



CERTIFICATE OF AUTHENTICITY

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

BMP NUMBER: JR040

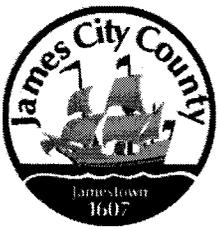
DATE VERIFIED: June 15, 2012

QUALITY ASSURANCE TECHNICIAN:

Leah Hardenbergh

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA



Stormwater Division

MEMORANDUM

DATE: March 11, 2010
TO: Michael J. Gillis, Virginia Correctional Enterprises Document Management Services
FROM: Jo Anna Ripley, Stormwater
PO: 270712
RE: Files Approved for Scanning

General File ID or BMP ID: JR040

PIN: 4321300001A

Subdivision, Tract, Business or Owner

Name (if known):

Governors Land

Property Description:

Open Space Wythe Hamlet

Site Address:

(For internal use only)

Box 14

Drawer: 7

Agreements: (in file as of scan date)

Y

Book or Doc#:

980014182

Page:

501

495-501

Comments

JR-040

Contents for Stormwater Management Facilities As-built Files

Each file is to contain:

- ① As-built plan
2. Completed construction certification
- ③ Construction Plan
- ④ Design Calculations
- ⑤ Watershed Map
- ⑥ Maintenance Agreement
7. Correspondence with owners
- ⑧ Inspection Records
9. Enforcement Actions

980014182

DECLARATION OF COVENANTS

INSPECTION/MAINTENANCE OF RUNOFF CONTROL FACILITY

THIS DECLARATION, made this 22nd day of July, 1998, between Governor's Land Associates, and all successors in interest, hereinafter referred to as the "COVENANTOR(S)," owner(s) of the following property: WYTHE HAMLET SUBDIVISION, BEING PART OF THE GOVERNOR'S LAND DEVELOPMENT RECORDED AT, Deed Book 501, Page No. 493-501, and James City County, Virginia, hereinafter referred to as the "COUNTY."

WITNESSETH:

We, the COVENANTOR(S), with full authority to execute deeds, mortgages, other covenants, and all rights, titles and interests in the property described above, do hereby covenant with the COUNTY as follows:

1. The COVENANTOR(S) shall provide maintenance for the runoff control facility, hereinafter referred to as the "FACILITY," located on and serving the above-described property to ensure that the FACILITY is and remains in proper working condition in accordance with approved design standards, and with the law and applicable executive regulations.
2. If necessary, the COVENANTOR(S) shall levy regular or special assessments against all present or subsequent owners of property served by the FACILITY to ensure that the FACILITY is properly maintained.
3. The COVENANTOR(S) shall provide and maintain perpetual access from public rights-of-way to the FACILITY for the COUNTY, its agent and its contractor.
4. The COVENANTOR(S) shall grant the COUNTY, its agent and its contractor a right of entry to the FACILITY for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the FACILITY.
5. If, after reasonable notice by the COUNTY, the COVENANTOR(S) shall fail to maintain the FACILITY in accordance with the approved design standards and with the law and applicable executive regulations, the COUNTY may perform all necessary repair or maintenance work, and the COUNTY may assess the COVENANTOR(S) and/or all owners of property served by the FACILITY for the cost of the work and any applicable penalties.
6. The COVENANTOR(S) shall indemnify and save the COUNTY harmless from any and all claims for damages to persons or property arising from the installation, construction, maintenance, repair, operation or use of the FACILITY.
7. The COVENANTOR(s) shall promptly notify the COUNTY when the COVENANTOR(S) legally transfers any of the COVENANTOR(S)' responsibilities for the FACILITY. The COVENANTOR(S)' shall supply the COUNTY with a copy of any document of transfer, executed by both parties.
8. The covenants contained herein shall run with the land and shall bind the COVENANTOR(S) and the COVENANTOR(S)' heirs, executors, administrators, successors and assignees, and shall bind all present and subsequent owners of property served by the FACILITY.
9. This COVENANT shall be recorded in the County Land Records.

JUL 30 02 14 0

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of this 22nd day of July, 1998.

COVENANTOR(S)
Governor's Land Associates

W. Allen Ball
W. ALLEN BALL

ATTEST:

COVENANTOR(S)

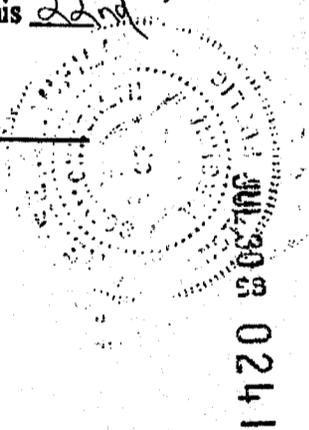
ATTEST:

COMMONWEALTH OF VIRGINIA
COUNTY OF James City County

I hereby certify that on this 22nd day of July, 1998, before me subscribed, a Notary Public of the State of Virginia, and for the County of James City, aforesaid personally appeared W. Allen Ball and did acknowledge the foregoing instrument to be their Act.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this 22nd day of July, 1998.

Renee A. Hupfel
Notary Public



My Commission expires: 9/30/98

Approved as to form:

Len P. Rogers
Deputy County Attorney

This Declaration of Covenants prepared by:

RAYMOND E. KEENEY
(Print Name)
VICE PRESIDENT, DEVELOPMENT
(Title)
2700 TWO RIVERS ROAD
(Address)
WILLIAMSBURG VA 23188
(City) (State) (Zip)

0261U.wpf
Revised 9/96

VIRGINIA
In _____ of the County of _____ and County of _____
I the Circuit Court of the _____
City of _____, 1998. This 22nd day of July, 1998.
Presented with certificate annexed and
Teste. _____ o'clock
by W. Allen Ball
Deputy Clerk

JK 040 Governor's Land
Wythe Hamlet

980015087

DECLARATION OF COVENANTS

INSPECTION/MAINTENANCE OF DRAINAGE SYSTEM

THIS DECLARATION, made this 5th day of August, 1998, between Governor's Land Associates and all successors in interest, hereinafter referred to as the "COVENANTOR(S)," owner(s) of the following property: Wythe Hamlet subdivision, being part of The Governor's Land Development, recorded, Deed Book 501, Page No. 498-501 or Instrument No. _____, and James City County, Virginia, hereinafter referred to as the "COUNTY."

WITNESSETH:

We, the COVENANTOR(S), with full authority to execute deeds, mortgages, other covenants, and all rights, titles and interests in the property described above, do hereby covenant with the COUNTY as follows:

1. The COVENANTOR(S) shall provide maintenance for the drainage system including any runoff control facilities, conveyance systems and associated easements, hereinafter referred to as the "SYSTEM," located on and serving the above-described property to ensure that the SYSTEM is and remains in proper working condition in accordance with approved design standards, and with the law and applicable executive regulations. The SYSTEM shall not include any elements located within any Virginia Department of Transportation rights-of-way.
2. If necessary, the COVENANTOR(S) shall levy regular or special assessments against all present or subsequent owners of property served by the SYSTEM to ensure that the SYSTEM is properly maintained.
3. The COVENANTOR(S) shall provide and maintain perpetual access from public right-of-ways to the SYSTEM for the COUNTY, its agent and its contractor.
4. The COVENANTOR(S) shall grant the COUNTY, its agent and its contractor a right of entry to the SYSTEM for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the SYSTEM.
5. If, after reasonable notice by the COUNTY, the COVENANTOR(S) shall fail to maintain the SYSTEM in accordance with the approved design standards and with the law and applicable executive regulations, the COUNTY may perform all necessary repair or maintenance work, and the COUNTY may assess the COVENANTOR(S) and/or all property served by the SYSTEM for the cost of the work and any applicable penalties.
6. The COVENANTOR(S) shall indemnify and save the COUNTY harmless from any and all claims for damages to persons or property arising from the installation, construction, maintenance, repair, operation or use of the SYSTEM.
7. The COVENANTOR(s) shall promptly notify the COUNTY when the COVENANTOR(S) legally transfers any of the COVENANTOR(S)' responsibilities for the SYSTEM. The COVENANTOR(S)' shall supply the COUNTY with a copy of any document of transfer, executed by both parties.
8. The covenants contained herein shall run with the land and shall bind the COVENANTOR(S) and the COVENANTOR(S)' heirs, executors, administrators, successors and assignees, and shall bind all present and subsequent owners of property served by the SYSTEM.
9. This COVENANT shall be recorded in the County Land Records.

AUG 13 01 97

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of this 5th day of Aug, 1998.

COVENANTOR(S)

Governor's Land Associates
W. Allen Ball
President
W. Allen Ball

ATTEST:

COVENANTOR(S)

ATTEST:

AUG 12 01 98

~~NOTARY PUBLIC~~
~~COMMONWEALTH OF VIRGINIA~~
~~CITY/COUNTY OF~~
COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF _____

I hereby certify that on this 5th day of August, 1998, before the subscribed, a Notary Public of the State of Virginia, and for the County of James City, aforesaid personally appeared W. Allen Ball and did acknowledge the foregoing instrument to be their Act.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this 5th day of August, 1998.

[Signature]
Notary Public


My Commission expires: 9/30/98

Approved as to form:

[Signature]
Deputy County Attorney

This Declaration of Covenants prepared by:

Raymond E. Keeney
(Print Name)
V.P.
(Title)
2700 Two Rivers Rd
(Address)
Williamsburg, Va 23185
(City) (State) (Zip)

... Circuit Court of the
... of James City the
... This Covenants
... was pro... certificate annexed and
... record at 12:36 o'clock
... by [Signature]
Deputy Clerk

980 017081

EXEMPT FROM RECORDATION TAX
UNDER VIRGINIA CODE SECTION 58.1-811(A)(6), AS AMENDED

DEED OF EASEMENT
FOR NATURAL OPEN AREA
WYTHE HAMLET

THIS DEED OF EASEMENT, made as of Aug, 24th, 1998, by and among GOVERNOR'S LAND ASSOCIATES, a Virginia general partnership and its heirs, successors and assigns ("Grantor"); and COUNTY OF JAMES CITY, VIRGINIA ("Grantee").

WHEREAS, the Grantor is the owner of certain property known as Wythe Hamlet, The Governor's Land At Two Rivers (the "Property");

WHEREAS, Grantee has adopted The Chesapeake Bay Preservation Ordinance, Chapter 23 of the James City County Code, as required by Chapter 21 of Title 10.1 of the Code of Virginia, to protect the Chesapeake Bay and its tributaries from nonpoint source pollution from land uses or appurtenances within the Chesapeake Bay drainage area;

WHEREAS, Grantor wishes to preserve portions of the Property as an open area as part of Grantor's efforts to improve the quality of stormwater runoff from the Property.

NOW, THEREFORE, in recognition of the foregoing and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Grantor does hereby grant and convey to Grantee an easement in perpetuity in gross, with the right in perpetuity to restrict the use as described below, of the portion herein described of that certain tract, lot, piece or parcel of land with improvements thereon ("Easement Property"), containing 2.679 acres (Open Area 1) and .997 acres (Open Area 2) more or less, to wit:

Open Area 1, containing 2.679 acres, and Open Area 2, containing .997 acres, WYTHE HAMLET, THE GOVERNOR'S LAND AT TWO RIVERS, as the same appears duly dedicated, platted and subdivided on the Plat attached hereto and recorded simultaneously with this Easement in Plat Book 70 at Pages 50 through 52 in the Office of the Clerk of the Circuit Court for the City of Williamsburg and the County of James City, Virginia.

The restrictions hereby imposed on the use of the Easement Property, the acts which the Grantor covenants to do or not to do and the restrictions which the Grantee is hereby entitled to enforce, shall be as follows:

Prepared By:
Jenkins & Gilchrist,
a Professional Corporation
1919 Pennsylvania Avenue, NW
Suite 600
Washington, D.C. 20006-3404

REDAL:153955.3 17188-00001

SEP-88 0038

The restrictions hereby imposed on the use of the Easement Property, the acts which the Grantor covenants to do or not to do and the restrictions which the Grantee is hereby entitled to enforce, shall be as follows:

1. The Easement Property shall be kept free and clear of any junk, trash, rubbish and other unsightly or offensive material.
2. No building shall be permitted on or lots platted within the Easement Property.
3. No roads or other structures (excluding utility lines, drainage facilities, paths and trails or signs approved in accordance with Paragraph 4 below) shall be built or maintained on the Easement Property other than such road or structure approved in writing by the County Engineer and the Planning Commission. Any roads shall be generally as shown on the approved Master Plan for the Governor's Land at Two Rivers.
4. No signs (including billboards or outdoor advertising), paths or trails, utility lines, irrigation systems or drainage facilities shall be placed on the Easement Property without expressed written consent of the County Engineer and the Planning Commission or in accordance with a signage plan, path or trail plan, drainage plan, irrigation plan or utility plan approved in writing by the County Engineer and the Planning Commission.
5. The Easement Property shall be used as a storm water retention area and otherwise, shall remain in its natural condition with respect to natural leaf litter or other ground covering vegetation, understory vegetation or shrub layer, and tree canopy. Except for the use thereof as a stormwater retention area, the activities of Grantor within the Easement Property shall be limited to those activities which do not remove or damage any significant amount of healthy vegetation or materially disturb any soil except as approved by the County Engineer under this paragraph or in connection with approvals obtained in accordance with Paragraphs 3 and 4 above: Grantor may remove dead, diseased, poisonous or invasive vegetation or the Grantor may use hand tools (such as chain saws, wood chippers and stump grinders) for selective trimming and pruning and the clearing of understory which would not alter the natural character of the Easement Property only in a location and manner approved by the County Engineer.
6. Grantee and its representatives may enter upon the Easement Property from time to time for inspection, to enforce the terms of this Easement and to post a sign or marker identifying Grantee's interest in the Easement Property as open area. In the event of a violation of the terms of this Easement, the Grantee shall have the right to seek all appropriate legal and equitable relief, provided that Grantee shall notify Grantor at least thirty days in advance of any proposed action with respect to the Easement Property, describing the condition Grantee considers a violation Grantor shall have a reasonable opportunity to cure prior to Grantee's exercise of its rights hereunder.

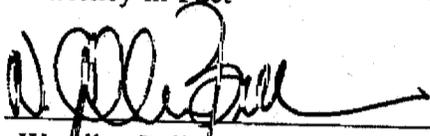
SEP-8 88 0039

- 7. Grantee and Grantor may amend the provisions hereof or terminate this Easement by a written instrument signed by both parties.
- 8. Although this Easement in gross will benefit the public in the ways recited above, nothing herein shall be construed to convey a right to the public of access to or use of the Easement Property and the Grantor shall retain exclusive right to such access and use, subject only to the provisions herein recited.

WITNESS the following signatures and seals as of the date first above written.

GOVERNOR'S LAND ASSOCIATES,
A Virginia general partnership

By: **DOMINION LAND MANAGEMENT
COMPANY - WILLIAMSBURG**
A Virginia corporation,
Its Attorney-in-Fact

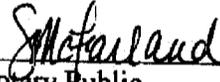
By: 
Name: W. Allen Ball
Title: President

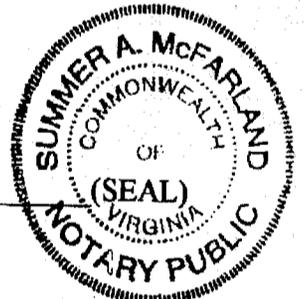
STATE OF VIRGINIA

CITY/COUNTY OF James City

I, the undersigned, a Notary Public in and for the jurisdiction aforesaid, do hereby certify that W. ALLEN BALL, President of DOMINION LAND MANAGEMENT COMPANY - WILLIAMSBURG, a Virginia corporation, Attorney-in-Fact for GOVERNOR'S LAND ASSOCIATES, a Virginia general partnership, whose name is signed to the foregoing Deed, has acknowledged the same before me in the aforesaid jurisdiction as an authorized officer of the corporation on behalf of the partnership.

GIVEN under my hand and seal on August 24, 1998.


Notary Public



My Commission Expires: September 30, 2002

SEP-8 88 0040

The form of this Deed of Easement is approved and, pursuant to Resolution of the Board of Supervisors of James City County, Virginia, duly executed on the 17th day of ~~August~~ May, 1998, this conveyance is hereby accepted on behalf of said County.

L.P.R.

8/31/98
DATE

Leo P. Rogers
COUNTY ATTORNEY

STATE OF VIRGINIA
CITY/COUNTY OF James City

I, the undersigned, a Notary Public in and for the jurisdiction aforesaid, do hereby certify that LEO P. ROGERS, County Attorney for the COUNTY OF JAMES CITY, VIRGINIA, whose name is signed to the foregoing Deed of Easement, has acknowledged the same before me in the aforesaid jurisdiction on behalf of the County.



GIVEN under my hand and seal on August 31, 1998.

May Frances Rieger (SEAL)
Notary Public

My Commission Expires: Oct. 31, 2001

SEP-88 0041

VIRGINIA: City of Williamsburg and County of James City, to Wit:

In the Clerk's Office at the Circuit Court for the City of Williamsburg and County of James City the

day of Sept, 19 98 this document was presented with the certificate annexed and admitted to record at 11:09 o'clock.

Tests: Helene S. White, Clerk

By: *Christina H. ...*
Deputy Clerk

PLAT RECORDED IN
P.B. NO. 70 PAGE 50-52

James City County, Virginia
Environmental Division

43213000.01A
GOV LAND FOUND
2700 Two Rivers Rd.
WMBB, VA. 23185
(South of 1814)
John Hancock

Stormwater Management/BMP Facilities
Record Drawing/Construction Certification
Review Tracking Form

County Plan No.: S-32-98
Project Name: GOVERNORS LAND - WHITE HAMLET
Stormwater Management Facility: DRY DET FACILITY.

Phase: I II III
 Information Received. Date: MAY 3 2002 AES
 Administrative Check.

Record Drawing Date: 12/13/01 AES (cert 3/30/02)
 Construction Certification Date: NONE
 RD/CC Standard Forms (Required after Feb 1st 2001 Only)
 Insp/Maint Agreement Info: Yes 1/m # 980014182, 7-31-98, P.240
 BMP Maintenance Plan Location: NO
 Other:

Standard E&SC Note on Approved Plan Requiring RD/CC or County comment in plan review file.
 Yes No Location: Note #18 Sheet 8 (AB+CC); Box Note 4 AB
Assign County BMP ID Code Code: JR040

Log into Division's "As-Built" Tracking Log
 Add Location to GIS Database Map. Obtain GIS site information (GPIN, Owner, Site Area, Address, etc.)
 Preliminary Log into BMP Database (BMP ID #, Site Plan #, GPIN, Project Name)
 Active Project File Review (correspondence, H&H, etc.).
 Initial As-Built File setup (label, copy hydraulics, BMP information, etc.).
 Inspector Check of RD/CC.
 Pre-Inspection Drawing Review - Approved Plan (Quick look prior to field inspection).
 Final Inspection (FI) Performed Date: 11/22/02 R.H.
 Record Drawing (RD) Review Date: _____
 Construction Certification (CC) Review Date: _____

Actions:
 No comments.
 Comments. Letter Forwarded. Date: 12/9/02
 Record Drawing (RD)
 Construction Certification (CC) No Action.
 Construction-Related (CR)
 Site Issues (SI)
 Other:

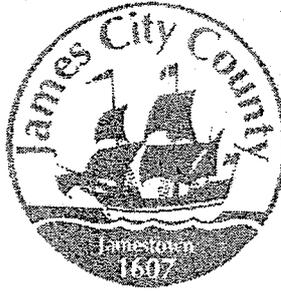
Second Submission: AB 4/23/03 AES
 Third Submission: _____

Acceptable for stormwater management facility purposes (RD/CC/CR/Other). Proceed with bond release.
 Notify Darryl/Joan/Pat of acceptability using email (preferred), form or verbal.
 Check/Clean active file of any remaining material and finish "As-Built" file.
 Add to County BMP Inventory/Inspection schedule (Phase I, II or III).
 Copy Final Inspection Report into County BMP Inspection Program file.
 Digital Photographs obtained.
 Add to JCC Hydrology & Hydraulic database (optional).

BMP Certification Information: Acceptable
Plan Reviewer: [Signature] Date: 6/18/03

Vertical list of checkboxes on the left margin, mostly checked.

ENV DIV COMMENT #5 MAY 28 '98



James City County, Virginia
Environmental Division

Stormwater Management / BMP Facilities
Record Drawing and Construction Certification Forms

(Note: In accordance with the requirements of the Chesapeake Bay Preservation Ordinance, Chapter 23, Section 23-10(4), BMP's shall be designed and constructed in accordance with the manual entitled James City County Guidelines for Design and Construction of Stormwater Management BMP's. Erosion and sediment control policy and approved plans generally require that at the completion of the project and prior to release of surety, an "as-built" plan prepared by a registered Professional Engineer or Certified Land Surveyor must be provided for the drainage system for the project, including any Best Management Practice (BMP) facilities. In addition, for BMP facilities involving the construction of an impounding structure or dam embankment, certification is required by a Professional Engineer who has inspected the structure during its construction. Currently there are over 20 water quality type BMP's accepted by the County.)

Section 1 - Site Information:

Project Name: GOVERNOR'S LAND AT TWO RIVERS - WYTHE HAMLET
Structure/BMP Name: WYTHE HAMLET BMP
Project Location: NW OF INTERSECTION OF NATHANIELS CREEK & TWO RIVERS ROAD
BMP Location: BETWEEN TWO RIVERS ROAD AND
County Plan No.: S - 32 - 98

Project Type: Residential Business Commercial Office Institutional Industrial Public Roadway Other _____
Tax Map/Parcel No.: _____
BMP ID Code (if known): JR040
Zoning District: POWHATAN DISTRICT
Land Use: RESIDENTIAL
Site Area (sf or acres): _____

Brief Description of Stormwater Management/BMP Facility: DRA DETENTION POND

Nearest Visible Landmark to SWM/BMP Facility: _____

Nearest Vertical Ground Control (if known):
 JCC Geodetic Ground Control USGS Temporary Arbitrary Other
Station Number or Name: 348
Datum or Reference Elevation: R. 29
Control Description: JCC MAIN STATION
Control Location from Subject Facility: 7000 FEET NW OF PROJECT

Section 2 - Stormwater Management / BMP Facility Construction Information:

PreConstruction Meeting Held for Construction of SWM/BMP Facility: Yes No Unknown
Approx. Construction Start Date for SWM/BMP Facility: _____
Facility Monitored by County Representative during Construction: Yes No Unknown
Name of Site Work Contractor Who Constructed Facility: HENDERSON, INC
Name of Professional Firm Who Routinely Monitored Construction: _____
Date of Completion for SWM/BMP Facility: _____
Date of Record Drawing/Construction Certification Submittal: MARCH 2002

(Note: Record Drawing and Construction Certifications are required within thirty (30) days of the completion of Stormwater Management and/or BMP facility construction. Record Drawings and Construction Certifications must be reviewed and approved by the James City County Environmental Division prior to final inspection, acceptance and bond or surety release.)

Section 3 - Owner / Designer / Contractor Information:

Owner/Developer: *(Note: Site Owner or Applicant responsible for development of the project.)*

Name: GOVERNOR'S LAND ASSOCIATES
Mailing Address: 9701 MILL POND RUN
TOANO, VIRGINIA
Business Phone: 757-234-5000 Fax: 757-234-5111
Contact Person: MR. JAMES H. BENNETT Title: VICE PRESIDENT - DEVELOPMENT

Design Professional: *(Note: Professional Engineer or Certified Land Surveyor responsible for the design and preparation of plans and specifications for the Stormwater Management / BMP facility.)*

Firm Name: AES CONSULTING ENGINEERS
Mailing Address: 5248 OLDE TOWNE ROAD, SUITE 1
WILLIAMSBURG, VIRGINIA 23188
Business Phone: 757-253-0040
Fax: 757-220-8994
Responsible Plan Preparer: _____
Title: _____
Plan Name: _____
Firm's Project No. 7173
Plan Date: _____
Sheet No.'s Applicable to SWM/BMP Facility: / / / /

BMP Contractor: *(Note: Site Work Contractor directly responsible for construction of the Stormwater Management / BMP facility.)*

Name: HENDERSON, INC.
Mailing Address: 5800 MODERATION ROAD
WILLIAMSBURG, VIRGINIA 23188
Business Phone: 565-1090
Fax: _____
Contact Person: _____
Site Foreman/Supervisor: _____
Specialty Subcontractors & Purpose (for BMP Construction Only): _____

Section 4 - Professional Certifications:

Certifying Professionals: (Note: A Registered Professional Engineer or Certified Land Surveyor is responsible for preparation of a Record Drawing, sometimes referred to as an As-Built plan, for the drainage system for the project including any Stormwater Management/BMP Facilities. A Registered Professional Engineer is responsible for the inspection, monitoring and certification of Stormwater Management / BMP facilities during its construction.)

Record Drawing and Construction Certifications for Stormwater Management / BMP Facilities

Record Drawing Certification

Firm Name: AES CONSULTING ENGINEERS
Mailing Address: 5240 OLDE TOWNE RD, SUITE 1
WILLIAMSBURG, VIRGINIA 23108
Business Phone: 757-253-0040
Fax: 757-220-8994

Name: V. MARC BENNETT
Title: SENIOR PROJECT MANAGER

Signature: [Signature]
Date: 3/30/02

I hereby certify to the best of my knowledge and belief that this record drawing represents the actual condition of the Stormwater Management / BMP facility. The facility appears to conform with the provisions of the approved design plan, specifications and stormwater management plan, except as specifically noted.

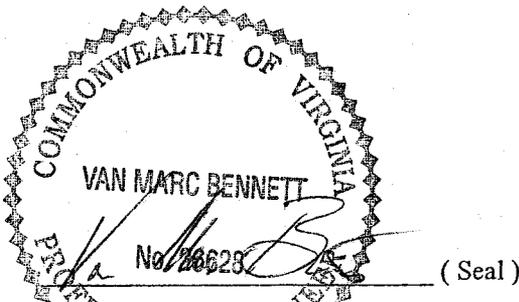
Construction Certification

Firm Name: _____
Mailing Address: _____
Business Phone: _____
Fax: _____

Name: _____
Title: _____

Signature: _____
Date: _____

I hereby certify to the best of my knowledge and belief that this Stormwater Management/BMP facility was monitored and constructed in accordance with the provisions of the approved design plan, specifications and stormwater management plan, except as specifically noted.



Virginia Registered Professional Engineer
or Certified Land Surveyor

_____ (Seal)

Virginia Registered
Professional Engineer

Section 5 - Record Drawing and Construction Certification Requirements and Instructions:

- PreConstruction Meeting - Provides an opportunity to review SWM / BMP facility construction, maintenance and operation plans and address any questions regarding construction and/or monitoring of the structure. The design engineer, certifying professionals (if different), Owner/Applicant, Contractor and County representative(s) are encouraged to attend the preconstruction meeting. Advanced notice to the Environmental Division is requested. Usually, this requirement can be met simultaneously with Erosion and Sediment Control preconstruction meetings held for the project.
- A fully completed ***STORMWATER MANAGEMENT / BMP FACILITIES, RECORD DRAWING and CONSTRUCTION CERTIFICATION FORM*** and ***RECORD DRAWING CHECKLIST***. All applicable sections shall be completed in their entirety and certification statements signed and sealed by the registered professional responsible for individual record drawing and/or construction certification.
- The Record Drawing shall be prepared by a Registered Professional Engineer or Certified Land Surveyor for the drainage system of the project including any Best Management Practices.
- Construction Certification. Construction of Stormwater Management / BMP facilities which contain impoundments, embankments and related engineered appurtenances including subgrade preparation, compacted soils, structural fills, liners, geosynthetics, filters, seepage controls, cutoffs, toe drains, hydraulic flow control structures, etc. shall be visually observed and monitored by a Registered Professional Engineer or his/her authorized representative. The Engineer must certify that the structure, embankment and associated appurtenances were built in accordance with the approved design plan, specifications and stormwater management plan and standard accepted construction practice and shall submit a written certification and/or drawings to the Environmental Division as required. Soil and compaction test reports, concrete test reports, inspection reports, logs and other required construction material or installation documentation may be required by the Environmental Division to substantiate the certification, if specifically requested. The Engineer shall have the authority and responsibility to make minor changes to the approved plan, in coordination with the assigned County inspector, in order to compensate for unsafe or unusual conditions encountered during construction such as those related to bedrock, soils, groundwater, topography, etc. as long as changes do not adversely affect the integrity of the structure(s). Major changes to the approved design plan or structure must be reviewed and approved by the original design professional and the James City County Environmental Division.
- Record Drawing and Construction Certifications are required within **thirty (30) days** of the completion of Stormwater Management / BMP facility construction. Submittals must be reviewed and accepted by James City County Environmental Division prior to final inspection, acceptance and bond/surety release.

Dual Purpose Facilities - Completion of construction also includes an interim stage for Stormwater Management / BMP facilities which serve dual purpose as temporary sediment basins during construction and as permanent stormwater management / BMP facilities following construction, once development and stabilization are substantially complete. For these dual purpose facilities, construction certification is required once the temporary sediment basin phase of construction is complete. Final record drawing and construction certification of additional permanent components is required once permanent facility construction is complete.

