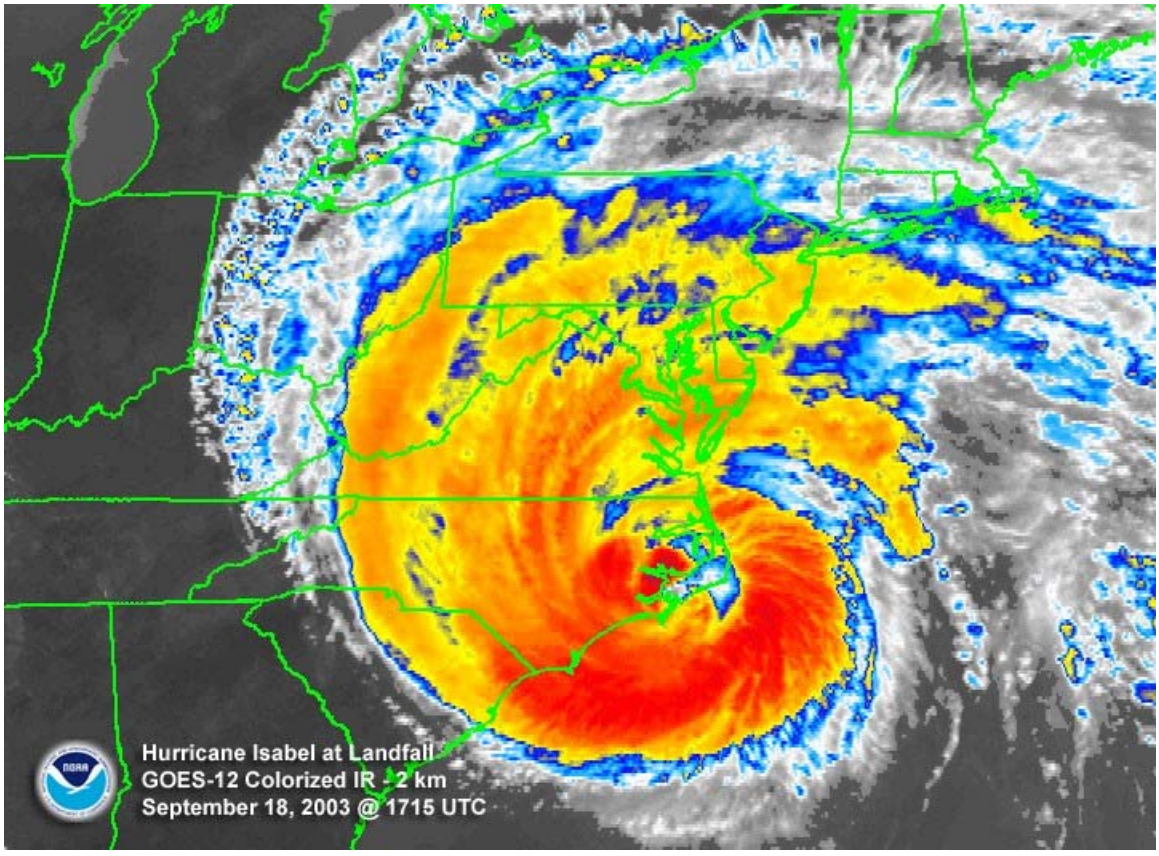
HIGH WATER MARKS
HURRICANE ISABEL

SEPTEMBER 18, 2003



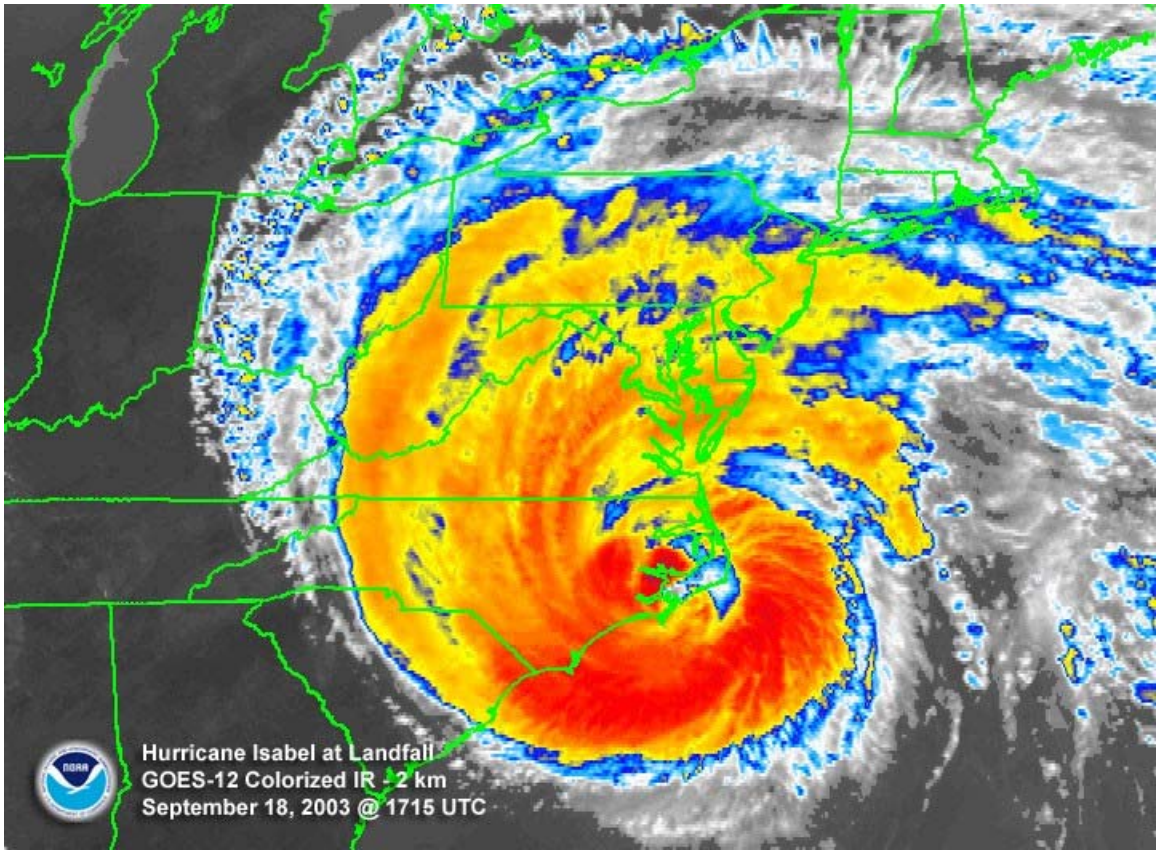
VOLUME I

U.S. Army Corps of Engineers
Norfolk District

March 2004

HIGH WATER MARKS
HURRICANE ISABEL

SEPTEMBER 18, 2003



VOLUME II

U.S. Army Corps of Engineers
Norfolk District

March 2004

Hurricane Isabel – 18 September 2003

High Water Mark Number A·1

Elevation: 7.14 ft. NGVD

Latitude: 37° 36’ 15”

Longitude: 75° 41’ 19”

USGS 7.5 Minute Quadrangle Map: Wachapreague, Va.

Address: Wachapreague Hotel, Atlantic Avenue, Town of Wachapreague, Accomack County, Va.

Remarks: HWM is debris line on back side of hotel.

Hurricane Isabel – 18 September 2003

High Water Mark Number A·1

Elevation: 7.14 ft. NGVD

Latitude: 37° 36’ 15”

Longitude: 75° 41’ 19”

USGS 7.5 Minute Quadrangle Map: Wachapreague, Va.

Address: Wachapreague Hotel, Atlantic Avenue, Town of Wachapreague, Accomack County, Va.

Remarks: HWM is debris line on back side of hotel.

Hurricane Isabel – 18 September 2003

High Water Mark Number A·2

Elevation: 7.15 ft. NGVD

Latitude: 37° 36’ 16”

Longitude: 75° 41’ 17”

USGS 7.5 Minute Quadrangle Map: Wachapreague, Va.

Address: Abandoned building adjacent to Island House Restaurant, Atlantic Avenue, Town of Wachapreague, Accomack County, Va.

Remarks: HWM is debris line on inside of abandoned building.

Hurricane Isabel – 18 September 2003

High Water Mark Number A·2

Elevation: 7.15 ft. NGVD

Latitude: 37° 36’ 16”

Longitude: 75° 41’ 17”

USGS 7.5 Minute Quadrangle Map: Wachapreague, Va.

Address: Abandoned building adjacent to Island House Restaurant, Atlantic Avenue, Town of Wachapreague, Accomack County, Va.

Remarks: HWM is debris line on inside of abandoned building.

Hurricane Isabel – 18 September 2003

High Water Mark Number A·2

Elevation: 7.15 ft. NGVD

Latitude: 37° 36’ 16”

Longitude: 75° 41’ 17”

USGS 7.5 Minute Quadrangle Map: Wachapreague, Va.

Address: Abandoned building adjacent to Island House Restaurant, Atlantic Avenue, Town of Wachapreague, Accomack County, Va.

Remarks: HWM is debris line on inside of abandoned building.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-1

Elevation: 7.81 ft. NGVD

Latitude: 37° 54’ 54”

Longitude: 76° 50’ 02”

USGS 7.5 Minute Quadrangle Map: Tappahannock, Va.

Address: 686 Riverdale Road, Essex County, Va.

Remarks: HWM is seed line on aluminum door frame of garage. (Richmond Beach area)

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-1

Elevation: 7.81 ft. NGVD

Latitude: 37° 54’ 54”

Longitude: 76° 50’ 02”

USGS 7.5 Minute Quadrangle Map: Tappahannock, Va.

Address: 686 Riverdale Road, Essex County, Va.

Remarks: HWM is seed line on aluminum door frame of garage. (Richmond Beach area)

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-3

Elevation: 8.39 ft. NGVD

Latitude: 37° 53’ 47”

Longitude: 76° 48’ 24”

USGS 7.5 Minute Quadrangle Map: Tappahannock, Va.

Address: 235 State Route 680, Essex County, Va.

Remarks: HWM is seed line on red door frame of garage. (Area north of Lowery Point)

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-3

Elevation: 8.39 ft. NGVD

Latitude: 37° 53’ 47”

Longitude: 76° 48’ 24”

USGS 7.5 Minute Quadrangle Map: Tappahannock, Va.

Address: 235 State Route 680, Essex County, Va.

Remarks: HWM is seed line on red door frame of garage. (Area north of Lowery Point)

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-5

Elevation: 8.93 ft. NGVD

Latitude: 37° 51’ 38”

Longitude: 76° 46’ 50”

USGS 7.5 Minute Quadrangle Map: Dunnsville, Va.

Address: 195 Bayside Drive, Essex County, Va.

Remarks: HWM is trash line behind residence near flagpole.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-5

Elevation: 8.93 ft. NGVD

Latitude: 37° 51’ 38”

Longitude: 76° 46’ 50”

USGS 7.5 Minute Quadrangle Map: Dunnsville, Va.

Address: 195 Bayside Drive, Essex County, Va.

Remarks: HWM is trash line behind residence near flagpole.

Hurricane Isabel – 18 September 2003

High Water Mark Number GC·1

Elevation: 7.25’

Latitude: 37° 15’ 50”

Longitude: 76° 24’ 30”

USGS 7.5 Minute Quadrangle Map: Achilles, Va.

Address: 1992 Cross Road, Gloucester County, Va.

Remarks: HWM is 1.83 feet above driveway slab at storm door of utility room.

Hurricane Isabel – 18 September 2003

High Water Mark Number GC·1

Elevation: 7.25’

Latitude: 37° 15’ 50”

Longitude: 76° 24’ 30”

USGS 7.5 Minute Quadrangle Map: Achilles, Va.

Address: 1992 Cross Road, Gloucester County, Va.

Remarks: HWM is 1.83 feet above driveway slab at storm door of utility room.

Hurricane Isabel – 18 September 2003

High Water Mark Number GC·1

Elevation: 7.25’

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Hurricane Isabel – 18 September 2003

High Water Mark Number GC·1

Elevation: 7.25’

Latitude: 37° 15’ 50”

Longitude: 76° 24’ 30”

USGS 7.5 Minute Quadrangle Map: Achilles, Va.

Address: 1992 Cross Road, Gloucester County, Va.

Remarks: HWM is 1.83 feet above driveway slab at storm door of utility room.

Hurricane Isabel – 18 September 2003

High Water Mark Number GC·2

Elevation: 7.29’

Latitude: 37° 15’ 60”

Longitude: 76° 23’ 40”

USGS 7.5 Minute Quadrangle Map: Achilles, Va.

Address: 2017 Big Island Road, Gloucester County, Va.

Remarks: HWM is 1.58 feet above porch slab at front door.

Hurricane Isabel – 18 September 2003

High Water Mark Number GC·2

Elevation: 7.29’

Latitude: 37° 15’ 60”

Longitude: 76° 23’ 40”

USGS 7.5 Minute Quadrangle Map: Achilles, Va.

Address: 2017 Big Island Road, Gloucester County, Va.

Remarks: HWM is 1.58 feet above porch slab at front door.


Hurricane Isabel – 18 September 2003

High Water Mark Number GC-2

Elevation: 7.29’

Latitude: 37° 15’ 60”

Longitude: 76° 23’ 40”

USGS 7.5 Minute Quadrangle Map: Achilles, Va.

Address: 2017 Big Island Road, Gloucester County, Va.

Remarks: HWM is 1.58 feet above porch slab at front door.

Hurricane Isabel – 18 September 2003

High Water Mark Number GC-2

Elevation: 7.29’

Latitude: 37° 15’ 60”

Longitude: 76° 23’ 40”

USGS 7.5 Minute Quadrangle Map: Achilles, Va.

Address: 2017 Big Island Road, Gloucester County, Va.

Remarks: HWM is 1.58 feet above porch slab at front door.

Hurricane Isabel – 18 September 2003

High Water Mark Number GC·2

Elevation: 7.29’

Latitude: 37° 15’ 60”

Longitude: 76° 23’ 40”

USGS 7.5 Minute Quadrangle Map: Achilles, Va.

Address: 2017 Big Island Road, Gloucester County, Va.

Remarks: HWM is 1.58 feet above porch slab at front door.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-4

Elevation: 7.50 ft. NGVD

Latitude: 37° 15’ 11”

Longitude: 76° 30’ 21”

USGS 7.5 Minute Quadrangle Map: Clay Bank, Va.

Address: 1478 Mercer Road, Gloucester County, Va.

Remarks: HWM is wash line at base of cliff behind residence.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-4

Elevation: 7.50 ft. NGVD

Latitude: 37° 15’ 11”

Longitude: 76° 30’ 21”

USGS 7.5 Minute Quadrangle Map: Clay Bank, Va.

Address: 1478 Mercer Road, Gloucester County, Va.

Remarks: HWM is wash line at base of cliff behind residence.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-4

Elevation: 7.50 ft. NGVD

Latitude: 37° 15’ 11”

Longitude: 76° 30’ 21”

USGS 7.5 Minute Quadrangle Map: Clay Bank, Va.

