Stormwater Division

MEMORANDUM

DATE: March 12, 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: WC082

PIN: 1330800001C

Subdivision, Tract, Business or Owner Name (if known): Wellington

Property Description: Open Space Section 2

Site Address:

(For internal use only) **Box** 22 **Drawer:** 9

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

Comments

Date Record Created:

Created By:

WS_BMPNO: WC082

Print Form

PRINTED ON:
Friday, March 12, 2010
3:33:08 PM

WATERSHED	WC
BMP ID NO	082
PLAN NO	S-79-99
TAX PARCEL	
PIN NO	
CONSTRUCTION DATE	
PROJECT NAME	Welllington Section 1
FACILITY LOCATION	East of Lot 10, 8408 Oldham Court
CITY-STATE	
CURRENT OWNER	American Eastern Inc.
OWNER ADDRESS	632 Hampton Highway
OWNER ADDRESS 2	
CITY-STATE-ZIP CODE	Yorktown, VA 23693
OWNER PHONE	757-867-8800
MAINT AGREEMENT	Yes
EMERG ACTION PLAN	No

Get Last BMP No

Return to Menu

MAINTENANCE PLAN	No
SITE AREA acre	43.74
LAND USE	R1
old BMP TYP	
JCC BMP CODE	
POINT VALUE	
SVC DRAIN AREA acres	
SERVICE AREA DESCRI	
IMPERV AREA acres	0.00
RECV STREAM	
EXT DET-WQ-CTRL	No
WTR QUAL VOL acre-ft	
CHAN PROT CTRL	No
CHAN PROT VOL acre-ft	
SW/FLOOD CONTROL	No
GEOTECH REPORT	No

CTRL STRUC DESC	RCP Riser
CTRL STRUC SIZE inches	48
OTLT BARRL DESC	RCP Barrel
OTLT BARRL SIZE inch	18
EMERG SPILLWAY	Yes
DESIGN HW ELEV	48.03
PERM POOL ELEV	na
2-YR OUTFLOW cfs	0.00
10-YR OUTFLOW cfs	0.00
REC DRAWING	No
CONSTR CERTIF	No

LAST INSP DATE

Inspected by:

INTERNAL RATING

MISC/COMMENTS

Dry Pond # 1. Prelim info logged.

Additional Comments:

Reservoir Report WC082

Hydraflow Hydrographs by Intelisolve

Reservoir No. 1 - DRY POND #1 (65X)

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	38.00	1,000	0	0
2.00	40.00	8,025	9,025	9,025
4.00	42.00	16,750	24,775	33,800
6.00	44.00	26,500	43,250	77,050
8.00	46.00	35,125	61,625	138,675
10.00	48.00	45,125	80,250	218,925
12.00	50.00	56,215	101,340	320,265

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 18.0	4.0	0.0	0.0
Span in	= 18.0	4.0	0.0	0.0
No. Barrels	= 1	1	0	0
Invert El. ft	= 38.00	38.00	0.00	0.00
Length ft	= 60.0	0.0	0.0	0.0
Slope %	= 2.00	0.00	0.00	0.00
N-Value	= .013	.013	.000	.000
Orif. Coeff.	= 0.60	0.60	0.00	0.00
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 12.58	14.00	0.00	0.00
Crest El. ft	= 45.10	46.50	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= Riser	Rect	---	---
Multi-Stage	= Yes	No	No	No

Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 0.00 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	38.00	0.00	0.00	---	---	0.00	0.00	---	---	---	0.00
2.00	9,025	40.00	9.51	0.55	---	---	0.00	0.00	---	---	---	0.55
4.00	33,800	42.00	15.34	0.80	---	---	0.00	0.00	---	---	---	0.80
6.00	77,050	44.00	19.49	0.99	---	---	0.00	0.00	---	---	---	0.99
8.00	138,675	46.00	22.91	0.00	---	---	32.22	0.00	---	---	---	22.91
10.00	218,925	48.00	25.88	0.00	---	---	186.38	77.16	---	---	---	103.03
12.00	320,265	50.00	28.54	0.00	---	---	409.35	275.01	---	---	---	303.55

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	9.01	2	730	43,202	---	-----	-----	2 YR PRE-DEV
2	SCS Runoff	25.54	2	726	86,217	---	-----	-----	2 YR POST-DEV
3	SCS Runoff	9.01	2	730	43,202	---	-----	-----	10 YR PRE-DEV
4	SCS Runoff	25.54	2	726	86,217	---	-----	-----	10 YR POST-DEV
5	SCS Runoff	25.54	2	726	86,217	---	-----	-----	100 YR POST-DEV
6	Reservoir	0.89	2	1090	85,621	2	42.86	52,420	2 YR ROUTED
7	Reservoir	0.89	2	1090	85,621	4	42.86	52,420	10 YR ROUTED
8	Reservoir	0.89	2	1090	85,621	5	42.86	52,420	100 YR ROUTED
9	SCS Runoff	25.54	2	726	86,217	---	-----	-----	1 YR POST
10	Reservoir	0.89	2	1090	85,621	9	42.86	52,420	1 YR ROUTED
11	SCS Runoff	9.01	2	730	43,202	---	-----	-----	1 YR PRE

Proj. file: 8223-2.gpw | Return Period: 1 yr | Run date: 09-20-2002

Hydrograph Plot

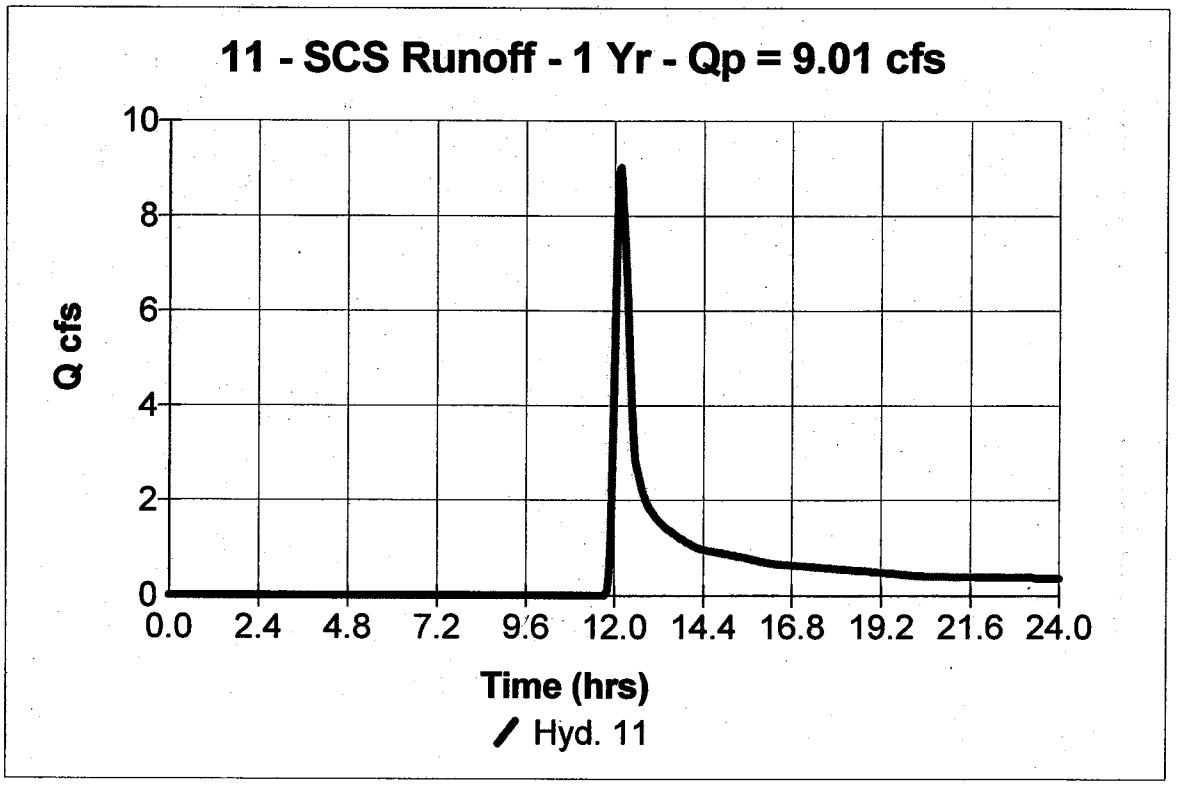
Hydraflow Hydrographs by Intelisolve

Hyd. No. 11

1 YR PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 9.01 cfs
Storm frequency	= 1 yrs	Time interval	= 2 min
Drainage area	= 26.40 ac	Curve number	= 67
Basin Slope	= 6.0 %	Hydraulic length	= 1200 ft
Tc method	= LAG	Time of conc. (Tc)	= 21.7 min
Total precip.	= 2.70 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 43,202 cuft



Hydrograph Plot

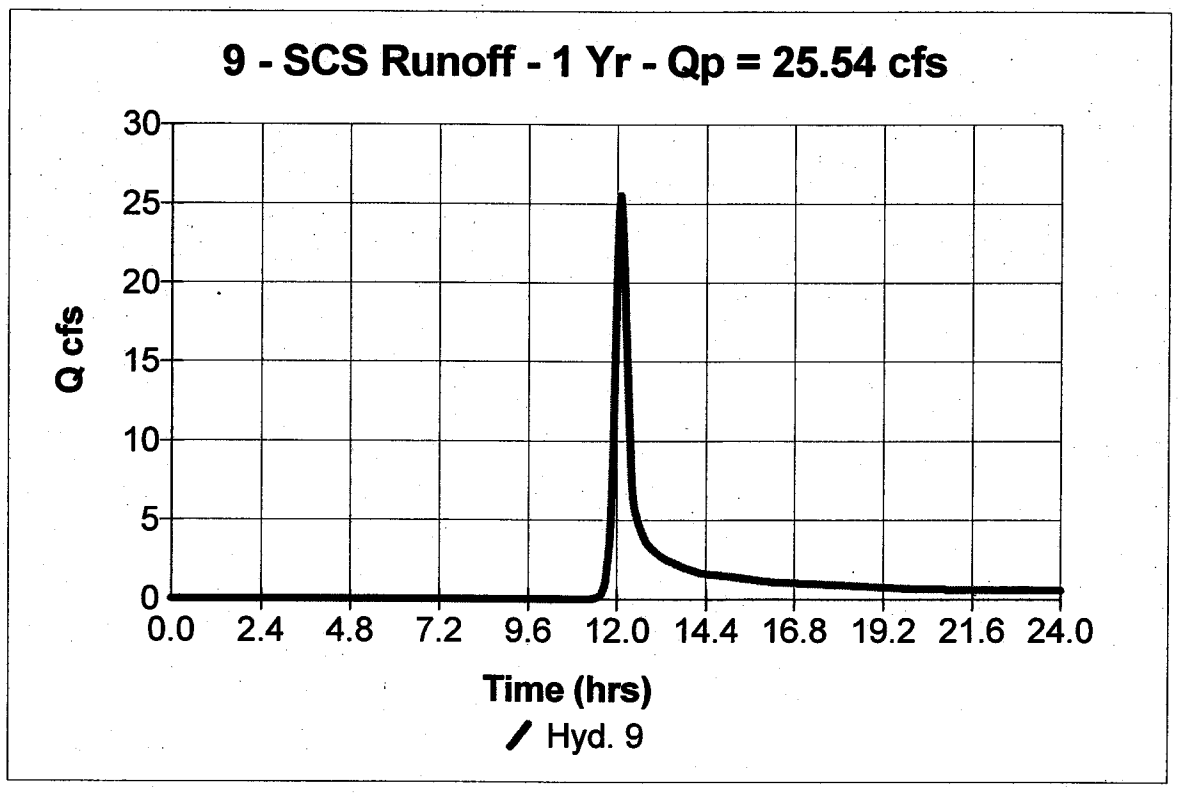
Hydraflow Hydrographs by Intelisolve

Hyd. No. 9

1 YR POST

Hydrograph type	= SCS Runoff	Peak discharge	= 25.54 cfs
Storm frequency	= 1 yrs	Time interval	= 2 min
Drainage area	= 30.83 ac	Curve number	= 75
Basin Slope	= 6.0 %	Hydraulic length	= 1200 ft
Tc method	= LAG	Time of conc. (Tc)	= 17.4 min
Total precip.	= 2.70 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 86,217 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

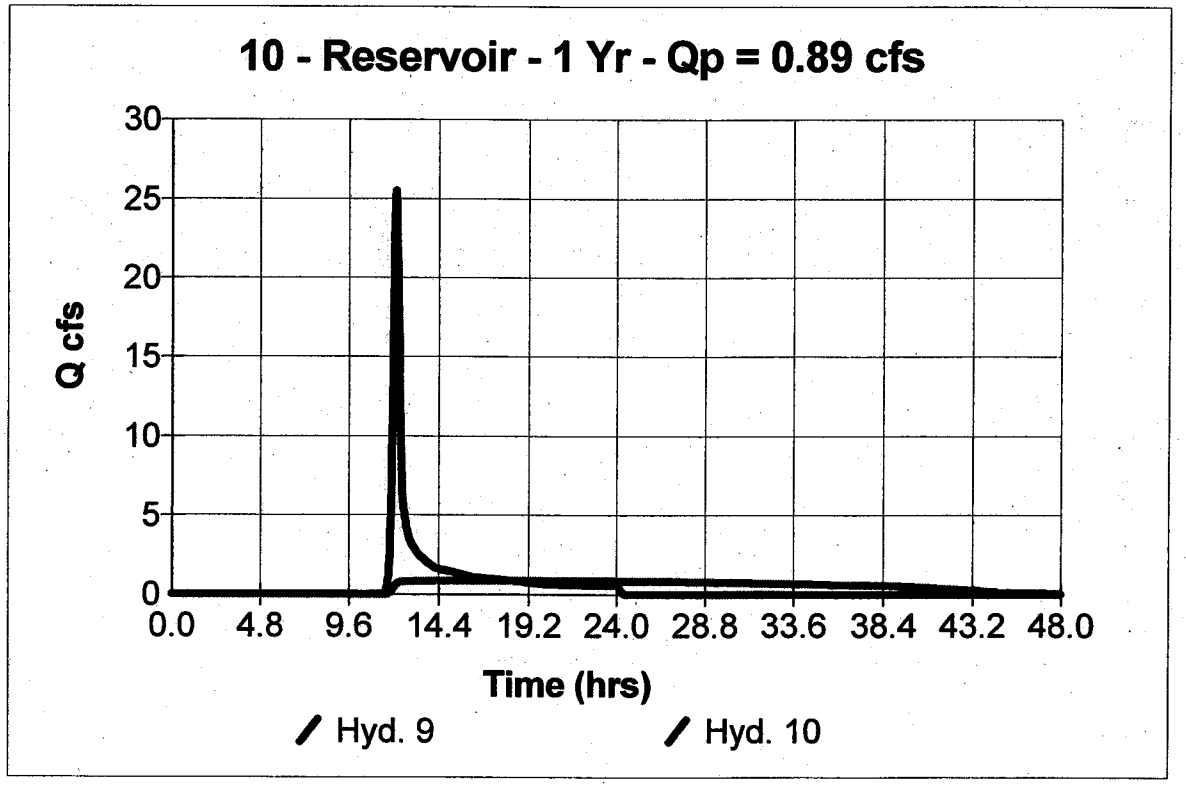
Hyd. No. 10

1 YR ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 0.89 cfs
Storm frequency	= 1 yrs	Time interval	= 2 min
Inflow hyd. No.	= 9	Reservoir name	= DRY POND #1
Max. Elevation	= 42.86 ft	Max. Storage	= 52,420 cuft

Storage Indication method used.

Hydrograph Volume = 85,621 cuft



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	20.95	2	728	82,920	---	-----	-----	2 YR PRE-DEV
2	SCS Runoff	45.16	2	726	145,688	---	-----	-----	2 YR POST-DEV
3	SCS Runoff	20.95	2	728	82,920	---	-----	-----	10 YR PRE-DEV
4	SCS Runoff	45.16	2	726	145,688	---	-----	-----	10 YR POST-DEV
5	SCS Runoff	45.16	2	726	145,688	---	-----	-----	100 YR POST-DEV
6	Reservoir	1.06	2	1186	123,577	2	44.79	101,288	2 YR ROUTED
7	Reservoir	1.06	2	1186	123,577	4	44.79	101,288	10 YR ROUTED
8	Reservoir	1.06	2	1186	123,577	5	44.79	101,288	100 YR ROUTED
9	SCS Runoff	45.16	2	726	145,688	---	-----	-----	1 YR POST
10	Reservoir	1.06	2	1186	123,577	9	44.79	101,288	1 YR ROUTED
11	SCS Runoff	20.95	2	728	82,920	---	-----	-----	1 YR PRE

Proj. file: 8223-2.gpw	Return Period: 2 yr	Run date: 09-20-2002

Hydrograph Plot

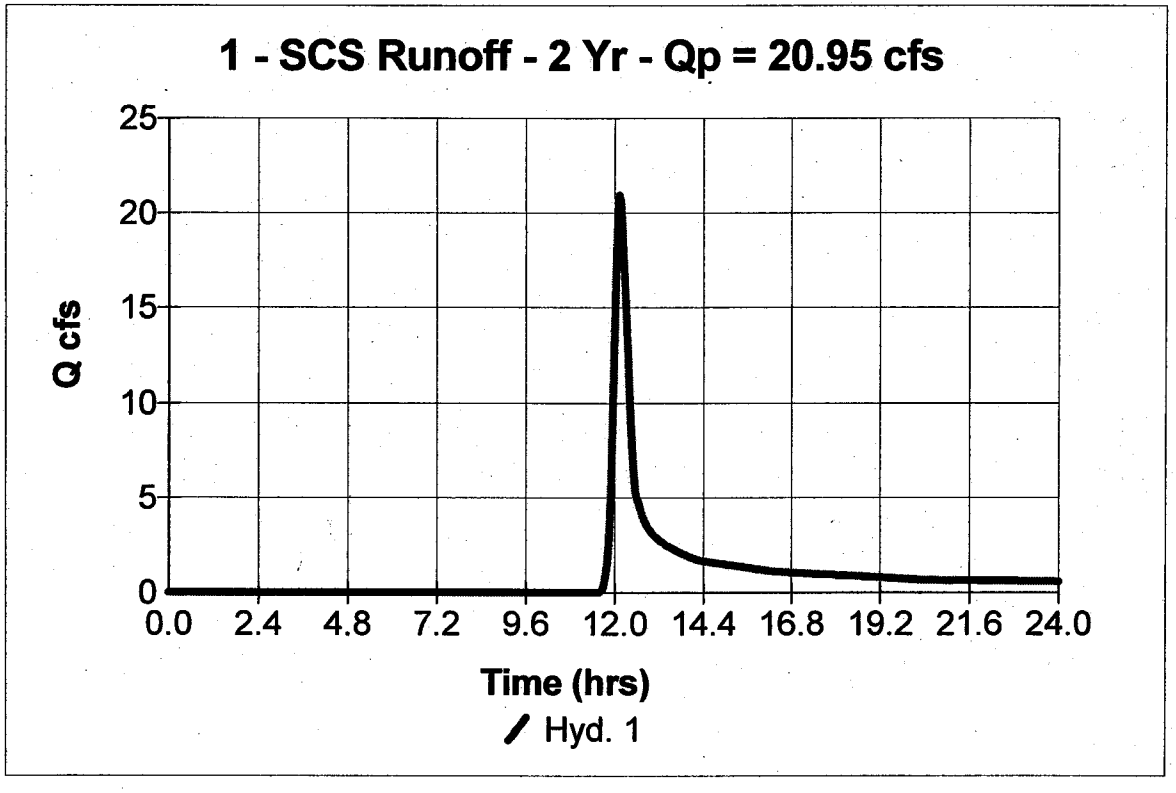
Hydraflow Hydrographs by Intelisolve

Hyd. No. 1

2 YR PRE-DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 20.95 cfs
Storm frequency	= 2 yrs	Time interval	= 2 min
Drainage area	= 26.40 ac	Curve number	= 67
Basin Slope	= 6.0 %	Hydraulic length	= 1200 ft
Tc method	= LAG	Time of conc. (Tc)	= 21.7 min
Total precip.	= 3.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 82,920 cuft



Hydrograph Plot

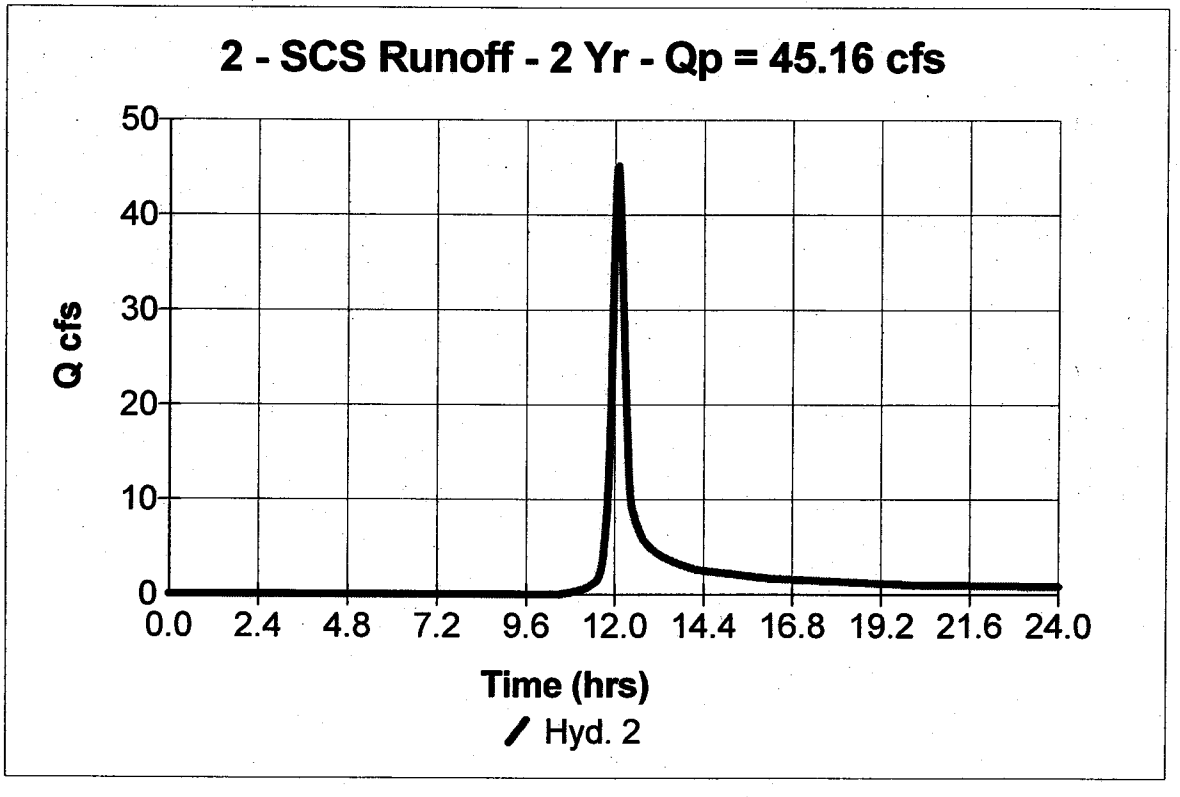
Hydraflow Hydrographs by Intelisolve

Hyd. No. 2

2 YR POST-DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 45.16 cfs
Storm frequency	= 2 yrs	Time interval	= 2 min
Drainage area	= 30.83 ac	Curve number	= 75
Basin Slope	= 6.0 %	Hydraulic length	= 1200 ft
Tc method	= LAG	Time of conc. (Tc)	= 17.4 min
Total precip.	= 3.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 145,688 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

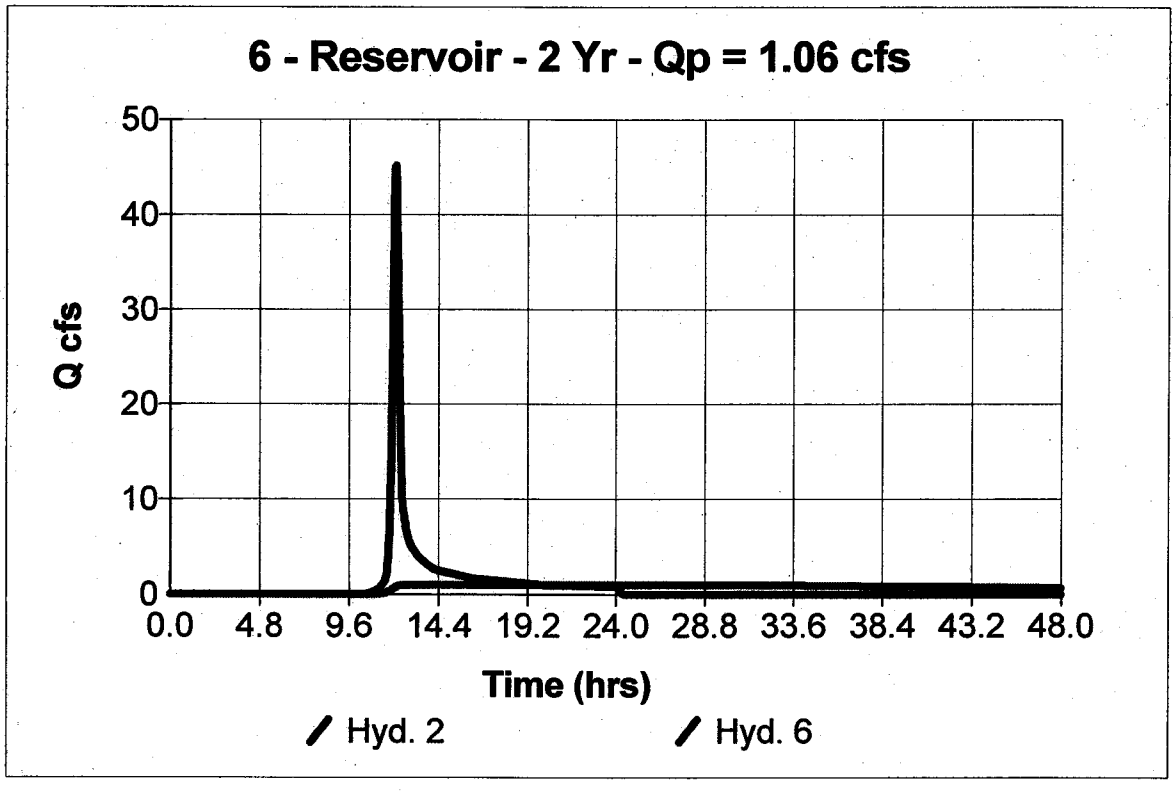
Hyd. No. 6

2 YR ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 1.06 cfs
Storm frequency	= 2 yrs	Time interval	= 2 min
Inflow hyd. No.	= 2	Reservoir name	= DRY POND #1
Max. Elevation	= 44.79 ft	Max. Storage	= 101,288 cuft

Storage Indication method used.

Hydrograph Volume = 123,577 cuft



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	63.61	2	728	224,935	—	—	—	2 YR PRE-DEV
2	SCS Runoff	108.32	2	724	338,875	—	—	—	2 YR POST-DEV
3	SCS Runoff	63.61	2	728	224,935	—	—	—	10 YR PRE-DEV
4	SCS Runoff	108.32	2	724	338,875	—	—	—	10 YR POST-DEV
5	SCS Runoff	108.32	2	724	338,875	—	—	—	100 YR POST-DEV
6	Reservoir	23.85	2	746	309,005	2	46.44	156,277	2 YR ROUTED
7	Reservoir	23.85	2	746	309,005	4	46.44	156,277	10 YR ROUTED
8	Reservoir	23.85	2	746	309,005	5	46.44	156,277	100 YR ROUTED
9	SCS Runoff	108.32	2	724	338,875	—	—	—	1 YR POST
10	Reservoir	23.85	2	746	309,005	9	46.44	156,277	1 YR ROUTED
11	SCS Runoff	63.61	2	728	224,935	—	—	—	1 YR PRE

Proj. file: 8223-2.gpw | Return Period: 10 yr | Run date: 09-20-2002

Hydrograph Plot

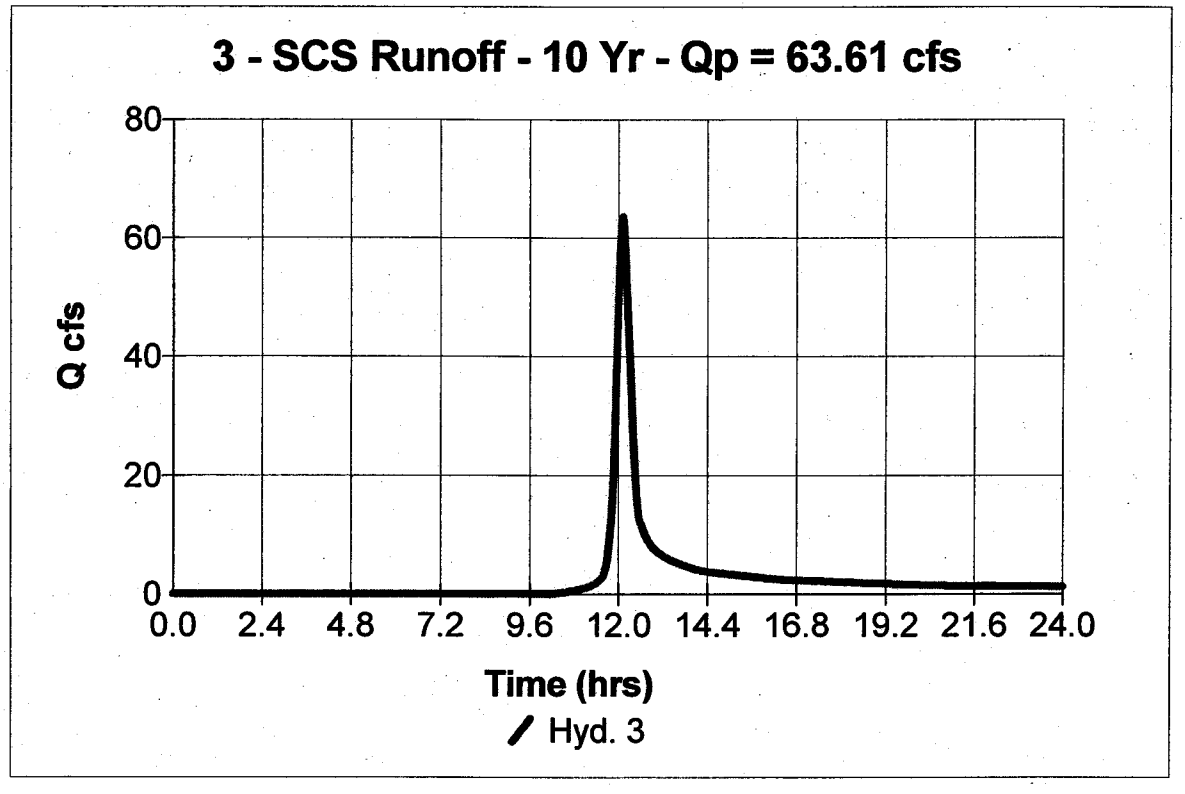
Hydraflow Hydrographs by Intelisolve

Hyd. No. 3

10 YR PRE-DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 63.61 cfs
Storm frequency	= 10 yrs	Time interval	= 2 min
Drainage area	= 26.40 ac	Curve number	= 67
Basin Slope	= 6.0 %	Hydraulic length	= 1200 ft
Tc method	= LAG	Time of conc. (Tc)	= 21.7 min
Total precip.	= 5.70 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 224,935 cuft



Hydrograph Plot

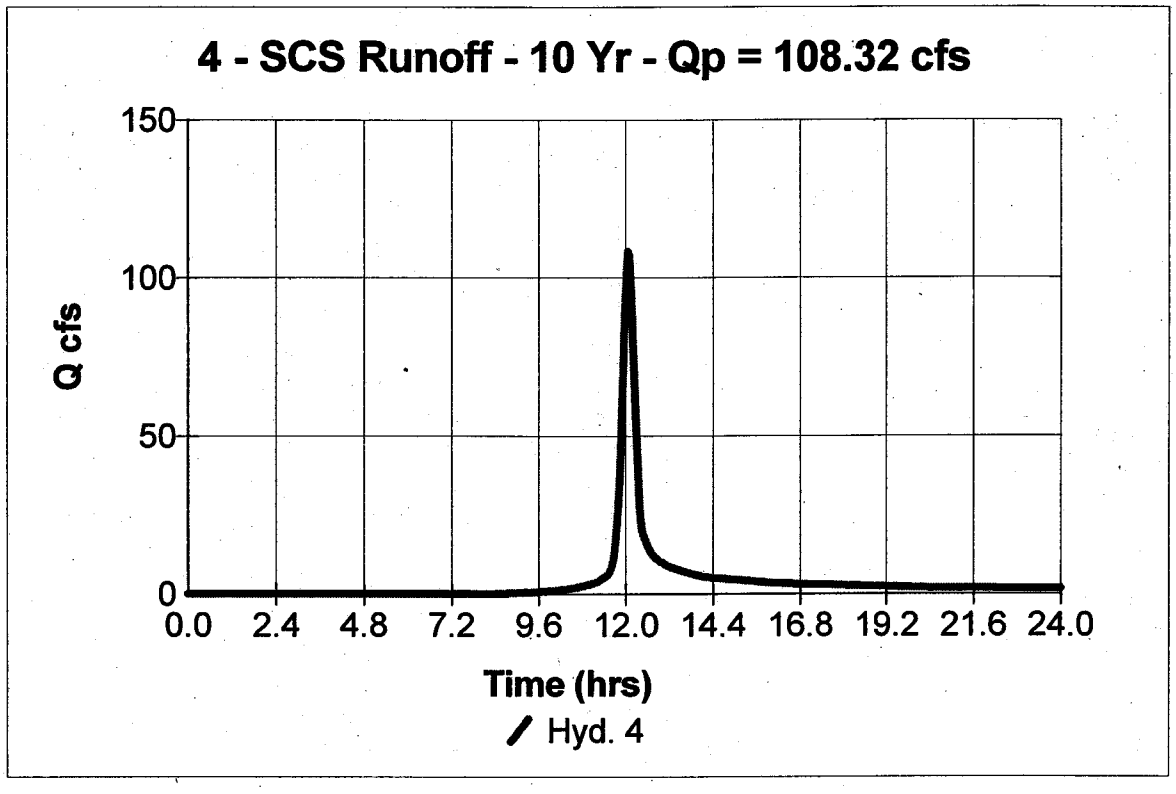
Hydraflow Hydrographs by Intelisolve

Hyd. No. 4

10 YR POST-DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 108.32 cfs
Storm frequency	= 10 yrs	Time interval	= 2 min
Drainage area	= 30.83 ac	Curve number	= 75
Basin Slope	= 6.0 %	Hydraulic length	= 1200 ft
Tc method	= LAG	Time of conc. (Tc)	= 17.4 min
Total precip.	= 5.70 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 338,875 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

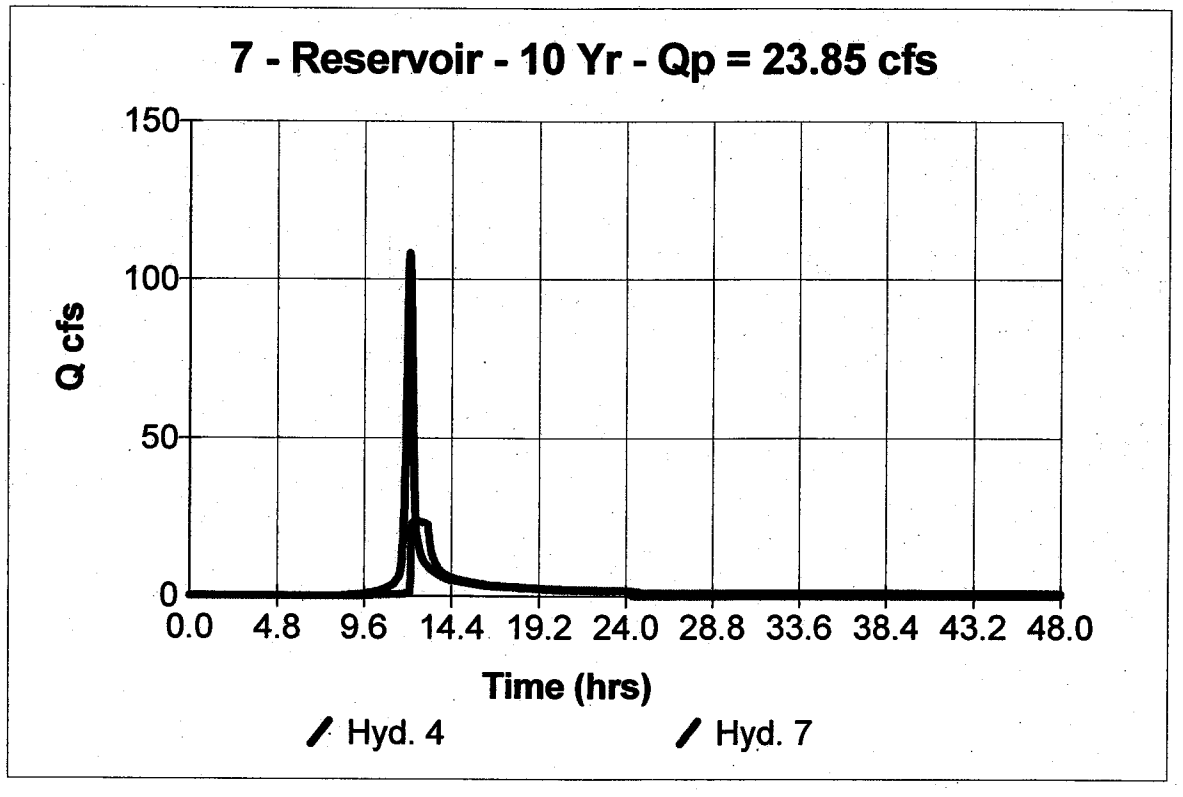
Hyd. No. 7

10 YR ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 23.85 cfs
Storm frequency	= 10 yrs	Time interval	= 2 min
Inflow hyd. No.	= 4	Reservoir name	= DRY POND #1
Max. Elevation	= 46.44 ft	Max. Storage	= 156,277 cuft

Storage Indication method used.

Hydrograph Volume = 309,005 cuft



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	118.48	2	726	410,111	---	-----	-----	2 YR PRE-DEV
2	SCS Runoff	183.10	2	724	574,336	---	-----	-----	2 YR POST-DEV
3	SCS Runoff	118.48	2	726	410,111	---	-----	-----	10 YR PRE-DEV
4	SCS Runoff	183.10	2	724	574,336	---	-----	-----	10 YR POST-DEV
5	SCS Runoff	183.10	2	724	574,336	---	-----	-----	100 YR POST-DEV
6	Reservoir	105.70	2	736	543,293	2	48.03	220,591	2 YR ROUTED
7	Reservoir	105.70	2	736	543,293	4	48.03	220,591	10 YR ROUTED
8	Reservoir	105.70	2	736	543,293	5	48.03	220,591	100 YR ROUTED
9	SCS Runoff	183.10	2	724	574,336	---	-----	-----	1 YR POST
10	Reservoir	105.70	2	736	543,293	9	48.03	220,591	1 YR ROUTED
11	SCS Runoff	118.48	2	726	410,111	---	-----	-----	1 YR PRE

Proj. file: 8223-2.gpw | Return Period: 100 yr | Run date: 09-20-2002

Hydrograph Plot

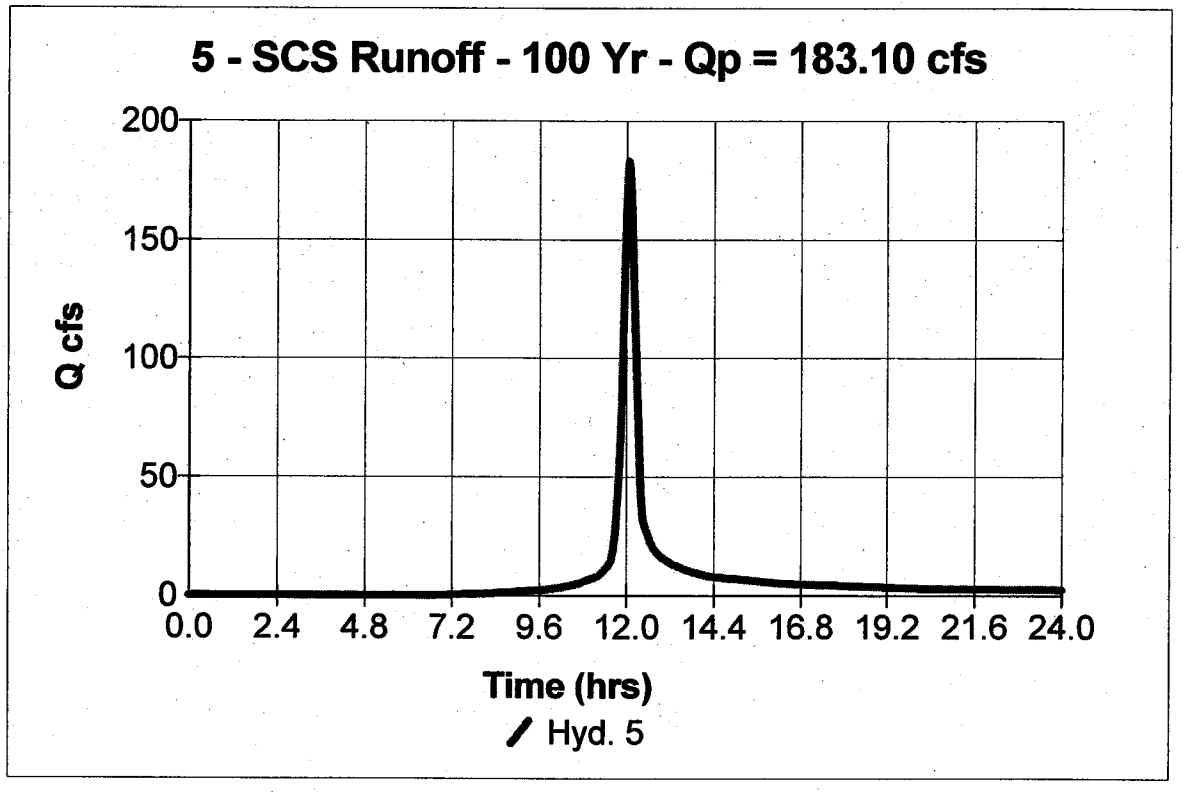
Hydraflow Hydrographs by Intelisolve

Hyd. No. 5

100 YR POST-DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 183.10 cfs
Storm frequency	= 100 yrs	Time interval	= 2 min
Drainage area	= 30.83 ac	Curve number	= 75
Basin Slope	= 6.0 %	Hydraulic length	= 1200 ft
Tc method	= LAG	Time of conc. (Tc)	= 17.4 min
Total precip.	= 8.10 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 574,336 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

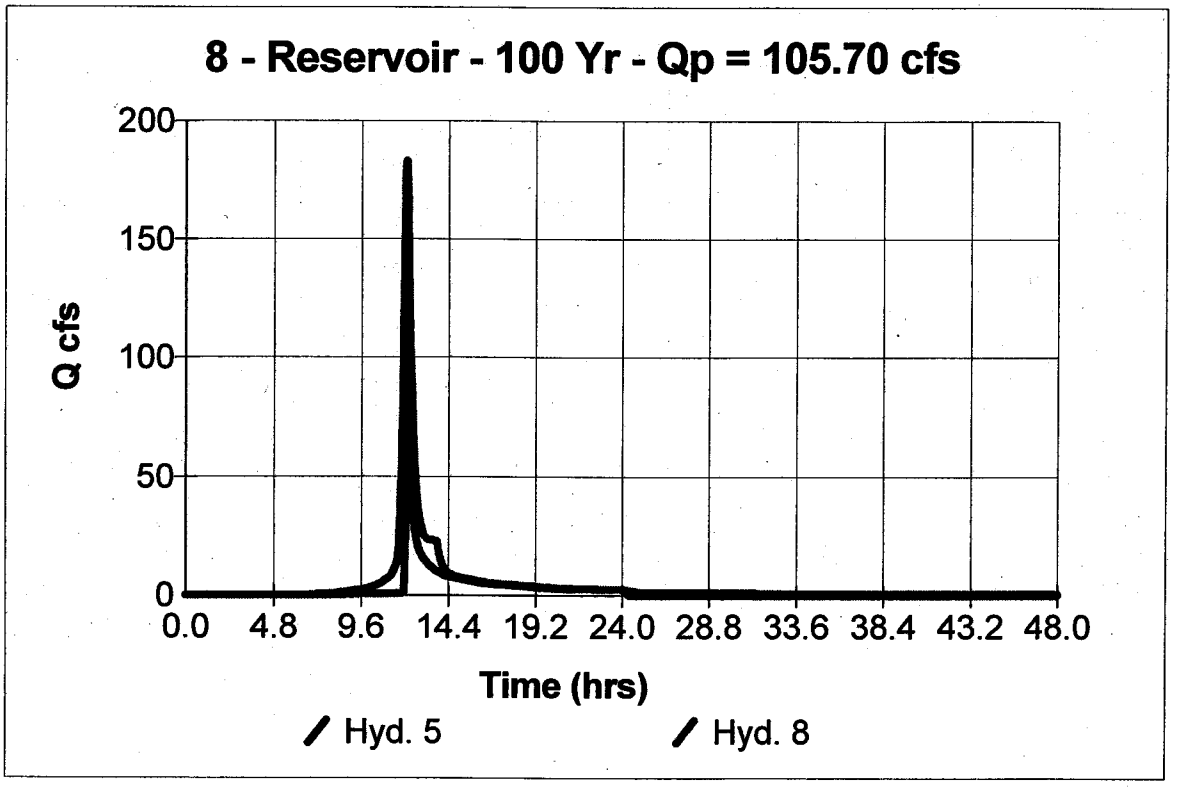
Hyd. No. 8

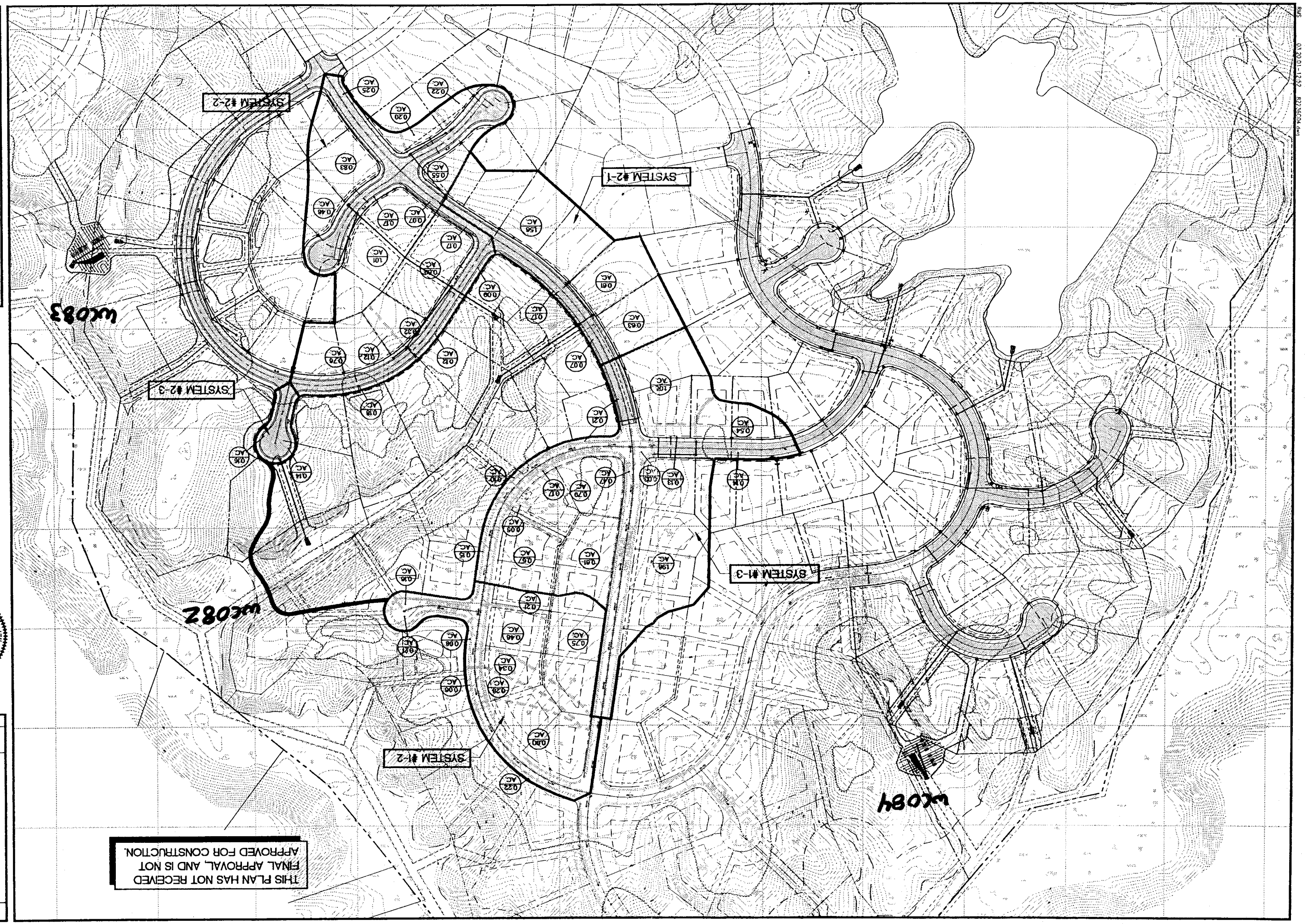
100 YR ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 105.70 cfs
Storm frequency	= 100 yrs	Time interval	= 2 min
Inflow hyd. No.	= 5	Reservoir name	= DRY POND #1
Max. Elevation	= 48.03 ft	Max. Storage	= 220,591 cuft

Storage Indication method used.

Hydrograph Volume = 543,293 cuft





SECTION 1 DRY POND DRAINAGE AREA MAP
WELLINGTON
SECTION II
OWNER/DEVELOPER: WELLINGTON, L.L.C.

JAMES CITY COUNTY — STONEHOUSE DISTRICT — VIRGINIA

Designed	Drawn	Scale	Date	Project No.	Drawing No.
HMP/CWG	RWS/HBK	1"=100'	5/28/01	8223-06	M

CONSULTING ENGINEERS
5249 Olde Towne Road Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-6994

COMMONWEALTH OF VIRGINIA
PROFESSIONAL ENGINEER
No. 018313
G. ARCHER MARSTON, III
3/20/01

No.	DATE	REVISION / COMMENT / NOTE	BY

RWS 01-20-01-12:37 R27-36-04.dwg

STORM SYSTEM		2-1	
	DISTURBED AREA	0.8	ACRES
	BMP AREA	31.0	ACRES
	% BMP AREA	2.5	PERCENT
E&S STORAGE VOLUME		2785.9	CUBIC FEET
	WET	1392.93	CUBIC FEET
	DRY	1392.93	CUBIC FEET

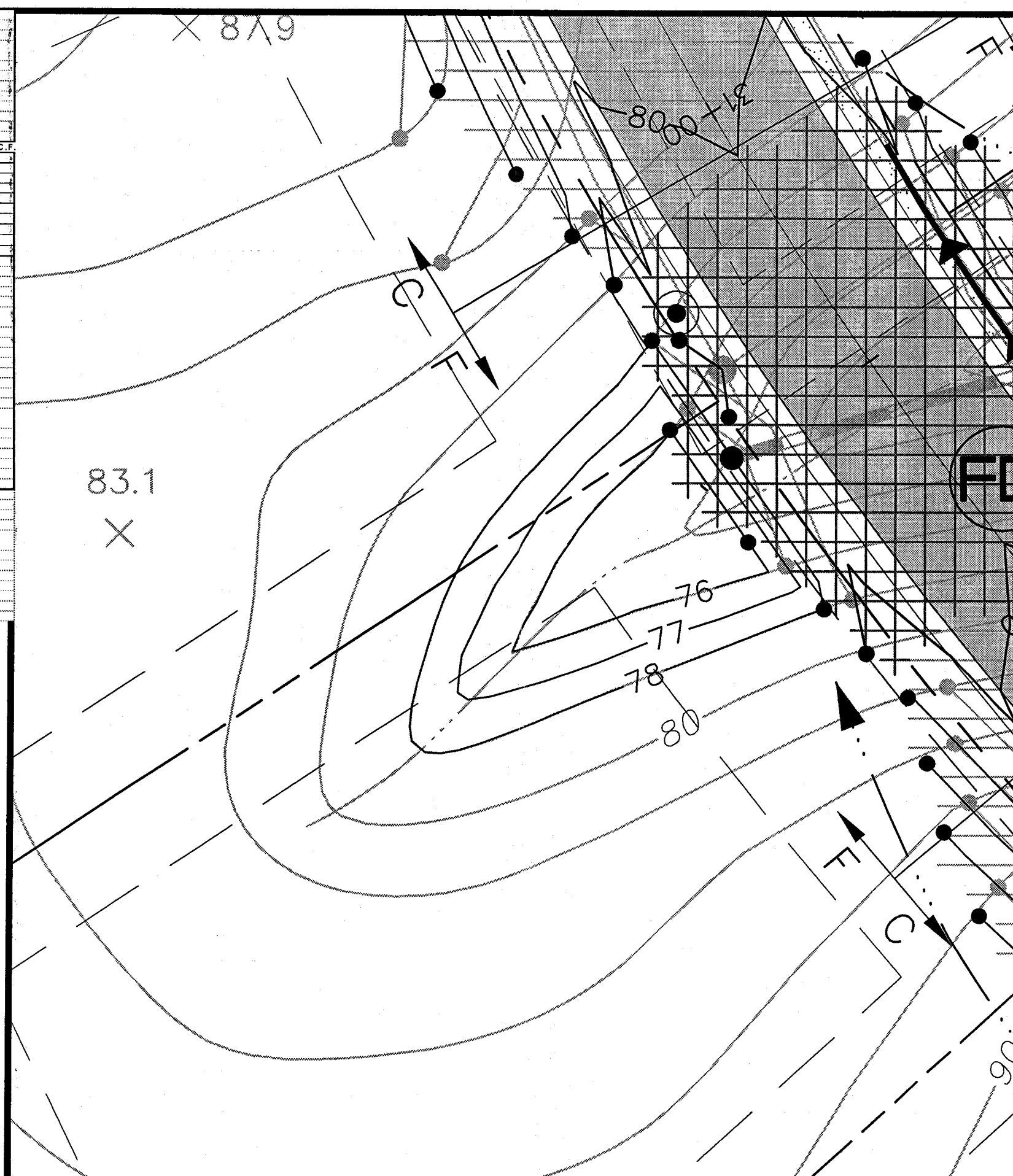
TRAP/BASIN GEOMETRY

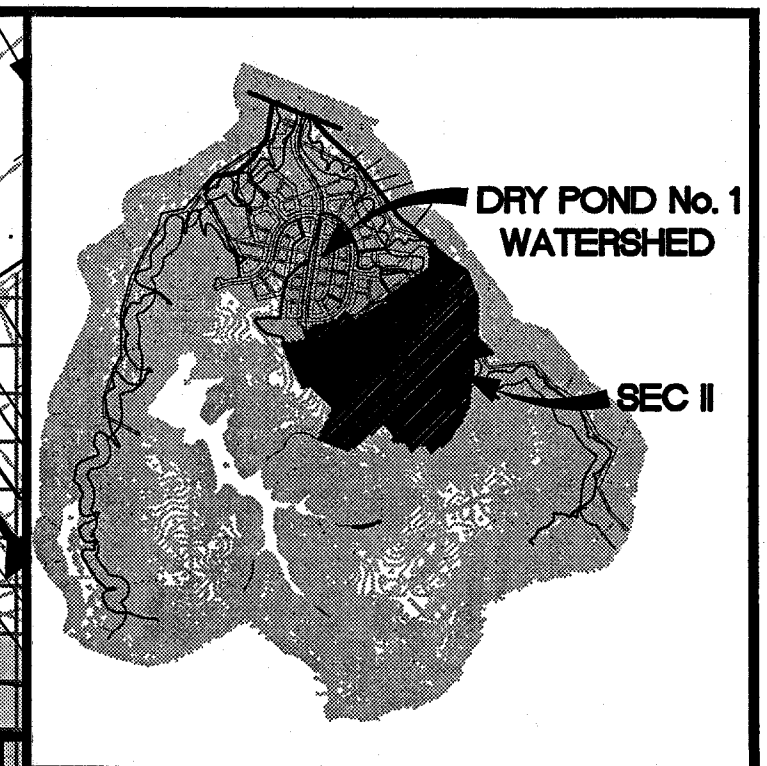
RATIO	WIDTH	LENGTH	ELEVATION

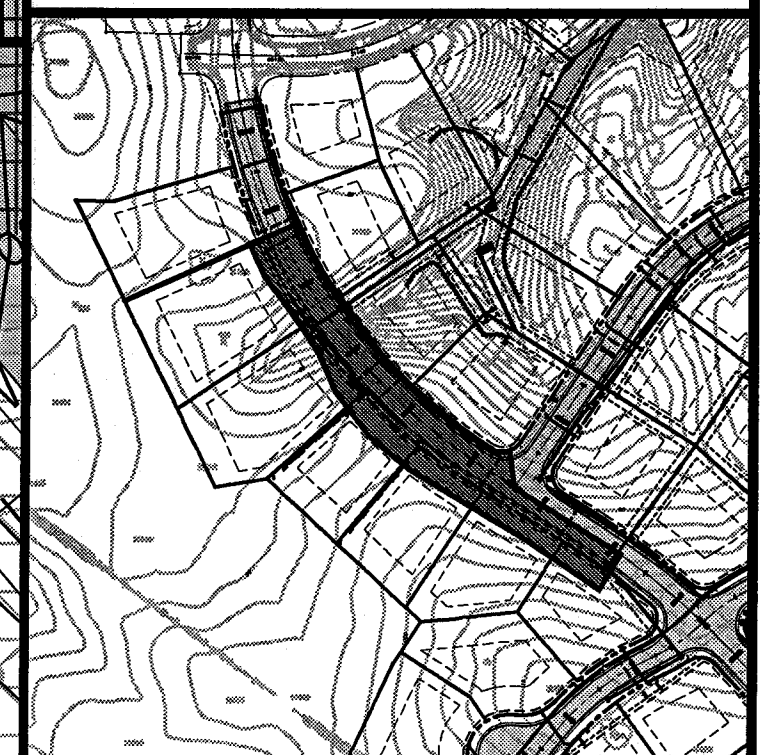
STAGE	ELEV	1/2 BASE	HEIGHT	INC AREA	TOTAL VOLUME C.F.
1	79	33	80	2640	2292
0	78	27	72	1944	
1	77	20.5	55	1127.5	1535.75
2	76	14.5	43	623.5	2463.333

OUTLET PROTECTION

OUTLET PIPE SIZE	15	INCH
10YR FLOW	7.38	CFS
OP GEOMETRY		
LENGTH	8.9	FEET
WIDTH 1	3.8	FEET
WIDTH 2 (MIN HW)	10.2	FEET
WIDTH 2(MAX HW)	4.8	FEET
D50 SIZE	0.22	FEET
RIPRAP CLASS	CLASS 1	
DEPTH	0.5	FEET
REQUIRED VOLUME	1.2	CUBIC YARDS







TEMPORARY TRAP 2-1
STORMSEWER SYSTEM 2-1
DRAINAGE AREA ANALYSIS
WELLINGTON SECTION II

DATE:	SCALE: 1"=20'	DRAWN:

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994

JOB NO. 0000

DEVELOPMENT MANAGEMENT

101-E MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6671 Fax: (757) 253-6850 E-MAIL: devtman@james-city.va.us

CODE COMPLIANCE
(757) 253-6626
codecomp@james-city.va.us

ENVIRONMENTAL DIVISION
(757) 253-6670
environ@james-city.va.us

PLANNING
(757) 253-6685
planning@james-city.va.us

COUNTY ENGINEER
(757) 253-6678

INTEGRATED PEST MANAGEMENT
(757) 253-2620

April 4, 2002

Mr. Charles E. Glisan
American Eastern
632 Hampton Highway
Yorktown, Virgina 23693

Re: Wellington Section 1

Dear Mr. Glisan,

During a recent environmental inspection of your Wellington Section 1 project, we noted that the 3 sediment traps were in need of repair. (Reference the Inspection Report faxed to you on March 20, 2002.) Since that time we note that you have reworked and improved the effectiveness of the traps by replacing the dams and installing outlet piping through the embankment. While these revisions appear to be working at this point, this configuration is not according to the approved plans.

If this modification to the traps is intended to be a permanent solution during construction, you will need to submit the appropriate drawings and calculations through your design engineer and request that an alternate design be approved.

We appreciate your efforts to date to improve these traps and urge you to provide the alternate designs in the near future for review and approval.

Patrick T. Menichino
Environmental Inspections Supervisor
James City County Environmental Division

cc - FILE

6

JAMES CITY COUNTY
ENVIRONMENTAL DIVISION
P. O. BOX 8784
WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6670

INSPECTION REPORT - EROSION AND SEDIMENT CONTROL

Date: 3/20/02
Project: WELLINGTON
Phone/Fax: 757 867-8800/757 867-7188

Permittee: CHARLES E. GLISAN
AMERICAN EASTERN
632 HAMPTON HIGHWAY
YORKTOWN, VA 23693

An inspection of the above-referenced project was conducted on 3/20/02, the following represents an evaluation of that projects compliance with James City County's Environmental Regulations. Items identified below as "Needs Repair" are deficiencies that must be corrected.

