See also PC033

CERTIFICATE OF AUTHENTICITY

THIS IS TO CERTIFY THAT THE FOLLOWING ELECTRONIC RECORDS ARE TRUE AND ACCURATE REPRODUCTIONS OF THE ORIGINAL RECORDS OF JAMES CITY COUNTY GENERAL SERVICES DEPARTMENT- STORMWATER DIVISION; WERE SCANNED IN THE REGULAR COURSE OF BUSINESS PURSUANT TO GUIDELINES ESTABLISHED BY THE LIBRARY OF VIRGINIA AND ARCHIVES; AND HAVE BEEN VERIFIED IN THE CUSTODY OF THE INDIVIDUAL LISTED BELOW.

BMP NUMBER: **PC130**

DATE VERIFIED: **August 2, 2012**

QUALITY ASSURANCE TECHNICIAN: **Leah Hardenbergh**

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA

Stormwater Division

MEMORANDUM

DATE: March 13, 2010

TO: Michael J. Gillis, Virginia Correctional Enterprises Document Management Services

FROM: Jo Anna Ripley, Stormwater

PO: 270712

RE: Files Approved for Scanning

General File ID or BMP ID: PC130

PIN: 3140400001

Subdivision, Tract, Business or Owner Name (if known): Longhill Gate Homeowners Association

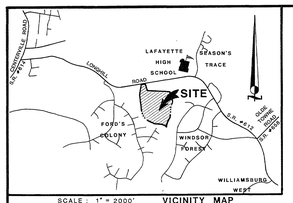
Property Description: Common Area Sections 1, 2 and 3 & Recreation Area

Site Address:

(For internal use only) **Box** 2 **Drawer:** 2

Agreements: (in file as of scan date) N **Book or Doc#:** **Page:**

Comments
Upper wet pond located on the north side of the main entrance road; Combined folder with PC033



SCALE : 1" = 2000' VICINITY MAP

DEVELOPMENT NOTES:

1. TAX MAP # (31-4)(1-12).
2. ADDRESS: # 4265 LONGHILL ROAD.
3. PROPERTY ZONED R-3 (CONDITIONAL 2-2-85).
4. TOTAL SITE AREA = 2,053,461.96± SQ. FT. OR 47.141 ACRES.
5. TOTAL BUILDING COVERAGE:

22 "A"s	=	30,418.52 SQ. FT.
22 "B"s	=	37,550.36 SQ. FT.
29 "C"s	=	62,710.18 SQ. FT.
TOTAL	=	130,679.06 SQ. FT. OR 3.00 AC. OR 6.36 % OF SITE.

6. PARKING REQUIRED = 292 SPACES.
7. PARKING PROVIDED = 393 SPACES.
8. TOTAL PAVEMENT COVERAGE = 245,750 SQ. FT. OR 5.64 AC. OR 11.97% OF SITE.
9. GREEN SPACE WITHIN SITE = 1,677,032.90 SQ. FT. OR 38,499 AC. OR 81.67% OF SITE.
10. ALLOWABLE UNITS:

A) DEVELOPABLE AREA	=	37.95 ACRES
UNITS PER ACRE	=	3.5 UNITS
TOTAL	=	132.8 UNITS

B) DENSITY BONUSES (ART. IX, SEC. 20-507):

2. ARCHAEOLOGICAL SURVEY	=	2.5%
3. WALKS ON ALL INTERNAL STREETS	=	2.5%
4. CONSTRUCTION OF POOL & BASKETBALL COURT	=	2.5%
TOTAL BONUS	=	10.0%
MAXIMUM ALLOWABLE BONUS	=	10.0% OR 13.28 UNITS
TOTAL ALLOWABLE UNITS	=	146.08 UNITS

11. TOTAL PROPOSED UNITS = 146 UNITS
12. DENSITY = NET DEVELOPABLE AREA = 3.84 UNITS/AC.
13. GREEN SPACE WITHIN PARKING AREAS EXCEEDS 7.5%.
14. AREA IN LOTS = 440,379.44 SQ. FT. OR 10.11 AC.
15. AREA IN RIGHT-OF-WAY = 78,053± SQ. FT. OR 1.79 AC.
16. MINIMUM LOT SIZE = NONE.
17. AVERAGE LOT SIZE = 3,016.30 SQ. FT. OR 0.07 AC.
18. BUILDING SETBACK LINE:
    A) 35' ALONG EXTERIOR BOUNDARY.
    B) NONE ALONG INTERIOR BOUNDARIES.
19. MINIMUM BUILDING SEPARATION = 10'.
20. DEVELOPED AREA = 28± ACRES.
21. GREENSPACE WITHIN DEVELOPED AREA = 19.36± ACRES OR 69%±.
22. ALL UTILITIES ARE TO BE UNDERGROUND.
23. TRASH PICK UP TO BE TWICE WEEKLY AT FRONT OF BUILDINGS BY PRIVATE CONTRACTOR.
24. DEVELOPER: LONGHILL GATE ASSOCIATES
    645 PENNIMAN ROAD
    WILLIAMSBURG, VA 23185
25. LONGHILL GATE SHALL BE DESIGNATED AND CONSTRUCTED TO VDH&T STANDARDS AND SHALL BE DEDICATED TO VDH&T FOR INCLUSION INTO THEIR SECONDARY SYSTEM OF HIGHWAYS.
26. OWNER OR HOMEOWNERS ASSOCIATION SHALL BE RESPONSIBLE FOR MAINTENANCE OF STREAM/AIR MANAGEMENT PONDS.
27. PLANS AND SPECIFICATIONS FOR THE POOL, HOUSE AND SURROUNDING FACILITIES SHALL BE SUBMITTED AND APPROVED PRIOR TO ISSUANCE OF BUILDING PERMITS FOR THE POOL.

NOTES:

1. PARCEL SHOWN IS TAX MAP NO. (31-4)(1-12).
2. PARCEL WAS REZONED FROM A-2 TO R-3 (CASE # Z-2-85) ON MAY 20, 1985 BY THE JAMES CITY COUNTY BOARD OF SUPERVISORS.
3. PLATS, PLANS AND OTHER INFORMATION REGARDING SECTION ONE OF FORD'S COLONY WERE USED TO SUPPLEMENT INFORMATION GATHERED IN THE FIELD.
4. STADIA FIELD METHODS WERE USED IN ALL FIELD LOCATION PROCESSES.
5. BENCHMARK USED WAS TT-179 AS ESTABLISHED BY AERO-MAP AERIAL SURVEYS FOR JAMES CITY COUNTY. ELEVATION IS 81.28 BASED ON USC&GS 1ST ORDER CONTROL (1979).
6. PARCEL WAS TIMBERED APPROXIMATELY 4 YEARS AGO; TIMBER WAS "CLEAR-CUT" LEAVING ONLY SCRUB. SECOND GROWTH IS AN AVERAGE OF 8 FEET HIGH AND CONSISTS MAINLY OF SMALL POPLARS AND GUMS. THOSE INDIVIDUAL TREES LOCATED ARE ALL OF 12" DIAMETER OR GREATER.
7. CONTOUR INTERVAL IS 2'. TOPOGRAPHIC ACCURANCE IS PLUS OR MINUS 1 INTERVAL BELOW 50 CONTOUR AND .5 INTERVAL ABOVE THE 50 CONTOUR.
8. AREA SHOWN IS TO "SURVEY LINES" ALONG STREAMS.
9. DETAILED PLANS WILL BE PREPARED PRIOR TO CONSTRUCTION OF EACH SECTION.

PLANTING SCHEDULE

KEY	QUAN.	SCIENTIFIC NAME	COMMON NAME	REMARKS
A	16	QUERCUS PHELLOS	WILLOW OAK	8'-10' TREE, B&B, GUY EXCEPT
B	14	ACER RUBRUM	RED MAPLE	8'-10' TREE, B&B, GUY EXCEPT
C	12	GLEDITSIA TRICANTHOS INERMIS "SHADEMASTER"	SHADEMASTER LOCUST	8'-10' TREE, B&B, GUY EXCEPT
D	604	JUNIPERUS CONFERTA	BLUE PACIFIC JUNIPER	12"-15" PLANTINGS, PLANT IN MULCH BED
E	508	PINUS STROBUS	WHITE PINE	8'-10' TREE, B&B, GUY EXCEPT

NOTES: 1. ALL NURSERY STOCK & PLANTING PROCEDURES SHALL BE IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF NURSERYMEN'S STANDARDS FOR NURSERY STOCK.
2. EXISTING COVERAGE IS AS FOLLOWS: INTERIOR WAS TIMBERED 4 +- 6 YEARS AGO. GROWTH CONSISTS OF HEAVY BRUSH OVERLAPS OF APPROXIMATELY 6' - 8' IN HEIGHT. SOME FEW SPINDLY GUMS AND POPLARS REMAIN. EXTERIOR GROWTH EXTENDS 100' TO 200' ONTO SITE AND CONSISTS OF 80% DECIDUOUS TREES AND 20% CONIFERS. TREES RANGE IN SIZE FROM 4" TO 36" AND 25' TO 80'± IN HEIGHT. DEVELOPERS RESERVE THE RIGHT TO TRANSPLANT EXISTING TREES AND SHRUBS, AND TO USE LOCATIONS OTHER THAN AND IN ADDITION TO THOSE SHOWN HEREON.

SCALE IN FEET (0, 20, 40, 75, 150; 10, 20, 55, 150)

Note: ADDRESS FOR EACH LIVING UNIT IS A 4 DIGIT NUMBER SHOWN THUS: (5303) ETC. EACH CLUSTER'S SYSTEM STARTS WITH NUMBER (5300). THE TAX MAP NUMBERING SYSTEM STARTS WITH THE SHEET # (31-4), & PROCEEDS TO THE INSET & LOT NUMBER WITH THE UNIT OR SIDE DESIGNATION LETTER SHOWN LAST. FOR EXAMPLE, LOT 67A WOULD BE (31-4)(08-0-0067-A), LOT 13B WOULD BE (31-4)(04-0-0013-B).

COUNTY OF JAMES CITY
FINAL SITE PLAN
APPROVALS — DATE
Fire Dept. 6/5/86
Health Dept. 6/11/86
Highway Dept. 6/11/86
Plan. Dirctr. 6/11/86
Pub. Wks. Dept. 6/11/86
Zoning Adm. 6/12/86
Jcsa 6/11/86
Other 6/11/86

FINAL ADDRESS (5300)
RECEIVED 6/11/86
CHKED SAH

JUL 1986 RECEIVED PLANNING DEPARTMENT

MASTER SITE PLAN
FOR THE CLUSTER DEVELOPMENT
LONGHILL GATE
LOCATED
JAMES CITY COUNTY, VIRGINIA
SCALE : 1" = 50' DATE: JAN. 14, 1986
OWNER / DEVELOPER
LONGHILL GATE ASSOCIATES

REV'D: JULY 12, 1986 - USC&GS/VDHT COMMENTS
REV'D: JUNE 12, 1986 - VDH COMMENTS
REV'D: APRIL 21, 1986 - VDH COMMENTS
REV'D: FEB. 6, 1986 - VDH COMMENTS
REV'D: JAN. 20, 1986 - USC&GS/VDHT COMMENTS

J.O. #2245 F.B. "B"

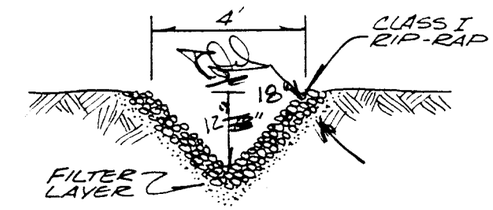
COMMONWEALTH OF VIRGINIA — ROGER D. SPEARMAN — CERTIFICATE No. 1264 — REGISTERED LAND SURVEYOR

PREPARED BY
SPEARMAN & ASSOC., INC. LAND SURVEYING
P.O. BOX # 1244
WILLIAMSBURG, VIRGINIA - 23187
(804) 565 - 1319

SP-4-86 REA

SHEET 1 OF 8

PC130_LONGHILL_GATE_SUBDIVISION_UPPER_POND - 003

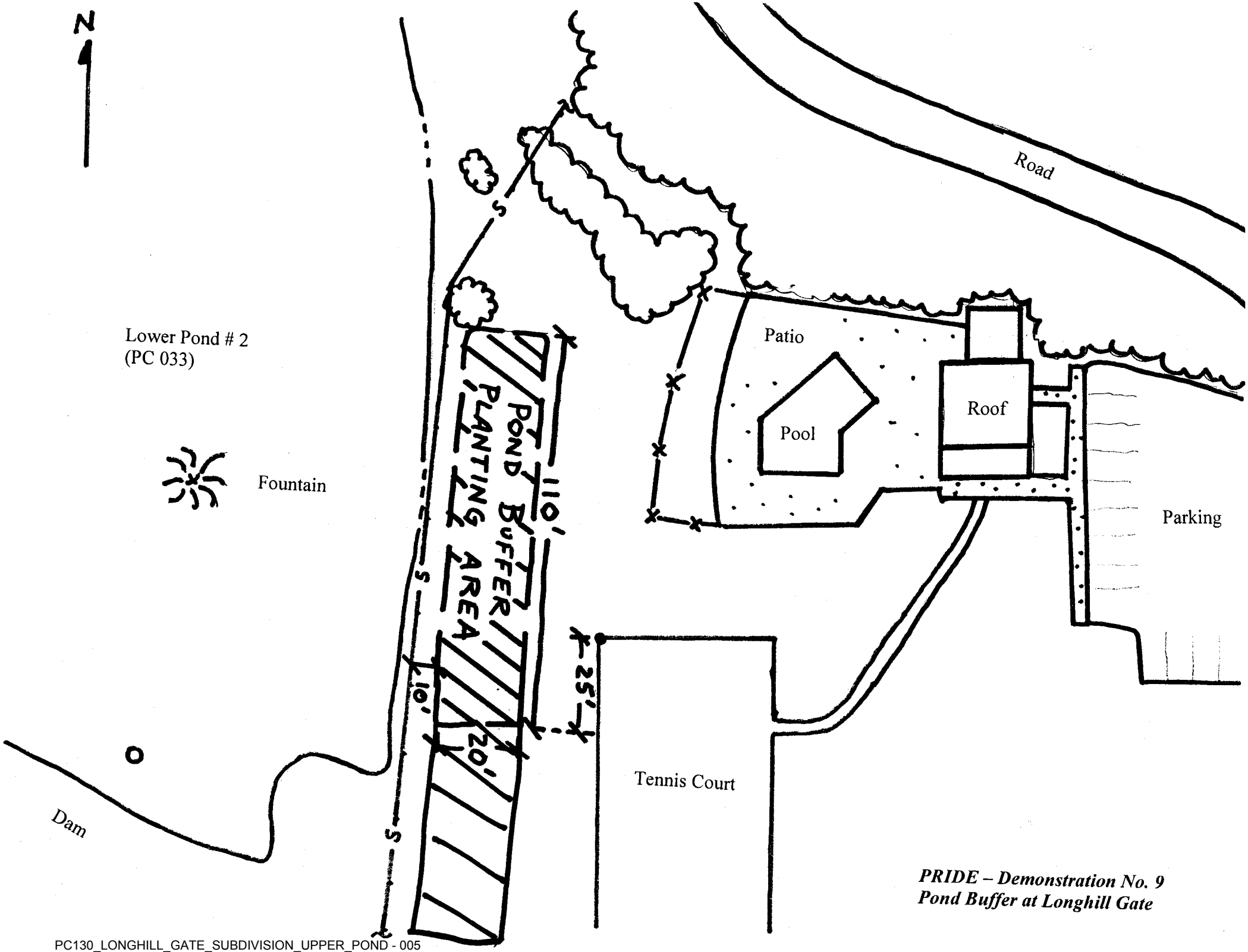


RIP RAP DITCH DETAIL

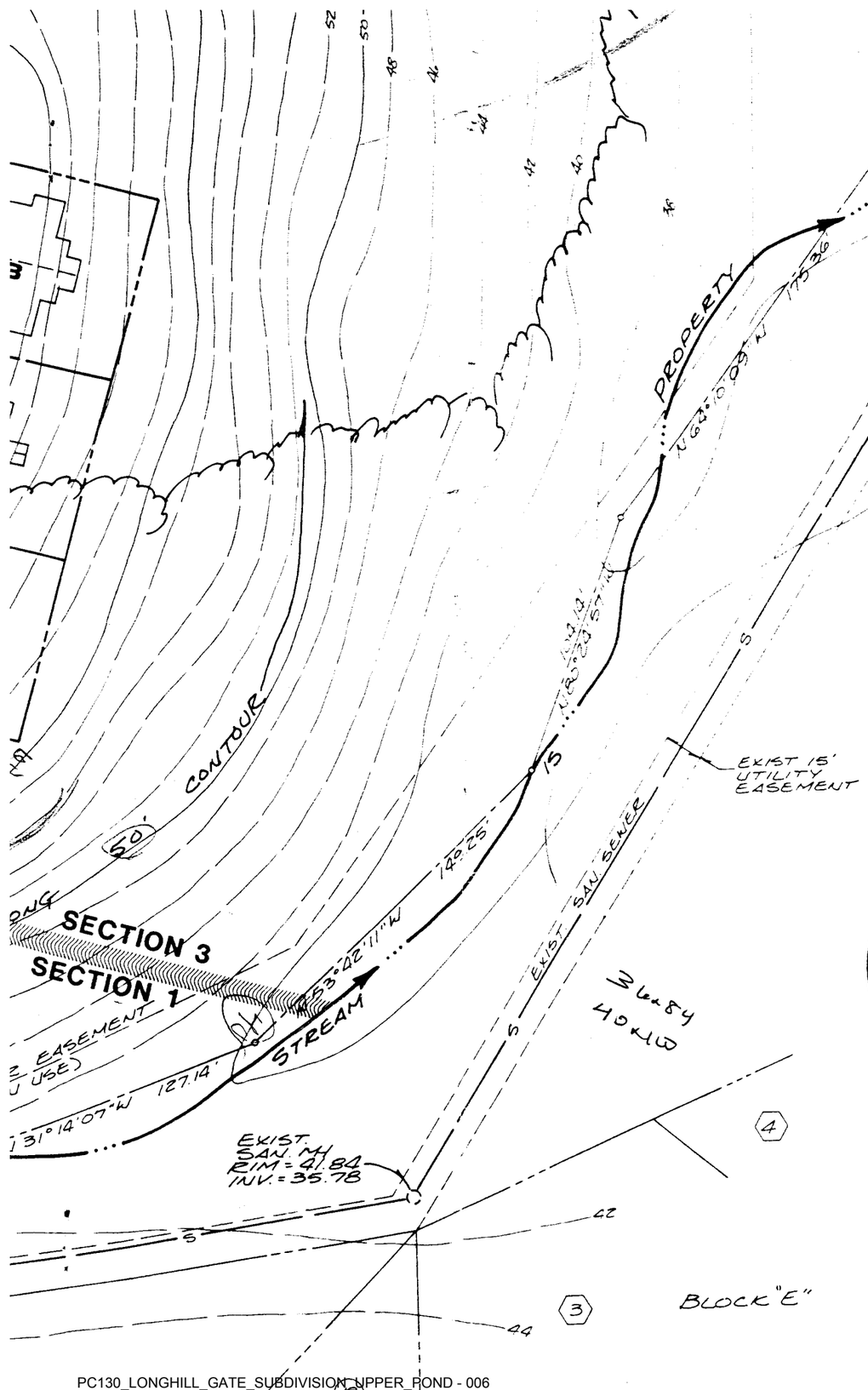
N.T.S.

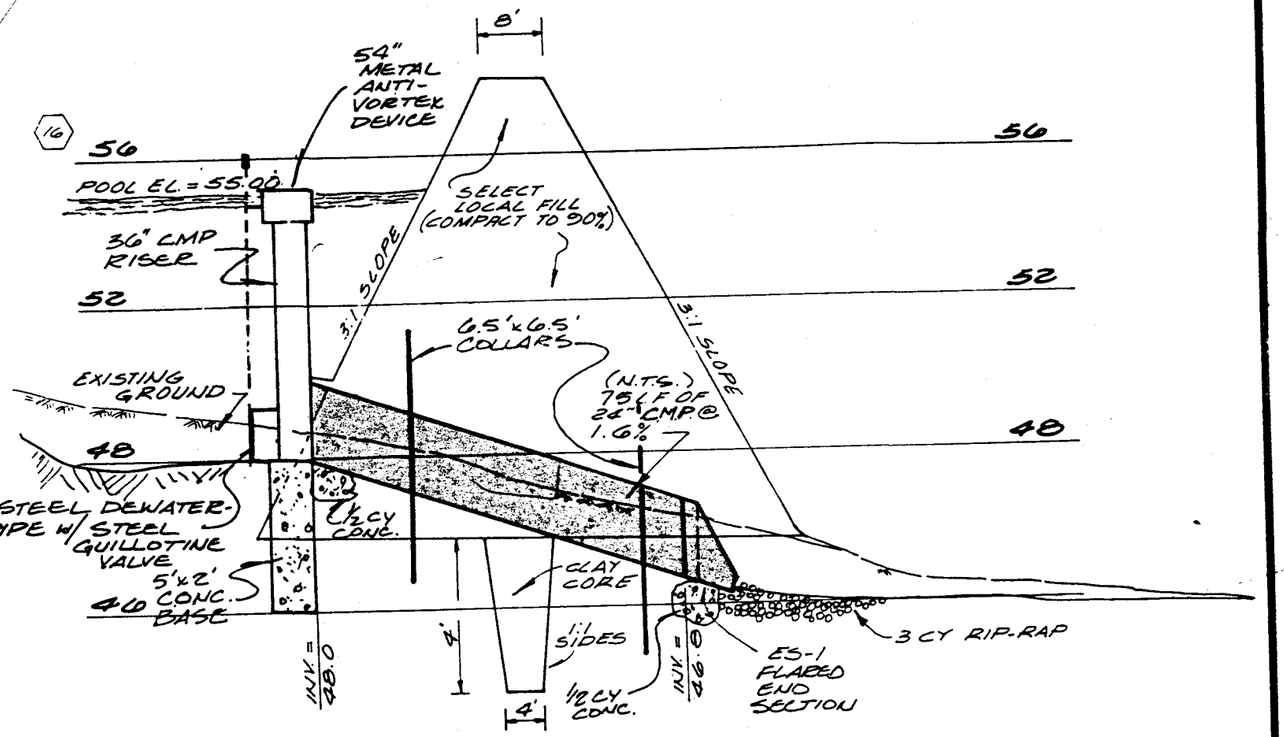
NOTE: USE V.E.&S.C. ST'D.'S

PC130



PRIDE – Demonstration No. 9
Pond Buffer at Longhill Gate





SECTION OF DAM @ MAIN SPILLWAY

HORZ.: 1"=20'
VERT.: 1"=4'

COUNTY OF JAMES CITY
FINAL SITE PLAN

Received .....

APPROVALS	DATE
Fire Dept. WS/KRR	8-86
Health Dept. AK/KRR	8-20-86
Highy. Dept. EH/KRR	8-11-86
Plan. Comm. VG/KRR	9-26-86
Pub. Wks. Dept. DEC	9/24/86
Zoning Adm. BJ	9/29/86
JCSA ATO/KRR	8-1-86

MASTER GRADING, DRAINAGE & EROSION SEDIMENT CONTROL PLAN

FOR THE CLUSTER DEVELOPMENT

LONGHILL GATE

LOCATED

EC-1 STONE
STORMWATER MANAGEMENT BASIN
MIN. DEPTH = 3'+
LONGHILL
TOWER HILL
SECTION 1
CD (TYP.) CHECK DAMS
CONC. DITCH
80' LF OF 15" RCP (OVERFLOW)
INV. IN = 61.50
INV. OUT = 57.50
ES-1 & INSTALL 3 CY. EC-1 STONE
80 L.F. OF 24" RCP @ 5% - INV. IN = 60.00 INV. OUT = 56.00
(TYP.) SILT FENCE
STORMWATER MANAGEMENT BASIN
CLEAR & GRUB POND BOTTOM
NORMAL POOL EL = 55.0
POND TO BE BUILT DURING INITIAL STAGES OF CONSTRUCTION.
PC 033
STRAW BALES DURING CONSTR. ONLY
2 CY. RIP-RAP
CONC. PAVED DITCH
36" C.M.P. RISER W/ 5A° ANTI-VORTEX DEVICE - TOP = 550 INV. = 48.0
8" DEWATERING PIPE
STEEL GUILLOTINE VALVE
ST'D ES-1 W/ 2 CY. OF EC-1 STONE INV. = 55.7
2:1 SLOPE
F.G. = 58.0
3:1 SLOPE
4 CY. RIP-RAP EC-1 STONE
75 LF ± OF 24" C.M.P. @ 1.6 % INV. OUT = 46.8 W/ ST'D ES-1
LINE DITCH W/ "MIRAMAT"
TERRACED FOR SEATS
BASKETBALL OR TENNIS F.G. = 65.0
SECTION 1
230 LF ± OF 4.37 % #6 RCP STORM SEWER
20' WOODEN ARCH PEDESTRIAN BRIDGE
PROVIDE 20 LF (MIN.) EMERGENCY SPILLWAY - FLAT SECTION W/ 2:1 SIDE SLOPES
TYPICAL SILT FENCE
I.P.F. N10°35'30"W 82.65'
10" BLAZED PINE
N10°44'04"W 276.04'
12" GUM
N12°19'21"W 269.19'
12" WH. OAK
N08°09'08"W 146.80'
N35°38'08"W 17.75'
EXIST. SAN. MH EIM = 45.96 INV. = 37.96
EXIST. 15' UTILITY EASEMENT
N OR F WALTERS
TAX MAP #(31-4)(1-13)
D SURVEYING
PC130_LONGHILL_GATE_SUBDIVISION_UPPER_POND - 007

LONGHILL ROAD S. R. # 612

CURVE	ARC	D
C1	116.06	19°00
C2	102.32	16°45
C3	377.32	30°53
C4	76.02	6°13
C5	82.77	18°58
C6	85.23	19°31
C7	123.19	28°14
C8	120.06	27°31
C9	60.85	99°36
C10	109.63	16°45
C11	436.78	37°06
C12	74.49	18°58
C13	341.34	75°16
~~C14~~	~~48.89~~	~~46°41~~
~~C15~~	~~55.76~~	~~53°14~~
~~C16~~	~~94.25~~	~~90°00~~
C17	295.63	75°16
C18	91.04	18°58
C19	469.53	37°06
C20	95.18	16°45
C21	49.11	80°23

N 87° 41' 48" E

20' STRIP RESERVED FOR FUTURE DEDICATION AND WIDENING

PART OF "WARHILL" TRACT

NOW OR FORMERLY ANHEUSER-BUSCH, INC.