Address: 1478 Mercer Road, Gloucester County, Va.

Remarks: HWM is wash line at base of cliff behind residence.

Hurricane Isabel – 18 September 2003

High Water Mark Number H·1

Elevation: 9.11 ft. NGVD

Latitude: 37° 04’ 39”

Longitude: 76° 16’ 35”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 11 Lighthouse Drive, Grand View, Hampton, Va.

Remarks: HWM is 6” above front deck, measured at sliding doors.

Hurricane Isabel – 18 September 2003

High Water Mark Number H·1

Elevation: 9.11 ft. NGVD

Latitude: 37° 04’ 39”

Longitude: 76° 16’ 35”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 11 Lighthouse Drive, Grand View, Hampton, Va.

Remarks: HWM is 6” above front deck, measured at sliding doors.

Hurricane Isabel – 18 September 2003

High Water Mark Number H·2

Elevation: 8.16 ft. NGVD

Latitude: 37° 04’ 31”

Longitude: 76° 16’ 41”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 118 Grand View Drive, Grand View, Hampton, Va.

Remarks: HWM is inside of back yard fence. Mark is 25” below top of top horizontal rail, measured adjacent to second vertical support post from gate.

Hurricane Isabel – 18 September 2003

High Water Mark Number H·2

Elevation: 8.16 ft. NGVD

Latitude: 37° 04’ 31”

Longitude: 76° 16’ 41”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 118 Grand View Drive, Grand View, Hampton, Va.

Remarks: HWM is inside of back yard fence. Mark is 25” below top of top horizontal rail, measured adjacent to second vertical support post from gate.

Hurricane Isabel – 18 September 2003

High Water Mark Number H·3

Elevation: 9.31 ft. NGVD

Latitude: 37° 03’ 20”

Longitude: 76° 17’ 09”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: Salt Ponds Marina, Buckroe Beach, Hampton, Va.

Remarks: HWM is 29.75” below the bottom of white cap marked “H” on pier piling, at rear of marina office/shop.

Hurricane Isabel – 18 September 2003

High Water Mark Number H·3

Elevation: 9.31 ft. NGVD

Latitude: 37° 03’ 20”

Longitude: 76° 17’ 09”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: Salt Ponds Marina, Buckroe Beach, Hampton, Va.

Remarks: HWM is 29.75” below the bottom of white cap marked “H” on pier piling, at rear of marina office/shop.

Hurricane Isabel – 18 September 2003

High Water Mark Number H·4

Elevation: 9.94 ft. NGVD

Latitude: 37° 02’ 37”

Longitude: 76° 17’ 32”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 129 Second Street, Buckroe Beach, Hampton, Va.

Remarks: HWM is on top of second step at front entrance.

Hurricane Isabel – 18 September 2003

High Water Mark Number H·4

Elevation: 9.94 ft. NGVD

Latitude: 37° 02’ 37”

Longitude: 76° 17’ 32”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 129 Second Street, Buckroe Beach, Hampton, Va.

Remarks: HWM is on top of second step at front entrance.

Hurricane Isabel – 18 September 2003

High Water Mark Number H·5

Elevation: 9.18 ft. NGVD

Latitude: 37° 02’ 29”

Longitude: 76° 17’ 44”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 2500B Pembroke Avenue, Buckroe Beach, Hampton, Va.

Remarks: HWM is 22.5” above bottom of siding.

Hurricane Isabel – 18 September 2003

High Water Mark H·5

Elevation: 9.18 ft. NGVD

Latitude: 37° 02’ 29”

Longitude: 76° 17’ 44”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 2500B Pembroke Avenue, Buckroe Beach, Hampton, Va.

Remarks: HWM is 22.5” above bottom of siding.

Hurricane Isabel – 18 September 2003

High Water Mark Number H·6

Elevation: 9.52 ft. NGVD

Latitude: 37° 02’ 27”

Longitude: 76° 17’ 28”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: Buckroe Beach Bath House, Buckroe Beach, Hampton, Va.

Remarks: HWM is 13.25” above concrete floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number H·6

Elevation: 9.52 ft. NGVD

Latitude: 37° 02’ 27”

Longitude: 76° 17’ 28”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: Buckroe Beach Bath House, Buckroe Beach, Hampton, Va.

Remarks: HWM is 13.25” above concrete floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number H-7

Elevation: 7.08 ft. NGVD

Latitude: 37° 02’ 08”

Longitude: 76° 17’ 51”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 22 Al Street, Buckroe Beach, Hampton, Va.

Remarks: HWM is 2” below bottom of siding on workshop.

Hurricane Isabel – 18 September 2003

High Water Mark Number H·7

Elevation: 7.08 ft. NGVD

Latitude: 37° 02’ 08”

Longitude: 76° 17’ 51”

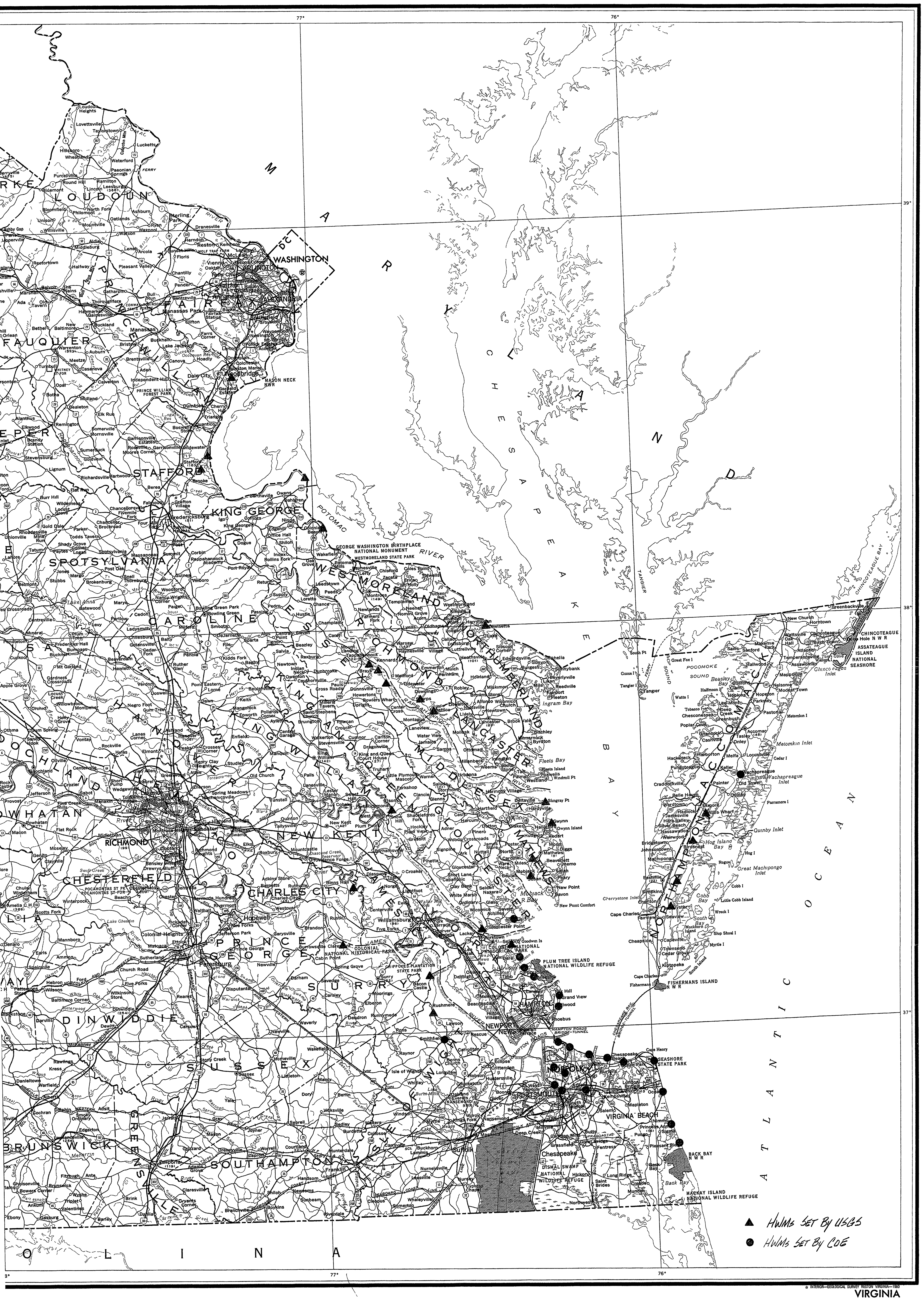
USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 22 Al Street, Buckroe Beach, Hampton, Va.

Remarks: HWM is 2” below bottom of siding on workshop.

Hurricane Isabel – September 18, 2003
HIGH WATER MARKS – Poquoson, Va.

Mark No.	Location	Latitude	Longitude	Elevation (ft. NGVD)
P·1	14 Ebb Tide Landing	37° 08’ 41”	76° 23’ 16”	7.96
P·2	16 Phillips Road	37° 08’ 50”	76° 22’ 53”	8.37
P·3	4 Breezy Point	37° 08’ 58”	76° 22’ 31”	7.93
P·4	1184 Poquoson Avenue	37° 07’ 43”	76° 21’ 03”	7.75
P·5	168 Ridge Road	37° 07’ 33”	76° 20’ 07”	7.91
P·6	218 Ridge Road	37° 07’ 23”	76° 20’ 02”	7.92
P·7	61 Messick Road	37° 07’ 17”	76° 20’ 27”	8.26
P·8	15 Messick Road	37° 07’ 15”	76° 20’ 40”	8.06
P·9	Garage across from Trinity United Methodist Church	37° 07’ 22”	76° 20’ 45”	8.00
P·10	1300 Poquoson Avenue	37° 07’ 20”	76° 20’ 47”	7.95
P·11	46 Church Street	37° 07’ 21”	76° 21’ 00”	8.08
P·12	47 Church Street	37° 07’ 19”	76° 20’ 59”	7.97
P·13	155 Church Street	37° 07’ 14”	76° 21’ 31”	8.06



☆ INTERIOR—GEOLOGICAL SURVEY RESTON VIRGINIA—1980

Hurricane Isabel – 18 September 2003

High Water Mark Number S-1

Elevation: 9.61 ft. NGVD

Latitude: 36° 58’ 58”

Longitude: 76° 37’ 59”

USGS 7.5 Minute Quadrangle Map: Smithfield, Va.

Address: 100 Commerce Street, Town of Smithfield, Isle of Wight County, Va.

Remarks: HWM is debris line 32.5” above garage floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number S-1

Elevation: 9.61 ft. NGVD

Latitude: 36° 58’ 58”

Longitude: 76° 37’ 59”

USGS 7.5 Minute Quadrangle Map: Smithfield, Va.

Address: 100 Commerce Street, Town of Smithfield, Isle of Wight County, Va.

Remarks: HWM is debris line 32.5” above garage floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-19

Elevation: 9.62 ft. NGVD

Latitude: 37° 03’ 21”

Longitude: 76° 40’ 10”

USGS 7.5 Minute Quadrangle Map: Bacons Castle, Va.

Address: House is on Rivers Ridge Lane, State Route 621, Isle of Wight County, Va.

Remarks: HWM is debris line on north wall of first house downstream of 14464 Rivers Ridge Lane.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-19

Elevation: 9.62 ft. NGVD

Latitude: 37° 03’ 21”

Longitude: 76° 40’ 10”

USGS 7.5 Minute Quadrangle Map: Bacons Castle, Va.

Address: House is on Rivers Ridge Lane, State Route 621, Isle of Wight County, Va.

Remarks: HWM is debris line on north wall of first house downstream of 14464 Rivers Ridge Lane.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-19

Elevation: 9.62 ft. NGVD

Latitude: 37° 03’ 21”

Longitude: 76° 40’ 10”

USGS 7.5 Minute Quadrangle Map: Bacons Castle, Va.

Address: House is on Rivers Ridge Lane, State Route 621, Isle of Wight County, Va.

Remarks: HWM is debris line on north wall of first house downstream of 14464 Rivers Ridge Lane.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-16

Elevation: 9.21 ft. NGVD

Latitude: 37° 21’ 56”

Longitude: 76° 54’ 19”

USGS 7.5 Minute Quadrangle Map: Brandon, Va.

Address: 3012 North Riverside Drive, James City County, Va.

Remarks: HWM is debris line on sliding glass door behind house.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-16

Elevation: 9.21 ft. NGVD

Latitude: 37° 21’ 56”

Longitude: 76° 54’ 19”

USGS 7.5 Minute Quadrangle Map: Brandon, Va.

Address: 3012 North Riverside Drive, James City County, Va.

Remarks: HWM is debris line on sliding glass door behind house.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-17

Elevation: 5.46 ft. NGVD

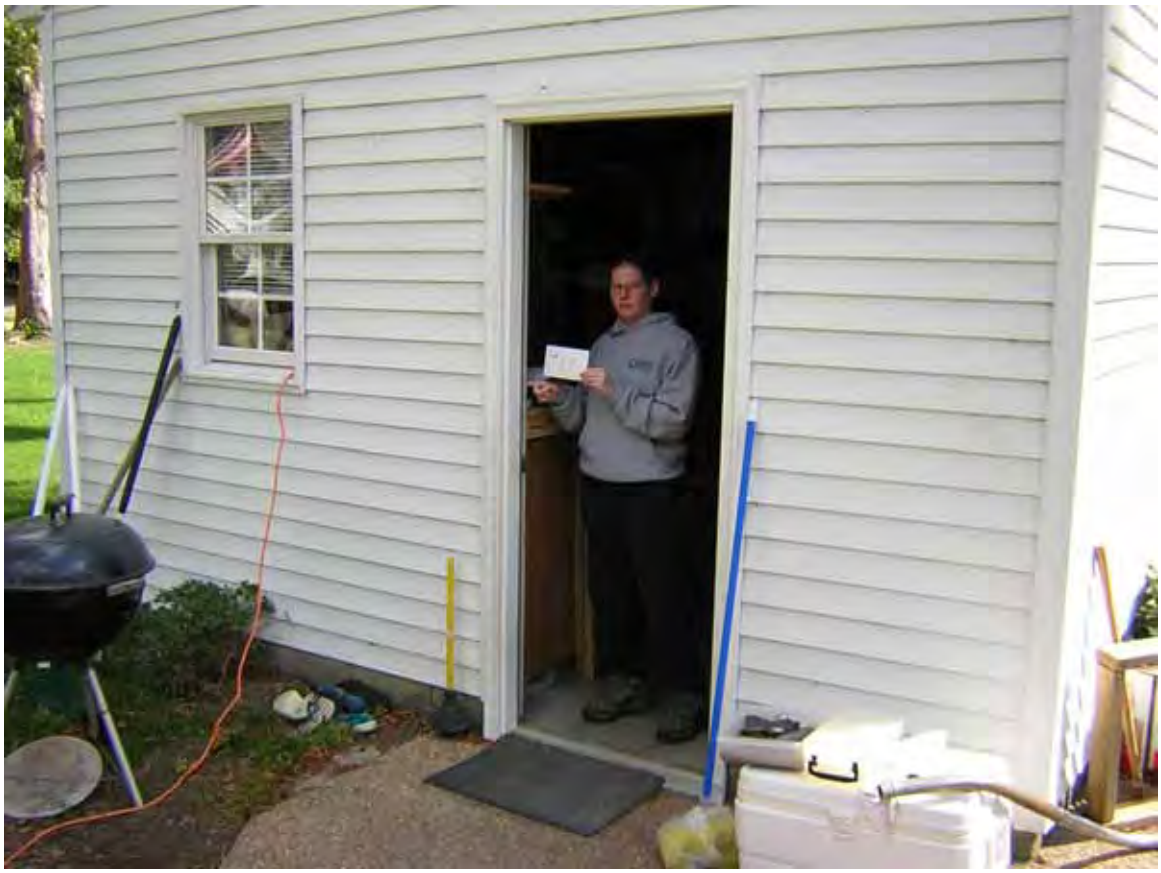
Latitude: 37° 21’ 56”

Longitude: 76° 54’ 18”

USGS 7.5 Minute Quadrangle Map: Brandon, Va.