IN COMPLIANCE	NEEDS REPAIR	
☐	☒	SEDIMENT BASIN ALL 3 SEDIMENT BASINS NEED REPAIR ~~[illegible]~~ TO RESTORE DESIGNED CONDITION OR
☐	☐	~~SEDIMENT TRAP~~ SUBMIT ALTERNATE FOR REVIEW.
☒	☐	CONSTRUCTION ENTRANCE
☐	☒	SILT FENCE MINOR REPAIR/REPLACEMENT ALL AREAS
☐	☒	INLET PROTECTION SEVERAL INLETS NEED REPAIR
☒	☐	STABILIZATION
☐	☐	OTHER ITEMS

Notice is hereby given that those deficiencies listed shall be corrected in accordance with James City County's Environmental Requirements on or before 3/26/02. The site will be reinspected at that time and you are invited to accompany the inspector on that date. Failure to comply with this report will result in Enforcement Actions .

BOB LANE
JCC Environmental Division Inspector
757-253-6670

CHUCK GLISAN
Project Representative Notified

3/00

JAMES CITY COUNTY
ENVIRONMENTAL DIVISION
P. O. BOX 8784
WILLIAMSBURG, VA 23187
757-253-6670

FILE:
wellington 1

NOTICE TO COMPLY

DATE: August 31, 2001

TO: Wellington LLC
632 Hampton Highway
Yorktown, VA 23693

RE: Wellington Section 1

An inspection of the above referenced project on August 29, 2001 revealed that the following violations are present:

The Sediment Traps located on the project site have not been properly maintained and are at a point were sediment trap failure is eminent.

The following recommendations are made regarding the necessary corrections.

1.The Sediment Trap located on Tynemouth Way has failed and released sediment downstream. Remove the sediment from the downstream areas and stabilize those areas with seed and straw. Reconstruct the sediment trap as per the approved plan following the original design standards and then stabilize it with seed and straw.

2. The Sediment Trap on Guilford Lane must have its original volume restored. After the sediment has been removed stabilize the sediment trap with seed and straw.

3.The Sediment Trap on Penzance Place must have its original volume restored. After the sediment has been removed stabilize the sediment trap with seed and straw.

4. Stabilize bldg. Lots 6 & 7 with seed and straw.

5. Stabilize all other disturbed areas on the project site with seed and straw. This action will reduce the amounts of sediments generated as well as reducing the velocity of overland flows.

6. Install EC-2 type blankets on slopes steeper than 3:1.

6. Install inlet protection using the cement block and gravel design. **Do not** use the type of inlet protection, which completely covers the throat of the DI with stone.

Notice is hereby given that these violations shall be corrected in accordance with the approved Erosion and Sediment Control Plan on or before Sept 6, 2001. The site will be reinspected at that time and you are invited to accompany the inspector on that date.

Failure to comply with this notice will result in the revoking of the Land Disturbing Permit, a Stop Work Order or any other legal action necessary including drawing on the project surety by the County to effect the implementation of the approved plan. Please contact this department if there are any questions.

Patrick Menichino

Patrick Menichino
Environmental Division Supervisor

Z 273 082 547

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to Wellington LLC	
Street & Number 632 Hampton Hwy	
Post Office, State, & ZIP Code Yorktown VA 23693	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- ☐ Complete items 1 and/or 2 for additional services. Complete items 3, 4a, and 4b.
- ☐ Print your name and address on the reverse of this form so that we can return this card to you.
- ☐ Attach this form to the front of the mailpiece, or on the back if space does not permit.
- ☐ Write *"Return Receipt Requested"* on the mailpiece below the article number.
- ☐ The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

3. Article Addressed to:

Wellington LLC
632 Hampton Highway
Yorktown VA 23693

4a. Article Number

4b. Service Type

☐ Registered ☐ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

9-4-01

5. Received By: *(Print Name)*

Terri Fuller

6. Signature *(Addressee or Agent)*

8. Addressee's Address *(Only if requested and fee is paid)*

PS Form 3811, December 1994 102595-99-B-0223 Domestic Return Receipt

Thank you for using Return Receipt Service.

U.S. Postal Service

CERTIFIED MAIL RECEIPT

(Domestic Mail Only; No Insurance Coverage Provided)

7000 0600 0023 1523 8096

Postage	$	Postmark Here
Certified Fee		
Return Receipt Fee (Endorsement Required)		
Restricted Delivery Fee (Endorsement Required)		
Total Postage & Fees	$	

Recipient's Name (Please Print Clearly) (to be completed by mailer)
WELLINGTON LLC

Street, Apt. No.; or PO Box No.
632 HAMPTON HIGHWAY

City, State, ZIP+4
YORKTOWN VA 23696

PS Form 3800, February 2000 See Reverse for Instructions

UNITED STATES POSTAL SERVICE

OFFICIAL BUSINESS

SENDER INSTRUCTIONS

Print your name, address and ZIP Code in the space below.

- Complete items 1, 2, 3, and 4 on the reverse.
- Attach to front of article if space permits, otherwise affix to back of article.
- Endorse article "Return Receipt Requested" adjacent to number.

U.S.MAIL

PENALTY FOR PRIVATE USE, $300

RETURN TO

Print Sender's name, address, and ZIP Code in the space below.

ENVIRONMENTAL DIVISION

P O BOX 8784

WILLIAMSBURG VA 23187

JAMES CITY COUNTY
ENVIRONMENTAL DIVISION
P. O. BOX 8784
WILLIAMSBURG, VA 23187
757-253-6670

NOTICE TO COMPLY

DATE: January 25, 2001

TO: Wellington, LLC
632 Hampton Highway
Yorktown, VA. 23696

RE: Wellington Section 1, Wellington Offsite Sewer and Lift Station

An inspection of the above referenced project on January 23, 2001 revealed that the following violations are present:

The above mention projects are not in compliance with James City County's Erosion and Sediment Control Ordinance or the approved project plans.

The following recommendations are made regarding the necessary corrections.

1. Remove all sediment that has entered the Wetland areas using methods approved by the County.

2. Stabilize all of the offsite sewer work that has been installed.

3. Install EC-2 type blanket material as per County requirements.

4. Install all required Silt Fence, Diversion Dikes, and Sediment Traps etc., as required by the County and shown on the approved plan.

5. Submit a restoration plan for those areas disturbed that exceed the limits of clearing and work areas as shown on the approved plan.

6. Install temporary measures as required to prevent concentrated surface flows from eroding slopes.

Notice is hereby given that these violations shall be corrected in accordance with the Erosion and Sediment Control Ordinance and the approved plan on or before Jan 29, 2001. The site will be reinspected at that time and you are invited to accompany the inspector on that date.

Failure to comply with this notice will result in the revoking of the Land Disturbing Permit, a Stop Work Order, Fines or any other legal action necessary including drawing on the project surety by the County to effect the implementation of the approved plan. Please contact this department if there are any questions.

Daryl E. Cook (PTM)

Darryl E. Cook,
Environmental Director

JAMES CITY COUNTY
ENVIRONMENTAL DIVISION
P. O. BOX 8784
WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6670

INSPECTION REPORT - EROSION AND SEDIMENT CONTROL

Date: 8-18-00
Project: Wellington Section 1
Phone/Fax: 867-7188

Permittee:
Wellington LLC
632 Hampton Highway
Yorktown, VA 23693

An inspection of the above-referenced project was conducted on 8-17-00, the following represents an evaluation of that projects compliance with James City County's Environmental Regulations. Items identified below as "Needs Repair" are deficiencies that must be corrected.

IN COMPLIANCE	NEEDS REPAIR	
☐	☐	SEDIMENT BASIN
☐	☒	SEDIMENT TRAP INSTALL SED. TRAPS Show on the Approved PLAN
☐	☐	CONSTRUCTION ENTRANCE
☐	☒	SILT FENCE Repair SILT FENCE AS required
☐	☐	INLET PROTECTION
☐	☐	STABILIZATION
☐	☐	OTHER ITEMS

Notice is hereby given that those deficiencies listed shall be corrected in accordance with James City County's Environmental Requirements on or before 8-22-00 The site will be reinspected at that time and you are invited to accompany the inspector on that date. Failure to comply with this report will result in Enforcement Actions .

P.J. Menichino
JCC Environmental Division Inspector
757-253-6670

Charles Glisan
Project Representative Notified

3/00

DEVELOPMENT MANAGEMENT

101-E MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6671 Fax: (757) 253-6850 E-MAIL: devtman@james-city.va.us

CODE COMPLIANCE
(757) 253-6626
codecomp@james-city.va.us

ENVIRONMENTAL DIVISION
(757) 253-6670
environ@james-city.va.us

PLANNING
(757) 253-6685
planning@james-city.va.us

COUNTY ENGINEER
(757) 253-6678

INTEGRATED PEST MANAGEMENT
(757) 253-2620

June 19, 2000

Mr. Howard Price
AES Engineers
5248 Olde Towne Road, Suite 1
Williamsburg, VA 23188

RE: Exception Requests for Wellington, Section I (S-79-99), and Wellington Lift Station and Force Main (SP-114-99)

Dear Mr. Price:

Pursuant to your letter request of November 5, 1999, exceptions from the Chesapeake Bay Preservation Ordinance to allow encroachments into the Resource Protection Area (RPA) for construction of the above referenced subdivision improvements including its lift station, and storm and sanitary drain systems are granted. This approval is conditioned on providing an acceptable landscape plan to mitigate the encroachments in the RPA buffer.

The following modifications need to be made to the landscape plan shown on sheet 2 of the lift station plan (SP-114-99) to be acceptable:

1. The site plant needs to be modified by revising the plant schedule on sheet 2 to increase the caliper of the plants provided to 2-½ inches to be consistent with Section 23-9(2) and 23-10(3)(b) of the Ordinance.
2. Add two loblolly trees in the area bounded by the storm drain easement just north of the lift station access road, the lift station access road itself and the existing tree line to the west of this area.
3. Revise the limit of clearing to show maintaining the tree line intact near the area where the access road property line ties into the northern boundary of the lift station property. The plan currently shows clearing at roughly a 45 degree angle to the property line in this area and it appears the clearing line could follow the north property line to parallel the sewer line alignment.

The landscape plantings will need to be installed prior to release of the surety posted for the project. Please note that it is important that the all the clearing lines be strictly observed to prevent any further encroachment into the RPA.

Exceptions are also required to allow for the disturbance of 25% and steeper slopes for construction of the sanitary and storm sewers, and the construction of the stormwater detention

facilities. These exceptions are granted with the condition that all erosion control measures shown on the approved plans are implemented.

These exceptions shall become null and void if building foundations for the pump station are not completed and construction has not begun on the subdivision within 12 months of the date of this leter.

Please indicate the owner's, American Eastern, Inc., acceptance of these conditions by having an officer of the corporation sign and return this letter. Please contact me at 253-6673 if you have any questions.

Sincerely,

Darryl E Cook

Darryl E. Cook, P.E.
Environmental Director

I understand and accept the conditions of the exceptions.

American Eastern, Inc.

CONSULTING ENGINEERS

5248 Olde Towne Road • Suite 1 • Williamsburg, Virginia 23188
(757) 253-0040 • Fax (757) 220-8994 • E-mail aes@aesva.com

November 5, 1999

Mr. Darryl Cook
Environmental Division Director
James City County
P.O. Box 8784, Building E
Williamsburg, Virginia 23187

RE: Wellington Section One
AES Project No. 8223-02

Dear Mr. Cook:

AES Consulting Engineers on behalf of American Eastern, Inc., respectfully requests an exception from the Director of the Environmental Division to reduce the 100-foot RPA buffer in the said project.

The first encroachment will occur at the entrance to Rochambeau Drive (S. R. 30). The topographical constraints at this location leave approximately a 30-foot opening outside the RPA, however, the road at this location is preferred by all parties (i.e., VDOT, JCSA) to help improve the traffic flow in the future development.

The next encroachment occurs with the storm sewer outfalls into the existing channels. The only way to properly drain the site based on the existing topographic features requires that we outlet below the RPA buffer into these channels. We are taking all appropriate erosion and sediment control measures necessary to maintain their integrity.

Finally, we are encroaching on the RPA buffer with the proposed pump station and sanitary sewer mains. Based on previous conversations with the County and the Corps of Engineers, the sanitary sewer main location has been approved. The pump station location is contingent on the James City Service Authority (JCSA) and their request for a regional suction lift station. There are head constraints on the operation of the suction lift station and this location is the only feasible spot to work with the existing topography. Even though we are in the RPA buffer, the disturbance has been minimized with this location by optimizing the old borrow pit clearing. Once again, proper erosion and sediment control measures will be taken to help maintain and protect the existing conditions.

We appreciate your help with this matter and hope you will not hesitate to call if you have any further questions.

Sincerely,

AES Consulting Engineers

Howard W. Price
Project Engineer

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CONSULTING ENGINEERS

5248 Olde Towne Road • Suite 1 • Williamsburg, Virginia 23188
(757) 253-0040 • Fax (757) 220-8994 • E-mail aes@aesva.com

November 5, 1999

Mr. Darryl Cook
Environmental Division Director
James City County
P.O. Box 8784, Building E
Williamsburg, Virginia 23187

RE: Wellington Section One
AES Project No. 8223-02

Dear Mr. Cook:

AES Consulting Engineers on behalf of American Eastern, Inc., respectfully requests a waiver from the Director of the Environmental Division to the disturbance of 25% slopes on the said project.

The disturbed slopes greater than 25% on this project are basically accessing the ravines. These ravines are being used solely for Stormwater Management facilities and sanitary sewer mains. Based on previous conversations with the County and the Corps of Engineers, both uses have been approved. Consequently, we believe the minor disturbance to access the low-lying areas of the site really do not violate the intent of the ordinance.

The slopes that are disturbed during construction will be stabilized with appropriate seeding, silt fence and matting as needed.

We appreciate your help with this matter and hope you will not hesitate to call if you have any further questions.

Sincerely,

AES Consulting Engineers

Howard W. Price
Project Engineer

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U.S. Army Corps of Engineers
Norfolk District, Southern Virginia Regulatory Section
803 Front Street
Norfolk, Virginia 23510

October 1, 1999

RECEIVED
OCT 4 1999
Wmsbg Environmental Grp

Project Number: 99-R1060

Waterway: France Swamp

1. Participant:
American Eastern, Inc.
632 Hampton Highway
Yorktown, VA 23693

2. Authorized Agent:
Williamsburg Environmental Group
Chuck Roadley
3000 Easter Circle
Williamsburg, VA 23188

3. Address of Job Site:
The proposed subdivision is West of Route 607 and south of Route 30.

4. Project Description:
Temporarily impact 3.85 acres of headwater wetlands for [redacted], as shown on the drawings entitled "Overall Sanitary Sewer Plan, Mirror Lakes" dated 6-8-99 by AES Consulting Engineers.

5. Findings

This is regarding your request to perform work in the waters of the United States, as described in part 4 above. This activity has been reviewed and found to satisfy the criteria contained in the Corps Nationwide Permit (12), attached. (The Corps Nationwide Permits were published in the Federal Register (61 FR 65874) on December 13, 1996 and the regulations governing their use can be found in 33 CFR 330 published in Volume 56, Number 226 of the Federal Register dated November 22, 1991.)

Provided the enclosed conditions are met, an individual Department of the Army Permit will not be required. In addition, the Virginia Department of Environmental Quality has waived 401 certification for Nationwide Permit Number 12. However, a permit may be required from the Virginia Marine Resources Commission and/or your local wetlands board, and this verification is not valid until you obtain their approval, if necessary. You may contact the Virginia Marine Resources Commission at (757) 247-2200 for further information concerning their permit requirements.

As a condition of this authorization you must notify Melissa Smith at (757) 441-7489 to set up a compliance inspection as soon as the utility line has been completed, and while the contractor is still onsite. In addition, if the disturbed area in the easement does not vegetate with wetland species within one year you may be required to replant the area.

Enclosed is a "compliance certification" form, which must be signed and returned within 30 days of completion of the project, including any required mitigation (see nationwide permit condition number 14). Your signature on this form certifies that you have completed the work in accordance with the nationwide permit terms and conditions.

This verification is valid for two years from the date of this letter, unless the Norfolk District Engineer uses discretionary authority to modify, suspend or revoke this verification. The Chief of Engineers will periodically review the nationwide permits and their conditions and will decide to either modify, reissue or revoke the permits. The existing nationwides are scheduled to expire on February 11, 2002. If the nationwide permit(s) verified in this letter are reissued without modification or if your activity complies with any subsequent nationwide permit, the expiration date of this verification will not change. However, if the nationwide permit(s) verified in the letter are modified or revoked so that the activity listed above would no longer be authorized and you have commenced or are under contract to commence the work, you will have twelve months from the date of that permit change to complete the activity. Activities completed under the authorization of a nationwide permit which was in effect at the time the activity was completed continue to be authorized by that nationwide permit.

It is your responsibility to remain informed of changes to the nationwide permits. We will issue a special public notice announcing any changes to the nationwide permits when they occur.

6. Corps Contact: Melissa Smith at (757) 441-7489.

R. Harold Jones
Chief, Southern Virginia Regulatory Section

NAO FL 13 REVISED DEC 90

Nationwide Permit (12) Utility Line Discharges. Discharges of dredged or fill material associated with excavation, backfill or bedding for utility lines, including outfall and intake structures, provided there is no change in preconstruction contours. A "utility line" is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquefiable, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone and telegraph messages, and radio and television communication. The term "utility line" does not include activities which drain a water of the United States, such as drainage tile; however, it does apply to pipes conveying drainage from another area. This NWP authorizes mechanized landclearing necessary for the installation of utility lines, including overhead utility lines, provided the cleared area is kept to the minimum necessary and preconstruction contours are maintained. However, access roads, temporary or permanent, or foundations associated with overhead utility lines are not authorized by this NWP. Material resulting from trench excavation may be temporarily sidecast (up to three months) into waters of the United States, provided that the material is not placed in such a manner that it is dispersed by currents or other forces. The DE may extend the period of temporary side-casting not to exceed a total of 180 days, where appropriate. The area of waters of the United States that is disturbed must be limited to the minimum necessary to construct the utility line. In wetlands, the top 6" to 12" of the trench should generally be backfilled with topsoil from the trench. Excess material must be removed to upland areas immediately upon completion of construction. Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line. (See 33 CFR Part 322).
Notification: The permittee must notify the district engineer in accordance with the "Notification" general condition, if any of the following criteria are met:
a) Mechanized landclearing in a forested wetland;
b) A Section 10 permit is required for the utility line;
c) The utility line in waters of the United States exceeds 500 feet; or,
d) The utility line is placed within a jurisdictional area (i.e., a water of the United States), and it runs parallel to a streambed that is within that jurisdictional area. (Sections 10 and 404)

Regional condition: "Whenever possible, excavated material shall be placed on an upland site. However, when this is not feasible, temporary stockpiling is hereby authorized provided that:
a. All excavated material stockpiled in a vegetated wetland area is placed on filter cloth, mats, or some other impermeable surface. The material will be stabilized with straw bales, filter cloth, etc. to prevent reentry into the waterway.
b. The excavated material must be placed back into the trench to the original contour and all excess excavated material must be completely removed from the wetlands within 30 days after the utility line has been installed through the wetlands area. Permission must be granted by the District Engineer or his authorized representatives if the material is to be stockpiled longer than 30 days."

GENERAL CONDITIONS:

The following general conditions must be followed in order for any authorization by a NWP to be valid:
1. Navigation. No activity may cause more than a minimal adverse effect on navigation.

2. Proper maintenance. Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.

3. Erosion and siltation controls. Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date.

4. Aquatic life movements. No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water.
5. Equipment. Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.

6. Regional and case-by-case conditions. The activity must comply with any regional conditions which may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state or tribe in its section 401 water quality certification.

7. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status; unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely effect the Wild and Scenic River designation, or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service.)

8. Tribal rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

9. Water quality certification. In certain states, an individual Section 401 water quality certification must be obtained or waived (see 33 CFR 330.4(c)).

10. Coastal zone management. In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived (see Section 330.4(d)).

11. Endangered Species. (a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or critical habitat might be affected or is in the vicinity of the project, and shall not begin work on the activity until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. (b) Authorization of an activity by a nationwide permit does not authorize the take of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with incidental take provisions, etc.) from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, both lethal and non-lethal takes of protected species are in violation of the Endangered Species Act. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. Fish and Wildlife Service and National Marine Fisheries Service or their world wide web pages at http//www.fws.gov/~r9endspp/endspp.html and http://kingfish.spp.nmfs.gov/tmcintyr//prot_res.html#ES and Recovery, respectively.
12. Historic properties. No activity which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the DE has complied with the provisions of 33 CFR Part 325, Appendix C. The prospective permittee must notify the District Engineer if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see 33 CFR 330.4(g)).
13. Notification. (a) Timing: Where required by the terms of the NWP, the prospective permittee must notify the District Engineer with a Pre-Construction Notification (PCN) as early as possible and shall not begin the activity. (1) Until notified by the District Engineer that the activity may proceed under the NWP with any special conditions imposed by the District or Division Engineer; or (2) If notified by the District or Division Engineer that an individual permit is required; or (3) Unless 30 days (or 45 days for NWP 26 only) have passed from the District Engineer's receipt of the notification and the prospective permittee has not received notice from the District or Division Engineer. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).
(b) Contents of Notification: The notification must be in writing and include the following information:
(1) Name, address and telephone numbers of the prospective permittee;
(2) Location of the proposed project;
(3) Brief description of the proposed project; the project's purpose; direct and indirect adverse

10/05/1999 TUE 08:09 FAX 101 228 4001 MASBG ENVIRONMENTAL GROUP 005/006

environmental effects the project would cause; any other NWP(s), regional general permit(s) or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity; and

(4) For NWPs 14, 18, 21, 26, 29, 34, and 38, the PCN must also include a delineation of affected special aquatic sites, including wetlands (see paragraph 13(f));

(5) For NWP 21 - Surface Coal Mining Activities, the PCN must include an OSM or state approved mitigation plan.

(6) For NWP 29 - Single-Family Housing, the PCN must also include: i) Any past use of this NWP by the individual permittee and/or the permitee's spouse; ii) A statement that the single-family housing activity is for a personal residence of the permittee; iii) A description of the entire parcel, including its size, and a delineation of wetlands. For the purpose of this NWP, parcels of land measuring 0.5 acre or less will not require a formal on-site delineation. However, the applicant shall provide an indication of where the wetlands are and the amount of wetlands that exists on the property. For parcels greater than 0.5 acre in size, a formal wetland delineation must be prepared in accordance with the current method required by the Corps. (See paragraph 13(f)); iv) A written description of all land (including, if available, legal descriptions) owned by the prospective permittee and/or the prospective permittee's spouse, within a one mile radius of the parcel, in any form of ownership (including any land owned as a partner, corporation, joint tenant, co-tenant, or as a tenant-by-the-entirety) and any land on which a purchase and sale agreement or other contract for sale or purchase has been executed;

(7) For NWP 31 - Maintenance of Existing Flood Control Projects, the prospective permittee must either notify the District Engineer with a Pre-Construction Notification (PCN) prior to each maintenance activity or submit a five year (or less) maintenance plan. In addition, the PCN must include all of the following:

i) Sufficient baseline information so as to identify the approved channel depths and configurations and existing facilities. Minor deviations are authorized, provided that the approved flood control protection or drainage is not increased; ii) A delineation of any affected special aquatic sites, including wetlands; and,

iii) Location of the dredged material disposal site.

(8) For NWP 33 - Temporary Construction, Access, and Dewatering, the PCN must also include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources.

(c) Form of Notification: The standard individual permit application form (Form ENG 4345) may be used as the notification but must clearly indicate that it is a PCN and must include all of the information required in (b) (1)-(7) of General Condition 13. A letter may also be used.

(d) District Engineer's Decision: In reviewing the pre-construction notification for the proposed activity, the District Engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. The prospective permittee may, optionally, submit a proposed mitigation plan with the pre-construction notification to expedite the process and the District Engineer will consider any optional mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed work are minimal. If the District Engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects are minimal, the District Engineer will notify the permittee and include any conditions the DE deems necessary.

Any mitigation proposal must be approved by the District Engineer prior to commencing work. If the prospective permittee elects to submit a mitigation plan, the District Engineer will expeditiously review the proposed mitigation plan, but will not commence a second 30-day (or 45-day for NWP 26) notification procedure. If the net adverse effects of the project (with the mitigation proposal) are determined by the District Engineer to be minimal, the District Engineer will provide a timely written response to the applicant stating that the project can proceed under the terms and conditions of the nationwide permit.

If the District Engineer determines that the adverse effects of the proposed work are more than minimal, then he will notify the applicant either: (1) that the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the NWP subject to the applicant's submitting a mitigation proposal that would reduce the adverse effects to the minimal level; or (3) that the project is authorized under the NWP with specific modifications or conditions.

(e) Agency Coordination: The District Engineer will consider any comments from Federal and State agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

i) For NWP 14, 21, 26 (between 1 and 3 acres of impact), 29, 33, 37, and 38. The District Engineer will, upon receipt of a notification, provide immediately, e.g., facsimile transmission, overnight mail or other expeditious manner, a copy to the appropriate offices of the Fish and Wildlife Service, State natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO), and, if appropriate, the National Marine Fisheries Service. With the exception of NWP 37, these agencies will then have 5 calendar days from the date the material is transmitted to telephone or fax the District Engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the District Engineer will wait an additional 10 calendar days (15 calendar days for NWP 26 PCNs) before making a decision on the notification. The District Engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency. The District Engineer will indicate in the administrative record associated with each notification that the resource agencies' concerns were considered. Applicants are encouraged to provide the Corps multiple copies of notifications to expedite agency notification.

ii) Optional Agency Coordination. For NWPs 5, 7, 12, 13, 17, 18, 27, 31, and 34, where a Regional Administrator of EPA, a Regional Director of USFWS, or a Regional Director of NMFS has formally requested general notification from the District Engineer for the activities covered by any of these NWPs, the Corps will provide the requesting agency with notification on the particular NWPs. However, where the agencies have a record of not generally submitting substantive comments on activities covered by any of these NWPs, the Corps district may discontinue providing notification to those regional agency offices. The District Engineer will coordinate with the resources agencies to identify which activities involving a PCN that the agencies will provide substantive comments to the Corps. The District Engineer may also request comments from the agencies on a case by case basis when the District Engineer determines that such comments would assist the Corps in reaching a decision whether effects are more than minimal either individually or cumulatively.

iii) Optional Agency Coordination, 401 Denial. For NWP 26 only, where the state has denied its 401 water quality certification for activities with less than 1 acre of wetland impact, the EPA regional administrator may request agency coordination of PCNs between 1/3 and 1 acre. The request may only include acreage limitations within the 1/3 to 1 acre range for which the state has denied water quality certification. In cases where the EPA has requested coordination of projects as described here, the Corps will forward the PCN to EPA only. The PCN will then be forwarded to the Fish and Wildlife Service and the National Marine Fisheries Service by EPA under agreements among those agencies. Any agency receiving the PCN will be bound by the EPA timeframes for providing comments to the Corps.

(f) Wetlands Delineations: Wetland delineations must be prepared in accordance with the current method required by the Corps. For NWP 29 see paragraph (b)(6)(iii) for parcels less than 0.5 acres in size. The permittee may ask the Corps to delineate the special aquatic site. There may be some delay if the Corps does the delineation. Furthermore, the 30-day period (45 days for NWP 26) will not start until the wetland delineation has been completed and submitted to the Corps, where appropriate.

(g) Mitigation: Factors that the District Engineer will consider when determining the acceptability of appropriate and practicable mitigation include, but are not limited to:

i) To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes;

ii) To the extent appropriate, permittees should consider mitigation banking and other forms of mitigation including contributions to wetland trust funds, in lieu fees to organizations such as The Nature Conservancy, state or county natural resource management agencies, where such fees contribute to the restoration, creation, replacement, enhancement, or preservation of wetlands. Furthermore, examples of mitigation that may be appropriate and practicable include but are not limited to: reducing the size of the project; establishing wetland or upland buffer zones to protect aquatic resource values; and replacing the loss of aquatic resource values by creating, restoring, and enhancing similar functions and values. In addition, mitigation must address wetland impacts, such as functions and values, and cannot be simply used to offset the acreage of wetland losses that would occur in order to meet the acreage limits of some of the NWPs (e.g., for NWP 26, 5 acres of wetlands cannot be created to change a 6-acre loss of wetlands to a 1 acre loss; however, 2 created acres can be used to reduce the impacts of a 3-acre loss.).

14. Compliance certification. Every permittee who has received a Nationwide permit verification from the

Corps will submit a signed certification regarding the completed work and any required mitigation. The certification will be forwarded by the Corps with the authorization letter and will include:

a) A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions;

b) A statement that any required mitigation was completed in accordance with the permit conditions;

c) The signature of the permittee certifying the completion of the work and mitigation.

15. Multiple use of Nationwide permits. In any case where any NWP number 12 through 40 is combined with any other NWP number 12 through 40, as part of a single and complete project, the permittee must notify the District Engineer in accordance with paragraphs a, b, and c on the Notification General Condition number 13. Any NWP number 1 through 11 may be combined with any other NWP without notification to the Corps, unless notification is otherwise required by the terms of the NWPs. As provided at 33 CFR 330.6(c) two or more different NWPs can be combined to authorize a single and complete project. However, the same NWP cannot be used more than once for a single and complete project.

U.S. Army Corps
Of Engineers
Norfolk District

CERTIFICATE OF COMPLIANCE WITH ARMY CORPS OF ENGINEERS PERMIT

Permit Number: 99-R1060-16

Name of Permittee: American Eastern, Inc.

Date of Issuance: October 1, 1999

Permit Type: NW-12

Within 30 days of completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

Melissa Smith
c/o Regulatory Branch
Norfolk District Corps of Engineers
803 Front Street
Norfolk, Va. 23510-1096

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation has been completed in accordance with the permit conditions.

_____ _____

Signature of Permittee Date

HYDROLOGIC REPORT FOR

WELLINGTON PHASE I

SWM/BMP POND

AES JOB #8223

1ST Submission
OLD DESIGN

PREPARED BY:

AES CONSULTING ENGINEERS

5248 OLDE TOWNE ROAD

WILLIAMSBURG, VA. 23188

AUGUST 15,1996

DRY POND # 1

DESIGN TYPE # 4

include R_V

Volume req'd = (1"/Ac)(1"/12")(31.90 Ac)(43,560 SF/Ac) = 115,797 ft^3

Adequate storage is provided @ elev 44'

Place orifice @ elev 38'
weir @ elev 44'

Detain FOR 24 hrs

44' ⇒ 120,300 ft^3
38' ⇒ 0 ft^3

$$\frac{120,300\ ft^3 - 0\ ft^3}{(24\ hrs)(60\ min/hr)(60\ sec/min)} = 1.392 \text{ CFS}$$

$$Q = 0.6\, a \sqrt{2gh}$$

$h = 44' - 38' = 6'$
$g = 32.2\ ft/sec^2$
$Q = 1.392$ CFS

$$1.392 = .6a\sqrt{2(32.2)(6)}$$
$$a = .118$$

$$a = .118 = \frac{\pi d^2}{4} \qquad d = 0.388' = 4.65" = 4"$$

DA = 31.9 AC
% Imp = 25 %
1" Runoff
V_R = 0.73 ac ft = 31,800 ft^3
2.5 V_R = 1.83
4 V_R = 2.9

Shallow Marsh -
0.45'
Vol = 0.33 acft
Surf. Area = 0.70 acft @ 5.6" deep - N&P
0.46 acft @ 8.5" " - P only criteria met

Job# 8223
WELLINGTON - SECT 1
8-13-96

Option 1 STAGE / STORAGE TABLE R to rese

1. RESERVOIR No = 1. 2. RESERVOIR NAME = DRY POND #1.
3. S = Ks * Z^b
Ks = 0..... b = 0.....
START ELEV = 0..... INCREMENT = 0...

	STAGE ft	ELEVATION ft	CO AREA sq ft	INC STORAGE cu ft	TOT STORAGE cu ft
4	0.00	38.00.	1000....	0	0
5	2.00	40.00.	8025....	9025	9025
6	4.00	42.00.	16750...	24775	33800
7	6.00	44.00.	26500...	86500	120300
8	8.00	46.00.	35125...	61625	181925
9	10.00	48.00.	45125...	80250	262175
10	0.00	0.00.	0.....	0	0
11	0.00	0.00.	0.....	0	0
12	0.00	0.00.	0.....	0	0
13	0.00	0.00.	0.....	0	0
14	0.00	0.00.	0.....	0	0

Change item number: 0 ↵ to con

Reservoir No. 1 OUTLET STRUCTURES

CULVERT STRUC A. Q=CoA[2gh/k]^.5

1. WIDTH (in) = 18.
2. HEIGHT (in) = 18.
3. No. BARRELS = 1..
4. INVERT ELEV. = 38.....
5. Co = 0.60
6. CULVERT LENGTH (ft) = 60..
7. CULVERT SLOPE (%) = 2...
8. MANNING'S N-VALUE = .013

CULVERT STRUC B. Q=CoA[2gh/k]^.5

9. WIDTH (in) = 4..
10. HEIGHT (in) = 4..
11. No. BARRELS = 1..
12. INVERT ELEV. = 38.....
13. Co = 0.60
14. CULVERT LENGTH (ft) = 0...
15. CULVERT SLOPE (%) = 0...
16. MANNING'S N-VALUE = .013
17. MULTI-STAGE OPTION ? (Y/N) Y

WEIR STRUCTURE A. Q=CwLH^EXP

18. CREST LENGTH (ft) = 12.58..
19. CREST ELEVATION = 44.....
20. Cw = 3.00
21. EXP = 1.50
22. MULTI-STAGE OPTION ? (Y/N) Y

WEIR STRUCTURE B. Q=CwLH^EXP

23. CREST LENGTH (ft) = 14.....
24. CREST ELEVATION = 44.5...
25. Cw = 3.00
26. EXP = 1.50
27. MULTI-STAGE OPTION ? (Y/N) N

Change item number: 0 ↵ to cont

HYDROLOGIC REPORT

2 YR PRE DEVELOPMENT..
.....
.....

Hyd. No. 1

Hydrograph type	= S.C.S. RUNOFF	Peak discharge	= 46.96 cfs
Storm frequency	= 2 yr	Time interval	= 2 min
Basin area	= 26.4 ac	Basin curve No.	= 77
Ave basin slope	= 6 %	Hydraulic len	= 1200 ft
Basin lag	= 9.9 min	Time of concen	= 16.48 min
Total precip.	= 3.50 in	Distribution	= S.C.S. II

HYDROGRAPH DISCHARGE TABLE

TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfS)	
11.23	0.96	11.27	1.04	11.30	1.13	11.33	1.21
11.37	1.31	11.40	1.41	11.43	1.51	11.47	1.61
11.50	1.72	11.53	1.87	11.57	2.11	11.60	2.49
11.63	3.07	11.67	3.95	11.70	5.15	11.73	6.72
11.77	8.71	11.80	11.28	11.83	14.66	11.87	19.10
11.90	24.91	11.93	31.79	11.97	38.61	12.00	44.02
12.03	46.96	12.07	46.69	12.10	43.34	12.13	38.08
12.17	32.28	12.20	26.66	12.23	21.42	12.27	16.81
12.30	13.08	12.33	10.54	12.37	9.16	12.40	8.52
12.43	8.12	12.47	7.72	12.50	7.32	12.53	6.92
12.57	6.53	12.60	6.16	12.63	5.82	12.67	5.53
12.70	5.29	12.73	5.08	12.77	4.91	12.80	4.77
12.83	4.65	12.87	4.54	12.90	4.45	12.93	4.35
12.97	4.26	13.00	4.16	13.03	4.07	13.07	3.98
13.10	3.89	13.13	3.80	13.17	3.72	13.20	3.65
13.23	3.58	13.27	3.52	13.30	3.46	13.33	3.41
13.37	3.35	13.40	3.30	13.43	3.25	13.47	3.20
13.50	3.14	13.53	3.09	13.57	3.04	13.60	2.99
13.63	2.94	13.67	2.89	13.70	2.85	13.73	2.80
13.77	2.76	13.80	2.72	13.83	2.68	13.87	2.64
13.90	2.61	13.93	2.57	13.97	2.53	14.00	2.49
14.03	2.45	14.07	2.42	14.10	2.38	14.13	2.35
14.17	2.32	14.20	2.29	14.23	2.27	14.27	2.25
14.30	2.24	14.33	2.22	14.37	2.21	14.40	2.19
14.43	2.18	14.47	2.17	14.50	2.16	14.53	2.14
14.57	2.13	14.60	2.12	14.63	2.10	14.67	2.09
14.70	2.08	14.73	2.06	14.77	2.05	14.80	2.04
14.83	2.02	14.87	2.01	14.90	2.00	14.93	1.98
14.97	1.97	15.00	1.96	15.03	1.94	15.07	1.93

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME--OUTFLOW (hrs	cfs)	TIME--OUTFLOW (hrs	cfs)	TIME--OUTFLOW (hrs	cfs)	TIME--OUTFLOW (hrs	cfS)
15.10	1.92	15.13	1.90	15.17	1.89	15.20	1.88
15.23	1.86	15.27	1.85	15.30	1.84	15.33	1.82
15.37	1.81	15.40	1.80	15.43	1.78	15.47	1.77
15.50	1.75	15.53	1.74	15.57	1.73	15.60	1.71
15.63	1.70	15.67	1.68	15.70	1.67	15.73	1.66
15.77	1.64	15.80	1.63	15.83	1.61	15.87	1.60
15.90	1.59	15.93	1.57	15.97	1.56	16.00	1.54
16.03	1.53	16.07	1.52	16.10	1.50	16.13	1.49
16.17	1.48	16.20	1.47	16.23	1.46	16.27	1.46
16.30	1.45	16.33	1.45	16.37	1.44	16.40	1.44
16.43	1.43	16.47	1.43	16.50	1.42	16.53	1.42
16.57	1.41	16.60	1.41	16.63	1.40	16.67	1.40
16.70	1.39	16.73	1.39	16.77	1.38	16.80	1.38
16.83	1.37	16.87	1.37	16.90	1.36	16.93	1.36
16.97	1.35	17.00	1.35	17.03	1.34	17.07	1.34
17.10	1.33	17.13	1.33	17.17	1.32	17.20	1.32
17.23	1.31	17.27	1.31	17.30	1.30	17.33	1.30
17.37	1.29	17.40	1.29	17.43	1.28	17.47	1.28
17.50	1.28	17.53	1.27	17.57	1.27	17.60	1.26
17.63	1.26	17.67	1.25	17.70	1.25	17.73	1.24
17.77	1.24	17.80	1.23	17.83	1.23	17.87	1.22
17.90	1.22	17.93	1.21	17.97	1.20	18.00	1.20
18.03	1.19	18.07	1.19	18.10	1.18	18.13	1.18
18.17	1.17	18.20	1.17	18.23	1.16	18.27	1.16
18.30	1.15	18.33	1.15	18.37	1.14	18.40	1.14
18.43	1.13	18.47	1.13	18.50	1.12	18.53	1.12
18.57	1.11	18.60	1.11	18.63	1.10	18.67	1.10
18.70	1.09	18.73	1.09	18.77	1.08	18.80	1.08
18.83	1.07	18.87	1.07	18.90	1.06	18.93	1.06
18.97	1.05	19.00	1.05	19.03	1.04	19.07	1.04
19.10	1.03	19.13	1.03	19.17	1.02	19.20	1.01
19.23	1.01	19.27	1.00	19.30	1.00	19.33	0.99

HYDROLOGIC REPORT

2 YR POST DEVELOPMENT.
.....
.....

Hyd. No. 3

Hydrograph type	= S.C.S. RUNOFF	Peak discharge	= 74.85 cfs
Storm frequency	= 2 yr	Time interval	= 2 min
Basin area	= 31.9 ac	Basin curve No.	= 83
Ave basin slope	= 6 %	Hydraulic len	= 1200 ft
Basin lag	= 8.2 min	Time of concen	= 13.65 min
Total precip.	= 3.50 in	Distribution	= S.C.S. II

HYDROGRAPH DISCHARGE TABLE

TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfS)	
10.30	0.94	10.33	0.97	10.37	1.01	10.40	1.04
10.43	1.08	10.47	1.12	10.50	1.16	10.53	1.20
10.57	1.24	10.60	1.28	10.63	1.33	10.67	1.38
10.70	1.43	10.73	1.48	10.77	1.54	10.80	1.60
10.83	1.66	10.87	1.73	10.90	1.80	10.93	1.86
10.97	1.94	11.00	2.01	11.03	2.05	11.07	2.10
11.10	2.15	11.13	2.21	11.17	2.29	11.20	2.42
11.23	2.57	11.27	2.73	11.30	2.90	11.33	3.08
11.37	3.26	11.40	3.46	11.43	3.66	11.47	3.84
11.50	4.03	11.53	4.32	11.57	4.77	11.60	5.51
11.63	6.65	11.67	8.34	11.70	10.60	11.73	13.48
11.77	17.00	11.80	21.42	11.83	27.03	11.87	34.17
11.90	43.21	11.93	53.63	11.97	63.64	12.00	71.22
12.03	[redacted]	12.07	73.53	12.10	67.59	12.13	58.90
12.17	49.52	12.20	40.54	12.23	32.28	12.27	25.09
12.30	19.36	12.33	15.50	12.37	13.42	12.40	12.46
12.43	11.86	12.47	11.26	12.50	10.66	12.53	10.06
12.57	9.48	12.60	8.94	12.63	8.44	12.67	8.01
12.70	7.65	12.73	7.34	12.77	7.09	12.80	6.88
12.83	6.70	12.87	6.54	12.90	6.40	12.93	6.26
12.97	6.12	13.00	5.98	13.03	5.84	13.07	5.71
13.10	5.57	13.13	5.45	13.17	5.33	13.20	5.23
13.23	5.13	13.27	5.04	13.30	4.95	13.33	4.87
13.37	4.79	13.40	4.71	13.43	4.64	13.47	4.56
13.50	4.48	13.53	4.41	13.57	4.33	13.60	4.26
13.63	4.19	13.67	4.12	13.70	4.05	13.73	3.99
13.77	3.93	13.80	3.87	13.83	3.81	13.87	3.76
13.90	3.70	13.93	3.64	13.97	3.59	14.00	3.53
14.03	3.48	14.07	3.42	14.10	3.37	14.13	3.32

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME--OUTFLOW (hrs	cfs)	TIME--OUTFLOW (hrs	cfs)	TIME--OUTFLOW (hrs	cfs)	TIME--OUTFLOW (hrs	cfS)
14.17	3.28	14.20	3.25	14.23	3.21	14.27	3.19
14.30	3.16	14.33	3.14	14.37	3.12	14.40	3.10
14.43	3.08	14.47	3.06	14.50	3.04	14.53	3.02
14.57	3.01	14.60	2.99	14.63	2.97	14.67	2.95
14.70	2.93	14.73	2.91	14.77	2.89	14.80	2.87
14.83	2.85	14.87	2.83	14.90	2.81	14.93	2.79
14.97	2.77	15.00	2.75	15.03	2.74	15.07	2.72
15.10	2.70	15.13	2.68	15.17	2.66	15.20	2.64
15.23	2.62	15.27	2.60	15.30	2.58	15.33	2.56
15.37	2.54	15.40	2.52	15.43	2.50	15.47	2.48
15.50	2.46	15.53	2.44	15.57	2.42	15.60	2.40
15.63	2.38	15.67	2.36	15.70	2.34	15.73	2.32
15.77	2.30	15.80	2.28	15.83	2.26	15.87	2.24
15.90	2.22	15.93	2.20	15.97	2.18	16.00	2.16
16.03	2.14	16.07	2.12	16.10	2.10	16.13	2.09
16.17	2.07	16.20	2.06	16.23	2.05	16.27	2.04
16.30	2.03	16.33	2.02	16.37	2.01	16.40	2.00
16.43	2.00	16.47	1.99	16.50	1.98	16.53	1.98
16.57	1.97	16.60	1.96	16.63	1.96	16.67	1.95
16.70	1.94	16.73	1.93	16.77	1.93	16.80	1.92
16.83	1.91	16.87	1.91	16.90	1.90	16.93	1.89
16.97	1.89	17.00	1.88	17.03	1.87	17.07	1.86
17.10	1.86	17.13	1.85	17.17	1.84	17.20	1.84
17.23	1.83	17.27	1.82	17.30	1.81	17.33	1.81
17.37	1.80	17.40	1.79	17.43	1.79	17.47	1.78
17.50	1.77	17.53	1.77	17.57	1.76	17.60	1.75
17.63	1.74	17.67	1.74	17.70	1.73	17.73	1.72
17.77	1.72	17.80	1.71	17.83	1.70	17.87	1.69
17.90	1.69	17.93	1.68	17.97	1.67	18.00	1.66
18.03	1.66	18.07	1.65	18.10	1.64	18.13	1.64
18.17	1.63	18.20	1.62	18.23	1.61	18.27	1.61
18.30	1.60	18.33	1.59	18.37	1.59	18.40	1.58
18.43	1.57	18.47	1.56	18.50	1.56	18.53	1.55
18.57	1.54	18.60	1.53	18.63	1.53	18.67	1.52
18.70	1.51	18.73	1.51	18.77	1.50	18.80	1.49
18.83	1.48	18.87	1.48	18.90	1.47	18.93	1.46
18.97	1.45	19.00	1.45	19.03	1.44	19.07	1.43
19.10	1.42	19.13	1.42	19.17	1.41	19.20	1.40
19.23	1.40	19.27	1.39	19.30	1.38	19.33	1.37
19.37	1.37	19.40	1.36	19.43	1.35	19.47	1.34
19.50	1.34	19.53	1.33	19.57	1.32	19.60	1.31
19.63	1.31	19.67	1.30	19.70	1.29	19.73	1.28
19.77	1.28	19.80	1.27	19.83	1.26	19.87	1.26
19.90	1.25	19.93	1.24	19.97	1.23	20.00	1.23
20.03	1.22	20.07	1.21	20.10	1.20	20.13	1.20
20.17	1.19	20.20	1.19	20.23	1.19	20.27	1.18

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME--OUTFLOW (hrs	cfs)	TIME--OUTFLOW (hrs	cfs)	TIME--OUTFLOW (hrs	cfs)	TIME--OUTFLOW (hrs	cfS)
20.30	1.18	20.33	1.18	20.37	1.18	20.40	1.18
20.43	1.17	20.47	1.17	20.50	1.17	20.53	1.17
20.57	1.17	20.60	1.17	20.63	1.17	20.67	1.16
20.70	1.16	20.73	1.16	20.77	1.16	20.80	1.16
20.83	1.16	20.87	1.16	20.90	1.16	20.93	1.15
20.97	1.15	21.00	1.15	21.03	1.15	21.07	1.15
21.10	1.15	21.13	1.15	21.17	1.14	21.20	1.14
21.23	1.14	21.27	1.14	21.30	1.14	21.33	1.14
21.37	1.14	21.40	1.13	21.43	1.13	21.47	1.13
21.50	1.13	21.53	1.13	21.57	1.13	21.60	1.13
21.63	1.12	21.67	1.12	21.70	1.12	21.73	1.12
21.77	1.12	21.80	1.12	21.83	1.12	21.87	1.11
21.90	1.11	21.93	1.11	21.97	1.11	22.00	1.11
22.03	1.11	22.07	1.11	22.10	1.10	22.13	1.10
22.17	1.10	22.20	1.10	22.23	1.10	22.27	1.10
22.30	1.10	22.33	1.09	22.37	1.09	22.40	1.09
22.43	1.09	22.47	1.09	22.50	1.09	22.53	1.09
22.57	1.08	22.60	1.08	22.63	1.08	22.67	1.08
22.70	1.08	22.73	1.08	22.77	1.08	22.80	1.08
22.83	1.07	22.87	1.07	22.90	1.07	22.93	1.07
22.97	1.07	23.00	1.07	23.03	1.07	23.07	1.06
23.10	1.06	23.13	1.06	23.17	1.06	23.20	1.06
23.23	1.06	23.27	1.06	23.30	1.05	23.33	1.05
23.37	1.05	23.40	1.05	23.43	1.05	23.47	1.05
23.50	1.05	23.53	1.04	23.57	1.04	23.60	1.04
23.63	1.04	23.67	1.04	23.70	1.04	23.73	1.04
23.77	1.03	23.80	1.03	23.83	1.03	23.87	1.03
23.90	1.03	23.93	1.03	23.97	1.02	24.00	0.00

HYDROLOGIC REPORT

2 YR POST DEVELOPMENT.
ROUTED THROUGH POND...
.....

Hyd. No. 4

Hydrograph type = RESERVOIR ROUTE Peak discharge = 4.44 cfs
Storm frequency = 2 yr Time interval = 2 min
Inflow hyd. no. = 3 Reservoir no. = 1

HYDROGRAPH DISCHARGE TABLE

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
10.37	1.01	1.04	41.63	42.13	0.25
10.40	1.04	1.08	43.16	43.69	0.26
10.43	1.08	1.12	44.74	45.29	0.28
10.47	1.12	1.16	46.38	46.94	0.28
10.50	1.16	1.20	48.08	48.65	0.29
10.53	1.20	1.24	49.85	50.44	0.29
10.57	1.24	1.28	51.69	52.29	0.30
10.60	1.28	1.33	53.60	54.21	0.30
10.63	1.33	1.38	55.59	56.21	0.31
10.67	1.38	1.43	57.66	58.30	0.32
10.70	1.43	1.48	59.82	60.47	0.32
10.73	1.48	1.54	62.07	62.73	0.33
10.77	1.54	1.60	64.42	65.10	0.34
10.80	1.60	1.66	66.87	67.56	0.34
10.83	1.66	1.73	69.43	70.14	0.35
10.87	1.73	1.80	72.10	72.82	0.36
10.90	1.80	1.86	74.89	75.63	0.37
10.93	1.86	1.94	77.79	78.55	0.38
10.97	1.94	2.01	80.82	81.59	0.39
11.00	2.01	2.05	83.97	84.76	0.39
11.03	2.05	2.10	87.23	88.03	0.40
11.07	2.10	2.15	90.55	91.37	0.41
11.10	2.15	2.21	93.96	94.80	0.42
11.13	2.21	2.29	97.46	98.32	0.43
11.17	2.29	2.42	101.09	101.97	0.44

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
11.20	2.42	2.57	104.90	105.80	0.45
11.23	2.57	2.73	108.98	109.90	0.46
11.27	2.73	2.90	113.34	114.28	0.47
11.30	2.90	3.08	118.01	118.97	0.48
11.33	3.08	3.26	123.00	123.99	0.49
11.37	3.26	3.46	128.34	129.34	0.50
11.40	3.46	3.66	134.03	135.06	0.52
11.43	3.66	3.84	140.08	141.14	0.53
11.47	3.84	4.03	146.49	147.58	0.54
11.50	4.03	4.32	153.26	154.36	0.55
11.53	4.32	4.77	160.50	161.61	0.56
11.57	4.77	5.51	168.46	169.59	0.56
11.60	5.51	6.65	177.60	178.74	0.57
11.63	6.65	8.34	188.60	189.76	0.58
11.67	8.34	10.60	202.42	203.60	0.59
11.70	10.60	13.48	220.17	221.37	0.60
11.73	13.48	17.00	243.02	244.24	0.61
11.77	17.00	21.42	272.23	273.50	0.63
11.80	21.42	27.03	309.34	310.65	0.66
11.83	27.03	34.17	356.42	357.79	0.69
11.87	34.17	43.21	416.18	417.62	0.72
11.90	43.21	53.63	492.04	493.56	0.76
11.93	53.63	63.64	587.27	588.88	0.80
11.97	63.64	71.22	702.90	704.54	0.82
12.00	71.22	74.85	836.08	837.76	0.84
12.03	74.85	73.53	980.44	982.15	0.86
12.07	73.53	67.59	1127.06	1128.82	0.88
12.10	67.59	58.90	1266.38	1268.17	0.90
12.13	58.90	49.52	1391.04	1392.87	0.91
12.17	49.52	40.54	1497.60	1499.46	0.93
12.20	40.54	32.28	1585.78	1587.66	0.94
12.23	32.28	25.09	1656.70	1658.60	0.95
12.27	25.09	19.36	1712.16	1714.07	0.96
12.30	19.36	15.50	1754.69	1756.61	0.96
12.33	15.50	13.42	1787.61	1789.54	0.97
12.37	13.42	12.46	1814.60	1816.54	0.97
12.40	12.46	11.86	1838.54	1840.48	0.97
12.43	11.86	11.26	1860.91	1862.85	0.97
12.47	11.26	10.66	1882.08	1884.03	0.98
12.50	10.66	10.06	1902.05	1904.01	0.98
12.53	10.06	9.48	1920.81	1922.78	0.98
12.57	9.48	8.94	1938.39	1940.36	0.98

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
12.60	8.94	8.44	1954.84	1956.82	0.99
12.63	8.44	8.01	1970.25	1972.22	0.99
12.67	8.01	7.65	1984.72	1986.70	0.99
12.70	7.65	7.34	1998.40	2000.38	0.99
12.73	7.34	7.09	2010.93	2013.39	1.23
12.77	7.09	6.88	2022.14	2025.37	1.61
12.80	6.88	6.70	2032.20	2036.11	1.96
12.83	6.70	6.54	2041.25	2045.78	2.26
12.87	6.54	6.40	2049.41	2054.50	2.54
12.90	6.40	6.26	2056.77	2062.36	2.79
12.93	6.26	6.12	2063.39	2069.43	3.02
12.97	6.12	5.98	2069.33	2075.77	3.22
13.00	5.98	5.84	2074.62	2081.43	3.40
13.03	5.84	5.71	2079.32	2086.45	3.56
13.07	5.71	5.57	2083.46	2090.87	3.71
13.10	5.57	5.45	2087.08	2094.74	3.83
13.13	5.45	5.33	2090.22	2098.10	3.94
13.17	5.33	5.23	2092.95	2101.01	4.03
13.20	5.23	5.13	2095.28	2103.50	4.11
13.23	5.13	5.04	2097.28	2105.64	4.18
13.27	5.04	4.95	2098.97	2107.44	4.24
13.30	4.95	4.87	2100.39	2108.96	4.28
13.33	4.87	4.79	2101.56	2110.21	4.32
13.37	4.79	4.71	2102.50	2111.22	4.36
13.40	4.71	4.64	2103.24	2112.01	4.38
13.43	4.64	4.56	2103.77	2112.59	4.41
13.47	4.56	4.48	2104.10	2112.96	4.43
13.50	4.48	4.41	2104.25	2113.14	4.44
13.53	4.41	4.33	2104.25	2113.14	4.44
13.57	4.33	4.26	2104.12	2112.99	4.44
13.60	4.26	4.19	2103.87	2112.71	4.42
13.63	4.19	4.12	2103.52	2112.31	4.40
13.67	4.12	4.05	2103.07	2111.82	4.38
13.70	4.05	3.99	2102.52	2111.24	4.36
13.73	3.99	3.93	2101.89	2110.56	4.34
13.77	3.93	3.87	2101.18	2109.80	4.31
13.80	3.87	3.81	2100.41	2108.98	4.29
13.83	3.81	3.76	2099.57	2108.09	4.26
13.87	3.76	3.70	2098.69	2107.14	4.23
13.90	3.70	3.64	2097.75	2106.14	4.19
13.93	3.64	3.59	2096.77	2105.09	4.16
13.97	3.59	3.53	2095.75	2104.00	4.13

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
14.00	3.53	3.48	2094.69	2102.87	4.09
14.03	3.48	3.42	2093.60	2101.70	4.05
14.07	3.42	3.37	2092.47	2100.49	4.01
14.10	3.37	3.32	2091.31	2099.26	3.97
14.13	3.32	3.28	2090.14	2098.01	3.93
14.17	3.28	3.25	2088.96	2096.75	3.89
14.20	3.25	3.21	2087.78	2095.49	3.85
14.23	3.21	3.19	2086.62	2094.24	3.81
14.27	3.19	3.16	2085.47	2093.02	3.77
14.30	3.16	3.14	2084.34	2091.82	3.74
14.33	3.14	3.12	2083.25	2090.65	3.70
14.37	3.12	3.10	2082.18	2089.51	3.66
14.40	3.10	3.08	2081.15	2088.40	3.63
14.43	3.08	3.06	2080.15	2087.33	3.59
14.47	3.06	3.04	2079.17	2086.29	3.56
14.50	3.04	3.02	2078.22	2085.28	3.53
14.53	3.02	3.01	2077.30	2084.29	3.50
14.57	3.01	2.99	2076.40	2083.33	3.47
14.60	2.99	2.97	2075.52	2082.39	3.44
14.63	2.97	2.95	2074.66	2081.48	3.41
14.67	2.95	2.93	2073.82	2080.58	3.38
14.70	2.93	2.91	2073.00	2079.70	3.35
14.73	2.91	2.89	2072.20	2078.84	3.32
14.77	2.89	2.87	2071.41	2078.00	3.29
14.80	2.87	2.85	2070.64	2077.17	3.27
14.83	2.85	2.83	2069.87	2076.36	3.24
14.87	2.83	2.81	2069.13	2075.56	3.22
14.90	2.81	2.79	2068.39	2074.77	3.19
14.93	2.79	2.77	2067.66	2074.00	3.17
14.97	2.77	2.75	2066.95	2073.23	3.14
15.00	2.75	2.74	2066.24	2072.48	3.12
15.03	2.74	2.72	2065.54	2071.73	3.09
15.07	2.72	2.70	2064.85	2070.99	3.07
15.10	2.70	2.68	2064.17	2070.26	3.05
15.13	2.68	2.66	2063.49	2069.54	3.02
15.17	2.66	2.64	2062.82	2068.83	3.00
15.20	2.64	2.62	2062.16	2068.12	2.98
15.23	2.62	2.60	2061.51	2067.42	2.96
15.27	2.60	2.58	2060.85	2066.72	2.93
15.30	2.58	2.56	2060.21	2066.03	2.91
15.33	2.56	2.54	2059.56	2065.34	2.89
15.37	2.54	2.52	2058.93	2064.66	2.87

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
15.40	2.52	2.50	2058.29	2063.98	2.85
15.43	2.50	2.48	2057.66	2063.31	2.82
15.47	2.48	2.46	2057.03	2062.64	2.80
15.50	2.46	2.44	2056.41	2061.97	2.78
15.53	2.44	2.42	2055.79	2061.31	2.76
15.57	2.42	2.40	2055.17	2060.65	2.74
15.60	2.40	2.38	2054.55	2059.99	2.72
15.63	2.38	2.36	2053.94	2059.33	2.70
15.67	2.36	2.34	2053.32	2058.68	2.68
15.70	2.34	2.32	2052.71	2058.02	2.66
15.73	2.32	2.30	2052.10	2057.37	2.64
15.77	2.30	2.28	2051.50	2056.72	2.61
15.80	2.28	2.26	2050.89	2056.08	2.59
15.83	2.26	2.24	2050.29	2055.43	2.57
15.87	2.24	2.22	2049.68	2054.79	2.55
15.90	2.22	2.20	2049.08	2054.14	2.53
15.93	2.20	2.18	2048.48	2053.50	2.51
15.97	2.18	2.16	2047.88	2052.86	2.49
16.00	2.16	2.14	2047.28	2052.22	2.47
16.03	2.14	2.12	2046.68	2051.58	2.45
16.07	2.12	2.10	2046.08	2050.94	2.43
16.10	2.10	2.09	2045.48	2050.30	2.41
16.13	2.09	2.07	2044.89	2049.67	2.39
16.17	2.07	2.06	2044.31	2049.05	2.37
16.20	2.06	2.05	2043.74	2048.44	2.35
16.23	2.05	2.04	2043.18	2047.84	2.33
16.27	2.04	2.03	2042.64	2047.27	2.31
16.30	2.03	2.02	2042.12	2046.70	2.29
16.33	2.02	2.01	2041.61	2046.16	2.28
16.37	2.01	2.00	2041.12	2045.64	2.26
16.40	2.00	2.00	2040.65	2045.13	2.24
16.43	2.00	1.99	2040.19	2044.65	2.23
16.47	1.99	1.98	2039.75	2044.18	2.21
16.50	1.98	1.98	2039.33	2043.73	2.20
16.53	1.98	1.97	2038.92	2043.29	2.18
16.57	1.97	1.96	2038.52	2042.86	2.17
16.60	1.96	1.96	2038.14	2042.45	2.16
16.63	1.96	1.95	2037.77	2042.06	2.15
16.67	1.95	1.94	2037.40	2041.67	2.13
16.70	1.94	1.93	2037.05	2041.29	2.12
16.73	1.93	1.93	2036.71	2040.93	2.11
16.77	1.93	1.92	2036.38	2040.57	2.10

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
16.80	1.92	1.91	2036.05	2040.22	2.09
16.83	1.91	1.91	2035.73	2039.89	2.08
16.87	1.91	1.90	2035.42	2039.55	2.07
16.90	1.90	1.89	2035.12	2039.23	2.05
16.93	1.89	1.89	2034.82	2038.91	2.04
16.97	1.89	1.88	2034.53	2038.60	2.03
17.00	1.88	1.87	2034.24	2038.29	2.02
17.03	1.87	1.86	2033.96	2037.99	2.02
17.07	1.86	1.86	2033.69	2037.70	2.01
17.10	1.86	1.85	2033.42	2037.41	2.00
17.13	1.85	1.84	2033.15	2037.12	1.99
17.17	1.84	1.84	2032.88	2036.84	1.98
17.20	1.84	1.83	2032.62	2036.56	1.97
17.23	1.83	1.82	2032.37	2036.29	1.96
17.27	1.82	1.81	2032.11	2036.02	1.95
17.30	1.81	1.81	2031.86	2035.75	1.94
17.33	1.81	1.80	2031.62	2035.49	1.94
17.37	1.80	1.79	2031.37	2035.22	1.93
17.40	1.79	1.79	2031.13	2034.97	1.92
17.43	1.79	1.78	2030.89	2034.71	1.91
17.47	1.78	1.77	2030.65	2034.45	1.90
17.50	1.77	1.77	2030.41	2034.20	1.89
17.53	1.77	1.76	2030.18	2033.95	1.89
17.57	1.76	1.75	2029.95	2033.70	1.88
17.60	1.75	1.74	2029.71	2033.45	1.87
17.63	1.74	1.74	2029.48	2033.21	1.86
17.67	1.74	1.73	2029.26	2032.96	1.85
17.70	1.73	1.72	2029.03	2032.72	1.85
17.73	1.72	1.72	2028.80	2032.48	1.84
17.77	1.72	1.71	2028.58	2032.24	1.83
17.80	1.71	1.70	2028.35	2032.00	1.82
17.83	1.70	1.69	2028.13	2031.76	1.82
17.87	1.69	1.69	2027.91	2031.52	1.81
17.90	1.69	1.68	2027.68	2031.29	1.80
17.93	1.68	1.67	2027.46	2031.05	1.79
17.97	1.67	1.66	2027.24	2030.81	1.79
18.00	1.66	1.66	2027.02	2030.58	1.78
18.03	1.66	1.65	2026.80	2030.35	1.77
18.07	1.65	1.64	2026.59	2030.11	1.76
18.10	1.64	1.64	2026.37	2029.88	1.76
18.13	1.64	1.63	2026.15	2029.65	1.75
18.17	1.63	1.62	2025.93	2029.42	1.74