S 14° 20' 52" E 355.58'

S 85° 13' 42" E 47.41'

S 84° 57' 26" E 492.04'

S 84° 57' 26" E 319.78' TO

S 83° 43' 32" E

COMMON AREA

TOWER HILL AREA

LONGHILL GATE

SLOANE SQUARE AREA

20' VDH&T DRAINAGE ESMT.

WATERLINE EASEMENT TYP.

SECTION LINE ONLY!!

FUTURE SECTION 2

FUTURE SECTION 3

SEWER EASEMENTS (TYP.)

EXIST. STREAM

15" GUM & NAIL

12" WHITE OAK

26" HICKORY F&A

18" PINE F&A

IPF

N 10° 35' 30" W 82.85'

N 10° 44' 04" W 276.64'

N 10° 38' 55" E 490.04'

N 11° 54' 51" W 101.06'

S 16° 04' 48" E 106.03'

N 25° 34' 37" W 125.82'

S 05° 02' 34" W 492.99'

N 08° 09' 08" W 92.80'

N 35° 38' 08" W 17.75'

N 25° 10' 11" W 59.99'

N 18° 41' 40" W 202.48'

N 37° 14' 07" W 127.14'

S 38° 43' 45" W 125.0'

S 39° 17' 34" W 156.60'

N 44° 57' 26" W 92.0'

N 84° 57' 26" W 90.00'

N 05° 02' 34" E 125.00'

S 05° 02' 34" W 80.00'

N 84° 57' 26" W 90.00'

(5300) (5302) (5304) (5306) (5308) (5310) (5312) (5314) (5316) (5318) (5320) (5322) (5324) (5326) (5328) (5330) (5332) (5334)

(5301) (5303) (5305) (5307) (5309) (5311) (5313) (5315) (5317) (5319) (5321) (5323) (5325) (5327) (5329) (5331) (5333)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

"A" "B"

C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C17 C18 C19 C20 C21

DEVEL

1. TOTAL
2. PROPER
... (COND
3. AREA
4. AREA
5. MINIM
6. AVERAG
7. BUILDI
   a.) S
   b.) N
8. MINIMU
9. TAX MA
10. ALL L
11. PUBLI
12. DEVEL

13. THE CONSTRUC FOR DEDI FOR INCLU

NOTE:

~~PUR~~SUANT CITY COUN LOTS ARE UNITS THE DESCRIPTI

NOTE:

SEWER EASEMENTS SHOWN THUS ═══ & WATER LINE EASEMENTS SHOWN THUS ═══ ARE HEREBY DEDICATED TO THE JAMES CITY SERVICE AUTHORITY FOR THE PUBLIC USE.

THE LOCATION OF THESE FACILITIES "AS BUILT" WILL CONSTITUTE THE CENTERLINE OF THE 10' EASEMENTS SHOWN. ALL OTHER UTILITIES SHALL SECURE EASEMENTS BY SEPARATE INSTRUMENTS & PLATS.

ALL AREAS NOT IN LOTS AND/OR ROADS & SHOWN AS "COMMON AREA" MAY BE USED FOR THOSE EASEMENTS & ALSO FOR DRAINAGE PURPOSES.

NOTE: ADDRESS FOR EACH LIVING UNIT IS A 4 DIGIT NUMBER SHOWN THUS: (5303) ETC. EACH CLUSTER'S SYSTEM STARTS WITH NUMBER (5300). THE TAX MAP NUMBERING SYSTEM STARTS WITH THE SHEET

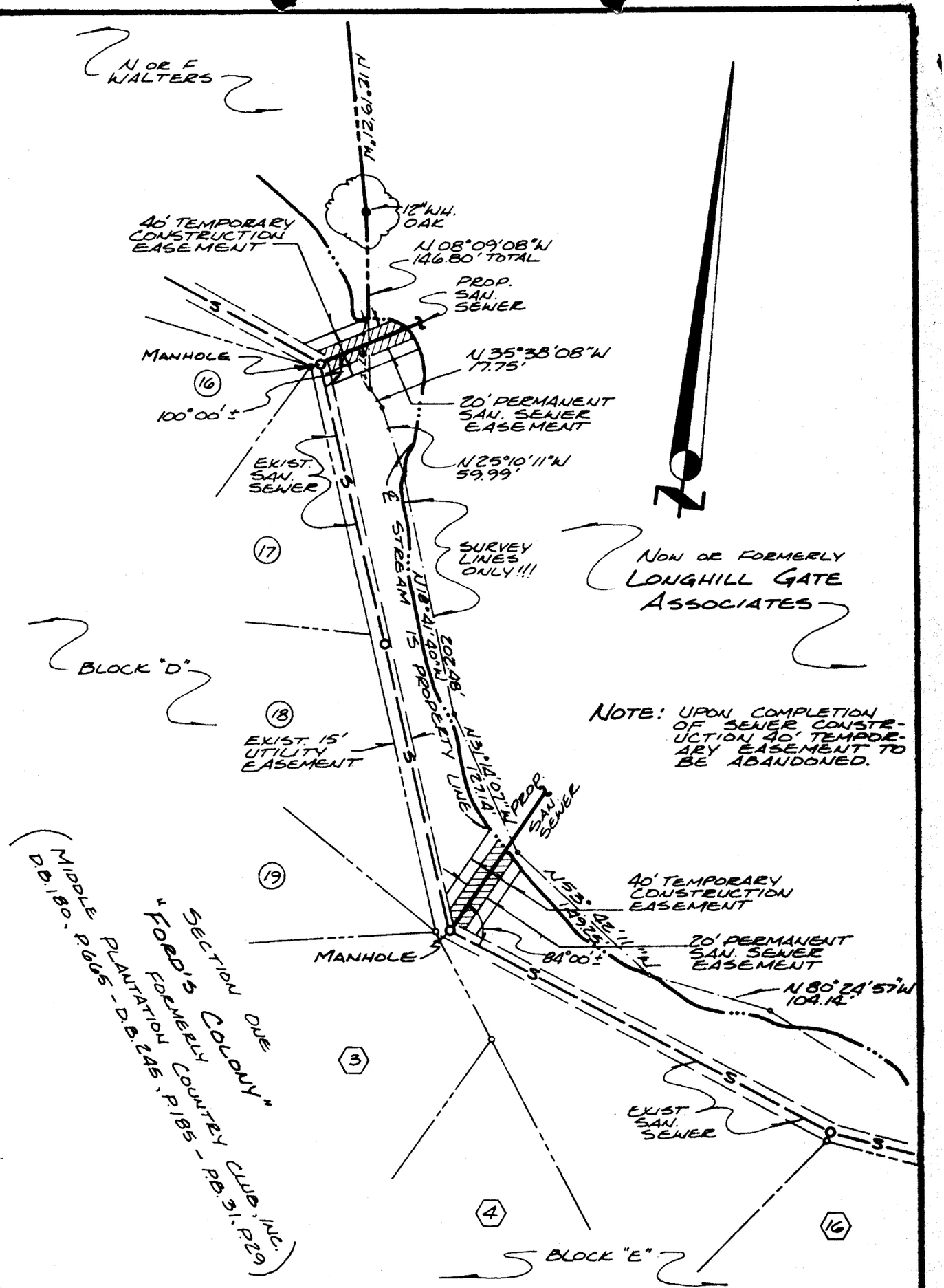
SEP 1986 RECEIVED PLANNING DEPARTMENT

JAMES

SCALE:

PC130_LONGHILL_GATE_SUBDIVISION_UPPER_POND_008

REC.: DEED BOOK 297, P.13



COMMONWEALTH OF VIRGINIA
ROGER B. SPEARMAN
CERTIFICATE No.
1264
CERTIFIED LAND SURVEYOR

R. B. Spearman

References:
D.B. 281, P. 357
& AS NOTED

IPF: Iron Pipe Fd.
IPS: Iron Pipe Set
BSL: Building Set-back Line

Date: Dec. 5, 1985
Scale: 1" = 100'
#2245
J.O. EP F.B. "E"

PLAT TO ACCOMPANY CONVEYANCE OF SEWER EASEMENTS

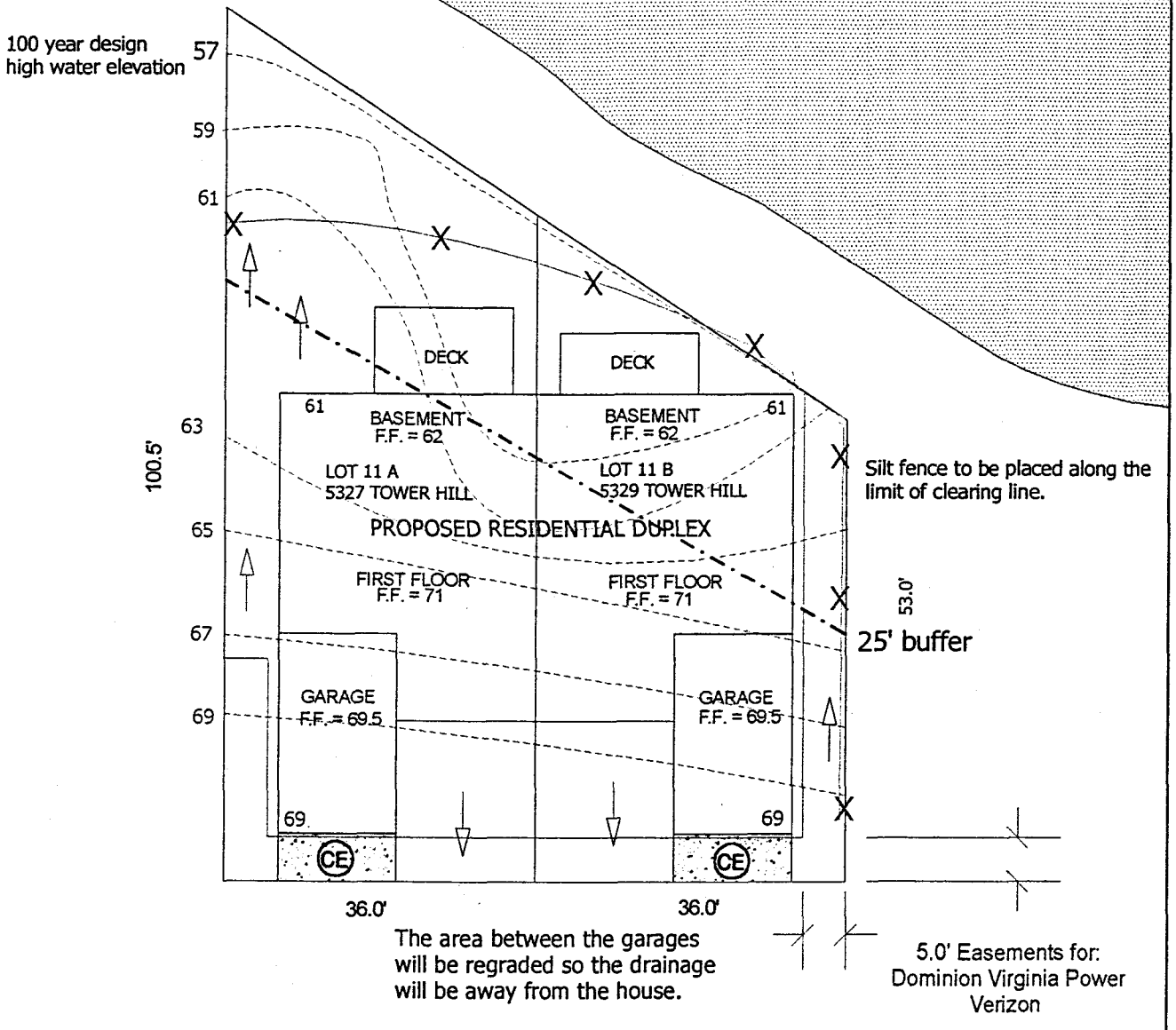
FROM: FORD'S COLONY AT WILLIAMSBURG, INC.

TO: LONGHILL GATE ASSOCIATES

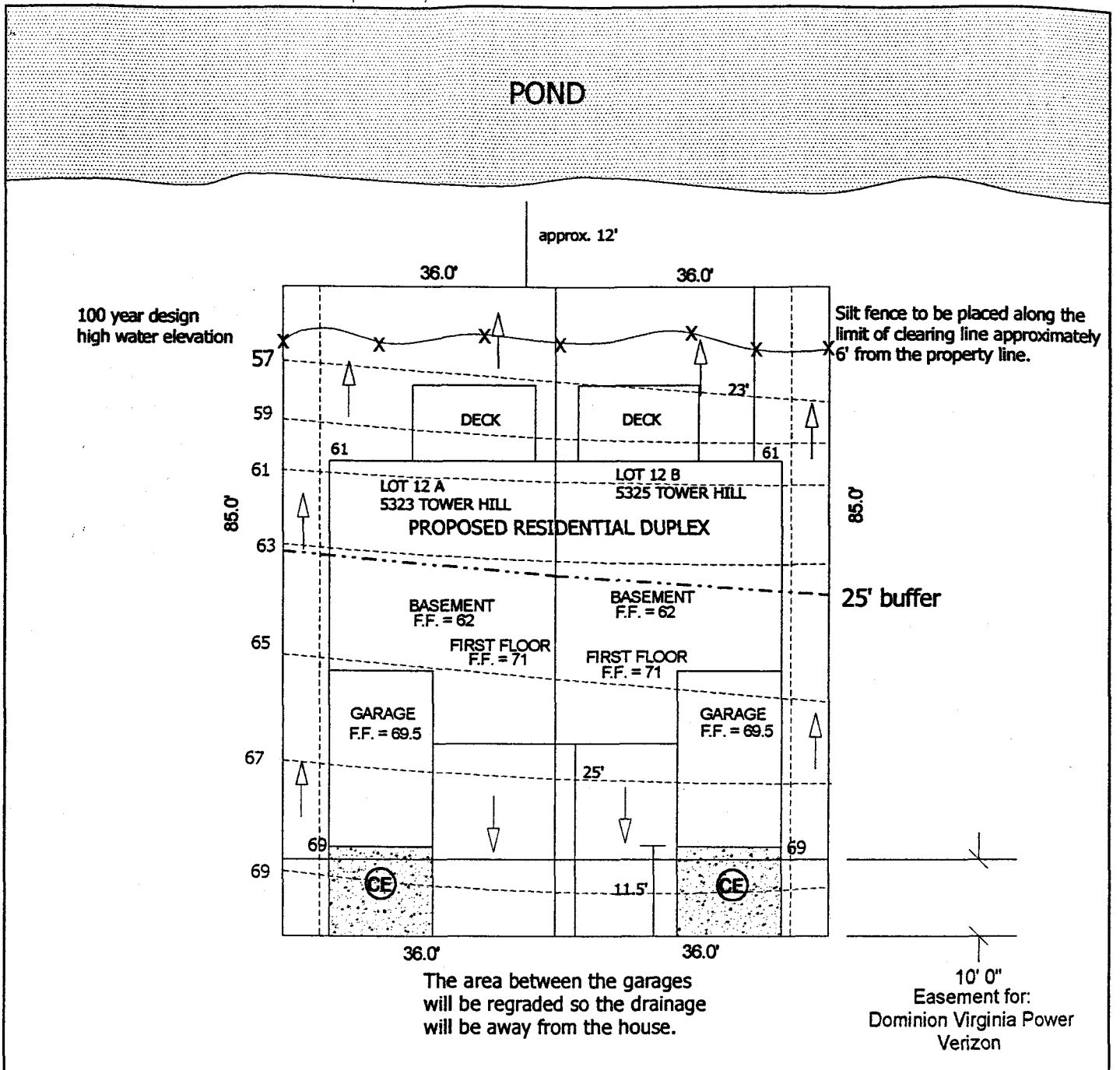
ALL LOCATED AT

JAMES CITY COUNTY, VIRGINIA

SPEARMAN & ASSOCIATES, INC., LAND SURVEYING
POST OFFICE BOX 1244 - WILLIAMSBURG, VIRGINIA
(804) 565-1319



PROPERTY LINE	JOHN GRIER CONSTRUCTION
BUILDING SET BACK	DEVELOPMENT PLAN LONGHILL GATE (NOT IN 100 YEAR FLOOD PLAIN)
TOPOGRAPHIC CONTOURS	SECTION 1 / LOT NUMBERS 11 A & 11 B
ELEVATIONS	SCALE 1" = 20' / JAMES CITY COUNTY
EASEMENT LINE	
SILT FENCE	
CE CONSTRUCTION ENTRANCE	



PROPERTY LINE

BUILDING SET BACK

TOPOGRAPHIC CONTOURS

ELEVATIONS

EASEMENT LINE

SILT FENCE

CE CONSTRUCTION ENTRANCE

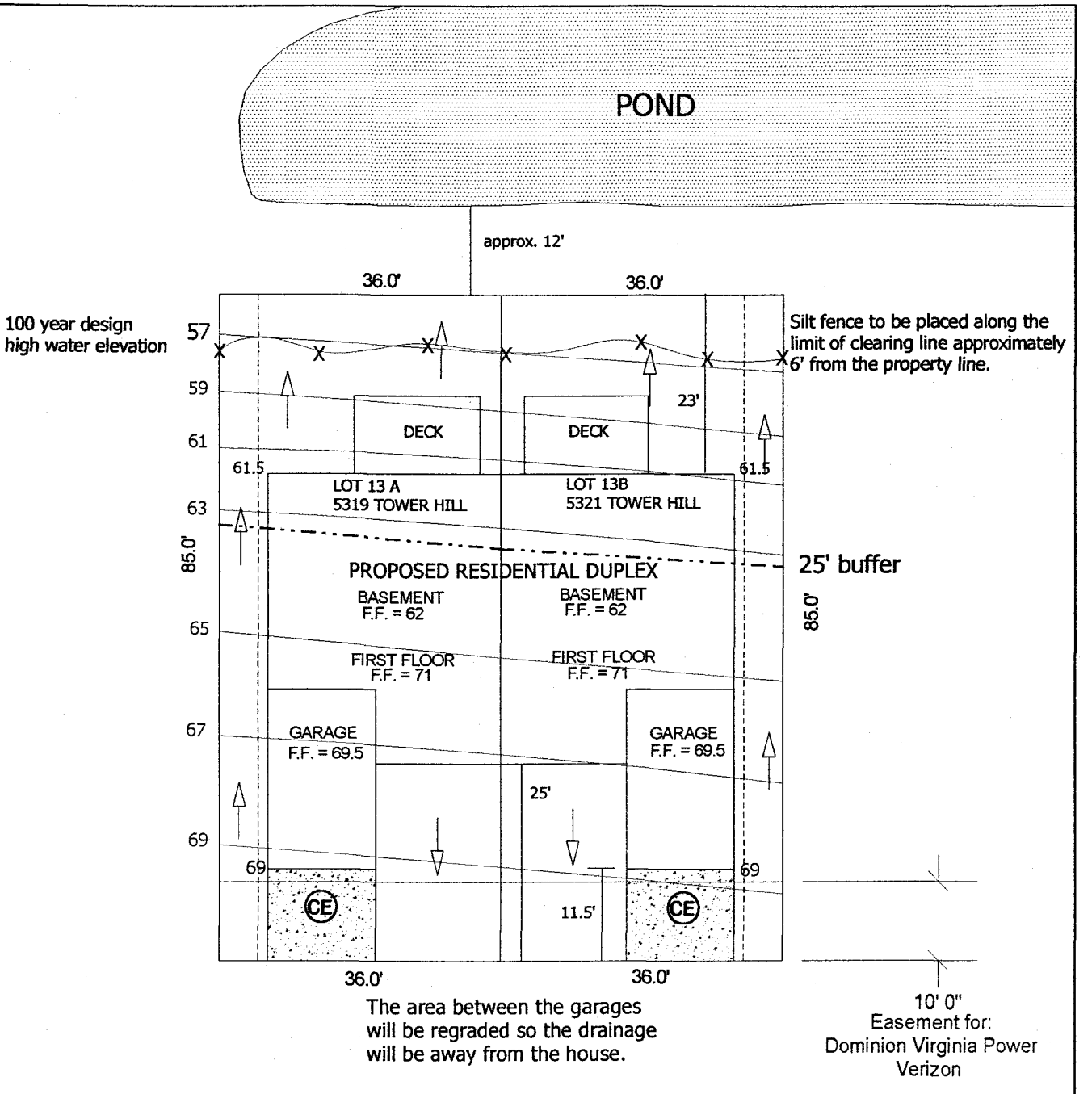
JOHN GRIER CONSTRUCTION

DEVELOPMENT PLAN
LONGHILL GATE
(NOT IN 100 YEAR FLOOD PLAIN)

SECTION	LOT NUMBERS
1	12 A & 12 B

SCALE 1" = 20'

JAMES CITY COUNTY



PROPERTY LINE	JOHN GRIER CONSTRUCTION
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EASEMENT LINE	
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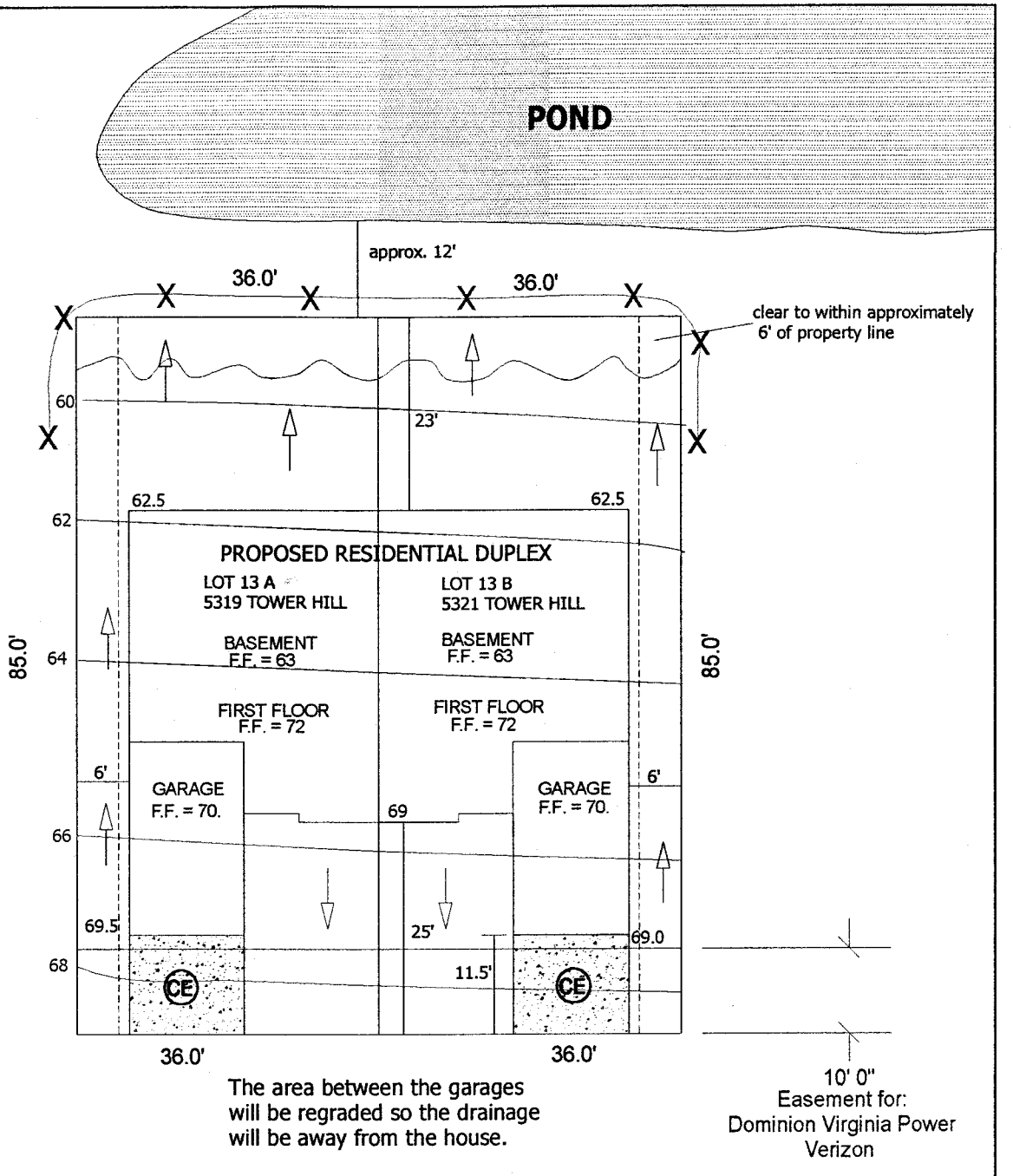
CE CONSTRUCTION ENTRANCE	SCALE 1" = 20' / JAMES CITY COUNTY



