ZONING TABULATION:

R-1, RESIDENTIAL DISTRICT: ONE DWELLING UNIT/ACRE

	REQUIRED	PROVIDED
SITE	N/A	386,920 SF/8.88 AC
MAX. BLDG. HT.	60 FT	±50 FT
MIN. YARD REQUIREMENTS		
FRONT	50' ABP, 40 FT	±134 FT
SIDE	45' ABP, 20 FT	±25 FT
REAR	45' ABP, 25 FT	±610 FT
MAX. FAR	0.15	0.15
OPEN SPACE	N/A	±55%
INT. PARKING LOT LANDSCAPING	5%	±7%

PARKING TABULATION:

CHURCH: 685 SEATS @ 1 SP/4 SEATS
REQUIRED = 685/4 = 172 SPACES
DAYCARE: 99 CHILDREN @ 0.19 SP/CHILD
REQUIRED = 99*0.19 = 19 SPACES

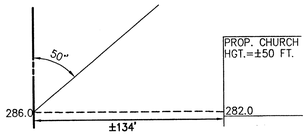
TOTAL REQUIRED: 172+19 = 191 SPACES
PARKING PROVIDED: 244 PARKING SPACES (INCLUDING 7 ACCESSIBLE SPACES)

TREE COVER CALCULATIONS

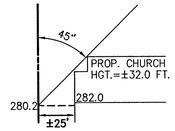
TOTAL SITE AREA	386,920	S.F.
BUILDING FOOTPRINT	– 34,332	S.F.
PLAYGROUND	– 5,000	S.F.
ADJUSTED SITE AREA	347,588	S.F.
PERCENT REQUIRED	X 20	%
TREE COVER REQUIRED	**69,518**	**S.F.**
DECIDUOUS TREES PROVIDED	48*250	S.F.
LARGE EVERGREEN TREES PROVIDED	74*125	S.F.
MEDIUM EVERGREEN TREES PROVIDED	148*60	S.F.
FLOWERING TREES PROVIDED	36*150	S.F.
EXISTING TREE COVERAGE	+41202*1.25	S.F.
TOTAL TREE COVERAGE	**±87,033**	**S.F.**

NOTES:

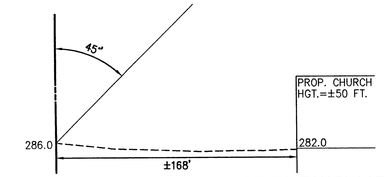
1. OWNER: FIELD, PETER AND VIRGINIA 8905 OX ROAD LORTON, VA 22079 — APPLICANT: NEW HOPE CHURCH PO BOX 10417 ALEXANDRIA, VA 22310
2. THIS APPLICATION REQUESTS A GROUP 3 SPECIAL PERMIT FOR A CHURCH AND DAYCARE.
3. THE PROPERTY IS DESIGNATED BY FAIRFAX COUNTY, VIRGINIA, AS TAX ASSESSMENT MAP NUMBER 106-2-01-0007, AND IS ZONED R-1.
4. THE PROPERTY IS NOW IN THE NAME OF PETER A. AND VIRGINIA W. FIELD, AS RECORDED IN DEED BOOK 11070 AT PAGE 1956.
5. TOTAL AREA OF THE PROPERTY IS 386,920 SQUARE FEET OR 8.88 ACRES.
6. TO THE BEST OF OUR KNOWLEDGE, ALL UTILITY EASEMENTS HAVING A WIDTH OF 25 FEET OR MORE ON THIS PROPERTY ARE SHOWN.
7. THIS PLAT DOES NOT SHOW ALL COVENANTS, EASEMENTS, RESTRICTIONS OR DEDICATIONS WHICH MAY EXIST IN THE CHAIN OF TITLE.
8. THE PROPOSED DEVELOPMENT CONFORMS TO ALL APPLICABLE FAIRFAX COUNTY ORDINANCES, REGULATIONS AND ADOPTED STANDARDS, EXCEPT AS NOTED IN THE WAIVERS REQUESTED SECTION.
9. BOUNDARY AND TOPOGRAPHIC INFORMATION IS TAKEN FROM A FIELD SURVEY PERFORMED BY THIS FIRM. CONTOUR INTERVAL IS 2 FOOT.
10. PROPERTY IS SERVED BY PUBLIC WATER AND SEWER.
11. ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP 5155250136D, DATED MARCH 1990, THIS PROPERTY IS SHOWN AS ZONE X, AREAS DETERMINED TO BE OUTSIDE OF THE 500-YEAR FLOOD PLAIN.
12. NO RESOURCE PROTECTION AREAS OR ENVIRONMENTAL QUALITY CORRIDORS, AS DEFINED, ARE DELINEATED ON THIS PROPERTY.
13. NO GRAVES OR OTHER EVIDENCE OF BURIAL PLACES HAVE BEEN FOUND ON THIS PROPERTY.
14. 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.
15. SITE SIGNAGE WILL BE PROVIDED IN ACCORDANCE WITH ARTICLE 12 OF THE FAIRFAX COUNTY ZONING ORDINANCE.
16. EXISTING ONE STORY DWELLING AND DETACHED GARAGE, CONSTRUCTED IN 1964, WILL BE DEMOLISHED.
17. THE MAJOR VEPCO EASEMENT ON THIS PROPERTY WAS GRANTED PRIOR TO THE EFFECTIVE DATE OF FAIRFAX COUNTY ZONING ORDINANCE.
18. PHASE I OF THE PROPOSED CHURCH WILL INCLUDE CONSTRUCTION OF A 685 SEAT SANCTUARY. PHASE II WILL INCLUDE THE ADDITION OF A MULTI-PURPOSE AREA. PHASE I OUTDOOR RECREATION AREA TO BE LOCATED IN THE AREA OF THE FUTURE PHASE II ADDITION. THE OUTDOOR RECREATION AREA WILL BE RELOCATED DURING PHASE II TO LOCATION AS SHOWN.
19. LIGHTING WILL BE IN ACCORDANCE WITH FAIRFAX COUNTY STANDARDS.
20. TWO ALTERNATIVE LOCATIONS HAVE BEEN SHOWN FOR THE CONNECTION TO THE PUBLIC SANITARY SEWER SYSTEM. FINAL LOCATION WILL BE DETERMINED AT SITE PLAN BASED ON AVAILABILITY OF EASEMENTS.



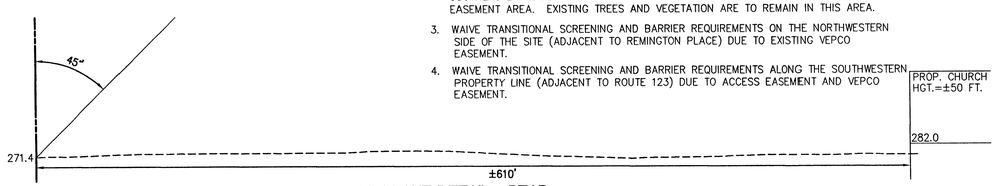
BULK PLANE DETAIL - OX ROAD
1" = 50'



BULK PLANE DETAIL - ADJ. TO PARCEL 8
1" = 50'



BULK PLANE DETAIL - ADJ. TO REMINGTON PLACE
1" = 50'



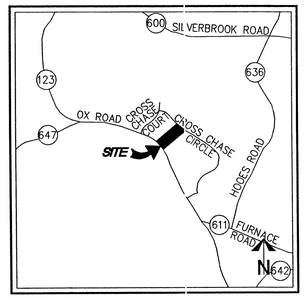
BULK PLANE DETAIL - REAR
1" = 50'

SHEET INDEX:

1. SPECIAL PERMIT PLAN
2. EXISTING VEGETATION MAP
3. PRELIMINARY STORMWATER MANAGEMENT PLAN
4. FOR INFORMATION ONLY SHEET
5. FOR INFORMATION ONLY SHEET

LEGEND

PROPOSED DECIDUOUS TREES
PROPOSED FLOWERING TREES
PROPOSED LARGE EVERGREEN TREES
PROPOSED MEDIUM EVERGREEN TREES
PROP. SHRUBS (10' MAX. HEIGHT; SELECTED FROM SUGGESTED SPECIES TO PLANT IN TRANSMISSION RIGHT OF WAY PER DOMINION VIRGINIA POWER)



VICINITY MAP SCALE: 1"=2000'

WAIVERS/MODIFICATIONS REQUESTED:

1. MODIFY TRANSITIONAL SCREENING REQUIREMENT AND WAIVE BARRIER REQUIREMENT ON THE NORTHEASTERN SIDE ADJACENT TO LOTS 29, 30, 31, AND PARCEL B IN THE PORTION OF THE PROPOSED CONSERVATION EASEMENT AREA AND VEPCO EASEMENT. EXISTING TREES AND VEGETATION ARE TO REMAIN IN THE PROPOSED CONSERVATION EASEMENT AREA.
2. MODIFY TRANSITIONAL SCREENING REQUIREMENT AND WAIVE BARRIER REQUIREMENT ON THE SOUTHEASTERN SIDE ADJACENT TO PARCEL 8 IN PORTION OF PROPOSED CONSERVATION EASEMENT AREA. EXISTING TREES AND VEGETATION ARE TO REMAIN IN THIS AREA.
3. WAIVE TRANSITIONAL SCREENING AND BARRIER REQUIREMENTS ON THE NORTHWESTERN SIDE OF THE SITE (ADJACENT TO REMINGTON PLACE) DUE TO EXISTING VEPCO EASEMENT.
4. WAIVE TRANSITIONAL SCREENING AND BARRIER REQUIREMENTS ALONG THE SOUTHWESTERN PROPERTY LINE (ADJACENT TO ROUTE 123) DUE TO ACCESS EASEMENT AND VEPCO EASEMENT.

Application No. SP 2005-MV-010

Chairman, Board of Zoning Appeals

REMINGTON PLACE
ZONE: R-1 USE: RESIDENTIAL

LOT 12 | LOT 11 | LOT 10 | LOT 9 | LOT 8 | PARCEL A | LOT 32

DB 15881 PG 546

BLU STEEL WAY (44' PUBLIC RIGHT-OF-WAY)

PROP. SHARED ENTRANCE (PER REMINGTON PLACE SUBDIVISION PLAN)

10' TRAIL ESMT DB 15881 PG 546

LIMITS OF CLEARING AND GRADING

21' STM DRAINAGE ESMT DB 15881 PG 546

N32°54'40"E 978.24'

CURB DEPRESSION

PROP. OPTIONAL BIORETENTION FILTER AREA (SIZE TO BE DETERMINED AT TIME OF SITE PLAN)

20' VEPCO ESMT DB 1671 PG 173 PLAT DB 6

INV.=±252.5

APPROXIMATE LOCATION OF ±12,000/ SF STORMWATER MANAGEMENT AREA ±4' DEEP ±48,000 CF

LIMITS OF CLEARING AND GRADING

DAM EMBANKMENT ≤6' IN HEIGHT

APPROXIMATE LIMITS OF 10-YR WSEL

PROP. ALTERNATIVE SAN. SEWER CONNECTION (SEE NOTE 20.)

PROPOSED CONSERVATION EASEMENT

PARCEL B

LOT 31

LOT 30

LOT 29

CROSSPOINTE, SECTION 16

CROSS CHASE CIRCLE – ROUTE 8336 (52' PUBLIC RIGHT-OF-WAY)

N38°58'04"W 183.57

OX ROAD – ROUTE 123 (VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)

N35°54'57"W 230.71'

PROPOSED INGRESS/EGRESS EASEMENT

TO BE RELOCATED

PROPOSED CANOPY

PROP. 8' CHAIN LINK FENCE

PROP. FENCED OUTDOOR REC COURT

PROP. PHASE OUTDOOR PLAY AREA (WITH 4' WOOD FENCE)

PROPOSED TWO-STORY CHURCH WITH CELLAR
58,000 SF OF GFA
MAX. BLDG. HEIGHT= 50FT
FF=282.0

PHASE I

PHASE II ADDITION

PROP. SHED

10'x13' TRASH ENCLOSURE

PROP. 7' WOOD FENCE

PROP. END OF 7' WOOD FENCE

PROP. PHASE II PLAYGROUND ±5200 SF OF USABLE OUTDOOR RECREATION AREA (WITH 4' WOOD FENCE)

S31°39'25"W 1,071.83'

S35°21'58"E 370.10'

ALBERT PERCIE & JOSEPHINE A. RAY
PARCEL 8
ZONE: R-1 USE: RESIDENTIAL

RECEIVED
Department of Planning & Zoning
MAY 13 2005
Zoning Evaluation Division

0 25 50
(IN FEET)
1 INCH = 50'

File No. FL-6 Tax Map No. 106-2 Job No. 04-065 Cadd Dwg. File: 04065SP8 Xiref:

REVISION APPROVED BY

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE

SPECIAL PERMIT PLAT

PROPOSED NEW HOPE CHURCH

MT. VERNON DISTRICT

FAIRFAX COUNTY, VIRGINIA

WALTER L. PHILLIPS
INCORPORATED
CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046
(703) 532-6163 FAX (703) 533-3301 WWW.WLPINC.COM

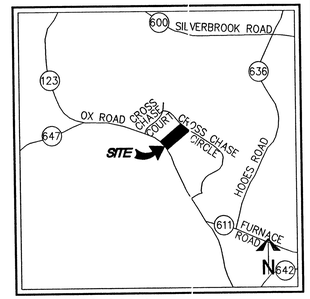
DATE: 1/10/05 REV. 4/5/05 REV. 5/13/05
REV. 3/2/05 REV. 4/26/05
DRAWN: MEF
SCALE: 1" = 50'