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
18.20	1.62	1.61	2025.72	2029.18	1.73
18.23	1.61	1.61	2025.50	2028.95	1.73
18.27	1.61	1.60	2025.28	2028.72	1.72
18.30	1.60	1.59	2025.07	2028.49	1.71
18.33	1.59	1.59	2024.85	2028.26	1.70
18.37	1.59	1.58	2024.64	2028.03	1.70
18.40	1.58	1.57	2024.42	2027.80	1.69
18.43	1.57	1.56	2024.21	2027.57	1.68
18.47	1.56	1.56	2023.99	2027.34	1.67
18.50	1.56	1.55	2023.78	2027.11	1.67
18.53	1.55	1.54	2023.56	2026.88	1.66
18.57	1.54	1.53	2023.35	2026.65	1.65
18.60	1.53	1.53	2023.13	2026.43	1.65
18.63	1.53	1.52	2022.92	2026.20	1.64
18.67	1.52	1.51	2022.71	2025.97	1.63
18.70	1.51	1.51	2022.49	2025.74	1.62
18.73	1.51	1.50	2022.28	2025.51	1.62
18.77	1.50	1.49	2022.06	2025.28	1.61
18.80	1.49	1.48	2021.85	2025.05	1.60
18.83	1.48	1.48	2021.64	2024.82	1.59
18.87	1.48	1.47	2021.42	2024.60	1.59
18.90	1.47	1.46	2021.21	2024.37	1.58
18.93	1.46	1.45	2020.99	2024.14	1.57
18.97	1.45	1.45	2020.78	2023.91	1.56
19.00	1.45	1.44	2020.57	2023.68	1.56
19.03	1.44	1.43	2020.35	2023.45	1.55
19.07	1.43	1.42	2020.14	2023.22	1.54
19.10	1.42	1.42	2019.92	2023.00	1.54
19.13	1.42	1.41	2019.71	2022.77	1.53
19.17	1.41	1.40	2019.50	2022.54	1.52
19.20	1.40	1.40	2019.28	2022.31	1.51
19.23	1.40	1.39	2019.07	2022.08	1.51
19.27	1.39	1.38	2018.85	2021.85	1.50
19.30	1.38	1.37	2018.64	2021.62	1.49
19.33	1.37	1.37	2018.42	2021.39	1.48
19.37	1.37	1.36	2018.21	2021.16	1.48
19.40	1.36	1.35	2018.00	2020.93	1.47
19.43	1.35	1.34	2017.78	2020.71	1.46
19.47	1.34	1.34	2017.57	2020.48	1.46
19.50	1.34	1.33	2017.35	2020.25	1.45
19.53	1.33	1.32	2017.14	2020.02	1.44
19.57	1.32	1.31	2016.92	2019.79	1.43

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
19.60	1.31	1.31	2016.71	2019.56	1.43
19.63	1.31	1.30	2016.49	2019.33	1.42
19.67	1.30	1.29	2016.28	2019.10	1.41
19.70	1.29	1.28	2016.06	2018.87	1.40
19.73	1.28	1.28	2015.85	2018.64	1.40
19.77	1.28	1.27	2015.63	2018.41	1.39
19.80	1.27	1.26	2015.41	2018.18	1.38
19.83	1.26	1.26	2015.20	2017.95	1.37
19.87	1.26	1.25	2014.98	2017.72	1.37
19.90	1.25	1.24	2014.77	2017.49	1.36
19.93	1.24	1.23	2014.55	2017.26	1.35
19.97	1.23	1.23	2014.33	2017.02	1.34
20.00	1.23	1.22	2014.12	2016.79	1.34
20.03	1.22	1.21	2013.90	2016.56	1.33
20.07	1.21	1.20	2013.69	2016.33	1.32
20.10	1.20	1.20	2013.47	2016.10	1.32
20.13	1.20	1.19	2013.26	2015.88	1.31
20.17	1.19	1.19	2013.05	2015.65	1.30
20.20	1.19	1.19	2012.84	2015.43	1.29
20.23	1.19	1.18	2012.65	2015.22	1.29
20.27	1.18	1.18	2012.45	2015.01	1.28
20.30	1.18	1.18	2012.27	2014.82	1.27
20.33	1.18	1.18	2012.09	2014.63	1.27
20.37	1.18	1.18	2011.92	2014.45	1.26
20.40	1.18	1.17	2011.76	2014.28	1.26
20.43	1.17	1.17	2011.61	2014.11	1.25
20.47	1.17	1.17	2011.46	2013.96	1.25
20.50	1.17	1.17	2011.33	2013.81	1.24
20.53	1.17	1.17	2011.19	2013.67	1.24
20.57	1.17	1.17	2011.07	2013.53	1.23
20.60	1.17	1.17	2010.94	2013.40	1.23
20.63	1.17	1.16	2010.83	2013.28	1.22
20.67	1.16	1.16	2010.72	2013.16	1.22
20.70	1.16	1.16	2010.61	2013.04	1.22
20.73	1.16	1.16	2010.51	2012.93	1.21
20.77	1.16	1.16	2010.41	2012.83	1.21
20.80	1.16	1.16	2010.31	2012.73	1.21
20.83	1.16	1.16	2010.22	2012.63	1.20
20.87	1.16	1.16	2010.13	2012.54	1.20
20.90	1.16	1.15	2010.05	2012.45	1.20
20.93	1.15	1.15	2009.97	2012.36	1.20
20.97	1.15	1.15	2009.89	2012.27	1.19

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
21.00	1.15	1.15	2009.81	2012.19	1.19
21.03	1.15	1.15	2009.74	2012.11	1.19
21.07	1.15	1.15	2009.66	2012.03	1.19
21.10	1.15	1.15	2009.59	2011.96	1.18
21.13	1.15	1.14	2009.52	2011.88	1.18
21.17	1.14	1.14	2009.46	2011.81	1.18
21.20	1.14	1.14	2009.39	2011.74	1.18
21.23	1.14	1.14	2009.33	2011.68	1.17
21.27	1.14	1.14	2009.27	2011.61	1.17
21.30	1.14	1.14	2009.20	2011.54	1.17
21.33	1.14	1.14	2009.15	2011.48	1.17
21.37	1.14	1.13	2009.09	2011.42	1.17
21.40	1.13	1.13	2009.03	2011.36	1.16
21.43	1.13	1.13	2008.97	2011.30	1.16
21.47	1.13	1.13	2008.92	2011.24	1.16
21.50	1.13	1.13	2008.86	2011.18	1.16
21.53	1.13	1.13	2008.81	2011.12	1.16
21.57	1.13	1.13	2008.76	2011.07	1.15
21.60	1.13	1.12	2008.71	2011.01	1.15
21.63	1.12	1.12	2008.66	2010.96	1.15
21.67	1.12	1.12	2008.60	2010.90	1.15
21.70	1.12	1.12	2008.55	2010.85	1.15
21.73	1.12	1.12	2008.51	2010.80	1.15
21.77	1.12	1.12	2008.46	2010.74	1.14
21.80	1.12	1.12	2008.41	2010.69	1.14
21.83	1.12	1.11	2008.36	2010.64	1.14
21.87	1.11	1.11	2008.31	2010.59	1.14
21.90	1.11	1.11	2008.27	2010.54	1.14
21.93	1.11	1.11	2008.22	2010.49	1.14
21.97	1.11	1.11	2008.17	2010.44	1.13
22.00	1.11	1.11	2008.13	2010.39	1.13
22.03	1.11	1.11	2008.08	2010.34	1.13
22.07	1.11	1.10	2008.04	2010.30	1.13
22.10	1.10	1.10	2007.99	2010.25	1.13
22.13	1.10	1.10	2007.95	2010.20	1.13
22.17	1.10	1.10	2007.90	2010.15	1.12
22.20	1.10	1.10	2007.86	2010.10	1.12
22.23	1.10	1.10	2007.81	2010.06	1.12
22.27	1.10	1.10	2007.77	2010.01	1.12
22.30	1.10	1.09	2007.73	2009.96	1.12
22.33	1.09	1.09	2007.68	2009.92	1.12
22.37	1.09	1.09	2007.64	2009.87	1.12

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
22.40	1.09	1.09	2007.59	2009.82	1.11
22.43	1.09	1.09	2007.55	2009.78	1.11
22.47	1.09	1.09	2007.51	2009.73	1.11
22.50	1.09	1.09	2007.47	2009.69	1.11
22.53	1.09	1.08	2007.42	2009.64	1.11
22.57	1.08	1.08	2007.38	2009.59	1.11
22.60	1.08	1.08	2007.34	2009.55	1.11
22.63	1.08	1.08	2007.29	2009.50	1.10
22.67	1.08	1.08	2007.25	2009.46	1.10
22.70	1.08	1.08	2007.21	2009.41	1.10
22.73	1.08	1.08	2007.17	2009.37	1.10
22.77	1.08	1.08	2007.12	2009.32	1.10
22.80	1.08	1.07	2007.08	2009.28	1.10
22.83	1.07	1.07	2007.04	2009.23	1.10
22.87	1.07	1.07	2007.00	2009.19	1.09
22.90	1.07	1.07	2006.95	2009.14	1.09
22.93	1.07	1.07	2006.91	2009.10	1.09
22.97	1.07	1.07	2006.87	2009.05	1.09
23.00	1.07	1.07	2006.83	2009.01	1.09
23.03	1.07	1.06	2006.79	2008.96	1.09
23.07	1.06	1.06	2006.74	2008.92	1.09
23.10	1.06	1.06	2006.70	2008.87	1.08
23.13	1.06	1.06	2006.66	2008.83	1.08
23.17	1.06	1.06	2006.62	2008.78	1.08
23.20	1.06	1.06	2006.58	2008.74	1.08
23.23	1.06	1.06	2006.53	2008.69	1.08
23.27	1.06	1.05	2006.49	2008.65	1.08
23.30	1.05	1.05	2006.45	2008.60	1.08
23.33	1.05	1.05	2006.41	2008.56	1.07
23.37	1.05	1.05	2006.37	2008.51	1.07
23.40	1.05	1.05	2006.32	2008.47	1.07
23.43	1.05	1.05	2006.28	2008.42	1.07
23.47	1.05	1.05	2006.24	2008.38	1.07
23.50	1.05	1.04	2006.20	2008.33	1.07
23.53	1.04	1.04	2006.16	2008.29	1.07
23.57	1.04	1.04	2006.11	2008.24	1.06
23.60	1.04	1.04	2006.07	2008.20	1.06
23.63	1.04	1.04	2006.03	2008.15	1.06
23.67	1.04	1.04	2005.99	2008.11	1.06
23.70	1.04	1.04	2005.95	2008.06	1.06
23.73	1.04	1.03	2005.91	2008.02	1.06
23.77	1.03	1.03	2005.86	2007.97	1.06

HYDROGRAPH DISCHARGE TABLE Cont'd

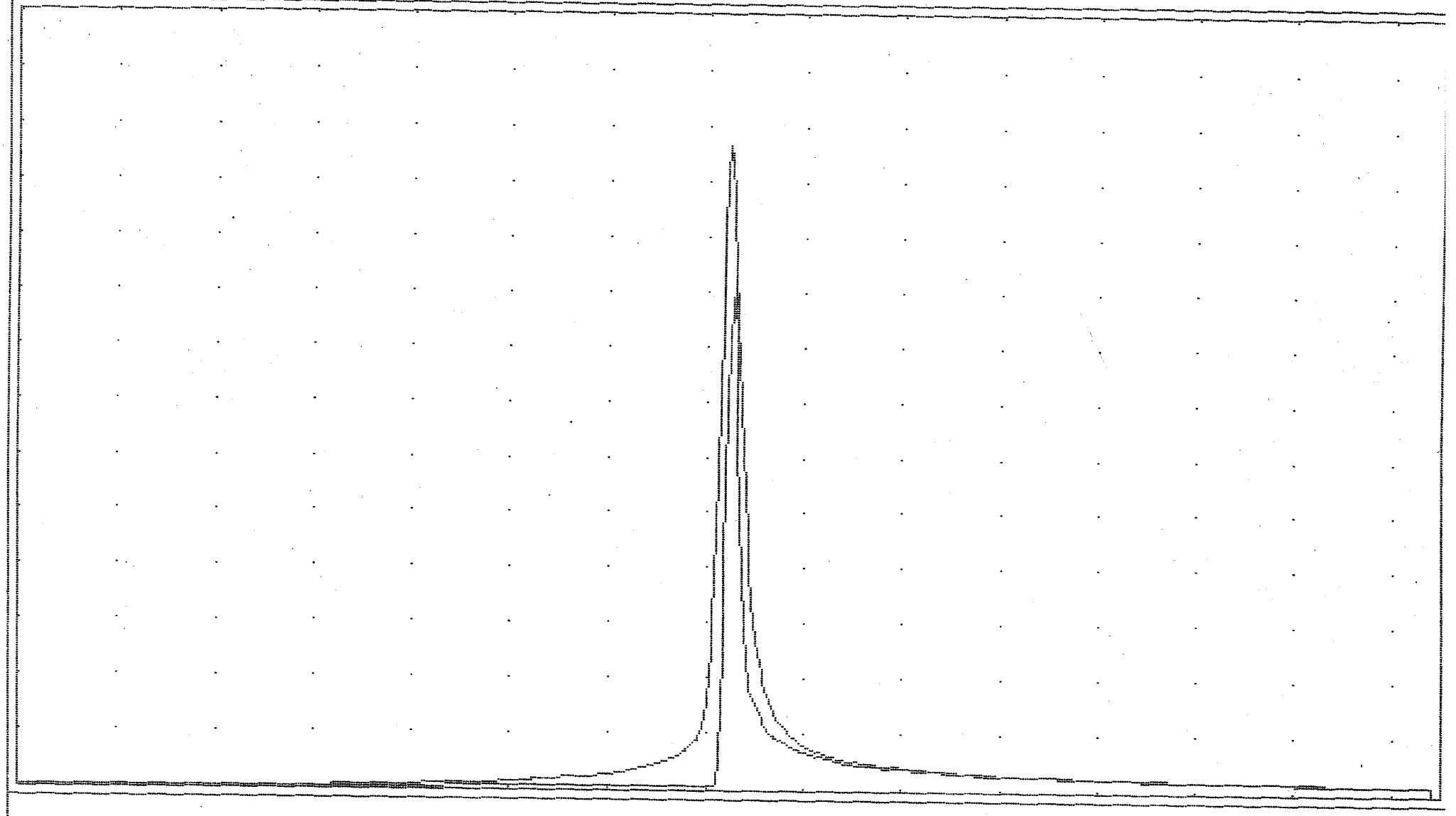
TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
23.80	1.03	1.03	2005.82	2007.93	1.05
23.83	1.03	1.03	2005.78	2007.88	1.05
23.87	1.03	1.03	2005.74	2007.84	1.05
23.90	1.03	1.03	2005.70	2007.79	1.05
23.93	1.03	1.02	2005.65	2007.75	1.05
23.97	1.02	0.00	2005.61	2007.70	1.05
24.00	0.00	0.00	2004.61	2006.64	1.01

Maximum outflow (cfs) = 4.44
Maximum storage (cu ft) = 126522
Maximum elevation (ft) = 44.20

SCALE = 10.0 DB
2
TIME CONST = 0.5
SCAN = 60
MAX = 2.0
MIN = 0.0
FIG 2
HEDGEHOG HOLLOW

MAX ELEVATION = 45.09
MAX STORAGE = 27427
TIME = 1.00 hr
INCH = 20.0 cfs
5
BELMONT RESERVOIR
BASEMAP 1 DET
DB = 4.15
DT = 15

Qp = 181.7 RESERVOIR ROUTE 100 Yr



HGU = 100 min 8 VGU = 20.0 cfs

MAX STORAGE = 218510

MAX ELEVATION = 46.91

TABLE 3

WORKSHEET FOR BMP POINT SYSTEM

RPA = TOTAL Boundary
Bound → RPA = open SP

A. STRUCTURAL BMP POINT ALLOCATION

BMP	BMP Points		Fraction of Site Served by BMP		Weighted BMP Points
WET POND #1	10	x	149.35 ÷ 263.02	=	5.678
DRY POND #1	9 6	x	31.90 ÷ 263.02 (12.1%)	=	0.728 1.092
#2	6	x	19.49 ÷ 263.02	=	0.445
#3	6	x	7.99 ÷ 263.02	=	0.182
#4	9		36.55 ÷ 263.02		1.251

TOTAL WEIGHTED STRUCTURAL BMP POINTS: → 8.648

fudge not of SP
sticky 25% no total
sticky note (type)

B. NATURAL OPEN SPACE CREDIT

Fraction of Site		Natural Open Space Credit		Points for Natural Open Space
31.7 / 277.214	x	0.1 (0.1 per 1%)	=	1.144

C. TOTAL WEIGHTED POINTS

8.648	+	~~1.359~~ 1.14	=	9.79 9.76
Structural BMP Points		Natural Open Space Points		TOTAL

Site = 43.72 ac

$\frac{31.9}{43.7} \times 6 = 4.38$

NOS needed = 5.62 ⇒ 24.56 ac

TOTAL NEW BOUNDARY = 277.214 Ac

RPA Line = Boundary for BMP Points = 263.0177

25% contributes to open space

Hydrograph Summary Report

3rd Submission

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Return period (yrs)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	47.0	2	722	133,660	2	—	—	—	2 YR PRE-DEV
2	SCS Runoff	74.9	2	722	209,836	2	—	—	—	2 YR POST-DEV
3	SCS Runoff	107.3	2	722	300,726	10	—	—	—	10 YR PRE-DEV
4	SCS Runoff	151.9	2	722	430,588	10	—	—	—	10 YR POST-DEV
5	SCS Runoff	237.2	2	722	685,648	100	—	—	—	100 YR POST-DEV
6	Reservoir	14.2	2	742	197,488	2	2	44.80	101,636	2 YR ROUTED
7	Reservoir	102.3	2	730	416,509	10	4	46.32	151,572	10 YR ROUTED
8	Reservoir	190.4	2	728	670,958	100	5	47.29	190,592	100 YR ROUTED
9	SCS Runoff	48.4	2	722	136,510	1	—	—	—	1 YR POST
10	Reservoir	1.8	2	924	126,108	1	9	44.33	87,088	1 YR ROUTED
11	SCS Runoff	27.7	2	724	81,160	1	—	—	—	1 YR PRE

Tc low
RCN high

Proj. file: 8223-2.gpw | IDF file: Jcc.idf | Run date: 11-10-1999

Reservoir Report

English

Reservoir No. 1 - DRY POND #1

Pond Data

Pond storage is based on known contour areas

Stage / Storage Table

Stage ft	Elevation ft	Contour area sqft	Incr. Storage cuft	Total storage cuft
0.00	38.00	1,000	0	0
2.00	40.00	8,025	9,025	9,025
4.00	42.00	16,750	24,775	33,800
6.00	44.00	26,500	43,250	77,050
8.00	46.00	35,125	61,625	138,675
10.00	48.00	45,125	80,250	218,925

Culvert / Orifice Structures

		[A]	[B]	[C]	[D]
Rise in	=	18.0	4.0	0.0	0.0
Span in	=	18.0	4.0	0.0	0.0
No. Barrels	=	1	1	0	0
Invert El. ft	=	38.00	38.00	0.00	0.00
Length ft	=	60.0	0.0	0.0	0.0
Slope %	=	2.00	0.00	0.00	0.00
N-Value	=	.013	.013	.000	.000
Orif. Coeff.	=	0.60	0.60	0.00	0.00
Multi-Stage	=	-----	Yes	No	No

Weir Structures

		[A]	[B]	[C]	[D]
Crest Len ft	=	12.6	14.0	0.0	0.0
Crest El. ft	=	44.30	44.80	0.00	0.00
Weir Coeff.	=	3.00	3.00	0.00	0.00
Eqn. Exp.	=	1.50	1.50	0.00	0.00
Multi-Stage	=	Yes	No	No	No

Tailwater Elevation = 0.00 ft

Stage / Storage / Discharge Table

Note: All outflows have been analyzed under inlet and outlet control.

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Discharge cfs
0.00	0	38.00	0.00	0.00	---	---	0.00	0.00	---	---	0.00
2.00	9,025	40.00	9.51	0.55	---	---	0.00	0.00	---	---	0.55
4.00	33,800	42.00	15.34	0.80	---	---	0.00	0.00	---	---	0.80
6.00	77,050	44.00	19.49	0.99	---	---	0.00	0.00	---	---	0.99
8.00	138,675	46.00	22.91	0.00	---	---	83.65	55.21	---	---	78.12
10.00	218,925	48.00	25.88	0.00	---	---	268.60	240.42	---	---	266.30

Hydrograph Summary Report

2nd Submission

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Return period (yrs)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	47.0	2	722	133,660	2	---	-----	-----	2 YR PRE-DEV
2	SCS Runoff	74.9	2	722	209,836	2	---	-----	-----	2 YR POST-DEV
3	SCS Runoff	151.9	2	722	430,588	10	---	-----	-----	10 YR POST-DEV
4	SCS Runoff	237.2	2	722	685,648	100	---	-----	-----	100 POST-DEV
5	Reservoir	20.6	2	738	201,151	2	2	44.63	96,549	2 YR ROUTED
6	Reservoir	129.8	2	726	421,320	10	3	45.69	129,053	10 YR ROUTED
7	Reservoir	216.5	2	726	675,989	100	4	46.26	148,983	100 YR ROUTED

T_c low

RCN high

Proj. file: 8223-2.GPW | IDF file: Jcc.idf | Run date: 07-15-1999

Reservoir Report

English

Reservoir No. 1 - DRY POND #1

Pond Data

Pond storage is based on known contour areas

Stage / Storage Table

Stage ft	Elevation ft	Contour area sqft	Incr. Storage cuft	Total storage cuft
0.00	38.00	1,000	0	0
2.00	40.00	8,025	9,025	9,025
4.00	42.00	16,750	24,775	33,800
6.00	44.00	26,500	43,250	77,050
8.00	46.00	35,125	61,625	138,675
10.00	48.00	45,125	80,250	218,925

44.5 on plan

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 18.0	4.0	0.0	0.0
Span in	= 18.0	4.0	0.0	0.0
No. Barrels	= 1	1	0	0
Invert El. ft	= 38.00	38.00	0.00	0.00
Length ft	= 60.0	0.0	0.0	0.0
Slope %	= 2.00	0.00	0.00	0.00
N-Value	= .013	.013	.000	.000
Orif. Coeff.	= 0.60	0.60	0.00	0.00
Multi-Stage	= -----	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 12.6	14.0	0.0	0.0
Crest El. ft	= 44.00	44.63	0.00	0.00
Weir Coeff.	= 3.00	3.00	0.00	0.00
Eqn. Exp.	= 1.50	1.50	0.00	0.00
Multi-Stage	= No	No	No	No

Tailwater Elevation = 0.00 ft

Stage / Storage / Discharge Table

Note: All outflows have been analyzed under inlet and outlet control.

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Discharge cfs
0.00	0	38.00	0.00	0.00	---	---	0.00	0.00	---	---	0.00
2.00	9,025	40.00	9.51	0.55	---	---	0.00	0.00	---	---	0.55
4.00	33,800	42.00	15.34	0.80	---	---	0.00	0.00	---	---	0.80
6.00	77,050	44.00	19.49	0.99	---	---	0.00	0.00	---	---	0.99
8.00	138,675	46.00	22.91	1.15	---	---	106.74	67.35	---	---	175.25
10.00	218,925	48.00	25.88	1.30	---	---	301.92	259.83	---	---	563.05

Hydrograph Report

English

Hyd. No. 1

2 YR PRE-DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 46.97 cfs
Storm frequency	= 2 yrs	Time interval	= 2 min
Drainage area	= 26.40 ac	Curve number	= 77 — high
Basin Slope	= 6.0 %	Hydraulic length	= 1200 ft
Tc method	= LAG	Time of conc. (Tc)	= 16.4 min — low
Total precip.	= 3.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Total Volume = 133,660 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
10.83	0.48	11.90	24.91	12.97	4.26	14.03	2.45
10.87	0.51	11.93	31.80	13.00	4.16	14.07	2.42
10.90	0.55	11.97	38.62	13.03	4.07	14.10	2.38
10.93	0.58	12.00	44.03	13.07	3.98	14.13	2.35
10.97	0.62	12.03	46.97 <<	13.10	3.89	14.17	2.32
11.00	0.66	12.07	46.71	13.13	3.80	14.20	2.29
11.03	0.69	12.10	43.34	13.17	3.72	14.23	2.27
11.07	0.72	12.13	38.09	13.20	3.65	14.27	2.25
11.10	0.75	12.17	32.27	13.23	3.58	14.30	2.24
11.13	0.78	12.20	26.65	13.27	3.52	14.33	2.22
11.17	0.83	12.23	21.42	13.30	3.46	14.37	2.21
11.20	0.89	12.27	16.80	13.33	3.41	14.40	2.19
11.23	0.96	12.30	13.07	13.37	3.35	14.43	2.18
11.27	1.04	12.33	10.53	13.40	3.30	14.47	2.17
11.30	1.13	12.37	9.15	13.43	3.25	14.50	2.16
11.33	1.21	12.40	8.51	13.47	3.20	14.53	2.14
11.37	1.31	12.43	8.12	13.50	3.14	14.57	2.13
11.40	1.41	12.47	7.72	13.53	3.09	14.60	2.12
11.43	1.51	12.50	7.32	13.57	3.04	14.63	2.10
11.47	1.61	12.53	6.92	13.60	2.99	14.67	2.09
11.50	1.72	12.57	6.53	13.63	2.94	14.70	2.08
11.53	1.87	12.60	6.16	13.67	2.89	14.73	2.06
11.57	2.11	12.63	5.82	13.70	2.85	14.77	2.05
11.60	2.48	12.67	5.53	13.73	2.80	14.80	2.04
11.63	3.07	12.70	5.29	13.77	2.76	14.83	2.02
11.67	3.95	12.73	5.08	13.80	2.72	14.87	2.01
11.70	5.15	12.77	4.91	13.83	2.68	14.90	2.00
11.73	6.72	12.80	4.77	13.87	2.64	14.93	1.98
11.77	8.71	12.83	4.65	13.90	2.61	14.97	1.97
11.80	11.28	12.87	4.54	13.93	2.57	15.00	1.96
11.83	14.66	12.90	4.45	13.97	2.53	15.03	1.94
11.87	19.10	12.93	4.35	14.00	2.49	15.07	1.93

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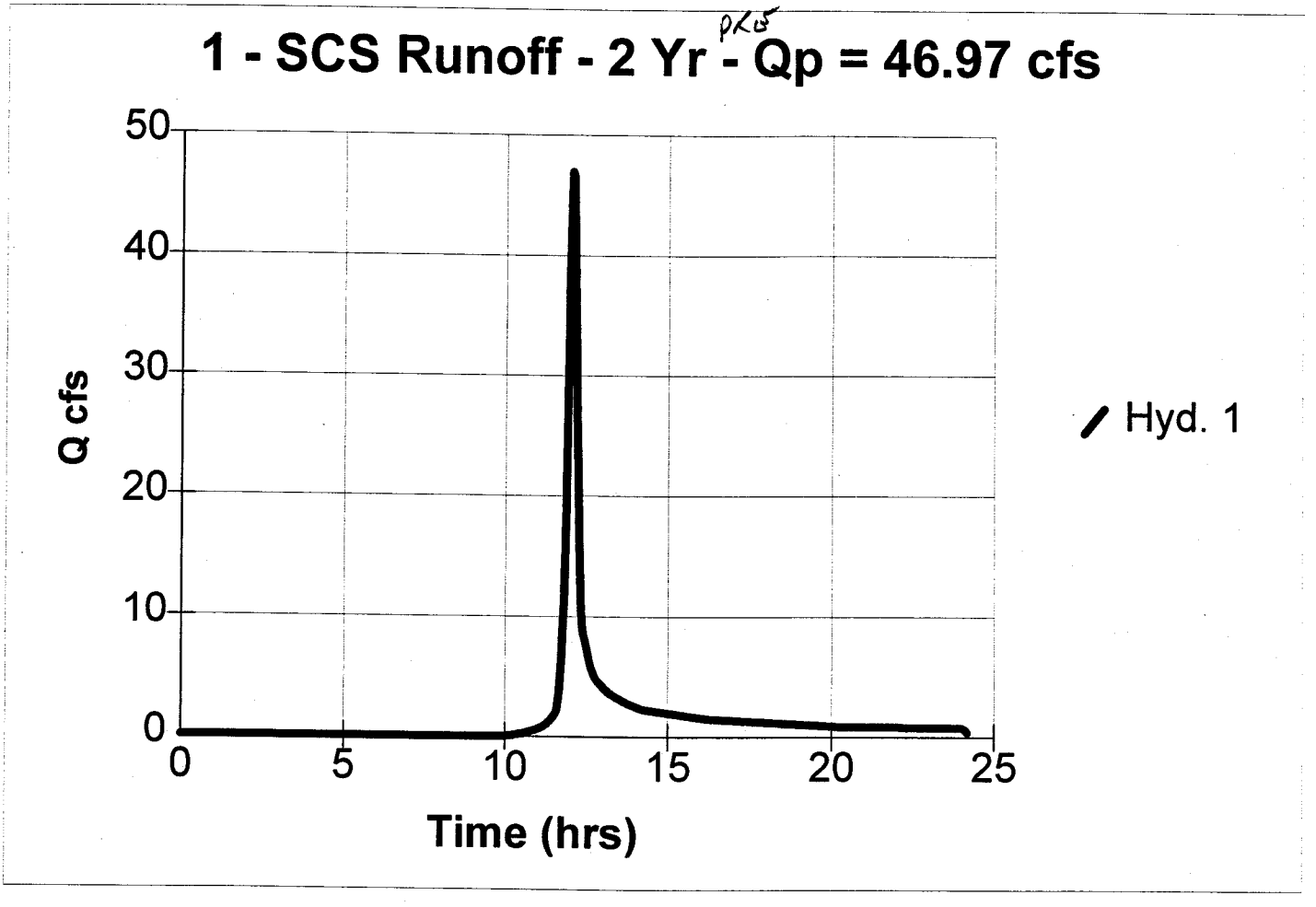
1 - SCS Runoff - 2 Yr - Qp = 46.97 cfs
pk5
Q cfs
50
40
30
20
10
0
0
5
10
15
20
25
Time (hrs)
Hyd. 1

Hydrograph Report

English

Hyd. No. 2

2 YR POST-DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 74.87 cfs
Storm frequency	= 2 yrs	Time interval	= 2 min
Drainage area	= 31.90 ac	Curve number	= 83
Basin Slope	= 6.0 %	Hydraulic length	= 1200 ft
Tc method	= LAG	Time of conc. (Tc)	= 13.6 min
Total precip.	= 3.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Total Volume = 209,836 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
10.10	0.76	11.17	2.29	12.23	32.27	13.30	4.95
10.13	0.79	11.20	2.42	12.27	25.08	13.33	4.87
10.17	0.82	11.23	2.57	12.30	19.34	13.37	4.79
10.20	0.85	11.27	2.73	12.33	15.49	13.40	4.71
10.23	0.88	11.30	2.90	12.37	13.42	13.43	4.64
10.27	0.91	11.33	3.08	12.40	12.45	13.47	4.56
10.30	0.94	11.37	3.26	12.43	11.86	13.50	4.48
10.33	0.97	11.40	3.46	12.47	11.26	13.53	4.41
10.37	1.01	11.43	3.66	12.50	10.66	13.57	4.33
10.40	1.04	11.47	3.84	12.53	10.06	13.60	4.26
10.43	1.08	11.50	4.03	12.57	9.48	13.63	4.19
10.47	1.12	11.53	4.32	12.60	8.94	13.67	4.12
10.50	1.16	11.57	4.77	12.63	8.44	13.70	4.05
10.53	1.20	11.60	5.50	12.67	8.01	13.73	3.99
10.57	1.24	11.63	6.65	12.70	7.65	13.77	3.93
10.60	1.28	11.67	8.34	12.73	7.34	13.80	3.87
10.63	1.33	11.70	10.60	12.77	7.09	13.83	3.81
10.67	1.38	11.73	13.47	12.80	6.88	13.87	3.76
10.70	1.43	11.77	17.00	12.83	6.70	13.90	3.70
10.73	1.48	11.80	21.42	12.87	6.54	13.93	3.64
10.77	1.54	11.83	27.03	12.90	6.40	13.97	3.59
10.80	1.60	11.87	34.17	12.93	6.26	14.00	3.53
10.83	1.66	11.90	43.21	12.97	6.12	14.03	3.48
10.87	1.73	11.93	53.64	13.00	5.98	14.07	3.42
10.90	1.80	11.97	63.66	13.03	5.84	14.10	3.37
10.93	1.86	12.00	71.24	13.07	5.71	14.13	3.32
10.97	1.94	12.03	74.87 <<	13.10	5.57	14.17	3.28
11.00	2.01	12.07	73.55	13.13	5.45	14.20	3.25
11.03	2.05	12.10	67.59	13.17	5.33	14.23	3.21
11.07	2.10	12.13	58.91	13.20	5.23	14.27	3.19
11.10	2.15	12.17	49.50	13.23	5.13	14.30	3.16
11.13	2.21	12.20	40.53	13.27	5.04	14.33	3.14

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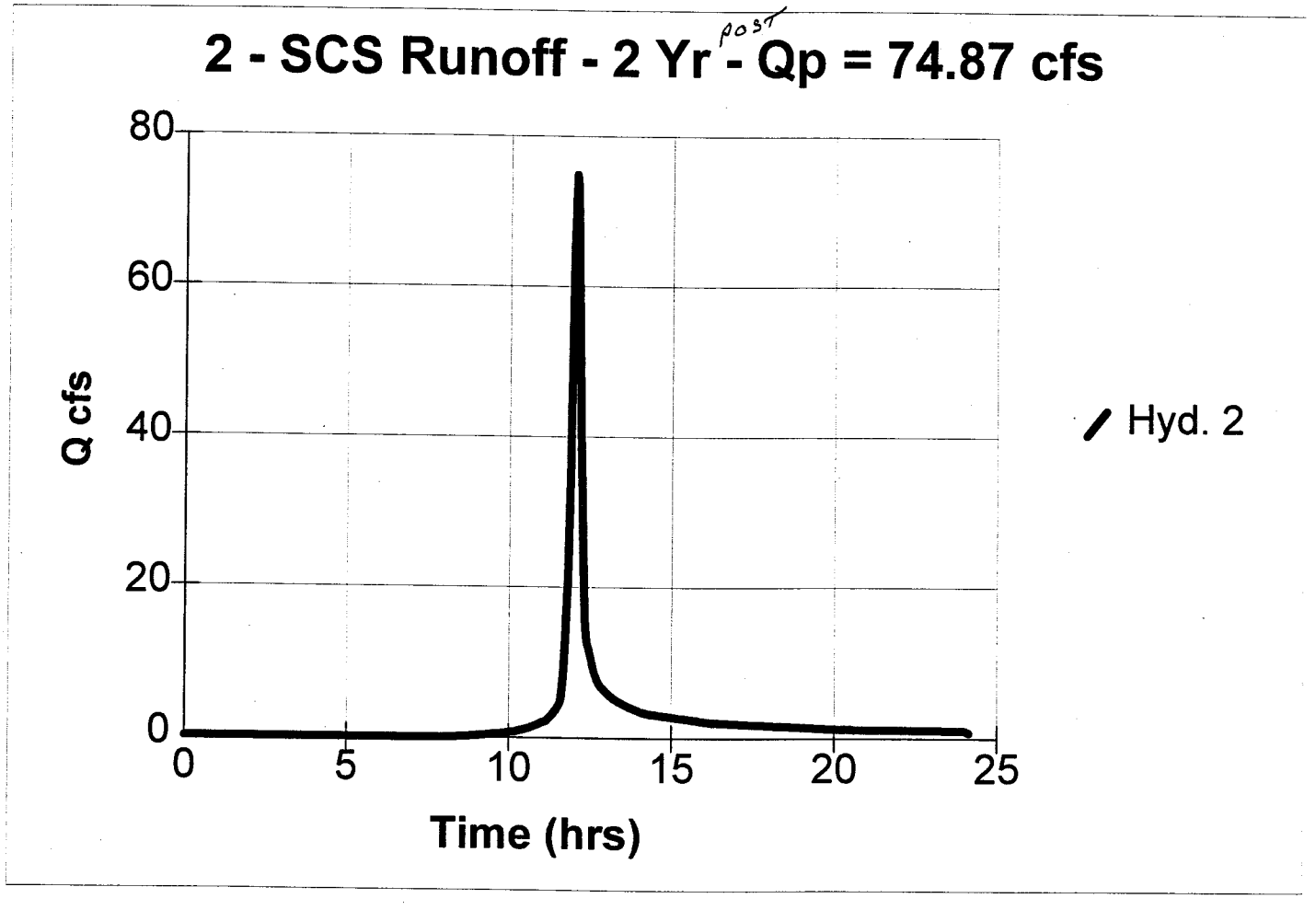
2 - SCS Runoff - 2 Yr post - Qp = 74.87 cfs
Q cfs
80
60
40
20
0
0
5
10
15
20
25
Time (hrs)
Hyd. 2

Hydrograph Report

English

Hyd. No. 3

10 YR POST-DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 151.87 cfs
Storm frequency	= 10 yrs	Time interval	= 2 min
Drainage area	= 31.90 ac	Curve number	= 83
Basin Slope	= 6.0 % 10N	Hydraulic length	= 1200 ft
Tc method	= LAG	Time of conc. (Tc)	= 13.6 min
Total precip.	= 5.70 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Total Volume = 430,588 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
8.93	1.54	10.00	2.61	11.07	6.01	12.13	116.54
8.97	1.57	10.03	2.67	11.10	6.12	12.17	97.27
9.00	1.61	10.07	2.73	11.13	6.25	12.20	79.05
9.03	1.64	10.10	2.79	11.17	6.41	12.23	62.45
9.07	1.68	10.13	2.86	11.20	6.74	12.27	48.15
9.10	1.71	10.17	2.93	11.23	7.10	12.30	36.87
9.13	1.74	10.20	3.01	11.27	7.48	12.33	29.36
9.17	1.77	10.23	3.08	11.30	7.88	12.37	25.37
9.20	1.80	10.27	3.16	11.33	8.31	12.40	23.50
9.23	1.83	10.30	3.25	11.37	8.75	12.43	22.35
9.27	1.85	10.33	3.33	11.40	9.20	12.47	21.20
9.30	1.87	10.37	3.42	11.43	9.66	12.50	20.05
9.33	1.89	10.40	3.51	11.47	10.07	12.53	18.90
9.37	1.91	10.43	3.60	11.50	10.49	12.57	17.80
9.40	1.93	10.47	3.70	11.53	11.15	12.60	16.76
9.43	1.95	10.50	3.79	11.57	12.20	12.63	15.81
9.47	1.97	10.53	3.89	11.60	13.92	12.67	14.99
9.50	1.98	10.57	3.99	11.63	16.60	12.70	14.30
9.53	2.00	10.60	4.09	11.67	20.54	12.73	13.72
9.57	2.02	10.63	4.20	11.70	25.71	12.77	13.24
9.60	2.04	10.67	4.32	11.73	32.19	12.80	12.84
9.63	2.07	10.70	4.45	11.77	39.95	12.83	12.49
9.67	2.10	10.73	4.58	11.80	49.42	12.87	12.19
9.70	2.14	10.77	4.72	11.83	61.15	12.90	11.92
9.73	2.18	10.80	4.87	11.87	75.67	12.93	11.65
9.77	2.22	10.83	5.02	11.90	93.60	12.97	11.39
9.80	2.27	10.87	5.17	11.93	113.78	13.00	11.12
9.83	2.33	10.90	5.33	11.97	132.63	13.03	10.86
9.87	2.38	10.93	5.50	12.00	146.26	13.07	10.60
9.90	2.44	10.97	5.66	12.03	151.87 <<	13.10	10.35
9.93	2.49	11.00	5.83	12.07	147.71	13.13	10.11
9.97	2.55	11.03	5.91	12.10	134.65	13.17	9.89

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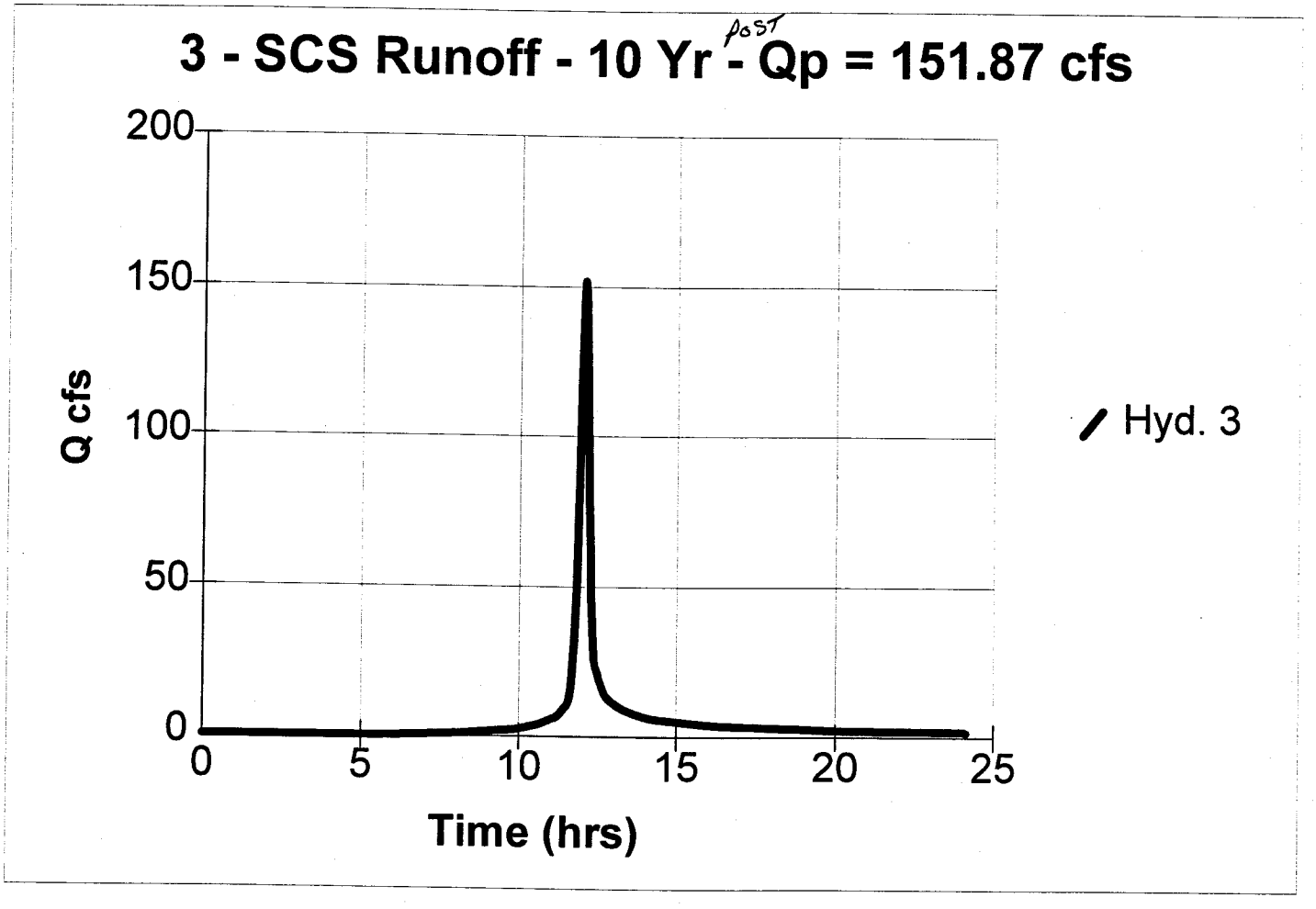
3 - SCS Runoff - 10 Yr - post - Qp = 151.87 cfs
Q cfs
200
150
100
50
0
0
5
10
15
20
25
Time (hrs)
Hyd. 3

Hydrograph Report

English

Hyd. No. 4

100 POST-DEV

Hydrograph type	= SCS Runoff	Peak discharge	= 237.22 cfs
Storm frequency	= 100 yrs	Time interval	= 2 min
Drainage area	= 31.90 ac	Curve number	= 83
Basin Slope	= 6.0 %	Hydraulic length	= 1200 ft
Tc method	= LAG	Time of conc. (Tc)	= 13.6 min
Total precip.	= 8.10 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Total Volume = 685,648 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
8.33	2.37	9.40	4.03	10.47	7.04	11.53	19.39
8.37	2.43	9.43	4.06	10.50	7.20	11.57	21.13
8.40	2.48	9.47	4.08	10.53	7.36	11.60	24.00
8.43	2.53	9.50	4.10	10.57	7.53	11.63	28.47
8.47	2.58	9.53	4.13	10.60	7.70	11.67	35.03
8.50	2.64	9.57	4.16	10.63	7.89	11.70	43.57
8.53	2.69	9.60	4.19	10.67	8.09	11.73	54.17
8.57	2.75	9.63	4.23	10.70	8.30	11.77	66.75
8.60	2.80	9.67	4.28	10.73	8.53	11.80	81.92
8.63	2.86	9.70	4.34	10.77	8.76	11.83	100.46
8.67	2.91	9.73	4.41	10.80	9.01	11.87	123.13
8.70	2.97	9.77	4.49	10.83	9.27	11.90	150.77
8.73	3.03	9.80	4.58	10.87	9.53	11.93	181.50
8.77	3.09	9.83	4.67	10.90	9.79	11.97	209.80
8.80	3.15	9.87	4.77	10.93	10.07	12.00	229.77
8.83	3.21	9.90	4.86	10.97	10.34	12.03	237.22 <<
8.87	3.27	9.93	4.96	11.00	10.62	12.07	229.62
8.90	3.33	9.97	5.06	11.03	10.74	12.10	208.53
8.93	3.39	10.00	5.17	11.07	10.89	12.13	179.88
8.97	3.45	10.03	5.27	11.10	11.06	12.17	149.66
9.00	3.51	10.07	5.38	11.13	11.26	12.20	121.18
9.03	3.58	10.10	5.49	11.17	11.52	12.23	95.38
9.07	3.64	10.13	5.60	11.20	12.08	12.27	73.27
9.10	3.70	10.17	5.72	11.23	12.68	12.30	55.92
9.13	3.75	10.20	5.85	11.27	13.33	12.33	44.42
9.17	3.80	10.23	5.98	11.30	14.01	12.37	38.32
9.20	3.85	10.27	6.12	11.33	14.71	12.40	35.47
9.23	3.89	10.30	6.27	11.37	15.45	12.43	33.73
9.27	3.92	10.33	6.42	11.40	16.20	12.47	31.97
9.30	3.95	10.37	6.57	11.43	16.96	12.50	30.22
9.33	3.98	10.40	6.72	11.47	17.63	12.53	28.48
9.37	4.01	10.43	6.88	11.50	18.31	12.57	26.80

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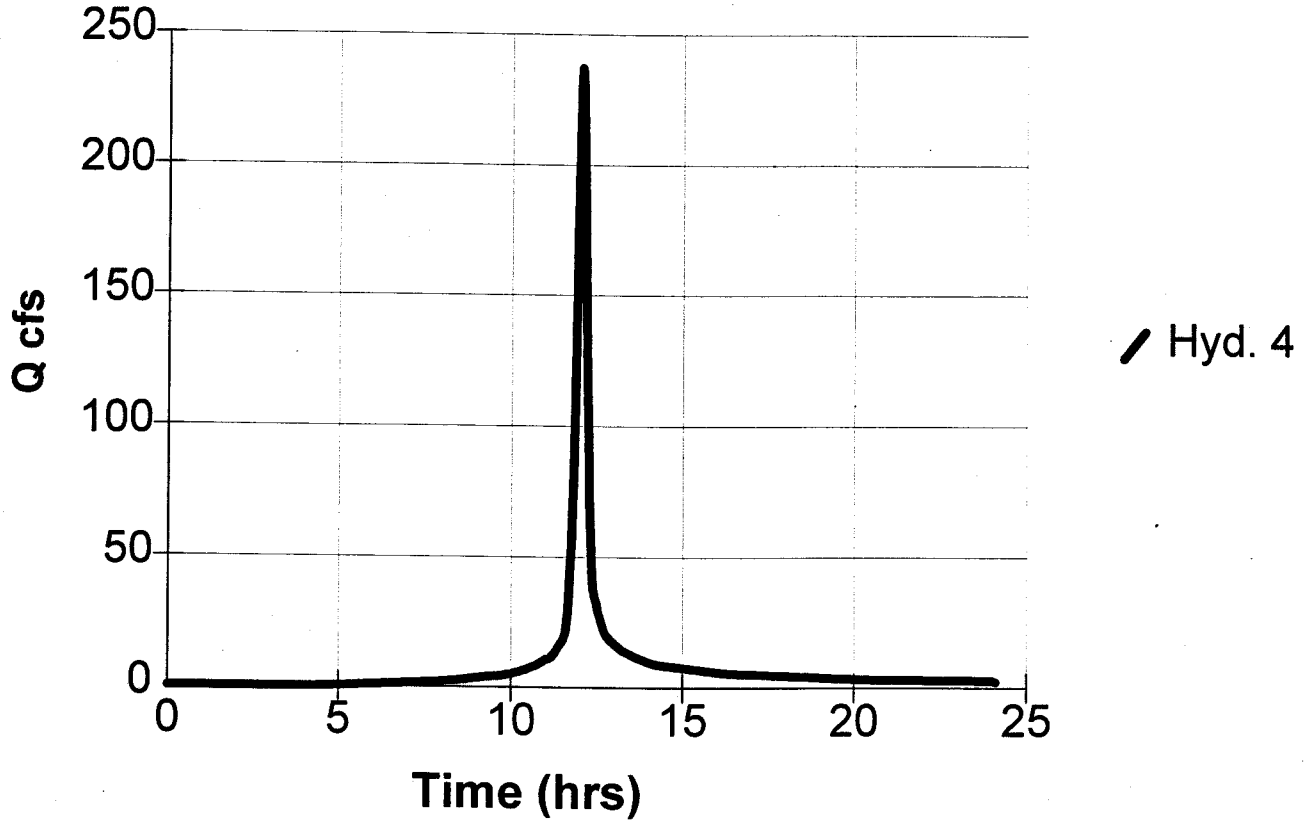
4 - SCS Runoff - 100 Yr - Post Qp = 237.22 cfs



Hydrograph Report

English

Hyd. No. 5

2 YR ROUTED

Hydrograph type = Reservoir
Storm frequency = 2 yrs
Inflow hyd. No. = 2
Max. Elevation = 44.63 ft

Peak discharge = 20.62 cfs
Time interval = 2 min
Reservoir name = DRY POND #1
Max. Storage = 96,549 cuft

Storage Indication method used.

Total Volume = 201,151 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Outflow cfs
10.27	0.91	38.50	1.31	0.21	-----	-----	-----	-----	-----	-----	0.21
10.30	0.94	38.52	1.39	0.23	-----	-----	-----	-----	-----	-----	0.23
10.33	0.97	38.54	1.48	0.24	-----	-----	-----	-----	-----	-----	0.24
10.37	1.01	38.56	1.57	0.25	-----	-----	-----	-----	-----	-----	0.25
10.40	1.04	38.58	1.66	0.26	-----	-----	-----	-----	-----	-----	0.26
10.43	1.08	38.60	1.76	0.28	-----	-----	-----	-----	-----	-----	0.28
10.47	1.12	38.62	1.89	0.28	-----	-----	-----	-----	-----	-----	0.28
10.50	1.16	38.65	2.03	0.29	-----	-----	-----	-----	-----	-----	0.29
10.53	1.20	38.67	2.17	0.29	-----	-----	-----	-----	-----	-----	0.29
10.57	1.24	38.69	2.32	0.30	-----	-----	-----	-----	-----	-----	0.30
10.60	1.28	38.72	2.47	0.30	-----	-----	-----	-----	-----	-----	0.30
10.63	1.33	38.75	2.63	0.31	-----	-----	-----	-----	-----	-----	0.31
10.67	1.38	38.77	2.80	0.32	-----	-----	-----	-----	-----	-----	0.32
10.70	1.43	38.80	2.97	0.32	-----	-----	-----	-----	-----	-----	0.32
10.73	1.48	38.83	3.18	0.33	-----	-----	-----	-----	-----	-----	0.33
10.77	1.54	38.86	3.39	0.34	-----	-----	-----	-----	-----	-----	0.34
10.80	1.60	38.90	3.61	0.35	-----	-----	-----	-----	-----	-----	0.35
10.83	1.66	38.93	3.84	0.35	-----	-----	-----	-----	-----	-----	0.35
10.87	1.73	38.97	4.08	0.36	-----	-----	-----	-----	-----	-----	0.36
10.90	1.80	39.00	4.33	0.37	-----	-----	-----	-----	-----	-----	0.37
10.93	1.86	39.04	4.60	0.38	-----	-----	-----	-----	-----	-----	0.38
10.97	1.94	39.08	4.89	0.39	-----	-----	-----	-----	-----	-----	0.39
11.00	2.01	39.12	5.18	0.40	-----	-----	-----	-----	-----	-----	0.40
11.03	2.05	39.17	5.49	0.40	-----	-----	-----	-----	-----	-----	0.40
11.07	2.10	39.21	5.79	0.41	-----	-----	-----	-----	-----	-----	0.41
11.10	2.15	39.26	6.06	0.42	-----	-----	-----	-----	-----	-----	0.42
11.13	2.21	39.30	6.35	0.43	-----	-----	-----	-----	-----	-----	0.43
11.17	2.29	39.35	6.64	0.44	-----	-----	-----	-----	-----	-----	0.44
11.20	2.42	39.40	6.94	0.45	-----	-----	-----	-----	-----	-----	0.45
11.23	2.57	39.46	7.19	0.46	-----	-----	-----	-----	-----	-----	0.46
11.27	2.73	39.52	7.46	0.47	-----	-----	-----	-----	-----	-----	0.47
11.30	2.90	39.58	7.74	0.48	-----	-----	-----	-----	-----	-----	0.48
11.33	3.08	39.64	8.04	0.49	-----	-----	-----	-----	-----	-----	0.49
11.37	3.26	39.72	8.35	0.50	-----	-----	-----	-----	-----	-----	0.50
11.40	3.46	39.79	8.68	0.52	-----	-----	-----	-----	-----	-----	0.52
11.43	3.66	39.87	9.00	0.53	-----	-----	-----	-----	-----	-----	0.53

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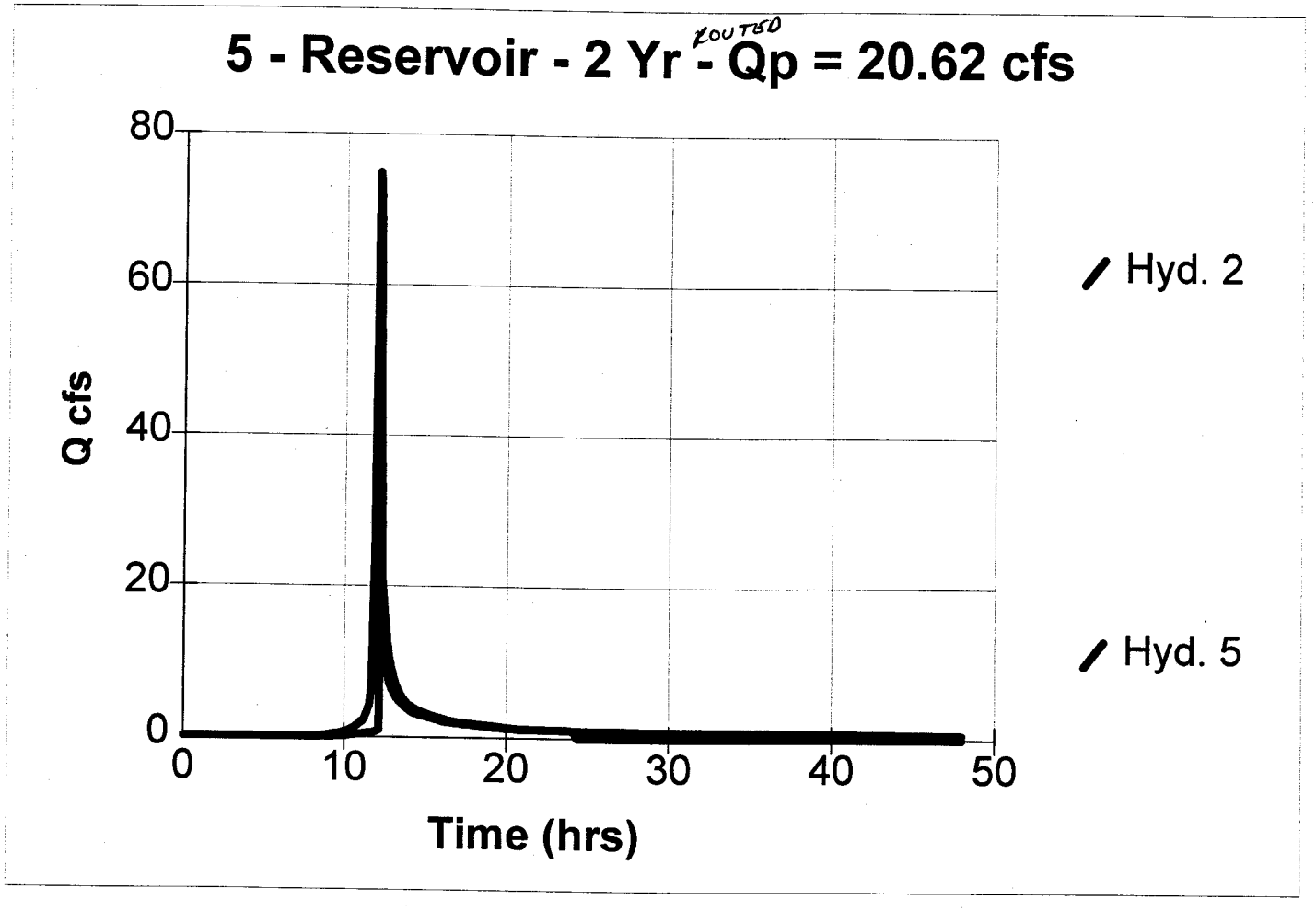
5 - Reservoir - 2 Yr - ROUTED Qp = 20.62 cfs
80
60
40
20
0
Q cfs
0
10
20
30
40
50
Time (hrs)
Hyd. 2
Hyd. 5

Hydrograph Report

English

Hyd. No. 6

10 YR ROUTED

Hydrograph type = Reservoir
Storm frequency = 10 yrs
Inflow hyd. No. = 3
Max. Elevation = 45.69 ft

Peak discharge = 129.82 cfs
Time interval = 2 min
Reservoir name = DRY POND #1
Max. Storage = 129,053 cuft

Storage Indication method used.