PROPERTY LINE	JOHN GRIER CONSTRUCTION
BUILDING SET BACK	DEVELOPMENT PLAN LONGHILL GATE (NOT IN 100 YEAR FLOOD PLAIN)
TOPOGRAPHIC CONTOURS	
ELEVATIONS	
EASEMENT LINE	
SILT FENCE	SECTION 1 — LOT NUMBERS 13 A & 13 B
CONSTRUCTION ENTRANCE (CE)	SCALE 1" = 20' — JAMES CITY COUNTY

File - Longhill Gate

229-0800
Jim Carter

DRAINAGE & STORM WATER CALCULATIONS

for

The Cluster Development

LONGHILL GATE

(see sheet # 2 of 8)

COMMONWEALTH OF VIRGINIA
ERIC E. LICHT
CERTIFICATE NO.
1050700
Apr. 22, 1986
PROFESSIONAL ENGINEER

RUNOFF PROJECTIONS

LOCATION	AREA A (ACRES)	SURFACE C (-)	LENGTH L (LF)	HEIGHT H (VF)	SLOPE S (%)	TIME* T (MIN)	RAINFALL I-10 (IN-HR)	FLOW Q-10 (CFS)
ENTRANCE CULVERT-RT 612	0.08	0.6	150	12	8	10	6.1	0.4
STORM SEWER # 1								
INLET 1	0.16	0.7	150	6	4	10	6.1	0.7
INLET 2	0.7	0.5	280	6	2	15	5.2	1.8
STORM SEWER # 2								
INLET 1	1.3	0.7	420	8	2	10	6.1	5.5
STORM SEWER # 3								
INLET 1	0.6	0.7	380	8	2	10	6.1	2.6
INLET 2	0.7	0.7	310	8	2.6	10	6.1	3.0
OUTFALL DITCH	1.2	0.3	490	20	4.0	20	4.6	1.6
STORM SEWER # 4								
INLET 1	0.3	0.7	250	7	2.8	10	6.1	1.3
INLET 2	1.0	0.3	280	20	7	15	5.2	1.3
OUTFALL DITCH	0.4	0.2	180	34	19	15	5.2	0.4
STORM SEWER # 5								
INLET 1	0.45	0.7	280	6	2.1	10	6.1	1.9
INLET 2	0.2	0.8	150	3	2	10	6.1	1.0
STORM SEWER # 6								
INLET 1	0.5	0.7	300	5	1.7	10	6.1	2.1
INLET 2	0.9	0.7	320	6	1.9	10	6.1	3.8
SLOANE SQUARE								
R-SIDE DITCH	0.25	0.7	340	10	3	10	6.1	1.1
L-SIDE DITCH	0.04	0.4	100	4	4	10	6.1	0.1
BARONS COURT								
R-SIDE DITCH	0.6	0.6	340	4	1.2	15	5.2	1.9
L-SIDE DITCH	0.4	0.6	400	4	1	15	5.2	1.2
HATTON CROSS								
R-SIDE DITCH	0.1	0.7	120	2	1.7	10	6.1	0.4
L-SIDE DITCH	0.1	0.7	120	2	1.7	10	6.1	0.4
TOWER HILL								
R-SIDE DITCH	0.8	0.6	280	15	5	10	6.1	2.9
L-SIDE DITCH	0.2	0.8	200	6	3	10	6.1	1.0
OUTFALL @ END	0.6	0.5	480	22	4.6	10	6.1	1.8
LONGHILL GATE								
CULVERT @ HATTON CR.	0.8	0.6	450	1.5	0.3	20	4.6	2.2
CULVERT @ BARONS CT.	1.9	0.6	630	2	0.3	20	4.6	5.2
CULVERT @ SLOANE	3.3	0.6	840	8	1.0	20	4.6	9.1
L-OUTFALL	3.4	0.6	1050	18	1.7	20	4.6	9.4
CULVERT @ CLUBHOUSE	0.2	0.8	400	1	0.25	15	5.2	0.8
CULVERT @ TOWER	1.0	0.5	500	16	3.2	20	4.6	2.3
R-OUTFALL-LONGHILL GATE	1.7	0.5	1200	19	1.6	25	4.0	3.4
X-CULVERT @ 6 + 10	9.5	0.6	1200	20	2.0	30	3.6	20.5
LARGE POND-INFLOW	16.3	0.6	1400	26	1.9	30	3.6	35.2
PROJECT TOTAL								
BEFORE	47.14	0.2	3300	54	1.6	40	3.0	28
AFTER	47.14	0.4	3300	54	1.6	40	2.0	36.4

* 10 minute minimum

1)

	C	A	CA
ROOFS	0.9	3.0	2.7
PAVED	0.9	5.64	5.1
LAWNS	0.35	17.0	6.0
OPEN	0.2	20.0	4.0
PONDS	0.9	1.5	1.35
TOTAL	0.4	47.14	19.15

2) COMPOSITE:

30.84 AC * 0.30 * 3.6 = 33.30
+ POND 3.1
TOTAL 36.4

NOTE: THE 8.4 CFS INCREASE (30% ONSITE) AMOUNTS TO WELL LESS THAN 1% OF THE FLOW IN THE DRAINAGE BASIN (3.2 SQ. MI.) WHERE LONGHILL SWAMP LEAVES THE SUBJECT PROPERTY, RAISING WATER LEVELS IN THE SWAMP BY LESS THAN 1/10 OF AN INCH.

DITCH CAPACITIES

LOCATION	DITCH SECTION	TYPE LINING	SLOPE S (%)	FLOW Q (CFS)	DEPTH D (IN)	VELOCITY V (FPS)
LONGHILL GATE - LEFT						
@ HATTON CROSS	V-2:1	GRASS	0.3	2.2	12	1.0
@ BARONS COURT	V-2:1	CONC	1.7	5.2	8	6.0
@ SLOANE SQUARE	V-2:1	CONC	2.6	9.1	9.5	7.5
@ OUTFALL	V-2:1	CONC	6.5	9.4	8	12
LONGHILL GATE - RIGHT						
@ CLUBHOUSE	V-2:1	GRASS	1.0	0.8	7	1.2
@ TOWER	V-2:1	GRASS	1.5	2.3	8	1.8
@ OUTFALL	V-2:1	CONC	3.0	3.4	6	7.5
SLOANE SQUARE						
R	V-2:1	GRASS	4.8	1.1	6	2.6
L	V-2:1	GRASS	4.8	0.1	2.5	1.3
BARONS COURT						
R	V-2:1	GRASS	1	1.9	9.5	1.5
L	V-2:1	GRASS	1	1.2	8	1.4
HATTON CROSS						
R	V-2:1	GRASS	3	0.4	4	1.7
L	V-2:1	GRASS	3	0.4	4	1.7
TOWER HILL						
R	V-2:1	GRASS	4	2.9	9	2.8
L	V-2:1	GRASS	4	1.0	6	2.2
OUTFALL @ END	V-2:1	CONC	12	1.2	3.5	8.5
STORM OVERFLOW @ POND (100 YEAR)	4'BOTTOM 3:1 SS	GRASS	2	50	1.5	4.2
STORM SEWER 1 OUTFALL	POND	RIPRAP	8.6	2.5	7	3.6
STORM SEWER 2 OUTFALL	V-2:1SS	RIPRAP	17	5.5	8	6.5
STORM SEWER 3 OUTFALL	V-2:1SS	RIPRAP	9	7.2	10.5	4.8
STORM SEWER 4 OUTFALL	V-2:1SS	RIPRAP	8	3.0	7.5	4.6
STORM SEWER 5 OUTFALL	V-2:1SS	RIPRAP	14	2.9	7	4.4
STORM SEWER 6 OUTFALL	POND	RIPRAP	5	5.9	10.5	4.3

CULVERT CAPACITY

	FLOW Q (CFS)	PIPE DATA SIZE DIA (IN)	INVERTS IN	INVERTS OUT	LENGTH L (LF)	SLOPE S (%)	HW CONTROL INLET HW/D	INLET HW (FT)	OUTLET H	OUTLET h_o	OUTLET LS_o	OUTLET HW (FT)	VELOCITY (FPS) (APPROX)
RT. 612 ENTRANCE	0.4	15	68.50	65.00	120	2.9	0.3	0.38	0.3	0.7	3.50	0	0.3
HATTON CROSS ENT.	2.2	15	75.39	74.99	64	0.6	0.67	0.83	0.3	0.9	0.40	0.8	1.8
BARONS COURT ENT.	5.2	15	73.79	73.31	64	1.0	1.25	1.56	0.7	1.2	0.40	1.5	4.2
SLOANE SQ. ENT.	3.3	15	67.50	66.00	60	2.5	0.9	1.13	0.3	1.0	1.50	0.8	2.7
TOWER HILL ENT.	2.3	15	65.40	64.84	56	1.0	0.6	0.75	0.3	0.8	0.76	0.35	1.1
POOL ENTRANCE	0.8	15	75.33	74.88	56	0.8	0.3	0.38	0.3	0.8	0.45	0.65	0.7
LONGHILL GATE @ 4+50	3.4	15			24	8.3	0.9	1.13	0.3	1.0	2.00	0	2.8
LONGHILL GATE @ 6+10	20.5	24	60.00	56.00	80	5.0	1.6	3.2	2.2	1.5	4.00	0	6.5

STORM SEWER CAPACITY

LOCATION FROM	TO	PIPE DATA DIA (IN)	INVERTS IN	INVERTS OUT	L LF	SLOPE S %	FLOW Q (CFS)	DEPTH D (FT)	VELOCITY V (FPS)
STORM SEWER #1			-	68.00					
INLET 1	INLET 2	15	68.00	67.00	80	1.25	0.7	0.25	4.2
INLET 2	MH	15	67.00	65.00	75	2.67	2.5	0.45	6.3
MH	OUTFALL	15	65.00	59.00	70	8.57	2.5	0.3	10.0
STORM SEWER #2			-	68.00					
INLET 1	OUTFALL	15	68.00	60.00	80	10.0	5.5	0.45	15
STORM SEWER #3			-	69.00					
INLET 1	INLET 2	15	69.00	68.00	40	2.5	2.6	0.45	6.3
INLET 2	MH	15	68.00	64.00	117	3.42	5.6	0.65	8.5
MH	OUTFALL	15	61.00	60.00	37	2.7	5.6	0.7	7.8
STORM SEWER #4			-	65.00					
INLET 1	INLET 2	15	65.00	59.00	85	7.06	1.3	0.25	7.5
INLET 2	MH	15	59.00	52.00	72	9.72	2.9	0.35	11
MH	OUTFALL	15	50.50	48.50	28	7.14	2.9	0.35	9.5
STORM SEWER #5			-	68.00					
INLET 1	INLET 2	15	68.00	65.00	85	3.53	1.9	0.35	6.5
INLET 2	OUTFALL	15	65.00	60.00	60	8.33	2.9	0.35	10.0
STORM SEWER #6			-	68.00					
INLET 1	INLET 2	15	68.00	65.75	225	1.0	2.1	0.5	4.2
INLET 2	OUTFALL	15	65.75	55.70	230	4.37	5.9	0.6	10.0

SCS TECH. RELEASE NO. 55

GRAPH B - LOWER POND

Q_i (2 year)	= INFLOW	= 30.3 CFS	
Q_o	= OUTFLOW	= UNKNOWN	= 3.0 CFS
V_s	= STORAGE VOLUME	= 1.5 AC-FT	= 1.1 INCHES
V_r	= RUNOFF VOLUME	=	1.86 INCHES
V_s/V_r	= VOLUME RATIO	=	0.59
Q_o/Q_i	= FLOW RATIO	=	0.1

GRAPH B - UPPER POND

Q_i (2 year)	= INFLOW	= 17.65	
Q_o	= OUTFALL	= UNKNOWN	= 1.76
V_s	= STORAGE VOLUME	= 1.24 AC-FT	= 1.5 INCHES
V_r	= RUNOFF VOLUME	=	1.86 INCHES
V_s/V_r	= VOLUME RATIO	=	0.81
Q_o/Q_i	= FLOW RATIO	=	0.1

DAM OVERFLOW

Q = CIA = 0.6 (5.1) 16.3 = 50 CFS
n = 0.050 GRASSED
S = 1%
H = 1.5'
DITCH = 4' BOTTOM W/ 2:1 SS, GRASS LINED

POND RETENTION

UPPER POND

INFLOW = 20.5 CFS
OUTFLOW = 12.5 CFS FLOWING FULL
= 20.5 CFS (Q_{10}) @ 3.2 FOOT HEADWATER
STORAGE CAPACITY = 2.1 FT. x 0.6 AC = 52,500 CF (SUFFICIENT TO STORE Q_{10} RELEASE FOR 2 HOURS)
FINDING: UPPER POND WILL PASS 12.5 CFS OR 2.2"/HR UNRETARDED. ANY GREATER EVENT WILL BE RETARDED, STORING UP TO 52,500 CF (3.8"/HR). PEAK FLOW DURING A Q_{10} EVENT WOULD BE 16 CFS.

LOWER POND

INFLOW = 35.2 CFS
OUTFLOW = 0 CFS @ 0' HEAD OVER INLET CONTROL
10 CFS @ 0.3'
23 CFS @ 1.5'
STORAGE CAPACITY = 1.5 FT x 0.9 AC = 65,300 CF (SUFFICIENT TO STORE Q_{10} RELEASE FOR ½ HOUR)
FINDING: LOWER POND WILL RETAIN UP TO 65,300 CF WITH RELEASES RANGING FROM 0 CFS TO 23 CFS BEFORE STORM OVERFLOW BEGINS (APPROX. 1.5 HOURS AFTER THE Q_{10} EVENT STARTS.)

TO: James City County Environmental Division

FROM: Jim Carter

DATE: August 8, 2003

RE: Lot 11 A (5327 Tower Hill) and Lot 11 B (5329 Tower Hill) of Longhill Gate

Please allow this letter to serve as a waiver request to modify the 25' pond buffer/setback as required in the James City County BMP manual.

The attached site plan shows the location of the contour for Elevation 57 and the location of the 25' landward buffer. It also shows the 5' wide utility easement at the front and side of the lots.

Please note that when these lots were platted, the pond was not designated as a BMP, nor is any buffer indicated on the recorded plats. Application of the 25' buffer has the potential to make these lots unbuildable.

During construction, we would strictly maintain silt fence across the rear of the lots along the limits of clearing line. Disturbed areas in the buffer would be stabilized with seed and straw as soon as possible and restabilized if further disturbed during construction. At this time, it is intended to return this disturbed area back to meadow conditions. Structures would exist within the 25' buffer; however, the finished floor elevations would be approximately four feet above Elevation 57.

Longhill Gate associates, a Virginia limited partnership
by 205, Inc general partner
by James D. Carter president
8/8/03

VARIANCE
Pond Buffer
Lot 11A (5327)
Lot 11B (5329)

APPROVED
James City County
Environmental Division
By: _____
Date: 09-09-03

LOT 11A, 5327 TOWER HILL

TO: James City County Environmental Division

FROM: Jim Carter

DATE: August 8, 2003

RE: Lot 11 A (5327 Tower Hill) and Lot 11 B (5329 Tower Hill) of Longhill Gate

Please allow this letter to serve as a waiver request to modify the 25' pond buffer/setback as required in the James City County BMP manual.

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Please note that when these lots were platted, the pond was not designated as a BMP, nor is any buffer indicated on the recorded plats. Application of the 25' buffer has the potential to make these lots unbuildable.

During construction, we would strictly maintain silt fence across the rear of the lots along the limits of clearing line. Disturbed areas in the buffer would be stabilized with seed and straw as soon as possible and restabilized if further disturbed during construction. At this time, it is intended to return this disturbed area back to meadow conditions. Structures would exist within the 25' buffer; however, the finished floor elevations would be approximately four feet above Elevation 57.

Longhill Gate associates, a Virginia
limited Partnership
by 205, Inc general partner
by James D. Carter president
8/8/03

TO: James City County Environmental Division

FROM: Jim Carter

DATE: August 8, 2003

RE: Lot 11 A (5327 Tower Hill) and Lot 11 B (5329 Tower Hill) of Longhill Gate

Please allow this letter to serve as a waiver request to modify the 25' pond buffer/setback as required in the James City County BMP manual.

The attached site plan shows the location of the contour for Elevation 57 and the location of the 25' landward buffer. It also shows the 5' wide utility easement at the front and side of the lots.

Please note that when these lots were platted, the pond was not designated as a BMP, nor is any buffer indicated on the recorded plats. Application of the 25' buffer has the potential to make these lots unbuildable.

During construction, we would strictly maintain silt fence across the rear of the lots along the limits of clearing line. Disturbed areas in the buffer would be stabilized with seed and straw as soon as possible and restabilized if further disturbed during construction. At this time, it is intended to return this disturbed area back to meadow conditions. Structures would exist within the 25' buffer; however, the finished floor elevations would be approximately four feet above Elevation 57.

Longhill Gate associates, a Virginia
Limited Partnership
by 205, Inc general partner
by James D. Carter president
8/8/03

APPROVED
James City County
Environmental Division
By: _____
Date: 09-09-03

LOT 11B, 5329 TOWER HILL

TO: James City County Environmental Division

FROM: Jim Carter

DATE: August 1, 2002

RE: Lot 12 A (5323 Tower Hill) and Lot 12 B (5325 Tower Hill) of Longhill Gate

Please allow this letter to serve as a waiver request to modify the 25' pond buffer/setback as required in the James City County BMP manual.

The attached site plan shows the location of the contour for Elevation 57 and the location of the 25' landward buffer. It also shows the 10' wide utility easement at the front of the lots. Application of the buffer will restrict the building footprint to approximately 40' of building depth.

Please note that when these lots were platted, the pond was not designated as a BMP, nor is any buffer indicated on the recorded plats. Application of the 25' buffer has the potential to make these lots unbuildable.

During construction, we would strictly maintain silt fence across the rear of the lots along the limits of clearing line. Disturbed areas in the buffer would be stabilized with seed and straw as soon as possible and restabilized if further disturbed during construction. At this time, it is intended to return this disturbed area back to meadow conditions. Structures would exist within the 25' buffer; however, the finished floor elevations would be approximately four feet above Elevation 57.

James D. Carter, individual
JDS, a General partner
In Longhill Gate Associates
a Virginia Limited Partnership

TO: James City County Environmental Division

FROM: Jim Carter

DATE: August 1, 2002

RE: Lot 12 A (5323 Tower Hill) and Lot 12 B (5325 Tower Hill) of Longhill Gate

Please allow this letter to serve as a waiver request to modify the 25' pond buffer/setback as required in the James City County BMP manual.

The attached site plan shows the location of the contour for Elevation 57 and the location of the 25' landward buffer. It also shows the 10' wide utility easement at the front of the lots. Application of the buffer will restrict the building footprint to approximately 40' of building depth.

Please note that when these lots were platted, the pond was not designated as a BMP, nor is any buffer indicated on the recorded plats. Application of the 25' buffer has the potential to make these lots unbuildable.

During construction, we would strictly maintain silt fence across the rear of the lots along the limits of clearing line. Disturbed areas in the buffer would be stabilized with seed and straw as soon as possible and restabilized if further disturbed during construction. At this time, it is intended to return this disturbed area back to meadow conditions. Structures would exist within the 25' buffer; however, the finished floor elevations would be approximately four feet above Elevation 57.

APPROVED
James City County
Environmental Division
By: _____
Date: 9-6-02

James D. Carter, President
J&S General Partners
for Longhill Gate Associates
a Virginia Limited Partnership

LOCATION: Lot 12B, Section 1, Tower Hill Longhill Gate; 5325 Tower Hill (County BMP ID Code: PC 033)

Variance to JCC BMP Manual pond buffer and setback requirements and supporting documentation as submitted on August 1st 2002 by the Owner/Applicant found to be acceptable. Efforts should be made to preserve existing trees and vegetation in the buffer during construction and to landscape or stabilize impacted buffer to resemble meadow or forest area with native trees, shrubs and ground cover to the greatest extent possible.

TO: James City County Environmental Division

FROM: Jim Carter

DATE: August 1, 2002

RE: Lot 12 A (5323 Tower Hill) and Lot 12 B (5325 Tower Hill) of Longhill Gate

Please allow this letter to serve as a waiver request to modify the 25' pond buffer/setback as required in the James City County BMP manual.

The attached site plan shows the location of the contour for Elevation 57 and the location of the 25' landward buffer. It also shows the 10' wide utility easement at the front of the lots. Application of the buffer will restrict the building footprint to approximately 40' of building depth.

Please note that when these lots were platted, the pond was not designated as a BMP, nor is any buffer indicated on the recorded plats. Application of the 25' buffer has the potential to make these lots unbuildable.

During construction, we would strictly maintain silt fence across the rear of the lots along the limits of clearing line. Disturbed areas in the buffer would be stabilized with seed and straw as soon as possible and restabilized if further disturbed during construction. At this time, it is intended to return this disturbed area back to meadow conditions. Structures would exist within the 25' buffer; however, the finished floor elevations would be approximately four feet above Elevation 57.

Variance
Pond Buffer
Lot 12A 5323 Tower Hill
Lot 12B 5325 Tower Hill

APPRO
James City County
Environmental Division
By: Scott A. Thomas
Date: 8-6-02

James D. Carter pond
Jos. L. Grier partn.
In Longhill Gate Assoc.
a Virginia Limited Partnership

LOCATION: Lot 12A, Section 1, Tower Hill Longhill Gate; 5323 Tower Hill (County BMP ID Code: PC 033)

Variance to JCC BMP Manual pond buffer and setback requirements and supporting documentation as submitted on August 1st 2002 by the Owner/Applicant found to be acceptable. Efforts should be made to preserve existing trees and vegetation in the buffer during construction and to landscape or stabilize impacted buffer to resemble meadow or forest area with native trees, shrubs and ground cover to the greatest extent possible.

TO: James City County Environmental Division

FROM: Jim Carter

DATE: July 8, 2002

RE: Lot 13 A (5321 Tower Hill) and Lot 13 B (5319 Tower Hill) of Longhill Gate
02-0904 02-0905

Please allow this letter to serve as a waiver request to modify the 25' pond buffer/setback as required in the James City County BMP manual.

The attached site plan shows the location of the contour for Elevation 57 and the location of the 25' landward buffer. It also shows the 10' wide utility easement at the front of the lots. Application of the buffer will restrict the building footprint to approximately 40' of building depth.

Please note that when these lots were platted, the pond was not designated as a BMP, nor is any buffer indicated on the recorded plats. Application of the 25' buffer has the potential to make these lots unbuildable.

During construction, we would strictly maintain silt fence across the rear of the lots along the limits of clearing line. Disturbed areas in the buffer would be stabilized with seed and straw as soon as possible and restabilized if further disturbed during construction. At this time, it is intended to return this disturbed area back to meadow conditions. Structures would exist within the 25' buffer; however, the finished floor elevations would be approximately four feet above Elevation 57.

Jim Carter

TO: James City County Environmental Division

FROM: Jim Carter

DATE: July 8, 2002

RE: Lot 13 A (5321 Tower Hill) and Lot 13 B (5319 Tower Hill) of Longhill Gate
02-0904 02-0905

Please allow this letter to serve as a waiver request to modify the 25' pond buffer/setback as required in the James City County BMP manual.

The attached site plan shows the location of the contour for Elevation 57 and the location of the 25' landward buffer. It also shows the 10' wide utility easement at the front of the lots. Application of the buffer will restrict the building footprint to approximately 40' of building depth.

Please note that when these lots were platted, the pond was not designated as a BMP, nor is any buffer indicated on the recorded plats. Application of the 25' buffer has the potential to make these lots unbuildable.

During construction, we would strictly maintain silt fence across the rear of the lots along the limits of clearing line. Disturbed areas in the buffer would be stabilized with seed and straw as soon as possible and restabilized if further disturbed during construction. At this time, it is intended to return this disturbed area back to meadow conditions. Structures would exist within the 25' buffer; however, the finished floor elevations would be approximately four feet above Elevation 57.

Variance
Pond Buffer

Lot 13A 5319 Tower Hill
Lot 13B 5321 Tower Hill
PC033

Jim Carter

Approval

LOCATION: Lot 13A, Section 1, Tower Hill Longhill Gate; 5319 Tower Hill (County BMP ID Code: PC 033)

Variance to JCC BMP Manual pond buffer and setback requirements and supporting documentation as submitted on July 11th 2002 found to be acceptable. Efforts should be made to preserve existing trees and vegetation in the buffer during clearing, grading and construction of the duplex unit and to landscape or stabilize impacted buffer to resemble meadow or forest area with native trees, shrubs and ground cover to the greatest extent possible.

Scott J. Thomas
Civil Engineer
Environmental Division

7-12-02
Date

TO: James City County Environmental Division

FROM: Jim Carter

DATE: July 8, 2002

RE: Lot 13 A (5321 Tower Hill) and Lot 13 B (5319 Tower Hill) of Longhill Gate
02-0904 02-0905

Please allow this letter to serve as a waiver request to modify the 25' pond buffer/setback as required in the James City County BMP manual.

The attached site plan shows the location of the contour for Elevation 57 and the location of the 25' landward buffer. It also shows the 10' wide utility easement at the front of the lots. Application of the buffer will restrict the building footprint to approximately 40' of building depth.

Please note that when these lots were platted, the pond was not designated as a BMP, nor is any buffer indicated on the recorded plats. Application of the 25' buffer has the potential to make these lots unbuildable.

