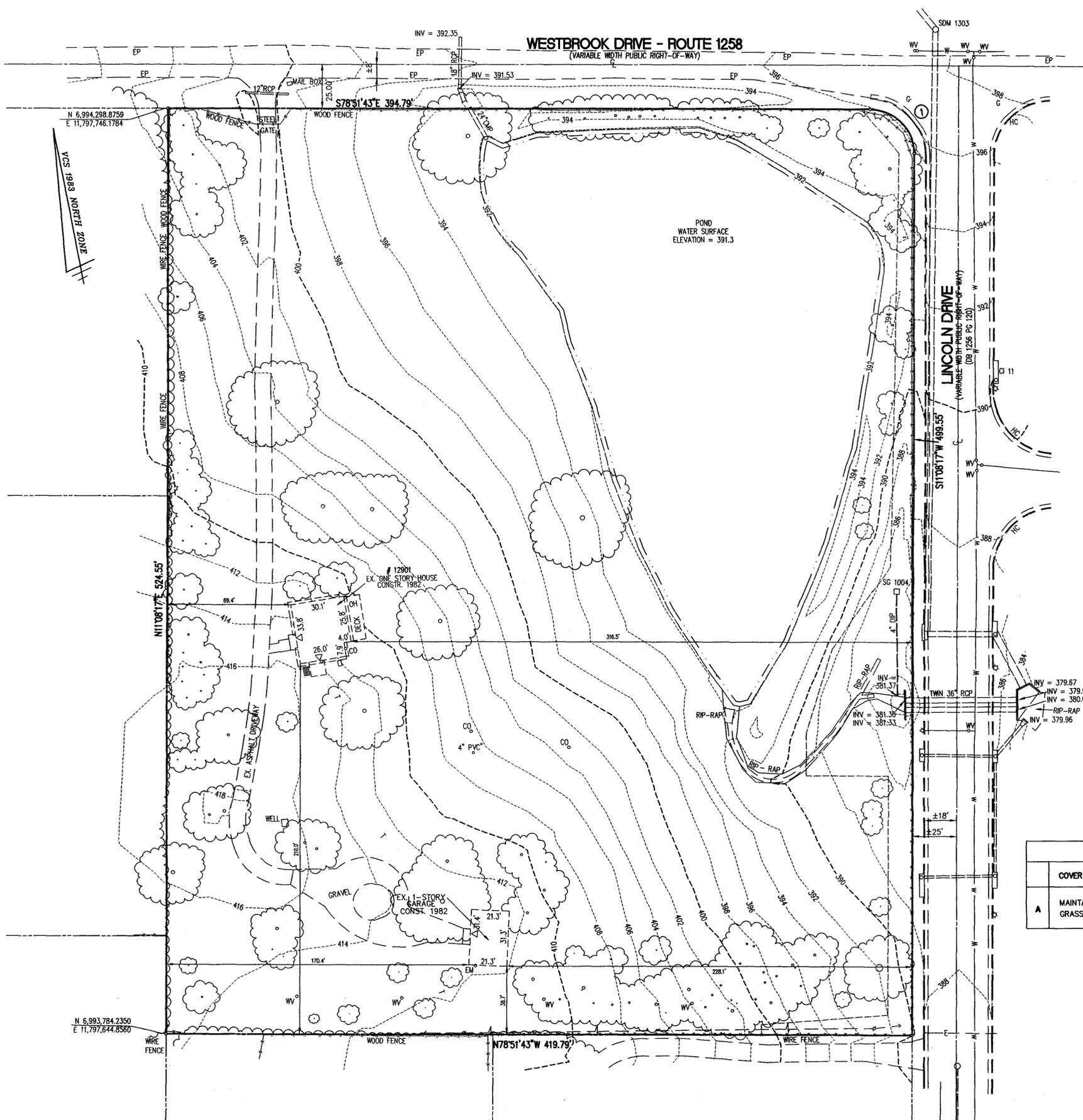


REVISION APPROVED BY

NO.	DESCRIPTION	DATE	APPROVED	DATE

CONCEPTUAL LANDSCAPE PLAN

ETHEL'S POND
SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA



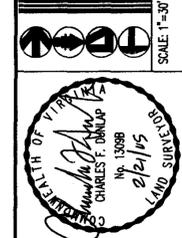
VICINITY MAP SCALE: 1"=2000'