Total Volume = 421,320 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Outflow cfs
11.90	93.60	44.19	19.85	1.01	-----	-----	3.24	-----	-----	-----	4.24
11.93	113.78	44.55	20.50	1.04	-----	-----	15.73	-----	-----	-----	16.77
11.97	132.63	44.92	21.13	1.07	-----	-----	33.50	6.88	-----	-----	41.46
12.00	146.26	45.24	21.67	1.09	-----	-----	52.22	20.15	-----	-----	73.46
12.03	151.87 <<	45.48	22.07	1.11	-----	-----	67.99	33.02	-----	-----	102.12
12.07	147.71	45.63	22.31	1.12	-----	-----	78.38	41.89	-----	-----	121.39
12.10	134.65	45.69 <<	22.41	1.13	-----	-----	82.86	45.84	-----	-----	129.82 <<
12.13	116.54	45.67	22.39	1.13	-----	-----	81.90	45.00	-----	-----	128.02
12.17	97.27	45.61	22.28	1.12	-----	-----	77.12	40.78	-----	-----	119.03
12.20	79.05	45.51	22.13	1.12	-----	-----	70.42	35.07	-----	-----	106.61
12.23	62.45	45.40	21.94	1.11	-----	-----	62.67	28.51	-----	-----	92.29
12.27	48.15	45.28	21.75	1.10	-----	-----	55.08	22.44	-----	-----	78.62
12.30	36.87	45.17	21.56	1.09	-----	-----	47.80	16.76	-----	-----	65.64
12.33	29.36	45.06	21.38	1.08	-----	-----	41.53	12.21	-----	-----	54.82
12.37	25.37	44.97	21.22	1.07	-----	-----	36.35	8.61	-----	-----	46.03
12.40	23.50	44.90	21.10	1.07	-----	-----	32.48	6.26	-----	-----	39.81
12.43	22.35	44.85	21.00	1.06	-----	-----	29.46	4.43	-----	-----	34.95
12.47	21.20	44.80	20.93	1.06	-----	-----	27.10	3.00	-----	-----	31.16
12.50	20.05	44.77	20.87	1.06	-----	-----	25.36	2.43	-----	-----	28.85
12.53	18.90	44.73	20.81	1.05	-----	-----	23.82	1.95	-----	-----	26.83
12.57	17.80	44.70	20.76	1.05	-----	-----	22.43	1.52	-----	-----	25.00
12.60	16.76	44.68	20.71	1.05	-----	-----	21.16	1.13	-----	-----	23.33
12.63	15.81	44.65	20.67	1.05	-----	-----	20.00	0.76	-----	-----	21.81
12.67	14.99	44.63	20.63	1.05	-----	-----	18.94	0.44	-----	-----	20.43
12.70	14.30	44.61	20.59	1.04	-----	-----	17.99	0.14	-----	-----	19.18
12.73	13.72	44.59	20.56	1.04	-----	-----	17.19	-----	-----	-----	18.23
12.77	13.24	44.57	20.53	1.04	-----	-----	16.51	-----	-----	-----	17.55
12.80	12.84	44.56	20.50	1.04	-----	-----	15.86	-----	-----	-----	16.89
12.83	12.49	44.54	20.48	1.04	-----	-----	15.24	-----	-----	-----	16.28
12.87	12.19	44.53	20.45	1.04	-----	-----	14.68	-----	-----	-----	15.71
12.90	11.92	44.52	20.43	1.04	-----	-----	14.15	-----	-----	-----	15.18
12.93	11.65	44.50	20.41	1.03	-----	-----	13.66	-----	-----	-----	14.69
12.97	11.39	44.49	20.38	1.03	-----	-----	13.20	-----	-----	-----	14.23
13.00	11.12	44.48	20.37	1.03	-----	-----	12.77	-----	-----	-----	13.80
13.03	10.86	44.47	20.35	1.03	-----	-----	12.36	-----	-----	-----	13.40
13.07	10.60	44.46	20.33	1.03	-----	-----	11.98	-----	-----	-----	13.01

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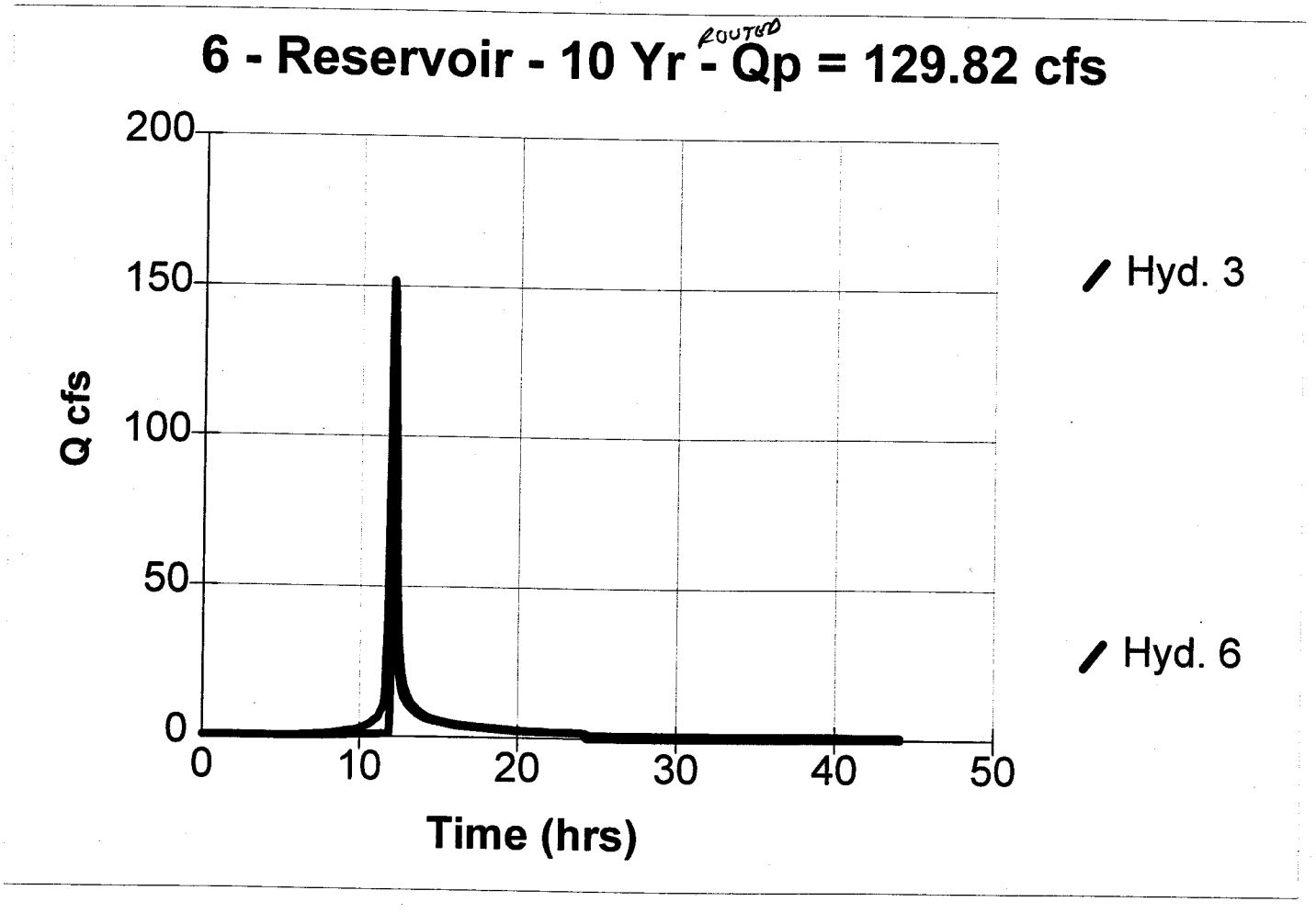
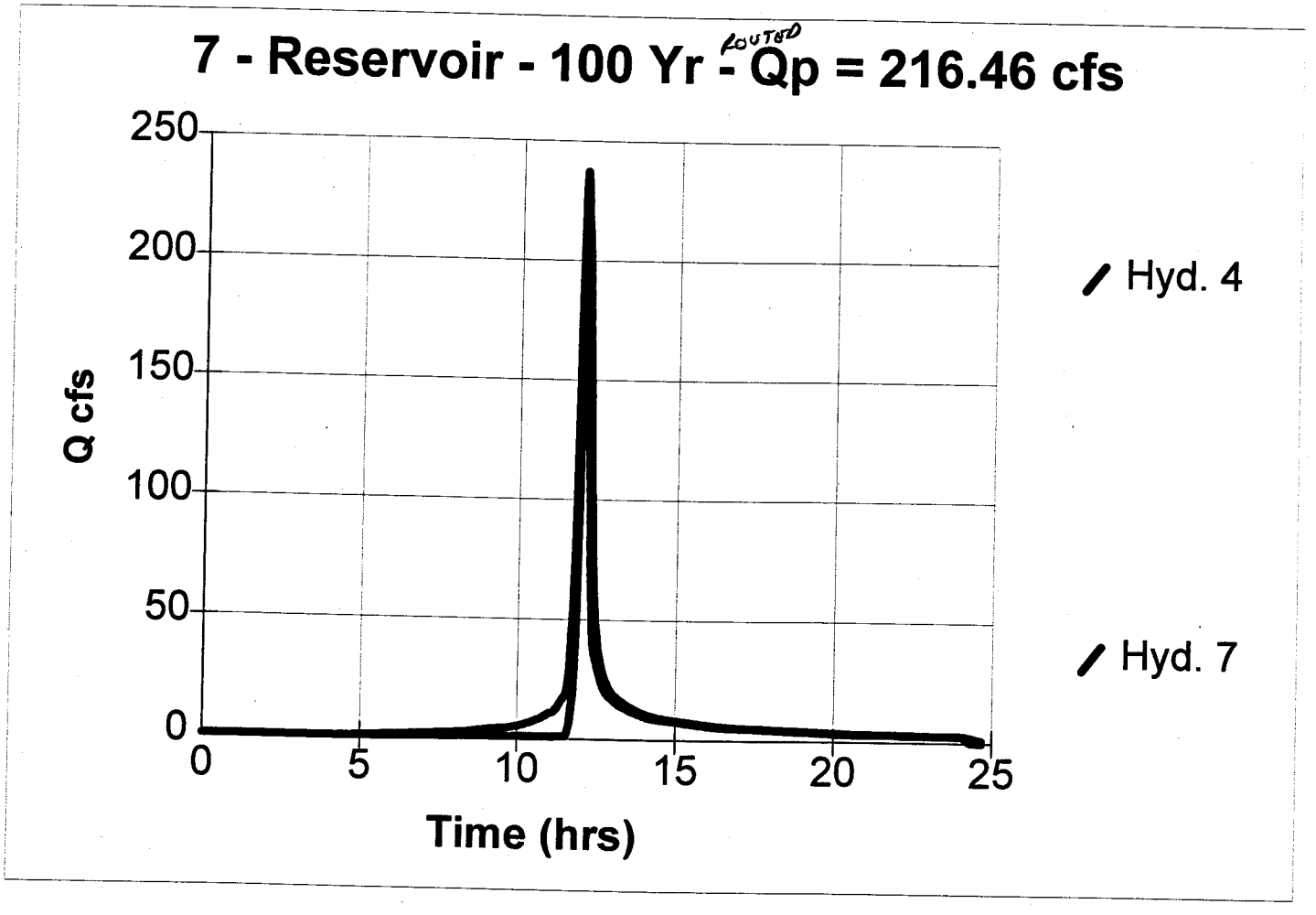

6 - Reservoir - 10 Yr - ROUTED Qp = 129.82 cfs
200
150
100
50
0
Q cfs
0
10
20
30
40
50
Time (hrs)
Hyd. 3
Hyd. 6


7 - Reservoir - 100 Yr - ROUTED Qp = 216.46 cfs
250
200
150
100
50
0
Q cfs
0
5
10
15
20
25
Time (hrs)
Hyd. 4
Hyd. 7

CURRENT CRITERIA REEVALUATION OF WELLINGTON MASTER BMP PLAN 3rd Submission 2/11/00

TABLE 3

WORKSHEET FOR BMP POINT SYSTEM

TOTAL SITE AREA = 277.21 AC.

A. STRUCTURAL BMP POINT ALLOCATION

BMP	BMP Points		Fraction of Site Served by BMP		Weighted BMP Points	
Wet Pond #1	10 ✓	x	(149.35 ÷ 236.16)	=	6.32	
Dry Pond #1	(4) 6 ✓	x	(31.90 ÷ 236.16)	=	0.81	(.54)
Dry Pond #2	4 ~~6~~	x	(19.49 ÷ 236.16)	=	~~0.50~~ .33	
Dry Pond #3	4 ~~6~~	x	(7.99 ÷ 236.16)	=	~~0.20~~ .135	
Dry Pond #4	(4) 6 ~~9~~	x	(36.55 ÷ 236.16)	=	~~1.39~~ .945	(.62)
TOTAL WEIGHTED STRUCTURAL BMP POINTS:					~~9.22~~ 8.54	(7.95)

B. NATURAL OPEN SPACE CREDIT

Fraction of Site		Natural Open Space Credit		Points for Natural Open Space
31.7 / 277.21	x	0.15 (0.1 per 1%) × 10	=	1.72 ~~1.14~~

C. TOTAL WEIGHTED POINTS

9.22 Structural BMP Points	+	1.14 Natural Open Space Points	=	10.26 ~~10.36~~ TOTAL	(9.67)

NOTES:

1) 236.16 Acre is area above RPA per discussion with County.

2) Natural open space areas are along the perimeter of the project up to the rear property of the lots.

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HYDRAULIC REPORT FOR

0

WELLINGTON

SECTION ONE

JOB NO 8223

SYSTEM 1

prepared by:

AES CONSULTING ENGINEERS

5248 OLDE TOWNE RD,SUITE 1

WILLIAMSBURG, VA. 23188

DATE: 8/9/96 REV:7/13/99

Return Period = 10 Yrs
Rainfall file: JCCN

Run Date: 07-13-1999
File: C:\STORM\SYSTEM1.ST3

LINE 1 / Q = 6.22 / HT = 15 / WID = 15 / N = .013 / L = 65 / JLC = 1.2

SS#1-1 SS#1-2 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	32.77	9.20	32.00	7.87	33.73	14.61	-1.25	0.79
UPSTRM	34.07	9.20	33.30	7.87	35.03	14.61	3.33	0.79

Drainage area (ac)	= 0.24	Slope of invert (%)	= 2.0000
Runoff coefficient	= 0.70	Slope energy grade line (%)	= 2.0000
Time of conc (min)	= 5.98	Critical depth (in)	= 11.97
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 37.88
Intensity (in/hr)	= 6.68	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.93	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 6.22	Line capacity (cfs)	= 9.13
Q catchment (cfs)	= 1.17	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 5.32	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 6.49	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 2 / Q = 1.17 / HT = 15 / WID = 15 / N = .013 / L = 60 / JLC = .9

SS#1-2 SS#1-3 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	35.22	15.00	33.30	0.95	35.24	0.00	3.33	1.23
UPSTRM	35.25	15.00	33.95	0.95	35.27	0.00	2.68	1.23

Drainage area (ac)	= 0.24	Slope of invert (%)	= 1.0833
Runoff coefficient	= 0.70	Slope energy grade line (%)	= 0.0541
Time of conc (min)	= 5.00	Critical depth (in)	= 5.20
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 37.88
Intensity (in/hr)	= 6.97	Upstream surcharge (ft)	= 0.05
Cumulative C*A	= 0.17	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.17	Line capacity (cfs)	= 6.72
Q catchment (cfs)	= 1.17	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.17	Ponding width (ft)	= N/A

LINE 3 / Q = 4.10 / HT = 15 / WID = 15 / N = .013 / L = 130 / JLC = 1.1

SS#1-2 SS#1-4 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	35.22	15.00	33.30	3.34	35.40	0.00	3.33	1.23
UPSTRM	36.81	9.72	36.00	4.87	37.18	14.33	3.63	0.84

Drainage area (ac)	=	0.37	Slope of invert (%)	= 2.0769
Runoff coefficient	=	0.70	Slope energy grade line (%)	= 1.3719
Time of conc (min)	=	5.26	Critical depth (in)	= 9.72
Inlet time (min)	=	5.00	Natural ground elev. (ft)	= 40.88
Intensity (in/hr)	=	6.89	Upstream surcharge (ft)	= 0.00
Cumulative C*A	=	0.60	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	=	4.10	Line capacity (cfs)	= 9.31
Q catchment (cfs)	=	1.81	Inlet length (ft)	= 0.00
Q carryover (cfs)	=	2.34	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	=	0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	=	4.15	Ponding width (ft)	= N/A

LINE 4 / Q = 2.34 / HT = 15 / WID = 15 / N = .013 / L = 46 / JLC = .9

SS#1-4 SS#1-5 / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	37.22	14.59	36.00	1.92	37.27	14.79	3.63	1.22
UPSTRM	37.58	7.35	36.75	3.92	37.82	15.00	2.88	0.60

Drainage area (ac)	=	0.48	Slope of invert (%)	= 1.6304
Runoff coefficient	=	0.70	Slope energy grade line (%)	= 0.7124
Time of conc (min)	=	5.00	Critical depth (in)	= 7.35
Inlet time (min)	=	5.00	Natural ground elev. (ft)	= 40.88
Intensity (in/hr)	=	6.97	Upstream surcharge (ft)	= 0.00
Cumulative C*A	=	0.34	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	=	2.34	Line capacity (cfs)	= 8.25
Q catchment (cfs)	=	2.34	Inlet length (ft)	= 0.00
Q carryover (cfs)	=	0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	=	0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	=	2.34	Ponding width (ft)	= N/A

8/25/00
Except System #1

Wellington Section One Storm Sewer Calculations

Prepared by
AES Consulting Engineers
5248 Olde Towne, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040

CONSULTING ENGINEERS

1

HYDRAULIC REPORT FOR

0

WELLINGTON SECTION 1

AES PROJECT NO. 8223

STORM SYSTEM #2

Prepared by:

AES Consulting Engineers

5248 Olde Towne Road

Williamsburg, VA 23188

Date: 7/13/99 REV:8/01/00

Return Period = 10 Yrs
Rainfall file: JCC

Run Date: 08-01-2000
File: 82232S2.ST3

LINE 1 / Q = 7.18 / HT = 18 / WID = 18 / N = .015 / L = 186 / JLC = .9

SS#2-2-OUTFALL / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	51.03	18.00	42.00	4.07	51.29	0.00	8.5	1.77
UPSTRM	64.97	12.27	63.95	5.60	65.46	16.77	-13.45	1.28

Drainage area (ac) =	0.37	Slope of invert (%)	=11.8011
Runoff coefficient =	0.70	Slope energy grade line (%)	= 7.6189
Time of conc (min) =	17.64	Critical depth (in)	= 12.27
Inlet time (min) =	10.00	Natural ground elev. (ft)	= 52.00
Intensity (in/hr) =	4.66	Upstream surcharge (ft)	= 0.00
Cumulative C*A =	1.54	Additional Q (cfs)	= 0.00
Q = CA * I (cfs) =	7.18	Line capacity (cfs)	= 31.26
Q catchment (cfs) =	1.50	Inlet length (ft)	= 0.00
Q carryover (cfs) =	7.18	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs) =	8.68	Ponding width (ft)	= N/A

LINE 2 / Q = 6.17 / HT = 18 / WID = 18 / N = .015 / L = 228 / JLC = .9

SS#2-3..SS#2-2 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	65.41	17.53	63.95	3.52	65.60	17.76	-13.45	1.75
UPSTRM	67.20	11.37	66.25	5.24	67.62	17.36	3.48	1.18

Drainage area (ac) =	0.21	Slope of invert (%)	= 1.0088
Runoff coefficient =	0.35	Slope energy grade line (%)	= 0.8869
Time of conc (min) =	16.38	Critical depth (in)	= 11.37
Inlet time (min) =	10.00	Natural ground elev. (ft)	= 71.24
Intensity (in/hr) =	4.82	Upstream surcharge (ft)	= 0.00
Cumulative C*A =	1.28	Additional Q (cfs)	= 0.00
Q = CA * I (cfs) =	6.17	Line capacity (cfs)	= 9.14
Q catchment (cfs) =	0.43	Inlet length (ft)	= 0.00
Q carryover (cfs) =	6.75	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs) =	7.18	Ponding width (ft)	= N/A

LINE 3 / Q = 4.62 / HT = 15 / WID = 15 / N = .015 / L = 100 / JLC = 1.2

SS#2-4..SS#2-3 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	67.58	15.00	66.25	3.76	67.80	0.00	3.73	1.23
UPSTRM	68.20	11.45	67.25	4.59	68.53	12.75	5.41	1.01

Drainage area (ac) =	0.46	Slope of invert (%) =	1.0000
Runoff coefficient =	0.35	Slope energy grade line (%) =	0.7300
Time of conc (min) =	15.82	Critical depth (in) =	10.32
Inlet time (min) =	15.00	Natural ground elev. (ft) =	73.91
Intensity (in/hr) =	4.89	Upstream surcharge (ft) =	0.00
Cumulative C*A =	0.94	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	4.62	Line capacity (cfs) =	5.60
Q catchment (cfs) =	0.80	Inlet length (ft) =	0.00
Q carryover (cfs) =	4.42	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	5.23	Ponding width (ft) =	N/A

LINE 4 / Q = 3.87 / HT = 15 / WID = 15 / N = .015 / L = 58 / JLC = .9

SS#2-5..SS#2-4 / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	68.60	15.00	67.25	3.15	68.75	0.00	5.41	1.23
UPSTRM	68.82	11.93	67.83	3.69	69.04	12.11	3.47	1.05

Drainage area (ac) =	0.62	Slope of invert (%) =	1.0000
Runoff coefficient =	0.35	Slope energy grade line (%) =	0.4897
Time of conc (min) =	15.50	Critical depth (in) =	9.44
Inlet time (min) =	15.00	Natural ground elev. (ft) =	72.55
Intensity (in/hr) =	4.93	Upstream surcharge (ft) =	0.00
Cumulative C*A =	0.78	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	3.87	Line capacity (cfs) =	5.60
Q catchment (cfs) =	1.08	Inlet length (ft) =	0.00
Q carryover (cfs) =	3.34	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	4.42	Ponding width (ft) =	N/A

LINE 5 / Q = 2.34 / HT = 15 / WID = 15 / N = .015 / L = 90 / JLC = .9

SS#2-6..SS#2-5 / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	69.01	14.22	67.83	1.95	69.07	14.60	3.47	1.20
UPSTRM	70.40	7.35	69.79	3.92	70.64	15.00	1.01	0.60

Drainage area (ac) =	0.90	Slope of invert (%) =	2.1778
Runoff coefficient =	0.35	Slope energy grade line (%) =	1.7416
Time of conc (min) =	15.00	Critical depth (in) =	7.35
Inlet time (min) =	15.00	Natural ground elev. (ft) =	72.05
Intensity (in/hr) =	5.00	Upstream surcharge (ft) =	0.00
Cumulative C*A =	0.47	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	2.34	Line capacity (cfs) =	8.26
Q catchment (cfs) =	1.57	Inlet length (ft) =	0.00
Q carryover (cfs) =	1.08	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	2.65	Ponding width (ft) =	N/A

LINE 6 / Q = 0.69 / HT = 15 / WID = 15 / N = .015 / L = 30 / JLC = .9

SS#2-7..SS#2-5 / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	69.01	14.22	67.83	0.57	69.02	14.60	3.47	1.20
UPSTRM	69.02	12.45	67.98	0.63	69.03	11.27	2.81	1.09

Drainage area (ac) =	0.14	Slope of invert (%) =	0.5000
Runoff coefficient =	0.70	Slope energy grade line (%) =	0.0317
Time of conc (min) =	5.00	Critical depth (in) =	3.98
Inlet time (min) =	5.00	Natural ground elev. (ft) =	72.05
Intensity (in/hr) =	7.00	Upstream surcharge (ft) =	0.00
Cumulative C*A =	0.10	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	0.69	Line capacity (cfs) =	3.96
Q catchment (cfs) =	0.69	Inlet length (ft) =	0.00
Q carryover (cfs) =	0.00	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	0.69	Ponding width (ft) =	N/A

LINE 7 / Q = 1.08 / HT = 15 / WID = 15 / N = .015 / L = 30 / JLC = 1.2

SS#2-8..SS#2-6 / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	70.62	9.93	69.79	1.25	70.64	12.20	1.01	0.86
UPSTRM	70.71	6.36	70.09	2.17	70.78	14.83	5.16	0.50

Drainage area (ac)	= 0.22	Slope of invert (%)	= 1.0000
Runoff coefficient	= 0.70	Slope energy grade line (%)	= 0.4677
Time of conc (min)	= 5.00	Critical depth (in)	= 4.98
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 76.50
Intensity (in/hr)	= 7.00	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.15	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.08	Line capacity (cfs)	= 5.60
Q catchment (cfs)	= 1.08	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.08	Ponding width (ft)	= N/A

LINE 8 / Q = 1.52 / HT = 15 / WID = 15 / N = .015 / L = 150 / JLC = .9

SS#2-9..SS#2-3 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	67.58	15.00	66.26	1.24	67.61	0.00	3.72	1.23
UPSTRM	76.65	5.93	76.00	3.38	76.83	14.67	2.5	0.45

Drainage area (ac)	= 0.75	Slope of invert (%)	= 6.4933
Runoff coefficient	= 0.35	Slope energy grade line (%)	= 6.0435
Time of conc (min)	= 10.00	Critical depth (in)	= 5.93
Inlet time (min)	= 10.00	Natural ground elev. (ft)	= 79.75
Intensity (in/hr)	= 5.81	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.26	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.52	Line capacity (cfs)	= 14.26
Q catchment (cfs)	= 1.52	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.52	Ponding width (ft)	= N/A

1

HYDRAULIC REPORT FOR

0

WELLINGTON

SECTION ONE

JOB NO. 8223

SYSTEM 3

PREPARED BY:

AES CONSULTING ENGINEERS

5248 OLDE TOWNE ROAD

WILLIAMSBURG, VA. 23188

DATE: 7/13/99 REV:8/01/00

Return Period = 10 Yrs
Rainfall file: JCC

Run Date: 08-01-2000
File: 82232S3.ST3

LINE 1 / Q = 11.59 / HT = 24 / WID = 24 / N = .015 / L = 78 / JLC = .9

SS#3-2..OUTFALL / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	60.57	24.00	54.00	3.69	60.78	0.00	N/A	3.14
UPSTRM	65.21	14.47	64.00	5.86	65.74	23.49	4.06	1.98

Drainage area (ac) =	0.25	Slope of invert (%)	=12.8205
Runoff coefficient =	0.70	Slope energy grade line (%)	= 6.3565
Time of conc (min) =	18.49	Critical depth (in)	= 14.47
Inlet time (min) =	5.00	Natural ground elev. (ft)	= 70.07
Intensity (in/hr) =	4.57	Upstream surcharge (ft)	= 0.00
Cumulative C*A =	2.54	Additional Q (cfs)	= 0.00
Q = CA * I (cfs) =	11.59	Line capacity (cfs)	= 70.19
Q catchment (cfs) =	1.22	Inlet length (ft)	= 0.00
Q carryover (cfs) =	13.69	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs) =	14.91	Ponding width (ft)	= N/A

LINE 2 / Q = 3.84 / HT = 24 / WID = 24 / N = .015 / L = 30 / JLC = .9

SS#3-3..SS#3-2 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	65.69	20.22	64.00	1.36	65.71	22.03	4.06	2.82
UPSTRM	65.69	8.32	65.00	3.97	65.94	22.85	3.06	0.97

Drainage area (ac) =	0.16	Slope of invert (%)	= 3.3333
Runoff coefficient =	0.70	Slope energy grade line (%)	= 0.7466
Time of conc (min) =	18.32	Critical depth (in)	= 8.32
Inlet time (min) =	5.00	Natural ground elev. (ft)	= 70.07
Intensity (in/hr) =	4.59	Upstream surcharge (ft)	= 0.00
Cumulative C*A =	0.84	Additional Q (cfs)	= 0.00
Q = CA * I (cfs) =	3.84	Line capacity (cfs)	= 35.79
Q catchment (cfs) =	0.78	Inlet length (ft)	= 0.00
Q carryover (cfs) =	3.71	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs) =	4.49	Ponding width (ft)	= N/A

LINE 3 / Q = 1.38 / HT = 24 / WID = 24 / N = .015 / L = 14 / JLC = .9

SS#3-4..SS#3-3 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	65.91	10.96	65.00	0.99	65.93	16.22	3.06	1.40
UPSTRM	65.94	7.85	65.25	1.55	65.97	22.52	3.55	0.89

Drainage area (ac)	= 0.79	Slope of invert (%)	= 1.7857
Runoff coefficient	= 0.35	Slope energy grade line (%)	= 0.3293
Time of conc (min)	= 15.00	Critical depth (in)	= 4.99
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 70.80
Intensity (in/hr)	= 5.00	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.28	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.38	Line capacity (cfs)	= 26.19
Q catchment (cfs)	= 1.38	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.38	Ponding width (ft)	= N/A

LINE 4 / Q = 2.07 / HT = 24 / WID = 24 / N = .015 / L = 58 / JLC = 1.2

3S#3-5..SS#3-3 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	65.91	10.96	65.00	1.48	65.95	16.22	3.06	1.40
UPSTRM	66.19	6.11	65.68	3.28	66.36	20.92	3.13	0.63

Drainage area (ac)	= 0.67	Slope of invert (%)	= 1.1724
Runoff coefficient	= 0.35	Slope energy grade line (%)	= 0.7062
Time of conc (min)	= 18.00	Critical depth (in)	= 6.11
Inlet time (min)	= 18.00	Natural ground elev. (ft)	= 70.82
Intensity (in/hr)	= 4.62	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.45	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 2.07	Line capacity (cfs)	= 21.22
Q catchment (cfs)	= 1.08	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 1.24	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 2.32	Ponding width (ft)	= N/A

LINE 5 / Q = 7.09 / HT = 15 / WID = 15 / N = .015 / L = 115 / JLC = 1

SS#3-6..SS#3-2 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	65.69	15.00	64.00	5.78	66.20	0.00	4.81	1.23
UPSTRM	69.19	13.03	68.10	6.27	69.80	10.13	5.15	1.13

Drainage area (ac)	= 0.00	Slope of invert (%)	= 3.5652
Runoff coefficient	= 0.00	Slope energy grade line (%)	= 3.1230
Time of conc (min)	= 17.78	Critical depth (in)	= 13.03
Inlet time (min)	= 0.00	Natural ground elev. (ft)	= 74.50
Intensity (in/hr)	= 4.65	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 1.53	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 7.09	Line capacity (cfs)	= 10.57
Q catchment (cfs)	= 0.00	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 9.20	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 9.20	Ponding width (ft)	= N/A

LINE 6 / Q = 7.15 / HT = 15 / WID = 15 / N = .015 / L = 58 / JLC = 1

SS#3-6A..SS#3-6 / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	69.80	15.00	68.10	5.83	70.32	0.00	5.15	1.23
UPSTRM	71.19	13.03	70.10	6.32	71.81	10.13	2.97	1.13

Drainage area (ac)	= 0.21	Slope of invert (%)	= 3.4483
Runoff coefficient	= 0.70	Slope energy grade line (%)	= 2.5560
Time of conc (min)	= 17.46	Critical depth (in)	= 13.03
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 74.32
Intensity (in/hr)	= 4.69	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 1.53	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 7.15	Line capacity (cfs)	= 10.39
Q catchment (cfs)	= 1.03	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 8.17	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 9.20	Ponding width (ft)	= N/A

LINE 7 / Q = 2.30 / HT = 15 / WID = 15 / N = .015 / L = 34 / JLC = 1.2

SS#3-7..SS#3-6 / DNLN = 6

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	71.81	15.00	68.10	1.88	71.86	0.00	4.97	1.23
UPSTRM	71.93	15.00	68.27	1.88	71.98	0.00	4.8	1.23

Drainage area (ac) =	0.47	Slope of invert (%) =	0.5000
Runoff coefficient =	0.70	Slope energy grade line (%) =	0.3621
Time of conc (min) =	5.00	Critical depth (in) =	7.28
Inlet time (min) =	5.00	Natural ground elev. (ft) =	74.32
Intensity (in/hr) =	7.00	Upstream surcharge (ft) =	2.41
Cumulative C*A =	0.33	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	2.30	Line capacity (cfs) =	3.96
Q catchment (cfs) =	2.30	Inlet length (ft) =	0.00
Q carryover (cfs) =	0.00	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	2.30	Ponding width (ft) =	N/A

LINE 8 / Q = 5.06 / HT = 15 / WID = 15 / N = .015 / L = 197 / JLC = .9

SS#3-8..SS#3-6 / DNLN = 6

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	71.81	15.00	70.10	4.12	72.07	0.00	2.97	1.23
UPSTRM	73.93	10.80	73.03	5.35	74.37	13.47	3.59	0.95

Drainage area (ac) =	0.32	Slope of invert (%) =	1.4873
Runoff coefficient =	0.70	Slope energy grade line (%) =	1.1700
Time of conc (min) =	16.37	Critical depth (in) =	10.80
Inlet time (min) =	5.00	Natural ground elev. (ft) =	77.88
Intensity (in/hr) =	4.82	Upstream surcharge (ft) =	0.00
Cumulative C*A =	1.05	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	5.06	Line capacity (cfs) =	6.83
Q catchment (cfs) =	1.57	Inlet length (ft) =	0.00
Q carryover (cfs) =	4.30	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	5.87	Ponding width (ft) =	N/A

LINE 9 / Q = 4.00 / HT = 15 / WID = 15 / N = .015 / L = 32 / JLC = 1.2

SS#3-9..SS#3-8 / DNLN = 8

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	74.33	15.00	73.03	3.26	74.49	0.00	3.59	1.23
UPSTRM	74.46	13.62	73.33	3.42	74.65	8.68	3.29	1.17

Drainage area (ac) =	0.19	Slope of invert (%) =	0.9375
Runoff coefficient =	0.70	Slope energy grade line (%) =	0.4726
Time of conc (min) =	16.19	Critical depth (in) =	9.60
Inlet time (min) =	5.00	Natural ground elev. (ft) =	77.88
Intensity (in/hr) =	4.84	Upstream surcharge (ft) =	0.00
Cumulative C*A =	0.83	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	4.00	Line capacity (cfs) =	5.42
Q catchment (cfs) =	0.93	Inlet length (ft) =	0.00
Q carryover (cfs) =	3.37	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	4.30	Ponding width (ft) =	N/A

LINE 10 / Q = 3.37 / HT = 15 / WID = 15 / N = .015 / L = 34 / JLC = 1.2

SS#3-10..SS#3-9 / DNLN = 9

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	74.68	15.00	73.33	2.75	74.80	0.00	3.29	1.23
UPSTRM	75.93	8.82	74.82	4.50	76.25	14.77	2.88	0.75

Drainage area (ac) =	1.98	Slope of invert (%) =	4.3823
Runoff coefficient =	0.35	Slope energy grade line (%) =	4.2518
Time of conc (min) =	16.00	Critical depth (in) =	8.82
Inlet time (min) =	16.00	Natural ground elev. (ft) =	78.96
Intensity (in/hr) =	4.87	Upstream surcharge (ft) =	0.00
Cumulative C*A =	0.69	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	3.37	Line capacity (cfs) =	11.72
Q catchment (cfs) =	3.37	Inlet length (ft) =	0.00
Q carryover (cfs) =	0.00	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	3.37	Ponding width (ft) =	N/A

LINE 11 / Q = 1.24 / HT = 15 / WID = 15 / N = .015 / L = 154 / JLC = .9

SS#3-11..SS#3-5 / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	66.39	8.53	65.68	1.72	66.44	11.31	3.88	0.72
UPSTRM	72.09	5.35	71.50	3.16	72.24	14.37	2.75	0.39

Drainage area (ac)	= 0.61	Slope of invert (%)	= 3.7792
Runoff coefficient	= 0.35	Slope energy grade line (%)	= 3.6779
Time of conc (min)	= 10.00	Critical depth (in)	= 5.35
Inlet time (min)	= 10.00	Natural ground elev. (ft)	= 75.50
Intensity (in/hr)	= 5.81	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.21	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.24	Line capacity (cfs)	= 10.88
Q catchment (cfs)	= 1.24	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.24	Ponding width (ft)	= N/A

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HYDRAULIC REPORT FOR

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WELLINGTON

SECTION ONE

JOB NO 8223

SYSTEM 4

prepared by:

AES CONSULTING ENGINEERS

5248 OLDE TOWNE RD,SUITE 1

WILLIAMSBURG, VA. 23188

DATE: 7/13/99 REV:11/8/99, 8/1/00

STORM SEWER DESIGN / ANALYSIS

Return Period = 10 Yrs
Rainfall file: JCC

Run Date: 08-01-2000
File: 82232S4.ST3

LINE 1 / Q = 6.76 / HT = 15 / WID = 15 / N = .013 / L = 200 / JLC = 1.1

SS#4-1 SS#4-2 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	50.44	15.00	32.00	5.51	50.91	0.00	16.75	1.23
UPSTRM	71.29	12.48	70.25	6.19	71.89	11.22	2.81	1.09

Drainage area (ac) =	0.70	Slope of invert (%)	=19.1250
Runoff coefficient =	0.35	Slope energy grade line (%)	=10.4858
Time of conc (min) =	16.31	Critical depth (in)	= 12.48
Inlet time (min) =	5.00	Natural ground elev. (ft)	= 74.32
Intensity (in/hr) =	4.83	Upstream surcharge (ft)	= 0.00
Cumulative C*A =	1.40	Additional Q (cfs)	= 0.00
Q = CA * I (cfs) =	6.76	Line capacity (cfs)	= 28.24
Q catchment (cfs) =	1.71	Inlet length (ft)	= 0.00
Q carryover (cfs) =	6.47	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs) =	8.19	Ponding width (ft)	= N/A

LINE 2 / Q = 5.77 / HT = 15 / WID = 15 / N = .013 / L = 236 / JLC = 1.2

SS#4-2 SS#4-3 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	71.94	15.00	70.25	4.70	72.29	0.00	2.81	1.23
UPSTRM	76.21	11.53	75.25	5.70	76.72	12.64	3.95	1.01

Drainage area (ac) =	1.27	Slope of invert (%)	= 2.1186
Runoff coefficient =	0.35	Slope energy grade line (%)	= 1.8760
Time of conc (min) =	15.00	Critical depth (in)	= 11.53
Inlet time (min) =	15.00	Natural ground elev. (ft)	= 80.46
Intensity (in/hr) =	5.00	Upstream surcharge (ft)	= 0.00
Cumulative C*A =	1.15	Additional Q (cfs)	= 0.00
Q = CA * I (cfs) =	5.77	Line capacity (cfs)	= 9.40
Q catchment (cfs) =	2.22	Inlet length (ft)	= 0.00
Q carryover (cfs) =	4.25	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs) =	6.47	Ponding width (ft)	= N/A

LINE 3 / Q = 3.97 / HT = 15 / WID = 15 / N = .013 / L = 45 / JLC = 1.2

SS#4-3 SS#4-4 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	76.82	15.00	75.25	3.24	76.98	0.00	3.95	1.23
UPSTRM	76.98	14.71	75.75	3.25	77.14	4.16	3.05	1.22

Drainage area (ac)	= 0.49	Slope of invert (%)	= 1.1111
Runoff coefficient	= 0.35	Slope energy grade line (%)	= 0.3563
Time of conc (min)	= 11.16	Critical depth (in)	= 9.57
Inlet time (min)	= 10.00	Natural ground elev. (ft)	= 80.05
Intensity (in/hr)	= 5.59	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.71	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 3.97	Line capacity (cfs)	= 6.81
Q catchment (cfs)	= 1.00	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 3.25	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 4.25	Ponding width (ft)	= N/A

LINE 4 / Q = 2.45 / HT = 15 / WID = 15 / N = .013 / L = 50 / JLC = .9

SS#4-4 SS#4-5 / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	77.17	15.00	75.75	2.00	77.23	0.00	3.05	1.23
UPSTRM	77.18	8.19	76.50	3.57	77.38	14.94	2.7	0.69

Drainage area (ac)	= 0.45	Slope of invert (%)	= 1.5000
Runoff coefficient	= 0.35	Slope energy grade line (%)	= 0.2923
Time of conc (min)	= 10.88	Critical depth (in)	= 7.51
Inlet time (min)	= 10.00	Natural ground elev. (ft)	= 80.46
Intensity (in/hr)	= 5.64	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.43	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 2.45	Line capacity (cfs)	= 7.91
Q catchment (cfs)	= 0.91	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 1.61	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 2.52	Ponding width (ft)	= N/A

LINE 5 / Q = 0.73 / HT = 15 / WID = 15 / N = .013 / L = 38 / JLC = .9

SS#4-4 SS-#4-6 / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	77.17	15.00	75.75	0.60	77.18	0.00	3.05	1.23
UPSTRM	77.18	13.48	76.05	0.63	77.18	9.07	2.75	1.16

Drainage area (ac) =	0.15	Slope of invert (%) =	0.7895
Runoff coefficient =	0.70	Slope energy grade line (%) =	0.0172
Time of conc (min) =	5.00	Critical depth (in) =	4.12
Inlet time (min) =	5.00	Natural ground elev. (ft) =	80.05
Intensity (in/hr) =	7.00	Upstream surcharge (ft) =	0.00
Cumulative C*A =	0.11	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	0.73	Line capacity (cfs) =	5.74
Q catchment (cfs) =	0.73	Inlet length (ft) =	0.00
Q carryover (cfs) =	0.00	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	0.73	Ponding width (ft) =	N/A

LINE 6 / Q = 1.61 / HT = 15 / WID = 15 / N = .013 / L = 159 / JLC = .9

SS#4-7..SS#4-5 / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	77.36	10.33	76.50	1.78	77.41	12.45	2.7	0.90
UPSTRM	83.17	6.08	82.50	3.44	83.36	14.73	2.75	0.47

Drainage area (ac) =	0.79	Slope of invert (%) =	3.7736
Runoff coefficient =	0.35	Slope energy grade line (%) =	3.6355
Time of conc (min) =	10.00	Critical depth (in) =	6.08
Inlet time (min) =	10.00	Natural ground elev. (ft) =	86.50
Intensity (in/hr) =	5.81	Upstream surcharge (ft) =	0.00
Cumulative C*A =	0.28	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	1.61	Line capacity (cfs) =	12.54
Q catchment (cfs) =	1.61	Inlet length (ft) =	0.00
Q carryover (cfs) =	0.00	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	1.61	Ponding width (ft) =	N/A

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HYDRAULIC REPORT FOR

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WELLINGTON

SECTION ONE

JOB NO. 8223

SYSTEM 5

prepared by:

AES CONSULTING ENGINEERS

5248 OLDE TOWNE RD,SUITE 1

WILLIAMSBURG, VA. 23188

DATE: 8/9/96 REV:8/01/00

Return Period = 10 Yrs
Rainfall file: JCC

Run Date: 08-01-2000
File: 82232S5.ST3

LINE 1 / Q = 6.04 / HT = 15 / WID = 15 / N = .013 / L = 137 / JLC = 1

SS#5-1 SS#5-2 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	59.91	15.00	46.00	4.93	60.29	0.00	12.25	1.23
UPSTRM	69.48	11.80	68.50	5.83	70.01	12.29	5.34	1.04

Drainage area (ac) =	0.28	Slope of invert (%)	=16.4234
Runoff coefficient =	0.70	Slope energy grade line (%)	= 7.0966
Time of conc (min) =	20.24	Critical depth (in)	= 11.80
Inlet time (min) =	5.00	Natural ground elev. (ft)	= 75.10
Intensity (in/hr) =	4.38	Upstream surcharge (ft)	= 0.00
Cumulative C*A =	1.38	Additional Q (cfs)	= 0.00
Q = CA * I (cfs) =	6.04	Line capacity (cfs)	= 26.17
Q catchment (cfs) =	1.37	Inlet length (ft)	= 0.00
Q carryover (cfs) =	5.60	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs) =	6.97	Ponding width (ft)	= N/A

LINE 2 / Q = 5.21 / HT = 15 / WID = 15 / N = .013 / L = 36 / JLC = 1

SS#5-2 SS#5-3 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	71.30	9.57	70.50	6.31	71.91	14.42	3.34	0.83
UPSTRM	71.74	9.57	70.94	6.31	72.35	14.42	2.9	0.83

Drainage area (ac) =	0.79	Slope of invert (%)	= 1.2222
Runoff coefficient =	0.35	Slope energy grade line (%)	= 1.2222
Time of conc (min) =	20.04	Critical depth (in)	= 10.96
Inlet time (min) =	10.00	Natural ground elev. (ft)	= 75.10
Intensity (in/hr) =	4.40	Upstream surcharge (ft)	= 0.00
Cumulative C*A =	1.18	Additional Q (cfs)	= 0.00
Q = CA * I (cfs) =	5.21	Line capacity (cfs)	= 7.14
Q catchment (cfs) =	1.61	Inlet length (ft)	= 0.00
Q carryover (cfs) =	4.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs) =	5.60	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 3 / Q = 4.00 / HT = 15 / WID = 15 / N = .013 / L = 8 / JLC = .9

SS#5-3 SS#5-4 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	72.35	15.00	70.94	3.26	72.52	0.00	2.9	1.23
UPSTRM	72.53	14.09	71.20	3.34	72.70	7.16	1.55	1.20

Drainage area (ac)	= 2.59	Slope of invert (%)	= 3.2499
Runoff coefficient	= 0.35	Slope energy grade line (%)	= 0.3515
Time of conc (min)	= 20.00	Critical depth (in)	= 9.60
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 74.00
Intensity (in/hr)	= 4.41	Upstream surcharge (ft)	= 0.08
Cumulative C*A	= 0.91	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 4.00	Line capacity (cfs)	= 11.64
Q catchment (cfs)	= 4.00	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 4.00	Ponding width (ft)	= N/A

ALLOWABLE SAG AT
RD "B" = 10.0'
RD "D" = 10.0'

STORM WATER INLET COMPUTATIONS

Form LD 204
Rev 6-85

$n = 0.015$ $E = 1 - (1 - L/L_T)^{1.8}$

CHART 3

RTE "B", "D" PROJ WELLINGTON - PHASE II DATE 7/13/99

SHEET 3 OF 3

	INLET NUMBER	TYPE	LENGTH (FT)	STATION	DRAINAGE AREA (AC)	C	CA	Σ CA	I IN/HR	Q INCR (CFS)	Q CARRY-OVER (CFS)	Q_T GUTTER FLOW	S GUTTER SLOPE (FT/FT)	Sx CROSS SLOPE (FT/FT)	T (SPREAD)	W (FT)	W/T	Sw (FT/FT)	Sw/Sx	Eo (#10)	a	Sw=a/(12W)	Se(FT/FT)= Sx + SwEo	Li(FT) 15 P EFFEC LENGTH FT	L/Lt	d (FT)	E (#16)	h (FT)	Q; INTERCEPTED CFS	d/h	Qb CARRY-OVER CFS	T SPREAD @ SAG FT	REMARKS
GRADE	5	3B	6	11+88L	0.45	0.35	.16		4.0	0.63		0.63	.0390	.0208	2.3	2	.87	.0833	4	1.00	3.5	.1458	.1666	6.80		0.88	.98	0.62		96 = 0.01		SS #4-5
GRADE	3	3B	10	12+88L	1.83	0.35	.64		4.0	2.56		2.56	.0156	.0208	7.7	2	.26	.0833	4	0.70	3.5	.1458	.1229	11.18		0.89	.98	2.52		96 = 0.04		SS #4-3
SUMP	4	3C	6	12+42L	0.21	0.35	.07		4.0	0.29	0.01	0.30	.001	.0208	(5.5)																		
SUMP	4	3C	6	12+43L	0.51	0.35	.18		4.0	0.71	0.04	0.75	.001	.0208	(8.5)																		
				TOTAL								1.05	.001	.0208																			
SUMP	6	3A	2.5	12+42L	0.13	0.70	.09		4.0	0.36		0.36	.001	.0208	(5.9)			.0833						9.6		0.13	0.27	0.48		6.3 < 10.0'		SS #4-4
SUMP	6	3A	2.5	12+43L	0.02	0.70	.01		4.0	0.06		0.06	.001	.0208	(1.8)																		
				TOTAL								0.42	.001	.0208																			
				RD "D"														.0833						6.1		0.13	0.27	0.48		6.3 < 10.0'		SS #4-6
SUMP	2	3C	6	12+18L	0.28	0.35	.10		4.0	0.39		0.39	.001	.0208	(6.2)																		
SUMP	2	3C	6	12+18L	0.42	0.35	.15		4.0	0.59		0.59	.001	.0208	(7.4)																		
				TOTAL								0.98	.001	.0208				.0833						9.6		0.12	0.27	0.44		5.8 < 10.0'		SS #4-2
SUMP	2	3C	6	19+50K	0.19	0.70	.13		4.0	0.53		0.53	.001	.0208	(7.2)																		
SUMP	2	3C	6	19+51K	0.09	0.70	.06		4.0	0.25		0.25	.001	.0208	(4.6)																		
				TOTAL								0.78	.001	.0208				.0833						9.6		0.12	0.27	0.44		5.8 < 10.0'		SS #5-2
SUMP	3	3C	6	19+58L	0.54	0.35	.19		4.0	0.76		0.76	.001	.0208	(8.6)																		
SUMP	3	3C	6	19+51L	0.25	0.35	.09		4.0	0.35		0.35	.001	.0208	(5.9)																		
				TOTAL								1.11	.001	.0208				.0833						9.6		0.13	0.27	0.48		6.3 < 10.0'		SS #5-3

SYSTEM 4

SYSTEM 5

ALLOWABLE SPLAD

RD "A" = 10.0'
RD "C" = 7.0'
RD "B" = 10.0'

STORM WATER INLET COMPUTATIONS

$n = 0.015$ $\sigma = 1-(1-L/L_T)^{1.8}$

CHART 3

Form LD 204
Rev 6-85

RTE "A", "C", "B" PROJ WELLINGTON - PHASE I DATE 7/13/99

	INLET NUMBER	TYPE	LENGTH (FT)	STATION	DRAINAGE AREA (AC)	C	CA	Σ CA	I IN/HR	Q INCR (CFS)	Q CARRY-OVER (CFS)	Q_T GUTTER FLOW	S GUTTER SLOPE (FT/FT)	SX CROSS SLOPE (FT/FT)	T (SPREAD)	W (FT)	W/T	Sw (FT/FT)	Sw/Sx	Eo (#10)	a	Sw=a/(12W)	Se (FT/FT)= Sx + SwEo	GRADE / SUMP: Lt (FT) 15	P EFFEC LENGTH FT	L/Lt	d (FT)	E (#16)	h (FT)	Q; INTERCEPTED CFS	d/h	Qb CARRY-OVER CFS	T SPREAD @ SAG FT	REMARKS
																																		SHEET 1 OF 3
GRADE	5	3B	6	13+00 R	0.48	0.70	.34		4.0	1.34		1.34	.0400	.0208	4.3	2	.465	.0833	4	.91	3.5	.1458	.1535	9.88		0.61		0.81		1.09		Q_b = 0.25		SS #1-5
SUMP	3	3C	6	11+51R	0.14	0.70	.10		4.0	0.39	0.25	0.64	.001	.0208	(7.8)																			
SUMP	3	3C	6	11+50R	0.10	0.70	.07		4.0	0.28	-	0.28	.001	.0208	(5.0)																			
				TOTAL								0.92	.001	.0208																				
GRADE	4	3B	6	13+00 L	0.37	0.70	.26		4.0	1.04		1.04	.0400	.0208	3.6	2	.56	.0833	4	.96	3.5	.1458	.1608	9.6		0.13		0.27		0.48		6.25 < 10.0		SS #1-3
SUMP	2	3A	2.5	11+51L	0.14	0.70	.10		4.0	0.39	0.12	0.51	.001	.0208	(7.2)									8.64		0.69		0.88		0.92		Q_b = 0.12		SS #1-4
SUMP	2	3A	2.5	11+50L	0.10	0.70	.07		4.0	0.28	-	0.28	.001	.0208	(5.0)																			
												0.79	.001	.0208				.0833																
				LD "C"																				6.1		0.16		0.27		0.59		7.7 < 10.0		SS #1-2
GRADE	6	3B	8	13+56R	0.90	0.35	.32		4.0	1.26		1.26	.050	.0208	4.1	2	.49	.0833	4	.94	3.5	.1458	.1579	10.13		0.79		0.94		1.18		Q_b = 0.08		SS #2-6
GRADE	3	3B	4	16+22R	0.57	0.35	.20		4.0	0.80		0.80	.0133	.0208	4.8	2	.42	.0833	4	.89	3.5	.1458	.1506	5.79		0.69		0.88		0.70		Q_b = 0.10		SS #2-3
GRADE	4	3B	6	15+16R	0.86	0.35	.30		4.0	1.20	0.10	1.30	.0133	.0208	6.1	2	.33	.0833	4	.81	3.5	.1458	.1389	7.45		0.81		0.95		1.23		Q_b = 0.07		SS #2-4
SUMP	5	3C	6	14+57R	0.28	0.35	.10		4.0	0.39	0.08	0.47	.001	.0208	(6.8)																			
SUMP	5	3C	6	14+58R	0.34	0.35	.12		4.0	0.48	0.07	0.55	.001	.0208	(7.4)																			
				TOTAL								1.02	.001	.0208																				
																		.0833						9.6		0.13		0.27		0.48		6.3 < 7.0		SS #2-5
GRADE	8	3B	6	13+56L	0.22	0.70	.15		4.0	0.62		0.62	.050	.0208	1.8	2	1.0	.0833	4	1.00	3.5	.1458	.1666	7.28		0.82		0.96		0.59		Q_b = 0.03		SS #2-8
SUMP	7	3A	2.5	14+57L	0.06	0.70	.04		4.0	0.17	0.03	0.20	.001	.0208	(4.1)																			
SUMP	7	3A	2.5	14+58L	0.08	0.70	.06		4.0	0.22		0.22	.001	.0208	(4.2)																			
				TOTAL								0.42	.001	.0208				.0833						9.6		0.14		0.27		0.52		6.7 < 7.0		SS #2-7
SUMP	2	3C	6	12+00R	0.16	0.70	.11		4.0	0.45		0.45	.001	.0208	(6.7)																			
SUMP	2	3C	6	12+01R	0.21	0.70	.15		4.0	0.59		0.59	.001	.0208	(9.6)																			
				TOTAL								1.04	.001	.0208				.0833						9.6		0.13		0.27		0.48		6.3 < 10.0		SS #2-2

SYSTEM 1

SYSTEM 2

ALLOWABLE SPREAD
LD "A" = 10.0'
LD "C" = 7.0'

STORM WATER INLET COMPUTATIONS

$n = 0.015$ $E = 1 - (1 - L/L_T)^{1.8}$

CHART 3

Form LD 204
Rev 6-85

RTE "C", "A" PROJ WELLINGTON - PHASE II DATE 7/13/99

SYSTEM 3

	INLET NUMBER	TYPE	LENGTH (FT)	STATION	DRAINAGE AREA (AC)	C	CA	Σ CA	I IN/HR	Q INCR (CFS)	Q CARRY-OVER (CFS)	Q_T GUTTER FLOW	S GUTTER SLOPE (FT/FT)	SX CROSS SLOPE (FT/FT)	T (SPREAD)	W (FT)	W/T	Sw (FT/FT)	Sw/Sx	Eo (#10)	a	Sw=a/(12W)	Se (FT/FT) = Sx + SwEo	LT (FT) 15 P EFFEC LENGTH FT (GRADE)	L/LT	d (FT)	E (#16)	h (FT)	Q: INTERCEPTED CFS (SUMP) d/h	Qb CARRY-OVER CFS	T SPREAD @ SAG FT	SHEET 2 OF 3 REMARKS
GRADE	5	3B	6	18+74R	0.94	0.35	.33		4.0	1.32		1.32	.0240	.0208	5.1	2	.39	.0833	4	.88	3.5	.1458	.1491	8.57	0.70	.89	1.17		Qb: 0.15		SS #3-5
GRADE	7	3B	8	21+00R	0.47	0.70	.33		4.0	1.32		1.32	.0354	.0208	4.4	2	.45	.0833	4	.91	3.5	.1458	.1535	9.47	0.85	.97	1.27		Qb: 0.05		SS #3-7
SUMP	3	3C	6	19+35R	0.05	0.70	.04		4.0	0.14	0.15	0.29	.001	.0208	(5.3)T																	
SUMP	3	3C	6	19+36R	0.11	0.70	.08		4.0	0.31	0.05	0.36	.001	.0208	(5.9)T																	
				TOTAL								0.65	.001	.0208																		
GRADE	6	3B	4	21+00L	0.21	0.70	.15		4.0	0.59		0.59	.0354	.0208	3.2	2	.91	.0833	4	1.00	3.5	.1458	.1666	6.43	0.62	.83	0.49		Qb: 0.10		SS #3-3
SUMP	2	3C	6	19+35L	0.15	0.70	.11		4.0	0.42		0.42	.001	.0208	(6.1)T																	
SUMP	2	3C	6	19+36L	0.10	0.70	.07		4.0	0.28	0.10	0.38	.001	.0208	(6.2)T																	
				TOTAL								0.80	.001	.0208																		
SUMP	8	3C	6	23+00L	0.16	0.70	.11		4.0	0.45		0.45	.001	.0208	(6.6)T			.0833						9.6	0.13	0.27	0.48		6.3' < 7.0'		SS #3-2
SUMP	8	3C	6	23+01L	0.16	0.70	.11		4.0	0.45		0.45	.001	.0208	(6.6)T																	
				TOTAL								0.90	.001	.0208																		
GRADE	10	3B	8	27+60R	1.98	0.35	.69		4.0	2.77		2.77	.0171	.0208	7.2	2	.28	.0833	4	.74	3.5	.1458	.1287	11.55	0.69	.88	2.44		Qb: 0.33		SS #3-10
SUMP	9	3C	6	23+00R	0.03	0.70	.02		4.0	0.08	0.33	0.41	.001	.0208	(6.3)T																	
SUMP	9	3C	6	23+01R	0.16	0.70	.11		4.0	0.45		0.45	.001	.0208	(6.6)T																	
				TOTAL								0.86	.001	.0208																		
																		.0833						9.6	0.13	0.27	0.48		6.3' < 7.0'		SS #3-9

4-14

Project WELLINGTON - PHASE I

where is DA map

Plan Sheet No. ____ Designer ____

Rev. Date ____ Date ____

Sheet ____ of ____

31+50

HYDROLOGICAL DATA:

D.A. = 8.00 AC. T_c = 10 min C = 0.35

I_2 = 4.5 in/hr I_{10} = 6.0 in/hr

AHW Controls

100 yr. Flood plain ____ elev. ____

Design AHW depth ____ elev. ____

Structures ____ elev. ____

STATION: ____

freq. T W elev.

Shoulder elev. ____

℄ elev. ____

Skew ____ ° Cover ____ '

Inv. El. 74.00 So = .0783 Inv. El. 65.00

Orig. Gr. Elev. ____ L = 115 Orig. Gr. Elev. ____

DISCHARGES USED

Q 2 = 12.60 CFS

Q 10 = 16.80 CFS

Q ____ = ____ CFS

Q ____ = ____ CFS

Q ____ = ____ CFS

RISK ASSESSMENT ADT ____

Detours Available ____, Length ____

Overtopping Stage ____

Flood Plain Management ____

Criteria and Significant Impact ____

CULVERT TYPE & SIZE	Q	Q/B	HEADWATER COMPUTATIONS									CONT. HW. ELEV.	OUTLET VELOCITY		End Treat.	COMMENTS
			INLET CONT.		OUTLET CONTROL											
			HW/D	HW	Ke	dc	$\frac{dc+D}{2}$	ho	H	LSo	HW		C.M.	Smooth		
24" RCP	16.8		1.10	2.20	·	1.5	1.75	1.75	1.20	9.0	N/A.					INLET CONTROLS

Design Flood Exceed. Prob. ____ Elev. ____

Overtop Flood Exceed. Prob. ____ Elev. ____

Base Flood 1% Exceed. Prob. ____ Elev. ____

SUMMARY & RECOMMENDATIONS:

22(5-18)

(Rev. 1/85)

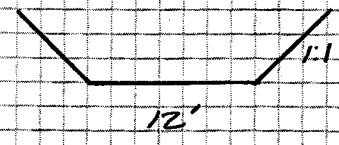
AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax: (757) 220-8994

PROJECT WELLINGTON SEC 1
PROJECT NO. 8223-2
SUBJECT CHANNEL ADEQUACY
SHEET NO. 1 OF 1
CALCULATED BY HWP DATE 11/8/99

STORM SYSTEM #4 OUTFALL

Q_2 = 5.0 CFS INTO TRAPEZOIDAL CHANNEL

13.3% SLOPE



Not a valid representation

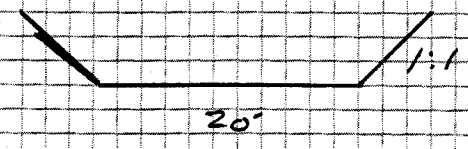
FROM CHART 2-64

V_2 = 0.75 FPS WHICH IS ADEQUATE

STORM SYSTEM #5 OUTFALL

Q_2 = 4.4 CFS INTO TRAPEZOIDAL CHANNEL

13.0%



FROM CHART 2-68

V_2 = 0.55 FPS WHICH IS ADEQUATE

STORM SYSTEMS #2 AND #3 OUTFALL INTO DRY POND #1 WHICH SERVES AS A TEMPORARY SEDIMENT BASIN AND 6 POINT POND. (SEE ATTACHED CALCULATIONS)

STORM SYSTEM #1 DRAINS (Q_2 = 4.9 CFS) INTO A FLAT BOTTOM CHANNEL (S = 1.0%, W = 50')

V_2 = NEGLIGABLE.

DC

Copy to John H
KA
file

COPY

RECEIVED
ADMINISTRATION
JAMES CITY COUNTY

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

5636 Southern Boulevard
Virginia Beach, VA 23462
www.deq.virginia.gov

Robert G. Burnley
Director

Francis L. Daniel
Tidewater Regional Director
(757) 518-2000

RECEIVED
FEB - 7 2005
DEVELOPMENT MANAGEMENT

February 3, 2005

RECEIVED
FEB - 4 2005
COUNTY ATTORNEY
JAMES CITY COUNTY, VA

Mr. Sanford B. Wanner
County Administrator
James City County
Post Office Box 8784
Williamsburg, Virginia 23187-8784

Re: Proposed Consent Order for Wellington, L.L.C.

Dear Mr. Wanner:

The Code of Virginia requires that the Department of Environmental Quality notify localities of pending enforcement actions. Enclosed is a copy of a public notice and a proposed consent order for Wellington, L.L.C. The Department will accept comments on the proposed order for 30 days from the date of publication, which will be February 7, 2005. The proposed consent order will be presented to the State Water Control Board at their next meeting on March 15, 2005. The State Water Control Law allows the Board to remedy violation of the law by entering into administrative consent orders with or without associated civil charges.

Please do not hesitate to contact me if you have any questions regarding the proposed consent order or proposed public comment period.

Sincerely,

Maria R. Nold
Regional Enforcement Manager

Enclosures

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

5636 Southern Boulevard
Virginia Beach, VA 23462
www.deq.state.va.us

Robert G. Burnley
Director

Francis L. Daniel
Tidewater Regional Director
(757) 518-2000

STATE WATER CONTROL BOARD ENFORCEMENT ACTION

SPECIAL ORDER BY CONSENT
WITH
WELLINGTON, L.L.C.
Registration No. VAR103223

SECTION A: Purpose

This is a Consent Special Order issued under the authority of §62.1-44.15(8a) and §62.1-44.15(8d) of the Code of Virginia, between the State Water Control Board and Wellington, L.L.C. for the purpose of resolving certain violations of environmental law and regulations.