COMMONWEALTH OF VIRGINIA
CHARLES F. DUNLAP
No. 13098
5/13/05
LAND SURVEYOR

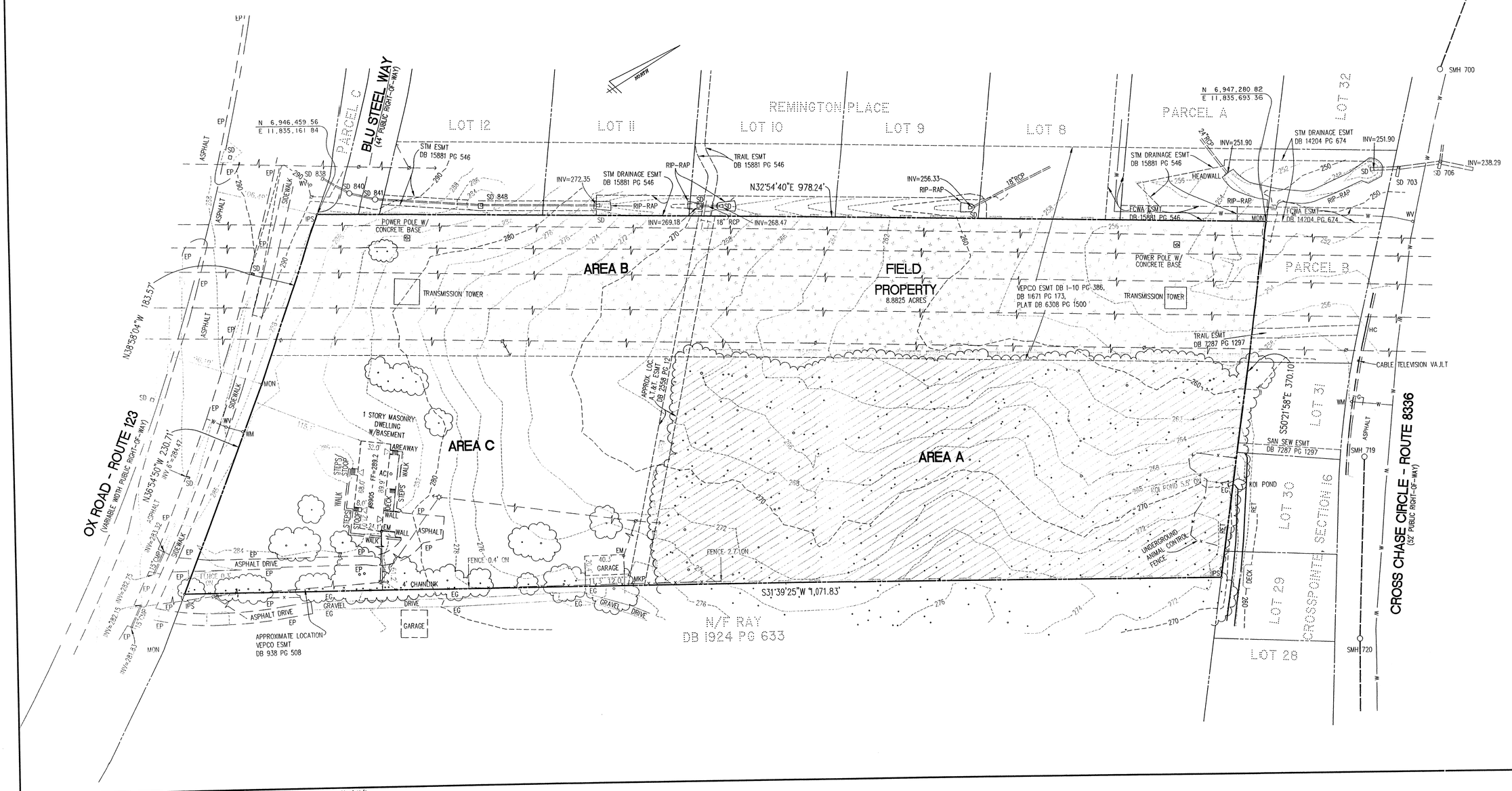
SHEET: 1 OF 5

EXISTING VEGETATION MAP INFORMATION

KEY	COVER TYPE	PRIMARY SPECIES	SUCCESSIONAL STAGE	CONDITION	ACREAGE	COMMENTS
A	UPLAND FOREST	TULIP POPLAR, RED OAK VIRGINIA PINE, RED MAPLE, BEECH	SUB-CLIMAX	GOOD	139,150 SF OR 3.194 AC	
B	OPEN FIELD	NO TREES PRESENT, MEADOW	N/A	FAIR	134,392 SF OR 3.085 AC	
C	MAINTAINED GRASSLAND	REDBUD, WHITE PINE RED MAPLE	N/A	GOOD	113,378 SF OR 2.603 AC	
TOTAL SITE AREA:					386,920 SF OR 8.882 AC	



VICINITY MAP SCALE: 1"=2000'



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DATE: 1/10/05 REV. 4/5/05 REV. 5/13/05
REV. 3/2/05 REV. 4/18/05
SCALE: 1" = 50' DRAWN: KLM

COMMONWEALTH OF VIRGINIA
No. 1308
Charles E. Dunkum
Staples
LAND SURVEYOR

EXISTING VEGETATION MAP

PROPOSED NEW HOPE CHURCH
MT. VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA

SHEET: 2 OF 5

File No. Tax Map No. 106-2 Job No. 04-065 Cadd Dwg. File: 04065EVM Xref: N/A

STORMWATER MANAGEMENT SUMMARY (ENTIRE SITE)

I. SPECIAL PERMIT AREA PRE-DEVELOPMENT (EXISTING CONDITIONS)

A. CONTRIBUTING AREAS:

8.71 AC. @ 0.15 (GREEN AREA ON-SITE)
0.17 AC. @ 0.90 (ROOFS, DRIVEWAYS, SIDEWALKS, ETC.)

B. WEIGHTED 'C':

$\frac{(8.71)(0.15)+(0.17)(0.90)}{8.88} = 0.16$

C. TIME OF CONCENTRATION = 5 MIN.

D. RUNOFF: Q2 = (0.16)(5.45)(8.88) = 7.74 CFS
Q10 = (0.16)(7.27)(8.88) = 10.33 CFS
Q100 = 1.25(0.16)(9.84)(8.88) = 17.48 CFS

II. POST-DEVELOPMENT UNDETAINED (2-YEAR, 10-YEAR, 100-YEAR STORM):

A. CONTRIBUTING AREAS:

2.05 AC. @ 0.30 (UNDETAINED GREEN, ON-SITE)
0.00 AC. @ 0.90 (UNDETAINED PAVED, ON-SITE)
2.05 AC.

B. WEIGHTED 'C':

$\frac{(2.05)(0.30)+(0.00)(0.90)}{2.05} = 0.30$

C. RUNOFF: Q2 = (0.30)(5.45)(2.05) = 3.35 CFS
Q10 = (0.30)(7.27)(2.05) = 4.47 CFS
Q100 = 1.25(0.30)(9.84)(2.05) = 7.56 CFS

III. POST-DEVELOPMENT DETAINED (TO POND):

A. CONTRIBUTING AREAS:

3.88 AC. @ 0.30 (GREEN AREA DETAINED, ON-SITE)
2.95 AC. @ 0.90 (PAVED AREA DETAINED, ON-SITE)
6.83 AC.

B. WEIGHTED 'C':

$\frac{(3.88)(0.30)+(2.95)(0.90)}{6.83} = 0.56$

C. RUNOFF: Q2 = (0.56)(5.45)(6.83) = 20.85 CFS
Q10 = (0.56)(7.27)(6.83) = 27.81 CFS
Q100 = 1.25(0.56)(9.84)(6.83) = 47.05 CFS