During construction, we would strictly maintain silt fence across the rear of the lots along the limits of clearing line. Disturbed areas in the buffer would be stabilized with seed and straw as soon as possible and restabilized if further disturbed during construction. At this time, it is intended to return this disturbed area back to meadow conditions. Structures would exist within the 25' buffer; however, the finished floor elevations would be approximately four feet above Elevation 57.

Jim Carter

Approval

LOCATION: Lot 13B, Section 1, Tower Hill Longhill Gate; 5321 Tower Hill (County BMP ID Code: PC 033)

Variance to JCC BMP Manual pond buffer and setback requirements and supporting documentation as submitted on July 11th 2002 found to be acceptable. Efforts should be made to preserve existing trees and vegetation in the buffer during clearing, grading and construction of the duplex unit and to landscape or stabilize impacted buffer to resemble meadow or forest area with native trees, shrubs and ground cover to the greatest extent possible.

Scott J. Thomas
Civil Engineer
Environmental Division

7-12-02
Date

Scott Thomas

From: Scott Thomas
Sent: Tuesday, September 04, 2001 2:23 PM
To: Beth Davis
Subject: Longhill Gate BMPs

Here are my remarks for the two stormwater management facilities at Longhill Gate. The upper pond is located on the north side of the main entrance road (Longhill Gate) approximately 600 feet from Longhill Road. The lower pond is the larger, downstream pond which is generally situated between the tennis courts and the Tower Hill section.

Upper Wet Pond (BMP ID Code PC 130)

1. Repair shoreline erosion present along the south edge of the normal water pool (road side).
2. Clean and remove accumulated sediment and vegetation at the area associated with primary inflow to the pond. This is the forebay area at the back (west) end of the facility where storm drains empty into the pond area. This area located on the north side of the road approximately 250 feet from Longhill Road.
3. Establish rock outlet protection at the outfall end of the main storm drain which empties into the pond at the back (west) side.
4. Clean and remove sediment from the upstream (north) side of the primary flow control structures for the pond. The primary flow control structures for the upper pond are dual 15-inch and 24-inch culverts which cross the main entrance road. Cleaning and sediment removal is only required in the corner of the pond in the general vicinity around the culvert entrances.
5. Fill and repair a subsidence hole which is present between the water pool and the road where the culverts cross the main roadway.
6. Clean and remove sediment in the vicinity of the outfall end of the primary flow control structures for the pond. The outfall end of the primary flow control structures for the upper pond is located at the lower pond. No vegetation and sediment accumulations should be present in the vicinity of 10-15 feet from the outfall end of the pipes, which could obstruct flow from the upper pond into the lower pond.
7. Add rock outlet protection at the outfall end of the paved channel which conveys drainage from along the south side of the main entrance road to the lower pond. This paved channel is located just east of the outfall end of the culverts from the upper pond and along the south side of the main entrance road.
8. Clean and remove vegetation from the 30' x 10' depressed forebay area located west of the site entrance at Longhill Road. This forebay collects drainage from across Longhill Road prior to it's conveyance into the upper pond.

Lower Wet Pond (BMP ID Code PC 033)

1. Clean and remove trees and woody vegetation from the entire downstream embankment and within 10-15 feet of the outfall end of the pipe barrel through the dam embankment.
2. Seed and mulch bare soil areas present along the east pond shoreline (tennis court side).
3. Clean and remove vegetation and sediment accumulations from the outfall ends of all three paved channels which convey runoff to the pond. Paved channels are located at the back (north) side of the pond, the southeast corner of the pond near the dam embankment and in the middle of the west shoreline of the pond. Of special concern is the outfall area at the end of the paved channel located at the southeast corner of the facility. This area coincides with the east (tennis court side) and upstream toe of dam embankment. At this location, thick vegetation and sediment accumulations have obstructed storm inflow to the stormwater managment facility and the flow path from the impoundment area is obstructed to the emergency (overflow) spillway situated at the east end of the dam embankment. Flow to or through the emergency spillways should not be obstructed in any manner.
4. It appears the corrugated anti-vortex/trash rack device (54-inch size) is missing or displaced from the top of the riser structure and needs reset or repaired.
5. Undercutting 1-2 feet deep was present at the outfall end of the pipe barrel through the dam. The scour hole needs filled with compacted material and covered with protective stone where applicable.

Let me know if there is anything else.

Scott J. Thomas, P.E.
James City County
Environmental Division

Longhill Gate Homeowner's Association, Inc.

5000 Longhill Gate Road
Williamsburg, VA 23188

July 11, 2001

To: Spirn, Tarley, Robinson & Tarley
2313 Jamestown Road, Suite 202
Williamsburg, VA 23185
Attn: Susan Tarley

From: Keith Patterson,
Vice-President of Longhill Gate Homeowner Assoc.

RE: Conversation with Elizabeth

I spoke with Elizabeth on July 10, 2001, about Mr. Carter having James City County to release all his bonds at Longhill Gate. Karen Sperry the chairperson of the Landscape and Maintenance Committee was made aware of this just a few days ago when she saw a James City County vehicle in the plan. The James City County engineer made her aware of Mr. Carter's interest in having the bonds release. AT this time we do not know the dollar amounts of the bonds and if they will be release.

Karen is meeting with the County engineers Thursday, July 12, at 10:00AM to go over the concerns of the Association. She will meet with engineers Kathryn Davis and Scott Thomas of the Environmental Division. Elizabeth wanted the following question asked of the County: Do we have the right to appeal if they would release these bonds? Elizabeth also wanted a list of the problems that need to be corrected.

Tower Hill

1. Road in front of 5524 & 26 broken side walk.
2. Cracks by corner in road in front of 5330 & 5333
3. Cracks in road in front of 5331 by pond at the drainage between pavement + ditch
4. Cracking in road in front of areas with no homes on lots.
5. Cracking in road in front of 5317, 5315, 5312 and 5314

Baron's Court

1. Roads have not received a finished coat to date.
2. Erosion by side of 8320
3. Erosion on Vacant lots by 8322 and behind 8322 and next to 8330
4. Water stands in the road by corner of the island across from 8310

Hatton Cross

1. Roads have not received a finished coat to date.
2. Erosion by the mail boxes at the end of street.

Sloan Square

1. Erosion in front of 5303 corrected by Longhill Gate Homeowner Assoc. at a cost of over $5,000

Cheswick Park

1. Front of unit 6311 erosion and between units 6318 and 6320 more erosion

Recreation Areas of Longhill Gate

1. Drain Behind Pool area just draining into top of hill instead of the pond.
1. Erosion on hill behind tennis Ct.
2. Leak in bottom of back of dam
3. Erosion on north side of tennis ct.

Sincerely

Keith Patterson

cc: George Sperry
Karen Sperry

August 18, 2006

Scott J. Thomas, P.E.
Senior Engineer
Environmental Division
James City County
101 Mounts Bay Road
P.O. Box 8784
Williamsburg, VA 23187-8784

Dear Mr. Thomas:

Thank you very much for loaning me the enclosed materials, which document Jim Carter's approved application for a waiver of the 25' pond buffer/setback on Lot 11B (5329 Tower Hill) of Longhill Gate, where our house is built. We appreciate having a copy of these materials, and I apologize for taking so long to return the originals to you.

I also want to take this opportunity to thank you for the plantings the county has placed on the edge of the large pond opposite to us. The plants appear to be thriving, and I think they are popular with the residents. We also have plants now around the edge of the smaller pond. It will be great if these improve water quality.

Thank you again for loaning me the materials concerning the pond buffer waiver.

Sincerely,

Martha W. Elim

Martha W. Elim
5329 Tower Hill Court
Williamsburg, VA 23188

Scott Thomas

From: Scott Thomas
Sent: Tuesday, September 04, 2001 2:23 PM
To: Beth Davis
Subject: Longhill Gate BMPs

Here are my remarks for the two stormwater management facilities at Longhill Gate. The upper pond is located on the north side of the main entrance road (Longhill Gate) approximately 600 feet from Longhill Road. The lower pond is the larger, downstream pond which is generally situated between the tennis courts and the Tower Hill section.

Upper Wet Pond (BMP ID Code PC 130)

1. Repair shoreline erosion present along the south edge of the normal water pool (road side).
2. Clean and remove accumulated sediment and vegetation at the area associated with primary inflow to the pond. This is the forebay area at the back (west) end of the facility where storm drains empty into the pond area. This area located on the north side of the road approximately 250 feet from Longhill Road.
3. Establish rock outlet protection at the outfall end of the main storm drain which empties into the pond at the back (west) side.
4. Clean and remove sediment from the upstream (north) side of the primary flow control structures for the pond. The primary flow control structures for the upper pond are dual 15-inch and 24-inch culverts which cross the main entrance road. Cleaning and sediment removal is only required in the corner of the pond in the general vicinity around the culvert entrances.
5. Fill and repair a subsidence hole which is present between the water pool and the road where the culverts cross the main roadway.
6. Clean and remove sediment in the vicinity of the outfall end of the primary flow control structures for the pond. The outfall end of the primary flow control structures for the upper pond is located at the lower pond. No vegetation and sediment accumulations should be present in the vicinity of 10-15 feet from the outfall end of the pipes, which could obstruct flow from the upper pond into the lower pond.
7. Add rock outlet protection at the outfall end of the paved channel which conveys drainage from along the south side of the main entrance road to the lower pond. This paved channel is located just east of the outfall end of the culverts from the upper pond and along the south side of the main entrance road.
8. Clean and remove vegetation from the 30' x 10' depressed forebay area located west of the site entrance at Longhill Road. This forebay collects drainage from across Longhill Road prior to it's conveyance into the upper pond.

Lower Wet Pond (BMP ID Code PC 033)

1. Clean and remove trees and woody vegetation from the entire downstream embankment and within 10-15 feet of the outfall end of the pipe barrel through the dam embankment.
2. Seed and mulch bare soil areas present along the east pond shoreline (tennis court side).
3. Clean and remove vegetation and sediment accumulations from the outfall ends of all three paved channels which convey runoff to the pond. Paved channels are located at the back (north) side of the pond, the southeast corner of the pond near the dam embankment and in the middle of the west shoreline of the pond. Of special concern is the outfall area at the end of the paved channel located at the southeast corner of the facility. This area coincides with the east (tennis court side) and upstream toe of dam embankment. At this location, thick vegetation and sediment accumulations have obstructed storm inflow to the stormwater managment facility and the flow path from the impoundment area is obstructed to the emergency (overflow) spillway situated at the east end of the dam embankment. Flow to or through the emergency spillways should not be obstructed in any manner.
4. It appears the corrugated anti-vortex/trash rack device (54-inch size) is missing or displaced from the top of the riser structure and needs reset or repaired.
5. Undercutting 1-2 feet deep was present at the outfall end of the pipe barrel through the dam. The scour hole needs filled with compacted material and covered with protective stone where applicable.

Let me know if there is anything else.

Scott J. Thomas, P.E.
James City County
Environmental Division

Stormwater Management / BMP Inspection Report
Detention and Retention Pond Facilities

SP-4-86
3140400001

Database Inventory No. (if known): PC 130

Name of Facility: Longhill Gate (Upper Pond) BMP No.: 1 of 2 Date: 7/06/01

Location: Longhill Gate near Site Entrance

Name of Owner: Longhill Gate Investment Co. LLC

Inspector: SJ Thomas; Beth Davis

Type of Facility: Wet Pond

Weather Conditions: Sunny, Hot, 80's

If an inspection item is not applicable, mark NA, otherwise mark the appropriate column.

O.K. - The item checked is in adequate condition and the maintenance program is currently satisfactory.
Routine - The item checked requires attention, but does not present an immediate threat to the function of the BMP.
Urgent - The item checked requires immediate attention to keep the BMP operational and prevent damage to the facility.

Provide an explanation and details in the comment column, if routine or urgent are marked.

Facility Item	O.K.	Routine	Urgent	Comments
Embankments and Side Slopes:	Embankment is Roadway (Longhill Gate)			
Grass Height	✓			
Vegetation Condition	✓			
Tree Growth	✓			
Erosion	✓			
Trash & Debris	✓			
Seepage	✓			None observed.
Fencing or Benches				None
Interior Landscaping/Planted Areas:	☑ None ☐ Constructed Wetland/Shallow Marsh ☐ Naturally Established Vegetation			
Vegetated Conditions				
Trash & Debris				
Floating Material				
Erosion				
Sediment				
Dead Plant				
Aesthetics				
Other				

SF Lots + Roads. Some drainage from across Longhill Rd.

Water Pools	☒ Permanent Pool (Retention Basin)	☐ Shallow Marsh (Detention Basin)	☐ None (Detention Basin)	3-4' deep.
Shoreline Erosion		✓	✓	South Edge at Waters Edge (Road)
Algae	✓			None
Trash & Debris	✓			
Sediment	✓			Typical for Age; Does not affect Function
Aesthetics	✓			
Other				Unusual Dark Brown-Orange Water Color
Inflow Stuctures (Describe Locations):	Pipes @ Site Entrance to Forebay back of Facility.			
Condition of Structure	✓			
Erosion	✓			
Trash and Debris	✓			
Sediment		✓		Clean + Remove Sediment & Veg.
Aesthetics		✓		
Other		✓		Need OP at Pipe Inflow.
Principal Flow Control Structure - Intake, Riser, etc. (Describe Location):	Dual Culverts across Road Crossing			
Condition of Structure	✓			Open-end culverts 15"/24" RCP
Corrosion	✓			
Trash and Debris	✓			
Sediment		✓		Minor Sed at entrance to pipe.
Aesthetics		✓		Routine SEED + MULCH.
Other		✓	✓	Erosion + Piping at Pipe Inlets (Severe)
Principal Outlet Structure - Barrel, Conduit, etc. :	same as above 24"/15" Across Road			
Condition of Structure	✓			
Settlement		✓	✓	Piping at Pipe Entrances
Trash & Debris	✓			
Sediment		✓	✓	Clean + Remove Sed + Veg at outfalls to Pond 2 (Lower Pond)
Erosion	✓			
Other	✓			
Emergency Spillway (Overflow):	None; Road is Emergency Spillway.			
Vegetation				N/A
Lining	✓			Grass + Road Surf.
Erosion	✓			
Trash & Debris	✓			
Other	✓			

Main problem piping at culverts inlet side.

Nuisance Type Conditions:				
Mosquito Breeding	✓			
Animal Burrows	✓			
Graffiti	✓			
Other				
Surrounding Perimeter Conditions:	North Wooded; South GRASS/ROAD			
Land Uses	✓			SF Lots & Road.
Vegetation	✓			
Trash & Debris	✓			
Aesthetics	✓			
Access /Maintenance Roads or Paths	✓			Along Longhill Gate Rd.
Other				

Remarks:

- Add outlet protection rock to end of P6-2A channel near dual pipe culverts inlets (ROAD.)
- Pond depth shallow at culverts + shoreline.
- Clean + Remove sg from 30'x10' forebay at site entrance.

Overall Environmental Division Internal Rating: 3

Signature: Scott Thynne P.E. Date: 07/06/01

Title: Civil Engineer Env. Div.

SWMProg\BMP\CoInspProg\DetRet.wpd

WATERSHED	PC	MAINTENANCE PLAN	No	CTRL STRUC DESC	Dual RCP
BMP ID NO	130	SITE AREA acre	33.91	CTRL STRUC SIZE inches	15
PLAN NO	SP-4-86	LAND USE	Multi Family Resid	OTLT BARRL DESC	Dual RCP
TAX PARCEL	(31-04)(04-01)	old BMP TYP	Wet Pond	OTLT BARRL SIZE inch	24
PIN NO	3140400001	JCC BMP CODE			
CONSTRUCTION DATE	7/1/1986	POINT VALUE		EMERG SPILLWAY	No
PROJECT NAME	Longhill Gate Sec 1&2 (Upper Pond)			DESIGN HW ELEV	
FACILITY LOCATION	Near Longhill Gate Site Entrance			PERM POOL ELE	60.0
CITY-STATE	Williamsburg, Va. 23188	SVC DRAIN AREA acres		2-YR OUTFLOW cfs	1.76
CURRENT OWNER	Longhill Gate Investment Co. LLC			10-YR OUTFLOW cfs	0.00
OWNER ADDRESS	645 Penniman Road			REC DRAWING	No
OWNER ADDRESS 2		SERVICE AREA DESCRI	SF Lots & Roads; Longhill Road		
CITY-STATE-ZIP CODE	Williamsburg, Va. 23185	IMPERV AREA acres	0.00	CONSTR CERTI	No
OWNER PHONE		RECV STREAM	UT of Powhatan Creek		
MAINT AGREEMENT	No	EXT DET-WQ-CTRL	Yes	LAST INSP DATE	7/6/2001
EMERG ACTION PLAN	No	WTR QUAL VOL acre-ft		INTERNAL RATING	2
		CHAN PROT CTRL	No	MISC/COMMENTS	
		CHAN PROT VOL acre-ft	0	15" & 24" culverts control flow. Also see PC 033 Lower Pond.	
		SW/FLOOD CONTROL	Yes		
		GEOTECH REPORT	No		

Get Last BMP No

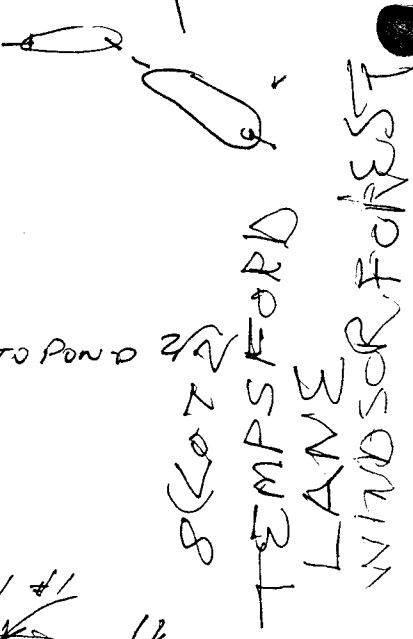
Return to Menu

Longhill Gate SP-9-86

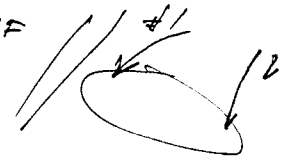
253-7552
6323 Chiswick Park
WMBG, VA. 23188

Pond 1 North side, Small Pond NP = 60.00
15" RCP w/ES-1 NO ES (ROAD)
24" RCP w/ES-1
1 pipe inflow (N)

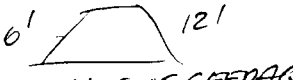
- EMB is ROADWAY, 15' WATER TO RD
- PERIMETER (N) WOODED VEG, SOUTH GRASS, LARGE WILLOWS (N) SLOPE,
- POND UNUSUAL DARK BROWN COLOR ? ORANGE
- PIPING + EROSION AT 24" CULVERT (SEVERE) ~~&~~ NEEDS FIXED.
- SHORELINE EROSION (S) NEEDS FIXED.
- REMOVE VEG FROM BALL FOR BAY NEAR SITE ENTRANCE.
- WEED OP @ INFLOW
- SLOPE EROSION NEEDS FIXED @ SLOPE NEAR INFLOW PIPE (MATTED)
- CLEAN + REMOVE SED, VEG + DEBRIS @ TWO PIPE OUTFALL INTO POND 2 (PLUME)
- ADD OP @ END OF P6-2A (PAVED CHANNEL) NEAR PIPE INLETS.
- DEPTH 3-4 ft.; SHALLOW AT SHORE + ENDS.



Pond 2 LAKE South NP = 55.0
36" CMP RISER w/ CMP CAP, 8" LOW FLOW ORIF
24" OUTFALL; ES



- CLEAN + REMOVE SED + VEG @ OUTFALL OF PAVED CHANNEL (#1) near road,
- PERIMETER VEG. WILLOWS, CATTAILS EAST, SHRUBS. OK
  WOODED BUFFER (WEST) NATURAL OK
- UNUSUAL DARK BROWN/ORANGE IRON OXIDE COLOR.
- Depth 1-2' BACK END.
- SHORELINE EROSION OK.
- SANITARY SEWER ALONG ~~WEST~~ EASTSIDE.
- BARE SOIL AREA ON ADJ SLOPE (EAST) NEEDS STABIL. (TURNS TO SILT)
  (ALSO ERODED HOLES).
- FOUNTAIN IN MID LAKE HIT BY LIGHTNING.



NO SIGNS OF SEEPAGE.

- ADD OP + CLEAR VEG + SED PLUME (SEVERE) @ P6-2A #2
  NEAR RISER SE CORNER OF POND. BAD.
  CLEAR PATH FOR POSITIVE DRAIN. NOT ALL → CLEAR SED + VEG P6-2A OUTFALL AT WEST SIDE (NEAR UNIT 5331)
  VEG NEEDS REMOVED. WILLOWS
- ES. TOP OF DAM OK. POND SIDE + DS SIDE NEEDS VEG, TREES (PINES)
  CLEARED + REMOVED.
- CLEAR D/S FILL EMB. OF ALL TREES, SHRUBS + WOODY VEG.
  ESTABLISH GRASS. CLEAR US EMBANK @ SHORELINE INTERFACE
- RISER CMP. NO TOP PLATE. CORRODED. WEEDS CLEANED + RESTORED.
  RISER ABOUT 30' INTO LAKE. COULD NOT INSPECT CLOSELY,
- CLEAR TREES 15' FROM BARREL OUTFALL. BARREL SLIGHT UNDERCUT NEEDS FILLED
- REMOVE SF D/S OF BARREL PIPE CORROSION IN INVERT OF CHANNEL
- OP 20X10 LOOKS OK. SOME SIGNS OF D/S EROSION

SMALL BASIN @ SITE ENTRANCE (30X10)
VEG & SEDIMENT ~~CLEARED~~ NEEDS CLEANED
24" IN; 30" OUT

5331 Tower Hill

AS-BUILT?

Question EL OF 5331, BE vs. ELEV OF ES, ~~SIGNIFICANT~~ SPILLWAY IS INVERTABLE!!

PC130_LONGHILL_GATE_SUBDIVISION_UPPER_POND - 037

James City County
Environmental Division
Single Family Plan Submittal

Lot 11B, Tower Hill Section of Longhill Gate (5329 Tower Hill)

Clearing, grading and structures are proposed within the 25 ft. pond setback/buffer as required per page 38 of the James City County BMP manual. The pond buffer extends 25 feet outward from the maximum water surface elevation of the pond for the 100-year storm event.

Based on previous correspondence for Section 1 Tower Hill Lots 12A, 12B, 13A and 13B, the design 100-year design high water elevation for the adjacent wet pond facility (County BMP ID Code: PC 033) is at Elevation 57.0.

As clearing, grading and permanent structures are proposed within the pond buffer, a waiver request in writing must be submitted to the Environmental Division. The waiver request shall include supporting information as required including: stabilization or landscaping plan to restore disturbed buffer area back to meadow or forest condition using native trees, shrubs or ground cover to the greatest extent possible. If permanent structures are situated horizontally in the buffer, provisions are required to keep adequate vertical separation between design high water of the pond and the finished floor elevation of the structure. The variance request needs to be from the owner or tenant, current or future, rather than from the builder or contractor.

PC030_LONGHILL_GATE_SUBDIVISION_UPPER_POND - 0005

130
PC ~~033~~
UPPER POND

PC 033
LOWER POND

James City County
Environmental Division
Single Family Plan Submittal

Lot 13A, Tower Hill Section of Longhill Gate (5319 Tower Hill)

It is unclear if clearing, grading or structures are proposed within the 25 ft. pond setback/buffer as required per page 38 of the James City County BMP manual. The pond buffer extends 25 feet outward from the maximum water surface elevation of the pond for the 100-year storm event.

Based on our record files, design high water elevation is not specifically stated for this BMP facility. However, based on record hydraulic computations for the emergency spillway, depth of flow for design parameters specified (Q=50 cfs, 8' wide, n=0.050, 1 percent slope, 2H:1V sideslopes) would result in a flow depth in the spillway of 1.45 ft., which would equate to El. 57.95. However, in lieu of formal computations, reasonable conservative assumptions will be used to establish design high water elevation. Assuming dam design met minimum requirements, there would normally be 1 foot of freeboard between top of dam El. 58 and 100-year design high water. Therefore, the assumed minimum 100-year design high water elevation for the adjacent wet pond facility (County BMP ID Code: PC 033) is at Elevation 57.0. Original plans and computations were prepared by Spearman & Associates of Williamsburg, Virginia under approved County Plan No. SP-4-86.

Show the 100-year design high water elevation on the plan and the location of the landward 25 ft. pond buffer/setback. Efforts should be made to not situate clearing, grading or permanent structures in the buffer and to preserve existing trees and vegetation in the buffer to the greatest extent possible. If clearing, grading or permanent structures are situated in the pond buffer a written request for waiver is required to be submitted to the Environmental Division. The waiver request shall include supporting information as required including: stabilization or landscaping plan to restore disturbed buffer area back to meadow or forest condition using native trees, shrubs or ground cover to the greatest extent possible. If permanent structures are situated horizontally in the buffer, provisions are required to keep adequate vertical separation between design high water of the pond and the finished floor elevation of the structure. The variance request needs to be from the owner or tenant, current or future, rather than the builder or contractor.