SECTION B: Definitions

Unless the context clearly indicates otherwise, the following words and terms have the meaning assigned to them below:

1. "Code" means the Code of Virginia (1950), as amended.
2. "Board" means the State Water Control Board, a permanent citizens' board of the Commonwealth of Virginia as described in the Code §§ 10.1-1184 and 62.1-44.7.
3. "Department" or "DEQ" means the Department of Environmental Quality, an agency of the Commonwealth of Virginia as described in the Code § 10.1-1183.
4. "Director" means the Director of the Department of Environmental Quality.
5. "Order" means this document, also known as a Consent Special Order.
6. "TRO" means the Tidewater Regional Office of DEQ, located in Virginia Beach, Virginia.
7. "VPDES Regulation" means 9 VAC 25-31-10 *et seq.* - Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation.
8. "VPDES General Permit Regulation" means 9 VAC 25-180-10 *et seq.* – General Virginia Pollutant Discharge Elimination System Permit Regulation for Discharges of Storm Water from Construction Activities.

9. "VPDES Permit" means General VPDES Permit No. VAR10.
10. "VWP Regulation" means 9 VAC 25-210-10 *et seq.* – Virginia Water Protection (VWP) Permit Program Regulation.
11. "VAC" means the Virginia Administrative Code.

SECTION C: Findings of Fact and Conclusions of Law

1. Wellington, L.L.C. owns and is constructing a residential and mixed use/commercial development located in James City County known as Wellington (hereinafter known as the "Subdivision"). Reportedly, the Subdivision will be constructed in ten phases. The Subdivision has a total land area of approximately 490 acres and total disturbed area of approximately 400 acres.

2. In response to a complaint, DEQ staff inspected the Subdivision on November 19, 2003 and observed that land disturbance activities were occurring at the site in Sections II and III of the Wellington Subdivision, as depicted on development plans dated March 28, 2001, and titled "Project No. 8223-06." DEQ records indicate that at the time of the inspection, Wellington, L.L.C. had not submitted a registration statement for coverage under the VPDES General Permit Regulation for land disturbances at the Subdivision.

3. DEQ received a registration statement from Wellington, L.L.C. for coverage under the VPDES General Permit Regulation on November 24, 2003. The registration statement indicated that construction activity at the Subdivision started in 2003. Coverage under the VPDES Permit became effective on December 9, 2003.

4. During the November 19, 2003 site visit DEQ staff also observed that substantial erosion had occurred at the Subdivision in association with land disturbing activities, resulting in discharges of measurable sediment deposits in the adjacent wetlands and in an unnamed tributary of France Swamp. The noted sediment areas were located in the vicinity of Wellesley Way and Attleborough Way.

5. DEQ conducted additional site visits on December 5, 2003, April 26, 2004, and June 1, 2004. During these site visits DEQ staff observed the extent of sediment deposition in the wetlands and the unnamed tributary that had occurred at the Subdivision.

a. On December 5, 2003 DEQ staff estimated that 1-3 inches of sediment had been discharged and deposited in the channel of the unnamed tributary in the vicinity of Wellesley Way. Inspection of the second impact area in the vicinity of Attleborough Way revealed that sediment was running off the construction site and discharging into neighboring wetlands. DEQ staff estimated that approximately 12 inches of sediment covered 15,000 square feet of wetlands in this area.

b. On April 26, 2004 DEQ staff observed sediment laden water in the unnamed tributary approximately 200 ft. downstream from the Subdivision's sediment basin, in the vicinity of Wellesley Way. In the vicinity of Attleborough Way, several silt fences were observed with accumulated sediments exceeding half the height of the silt fence. In this area,

DEQ staff estimated that approximately 12 inches of sediment had discharged into and nearly filled the unnamed tributary channel and approximately 6 inches of sediment had been distributed on the adjacent floodplain. Where the small unnamed tributary joined a larger tributary section, approximately 36 inches of sediment was observed in the unnamed tributary channel bottom. This channel was filled with sediment for a distance measuring a minimum of 100 feet.

c. On June 1, 2004 DEQ staff observed that sediment originating in part from the rear yard of Lot #62 (in the vicinity of Penzance Place and Downpatrick Way) had migrated across the sediment basin access road, over several rows of silt fence and straw bales and discharged into an area of wetlands. Sediment accumulation in front of the silt fences exceeded half the height of the barriers, and in several instances, overtopped the silt fence. Approximately 8-12 inches of sediment was observed in wetlands for a distance of approximately 250 feet downstream of the silt fence barriers. A soil sample taken approximately 200 feet downstream of the silt fences revealed approximately 8 inches of recently deposited sandy material over hydric soils.

6. DEQ staff estimates a total of 0.699 acres of wetlands and perennial stream channels were impacted by the sediment deposits at the Subdivision (0.349 acres in the vicinity of Attleborough Way, 0.156 acres in the vicinity of Downpatrick and Penzance Place, and 0.194 acres in the vicinity of Wellsley Way).

7. DEQ did not issue Wellington, L.L.C. a permit to fill wetlands at the Subdivision.

8. Wellington, L.L.C. did not notify DEQ of the above listed discharges and/or filling of wetlands.

9. DEQ staff conducted a VPDES Permit inspection at the Subdivision on May 12, 2004. The inspection revealed several deficiencies in compliance with the VPDES Permit requirements, including Wellington's failure to develop a Storm Water Pollution Prevention Plan and implement its associated operational controls (failure to document major grading activities, inspect disturbed areas of construction at least once every 14 calendar days, and identify contractors and subcontractors) and failure to construct and maintain erosion and sediment controls properly (silt fencing down or containing sediment exceeding half the height of the fence, curb inlet protection requiring sediment removal, slope drains without outlet protection, and stockpiles not properly stabilized).

10. DEQ issued Wellington, L.L.C. NOV No. W2003-01-TRO-002 dated February 2, 2004 advising of the observed wetland impacts and NOV No. W2004-05-T-0003 dated May 27, 2004 advising of the deficiencies in compliance with VPDES General Permit Regulation requirements.

11. Section 62.1-44.5.A of the Code prohibits discharges to State waters except in compliance with a certificate issued by the Board. Section 9 VAC 25-180-70 of the VPDES General Permit Regulation and Part III.F. of the VPDES Permit prohibit discharges to State waters except in compliance with the VPDES Permit. Wellington, L.L.C. violated § 62.1-44.5.A of the Code by discharging sediment into State waters under conditions not authorized by the

Board. After the effective date of coverage under the VPDES Permit, Wellington, L.L.C. violated 9 VAC 25-180-70 of the VPDES General Permit Regultion and Part III.F. of the VPDES Permit by discharging to surface waters at the Subdivision without complying with the storm water pollution prevention plan requirements of the VPDES Permit.

12. Section 62.1-44.5.B of the Code, Section 9 VAC 25-180-70 of the VPDES General Permit Regulation, and Part III.G. of the VPDES Permit require that any permittee who discharges or causes or allows a discharge of pollutants to State waters, that is not authorized by a certificate issued by the Board, notify the DEQ of the discharge promptly. Wellington, L.L.C. violated § 62.4-44.5.B of the Code, Section 9 VAC 25-180-70 of the VPDES General Permit Regulation, and Part III.G. of the VPDES Permit by failing to immediately notify DEQ of the discharges at the Subdivision.

13. Section Sections 62.1-44.5.A and 62.1-44.15:5.D. of the Code prohibit filling in a wetland except in compliance with a Virginia Water Protection Permit. Wellington violated Sections 62.1-44.5 and 62.1-44.15:5.D. of the Code by discharging into and filling wetlands at the Subdivision without a permit issued by the Board.

14. Section 9 VAC 25-180-60.A.1. of the VPDES General Permit Regulation requires facilities to submit a registration statement at least two days prior to commencing construction activities. Wellington, L.L.C. violated 9 VAC 25-180-60.A.1. by commencing construction activities at the Subdivision prior to submitting a registration statement to DEQ.

15. Section 9 VAC 25-180-70 of the VPDES General Permit Regulation and Part II of the VPDES Permit require that the permittee develop and implement a storm water pollution prevention plan ("SWP3"). Section 9 VAC 25-180-70 of the VPDES General Permit Regulation and Part II.D of the VPDES Permit require that the permittee construct and maintain erosion and sediment controls, document major grading activities, implement temporary stabilization practices, and inspect disturbed areas of construction at lest once every 14 calendar days as provided for in the SWP3. Section 9 VAC 25-180-70 of the VPDES General Permit Regulation and Part II.E. of the VPDES Permit require that the permittee identify contractors and subcontractors in the SWP3. Wellington, L.L.C. violated Section 9 VAC 25-180-70 of the VPDES General Permit Regulation and Part II of the VPDES Permit by failing to develop and implement a SWP3 for the construction activity at the Subdivision.

16. Wellington, L.L.C. reports the problems associated with erosion at the construction site were acerbated due to the frequent, often times intense, rain events, and the highly erodible sandy soils at the Subdivision.

17. Wellington, L.L.C. has implemented erosion and sediment control measures at the Subdivision including hiring personnel dedicated to install/maintain erosion and sediment control devices, placing sod on Wellington, L.L.C. owned home sites, encouraging builders and buyers to place sod on home sites, and offering home owners fiber matting at contractor's costs, among other things.

SECTION D: Agreement and Order

Accordingly, the Board, by virtue of the authority granted it in Va. Code §§ 62.1-44.15(8a) and (8d), orders Wellington, L.L.C., and Wellington, L.L.C. voluntarily agrees, to perform the actions described in Appendix A of this Order. In addition, the Board orders Wellington, L.L.C., and Wellington, L.L.C. voluntarily agrees, to pay a civil charge $20,000 within 30 days of the effective date of the Order in settlement of the violations cited in this Order. The payment shall include Wellington, L.L.C.'s Federal Identification Number and shall note on its face that the payment is being made in accordance with the requirements of this Order. Payment shall be made by check, certified check, money order, or cashier's check payable to the "Treasurer, Commonwealth of Virginia," delivered to:

Receipts Control
Department of Environmental Quality
Post Office Box 10150
Richmond, Virginia 23240

SECTION E: Administrative Provisions

1. The Board may modify, rewrite, or amend the Order with the consent of Wellington, L.L.C., for good cause shown by Wellington, L.L.C. or on its own motion after notice and opportunity to be heard.
2. This Order only addresses and resolves those violations specifically identified herein, including those matters addressed in the Notices of Violation issued to Wellington, L.L.C. by DEQ on February 2, and May 27, 2004. This Order shall not preclude the Board or the Director from taking any action authorized by law, including but not limited to: (1) taking any action authorized by law regarding any additional, subsequent, or subsequently discovered violations; (2) seeking subsequent remediation of the facility as may be authorized by law; or (3) taking subsequent action to enforce the Order. This Order shall not preclude appropriate enforcement actions by other federal, state, or local regulatory authorities for matters not addressed herein.
3. This Order is made by agreement and with the consent of the parties, and does not constitute a finding, adjudication or admission of violation of any federal, state or local law, rule, or regulation or any allegations contained herein.
4. Wellington, L.L.C. consents to venue in the Circuit Court of the City of Richmond for any civil action taken to enforce the terms of this Order.
5. Wellington, L.L.C. declares it has received fair and due process under the Administrative Process Act, Va. Code §§2.2 - 4000 *et seq.*, and the State Water Control Law and it waives the right to any hearing or other administrative proceeding authorized or required by law or regulation, and to any judicial review of any issue of fact or law contained herein. Nothing herein shall be construed as a waiver of the right to any administrative proceeding for, or to judicial review of, any action taken by the Board to enforce this Order.
6. Failure by Wellington, L.L.C. to comply with any of the terms of this Order shall constitute a violation of an order of the Board. Nothing herein shall waive the initiation of appropriate enforcement actions or the issuance of additional orders as appropriate by

the Board or the Director as a result of such violations. Nothing herein shall affect appropriate enforcement actions by any other federal, state, or local regulatory authority.

7. If any provision of this Order is found to be unenforceable for any reason, the remainder of the Order shall remain in full force and effect.

8. Wellington, L.L.C. shall be responsible for failure to comply with any of the terms and conditions of this Order unless compliance is made impossible by earthquake, flood, other acts of God, war, strike, or such other occurrence. Wellington, L.L.C. shall show that such circumstances were beyond its control and not due to a lack of good faith or diligence on its part. Wellington, L.L.C. shall notify the DEQ Regional Director in writing when circumstances are anticipated to occur, are occurring, or have occurred that may delay compliance or cause noncompliance with any requirement of the Order. Such notice shall set forth:

   a. the reasons for the delay or noncompliance;
   b. the projected duration of any such delay or noncompliance;
   c. the measures taken and to be taken to prevent or minimize such delay or noncompliance; and
   d. the timetable by which such measures will be implemented and the date full compliance will be achieved.

   Failure to so notify the Regional Director within three (3) days of learning of any condition above, which Wellington, L.L.C. intends to assert will result in the impossibility of compliance, shall constitute a waiver of any claim to inability to comply with a requirement of this Order.

9. This Order is binding on the parties hereto; their successors in interest, designees and assigns, jointly and severally.

10. This Order shall become effective upon execution by both the Director or his designee and Wellington, L.L.C. Notwithstanding the foregoing, Wellington, L.L.C. agrees to be bound by any compliance date, which precedes the effective date of this Order.

11. This Order shall continue in effect until:

   a. Wellington, L.L.C. petitions the Director or his designee to terminate the Order after it has completed all of the requirements of the Order and the Director or his designee approves the termination of the Order; or
   b. The Director or the Board terminates this Order in his or its whole discretion upon 30 days written notice to Wellington, L.L.C.

   Termination of this Order, or any obligation imposed in this Order, shall not operate to relieve Wellington, L.L.C. from its obligation to comply with any statute, regulation, permit condition, other order, certificate, certification, standard, or requirement otherwise applicable.

12. By its signature below, Wellington, L.L.C. voluntarily agrees to the issuance of this Order.

And it is so ORDERED this day of _____, 2004.

_____
Francis L. Daniel, Tidewater Regional Director for
Robert G. Burnley, Director
Department of Environmental Quality

Wellington, L.L.C. voluntarily agrees to the issuance of this Order.

By: _____

Date: 11-19-04

Commonwealth of Virginia
City/County of YORK, VA
The foregoing document was signed and acknowledged before me this 19 day of November, 2004, by H. K. Ashe, who is

Pres. of Wellington, L.L.C., on behalf of the Company.
(title)

_____
Notary Public

My commission expires: May 31, 2004

MARLA C. LINHART
COMMONWEALTH OF VIRGINIA
NOTARY PUBLIC

APPENDIX A

Wellington, L.L.C.

1. By January 1, 2005 Wellington, L.L.C. shall submit a storm water pollution prevention plan as required by Section 9 VAC 25-180-70 of the VPDES General Permit Regulation and Part II of the VPDES Permit

2. By January 1, 2005 Wellington, L.L.C. shall evaluate and clearly flag all areas of sediment deposition in wetlands and other surface waters in the Subdivision, resulting from erosion and sediment transport due to construction activities, including but not limited to the deposits in the vicinity of Attleborough Way, Downpatrick and Penzance Place, and Wellsley Way as described in Section C. of this Order. Wellington, L.L.C. shall notify DEQ once flagging is completed and shall coordinate a site visit to review and obtain agreement from DEQ of the flagging of the deposition areas.

3. Within 30 days of obtaining DEQ approval of the flagged sediment deposition areas addressed in Item 1. above, Wellington, L.L.C. shall submit to DEQ a professional survey of the flagged sediment deposition areas. The survey shall overlay the Subdivision site development plan and shall depict the extent of sedimentation and existing elevations determined on 1-foot contours. The survey shall include a calculation of the actual square footage of the flagged wetlands and surface waters impacted by sediment deposits at the Subdivision.

4. Within 30 days of obtaining DEQ approval of the flagged sediment deposit areas addressed in Item 1. above, Wellington, L.L.C. shall submit to DEQ an approvable Site Monitoring Plan developed to monitor site conditions at all sediment deposition areas identified in Item 1. above. The plan shall provide, at minimum, for periodic photographic monitoring from permanent photographic monitoring stations and permanent sediment depth gauges as needed to monitor wetland and instream erosion and sediment transport and deposition in all impacted wetland and stream channel sections in areas depicted in the approved survey pursuant to Item 2. above. The DEQ shall approve, or modify and approve the Site Monitoring Plan.

5. Within 15 days of approval by DEQ, Wellington, L.L.C. shall implement the Site Monitoring Plan.

6. Within 30 days of DEQ approval of the Site Monitoring Plan and by the first day of each month thereafter, until stabilization of the surveyed sediment deposition areas is achieved, Wellington, L.L.C. shall submit to DEQ a report of the Site Monitoring Plan findings. This report shall also include the status of upland stabilization and construction activities potentially impacting the surveyed sediment deposition areas. For the purposes of this Order, DEQ shall determine when satisfactory stabilization of the surveyed sediment deposition areas is achieved at the Subdivision.

7. Within 60 days of receipt of written notification from DEQ, Wellington, L.L.C. shall submit to DEQ an approvable stabilization plan addressing excessive instream erosion and sediment transport in areas identified in the survey submitted pursuant to Item 2. above. Said stabilization

plan shall take into consideration expected post-development flow conditions and shall recommend corrective actions to establish a stable low-flow channel with floodplain connectivity and dissipate erosive forces. The DEQ shall approve, or modify and approve, the Stabilization Plan. Within 15 days of approval, Wellington, L.L.C. shall implement the Stabilization Plan.

8. All submittals and reports required by this Appendix A shall be mailed to:
Francis L. Daniel, Regional Director
DEQ, Tidewater Regional Office
5636 Southern Blvd.
Virginia Beach, VA 23462

State Water Control Board Enforcement Action

The State Water Control Board proposes to enter into a consent special order with Wellington, L.L.C. regarding the Wellington subdivision located in James City County, Virginia regarding compliance with the Virginia Water Protection Permit Regulations and the VPDES Permit Regulations for discharges of Storm Water from Construction Activities. The Department of Environmental Quality will consider written comments relating to this order for thirty (30) days after the date of this publication. Comments must include your name, address, and phone number and can be e-mailed to mrn@deq.virginia.gov or mailed to:

Maria R. Nold
DEQ – Tidewater regional Office
5636 Southern Boulevard
Virginia Beach, VA 23462

The proposed order is available at www.deq.state.va.us/enforcement/notices.html and at the above office during regular businesses hours. You may also request copies from Ms. Nold at the address above or by calling her at (757) 518-2173.

U.S. Army Corps of Engineers
Norfolk District, Southern Virginia Regulatory Section
803 Front Street
Norfolk, Virginia 23510

December 12, 2002

DEC. 2002 RECEIVED ENVIRONMENTAL DIVISION

Project Number: 02-R1803

Waterway: France Swamp

1. Participant:
Mr. C.E. Glisan
American Eastern, Inc.
632 Hampton Highway
Yorktown, Virginia 23693

2. Authorized Agent:
Williamsburg Environmental Group
Chuck Roadley
3000 Easter Circle
Williamsburg, VA 23188

3. Address of Job Site:
South of Route 30 and west of Route 607.

4. Project Description:
4a. Tap into the existing sewer line as shown on the drawing entitled "Wetland Impacts Map, Wellington" dated 8/18/99 by WEG.

4b. Modify the permit condition for mitigation associated with the Wellington subdivision.

5. Findings

This is regarding your request to perform work in the waters of the United States, as described in part 4a. above. This activity has been reviewed and found to satisfy the criteria contained in the Corps Nationwide Permit Number (12), attached. (The Corps Nationwide Permits were published in the Federal Register (67 FR 2020) on January 15, 2002 as corrected by Federal Register (67 FR 6692) on February 13, 2002 and Federal Register (67 FR 8579) on February 25, 2002 and the regulations governing their use can be found in 33 CFR 330 published in Volume 56, Number 226 of the Federal Register dated November 22, 1991.) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

As a condition of your October 28, 2002 permit you were required to place deed restrictions on approximately 74.84 acres of wetlands and waters of the U.S. However, the extent of wetlands to be preserved is actually 17.95 acres. Therefore, we are modifying your permit to require the deed restrictions be placed on the 17.95 acres of wetlands shown on the drawing entitled "Map Showing the Limits of Wetlands for Wellington" dated 11/8/02 by AES.

Provided the enclosed conditions are met, an individual Department of the Army Permit will not be required. You must also adhere to the 401 certification conditions issued by the Virginia Department of Environmental Quality (DEQ) outlined in their letter of March 29, 2002 or obtain an individual permit from DEQ. The Corps' Nationwide Permit conditions and 401 certification conditions are attached. Also, a permit may be required from the Virginia Marine Resources Commission and/or your local wetlands board, and this verification is not valid until you obtain their approval, if necessary. You may contact the Virginia Marine Resources Commission at (757) 247-2200 for further information concerning their permit requirements. This authorization does not relieve your responsibility to comply with local requirements pursuant to the Chesapeake Bay Preservation Act (CBPA), nor does it supersede local government authority and responsibilities pursuant to the Act. You should contact your local government before you begin work to find out how the CBPA applies to your project.

Enclosed is a "compliance certification" form, which must be signed and returned within 30 days of completion of the project, including any required mitigation (see nationwide permit condition number 14). Your signature on this form certifies that you have completed the work in accordance with the nationwide permit terms and conditions.

This verification is valid for five years from the date of this letter, unless the Norfolk District Engineer uses discretionary authority to modify, suspend or revoke this verification. The Chief of Engineers will periodically review the nationwide permits and their conditions and will decide to either modify, reissue or revoke the permits. These nationwides are scheduled to expire on March 18, 2007. If the nationwide permit(s) verified in this letter are reissued without modification or if your activity complies with any subsequent nationwide permit, the expiration date of this verification will not change. However, if the nationwide permit(s) verified in the letter are modified or revoked so that the activity listed above would no longer be authorized and you have commenced or are under contract to commence the work, you will have twelve months from the date of that permit change to complete the activity. Activities completed under the authorization of a nationwide permit which was in effect at the time the activity was completed continue to be authorized by that nationwide permit. It is your responsibility to remain informed of changes to the nationwide permits. We will issue a special public notice announcing any changes to the nationwide permits when they occur.

6. Corps Contact: Melissa Nash at (757) 441-7489.

Melissa A Nash

for R. Harold Jones, P.W.S.
Chief, Southern Virginia Regulatory Section

NAO FL 13 REVISED DEC 90

U.S. Army Corps of Engineers
Norfolk District, Southern Virginia Regulatory Section
803 Front Street
Norfolk, Virginia 23510

October 1st 1999

RECEIVED
OCT 4 1999
Wmsbg Environmental Grp

Project Number: 99-R1060

Waterway: France Swamp

1. Participant:
American Eastern, Inc.
632 Hampton Highway
Yorktown, VA 23693

2. Authorized Agent:
Williamsburg Environmental Group
Chuck Roadley
3000 Easter Circle
Williamsburg, VA 23188

3. Address of Job Site:
The proposed subdivision is West of Route 607 and south of Route 30.

4. Project Description:
Temporarily impact 3.85 acres of headwater wetlands for installation of an 8-inch and 6-inch gravity sewer main, as shown on the drawings entitled "Overall Sanitary Sewer Plan, Mirror Lakes" dated 6-8-99 by AES Consulting Engineers.

5. Findings

This is regarding your request to perform work in the waters of the United States, as described in part 4 above. This activity has been reviewed and found to satisfy the criteria contained in the Corps Nationwide Permit (12), attached. (The Corps Nationwide Permits were published in the Federal Register (61 FR 65874) on December 13, 1996 and the regulations governing their use can be found in 33 CFR 330 published in Volume 56, Number 226 of the Federal Register dated November 22, 1991.)

Provided the enclosed conditions are met, an individual Department of the Army Permit will not be required. In addition, the Virginia Department of Environmental Quality has waived 401 certification for Nationwide Permit Number 12. However, a permit may be required from the Virginia Marine Resources Commission and/or your local wetlands board, and this verification is not valid until you obtain their approval, if necessary. You may contact the Virginia Marine Resources Commission at (757) 247-2200 for further information concerning their permit requirements.

As a condition of this authorization you must notify Melissa Smith at (757) 441-7489 to set up a compliance inspection as soon as the utility line has been completed, and while the contractor is still onsite. In addition, if the disturbed area in the easement does not vegetate with wetland species within one year you may be required to replant the area.

Enclosed is a "compliance certification" form, which must be signed and returned within 30 days of completion of the project, including any required mitigation (see nationwide permit condition number 14). Your signature on this form certifies that you have completed the work in accordance with the nationwide permit terms and conditions.

This verification is valid for two years from the date of this letter, unless the Norfolk District Engineer uses discretionary authority to modify, suspend or revoke this verification. The Chief of Engineers will periodically review the nationwide permits and their conditions and will decide to either modify, reissue or revoke the permits. The existing nationwides are scheduled to expire on February 11, 2002. If the nationwide permit(s) verified in this letter are reissued without modification or if your activity complies with any subsequent nationwide permit, the expiration date of this verification will not change. However, if the nationwide permit(s) verified in the letter are modified or revoked so that the activity listed above would no longer be authorized and you have commenced or are under contract to commence the work, you will have twelve months from the date of that permit change to complete the activity. Activities completed under the authorization of a nationwide permit which was in effect at the time the activity was completed continue to be authorized by that nationwide permit.

It is your responsibility to remain informed of changes to the nationwide permits. We will issue a special public notice announcing any changes to the nationwide permits when they occur.

6. Corps Contact. Melissa Smith at (757) 441-7489.

R. Harold Jones
Chief, Southern Virginia Regulatory Section

NAO FL 13 REVISED DEC 90

Norfolk District, Southern Virginia Regulatory Section
803 Front Street
Norfolk, Virginia 23510

November 15, 1999

RECEIVED
NOV 18 1999
Wmsbg Environmental Grp

Project Number: 99-R1060

Waterway: France Swamp

1. Participant:
American Eastern, Inc.
Chuck Glisan
632 Hampton Highway
Yorktown, VA 23693

2. Authorized Agent:
Williamsburg Environmental Group
Chuck Roadley
3000 Easter Circle
Williamsburg, VA 23188

3. Address of Job Site:
The proposed subdivision is West of Rt. 607 and south of Rt. 30.

4. Project Description:
Permanently impact 0.217 acres of wetlands associated with placement of three dams and outfalls for stormwater management facilities and impact approximately 0.58 acres of wetlands due to potential backflooding associated with the stormwater detention, as shown on the permit drawings revised on October 29, 1999 by Williamsburg Environmental Group.

5. Findings

This is regarding your request to perform work in the waters of the United States, as described in part 4 above. This activity has been reviewed and found to satisfy the criteria contained in the Corps Nationwide Permit (26), attached. (The Corps Nationwide Permits were published in the Federal Register (61 FR 65874) on December 13, 1996 and the regulations governing their use can be found in 33 CFR 330 published in Volume 56, Number 226 of the Federal Register dated November 22, 1991.)

Provided the enclosed conditions are met, an individual Department of the Army Permit will not be required. In addition, the Virginia Department of Environmental Quality has waived 401 certification for Nationwide Permit Number 26 for less than 1 acre of wetland impacts. However, a permit may be required from the Virginia Marine Resources Commission, and/or your local wetlands board, and this verification is not valid until you obtain their approval, if necessary. You may contact the Virginia Marine Resources Commission at (757) 247-2200 for further information concerning their permit requirements.

As a special condition of this modification, you will be required to monitor the areas upstream of the stormwater management facilities for a period of five years. The monitoring is required to document the species composition in the areas upstream of the proposed dams for the stormwater management facilities. Permanent monitoring stations should be established prior to construction, so that the same areas can be monitored over the five-year period. Data sheets and photos will be required every other growing season during the five-year period. If a substantial change in the wetland community is found, mitigation for wetland impacts may be required.

As mitigation for the proposed impacts the applicant has offered to place deed restrictions on the remaining wetlands on the site as stated in an October 6, 1999 Transmittal Letter to the Corps from Williamsburg Environmental Group. As a condition of this permit, the applicant must take the actions required to record a real estate instrument in the chain of title to the subject property which will require the preservation of the wetland mitigation area on the property, so the wetland area will remain in its natural condition for perpetuity. A Declaration of Restrictions must be recorded and proof of its recordation must be submitted to the Corps after completion of the mitigation work. If your attorney has any questions pertaining to the deed restrictions, please have him or her contact Susan Fall in our Office of Counsel at (757) 441-7710.

Enclosed is a "compliance certification" form, which must be signed and returned within 30 days of completion of the project, including any required mitigation (see nationwide permit condition number 14). Your signature on this form certifies that you have completed the work in accordance with the nationwide permit terms and conditions.

This verification is valid until Nationwide Permit (NWP) 26 expires or for 2 years, whichever comes first unless the Norfolk District Engineer uses discretionary authority to modify, suspend or revoke this verification. Currently NWP 26 expires on January 5, 2000. The Corps decision on the expiration date of NWP 26 will be published in the Federal Register. If the nationwide permit(s) verified in this letter are reissued without modification or if your activity complies with any subsequent nationwide permit, the expiration date of this verification will not change. However, if the nationwide permit(s) verified in the letter are modified or revoked so that the activity listed above would no longer be authorized and you have commenced or are under contract to commence the work, you will have twelve months from the date of that permit change to complete the activity. Activities completed under the authorization of a nationwide permit which was in effect at the time the activity was completed continue to be authorized by that nationwide permit.

LEGEND:

APPROXIMATE WETLAND LIMITS

APPROXIMATE WATERS OF THE U.S. LIMITS

TEMPORARY WETLAND IMPACTS

PERMANENT WETLAND IMPACTS

SITE DATA:

PROJECT AREA	314.18 ACRES +/-

JURISDICTIONAL AREAS:

WETLANDS	79.30 ACRES +/-
WATERS OF THE US (EXCLUDING WETLANDS)	14.88 ACRES +/-

JURISDICTIONAL AREA IMPACTS:

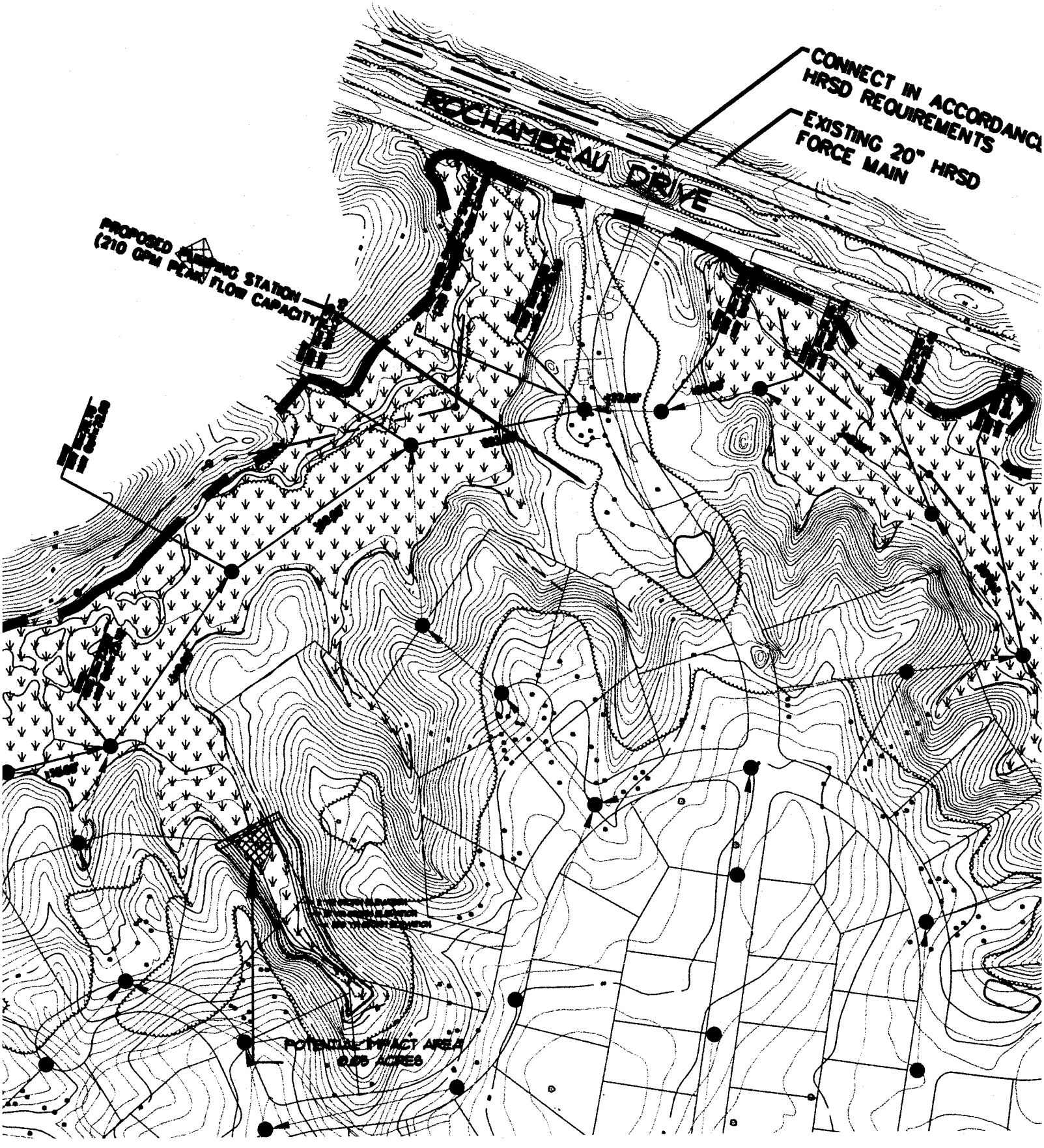
TEMPORARY WETLANDS IMPACT	3.85 ACRES +/-
PERMANENT WETLANDS IMPACT	.21 ACRES +/-

WILLIAMSBURG ENVIRONMENTAL GROUP, INC.

WETLAND IMPACTS MAP

WELLINGTON

JAMES CITY COUNTY, VIRGINIA


CONNECT IN ACCORDANCE
HRSD REQUIREMENTS
EXISTING 20" HRSD
FORCE MAIN
ROCHAMBEAU DRIVE
PROPOSED PUMPING STATION
(210 GPM PEAK FLOW CAPACITY)
POTENTIAL IMPACT AREA
0.05 ACRES

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

REPLY TO
ATTENTION OF:

AUG 2002
RECEIVED
ENVIRONMENTAL DIVISION

WELLINGTON

July 30, 2002

Southern Virginia Regulatory Section
99-R1060-16 (France Swamp)

American Eastern, Inc.
Mr. Chuck Glisan
632 Hampton Highway
Yorktown, Virginia 23693

Dear Mr. Glisan:

This is in reference to the Wellington Subdivision off Route 30 in James City County, Virginia. On November 15, 1999 we authorized a Nationwide Permit 26 for 0.217 acres of permanent wetland impacts and 0.58 acres of potential impacts due to backflooding (Corps permit number 99-R1060). The letter indicated that the authorization expired two years from the date of the letter. We do not have any record that you have applied for or been granted an extension of that permit. Nationwide 26 is no longer valid; therefore, you will need a new authorization for any remaining wetland impacts that have not yet occurred on the site. Please indicate the amount of impacts that have occurred and what work is remaining. In addition, please indicate when work commenced on the property.

As mitigation for the proposed impacts you offered to place deed restrictions on the remaining wetlands on the property. We have not received your recorded deed restrictions. In addition, you are required to monitor the wetland areas upstream of the three dry ponds for five years to determine the extent of flooding and impacts in those areas. You must establish monitoring locations and have them approved by the Corps. If you are not willing to monitor these areas, then we will have to assume an impact and may require additional compensatory mitigation.

On October 1, 1999 we authorized the installation of the utility line under Nationwide Permit 12. As a condition of that permit, you were required to notify my project manager, Melissa (Smith) Nash to set up a compliance inspection once the utility line was completed, but prior to the equipment being moved

offsite. This condition was to allow Ms. Nash to inspect the work and ensure that pre-existing elevations were established. In addition, the permit letter indicated that if the disturbed area did not revegetate with wetland species within one year, replanting the area may be required.

We are requesting that you respond to the questions in this letter within 30 days of the date of this letter. By copy of this letter we are also notifying James City County. Please contact Ms. Nash at (757) 441-7489 to set up a compliance inspection.

Sincerely,

R. Harold Jones, P.W.S.
Chief, Southern Virginia
Regulatory Section

Darryl Cook, James City County
Chuck Roadley, Williamburg Environmental Group

CERTIFICATION OF SOURCE OF TITLE

THE PROPERTY SHOWN ON THIS PLAT WAS CONVEYED BY NICE PROPERTIES, INC. A VIRGINIA CORPORATION TO WELLINGTON, L.L.C., A VIRGINIA LIMITED LIABILITY COMPANY BY DEED DATED JULY 15, 1999 AND RECORDED IN THE OFFICE OF THE CLERK OF THE CIRCUIT COURT OF THE COUNTY OF JAMES CITY AS INSTRUMENT NO. 990015562.

OWNER'S CERTIFICATE

THE SUBDIVISION AND LOT LINE EXTINGUISHMENT SHOWN ON THIS PLAT KNOWN AS WELLINGTON SECTION ONE IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRE OF THE UNDERSIGNED OWNERS, PROPRIETORS AND OR TRUSTEES.

FOR WELLINGTON, L.L.C. DATE

PRINTED NAME

CERTIFICATE OF NOTARIZATION

STATE OF VIRGINIA

CITY/COUNTY OF _____ I, _____

A NOTARY PUBLIC IN AND FOR THE CITY/COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT THE PERSONS WHOSE NAMES ARE SIGNED TO THE FOREGOING WRITING HAVE ACKNOWLEDGED THE SAME BEFORE ME IN THE CITY/COUNTY AFORESAID. GIVEN UNDER MY NAME THIS _____ DAY OF _____, 20___. MY COMMISSION EXPIRES _____.

SIGNATURE

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS PLAT COMPLIES WITH ALL OF THE REQUIREMENTS OF THE BOARD OF SUPERVISORS AND ORDINANCES OF THE COUNTY OF JAMES CITY, VIRGINIA, REGARDING THE PLATTING OF SUBDIVISIONS WITHIN THE COUNTY.

G. T. WILSON, JR., C.L.S. DATE

CERTIFICATE OF APPROVAL

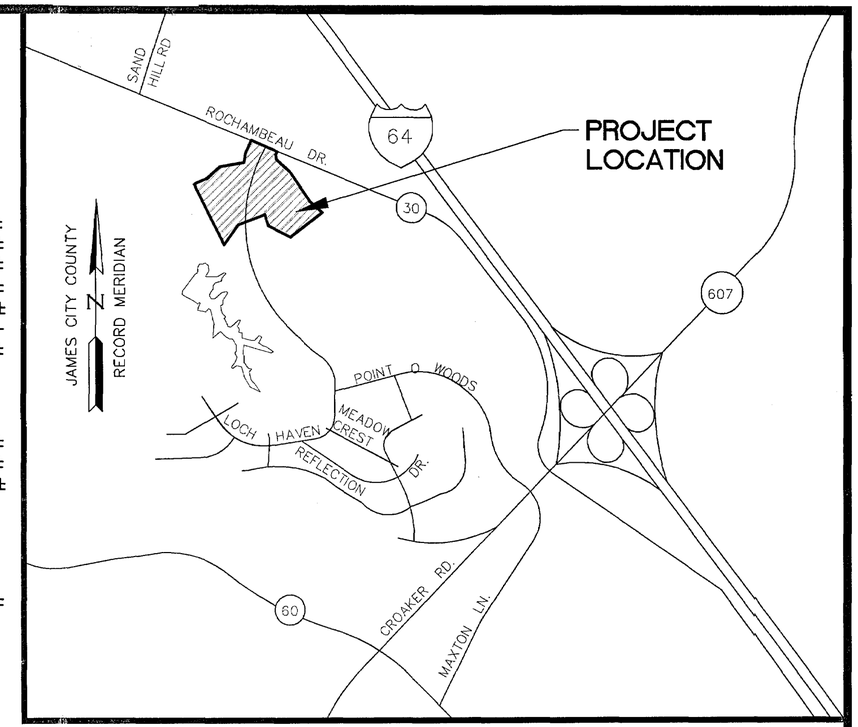
THIS SUBDIVISION AND LOT LINE EXTINGUISHMENT IS APPROVED BY THE UNDERSIGNED IN ACCORDANCE WITH EXISTING SUBDIVISION REGULATIONS AND MAY BE ADMITTED TO RECORD.

VIRGINIA DEPARTMENT OF TRANSPORTATION DATE

SUBDIVISION AGENT OF JAMES CITY COUNTY DATE

AREA TABULATION
WELLINGTON
SECTION ONE
LOTS 1 - 48

	SQUARE FEET	ACRES
AREA OF RESIDENTIAL LOTS	1,168,328 S.F.	26.82 AC.±
AREA OF PUMP STATION LOT	19,915 S.F.	0.46 AC.±
AREA OF RIGHT OF WAY	247,952 S.F.	5.69 AC.±
AREA OF OPEN SPACE #1	172,806 S.F.	3.97 AC.±
AREA OF OPEN SPACE #2	296,247 S.F.	6.80 AC.±
TOTAL AREA SUBDIVIDED	1,905,248 S.F.	43.74 AC.±
NUMBER OF LOTS	48	
AVERAGE LOT SIZE	24,340 S.F.	0.56 AC.±
SMALLEST LOT (LOTS 44,45,46)	15,000 S.F.	0.34 AC.±
LARGEST LOT (LOT 33)	123,555 S.F.	2.84 AC.±
GROSS LOTS PER ACRE	1.10	
TOTAL AREA OF NATURAL OPEN SPACE TO BE A CONSERVATION EASEMENT CONVEYED TO JAMES CITY COUNTY	486,424 S.F.	11.17 AC.±



LOCATION MAP SCALE: 1"=2000'

GENERAL NOTES

1. PROPERTY IS ZONED R-1, LIMITED RESIDENTIAL DISTRICT.
2. PROPERTY IS PART OF TAX PARCEL (13-4)(1-17) AND TAX PARCEL (13-3)(1-12).
3. SETBACKS: (UNLESS OTHERWISE NOTED)
   FRONT = 35'
   SIDE = 15'
   REAR = 35'

   IF LOT IS LESS THAN 1 ACRE, MINIMUM WIDTH AT SETBACK LINE IS 100 FT.

   IF LOT IS MORE THAN 1 ACRE, MINIMUM WIDTH AT SETBACK LINE IS 150 FT.
4. SPECIAL PROVISIONS FOR CORNER LOTS
   A) OF THE 2 SIDES OF A CORNER LOT, THE FRONT OF THE LOT SHALL BE DEEMED TO BE THE SHORTER OF THE 2 SIDES FRONTING THE STREETS.
   B) EACH CORNER LOT SHALL HAVE A MINIMUM WIDTH AT THE SETBACK LINE OF 125 FT.
5. THIS SITE SHALL BE SERVED BY PUBLIC SEWER AND WATER SYSTEMS OF THE JAMES CITY SERVICE AUTHORITY.
6. ALL UTILITIES ARE TO BE PLACED UNDERGROUND.
7. THESE STREETS ARE HEREBY DEDICATED TO PUBLIC USE.
8. WETLANDS AND LAND WITHIN RESOURCE PROTECTION AREAS SHALL REMAIN IN A NATURAL UNDISTURBED STATE EXCEPT FOR THOSE ACTIVITIES PERMITTED BY SECTION 23-9(C)(1) OF THE JAMES CITY COUNTY CODE.
9. NATURAL OPEN SPACE EASEMENTS SHALL REMAIN IN A NATURAL UNDISTURBED STATE EXCEPT FOR THOSE ACTIVITIES REFERENCED ON THE DEED OF EASEMENT.
10. MONUMENTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTIONS 19-34 THROUGH 19-36 OF THE JAMES CITY COUNTY SUBDIVISION ORDINANCE.
11. THIS PROPERTY IS IN FIRM ZONE "X" AS SHOWN ON COMMUNITY PANEL 510201-0030B, DATED 2/6/1991 OF THE FLOOD INSURANCE RATE MAPS FOR JAMES CITY COUNTY, VIRGINIA. ZONE X IS DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 500 YEAR FLOOD PLAIN.
12. THIS PROPERTY IS SUBJECT TO THE DECLARATION OF COVENANTS, CODES, AND RESTRICTIONS MADE ON FEBRUARY 28, 2000 AND RECORDED AS DOCUMENT NO. 000005624 IN THE OFFICE OF THE CLERK OF THE CIRCUIT COURT OF THE COUNTY OF JAMES CITY.
13. UNLESS OTHERWISE NOTED ALL DRAINAGE EASEMENTS DESIGNATED ON THIS PLAT SHALL REMAIN PRIVATE.
14. TEMPORARY DRAINAGE EASEMENTS AS SHOWN ARE SEDIMENT TRAPS THAT SHALL REMAIN IN PLACE AND FUNCTIONAL UNTIL 75% OF THE AFFECTED LOTS ARE SOLD TO A THIRD PARTY UNRELATED TO THE DEVELOPER FOR THE CONSTRUCTION OF HOMES (A BULK SALE TO ANOTHER BUILDER WOULD NOT SATISFY THIS PROVISION) OR CONSTRUCTION HAS BEEN COMPLETED AND SOIL STABILIZED ON 60% OF THE AFFECTED LOTS.

S-056-01

RECEIVED
4 MAY 2001
PLANNING DEPARTMENT

STATE OF VIRGINIA
COUNTY OF JAMES CITY

IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF THE COUNTY OF JAMES CITY, THIS _____ DAY OF _____, 2001. THE PLAT SHOWN HEREON WAS PRESENTED AND ADMITTED TO THE RECORD AS THE LAW DIRECTS.

TESTE: _____
CLERK

PLAT BOOK_____, PAGE

05.11.01-08:57 WELL02p1.dwg JFS

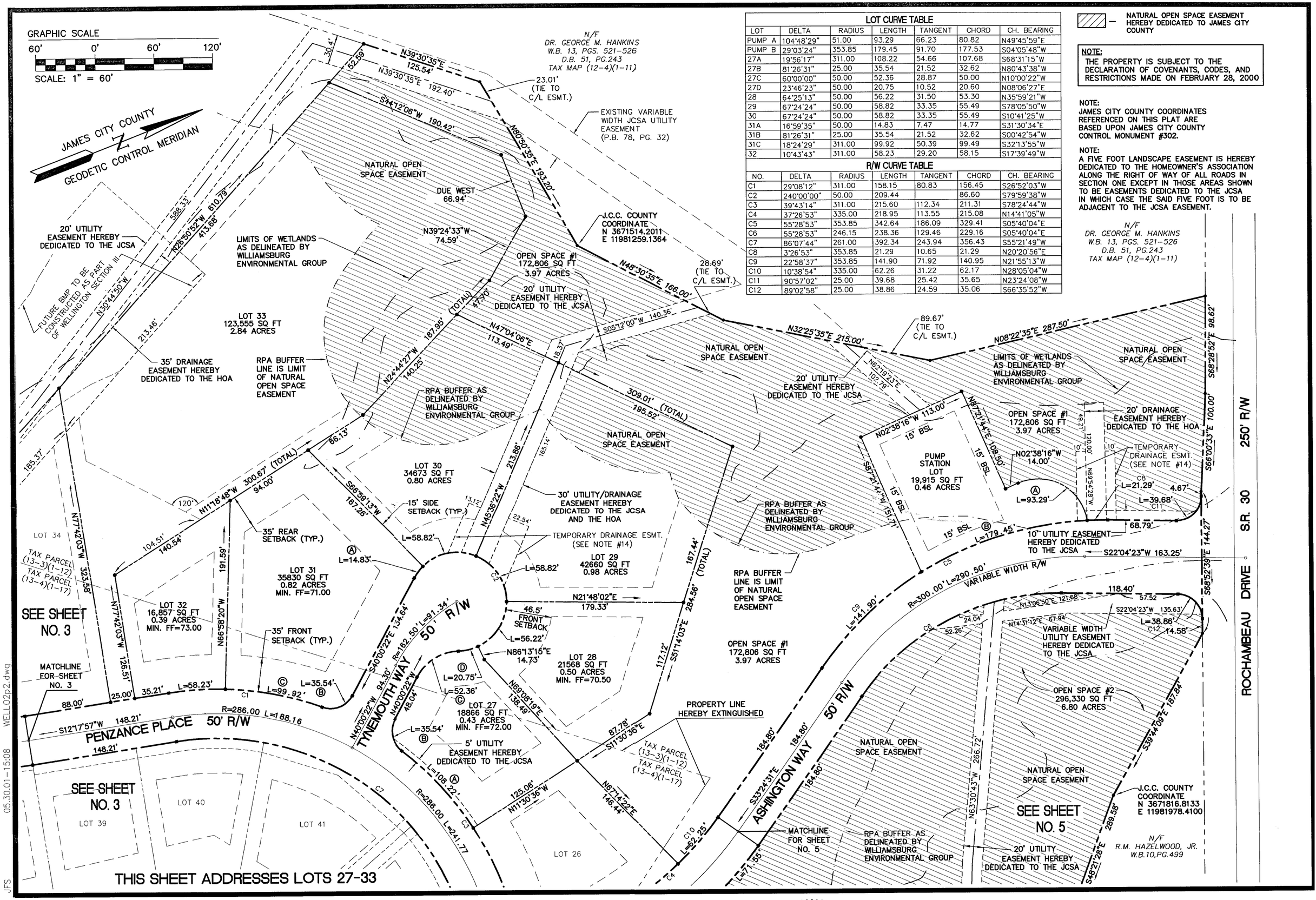
CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994

PLAT OF SUBDIVISION
AND LOT LINE EXTINGUISHMENT
WELLINGTON
SECTION ONE
LOTS 1-48
BEING THE PROPERTY OF
WELLINGTON, L.L.C.
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

COMMONWEALTH OF VIRGINIA
G.T. WILSON, JR.
CERTIFICATE No.
1183
CERTIFIED LAND SURVEYOR

No.	DATE	REVISION / COMMENT / NOTE	BY
2	5/11/01	REVISED PER COUNTY COMMENTS	JFS
1	4/11/01	REVISED PER COUNTY COMMENTS	JFS

Designed HWP	Drawn JFS
Scale NOTED	Date 3/9/01
Project No. 8223-2	
Drawing No. 1 OF 5	



LOT CURVE TABLE						
LOT	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
PUMP A	104°48'29"	51.00	93.29	66.23	80.82	N49°45'59"E
PUMP B	29°03'24"	353.85	179.45	91.70	177.53	S04°05'48"W
27A	19°56'17"	311.00	108.22	54.66	107.68	S68°31'15"W
27B	81°26'31"	25.00	35.54	21.52	32.62	N80°43'38"W
27C	60°00'00"	50.00	52.36	28.87	50.00	N10°00'22"W
27D	23°46'23"	50.00	20.75	10.52	20.60	N08°06'27"E
28	64°25'13"	50.00	56.22	31.50	53.30	N35°59'21"W
29	67°24'24"	50.00	58.82	33.35	55.49	S78°05'50"W
30	67°24'24"	50.00	58.82	33.35	55.49	S10°41'25"W
31A	16°59'35"	50.00	14.83	7.47	14.77	S31°30'34"E
31B	81°26'31"	25.00	35.54	21.52	32.62	S00°42'54"W
31C	18°24'29"	311.00	99.92	50.39	99.49	S32°13'55"W
32	10°43'43"	311.00	58.23	29.20	58.15	S17°39'49"W

R/W CURVE TABLE						
NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
C1	29°08'12"	311.00	158.15	80.83	156.45	S26°52'03"W
C2	240°00'00"	50.00	209.44		86.60	S79°59'38"W
C3	39°43'14"	311.00	215.60	112.34	211.31	S78°24'44"W
C4	37°26'53"	335.00	218.95	113.55	215.08	N14°41'05"W
C5	55°28'53"	353.85	342.64	186.09	329.41	S05°40'04"E
C6	55°28'53"	246.15	238.36	129.46	229.16	S05°40'04"E
C7	86°07'44"	261.00	392.34	243.94	356.43	S55°21'49"W
C8	3°26'53"	353.85	21.29	10.65	21.29	N20°20'56"E
C9	22°58'37"	353.85	141.90	71.92	140.95	N21°55'13"W
C10	10°38'54"	335.00	62.26	31.22	62.17	N28°05'04"W
C11	90°57'02"	25.00	39.68	25.42	35.65	N23°24'08"W
C12	89°02'58"	25.00	38.86	24.59	35.06	S66°35'52"W

NATURAL OPEN SPACE EASEMENT HEREBY DEDICATED TO JAMES CITY COUNTY

NOTE:
THE PROPERTY IS SUBJECT TO THE DECLARATION OF COVENANTS, CODES, AND RESTRICTIONS MADE ON FEBRUARY 28, 2000

NOTE:
JAMES CITY COUNTY COORDINATES REFERENCED ON THIS PLAT ARE BASED UPON JAMES CITY COUNTY CONTROL MONUMENT #302.

NOTE:
A FIVE FOOT LANDSCAPE EASEMENT IS HEREBY DEDICATED TO THE HOMEOWNER'S ASSOCIATION ALONG THE RIGHT OF WAY OF ALL ROADS IN SECTION ONE EXCEPT IN THOSE AREAS SHOWN TO BE EASEMENTS DEDICATED TO THE JCSA IN WHICH CASE THE SAID FIVE FOOT IS TO BE ADJACENT TO THE JCSA EASEMENT.

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994

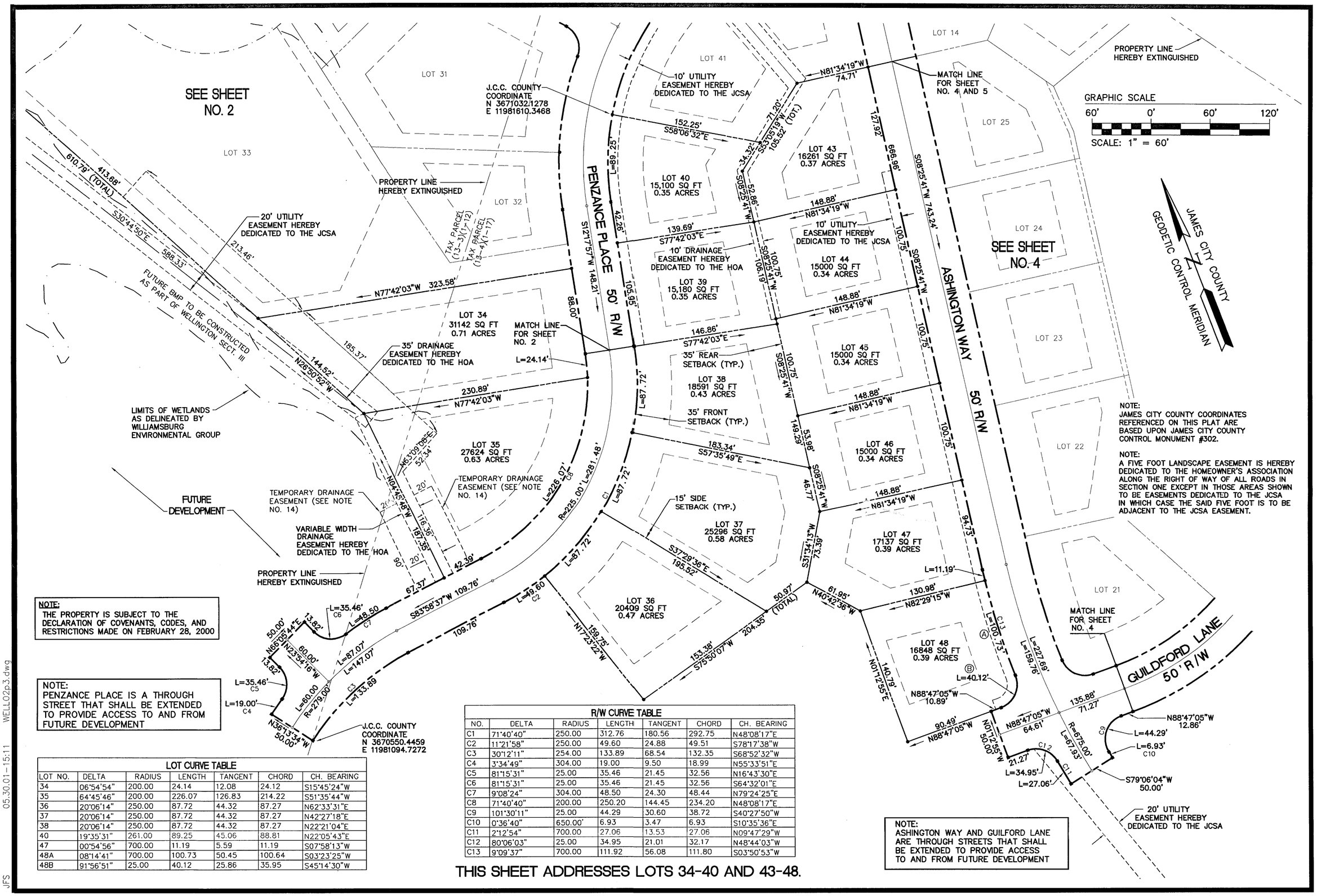
PLAT OF SUBDIVISION AND LOT LINE EXTINGUISHMENT
WELLINGTON SECTION ONE
LOTS 1-48
BEING THE PROPERTY OF WELLINGTON, L.L.C.
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

COMMONWEALTH OF VIRGINIA
G.T. WILSON, JR.
CERTIFICATE No. 1183
CERTIFIED LAND SURVEYOR

No.	DATE	REVISION / COMMENT / NOTE	BY
2	5/11/01	REVISED PER COUNTY COMMENTS	JFS
1	4/11/01	REVISED PER COUNTY COMMENTS	JFS

Designed HWP	Drawn JFS
Scale 1"=60'	Date 3/9/01
Project No. 8223-2	
Drawing No. 2 OF 5	

05.30.01-15:08 WELL02p2.dwg JFS



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NOTE:
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NOTE:
PENZANCE PLACE IS A THROUGH STREET THAT SHALL BE EXTENDED TO PROVIDE ACCESS TO AND FROM FUTURE DEVELOPMENT

NOTE:
ASHINGTON WAY AND GUILFORD LANE ARE THROUGH STREETS THAT SHALL BE EXTENDED TO PROVIDE ACCESS TO AND FROM FUTURE DEVELOPMENT

LOT CURVE TABLE

LOT NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
34	06°54'54"	200.00	24.14	12.08	24.12	S15°45'24"W
35	64°45'46"	200.00	226.07	126.83	214.22	S51°35'44"W
36	20°06'14"	250.00	87.72	44.32	87.27	N62°33'31"E
37	20°06'14"	250.00	87.72	44.32	87.27	N42°27'18"E
38	20°06'14"	250.00	87.72	44.32	87.27	N22°21'04"E
40	19°35'31"	261.00	89.25	45.06	88.81	N22°05'43"E
47	00°54'56"	700.00	11.19	5.59	11.19	S07°58'13"W
48A	08°14'41"	700.00	100.73	50.45	100.64	S03°23'25"W
48B	91°56'51"	25.00	40.12	25.86	35.95	S45°14'30"W

R/W CURVE TABLE

NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
C1	71°40'40"	250.00	312.76	180.56	292.75	N48°08'17"E
C2	11°21'58"	250.00	49.60	24.88	49.51	S78°17'38"W
C3	30°12'11"	254.00	133.89	68.54	132.35	S68°52'32"W
C4	3°34'49"	304.00	19.00	9.50	18.99	N55°33'51"E
C5	81°15'31"	25.00	35.46	21.45	32.56	N16°43'30"E
C6	81°15'31"	25.00	35.46	21.45	32.56	S64°32'01"E
C7	9°08'24"	304.00	48.50	24.30	48.44	N79°24'25"E
C8	71°40'40"	200.00	250.20	144.45	234.20	N48°08'17"E
C9	101°30'11"	25.00	44.29	30.60	38.72	S40°27'50"W
C10	0°36'40"	650.00'	6.93	3.47	6.93	S10°35'36"E
C11	2°12'54"	700.00	27.06	13.53	27.06	N09°47'29"W
C12	80°06'03"	25.00	34.95	21.01	32.17	N48°44'03"W
C13	9°09'37"	700.00	111.92	56.08	111.80	S03°50'53"W

THIS SHEET ADDRESSES LOTS 34-40 AND 43-48.