Interim Construction Certification is required for those dual purpose embankment-type facilities that are generally ten (10) feet or greater in dam height (*) and may not be converted, modified or begin function as a permanent SWM / BMP structure for a period generally ranging from six (6) to eighteen (18) months or more from issuance of a Land Disturbance permit for construction.

Interim or final record drawing and construction certifications are not required for temporary sediment basins which are designed and constructed in accordance with current minimum standards and specifications for temporary sediment basins per the Virginia Erosion and Sediment Control Handbook (VESCH); have a temporary service life of less than eighteen (18) months; and will be removed completely once associated disturbed areas are stabilized, unless a distinct hazard to the public's health, safety and welfare is determined by the Environmental Division due to the size or presence of the structure or due to evidence of improper construction.

(*Note: Dam Height as referenced above is generally defined as the vertical distance from the natural bed of the stream or waterway at the downstream toe of the embankment to the top of the embankment structure in accordance with 4VAC50-20-30, Virginia Impoundment Structure Regulations and the Virginia Dam Safety Program.)

- Record Drawings shall provide, at a minimum, all information as shown within these requirements and the attached **RECORD DRAWING CHECKLIST** specific to the type of SWM/BMP facility being constructed. Other additional record data may be formally requested by the James City County Environmental Division. *(Note: Refer to the current edition of the James City County Guidelines for Design and Construction of Stormwater Management BMP's manual for a complete list of acceptable BMP's. Currently there are over 20 acceptable water quality type BMP's accepted by the County.)*
- Record Drawings shall consist of blue/black line prints and a reproducible (mylar, sepia, diazo, etc.) set of the approved stormwater management plan including applicable plan views, profiles, sections, details, maintenance plans, etc. as related to the subject SWM / BMP facility. The set shall indicate "**RECORD DRAWING**" in large text in the lower right hand corner of each sheet with record elevations, dimensions and data drawn in a clearly annotated format and/or boxed beside design values. Approved design plan values, dimensions and data shall not be removed or erased. Drawing sheet revision blocks shall be modified as required to indicate record drawing status. Elevations to the nearest 0.1' are sufficiently accurate except where higher accuracy is needed to show positive drainage. Certification statements as shown in Section 4 of the Record Drawing and Construction Certification Form, *or similar forms thereof*, and professional signatures and seals, with dates matching that of the record drawing status in the revision or title block, are also required on all associated record drawing plans, prints or reproducible.
- Submission Requirements. Initial and subsequent submissions for review shall consist of a minimum of one (1) blue/black line set for record drawings and one copy of the construction certification documents with appropriate transmittal. Under certain circumstances, it is understood that the record drawing and construction certification submissions may be performed by different professional firms. Therefore, record drawing submission may be in advance of construction certification or vice versa. Upon approval and prior to release of bond/surety, final submission shall include one (1) reproducible set of the record drawings, one (1) blue/black line set of the record drawings and one (1) copy of the construction certification. Also for current and/or future incorporation into the County BMP database and GIS system, it is requested that the record drawings also be submitted to the Environmental Division on a diskette or CD-ROM in an acceptable electronic file format such as *.dxf, *.dwg, etc. or in a standard scanned and readable format. The electronic file requirement can be discussed and coordinated with Environmental Division staff at the time of final submission.

**STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING CHECKLIST**

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

I. Methods and Presentation: (Required for all Stormwater Management / BMP facilities)

- XX 1. All constructed facilities meet approved design plans, unless otherwise shown. Record information or deviations from approved design plan shown in clearly annotated format and/or boxed beside design values.
- XX 2. Elevations to the nearest 0.1' unless higher accuracy is needed to show positive drainage.
- XX 3. All plan sheets labeled with "RECORD DRAWING" in large text in lower right hand corner (Approved County Plan Number and BMP ID Code can be included if known).
- XX 4. All plan sheet revision blocks modified to indicate date and record drawing status.
- XX 5. All plan sheets have certification statements and certifying professional's signature and seal.

II. Minimum Standards: (Required for all Stormwater Management / BMP facilities, as applicable.)

- XX 1. All requirements of Section I (Methods and Presentation) apply to this section.
- XX 2. Plan Views: Show general location, arrangement and dimensions. Location and alignment shall generally match approved design plans.
- XX 3. Profile or elevations along top or berm of the facility. At a minimum, elevations are required at each end, at intervals not to exceed 50 feet and where low spots may be present. Top of embankment or berm elevations must be no less than design elevation plus any settlement allowances.
- INC 4. Top widths, berm widths and embankment side slopes.
- XX 5. Show length, width and depth of facility or grading, contours or spot elevations as required to verify permanent pool and design storage volumes were met or were reasonably close to the approved design. Evaluation of as-built grading, contours, spot elevations, or cross-sections, may be necessary by the professional to ensure approved design configurations, depths and volumes were closely maintained. If grading or elevations are significantly different from the approved plan, the Environmental Division shall be contacted immediately to determine whether the variation is acceptable or whether further evidence will be required. Facilities which do not closely resemble approved plan grades, elevations or configurations may require regrading by the Contractor; check volumetric computations; and/or a check hydraulic routing to ensure approved design water surface elevations, discharges or freeboard were closely maintained.
- INC 6. Cross-section of the embankment through the principal spillway or outlet barrel. Must extend at least 100 ft. downstream of the pipe outlet or to recorded site property line, whichever is closer. Proper correlation is required between principal spillway (control structure) crest, emergency spillway crest, orifice and weirs and the top of the dam or facility. All elevations and dimensions must reasonably match the design plan or be sequentially relative to each other and the facility must reflect the required design storage volume(s) and/or design depth.
- INC 7. Profile or elevations along the entire centerline of the emergency spillway. Emergency spillway may be steeper, but no flatter or narrower than design.
- XX 8. Elevation of the principal spillway crest or outlet crest of the structure.

- XY 9. Primary control structure (riser) diameter or dimensions, height, type of material and base size. Indicate provisions for access that are present such as steps, ladders, etc.
- INC 10. Dimensions, locations and elevations of outlet orifices, weirs, slots and drains.
- XY 11. Type and size of anti-vortex and trash rack device. Height, diameter, dimensions, bar spacings (if applicable) and elevations relative to the principal spillway crest. Indicate if lockable hatch is present or not.
- INC 12. Type, location, size and number of anti-seep collars or documentation of other methods utilized for seepage control. **May need to obtain this information during construction.**
- INC 13. Top of impervious core embankment, core trench limits and elevation of cut-off trench bottom. **May need to obtain this information during construction.**
- XY 14. Elevation of the principal spillway barrel (outlet pipe) inlet and outlet invert.
- XY 15. Outlet barrel diameter, length, slope, type and thickness class of material and type of flared end sections, headwall or endwall.
- INC 16. Outfall protection dimension, type and depth of rock and if underlain filter fabric is present.
- N/A 17. BMP interior and periphery landscaping zones conform with arrangements and requirements of the approved design plan.
- N/A 18. Maintenance plan taken from approved design plan transposed onto record drawing set.
- N/A 19. Fencing location and type, if applicable to facility.
- XY 20. BMP vicinity properly cleaned of stockpiles and construction debris.
- XY 21. No visual signs of erosion or channel degradation immediately downstream of facility.
- XY 22. Any other information formally requested by the Environmental Division specific to the constructed SWM/BMP facility.

**STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING CHECKLIST**

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

III. Group A - Wet Ponds (Includes A-1 Small Wet Ponds; A-2 Wet Ponds; A-3 Wet Ext Det Ponds.)

- | | | |
|------------|------|--|
| <u>N/A</u> | A1. | All requirements of Section II, Minimum Standards, apply to Group A facilities. |
| | A2. | Principal spillway consists of reinforced concrete pipe with O-Ring gaskets for watertight joint construction. |
| | A3. | Sediment forebays or pretreatment devices provided at inlets to pond. Generally 4 to 6 ft. deep. |
| | A4. | Access for maintenance and equipment is provided to the forebay(s). Access corridors are at least 12 ft. wide, have a maximum slope of 15 percent and are adequately stabilized to withstand heavy equipment or vehicle use. |
| | A5. | Adequate fixed vertical sediment depth markers installed in the forebay(s) for future sediment monitoring purposes. |
| | A6. | Pond liner (if required) provided. Either clay liners, polyliners, bentonite liners or use of chemical soil additives based on requirements of the approved plan. |
| | A7. | Minimum 6 percent slope safety bench extending a minimum of 15 feet outward from normal pool edge and/or an aquatic bench extending a minimum of 10 feet inward from the normal shoreline with a maximum depth of 12 inches below the normal pool elevation, if applicable, per the approved design plans. (Note: Safety benches may be waived if pond side slopes are no steeper than 4H:1V). |
| | A8. | No trees are present within a zone 15 feet around the embankment toe and 25 feet from the principal spillway structure. |
| | A9. | Wet permanent pool, typically 3 to 6 feet deep, is provided and maintains level within facility. |
| | A10. | Low flow orifice has a non-clogging mechanism. |
| | A11. | A pond drain pipe with valve was provided. |
| | A12. | Pond side slopes are not steeper than 3H:1V, unless approved plan allowed for steeper slope. |
| <u>P/A</u> | A13. | End walls above barrels (outlet pipe) greater than 48 inch in diameter are fenced to prevent a fall hazard. |

**STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING CHECKLIST**

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

IV. Group B - Wetlands (Includes B-1 Shallow Marsh; B-2 Ext Det Shallow Wetlands; B-3 Pond Wetland System and B-4 Pocket Wetland)

- | | | |
|------------|-----|--|
| <u>N/A</u> | B1. | Same requirements as Group A Wet Ponds. |
| — | B2. | Minimum 2:1 length to width flow path provided across the facility. |
| — | B3. | Micropool provided at or around outlet from BMP (generally 3 to 6 ft. deep). |
| — | B4. | Wetland type landscaping provided in accordance with approved plan. Includes correct pondscaping zones, plant species, planting arrangements, wetland beds, etc. Wetland plants include 5 to 7 emergent wetland species. Individual plants at 18 inches on center in clumps. |
| — | B5. | Adequate wetland buffer provided (Typically 25 ft. outward from maximum design water surface elevation and 15 ft. setback to structures). |
| — | B6. | No more than one-half (½) of the wetland surface area is planted. |
| — | B7. | Topsoil or wetland mulch provided to support vigorous growth of wetland plants. |
| <u>N/A</u> | B8. | Planting zones staked or flagged in field and locations subsequently established by appropriate field surveying methods for record drawing presentation. |

**STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING CHECKLIST**

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

V. Group C - Infiltration Practices (Includes C-1 Infiltration Trench; C-2 Infiltration Trench;
C-3 Infiltration Basin; and C-4 Infiltration Basin)

- | | | |
|------------|------|--|
| <u>N/A</u> | C1. | All requirements of Section II, Minimum Standards, apply to Group C facilities as applicable. |
| | C2. | Facility is not located on fill slopes or on natural ground in excess of six (6) percent. |
| | C3. | Pretreatment devices provided prior to entry into the infiltration facility. Acceptable pretreatment devices include sediment forebays, sediment basins, sediment traps, sump pits or inlets, grass channels, plunge pools or other acceptable measures. |
| | C4. | Three (3) or more of the following pretreatment devices provided to protect long term integrity of structure: grass channel; grass filter strip; bottom sand layer; upper filter fabric layer; use of washed bank run gravel aggregate. |
| | C5. | Sides of infiltration practice lined with filter fabric. |
| | C6. | Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction. |
| | C7. | Stabilization and acceptable vegetative cover established over contributing drainage area prior to conveyance of stormwater to the facility. |
| | C8. | Minimum one hundred (100) foot separation horizontally from any known water supply well and minimum one hundred (100) foot separation upslope from any building. |
| | C9. | Minimum twenty-five (25) foot separation down gradient from any structure. |
| | C10. | Stormwater outfalls provided for overflow associated with larger design storms. |
| | C11. | No visual signs of erosion or channel degradation immediately downstream of facility. |
| | C12. | Facility does not currently cause any apparent surface or subsurface water problems to downgrade properties. |
| | C13. | Observation well provided. |
| <u>N/A</u> | C14. | Adequate, direct access provided to the facility for future maintenance, operation and inspection. |

**STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING CHECKLIST**

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

VI. Group D - Filtering Systems (Includes D-1 Bioretention Cells; D-2 Surface Sand Filters; D-3 Underground Sand Filters; D-4 Perimeter Sand Filters; D-5 Organic Filters; and D-6 Pocket Sand Filters)

- N/A D1. All requirements of Section II, Minimum Standards, apply to Group D facilities.
- D2. Sediment pretreatment devices provided.
- D3. For D-1 BMPs (Bioretention Cells), pretreatment consisting of a grass filter strip below level spreader (deflector); a gravel diaphragm; and mulch and planting soil layers were provided.
- D4. For D-1 BMPs (Bioretention Cells), plantings consist of native plant species; vegetation provided was based on zones of hydric tolerances; trees and understory of shrubs and herbaceous materials were provided; woody vegetation is absent from inflow locations; and trees are located around facility perimeter.
- D5. Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction.
- D6. No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed .
- D7. Filtering system is off-line from storm drainage conveyance system.
- D8. Overflow outlet has adequate erosion protection.
- D9. Deflector, diversion, flow splitter or regulator structure provided to divert the water quality volume to the filtering structure.
- D10. Minimum four (4) inch perforated underdrain provided in a clean aggregate envelope layer beneath the facility.
- D11. Minimum fifty (50) foot separation from any slope fifteen (15) percent or greater. Minimum one hundred (100) foot separation horizontally from any known water supply well. Minimum one hundred (100) foot separation upslope and twenty-five (25) foot separation downslope from any building.
- D12. Stabilization and acceptable vegetative cover established over contributing drainage area prior to conveyance of stormwater to the facility.
- D13. No visual signs of erosion or channel degradation immediately downstream of facility.
- N/A D14. Adequate, direct access provided to the pretreatment area and/or filter bed for future maintenance.

**STORMWATER MANAGEMENT / BMP FACILITIES
AS-BUILT PLAN CHECKLIST**

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

VII. Group E - Open Channel Systems (Includes E-1 Wet Swales (Check Dams); E-2 Dry Swales; and E-3 Biofilters)

- N/A E1. All requirements of Section II, Minimum Standards, apply to Group E facilities as applicable.
- E2. Open channel system has constructed longitudinal slope of less than four (4) percent.
- E3. No visual signs of erosion in the open channel system's soil and/or vegetative cover.
- E4. Open channel side slopes are no steeper than 2H:1V at any location. Preferred channel sideslope is 3H:1V or flatter.
- E5. No visual signs of ponding are present at any location in the open channel system, except at rock check dam locations for E-1 systems (Wet Swales).
- E6. For E-2 BMPs (Dry Swales), an underdrain system was provided.
- E7. Treated timber or rock check dams provided as pretreatment devices for the open channel system.
- E8. Gravel diaphragm provided in areas where lateral sheet flow from impervious surfaces are directly connected to the open channel system.
- E9. Grass cover/stabilization in the open channel system appears adaptable to the specific soils and hydric conditions for the site and along the channel system.
- E10. Open channel system areas with grass covers higher than four (4) to six (6) inches were properly mowed.
- E11. Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction.
- E12. No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed and no adverse affects to the function of the facility are anticipated.
- E13. For E-3 BMPs (Biofilters), the bottom width is six (6) feet maximum at any location.
- E14. For E-3 BMPs (Biofilters), sideslopes are 3H:1V maximum at any location.
- E15. For E-3 BMPs (Biofilters), the constructed channel slope is less than or equal to three (3) percent at any location.
- N/A E16. For E-3 BMPs (Biofilters), the constructed grass channel is approximately equivalent to the constructed roadway length.

**STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING CHECKLIST**

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

VIII. Group F - Extended Dry Detention (Includes F-1 Timber Walls; and F-2 Dry Extended Detention with Forebay)

- INC F1. All requirements of Section II, Minimum Standards, apply to Group F facilities.
- XX F2. Basin bottom has positive slope and drainage from all basin inflow points to the riser (or outflow) location.
- N/A F3. Timber wall BMP used in intermittent stream only. (ie. Prohibited in perennial streams.)
- N/A F4. Forebay provided approximately 20 ft. upstream of the facility. Forebays generally 4 to 6 feet in depth.
- N/A F5. A reverse slope pipe, vertical stand pipe or mini-barrel and riser was provided to prevent clogging.
- INC F6. Principal spillway and outlet barrel provided consisting of reinforced concrete pipe with O-Ring gaskets for watertight joint construction.
- N/A F7. Mini-barrel and riser, if used, contains a removable trash rack to reduce clogging.
- N/A F8. Low flow orifice, if used, has a minimum diameter of three (3) inches or two (2) inches if internal orifice control was utilized and a small, cage type external trash rack.
- N/A F9. Timbers properly reinforced or concrete footing provided if soil conditions were prohibitive.
- N/A F10. Timber wall cross members extended to a minimum depth of two (2) feet below ground elevation.
- XX F11. Protection against erosion and scour from the low flow orifice and weir-flow trajectory provided.
- N/A F12. Stilling basin or standard outlet protection provided at principal spillway outlet.
- XX F13. Adequate, direct access provided to the facility. Access corridor to facility is at least ten (10) feet wide, slope is less than twenty (20) percent and appropriate stabilization provided for equipment and vehicle use. Access extends to forebay, standpipe and timber wall, as applicable.
- XX F14. No visual signs of undercutting of timber walls or clogging of the low orifice were present.
- XX F15. No visual signs of erosion or channel degradation immediately downstream of facility.
- XX F16. No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed and no adverse affects to the function of the facility are anticipated.

**STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING CHECKLIST**

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

IX. Group G - Open Spaces (Includes All Open Space Types G-1; G-2; and G-3)

- | | | |
|------------|-----|---|
| <u>N/A</u> | G1. | All requirements of Section II, Minimum Standards, apply to Group G facilities as applicable. |
| | G2. | Constructed impervious areas appear to conform with locations indicated on the approved plan and appear less than sixty (60) percent impervious in accordance with the requirements of the James City County Chesapeake Bay Preservation Ordinance. |
| | G3. | Dedicated open space areas are in undisturbed common areas, conservation easements or are protected by other enforceable instruments that ensures perpetual protection. |
| | G4. | Provisions included to clearly specify how the natural vegetated areas utilized as dedicated open space will be managed and field identified (marked). |
| | G5. | Adequate protection measures were implemented during construction to protect the defined dedicated open space areas. |
| <u>N/A</u> | G6. | Dedicated open space areas were not disturbed during construction (ie. cleared, grubbed or graded). |

**STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING CHECKLIST**

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

X. Storm Drainage Systems (Associated with BMP's Only)

(Includes all incidental stormwater drainage conveyance systems associated with SWM/BMP facilities such as onsite or offsite storm drains, open channels, inlets, manholes, junctions, outlet protections, deflectors, etc. These facilities are external to the treatment function of, but are directly associated with drainage to and/or from a constructed SWM/BMP facility. The intent of this portion of the certification is to accurately identify the type and quantity of inflow or outflow points associated with the facility for future reference. The Professional may use his/her own discretion to determine inclusive facilities to meet the intent of this section. As a general rule, storm drainage systems would include incidental facilities to the nearest access structure upslope or downslope from the normal physical limits of the facility or 800 feet of storm drainage conveyance system length, whichever is less.)

- N/A SD1. All requirements of Section II, Minimum Standards, apply to Storm Drainage Systems.
- _____ SD2. Horizontal location of all pipe and structures relative to the SWM/BMP facility.
- _____ SD3. Type, top elevation and invert elevation of all access type structures (inlets, manholes, etc.).
- _____ SD4. Material type, size or diameter, class, invert elevations, lengths and slopes for all pipe segments.
- N/A SD5. Class, length, width and depth of riprap and outlet protections or dimensions of special energy dissipation structures.

XII. Other Systems

(Includes any non-typical, specialty, manufactured or innovative stormwater management/BMP practices or systems generally accepted for use as or in conjunction with other acceptable stormwater management / BMP practices. Requires evidence of prior satisfactory industry use and prior Environmental Division approval, waiver or exception .)

- _____ O1. All requirements of Section II, Minimum Standards, apply to this section.
- _____ O2. Certification criteria to be determined on a case-by-case basis by the Environmental Division specific to the proposed SWM/BMP facility.

**STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING CHECKLIST**

XIII. References *(The James City County Record Drawing and Construction Certification Forms and Checklists for Stormwater Management / BMP facilities were developed using the following sources and references.)*

- Baltimore County, Maryland Soil Conservation District, As-Built Stormwater Management Pond Checklist.
- James City County, Virginia, Guidelines for Design and Construction of Stormwater Management BMP's (October 1999).
- James City County, Virginia, Stormwater Detention/Retention Basin Design Checklist and Erosion and Sediment Control and Stormwater Management Design Plan Checklists.
- James City County Stormwater Policy Framework, Final Report of the James City County BMP Policy Project, October 1998, The Center for Watershed Protection.
- Prince Georges County, Maryland, As-Built Requirements Retention or Detention Pond/Basin.
- Prince William County, Virginia, Stormwater Management Fact Sheet.
- Stafford County, Virginia, As-Built Plan Checklist.
- Stormwater Management Design Manual, NRCS Maryland Code No. 378, Pond Standards and Specifications.
- USEPA/Watershed Management Institute, Stormwater Management Inspection Forms.
- Virginia Impounding Structure Regulations (Dam Safety), Department of Conservation & Recreation, 1997.
- Virginia Erosion and Sediment Control Handbook, Third Edition 1992, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation.
- Virginia Stormwater Management Handbook, 1999 edition, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation.

File: Shared\SWMProg\BMP\Certif\RDCC.wpd

WYTHE HAMLET
PROJECT NARRATIVE

Project Description

The project consists of a 17 lot residential subdivision of the Governor's Land Project. Included with the construction of this project are the installation of approximately 1,210 feet of road, an extension to a water main, an extension to a gravity sewer system, the installation and construction of storm sewer and detention area, and installation of appropriate erosion and sediment control measures.

The site is located adjacent to the subdivision of Nathaniel's Green, on the north side of Two Rivers Road.

Approximately 3.2 acres of the site will be disturbed during construction.

Existing Site Conditions

The proposed site can be defined as relatively flat. The site is forested with mature hardwood trees. Runoff from the site naturally flows toward the golf course located to the north, and to lower area near Two Rivers Road located to the west.

Adjacent Property Description

To the north and east of the project is located the third fairway of the Two Rivers Golf Course. The fairway is well established, and is fairly well maintained. The fairway does incorporate several small BMP's and water quality drains to treat stormwater runoff. To the west, a small natural wooded area exists. Located to the south is existing Two Rivers Road.

Construction Sequence and Erosion Control Management

Initially, a construction entrance shall be installed.

Site shall be marked for clearing operations of right-of-ways and easements, including the waterline easement along the common property line of lots 16 and 17, and lots designated for surplus earth and grading operations.

Limits of clearing and tree protection measures shall be established prior to any tree removal. Grading operations shall not begin until clearing operations have been completed.

Lots 1, 2, and 3 are reserved for construction staging and topsoil stockpiling, as well as fill operations for surplus earth. And grading operations lots 8, 9, 12 and 13, will receive excess material from road construction. All the grading operations are designed to enhance stormwater run-off.

Erosion control measures, such as silt fence and check dams, shall be installed prior to any earth moving operations. The detention area shall be constructed early in the construction, since during construction, the detention area shall serve as a sediment basin. Topsoil shall be placed at the reserved area, and silt fence shall surround the topsoil stockpile. All erosion and sediment control measures shall be inspected and repaired regularly by the contractor. Accumulated sediment shall be removed regularly and properly disposed of.

Upon completion of the rough grading activities of the site, storm sewer pipe, and inlets shall be installed, with inlet protection and culvert inlet protection erosion control devices.

Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded. Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.

Upon complete stabilization of the site with permanent ground covers, all erosion control measures shall be removed and sediment shall be properly disposed.

Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded. Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.

Upon complete stabilization of the site with permanent ground covers, all erosion control measures shall be removed and sediment shall be properly disposed.

Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded. Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.

Upon complete stabilization of the site with permanent ground covers, all erosion control measures shall be removed and sediment shall be properly disposed.

Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded. Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.

Upon complete stabilization of the site with permanent ground covers, all erosion control measures shall be removed and sediment shall be properly disposed.

Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded. Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.

Upon complete stabilization of the site with permanent ground covers, all erosion control measures shall be removed and sediment shall be properly disposed.

Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded. Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.

Upon complete stabilization of the site with permanent ground covers, all erosion control measures shall be removed and sediment shall be properly disposed.

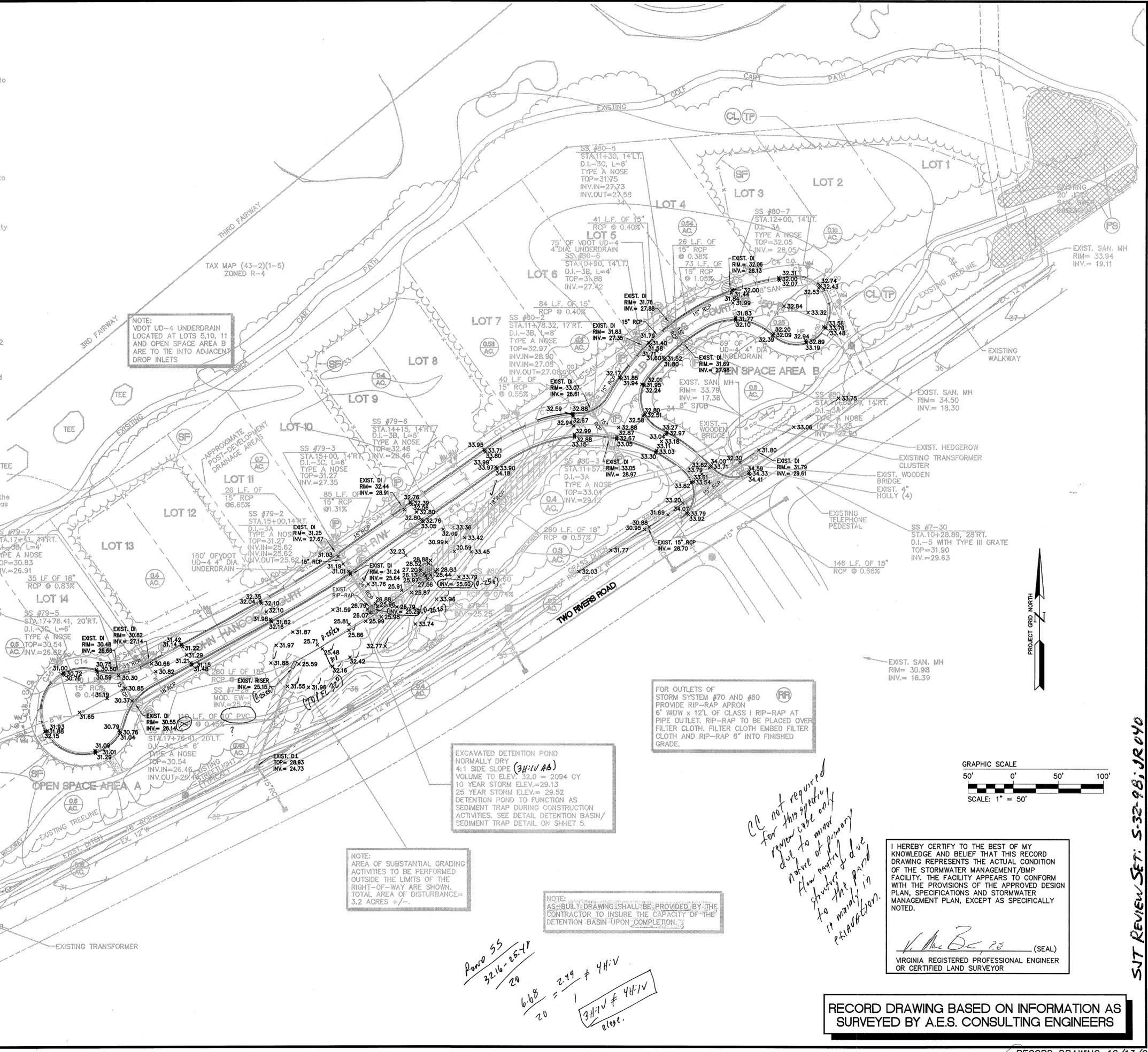
Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded. Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.

Upon complete stabilization of the site with permanent ground covers, all erosion control measures shall be removed and sediment shall be properly disposed.

Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded. Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.



NOTE:
VDOT UD-4 UNDERDRAIN
LOCATED AT LOTS 5, 10, 11
AND OPEN SPACE AREA B
ARE TO BE INTO ADJACENT
DROP INLETS

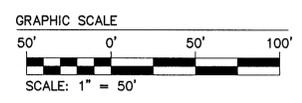
FOR OUTLETS OF
STORM SYSTEM #70 AND #80
PROVIDE RIP-RAP APRON
6' WIDW x 12'L OF CLASS I RIP-RAP AT
PIPE OUTLET. RIP-RAP TO BE PLACED OVER
FILTER CLOTH. FILTER CLOTH EMBED FILTER
CLOTH AND RIP-RAP 6" INTO FINISHED
GRADE.