James City County
Environmental Division
Single Family Plan Submittal

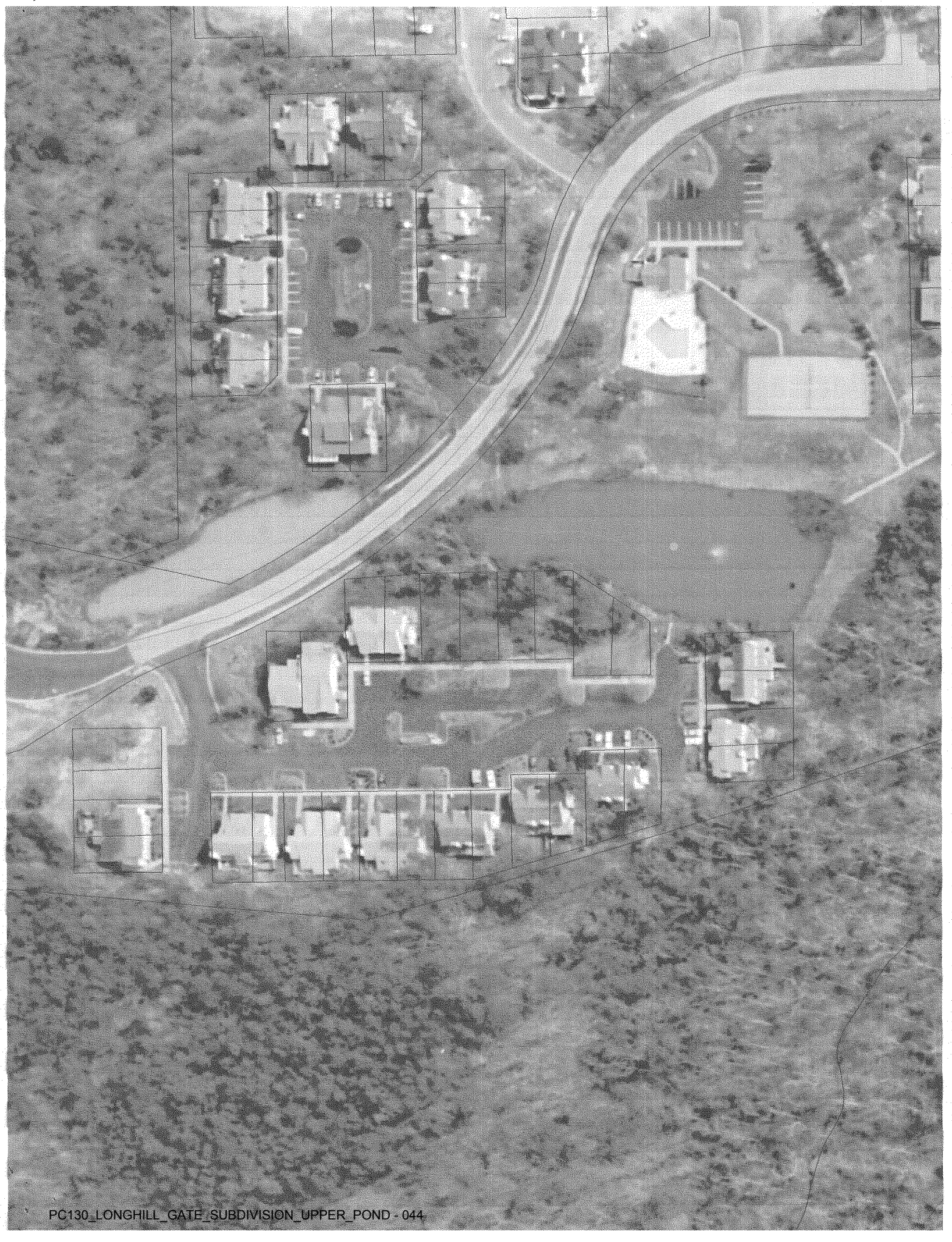
Lot 13B, Tower Hill Section of Longhill Gate (5321 Tower Hill)

It is unclear if clearing, grading or structures are proposed within the 25 ft. pond setback/buffer as required per page 38 of the James City County BMP manual. The pond buffer extends 25 feet outward from the maximum water surface elevation of the pond for the 100-year storm event.

Based on our record files, design high water elevation is not specifically stated for this BMP facility. However, based on record hydraulic computations for the emergency spillway, depth of flow for design parameters specified (Q=50 cfs, 8' wide, n=0.050, 1 percent slope, 2H:1V sideslopes) would result in a flow depth in the spillway of 1.45 ft., which would equate to El. 57.95. However, in lieu of formal computations, reasonable conservative assumptions will be used to establish design high water elevation. Assuming dam design met minimum requirements, there would normally be 1 foot of freeboard between top of dam El. 58 and 100-year design high water. Therefore, the assumed minimum 100-year design high water elevation for the adjacent wet pond facility (County BMP ID Code: PC 033) is at Elevation 57.0. Original plans and computations were prepared by Spearman & Associates of Williamsburg, Virginia under approved County Plan No. SP-4-86.

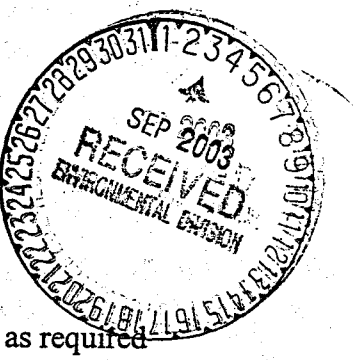
Show the 100-year design high water elevation on the plan and the location of the landward 25 ft. pond buffer/setback. Efforts should be made to not situate clearing, grading or permanent structures in the buffer and to preserve existing trees and vegetation in the buffer to the greatest extent possible. If clearing, grading or permanent structures are situated in the pond buffer a written request for waiver is required to be submitted to the Environmental Division. The waiver request shall include supporting information as required including: stabilization or landscaping plan to restore disturbed buffer area back to meadow or forest condition using native trees, shrubs or ground cover to the greatest extent possible. If permanent structures are situated horizontally in the buffer, provisions are required to keep adequate vertical separation between design high water of the pond and the finished floor elevation of the structure. The variance request needs to be from the owner or tenant, current or future, rather than the builder or contractor.


LOT 13A
LOT 13B
UNDEV
LOT 12A
LOT 12B
LOT 11A
LOT 11B
PC033
LOWER POND



PC130_LONGHILL_GATE_SUBDIVISION_UPPER_POND - 044

James City County
Environmental Division
Single Family Plan Submittal



Lot 11A, Tower Hill Section of Longhill Gate (5327 Tower Hill)

Clearing, grading and structures are proposed within the 25 ft. pond setback/buffer as required per page 38 of the James City County BMP manual. The pond buffer extends 25 feet outward from the maximum water surface elevation of the pond for the 100-year storm event.

Based on previous correspondence for Section 1 Tower Hill Lots 12A, 12B, 13A and 13B, the design 100-year design high water elevation for the adjacent wet pond facility (County BMP ID Code: PC 033) is at Elevation 57.0.

As clearing, grading and permanent structures are proposed within the pond buffer, a waiver request in writing must be submitted to the Environmental Division. The waiver request shall include supporting information as required including: stabilization or landscaping plan to restore disturbed buffer area back to meadow or forest condition using native trees, shrubs or ground cover to the greatest extent possible. If permanent structures are situated horizontally in the buffer, provisions are required to keep adequate vertical separation between design high water of the pond and the finished floor elevation of the structure. The variance request needs to be from the owner or tenant, current or future, rather than from the builder or contractor.

APPLICATION FOR BUILDING PERMIT

101-E Mounts Bay Road, P.O. Box 8784, Williamsburg, VA 23187-8784 (757) 253-6626
FAX: (757) 259-4038

Office Hours: Mon-Fri 8:00 a.m. - 5:00 p.m.

CONTRACTOR INFORMATION
License No. 2701 005795A
Company Name JOHN GRIER CONSTRUCTION
Street Address 3721 STRAWBERRY PLAINS RD
City WMSB State VA Zip 23188
Phone No. ( ) 229-1413 Fax. No. ( ) 220-9044
E-Mail Address
Signature: Linda L Terrell
Print Name: LINDA L TERRELL

OWNER INFORMATION
Name SAME AS FOUND
Address
City State Zip
Phone No. ( ) Fax. No.
E-Mail Address
Signature:
Print Name:
Agent:
Print Name:

RECEIVED AUG 2002 ENVIRONMENTAL DIVISION

DESCRIPTION OF WORK
RESIDENTIAL NEW CONSTRUCTION DUPLEX

SAME AS PLAN NUMBER 97-5 (Lists Options)

(For Commercial Projects Only)
Site Plan No. Date Approved

LOCATION OF WORK
Tax Map No. (31-4) (04-0-0012-B)
Street Address 5325 TOWER HILL
City WMSB State VA Zip 23188
Zone R-2 Subdivision LONGHILL GATE

MECHANICS' LIEN AGENT
Name: JOHN KONSTANTINOU
Address: 1321 JAMESTOWN ROAD WMSB 102
City WMSB State VA Zip 23185
Phone No. ( ) 253-0594 Fax. No. ( ) 229-9892

BUILDING INFORMATION
Stories 2 No. Rooms 7 No. Baths 2½ No.Bath Fix. 8
No. Fireplaces 0 Type
Exterior Finish: (Vinyl, Brick, Wood, Other)
Interior Finish: (Gypsum wallboard, Wood, Other)
Flooring: (Carpet, Wood, Vinyl, Other)
Roofing: (Asphalt-Fiberglass, Wood, Other)
Heat Type: (Gas, Heatpump, Electric, Other)
Air Conditioning-Type: (Central, Window, None)

Floor Area (sq.ft.) 920
(Do not include Basement, Garage, and Deck/Porch)
Deck (sq.ft.) 135
Porch (sq.ft.) 84
Basement Area (sq.ft.) 820
Garage Area (sq.ft.) 316
Total Area (sq.ft.) 2275

Septic ____ Public Sewer ✓ Grinder Pump ____
Well ____ Public H_2O ✓

Estimated Construction Value 110 000 (Do not include Lot $)

OFFICE USE ONLY

Lot Width
Lot Depth
Front Property Line
Right Property Line
Left Property Line
Rear Property Line

PERMIT NO.

LINE NO. 02-1224

Date/Time In 8/26/02
Date Plan Reviewed

Improvement Code
Structure Used As
Use Group
Occupancy Load
Type Construction
Zoning Approved
Zoning Disapproved
Plan Approved
Plan Disapproved

PLAN REVIEW FEE

PERMIT FEE

Notes:

Permit Agreement in Lieu of an Erosion and Sediment Control Plan for a Single-Family Residence in a Subdivision

Building Permit No.: _____ Subdivision: LONGHILL GATE

Address: 5325 TOWER HILL

In lieu of submission of an erosion and sediment control plan for the construction of this single-family dwelling, I agree t comply with the limitations and conditions of this agreement to prevent off-site sedimentation. In addition, I agree to compl with any requirements determined necessary by employees of JCC Development Management if upon field inspections th measures employed on-site are found to not be effective in controlling off-site sedimentation. Such requirements shall b based on the conservation standards contained in the Virginia Erosion and Sediment Control Handbook and shall represen the minimum practices necessary to provide adequate control of erosion and sedimentation resulting from this project.

REQUIREMENTS:

1. The site, work, materials, and plans shall be available at all times for inspections by duly authorized officials of Jame City County.
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4. All sediment control structures shall be maintained in an effective operating condition.
5. All soil stockpiles shall be protected by a sediment control measure or be seeded and covered with a mulch material presented in VESCH Specification 3.35.
6. A construction entrance made of VDOT No. 1 or No. 3 size stone placed on a filter fabric underliner shall be install as a first step, prior to lot clearing. All vehicle ingress and egress shall be directed over the installed constructi entrance to prevent the tracking of mud onto public roads.
7. All cut and/or fill slopes greater than three (3) feet in vertical height shall be graded to a 3:1 or flatter slope.
8. This agreement does not authorize the use of any decomposable materials as fill.
9. Development shall not impair existing surface drainage or constitute a potential sediment hazard. Stormwater run shall not be conveyed or discharged onto adjacent properties in a manner which may cause damage.
10. All disturbed areas on the lot shall be stabilized within seven days of final grading with permanent vegetation c protective ground cover suitable for the time of year.

I further understand that failure to comply with the above requirements within three working days following notice by representatives of the Environmental Division could result in citation for violation of the James City County Erosion Sedimentation Control Ordinance. I also understand that noncompliance could result in revocation of this land disturba permit agreement and the building permit for which it was issued.

Signature of Landowner: _____

CBO ✓ Responsible Land Disturber: JOSEPH S. TERRELL JR Certificate No: 10776
(Certified by Dept. of Conservation and Recreation)

Approved By: _____ Date: _____

APPLICATION FOR BUILDING PERMIT

101-E Mounts Bay Road, P.O. Box 8784, Williamsburg, VA 23187-8784
(757) 253-6626
FAX: (757) 259-4038

Office Hours: Mon-Fri 8:00 a.m. - 5:00 p.m.

CONTRACTOR INFORMATION
License No. 2701 005795A
Company Name JOHN GRIER CONSTRUCTION
Street Address 3721 STRAWBERRY PLAINS RD
City WMSBG State VA Zip 23188
Phone No. ( ) 229-1413 Fax No. ( ) 220-9044
E-Mail Address
Signature: Linda L Terrell
Print Name: LINDA L. TERRELL

OWNER INFORMATION
Name SAME AS CONTRACTOR
Address
City State Zip
Phone No. ( ) Fax No. ( )
E-Mail Address
Signature:
Print Name:
Agent:
Print Name:

RECEIVED JUL 2002 ENVIRONMENTAL DIVISION

DESCRIPTION OF WORK
RESIDENTIAL NEW CONSTRUCTION DUPLEX

SAME AS PLAN NUMBER (Lists Options)
THIS IS A NEW PLAN THAT WILL BE A SAME AS PLAN

(For Commercial Projects Only)
Site Plan No. Date Approved

LOCATION OF WORK
Tax Map No. (31 - 4) (04 - 0 - 0012 - A)
Street Address 5319 TOWER HILL
City WMSBG State VA Zip 23188
Zone R-2 Subdivision LONGHILL GATE

MECHANICS' LIEN AGENT
Name: JOHN KONJ ANTONOV
Address: 1321 JAMESTOWN ROAD SUITE 102
City WMSBG State VA Zip 23185
Phone No. ( ) 253-0894 Fax No. ( ) 229-4442

BUILDING INFORMATION
Stories 2 No. Rooms 6 No. Baths 2 No. Bath Fix. 1/2
No. Fireplaces 0 Type
Exterior Finish: (Vinyl), Brick, Wood, Other
Interior Finish: (Gypsum wallboard), Wood, Other
Flooring: (Carpet), Wood, (Vinyl), Other
Roofing: (Asphalt-Fiberglass), Wood, Other
Heat Type: (Gas), Heatpump, Electric, Other
Air Conditioning-Type: (Central), Window, None)

Floor Area (sq.ft.) 920
(Do not include Basement, Garage, and Deck/Porch)
Deck (sq.ft.)
Porch (sq.ft.) 84
Basement Area (sq.ft.) 820
Garage Area (sq.ft.) 316
Total Area (sq.ft.) 2140

Septic ____ Public Sewer ✓ Grinder Pump ____
Estimated Construction Value 112,000 (Do not include Lot $) Well ____ Public H_2O ✓

OFFICE USE ONLY

Lot Width
Lot Depth
Front Property Line
Right Property Line
Left Property Line
Rear Property Line

PERMIT NO.
LINE NO. 02-0905
Date/Time In 6/21/02 3:05 PM.
Date Plan Reviewed

Improvement Code
Structure Used As
Use Group
Occupancy Load
Type Construction
Zoning Approved
Zoning Disapproved
Plan Approved
Plan Disapproved

PLAN REVIEW FEE
PERMIT FEE

Notes:
Rejected - need BMP buffer. CEO 6-28-02.

APPLICATION FOR BUILDING PERMIT

101-E Mounts Bay Road, P.O. Box 8784, Williamsburg, VA 23187-8784
(757) 253-6626
FAX: (757) 259-4038

Office Hours: Mon-Fri 8:00 a.m. - 5:00 p.m.

CONTRACTOR INFORMATION
License No. 2701 0057954
Company Name JOHN GREER CONSTRUCTION
Street Address 3721 STRAWBERRY PLAINS RD
City LNDC State VA Zip 23188
Phone No. ( ) 229-1413 Fax No. ( ) 220-9044
E-Mail Address
Signature: Linda D Jewell
Print Name: LINDA L JEWELL

OWNER INFORMATION
Name SAME AS CONTRACTOR
Address
City State Zip
Phone No. ( ) Fax. No. ( )
E-Mail Address
Signature:
Print Name:
Agent:
Print Name:

RECEIVED JUL 2002 ENVIRONMENTAL DIVISION

DESCRIPTION OF WORK
RESIDENTIAL NEW CONSTRUCTION DWELLING

SAME AS PLAN NUMBER (Lists Options)
X THIS IS A NEW PLAN THAT WILL BE A SAME AS PLAN X

(For Commercial Projects Only)
Site Plan No. Date Approved

LOCATION OF WORK
Tax Map No. (31 - 4) (04 - 0 -0313 - B)
Street Address 3721 TOWER HILL
City LNDC State VA Zip 23188
Zone R-2 Subdivision LONGHILL GATE

MECHANICS' LIEN AGENT
Name: JOHN LOVEANTONIO
Address: 3721 JAMESTOWN ROAD SUITE 102
City LNDC State VA Zip 23185
Phone No. ( ) 229-0454 Fax. No. ( ) 229-4112

BUILDING INFORMATION
Stories 2 No. Rooms 6 No. Baths 2 No.Bath Fix. 0
No. Fireplaces 0 Type
Exterior Finish: (Vinyl,) Brick, Wood, Other)
Interior Finish: (Gypsum wallboard,) Wood, Other)
Flooring: (Carpet,) Wood, (Vinyl,) Other)
Roofing: (Asphalt-Fiberglass,) Wood, Other)
Heat Type: (Gas,) Heatpump, Electric, Other)
Air Conditioning-Type: (Central,) Window, None)

Floor Area (sq.ft.) 920
(Do not include Basement, Garage, and Deck/Porch)
Deck (sq.ft.)
Porch (sq.ft.) 84
Basement Area (sq.ft.) 820
Garage Area (sq.ft.) 316
Total Area (sq.ft.) 2140

Estimated Construction Value 110000 (Do not include Lot $)

Septic ____ Public Sewer ✓ Grinder Pump ____
Well ____ Public H_2O ✓

OFFICE USE ONLY

Lot Width
Lot Depth
Front Property Line
Right Property Line
Left Property Line
Rear Property Line

PERMIT NO.

LINE NO. 02-0904

Date/Time In 6/21/02 3:05P.
Date Plan Reviewed

Improvement Code
Structure Used As
Use Group
Occupancy Load
Type Construction
Zoning Approved
Zoning Disapproved
Plan Approved
Plan Disapproved

PLAN REVIEW FEE

PERMIT FEE

Notes:
Rejected - need BMP buffer. CEO 6-28-02.

PC130_LONGHILL_GATE_SUBDIVISION_UPPER_POND - 049

APPLICATION FOR BUILDING PERM

101-E Mounts Bay Road, P.O. Box 8784, Williamsburg, VA 23187-8784 (757) 2
FAX: (757) 2

Office Hours: Mon-Fri 8:00 a.m.

CONTRACTOR INFORMATION
License No. 2701 005795A
Company Name JOHN GRIER CONSTRUCTION
Street Address 3721 STRAWBERRY PLAINS RD
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OWNER INFORMATION
Name SAME AS CONTRACTOR
Address
City State Zip
Phone No. ( ) Fax. No.
E-Mail Address
Signature:
Print Name:
Agent:
Print Name:

RECEIVED AUG 2002 ENVIRONMENTAL DIVIS

DESCRIPTION OF WORK
RESIDENTIAL NEW CONSTRUCTION DUPLEX

SAME AS PLAN NUMBER 97-5 (Lists Options)

(For Commercial Projects Only)
Site Plan No. Date Approved

LOCATION OF WORK
Tax Map No. (31-4) (04-0-00R-A)
Street Address 5323 TOWER HILL
City WMBG State VA Zip 23188
Zone R-2 Subdivision LONGHILL GATE

MECHANICS' LIEN AGENT
Name: JOHN KONSTANTINOU
Address: 321 JAMESTOWN ROAD SUITE
City WMBG State VA Zip
Phone No. ( )253-0894 Fax. No. ( ) 22

BUILDING INFORMATION
Stories 2 No. Rooms 7½ No. Baths 2½ No.Bath Fix. 8
No. Fireplaces 0 Type
Exterior Finish: (Vinyl,) Brick, Wood, Other
Interior Finish: (Gypsum wallboard,) Wood, Other
Flooring: (Carpet,) Wood, (Vinyl,) Other
Roofing: (Asphalt-Fiberglass,) Wood, Other
Heat Type: (Gas,) Heatpump, Electric, Other
Air Conditioning-Type: (Central,) Window, None)

Floor Area (sq.ft.) 920
(Do not include Basement, Garage, and Deck/Porch
Deck (sq.ft.) 135
Porch (sq.ft.) 84
Basement Area (sq.ft.) 820
Garage Area (sq.ft.) 316
Total Area (sq.ft.) 2275

Septic ____ Public Sewer ✓ Grinder Pump
Well ____ Public H_2O ✓

Estimated Construction Value 110,000 (Do not include Lot $)

OFFICE USE ONLY

Lot Width
Lot Depth
Front Property Line
Right Property Line
Left Property Line
Rear Property Line

PERMIT NO.

LINE NO. 02-1223

Date/Time In 8/26/02
Date Plan Reviewed

Improvement Code
Structure Used As
Use Group
Occupancy Load
Type Construction
Zoning Approved
Zoning Disapproved
Plan Approved
Plan Disapproved

PLAN REVIEW FEE

PERMIT FEE

Notes:

Permit Agreement in Lieu of an Erosion and Sediment Control Plan for a Single-Family Residence in a Subdivision

Building Permit No.: _____ Subdivision: LONGHILL GATE

Address: 5323 TOLLER HILL

In lieu of submission of an erosion and sediment control plan for the construction of this single-family dwelling, I agree comply with the limitations and conditions of this agreement to prevent off-site sedimentation. In addition, I agree to comp with any requirements determined necessary by employees of JCC Development Management if upon field inspections t measures employed on-site are found to not be effective in controlling off-site sedimentation. Such requirements shall based on the conservation standards contained in the Virginia Erosion and Sediment Control Handbook and shall represe the minimum practices necessary to provide adequate control of erosion and sedimentation resulting from this project.

REQUIREMENTS:

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Signature of Landowner: _____

Responsible Land Disturber: JOSEPH TERRELL, JR Certificate No: 10776

(Certified by Dept. of Conservation and Recreation)

CBO ✓

Approved By: _____ Date: _____

Open Lots – Longhill Gate
Section 1 – Tower Hill (6 LOTS)
NEXT TO BMP PC033

(1) 31404000 13A
5319 TOWER HILL
R2 GEN RESID
LOT 13A – SECTION 1
0.0689 AC.

(2) 31404000 13B
5321 TOWER HILL
R2 GEN RESID
LOT 13B – SECTION 1
0.069 AC.

(3) 31404000 12A
5323 TOWER HILL
R2 GEN RESID
LOT 12-A, SECT 1
0.069 AC.

(4) 31404000 12B
5325 TOWER HILL
R2 GEN RESID
LOT 12-B, SECT 1
0.069 AC.

(5) 31404000 11A
5327 TOWER HILL
R2 GEN RESID
LOT 11A – SECT 1
0.069 AC.

(6) 31404000 11B
5329 TOWER HILL
R2 GEN RESID
LOT 11 B, SECT 1
0.069 AC.

Open Lots — Longhill Gate
Section 1 — Tower Hill (6 LOTS)
NEXT TO BMP PC 033

(1) 31404000 13A ✓
5319 TOWER HILL
R2 GEN RESID
LOT 13A - SECTION 1
0.0689 AC.

(2) 31404000 13B ✓
5321 TOWER HILL
R2 GEN RESID
LOT 13B - SECTION 1
0.069 AC.

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LOT 12-A, SECT 1
0.069 AC.

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R2 GEN RESID
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0.069 AC.

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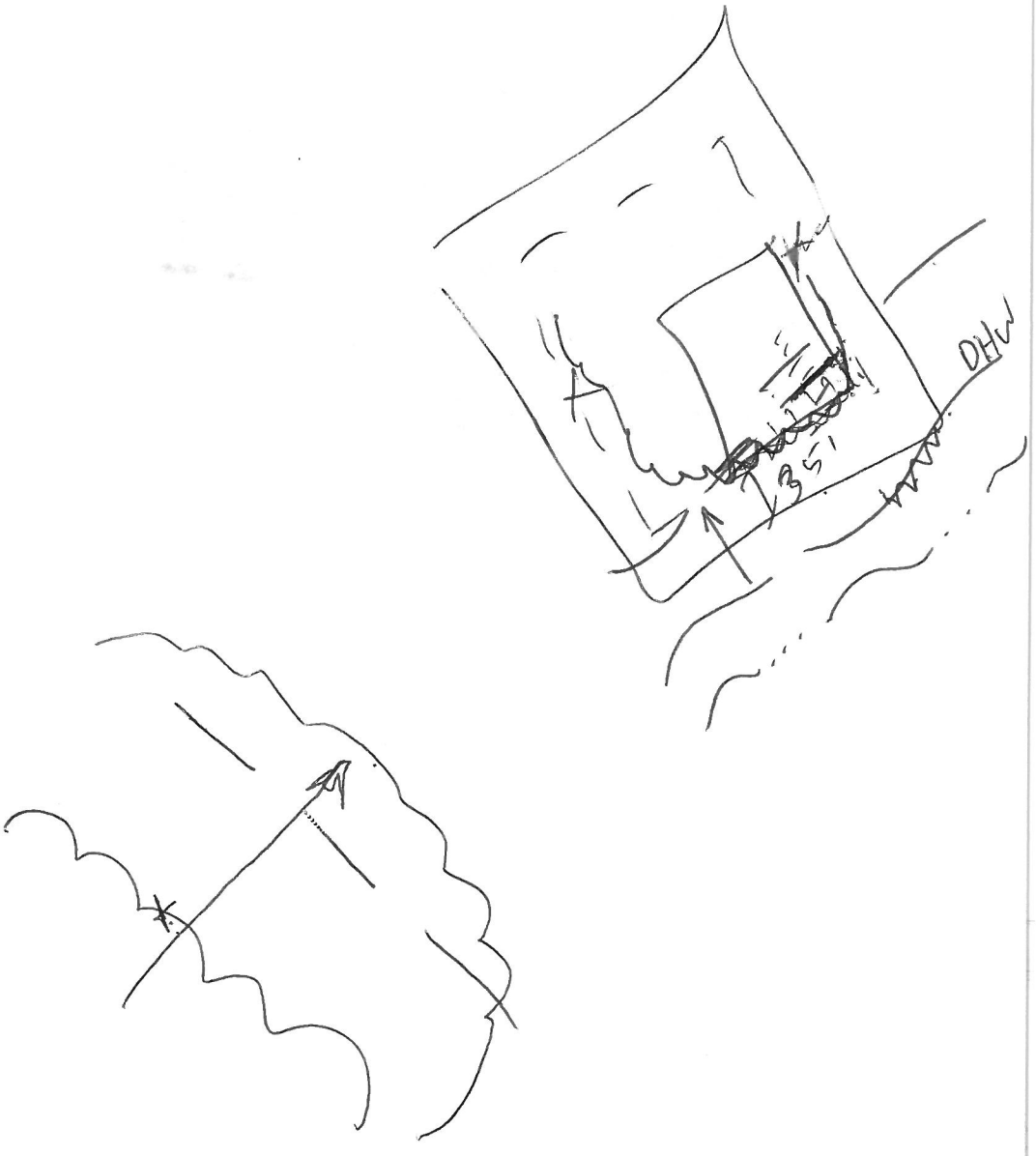
R2 GEN RESID
LOT 11A - SECT 1
0.069 AC.