Address: 3014 North Riverside Drive, James City County, Va.

Remarks: HWM is mark made by owner, on inside of door frame of garage.



Hurricane Isabel – 18 September 2003

High Water Mark Number 3-17

Elevation: 5.46 ft. NGVD

Latitude: 37° 21’ 56”

Longitude: 76° 54’ 18”

USGS 7.5 Minute Quadrangle Map: Brandon, Va.

Address: 3014 North Riverside Drive, James City County, Va.

Remarks: HWM is mark made by owner, on inside of door frame of garage.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-18

Elevation: 9.11 ft. NGVD

Latitude: 37° 21’ 49”

Longitude: 76° 53’ 49”

USGS 7.5 Minute Quadrangle Map: Brandon, Va.

Address: 4062 South Riverside Drive, James City County, Va.

Remarks: HWM is debris line on wall to left of garage door.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-18

Elevation: 9.11 ft. NGVD

Latitude: 37° 21’ 49”

Longitude: 76° 53’ 49”

USGS 7.5 Minute Quadrangle Map: Brandon, Va.

Address: 4062 South Riverside Drive, James City County, Va.

Remarks: HWM is debris line on wall to left of garage door.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-18

Elevation: 9.11 ft. NGVD

Latitude: 37° 21’ 49”

Longitude: 76° 53’ 49”

USGS 7.5 Minute Quadrangle Map: Brandon, Va.

Address: 4062 South Riverside Drive, James City County, Va.

Remarks: HWM is debris line on wall to left of garage door.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-6

Elevation: 6.98 ft. NGVD

Latitude: 37° 32’ 49”

Longitude: 76° 46’ 34”

USGS 7.5 Minute Quadrangle Map: West Point, Va.

Address: Mattaponi River boat ramp at end of State Route 605, King & Queen County, Va.

Remarks: HWM is wash line on the upstream side of the boat ramp.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-6

Elevation: 6.98 ft. NGVD

Latitude: 37° 32’ 49”

Longitude: 76° 46’ 34”

USGS 7.5 Minute Quadrangle Map: West Point, Va.

Address: Mattaponi River boat ramp at end of State Route 605, King & Queen County, Va.

Remarks: HWM is wash line on the upstream side of the boat ramp.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-24

Elevation: 7.73 ft. NGVD

Latitude: 38° 22’ 37”

Longitude: 77° 01’ 02”

USGS 7.5 Minute Quadrangle Map: Mathias Point, Md, - Va.

Address: Cul-de-sac at end of 1131, off State Route 624, King George County, Va.

Remarks: HWM is wash line at end of cul-de-sac.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-24

Elevation: 7.73 ft. NGVD

Latitude: 38° 22’ 37”

Longitude: 77° 01’ 02”

USGS 7.5 Minute Quadrangle Map: Mathias Point, Md, - Va.

Address: Cul-de-sac at end of 1131, off State Route 624, King George County, Va.

Remarks: HWM is wash line at end of cul-de-sac.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-25

Elevation: 7.98 ft. NGVD

Latitude: 38° 22’ 36”

Longitude: 77° 01’ 01”

USGS 7.5 Minute Quadrangle Map: Mathias Point, Md. - Va.

Address: Cul-de-sac at end of 1131, off State Route 624, King George County, Va.

Remarks: HWM is wash line near HWM Number 1-24.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-25

Elevation: 7.98 ft. NGVD

Latitude: 38° 22’ 36”

Longitude: 77° 01’ 01”

USGS 7.5 Minute Quadrangle Map: Mathias Point, Md. - Va.

Address: Cul-de-sac at end of 1131, off State Route 624, King George County, Va.

Remarks: HWM is wash line near HWM Number 1-24.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-20

Elevation: 6.16 ft. NGVD

Latitude: 37° 47’ 17”

Longitude: 76° 37’ 48”

USGS 7.5 Minute Quadrangle Map: Morattico, Va.

Address: Post Office in Morattico, Lancaster County, Va.

Remarks: HWM is mud/seed line on mailbox at post office.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-20

Elevation: 6.16 ft. NGVD

Latitude: 37° 47’ 17”

Longitude: 76° 37’ 48”

USGS 7.5 Minute Quadrangle Map: Morattico, Va.

Address: Post Office in Morattico, Lancaster County, Va.

Remarks: HWM is mud/seed line on mailbox at post office.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-20

Elevation: 6.16 ft. NGVD

Latitude: 37° 47’ 17”

Longitude: 76° 37’ 48”

USGS 7.5 Minute Quadrangle Map: Morattico, Va.

Address: Post Office in Morattico, Lancaster County, Va.

Remarks: HWM is mud/seed line on mailbox at post office.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-11

Elevation: 7.03 ft. NGVD

Latitude: 37° 30’ 29”

Longitude: 76° 16’ 57”

USGS 7.5 Minute Quadrangle Map: Deltaville, Va.

Address: 348 North Bay Haven Road, Mathews County, Va.

Remarks: HWM is seed line on garage, 70 feet from road (Gwynn’s Island).

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-11

Elevation: 7.03 ft. NGVD

Latitude: 37° 30’ 29”

Longitude: 76° 16’ 57”

USGS 7.5 Minute Quadrangle Map: Deltaville, Va.

Address: 348 North Bay Haven Road, Mathews County, Va.

Remarks: HWM is seed line on garage, 70 feet from road (Gwynn’s Island).

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-14

Elevation: 6.33 ft. NGVD

Latitude: 37° 25’ 11”

Longitude: 76° 20’ 53”

USGS 7.5 Minute Quadrangle Map: Mathews, Va.

Address: 2686 Glebe Road, State Route 621, Mathews County, Va.

Remarks: HWM is trash line on lawn on creek side of white and green house at end of road.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-14

Elevation: 6.33 ft. NGVD

Latitude: 37° 25’ 11”

Longitude: 76° 20’ 53”

USGS 7.5 Minute Quadrangle Map: Mathews, Va.

Address: 2686 Glebe Road, State Route 621, Mathews County, Va.

Remarks: HWM is trash line on lawn on creek side of white and green house at end of road.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-17

Elevation: 8.00 ft. NGVD

Latitude: 37° 22’ 27”

Longitude: 76° 21’ 04”

USGS 7.5 Minute Quadrangle Map: New Point Comfort, Va.

Address: Champs Lane, Mathews County, Va.

Remarks: HWM is debris line on lawn on river side of house (“The Harleys”), 30 feet left of dock at the end of the lane.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-17

Elevation: 8.00 ft. NGVD

Latitude: 37° 22’ 27”

Longitude: 76° 21’ 04”

USGS 7.5 Minute Quadrangle Map: New Point Comfort, Va.

Address: Champs Lane, Mathews County, Va.

Remarks: HWM is debris line on lawn on river side of house (“The Harleys”), 30 feet left of dock at the end of the lane.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-9

Elevation: 5.77 ft. NGVD

Latitude: 37° 33’ 23”

Longitude: 76° 18’ 01”

USGS 7.5 Minute Quadrangle Map: Deltaville, Va.

Address: 30 South Chesapeake Blvd., Stingray Point, Middlesex County, Va.

Remarks: HWM is debris line approximately 40 feet from residence at back edge of lawn.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-9

Elevation: 5.77 ft. NGVD

Latitude: 37° 33’ 23”

Longitude: 76° 18’ 01”

USGS 7.5 Minute Quadrangle Map: Deltaville, Va.

Address: 30 South Chesapeake Blvd., Stingray Point, Middlesex County, Va.

Remarks: HWM is debris line approximately 40 feet from residence at back edge of lawn.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·10

Elevation: 6.91 ft. NGVD

Latitude: 36° 57’ 54”

Longitude: 76° 17’ 31”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 1405 Bayville Court, Norfolk, Va.

Remarks: HWM is 0.53 feet above finished floor of residence.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·11

Elevation: 7.09 ft. NGVD

Latitude: 36° 57’ 52”

Longitude: 76° 17’ 22”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 1321 Bayville Street, Norfolk, Va.

Remarks: HWM is 3.33 feet above garage floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·12

Elevation: 7.13 ft. NGVD

Latitude: 36° 57’ 47”

Longitude: 76° 16’ 03”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 631-635 West Ocean View Avenue near 7th View Street, Norfolk, Va.

Remarks: HWM is at top of second block from the ground, bottom of window frame.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·1

Elevation: 7.16 ft. NGVD

Latitude: 36° 50’ 38”

Longitude: 76° 13’ 43”

USGS 7.5 Minute Quadrangle Map: Kempsville, Va.

Address: 3754 Brennan Avenue, Norfolk, Va.

Remarks: HWM is 1.95 feet above garage floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·13

Elevation: 6.91 ft. NGVD

Latitude: 36° 57’ 31”

Longitude: 76° 15’ 43”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 9600 Staten Street at 4th View Street, Norfolk, Va.

Remarks: HWM is 1.79 feet above patio slab at back door.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·13

Elevation: 6.91 ft. NGVD

Latitude: 36° 57’ 31”

Longitude: 76° 15’ 43”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 9600 Staten Street at 4th View Street, Norfolk, Va.

Remarks: HWM is 1.79 feet above patio slab at back door.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·14

Elevation: 6.84 ft. NGVD

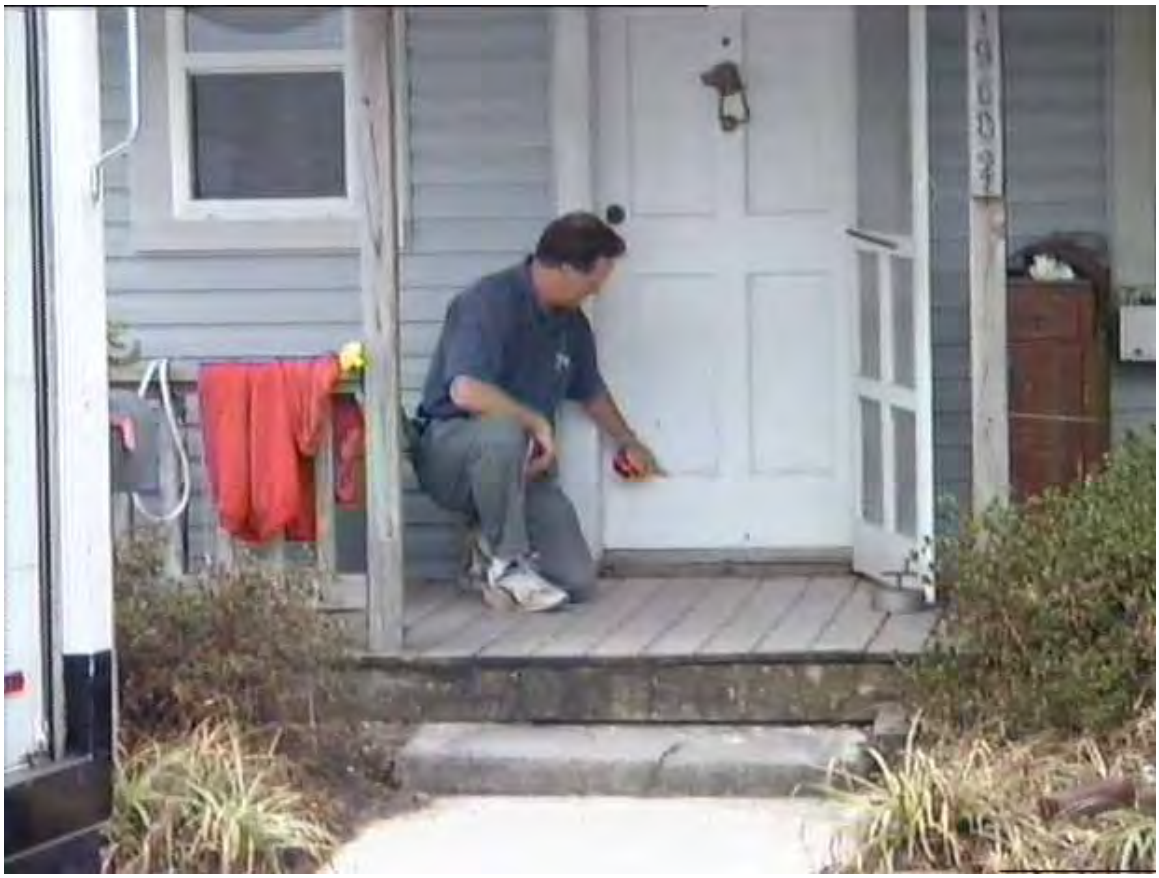
Latitude: 36° 57’ 31”

Longitude: 76° 15’ 43”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 9602 Staten Street at 4th View Street, Norfolk, Va.

Remarks: HWM is 0.75 feet above wooden threshold of front door.



Hurricane Isabel – 18 September 2003

High Water Mark Number N·14

Elevation: 6.84 ft. NGVD

Latitude: 36° 57’ 31”

Longitude: 76° 15’ 43”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 9602 Staten Street at 4th View Street, Norfolk, Va.

Remarks: HWM is 0.75 feet above wooden threshold of front door.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·15

Elevation: 7.05 ft. NGVD

Latitude: 36° 58’ 05”

Longitude: 76° 17’ 41”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 1512 Lea View Avenue, Norfolk, Va.

Remarks: HWM is to the bottom of the top member of the window frame.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·15

Elevation: 7.05 ft. NGVD

Latitude: 36° 58’ 05”

Longitude: 76° 17’ 41”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 1512 Lea View Avenue, Norfolk, Va.

Remarks: HWM is to the bottom of the top member of the window frame.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·16/1

Elevation: 8.24 ft. NGVD (wave runup)

Latitude: 36° 58’ 05”

Longitude: 76° 17’ 41”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 1500 Lea View Avenue, Norfolk, Va.