EXCAVATED DETENTION POND
NORMALLY DRY
4:1 SIDE SLOPE (3H:1V AS)
VOLUME TO ELEV. 32.0 = 2094 CY
10 YEAR STORM ELEV. = 29.13
25 YEAR STORM ELEV. = 29.52
DETENTION POND TO FUNCTION AS
SEDIMENT TRAP DURING CONSTRUCTION
ACTIVITIES. SEE DETAIL DETENTION BASIN/
SEDIMENT TRAP DETAIL ON SHEET 5.

NOTE:
AREA OF SUBSTANTIAL GRADING
ACTIVITIES TO BE PERFORMED
OUTSIDE THE LIMITS OF THE
RIGHT-OF-WAY ARE SHOWN.
TOTAL AREA OF DISTURBANCE=
3.2 ACRES +/-

NOTE:
AS-BUILT DRAWING SHALL BE PROVIDED BY THE
CONTRACTOR TO INSURE THE CAPACITY OF THE
DETENTION BASIN UPON COMPLETION.

*CC not required
for this specific
review case only
due to minor
flow control
structure & due
to the pond
is mainly in
private.*



I HEREBY CERTIFY TO THE BEST OF MY
KNOWLEDGE AND BELIEF THAT THIS RECORD
DRAWING REPRESENTS THE ACTUAL CONDITION
OF THE STORMWATER MANAGEMENT BMP
FACILITY. THE FACILITY APPEARS TO CONFORM
WITH THE PROVISIONS OF THE APPROVED DESIGN
PLAN, SPECIFICATIONS AND STORMWATER
MANAGEMENT PLAN, EXCEPT AS SPECIFICALLY
NOTED.

V. A. Beck, P.E. (SEAL)
VIRGINIA REGISTERED PROFESSIONAL ENGINEER
OR CERTIFIED LAND SURVEYOR

RECORD DRAWING BASED ON INFORMATION AS
SURVEYED BY A.E.S. CONSULTING ENGINEERS

No.	DATE	REVISION / COMMENT / NOTE	BY
3	12/13/01	RECORD DRAWINGS	VMB
1	8/98	REVISIONS AS PER VDOT REVIEW	VMB
1	6/98	REVISIONS AS PER JAMES CITY CO. REVIEW	VMB

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



SJT REVIEW SET: S-32-98; JROYO

GRADING, DRAINAGE, AND EROSION
WYTHE HAMLET
THE
GOVERNOR'S LAND
at Trac Rivers

JAMES CITY COUNTY
POWhatan DISTRICT

Designed: VMB/RDS
Scale: 1"=50'
Project No: 7173-3-2B
Drawing No: 4

Drawn: VMB
Date: APRIL, 1998

**WYTHE HAMLET
PROJECT NARRATIVE**

Project Description

The project consists of a 17 lot residential subdivision of the Governor's Land Project. Included with the construction of this project are the installation of approximately 1,210 feet of road, an extension to a water main, an extension to a gravity sewer system, the installation and construction of storm sewer and detention area, and installation of appropriate erosion and sediment control measures.

The site is located adjacent to the subdivision of Nathaniel's Green, on the north side of Two Rivers Road.

Approximately 3.2 acres of the site will be disturbed during construction.

Existing Site Conditions

The proposed site can be defined as relatively flat. The site is forested with mature hardwood trees. Runoff from the site naturally flows toward the golf course located to the north, and to lower area near Two Rivers Road located to the west.

Adjacent Property Description

To the north and east of the project is located the third fairway of the Two Rivers Golf Course. The fairway is well established, and is fairly well maintained. The fairway does incorporate several small BMP's and water quality drains to treat stormwater runoff. To the west, a small natural wooded area exists. Located to the south is existing Two Rivers Road.

Construction Sequence and Erosion Control Management

Initially, a construction entrance shall be installed.

Site shall be marked for clearing operations of right-of-ways and easements, including the waterline easement along the common property line of lots 16 and 17, and lots designated for surplus earth and grading operations.

Limits of clearing and tree protection measures shall be established prior to any tree removal. Grading operations shall not begin until clearing operations have been completed.

Lots 1, 2, and 3 are reserved for construction staging and topsoil stockpiling, as well as fill operations for surplus earth. And grading operations lots 8, 9, 12 and 13, will receive excess material from road construction. All the grading operations are designed to enhance stormwater run-off.

Erosion control measures, such as silt fence and check dams, shall be installed prior to any earth moving operations. The detention area shall be constructed early in the construction, since during construction, the detention area shall serve as a sediment basin. Topsoil shall be placed at the reserved area, and silt fence shall surround the topsoil stockpile. All erosion and sediment control measures shall be inspected and repaired regularly by the contractor. Accumulated sediment shall be removed regularly and properly disposed of.

Upon completion of the rough grading activities of the site, storm sewer pipe, and inlets shall be installed, with inlet protection and culvert inlet protection erosion control devices.

Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded.

Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.

Upon complete stabilization of the site with permanent ground covers, all erosion control measures shall be removed and sediment shall be properly disposed.

Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded.

Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.

Upon complete stabilization of the site with permanent ground covers, all erosion control measures shall be removed and sediment shall be properly disposed.

Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded.

Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.

Upon complete stabilization of the site with permanent ground covers, all erosion control measures shall be removed and sediment shall be properly disposed.

Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded.

Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.

Upon complete stabilization of the site with permanent ground covers, all erosion control measures shall be removed and sediment shall be properly disposed.

Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded.

Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.

Upon complete stabilization of the site with permanent ground covers, all erosion control measures shall be removed and sediment shall be properly disposed.

Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded.

Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.

Upon complete stabilization of the site with permanent ground covers, all erosion control measures shall be removed and sediment shall be properly disposed.

Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded.

Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.

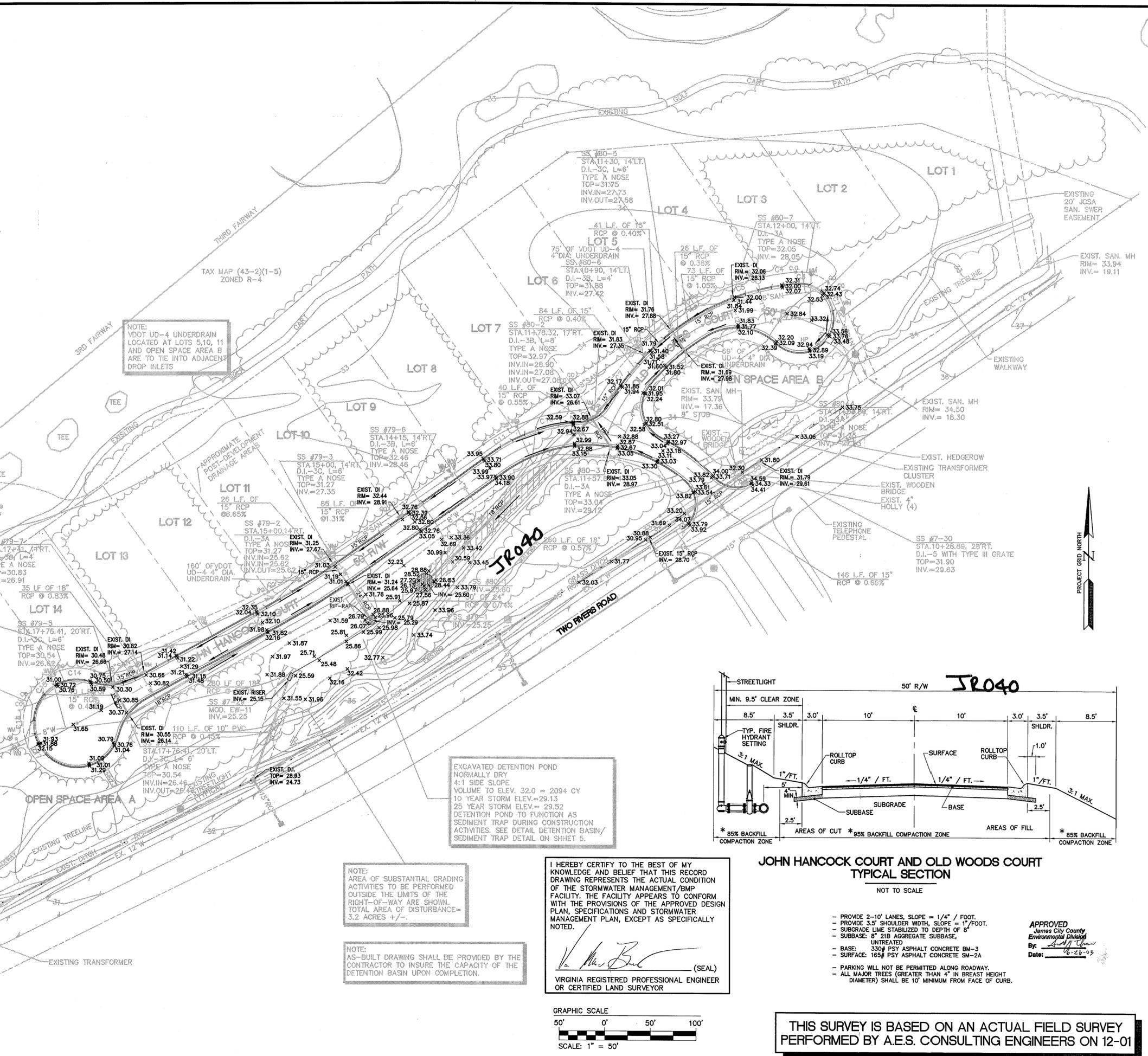
Upon complete stabilization of the site with permanent ground covers, all erosion control measures shall be removed and sediment shall be properly disposed.

Final grading of the roadway section shall commence with the completion of the storm sewer installation. Installation of water main and sanitary sewer main and sanitary sewer construction, including lateral and service connections, will occur simultaneously.

Final shaping and roadway formation and grading of shoulders will occur upon the completion of utility installation. The topsoil shall be spread on all denuded areas and seeded.

Seeded areas will be checked regularly to ensure a good stand is maintained. Areas may require fertilization and re-seed to provide a good ground cover.

Upon complete stabilization of the site with permanent ground covers, all erosion control measures shall be removed and sediment shall be properly disposed.



NOTE:
VDOT UD-4 UNDERDRAIN
LOCATED AT LOTS 5, 10, 11
AND OPEN SPACE AREA B
ARE TO TIE INTO ADJACENT
DROP INLETS

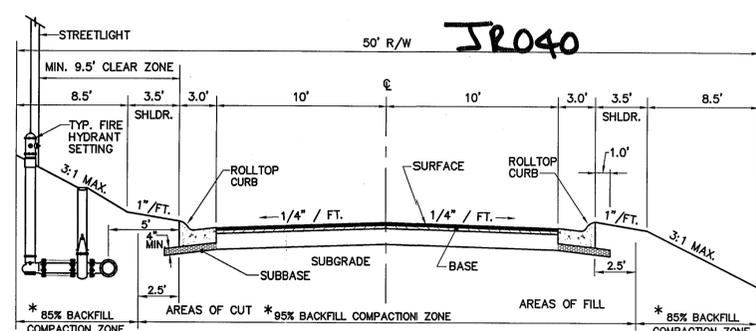
EXCAVATED DETENTION POND
NORMALLY DRY
4:1 SIDE SLOPE
VOLUME TO ELEV. 32.0 = 2094 CY
10 YEAR STORM ELEV.=29.13
25 YEAR STORM ELEV.= 29.52
DETENTION POND TO FUNCTION AS
SEDIMENT TRAP DURING CONSTRUCTION
ACTIVITIES. SEE DETAIL DETENTION BASIN/
SEDIMENT TRAP DETAIL ON SHEET 5.

NOTE:
AREA OF SUBSTANTIAL GRADING
ACTIVITIES TO BE PERFORMED
OUTSIDE THE LIMITS OF THE
RIGHT-OF-WAY ARE SHOWN.
TOTAL AREA OF DISTURBANCE=
3.2 ACRES +/-

NOTE:
AS-BUILT DRAWING SHALL BE PROVIDED BY THE
CONTRACTOR TO INSURE THE CAPACITY OF THE
DETENTION BASIN UPON COMPLETION.

I HEREBY CERTIFY TO THE BEST OF MY
KNOWLEDGE AND BELIEF THAT THIS RECORD
DRAWING REPRESENTS THE ACTUAL CONDITION
OF THE STORMWATER MANAGEMENT/BMP
FACILITY. THE FACILITY APPEARS TO CONFORM
WITH THE PROVISIONS OF THE APPROVED DESIGN
PLAN, SPECIFICATIONS AND STORMWATER
MANAGEMENT PLAN, EXCEPT AS SPECIFICALLY
NOTED.

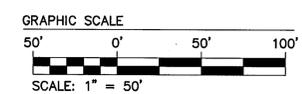
V. M. B... (SEAL)
VIRGINIA REGISTERED PROFESSIONAL ENGINEER
OR CERTIFIED LAND SURVEYOR



**JOHN HANCOCK COURT AND OLD WOODS COURT
TYPICAL SECTION**
NOT TO SCALE

- PROVIDE 2-10' LANES, SLOPE = 1/4" / FOOT.
- PROVIDE 3.5' SHOULDER WIDTH, SLOPE = 1" / FOOT.
- SUBGRADE LINE STABILIZED TO DEPTH OF 8"
- SUBBASE: 8" 21B AGGREGATE SUBBASE.
- BASE: UNTREATED
- SURFACE: 33# PSY ASPHALT CONCRETE BM-3
- SURFACE: 165# PSY ASPHALT CONCRETE SM-2A
- PARKING WILL NOT BE PERMITTED ALONG ROADWAY.
- ALL MAJOR TREES (GREATER THAN 4" IN GREATEST HEIGHT DIAMETER) SHALL BE 10' MINIMUM FROM FACE OF CURB.

APPROVED
James City County
Environmental Division
By: *[Signature]*
Date: 06-26-09



**THIS SURVEY IS BASED ON AN ACTUAL FIELD SURVEY
PERFORMED BY A.E.S. CONSULTING ENGINEERS ON 12-01**

No.	DATE	REVISION / COMMENT / NOTE
1	12/13/09	RECORD DRAWINGS
2	1/8/09	REVISIONS AS PER VDOT REVIEW
3	1/6/09	REVISIONS AS PER JAMES CITY CO. REVIEW

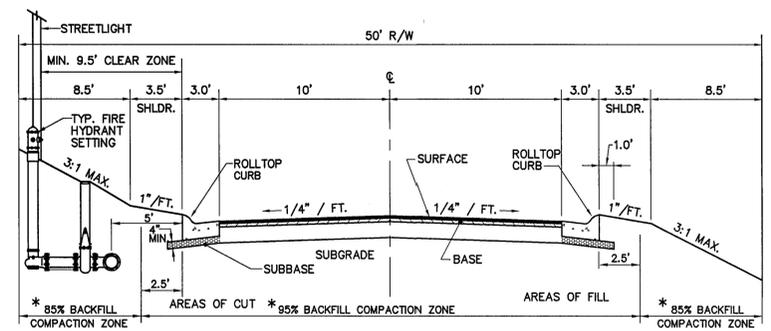
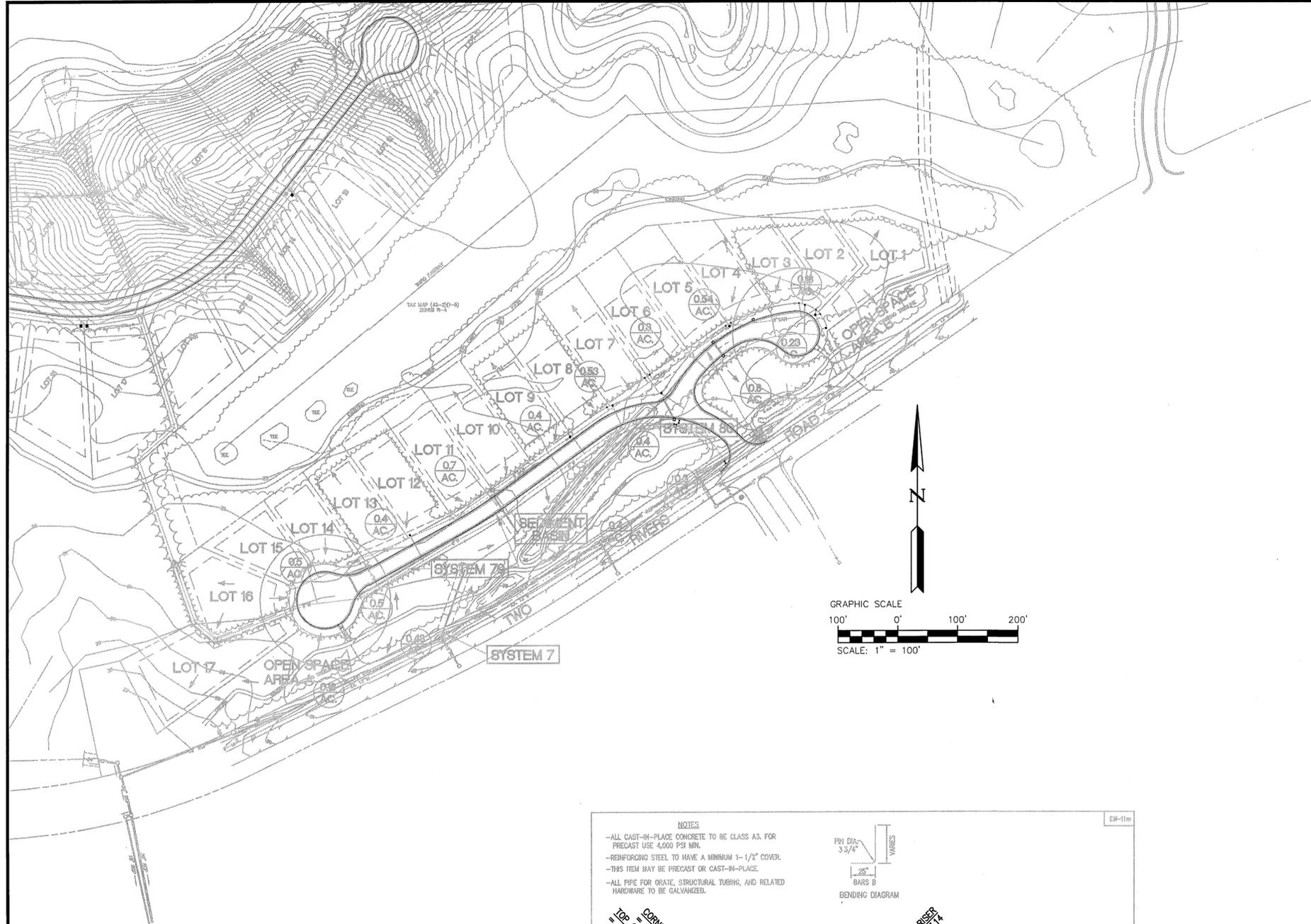
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994

A.E.S. CONSULTING ENGINEERS

GRADING, DRAINAGE AND EROSION
WYTHE HAMLET
THE
GOVERNOR'S LAND
at Two Rivers

DESIGNED: VMB/RDS
DRAWN: VMB
SCALE: 1"=50'
DATE: APRIL, 1998
PROJECT NO.: 7173-3-2B
DRAWING NO.: 4

APPROVED
James City County
Environmental Division
By: *[Signature]*
Date: 06-26-09



**JOHN HANCOCK COURT AND OLD WOODS COURT
TYPICAL SECTION**
NOT TO SCALE

- PROVIDE 2-10' LANES, SLOPE = 1/4" / FOOT.
- PROVIDE 3.5' SHOULDER WIDTH, SLOPE = 1" / FOOT.
- SUBGRADE LIME STABILIZED TO DEPTH OF 8"
- SUBBASE: 8" 21B AGGREGATE SUBBASE, UNTREATED
- BASE: 330# PSY ASPHALT CONCRETE BM-3
- SURFACE: 165# PSY ASPHALT CONCRETE SM-2A
- PARKING WILL NOT BE PERMITTED ALONG ROADWAY.
- ALL MAJOR TREES (GREATER THAN 4" IN GREATEST HEIGHT DIAMETER) SHALL BE 10' MINIMUM FROM FACE OF CURB.

ACTUAL SUB-BASE MAY CHANGE BASE UPON FIELD TEST OF SUBGRADES.

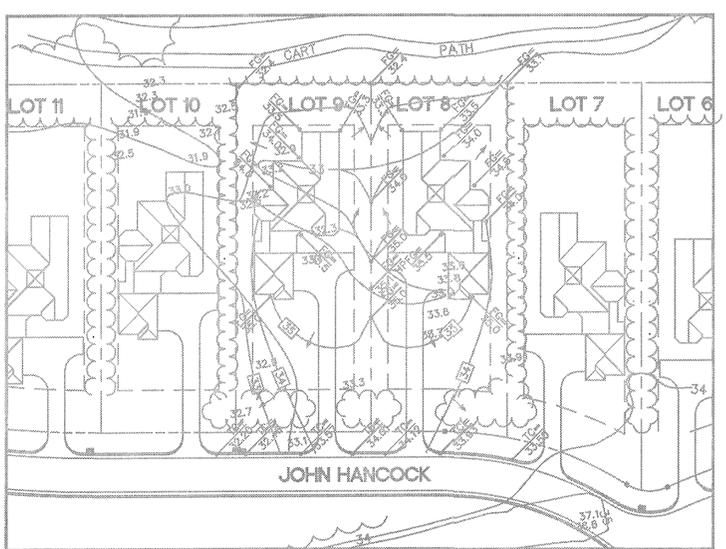
THE MINIMUM COMPACTION OF BACKFILL MATERIAL PLACE IN UTILITY AND PIPELINE TRENCHES UNDER THE ROADWAY SHALL BE 95% OF THE MEAN DENSITY OBTAINED IN THE APPROVED CONTROL STRIP. ROADWAY IS DEFINED AS THE WIDTH OF THE ROADWAY, MEASURED FROM BACK OF CURB TO BACK OF CURB, AND AN ADDITIONAL 2-1/2' BEHIND THE BACK OF CURB. (SEE SECTION 304 OF VDOT ROAD & BRIDGE SPECIFICATION, JAN., 1994.)

BACKFILL MATERIAL PLACE IN UTILITY AND PIPELINE TRENCHES NOT LOCATED UNDER THE ROADWAY, BUT ARE LOCATED WITHIN RIGHTS-OF-WAY OR EASEMENTS TO BE OWNED BY VDOT SHALL HAVE APPROXIMATE MINIMUM COMPACTION OF AT LEAST 85% OF THE THEORETICAL MAXIMUM DENSITY. (SEE SECTION 520.03 (b) OF VDOT ROAD & BRIDGE SPECIFICATIONS, JAN., 1994.)

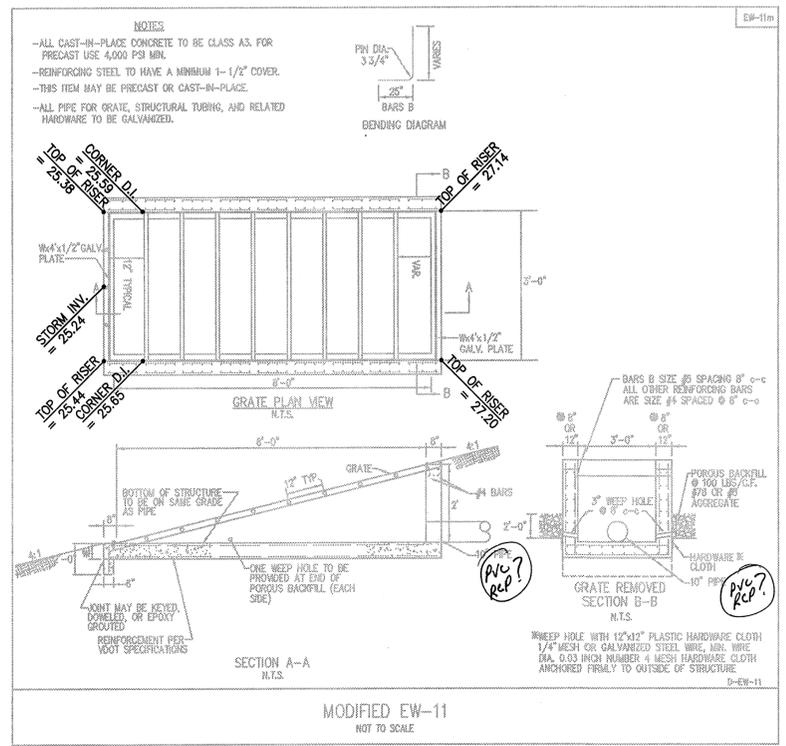
STONE SUB-BASE MUST HAVE A 4" MINIMUM DEPTH AND EXTEND 12" BEYOND THE BACK OF CURB. THE STONE SUB-BASE UNDER THE CURB AND GUTTER SHALL BE INSPECTED BY VDOT PRIOR TO COMMENCING PAVING OR BACKFILLING OF THE CURB AND GUTTER.

SUB-BASE TO BE LIME STABILIZED AT A RATE OF 2% BY WEIGHT (MINIMUM) TO A DEPTH OF 8".

NOTE:
THE PAVEMENT STRUCTURE DESIGNS SHOWN ARE BASED UPON ASSUME SSV VALUES EQUAL TO 1.5. THE PAVEMENT DESIGN SHALL BE APPROVED BY VDOT, AND CBR REPORTS WILL BE SUPPLIED TO VDOT.



TYPICAL LOT GRADING PLAN
SCALE: 1" = 50'



MODIFIED EW-11
NOT TO SCALE

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THIS RECORD DRAWING REPRESENTS THE ACTUAL CONDITION OF THE STORMWATER MANAGEMENT/BMP FACILITY. THE FACILITY APPEARS TO CONFORM WITH THE PROVISIONS OF THE APPROVED DESIGN PLAN, SPECIFICATIONS AND STORMWATER MANAGEMENT PLAN, EXCEPT AS SPECIFICALLY NOTED.