(6) 31404000 11B ✓
5329 TOWER HILL
R2 GEN RESID
LOT 11 B, SECT 1
0.069 AC.

POND BUFFER VARIANCES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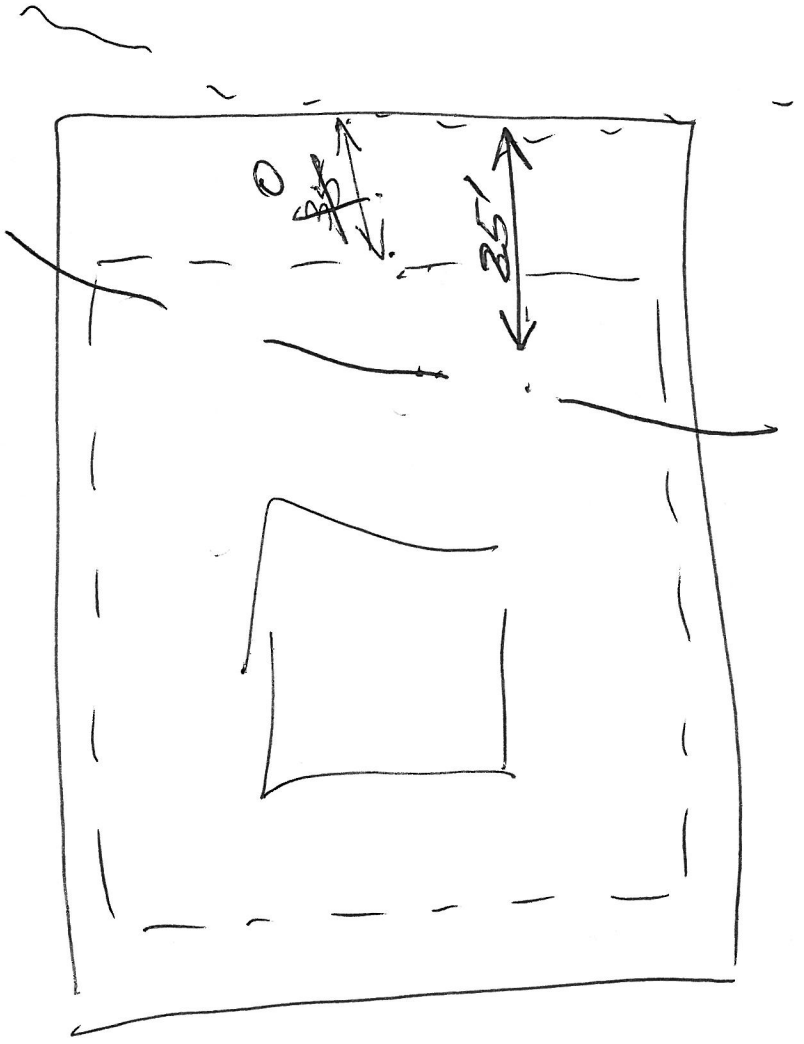
0
35'

LONGHILL GATE
SITE ASSESSMENT

Prepared for

Longhill Gate
Homeowners' Association

Prepared by

AES Consulting Engineers
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188

October 2000

Project No. 8305-01

KAREN SPERRY
253-7552

AES
CONSULTING ENGINEERS

Introduction

AES Consulting Engineers has been retained, by Mr. George Sperry representing the *Longhill Gate* Homeowners' Association, to re-evaluate the existing site improvement conditions. The following will serve as the second edition updating information from the previous findings and providing a general re-evaluation of the site. Further information contained in this assessment includes recommendations for areas or items warranting repairs or corrections.

Site Description and Historical Information

Recapping the description from the original site assessment, the *Longhill Gate* development is located on the south side of Longhill Road midway between Centerville Road (State Route 614) and Olde Towne Road (State Route 658), within the Powhatan District of James City County, Virginia. *Longhill Gate* is a residential cluster community planned and designed to have approximately 73, 2-family residential structures. These residential units are divided among six planned parking courts. Central to the development is a recreational area with a clubhouse, pool, hard-surface tennis court and grassed playfield. Other amenities of the site include two amenity/stormwater management ponds and a sidewalk system. The total site of *Longhill Gate* encompasses 47.1 acres, less approximately 1.7 acres used for the community entrance road (named *Longhill Gate*, 50-foot public right-of-way). The community entrance road has been reconstructed since the original site assessment, to align with the entrance to the James City County's park entrance.

Since the original site assessment, two additional parking areas, Baron's Court and Hatton Cross, have been completed with the addition of the two courts, an increase in residential units is recognized. Today, approximately 67 of the proposed 73 dual-family residential units have been completed or are currently under construction.

As stated in the original site assessment, *Longhill Gate* was developed by private developer as owner and developer. Plans for this community were prepared in 1985 and 1986 by Spearman and Associates, Inc., Land Surveying, of Williamsburg, Virginia. Initial construction for this development commenced in 1986.

Scope of Site Investigation and Evaluation

A scope of the site investigation was identified and AES Consulting Engineers was retained to evaluate the newly expanded cluster development and re-examine the previously assessed parking areas, curbing, sidewalks, ditch and drainage systems, dam embankment, and other observable site

improvements in the common areas of *Longhill Gate*. Similar to the original assessment, no subsurface investigations are contained in this report.

General observations of the common areas are chronicled herein; probable causes of identified problem areas and suggested repair procedures are also provided. Similar to the format of the original site assessment, the report will address the site observations in the following order: Pavement in Parking Areas; Curbing and Sidewalks; Ditch, Drainage Systems, and Dam Embankment; Other Miscellaneous Observations and Repair Recommendations.

Pavement in Parking Areas

General Observations

Due to the recent application of seal coating treatments, the parking areas generally "appears" an improved condition as a whole. Some isolated areas within a few parking courts are marked with asphalt patches, due to previous repairs of underground utility pipes, deficiencies in surface drainage, or failures in the pavement. AES rates the parking areas and access ways to be in generally fair to good condition, with the exception of isolated areas of the *Tower Hill* and *Sloane Square* parking areas; these two areas are rated to be in poor to fair condition. With representative sign of surface cracking, several areas of concern in these two parking courts appear to be suffering from the failing subgrade soils.

Subgrade Failures and Repair Recommendations

As identified in the original report, asphalt-surfaced parking areas usually remain in good condition for approximately eight to ten years of normal use or as long as the binding agent in the asphalt is cohesive and elastic. Weather conditions, such as air, sunlight, heat, and moisture, and traffic loads are major causes of surface deterioration. As asphalt oxidizes and loses its elasticity due to aging and continual exposure to weather and traffic, the brittle asphalt surface cracks allowing moisture to penetrate beneath the asphalt layer which reduces the strength of the underlying subgrade and soil layers.

Areas of apparent sub-soil / subgrade failure are identified by the "alligator" texture of the pavement. Sometimes trapped groundwater will surface through these cracks, relieving hydrostatic pressure. Treating the surface with asphalt seal coating only hides the problem of failing subgrades. As evidenced in the following photographs, the surface cracks have reappeared. Two areas within the *Tower Hill* parking area are of concern, one near the entrance to the court (See Photo 1).

Another area will be mentioned later in this text. A third area of subgrade failure was located within the *Sloane Square* parking area. More information about this area is detailed later in the report. (See Photo 2).

Photo 1 – Tower Hill
Apparent Subgrade Failure. Note the "alligator" texture of the asphalt surface. This area has evidence of being repaired several times.

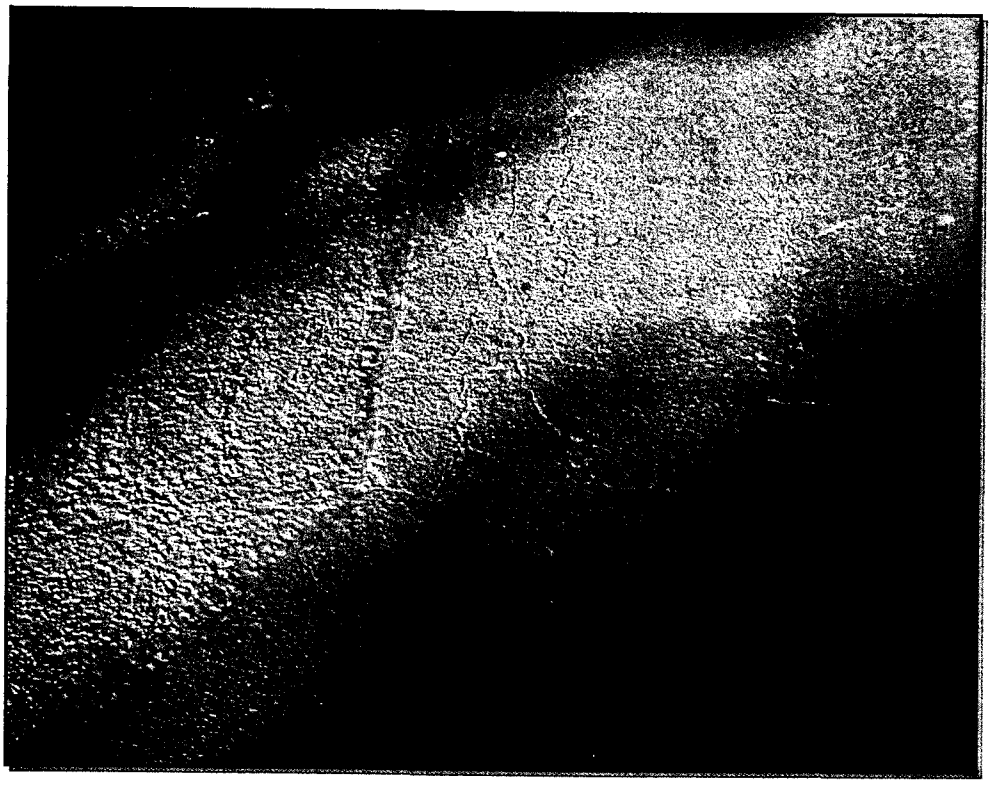

Photo 2 – Sloane Square
Typical of subgrade failure, as evidenced by the spiderweb appearance of the asphalt surface.

Areas of subgrade failure characterized by irregular cracking will sometimes weep trapped moisture contained in underlying aggregate or subgrade soils. Referencing Photo 3, the area located in the *Tower Hill* section represents the trapped moisture weeping from the subgrade, and also beneath the asphalt surface. Although the pavement has not completely failed in the area, future pavement failure can be expected, as the trapped moisture is weakening subgrade.

Photo 3 – Tower Hill
Evidence of trapped moisture weeping through cracks in the asphalt surface.

Again, AES Consulting Engineers recommends that areas of substantial subgrade failure be repaired. A French drain system will help prevent pavement failure by eliminating trapped moisture, but this is a very costly, "after the fact", repair. Due to the isolated areas of failure, it is recommended that the areas of subgrade failures be excavated to suitable and stable subgrade soil conditions; the depth of excavation could be as deep as 18-inches, or more. The subgrade must be compacted and tested to reveal any weakness of the soil. A layer of aggregate, 21-A stone or cement treated aggregate (CTA) with a minimum thickness of 8-inches should be placed over the subgrade, capped with a minimum 4-inch asphalt surface layer, asphalt type SM-2A. Asphalt joints should be sealed with liquid A-C prior to asphalt surface placement. Such repair efforts have demonstrated good results, with a minimum chance of a reoccurring failure.

AES further recommends that all parking areas and vehicular travel ways should be core sampled to identify whether the asphalt surface thickness is in accordance with the construction plan specifications. Strength of pavement relies on proper subgrade strength and the material layers, both in the type of materials and thickness, which make up the pavement. By our examination, the case of "not enough stone and asphalt" is less likely the cause of the pavement failures.

We continue to recommend that all access ways be treated with an asphalt pavement sealer after all repairs and periodic applications thereafter. Asphalt pavement sealers protect the existing asphalt from oil and fuel spills, sunlight and moisture. Asphalt sealers are sacrificial treatments, wearing over time, at which point another sealing treatment would be required. Sealers improve the appearance of the pavement by hiding repairs and filling small surface voids and cracks, which can prevent surface water from penetrating the surface and weaken the subgrade. The use of a sealer does not stop the aging process of asphalt or add any structural value. However, it does extend the service-life of the existing surface. Therefore, asphalt sealers should be regularly applied every 4 to 6 years.

Surface Drainage and Irregularities in Surface Pavement, and Repair Recommendations

As observed in the original site assessment, AES staff noted several areas of surface irregularities in pavement areas of *Longhill Gate*. A few parking areas have been modified with additional layer(s) of asphalt to enhance surface drainage characteristics. (See Photo 4) Although unattractive and coarse in appearance, these repair areas appear to have reduced the magnitude of the standing water. The applications of an asphalt sealer has improved the appearance of these areas, and reduced the raveling of the surface and edges.

Photo 4 –
Sloane Square
Typical addition of asphalt surface to promote positive drainage.

In the original examination of the site, several locations where the asphalt surface is slightly lower than the top of a storm sewer inlet were noted. (See Photo 5) The apparent cause has been that the surrounding pavement has worn and shrunk over time, and the underlying subgrade material beneath the asphalt surface has compacted. However, the storm sewer inlet, which apparently was placed on undisturbed subsoil, has not moved. Again, this condition is not a serious problem; very minor depressions can be corrected with multiple applications of a dense asphalt sealer in the depressed area around the storm sewer inlet will yield good results. To date, several additional applications of this type of repair are still warranted around storm sewer structures throughout the development.

Photo 5 – Highgate Green
Storm sewer top is higher than asphalt surface. Note inability of water to reach inlet to drain properly.

There are a few locations where the pavement surface is very irregular along the perimeter of storm sewer inlets. (See Photo 6) AES concludes that substandard workmanship is responsible for these situations. The condition in *Sloane Square* is serious and most likely the result of a lengthy period of subgrade related failure associated with the drainage structure. The above-mentioned photo was taken on September 15, 2000 and at that time no obvious subgrade failure had occurred. However, AES was contacted in October and informed that a "sinkhole" had formed adjacent to this structure. (See Photo 7).

Photo 6 –
Sloane Square
Note irregular asphalt surface around storm drain structure. Photo taken 9/15/00. No apparent signs of failure other than irregular asphalt surface.

Photo 7 –
Sloane Square
Subgrade failure. Note sinkhole by storm drain structure. Photo taken 10/03/00.

Upon our site investigation, several other "sinkholes" were identified along the pipe alignment for this stormsewer. There are two most likely causes for these "sinkholes": improper compaction of the original backfill material around the pipe work or separation of pipe joints and subsequent erosion of backfilled material around the pipe. Repairs in this area may require removal of the entire pipe work and resetting the pipe with proper backfill compaction methods. Another method of repair includes lining the pipe work with PVC-alloy pipe liner, then excavating and backfilling the pipe trench to repair sinkholes in the finished grade. The immediate area around the storm sewer structure should be repaired in a similar manner as subgrade failures occur, followed with a coating of an asphalt sealer.

Curbing and Sidewalks

The curbing and sidewalks in *Longhill Gate* are rated to be in fair to good condition. Since AES report dated February 1997, it appears some of the damaged concrete sidewalks and curb sections have been repaired or replaced. AES believes the original poor condition of the curbs and sidewalks is due, in some degree, to substandard workmanship, as this is still evidence in some areas. (See Photo 8)

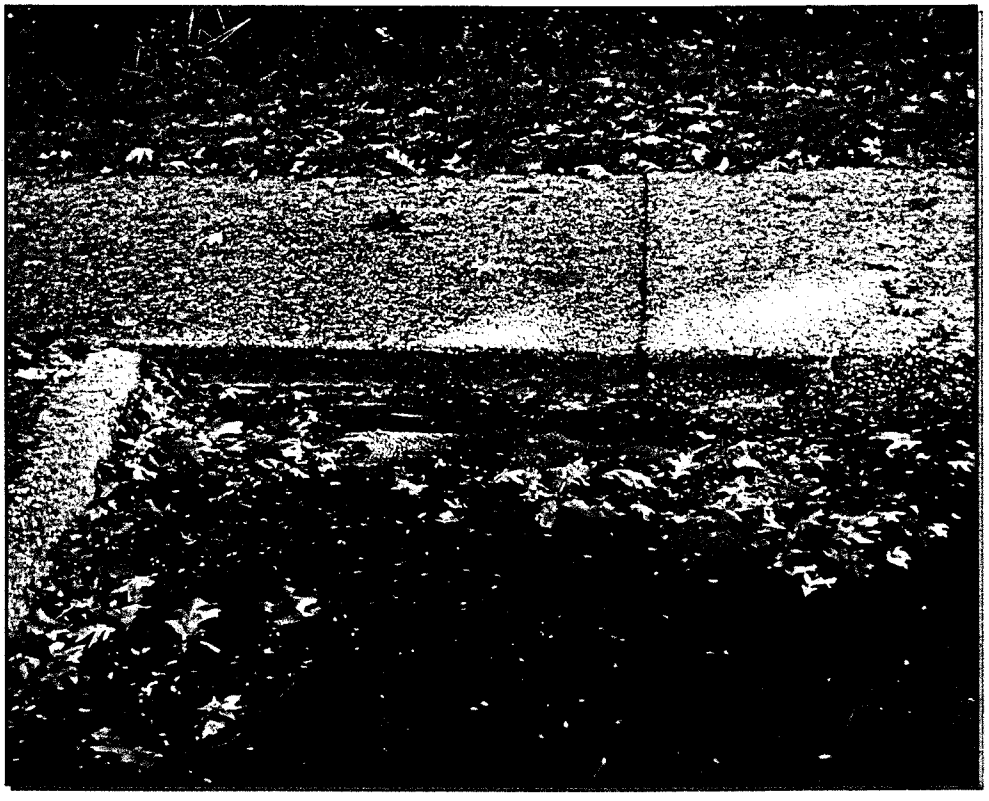

Photo 8 – Tower Hill
Note voids in the bottom of the sidewalk, which demonstrate poor construction workmanship.

With respect to the sidewalks, AES recommends that all cracked and broken sidewalks, and areas of the sidewalk where poor workmanship is observable, continue to be replaced to minimize pedestrian hazards. During replacement, the soils under the sidewalk should be compacted and the replacement sidewalk should be installed using fiber reinforced concrete, 4-inches thick.

Numerous vertical cracks in the curbing were still observed, mostly in the *Highgate Green* court area; these should not be a serious concern. AES does recommend that curbing which has become depressed or skewed from original position be replaced using a fiber reinforced concrete.

In the new area of *Hatton Cross*, a newly constructed sidewalk and curb along proposed units 45, 46, and 47 (currently not constructed) is skewed to the asphalt-parking surface. The curb face varies in depth when measured from the asphalt surface to the top of curb. Although not an immediate concern, with homes to be constructed in the near future, the inconsistent height is a hazard to pedestrians.

Ditch, Drainage Systems and Dam Embankment

During the original site visit to the *Longhill Gate* site, AES staff recognized the need for routine maintenance of the ditches, drainage systems and the dam embankment. Drainage ditches were clogged with leaves and debris, storm sewer inlets covered with leaves, and the dam embankment slopes covered with a large amount of young trees and underbrush. (See Photo 9)

Photo 9 – Dam Embankment
Note heavy shrub and underbrush growth on the upstream and downstream sides of the dam embankment.

These system, though somewhat neglected and needing a few repairs, seem to be performing adequately. With this re-assessment, we present a list of general and specific maintenance and repairs:

- Regularly schedule maintenance of the ditch lines and drainage inlets. Accumulated leaves and debris should be removed to prevent accumulation in the ponds, where it is much more difficult to remove.
- Remove underbrush from both upstream and downstream face of the dam embankment. If the underbrush becomes too dense, slope maintenance become less frequent; thus promoting the undesirable growth to continue. If not maintained, decay of the root systems of dying plant material can weaken the embankment.

  Upon removal of the undesirable material, the dam embankments should be seeded and a good stand of grass established. Maintenance of these slopes should occur twice a year, with slope maintenance occurring once in the late spring and again in the late fall.
- Repair all ditches. (See Photo 10) Two paved ditch repairs were specifically mentioned in the original assessment, *Tower Hill* and the paved ditch at the end of the *Highgate Green* parking area that outfalls to the pond behind the recreation area. The latter paved section still suffers from the lack of proper support, due to either subsidence of the earth or "washout" of the soil beneath the paved ditch. To repair the paved ditch, AES suggests that all cracks and joints near the repair be sealed to prevent water removing the soil beneath the ditch. Then the concrete or flowable fill should be

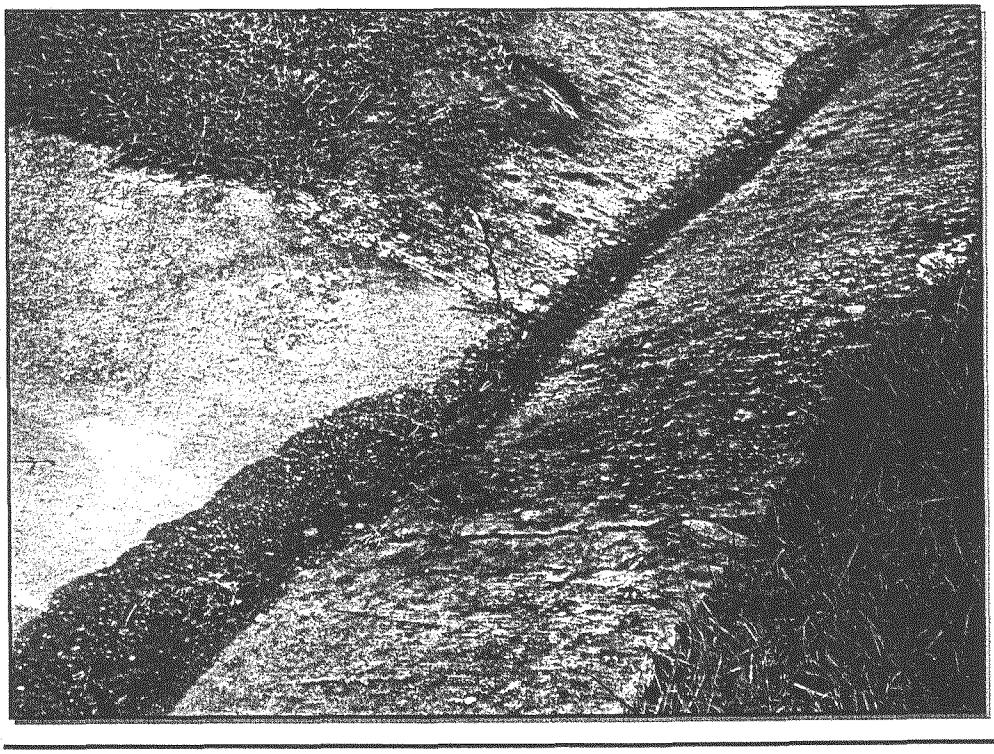

Photo 10 – Highgate Green
Note the cracks in the paved ditch section; there is also evidence of large voids beneath the paved channel in several locations.

pumped into the void regions. All paved ditches, which have become broken and misaligned due to lack of proper support must be repaired or replaced. AES suggests the damaged section of the ditch be removed between the crack control joints, the voids in the earth filled with compacted fill material, and a replacement paved ditch be constructed using fiber reinforced concrete.

Other Miscellaneous Observations and Repair Recommendations

Steep Slopes

Noticeable at *Longhill Gate* was a few areas of steep slopes. These areas can be found behind the *Highgate Green* and *Chiswick Park* parking court developments and behind the *Baron's Court* and *Hatton Cross* parking areas. Although these areas are not showing significant signs of erosion, proper maintenance is essential to reduce the erosion potential of the soil. AES recommends the areas of steep slopes be landscaped with low growth shrubs and mulch, grass, or sod. Although the treatments listed will offset erosion potential, AES believes that landscaping these areas will allow for easier maintenance potential than if the slopes were grassed.