Remarks: Debris line on dune, HWM is average of (3) elevations taken.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·16

Elevation: 7.00 ft. NGVD

Latitude: 36° 58’ 05”

Longitude: 76° 17’ 41”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 1500 Lea View Avenue, Norfolk, Va.

Remarks: HWM is 0.83 feet above porch slab at front door.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·17

Elevation: 10.90 ft. NGVD (wave runup)

Latitude: 36° 58’ 06”

Longitude: 76° 17’ 19”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 13th View Street, Norfolk, Va.

Remarks: Debris line on dune, HWM is an average of (3) elevations taken.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·18

Elevation: 8.69 ft. NGVD (wave action)

Latitude: 36° 58’ 02”

Longitude: 76° 16’ 42”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: Wynnwood Hotel, 1010 West Ocean View Avenue, Norfolk, Va.

Remarks: HWM is 0.83 feet above finished floor of hotel rooms.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·18

Elevation: 8.69 ft. NGVD (wave action)

Latitude: 36° 58’ 02”

Longitude: 76° 16’ 42”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: Wynnwood Hotel, 1010 West Ocean View Avenue, Norfolk, Va.

Remarks: HWM is 0.83 feet above finished floor of hotel rooms.

Hurricane Isabel – 18 September 2003

High Water Mark Number N-19

Elevation: 9.55 ft. NGVD (wave action)

Latitude: 36° 57’ 51”

Longitude: 76° 16’ 06”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 718 West Ocean View Avenue, beach side near 7th View Street, Norfolk, Va.

Remarks: Homeowner present during storm, said water level reached the top of concrete patio.
See HWM’s N·20 and N·21.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·1

Elevation: 7.16 ft. NGVD

Latitude: 36° 50’ 38”

Longitude: 76° 13’ 43”

USGS 7.5 Minute Quadrangle Map: Kempsville, Va.

Address: 3754 Brennan Avenue, Norfolk, Va.

Remarks: HWM is 1.95 feet above garage floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·20

Elevation: 10.87 ft. NGVD (wave runup)

Latitude: 36° 57’ 51”

Longitude: 76° 16’ 06”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 7th View Street, Norfolk, Va.

Remarks: Debris line on dune, HWM is average of (3) elevations taken along dune.
See HWM’s at N·19 and N·21.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·21

Elevation: 9.96 ft. NGVD (wave action)

Latitude: 36° 57’ 51”

Longitude: 76° 16’ 06”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 606 West Ocean View Avenue, beach side near 7th View Street, Norfolk, Va.

Remarks: Homeowner present during storm, said water level reached to concrete step as shown.
See HWM’s at N·19 and N·20.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·22

Elevation: 11.80 ft. NGVD (wave runup)

Latitude: 36° 57’ 35”

Longitude: 76° 15’ 34”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: Sarah Constant Shrine and beach parking lot, at 4th View Street, Norfolk, Va.

Remarks: HWM is debris line in fence.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·2

Elevation: 6.96 ft. NGVD

Latitude: 36° 50’ 38”

Longitude: 76° 13’ 43”

USGS 7.5 Minute Quadrangle Map: Kempsville, Va.

Address: 3759 Brennan Avenue, Norfolk, Va.

Remarks: HWM is 0.6 feet above concrete driveway at garage door.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·23

Elevation: 13.14 ft. NGVD (wave runup)

Latitude: 36° 56’ 48”

Longitude: 76° 14’ 20”

USGS 7.5 Minute Quadrangle Map: Little Creek, Va.

Address: Atlans Street, beach side.

Remarks: Debris line on dune, HWM is average of (4) elevations taken.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·24

Elevation: 9.65 ft. NGVD (wave runup)

Latitude: 36° 55’ 48”

Longitude: 76° 11’ 17”

USGS 7.5 Minute Quadrangle Map: Little Creek, Va.

Address: 4518 Ocean View Avenue, beach side, Norfolk, Va.

Remarks: Debris line in back of house, HWM is average of (3) elevations taken along back of property.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·24

Elevation: 9.65 ft. NGVD (wave runup)

Latitude: 36° 55’ 48”

Longitude: 76° 11’ 17”

USGS 7.5 Minute Quadrangle Map: Little Creek, Va.

Address: 4518 Ocean View Avenue, beach side, Norfolk, Va.

Remarks: Debris line in back of house, HWM is average of (3) elevations taken along back of property.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·25

Elevation: 6.97 ft. NGVD

Latitude: 36° 55’ 49”

Longitude: 76° 11’ 44”

USGS 7.5 Minute Quadrangle Map: Little Creek, Va.

Address: Intersection of 19th Bay Street and Ocean View Avenue, Norfolk, Va.

Remarks: Debris line along side of road, water from storm sewer system.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·26

Elevation: 6.69 ft. NGVD

Latitude: 36° 55’ 31”

Longitude: 76° 11’ 27”

USGS 7.5 Minute Quadrangle Map: Little Creek, Va.

Address: Business – Divers Unlimited, 4317 Pretty Lake Avenue, Norfolk, Va.

Remarks: HWM is 1.83 feet above finished floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·26

Elevation: 6.69 ft. NGVD

Latitude: 36° 55’ 31”

Longitude: 76° 11’ 27”

USGS 7.5 Minute Quadrangle Map: Little Creek, Va.

Address: Business – Divers Unlimited, 4317 Pretty Lake Avenue, Norfolk, Va.

Remarks: HWM is 1.83 feet above finished floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·27

Elevation: 6.83 ft. NGVD

Latitude: 36° 56’ 02”

Longitude: 76° 12’ 41”

USGS 7.5 Minute Quadrangle Map: Little Creek, Va.

Address: Intersection of 5th Bay Street and Ocean View Avenue, Norfolk, Va.

Remarks: Debris line along side road in a field, water from storm sewer system.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·28

Elevation: 6.54 ft. NGVD

Latitude: 36° 55’ 54”

Longitude: 76° 12’ 44”

USGS 7.5 Minute Quadrangle Map: Little Creek, Va.

Address: 9544 5th Bay Street, Norfolk, Va.

Remarks: HWM is 3.5 feet below top of brick window trim.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·28

Elevation: 6.54 ft. NGVD

Latitude: 36° 55’ 54”

Longitude: 76° 12’ 44”

USGS 7.5 Minute Quadrangle Map: Little Creek, Va.

Address: 9544 5th Bay Street, Norfolk, Va.

Remarks: HWM is 3.5 feet below top of brick window trim.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·29

Elevation: 7.05 ft. NGVD

Latitude: 36° 55’ 54”

Longitude: 76° 12’ 44”

USGS 7.5 Minute Quadrangle Map: Little Creek, Va.

Address: 9549 5th Bay Street, Norfolk, Va.

Remarks: HWM is debris line in foundation vents, 1.17 feet below top of concrete slab at entrance door.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·2

Elevation: 6.96 ft. NGVD

Latitude: 36° 50’ 38”

Longitude: 76° 13’ 43”

USGS 7.5 Minute Quadrangle Map: Kempsville, Va.

Address: 3759 Brennan Avenue, Norfolk, Va.

Remarks: HWM is 0.6 feet above concrete driveway at garage door.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·3

Elevation: 7.08 ft. NGVD

Latitude: 36° 50’ 43”

Longitude: 76° 16’ 40”

USGS 7.5 Minute Quadrangle Map: Norfolk South, Va.

Address: Debris line located at a drainage canal near the intersection of Holt Street and Tidewater Driver, Norfolk, Va.

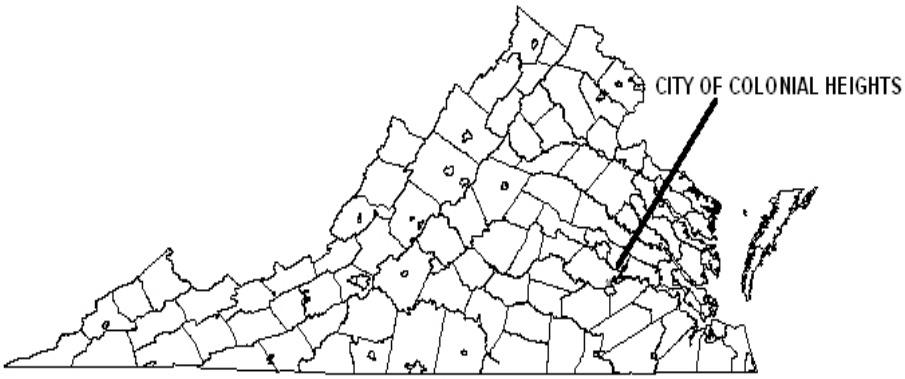
Remarks: Canal drains into the Eastern Branch of the Elizabeth River.

FLOOD INSURANCE STUDY

CITY OF COLONIAL HEIGHTS, VIRGINIA

INDEPENDENT CITY

Community Name	Community Number
COLONIAL HEIGHTS, CITY OF	510039



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER:

510039V000A

NOTICE TO FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) report may not contain all data available within the Community Map Repository. Please contact the Community Map Repository for any additional data.

The Federal Emergency Management Agency (FEMA) may revise and republish part or all of this FIS report at any time. In addition, FEMA may revise part of this FIS report by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS report. Therefore, users should consult with community officials and check the Community Map Repository to obtain the most current FIS report components.

Flood Insurance Rate Map panels for this community contain information that was previously shown separately on the corresponding Flood Boundary and Floodway Map panels (e.g., floodways and cross sections). In addition, Flood Insurance Rate Map panels for this community contain new flood zone designations. The flood hazard zones have been changed as follows:

Old Zone(s)	New Zone
A1 – A30	AE
B	X
C	X

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FLOOD INSURANCE STUDY
COLONIAL HEIGHTS, VIRGINIA

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study (FIS) revises and updates information on the existence and severity of flood hazards in the City of Colonial Heights, Virginia, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This FIS has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates. This information will also be used by the City of Colonial Heights to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP), and will also be used by local and regional planners to further promote sound land use and floodplain development. Minimum floodplain management requirements for participation in the NFIP are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgements

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

For this revision, the hydraulic analysis for Old Town Creek was prepared by the U.S. Army Corps of Engineers (USACE) for the Federal Emergency Management Agency (FEMA) under Inter-Agency Agreement HSFE-03-06-X-0023. The updated hydraulic analysis supersedes the previous analysis, also prepared by the USACE for FEMA, which was completed in July 1987. The hydrologic analysis for Old Town Creek, which was also completed as part of the July 1987 study, was brought forward to this FIS.

The hydrologic and hydraulic analysis for the Appomattox River and Swift Creek were brought forward from the pervious FIS. This work was completed by the USACE for FEMA under Inter-Agency Agreement No. IAA-H-1878, Project Order No 35. The work was completed in October 1979.

Planimetric base map information for this revision was obtained from the Virginia Geographic Information Network (VGIN). This data was flown at scale of 1:4800 and was published in 2002.

The coordinate system used for the production of this FIRM is Universal Transverse Mercator (UTM), Zone 18 North, North American Datum of 1983 (NAD 83), GRS 80 spheroid. Corner coordinates shown on the FIRM are in latitude and longitude referenced to the UTM projection, NAD 83. Differences in the datum and spheroid used in the production of FIRMs for adjacent communities may result in slight positional differences in map features at the county boundaries. These differences do not affect the accuracy of the information shown on the FIRM.

1.3 Coordination

The purpose of the initial Consultation Coordination Officer (CCO) meeting is to discuss the scope of the study. A final CCO meeting is held to review the results of the study.

In December 1977, an initial Consultation and Coordination Officer's (CEO) meeting was held with representatives of FEMA, the City of Colonial Heights, and the USACE to discuss the streams to be studied by detailed methods. Results of the hydrologic analyses were coordinated with the State Water Control Board, the U. S. Geological Survey (USGS), the city, and FEMA. On September 17, 1980, a final CCO meeting was held with representatives of FEMA, the city, and the study contractor.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of the City of Colonial Heights, Virginia. The Appomattox River, Old Town Creek, and Swift Creek were studied using detailed methods. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction.

Fleets Branch was studied using by approximate methods. Approximate analyses are used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and the City of Colonial Heights.

2.2 Community Description

The City of Colonial Heights is located in south-central Virginia, approximately 20 miles south of the City of Richmond and approximately 100 miles west of the City of Norfolk. Colonial Heights is bordered by the City of Petersburg to the south and the unincorporated areas of Chesterfield County to the west, north, and

east. The total land area contained within the corporate limits is 8 square miles. In 2005, the population of Colonial Heights was estimated at 17,567 (Reference 1).

Colonial Heights and the surrounding areas are rich in Virginia history, beginning with John Smith's exploration of the Appomattox River in 1607. The first recorded settlement in Colonial Heights was by Thomas Shore in 1775. The area grew and became a town in1926 and an incorporated city in 1948. This area was the site of significant battles during both the American Revolution and the Civil War. Colonial Heights is located within commuting distance of Richmond, Petersburg, Hopewell, and Fort Lee, for therefore is a prime area for residential and commercial development.

Colonial Heights is located along the Appomattox River approximately 6 miles above its confluence with the James River. The Appomattox River forms the southern and eastern boundary of the city and is contributed to by a drainage area of approximately 1,365 square miles in the vicinity of Colonial Heights. Swift Creek, a tributary to the Appomattox River, forms the northern boundary of the city. Swift Creek's watershed is generally rectangular in shape and measures approximately 30 miles long and 9 miles wide at its broadest points. It has a drainage area of 184 square miles. Old Town Creek flows east to the Appomattox River. The creek's narrow watershed is approximately 7.5 miles long and has a drainage area of 13.5 square miles.

Colonial Heights is located in the fall zone, in the eastern escarpment of the Piedmont Plateau. Consequently, elevations within the city range from sea level to approximately 95 feet. Temperatures average 40 degrees Fahrenheit (F) in January and 78 degrees F in July. Annual precipitation averages approximately 40 inches and is fairly uniformly distributed throughout the year (Reference 2).

2.3 Principal Flood Problems

Colonial Heights, with its several watersheds, has experienced flooding in varying degrees, but with limited property damage. Tropical storms are responsible for some of the larger floods, particularly on the Appomattox River. The hydraulic and hydrologic nature of the Appomattox River drainage basin is such that when flooding occurs, it lasts for several days. Floods may occur during any season of the year. Three significant flood events on the Appomattox River at Colonial Heights occurred in the period from October 1971 to October 1972, including significant impacts from Tropical Storm Agnes.

The lower portions of Swift Creek and Old Town Creek are subject to backwater effects from the James River and the Appomattox River, respectively. Flooding on these creeks may occur as a result of local thunderstorms or from large storm systems that also affect the James and Appomattox Rivers.

Recent flooding events to impact the Colonial Heights area were caused by tropical systems. These events include Hurricane Floyd (1999), Hurricane Isabel (2003), and Tropical Storm Gaston (2004).