V. Mue Deo, P.E. (SEAL)
VIRGINIA REGISTERED PROFESSIONAL ENGINEER
OR CERTIFIED LAND SURVEYOR

RECORD DRAWING BASED ON INFORMATION AS SURVEYED BY A.E.S. CONSULTING ENGINEERS

No.	DATE	REVISION / COMMENT / NOTE	BY
1	6/95	REVISIONS AS PER JAMES CITY CO. REVIEW	VMB
2	12/13/01	RECORD DRAWINGS	VMB

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



OVERALL DRAINAGE AND DETAILS
WYTHE HAMLET
THE
GOVERNOR'S LAND
M. Trac Rivers
JAMES CITY COUNTY
POWhatan DISTRICT
VERGINIA

Designed VMB/RDS	Drawn VMB
Scale 1"=50'	Date APRIL, 1998
Project No. 7173-3-2B	
Drawing No. 5	

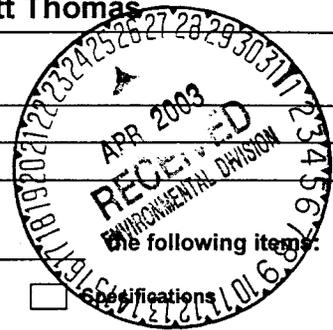
AES CONSULTING ENGINEERS

Engineering, Surveying and Planning
 5248 Olde Towne Road, Suite 1
 Williamsburg, Virginia 23188
 Phone: (757) 253-0040
 Fax: (757) 220-8994

LETTER OF TRANSMITTAL

DATE: 23-Apr-03	JOB NO. 7173-09
ATTENTION: Scott Thomas	
RE : Governor's Land	

TO : James City County
 Environmental Division
 101 Mounts Bay Road
 Williamsburg, VA 23187



WE ARE SENDING YOU: Attached Under separate cover via _____

Shop drawings Prints Plans Samples Specifications
 Copy of letter Change order Other Construction Certification

COPIES	DATE	NO.	DESCRIPTION
1	4-23-03		As-Built drawing (Mylar) - Wingfield Lake JR017
1	4-23-03		As-Built drawing (Black line) - Wingfield Lake JR017
1	4-23-03		Memo responding to letter from County - Wingfield Lake JR017
1	4-23-03		As-Built drawing (Mylar) - Cypress Isle JR041
1	4-23-03		As-Built drawing (Black line) - Cypress Isle JR041
1	4-23-03		Memo responding to letter from County - Cypress Isle JR041
1	4-23-03		Routing computations using As-Built information JR041
1	4-23-03		As-Built drawing (Mylar) - Barrett's Point Pond JR042
1	4-23-03		As-Built drawing (Black line) - Barrett's Point Pond JR042
1	4-23-03		Memo responding to letter from County - Barrett's Point Pond JR042
1	4-23-03		As-Built drawing (Mylar) - Wythe-Hamlet Dry Pond JR040
1	4-23-03		As-Built drawing (Black line) - Wythe-Hamlet Dry Pond JR040
1	4-23-03		Memo responding to letter from County - Wythe-Hamlet Dry Pond JR040
1	4-23-03		As-Built drawing (Mylar) - Travis Pond Dry Pond #2
1	4-23-03		As-Built drawing (Black line) - Travis Pond Dry Pond #2
1	4-23-03		Memo responding to letter from County - Travis Pond Dry Pond #2
1	4-23-03		As-Built drawing (Mylar) - Two Rivers Point Timber Structure JR036
1	4-23-03		As-Built drawing (Black line) - Two Rivers Point Timber Structure JR036
1	4-23-03		Memo responding to letter from County - Two Rivers Point Timber JR036
1	4-23-03		As-Built drawing (Mylar) - Wingfield Lake Timber Structure JR031
1	4-23-03		As-Built drawing (Black line) - Wingfield Lake Timber Structure JR031
1	4-23-03		Memo responding to letter from County - Wingfield Lake Timber JR031

THESE ARE TRANSMITTED as checked below:

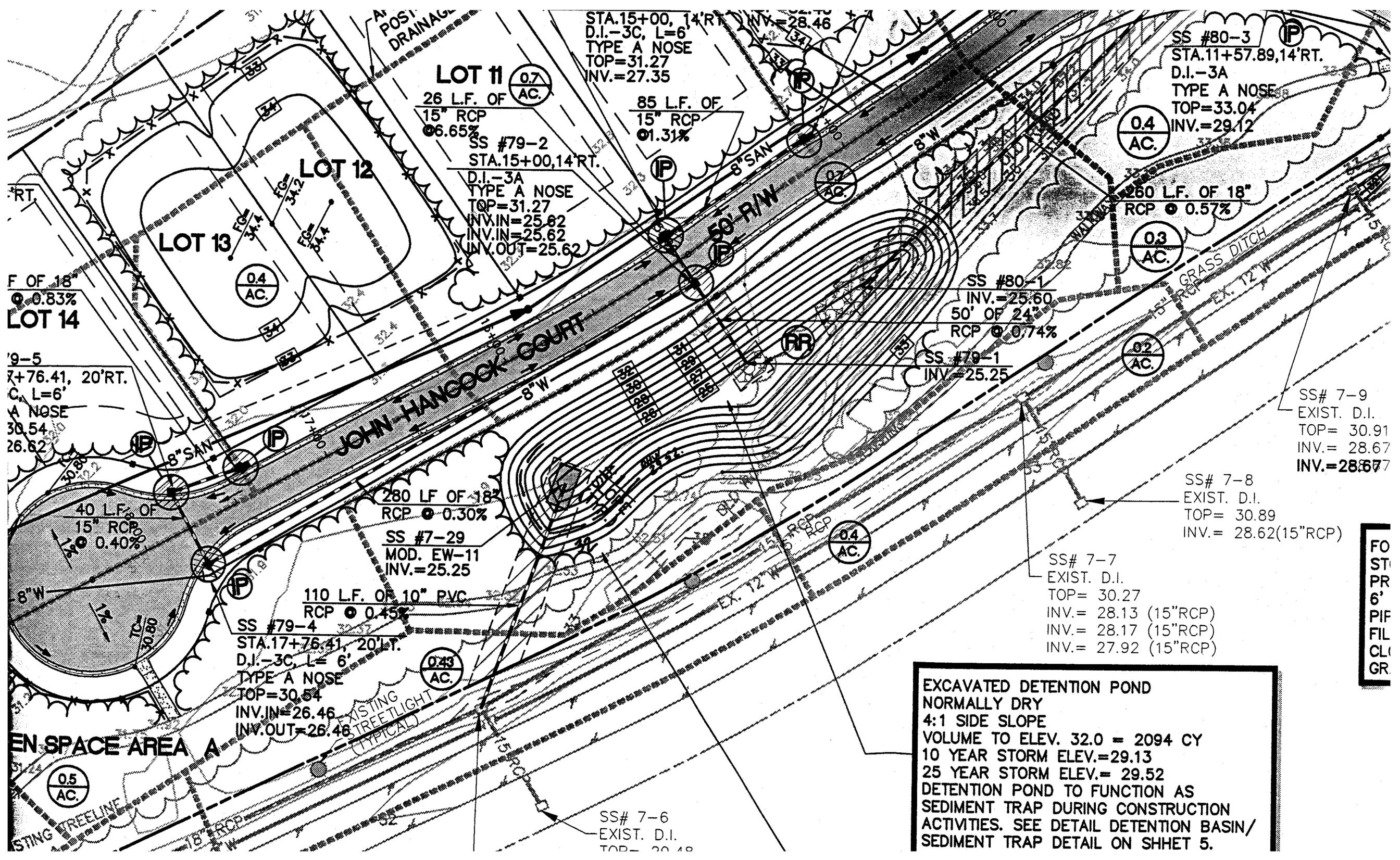
For Approval Approved as submitted Resubmit _____ copies for approval
 For your use Approved as noted Submit _____ copies for distribution
 As requested Returned for corrections Return _____ Corrected prints
 For review and comment For Signature _____
 FOR BIDS DUE _____ PRINTS RETURNED AFTER LOAN TO US

REMARKS:

If you have any questions please contact me. Thank you.

COPIES TO: file

SIGNED: Victoria Bains
 Victoria Bains



STA.15+00, 14'RT.
 D.I.-3C, L=6'
 TYPE A NOSE
 TOP=31.27
 INV.=27.35

SS #80-3
 STA.11+57.89, 14'RT.
 D.I.-3A
 TYPE A NOSE
 TOP=33.04
 INV.=29.12

LOT 11 (0.7 AC.)
 26 L.F. OF
 15" RCP
 @ 6.65%

85 L.F. OF
 15" RCP
 @ 1.31%

SS #79-2
 STA.15+00, 14'RT.
 D.I.-3A
 TYPE A NOSE
 TOP=31.27
 INV.IN=25.62
 INV.OUT=25.62

260 L.F. OF 18"
 RCP @ 0.57%

F OF 18"
 @ 0.83%
LOT 14

9-5
 STA.7+76.41, 20'RT.
 C, L=6'
 TYPE A NOSE
 TOP=30.54
 INV.=26.62

SS #80-1
 INV.=25.60
 50' OF 24"
 RCP @ 0.74%

SS #79-1
 INV.=25.25

SS# 7-9
 EXIST. D.I.
 TOP= 30.91
 INV.= 28.67

SS# 7-8
 EXIST. D.I.
 TOP= 30.89
 INV.= 28.62(15"RCP)

SS# 7-7
 EXIST. D.I.
 TOP= 30.27
 INV.= 28.13 (15"RCP)
 INV.= 28.17 (15"RCP)
 INV.= 27.92 (15"RCP)

280 LF OF 18"
 RCP @ 0.30%

SS #7-29
 MOD. EW-11
 INV.=25.25

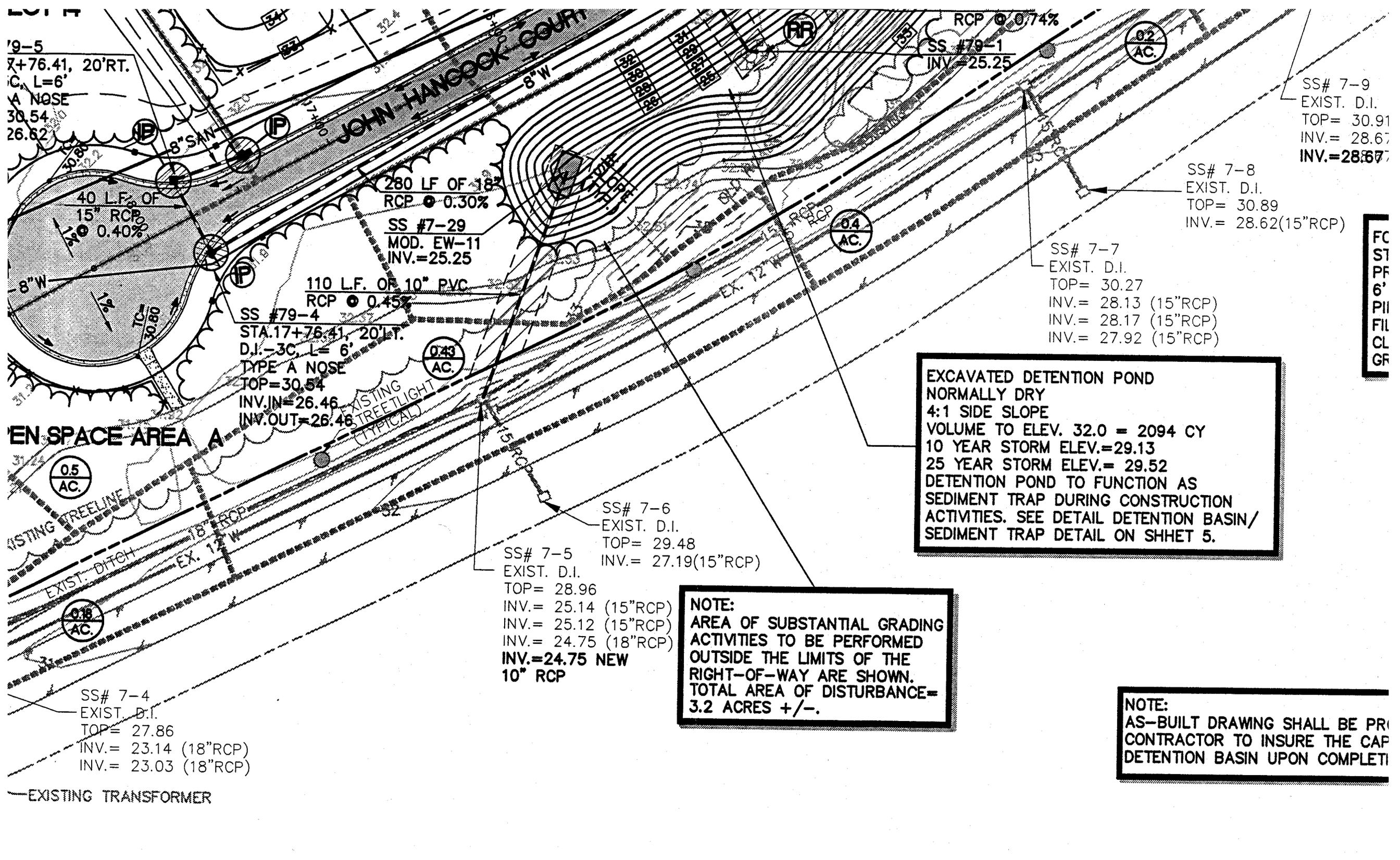
110 L.F. OF 10" PVC
 RCP @ 0.45%

SS #79-4
 STA.17+76.41, 20'RT.
 D.I.-3C, L= 6'
 TYPE A NOSE
 TOP=30.54
 INV.IN=26.46
 INV.OUT=26.46

EXCAVATED DETENTION POND
 NORMALLY DRY
 4:1 SIDE SLOPE
 VOLUME TO ELEV. 32.0 = 2094 CY
 10 YEAR STORM ELEV.=29.13
 25 YEAR STORM ELEV.= 29.52
 DETENTION POND TO FUNCTION AS
 SEDIMENT TRAP DURING CONSTRUCTION
 ACTIVITIES. SEE DETAIL DETENTION BASIN/
 SEDIMENT TRAP DETAIL ON SHHET 5.

FO
 ST
 PR
 6'
 PIF
 FIL
 CL
 GR

SS# 7-6
 EXIST. D.I.
 TOP= 30.48



19-5
 X+76.41, 20'RT.
 C, L=6'
 A NOSE
 30.54
 26.62

280 LF OF 18" RCP @ 0.30%
 SS #7-29
 MOD. EW-11
 INV.=25.25

110 LF. OF 10" PVC RCP @ 0.45%
 SS #79-4
 STA.17+76.41, 20'LT.
 D.I.-3C, L= 6'
 TYPE A NOSE
 TOP=30.54
 INV.IN=26.46
 INV.OUT=26.46

RCP @ 0.74%
 SS #79-1
 INV.=25.25

SS# 7-9
 EXIST. D.I.
 TOP= 30.91
 INV.= 28.67
 INV.=28.67

SS# 7-8
 EXIST. D.I.
 TOP= 30.89
 INV.= 28.62(15"RCP)

SS# 7-7
 EXIST. D.I.
 TOP= 30.27
 INV.= 28.13 (15"RCP)
 INV.= 28.17 (15"RCP)
 INV.= 27.92 (15"RCP)

**EXCAVATED DETENTION POND
 NORMALLY DRY
 4:1 SIDE SLOPE
 VOLUME TO ELEV. 32.0 = 2094 CY
 10 YEAR STORM ELEV.=29.13
 25 YEAR STORM ELEV.= 29.52
 DETENTION POND TO FUNCTION AS
 SEDIMENT TRAP DURING CONSTRUCTION
 ACTIVITIES. SEE DETAIL DETENTION BASIN/
 SEDIMENT TRAP DETAIL ON SHHET 5.**

**NOTE:
 AREA OF SUBSTANTIAL GRADING
 ACTIVITIES TO BE PERFORMED
 OUTSIDE THE LIMITS OF THE
 RIGHT-OF-WAY ARE SHOWN.
 TOTAL AREA OF DISTURBANCE=
 3.2 ACRES +/-.**

**NOTE:
 AS-BUILT DRAWING SHALL BE PROVIDED BY
 CONTRACTOR TO INSURE THE CAPACITY OF THE
 DETENTION BASIN UPON COMPLETION.**

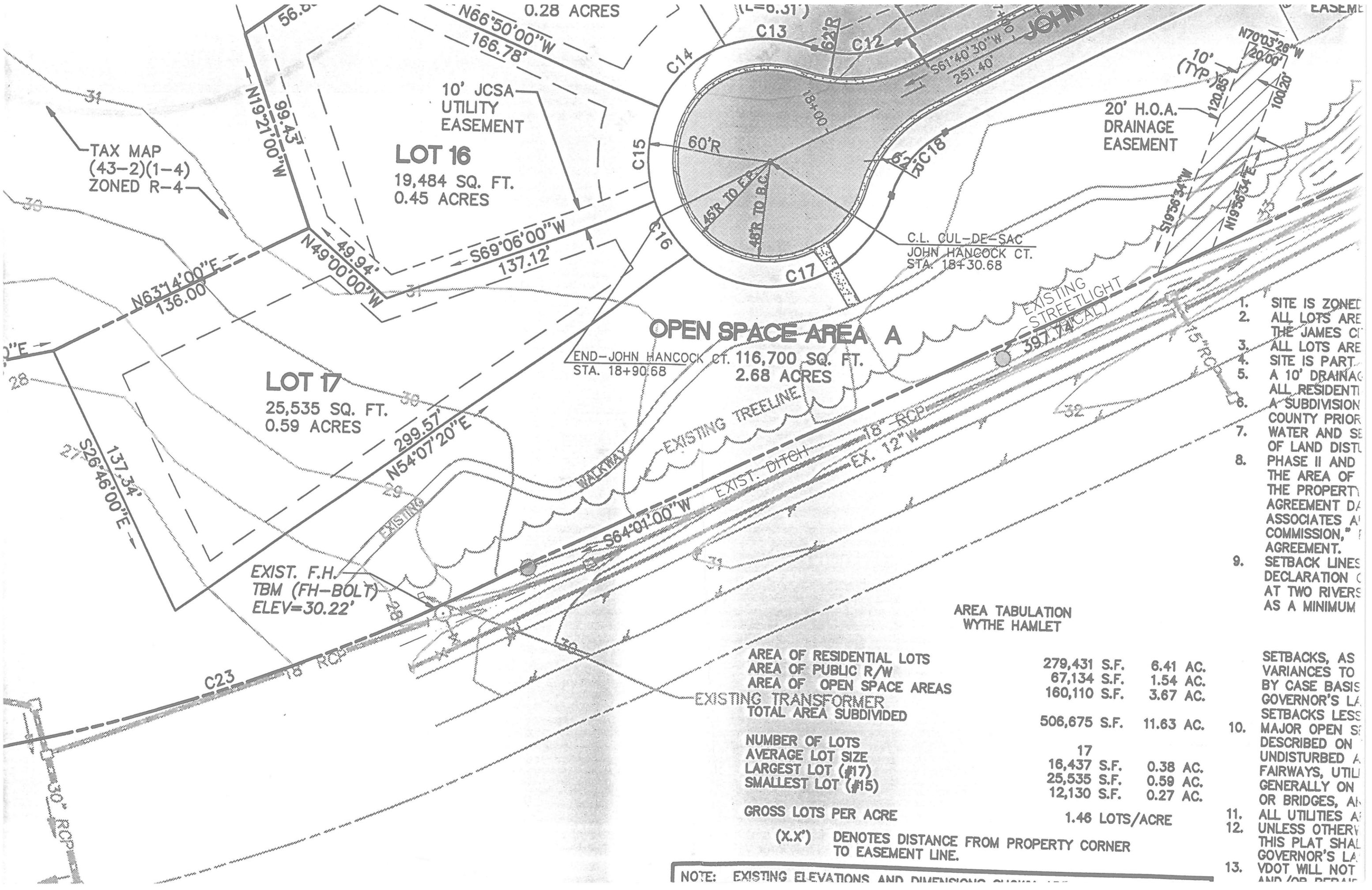
SS# 7-6
 EXIST. D.I.
 TOP= 29.48
 INV.= 27.19(15"RCP)

SS# 7-5
 EXIST. D.I.
 TOP= 28.96
 INV.= 25.14 (15"RCP)
 INV.= 25.12 (15"RCP)
 INV.= 24.75 (18"RCP)
 INV.=24.75 NEW
 10" RCP

SS# 7-4
 EXIST. D.I.
 TOP= 27.86
 INV.= 23.14 (18"RCP)
 INV.= 23.03 (18"RCP)

EXISTING TRANSFORMER

FC
 ST
 PR
 6'
 PII
 FIL
 CL
 GR



TAX MAP
(43-2)(1-4)
ZONED R-4

LOT 16
19,484 SQ. FT.
0.45 ACRES

LOT 17
25,535 SQ. FT.
0.59 ACRES

OPEN SPACE AREA A
END-JOHN HANCOCK CT. 116,700 SQ. FT.
STA. 18+90.68
2.68 ACRES

EXIST. F.H.
TBM (FH-BOLT)
ELEV=30.22'

C.L. CUL-DE-SAC
JOHN HANCOCK CT.
STA. 18+30.68

**AREA TABULATION
WYTHE HAMLET**

AREA OF RESIDENTIAL LOTS	279,431 S.F.	6.41 AC.
AREA OF PUBLIC R/W	67,134 S.F.	1.54 AC.
AREA OF OPEN SPACE AREAS	160,110 S.F.	3.67 AC.
TOTAL AREA SUBDIVIDED	506,675 S.F.	11.63 AC.
NUMBER OF LOTS	17	
AVERAGE LOT SIZE	16,437 S.F.	0.38 AC.
LARGEST LOT (#17)	25,535 S.F.	0.59 AC.
SMALLEST LOT (#15)	12,130 S.F.	0.27 AC.
GROSS LOTS PER ACRE	1.46 LOTS/ACRE	

(X.X') DENOTES DISTANCE FROM PROPERTY CORNER
TO EASEMENT LINE.

1. SITE IS ZONED
2. ALL LOTS ARE
3. THE JAMES CI
4. ALL LOTS ARE
5. SITE IS PART
6. A 10' DRAINAG
7. ALL RESIDENTI
8. A SUBDIVISION
9. COUNTY PRIOR
10. WATER AND SE
11. OF LAND DIST
12. PHASE II AND
13. THE AREA OF
14. THE PROPERTY
15. AGREEMENT DA
16. ASSOCIATES A
17. COMMISSION,"
18. AGREEMENT.
19. SETBACK LINES
20. DECLARATION C
21. AT TWO RIVERS
22. AS A MINIMUM

23. SETBACKS, AS
24. VARIANCES TO
25. BY CASE BASIS
26. GOVERNOR'S LA
27. SETBACKS LESS
28. MAJOR OPEN S
29. DESCRIBED ON
30. UNDISTURBED A
31. FAIRWAYS, UTIL
32. GENERALLY ON
33. OR BRIDGES, AN
34. ALL UTILITIES A
35. UNLESS OTHERV
36. THIS PLAT SHAL
37. GOVERNOR'S LA
38. VDOT WILL NOT
39. AND/OR BEFAR

NOTE: EXISTING ELEVATIONS AND DIMENSIONS SHOWN ARE

LOT 13

RIM= 31.95
INV. IN= 22.25
INV. OUT= 22.15
D=9.8'

OF 8" SAN.
VER 0.40%

JOHN HANGOCK COURT

STREETLIGHT
(TYP)
STA. 16+24.18' LT
1-8"x6" TEE
1-FH ASSEMBLY
1-8" G.V.&V.B.
58" OF RESTRAINED
JOINT PIPE, EACH
WAY OF GATE VALVE

5' OFF
BACK OF
CURB

847' OF 8" WATER MAIN
36" MIN. COVER

GRASS DITCH
EX. 12" W

SS# 7-9
EXIST. D.I.
TOP= 30
INV.= 28
INV.= 28

SS# 7-8
EXIST. D.I.
TOP= 30.89
INV.= 28.62(15"RCP)

SS# 7-7
EXIST. D.I.
TOP= 30.27
INV.= 28.13 (15"RCP)
INV.= 28.17 (15"RCP)
INV.= 27.92 (15"RCP)

ROLL TOP CURB
& GUTTER (TYP.)

STA. 11+79.90
1-8" 45° EL

NO PARKING
SIGN

EXISTING
STREETLIGHT
(TYPICAL)

SPACE AREA A

12.68' RT. =
-SITE

RELEASE ASSEMBLY

EXIST. DITCH
EX. 12" W

SS# 7-6
EXIST. D.I.
TOP= 29.48
INV.= 27.19(15"RCP)

SS# 7-5
EXIST. D.I.
TOP= 28.96
INV.= 25.14 (15"RCP)
INV.= 25.12 (15"RCP)
INV.= 24.75 (18"RCP)

NEW 5' WIDE CONCRETE
PEDESTRIAN WALKWAY
WITH CURB-CUT FOR
HANDICAPPED PEDESTRIAN
USE. RAMP IS TO BE VDOT
CG-12 HANDICAPPED ACCESS
RAMP (WITHOUT FLARES).

SS# 7-4
EXIST. D.I.
TOP= 27.86
INV.= 23.14 (18"RCP)
INV.= 23.03 (18"RCP)

ained.
over.

SS #79-7
STA.17+41, 14'RT.
D.I.-3B, L=4'
TYPE A NOSE
TOP=30.83
INV.=26.91

35 LF OF 18"
RCP @ 0.83%

LOT 14

SS #79-5
STA.17+76.41, 20'RT.
D.I.-3C, L=6'
TYPE A NOSE
TOP=30.54
INV.=26.62

LOT 15

40 L.F. OF
15" RCP
@ 0.40%

OPEN SPACE AREA A

0.5
AC.

0.5
AC.

LOT 12

LOT 13

0.4
AC.

SS #79-2
STA.15+00, 14'RT.
D.I.-3A
TYPE A NOSE
TOP=31.27
INV.IN=25.62
INV.IN=25.62
INV.OUT=25.62

01.31%

JOHN HANCOCK COURT

280 LF OF 18"
RCP @ 0.30%

SS #7-29
MOD. EW-11
INV.=25.25

110 L.F. OF 10" PVC
RCP @ 0.45%

SS #79-4
STA.17+76.41, 20'LT.
D.I.-3C, L=6'
TYPE A NOSE
TOP=30.54
INV.IN=26.46
INV.OUT=26.46

0.43
AC.

EXISTING
STREETLIGHT
(TYPICAL)

SS #80-1
INV.=25.60
50' OF 24"
RCP @ 0.74%

SS #79-1
INV.=25.25

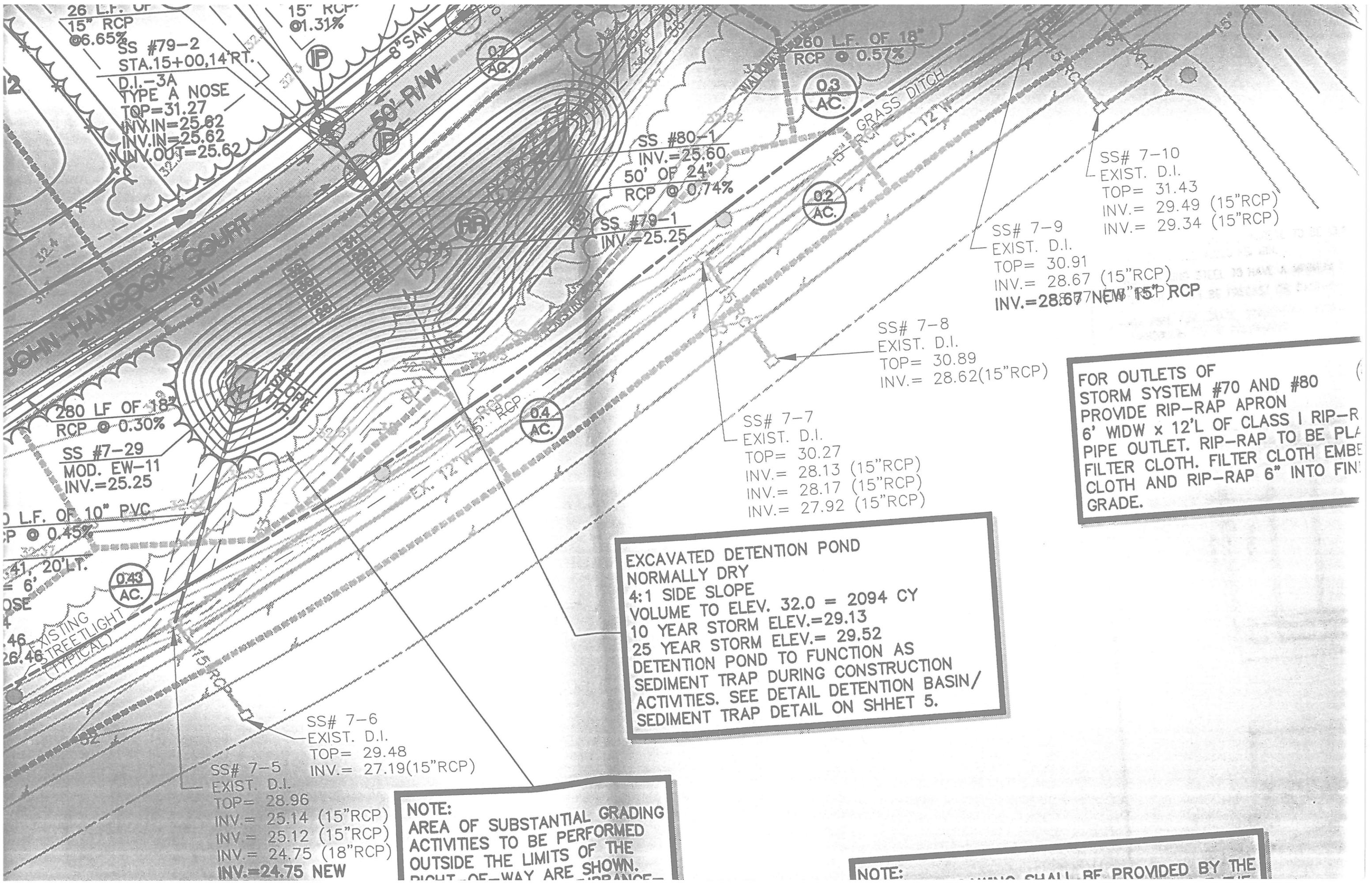
SS# 7-7
EXIST. D.I.
TOP= 30.27
INV.= 28.13
INV.= 28.17
INV.= 27.92

SS# 7-6
EXIST. D.I.
TOP= 29.48
INV.= 27.19(15"RCP)

SS# 7-5
EXIST. D.I.
TOP= 28.96
INV.= 25.14 (15"RCP)
INV.= 25.12 (15"RCP)
INV.= 24.75 (18"RCP)
INV.=24.75 NEW

EXCAVATED DETENTION POND
NORMALLY DRY
4:1 SIDE SLOPE
VOLUME TO ELEV. 32.0 = 20
10 YEAR STORM ELEV.=29.13
25 YEAR STORM ELEV.= 29.13
DETENTION POND TO FUNCTION
SEDIMENT TRAP DURING CON
ACTIVITIES. SEE DETAIL DETE
SEDIMENT TRAP DETAIL ON S

NOTE:
AREA OF SUBSTANTIAL GRADING
ACTIVITIES TO BE PERFORMED
OUTSIDE THE LIMITS OF THE
RIGHT OF WAY ARE SHOWN



26 L.F. OF
15" RCP
@ 6.65%
SS #79-2
STA. 15+00, 14' RT.
D.I. - 3A
TYPE A NOSE
TOP = 31.27
INV. IN = 25.62
INV. IN = 25.62
INV. OUT = 25.62

15" RCP
@ 1.31%

260 L.F. OF 18"
RCP @ 0.57%

SS #80-1
INV. = 25.60
50' OF 24"
RCP @ 0.74%

SS #79-1
INV. = 25.25

SS# 7-10
EXIST. D.I.
TOP = 31.43
INV. = 29.49 (15" RCP)
INV. = 29.34 (15" RCP)

SS# 7-9
EXIST. D.I.
TOP = 30.91
INV. = 28.67 (15" RCP)
INV. = 28.67 NEW 15" RCP

SS# 7-8
EXIST. D.I.
TOP = 30.89
INV. = 28.62 (15" RCP)

SS# 7-7
EXIST. D.I.
TOP = 30.27
INV. = 28.13 (15" RCP)
INV. = 28.17 (15" RCP)
INV. = 27.92 (15" RCP)