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WELLINGTON
SECTION ONE
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COMMONWEALTH OF VIRGINIA
G.T. WILSON, JR.
CERTIFICATE No. 1183
CERTIFIED LAND SURVEYOR

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Designed HWP	Drawn JFS
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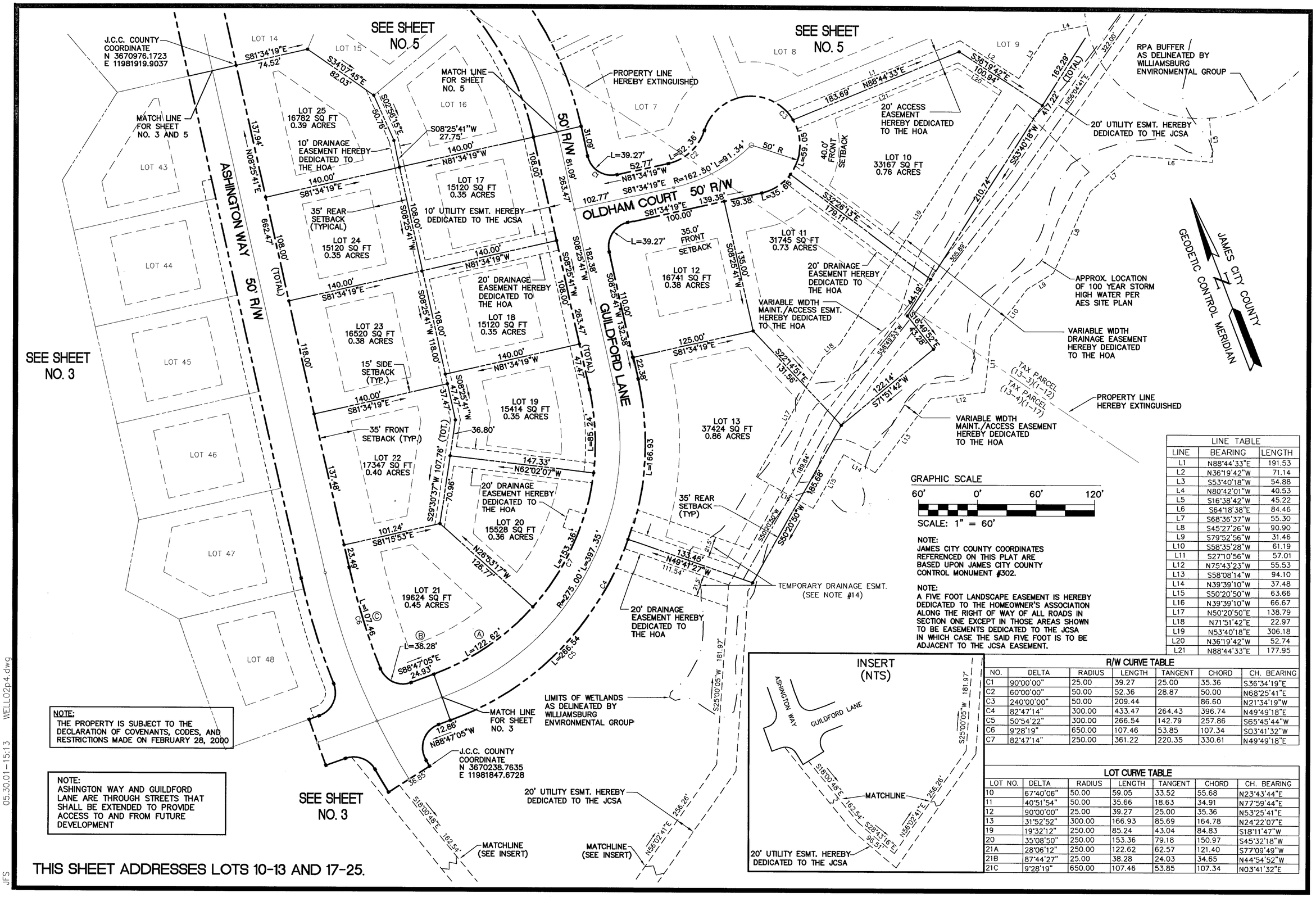
Project No. 8223-2	
Drawing No. 3 OF 5	



NOTE:
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NOTE:
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NOTE:
ASHINGTON WAY AND GUILDFORD LANE ARE THROUGH STREETS THAT SHALL BE EXTENDED TO PROVIDE ACCESS TO AND FROM FUTURE DEVELOPMENT

THIS SHEET ADDRESSES LOTS 10-13 AND 17-25.

LINE TABLE

LINE	BEARING	LENGTH
L1	N88°44'33"E	191.53
L2	N36°19'42"W	71.14
L3	S53°40'18"W	54.88
L4	N80°42'01"W	40.53
L5	S16°38'42"W	45.22
L6	S64°18'38"E	84.46
L7	S68°36'37"W	55.30
L8	S45°27'26"W	90.90
L9	S79°52'56"W	31.46
L10	S58°35'28"W	61.19
L11	S27°10'56"W	57.01
L12	N75°43'23"W	55.53
L13	S58°08'14"W	94.10
L14	N39°39'10"W	37.48
L15	S50°20'50"W	63.66
L16	N39°39'10"W	66.67
L17	N50°20'50"E	138.79
L18	N71°51'42"E	22.97
L19	N53°40'18"E	306.18
L20	N36°19'42"W	52.74
L21	N88°44'33"E	177.95

R/W CURVE TABLE

NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
C1	90°00'00"	25.00	39.27	25.00	35.36	S36°34'19"E
C2	60°00'00"	50.00	52.36	28.87	50.00	N68°25'41"E
C3	240°00'00"	50.00	209.44		86.60	N21°34'19"W
C4	82°47'14"	300.00	433.47	264.43	396.74	N49°49'18"E
C5	50°54'22"	300.00	266.54	142.79	257.86	S65°45'44"W
C6	9°28'19"	650.00	107.46	53.85	107.34	S03°41'32"W
C7	82°47'14"	250.00	361.22	220.35	330.61	N49°49'18"E

LOT CURVE TABLE

LOT NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
10	67°40'06"	50.00	59.05	33.52	55.68	N23°43'44"E
11	40°51'54"	50.00	35.66	18.63	34.91	N77°59'44"E
12	90°00'00"	25.00	39.27	25.00	35.36	N53°25'41"E
13	31°52'52"	300.00	166.93	85.69	164.78	N24°22'07"E
19	19°32'12"	250.00	85.24	43.04	84.83	S18°11'47"W
20	35°08'50"	250.00	153.36	79.18	150.97	S45°32'18"W
21A	28°06'12"	250.00	122.62	62.57	121.40	S77°09'49"W
21B	87°44'27"	25.00	38.28	24.03	34.65	N44°54'52"W
21C	9°28'19"	650.00	107.46	53.85	107.34	N03°41'32"E

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WELLINGTON SECTION ONE
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STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

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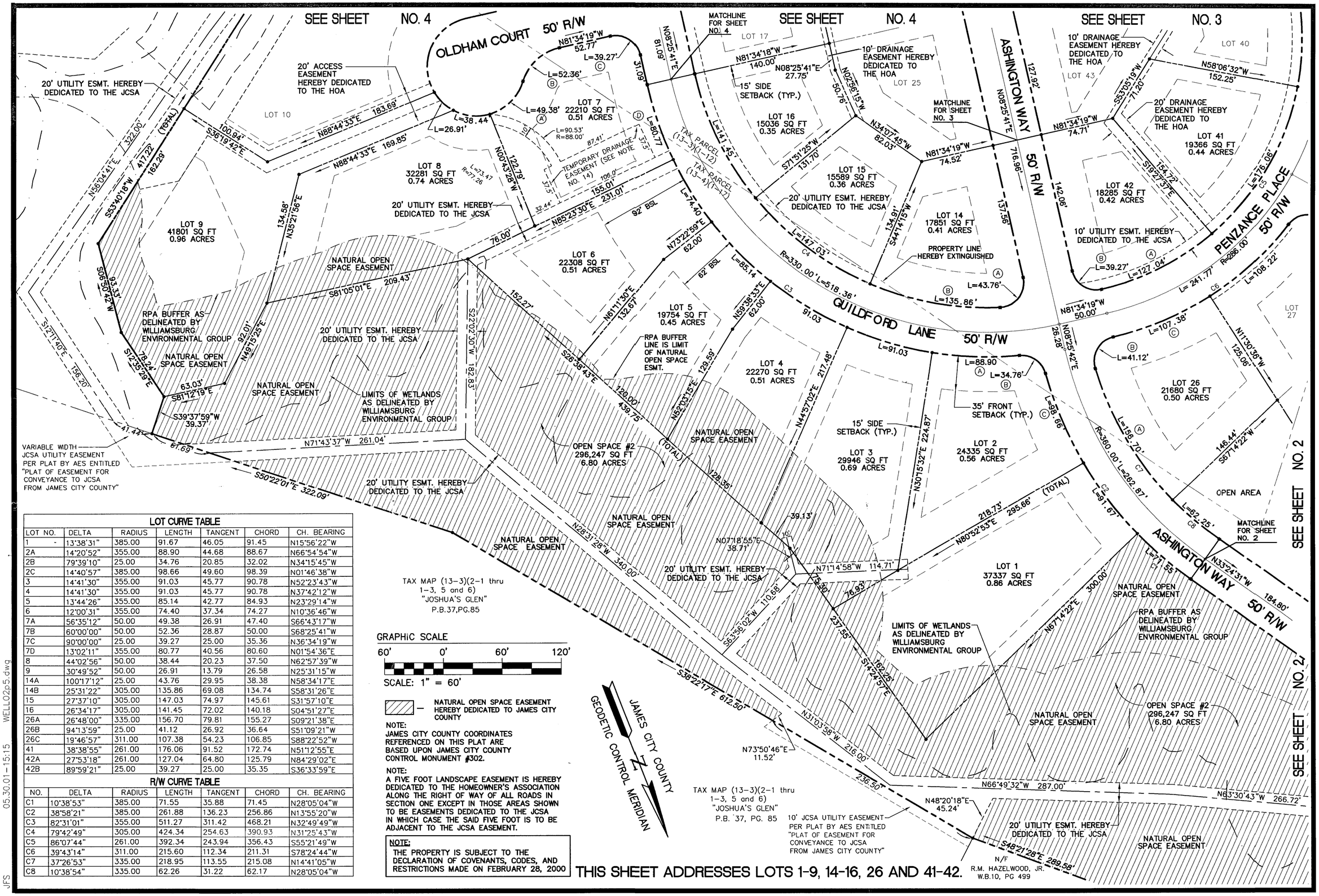
Scale 1"=60'	Date 3/9/01
Project No. 8223-2	
Drawing No. 4 OF 5	

05.30.01–15:13 WELL02p4.dwg JFS



LOT CURVE TABLE

LOT NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
1 -	13°38'31"	385.00	91.67	46.05	91.45	N15°56'22"W
2A	14°20'52"	355.00	88.90	44.68	88.67	N66°54'54"W
2B	79°39'10"	25.00	34.76	20.85	32.02	N34°15'45"W
2C	14°40'57"	385.00	98.66	49.60	98.39	N01°46'38"W
3	14°41'30"	355.00	91.03	45.77	90.78	N52°23'43"W
4	14°41'30"	355.00	91.03	45.77	90.78	N37°42'12"W
5	13°44'26"	355.00	85.14	42.77	84.93	N23°29'14"W
6	12°00'31"	355.00	74.40	37.34	74.27	N10°36'46"W
7A	56°35'12"	50.00	49.38	26.91	47.40	S66°43'17"W
7B	60°00'00"	50.00	52.36	28.87	50.00	S68°25'41"W
7C	90°00'00"	25.00	39.27	25.00	35.36	N36°34'19"W
7D	13°02'11"	355.00	80.77	40.56	80.60	N01°54'36"E
8	44°02'56"	50.00	38.44	20.23	37.50	N62°57'39"W
9	30°49'52"	50.00	26.91	13.79	26.58	N25°31'15"W
14A	100°17'12"	25.00	43.76	29.95	38.38	N58°34'17"E
14B	25°31'22"	305.00	135.86	69.08	134.74	S58°31'26"E
15	27°37'10"	305.00	147.03	74.97	145.61	S31°57'10"E
16	26°34'17"	305.00	141.45	72.02	140.18	S04°51'27"E
26A	26°48'00"	335.00	156.70	79.81	155.27	S09°21'38"E
26B	94°13'59"	25.00	41.12	26.92	36.64	S51°09'21"W
26C	19°46'57"	311.00	107.38	54.23	106.85	S88°22'52"W
41	38°38'55"	261.00	176.06	91.52	172.74	N51°12'55"E
42A	27°53'18"	261.00	127.04	64.80	125.79	N84°29'02"E
42B	89°59'21"	25.00	39.27	25.00	35.35	S36°33'59"E

R/W CURVE TABLE

NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
C1	10°38'53"	385.00	71.55	35.88	71.45	N28°05'04"W
C2	38°58'21"	385.00	261.88	136.23	256.86	N13°55'20"W
C3	82°31'01"	355.00	511.27	311.42	468.21	N32°49'49"W
C4	79°42'49"	305.00	424.34	254.63	390.93	N31°25'43"W
C5	86°07'44"	261.00	392.34	243.94	356.43	S55°21'49"W
C6	39°43'14"	311.00	215.60	112.34	211.31	S78°24'44"W
C7	37°26'53"	335.00	218.95	113.55	215.08	N14°41'05"W
C8	10°38'54"	335.00	62.26	31.22	62.17	N28°05'04"W

05.30.01-15:15 WELL02p5.dwg JFS

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994

PLAT OF SUBDIVISION AND LOT LINE EXTINGUISHMENT
WELLINGTON SECTION ONE
LOTS 1-48
BEING THE PROPERTY OF WELLINGTON, L.L.C.
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

COMMONWEALTH OF VIRGINIA
G.T. WILSON, JR.
CERTIFICATE No. 1183
CERTIFIED LAND SURVEYOR

No.	DATE	REVISION / COMMENT / NOTE	BY
2	5/11/01	REVISED PER COUNTY COMMENTS	JFS
1	4/11/01	REVISED PER COUNTY COMMENTS	JFS

Designed HWP	Drawn JFS
Scale 1"=60'	Date 3/9/01
Project No. 8223-2	
Drawing No. 5 OF 5	

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION James City County, VA

BORING NO. B-10 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 77.33

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 6"	
12	16"	Yellowish brown, damp, fine to veryfine silty sand with little clay	S-1
24		Tan mottle white, damp, fine to veryfine sandy silt (SM)	S-2
36			
48			
60	55"		
	63"	Orange mottle tan, damp, fine to very fine sandy silt (SM)	S-3
72	78"	Yellowish brown, damp, fine to very fine sandy silt (SM)	S-4
84		Orange, moist, clayey silt (ML)	S-5
96	94"		
108		Orange, moist, silt with clay (ML)	S-6
120	120"		
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

Our letters and reports are for the exclusive use of the client to whom they are addressed. The use of our name must receive our prior written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not necessarily indicative of the qualities of apparently indentical or similar products.

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION ~~James City County, VA~~

BORING NO. B-11 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 79.50

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 5 1/3"	
12		Yellowish brown, damp, very fine, silty sand with trace clay	S-1
24	18"		
36		Orange mottle red, moist, fine to very fine silty sand (SM)	S-2
48	48"		
60		Yellowish brown, moist, fine to very fine sandy silt (SM)	S-3
72			
84	86"		
96		Tan mottle pink, moist, fine to very fine sandy silt (SM)	S-4
108			
120	120"		
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

Our letters and reports are for the exclusive use of the client to whom they are addressed. The use of our name must receive our prior written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not necessarily indicative of the qualities of apparently indentical or similar products.

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MAY 2001
RECEIVED
ENVIRONMENTAL DIVISION

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #1

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Yellowish brown, fine to very fine silty sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.9	99.1
20	0.7	98.4
40	1.0	97.4
60	5.0	92.4
100	37.1	55.3
200	27.5	27.8

% SILT: 23.7
% CLAY: 4.1

LIQUID LIMIT	10
PLASTIC LIMIT	N/A
PLASTIC INDEX	N/P
UNSOAKED CBR	22.5
SOAKED CBR	15.1
SWELL	0.015
MAXIMUM DRY WEIGHT	103.5
OPTIMUM MOISTURE	10.6
SPECIFIC GRAVITY	2.65
PH	5.0

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

Respectfully submitted,
Herbert and Associates, Ltd.

John A. Herbert

John A. Herbert, S.E.T.
President

Herbert and Associates, Ltd.
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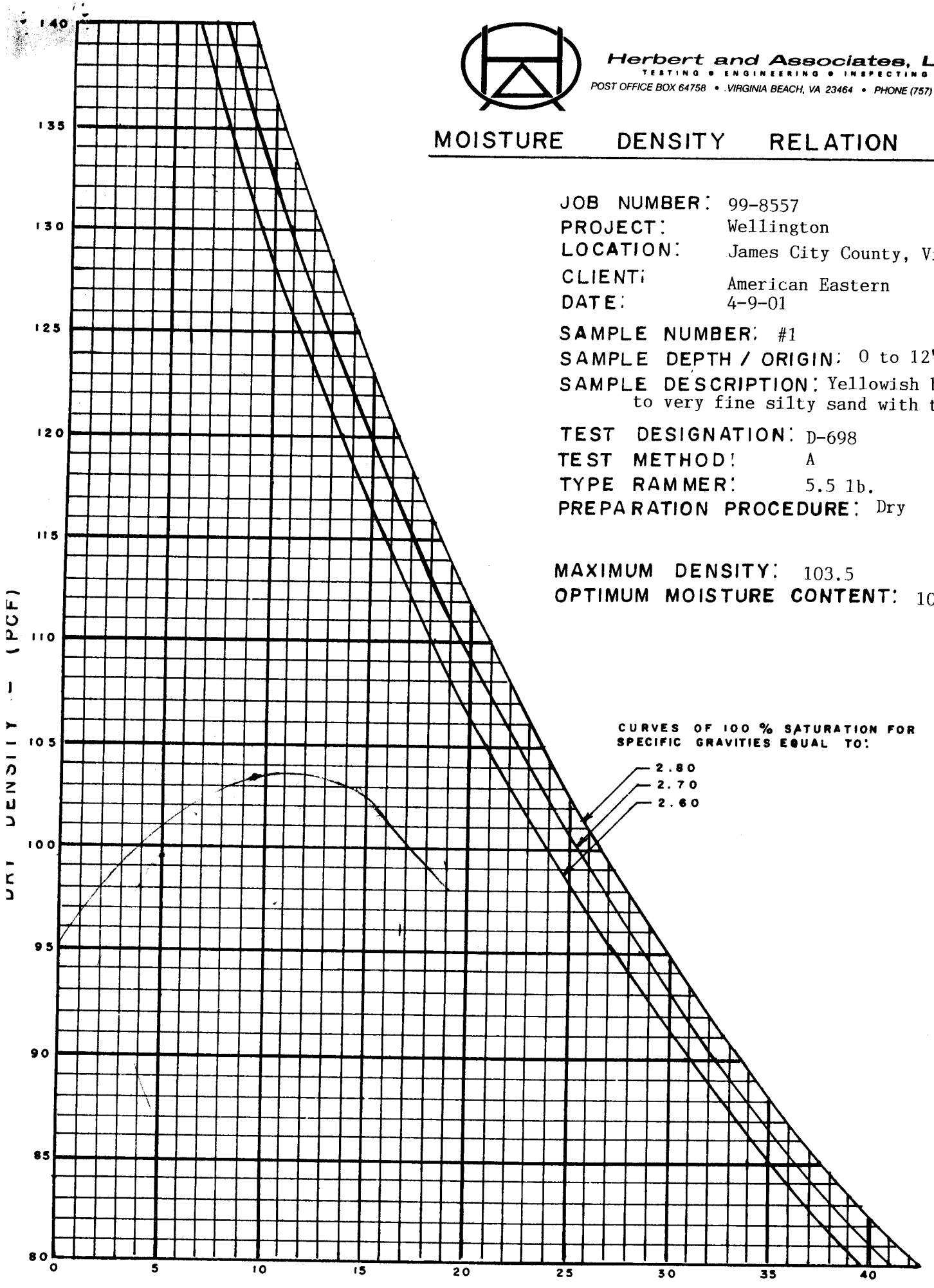
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-9-01

SAMPLE NUMBER: #1
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Yellowish brown fine to very fine silty sand with trace clay

TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 103.5 PCF
OPTIMUM MOISTURE CONTENT: 10.6 %



Herbert and Associates, Ltd.

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #2

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Yellowish brown, fine silty sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.3	99.7
20	0.2	99.5
40	3.1	96.4
60	14.0	82.4
100	28.7	53.7
200	24.0	29.7

% SILT: 23.6
% CLAY: 6.1

LIQUID LIMIT	10
PLASTIC LIMIT	N/A
PLASTIC INDEX	N/P
UNSOAKED CBR	21.2
SOAKED CBR	14.1
SWELL	0.048
MAXIMUM DRY WEIGHT	112.4
OPTIMUM MOISTURE	11.5
SPECIFIC GRAVITY	2.63
PH	4.0

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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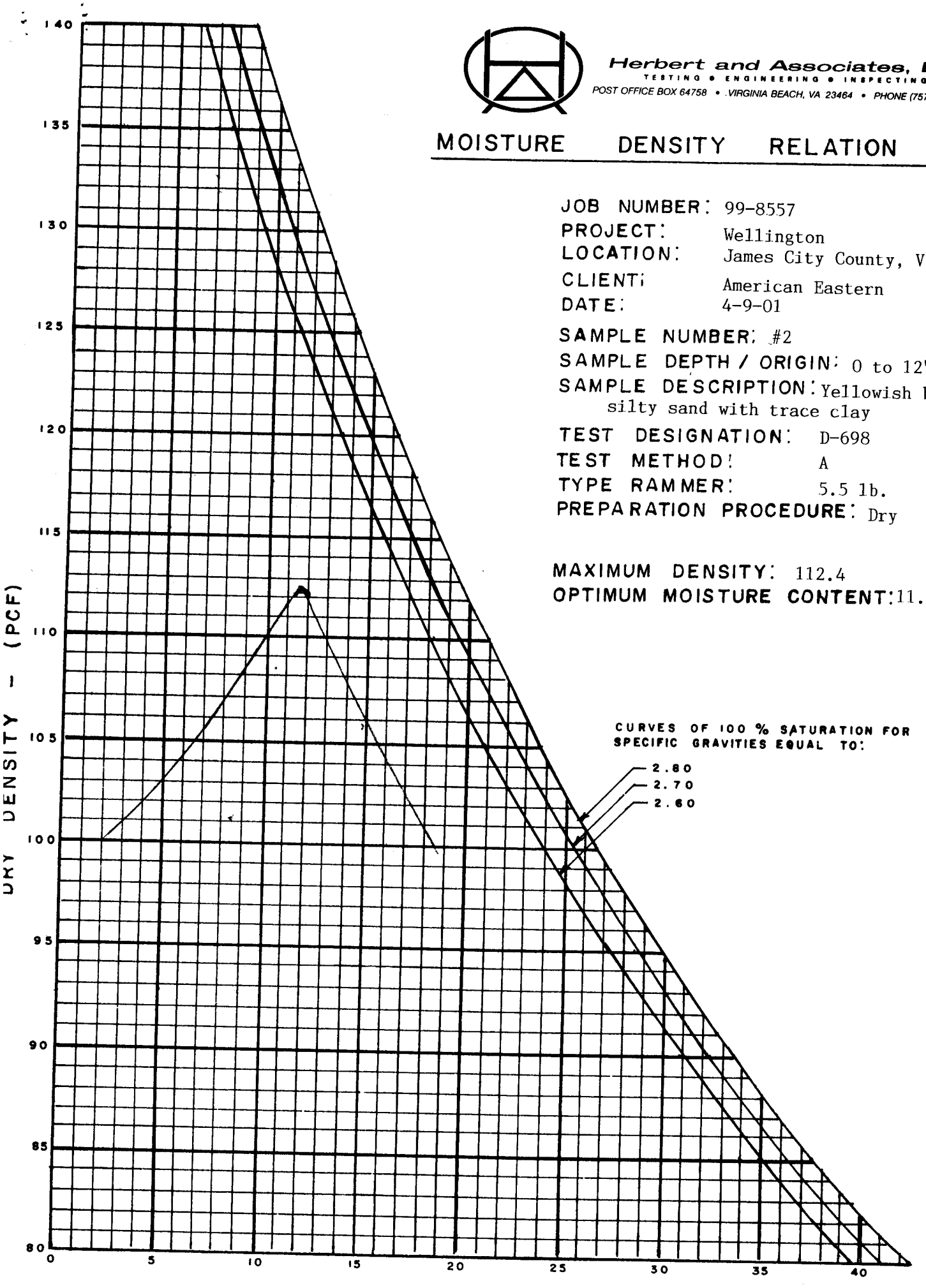
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-9-01

SAMPLE NUMBER: #2
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Yellowish brown fine silty sand with trace clay
TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 112.4 PCF
OPTIMUM MOISTURE CONTENT: 11.5 %



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SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #3

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Strong brown, fine to very fine silty sand with little clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.4	99.6
20	0.4	99.2
40	0.6	98.6
60	13.2	85.4
100	22.0	63.4
200	20.4	43.0

% SILT: 30.8
% CLAY: 12.2

LIQUID LIMIT	30
PLASTIC LIMIT	N/A
PLASTIC INDEX	N/P
UNSOAKED CBR	16.8
SOAKED CBR	12.3
SWELL	0.088
MAXIMUM DRY WEIGHT	110.8
OPTIMUM MOISTURE	13.4
SPECIFIC GRAVITY	2.65
PH	4.0

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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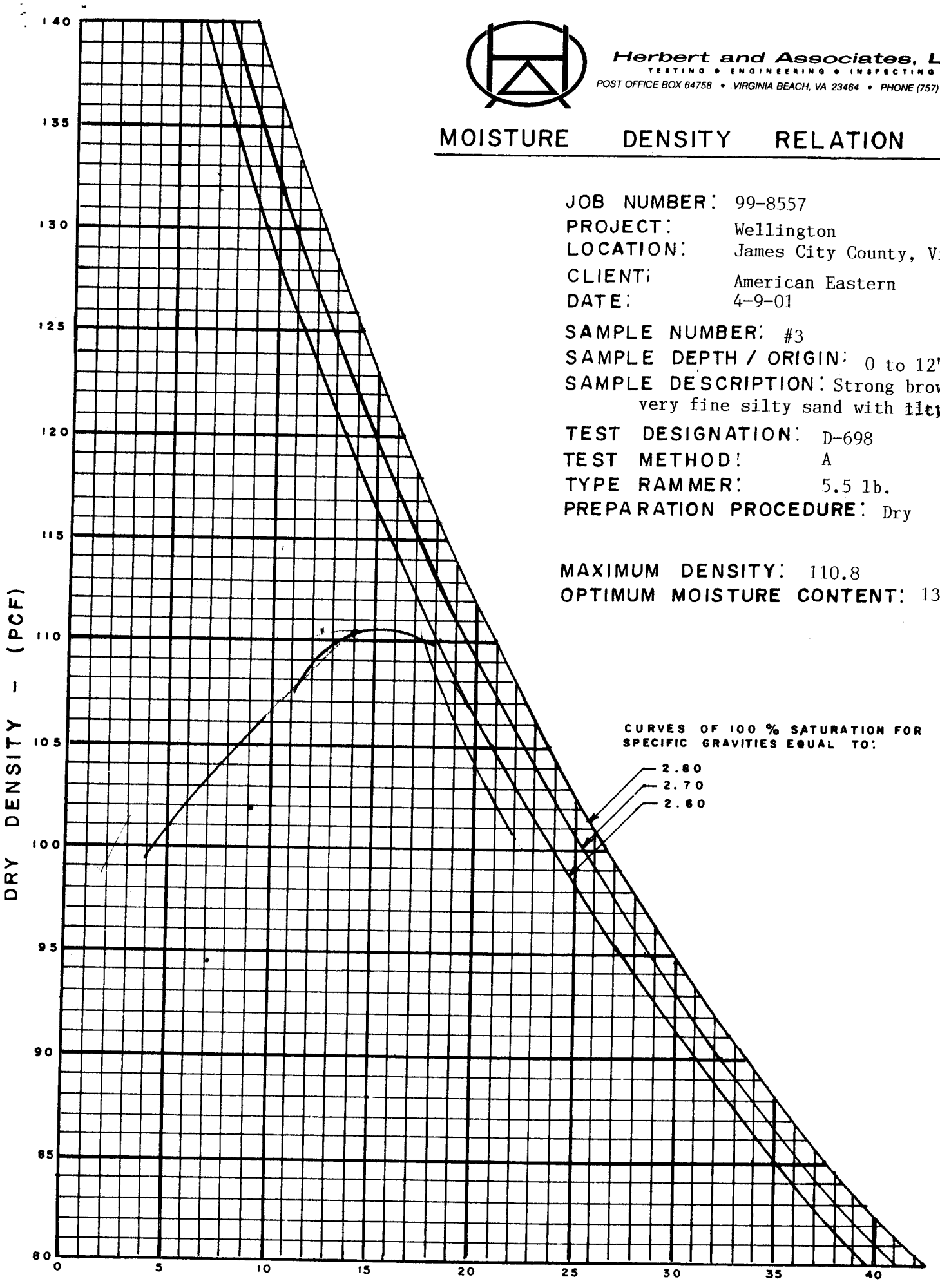
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-9-01

SAMPLE NUMBER: #3
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Strong brown fine to very fine silty sand with little clay

TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 110.8 PCF
OPTIMUM MOISTURE CONTENT: 13.4 %



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SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #4

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Strong brown, fine to very fine silty sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.1	99.9
20	0.1	99.8
40	0.3	99.5
60	17.7	81.8
100	27.9	53.9
200	20.8	33.1

% SILT: 23.0
% CLAY: 10.1

LIQUID LIMIT	30
PLASTIC LIMIT	22
PLASTIC INDEX	8
UNSOAKED CBR	17.5
SOAKED CBR	12.8
SWELL	0.065
MAXIMUM DRY WEIGHT	110.8
OPTIMUM MOISTURE	14.1
SPECIFIC GRAVITY	2.62
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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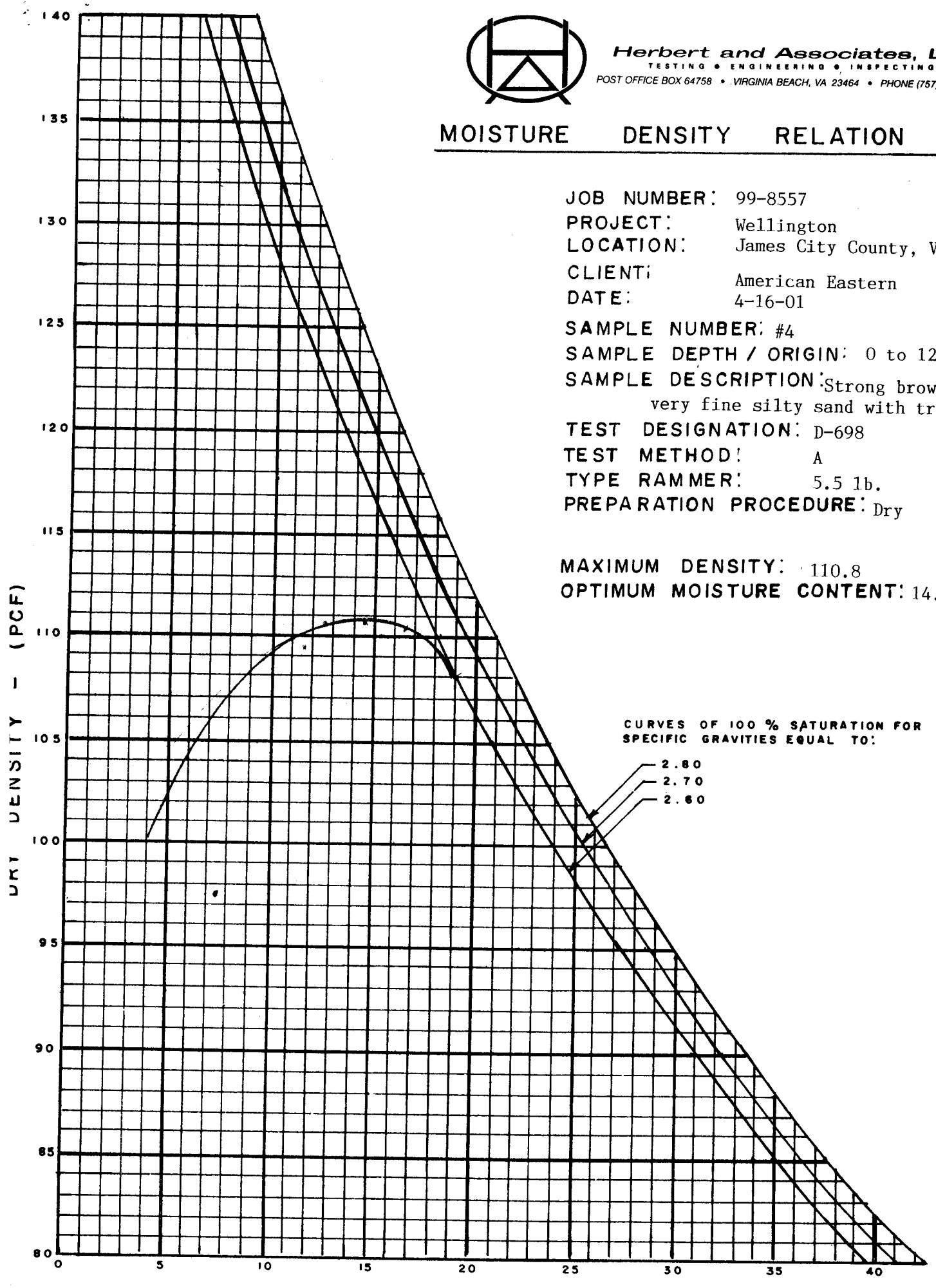
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-16-01
SAMPLE NUMBER: #4
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Strong brown, fine to very fine silty sand with trace clay
TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 110.8 PCF
OPTIMUM MOISTURE CONTENT: 14.1 %



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SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #5

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Yellowish brown, fine to very fine sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.9	99.1
20	1.4	97.7
40	3.0	94.7
60	11.1	83.6
100	18.0	65.6
200	25.4	40.2

% SILT: 36.1
% CLAY: 4.1

LIQUID LIMIT	9
PLASTIC LIMIT	N/A
PLASTIC INDEX	N/P
UNSOAKED CBR	22.3
SOAKED CBR	14.8
SWELL	0.015
MAXIMUM DRY WEIGHT	115.2
OPTIMUM MOISTURE	12.5
SPECIFIC GRAVITY	2.63
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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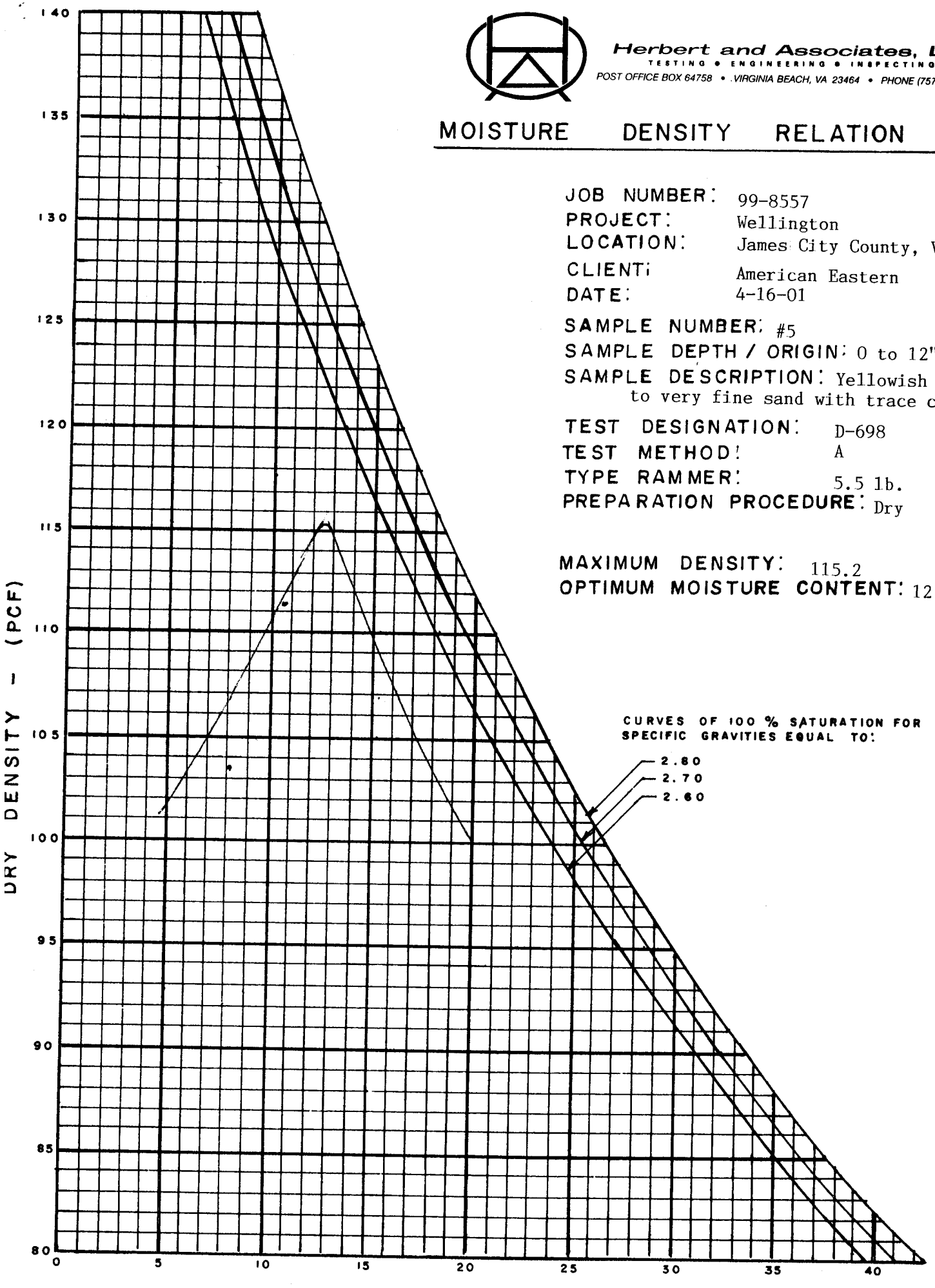
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-16-01

SAMPLE NUMBER: #5
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Yellowish brown fine to very fine sand with trace clay

TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 115.2 PCF
OPTIMUM MOISTURE CONTENT: 12.5 %



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SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #6

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Strong brown, fine to very fine silty sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.4	99.6
20	0.2	99.4
40	0.5	98.9
60	5.1	93.8
100	19.5	74.3
200	34.7	39.6

% SILT: 33.5
% CLAY: 6.1

LIQUID LIMIT	27
PLASTIC LIMIT	23
PLASTIC INDEX	4
UNSOAKED CBR	20.8
SOAKED CBR	14.0
SWELL	0.0132
MAXIMUM DRY WEIGHT	115.0
OPTIMUM MOISTURE	14.2
SPECIFIC GRAVITY	2.63
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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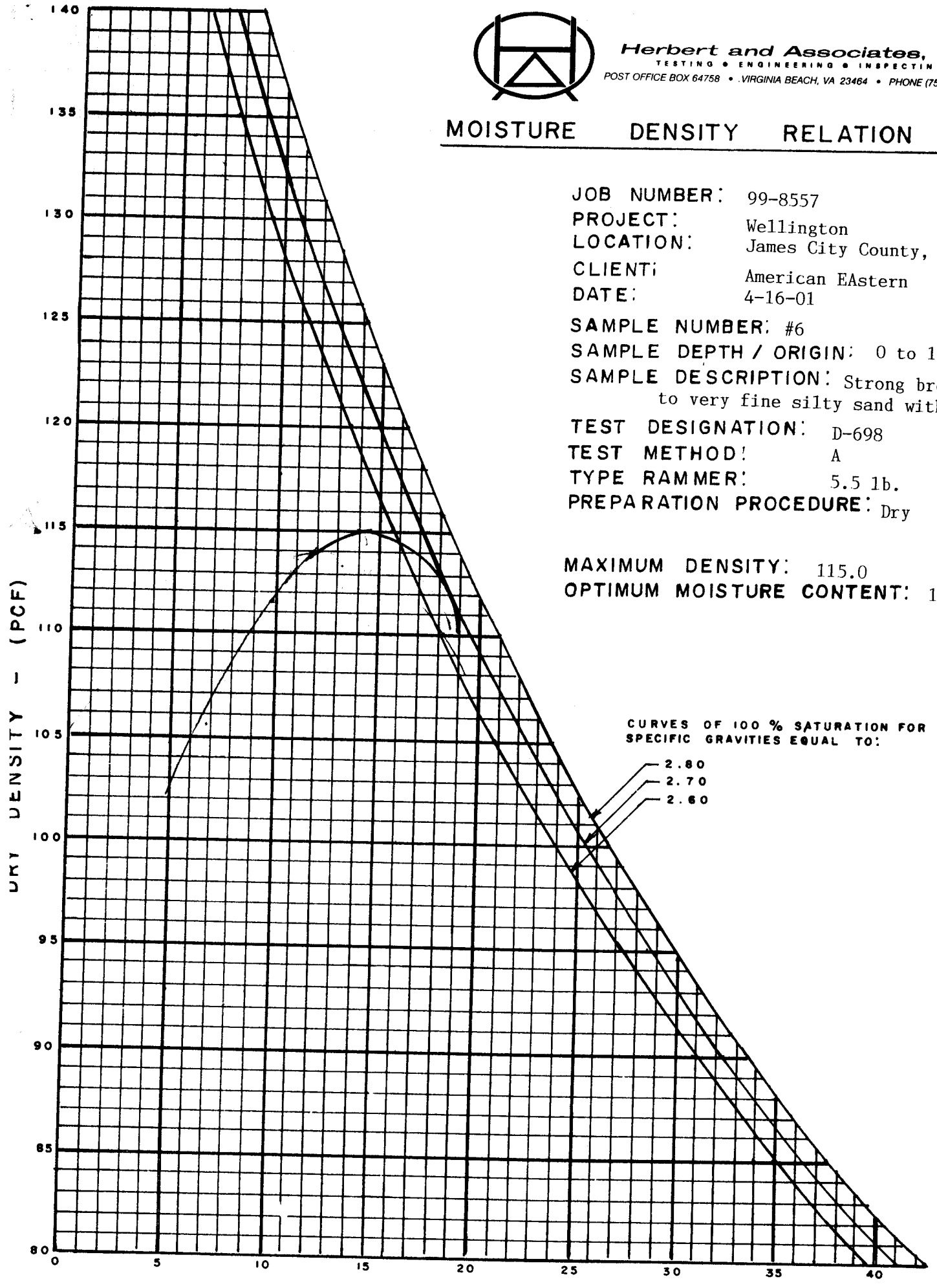
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American EAstern
DATE: 4-16-01
SAMPLE NUMBER: #6
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Strong brown, fine to very fine silty sand with trace cla
TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 115.0 PCF
OPTIMUM MOISTURE CONTENT: 14.2 %



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SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #7

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Reddish yellow, fine to very fine silty sand with little clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	2.1	97.9
20	2.0	95.9
40	1.6	94.3
60	5.4	88.9
100	12.1	76.8
200	23.9	52.9

% SILT: 41.0
% CLAY: 11.9

LIQUID LIMIT	26
PLASTIC LIMIT	23
PLASTIC INDEX	3
UNSOAKED CBR	18.1
SOAKED CBR	12.6
SWELL	0.0113
MAXIMUM DRY WEIGHT	114.5
OPTIMUM MOISTURE	14.0
SPECIFIC GRAVITY	2.64
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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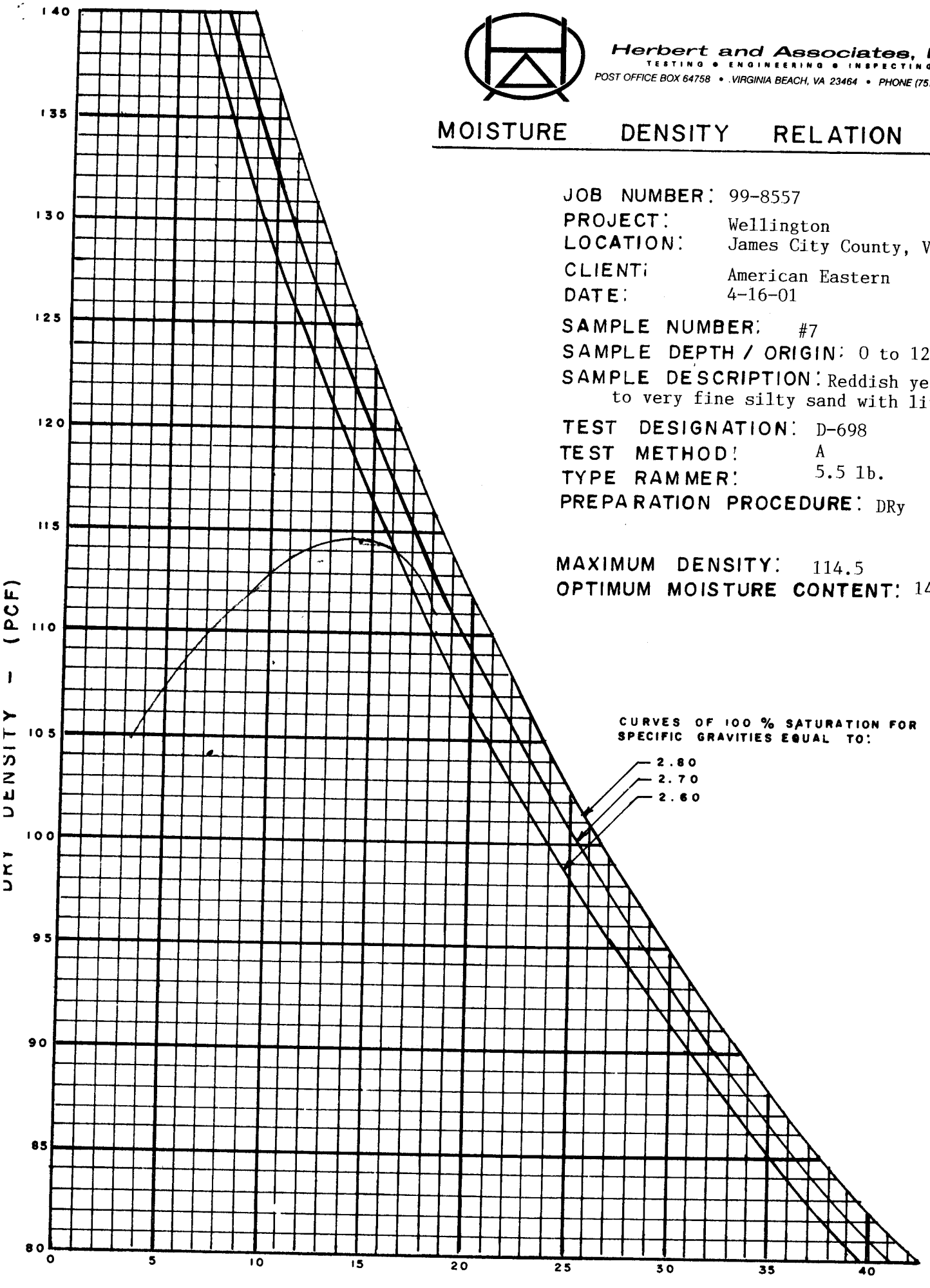
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-16-01

SAMPLE NUMBER: #7
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Reddish yellow, fine to very fine silty sand with little clay

TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: DRy

MAXIMUM DENSITY: 114.5 PCF
OPTIMUM MOISTURE CONTENT: 14.0 %



Herbert and Associates, Ltd.

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #8

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Yellowish brown, fine to very fine silty sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	1.4	98.6
20	1.4	97.2
40	2.5	94.7
60	8.3	86.4
100	12.6	73.8
200	22.1	51.7

% SILT: 43.8
% CLAY: 7.9

LIQUID LIMIT	25
PLASTIC LIMIT	21
PLASTIC INDEX	4
UNSOAKED CBR	18.3
SOAKED CBR	13.9
SWELL	0.0037
MAXIMUM DRY WEIGHT	115.5
OPTIMUM MOISTURE	12.7
SPECIFIC GRAVITY	2.62
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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Herbert and Associates, Ltd.

John A. Herbert

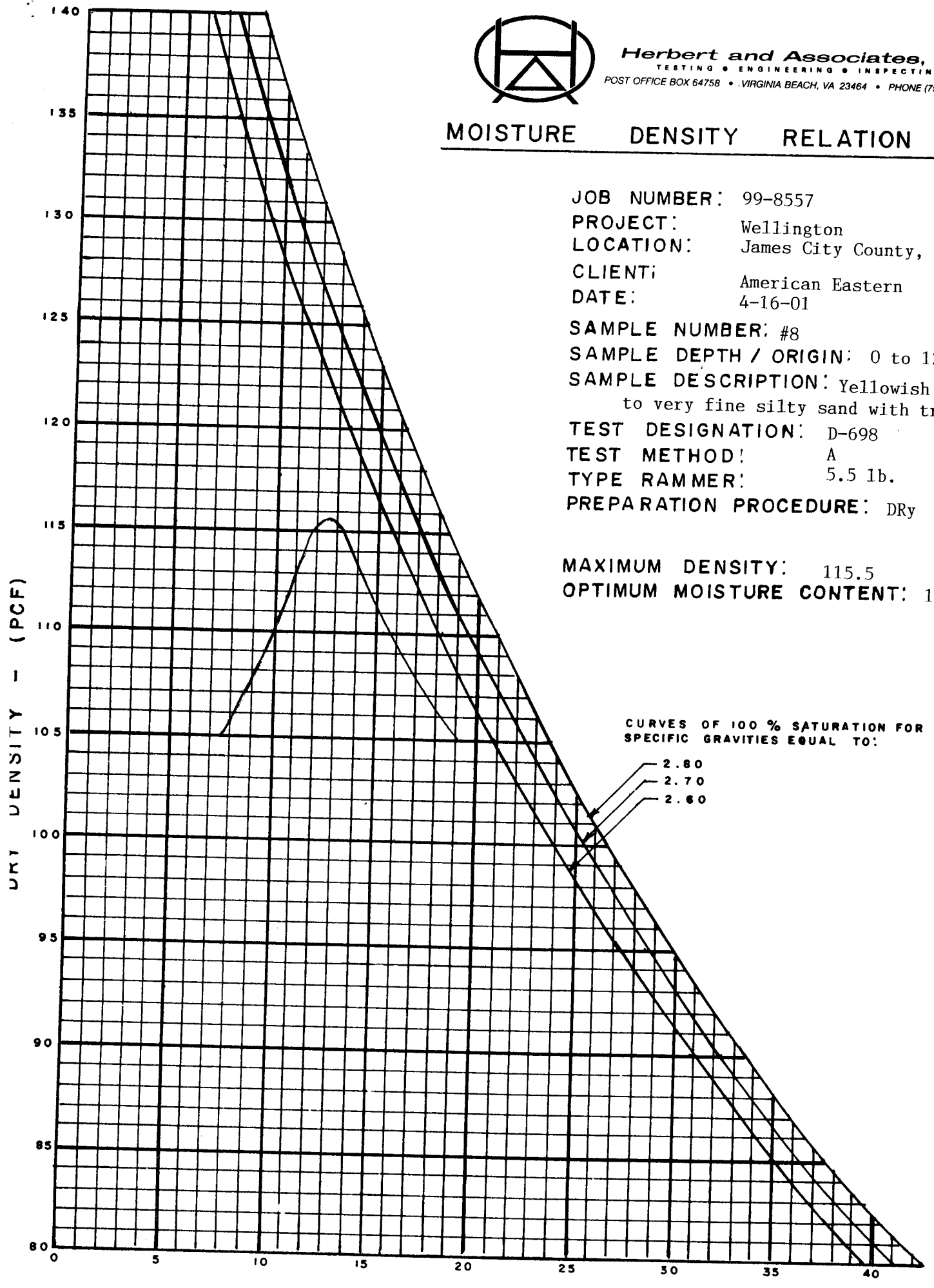
John A. Herbert, S.E.T.
President

Herbert and Associates, Ltd.
TESTING • ENGINEERING • INSPECTING
POST OFFICE BOX 64758 • VIRGINIA BEACH, VA 23464 • PHONE (757) 420-2797

MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-16-01
SAMPLE NUMBER: #8
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Yellowish brown fine to very fine silty sand with trace clay
TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: DRy

MAXIMUM DENSITY: 115.5 PCF
OPTIMUM MOISTURE CONTENT: 12.7 %



Herbert and Associates, Ltd.

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #9

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Brownish yellow, very fine silty sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.4	99.6
20	0.4	99.2
40	1.4	97.8
60	8.5	89.3
100	29.4	59.9
200	31.3	28.6

% SILT: 20.5
% CLAY: 8.1

LIQUID LIMIT	10
PLASTIC LIMIT	N/A
PLASTIC INDEX	N/P
UNSOAKED CBR	18.0
SOAKED CBR	13.8
SWELL	0.0118
MAXIMUM DRY WEIGHT	109.2
OPTIMUM MOISTURE	10.3
SPECIFIC GRAVITY	2.67
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

Respectfully submitted,
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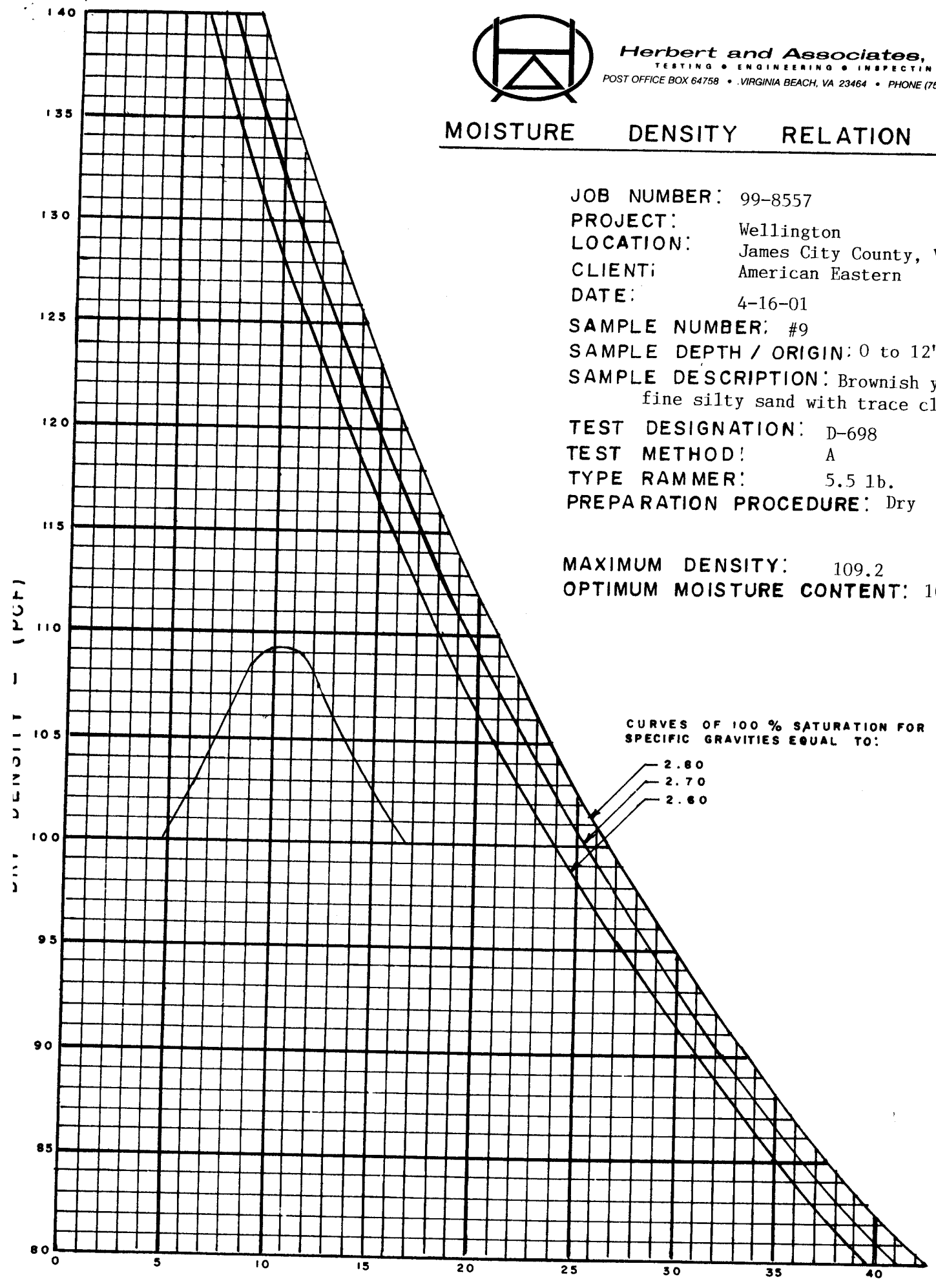
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-16-01
SAMPLE NUMBER: #9
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Brownish yellow very fine silty sand with trace clay
TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 109.2 PCF
OPTIMUM MOISTURE CONTENT: 10.3 %



Herbert and Associates, Ltd.

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #10

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Yellowish brown, fine to very fine silty sand with little clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	3.0	97.0
20	3.4	93.6
40	4.9	88.7
60	9.5	79.2
100	12.8	66.4
200	17.5	48.9

% SILT: 30.7
% CLAY: 18.2

LIQUID LIMIT	29
PLASTIC LIMIT	22
PLASTIC INDEX	7
UNSOAKED CBR	15.7
SOAKED CBR	10.8
SWELL	0.0024
MAXIMUM DRY WEIGHT	112.7
OPTIMUM MOISTURE	11.5
SPECIFIC GRAVITY	2.64
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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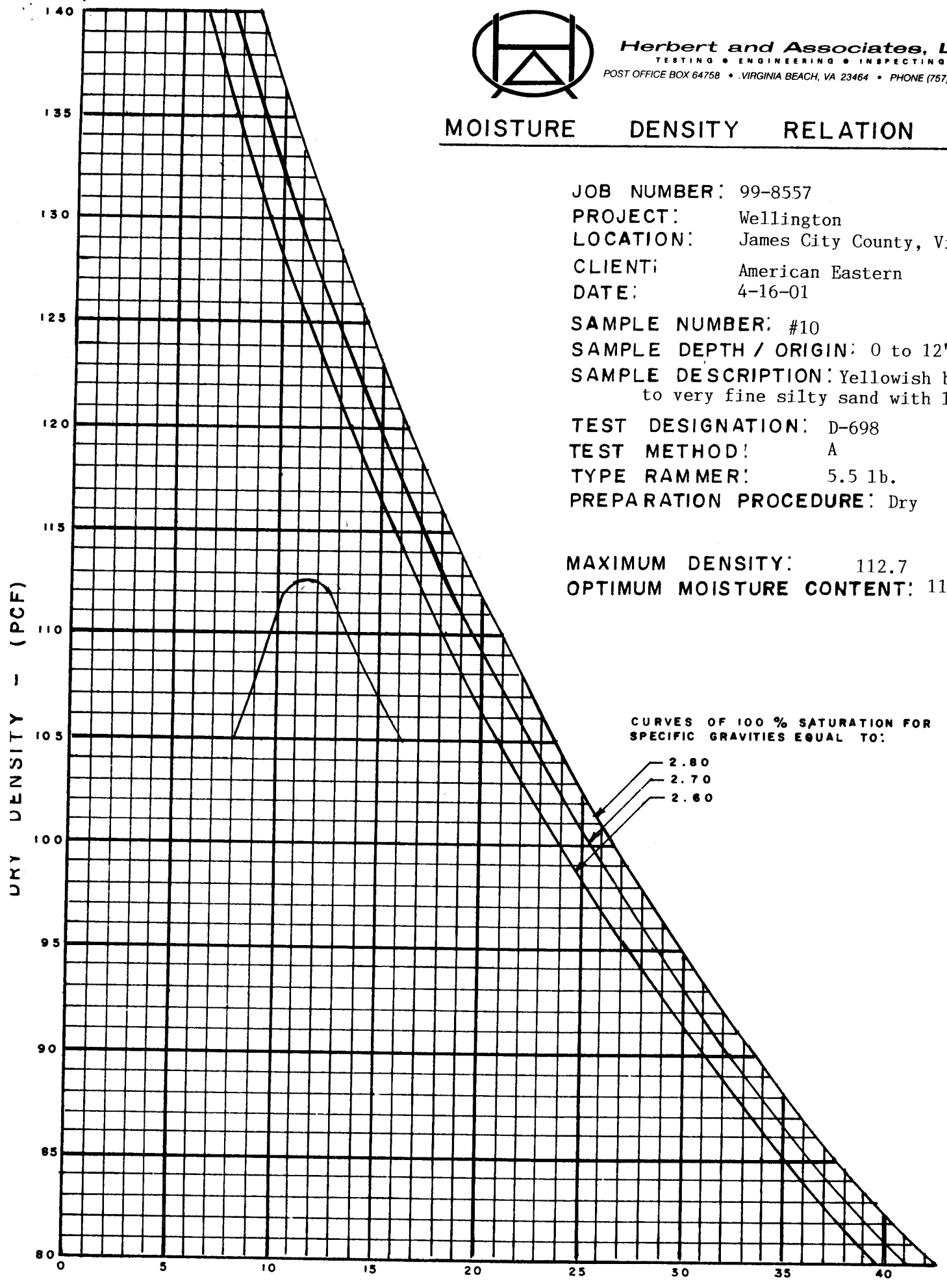
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-16-01

SAMPLE NUMBER: #10
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Yellowish brown fine to very fine silty sand with little clay

TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 112.7 PCF
OPTIMUM MOISTURE CONTENT: 11.5 %



Herbert and Associates, Ltd.