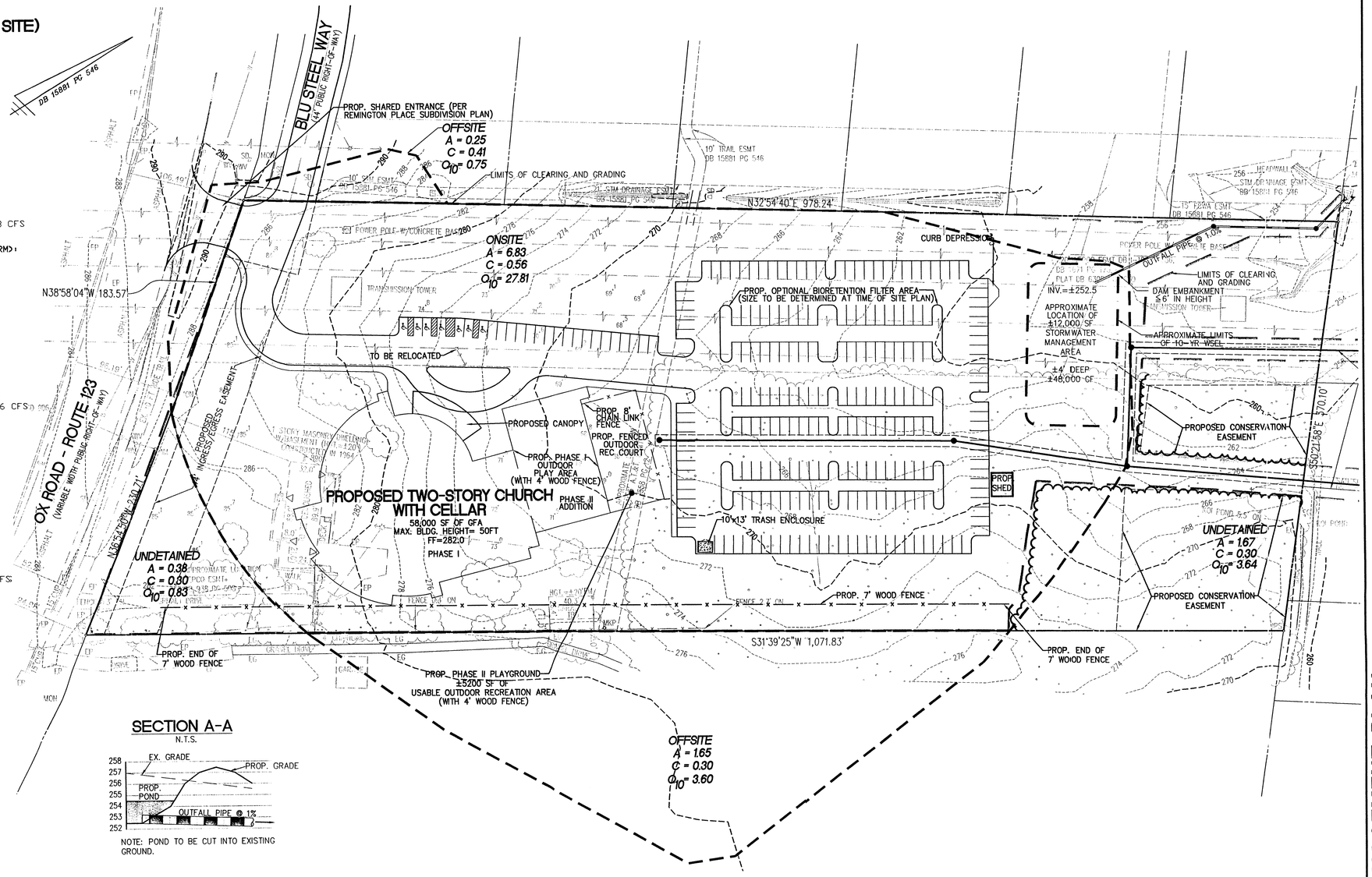
IV. POST DEVELOPED OFFSITE (TO POND):

A. AREA = 1.90 AC.
B. C FACTOR = 0.31
C. Q2 = (0.31)(5.45)(1.90) = 3.21 CFS
Q10 = (0.31)(7.27)(1.90) = 4.28 CFS
Q100 = 1.25(0.31)(9.84)(1.90) = 7.24 CFS

V. MAX RELEASE:

QMAX REL. = QPRE - Q(POST UNDETAINED) + Q(OFFSITE)

Q2 = 7.74 - 3.35 + 3.21 = 7.60 CFS
Q10 = 10.33 - 4.47 + 4.28 = 10.14 CFS



SECTION A-A

N.T.S.

NOTE: POND TO BE CUT INTO EXISTING GROUND.

BMP FACILITY DESIGN CALCULATIONS

II. WATERSHED INFORMATION

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

SUBAREA DESIGNATION AND DESCRIPTION (1)		"C" (2)	ACRES (3)
A_1	CONTROLLED ONSITE	0.56	6.83
A_2	UNCONTROLLED ONSITE	0.30	2.05
	TOTAL		8.88

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

(A) AREA OF THE SITE (a) 8.88 ACRES

(B) SUBAREA DESIGNATION (1)	"C" (2)		ACRES (3)	PRODUCT (4)
A_1 CONTROLLED ONSITE	0.56	x	6.83	= 3.82
A_2 UNCONTROLLED ONSITE	0.30	x	2.05	= 0.62
			(b) TOTAL =	4.44

(C) WEIGHTED AVERAGE "C" FACTOR (b)/(a) = (c) 0.50

PART 3: COMPUTE THE TOTAL PHOSPHORUS REMOVAL FOR THE SITE

SUBAREA DESIGNATION (1)	BMP TYPE (2)	REMOVAL EFF. (%) (3)		AREA RATIO (4)		"C" FACTOR RATIO (5)	PRODUCT (6)
A_1	DRY POND	40	x	6.83/8.88	x	0.56/0.50	= 34.46
A_2	CONSERVATION ESMT.	100	x	0.65/8.88	x	1	= 7.32
						(a) TOTAL =	41.78%

PART 4: DETERMINE COMPLIANCE WITH PHOSPHORUS REMOVAL REQUIREMENT

(A) SELECT REQUIREMENT (a) 40%

* 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) 41.78 ≥ LINE 4(a) 40 THEN PHOSPHORUS REMOVAL REQUIREMENT IS SATISFIED.

SWM/BMP NARRATIVE

DETENTION FOR THE SITE WILL BE PROVIDED BY A ±12,000 SF DRY POND. THE MAXIMUM RELEASE RATE FOR THIS POND WILL NOT BE GREATER THAN 10.25 CFS FOR: THE 10 YEAR STORM. BMP FOR THE SITE WILL BE PROVIDED IN THE DRY POND, WHICH HAS A PHOSPHORUS REMOVAL EFFICIENCY OF 40%. ±6.8 ACRES OF SITE AREA FLOW TO THE POND, PROVIDING ±34% TOTAL PHOSPHORUS REMOVAL. THE REMAINING ±7% IS PROVIDED WITH A CONSERVATION EASEMENT ON THE SOUTHEASTERN SIDE OF THE SITE. AN AREA IS ALSO SHOWN FOR A PROPOSED OPTIONAL BIORETENTION FILTER AREA. THE SIZE OF THIS AREA WOULD BE DETERMINED AT THE TIME OF SITE PLAN AND THE BMP COMPUTATIONS WOULD BE UPDATED AT THAT TIME TO REFLECT THE REVISED PHOSPHORUS REMOVAL FOR THE SITE. THUS, THIS SITE WILL MEET THE 40% CHESAPEAKE BAY PHOSPHORUS REMOVAL REQUIREMENT.

SWM NOTES:

1. NO DAM EMBANKMENT IS PROPOSED.
2. NO MAINTENANCE ACCESS ROADS ARE PROPOSED.
3. ON-SITE SURFACE DRAINAGE TO BE COLLECTED IN STRUCTURES AND PIPES AND CONVEYED TO THE POND LOCATION TO BE DETEREMINED AT SITE PLAN.

OUTFALL NARRATIVE

THE SUBJECT PROPERTY DRAINS FROM WEST TO EAST INTO AN ONSITE DRY DETENTION POND. DEVELOPMENT OF THE SITE WILL GENERALLY HONOR THESE DRAINAGE PATTERNS. THE DETENTION POND DISCHARGES INTO AN OPEN CHANNEL ON THE ADJACENT PROPERTY TO THE NORTH. IT THEN FLOWS INTO AN OPEN CHANNEL AND CULVERT SYSTEM ON CROSSPOINTE CONSISTING OF 36" AND 42" R.C.P.S., AND THEN INTO A WELL DEFINED, STABILIZED CHANNEL WHICH OUTFALLS INTO THE 100-YR FLOODPLAIN FOR GILES RUN. THERE IS A FAIRFAX COUNTY MAPPED RESOURCE PROTECTION AREA WHICH EXTENDS APPROXIMATELY 100' BEYOND THE 100-YR FLOODPLAIN LIMITS FOR GILES RUN AT THIS POINT. THE DRAINAGE AREA TO THE POINT AT WHICH THE CHANNEL DISCHARGES INTO THE FLOODPLAIN IS ±21.4 AC.