**FOR OUTLETS OF
STORM SYSTEM #70 AND #80
PROVIDE RIP-RAP APRON
6' WIDW x 12'L OF CLASS I RIP-R
PIPE OUTLET. RIP-RAP TO BE PL
FILTER CLOTH. FILTER CLOTH EMBE
CLOTH AND RIP-RAP 6" INTO FINI
GRADE.**

**EXCAVATED DETENTION POND
NORMALLY DRY
4:1 SIDE SLOPE
VOLUME TO ELEV. 32.0 = 2094 CY
10 YEAR STORM ELEV. = 29.13
25 YEAR STORM ELEV. = 29.52
DETENTION POND TO FUNCTION AS
SEDIMENT TRAP DURING CONSTRUCTION
ACTIVITIES. SEE DETAIL DETENTION BASIN/
SEDIMENT TRAP DETAIL ON SHHET 5.**

SS# 7-6
EXIST. D.I.
TOP = 29.48
INV. = 27.19 (15" RCP)

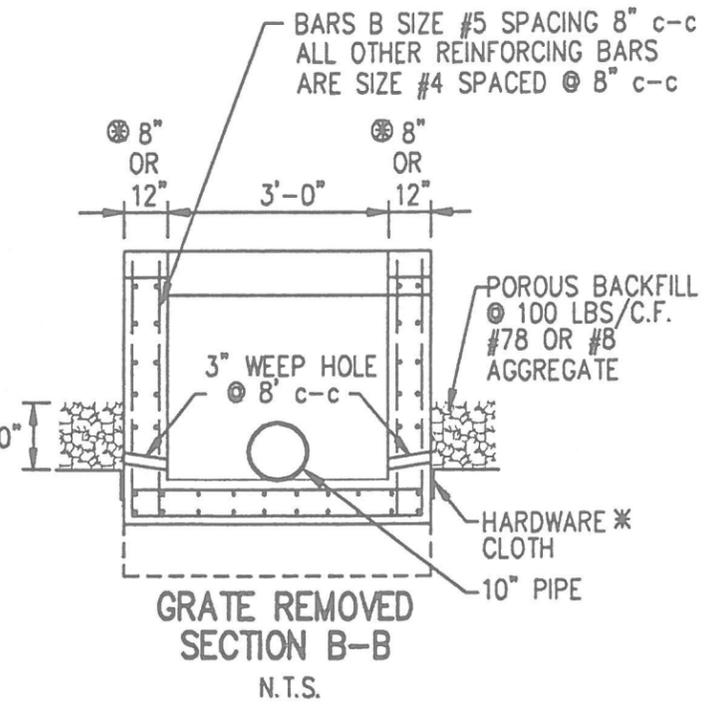
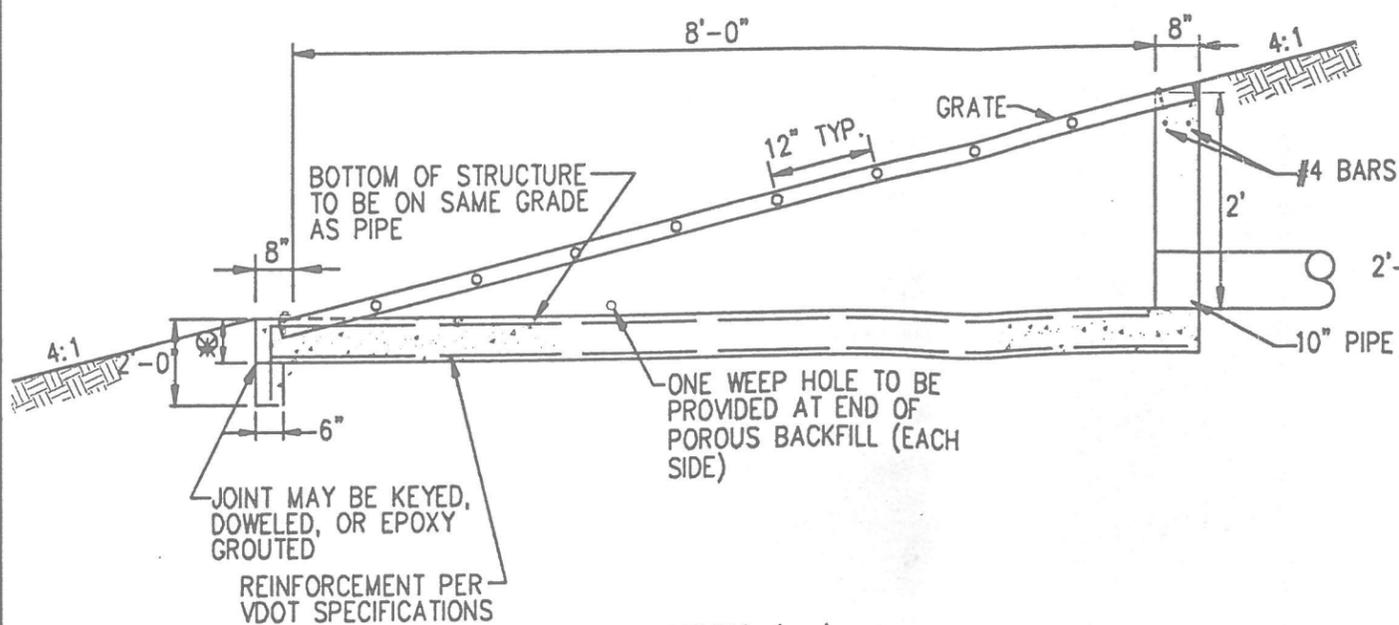
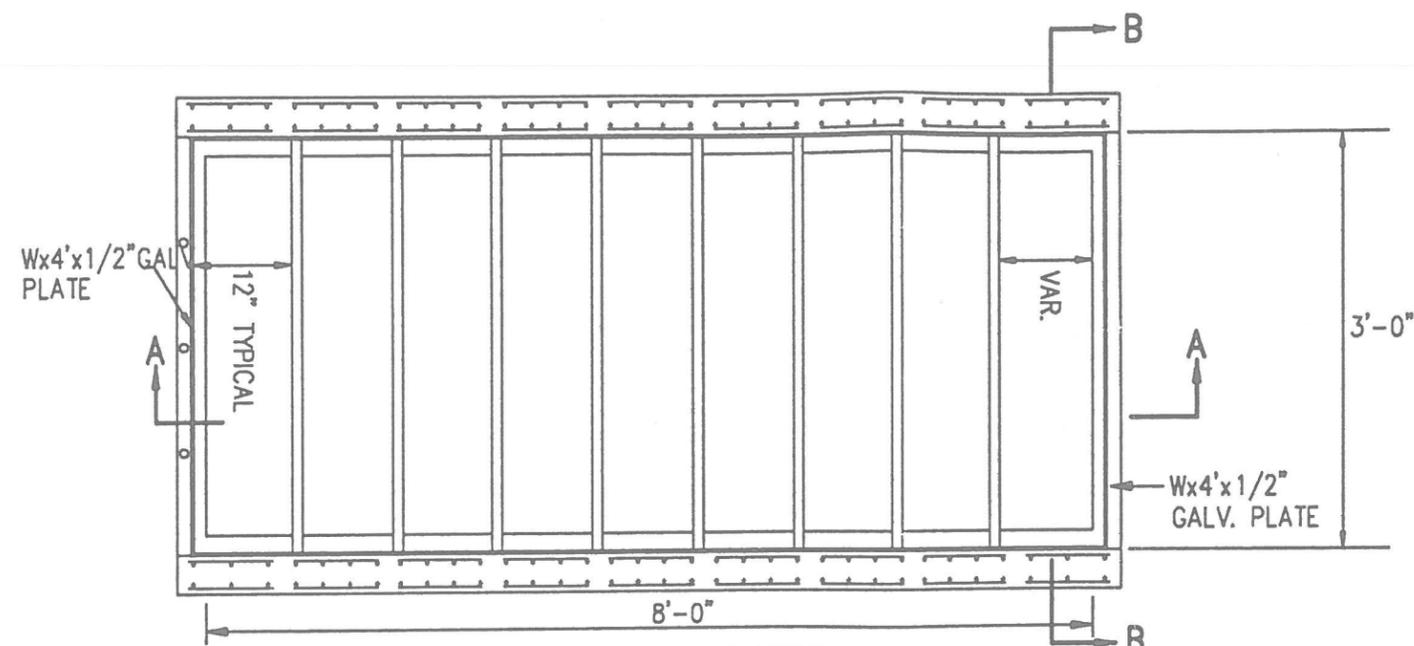
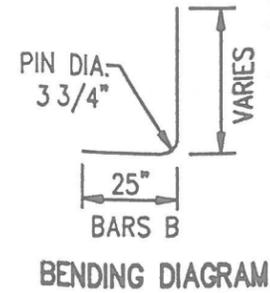
SS# 7-5
EXIST. D.I.
TOP = 28.96
INV. = 25.14 (15" RCP)
INV. = 25.12 (15" RCP)
INV. = 24.75 (18" RCP)
INV. = 24.75 NEW

**NOTE:
AREA OF SUBSTANTIAL GRADING
ACTIVITIES TO BE PERFORMED
OUTSIDE THE LIMITS OF THE
RIGHT-OF-WAY ARE SHOWN.**

**NOTE:
... SHALL BE PROVIDED BY THE**

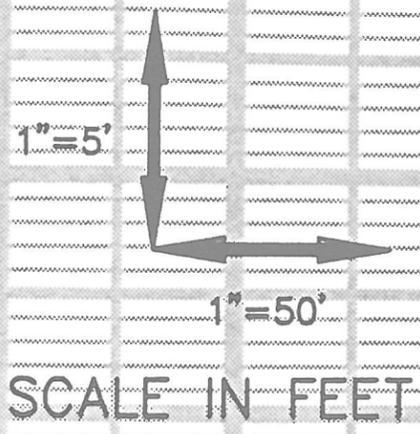
NOTES

- ALL CAST-IN-PLACE CONCRETE TO BE CLASS A3. FOR PRECAST USE 4,000 PSI MIN.
- REINFORCING STEEL TO HAVE A MINIMUM 1-1/2" COVER.
- THIS ITEM MAY BE PRECAST OR CAST-IN-PLACE.
- ALL PIPE FOR GRATE, STRUCTURAL TUBING, AND RELATED HARDWARE TO BE GALVANIZED.



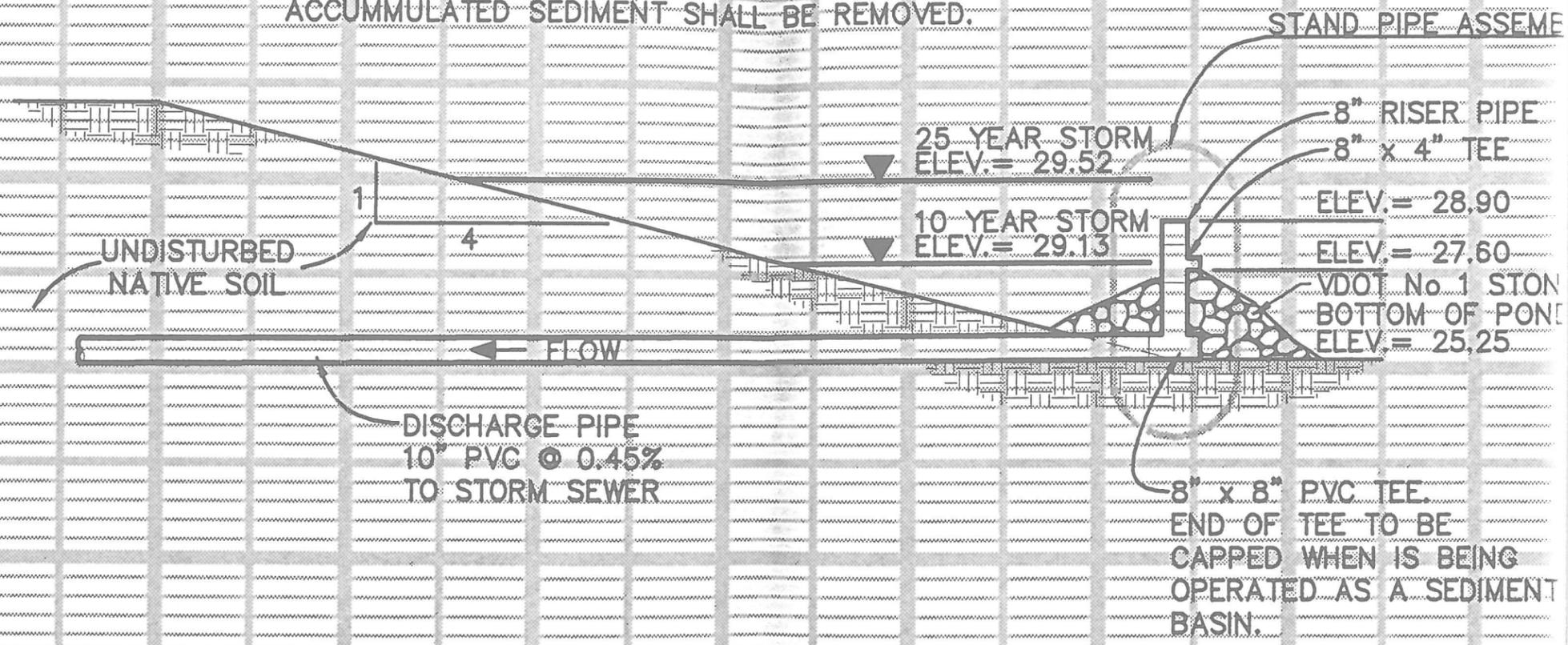
*WEEP HOLE WITH 12"x12" PLASTIC HARDWARE CLOTH 1/4" MESH OR GALVANIZED STEEL WIRE, MIN. WIRE DIA. 0.03 INCH NUMBER 4 MESH HARDWARE CLOTH ANCHORED FIRMLY TO OUTSIDE OF STRUCTURE

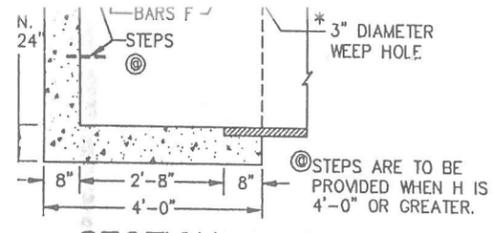
STA. 10+00 END OFF-SITE WATERLINE
 CONNECT TO EXISTING 8" WATER MAIN (RIVER OAKS NORTH)
 REMOVE EXISTING BLOW-OFF
 ASSEMBLY AND TIE INTO EXIST.
 12" WATER MAIN



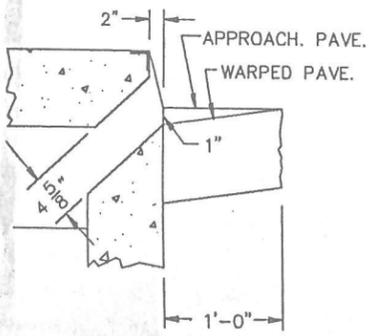
40
 35
 30
 25
 20
 15
 10
 5

DURING CONSTRUCTION ACTIVITIES AND UNTIL SITE HAS BEEN STABILIZED, THE DETENTION BASIN SHALL FUNCTION AS A SEDIMENT BASIN. DURING USE AS A SEDIMENT BASIN THE STANDPIPE ASSEMBLY SHALL BE INSTALLED TO THE DISCHARGE PIPE. VDOT No. 1 STONE SHALL BE PLACED AROUND STANDPIPE ASSEMBLY TO THE ELEVATION OF THE 8" x 4" TEE. ACCUMMULATED SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT LEVEL REACHES ELEVATION 26.7, UPON STABILIZATION OF ALL UPSTREAM AREAS, THE STANDPIPE ASSEMBLY, VDOT No. 1 STONE AND ALL ACCUMMULATED SEDIMENT SHALL BE REMOVED.





SECTION A-A



**DETAIL WHEN USED
ADJACENT TO CURB
WITHOUT GUTTER**

SHEET 1 OF 2

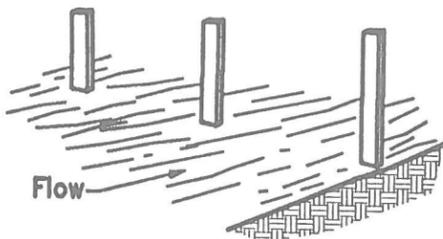
SPECIFICATION
REFERENCE

233
302

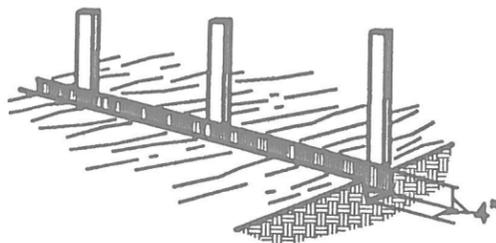
5. SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER REDIRECTING FLOWS FROM TRANSVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO SAFELY LOWER WATER DOWNSLOPE WITHOUT CAUSING EROSION. A TEMPORARY FILL DIVERSION (STD. & SPEC. 3.10) SHALL BE INSTALLED PRIOR TO THE END OF EACH WORKING DAY.
6. SEDIMENT CONTROL MEASURES MAY REQUIRE MINOR FIELD ADJUSTMENTS AT TIME OF CONSTRUCTION TO INSURE THEIR INTENDED PURPOSE IS ACCOMPLISHED. ENVIRONMENTAL DIVISION APPROVAL WILL BE REQUIRED FOR OTHER DEVIATIONS FROM THE APPROVED PLANS.
7. THE CONTRACTOR SHALL PLACE SOIL STOCKPILES AT THE LOCATIONS SHOWN ON THIS PLAN OR AS DIRECTED BY THE ENGINEER. SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. OFF-SITE WASTE OR BORROW AREAS SHALL BE APPROVED BY THE ENVIRONMENTAL DIVISION PRIOR TO THE IMPORT OF ANY BORROW OR EXPORT OF ANY WASTE TO OR FROM THE PROJECT SITE.
8. THE CONTRACTOR SHALL COMPLETE DRAINAGE FACILITIES WITHIN 30 DAYS FOLLOWING COMPLETION OF ROUGH GRADING AT ANY POINT WITHIN THE PROJECT. THE INSTALLATION OF DRAINAGE FACILITIES SHALL TAKE PRECEDENCE OVER ALL UNDERGROUND UTILITIES. OUTFALL DITCHES FROM DRAINAGE STRUCTURES SHALL BE STABILIZED IMMEDIATELY AFTER CONSTRUCTION OF SAME. THIS INCLUDES INSTALLATION OF EROSION CONTROL STONE OR PAVED DITCHES WHERE REQUIRED. ANY DRAINAGE OUTFALLS REQUIRED FOR A STREET MUST BE COMPLETED BEFORE STREET GRADING OR UTILITY INSTALLATION BEGINS.
9. PERMANENT OR TEMPORARY SOIL STABILIZATION MUST BE APPLIED TO ALL DENUDED AREAS WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. SOIL STABILIZATION MUST ALSO BE APPLIED TO DENUDED AREAS WHICH MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 30 DAYS. SOIL STABILIZATION MEASURES INCLUDE VEGETATIVE ESTABLISHMENT, MULCHING AND THE EARLY APPLICATION OF GRAVEL BASE MATERIAL ON AREAS TO BE PAVED.
10. NO MORE THAN 300 FEET OF SANITARY SEWER, STORM SEWER, WATERLINES, OR UNDERGROUND UTILITY LINES ARE TO BE OPEN AT ONE TIME. FOLLOWING INSTALLATION OF ANY PORTION OF THESE ITEMS, ALL DISTURBED AREAS ARE TO BE IMMEDIATELY STABILIZED (I.E., THE SAME DAY).
11. IF DISTURBED AREA STABILIZATION IS TO BE ACCOMPLISHED DURING THE MONTHS OF DECEMBER, JANUARY, OR FEBRUARY, STABILIZATION SHALL CONSIST OF MULCHING IN ACCORDANCE WITH SPECIFICATION 3.35. SEEDING WILL THEN TAKE PLACE AS SOON AS THE SEASON PERMITS.
12. THE TERM SEEDING, FINAL VEGETATIVE COVER OR STABILIZATION, ON THIS SITE PLAN SHALL MEAN THE SUCCESSFUL GERMINATION AND ESTABLISHMENT OF A STABLE GRASS COVER FROM A PROPERLY PREPARED SEEDBED CONTAINING THE SPECIFIED AMOUNTS OF SEED, LIME, AND FERTILIZER IN ACCORDANCE WITH SPECIFICATION 3.32, PERMANENT SEEDING. IRRIGATION SHALL BE REQUIRED AS NECESSARY TO ENSURE ESTABLISHMENT OF GRASS COVER.
13. ALL SLOPES STEEPER THAN 3:1 SHALL REQUIRE THE USE OF EROSION CONTROL BLANKETS SUCH AS EXCELSIOR BLANKETS TO AID IN THE ESTABLISHMENT OF A VEGETATIVE COVER. INSTALLATION SHALL BE IN ACCORDANCE WITH SPECIFICATION 3.35, MULCHING AND MANUFACTURER'S INSTRUCTIONS. NO SLOPES SHALL BE CREATED STEEPER THAN 2:1.
14. INLET PROTECTION IN ACCORDANCE WITH SPECIFICATION 3.07 SHALL BE PROVIDED FOR ALL STORM DRAIN INLETS AS SOON AS PRACTICAL FOLLOWING CONSTRUCTION OF SAME.
15. TEMPORARY LINERS, SUCH AS POLYETHYLENE SHEETS, SHALL BE PROVIDED FOR ALL PAVED DITCHES UNTIL THE PERMANENT CONCRETE LINER IS INSTALLED.
16. PAVED DITCHES SHALL BE REQUIRED WHEREVER EROSION IS EVIDENT. PARTICULAR ATTENTION SHALL BE PAID TO THOSE AREAS WHERE GRADES EXCEED 3 PERCENT.
17. TEMPORARY EROSION CONTROL MEASURES ARE NOT TO BE REMOVED UNTIL ALL DISTURBED AREAS ARE STABILIZED. AFTER STABILIZATION IS COMPLETE, ALL MEASURES SHALL BE REMOVED WITHIN 30 DAYS. TRAPPED SEDIMENT SHALL BE SPREAD AND SEED.
18. AS-BUILT DRAWINGS MUST BE PROVIDED FOR ALL DETENTION/BMP FACILITIES. ALSO UPON COMPLETION, THE CONSTRUCTION OF ALL DETENTION/BMP FACILITIES SHALL BE CERTIFIED BY A PROFESSIONAL ENGINEER WHO INSPECTED THE STRUCTURE DURING CONSTRUCTION. THE CERTIFICATION SHALL STATE THAT TO THE BEST OF HIS/HER JUDGMENT, KNOWLEDGE, AND BELIEF, THE STRUCTURE WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVAL PLANS AND SPECIFICATIONS.

RS F	BARS G		WIEGHT
N. FT. *	NO.	LIN. FT. *	LBS.
-	6	1'-0"	22
1'-6"	4	1'-0"	64
1'-6"	4	1'-0"	111
1'-6"	4	1'-0"	158
1'-6"	4	1'-0"	204
1'-6"	4	1'-0"	251
1'-6"	4	1'-0"	298
1'-6"	4	1'-0"	345
1'-6"	4	1'-0"	391
1'-6"	4	1'-0"	438
1'-6"	2	1'-0"	111
1'-6"	2	1'-0"	158
1'-6"	2	1'-0"	205
1'-6"	2	1'-0"	252
1'-6"	2	1'-0"	298
1'-6"	2	1'-0"	345
1'-6"	2	1'-0"	392
1'-6"	2	1'-0"	439

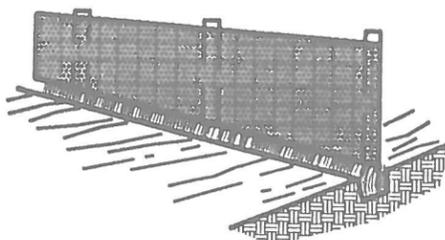
1. Set the stakes.



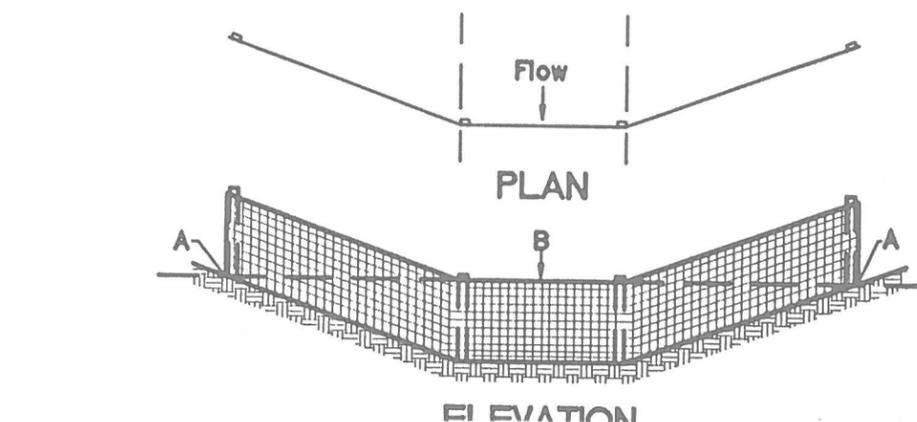
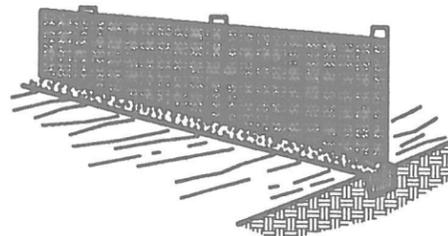
2. Excavate a 4"x4" trench upslope along the line of stakes.



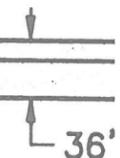
3. Staple filter material to stakes and extend it into the trench.



4. Backfill and compact the excavated soil.



36" WIDE ROLL-
CURB(TYP.)



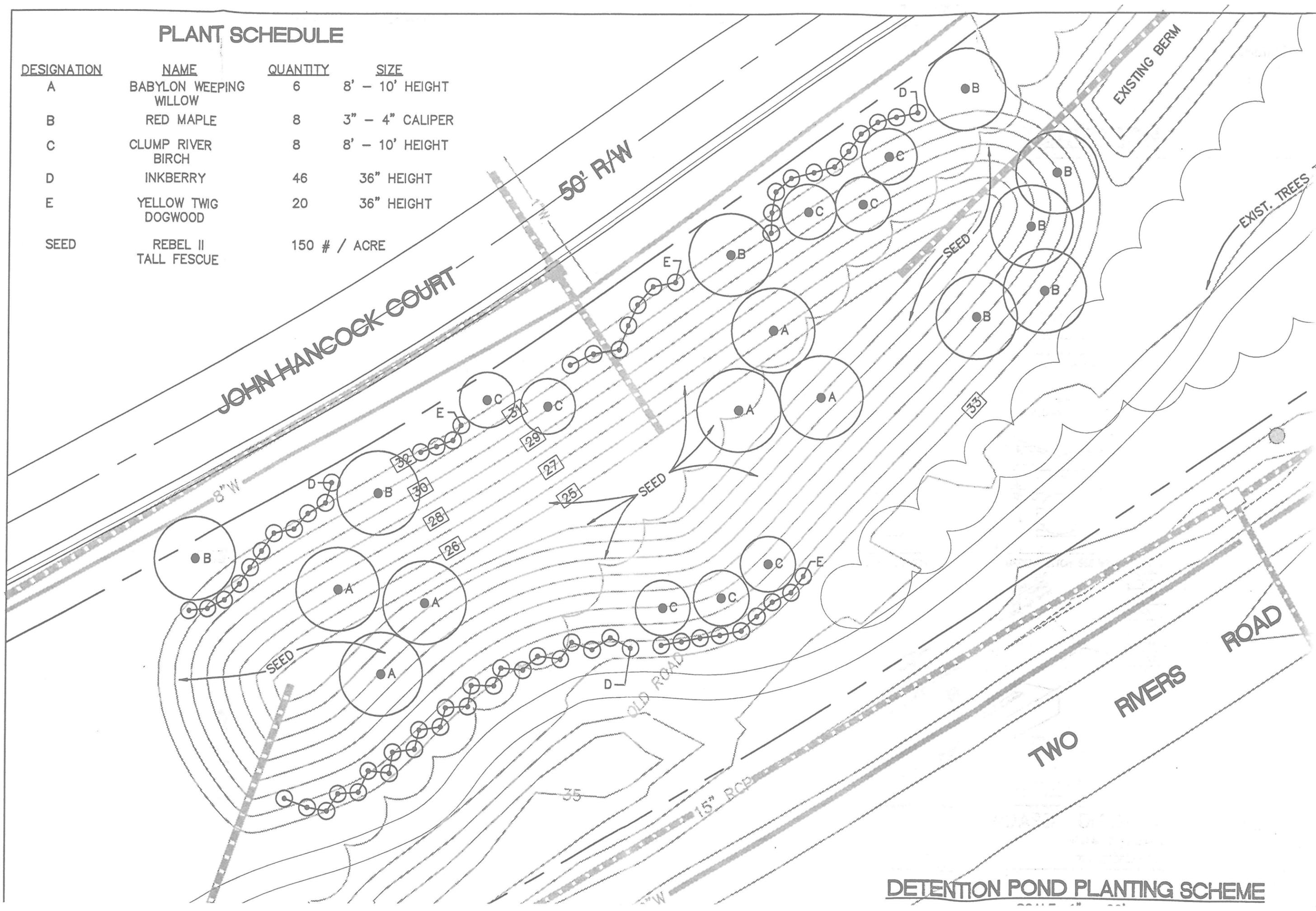
SPECIFICATION
REFERENCE

233
302

ELEVATION

PLANT SCHEDULE

DESIGNATION	NAME	QUANTITY	SIZE
A	BABYLON WEeping WILLOW	6	8' - 10' HEIGHT
B	RED MAPLE	8	3" - 4" CALIPER
C	CLUMP RIVER BIRCH	8	8' - 10' HEIGHT
D	INKBERRY	46	
E	YELLOW TWIG DOGWOOD	20	36" HEIGHT
SEED	REBEL II TALL FESCUE	150 # / ACRE	



DETENTION POND PLANTING SCHEME

TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET

(with or without an emergency spillway)

Project WYTHE HAMLET - GOVERNOR'S LAND AT TWO RIVERS

Basin # 1 Location BETWEEN PROPOSED WYTHE HAMLET AND TWO RIVERS ROAD

Total area draining to basin: 5.3 acres.