2.4 Flood Protection Measures

At the present time, there are no known flood protection projects in Colonial Heights. There are, however, two dams on Swift Creek that are no longer in use: the Swift Creek Mill Dam, once used to supply water to the Swift Creek Mill; and the Filtration Plant Dam, once used to supply water to Colonial Heights. The reservoirs formed by these two structures have practically no flood control storage and would not significantly alter downstream flow characteristics during a large flood.

3.0 ENGINEERING METHODS

For the flooding sources studied by detailed methods in the community (Table 1), standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 1-percent annual chance flood in any 50-year period is approximately 40 percent (4 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

For the previous FIS, hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each flooding source studied in detail affecting the community. This analysis has been carried forward into this revision. The hydrologic analysis calculated 10-, 2-, 1-and 0.2-percent annual chance discharges for the Appomattox River , Swift Creek, and Old Town Creek.

For the Appomattox River, statistical analyses were made to determine the discharge-frequency curve. Records have been maintained on the Appomattox River near Colonial Heights since October 1926 except for the 3-year period of September 1966 to October 1969 when the Brasfield Dam was constructed (Reference 9). A discharge-frequency curve based on these records was developed

according to Leo Beard's Statistical Methods in Hydrology and was used in the Flood Plain Information report for-the Appomattox River (References 10 and 4). The discharge values from this study were reviewed using guidelines in Water Resources Council Bulletin 17 and adopted for use in this study (Reference).

Discharges for the ungaged streams, Swift Creek and Old Town Creek, were determined from unit-hydrographs. Based on hydraulic parameters (slope, length, drainage area, and time of concentration) determined for each stream, unit-graphs (using Clark's method) were developed for several locations on each stream. Rainfall-frequency values selected from Technical Paper No. 40 were applied to the unit-graphs to obtain the desired discharge frequencies (Reference). A summary of the drainage area-peak discharge relationships for the flooding sources studied by detailed methods is shown in Table 1, “Summary of Discharges”.

Table 1: Summary of Discharges

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (Cubic Feet per Second)			
		10-Percent Annual Chance	2-Percent Annual Chance	1-Percent Annual Chance	0.2-Percent Annual Chance
APPOMATTOX RIVER					
At U.S. Route 1-301	1365	16,100	30,000	40,000	76,000
SWIFT CREEK					
At confluence with Appomattox River	184	18,520	25,990	28,540	38,550
OLD TOWN CREEK					
At confluence with Appomattox River	13.5	4,500	5,860	6,770	8,860

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods for the selected recurrence intervals. Users should be aware that flood elevations shown on the Flood Insurance Rate Map (FIRM) represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data table in the FIS report. or construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS report in conjunction with the data shown on the FIRM.

Locations of selected cross sections used in the hydraulic analysis are shown on the Flood Profiles (Exhibit 1) and the FIRM (Exhibit 2).

Old town creek explanation (use summary document)

The hydraulic analyses previously completed for the Appomattox River and Swift Creek were brought forward from the previous FIS. For this revision, the analysis were converted to the North American Vertical Datum of 1988 (NAVD 88)

Cross section and bridge data for the backwater analyses on the Appomattox River and Swift Creek were obtained from a series of floodplain information reports and Flood Insurance Studies for the unincorporated areas of Prince George County and the City of Petersburg (References). Field checks were made for bridge modifications or additions since completion of the studies. In addition, on Swift Creek surveyed cross sections were supplemented with sections taken from topographic maps (Reference).

Channel roughness factors (Manning's "n") used in the hydraulic computations for the Appomattox River were determined from backwater computations made to reproduce profiles of past flooding. Roughness values for the main channels ranged from 0.035 to 0.070, and the floodplain roughness values ranged from 0.120 to 0.140. Roughness values for Swift Creek were assigned on the basis of field inspection of the floodplain areas and on previous studies conducted by the COE. For Swift Creek, values were 0.030 for the channel and 0.080 for the overbanks.

Water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (Reference). Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals. Starting water-surface elevations for the Appomattox River were taken from the Flood Insurance Study for the unincorporated areas of Prince George County (Reference 7).Starting water-surface elevations for Swift Creek were calculated using the slope/area method.

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the Flood Profiles (Exhibit 1) are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

Qualifying bench marks within a given jurisdiction are cataloged by the national Geodetic Survey (NGS) and entered into the National Spatial Reference System (NSRS). First or Second Order Vertical bench marks that have a vertical stability classification of A, B, or C are shown and labeled on the FIRM with their 6-character NSRS Permanent Identifier.

Bench marks cataloged by the NGS and entered into the NSRS vary widely in vertical stability classification. NSRS vertical stability classifications are as follows:

Stability A: Monuments of the most reliable nature, expected to hold position/elevation well (e.g., mounted in bedrock)

Stability B: Monuments which generally hold their position/elevation well (e.g., concrete bridge abutments)

Stability C: Monuments which may be affected by surface round monuments (e.g., concrete mounted below frost line)

Stability D: Mark of questionable or unknown vertical stability (e.g., concrete monument above frost line or steel witness post)

In addition to NSRS bench marks, the FIRM may also show vertical control monument established by a local jurisdiction; these monuments will be shown on the FIRM with the appropriate designations. Local monuments will only be placed on the FIRM if the community has requested that they be included, and if the monuments meet the aforementioned NSRS inclusion criteria.

To obtain current elevation, description, and/or location information for bench marks shown on the FIRM for this jurisdiction, please contact the Information Services Branch of the NGS at (301) 713-3242 or visit their Web site, www.ngs.noaa.gov.

It is important to note that temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purposes of establishing local vertical control. Although these monuments are not shown on the digital FIRM, they may be found in the Technical Support Data Notebook associated with this FIS and FIRM. Interested individuals may contact FEMA to access this data.

3.3 Vertical Datum

All FIS reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FIS reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the finalization of the North American Vertical Datum of 1988 (NAVD88), many FIS reports and FIRMs are being prepared using NAVD88 as the referenced vertical datum.

As noted above, the elevations shown in the FIS report and on the FIRM for Colonial Heights are referenced to NAVD 88. Ground, structure, and flood

elevations may be compared and/or referenced to NGVD 29 by applying a standard conversion factor to the NAVD 88 values. The conversion factor to NGVD 29 is -1.1. The BFE's shown on the FIRM represent whole-foot rounded values. For example, a BFE of 102.4 feet will appear as 102 on the FIRM, and a BFE of 102.6 feet will appear on the FIRM as 103. Therefore, users that wish to convert the elevations in this FIS to NGVD 29 should apply the stated conversion factor to elevations shown on the Flood Profiles in this FIS Report, which are shown at a minimum to the nearest 0.1 foot.

NAVD 88 + 1.1= NGVD 29

For additional information regarding conversion between NGVD 29 and NAVD 88, visit the National Geodetic Survey (NGS) website at www.ngs.noaa.gov, or contact the NGS at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910

Internet Address: http://www.ngs.noaa.gov

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program (NFIP) encourages state and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study produces maps designed to assist communities in developing floodplain management measures.

4.1 Floodplain Boundaries

TALK ABOUT DIGITIZING vs OLD TOWN CREEK TIN DELINIATION

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the 1- and 0.2-percent annual chance floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections the boundaries were interpolated using the triangulated irregular network discussed in Section 3.2.

The 1- and 0.2-percent annual chance floodplain boundaries are shown on the Flood Insurance Rate Maps (Exhibit 2). In cases where the 1- and 0.2-percent annual chance floodplain boundaries are close together, only the 1-percent annual

chance boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to the limitations of the map scale.For the streams studied by approximate methods only the 1-percent annual chance floodplain boundary is shown.

Floodplain boundaries for the Susquehanna River downstream of the Conowingo Dam were delineated based on the effective hydraulic model produced by the study referenced in Section 1.2. The effective flood elevations from this model were converted to NAVD 88 and used to identify floodplain boundaries based on the elevation grid created from LIDAR data provided by the Maryland Department of Natural Resources. Floodplain boundaries for the Susquehanna River upstream of the Conowingo Dam were digitized and brought forward from the effective study.

For all other streams included in this report, the floodplain boundaries have been delineated using the flood elevations determined at each cross section, using the hydraulic methods referenced in Section 3.2. Between cross sections the boundaries were interpolated using the elevation grid created from the LIDAR data provided by the Maryland Department of Natural Resources.

4.2 Floodways

Encroachment of floodplains, such as structures and fill, reduces the flood carrying capacity, increases the flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent annual chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1-percent annual chance flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced.

The floodways presented in this study were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (Table 9). The computed floodways are shown on the Flood Boundary and Floodway Map or the revised FIRM (Exhibit 2). In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

Encroachment into areas subject to inundation by floodwaters having hazardous velocities aggravates the risk of flood damage, and heightens potential flood hazards by further increasing velocities. A listing of stream velocities at selected cross sections is provided in Table 6, "Floodway Data." In order to reduce the risk of property damage in areas where the stream velocities are high, the community may wish to restrict development in areas outside the floodway.

The area between the floodway and the 1-percent annual chance floodplain boundaries is termed the floodway fringe. The floodway fringe thus encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 1-percent annual chance flood more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 1.

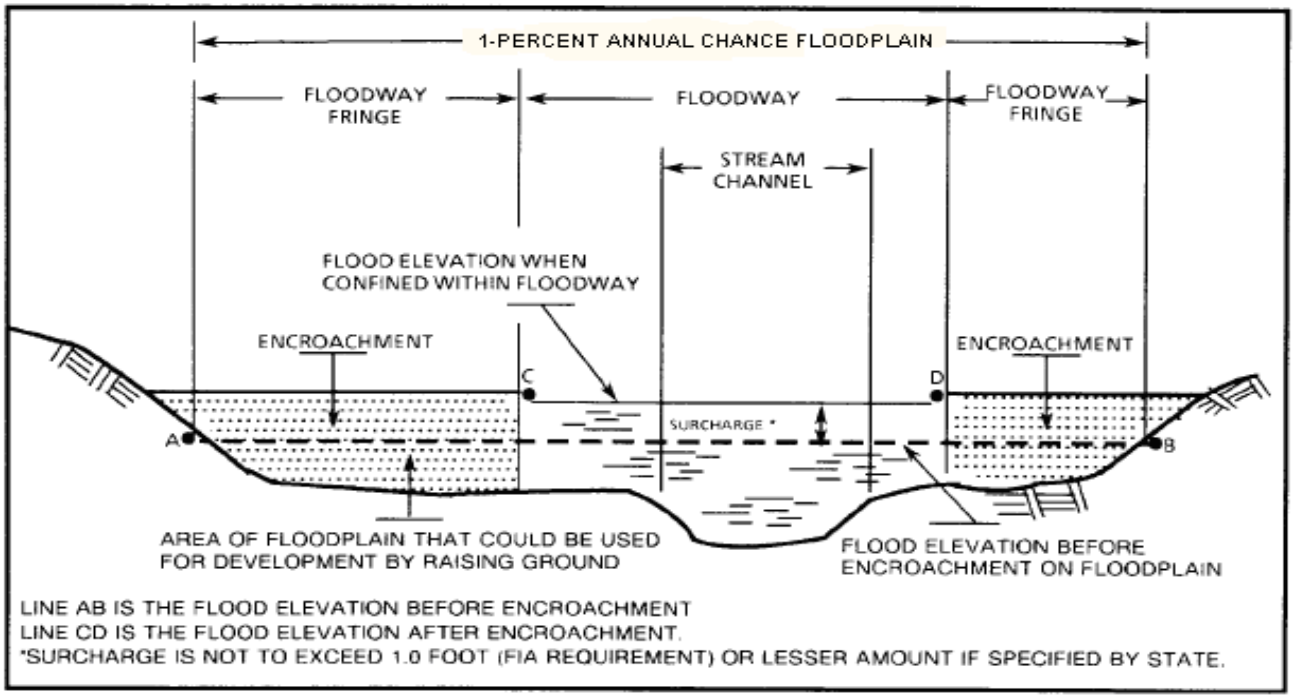

Figure 1 – Floodway Schematic

The floodways in this study are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A:

Zone A is the flood insurance risk zone that corresponds to the 1-percent annual chance floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations (BFEs) or base flood depths are shown within this zone.

Zone AE:

Zone AE is the flood insurance risk zone that corresponds to the 1-percent annual chance floodplains that are determined in the FIS by detailed methods. In most instances, whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH:

Zone AH is the flood insurance risk zone that corresponds to the areas of 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO:

Zone AO is the flood insurance risk zone that corresponds to the areas of 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot base flood depths derived from the detailed hydraulic analyses are shown within this zone.

Zone AR:

Zone AR is the flood insurance risk zone that corresponds to an area of special flood hazard formerly protected from the 1-percent-annual-chance flood event by a flood-control system that was subsequently decertified. Zone AR indicates that the former flood-control system is being restored to provide protection from the 1-percent-annual-chance or greater flood event.

Zone A99:

Zone A99 is the flood insurance risk zone that corresponds to areas of the 1-percent-annual-chance floodplain that will be protected by a Federal flood

protection system where construction has reached specified statutory milestones. No BFEs or depths are shown within this zone.

Zone V:

Zone V is the flood insurance risk zone that corresponds to the 1-percent-annual-chance coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no BFEs are shown within this zone.

Zone VE:

Zone VE is the flood insurance risk zone that corresponds to the 1-percent-annual-chance coastal floodplains that have additional hazards associated with storm waves. Whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X:

Zone X is the flood insurance risk zone that corresponds to areas outside the 0.2-percent annual chance floodplain, areas within the 0.2-percent annual chance floodplain, areas of 1-percent annual chance flooding where average depths are less than 1 foot, areas of 1-percent annual chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent annual chance flood by levees. No BFEs or base flood depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance risk zones as described in Section 5.0 and, in the 1-percent annual chance floodplains that were studied by detailed methods, shows selected whole-foot BFEs or average depths. Insurance agents use the zones and BFEs in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 1- and 0.2-percent annual chance floodplains, floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

The current FIRM presents flooding information for the entire geographic area of Cecil County. Previously, separate FIRMs were prepared for each identified flood prone incorporated community and for the unincorporated areas of the county. Historical data relating to the maps prepared for each community are presented in Table 7.

7.0 OTHER STUDIES

This FIS report either supersedes or is compatible with all previous studies on streams studied in this report and should be considered authoritative for purposes of the NFIP.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Flood Insurance and Mitigation Division, Federal Emergency Management Agency, One Independence Mall, 6th floor, 615 Chestnut Street, Philadelphia, PA 1910

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Hurricane Isabel – 18 September 2003

High Water Mark Number N·4

Elevation: 7.16 ft. NGVD

Latitude: 36° 51’ 01”

Longitude: 76° 16’ 43”

USGS 7.5 Minute Quadrangle Map: Norfolk South, Va.

Address: Tidewater Park Elementary School, 1045 East Brambleton Avenue, Norfolk, Va.