When inspecting for erosion potential behind the residential units in the *Chiswick Park* section, AES staff recognized a potential area of concern. A depression has begun to form at the outfall channel behind *Chiswick Park* between units number 55 and 56. (See Photo 11) This area of failure is caused by the large volume of water removing underlying soil possibly due to an insufficient amount of energy dissipation and protection of the soils. AES recommends that the outfall be repaired in this area by installing a filter fabric, replacing the rip-rap and clearing the area. The result of this repair should have the rip-rap placed on the filter cloth, yet imbedded in the soils a minimum of 12-inches.

Also noted was a recently repaired bank at the upstream side of this outfall. (See Photo 12) It is assumed that the repair was made to stabilize the slope in this area. It is unclear whether the repair of this slope included the installation of filter fabric under the rip-rap. This area should be monitored to ensure that soil beneath the rip-rap does not migrate from the repaired areas.

Photo 11 – Chiswick Park
The formation of a hole at the limits of the riprap signifies the undermining of the earth around the armored outfall channel.

Photo 12 – Chiswick Park
Newly repaired slope. Earthen slope should be observed to ensure proper construction methods.

Another area of concern was found along the entrance road between the *Tower Hill* and *Sloane Square* sections of *Longhill Gate.* (See Photo 13) As can be observed by the photo, the surface is eroding away most likely due to large volumes of runoff flowing over the roadway's shoulder. It appears the grass shoulders being higher than the roadway surface cause the problem; once at the low point of the roadway, the storm runoff accumulates, overtopping the shoulder. The result is an eroded channel to the adjacent pond. AES recommends that forming a concrete channel approximately 9-inches in depth along the current eroded channel centerline repair this channel. This should provide an adequate solution and alleviate any further erosion problems. In the previous assessment, AES recommended that the road shoulders be graded to be slightly lower that the surface of the adjacent roadway. We still recommend the solution as the long-term repair.

Photo 13 – Longhill Gate Entrance Road Causeway
Slope failure due to weakened state of earth caused by excess water runoff.

Pond at Longhill Gate Entrance Road

Just to the left of *Longhill Gate* (entrance road), a small pond is found. Dewatered by a culvert under *Longhill Gate*, an obstruction to the inlet of the culvert pipe was noted (See Photo 14). As this obstruction prevents the culvert functioning efficiently, AES recommends that this item be removed.

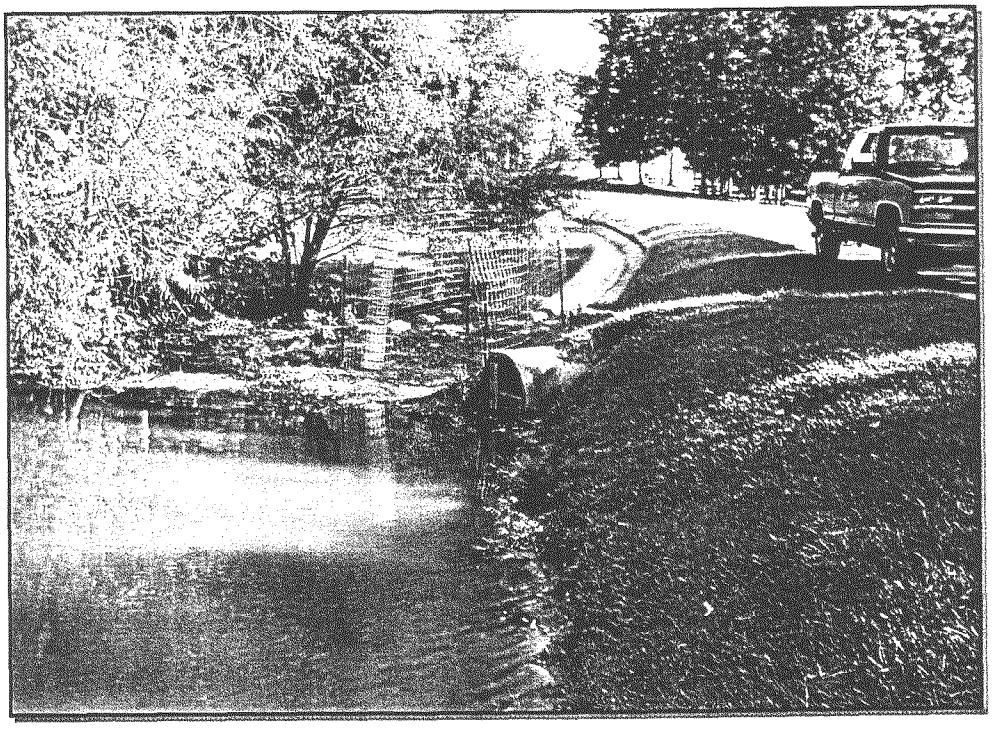

Photo 14 – Longhill Gate Entrance Road Causeway
Obstruction of cross-culvert preventing free-flow of stormwater to other pond.

Baron's Court and Hatton Cross

AES staff also noted a moderate erosion issue at the entrance of the *Baron's Court* section of *Longhill Gate*. (See Photo 15) The drainage swale pictured is showing signs of erosion, perhaps due to the runoff associated with the constructed parking area for *Baron's Court*. The rock currently installed along the streamline of the channel does not provide adequate protection for the soil from runoff velocities incurred. AES recommends that a 9-inch deep paved ditch section be installed the length of this ditch to alleviate this erosion problem.

Another area of minor erosion was found at the entrance to *Hatton Cross*. (See Photo 16) This eroded shoulder area should be filled with earth, compacted, graded and immediately seeded. Proper maintenance should prevent any further occurrence of problems in this area.

Other area of concern includes *Baron's Court*. A drainage pipe in a parking island appears to be inadequate. Sediment-bearing runoff deposits sediment in the corner of the parking lot because the runoff in unable to quickly flow from this point, thus allowing material to settle out on the uphill side of the pipe. During the winter, it is very likely for this area to pond water, allowing it to freeze, creating a pedestrian hazard. (See Photo 17) A low spot can be evidenced at the downstream side of the island by the standing water. (See Photo 18) AES recommends that a paved gutter be constructed through the parking island to allow the drainage to flow through the island and prevent any obstruction of the sediment-laden stormwater, or the accumulation of runoff.

Photo 15 – Baron's Court
Note erosion of drainage ditch, rock lining does not provide adequate protection.

Photo 16 – Hatton Cross
Moderate erosion above cross-culvert can be alleviated by earthwork, reseeding the area and proper

Photo 17 – Baron's Court
Drainage impediment. Note collection of sediment due to inadequate drainage pipe in landscape island.

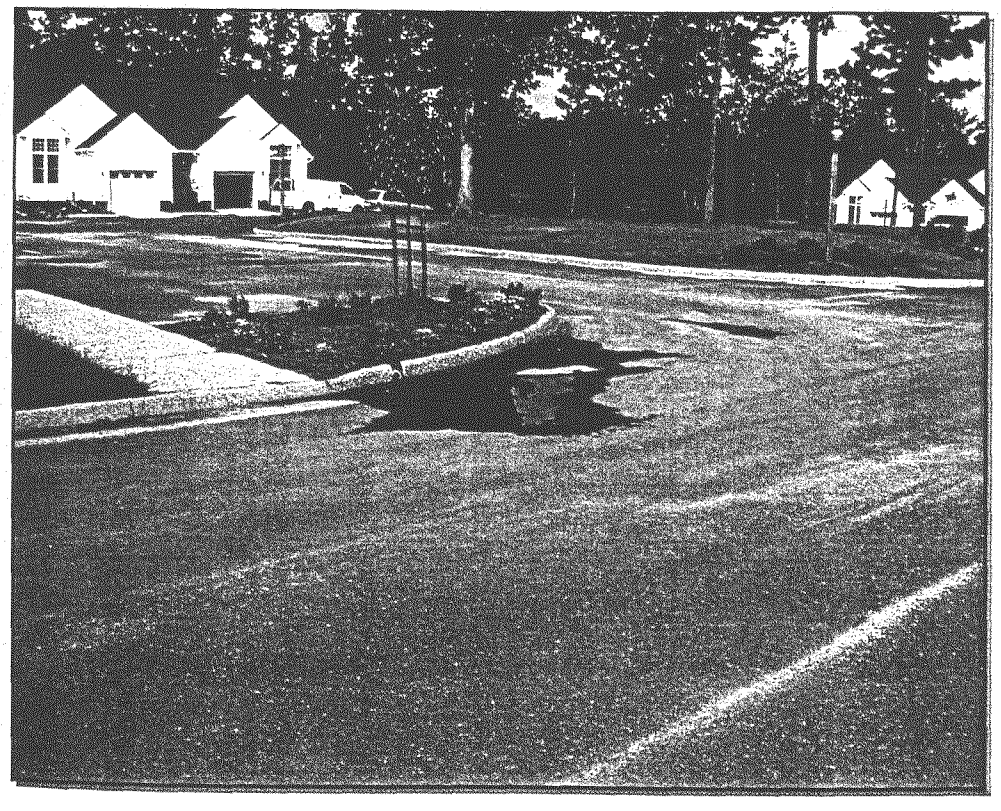

Photo 18 – Baron's Court
Drainage problem. Water is accumulating on the downstream side of the drainage pipe in the landscape island indicating a low spot in the asphalt surface at this point.

A pedestrian hazard was noted in the Tower Hill section (see Photo 19), this should be alleviated by a smooth transition of asphalt to the concrete swale. This will prevent the undermining of the drainage way as well.

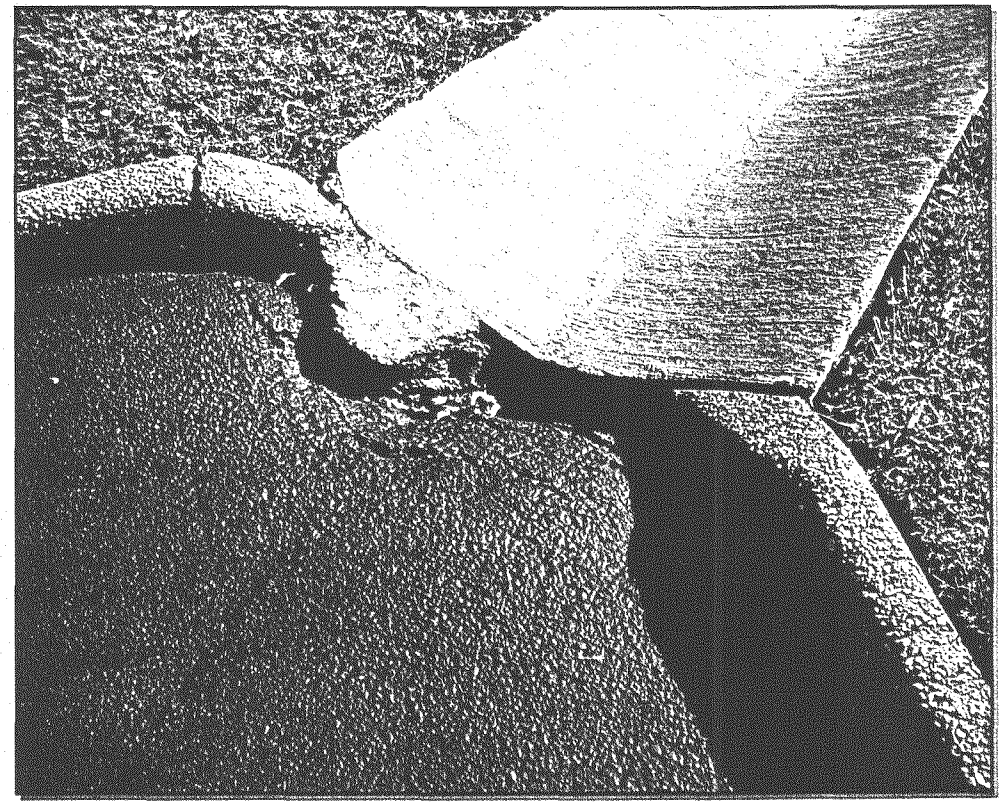

Photo 19 – Tower Hill
Maintenance potential and pedestrian hazard. A smooth transition should be provided to the concrete ditch section.

In the previous report, numerous cast iron access covers for underground utilities had settled due to time and vehicular traffic. However, as of the most recent investigation, AES did not observe any significantly settled or skewed utility valve boxes, other than the one valve box located in front of the *Baron's Court* entrance (See Photo 20). This valve box should be adjusted to grade.

Recreation Area

When inspecting the recreation area, an area between the tennis courts and the pool was evidenced to be poorly graded, with standing water. (See Photo 21) This area should be regraded to provide positive drainage towards the pond. After grading and shaping the area should be seeded and a mature stand of grass maintained.

Another area of concern is located nearby between the pool and the pond. (See Photo 22) This area should also be repaired in a similar manner as the above-mentioned area.

Photo 20 – Baron's Court
Utility valve box above grade, should be adjusted to be flush with slope.

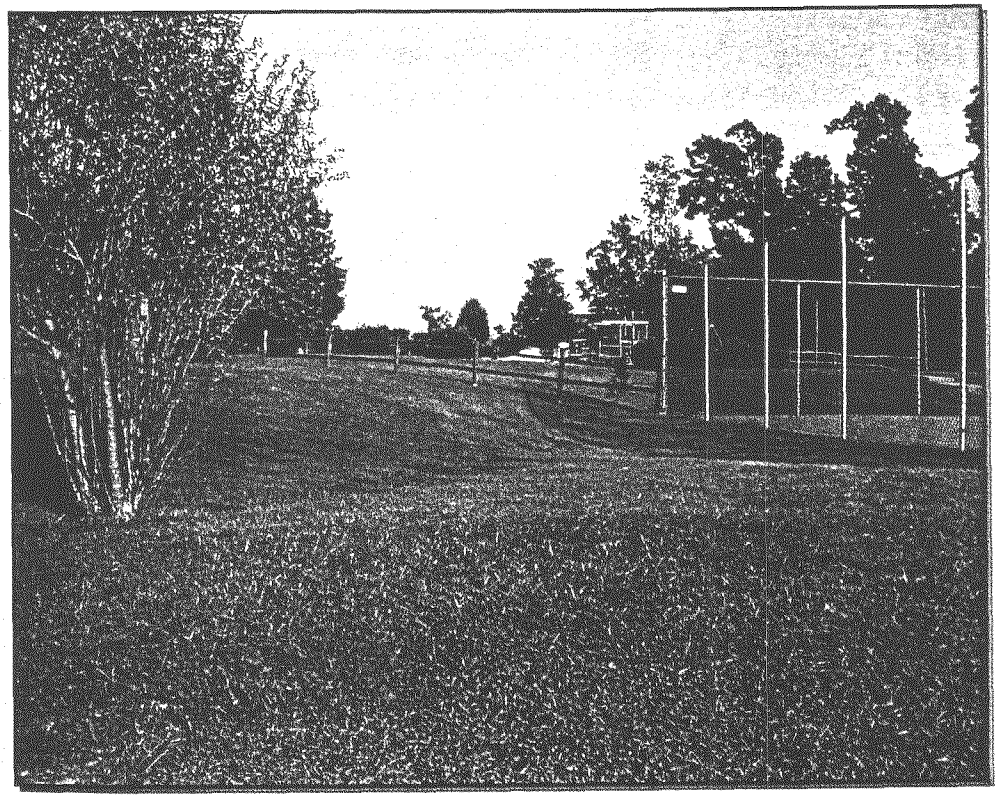

Photo 21 – Recreation Area
Standing water between the tennis courts and pool. Swa should be regraded to provic positive drainage and seede

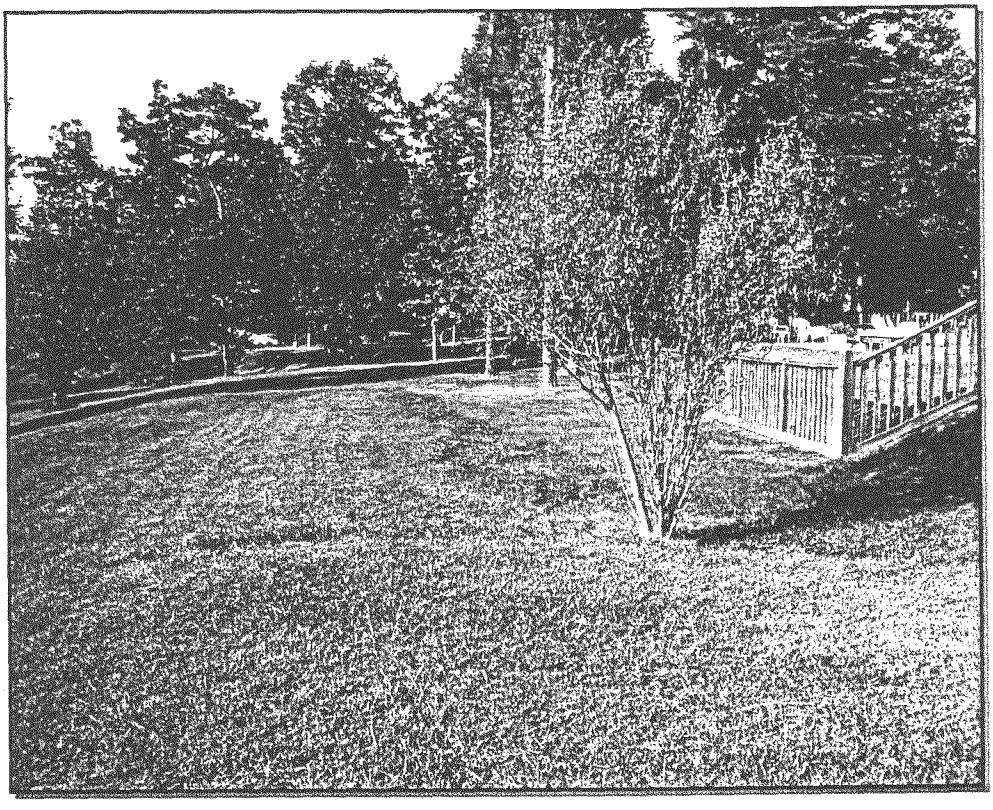

Photo 22 – Recreation Area
Evidence of standing water behind the pool. Area should be regraded to provide positive drainage and seeded.

Longhill Gate, 50-foot public right-of-way

Longhill Gate, the entrance roadway into the *Longhill Gate* site ends approximately 160 feet from the beginning entrances to the *Chiswick Park* and *Highgate Green* parking courts. The area of the right-of-way was investigated and appears to be in fair to good condition. Though worn and aged, the surface of the roadway does not have any surface irregularities to suggest any failure and need of maintenance. However, as suggested in the original report and as mentioned earlier in this re-assessment, AES recommends that the shoulders of this roadway be shaved to allow surface water to properly flow off the roadway surface.

Summary

The re-assessment of *Longhill Gate* still reveals areas of needed repair failure and substandard workmanship, as evidenced in the earlier site investigation. Areas of pavement subgrade failure of *Sloane Square* and *Tower Hill* require attention. Subholes in the *Sloane Square* area, although not apparent in 1997, require corrective measures today.

As a conclusion to this re-assessment, AES recommends the following sequence of repairs and replacements:

- Immediate needs: identify and complete required repairs to prevent additional sinkholes in *Sloane Square*; thereby removing a safety hazard.
- Outfall repair behind *Chiswick Park.*
- Stabilizing steep slopes to present erosion.
- Clean and repair ditches.
- Clean, grub, topsoil and seed dam embankments.
- Grade and seed identified recreation areas to provide positive drainage.
- Core sample asphalt pavement areas and vehicle access ways, excluding the roadway of *Longhill Gate.*
- Repair areas if subgrade failure.
- Continue to periodically apply asphalt seal coat.

Some of these repairs must be expected as a result of normal use or aging. However, many of the repairs needed today are a result of poor attention to workmanship, changing environment or lack of periodic maintenance. With the observation of 1997 and today, AES believes these needed repairs listed and outlined in the above report, suggests the type of continuing repairs which can be expected periodically in the future by homeowners.

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A Site Assessment of Longhill Gate

Prepared for

Longhill Gate
Homeowners' Association

Prepared by

AES Consulting Engineers
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188

February, 1997
Project No. 8305

253-7552

Introduction

The *Longhill Gate* Homeowners' Association is currently considering the acquisition of a portion of the real property within the *Longhill Gate* cluster development. AES Consulting Engineers has been secured by Mr. Bernie Fitzgerald, representing the *Longhill Gate* Homeowners' Association, to evaluate the condition of existing site improvements. The following is an evaluation of the site and recommendations for corrective repairs.

Site Description and Historical Information

The *Longhill Gate* development is located on the south side of Longhill Road midway between Centerville Road (State Route 614) and Olde Towne Road (State Route 658), within the Powhatan District of James City County, Virginia. *Longhill Gate* is a residential cluster community, planned and designed to have a total of 73, two-family residential structures. These residential units are divided among six parking courts. A central recreational area includes a clubhouse, a pool, a hard-surface tennis court, and a grassed playfield. Other amenities of the site include two ponds and a sidewalk system. The total site of *Longhill Gate* encompasses 47.1 acres, less 1.7 acres used for the entrance road for the community (named Longhill Gate, 50-foot public right-of-way).

Currently, four parking areas and approximately 40 of the two-family residential units have been completed or are under construction. At the time of this report, construction activities have commenced for the two remaining parking areas to be surrounded by a total of 25 units.

Longhill Gate was developed by Longhill Gate Associates as owner and developer. Plans for this residential community were prepared in 1985 and 1986 by Spearman and Associates, Inc., Land Surveying, of Williamsburg, Virginia. Initial construction activities for this development began in 1986.

Scope of Site Investigation and Evaluation

AES Consulting Engineers focused the site assessr on the examination of the parking areas (specificall pavement of the parking areas), curbing, sidewalks, c and drainage systems, the dam embankment, and c observable site improvements in the common area *Longhill Gate*. No subsurface investigations are c tained in this report. Only a cursory evaluation of *Lon Gate*, the 50-foot public right-of-way, is provided.

General observations of the common areas are chroni and an outline of probable causes of identified prob areas and suggested repair procedures are provic This report will address the site observations in the lowing order:

I. **Pavement in Parking Areas**

II. **Curbing and Sidewalks**

III. **Ditch, Drainage Systems, and Dam Embankment**

IV. **Observations and Repair Recommendations for Common Areas**

V. **Longhill Gate, 50-foot Public Right-of-Way**

VI. **Summary**

I. Pavement in Parking Areas

AES rates the parking areas and access ways to be in poor to fair condition. Although several areas can easily be observed to be suffering from failure due to age and poor subgrade soils, other access ways and portions of the parking areas are showing signs of normal wear and weather deterioration. Isolated areas within several parking courts are marked with asphalt patches, due to repair of underground utility pipes, deficiencies in drainage, or failures in the pavement. The elastic nature of asphalt allows it to "flow" with heat and weight, resulting in observable minor depressions on the surface.

Subgrade Failures and Repair Recommendations

Generally, asphalt-surfaced parking areas usually remain in good condition for approximately eight to ten years of normal use, or as long as the binding agent in the asphalt is cohesive and elastic. Weather conditions (air, sunlight, heat, and moisture) and traffic are major causes of surface deterioration. As asphalt oxidizes and loses its elasticity due to weathering and aging, continual exposure to weather and traffic cracks the brittle asphalt surface allowing moisture to penetrate beneath the asphalt layer reducing the support strength of the underlying subgrade and soil layers. Typically, trapped moisture from changing groundwater conditions in the subsoil reduces the bearing capacity of these layers with the eventual result of cracking asphalt. One or two areas of subgrade failure should not be unexpected in asphalt pavement five to ten years of age.

Areas of subgrade failure are easily identified by the "alligator" cracks in the pavement. Two sizeable areas of subgrade failure of note are the Tower Hill parking area (see photo 1) and the Sloane Square parking area.

AES Consulting Engineers recommends that areas of substantial subgrade failure by repaired. An ultimate solution to moisture in the subgrade would be the installation of a network of french drains, or underdrains, to prevent or relieve the accumulation of moisture. However, the costs of such repair efforts would be high in retro-fit situation. It is recommended that the areas c subgrade failures be excavated to suitable subgrade so conditions. (The depth of excavation could be as dee as 18 inches or more). The subgrade would be con pacted and then proof-rolled to reveal any weakness c the soil. A layer of aggregate, #21-A stone, #26 crushe concrete, or cement treated aggregate (CTA) with minimum thickness of 8 inches should be place over th subgrade, capped with a minimum 4-inch asphalt su face layer (asphalt type SM - 2A). Seal joins with liqui A-C prior to placement. Such repair efforts have dem onstrated good results, with a slight chance of a reoccu ring failure.

Normal Wear and Weather Deterioration and Repai Recommendations

Normal wear and weather deterioration is evidenced b sporadic cracking (generally along asphalt seams), gre appearance, and ravelling of aggregate or minerals fron the asphalt surface. Many areas of sporadic crackin weep trapped moisture contained in underlying aggre gate or subgrade soils (see photo 2). As stated earlie weathering, age, and traffic loads cause the surface t become brittle from lack of elasticity.

AES' recommendation is to treat all parking areas an access ways with an asphalt pavement sealer after al pavement repairs, including areas of subgrade failure, hav been completed. Asphalt pavement sealer protects th existing asphalt from sunlight, moisture, and oil and fue spills. However, it is a sacrificial treatment and wear over time. Eventually, another sealer treatment woul be required. Sealers improve the looks of the pave ment, hide repairs, and fill small surface voids and cracks They prevent surface water from penetrating the surfac and reduce the oxidation of the binding agent. The us of a sealer retards the aging process of asphalt, but doe not add any structural value. However, it does exten the service-life of the existing surface. Asphalt sealer

and sidewalks can be attributed to neglectful operation from heavy equipment, such as construction equipment and moving vehicles, and curb strikes as might be expected from snow removal operations. In general, curbing and sidewalks are not designed to withstand these heavy loads.