ENVIRONMENTAL

Basin Volume Design

Wet Storage:

1. Minimum required volume = 67 cu. yds. x Total Drainage Area (acres).

$$67 \text{ cu. yds.} \times \underline{5.3} \text{ acres} = \underline{355} \text{ cu. yds.}$$

2. Available basin volume = 355 cu. yds. at elevation 27.6. (From storage - elevation curve)

3. Excavate 2094 cu. yds. to obtain required volume*.

* Elevation corresponding to required volume = invert of the dewatering orifice.

4. Available volume before cleanout required.

$$33 \text{ cu. yds.} \times \underline{5.3} \text{ acres} = \underline{175} \text{ cu. yds.}$$

5. Elevation corresponding to cleanout level = 26.7.

(From Storage - Elevation Curve)

6. Distance from invert of the dewatering orifice to cleanout level = 1.0 ft. (Min. = 1.0 ft.)

Dry Storage:

7. Minimum required volume = 67 cu. yds. x Total Drainage Area (acres).

$$67 \text{ cu. yds.} \times \underline{5.3} \text{ acres} = \underline{355} \text{ cu. yds.}$$

8. Total available basin volume at crest of riser* = 710 cu. yds. at elevation 28.9. (From Storage - Elevation Curve)

* Minimum = 134 cu. yds./acre of total drainage area.

9. Diameter of dewatering orifice = 4 in.
10. Diameter of flexible tubing = 8 in. (diameter of dewatering orifice plus 2 inches).

Preliminary Design Elevations

11. Crest of Riser = _____
- Top of Dam = 32
- Design High Water = _____
- Upstream Toe of Dam = 25.25

TEMPORARY SEDIMENT
BASIN FORMED
BY EXCAVATION,
NO DAM EMBANKMENT
REQUIRED

Basin Shape

12. $\frac{\text{Length of Flow}}{\text{Effective Width}} = \frac{L}{We} = \frac{240}{60} = 4$

If > 2 , baffles are not required NO BAFFLES

If < 2 , baffles are required N/A

Runoff

13. $Q_2 = \underline{11.2}$ cfs (From Chapter 5)
14. $Q_{25} = \underline{16.7}$ cfs (From Chapter 5)

Principal Spillway Design

15. With emergency spillway, required spillway capacity $Q_p = Q_2 = \underline{\hspace{2cm}}$ cfs. (riser and barrel)

Without emergency spillway, required spillway capacity $Q_p = Q_{25} = \underline{2.0}$ cfs. (riser and barrel)

16. With emergency spillway:

$$\text{Assumed available head (h)} = \underline{\hspace{2cm}} \text{ ft. (Using } Q_2\text{)}$$

$$h = \text{Crest of Emergency Spillway Elevation} - \text{Crest of Riser Elevation}$$

Without emergency spillway:

$$\text{Assumed available head (h)} = \frac{30 - 28.9}{1.1} \text{ ft. (Using } Q_{25}\text{)}$$

$$h = \text{Design High Water Elevation} - \text{Crest of Riser Elevation}$$

17. Riser diameter (D_r) = 8 in. Actual head (h) = 1.1 ft.

(From Plate 3.14-8.)

Note: Avoid orifice flow conditions.

18. Barrel length (l) = 110 ft.

$$\text{Head (H) on barrel through embankment} = \frac{(30 - 25.25)}{4.75} \text{ ft.}$$

(From Plate 3.14-7).

19. Barrel diameter = 8 in.

(From Plate 3.14-B [concrete pipe] or Plate 3.14-A [corrugated pipe]).

20. Trash rack and anti-vortex device

$$\text{Diameter} = \underline{N/A} \text{ inches.}$$

$$\text{Height} = \underline{N/A} \text{ inches.}$$

(From Table 3.14-D).

Emergency Spillway Design

21. Required spillway capacity $Q_e = Q_{25} - Q_p = \underline{0}$ cfs.

22. Bottom width (b) = N/A ft.; the slope of the exit channel (s) = N/A ft./foot; and the minimum length of the exit channel (x) = N/A ft.

(From Table 3.14-C).

Anti-Seep Collar Design

23. Depth of water at principal spillway crest (Y) = N/A ft.
 Slope of upstream face of embankment (Z) = N/A :1.
 Slope of principal spillway barrel (S_b) = N/A %
 Length of barrel in saturated zone (L_s) = N/A ft.
24. Number of collars required = N/A dimensions = N/A
 (from Plate 3.14-12).

No
 Dam
 EMBANKMENT

Final Design Elevations

25. Top of Dam = 32 (EMBANKMENT)
 Design High Water = 30.0
 Emergency Spillway Crest = NONE
 Principal Spillway Crest = 28.9
 Dewatering Orifice Invert = 27.6
 Cleanout Elevation = 26.7
 Elevation of Upstream Toe of Dam
 or Excavated Bottom of "Wet Storage
 Area" (if excavation was performed) = 25.25

STORM SEWER TABULATION

DATA FILE: SYSTEM80.ST3
 RAINFALL FILE: JCCN.RN3
 PRINTED: 07-21-1998

10 YEAR DESIGN STORM

Q = CIA

I = 45.948 / (Tc + 10.200) ^ 0.693

PAGE 1 OF 1

LINE No.	INC AREA (AC)	RNOFF COEFF (C)	INC C*A	SUM C*A	TIME CONC (MIN)	RNFAL INT I (IPH)	TOTAL FLOW Q=CA*I, AdQ (CFS)	PIPE CAP (CFS)	PIPE SIZE HT/W (IN)	PIPE LEN (FT)	PIPE SLOPE (%)	HYD GRD SLOPE (%)	VEL UP/DN (FPS)	HYD GRD UP/DOWN (FT)	INVERT UP/DOWN (FT)	COMMENTS/ DOWNSTREAM LINE #
2	0.4	0.50	0.2	0.2	8.0	6.15	1.20 1.20 0.0	4.8 15	15	40	0.550	0.079	1.21 1.01	30.09 30.05	29.12 28.90	SS80-2 - SS80-3 1
1	0.5	0.45	0.2	1.1	12.5	5.29	5.59 5.59 0.0	7.9 18	18	260	0.569	0.284	3.17 3.17	29.87 29.13	27.08 25.60	SS80-1 - SS80-2 OUTFALL
5	0.3	0.70	0.2	0.2	5.0	6.97	1.22 1.22 0.0	4.0 15	15	26	0.385	0.107	0.99 0.99	30.62 30.59	27.83 27.73	SS80-5- SS80-4 4
4	0.5	0.45	0.2	0.5	10.0	5.72	2.80 2.80 0.0	4.0 15	15	41	0.390	0.189	2.29 2.29	30.50 30.42	27.58 27.42	SS#80-6 - SS#80-5 3
3	0.3	0.45	0.1	0.6	12.0	5.36	3.35 3.35 0.0	4.1 15	15	84	0.405	0.269	2.73 2.73	30.28 30.05	27.42 27.08	SS80-2 - SS80-6 1
6	0.2	0.45	0.1	0.1	8.0	6.15	0.44 0.44 0.0	4.3 15	15	73	0.438	0.008	0.36 0.36	30.60 30.59	28.05 27.73	SS#80-5 - SS#80-7 4

E

STORM SEWER TABULATION

DATA FILE: SYSTEM80.ST3
 RAINFALL FILE: JCCN.RM3
 PRINTED: 07-21-1998

10 YEAR DESIGN STORM

Q = CIA

I = 45.948 / (Tc + 10.200) ^ 0.693

PAGE 1 OF 1

LINE No.	INC AREA (AC)	RWOFF COEFF (C)	INC C*A	SUM C*A	TIME CONC (MIN)	RNFAL INT I (IPH)	TOTAL FLOW Q=CA*I, AdQ (CFS)	PIPE CAP (CFS)	PIPE SIZE HT/W (IN)	PIPE LEN (FT)	PIPE SLOPE (%)	HYD GRD SLOPE (%)	VEL UP/DN (FPS)	HYD GRD UP/DOWN (FT)	INVERT UP/DOWN (FT)	COMMENTS/ DOWNSTREAM LINE #
2	0.4	0.50	0.2	0.2	8.0	6.15	1.20	4.8	15	40	0.550	0.079	1.21	30.09	29.12	SS80-2 - SS80-3
							1.20 0.0		15				1.01	30.05	28.90	1
1	0.5	0.45	0.2	1.1	12.5	5.29	5.59	7.9	18	260	0.569	0.284	3.17	29.87	27.08	SS80-1 - SS80-2
							5.59 0.0		18				3.17	29.13	25.60	OUTFALL
5	0.3	0.70	0.2	0.2	5.0	6.97	1.22	4.0	15	26	0.385	0.107	0.99	30.62	27.83	SS80-5- SS80-4
							1.22 0.0		15				0.99	30.59	27.73	4
4	0.5	0.45	0.2	0.5	10.0	5.72	2.80	4.0	15	41	0.390	0.189	2.29	30.50	27.58	SS#80-6 - SS#80-5
							2.80 0.0		15				2.29	30.42	27.42	3
3	0.3	0.45	0.1	0.6	12.0	5.36	3.35	4.1	15	84	0.405	0.269	2.73	30.28	27.42	SS80-2 - SS80-6
							3.35 0.0		15				2.73	30.05	27.08	1
6	0.2	0.45	0.1	0.1	8.0	6.15	0.44	4.3	15	73	0.438	0.008	0.36	30.60	28.05	SS#80-5 - SS#80-7
							0.44 0.0		15				0.36	30.59	27.73	4

E

STORM SEWER TABULATION

DATA FILE: SYSTEM79.ST3
 RAINFALL FILE: JCCN.RN3
 PRINTED: 07-21-1998

10 YEAR DESIGN STORM

Q = CIA

I = 45.948 / (Tc + 10.200) ^ 0.693

PAGE 1 OF 1

LINE No.	INC AREA (AC)	RNOFF COEFF (C)	INC C*A	SUM C*A	TIME CONC (MIN)	RNFAL INT I (IPH)	TOTAL FLOW Q=CA*I, AdQ (CFS)	PIPE CAP (CFS)	PIPE SIZE HT/W (IN)	PIPE LEN (FT)	PIPE SLOPE (%)	HYD GRD SLOPE (%)	VEL UP/DN (FPS)	HYD GRD UP/DOWN (FT)	INVERT UP/DOWN (FT)	COMMENTS/ DOWNSTREAM LINE #
6	0.4	0.45	0.2	0.2	9.0	5.93	1.07	7.4	15	85	1.306	0.049	0.98	29.52	28.46	SS#79-3 - SS#79-6 2
							1.07 0.0	15					0.87	29.48	27.35	
2	0.7	0.45	0.3	0.5	12.0	5.36	2.65	16.7	15	26	6.654	0.169	2.16	29.39	27.35	SS79-2 - SS79-3 1
							2.65 0.0	15					2.16	29.34	25.62	
1	0.7	0.70	0.5	1.6	12.6	5.27	8.65	19.5	24	50	0.740	0.146	2.75	29.20	25.62	SS79-1 - SS79-2 OUTFALL
							8.65 0.0	24					2.75	29.13	25.25	
5	0.4	0.44	0.2	0.2	8.0	6.15	1.08	5.9	15	35	0.829	0.070	0.88	29.90	26.91	SS#79-5 - SS#79-7 4
							1.08 0.0	15					0.88	29.87	26.62	
4	0.5	0.44	0.2	0.4	10.0	5.72	2.27	4.1	15	40	0.400	0.123	1.85	29.81	26.62	SS79-4 - SS79-5 3
							2.27 0.0	15					1.85	29.76	26.46	
3	0.5	0.50	0.3	0.7	11.0	5.54	3.63	5.8	18	280	0.300	0.120	2.06	29.68	26.46	SS79-2 - SS79-4 1
							3.63 0.0	18					2.06	29.34	25.62	

E

STORM SEWER TABULATION

DATA FILE: SYSTEM79.ST3
 RAINFALL FILE: JCCN.RN3
 PRINTED: 07-21-1998

10 YEAR DESIGN STORM

Q = CIA

I = 45.948 / (Tc + 10.200) ^ 0.693

PAGE 1 OF 1

LINE No.	INC AREA (AC)	RNOFF COEFF (C)	INC C*A	SUM C*A	TIME CONC (MIN)	RNFAL INT I (IPH)	TOTAL FLOW Q=CA*I, AdQ (CFS)	PIPE CAP (CFS)	PIPE SIZE (IN)	PIPE HT/W	PIPE LEN (FT)	PIPE SLOPE (%)	HYD GRD SLOPE (%)	VEL UP/DN (FPS)	HYD GRD UP/DOWN (FT)	INVERT UP/DOWN (FT)	COMMENTS/ DOWNSTREAM LINE #
6	0.4	0.45	0.2	0.2	9.0	5.93	1.07	7.4	15	85	1.306	0.049	0.98	29.52	28.46	SS#79-3 - SS#79-6	
							1.07 0.0	15					0.87	29.48	27.35	2	
2	0.7	0.45	0.3	0.5	12.0	5.36	2.65	16.7	15	26	6.654	0.169	2.16	29.39	27.35	SS79-2 - SS79-3	
							2.65 0.0	15					2.16	29.34	25.62	1	
1	0.7	0.70	0.5	1.6	12.6	5.27	8.65	19.5	24	50	0.740	0.146	2.75	29.20	25.62	SS79-1 - SS79-2	
							8.65 0.0	24					2.75	29.13	25.25	OUTFALL	
5	0.4	0.44	0.2	0.2	8.0	6.15	1.08	5.9	15	35	0.829	0.070	0.88	29.90	26.91	SS#79-5 - SS#79-7	
							1.08 0.0	15					0.88	29.87	26.62	4	
4	0.5	0.44	0.2	0.4	10.0	5.72	2.27	4.1	15	40	0.400	0.123	1.85	29.81	26.62	SS79-4 - SS79-5	
							2.27 0.0	15					1.85	29.76	26.46	3	
3	0.5	0.50	0.3	0.7	11.0	5.54	3.63	5.8	18	280	0.300	0.120	2.06	29.68	26.46	SS79-2 - SS79-4	
							3.63 0.0	18					2.06	29.34	25.62	1	

SYSTEM 80
STORM SEWER TABULATION

DATA FILE: SYSTEM80.ST3
RAINFALL FILE: JCCN.RN3
PRINTED: 06-19-1998

10 YEAR DESIGN STORM

Q = CIA

I = 45.948 / (Tc + 10.200) ^ 0.693

PAGE 1 OF 1

LINE No.	INC AREA (AC)	RNOFF COEFF (C)	INC C*A	SUM C*A	TIME CONC (MIN)	RNFAL INT I (IPH)	TOTAL FLOW Q=CA*I, AdQ (CFS)	PIPE CAP (CFS)	PIPE SIZE (IN)	PIPE LEN (FT)	PIPE SLOPE (%)	HYD GRD SLOPE (%)	VEL UP/DN (FPS)	HYD GRD UP/DOWN (FT)	INVERT UP/DOWN (FT)	COMMENTS/ DOWNSTREAM LINE #
2	0.4	0.50	0.2	0.2	8.0	6.15	1.20	4.8	15	40	0.550	0.057	0.98	30.39	29.12	SS80-2 - SS80-3
							1.20 0.0		15				0.98	30.36	28.90	1
1	0.5	0.45	0.2	1.1	12.5	5.29	5.59	7.9	18	260	0.569	0.284	3.17	30.18	27.08	SS80-1 - SS80-2
							5.59 0.0		18				3.17	29.44	25.60	OUTFALL
5	0.3	0.70	0.2	0.2	5.0	6.97	1.22	4.0	15	26	0.385	0.107	0.99	30.93	27.83	SS80-5- SS80-4
							1.22 0.0		15				0.99	30.90	27.73	4
4	0.5	0.45	0.2	0.5	10.0	5.72	2.80	4.0	15	41	0.390	0.189	2.29	30.81	27.58	SS#80-6 - SS#80-5
							2.80 0.0		15				2.29	30.73	27.42	3
3	0.3	0.45	0.1	0.6	12.0	5.36	3.35	4.1	15	84	0.405	0.269	2.73	30.59	27.42	SS80-2 - SS80-6
							3.35 0.0		15				2.73	30.36	27.08	1
6	0.2	0.45	0.1	0.1	8.0	6.15	0.44	4.3	15	73	0.438	0.008	0.36	30.91	28.05	SS#80-5 - SS#80-7
							0.44 0.0		15				0.36	30.90	27.73	4

SYSTEM 79 STORM SEWER TABULATION

DATA FILE: SYSTEM79.ST3
 RAINFALL FILE: JCCN.RN3
 PRINTED: 06-19-1998

10 YEAR DESIGN STORM

Q = CIA

I = 45.948 / (Tc + 10.200) ^ 0.693

PAGE 1 OF 1

LINE No.	INC AREA (AC)	RNOFF COEFF (C)	INC C*A	SUM C*A	TIME CONC (MIN)	RNFAL INT I (IPH)	TOTAL FLOW Q=CA*I, AdQ (CFS)	PIPE CAP (CFS)	PIPE SIZE (IN)	PIPE LEN (FT)	PIPE SLOPE (%)	HYD GRD SLOPE (%)	VEL UP/DN (FPS)	HYD GRD UP/DOWN (FT)	INVERT UP/DOWN (FT)	COMMENTS/ DOWNSTREAM LINE #
6	0.4	0.45	0.2	0.2	9.0	5.93	1.07	7.4	15	85	1.306	0.070	1.47	29.22	28.46	SS#79-3 - SS#79-6
							1.07 0.0	15					0.87	29.16	27.35	2
2	0.7	0.45	0.3	0.5	12.0	5.36	2.65	16.7	15	26	6.654	0.169	2.16	29.07	27.35	SS79-2 - SS79-3
							2.65 0.0	15					2.16	29.02	25.62	1
1	0.7	0.70	0.5	1.6	12.6	5.27	8.65	19.5	24	50	0.740	0.146	2.75	28.88	25.62	SS79-1 - SS79-2
							8.65 0.0	24					2.75	28.81	25.25	OUTFALL
5	0.4	0.44	0.2	0.2	8.0	6.15	1.08	5.9	15	35	0.829	0.070	0.88	29.58	26.91	SS#79-5 - SS#79-7
							1.08 0.0	15					0.88	29.55	26.62	4
4	0.5	0.44	0.2	0.4	10.0	5.72	2.27	4.1	15	40	0.400	0.123	1.85	29.49	26.62	SS79-4 - SS79-5
							2.27 0.0	15					1.85	29.44	26.46	3
3	0.5	0.50	0.3	0.7	11.0	5.54	3.63	5.8	18	280	0.300	0.120	2.06	29.36	26.46	SS79-2 - SS79-4
							3.63 0.0	18					2.06	29.02	25.62	1

STORM SEWER TABULATION

DATA FILE: SYSTEM7.ST3
 RAINFALL FILE: JCCN.RN3
 PRINTED: 06-22-1998

10 YEAR DESIGN STORM

Q = CIA

I = 45.948 / (Tc + 10.200) ^ 0.693

PAGE 1 OF 3

LINE No.	INC AREA (AC)	RNOFF COEFF (C)	INC C*A	SUM C*A	TIME CONC (MIN)	RNFAL INT I (IPH)	TOTAL FLOW Q=CA*I, AdQ (CFS)	PIPE CAP (CFS)	PIPE SIZE (IN)	PIPE LEN (FT)	PIPE SLOPE (%)	HYD GRD SLOPE (%)	VEL UP/DN (FPS)	HYD GRD UP/DOWN (FT)	INVERT UP/DOWN (FT)	COMMENTS/ DOWNSTREAM LINE #
5	0.7	0.40	0.3	0.3	12.0	5.36	1.54	12.4	15	56	3.696	0.110	1.26	28.55	27.19	SS7-5 - SS7-6
							1.54 0.0	15					1.26	28.49	25.12	4
→ 4	0.4	0.40	0.2	1.3	16.6	4.71	7.82	7.8	18	295	0.549	0.555	4.42	28.13	24.75	SS7-4 - SS7-5 ←
							6.02 0.0	18					4.43	26.49	23.13	3
3	0.3	0.40	0.1	1.4	18.2	4.52	8.12	14.7	18	240	1.950	1.446	5.92	25.84	24.75	SS7-3 - SS7-4
							6.32 0.0	18					4.60	22.37	20.07	2
2	1.1	0.62	0.7	7.5	30.1	3.55	28.44	63.4	30	56	2.393	0.637	7.60	21.29	19.51	SS7-2 - SS7-3
							26.64 0.0	30					5.79	20.93	18.17	1
1	1.2	0.70	0.9	8.4	30.4	3.53	31.36	40.9	35	190	0.437	0.283	6.94	20.04	18.17	SS7-1 - SS7-2
							29.56 0.0	35					5.91	19.50	17.34	OUTFALL
7	0.3	0.40	0.1	0.1	10.0	5.72	0.64	5.8	15	56	0.804	0.019	0.52	29.89	28.62	SS7-7 - SS7-8
							0.64 0.0	15					0.52	29.88	28.17	6
→ 6	0.3	0.40	0.1	0.8	14.9	4.92	4.08	6.5	15	296	1.010	0.400	3.33	29.68	28.13	SS7-5 - SS7-7 ←
							4.08 0.0	15					3.33	28.49	25.14	4
10	0.2	0.65	0.1	0.1	5.0	6.97	0.68	3.4	15	152	0.270	0.022	0.85	30.54	29.75	SS7-10 - SS7-11
							0.68 0.0	15					0.57	30.50	29.34	9
9	0.1	0.65	0.1	0.2	5.8	6.72	1.22	7.1	15	56	1.196	0.036	1.04	30.48	29.34	SS7-9 - SS7-10
							1.22 0.0	15					1.00	30.46	28.67	8
→ 8	0.3	0.40	0.1	0.6	13.8	5.08	3.10	3.2	15	200	0.250	0.230	2.52	30.34	28.67	SS7-7 - SS7-9 ←
							3.10 0.0	15					2.52	29.88	28.17	6
19	0.4	0.62	0.2	0.2	8.0	6.15	1.53	4.0	15	185	0.389	0.071	1.24	35.67	34.32	SS7-19 - SS7-20
							1.53 0.0	15					1.24	35.53	33.60	18
18	0.2	0.60	0.1	0.4	9.0	5.92	2.18	23.2	15	25	12.880	12.880	11.70	32.98	32.72	SS7-18 - SS7-19
							2.18 0.0	15					11.70	29.76	29.50	17
17	0.4	0.70	0.3	1.3	18.6	4.48	5.70	7.5	18	200	0.515	0.304	4.68	28.96	27.98	SS7-17 - SS7-18
							5.70 0.0	18					3.32	28.35	26.95	16
16	0.0	1.00	0.0	1.3	19.7	4.36	5.55	7.6	18	192	0.521	0.252	3.36	28.17	26.85	SS7-16 - SS7-17
							5.55 0.0	18					3.14	27.69	25.85	15

→ ← THIS SYSTEM ADJUSTED TO ACCOMMODATE THE DEVELOPMENT OF WHITE HAMLET SUBDIVISION. ALL UNMARKED LINES ARE EXISTING

STORM SEWER TABULATION (continued)

DATA FILE: SYSTEM7.ST3
 RAINFALL FILE: JCCH.RN3
 PRINTED: 06-22-1998

10 YEAR DESIGN STORM

Q = CIA

I = 45.948 / (Tc + 10.200) ^ 0.693

PAGE 2 OF 3

LINE No.	INC AREA (AC)	RNOFF COEFF (C)	INC C*A	SUM C*A	TIME CONC (MIN)	RNFAL INT I (IPH)	TOTAL FLOW Q=CA*I, DFO (CFS)	PIPE CAP (CFS)	PIPE SIZE HT/W (IN)	PIPE LEN (FT)	PIPE SLOPE (%)	HYD GRD SLOPE (%)	VEL UP/DN (FPS)	HYD GRD UP/DN (FT)	INVERT UP/DN (FT)	COMMENTS/DOWNSTREAM LINE #
15	0.2	0.70	0.2	1.4	20.8	4.26	6.10 6.10 0.0	21.2 24	24	25	0.880	0.073	2.00 1.94	27.61 27.60	25.75 25.53	SS7-15 - SS7-16 14
14	0.6	0.53	0.3	3.3	20.9	4.24	13.93 13.93 0.0	21.5 24	24	192	0.901	0.507	6.32 4.43	26.85 25.88	25.53 23.80	SS7-13 - SS7-15 13
13	0.3	0.52	0.1	3.4	22.0	4.15	14.16 14.16 0.0	21.4 24	24	128	0.898	0.293	5.80 4.51	25.25 24.88	23.80 22.65	SS7-12 - SS7-13 12
12	0.6	0.40	0.2	3.7	22.7	4.08	14.96 14.96 0.0	20.8 24	24	285	0.842	0.395	5.20 4.76	24.37 23.25	22.65 20.25	SS7-11 - SS7-12 11
11	5.9	0.30	1.8	5.4	30.0	3.55	19.31 19.31 0.0	17.3 24	24	24	0.583	0.730	6.15 6.15	22.54 22.37	20.25 20.11	SS7-3 - SS7-11 2
20	1.3	0.48	0.6	0.6	18.0	4.54	2.83 2.83 0.0	4.5 15	15	105	0.476	0.288	2.60 2.31	29.67 29.36	28.50 28.00	SS7-18 - SS7-19 17
23	0.1	0.70	0.1	0.1	5.0	6.97	0.49 0.49 0.0	4.1 15	15	25	0.400	0.024	0.41 0.40	30.85 30.84	29.68 29.58	SS7-23 - SS7-24 22
22	0.1	0.70	0.1	0.1	5.1	6.93	0.97 0.97 0.0	21.0 15	15	15	10.533	0.023	0.79 0.79	30.83 30.83	29.48 27.90	SS7-22 - SS7-23 21
21	0.7	0.55	0.4	1.5	15.0	4.91	7.56 7.56 0.0	7.9 18	18	124	0.573	0.748	4.75 5.73	30.41 29.48	29.14 28.43	SS7-15 - SS7-22 14
27	0.1	0.70	0.1	0.1	5.0	6.97	0.49 0.49 0.0	4.1 15	15	25	0.400	0.018	0.40 0.40	31.82 31.81	29.90 29.80	SS7-27 - SS7-28 26
26	0.3	0.50	0.2	0.5	13.2	5.17	2.56 2.56 0.0	5.6 15	15	87	0.747	0.157	2.09 2.09	31.73 31.59	29.70 29.05	SS7-26 - SS7-27 25
25	0.4	0.65	0.3	0.8	13.7	5.10	3.85 3.85 0.0	5.1 15	15	56	0.625	0.356	3.14 3.14	31.41 31.21	28.95 28.60	SS7-25 - SS7-26 24
24	0.4	0.65	0.3	1.0	14.0	5.06	5.13 5.13 0.0	8.3 18	18	95	0.632	0.239	2.90 2.90	31.05 30.83	28.50 27.90	SS7-22 - SS7-25 21
28	0.5	0.55	0.3	0.3	13.0	5.20	1.43 1.43 0.0	5.3 15	15	30	0.667	0.133	1.17 1.17	31.85 31.81	30.00 29.80	SS7-27 - SS7-28 26

STORM SEWER TABULATION (continued)

DATA FILE: SYSTEM7.ST3

RAINFALL FILE: JCCN.RN3

PRINTED: 06-22-1998

10 YEAR DESIGN STORM

Q = CIA

I = 45.948 / (Tc + 10.200) ^ 0.693

PAGE 3 OF 3

LINE No.	INC AREA (AC)	RNOFF COEFF (C)	INC C*A	SUM C*A	TIME CONC (MIN)	RNFAL INT I (IPH)	TOTAL FLOW Q=CA*I, DFQ (CFS)	PIPE CAP (CFS)	PIPE SIZE HT/W (IN)	PIPE LEN (FT)	PIPE SLOPE (%)	HYD GRD SLOPE (%)	VEL UP/DN (FPS)	HYD GRD UP/DOWN (FT)	INVERT UP/DOWN (FT)	COMMENTS/ DOWNSTREAM LINE #
29	0.8	0.40	0.3	0.3	13.0	5.20	1.58	5.2	15	146	0.658	0.089	1.65	30.59	29.63	SS7-9 - SS7-30 ←
							1.58 0.0		15				1.29	30.46	28.67	8
30	0.0	0.00	0.0	0.0	0.0	0.00	1.80	1.5	10	110	0.455	0.860	3.30	29.44	25.25	SS#7-5 - SS#7-29 ←
							0.00 1.8		10				3.30	28.49	24.75	4