Remarks: HWM is 0.34 feet above door threshold of utility room, located at the southwest corner of the school.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·5

Elevation: 7.23 ft. NGVD

Latitude: 36° 51’ 21”

Longitude: 76° 18’ 20”

USGS 7.5 Minute Quadrangle Map: Norfolk South, Va.

Address: U.S. Army Corps of Engineers, Norfolk District, Building 36, 803 Front Street, Norfolk, Va.

Remarks: HWM is debris line located at the southeast corner of Building 36, 1.67 feet from the corner of the building.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·6

Elevation: 7.23 ft. NGVD

Latitude: 36° 53’ 54”

Longitude: 76° 18’ 19”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 1238 Richmond Crescent, Norfolk, Va.

Remarks: HWM is 0.5 feet above finished floor of residence.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·7

Elevation: 7.29 ft. NGVD

Latitude: 36° 53’ 18”

Longitude: 76° 17’ 07”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 431 New Hampshire Avenue, Norfolk, Va.

Remarks: HWM is a mud line on backyard shed.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·8

Elevation: 7.03 ft. NGVD

Latitude: 36° 53’ 18”

Longitude: 76° 17’ 07”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: 435 New Hampshire Avenue, Norfolk, Va.

Remarks: HWM is 0.33 feet above finished floor of residence.

Hurricane Isabel – 18 September 2003

High Water Mark Number N·9

Elevation: 7.06 ft. NGVD

Latitude: 36° 53’ 01”

Longitude: 76° 17’ 43”

USGS 7.5 Minute Quadrangle Map: Norfolk North, Va.

Address: O’Sullivan’s Wharf Restaurant, 4300 Colley Avenue, Norfolk, Va.

Remarks: HWM is 1.15 feet above finished floor of restaurant.

Hurricane Isabel – 18 September 2003

High Water Mark Number 4-3

Elevation: 8.70 ft. NGVD

Latitude: 37° 17’ 10”

Longitude: 75° 55’ 18”

USGS 7.5 Minute Quadrangle Map: Cheriton, Va.

Address: 6533 Broadwater Road, Northampton County, Va.

Remarks: HWM is debris line on storm door 16.5” above deck.

Hurricane Isabel – 18 September 2003

High Water Mark Number 4-4

Elevation: 8.03 ft. NGVD

Latitude: 37° 20’ 55”

Longitude: 75° 54’ 05”

USGS 7.5 Minute Quadrangle Map: Cheriton, Va.

Address: Northampton County Park, Northampton County, Va.

Remarks: HWM is poor wash line at ropes course.

Hurricane Isabel – 18 September 2003

High Water Mark Number 4-4

Elevation: 8.03 ft. NGVD

Latitude: 37° 20’ 55”

Longitude: 75° 54’ 05”

USGS 7.5 Minute Quadrangle Map: Cheriton, Va.

Address: Northampton County Park, Northampton County, Va.

Remarks: HWM is poor wash line at ropes course.

Hurricane Isabel – 18 September 2003

High Water Mark Number 4-6

Elevation: 7.53 ft. NGVD

Latitude: 37° 26’ 47”

Longitude: 75° 50’ 39”

USGS 7.5 Minute Quadrangle Map: Nassawadox, Va.

Address: 11109 Red Bank Road, Northampton County, Va.

Remarks: HWM is line on buoy.

Hurricane Isabel – 18 September 2003

High Water Mark Number 4-7

Elevation: 7.27 ft. NGVD

Latitude: 37° 30’ 52”

Longitude: 75° 48’ 23”

USGS 7.5 Minute Quadrangle Map: Exmore, Va.

Address: Hamblin SFD 4483, Northampton County, Va.

Remarks: HWM is mud line on door of shop.

Hurricane Isabel – 18 September 2003

High Water Mark Number 4-7

Elevation: 7.27 ft. NGVD

Latitude: 37° 30’ 52”

Longitude: 75° 48’ 23”

USGS 7.5 Minute Quadrangle Map: Exmore, Va.

Address: Hamblin SFD 4483, Northampton County, Va.

Remarks: HWM is mud line on door of shop.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-12

Elevation: 5.23 ft. NGVD

Latitude: 38° 00’ 32”

Longitude: 76° 28’ 25”

USGS 7.5 Minute Quadrangle Map: St. George Island, Md. - Va.

Address: 133 Judith Sound Circle, Northumberland County, Va.

Remarks: HWM is oil line on shed in front of residence.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-12

Elevation: 5.23 ft. NGVD

Latitude: 38° 00’ 32”

Longitude: 76° 28’ 25”

USGS 7.5 Minute Quadrangle Map: St. George Island, Md. - Va.

Address: 133 Judith Sound Circle, Northumberland County, Va.

Remarks: HWM is oil line on shed in front of residence.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-12

Elevation: 5.23 ft. NGVD

Latitude: 38° 00’ 32”

Longitude: 76° 28’ 25”

USGS 7.5 Minute Quadrangle Map: St. George Island, Md. - Va.

Address: 133 Judith Sound Circle, Northumberland County, Va.

Remarks: HWM is oil line on shed in front of residence.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-7

Elevation: 5.69 ft. NGVD

Latitude: 37° 59’ 47”

Longitude: 76° 27’ 50”

USGS 7.5 Minute Quadrangle Map: Heathsville, Va. – Md.

Address: Lewisetta Marina Store, Northumberland County, Va.

Remarks: HWM is trash line by door to paint shop, located behind Lewisetta Marina Store. Mark is 2 feet above ground.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-7

Elevation: 5.69 ft. NGVD

Latitude: 37° 59’ 47”

Longitude: 76° 27’ 50”

USGS 7.5 Minute Quadrangle Map: Heathsville, Va. – Md.

Address: Lewisetta Marina Store, Northumberland County, Va.

Remarks: HWM is trash line by door to paint shop, located behind Lewisetta Marina Store. Mark is 2 feet above ground.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-8

Elevation: 6.00 ft. NGVD

Latitude: 37° 59’ 47”

Longitude: 76° 27’ 51”

USGS 7.5 Minute Quadrangle Map: Heathsville, Va. – Md.

Address: Lewisetta Marina Store, Northumberland County, Va.

Remarks: HWM is oil line by door to repair shop, located 100 feet west of Lewisetta Marina Store. Mark is 1.5 feet above floor

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-8

Elevation: 6.00 ft. NGVD

Latitude: 37° 59’ 47”

Longitude: 76° 27’ 51”

USGS 7.5 Minute Quadrangle Map: Heathsville, Va. – Md.

Address: Lewisetta Marina Store, Northumberland County, Va.

Remarks: HWM is oil line by door to repair shop, located 100 feet west of Lewisetta Marina Store. Mark is 1.5 feet above floor

Hurricane Isabel – 18 September 2003

High Water Mark Number P·1

Elevation: 7.96 ft. NGVD

Latitude: 37° 08’ 41”

Longitude: 76° 23’ 16”

USGS 7.5 Minute Quadrangle Map: Poquoson West, Va.

Address: 14 Ebb Tide Landing, Poquoson, Va.

Remarks: HWM is 33.5” above garage floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·10

Elevation: 7.95 ft. NGVD

Latitude: 37° 07’ 20”

Longitude: 76° 20’ 47”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 1300 Poquoson Avenue, Poquoson, Va.

Remarks: HWM is 21.75” above top of porch.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·10

Elevation: 7.95 ft. NGVD

Latitude: 37° 07’ 20”

Longitude: 76° 20’ 47”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 1300 Poquoson Avenue, Poquoson, Va.

Remarks: HWM is 21.75” above top of porch.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·11

Elevation: 8.08 ft. NGVD

Latitude: 37° 07’ 21”

Longitude: 76° 21’ 00”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 46 Church Street, Poquoson, Va.

Remarks: HWM is 22” above floor; 24” above porch.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·11

Elevation: 8.08 ft. NGVD

Latitude: 37° 07’ 21”

Longitude: 76° 21’ 00”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 46 Church Street, Poquoson, Va.

Remarks: HWM is 22” above floor; 24” above porch.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·12

Elevation: 7.97 ft. NGVD

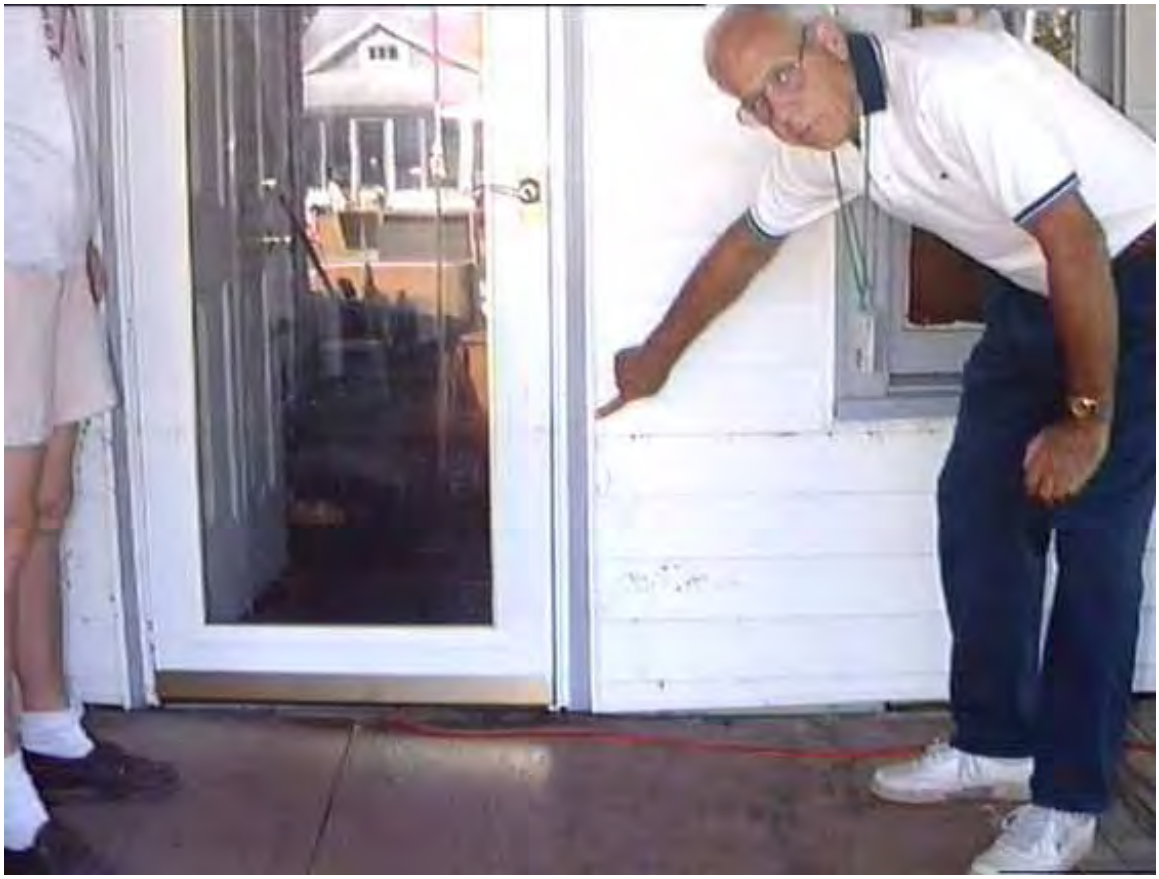
Latitude: 37° 07’ 19”

Longitude: 76° 20’ 59”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 47 Church Street, Poquoson, Va.

Remarks: HWM is 25” above floor; 26” above porch.



Hurricane Isabel – 18 September 2003

High Water Mark Number P·12

Elevation: 7.97 ft. NGVD

Latitude: 37° 07’ 19”

Longitude: 76° 20’ 59”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 47 Church Street, Poquoson, Va.

Remarks: HWM is 25” above floor; 26” above porch.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·13

Elevation: 8.06 ft. NGVD

Latitude: 37° 07’ 14”

Longitude: 76° 21’ 31”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 155 Church Street, Poquoson, Va.

Remarks: HWM is 23.5” above garage floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·13

Elevation: 8.06 ft. NGVD

Latitude: 37° 07’ 14”

Longitude: 76° 21’ 31”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 155 Church Street, Poquoson, Va.

Remarks: HWM is 23.5” above garage floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·1

Elevation: 7.96 ft. NGVD

Latitude: 37° 08’ 41”

Longitude: 76° 23’ 16”

USGS 7.5 Minute Quadrangle Map: Poquoson West, Va.

Address: 14 Ebb Tide Landing, Poquoson, Va.

Remarks: HWM is 33.5” above garage floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·2

Elevation: 8.37 ft. NGVD

Latitude: 37° 08’ 50”

Longitude: 76° 22’ 53”

USGS 7.5 Minute Quadrangle Map: Poquoson West, Va.

Address: 16 Phillips Road, Poquoson, Va.

Remarks: HWM is 30.5” above garage floor.

Hurricane Isabel – 18 September 2003

High Water Mark P·2

Elevation: 8.37 ft. NGVD

Latitude: 37° 08’ 50”

Longitude: 76° 22’ 53”

USGS 7.5 Minute Quadrangle Map: Poquoson West, Va.

Address: 16 Phillips Road, Poquoson, Va.

Remarks: HWM is 30.5” above garage floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number P-3

Elevation: 7.93 ft. NGVD

Latitude: 37° 08’ 58”

Longitude: 76° 22’ 31”

USGS 7.5 Minute Quadrangle Map: Poquoson West, Va.

Address: 4 Breezy Point, Poquoson, Va.

Remarks: HWM is 35.5” above floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number P-3

Elevation: 7.93 ft. NGVD

Latitude: 37° 08’ 58”

Longitude: 76° 22’ 31”

USGS 7.5 Minute Quadrangle Map: Poquoson West, Va.

Address: 4 Breezy Point, Poquoson, Va.

Remarks: HWM is 35.5” above floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·4

Elevation: 7.75 ft. NGVD

Latitude: 37° 07’ 43”

Longitude: 76° 21’ 03”

USGS 7.5 Minute Quadrangle Map: Poquoson East, Va.

Address: 1184 Poquoson Avenue, Poquoson, Va.

Remarks: HWM is 6.5” above floor; 9” above porch.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·4

Elevation: 7.75 ft. NGVD

Latitude: 37° 07’ 43”

Longitude: 76° 21’ 03”

USGS 7.5 Minute Quadrangle Map: Poquoson East, Va.

Address: 1184 Poquoson Avenue, Poquoson, Va.

Remarks: HWM is 6.5” above floor; 9” above porch.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·5

Elevation: 7.91 ft. NGVD

Latitude: 37° 07’ 33”

Longitude: 76° 20’ 07”

USGS 7.5 Minute Quadrangle Map: Poquoson East, Va.

Address: 168 Ridge Road, Poquoson, Va.

Remarks: HWM is 34.5” above floor; 44” above ground.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·5

Elevation: 7.91 ft. NGVD

Latitude: 37° 07’ 33”

Longitude: 76° 20’ 07”

USGS 7.5 Minute Quadrangle Map: Poquoson East, Va.