COVER TYPE	PRIMARY SPECIES	SUCCESSIONAL STAGE	CONDITION	ACREAGE	COMMENTS	
A	MAINTAINED GRASSLAND	WHITE PINES, AMERICAN HOLLYS, VIRGINIA PINES, BLUE SPRUCES, LEYLAND CYPRESSES	SUB-CLIMAX	GOOD	220,067 SF OR 5.0520 AC	THIS SITE CONTAINS EXISTING RESIDENCE & OUT-BUILDINGS, ASPHALT DRIVE & POND. THERE ARE MANY LARGE EVERGREEN TREES IN EXCELLENT CONDITION. MOST OF THE TREES HAVE BEEN WELL-MAINTAINED.

CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHORD BEARING
1	25.00'	39.27'	90°00'00"	25.00'	35.36'	S33°51'43"E

Application No. RZ 2005-SP-012 Staff CDL
 APPROVED DEVELOPMENT PLAN
 (DP) (GDP) (CDP) (FDP)
 SEE PROFFERS DATED 11-9-2005
 Date of (BOS) (PC) approval 11-21-2005
 Sheet 4 of 5

WALTER L. PHILLIPS
 INCORPORATED
 CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
 207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046
 (703) 532-6163 FAX (703) 533-8301 WWW.WLPHINC.COM



NO.	DESCRIPTION	DATE	APPROVED	DATE

EXISTING VEGETATION MAP
ETHEL'S POND
 SPRINGFIELD DISTRICT
 FAIRFAX COUNTY, VIRGINIA

STORM WATER MANAGEMENT SUMMARY - SWM POND

STORMWATER MANAGEMENT NARRATIVE *

STORMWATER MANAGEMENT WILL BE PROVIDED IN REGIONAL POND R-17, WHICH IS LOCATED SOUTH OF THE SITE. PRIMARY AND EMERGENCY SPILLWAYS FOR THE EXISTING POND WILL BE MODIFIED AND UPDATED AS REQUIRED AT THE TIME OF THE SUBDIVISION PLAN. THE EXISTING POND ON SITE OUTFALLS DIRECTLY INTO AN EXISTING PIPE UNDER LINCOLN DRIVE. (IN THE EVENT THAT POND R-17 IS NOT FUNCTIONAL AT THE TIME OF FINAL SUBDIVISION PLAN APPROVAL, THEN THE UPGRADED EXISTING POND WILL BE USED FOR SWM ON AN INTERIM BASIS UNTIL POND R-17 IS FUNCTIONAL.)

1. PREDEVELOPMENT CONDITIONS

1) SITE AREA - 5.05 AC / 220,067 SF (3.8% IMPERVIOUS)

2) PREDEVELOPMENT CONDITIONS:

BLDG'S/PVMT	=	±6,124 SF/0.14 AC.
GRAVEL DRIVES	=	±2,329 SF/0.05 AC.
LAWN/WOODED AREA	=	±169,860 SF/3.90 AC.
POND AREA	=	±41,951 SF/0.96 AC.

$C_2 = [(0.14 \times 0.9) + (0.05 \times 0.65) + (3.90 \times 0.15) + (0.96 \times 0.15)] / 5.05 = 0.18$
 $C_{10} = [(0.14 \times 0.9) + (0.05 \times 0.65) + (3.90 \times 0.35) + (0.96 \times 0.35)] / 5.05 = 0.37$

TIME OF CONCENTRATION = 10 MIN (PFM TABLE 6.6)

$Q_2 = 5.05 \times 4.60 \times 0.18 = 4.18$ CFS
 $Q_{10} = 5.05 \times 5.92 \times 0.37 = 11.06$ CFS

2. POST DEVELOPMENT CONDITIONS:

LOT/STREET AREA - ±137,860 SF/3.16 AC. (C=0.45) PFM TABLE 6.6
 OPEN SPACE - ±82,207 SF/1.89 AC. (C=0.35)