STORM WATER INLET COMPUTATIONS

Form LD 204
Rev. 6-85

- GRADE
 - SUMP

RTE: WYTHE CLOSE

PROJ: WYTHE TRACE

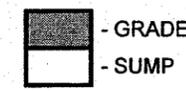
DATE: APRIL 7, 1998

Rev. 6/10/98

NUMBER	INLET		STATION	DRAINAGE AREA (AC.)	C	CA	SUM CA	I (INCHES/HOUR)	Q (CFS) Q/CIA (RATIONAL METHOD)	Q CARRYOVER (CFS)	Q1 GUTTER FLOW	S GUTTER SLOPE (FT/FT)	Sx CROSS SLOPE (FT/FT)	T (SPREAD)	W (FT)	W/T	Sw (FT/FT)	Sw/Sx	Eo (#10)	a	Sw = a/(12W)	Se (FT/FT) = Sx + SwEo	L1 (FT) (#16)	P EFFEC LENGTH (FT)	d (FT)	E (#16)	h (FT)	Q INTERCEPTED (CFS)	d/h	Q2 CARRYOVER (CFS)	T SPREAD @ SAG (FT.) [d/Sx]	REMARKS:				
	TYPE	L (LENGTH) (FT.)																																		
80-2	3B	3	10+15 LEFT	0.93	0.45	0.24	0.24	3.5	0.83	—	0.83	0.014	0.02	4.8'	2.0'	0.42	0.08	4	0.89	2	0.08	0.09	3	1	1	0.83	0									
80-6	3B	4	10+90 LEFT	0.29	0.44	0.13	0.13	3.5	0.45	—	0.45	0.006	0.02	4.0'	2.0'	0.5	0.08	4	0.95	2	0.08	0.096	5	0.8	0.93	0.42	0.63						Tmax = 7.5' OK			
80-5	3C	6	11+30 LEFT	0.27	0.43	0.12	0.12	3.5	0.41	0.03	0.44	0.001	0.02	6.7'	2.0'																			Tmax = 7.5' OK		
			11+30 LEFT	0.27	0.44	0.12	0.12	3.5	0.41	0.02	0.85	0.001	0.02	6.6'	2.0'									9.6	0.12	0.29	0.41	5.8					Tmax = 7.5' OK			
			11+30 LEFT	0.27	0.44	0.12	0.12	3.5	0.41	0.02	0.43	0.001	0.02	6.6'	2.0'																			Tmax = 7.5'		
80-7	3A	2.5	12+00 LEFT	0.16	0.43	0.07	0.07	3.5	0.24	—	0.24	0.01	0.02	4.2'	2.0'	1.67	0.08	4	1	2	0.08	0.1	4	0.63	0.92	0.22	0.02						Tmax = 7.5' OK			
			11+00 RIGHT (WYTHE HAMLET)	0.06	0.70	0.04	0.04	3.5	0.14	—	0.14	0.008	0.02	1.6'	2.0'																					
			11+00 RIGHT (WYTHE CLOSE)	0.06	0.70	0.04	0.08	3.5	0.28	—	0.28	0.009	0.02	2.0'	2.0'																					
80-4	3A	2.5	11+30 RIGHT	0.04	0.70	0.02	0.10	3.5	0.35	—	0.35	0.002	0.02	4.8'	2.0'																					
			11+30 RIGHT	0.04	0.70	0.028	0.084	3.5	0.29	—	0.63	0.002	0.02	4.2'	2.0'										6.1	0.13	0.29	0.45	6.5						Tmax = 7.5' OK	
			12+00	0.08	0.70	0.056	0.056	3.5	0.20	—	0.20	0.01	0.02	1.7'	2.0'																					

STORM WATER INLET COMPUTATIONS

Form LD 204
Rev. 6-85



RTE: WYTHE HAMLET

PROJ: WYTHE TRACT

DATE: APRIL 7, 1998

REV 6/10/98

INLET			STATION	DRAINAGE AREA (AC.)	C	CA	SUM CA	I (INCHES/HOUR)	Q (CFS) Q/CIA (RATIONAL METHOD)	Q CARRYOVER (CFS)	Q1 GUTTER FLOW	S GUTTER SLOPE (FT/FT)	Sx CROSS SLOPE (FT/FT)	T (SPREAD)	W (FT)	W/T	Sw (FT/FT)	Sw/Sx	Eo (#10)	a	Sw = a/(12W)	Se (FT/FT) = Sx + SwEo	L (FT) (#15)	PEFFEC LENGTH (FT.)	d (FT)	E (#16)	h (FT.)	Q1 CARRYOVER (CFS)	d/h	Q2 CARRYOVER (CFS)	T SPREAD @ SAG (FT.) [d/Sx]	REMARKS:	
NUMBER	TYPE	L (LENGTH) (FT.)																															
79-6	3B	6	14+15 RIGHT	0.35	0.44	0.15	0.15	3.5	0.5	-	0.5	0.012	0.02	2.5	2.0	0.71	0.08	4	0.97	2	0.08	0.098	7	0.85	0.95	0.47	0.03				Tmax = 7.5' OK ✓		
			15+00 RIGHT	0.35	0.44	0.15	0.15	3.5	0.55	0.03	0.55	0.001	0.02	7.3																			Tmax = 7.5' OK ✓
79-3	3C	6	15+00 RIGHT	0.40	0.4	0.16	0.16	3.5	1.1	0.03	1.1	0.001	0.02	7.5'									9.6	0.13	0.29'	0.45	0.3					Tmax = 7.5' OK ✓	
			15+00 RIGHT	0.40	0.4	0.16	0.16	3.5	0.56	-	0.56	0.001	0.02	7.5'																			Tmax = 7.5' OK ✓
79-7	3B	4	17+41 RIGHT	0.40	0.4	0.16	0.16	3.5	0.5	-	0.5	0.01	0.02	3.5	2.0'	0.57	0.08	4	0.93	2	0.08	0.094	6	0.67	0.85	0.43	0.07					Tmax = 7.5' OK ✓	
			17+55 RIGHT	0.14	0.4	0.06	0.06	3.5	0.2	0.07	0.27	0.001	0.02	5.1	2.0'																		Tmax = 7.5' OK ✓
79-9	3C	6	17+55 RIGHT	0.36	0.4	0.14	0.14	3.5	0.34	0.07	0.41	0.001	0.02	2.0'	2.0'								13.6	0.1	0.19'	0.34	5.0					Tmax = 7.5' OK ✓	
			17+55 RIGHT	0.36	0.4	0.14	0.14	3.5	0.14	-	0.14	0.001	0.02	3.1	2.0'																		Tmax = 7.5' OK ✓

FILE - J:\AESFORMS\STM-INLET COMPS.XLS

STORM WATER INLET COMPUTATIONS

Form LD 204
Rev. 6-85

- GRADE
 - SUMP

RTE: WYTHE HAMLET

PROJ: WYTHE TRACE

DATE: APRIL 06, 1998

REVISION: 6/13/98

INLET			STATION	DRAINAGE AREA (AC.)	C	CA	SUM CA	I (INCHES/HOUR)	Q (CFS) Q=CIA (RATIONAL METHOD)	Q CARRYOVER (CFS)	Q _i GUTTER FLOW	S GUTTER SLOPE (FT/FT)	S _x CROSS SLOPE (FT/FT)	T (SPREAD)	W (FT)	WT	S _w (FT/FT)	S _w /S _x	E _o (#10)	a	S _w = a/(12W)	S _e (FT/FT) = S _x + S _w E _o	L _i (FT) (#15)	P EFFEC LENGTH (FT.)	L ₁ (FT)	d (FT)	E (#10)	h (FT.)	Q INTERCEPTED (CFS)	d/h	Q _i CARRYOVER (CFS)	T SPREAD @ SAG (FT.) [d/S _x]	REMARKS:				
NUMBER	TYPE	L (LENGTH) (FT.)																																			
			11+00 LEFT	0.05	0.9	0.05	0.05	3.5	0.18	—	0.18	0.005	0.02	1.7'	2.0'																				T _{max} =7.5' OK ✓		
80-2	3A	2.5'	11+57 LEFT	0.09	0.52	0.05	0.10	3.5	0.35	—	0.35	0.002	0.02	4.8'	2.0'																				T _{max} =7.5' OK ✓		
			11+57 LEFT	0.06	0.52	0.03	0.13	3.5	0.46	—	0.46	0.002	0.02	5.5'	2.0'																				T _{max} =7.5' OK ✓		
			11+57 LEFT	0.06	0.52	0.03	0.13	3.5	0.46	—	0.46	0.002	0.02	5.5'	2.0'																					T _{max} =7.5' OK ✓	
			12+00 LEFT	0.19	0.52	0.1	0.1	3.5	0.35	—	0.35	0.006	0.02	3.2'	2.0'																					T _{max} =7.5' OK ✓	
			14+00 LEFT	0.10	0.55	0.06	0.06	3.5	0.21	—	0.21	0.018	0.02	1.5'	2.0'																					T _{max} =7.5' OK ✓	
79-2	3A	2.5'	15+00 LEFT	0.06	0.70	0.04	0.10	3.5	0.35	—	0.35	0.002	0.02	4.8'	2.0'																					T _{max} =7.5' OK ✓	
			15+00 LEFT	0.06	0.70	0.04	0.04	3.5	0.14	—	0.14	0.002	0.02	2.1'	2.0'																					T _{max} =7.5' OK ✓	
			15+00 LEFT	0.06	0.70	0.04	0.04	3.5	0.14	—	0.14	0.002	0.02	2.1'	2.0'																						T _{max} =7.5' OK ✓
			17+00 LEFT	0.05	0.7	0.04	0.04	3.5	0.14	—	0.14	0.02	0.02	1.2'	2.0'																					T _{max} =7.5' OK ✓	
79-4	3A	2.5'	17+77 LEFT	0.19	0.48	0.01	0.05	3.5	0.18	—	0.18	0.002	0.02	2.8'	2.0'																						T _{max} =7.5' OK ✓
			17+77 LEFT	0.33	0.49	0.16	0.16	3.5	0.56	—	0.56	0.002	0.02	6.5'	2.0'																						T _{max} =7.5' OK ✓
			17+77 LEFT	0.33	0.49	0.16	0.16	3.5	0.56	—	0.56	0.002	0.02	6.5'	2.0'																						

FILE: J:\AESFORMS\STMAINLET COMPS.XLS

W/ THE HAMLEN
GOVERNOR'S LAND @ TWO RIVERS
WORKSHEET FOR BMP POINT SYSTEM

A. STRUCTURAL BMP POINT ALLOCATION

<u>BMP</u>	<u>BMP Points</u>	<u>Fraction of Site Served by BMP</u>	<u>Weighted BMP Points</u>
SEE BELOW		x	=
		x	=
		x	=
		x	=
TOTAL WEIGHTED STRUCTURAL BMP POINTS:			

B. NATURAL OPEN SPACE CREDIT

<u>Fraction of Site</u>	<u>Natural Open Space Credit</u>	<u>Points for Natural Open Space</u>
	x	=
	(0.1 per 1%)	

C. TOTAL WEIGHTED POINTS

	+		=	
Structural BMP Points		Natural Open Space Points		TOTAL

IN ACCORDANCE TO THE BMP MASTER PLAN FOR GOVERNOR'S LAND, A BMP FACILITY IS NOT ANTICIPATED FOR THIS SUBDIVISION. THIS SUBDIVISION IS, HOWEVER, SERVED BY A BMP (TIMBER STRUCTURE) LOCATED IN A DRAINAGE WAY BETWEEN THE SUBDIVISIONS OF NATHANIEL'S GREEN AND FOUNDER'S HILL. FACILITIES SHOWN ON THE PLANS (DETECTION POND) IS NOT FOR WATER QUALITY IMPROVEMENT.

Hydrograph Summary Report

AES Project No. 7173-3-2b

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Return period (yrs)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	3.5	1	35	14,850	2	---	---	---	Wythe Hamlet 2-yr.
2	Rational	9.8	1	15	17,665	2	---	---	---	Wythe Hamlet 2-yr.
3	Rational	13.1	1	15	23,556	10	---	---	---	Wythe Hamlet 10yr.
4	Reservoir	1.1	1	55	4,656	2	2	28.54	16,477	Route 2-yr. Post-d
5	Reservoir	1.8	1	54	10,546	10	3	29.13	20,923	10-yr. Post-develop
6	Rational	15.8	1	15	28,364	25	---	---	---	Wythe Hamlet 25-yr
7	Reservoir	2.1	1	54	15,354	25	6	29.52	24,801	25-yr. Post-develop

S-32-98
JR040

Proj. file: 71730e32b.GPW

IDF file: jcc.IDF

Run date: 06-20-1998

Hydrograph Report

Hyd. No. 1

Wythe Hamlet 2-yr. Pre-development

Hydrograph type = Rational
Storm frequency = 2 yrs
Drainage area = 5.3 ac
Intensity = 2.93 in
I-D-F Curve = jcc.IDF

Peak discharge = 4.66 cfs
Time interval = 1 min
Runoff coeff. = 0.3
Time of conc. (Tc) = 20 min
Reced. limb factor = 3

Total Volume = 11,176 cuft

Hydrograph Discharge Table

Time -- Outflow
(min cfs)

2	0.47
7	1.63
12	2.79
17	3.96
22	4.50
27	4.11
32	3.73
37	3.34
42	2.95
47	2.56
52	2.17
57	1.78
62	1.40
67	1.01
72	0.62

...End

Hydrograph Plot

English

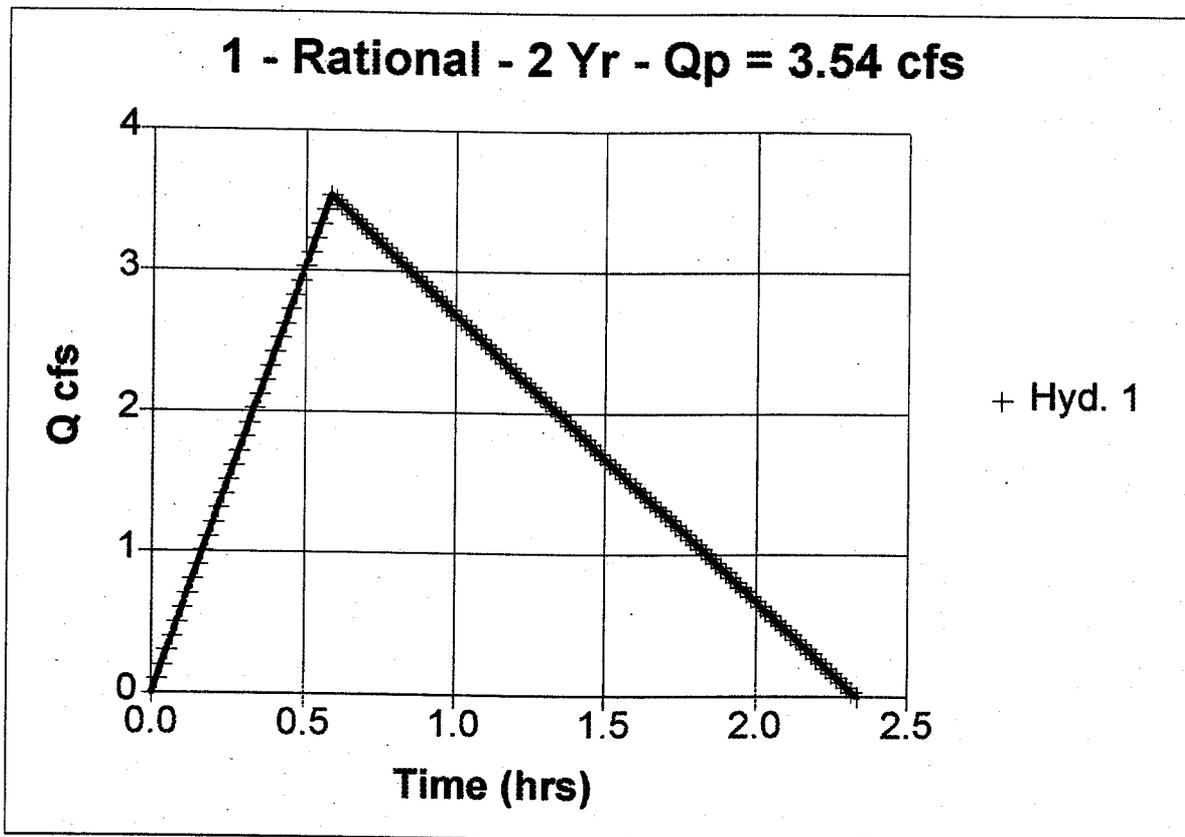
Hyd. No. 1

Wythe Hamlet 2-yr. Pre-development

Hydrograph type = Rational
Storm frequency = 2 yrs
Drainage area = 5.3 ac
Intensity = 2.22 in
I-D-F Curve = jcc.IDF

Peak discharge = 3.54 cfs
Time interval = 1 min
Runoff coeff. = 0.3
Time of conc. (Tc) = 35 min
Reced. limb factor = 3

Total Volume = 14,850 cuft



CALCULATION OF RUNOFF COEFFICIENT
WYTHE HAMLET - GOVERNOR'S LAND AT TWO RIVERS
 AES Project No.: 7173-3-2B
 April 20, 1998

- I. **TOTAL DRAINAGE AREA TO DETENTION BASIN = 5.30 Acres**
- II. **POST-DEVELOPMENT CONDITIONS**
 - A. **Post-Development Drainage Area to Point of Concern = 5.30 Acres**
 - B. **Post-development Land Use and Calculation of Runoff Coefficient**

<u>Post-Development Land Use</u>	<u>Area of Land Use (in Acres)</u>	<u>Runoff Coefficient (C)</u>	<u>C * A</u>
Residential, 1/3 acre lots	1.65	0.57	0.94
Wooded areas	0.70	0.35	0.25
ponds	0.20	0.95	0.19
Residential, 1/3 acre lots	2.05	0.57	1.17
Wooded areas	0.50	0.35	0.18
Ponds	0.20	0.95	0.19
Total Adjusted C =	5.30		2.91
Composite C =			0.55

Hydrograph Report

Hyd. No. 2

Wythe Hamlet 2-yr. Post-development

Hydrograph type = Rational
Storm frequency = 2 yrs
Drainage area = 5.3 ac
Intensity = 3.37 in
I-D-F Curve = jcc.IDF

Peak discharge = 9.81 cfs
Time interval = 1 min
Runoff coeff. = 0.55
Time of conc. (Tc) = 15 min
Reced. limb factor = 3

Total Volume = 17,665 cuft

Hydrograph Discharge Table

Time -- Outflow
(min cfs)

2	1.31
7	4.58
12	7.85
17	9.38
22	8.29
27	7.20
32	6.11
37	5.02
42	3.93
47	2.84
52	1.74

...End

Hydrograph Plot

English

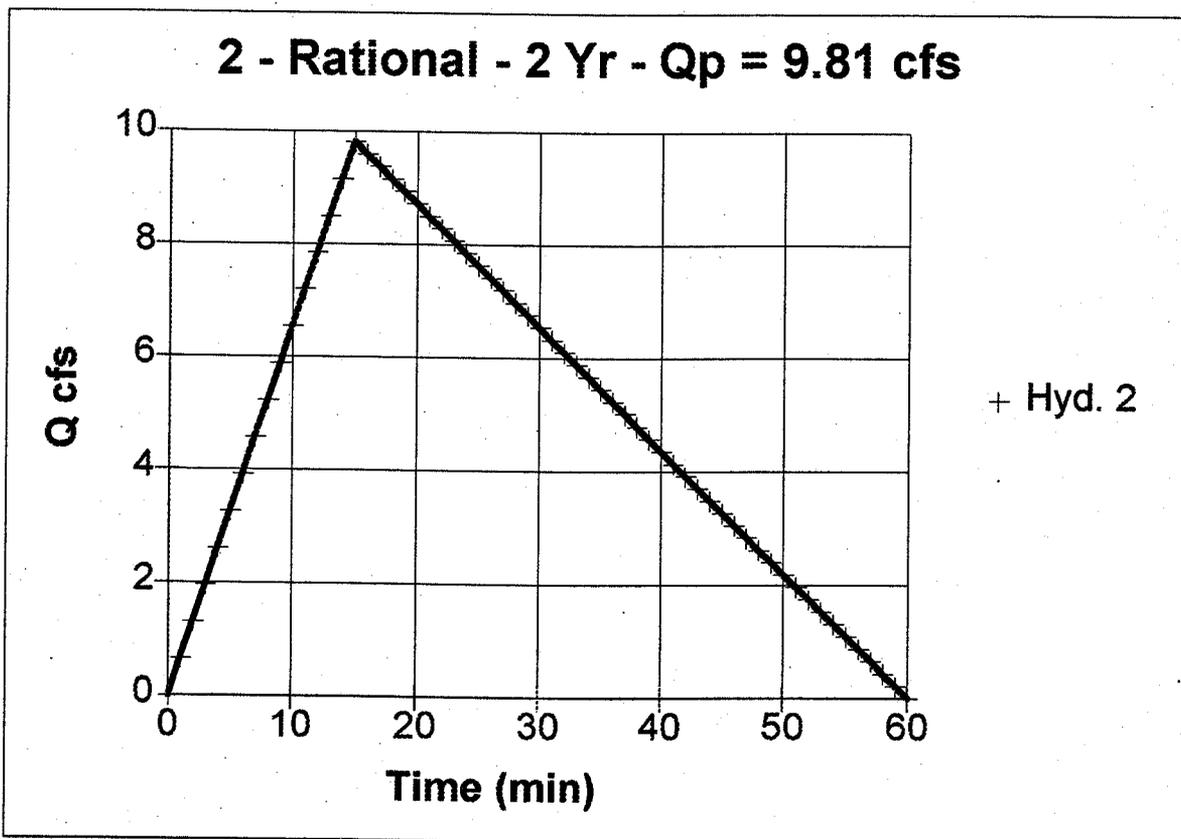
Hyd. No. 2

Wythe Hamlet 2-yr. Post-development

Hydrograph type = Rational
Storm frequency = 2 yrs
Drainage area = 5.3 ac
Intensity = 3.37 in
I-D-F Curve = jcc.IDF

Peak discharge = 9.81 cfs
Time interval = 1 min
Runoff coeff. = 0.55
Time of conc. (T_c) = 15 min
Reced. limb factor = 3

Total Volume = 17,665 cuft



Hydrograph Report

Page 1

English

Hyd. No. 3

Wythe Hamlet 10yr. Post-development

Hydrograph type = Rational
Storm frequency = 10 yrs
Drainage area = 5.3 ac
Intensity = 4.49 in
I-D-F Curve = jcc.IDF

Peak discharge = 13.09 cfs
Time interval = 1 min
Runoff coeff. = 0.55
Time of conc. (Tc) = 15 min
Reced. limb factor = 3

Total Volume = 23,556 cuft

Hydrograph Discharge Table

Time -- Outflow
(min cfs)

2	1.74
7	6.11
12	10.47
17	12.50
22	11.05
27	9.60
32	8.14
37	6.69
42	5.23
47	3.78
52	2.33

...End

Hydrograph Plot

English

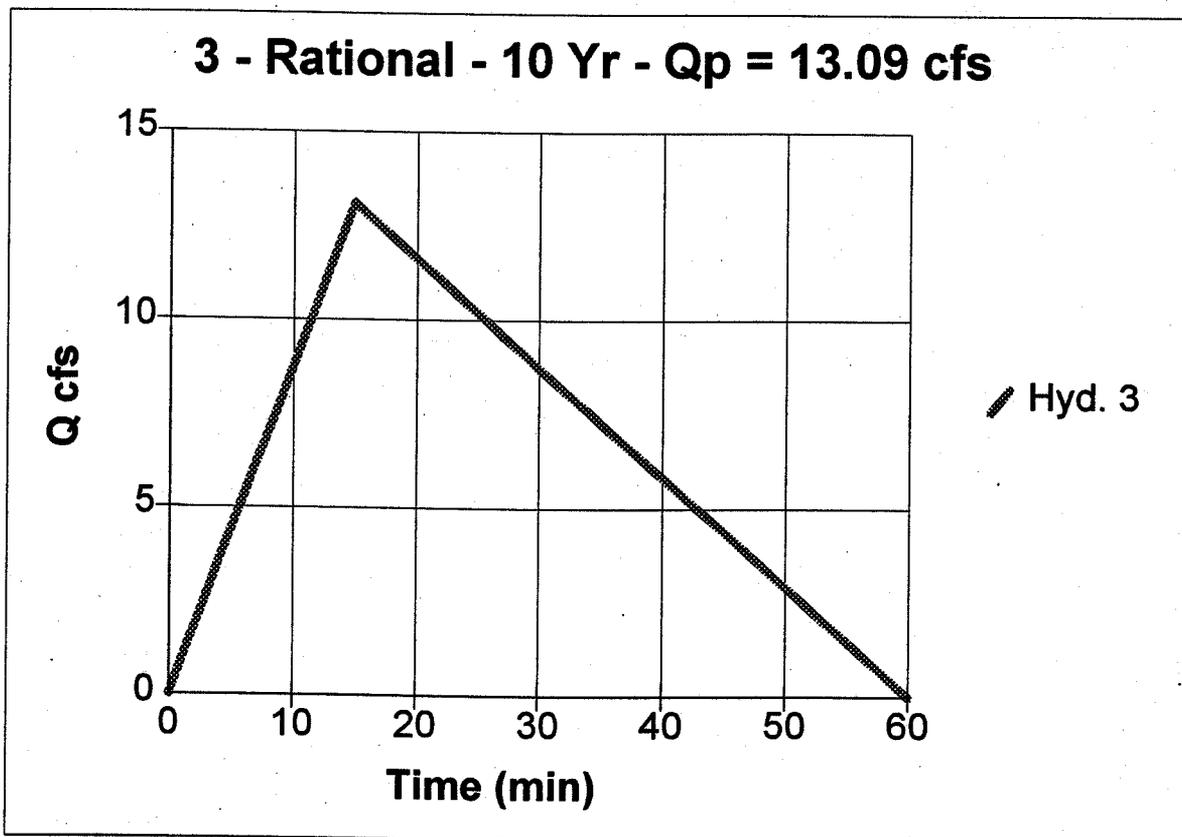
Hyd. No. 3

Wythe Hamlet 10yr. Post-development

Hydrograph type = Rational
Storm frequency = 10 yrs
Drainage area = 5.3 ac
Intensity = 4.49 in
I-D-F Curve = jcc.IDF

Peak discharge = 13.09 cfs
Time interval = 1 min
Runoff coeff. = 0.55
Time of conc. (Tc) = 15 min
Reced. limb factor = 3

Total Volume = 23,556 cuft



Reservoir Report

Reservoir No. 1 - Wythe Hamlet Det. BMP

English

Pond Data

Pond storage is based on known contour areas

Stage / Storage Table

Stage ft	Elevation ft	Contour area sqft	Incr. Storage cuft	Total storage cuft
0.00	25.25	2,200	0	0
0.80	26.00	3,200	2,160	2,160
1.80	27.00	5,003	4,101	6,261
2.80	28.00	6,911	5,957	12,218
3.80	29.05	8,923	7,917	20,135
4.80	30.00	11,037	9,980	30,115
5.80	31.00	13,252	12,145	42,260
6.80	32.00	15,568	14,410	56,670

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 10.0	0.0	0.0	0.0
Span in	= 10.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 25.25	0.00	0.00	0.00
Length ft	= 110.0	0.0	0.0	0.0
Slope %	= 0.45	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= ----	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.0	0.0	0.0	0.0
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Eqn. Exp.	= 0.00	0.00	0.00	0.00
Multi-Stage	= No	No	No	No

Tailwater Elevation = 28.18 ft

Stage / Storage / Discharge Table

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

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Discharge cfs
0.00	0	25.25	0.00	---	---	---	---	---	---	---	0.00
0.08	216	25.33	0.00	---	---	---	---	---	---	---	0.00
0.16	432	25.41	0.00	---	---	---	---	---	---	---	0.00
0.24	648	25.49	0.00	---	---	---	---	---	---	---	0.00
0.32	864	25.57	0.00	---	---	---	---	---	---	---	0.00
0.40	1,080	25.65	0.00	---	---	---	---	---	---	---	0.00
0.48	1,296	25.73	0.00	---	---	---	---	---	---	---	0.00
0.56	1,512	25.81	0.00	---	---	---	---	---	---	---	0.00
0.64	1,728	25.89	0.00	---	---	---	---	---	---	---	0.00
0.72	1,944	25.97	0.00	---	---	---	---	---	---	---	0.00
0.80	2,160	26.00	0.00	---	---	---	---	---	---	---	0.00

Continues on next page...