Address: 168 Ridge Road, Poquoson, Va.

Remarks: HWM is 34.5” above floor; 44” above ground.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·6

Elevation: 7.92 ft. NGVD

Latitude: 37° 07’ 23”

Longitude: 76° 20’ 02”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 218 Ridge Road, Poquoson, Va.

Remarks: HWM is 18” above floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·7

Elevation: 8.26 ft. NGVD

Latitude: 37° 07’ 17”

Longitude: 76° 20’ 27”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 61 Messick Road, Poquoson, Va.

Remarks: HWM is 5” above floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·7

Elevation: 8.26 ft. NGVD

Latitude: 37° 07’ 17”

Longitude: 76° 20’ 27”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 61 Messick Road, Poquoson, Va.

Remarks: HWM is 5” above floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·8

Elevation: 8.06 ft. NGVD

Latitude: 37° 07’ 15”

Longitude: 76° 20’ 40”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 15 Messick Road, Poquoson, Va.

Remarks: HWM is 20” above floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number P·8

Elevation: 8.06 ft. NGVD

Latitude: 37° 07’ 15”

Longitude: 76° 20’ 40”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: 15 Messick Road, Poquoson, Va.

Remarks: HWM is 20” above floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number P-9

Elevation: 8.00 ft. NGVD

Latitude: 37° 07’ 22”

Longitude: 76° 20’ 45”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: Garage across Poquoson Ave. from Trinity United Methodist Church, Poquoson, Va.

Remarks: HWM is 43.25” above concrete floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number P-9

Elevation: 8.00 ft. NGVD

Latitude: 37° 07’ 22”

Longitude: 76° 20’ 45”

USGS 7.5 Minute Quadrangle Map: Hampton, Va.

Address: Garage across Poquoson Ave. from Trinity United Methodist Church, Poquoson, Va.

Remarks: HWM is 43.25” above concrete floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-3

Elevation: 9.26 ft. NGVD

Latitude: 38° 38’ 17”

Longitude: 77° 14’ 35”

USGS 7.5 Minute Quadrangle Map: Fort Belvoir, Va. – Md.

Address: 811 Bay Street, Prince William County, Va.

Remarks: HWM is mud line on 30” popular near 815 Bay Street’s backyard.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-3

Elevation: 9.26 ft. NGVD

Latitude: 38° 38’ 17”

Longitude: 77° 14’ 35”

USGS 7.5 Minute Quadrangle Map: Fort Belvoir, Va. – Md.

Address: 811 Bay Street, Prince William County, Va.

Remarks: HWM is mud line on 30” popular near 815 Bay Street’s backyard.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-3

Elevation: 9.26 ft. NGVD

Latitude: 38° 38’ 17”

Longitude: 77° 14’ 35”

USGS 7.5 Minute Quadrangle Map: Fort Belvoir, Va. – Md.

Address: 811 Bay Street, Prince William County, Va.

Remarks: HWM is mud line on 30” popular near 815 Bay Street’s backyard.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-4

Elevation: 9.15 ft. NGVD

Latitude: 38° 38’ 18”

Longitude: 77° 14’ 39”

USGS 7.5 Minute Quadrangle Map: Fort Belvoir, Va. – Md.

Address: Northeast of intersection of Bay Circle and Bay Street, Prince William County, Va.

Remarks: HWM is stake northeast of intersection of Bay Circle and Bay Street, at the base of hill (across street from 815 Bay street).

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-4

Elevation: 9.15 ft. NGVD

Latitude: 38° 38’ 18”

Longitude: 77° 14’ 39”

USGS 7.5 Minute Quadrangle Map: Fort Belvoir, Va. – Md.

Address: Northeast of intersection of Bay Circle and Bay Street, Prince William County, Va.

Remarks: HWM is stake northeast of intersection of Bay Circle and Bay Street, at the base of hill (across street from 815 Bay street).

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-4

Elevation: 9.15 ft. NGVD

Latitude: 38° 38’ 18”

Longitude: 77° 14’ 39”

USGS 7.5 Minute Quadrangle Map: Fort Belvoir, Va. – Md.

Address: Northeast of intersection of Bay Circle and Bay Street, Prince William County, Va.

Remarks: HWM is stake northeast of intersection of Bay Circle and Bay Street, at the base of hill (across street from 815 Bay street).

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-5

Elevation: 9.06 ft. NGVD

Latitude: 38° 38’ 16”

Longitude: 77° 14’ 39”

USGS 7.5 Minute Quadrangle Map: Fort Belvoir, Va. – Md.

Address: 903 Bay Circle, Prince William County, Va.

Remarks: HWM is oil line from inside garage moved to right side of garage.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-5

Elevation: 9.06 ft. NGVD

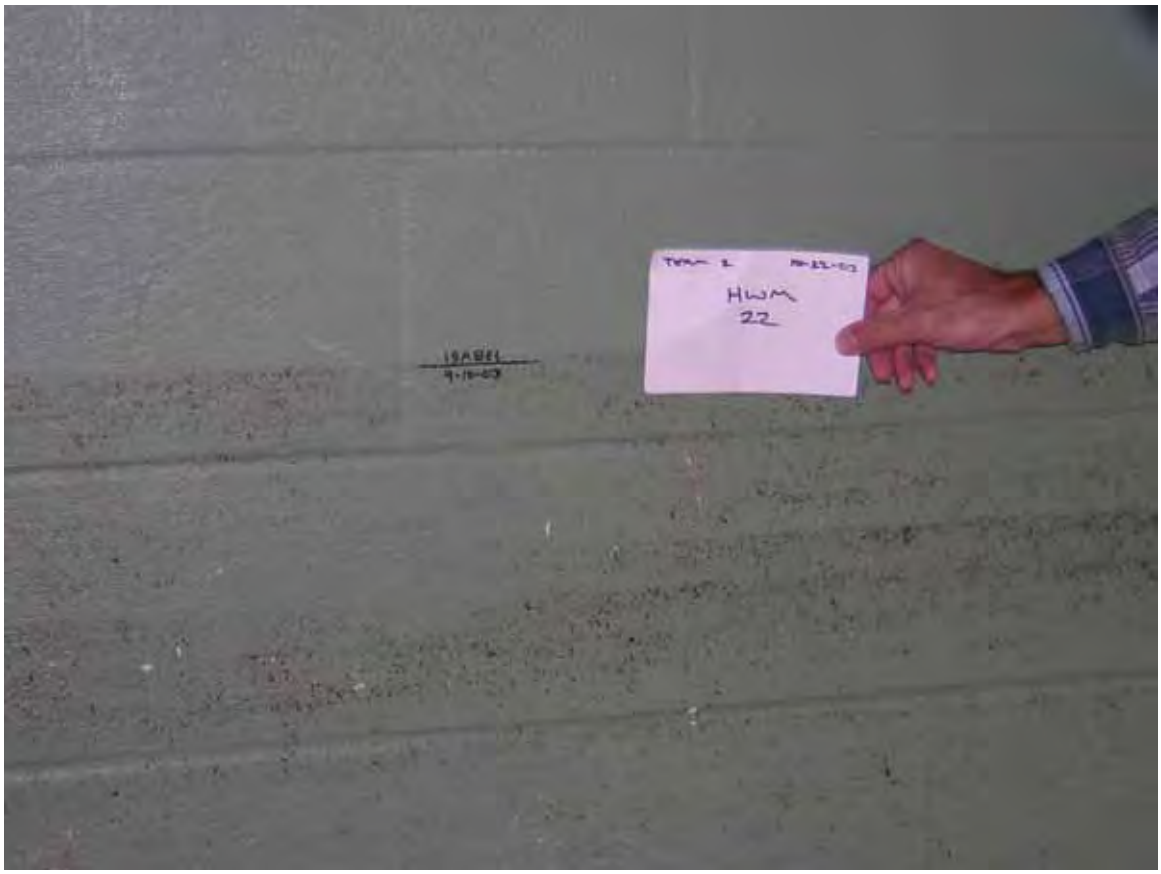
Latitude: 38° 38’ 16”

Longitude: 77° 14’ 39”

USGS 7.5 Minute Quadrangle Map: Fort Belvoir, Va. – Md.

Address: 903 Bay Circle, Prince William County, Va.

Remarks: HWM is oil line from inside garage moved to right side of garage.



Hurricane Isabel – 18 September 2003

High Water Mark Number 2-22

Elevation: 7.06 ft. NGVD

Latitude: 37° 49’ 25”

Longitude: 76° 40’ 40”

USGS 7.5 Minute Quadrangle Map: Morattico, Va.

Address: 1220 Little Florida Road, Richmond County, Va.

Remarks: HWM is seed line on shed behind residence.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-22

Elevation: 7.06 ft. NGVD

Latitude: 37° 49’ 25”

Longitude: 76° 40’ 40”

USGS 7.5 Minute Quadrangle Map: Morattico, Va.

Address: 1220 Little Florida Road, Richmond County, Va.

Remarks: HWM is seed line on shed behind residence.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-23

Elevation: 6.64 ft. NGVD

Latitude: 37° 49’ 23”

Longitude: 76° 40’ 40”

USGS 7.5 Minute Quadrangle Map: Morattico, Va.

Address: Little Florida Road, Richmond County, Va.

Remarks: HWM is trash line off Little Florida Road by power pole, located just after turn into town.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-23

Elevation: 6.64 ft. NGVD

Latitude: 37° 49’ 23”

Longitude: 76° 40’ 40”

USGS 7.5 Minute Quadrangle Map: Morattico, Va.

Address: Little Florida Road, Richmond County, Va.

Remarks: HWM is trash line off Little Florida Road by power pole, located just after turn into town.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-24

Elevation: 6.39 ft. NGVD

Latitude: 37° 47’ 51”

Longitude: 76° 39’ 05”

USGS 7.5 Minute Quadrangle Map: Morattico, Va.

Address: 4189 Hales Point Road, Richmond County, Va.

Remarks: HWM is seed line on crawl space door jamb (yellow siding on brick foundation).

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-24

Elevation: 6.39 ft. NGVD

Latitude: 37° 47’ 51”

Longitude: 76° 39’ 05”

USGS 7.5 Minute Quadrangle Map: Morattico, Va.

Address: 4189 Hales Point Road, Richmond County, Va.

Remarks: HWM is seed line on crawl space door jamb (yellow siding on brick foundation).

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-28

Elevation: 6.07 ft. NGVD

Latitude: 37° 48’ 15”

Longitude: 76° 38’ 03”

USGS 7.5 Minute Quadrangle Map: Morattico, Va.

Address: Simonson Road, Richmond County, Va.

Remarks: HWM is seed line on service corner of old store, on Simonson Road.

Hurricane Isabel – 18 September 2003

High Water Mark Number 2-28

Elevation: 6.07 ft. NGVD

Latitude: 37° 48’ 15”

Longitude: 76° 38’ 03”

USGS 7.5 Minute Quadrangle Map: Morattico, Va.

Address: Simonson Road, Richmond County, Va.

Remarks: HWM is seed line on service corner of old store, on Simonson Road.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-20

Elevation: 8.05 ft. NGVD

Latitude: 38° 25’ 05”

Longitude: 77° 21’ 09”

USGS 7.5 Minute Quadrangle Map: Widewater, Va. – Md.

Address: Aquia Bay Marina, Stafford County, Va.

Remarks: HWM is water line on dry wall by door to marina.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-20

Elevation: 8.05 ft. NGVD

Latitude: 38° 25’ 05”

Longitude: 77° 21’ 09”

USGS 7.5 Minute Quadrangle Map: Widewater, Va. – Md.

Address: Aquia Bay Marina, Stafford County, Va.

Remarks: HWM is water line on dry wall by door to marina.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-21

Elevation: 8.94 ft. NGVD

Latitude: 38° 25’ 07”

Longitude: 77° 21’ 09”

USGS 7.5 Minute Quadrangle Map: Widewater, Va. – Md.

Address: Aquia Bay Marina, Stafford County, Va.

Remarks: HWM is wash line 120 feet north of marina along sea wall.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-21

Elevation: 8.94 ft. NGVD

Latitude: 38° 25’ 07”

Longitude: 77° 21’ 09”

USGS 7.5 Minute Quadrangle Map: Widewater, Va. – Md.

Address: Aquia Bay Marina, Stafford County, Va.

Remarks: HWM is wash line 120 feet north of marina along sea wall.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-21

Elevation: 8.94 ft. NGVD

Latitude: 38° 25’ 07”

Longitude: 77° 21’ 09”

USGS 7.5 Minute Quadrangle Map: Widewater, Va. – Md.

Address: Aquia Bay Marina, Stafford County, Va.

Remarks: HWM is wash line 120 feet north of marina along sea wall.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-6

Elevation: 8.46 ft. NGVD

Latitude: 38° 26’ 53”

Longitude: 77° 19’ 37”

USGS 7.5 Minute Quadrangle Map: Widewater, Va. – Md.

Address: Tolson Crossing Road, Stafford County, Va.

Remarks: HWM is wash line on east side of 3’ sycamore tree on downstream side of Tolson Crossing Road. HWM is .07 mi. east of Brat Point Road and Arkendale Road, State Route 633, approximately 300 yards past railroad tracks.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-6

Elevation: 8.46 ft. NGVD

Latitude: 38° 26’ 53”

Longitude: 77° 19’ 37”

USGS 7.5 Minute Quadrangle Map: Widewater, Va. – Md.

Address: Tolson Crossing Road, Stafford County, Va.

Remarks: HWM is wash line on east side of 3’ sycamore tree on downstream side of Tolson Crossing Road. HWM is .07 mi. east of Brat Point Road and Arkendale Road, State Route 633, approximately 300 yards past railroad tracks.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-20

Elevation: 8.55 ft. NGVD

Latitude: 37° 08’ 21”

Longitude: 76° 40’ 34”

USGS 7.5 Minute Quadrangle Map: Hog Island, Va.

Address: Boat ramp at end of State Route 780, Surry County, Va.

Remarks: HWM is wash line upstream of boat ramp at end of State Route 780, approximately 50’ upstream of road.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-20

Elevation: 8.55 ft. NGVD

Latitude: 37° 08’ 21”

Longitude: 76° 40’ 34”

USGS 7.5 Minute Quadrangle Map: Hog Island, Va.

Address: Boat ramp at end of State Route 780, Surry County, Va.

Remarks: HWM is wash line upstream of boat ramp at end of State Route 780, approximately 50’ upstream of road.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-22

Elevation: 9.40 ft. NGVD

Latitude: 37° 13’ 12”

Longitude: 76° 56’ 07”

USGS 7.5 Minute Quadrangle Map: Claremont, Va.

Address: 123 Sunny Meadows Beach, Surry County, Va.

Remarks: HWM is debris line on back of blue trailer.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-22

Elevation: 9.40 ft. NGVD

Latitude: 37° 13’ 12”

Longitude: 76° 56’ 07”

USGS 7.5 Minute Quadrangle Map: Claremont, Va.

Address: 123 Sunny Meadows Beach, Surry County, Va.