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #11

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Yellowish brown, very fine silty sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.2	99.8
20	0.2	99.6
40	0.1	99.5
60	0.8	98.7
100	7.9	90.8
200	38.9	51.9

% SILT: 42.0
% CLAY: 9.9

LIQUID LIMIT	27
PLASTIC LIMIT	N/A
PLASTIC INDEX	N/P
UNSOAKED CBR	18.3
SOAKED CBR	13.2
SWELL	0.0021
MAXIMUM DRY WEIGHT	107.0
OPTIMUM MOISTURE	9.3
SPECIFIC GRAVITY	2.61
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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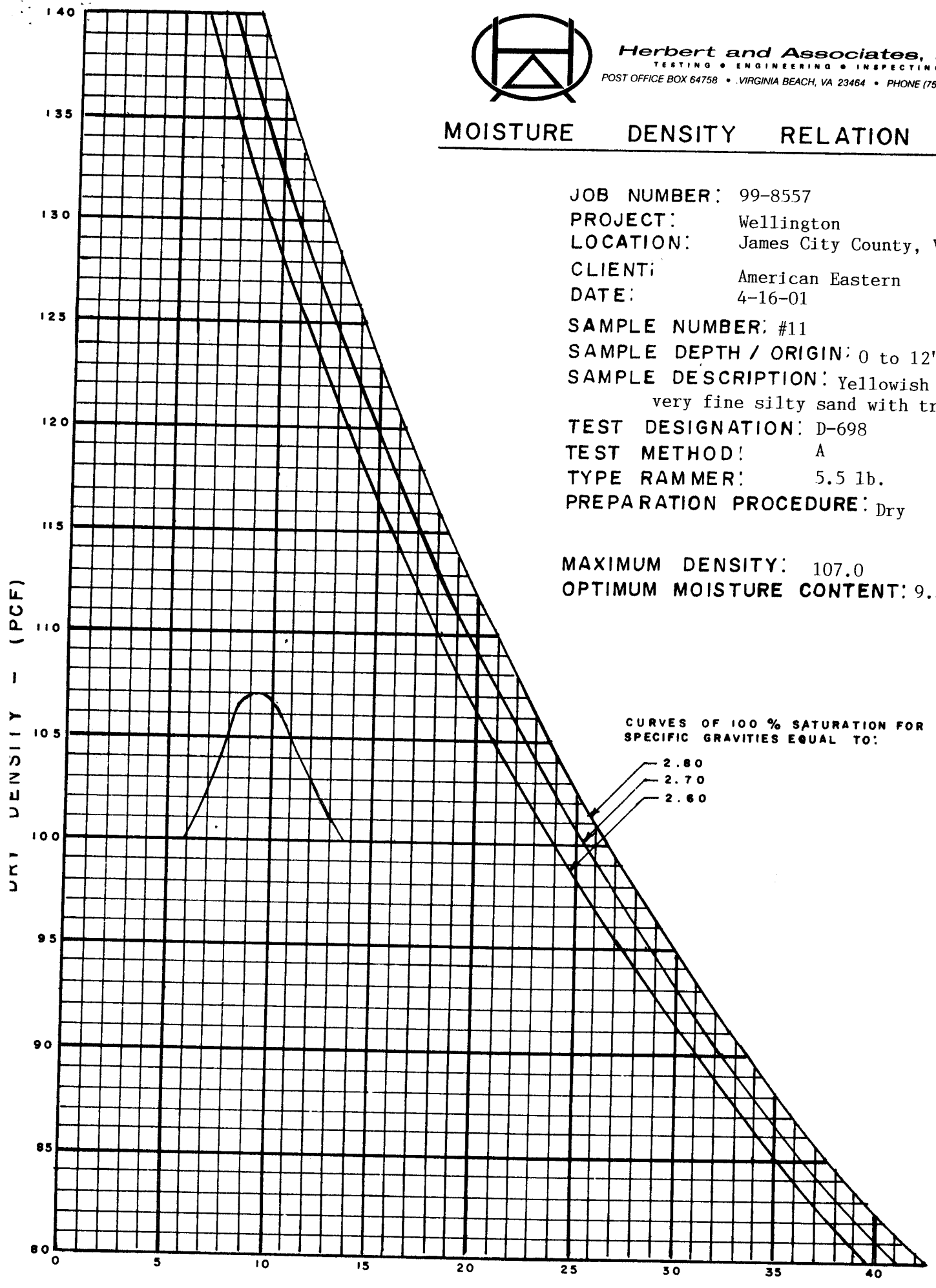
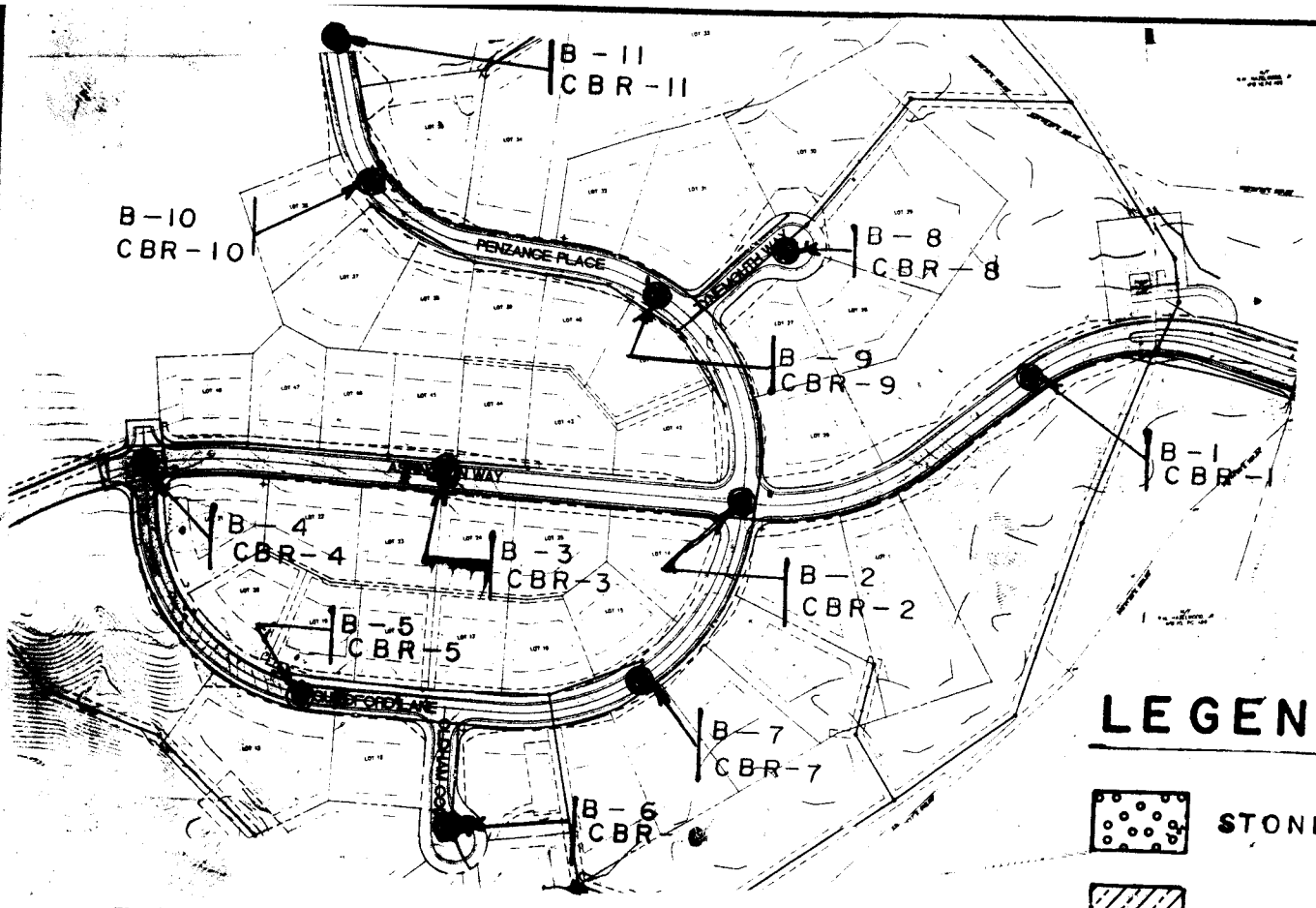
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-16-01
SAMPLE NUMBER: #11
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Yellowish brown, very fine silty sand with trace clay
TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 107.0 PCF
OPTIMUM MOISTURE CONTENT: 9.3 %



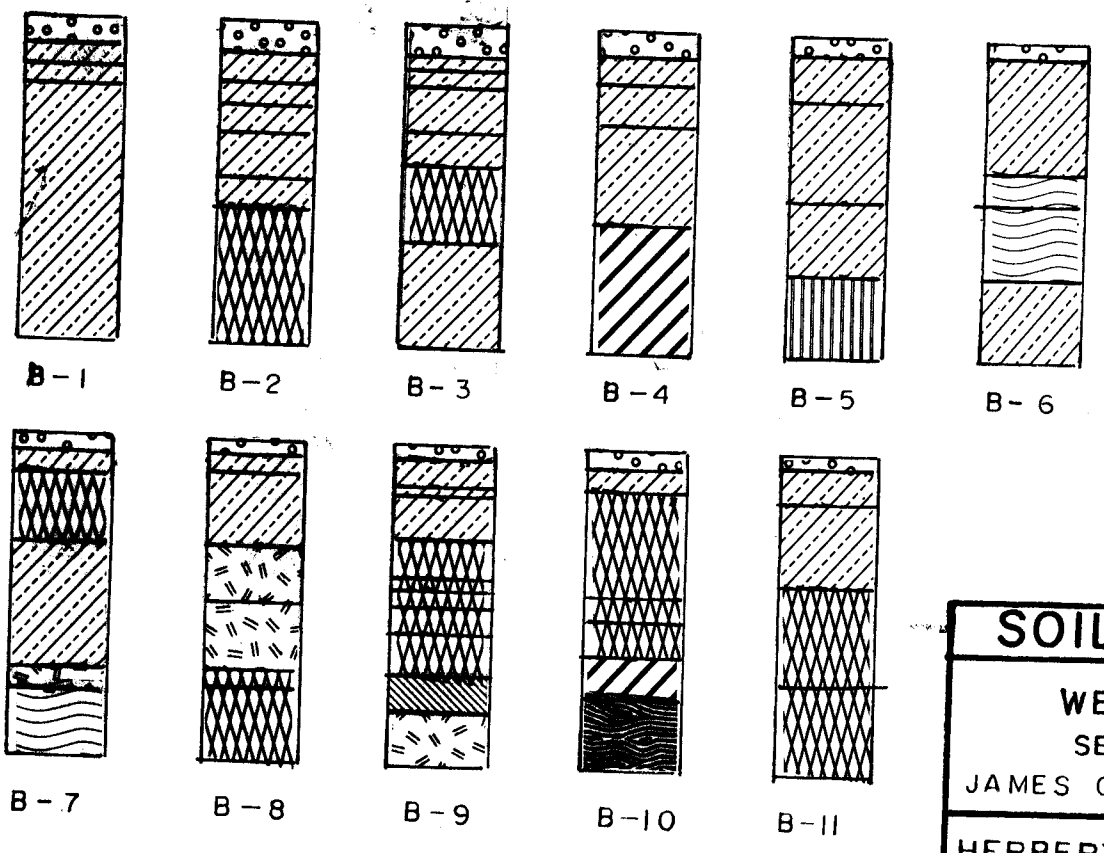


BORING LOCATION PLAN

NOT TO SCALE

LEGEND

- STONE
- SILTY SAND
- SANDY SILT
- CLAYEY SILT
- SILTY CLAY
- SANDY CLAY
- CLAYEY SAND
- SILT
- FINE TO VERY FINE SAND



PROFILE VIEW

SCALE: 1" = 6'-0"

SOIL PROFILE

WELLINGTON
SECTION ONE
JAMES CITY COUNTY VIRGINIA

HERBERT & ASSOCIATES, LTD.
NORFOLK VIRGINIA

APRIL 25, 2001 | JOB: 99-8557

Herbert and Associates, Ltd.
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POST OFFICE BOX 64758 • VIRGINIA BEACH, VA 23464 • PHONE (757) 420-2797

LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION ~~James City County, VA~~

BORING NO. B-1 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 79.78

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 8"	
12	18"	Yellowish brown, damp, fine to very fine silty sand with trace of clay (SM)	S-1
24	24"	Olive, moist, fine to very fine to very fine silty sand (SM)	S-2
36			
48		Yellowish brown, moist, fine to very fine silty sand (SM)	S-3
60			
72			
84			
96			
108			
120	120"		
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION ~~James City County, VA~~

BORING NO. B-2 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 85.89

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Gravel 9"	
12		Yellowish brown, damp, fine silty sand with trace of clay(SM)	S-1
24	21"		
36	30"	Tan mottle red, damp, fine to very fine silty sand (SM)	S-2
48	40"	Pink mottle white, damp, silty sand (SM)	S-3
60	57"	Tan mottle pink, damp, silty sand (SM)	S-4
72	67"	Tan mottle white, moist, silty sand with trace of clay (SM)	S-5
84		Pink, moist, sandy silt (SM)	
96			S-6
108			
120	120"		
		Bottom of Boring 10.0'	

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION ~~James City County, VA~~

BORING NO. B-3 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 85.71

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 8 1/2"	
12	16"	Strong brown, damp, fine to veryfine silty sand with little clay (SM)	S-1
24	23"	Brown mottle pink, damp, silty sand with some clay (SM)	S-2
36	38"	Yellowish brown, damp, silty sand (SM)	S-3
48	50"	Pink, damp, silty sand (SM)	S-4
60		Tan, moist, sandy silt (SM)	S-5
72			
84	80"	Tan mottle pink, moist, silty sand (SM)	S-6
96			
108			
120	120"		
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION James City County, VA

BORING NO. B-4 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 78.87

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 8"	
12		Strong brown, damp, fine to very fine silty sand with trace of clay (SM)	S-1
24	20"	Yellowish brown, damp, silty sand (SM)	S-2
36	36"		
48		Brown and tan, damp, fine to very fine silty sand (SM)	S-3
60			
72	72"		
84		Tan mottle orange, moist, clayey silt (ML)	S-4
96			
108			
120	120"		
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION James City County, VA

BORING NO. B-5 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 72.60

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 6"	
12		Yellowish brown, damp, fine to veryfine silty sand with trace of clay (SM)	S-1
24	24"		
36		Orange mottle red, damp, fine to veryfine silty sand with clay (SM)	S-2
48			
60	60"		
72		Orange, moist, fine to very fine silty sand (SM)	S-3
84			
	88"		
96		Tan mottle red, moist, silty clay (CL)	S-4
108			
120	120"		
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION James City County, VA

BORING NO. B-6 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 71.37

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		STone 6"	
12		Strong brown, damp, fine to very fine silty sand with trace of clay	S-1
24			
36			
48	48"		
60	60"	Brown mottle red, moist, sandy clay (SC)	S-2
72		Tan mottle orange, moist, sandy clay (SC)	S-3
84	88"		
96		Reddish brown mottle orange, wet, fine to very fine silty sand (SM)	S-4
108			
120			
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION James City County, VA

BORING NO. B-7 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 76.00

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 6"	
12	16"	Reddish yellow, damp, fine to very fine silty sand with little clay (SM)	S-1
24		Orange mottle pink, damp, sandy silt (SM)	S-2
36	40"		
48		Tan mottle orange, damp, silty sand (SM)	S-3
60			
72			
84	88"		
96	96"	Brown & orange, moist, clayey sand (SC)	S-4
108		TAn mottle orange, moist, sandy clay (SC)	
120	120"		S-5
		Bottom of Broing 10.0'	

STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION James City County, VA

BORING NO. B-8 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 74.82

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 6"	
12	12"	Yellowish brown, damp, fine to very fine silty sand with trace of clay (SM)	S-1
24		Orange mottle red, damp, silty sand with some clay (SM)	S-2
36	41"		
48		Orange mottle red, damp, clayey sand (SC)	S-3
60	60"		
72		Tan mottle orange, damp, clayey sand (SC)	S-4
84	85"		
96	92"	Tan mottle orange, moist, sandy silt (SM)	S-5
108		Tan mottle orange, wet, sandy silt with clay (SM-SC)	S-6
120	120"		
		Bottom of Boring 10.0'	

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION ~~James City County, VA~~

BORING NO. B-9 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 82.11

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		STone 5 1/2"	
12	13"	Brownish yellow, damp, very fine silty sand with trace clay	S-1
24	18"	Yellowish brown, damp, silty sand (SM)	S-2
36	34"	Tan mottle white, damp, silty sand (SM)	S-3
48	48"	Tan mottle orange, damp, fine to very fine sandy silt (SM)	S-4
60	53"	White mottle pink, damp, sandy silt with some clay (SM)	S-5
72	60"	Tan mottle red, damp, fine to very fine sandy silt (SM)	S-6
84	70"	White mottle pink, damp, sandy silt with some clay (SM)	S-7
96	86"	Tan mottle pink, damp, fine to very fine sandy silt with some clay (SM)	S-8
108	99"	Orange mottle tan, moist, fine to very fine sand with some silt and clay (SP)	S-9
120	120"	Brown mottle tan, moist, clayey sand (SC)	S-10
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

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JAMES CITY COUNTY
ENVIRONMENTAL DIVISION
P. 0. BOX 8784
WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6670

INSPECTION REPORT - EROSION AND SEDIMENT CONTROL

Date: _____ Permittee: _____

Project: _____ _____

Phone/Fax: _____ _____

An inspection of the above-referenced project was conducted on _____, the following represents an evaluation of that projects compliance with James City County's Environmental Regulations. Items identified below as "Needs Repair" are deficiencies that must be corrected.

IN COMPLIANCE	NEEDS REPAIR	
☐	☐	SEDIMENT BASIN _____
☐	☐	SEDIMENT TRAP _____
☐	☐	CONSTRUCTION ENTRANCE _____
☐	☐	SILT FENCE _____
☐	☐	INLET PROTECTION _____
☐	☐	STABILIZATION _____
☐	☐	OTHER ITEMS _____

Notice is hereby given that those deficiencies listed shall be corrected in accordance with James City County's Environmental Requirements ***on or before*** _____. The site will be reinspected at that time and you are invited to accompany the inspector on that date. Failure to comply with this report will result in Enforcement Actions.

_____ _____

JCC Environmental Division Inspector Project Representative Notified

1/02

JAMES CITY COUNTY
ENVIRONMENTAL DIVISION
P. 0. BOX 8784
WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6670

INSPECTION REPORT - EROSION AND SEDIMENT CONTROL

Date: _____ Permittee: _____

Project: _____

Phone/Fax: _____

An inspection of the above-referenced project was conducted on _____, the following represents an evaluation of that projects compliance with James City County's Environmental Regulations. Items identified below as "Needs Repair" are deficiencies that must be corrected.

IN COMPLIANCE	NEEDS REPAIR	
☐	☐	SEDIMENT BASIN _____
☐	☐	SEDIMENT TRAP _____
☐	☐	CONSTRUCTION ENTRANCE _____
☐	☐	SILT FENCE _____
☐	☐	INLET PROTECTION _____
☐	☐	STABILIZATION _____
☐	☐	OTHER ITEMS _____

Notice is hereby given that those deficiencies listed shall be corrected in accordance with James City County's Environmental Requirements ***on or before*** _____. The site will be reinspected at that time and you are invited to accompany the inspector on that date. Failure to comply with this report will result in Enforcement Actions.

_____ _____

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1/02

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ENVIRONMENTAL DIVISION
P. 0. BOX 8784
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INSPECTION REPORT - EROSION AND SEDIMENT CONTROL

Date: _____ Permittee: _____

Project: _____ _____

_____

Phone/Fax: _____ _____

An inspection of the above-referenced project was conducted on _____, the following represents an evaluation of that projects compliance with James City County's Environmental Regulations. Items identified below as "Needs Repair" are deficiencies that must be corrected.

IN COMPLIANCE	NEEDS REPAIR	
☐	☐	SEDIMENT BASIN _____
☐	☐	SEDIMENT TRAP _____
☐	☐	CONSTRUCTION ENTRANCE _____
☐	☐	SILT FENCE _____
☐	☐	INLET PROTECTION _____
☐	☐	STABILIZATION _____
☐	☐	OTHER ITEMS _____

Notice is hereby given that those deficiencies listed shall be corrected in accordance with James City County's Environmental Requirements ***on or before*** _____. The site will be reinspected at that time and you are invited to accompany the inspector on that date. Failure to comply with this report will result in Enforcement Actions.

_____ _____

JCC Environmental Division Inspector Project Representative Notified

1/02

Herbert and Associates, Ltd.
TESTING • ENGINEERING • INSPECTING
POST OFFICE BOX 64758 • VIRGINIA BEACH, VA 23464 • PHONE (757) 420-2797

LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION James City County, VA

BORING NO. B-10 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 77.33

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 6"	
12	16"	Yellowish brown, damp, fine to veryfine silty sand with little clay	S-1
24		Tan mottle white, damp, fine to veryfine sandy silt (SM)	S-2
36			
48			
60	55"		
	63"	Orange mottle tan, damp, fine to very fine sandy silt (SM)	S-3
72	78"	Yellowish brown, damp, fine to very fine sandy silt (SM)	S-4
84		Orange, moist, clayey silt (ML)	S-5
96	94"		
108		Orange, moist, silt with clay (ML)	S-6
120	120"		
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

Our letters and reports are for the exclusive use of the client to whom they are addressed. The use of our name must receive our prior written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not necessarily indicative of the qualities of apparently indentical or similar products.

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION ~~James City County, VA~~

BORING NO. B-11 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 79.50

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 5 1/3"	
12		Yellowish brown, damp, very fine, silty sand with trace clay	S-1
24	18"		
36		Orange mottle red, moist, fine to very fine silty sand (SM)	S-2
48	48"		
60		Yellowish brown, moist, fine to very fine sandy silt (SM)	S-3
72			
84	86"		
96		Tan mottle pink, moist, fine to very fine sandy silt (SM)	S-4
108			
120	120"		
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

Our letters and reports are for the exclusive use of the client to whom they are addressed. The use of our name must receive our prior written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not necessarily indicative of the qualities of apparently indentical or similar products.

Herbert and Associates, Ltd.

MAY 2001
RECEIVED
ENVIRONMENTAL DIVISION

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #1

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Yellowish brown, fine to very fine silty sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.9	99.1
20	0.7	98.4
40	1.0	97.4
60	5.0	92.4
100	37.1	55.3
200	27.5	27.8

% SILT: 23.7
% CLAY: 4.1

LIQUID LIMIT	10
PLASTIC LIMIT	N/A
PLASTIC INDEX	N/P
UNSOAKED CBR	22.5
SOAKED CBR	15.1
SWELL	0.015
MAXIMUM DRY WEIGHT	103.5
OPTIMUM MOISTURE	10.6
SPECIFIC GRAVITY	2.65
PH	5.0

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

Respectfully submitted,
Herbert and Associates, Ltd.

John A. Herbert

John A. Herbert, S.E.T.
President

Herbert and Associates, Ltd.
TESTING • ENGINEERING • INSPECTING
POST OFFICE BOX 64758 • VIRGINIA BEACH, VA 23464 • PHONE (757) 420-2797

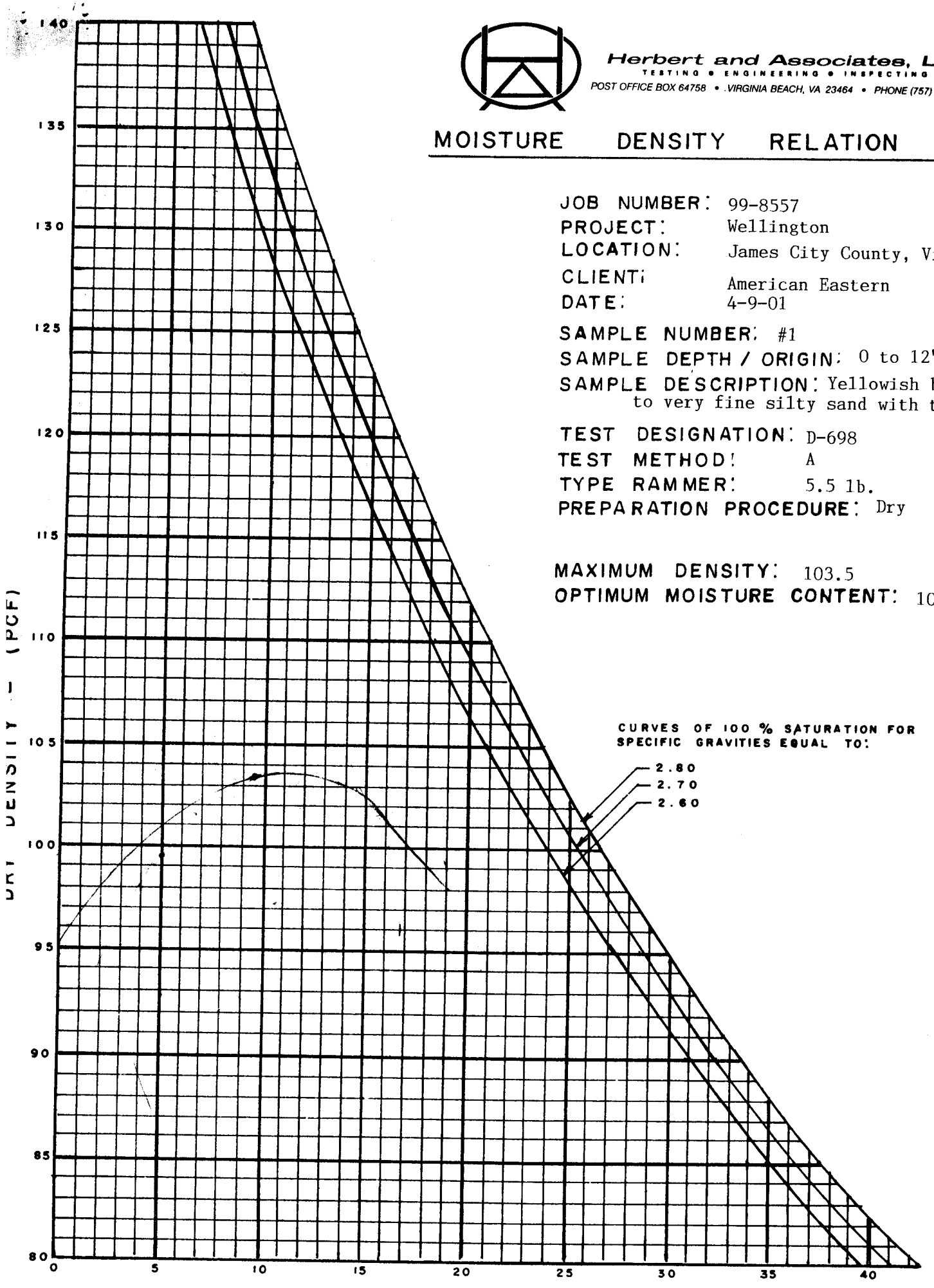
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-9-01

SAMPLE NUMBER: #1
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Yellowish brown fine to very fine silty sand with trace clay

TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 103.5 PCF
OPTIMUM MOISTURE CONTENT: 10.6 %



Herbert and Associates, Ltd.

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #2

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Yellowish brown, fine silty sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.3	99.7
20	0.2	99.5
40	3.1	96.4
60	14.0	82.4
100	28.7	53.7
200	24.0	29.7

% SILT: 23.6
% CLAY: 6.1

LIQUID LIMIT	10
PLASTIC LIMIT	N/A
PLASTIC INDEX	N/P
UNSOAKED CBR	21.2
SOAKED CBR	14.1
SWELL	0.048
MAXIMUM DRY WEIGHT	112.4
OPTIMUM MOISTURE	11.5
SPECIFIC GRAVITY	2.63
PH	4.0

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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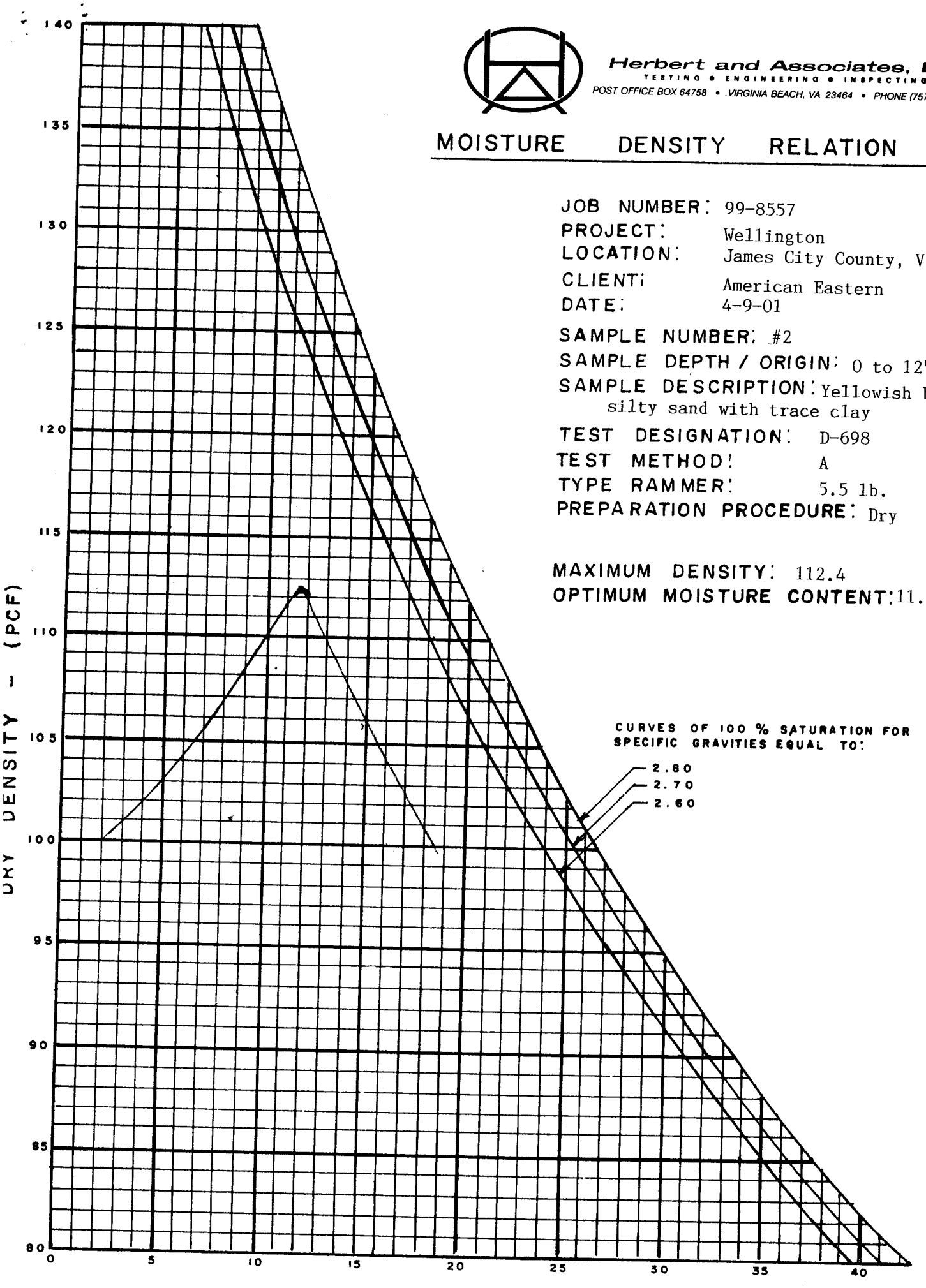
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-9-01

SAMPLE NUMBER: #2
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Yellowish brown fine silty sand with trace clay
TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 112.4 PCF
OPTIMUM MOISTURE CONTENT: 11.5 %



Herbert and Associates, Ltd.

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #3

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Strong brown, fine to very fine silty sand with little clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.4	99.6
20	0.4	99.2
40	0.6	98.6
60	13.2	85.4
100	22.0	63.4
200	20.4	43.0

% SILT: 30.8
% CLAY: 12.2

LIQUID LIMIT	30
PLASTIC LIMIT	N/A
PLASTIC INDEX	N/P
UNSOAKED CBR	16.8
SOAKED CBR	12.3
SWELL	0.088
MAXIMUM DRY WEIGHT	110.8
OPTIMUM MOISTURE	13.4
SPECIFIC GRAVITY	2.65
PH	4.0

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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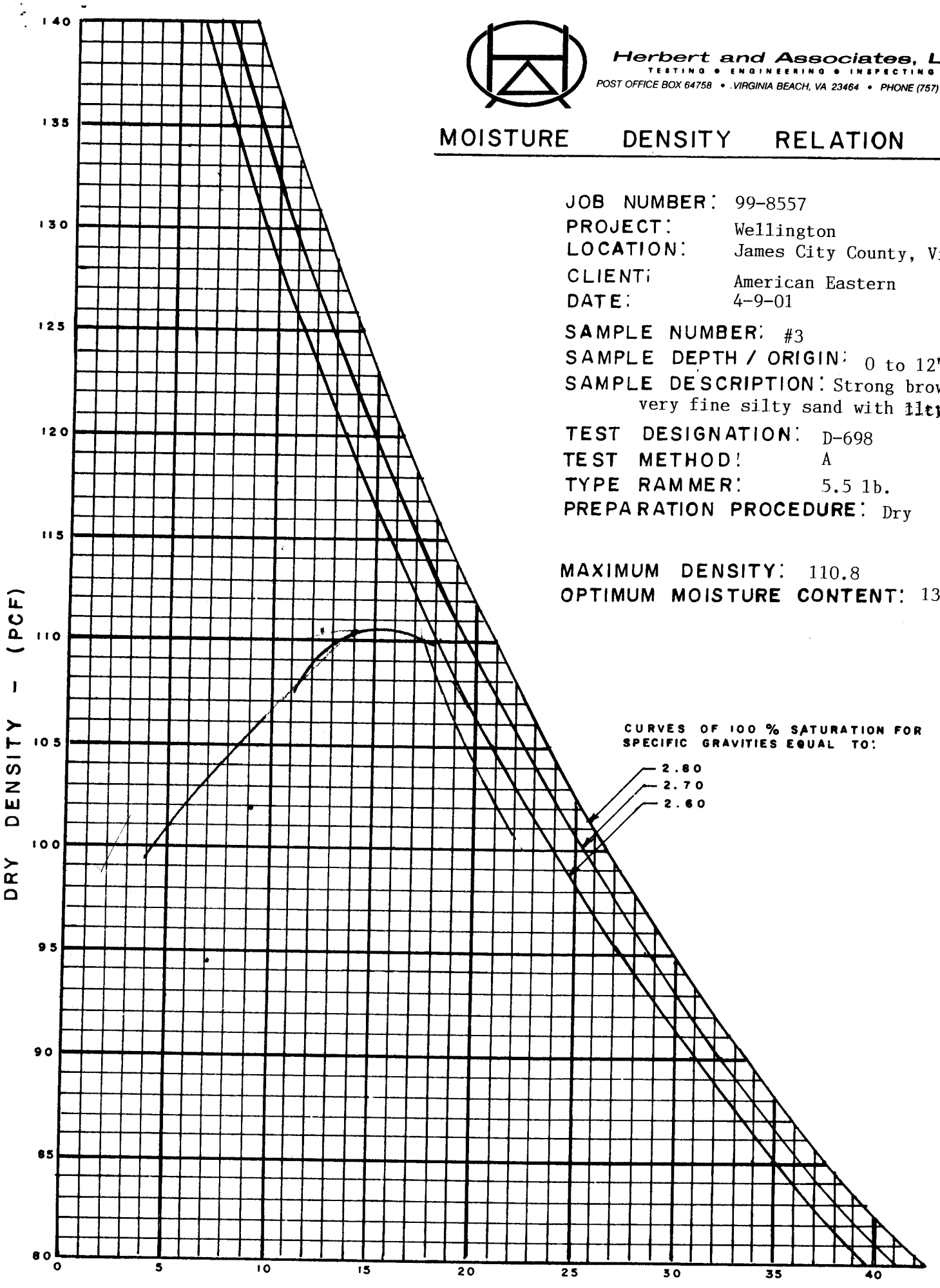
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-9-01

SAMPLE NUMBER: #3
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Strong brown fine to very fine silty sand with little clay

TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 110.8 PCF
OPTIMUM MOISTURE CONTENT: 13.4 %



Herbert and Associates, Ltd.

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #4

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Strong brown, fine to very fine silty sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.1	99.9
20	0.1	99.8
40	0.3	99.5
60	17.7	81.8
100	27.9	53.9
200	20.8	33.1

% SILT: 23.0
% CLAY: 10.1

LIQUID LIMIT	30
PLASTIC LIMIT	22
PLASTIC INDEX	8
UNSOAKED CBR	17.5
SOAKED CBR	12.8
SWELL	0.065
MAXIMUM DRY WEIGHT	110.8
OPTIMUM MOISTURE	14.1
SPECIFIC GRAVITY	2.62
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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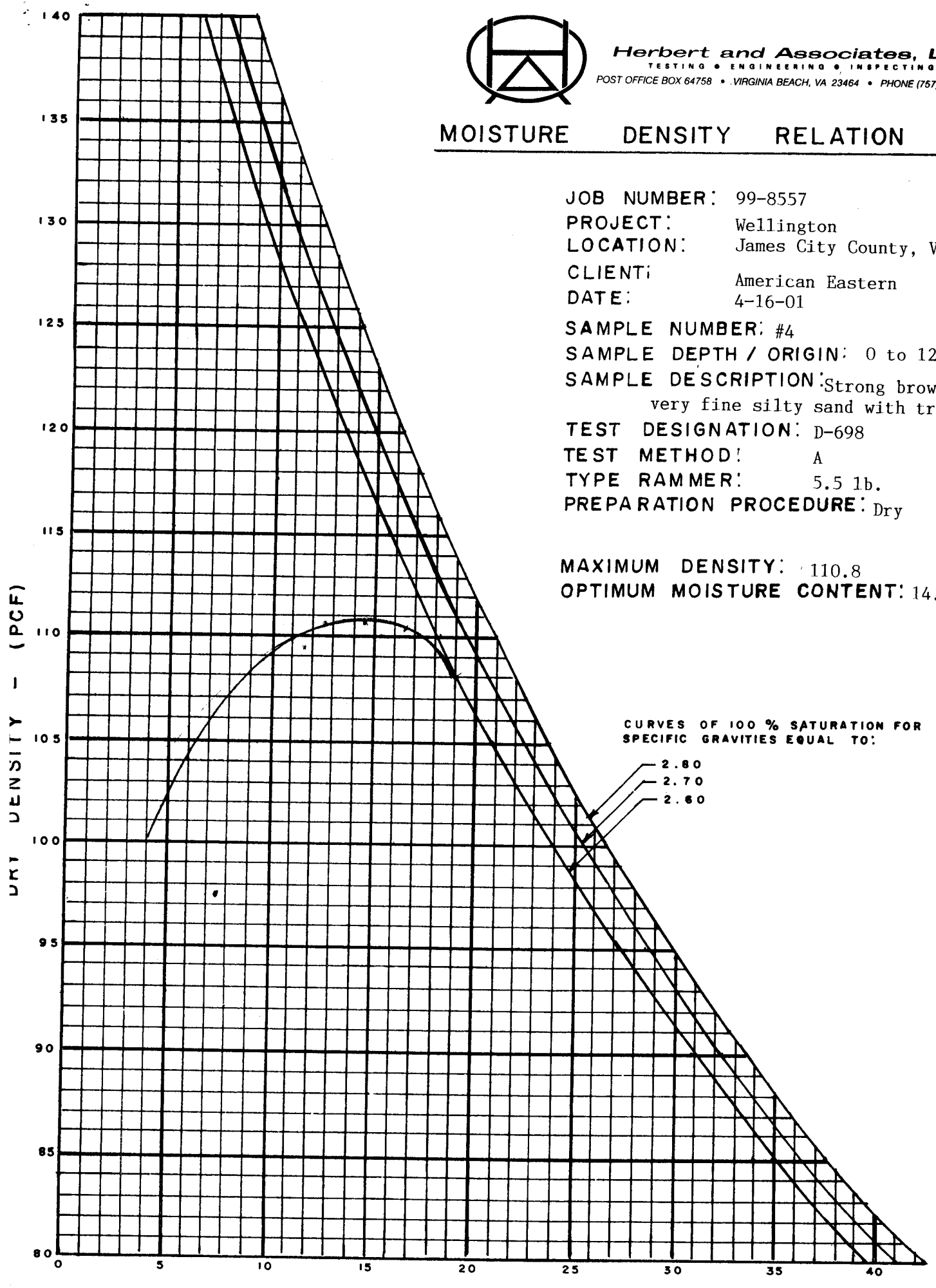
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-16-01
SAMPLE NUMBER: #4
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Strong brown, fine to very fine silty sand with trace clay
TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 110.8 PCF
OPTIMUM MOISTURE CONTENT: 14.1 %



Herbert and Associates, Ltd.

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #5

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Yellowish brown, fine to very fine sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.9	99.1
20	1.4	97.7
40	3.0	94.7
60	11.1	83.6
100	18.0	65.6
200	25.4	40.2

% SILT: 36.1
% CLAY: 4.1

LIQUID LIMIT	9
PLASTIC LIMIT	N/A
PLASTIC INDEX	N/P
UNSOAKED CBR	22.3
SOAKED CBR	14.8
SWELL	0.015
MAXIMUM DRY WEIGHT	115.2
OPTIMUM MOISTURE	12.5
SPECIFIC GRAVITY	2.63
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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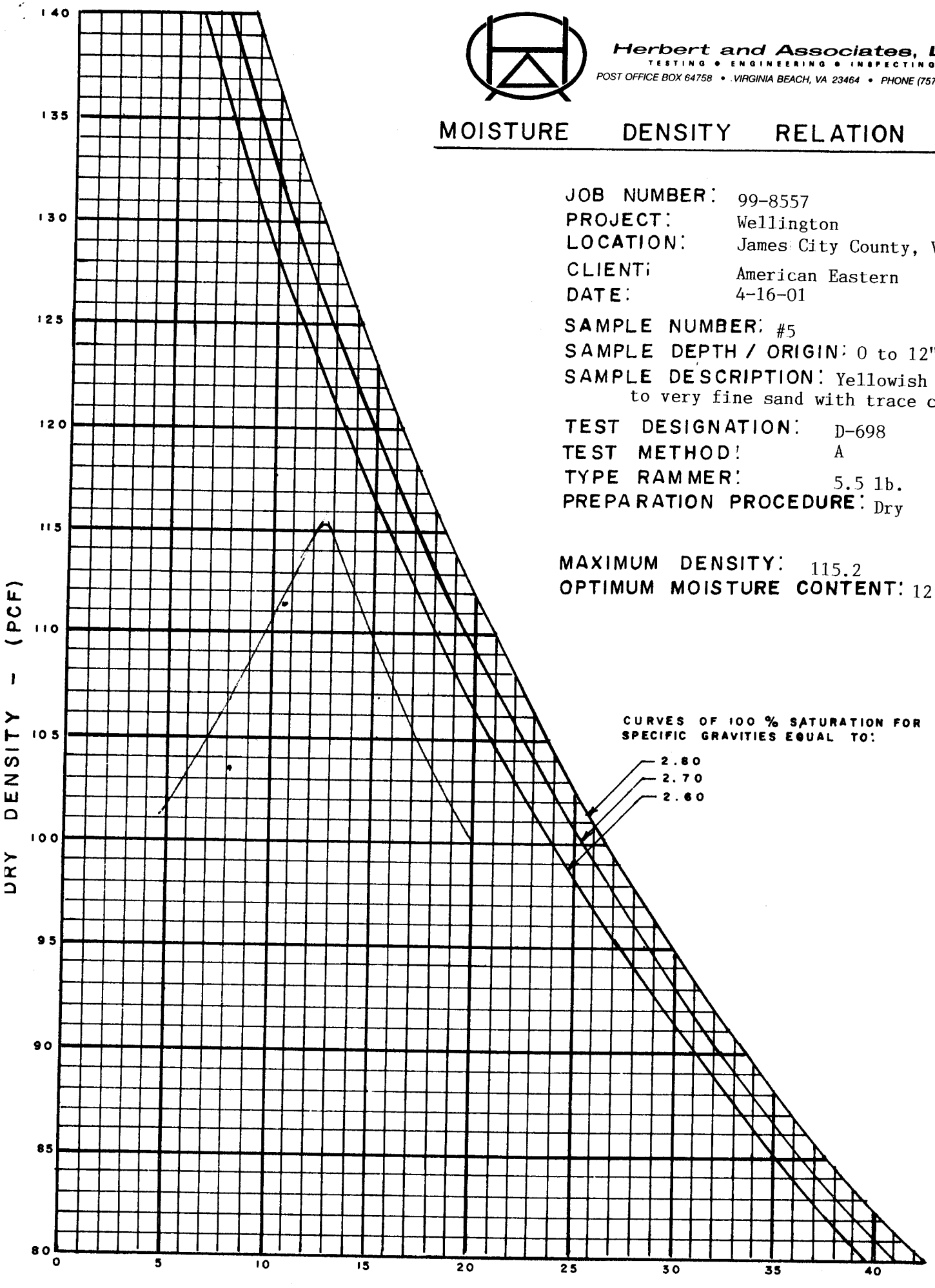
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-16-01

SAMPLE NUMBER: #5
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Yellowish brown fine to very fine sand with trace clay

TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 115.2 PCF
OPTIMUM MOISTURE CONTENT: 12.5 %



Herbert and Associates, Ltd.

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #6

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Strong brown, fine to very fine silty sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.4	99.6
20	0.2	99.4
40	0.5	98.9
60	5.1	93.8
100	19.5	74.3
200	34.7	39.6

% SILT: 33.5
% CLAY: 6.1

LIQUID LIMIT	27
PLASTIC LIMIT	23
PLASTIC INDEX	4
UNSOAKED CBR	20.8
SOAKED CBR	14.0
SWELL	0.0132
MAXIMUM DRY WEIGHT	115.0
OPTIMUM MOISTURE	14.2
SPECIFIC GRAVITY	2.63
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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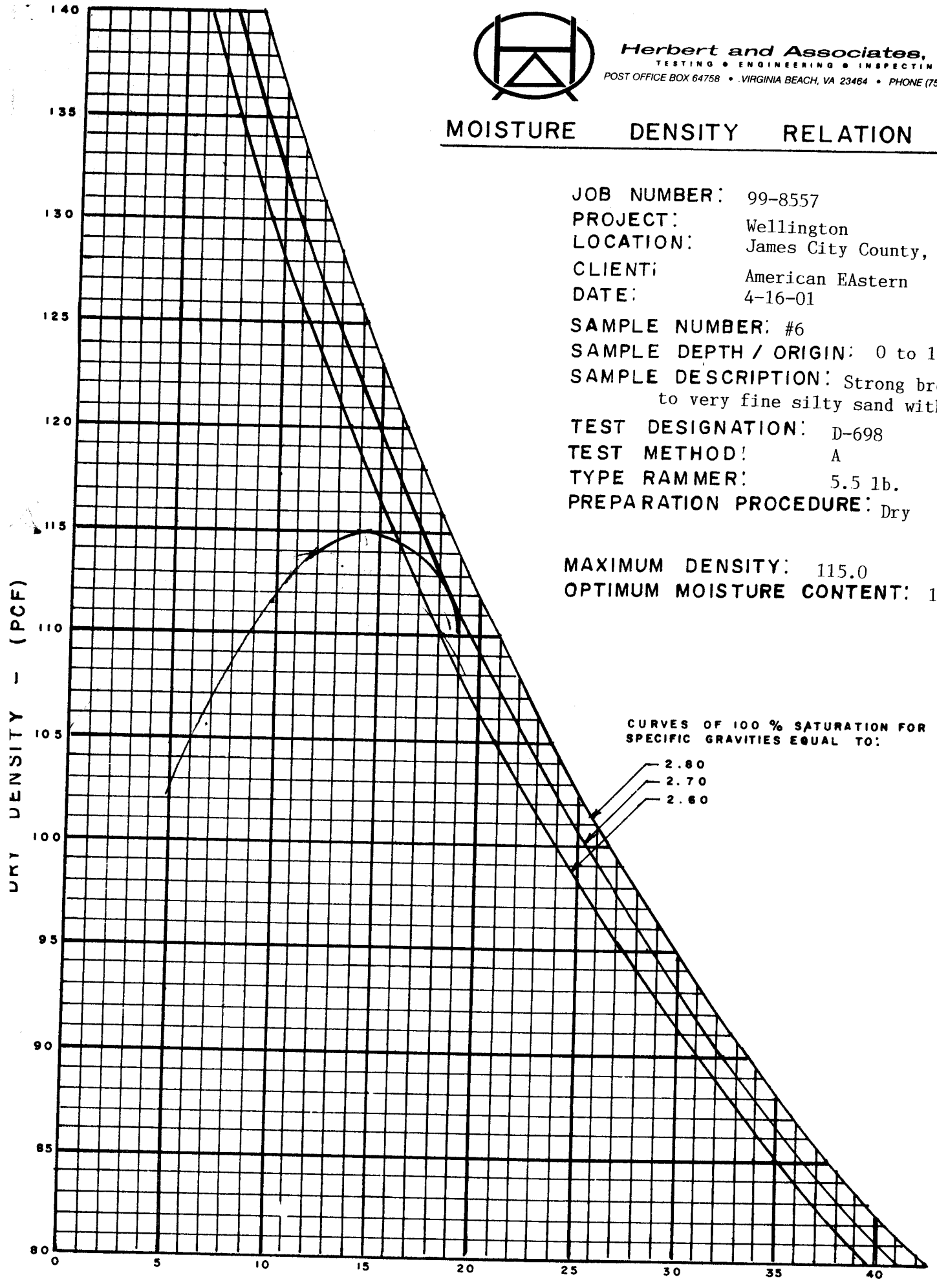
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American EAstern
DATE: 4-16-01
SAMPLE NUMBER: #6
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Strong brown, fine to very fine silty sand with trace cla
TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 115.0 PCF
OPTIMUM MOISTURE CONTENT: 14.2 %



Herbert and Associates, Ltd.

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #7

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Reddish yellow, fine to very fine silty sand with little clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	2.1	97.9
20	2.0	95.9
40	1.6	94.3
60	5.4	88.9
100	12.1	76.8
200	23.9	52.9

% SILT: 41.0
% CLAY: 11.9

LIQUID LIMIT	26
PLASTIC LIMIT	23
PLASTIC INDEX	3
UNSOAKED CBR	18.1
SOAKED CBR	12.6
SWELL	0.0113
MAXIMUM DRY WEIGHT	114.5
OPTIMUM MOISTURE	14.0
SPECIFIC GRAVITY	2.64
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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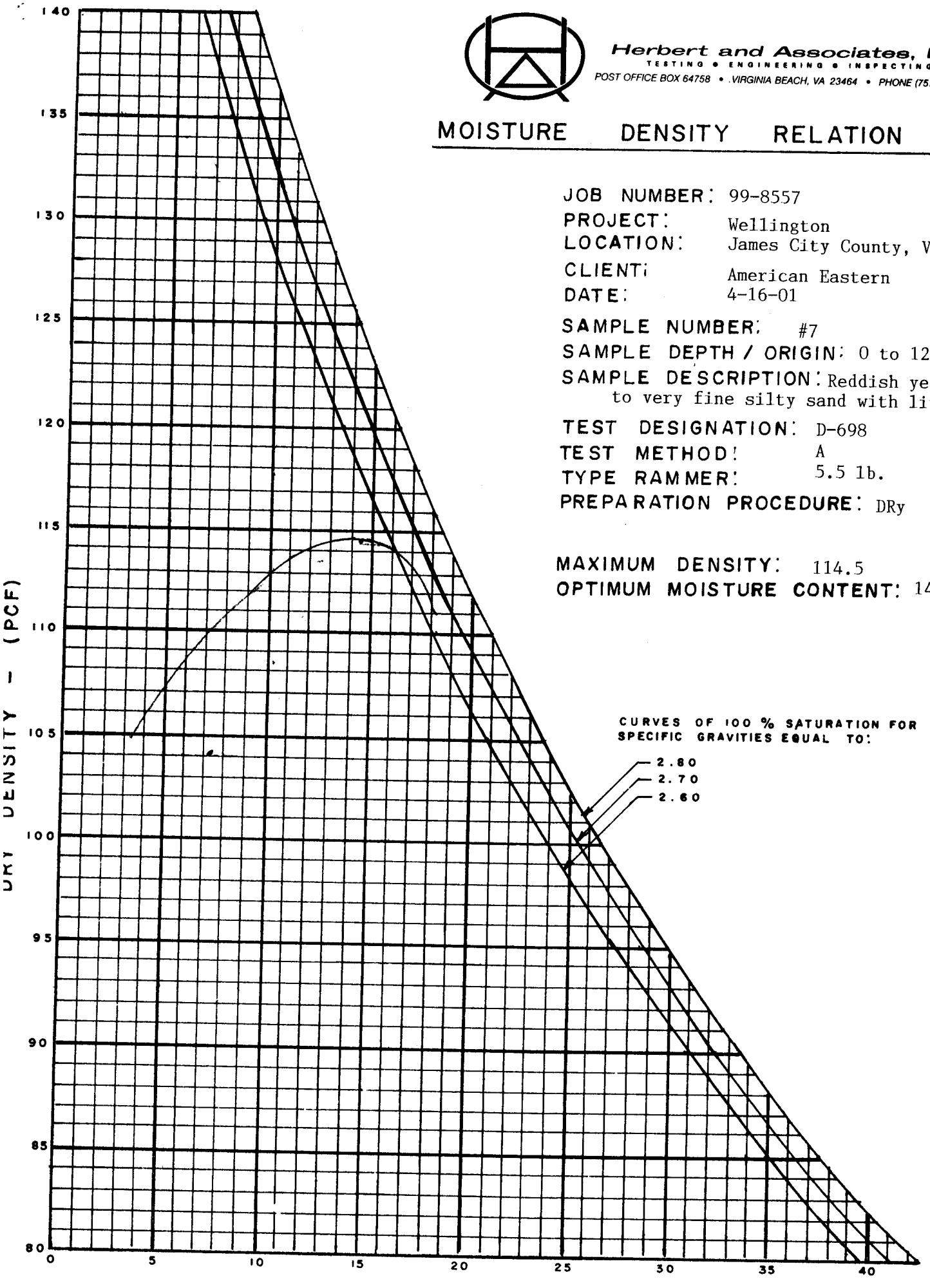
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-16-01

SAMPLE NUMBER: #7
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Reddish yellow, fine to very fine silty sand with little clay

TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: DRy

MAXIMUM DENSITY: 114.5 PCF
OPTIMUM MOISTURE CONTENT: 14.0 %



Herbert and Associates, Ltd.

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #8

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Yellowish brown, fine to very fine silty sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	1.4	98.6
20	1.4	97.2
40	2.5	94.7
60	8.3	86.4
100	12.6	73.8
200	22.1	51.7

% SILT: 43.8
% CLAY: 7.9

LIQUID LIMIT	25
PLASTIC LIMIT	21
PLASTIC INDEX	4
UNSOAKED CBR	18.3
SOAKED CBR	13.9
SWELL	0.0037
MAXIMUM DRY WEIGHT	115.5
OPTIMUM MOISTURE	12.7
SPECIFIC GRAVITY	2.62
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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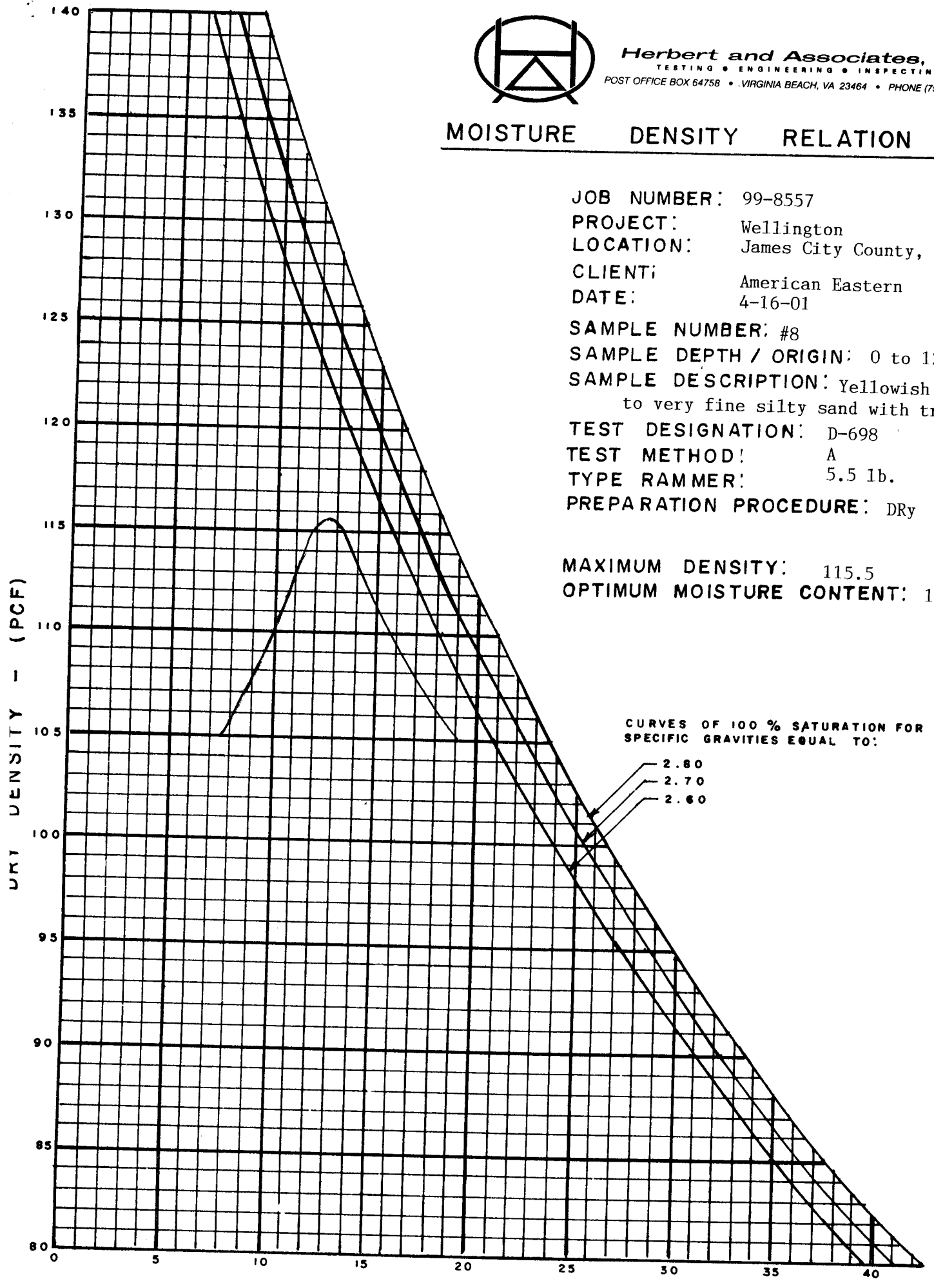
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-16-01
SAMPLE NUMBER: #8
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Yellowish brown fine to very fine silty sand with trace clay
TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: DRy

MAXIMUM DENSITY: 115.5 PCF
OPTIMUM MOISTURE CONTENT: 12.7 %



Herbert and Associates, Ltd.

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #9

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Brownish yellow, very fine silty sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.4	99.6
20	0.4	99.2
40	1.4	97.8
60	8.5	89.3
100	29.4	59.9
200	31.3	28.6

% SILT: 20.5
% CLAY: 8.1

LIQUID LIMIT	10
PLASTIC LIMIT	N/A
PLASTIC INDEX	N/P
UNSOAKED CBR	18.0
SOAKED CBR	13.8
SWELL	0.0118
MAXIMUM DRY WEIGHT	109.2
OPTIMUM MOISTURE	10.3
SPECIFIC GRAVITY	2.67
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

Respectfully submitted,
Herbert and Associates, Ltd.

John A. Herbert

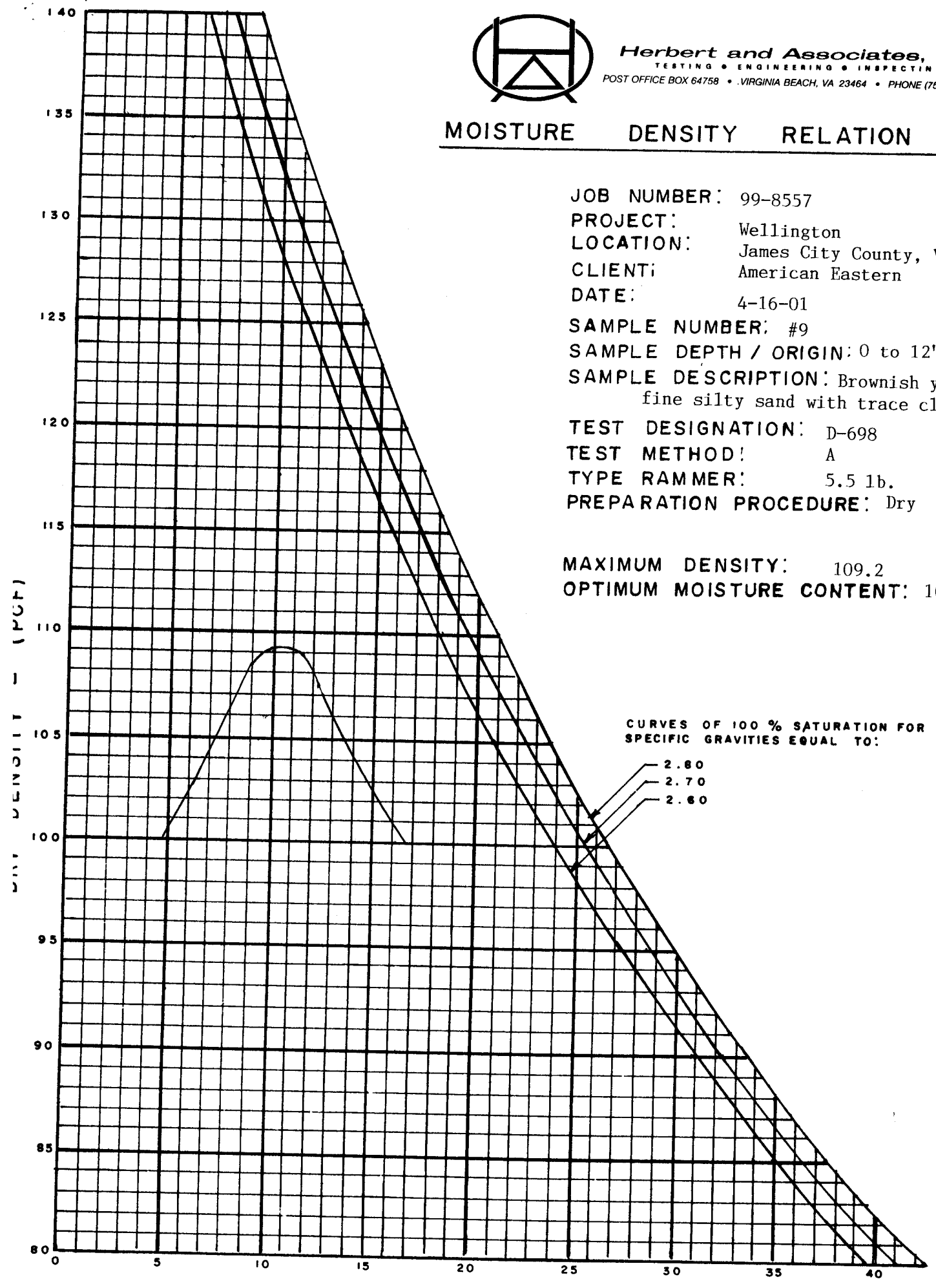
John A. Herbert, S.E.T.
President

Herbert and Associates, Ltd.
TESTING • ENGINEERING • INSPECTING
POST OFFICE BOX 64758 • VIRGINIA BEACH, VA 23464 • PHONE (757) 420-2797

MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-16-01
SAMPLE NUMBER: #9
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Brownish yellow very fine silty sand with trace clay
TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 109.2 PCF
OPTIMUM MOISTURE CONTENT: 10.3 %



Herbert and Associates, Ltd.