$C = [(3.16 \times 0.45) + (1.89 \times 0.35)] / 5.05 = 0.41$

TIME OF CONCENTRATION = 10 MIN (PFM TABLE 6.6)

$Q_2 = 5.05 \times 4.60 \times 0.41 = 9.52$ CFS
 $Q_{10} = 5.05 \times 5.92 \times 0.41 = 12.26$ CFS

3. REQUIRED DETENTION:

2 YEAR STORM = 9.52 - 4.18 = 5.34 CFS
 10 YEAR STORM = 12.26 - 11.06 = 1.20 CFS

* WAIVER APPROVED TO USE REGIONAL POND R-17 (SEE SHEET 1)

BMP FACILITY DESIGN CALCULATIONS

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

SUBAREA DESIGNATION AND DESCRIPTION	"C"	ACRES
(1)	(2)	(3)
A1 SITE AREA TO POND	0.41	3.52
A2 CONSERVATION EASEMENT	0.35	0.14
A3 ONSITE UNCONTROLLED	0.41	1.53
A4 OFFSITE AREA TO POND	0.40	(0.2)1.21
A5 OFFSITE AREA TO POND	0.40	(0.2)16.82

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

AREA OF THE SITE (a) 5.05 ACRES

**SEE ABOVE SWM COMPUTATIONS UNDER POST-DEVELOPMENT CONDITIONS

WEIGHTED AVERAGE "C" FACTOR = 0.41**

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)
A1	WET POND	50 x	3.52/5.05	x 0.41/0.41	= 34.85
A2	CONSERVATION EASEMENT	100 x	0.14/5.05	x 1	= 2.77
A4	OFFSITE TO POND	50 x	(0.2)1.21/5.05	x 0.40/0.41	= 2.34
A5	OFFSITE TO POND	50 x	(0.2)16.82/5.05	x 0.40/0.41	= 32.49
(a) TOTAL =					72.45%

PART 4: DETERMINE COMPLIANCE WITH PHOSPHORUS REMOVAL REQUIREMENT

(A) SELECT REQUIREMENT (a) 50%

* WATER SUPPLY OVERLAY DISTRICT (OCCOQUAN WATERSHED) = 50 %

* CHESAPEAKE BAY PRESERVATION AREA (NEW DEVELOPMENT) = 40 %

* CHESAPEAKE BAY PRESERVATION AREA (REDEVELOPMENT) [1-0.9 x ("C"PRE/"C"POST)] x 100 =

(B) IF LINE 3(a) 72.45 ≥ LINE 4(a) 50 THEN PHOSPHORUS REMOVAL REQUIREMENT IS SATISFIED.*

*SUBJECT TO CHANGE WITH FINAL DESIGN. MINIMUM OF 50% PHOSPHORUS REMOVAL TO BE PROVIDED WITH FINAL DESIGN.

BMP NARRATIVE

REGIONAL POND R-17 IS TO BE REDESIGNED TO PROVIDE BMP. IN THE EVENT POND R-17 IS NOT REDESIGNED, THEN BMP WILL BE PROVIDED BY UPGRADING THE EXISTING ONSITE WET POND, AND WILL BE SUPPLEMENTED BY A PROPOSED CONSERVATION EASEMENT ON OUTLOT A. 3.52 ACRES OF ONSITE AREA FLOWS TO THE EXISTING POND, ALONG WITH 17.93 OFFSITE ACRES. THE POND HAS A CAPACITY OF ±90,000 CUBIC FEET, WHICH FULFILLS THE ±50,000 CF STORAGE REQUIREMENT FOR A WET POND WITH 50% PHOSPHORUS REMOVAL. THE 50% PHOSPHORUS REMOVAL REQUIRED FOR THE OCCOQUAN WATERSHED IS MET THROUGH THE ONSITE AND OFFSITE FLOWS TO THE WET POND. THE POND WILL BE PRIVATELY OWNED AND MAINTAINED BY THE HOA; AND, A MAINTENANCE AGREEMENT WILL BE REQUIRED.