Remarks: HWM is debris line on back of blue trailer.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-22

Elevation: 9.40 ft. NGVD

Latitude: 37° 13’ 12”

Longitude: 76° 56’ 07”

USGS 7.5 Minute Quadrangle Map: Claremont, Va.

Address: 123 Sunny Meadows Beach, Surry County, Va.

Remarks: HWM is debris line on back of blue trailer.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Hurricane Isabel – 18 September 2003

High Water Mark Number VB·10

Elevation: 17.04 ft. NGVD (wave runup)

Latitude: 36° 53’ 34”

Longitude: 75° 59’ 14”

USGS 7.5 Minute Quadrangle Map: Cape Henry, Va.

Address: 67th Street, beach access, Va. Beach, Va.

Remarks: Debris line on dune, HWM is average of (6) elevations taken.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·11

Elevation: 15.0 ft. NGVD (wave runup)

Latitude: 36° 52’ 57”

Longitude: 75° 59’ 05”

USGS 7.5 Minute Quadrangle Map: Cape Henry, Va.

Address: 56th Street near Ramada Inn, Va. Beach, Va.

Remarks: HWM is estimated at 1.5 feet above concrete wall (top elevation is 13.5 feet).

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·12

Elevation: 8.01 ft. NGVD

Latitude: 36° 49’ 56”

Longitude: 75° 58’ 26”

USGS 7.5 Minute Quadrangle Map: Virginia Beach, Va.

Address: Rudee Inlet Fishing Center, 200 Winston Salem Ave, Va. Beach, Va.

Remarks: HWM is 2.78 feet above concrete floor of utility shed, adjacent to parasail/jet ski business.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·12

Elevation: 8.01 ft. NGVD

Latitude: 36° 49’ 56”

Longitude: 75° 58’ 26”

USGS 7.5 Minute Quadrangle Map: Virginia Beach, Va.

Address: Rudee Inlet Fishing Center, 200 Winston Salem Ave, Va. Beach, Va.

Remarks: HWM is 2.78 feet above concrete floor of utility shed, adjacent to parasail/jet ski business.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·13

Elevation: 7.63 ft. NGVD

Latitude: 36° 49’ 21”

Longitude: 75° 58’ 53”

USGS 7.5 Minute Quadrangle Map: Virginia Beach, Va.

Address: Owls Creek Public Boat Ramp, adjacent to the Va. Marine Science Museum, Va. Beach, Va.

Remarks: Debris line, HWM is average of (4) elevations taken.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·14

Elevation: 20.42 ft. NGVD (wave runup)

Latitude: 36° 49’ 05”

Longitude: 75° 58’ 03”

USGS 7.5 Minute Quadrangle Map: Virginia Beach, Va.

Address: Croatan Beach located near public parking area at the south end of Vanderbilt Avenue, Va. Beach, Va.

Remarks: Debris line on dune, HWM is average of (4) elevations taken.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·15

Elevation: 13.92 ft. NGVD (wave runup)

Latitude: 36° 44’ 47”

Longitude: 75° 56’ 39”

USGS 7.5 Minute Quadrangle Map: North Bay, Va.

Address: Sandbridge Beach, at the intersection of Sandbridge Road and Sandfiddler Road, Va. Beach, Va.

Remarks: Debris line on dune, HWM is average of (9) elevations taken.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·16

Elevation: 15.02 ft. NGVD (wave runup)

Latitude: 36° 41’ 39”

Longitude: 75° 55’ 25”

USGS 7.5 Minute Quadrangle Map: North Bay, Va.

Address: Sandbridge – Little Island Park Fishing Pier, Va. Beach, Va.

Remarks: Debris line on dune, HWM is average of (6) elevations taken.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·1

Elevation: 9.72 ft. NGVD (wave runup)

Latitude: 36° 55’ 06”

Longitude: 76° 07’ 47”

USGS 7.5 Minute Quadrangle Map: Little Creek, Va.

Address: Under north bound lane of the Chesapeake Bay Bridge, Va. Beach, Va.

Remarks: Debris line on dune, HWM is average of (3) elevations taken.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·2

Elevation: 12.18 ft. NGVD (wave runup)

Latitude: 36° 55’ 06”

Longitude: 76° 07’ 47”

USGS 7.5 Minute Quadrangle Map: Little Creek, Va.

Address: Between houses 4640/42 and 4700 Ocean View Avenue, at beach access walkway.

Remarks: Debris line between houses, houses along beach have a bulkhead.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·3

Elevation: 6.41 ft. NGVD

Latitude: 36° 54’ 25”

Longitude: 76° 05’ 43”

USGS 7.5 Minute Quadrangle Map: Cape Henry, Va.

Address: Public Boat Ramp near Lynnhaven Inlet, 3576 Piedmont Circle, Va. Beach, Va.

Remarks: Debris line located near canoe/kayak launch area.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·3

Elevation: 6.41 ft. NGVD

Latitude: 36° 54’ 25”

Longitude: 76° 05’ 43”

USGS 7.5 Minute Quadrangle Map: Cape Henry, Va.

Address: Public Boat Ramp near Lynnhaven Inlet, 3576 Piedmont Circle, Va. Beach, Va.

Remarks: Debris line located near canoe/kayak launch area.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·4

Elevation: 6.14 ft. NGVD

Latitude: 36° 54’ 26”

Longitude: 76° 06’ 38”

USGS 7.5 Minute Quadrangle Map: Cape Henry, Va.

Address: At utility structure, where Shore Drive crosses Pleasure House Creek, Va. Beach, Va.

Remarks: Debris line.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·5

Elevation: 6.25 ft. NGVD

Latitude: 36° 54’ 19”

Longitude: 76° 04’ 37”

USGS 7.5 Minute Quadrangle Map: Cape Henry, Va.

Address: 2952 Breezy Road, Va. Beach, Va.

Remarks: HWM is 1.27 feet above driveway slab at garage door.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·6

Elevation: 6.32 ft. NGVD

Latitude: 36° 54’ 21”

Longitude: 76° 04’ 23”

USGS 7.5 Minute Quadrangle Map: Cape Henry, Va.

Address: 2909 Breezy Road, Va. Beach, Va.

Remarks: HWM is 1.67 feet above driveway slab at garage door.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·7

Elevation: 10.29 ft., NGVD (wave runup)

Latitude: 36° 54’ 46”

Longitude: 76° 04’ 41”

USGS 7.5 Minute Quadrangle Map: Cape Henry, Va.

Address: Lynnhaven Fishing Pier, 2350 Starfish Road, Va. Beach, Va.

Remarks: Debris line on dune, HWM is average of (4) elevations taken, (2) on each side of pier.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·7

Elevation: 10.29 ft., NGVD (wave runup)

Latitude: 36° 54’ 46”

Longitude: 76° 04’ 41”

USGS 7.5 Minute Quadrangle Map: Cape Henry, Va.

Address: Lynnhaven Fishing Pier, 2350 Starfish Road, Va. Beach, Va.

Remarks: Debris line on dune, HWM is average of (4) elevations taken, (2) on each side of pier.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·8

Elevation: 15.00 ft. NGVD (wave runup)

Latitude: 36° 54’ 52”

Longitude: 75° 59’ 38”

USGS 7.5 Minute Quadrangle Map: Cape Henry, Va.

Address: 89th Street, beach access, Va. Beach, Va.

Remarks: Debris line on dune, HWM is average of (6) elevations taken.

Hurricane Isabel – 18 September 2003

High Water Mark Number VB·9

Elevation: 17.24 ft. NGVD (wave runup)

Latitude: 36° 54’ 15”

Longitude: 75° 59’ 26”

USGS 7.5 Minute Quadrangle Map: Cape Henry, Va.

Address: 79th Street, beach access, Va. Beach, Va.

Remarks: Debris line on dune, HWM is average of (9) elevations taken.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-26

Elevation: 8.45 ft. NGVD

Latitude: 38° 15’ 19”

Longitude: 76° 57’ 46”

USGS 7.5 Minute Quadrangle Map: Colonial Beach North, Va. – Md.

Address: 25 Maryland Avenue, Town of Colonial Beach, Westmoreland County, Va.

Remarks: HWM is wash line at bottom of mail box.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-26

Elevation: 8.45 ft. NGVD

Latitude: 38° 15’ 19”

Longitude: 76° 57’ 46”

USGS 7.5 Minute Quadrangle Map: Colonial Beach North, Va. – Md.

Address: 25 Maryland Avenue, Town of Colonial Beach, Westmoreland County, Va.

Remarks: HWM is wash line at bottom of mail box.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-26

Elevation: 8.45 ft. NGVD

Latitude: 38° 15’ 19”

Longitude: 76° 57’ 46”

USGS 7.5 Minute Quadrangle Map: Colonial Beach North, Va. – Md.

Address: 25 Maryland Avenue, Town of Colonial Beach, Westmoreland County, Va.

Remarks: HWM is wash line at bottom of mail box.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-27

Elevation: 8.46 ft. NGVD

Latitude: 38° 15’ 15”

Longitude: 76° 57’ 44”

USGS 7.5 Minute Quadrangle Map: Colonial Beach North, Va. – Md.

Address: Colonial Beach – Days Inn, 30 Colonial Avenue, Town of Colonial Beach, Westmoreland County, Va.

Remarks: HWM is wash line along south wall of parking lot.

Hurricane Isabel – 18 September 2003

High Water Mark Number 1-27

Elevation: 8.46 ft. NGVD

Latitude: 38° 15’ 15”

Longitude: 76° 57’ 44”

USGS 7.5 Minute Quadrangle Map: Colonial Beach North, Va. – Md.

Address: Colonial Beach – Days Inn, 30 Colonial Avenue, Town of Colonial Beach, Westmoreland County, Va.

Remarks: HWM is wash line along south wall of parking lot.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-11

Elevation: 7.69 ft. NGVD

Latitude: 37° 12’ 30”

Longitude: 76° 25’ 10”

USGS 7.5 Minute Quadrangle Map: Poquoson West, Va.

Address: 116 Buckingham Drive, State Route 743, York County, Va.

Remarks: HWM is mud line on right garage door frame, 32” above floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-11

Elevation: 7.69 ft. NGVD

Latitude: 37° 12’ 30”

Longitude: 76° 25’ 10”

USGS 7.5 Minute Quadrangle Map: Poquoson West, Va.

Address: 116 Buckingham Drive, State Route 743, York County, Va.

Remarks: HWM is mud line on right garage door frame, 32” above floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-12

Elevation: 8.23 ft. NGVD

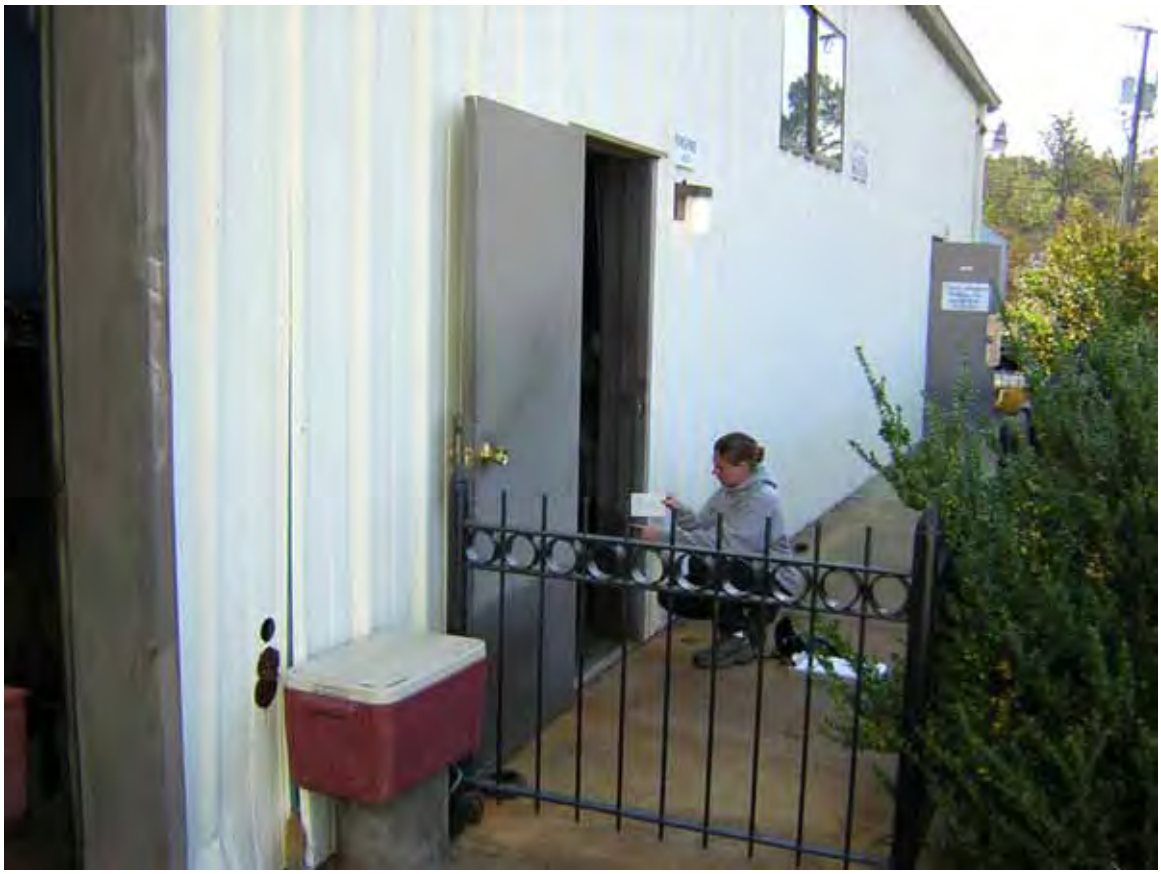
Latitude: 37° 12’ 10”

Longitude: 76° 25’ 27”

USGS 7.5 Minute Quadrangle Map: Poquoson West, Va.

Address: Calvin Hudgins Welding Machine Shop, 117 Shirley Road, York County, Va.

Remarks: HWM is debris line on door frame, approximately 22” above floor.



Hurricane Isabel – 18 September 2003

High Water Mark Number 3-12

Elevation: 8.23 ft. NGVD

Latitude: 37° 12’ 10”

Longitude: 76° 25’ 27”

USGS 7.5 Minute Quadrangle Map: Poquoson West, Va.

Address: Calvin Hudgins Welding Machine Shop, 117 Shirley Road, York County, Va.

Remarks: HWM is debris line on door frame, approximately 22” above floor.

Hurricane Isabel – 18 September 2003

High Water Mark Number 3-12

Elevation: 8.23 ft. NGVD

Latitude: 37° 12’ 10”

Longitude: 76° 25’ 27”

USGS 7.5 Minute Quadrangle Map: Poquoson West, Va.

Address: Calvin Hudgins Welding Machine Shop, 117 Shirley Road, York County, Va.

Remarks: HWM is debris line on door frame, approximately 22” above floor.