THE AS-BUILT PIPE CAPACITY INFORMATION FOR THE EXISTING STORM SYSTEM AT CROSS CHASE CIRCLE:

3A-3, 24' OF 36" RCP @ 5.33% (155 CFS)
3-2, 38' OF 36" RCP @ 6.61% (170 CFS)
2-1, 30' OF 42" RCP @ 1.42% (120 CFS)

THE ACTUAL Q10 FLOWING THROUGH THE EXISTING SYSTEM IS APPROXIMATED TO BE 72.2 CFS FROM EXISTING DEVELOPMENT (SEE ATTACHED SHEET 5), PLUS 10.1 CFS FROM THE PROPOSED DEVELOPMENT, FOR A TOTAL OF 82.3 CFS. THE NOMINAL CAPACITY OF THESE PIPES IS 120 CFS AS VERIFIED BY THE "AS-BUILT" DATA ABOVE. AT CROSS-SECTION "B-B" (SEE ATTACHED SHEET 5), THE DOWNSTREAM CHANNEL PROVIDES CAPACITY AND EED AND BANKS ALL THE WAY TO GILES RUN. THEREFORE, IT IS THE SUBMITTING ENGINEER'S OPINION THAT AN ADEQUATE OUTFALL EXISTS FOR THIS SITE, AND THAT ITS DEVELOPMENT WILL NOT ADVERSELY IMPACT DOWNSTREAM PROPERTIES.

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) 532-6163 FAX (703) 533-1801

DATE: 1/10/05 REV. 4/5/05 REV. 5/13/05
REV. 3/3/05 REV. 4/18/05
SCALE: 1" = 50' DRAWN: MEF

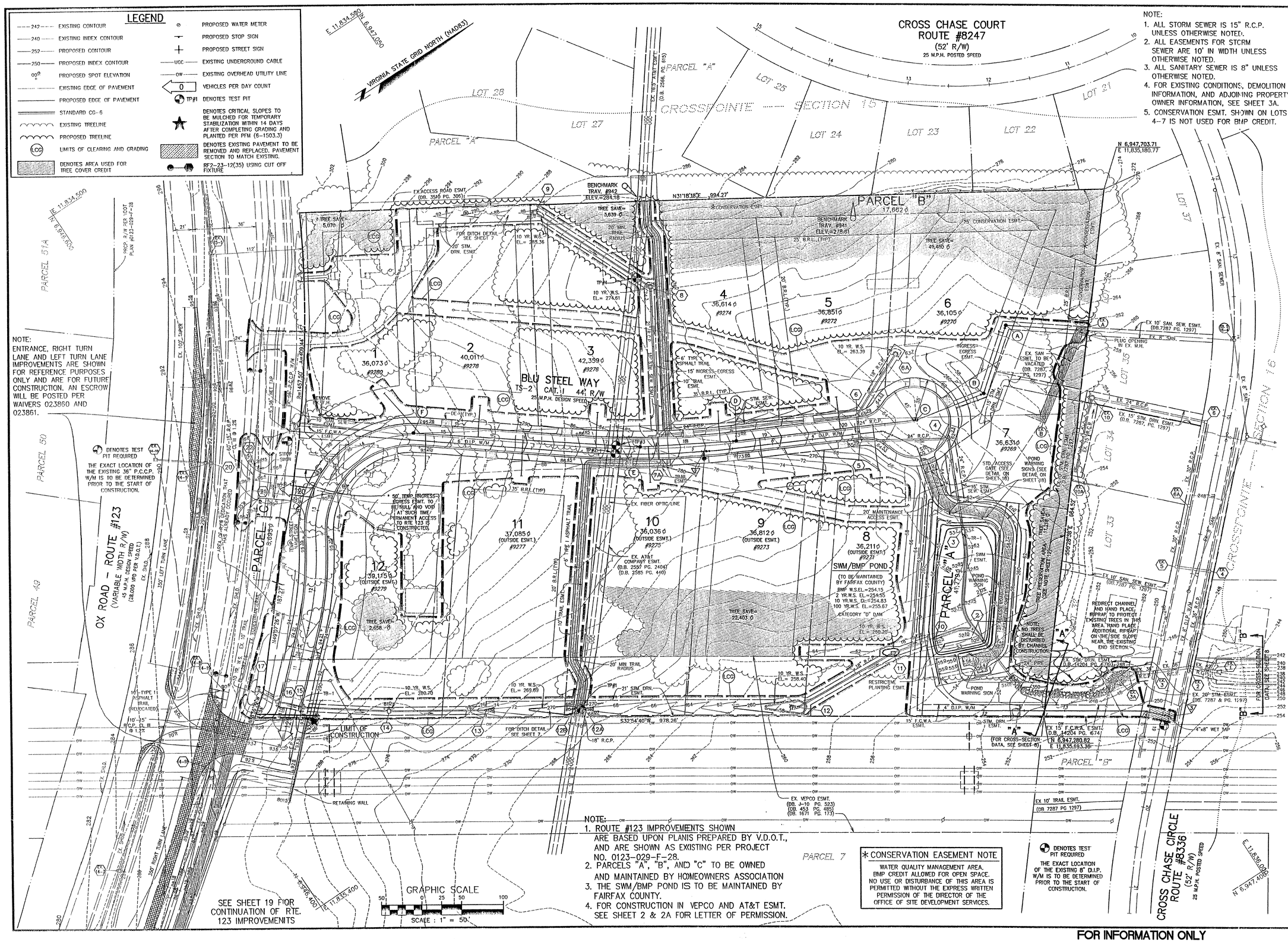
COMMONWEALTH OF VIRGINIA
CHARLES F. DUNLAP
No. 9705
LAND SURVEYOR

PRELIMINARY STORMWATER MANAGEMENT PLAN

PROPOSED NEW HOPE CHURCH
MT. VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE

REVISION APPROVED BY



NOTE:
1. ALL STORM SEWER IS 15" R.C.P. UNLESS OTHERWISE NOTED.
2. ALL EASEMENTS FOR STORM SEWER ARE 10' IN WIDTH UNLESS OTHERWISE NOTED.
3. ALL SANITARY SEWER IS 8" UNLESS OTHERWISE NOTED.
4. FOR EXISTING CONDITIONS, DEMOLITION INFORMATION, AND ADJOINING PROPERTY OWNER INFORMATION, SEE SHEET 3A.
5. CONSERVATION ESMT. SHOWN ON LOTS 4-7 IS NOT USED FOR BMP CREDIT.

NOTE:
ENTRANCE, RIGHT TURN LANE AND LEFT TURN LANE IMPROVEMENTS ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE FOR FUTURE CONSTRUCTION. AN ESCROW WILL BE POSTED PER WAIVERS 023860 AND 023861.

DENOTES TEST PIT REQUIRED
THE EXACT LOCATION OF THE EXISTING 36" P.C.C.P. W/M IS TO BE DETERMINED PRIOR TO THE START OF CONSTRUCTION.

NOTE:
1. ROUTE #123 IMPROVEMENTS SHOWN ARE BASED UPON PLANIS PREPARED BY V.D.O.T., AND ARE SHOWN AS EXISTING PER PROJECT NO. 0123-029-F-28.
2. PARCELS "A", "B", AND "C" TO BE OWNED AND MAINTAINED BY HOMEOWNERS ASSOCIATION
3. THE SWM/BMP POND IS TO BE MAINTAINED BY FAIRFAX COUNTY.
4. FOR CONSTRUCTION IN VEPCO AND AT&T ESMT. SEE SHEET 2 & 2A FOR LETTER OF PERMISSION.