Regarding the sidewalks, AES recommends that all cracked and broken sidewalk, and areas of the sidewalk where poor workmanship is observable, should be replaced. The earth under the sidewalk should be compacted, and replacement sidewalk should be installed using wire mesh reinforced concrete, four inches thick.

With respect to the curbing, vertical cracks in the curbing is not a serious concern. AES does recommend curbing that has become depressed or skewed from its original position should be replaced. Chips in the curbing should be repaired if considered unappealing.

As build-out and construction activities in the community come to an end, the frequency of damage to curbs and sidewalks should reduce. Nevertheless, the *Longhill Gate* Homeowners' Association should expect to replace portions of curbing and sidewalk infrequently.

III. Ditch, Drainage Systems and Dam Embankments

Upon visiting the *Longhill Gate* site, AES staff recognized the need for routine maintenance of the ditches, drainage systems, and the dam embankment. Of note were drainage ditches clogged with leaves and debris, storm sewer inlets covered with leaves, and the dam embankment slopes covered with a large amount of young trees and underbrush. These systems seem to be performing adequately, though somewhat neglected and a few noticeable areas needing repair.

Repair Recommendations

AES suggests attention and repair be focused on the following items:

1. Maintenance of the ditch lines and drainage inlet Accumulated leaves and debris need to be remove regularly to prevent such material from accumulati in the ponds, were it is much more difficult to r move. Accumulation of debris on drainage inlets limi performance.

2. Remove trees and underbrush from both the up stream and downstream faces of the dam embank ment. Trees and underbrush are not desirable on da embankments because decay of the root systems o these features can weaken the embankment. Upo removal of the undesirable material, the dam embank ments should be seeded and a good stand of gras established. Also, representatives of th Homeowners' Association should periodically inspe the dam area to ensure the proper functioning of th facility and notice any weeping of moisture from th embankment.

3. Repair paved ditches (see photo 12). AES observe two locations in the paved ditches of the recreatio area and at the end of Tower Hill parking area i need of attention. Both locations currently suffer fron a lack of proper support, due to either subsidence o the earth or washout of the soil beneath the pave ditch. The location in the recreation area is the mos serious. To repair the paved ditches, AES suggest that all straight cracks and joints in the vicinity of th repair be sealed to prevent water from penetratin the underlying soil. Upon completion of the surfac repairs, concrete or flowable fill should be pumpe into the void regions under the ditch. If the pave ditch has become broken and misaligned due to lac of proper support, the damaged section of the ditc should be removed, preferably between crack con trol joints. Additionally, voids in the earth should b refilled with compacted suitable fill material and a re placement paved ditch should be constructed usin wire reinforced concrete.

IV. Observations and Repair Recommendations for Common Areas

Steep Slopes

A few areas of steep slopes were noticeable at *Longhill Gate*. Although these areas are not showing signs of erosion, proper maintenance is essential to reduce erosion potential of the soil. AES recommends the areas of steep slopes be landscaped with low growth shrubs and mulch. AES believes that landscaping these areas will demand a lower upkeep than if the slopes were grasses. A list of suggested plantings for steeply sloped areas are provided in the Appendix A.

Recreation Area

When inspecting the recreation area, a poorly installed roof drain was noted (see photo 13). The current installation of this roof drain does not allow water to efficiently flow from the site. AES recommends the roof drain be directly connected to the adjacent concrete culvert, with the joint sealed with grout.

Traffic Islands in Parking Areas

Visiting the community a few days after rainfall, water can be observed draining away from some of the traffic islands. It appears that many of the islands in *Longhill Gate* appear to have become a storage area for rainfall. These islands are sparsely landscaped and filled with mulch groundcover. Hardwood mulch has a tendency to retain water and hold water in the underlying soil by reducing evaporation. AES suggests that all traffic islands be replenished with earth and topsoil. The level of the earth should be above the level of the curbing. Since the earth fill is more dense than mulch, some of the rainfall will quickly shed to the surrounding pavement. A very thin one-inch layer of mulch can then by added for appearance. There should not be any impact to the existing trees and shrubs if the earth and topsoil addition is kept to a maximum of six-inches thick.

V. Longhill Gate, 50-foot Public Right-of-Way

Longhill Gate, the entrance roadway into the *Lon Gate* site, was examined and appears to be in fa good condition. Though worn and aged, the surfa the roadway does not have any surface irregulariti suggest any failure and need of maintenance. AES suggest that the shoulders of this roadway be regr to allow surface water to flow properly off the roac surface.

VI. Summary

The site investigation revealed numerous areas of d age, failure, and substandard workmanship. Som the damage and failure can be attributed to natural a of site improvements constructed using normal te niques. Nevertheless, damage or failure of some iten directly caused by changing site conditions or abuse, poor workmanship.

AES Consulting Engineers suggest to the *Longhill C* Homeowners' Association the repair efforts of the ite mentioned above to be performed in the following g eral order: repairs to dam embankment and pa ditches, repair and replacement of curbing and sidewa pavement repairs, and sealing of the asphalt surface followed, this sequence minimizes construction traffic u newly repaired pavement.

If possible, AES further suggests that the corrective pairs begin in the older parking areas, Tower Hill a Sloan Square. A large number of problems are loca in these parking areas.

In Appendix B, general specifications for repairs and estimated cost of repairs can be found. T Homeowners' Association can use this information estimate funds necessary for future repair efforts.

The *Longhill Gate* Homeowners' Association should possibly consider a "Contractor User Fee" and damage deposit. The "Contractor User Fee" would be assessed against the General Contractor requiring the use of common parking areas to erect additional residential structures in the community. A damage deposit, again assessed against the General Contractor would be collected prior to any construction activity which should require heavy equipment to transverse curbing or sidewalks. This damage deposit would be returned to the General Contractor if no damage occurs by the conclusion of all construction activities.

The acquisition of the common areas by *Longhill Gate* Homeowners' Association is coinciding with the waning life cycle of some of the site improvements. Thus, expenditure of repair funds should be expected. Repair and maintenance of the common areas, as outlined in this brief, should extend service life and reduce overall long-range repair costs.

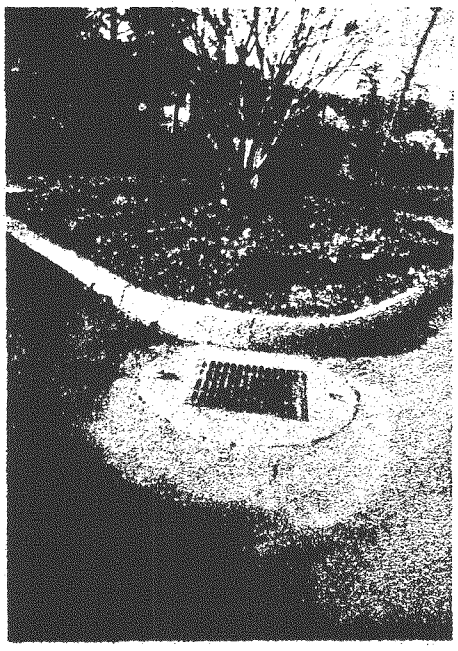

Photo 5 - Highgate Greer
Surrounding asphalt surfac
slightly lower than deck of
storm inlet. Note evidence
standing water adjacent to
storm water inlet.

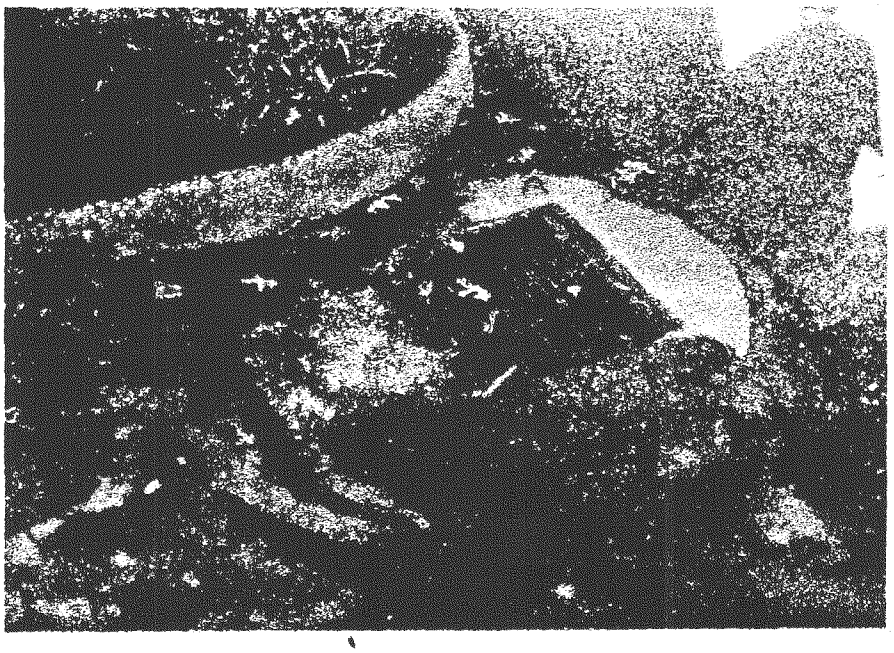

Photo 6 - Sloan Square
Rough surface surrounding
storm sewer inlet. Correcti
repair of asphalt pavement

Photo 3 - Chiswick Park
Additional asphalt layer placed to improve surface flow. Utility access cover should be adjusted to be flush with surrounding surface.

Photo 4 - Sloan Square
Typical cast iron access cover for underground utility.

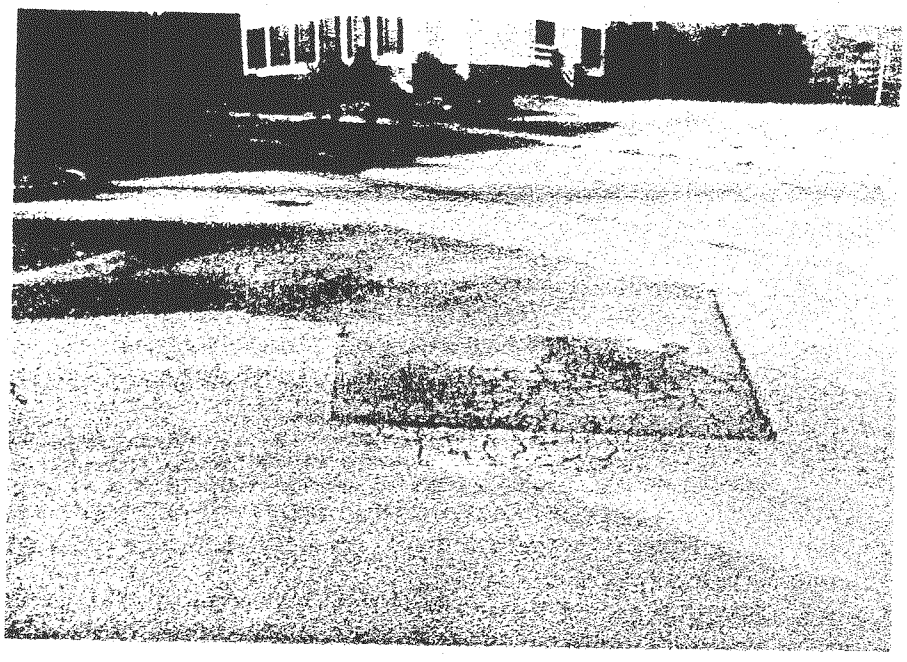

Photo 1 - Tower Hill
Subgrade failure. Note "alligator" texture of asphalt surface. This area has bee repaired several times.

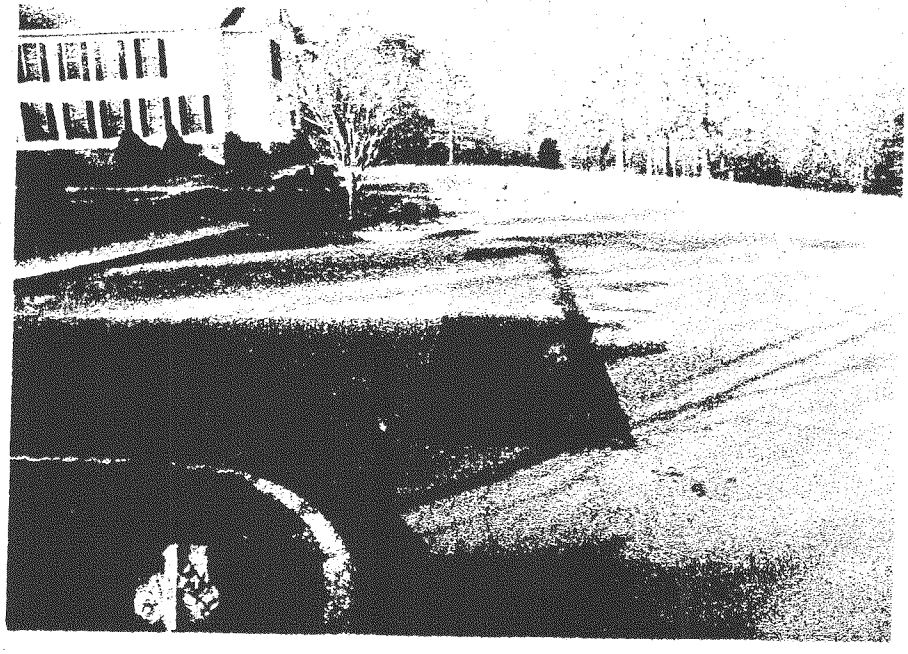

Photo 2 - Tower Hill
Normal surface wear and utility repair. Accumulated underground moisture weeps from joints and cracks.

Photo 7 - Tower Hill
Surface flow impeded by high turf at edge of asphalt surface. Grassy area should be re-graded to enhance surface flow.

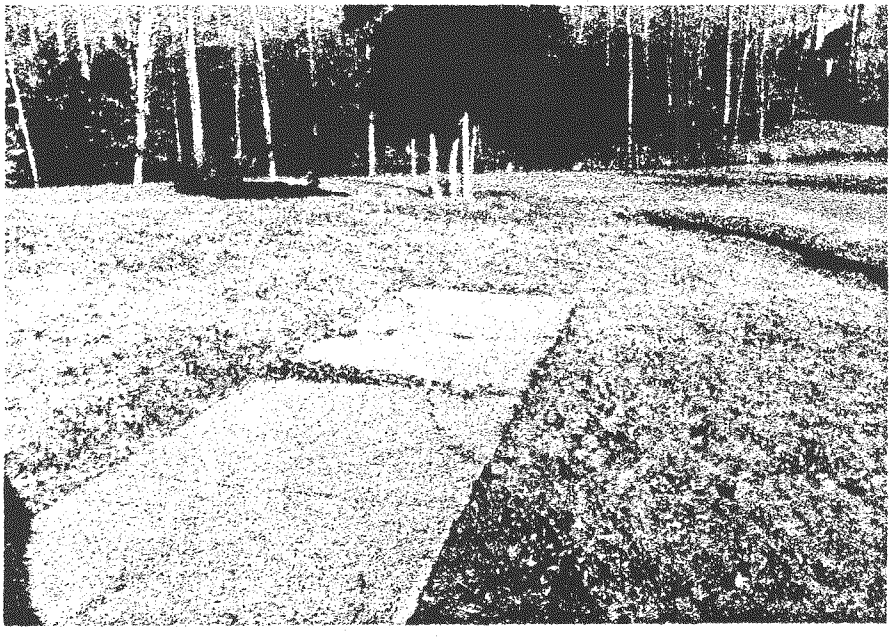

Photo 8
Typical example of broken sidewalk.

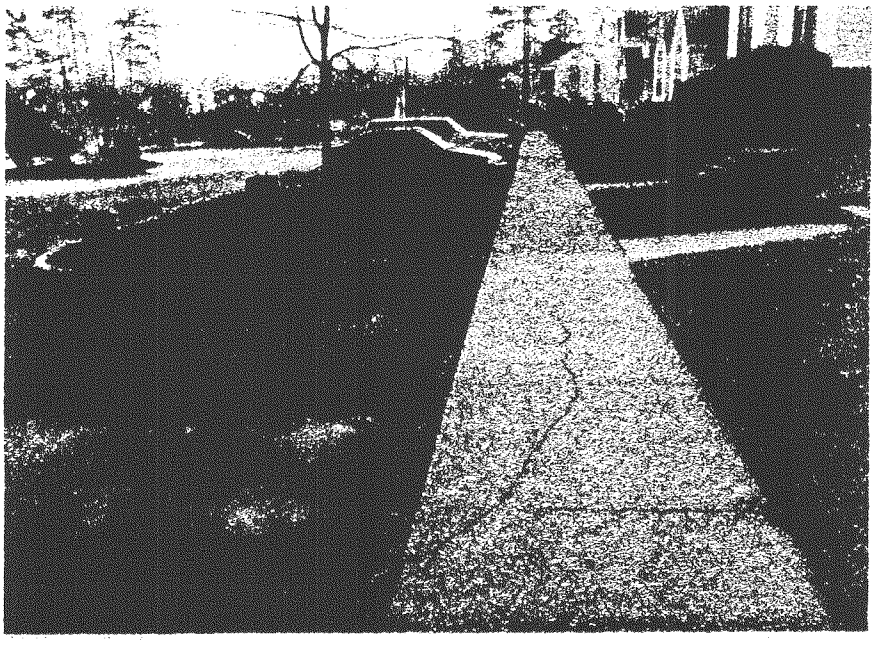

Photo 9 - Tower Hill
Typical example of cracked and broken sidewalks and curbing.

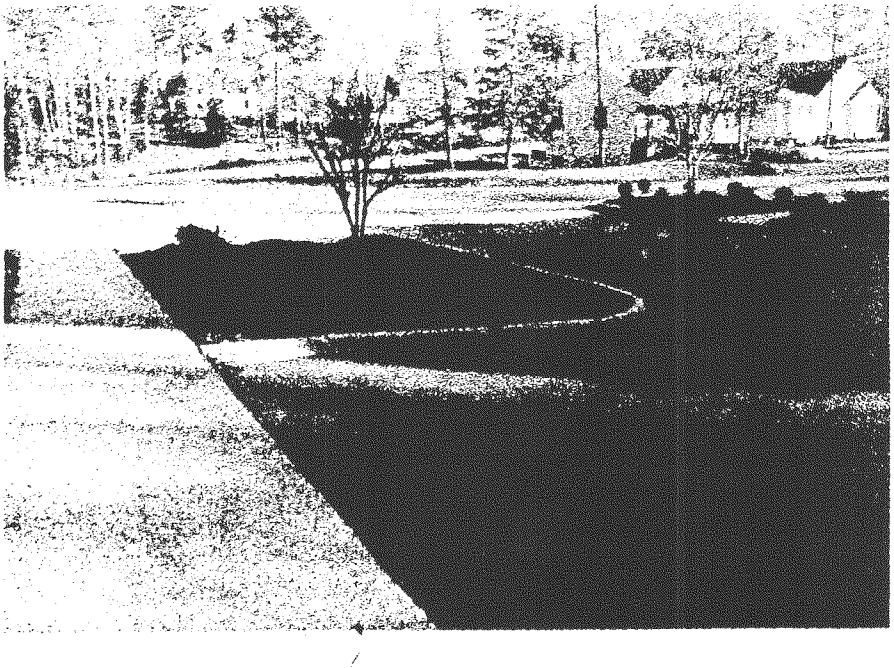

Photo 10 - Tower Hill
Typical example of broken and cracked curbs. Curb is skewed and is recommende for repair.

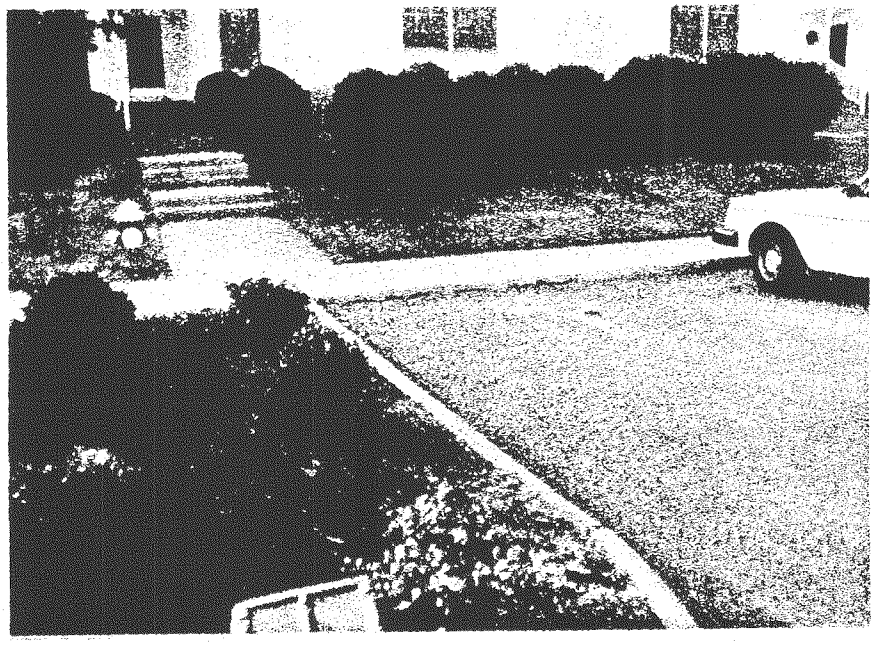

Photo 11 - Tower Hill
Evidence of substandard workmanship. Note voids in concrete at line with asphalt surface.

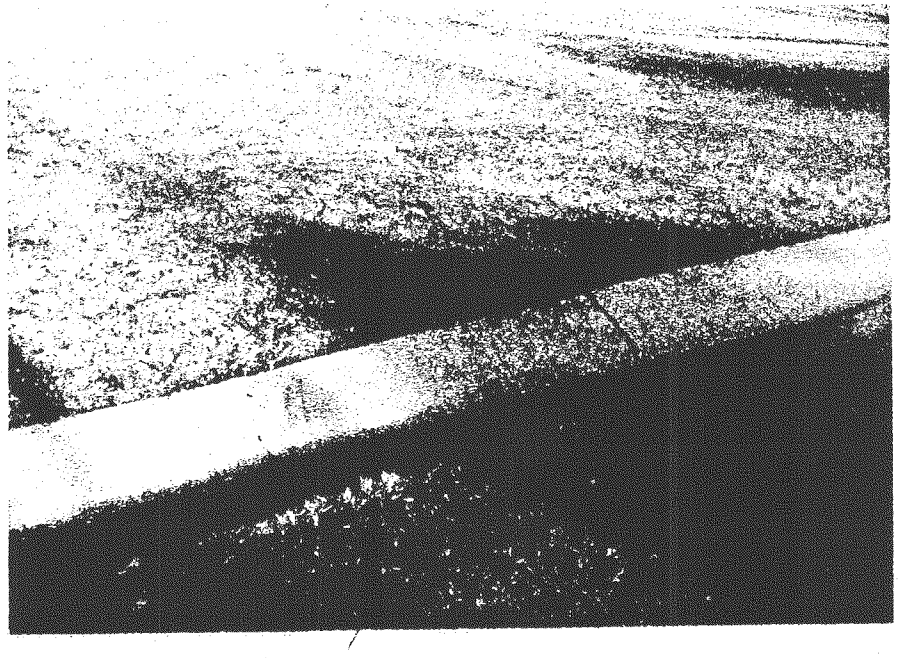

Photo 12 - Recreation Are
Broken concrete paved ditch due to little or no soil suppor

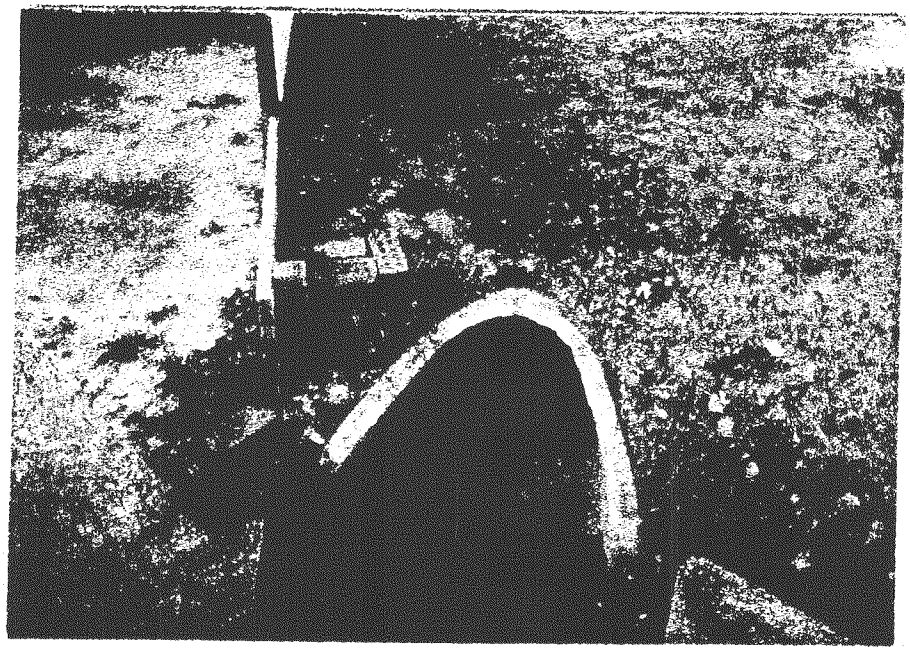

Photo 13 - Recreation Area
Roof drain not properly routed to culvert. Roof drain is currently located among bricks, but should be directly connected to culvert.