OUTFALL NARRATIVE

STORM WATER RUNOFF FROM THIS SITE AND ADJACENT PROPERTIES WILL BE COLLECTED IN A SERIES OF ONSITE INLETS AND PIPES, WHICH WILL DISCHARGE INTO THE EXISTING STORM SEWER LOCATED ON THE EAST SIDE OF THE PROPERTY, AND WILL FLOW TO THE FLOODPLAIN, AND THEN REGIONAL POND R-17. AS SHOWN IN THE DIAGRAM TO THE RIGHT, ONSITE AND OFFSITE WATER FROM AREAS A1, A2, A4, AND A5 FLOW TO ETHEL'S POND, AND THEN CONTINUE ON VIA THE CONSERVATION EASEMENT TO THE FLOODPLAIN. AREA A6, WHICH PREVIOUSLY FLOWED TO ETHEL'S POND, IS BEING DIVERTED VIA A PIPE SYSTEM AROUND THE ETHEL'S POND DEVELOPMENT AND CONNECTED TO THE EXISTING STORM SEWER SYSTEM IN LINCOLN DRIVE. THE DRAINAGE SYSTEM WAS ANALYZED USING A TEN MINUTE TIME OF CONCENTRATION.

A1 - AREA A1 CONSISTS OF 3.52 ACRES AND A RUNOFF COEFFICIENT OF 0.41. WITH A TEN YEAR STORM FLOW OF 8.54 CFS, ALL WATER DRAINING FROM THIS AREA WILL BE TREATED ONSITE IN ETHEL'S POND, AND THEN CONNECTED TO THE EXISTING STORM SEWER.

A3 - AREA A3 CONSISTS OF 1.53 ACRES OF ONSITE AREA AND A RUN-OFF COEFFICIENT OF 0.41. THIS AREA DOES NOT FLOW TO ETHEL'S POND, AND INSTEAD LEAVES THE SITE UNDETAINED, AND FLOWS TO THE CONSERVATION EASEMENT. THIS AREA PRODUCES A PEAK 10 YEAR OUTFLOW OF 3.71 CFS.

A4 - AREA A4 CONSISTS OF 1.21 ACRES OF OFFSITE AREA AND A RUN-OFF COEFFICIENT OF 0.40. THE TEN YEAR FLOW OF 2.87 CFS DRAINING FROM THIS AREA FLOWS TO ETHEL'S POND, AND THEN IS CONNECTED TO THE EXISTING STORM SEWER SYSTEM.

A5 - AREA A5 CONSISTS OF 16.72 ACRES OF OFFSITE AREA AND A RUN-OFF COEFFICIENT OF 0.40. THE TEN YEAR FLOW OF 39.59 CFS DRAINING FROM THIS AREA FLOWS TO ETHEL'S POND, AND THEN IS CONNECTED TO THE EXISTING STORM SEWER SYSTEM.

A6 - AREA A6 CONSISTS OF 19.98 ACRES OF OFFSITE AREA AND A RUN-OFF COEFFICIENT OF 0.50. THE TEN YEAR FLOW OF 59.14 CFS DRAINING FROM THIS AREA WILL BE ROUTED AROUND THE SUBJECT PROPERTY TO THE EXISTING STORM SEWER SYSTEM ON LINCOLN DRIVE.

AFTER LEAVING THE SITE, THESE FLOWS WILL OUTLET INTO AN EXISTING STORM DRAINAGE EASEMENT/CONSERVATION EASEMENT IN THE FOULGER & BOLDOG SUBDIVISION. THIS AREA IS A TRIBUTARY TO LITTLE ROCKY RUN FLOOD PLAIN.

EXTENSIVE OUTFALL CALCULATIONS INCLUDED IN THE REVISED HEATHERBROOK PLANS SHOW THE OUTFALL PATH AND CAPACITIES, AND DEMONSTRATE THAT THE EXISTING STORM DRAINAGE SYSTEM TO REGIONAL POND R-17 IS ADEQUATE. THEREFORE, IT IS THE OPINION OF THE SUBMITTING ENGINEER THAT THE OUTFALL IS ADEQUATE.

EXISTING STORM SEWER:

ALL STORM WATER WILL BE DIRECTED TO THE TWIN 36" RCP PIPES LOCATED ON THE EAST SIDE OF THE PROPERTY. THE FOLLOWING CALCULATIONS DEMONSTRATE THAT THE EXISTING STORM SEWER IS ADEQUATE.