* CONSERVATION EASEMENT NOTE
WATER QUALITY MANAGEMENT AREA. BMP CREDIT ALLOWED FOR OPEN SPACE. NO USE OR DISTURBANCE OF THIS AREA IS PERMITTED WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE DIRECTOR OF THE OFFICE OF SITE DEVELOPMENT SERVICES.

DENOTES TEST PIT REQUIRED
THE EXACT LOCATION OF THE EXISTING 8" D.I.P. W/M IS TO BE DETERMINED PRIOR TO THE START OF CONSTRUCTION.

FOR INFORMATION ONLY

SUBDIVISION PLAN

REMINGTON PLACE

(formerly COOKE PROPERTY)

SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

CPJ Associates
Charles P. Johnson & Associates, Inc.
PLANNERS ENGINEERS LANDSCAPE ARCHITECTS SURVEYORS
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NO.	DATE	REVISION PRIOR TO APPROVAL

NO.	DESCRIPTION	REVISIONS	REVIEW BY	APPROV	DATE

DESIGN WB | DRAFT RAR | APPROVED RLG | DATE JUNE, 2002 | SCALE HORIZ.1" = 50' VERT. ---

SHEET 3 OF 27

FILE NO.: 01-520-503

Plotted: 4/22/03 13:27 Acad Dwg: N:\01520\DWG\00-K0601.DWG

SHEET 4 OF 5

STORM DRAIN DESIGN COMPUTATIONS

FROM	TO	DRAIN. AREA (ACRES)	RUNOFF COEF. C	C x A INCR.	C x A ACCUM	TIME OF CONCENTRATION: tc TO PIPE (min.)	TIME IN PIPE (sec.)	TIME	I	Q (cfs) INCR (c.f.s.)	Q (cfs) ACCUM (c.f.s.)	DESIGN: PIPE DIA. In	SLOPE Ft/Ft	"n"	MAX. Q (c.f.s.)	VEL Ft/Sec	PROFILE: LENGTH Ft	FALL Ft	UPPER INV	LOWER INV
17	16	0.26	0.35	0.091	0.091	5	-	5	7.27	0.66	0.66	---------- FROM OFFSITE ----------								
-	-	0.19	0.30	0.057	0.148	5	-	5	7.27	0.41	1.07	15	0.0050	0.013	4.58	3.04	30.00	0.15	283.25	283.10
16	15	0.17	0.70	0.119	0.267	5	-	5	7.27	0.87	1.94	15	0.0050	0.013	4.58	3.57	32.00	0.16	282.85	282.69
15	14	0.17	0.70	0.119	0.386	5	-	5	7.27	0.87	2.80	15	0.0580	0.013	15.85	9.61	107.00	6.19	282.44	276.25
14	13	0.39	0.30	0.117	0.503	5	-	5	7.27	0.85	3.65	15	0.0354	0.013	12.81	8.67	120.00	4.25	276.00	271.75
12B	12A	1.15	0.30	0.345	0.848	5	-	5	7.27	2.50	6.16	18	0.0300	0.013	18.24	9.30	14.50	0.44	268.57	268.07
12	11	1.97	0.30	0.591	1.439	5	-	5	7.27	4.30	10.46	18	0.0116	0.013	11.34	7.27	136.00	1.58	256.00	254.42
11	10	0.43	0.30	0.129	1.568	5	-	5	7.27	0.94	11.40	21	0.0309	0.013	27.86	10.49	54.00	1.67	254.17	252.50
9	8	1.66	0.35	0.581	0.581	5	-	5	7.27	4.22	4.22	---------- FROM OFFSITE ----------								
-	-	0.07	0.30	0.021	0.602	5	-	5	7.27	0.15	4.37	15	0.0799	0.013	16.05	12.22	170.00	10.47	281.59	268.00
8	7	0.92	0.35	0.322	0.924	5	-	5	7.27	2.34	6.72	---------- FROM OFFSITE ----------								
-	-	1.85	0.35	0.648	1.572	5	-	5	7.27	4.71	11.43	21	0.0060	0.013	13.26	5.80	186.00	1.12	267.50	266.38
7A	7	0.55	0.50	0.275	0.275	5	-	5	7.27	2.00	2.00	15	0.0050	0.013	4.58	3.60	32.00	0.16	275.75	275.59
7	6	0.65	0.55	0.358	2.204	5	-	5	7.27	2.60	16.03	21	0.0300	0.013	32.40	11.85	249.00	10.35	266.13	258.65
6A	6	0.75	0.35	0.263	0.263	5	-	5	7.27	1.91	1.91	---------- FROM OFFSITE ----------								
-	-	1.57	0.33	0.518	2.986	5	-	5	7.27	3.77	5.68	18	0.0050	0.013	7.43	4.66	90.00	0.45	259.60	259.15
6	5	0.56	0.45	0.252	3.238	5	-	5	7.27	1.83	23.54	24	0.0116	0.013	24.33	8.98	32.00	0.37	258.40	258.03
5	4	0.57	0.50	0.285	3.523	5	-	5	7.27	2.07	25.61	24	0.0150	0.013	27.71	10.02	108.00	1.62	257.93	256.31
4	3	0.50	0.55	0.275	3.798	5	-	5	7.27	2.00	27.61	24	0.0251	0.013	35.83	12.66	114.00	2.86	256.06	253.20
3	2	0.84	0.35	0.294	5.660	FROM DETENTION COMPUTATIONS				16.31		24	0.0089	0.013	21.38	7.48	56.00	0.50	251.78	251.28

OUTFALL NARRATIVE

THE SUBJECT PROPERTY DRAINS FROM WEST TO EAST INTO AN ON-SITE STORM DRAINAGE SYSTEM AND DRY DETENTION POND. DEVELOPMENT OF THE SITE WILL GENERALLY HONOR THESE DRAINAGE PATTERNS. THE DETENTION POND WILL DISCHARGE INTO AN OPEN CHANNEL AND CULVERT SYSTEM IN CROSSPOINTE CONSISTING OF 36" AND 42" R.C.P.S., THEN INTO A WELL-DEFINED, STABILIZED CHANNEL WHICH OUTFALLS INTO GILES RUN AND ITS FLOODPLAIN.

THE EXISTING STORM SYSTEM AT CROSS CHASE CIRCLE HAS BEEN ANALYZED AS FOLLOWS:

Q10 TO EXISTING 36" PIPE AT CROSS CHASE CIRCLE (EX. STRUCTURE # 3A) = Q10 DISCHARGED FROM THE ON-SITE DETENTION POND = 16.31 CFS PLUS REMAINING SHED TO EXISTING 36" OR 10.8 ACRES OF OFF-SITE + 0.5 ACRES OF ON-SITE UNCONTROLLED = 11.3 ACRES X 5.92 X 0.35 = 23.41 CFS + 16.31 CFS = 39.72 CFS.

THE ORIGINAL SHED TO EX. STRUCTURE # 3A, AS OBTAINED FROM THE DEWBERRY & DAVIS PLANS FOR "CROSSPOINTE, SEC. 16," = 19.74 ACRES WITH A Q10 OF 43.36 CFS. THE RUNOFF TO EX. STRUCTURE # 3A HAS THEREFORE BEEN REDUCED BY 3.64 CFS OR BY 8.4%. THE ADDITIONAL AREA TO THE EXISTING STORM SYSTEM (STORM LINE 1, 2, 3 AND 3A) AND CROSS-SECTION "B-B" JUST DOWNSTREAM OF THE STORM SYSTEM = 2.02 ACRES OF ON-SITE UNCONTROLLED PLUS 10.16 ACRES OF CROSSPOINTE OR 12.18 ACRES, APPROXIMATE "C" FACTOR = 0.45.