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #10

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Yellowish brown, fine to very fine silty sand with little clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	3.0	97.0
20	3.4	93.6
40	4.9	88.7
60	9.5	79.2
100	12.8	66.4
200	17.5	48.9

% SILT: 30.7
% CLAY: 18.2

LIQUID LIMIT	29
PLASTIC LIMIT	22
PLASTIC INDEX	7
UNSOAKED CBR	15.7
SOAKED CBR	10.8
SWELL	0.0024
MAXIMUM DRY WEIGHT	112.7
OPTIMUM MOISTURE	11.5
SPECIFIC GRAVITY	2.64
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

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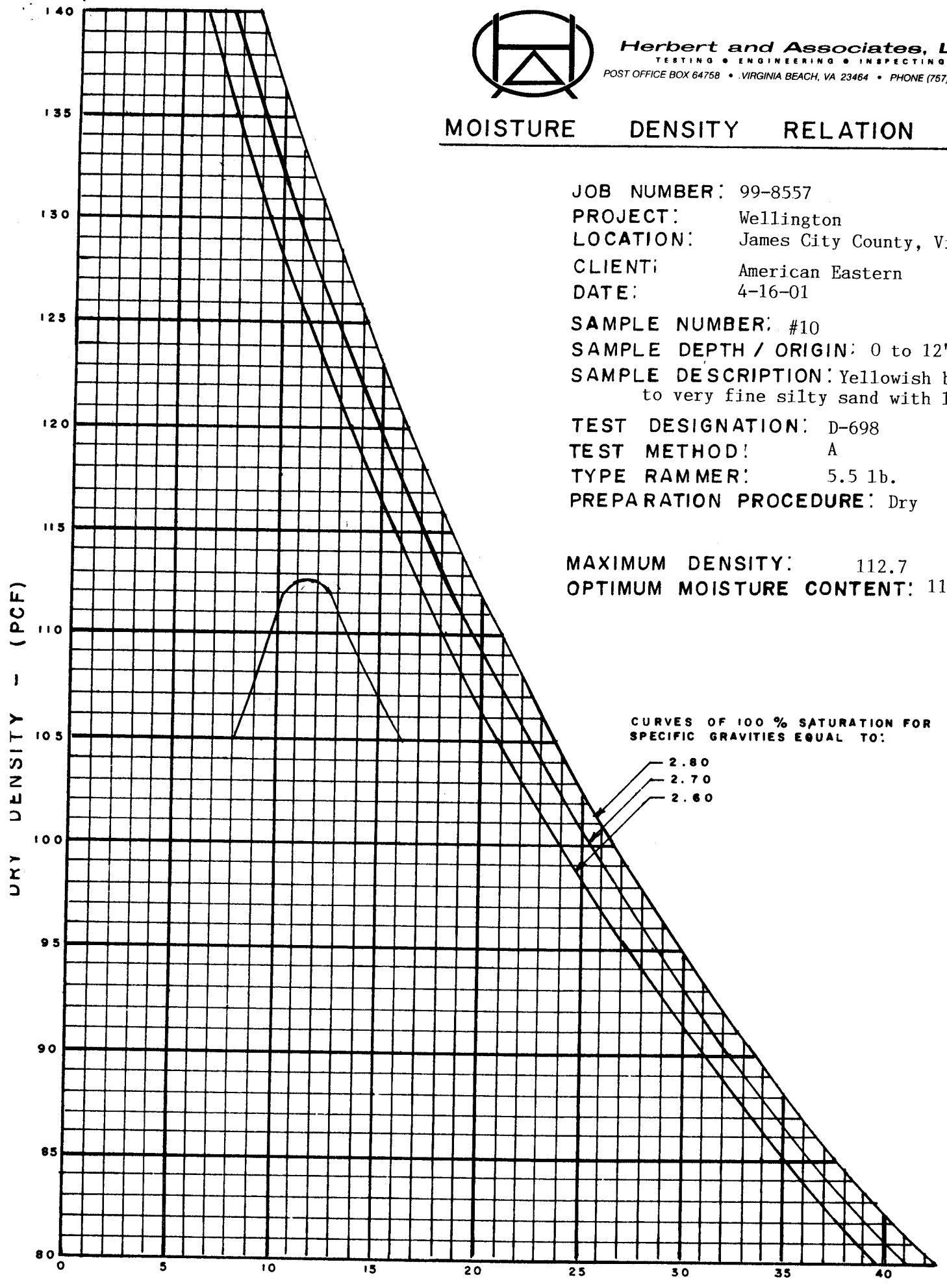
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-16-01

SAMPLE NUMBER: #10
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Yellowish brown fine to very fine silty sand with little clay

TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 112.7 PCF
OPTIMUM MOISTURE CONTENT: 11.5 %



Herbert and Associates, Ltd.

SOIL ANALYSIS

DATE: 4-26-01

CLIENT: American Eastern

PROJECT: Wellington

SAMPLE NO: #11

LOCATION: James City County, Virginia

DEPTH: 0 to 12"

DESCRIPTION: Yellowish brown, very fine silty sand with trace clay

SIEVE NO.	% RETAINED	% PASSING
3/8	0.0	100.0
4	0.0	100.0
10	0.2	99.8
20	0.2	99.6
40	0.1	99.5
60	0.8	98.7
100	7.9	90.8
200	38.9	51.9

% SILT: 42.0
% CLAY: 9.9

LIQUID LIMIT	27
PLASTIC LIMIT	N/A
PLASTIC INDEX	N/P
UNSOAKED CBR	18.3
SOAKED CBR	13.2
SWELL	0.0021
MAXIMUM DRY WEIGHT	107.0
OPTIMUM MOISTURE	9.3
SPECIFIC GRAVITY	2.61
PH	4.5

ASTM PROCEDURES

ASTM C-136	SIEVES
ASTM D-854	SPECIFIC GRAVITY
ASTM D-698	STANDARD PROCTOR
ASTM D-4318	ATTERBERG LIMITS
ASTM D-2487	GRADATION CURVES
ASTM C-422	HYDROMETER
ASTM D-1883	CALIFORNIA BEARING

Respectfully submitted,
Herbert and Associates, Ltd.

John A. Herbert, S.E.T.
President

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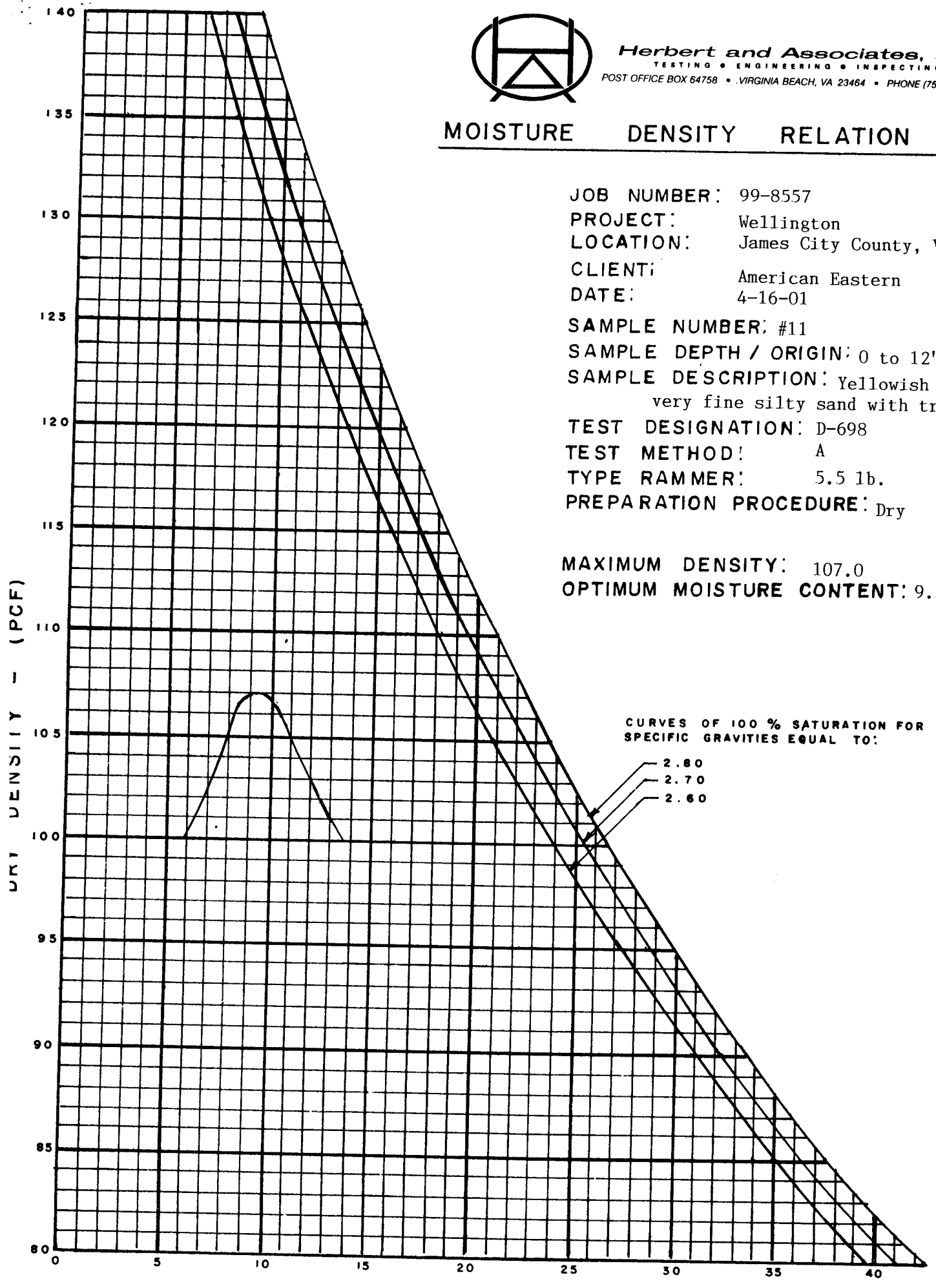
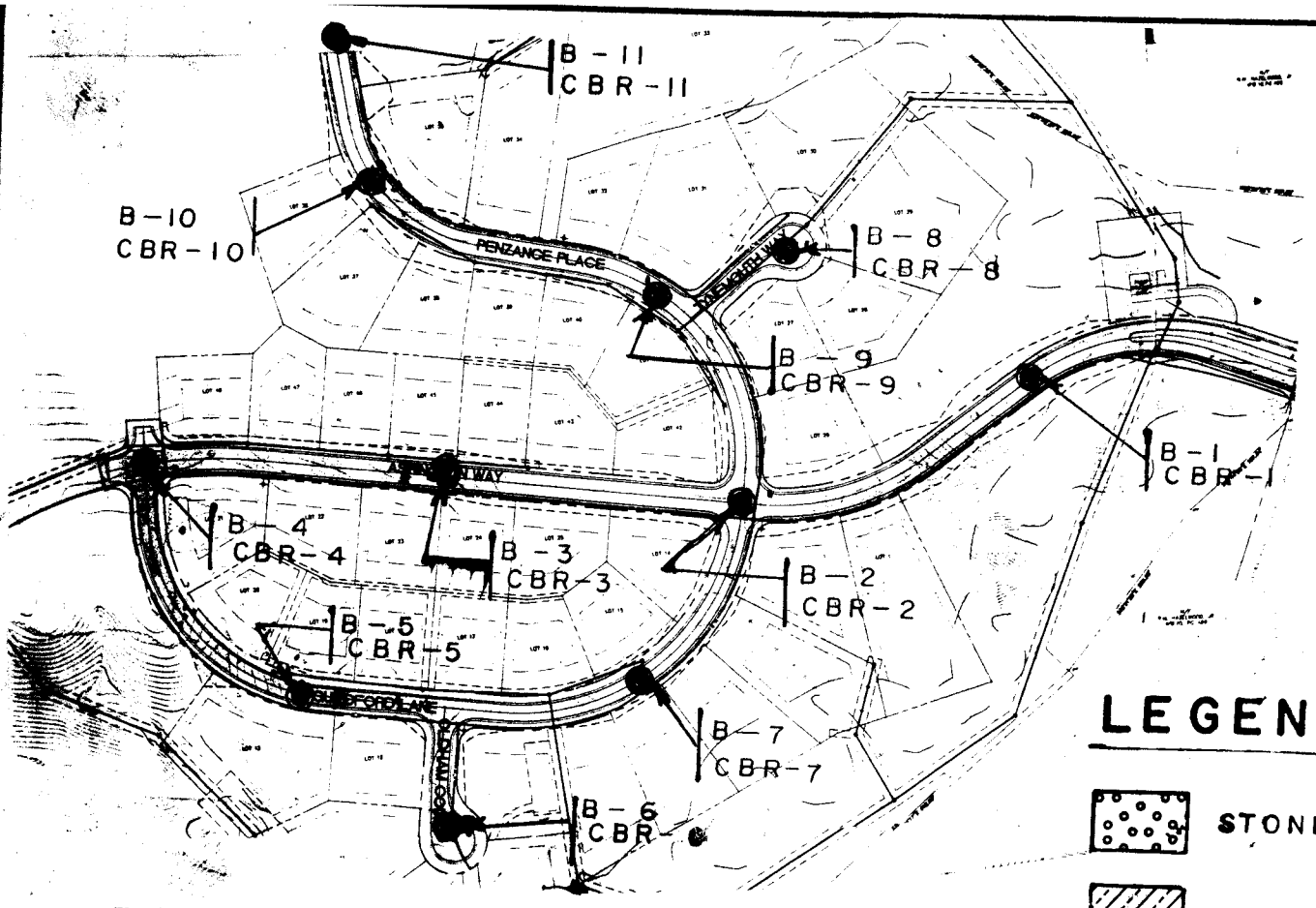
MOISTURE DENSITY RELATION TEST

JOB NUMBER: 99-8557
PROJECT: Wellington
LOCATION: James City County, Virginia
CLIENT: American Eastern
DATE: 4-16-01
SAMPLE NUMBER: #11
SAMPLE DEPTH / ORIGIN: 0 to 12"
SAMPLE DESCRIPTION: Yellowish brown, very fine silty sand with trace clay
TEST DESIGNATION: D-698
TEST METHOD: A
TYPE RAMMER: 5.5 lb.
PREPARATION PROCEDURE: Dry

MAXIMUM DENSITY: 107.0 PCF
OPTIMUM MOISTURE CONTENT: 9.3 %



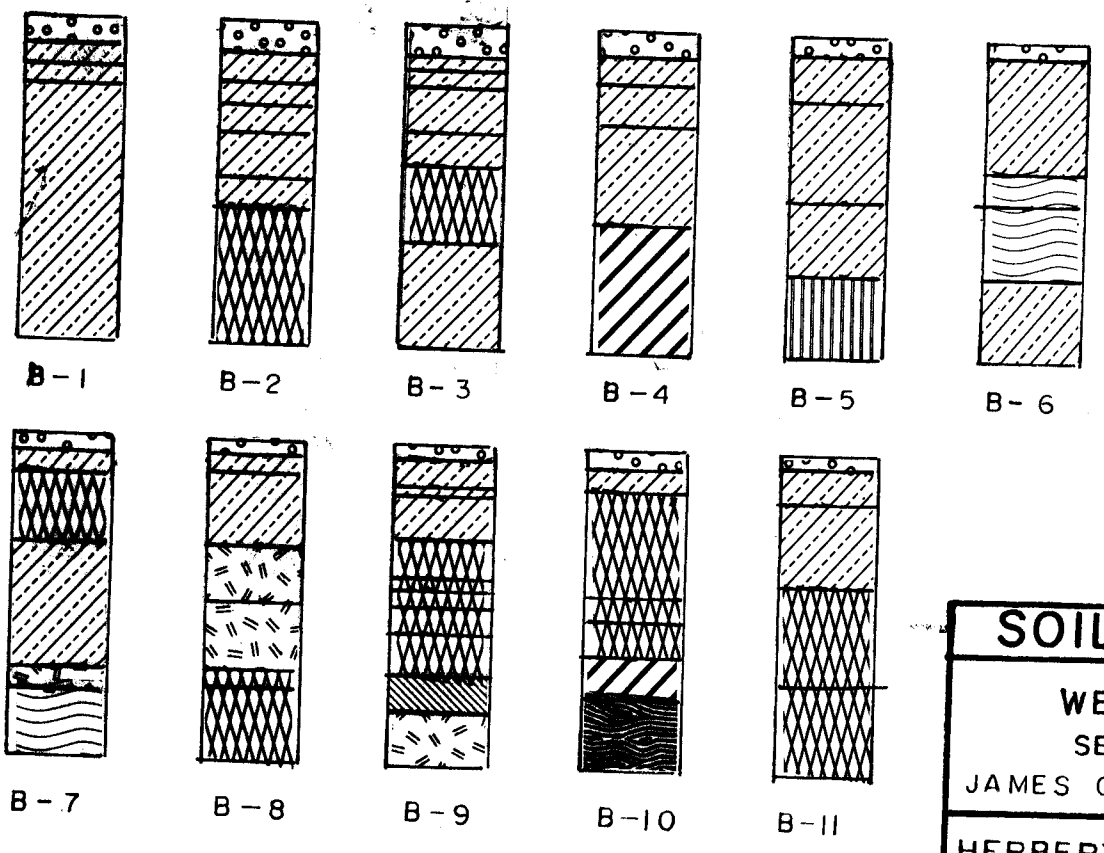


BORING LOCATION PLAN

NOT TO SCALE

LEGEND

- STONE
- SILTY SAND
- SANDY SILT
- CLAYEY SILT
- SILTY CLAY
- SANDY CLAY
- CLAYEY SAND
- SILT
- FINE TO VERY FINE SAND



PROFILE VIEW

SCALE: 1" = 6'-0"

SOIL PROFILE

WELLINGTON
SECTION ONE
JAMES CITY COUNTY VIRGINIA

HERBERT & ASSOCIATES, LTD.
NORFOLK VIRGINIA

APRIL 25, 2001 | JOB: 99-8557

Herbert and Associates, Ltd.
TESTING • ENGINEERING • INSPECTING
POST OFFICE BOX 64758 • VIRGINIA BEACH, VA 23464 • PHONE (757) 420-2797

LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION ~~James City County, VA~~

BORING NO. B-1 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 79.78

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 8"	
12	18"	Yellowish brown, damp, fine to very fine silty sand with trace of clay (SM)	S-1
24	24"	Olive, moist, fine to very fine to very fine silty sand (SM)	S-2
36			
48		Yellowish brown, moist, fine to very fine silty sand (SM)	S-3
60			
72			
84			
96			
108			
120	120"		
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

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Herbert and Associates, Ltd.
TESTING • ENGINEERING • INSPECTING
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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION ~~James City County, VA~~

BORING NO. B-2 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 85.89

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Gravel 9"	
12		Yellowish brown, damp, fine silty sand with trace of clay(SM)	S-1
24	21"		
36	30"	Tan mottle red, damp, fine to very fine silty sand (SM)	S-2
48	40"	Pink mottle white, damp, silty sand (SM)	S-3
60	57"	Tan mottle pink, damp, silty sand (SM)	S-4
72	67"	Tan mottle white, moist, silty sand with trace of clay (SM)	S-5
84		Pink, moist, sandy silt (SM)	
96			S-6
108			
120	120"		
		Bottom of Boring 10.0'	

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION ~~James City County, VA~~

BORING NO. B-3 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 85.71

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 8 1/2"	
12	16"	Strong brown, damp, fine to veryfine silty sand with little clay (SM)	S-1
24	23"	Brown mottle pink, damp, silty sand with some clay (SM)	S-2
36	38"	Yellowish brown, damp, silty sand (SM)	S-3
48	50"	Pink, damp, silty sand (SM)	S-4
60		Tan, moist, sandy silt (SM)	S-5
72			
84	80"	Tan mottle pink, moist, silty sand (SM)	S-6
96			
108			
120	120"		
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION James City County, VA

BORING NO. B-4 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 78.87

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 8"	
12		Strong brown, damp, fine to very fine silty sand with trace of clay (SM)	S-1
24	20"	Yellowish brown, damp, silty sand (SM)	S-2
36	36"		
48		Brown and tan, damp, fine to very fine silty sand (SM)	S-3
60			
72	72"		
84		Tan mottle orange, moist, clayey silt (ML)	S-4
96			
108			
120	120"		
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

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Herbert and Associates, Ltd.
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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION James City County, VA

BORING NO. B-5 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 72.60

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 6"	
12		Yellowish brown, damp, fine to veryfine silty sand with trace of clay (SM)	S-1
24	24"		
36		Orange mottle red, damp, fine to veryfine silty sand with clay (SM)	S-2
48			
60	60"		
72		Orange, moist, fine to very fine silty sand (SM)	S-3
84			
	88"		
96		Tan mottle red, moist, silty clay (CL)	S-4
108			
120	120"		
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION James City County, VA

BORING NO. B-6 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 71.37

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		STone 6"	
12		Strong brown, damp, fine to very fine silty sand with trace of clay	S-1
24			
36			
48	48"		
60	60"	Brown mottle red, moist, sandy clay (SC)	S-2
72		Tan mottle orange, moist, sandy clay (SC)	S-3
84	88"		
96		Reddish brown mottle orange, wet, fine to very fine silty sand (SM)	S-4
108			
120			
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION James City County, VA

BORING NO. B-7 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 76.00

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 6"	
12	16"	Reddish yellow, damp, fine to very fine silty sand with little clay (SM)	S-1
24		Orange mottle pink, damp, sandy silt (SM)	S-2
36	40"		
48		Tan mottle orange, damp, silty sand (SM)	S-3
60			
72			
84	88"		
96	96"	Brown & orange, moist, clayey sand (SC)	S-4
108		TAn mottle orange, moist, sandy clay (SC)	
120	120"		S-5
		Bottom of Broing 10.0'	

STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

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LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION James City County, VA

BORING NO. B-8 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 74.82

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		Stone 6"	
12	12"	Yellowish brown, damp, fine to very fine silty sand with trace of clay (SM)	S-1
24		Orange mottle red, damp, silty sand with some clay (SM)	S-2
36	41"		
48		Orange mottle red, damp, clayey sand (SC)	S-3
60	60"		
72		Tan mottle orange, damp, clayey sand (SC)	S-4
84	85"		
96	92"	Tan mottle orange, moist, sandy silt (SM)	S-5
108		Tan mottle orange, wet, sandy silt with clay (SM-SC)	S-6
120	120"		
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

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POST OFFICE BOX 64758 • VIRGINIA BEACH, VA 23464 • PHONE (757) 420-2797

LOG OF BORING

FILE NO. 99-8557

PROJECT IDENTIFICATION Wellington/Section One LOCATION ~~James City County, VA~~

BORING NO. B-9 TYPE DRILL H/A CLIENT American Eastern

DATE STARTED 4-9-01 DATE COMPLETED 4-9-01 DRILLER F. Cereske

CASING LENGTH N/A DIA. N/A WATER ELEV: IMMEDIATE N/A AFTER ____ HRS. ____

TYPE SAMPLER BK LENGTH 12" DIA. 3"OD SURF. ELEV. 82.11

DEPTH	STD. PEN. (N)*	SAMPLE DESCRIPTION	SAMPLE NO.
0		STone 5 1/2"	
12	13"	Brownish yellow, damp, very fine silty sand with trace clay	S-1
24	18"	Yellowish brown, damp, silty sand (SM)	S-2
36	34"	Tan mottle white, damp, silty sand (SM)	S-3
48	48"	Tan mottle orange, damp, fine to very fine sandy silt (SM)	S-4
60	53"	White mottle pink, damp, sandy silt with some clay (SM)	S-5
72	60"	Tan mottle red, damp, fine to very fine sandy silt (SM)	S-6
84	70"	White mottle pink, damp, sandy silt with some clay (SM)	S-7
96	86"	Tan mottle pink, damp, fine to very fine sandy silt with some clay (SM)	S-8
108	99"	Orange mottle tan, moist, fine to very fine sand with some silt and clay (SP)	S-9
120	120"	Brown mottle tan, moist, clayey sand (SC)	S-10
		Bottom of Boring 10.0'	

*STANDARD PENETRATION INDICATED FOR EACH 6 INCHES OF DRIVE OF SPLIT TUBE SAMPLED, utilizing a 140 pound hammer with a 30 inch fall.

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JAMES CITY COUNTY
ENVIRONMENTAL DIVISION
P. 0. BOX 8784
WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6670

INSPECTION REPORT - EROSION AND SEDIMENT CONTROL

Date: _____ Permittee: _____

Project: _____ _____

Phone/Fax: _____ _____

An inspection of the above-referenced project was conducted on _____, the following represents an evaluation of that projects compliance with James City County's Environmental Regulations. Items identified below as "Needs Repair" are deficiencies that must be corrected.

IN COMPLIANCE	NEEDS REPAIR	
☐	☐	SEDIMENT BASIN _____
☐	☐	SEDIMENT TRAP _____
☐	☐	CONSTRUCTION ENTRANCE _____
☐	☐	SILT FENCE _____
☐	☐	INLET PROTECTION _____
☐	☐	STABILIZATION _____
☐	☐	OTHER ITEMS _____

Notice is hereby given that those deficiencies listed shall be corrected in accordance with James City County's Environmental Requirements ***on or before*** _____. The site will be reinspected at that time and you are invited to accompany the inspector on that date. Failure to comply with this report will result in Enforcement Actions.

_____ _____

JCC Environmental Division Inspector Project Representative Notified

1/02

JAMES CITY COUNTY
ENVIRONMENTAL DIVISION
P. 0. BOX 8784
WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6670

INSPECTION REPORT - EROSION AND SEDIMENT CONTROL

Date: _____ Permittee: _____

Project: _____

Phone/Fax: _____

An inspection of the above-referenced project was conducted on _____, the following represents an evaluation of that projects compliance with James City County's Environmental Regulations. Items identified below as "Needs Repair" are deficiencies that must be corrected.

IN COMPLIANCE	NEEDS REPAIR	
☐	☐	SEDIMENT BASIN _____
☐	☐	SEDIMENT TRAP _____
☐	☐	CONSTRUCTION ENTRANCE _____
☐	☐	SILT FENCE _____
☐	☐	INLET PROTECTION _____
☐	☐	STABILIZATION _____
☐	☐	OTHER ITEMS _____

Notice is hereby given that those deficiencies listed shall be corrected in accordance with James City County's Environmental Requirements ***on or before*** _____. The site will be reinspected at that time and you are invited to accompany the inspector on that date. Failure to comply with this report will result in Enforcement Actions.

_____ _____

JCC Environmental Division Inspector Project Representative Notified

1/02

JAMES CITY COUNTY
ENVIRONMENTAL DIVISION
P. 0. BOX 8784
WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6670

INSPECTION REPORT - EROSION AND SEDIMENT CONTROL

Date: _____ Permittee: _____

Project: _____ _____

_____

Phone/Fax: _____ _____

An inspection of the above-referenced project was conducted on _____, the following represents an evaluation of that projects compliance with James City County's Environmental Regulations. Items identified below as "Needs Repair" are deficiencies that must be corrected.

IN COMPLIANCE	NEEDS REPAIR	
☐	☐	SEDIMENT BASIN _____
☐	☐	SEDIMENT TRAP _____
☐	☐	CONSTRUCTION ENTRANCE _____
☐	☐	SILT FENCE _____
☐	☐	INLET PROTECTION _____
☐	☐	STABILIZATION _____
☐	☐	OTHER ITEMS _____

Notice is hereby given that those deficiencies listed shall be corrected in accordance with James City County's Environmental Requirements ***on or before*** _____. The site will be reinspected at that time and you are invited to accompany the inspector on that date. Failure to comply with this report will result in Enforcement Actions.

_____ _____

JCC Environmental Division Inspector Project Representative Notified

1/02

Certificate to Construct Water and Sewer Facilities

Wellington LLC is hereby granted a Certificate to Construct water and/or sewer facilities in accordance with Section 17-15.2 of the James City County Code as amended by the James City County Board of Supervisors. Water main and sewer construction is to be in accordance with the Commonwealth of Virginia Water Regulations, the Commonwealth of Virginia Sewage Regulations, The Occupational Safety and Health Standards, the James City Service Authority (JCSA) Water and Sewer Design and Construction Standards, the James City County Regulations Governing Utility Service, and JCSA approved construction documents.

This Certificate is valid from the date of issue for a period not to exceed one (1) year and is subject to revocation for noncompliance with the above requirements.

LOCATION AND DESCRIPTION

Wellington - Section One

Water Main - 2,575'
Sewer Line - 710'

Department of Code Compliance

Reviewed By: James C. Dawson

Approved By: Darryl E Cook

Date: 7/20/00

Renewal Requested By: Charles J Gibson

Renewal Reviewed By: James C. Dawson

Renewal Approved By: Darryl E Cook

Renewal Date:

0130U.wp6

Application for Certificate to Construct Water and Sewer Facilities

Date of Application: 6/29/00

Developer: ~~H. R. Ashe~~ Wellington, L.L.C. 757-867-8800
(Full Name) (Business Phone)

632 Hampton Highway, Yorktown, Virginia 23693
(Address)

Contractor: Wellington, L.L.C./American Eastern, Inc. Same
(Full Name) (Business Phone)

Same
(Address)

Plan Prepared By: AES Consulting Engineers

Project: Wellington Section One
(Name and Description)

Location: James City County

Description of Water and/or Sewer Facilities:

Length of Water Main: 2,571.00 L.F. Length of Main Service Line: 710.0 L.F.

Fees: $1,594.02 ($ .62 per foot for every foot of water main)

+ $4,867.62 ($ .62 per foot for every foot of main sewer line) 7,851

Total Inspection Fee: $6,461.64

(Signature of Developer - Owner) 6/29/00 (Date)

Inspection Fee of: $6,461.64 Paid On: 6/28/00 (Date)

And Received By: Joan Etchberger

Plan Approved:

(Plan Approving Authority - JCSA) 7/3/2000 (Date)

Certificate Issued On: 7/3/00

Certificate Effective On: 7/3/00

Certificate Expires On: 7/3/01

WtrSwrAp.frm

A PROFESSIONAL CORPORATION
PH. 757-253-0040
5248 OLDE TOWNE ROAD, SUITE 1
WILLIAMSBURG, VA 23188

THE OLD POINT NATIONAL BANK
WILLIAMSBURG, VA
68-654/514

4345

DATE 6/28/00

AMOUNT
$ 6,461.64

Six thousand four hundred sixty-one and 64/100

PAY TO THE ORDER OF JCC TREASURER

AES Project No. 8223-2

⑈004345⑈ ⑆051406543⑆ 0121833601⑈

SECURITY FEATURES: MICRO PRINT TOP & BOTTOM BORDERS COLORED PATTERN - ARTIFICIAL WATERMARK ON REVERSE SIDE - MISSING FEATURE INDICATES A COPY

DEVELOPMENT MANAGEMENT

101-E MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6671 Fax: (757) 253-6850 E-MAIL: devtman@james-city.va.us

CODE COMPLIANCE
(757) 253-6626
codecomp@james-city.va.us

ENVIRONMENTAL DIVISION
(757) 253-6670
environ@james-city.va.us

PLANNING
(757) 253-6685
planning@james-city.va.us

COUNTY ENGINEER
(757) 253-6678
INTEGRATED PEST MANAGEMENT
(757) 259-4116

June 11, 2001

Wellington LLC
Mr. Charles Glisan
632 Hampton Highway
Yorktown VA 23693

RE: Wellington – Cross Country Sewer & Section 1

Dear Mr. Glisan:

Your Certificate to Construct water and/or sewer facilities for the above referenced project expires on July 3, 2001. As your construction is not yet complete, it will be necessary to amend the certificate. No additional fees will be required for the amendment.

Please sign the attached Certificate where indicated and return to this office. The amended Certificate must be received by June 26, 2001. Otherwise, the Certificate to Construct will be subject to revocation for noncompliance with the original permit requirements.

Please call me if your have any questions.

Sincerely,

Joan Etchberger

Joan Etchberger
Engineering Assistant

Enclosure

JAMES CITY COUNTY
ENVIRONMENTAL DIVISION
P. 0. BOX 8784
WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6670

INSPECTION REPORT - EROSION AND SEDIMENT CONTROL

Date: _____
Project: _____
Phone/Fax: _____

Permittee: _____

An inspection of the above-referenced project was conducted on _____, the following represents an evaluation of that projects compliance with James City County's Environmental Regulations. Items identified below as "Needs Repair" are deficiencies that must be corrected.

IN COMPLIANCE	NEEDS REPAIR	
☐	☐	SEDIMENT BASIN
☐	☒	SEDIMENT TRAP
☐	☐	CONSTRUCTION ENTRANCE
☐	☒	SILT FENCE
☐	☐	INLET PROTECTION
☐	☐	STABILIZATION
☐	☐	OTHER ITEMS

Notice is hereby given that those deficiencies listed shall be corrected in accordance with James City County's Environmental Requirements ***on or before*** _____. The site will be reinspected at that time and you are invited to accompany the inspector on that date. Failure to comply with this report will result in Enforcement Actions.

_____
JCC Environmental Division Inspector

_____
Project Representative Notified

1/02

40

JAMES CITY COUNTY
ENVIRONMENTAL DIVISION
P. O. BOX 8784
WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6670

INSPECTION REPORT - EROSION AND SEDIMENT CONTROL

Date: 6-4-02
Project: [illegible]
Phone/Fax: [illegible]

Permittee: [illegible]
[illegible]
[illegible]
[illegible]

An inspection of the above-referenced project was conducted on 6-7-02, the following represents an evaluation of that projects compliance with James City County's Environmental Regulations. Items identified below as "Needs Repair" are deficiencies that must be corrected.

IN COMPLIANCE	NEEDS REPAIR	
☐	☐	SEDIMENT BASIN
☐	☐	SEDIMENT TRAP
☐	☐	CONSTRUCTION ENTRANCE
☐	☒	SILT FENCE REPAIR SF WORK SHOULD 6-7-02. REMOVE TWO SF IN UTILITY EASEMENTS BETWEEN LOTS 6 & 7 AND 8
☐	☐	INLET PROTECTION
☐	☐	STABILIZATION
☐	☐	OTHER ITEMS

Notice is hereby given that those deficiencies listed shall be corrected in accordance with James City County's Environmental Requirements on or before 6-18-02. The site will be reinspected at that time and you are invited to accompany the inspector on that date. Failure to comply with this report will result in Enforcement Actions .

[illegible]
JCC Environmental Division Inspector
757-253-6670

[illegible]
Project Representative Notified [illegible]

3/00

3.

JAMES CITY COUNTY
ENVIRONMENTAL DIVISION
P. O. BOX 8784
WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6670

MATT LUSK
1-757-435-0996 MOBILE

INSPECTION REPORT - EROSION AND SEDIMENT CONTROL

Date: 5/1/02
Project: Williamsburg Section 1
Phone/Fax: 757 887-2001/757 887-7100

Permittee: Chuck Gibson
Anderson Eastern
632 Industrial Highway
Yorktown, VA 23693

An inspection of the above-referenced project was conducted on 5/1/02, the following represents an evaluation of that projects compliance with James City County's Environmental Regulations. Items identified below as "Needs Repair" are deficiencies that must be corrected.

IN COMPLIANCE	NEEDS REPAIR	
☐ N/A	☐	SEDIMENT BASIN
☐	☒	SEDIMENT TRAP STAY TRACKING OUT & BROKEN FENCE NEED MODIFYING TO SECURE EARTH DAMS.
☒	☐	CONSTRUCTION ENTRANCE
☐	☒	SILT FENCE REPAIR (SF) ALL AREAS / STOCKPILES
☒	☐	INLET PROTECTION
☐	☒	STABILIZATION NEWLY DISTURBED AREAS AND STOCK PILES
☐	☐	OTHER ITEMS

STAY OUT OF MAINTENANCE IS SHAPED OUT BROKEN FENCE

Notice is hereby given that those deficiencies listed shall be corrected in accordance with James City County's Environmental Requirements on or before 5/10/02. The site will be reinspected at that time and you are invited to accompany the inspector on that date. Failure to comply with this report will result in Enforcement Actions .

JCC Environmental Division Inspector
757-253-6670

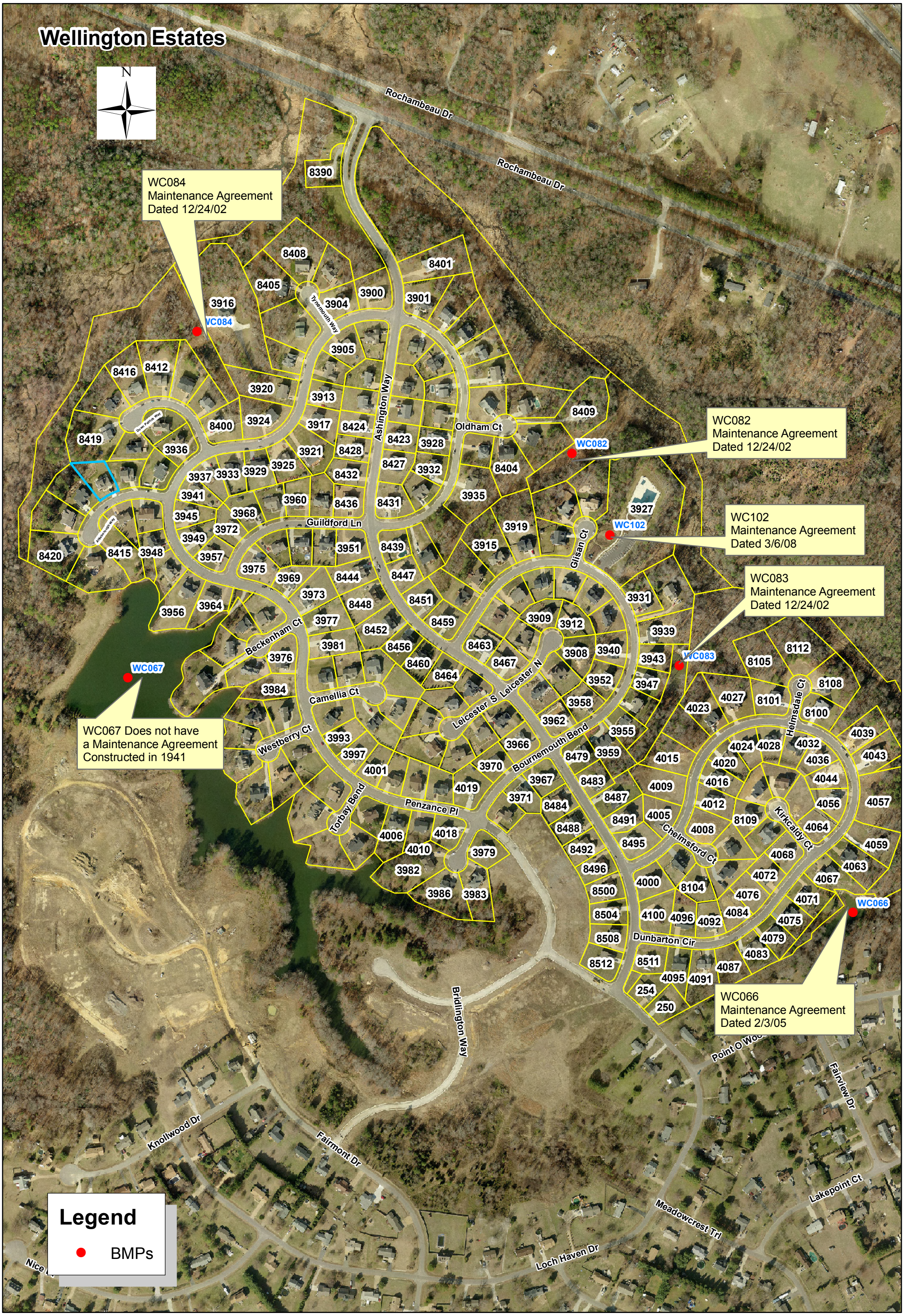
Chuck Gibson
Project Representative Notified BY FAX

3/00

From this point forward the file is not certified. The list below details the documents that have been added to the file, the person that added the documents and the date they were added.

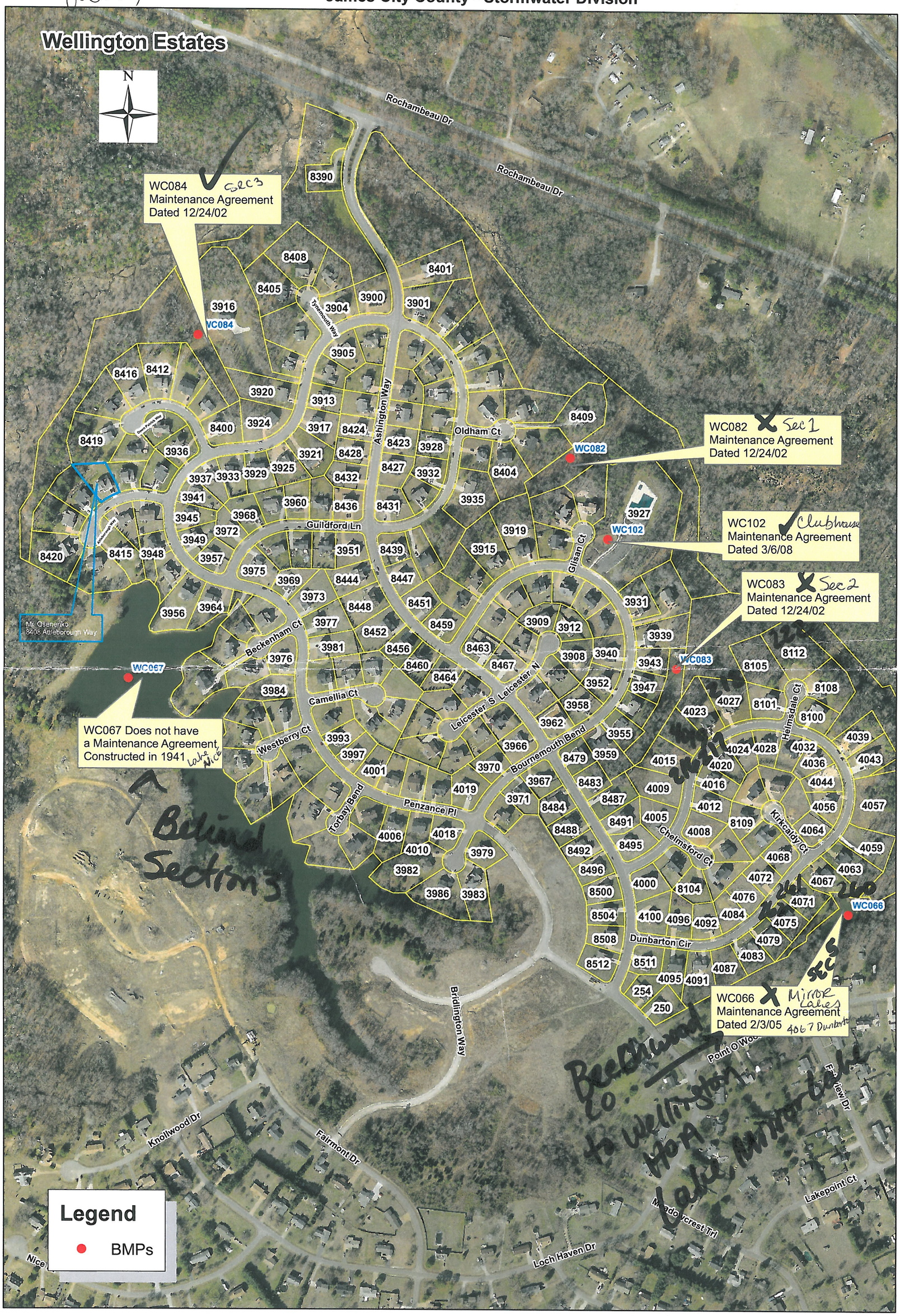
Name	Content	Date
Jo Anna Ripley	Map showing BMPs in Mirror Lakes/Wellington and the date of the maintenance agreement	6/20/2013

James City County - Stormwater Division

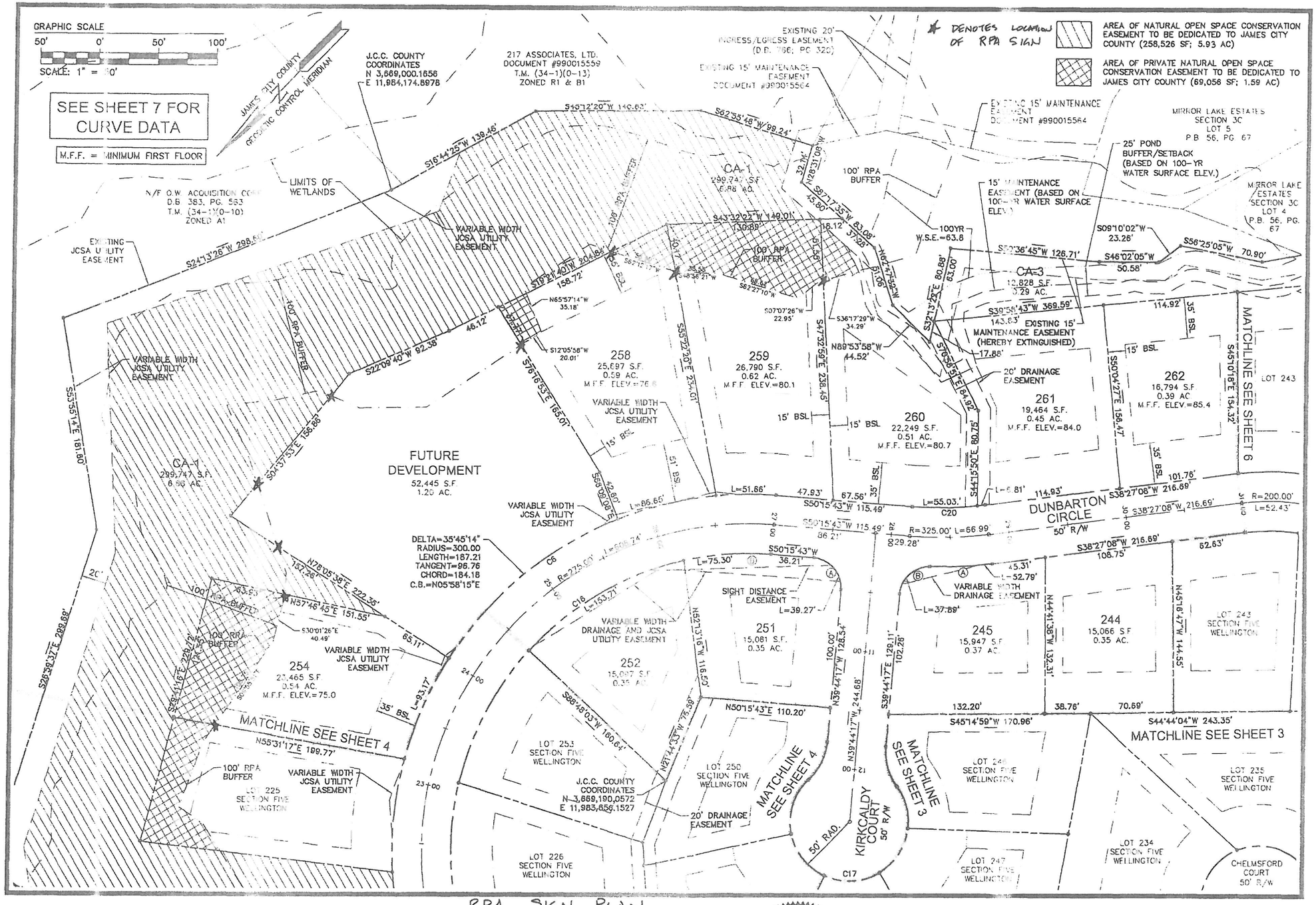


WC066, WC 082, WC083, WC084, WC102, WC 067

James City County - Stormwater Division



WC066



RPA SIGN PLAN

AES
CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND

5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994

PLAT OF SUBDIVISION
WELLINGTON
SECTION FIVE
LOTS 124-131, 210-254, 258-270 (65 LOTS)
BEING THE PROPERTY OF
WELLINGTON, L.L.C.
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

COMMONWEALTH OF VIRGINIA
2/21/05
G.T. WILSON, JR.
No. 1183
LAND SURVEYOR

No.	DATE	REVISION / COMMENT / NOTE	BY
1	5/4/05	REVISED PER JCC COMMENT LETTER DATED 4/27/05	VMB

Designed VMB/JAG	Drawn AWT
Scale 1"=50'	Date 2/21/05
Project No. 8223-9	
Drawing No. 5 of 7	

WC066

5-29-03

JUL 2005 RECEIVED

AREA OF NATURAL OPEN SPACE CONSERVATION EASEMENT TO BE DEDICATED TO JAMES CITY COUNTY (258,526 SF; 5.93 AC)

AREA OF PRIVATE NATURAL OPEN SPACE CONSERVATION EASEMENT TO BE DEDICATED TO JAMES CITY COUNTY (69,056 SF; 1.59 AC)

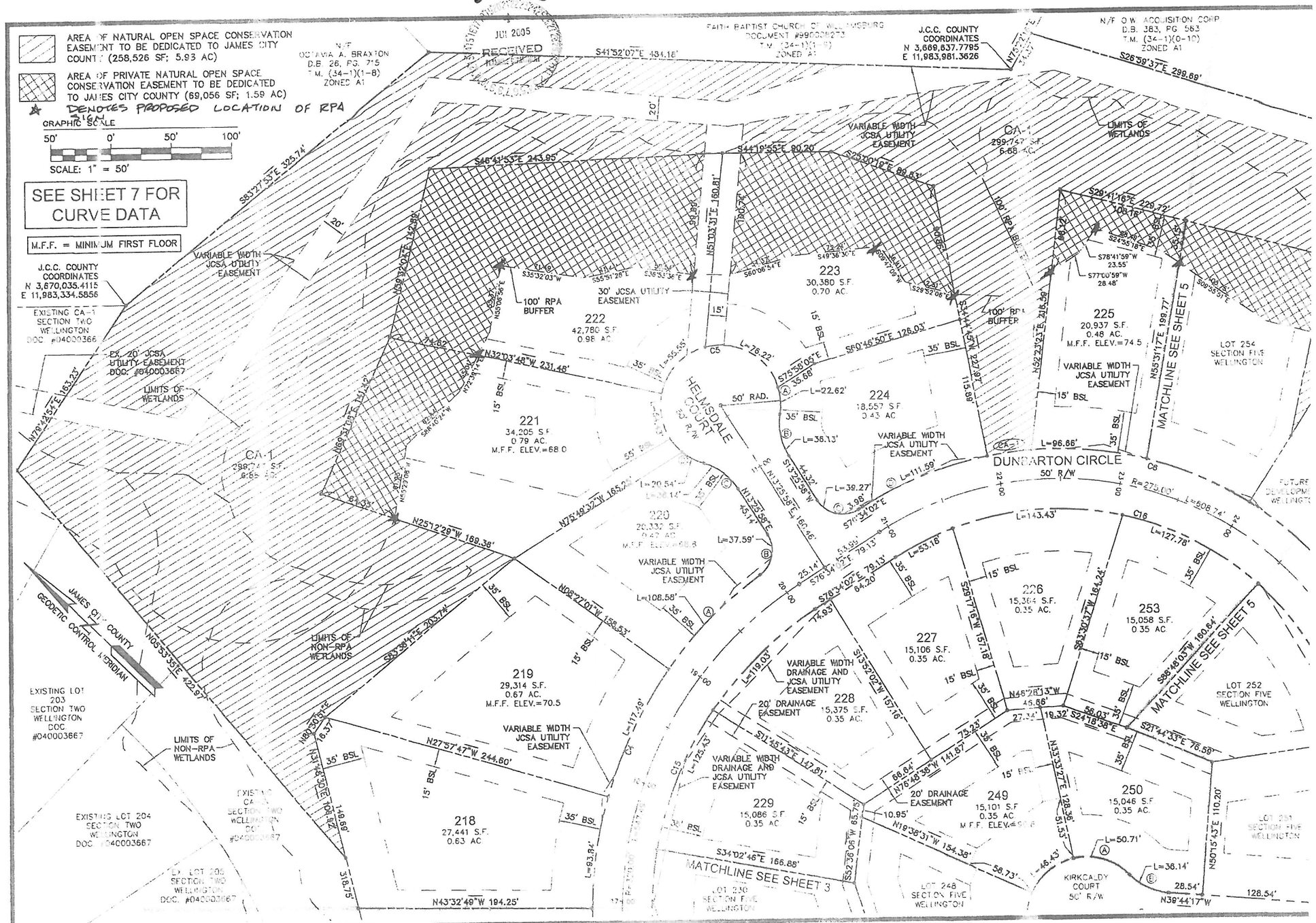
☆ DENOTES PROPOSED LOCATION OF RPA SIGN

GRAPHIC SCALE 50' 0' 50' 100'

SCALE: 1" = 50'

SEE SHEET 7 FOR CURVE DATA

M.F.F. = MINIMUM FIRST FLOOR



RPA SIGN PLAN

AES CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND

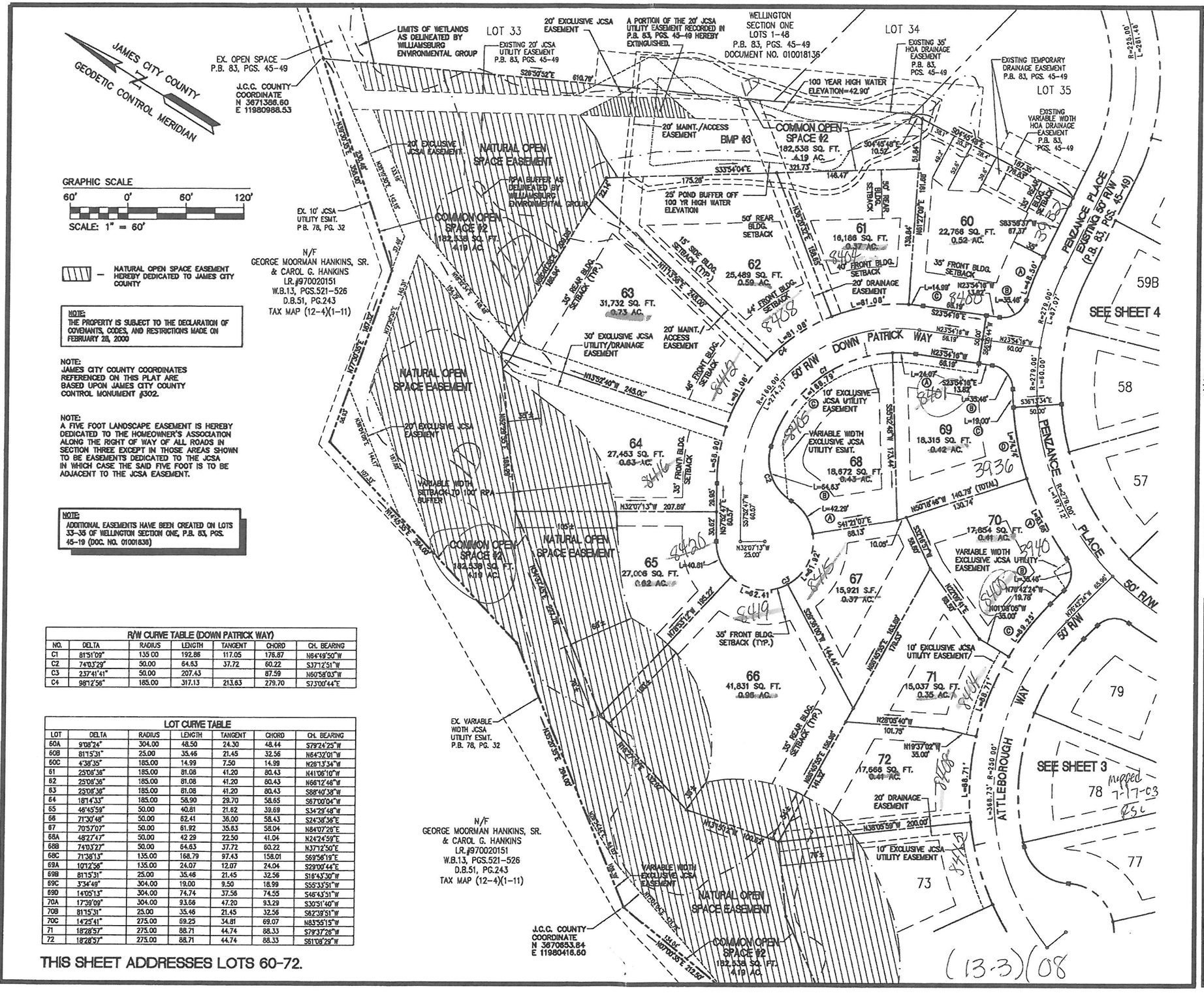
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994

PLAT OF SUBDIVISION
WELLINGTON
SECTION FIVE
LOTS 124–131, 210–254, 258–270 (66 LOTS)
BEING THE PROPERTY OF
WELLINGTON, L.L.C.
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

COMMONWEALTH OF VIRGINIA
2/2/05
G.T. WILSON, JR.
No. 1183
LAND SURVEYOR

No.	DATE	REVISION / COMMENT / NOTE	BY
1	5/4/05	REVISED PER J.C.C. COMMENT LETTER DATED 4/27/05	VMB

Designed VMB/JAG	Drawn AV
Scale 1"=50'	Date 2/2
Project No. 8223-9	
Drawing No. 4 of 7	



R/W CURVE TABLE (DOWN PATRICK WAY)						
NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
C1	81°51'09"	135.00	192.86	117.05	176.87	N64°49'50"W
C2	74°03'29"	50.00	64.63	37.72	60.22	S37°12'51"W
C3	237°41'41"	50.00	207.43		87.59	N60°58'03"W
C4	98°12'56"	185.00	317.13	213.63	279.70	S73°00'44"E

LOT CURVE TABLE						
LOT	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
60A	9°08'24"	304.00	48.50	24.30	48.44	S79°24'25"W
60B	81°15'31"	25.00	35.46	21.45	32.56	N64°32'01"W
60C	4°38'35"	185.00	14.99	7.50	14.99	N26°13'34"W
61	25°08'36"	185.00	81.08	41.20	80.43	N41°06'10"W
62	25°08'36"	185.00	81.08	41.20	80.43	N66°12'46"W
63	25°08'36"	185.00	81.08	41.20	80.43	S88°40'38"W
64	18°14'33"	185.00	58.90	29.70	58.65	S67°00'04"W
65	46°45'59"	50.00	40.81	21.62	39.69	S34°29'48"W
66	71°30'48"	50.00	62.41	36.00	58.43	S24°38'36"E
67	70°57'07"	50.00	61.92	35.63	58.04	N84°07'26"E
68A	48°27'47"	50.00	42.29	22.50	41.04	N24°24'59"E
68B	74°03'27"	50.00	64.63	37.72	60.22	N37°12'50"E
68C	71°38'13"	135.00	168.79	97.43	158.01	S69°56'19"E
69A	10°12'56"	135.00	24.07	12.07	24.04	S29°00'44"E
69B	81°15'31"	25.00	35.46	21.45	32.56	S16°43'30"W
69C	3°34'49"	304.00	19.00	9.50	18.99	S55°33'51"W
69D	14°05'13"	304.00	74.74	37.56	74.55	S46°43'51"W
70A	17°39'09"	304.00	93.66	47.20	93.29	S30°51'40"W
70B	81°15'31"	25.00	35.46	21.45	32.56	S82°39'51"W
70C	14°25'41"	275.00	69.25	34.81	69.07	N83°55'15"W
71	18°28'57"	275.00	88.71	44.74	88.33	S79°37'26"W
72	18°28'57"	275.00	88.71	44.74	88.33	S61°08'29"W

THIS SHEET ADDRESSES LOTS 60-72.

No.	DATE	REVISION / COMMENT / NOTE	BY
1	4/17/03	REVISED PER COUNTY COMMENTS	JFS

COMMONWEALTH OF VIRGINIA
G.T. WILSON, JR.
CERTIFICATE No. 1183
CERTIFIED LAND SURVEYOR
3/17/03

CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994

PLAT OF SUBDIVISION WELLINGTON SECTION THREE

LOTS 49-58, 59A, 59B, 60-89 AND 132-140
BEING THE PROPERTY OF
WELLINGTON, L.L.C.

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Designed	Drawn
HWP	JFS
Scale	Date
1"=60'	3/17/03

Project No. 8223-6

Drawing No. 2 OF 4

03.21.03-13:56 822306P02.dwg

JFS