NOTE: OFFSITE FLOW FROM AREA A5 HAS BEEN TAKEN FROM STORMWATER MANAGEMENT COMPUTATIONS IN THE HEATHERBROOK PLANS BY BC CONSULTANTS, DATED: SEPT. 2001, REVISED APRIL 2002.

AREAS AND 10 YR PEAK FLOWS:

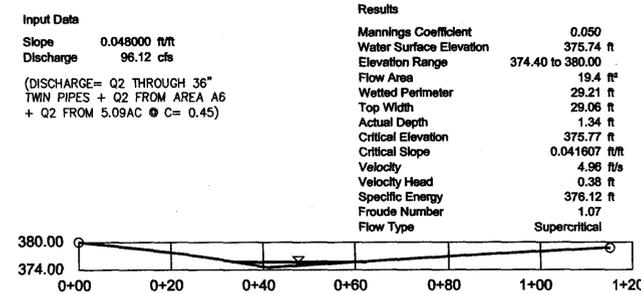
A1 (ONSITE TO POND)	=	8.54 CFS
A4 (OFFSITE TO POND)	=	2.87 CFS
A5 (OFFSITE TO POND)	=	39.59 CFS
TOTAL	=	51.00 CFS

TWIN 36" PIPE CAPACITY:

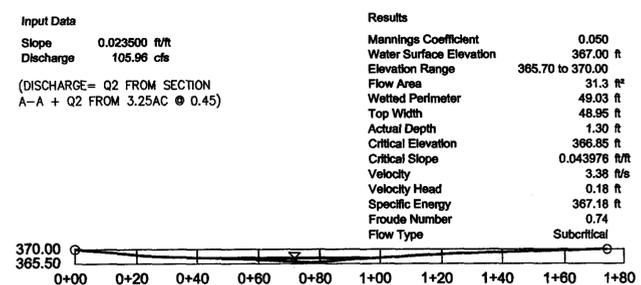
$Q = A \cdot V = A \cdot (1.49/n) \cdot S^{(1/2)} \cdot R^{(2/3)} = (2 \times 27.07) \cdot (1.49/0.013) \cdot (0.021)^{(1/2)} \cdot (0.75)^{(2/3)} = 194$ CFS

Application No. **R2 2005-SP-12** Staff **CDL**
APPROVED DEVELOPMENT PLAN
 (DP) (QDP) (CDP) (FDP)
 SEE PROFFERS DATED **11-9-2005**
 Date of (BOS) (PC) approval **11-21-2005**
 Sheet **5** of **5**