Q10 = 12.18 ACRES X 5.92 X 0.45 = 32.46 CFS

THE ACTUAL Q10 WITHIN THE SYSTEM IS APPROXIMATED TO BE 32.45 CFS + 39.72 CFS = 72.2 CFS. THE 10-YEAR FLOW PURSUANT TO THE DEWBERRY & DAVIS PLANS FOR CROSSPOINTE, SEC. 16 WAS ESTIMATED TO BE 90.2 CFS. THE NOMINAL CAPACITY OF THESE PIPES IS 120 CFS AS VERIFIED BY THE "AS-BUILT" (SEE DATA BELOW). AT CROSS-SECTION "B-B" (SEE THIS SHEET), THE DOWNSTREAM CHANNEL PROVIDES CAPACITY AND BED AND BANKS ALL THE WAY TO GILES RUN. THEREFORE, IT IS THE ENGINEER'S OPINION THAT AN ADEQUATE OUTFALL EXISTS FOR THIS SITE AND THAT ITS DEVELOPMENT WILL NOT ADVERSELY IMPACT DOWNSTREAM PROPERTIES.

AS-BUILT:

3A-3, 24' OF 36" @ 5.33% (155 CFS)
2-3, 38' OF 36" @ 6.61 (170 CFS)
2-1, 30.3' OF 42" @ 1.42% (120 CFS)

OVERLAND RELIEF

THE LOTS FOR THIS PROJECT WILL BE GRADED WITH THE HOUSE GRADING PLANS IN SUCH A MANNER AS TO PROVIDE OVERLAND RELIEF FOR THE 100-YEAR STORM EVENT.

DITCH DETAIL TO STRUCTURE #9

Date: 07-10-2002

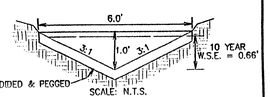
Project: COOKE PROPERTY

Description: DITCHOUT LEADING TO STRUCTURE #9
10 YEAR STORM

** Open Channel Flow - Trapezoidal Cross Section **

Side slope (H/TV)= 3

Discharge (cfs)	Ave. Vel. (ft/s)	Depth (ft)	Area (sq ft)	Top Width (ft)	Froude No.	Slope (ft/ ft)	n Value	Bottom Width (ft)
41.38	3.36	0.66	1.31	3.96	1.03	.06000	.0500	0.00



DITCH DETAIL TO STRUCTURE #12

Date: 07-10-2002

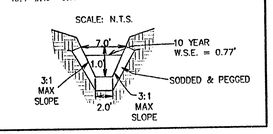
Project: COOKE PROPERTY

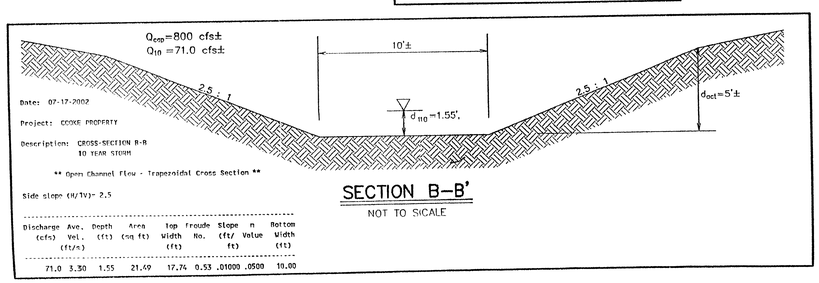
Description: DITCHOUT LEADING TO STRUCTURE #12
10 YEAR STORM

** Open Channel Flow - Trapezoidal Cross Section **

Side slope (H/TV)= 3

Discharge (cfs)	Ave. Vel. (ft/s)	Depth (ft)	Area (sq ft)	Top Width (ft)	Froude No.	Slope (ft/ ft)	n Value	Bottom Width (ft)
10.5	3.16	0.77	3.31	6.61	0.79	.03000	.0500	2.00





Date: 07-17-2002

Project: COOKE PROPERTY

Description: CROSS-SECTION B-B
10 YEAR STORM

** Open Channel Flow - Trapezoidal Cross Section **

Side slope (H/TV)= 2.5

Discharge (cfs)	Ave. Vel. (ft/s)	Depth (ft)	Area (sq ft)	Top Width (ft)	Froude No.	Slope (ft/ ft)	n Value	Bottom Width (ft)
71.0	3.30	1.55	21.49	17.74	0.53	.01000	.0500	10.00

SECTION B-B'
NOT TO SCALE

STORM WATER INLET COMPUTATIONS

INLET NUMBER	INLET TYPE	LENGTH	DRAINAGE AREA	C	C x A	RAINFALL INTENSITY	Q INCR	Q CARRY OVER	Q TOTAL	SX OUTER SLOPE	SX CROSS SLOPE	T SPREAD	W	W/T	Sw	Sw/Sx	Eo	a	S'w	Se	Lt	E EFF CUT LENGTH	L/Lt	d	E	h	INT Q	d/h	Qb CARRY OVER	qp REQ'D AT SAG	REMARKS
		Ft.	(Ac.)			(In/Hr)	(cfs)	(cfs)	(cfs)	(Ft/Ft)	(Ft/Ft)	Ft.	Ft.		(Ft/Ft)						Ft.	Ft.		Ft.		Ft.	Ft.	(cfs)		(cfs)	Ft.	
17	DI-12	GRATE	0.45	0.33	0.148	4.00	0.59	–	0.59	SUMP	–	–	–	–	–	–	–	–	–	–	4.0	–	0.13	–	–	–	0.59	–	–	–	SEE NOTE
16	DI-3BB	6	0.17	0.70	0.119	4.00	0.48	–	0.48	0.0100	0.0208	2.07	2.0	0.97	0.0833	4.0	1.00	3.5	0.146	0.167	4.4	–	1.36	–	1.00	–	0.48	–	0.00	–	–
15	DI-3BB	6	0.17	0.70	0.119	4.00	0.48	–	0.48	0.0100	0.0208	2.07	2.0	0.97	0.0833	4.0	1.00	3.5	0.146	0.167	4.4	–	1.36	–	1.00	–	0.48	–	0.00	–	–
14	YI-I	4	0.39	0.30	0.117	7.27	0.85	–	0.85	SUMP	–	–	–	–	–	–	–	–	–	–	–	–	0.20	–	–	–	0.50	0.40	0.00	–	Q/L=0.21
11	YI-I	4	0.43	0.30	0.129	7.27	0.94	–	0.94	SUMP	–	–	–	–	–	–	–	–	–	–	–	–	0.20	–	–	–	0.50	0.39	0.00	–	Q/L=0.23
9	YI-I	8	1.73	0.35	0.602	7.27	4.37	–	4.37	SUMP	–	–	–	–	–	–	–	–	–	–	–	–	0.36	–	–	–	0.50	0.72	0.00	–	Q/L=0.55
8	YI-I	16	2.77	0.35	0.970	7.27	7.05	–	7.05	SUMP	–	–	–	–	–	–	–	–	–	–	–	–	0.31	–	–	–	0.50	0.62	0.00	–	Q/L=0.44
7	DI-3BB	14	0.65	0.55	0.358	4.00	1.43	–	1.43	0.0640	0.0208	2.28	2.0	0.71	0.0833	4.0	0.99	3.5	0.146	0.165	12.2	–	1.15	–	1.00	–	1.43	–	0.00	–	–
7A	DI-3B	12	0.55	0.50	0.275	4.00	1.10	–	1.10	0.0640	0.0208	2.01	2.0	0.99	0.0833	4.0	1.00	3.5	0.146	0.167	10.9	–	1.10	–	1.00	–	1.10	–	0.00	–	–
6	DI-3B	10	0.56	0.45	0.252	4.00	1.01	–	1.01	0.0393	0.0208	2.49	2.0	0.80	0.0833	4.0	1.00	3.5	0.146	0.167	9.1	–	1.10	–	1.00	–	1.01	–	0.00	–	–
6A	YI-I	12	2.32	0.35	0.813	7.27	5.90	–	5.90	SUMP	–	–	–	–	–	–	–	–	–	–	–	–	0.39	–	–	–	0.50	0.78	0.00	–	Q/L=0.49
5	DI-3B	10	0.57	0.50	0.285	4.00	1.14	–	1.14	0.0393	0.0208	2.87	2.0	0.70	0.0833	4.0	0.99	3.5	0.146	0.165	9.6	–	1.04	–	1.00	–	1.14	–	0.00	–	–
4	DI-3C	8	0.50	0.55	0.275	4.00	1.10	–	1.10	SUMP	0.0139	8.33	2.0	–	0.0833	–	–	–	–	–	–	11.6	–	0.12	–	0.50	1.10	–	–	11.58	–

NOTE: COMPUTATION FOR DI-12 ASSUME 50% CLOGGED.