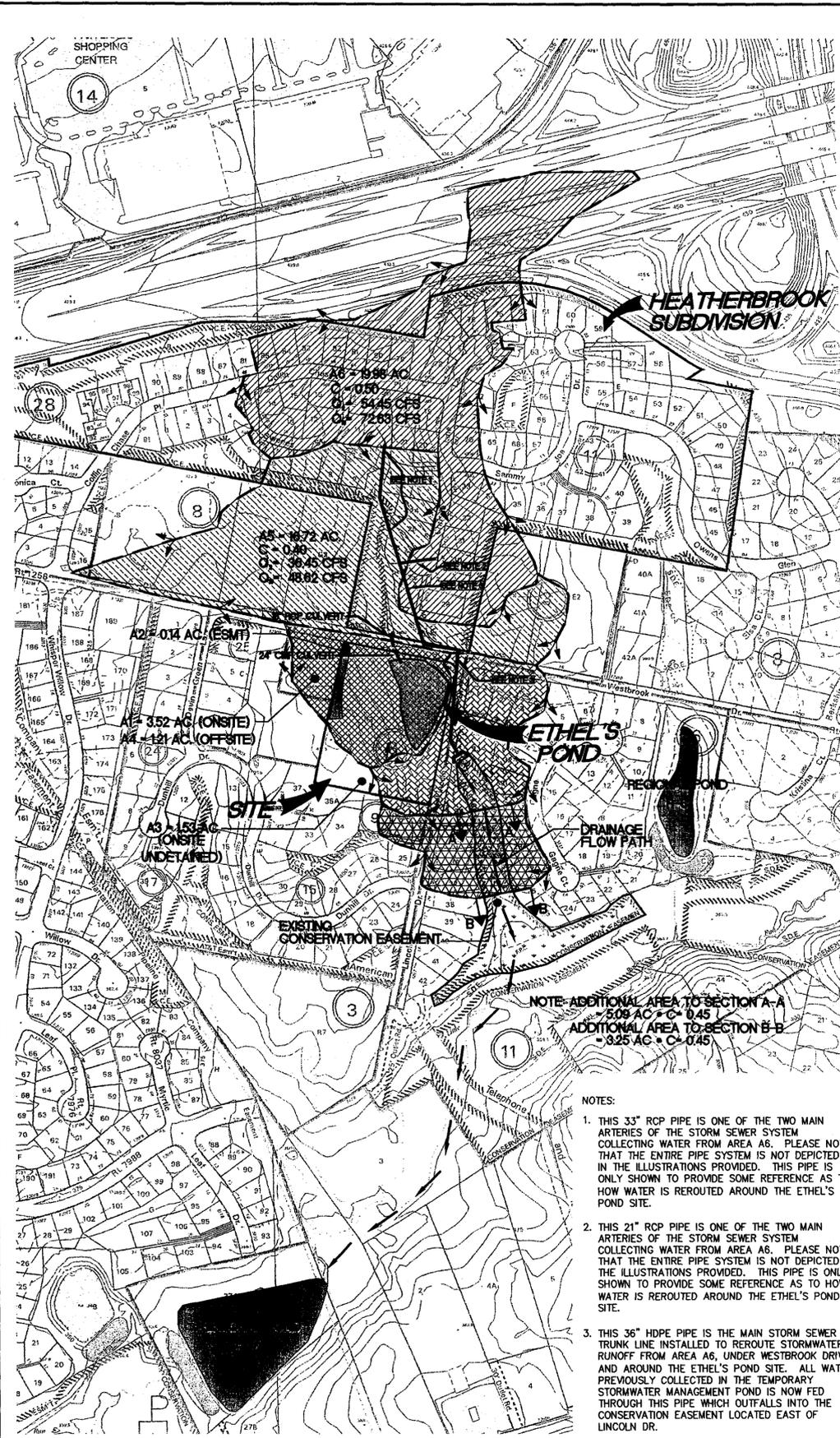
CROSS SECTION A-A (2-YEAR STORM)*



CROSS SECTION B-B (2-YEAR STORM)*



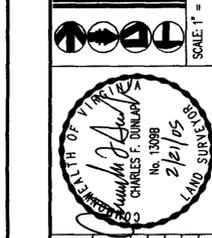
* NOTE: ALL CROSS-SECTION INFORMATION TAKEN FROM FX. CO. PLAN # 1199-SP-001-2



ALL INFORMATION REGARDING AREAS A1, A2, AND THE TEMPORARY STORMWATER MANAGEMENT POND HAS BEEN TAKEN FROM APPROVED HEATHERBROOK PLANS. ORIGINAL PLANS DATED 5/5/96, APPROVED ON 6/3/02, WITH REVISIONS MADE ON 3/31/03. COUNTY PLAN #1199-SP-001.

THIS PLAN IS CONCEPTUAL AND IS INTENDED TO BE USED IN CONJUNCTION WITH THE LAND USE APPROVAL PROCESS ONLY. IT IS NOT AN ENGINEERING CONSTRUCTION DRAWING; AND, MINOR DEVIATIONS AND ADJUSTMENTS MAY BE REQUIRED.

WALTER L. PHILLIPS
 INCORPORATED
 CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
 207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046 WWW.WLPINC.COM
 (703) 582-6168 FAX (703) 583-9301
 DATE: 2/27/05, REV. 3/23/05
 REV. 8/29/05, 9/27/05, 10/11/05, 10/26/05
 SCALE: 1" = 30'



NO.	DESCRIPTION	DATE	APPROVED BY	DATE

PRELIMINARY SWM AND BMP COMPUTATIONS

ETHEL'S POND
 SPRINGFIELD DISTRICT
 FAIRFAX COUNTY, VIRGINIA