Culvert Design Form

Manning's Roughness (n) =	0.013
Invert of Pipe Inlet =	290.4
Length of Pipe (ft) =	110
Slope of Pipe (ft/ft) =	0.012
Invert of Pipe Outlet =	289.08
Area =	1.15
Intensity =	7.27
C' Factor =	0.55
Q =	4.60

**NOTE: For Concrete Pipes n = 0.013
For Metal Pipes n = 0.024

COMPUTATIONS FOR CULVERT 14-18 TO 14-19 (15" RCP)

Pipe Size (in.)	Number of Barrels	Q to Each Barrel	Inlet Control: HW/D	Inlet Control: HW	Inlet Control: El(hi)	Outlet Control: TW	Outlet Control: dc	Outlet Control: (dc+D)/2	Outlet Control: ho	Outlet Control: Ke	Outlet Control: H	Outlet Control: HW	Outlet Control: El(hout)	Control HW Elevation
15	1	4.60	0.91	1.14	291.54	0	0.87	1.06	1.06	0.5	0.92	0.66	291.06	291.54

Culvert Design Form

Manning's Roughness (n) =	0.024
Invert of Pipe Inlet =	294.5
Length of Pipe (ft) =	60
Slope of Pipe (ft/ft) =	0.012
Invert of Pipe Outlet =	293.78
Area =	0.86
Intensity =	7.27
C' Factor =	0.55
Q =	3.44

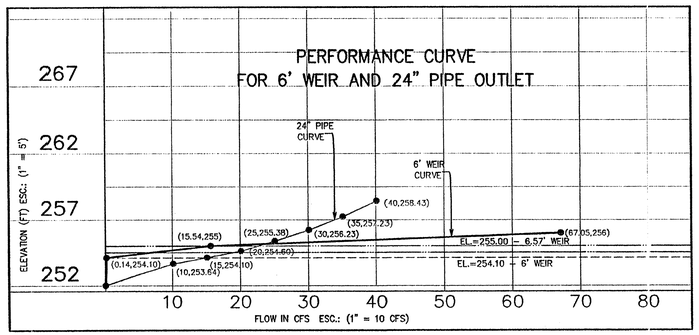
**NOTE: For Concrete Pipes n = 0.013
For Metal Pipes n = 0.024

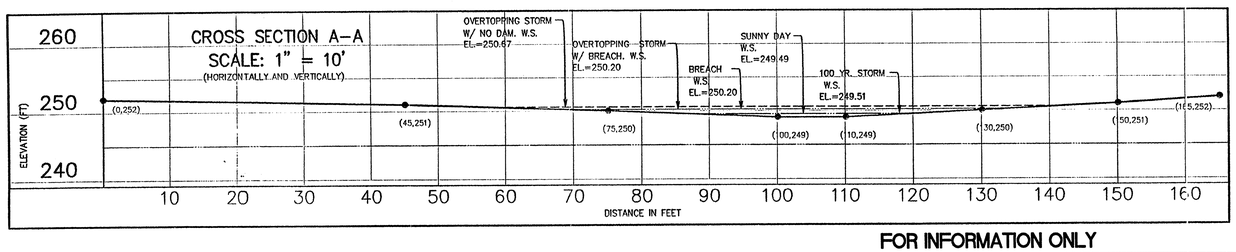
COMPUTATIONS FOR CULVERT 22-21 (15" CMP)

Pipe Size (in.)	Number of Barrels	Q to Each Barrel	Inlet Control: HW/D	Inlet Control: HW	Inlet Control: El(hi)	Outlet Control: TW	Outlet Control: dc	Outlet Control: (dc+D)/2	Outlet Control: ho	Outlet Control: Ke	Outlet Control: H	Outlet Control: HW	Outlet Control: El(hout)	Control HW Elevation
15	1	3.44	0.73	0.91	295.41	0	0.75	1.00	1.00	0.5	0.78	1.06	295.56	295.56

CULVERT TYPE & SIZE	TOTAL FLOW Q (CFS)	HEADWATER CALCULATIONS: INLET CONTROL HW/D	INLET CONTROL HW	INLET CONTROL Ke	OUTLET CONTROL dc	OUTLET CONTROL (dc+D)/2	OUTLET CONTROL ho	OUTLET CONTROL H	OUTLET CONTROL Ue	OUTLET CONTROL HW	CONTROL HW ELEV.	CONTROLLING ORIFICE
24" R.C.P. ROUND	10	0.82	1.64	0.50	1.13	1.57	1.57	0.35	0.50	1.42	253.64	INLET
	15	1.05	2.10	0.50	1.40	1.70	1.70	0.72	0.50	1.92	254.10	INLET
	20	1.30	2.60	0.50	1.61	1.81	1.81	0.25	0.50	2.56	254.60	INLET
	25	1.60	3.20	0.50	1.76	1.88	1.88	2.00	0.50	3.38	255.38	OUTLET
	30	2.10	4.20	0.50	1.86	1.93	1.93	2.80	0.50	4.23	256.23	OUTLET
	35	2.50	5.00	0.50	1.86	1.93	1.93	3.80	0.50	5.23	257.23	OUTLET
	40	3.00	6.00	0.50	1.86	1.93	1.93	5.0	0.50	6.43	258.43	OUTLET
	50	4.30	8.60	0.50	1.86	1.93	1.93	7.60	0.50	9.03	261.03	OUTLET

NOTE: A 48" RISER REQUIRES A FLOW OF 75 CFS OR GREATER TO BECOME ORIFICE FLOW. Qmax IN RISER IS APPROX. 21 CFS , AND THAT IS THE CAPACITY OF THE PIPE OUTFALL THEREFORE WEIR FLOW OCCURS AT RISER, AND PIPE FLOWS FULL BEFORE ORIFICE FLOW CAN EVER OCCUR.





FOR INFORMATION ONLY

SHEET 5 OF 5

REMINGTON PLACE

STORM SEWER COMPUTATIONS AND OUTFALL NARRATIVE

(formerly COOKE PROP)

SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

CPJ Associates
Charles P. Johnson & associates, Inc.
PLANNERS ENGINEERS LANDSCAPE ARCHITECTS SURVEYORS
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NO. | DATE | REVISION PRIOR TO APPROVAL

COMMONWEALTH OF VIRGINIA — PAUL E. JOHNSON — No. 018450 — 1/25/03 — PROFESSIONAL ENGINEER

NO. | DESCRIPTION | REVISIONS | BY | APPROVED | DATE

DESIGN: | DRAFT: | CHK: | APPROVED: RLG | DATE: JULY, 2002 | SCALE: HORZ: --- VERT: ---

SHEET 8 OF 27

FILE NO.: 01-520-508

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