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Discharge cfs
0.90	2,570	26.10	0.00	---	---	---	---	---	---	---	0.00
1.00	2,980	26.20	0.00	---	---	---	---	---	---	---	0.00
1.10	3,390	26.30	0.00	---	---	---	---	---	---	---	0.00
1.20	3,800	26.40	0.00	---	---	---	---	---	---	---	0.00
1.30	4,211	26.50	0.00	---	---	---	---	---	---	---	0.00
1.40	4,621	26.60	0.00	---	---	---	---	---	---	---	0.00
1.50	5,031	26.70	0.00	---	---	---	---	---	---	---	0.00
1.60	5,441	26.80	0.00	---	---	---	---	---	---	---	0.00
1.70	5,851	26.90	0.00	---	---	---	---	---	---	---	0.00
1.80	6,261	27.00	0.00	---	---	---	---	---	---	---	0.00
1.90	6,857	27.10	0.00	---	---	---	---	---	---	---	0.00
2.00	7,452	27.20	0.00	---	---	---	---	---	---	---	0.00
2.10	8,048	27.30	0.00	---	---	---	---	---	---	---	0.00
2.20	8,644	27.40	0.00	---	---	---	---	---	---	---	0.00
2.30	9,240	27.50	0.00	---	---	---	---	---	---	---	0.00
2.40	9,835	27.60	0.00	---	---	---	---	---	---	---	0.00
2.50	10,431	27.70	0.00	---	---	---	---	---	---	---	0.00
2.60	11,027	27.80	0.00	---	---	---	---	---	---	---	0.00
2.70	11,622	27.90	0.00	---	---	---	---	---	---	---	0.00
2.80	12,218	28.00	0.00	---	---	---	---	---	---	---	0.00
2.90	13,010	28.10	0.00	---	---	---	---	---	---	---	0.00
3.00	13,801	28.20	0.26	---	---	---	---	---	---	---	0.26
3.10	14,593	28.30	0.63	---	---	---	---	---	---	---	0.63
3.20	15,385	28.40	0.85	---	---	---	---	---	---	---	0.85
3.30	16,177	28.50	1.02	---	---	---	---	---	---	---	1.02
3.40	16,968	28.60	1.17	---	---	---	---	---	---	---	1.17
3.50	17,760	28.70	1.31	---	---	---	---	---	---	---	1.31
3.60	18,552	28.80	1.43	---	---	---	---	---	---	---	1.43
3.70	19,343	28.90	1.54	---	---	---	---	---	---	---	1.54
3.80	20,135	29.05	1.69	---	---	---	---	---	---	---	1.69
3.90	21,133	29.15	1.78	---	---	---	---	---	---	---	1.78
4.00	22,131	29.25	1.87	---	---	---	---	---	---	---	1.87
4.10	23,129	29.35	1.96	---	---	---	---	---	---	---	1.96
4.20	24,127	29.45	2.04	---	---	---	---	---	---	---	2.04
4.30	25,125	29.55	2.12	---	---	---	---	---	---	---	2.12
4.40	26,123	29.65	2.20	---	---	---	---	---	---	---	2.20
4.50	27,121	29.75	2.27	---	---	---	---	---	---	---	2.27
4.60	28,119	29.85	2.34	---	---	---	---	---	---	---	2.34
4.70	29,117	29.95	2.41	---	---	---	---	---	---	---	2.41
4.80	30,115	30.00	2.44	---	---	---	---	---	---	---	2.44
4.90	31,330	30.10	2.51	---	---	---	---	---	---	---	2.51
5.00	32,544	30.20	2.57	---	---	---	---	---	---	---	2.57
5.10	33,759	30.30	2.64	---	---	---	---	---	---	---	2.64
5.20	34,973	30.40	2.70	---	---	---	---	---	---	---	2.70
5.30	36,188	30.50	2.76	---	---	---	---	---	---	---	2.76
5.40	37,402	30.60	2.82	---	---	---	---	---	---	---	2.82
5.50	38,617	30.70	2.87	---	---	---	---	---	---	---	2.87
5.60	39,831	30.80	2.93	---	---	---	---	---	---	---	2.93
5.70	41,046	30.90	2.99	---	---	---	---	---	---	---	2.99
5.80	42,260	31.00	3.04	---	---	---	---	---	---	---	3.04
5.90	43,701	31.10	3.09	---	---	---	---	---	---	---	3.09
6.00	45,142	31.20	3.15	---	---	---	---	---	---	---	3.15
6.10	46,583	31.30	3.20	---	---	---	---	---	---	---	3.20

Continues on next page...

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Discharge cfs
6.20	48,024	31.40	3.25	---	---	---	---	---	---	---	3.25
6.30	49,465	31.50	3.30	---	---	---	---	---	---	---	3.30
6.40	50,906	31.60	3.35	---	---	---	---	---	---	---	3.35
6.50	52,347	31.70	3.40	---	---	---	---	---	---	---	3.40
6.60	53,788	31.80	3.45	---	---	---	---	---	---	---	3.45
6.70	55,229	31.90	3.49	---	---	---	---	---	---	---	3.49
6.80	56,670	32.00	3.54	---	---	---	---	---	---	---	3.54

...End

Hydrograph Report

Hyd. No. 4

Route 2-yr. Post-level

Hydrograph type = Reservoir
Storm frequency = 2 yrs
Inflow hyd. No. = 2
Max. Elevation = 28.54 ft

Peak discharge = 1.08 cfs
Time interval = 1 min
Reservoir name = Wythe Hamlet De
Max. Storage = 16,477 cuft

Storage Indication method used.

Total Volume = 4,656 cuft

Hydrograph Discharge Table

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Outflow cfs
35	5.45	28.17	0.18	----	----	----	----	----	----	----	0.18
40	4.36	28.34	0.71	----	----	----	----	----	----	----	0.71
45	3.27	28.45	0.94	----	----	----	----	----	----	----	0.94
50	2.18	28.52	1.05	----	----	----	----	----	----	----	1.05
55	1.09	28.54 <<	1.08	----	----	----	----	----	----	----	1.08 <<
60	0.00	28.52	1.05	----	----	----	----	----	----	----	1.05
65	0.00	28.48	0.99	----	----	----	----	----	----	----	0.99
70	0.00	28.44	0.92	----	----	----	----	----	----	----	0.92
75	0.00	28.41	0.87	----	----	----	----	----	----	----	0.87
80	0.00	28.38	0.80	----	----	----	----	----	----	----	0.80
85	0.00	28.35	0.74	----	----	----	----	----	----	----	0.74
90	0.00	28.32	0.68	----	----	----	----	----	----	----	0.68
95	0.00	28.30	0.62	----	----	----	----	----	----	----	0.62
100	0.00	28.28	0.54	----	----	----	----	----	----	----	0.54
105	0.00	28.26	0.47	----	----	----	----	----	----	----	0.47
110	0.00	28.24	0.40	----	----	----	----	----	----	----	0.40
115	0.00	28.23	0.35	----	----	----	----	----	----	----	0.35
120	0.00	28.21	0.31	----	----	----	----	----	----	----	0.31
125	0.00	28.20	0.27	----	----	----	----	----	----	----	0.27
130	0.00	28.19	0.24	----	----	----	----	----	----	----	0.24
135	0.00	28.18	0.22	----	----	----	----	----	----	----	0.22
140	0.00	28.18	0.20	----	----	----	----	----	----	----	0.20
145	0.00	28.17	0.18	----	----	----	----	----	----	----	0.18
150	0.00	28.16	0.16	----	----	----	----	----	----	----	0.16
155	0.00	28.16	0.15	----	----	----	----	----	----	----	0.15
160	0.00	28.15	0.13	----	----	----	----	----	----	----	0.13
165	0.00	28.15	0.12	----	----	----	----	----	----	----	0.12
170	0.00	28.14	0.11	----	----	----	----	----	----	----	0.11

...End

Hydrograph Plot

English

Hyd. No. 4

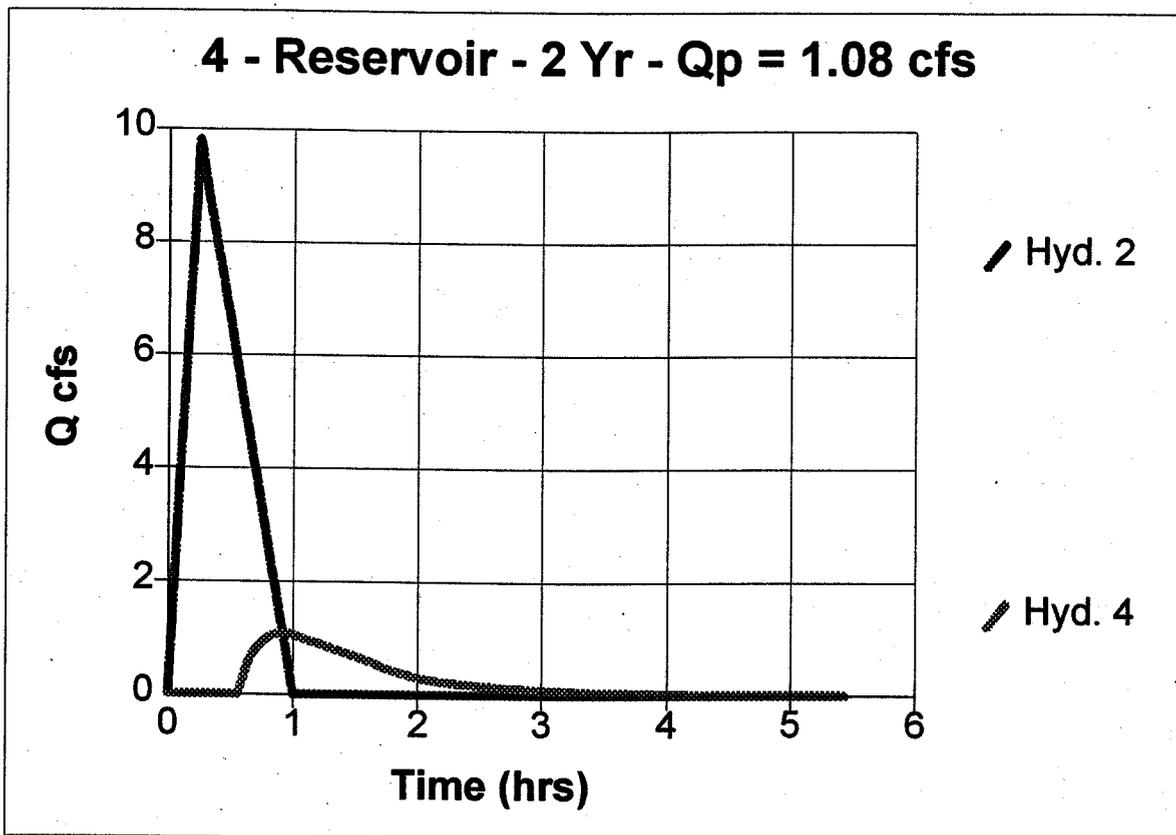
Route 2-yr. Post-level

Hydrograph type = Reservoir
Storm frequency = 2 yrs
Inflow hyd. No. = 2
Max. Elevation = 28.54 ft

Peak discharge = 1.08 cfs
Time interval = 1 min
Reservoir name = Wythe Hamlet De
Max. Storage = 16,477 cuft

Storage Indication method used.

Total Volume = 4,656 cuft



Hydrograph Report

Hyd. No. 5

10-yr. Post-development

Hydrograph type = Reservoir
Storm frequency = 10 yrs
Inflow hyd. No. = 3
Max. Elevation = 29.13 ft

Peak discharge = 1.76 cfs
Time interval = 1 min
Reservoir name = Wythe Hamlet De
Max. Storage = 20,923 cuft

Storage Indication method used.

Total Volume = 10,546 cuft

Hydrograph Discharge Table

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Outflow cfs
30	8.72	28.42	0.89	----	----	----	----	----	----	----	0.89
35	7.27	28.68	1.28	----	----	----	----	----	----	----	1.28
40	5.82	28.88	1.51	----	----	----	----	----	----	----	1.51
45	4.36	29.06	1.70	----	----	----	----	----	----	----	1.70
50	2.91	29.12	1.75	----	----	----	----	----	----	----	1.75
55	1.45	29.13	1.76	----	----	----	----	----	----	----	1.76
60	0.00	29.10	1.73	----	----	----	----	----	----	----	1.73
65	0.00	29.04	1.68	----	----	----	----	----	----	----	1.68
70	0.00	28.95	1.59	----	----	----	----	----	----	----	1.59
75	0.00	28.87	1.51	----	----	----	----	----	----	----	1.51
80	0.00	28.82	1.45	----	----	----	----	----	----	----	1.45
85	0.00	28.76	1.38	----	----	----	----	----	----	----	1.38
90	0.00	28.71	1.32	----	----	----	----	----	----	----	1.32
95	0.00	28.66	1.26	----	----	----	----	----	----	----	1.26
100	0.00	28.62	1.20	----	----	----	----	----	----	----	1.20
105	0.00	28.57	1.13	----	----	----	----	----	----	----	1.13
110	0.00	28.53	1.07	----	----	----	----	----	----	----	1.07
115	0.00	28.49	1.01	----	----	----	----	----	----	----	1.01
120	0.00	28.46	0.95	----	----	----	----	----	----	----	0.95
125	0.00	28.42	0.89	----	----	----	----	----	----	----	0.89
130	0.00	28.39	0.82	----	----	----	----	----	----	----	0.82
135	0.00	28.36	0.76	----	----	----	----	----	----	----	0.76
140	0.00	28.33	0.70	----	----	----	----	----	----	----	0.70
145	0.00	28.31	0.64	----	----	----	----	----	----	----	0.64
150	0.00	28.28	0.56	----	----	----	----	----	----	----	0.56
155	0.00	28.26	0.49	----	----	----	----	----	----	----	0.49
160	0.00	28.25	0.43	----	----	----	----	----	----	----	0.43
165	0.00	28.23	0.37	----	----	----	----	----	----	----	0.37
170	0.00	28.22	0.32	----	----	----	----	----	----	----	0.32
175	0.00	28.21	0.28	----	----	----	----	----	----	----	0.28
180	0.00	28.20	0.25	----	----	----	----	----	----	----	0.25
185	0.00	28.19	0.22	----	----	----	----	----	----	----	0.22
190	0.00	28.18	0.20	----	----	----	----	----	----	----	0.20
195	0.00	28.17	0.18	----	----	----	----	----	----	----	0.18

...End

Hydrograph Plot

English

Hyd. No. 5

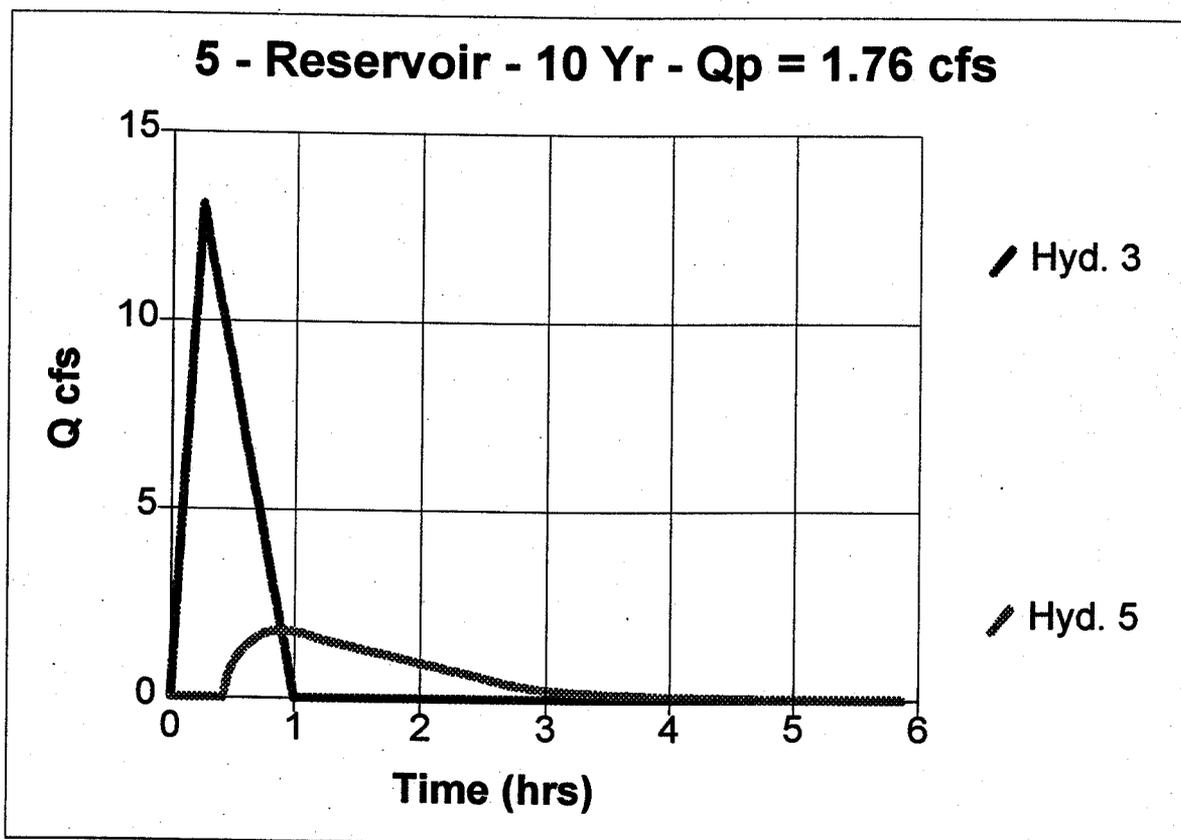
10-yr. Post-development

Hydrograph type = Reservoir
Storm frequency = 10 yrs
Inflow hyd. No. = 3
Max. Elevation = 29.13 ft

Peak discharge = 1.76 cfs
Time interval = 1 min
Reservoir name = Wythe Hamlet De
Max. Storage = 20,923 cuft

Storage indication method used.

Total Volume = 10,546 cuft



Hydrograph Plot

English

Hyd. No. 7

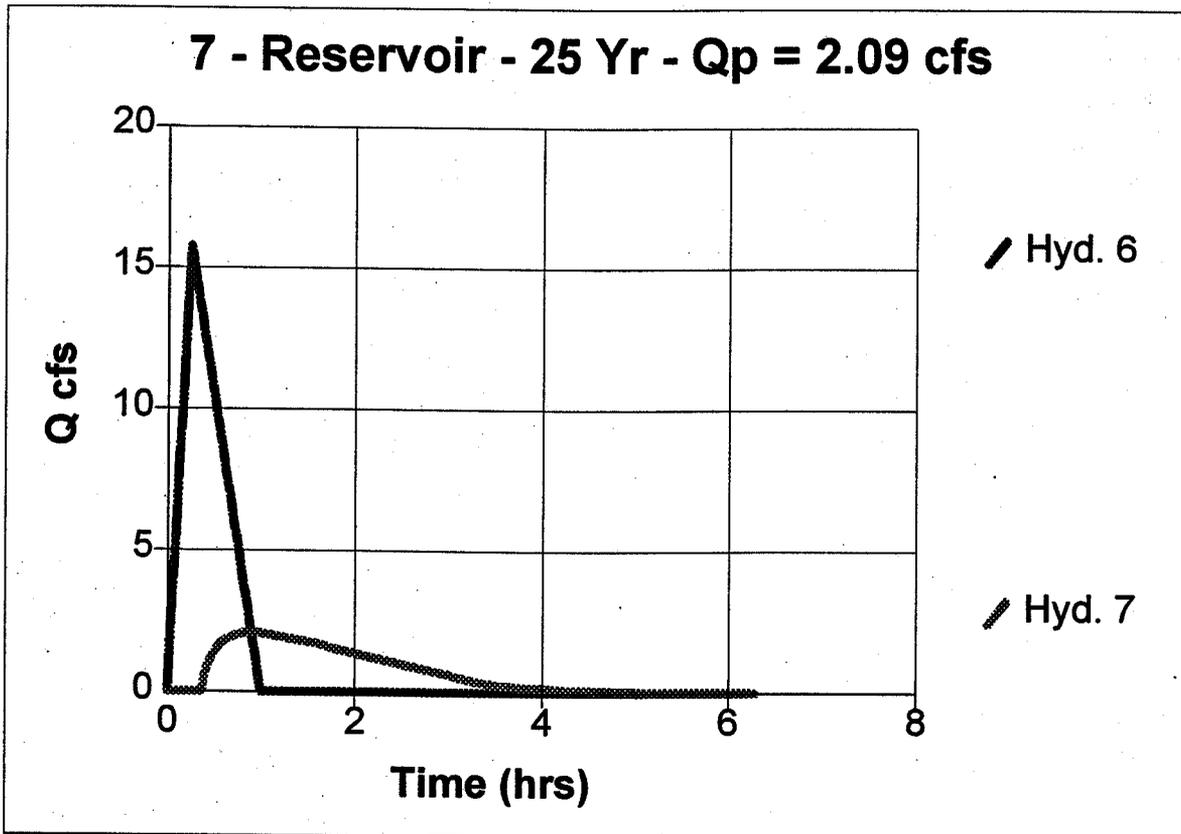
25-yr. Post-developmen

Hydrograph type = Reservoir
Storm frequency = 25 yrs
Inflow hyd. No. = 6
Max. Elevation = 29.52 ft

Peak discharge = 2.09 cfs
Time interval = 1 min
Reservoir name = Wythe Hamlet De
Max. Storage = 24,801 cuft

Storage Indication method used.

Total Volume = 15,354 cuft



AES CONSULTING ENGINEERS

Engineering, Surveying and Planning

5248 Olde Towne Road, Suite 1
WILLIAMSBURG, VIRGINIA 23188

LETTER OF TRANSMITTAL

(757) 253-0040
FAX (757) 220-8994

DATE 5/02/02	JOB NO. 7173-00
ATTENTION	
RE: GOVERNOR'S LAND BMP AS-BUILTS	

TO JAMES CITY ENVIRONMENTAL DIVISION
S-32-9B
JR040



WE ARE SENDING YOU Attached Under separate cover via _____ the following items:

- Shop drawings Prints Plans Samples Specifications
 Copy of letter Change order _____

COPIES	DATE	NO.	DESCRIPTION
1			EXCERPT FROM GEO-TECHNICAL REPORT FOR FOWLER'S LAKE
1			EXCERPT FROM GEO-TECHNICAL REPORT FOR WINDFIELD LAKE
2			RECORD DRAWINGS FOR TIMBER STRUCTURES #1, #2, #3, #4 IN PHASE 1
2			RECORD DRAWINGS FOR WINDFIELD LAKE
2			RECORD DRAWINGS FOR HORNES LAKE
2			RECORD DRAWINGS FOR MARINA BMP
2			RECORD DRAWINGS FOR THE HARBOR BMP
2			RECORD DRAWINGS FOR WINDFIELD HARBOR BMP
2			RECORD DRAWINGS FOR NAHANNIEL'S CREEK TIMBER STRUCTURE BMP

THESE ARE TRANSMITTED as checked below:

- For approval Approved as submitted Resubmit _____ copies for approval
 For your use Approved as noted Submit _____ copies for distribution
 As requested Returned for corrections Return _____ corrected prints
 For review and comment _____
 FOR BIDS DUE _____ PRINTS RETURNED AFTER LOAN TO US

REMARKS

~~THE~~ SHOULD BE THE FINISH OF THE BMP
RECORD DRAWINGS IN GOVERNOR'S LAND

COPY TO _____

SIGNED: *V. MacB...*

(757) 253-0040
 FAX (757) 220-8994

DATE <i>July 21, 1998</i>	JOB NO. <i>7173-3-26</i>
ATTENTION <i>Mr. DARRYL COOK, PE</i>	
RE: <i>WYTHE HAMBLET S-32-98</i>	

TO *James City County Environmental*
Division

WE ARE SENDING YOU Attached Under separate cover via _____ the following items:

- Shop drawings Prints Plans Samples Specifications
 Copy of letter Change order _____

COPIES	DATE	NO.	DESCRIPTION
<i>2</i>			<i>STORM SEWER CALCULATIONS</i>

THESE ARE TRANSMITTED as checked below:

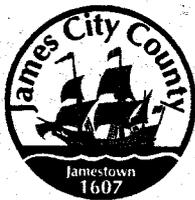
- For approval Approved as submitted Resubmit _____ copies for approval
 For your use Approved as noted Submit _____ copies for distribution
 As requested Returned for corrections Return _____ corrected prints
 For review and comment _____
 FOR BIDS DUE _____ 19 _____ PRINTS RETURNED AFTER LOAN TO US

REMARKS

DARRYL,
 ATTACHED ARE TWO COPIES OF CORRECTED STORM SEWER
 CALCULATIONS. PLEASE ACCEPT MY APOLOGY. REVIEWING THE
 CALCULATIONS, THE SYSTEMS ARE SATISFACTORY.

COPY TO _____ SIGNED: *V. Marc [Signature]*

If enclosures are not as noted, kindly notify us at once.



DEVELOPMENT MANAGEMENT

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

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

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

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

COUNTY ENGINEER
(757) 253-6678
INTEGRATED PEST MANAGEMENT
(757) 253-2620

December 9, 2002

Mr. James H. Bennett
Governor's Land Associates
9701 Mill Pond Run
Toano, Va. 23168

Re: Governor's Land - Wythe Hamlet
County Plan No. S-32-98
County BMP ID Code: JR 040

Dear Mr. Bennett:

The Environmental Division has reviewed a record drawing as submitted to our office on May 3rd 2002 for the BMP at the above referenced project. The record drawing provides as-built information for a dry extended detention pond situated along the south side of John Hancock Court.

Based on our review of the project and a concurrent field inspection as performed on November 22nd 2002, the following items must be addressed prior to release of the developer's surety instrument for the stormwater management/BMP facility at the site:

Construction Certification:

1. In accordance with the Note # 18 on Sheet 8 of the approved plan, construction certification for the stormwater management/BMP facility is required. None was provided. However, due to the fact that the pond is not a water quality type BMP, the principal flow control structure is of a simple nature and due to the pond storage area mainly being in excavation (ie. no fill embankment), this requirement will be *waived for this specific review case only*.

Record Drawing:

2. The record drawing set dated December 13th 2001 is **satisfactory**. Please forward one reproducible and one blue/black line set of the record drawings to our office.

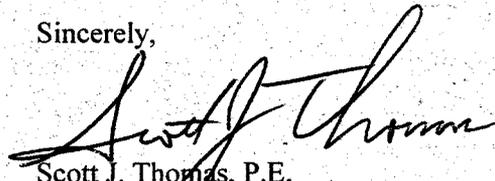
Construction - Related Items:

3. Clean and remove sediment accumulations, debris and vegetation within 10 feet of the outfall ends of the 18-inch and 24-inch diameter storm drain pipes which enters the basin along the north (road) side. Sediment accumulation was 8-inches deep at one of the inflow pipes and most of the outlet protection pads were covered. Flow into the facility shall not be obstructed by debris and sediment.

4. Clean and remove localized sediment deposits, debris and vegetation within the principal flow control structure and clear all vegetation within 10 feet of the principal flow control structure. The principal flow control structure for the pond is a VDOT EW-11 unit situated in the southwest corner of the pond. Flow into flow control structures shall not be obstructed by sediment, debris or vegetation.
5. Refill with compacted material soil which has settled above the 10-inch outfall barrel. Settlement was observed 8 to 12 along the barrel just behind the EW-11 structure.

Once this work is satisfactorily completed, contact our office appropriately. We can then proceed with final release of the surety on the project. Please contact me at 757-253-6639 or the assigned Environmental Division inspector, Joe Buchite, at 757-253-6643 if you have any further comments or questions.

Sincerely,



Scott J. Thomas, P.E.
Civil Engineer
Environmental Division

cc: Marc Bennett, AES - via fax
Joe Buchite, JCC Env Div Inspector

G:\AsBuilts\S3298.jr040

Memorandum

DATE: April 23, 2003
TO: Scott Thomas
FROM: Victoria Bains
SUBJECT: Wythe-Hamlet Dry Pond, County BMP ID Code: JR040

In response to your letter dated December 9, 2002 AES Consulting Engineers has taken several actions.

Construction Certification:

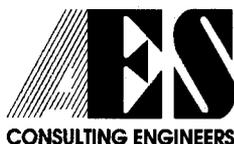
No further action required.

Record Drawings:

No further action required.

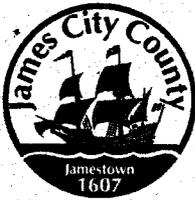
Construction – Related Items:

Trash and debris was cleared from entire facility. Vegetation and sediment was cleared from the inflow pipes and within 10 feet of inflow. Principal flow control was cleared of any trash, debris, sediment and vegetation, and within 10 feet of outflow. Compactable soil was used to refill area above outflow pipe and all disturbed areas were seeded and mulched to stabilize area.



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

SJT File



DEVELOPMENT MANAGEMENT

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

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

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

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

COUNTY ENGINEER
(757) 253-6678
INTEGRATED PEST MANAGEMENT
(757) 253-2620

December 9, 2002

*Reinspect
6-2-03*

Mr. James H. Bennett
Governor's Land Associates
9701 Mill Pond Run
Toano, Va. 23168

Re: Governor's Land - Wythe Hamlet
County Plan No. S-32-98
County BMP ID Code: JR 040

Dear Mr. Bennett:

The Environmental Division has reviewed a record drawing as submitted to our office on May 3rd 2002 for the BMP at the above referenced project. The record drawing provides as-built information for a dry extended detention pond situated along the south side of John Hancock Court.

Based on our review of the project and a concurrent field inspection as performed on November 22nd 2002, the following items must be addressed prior to release of the developer's surety instrument for the stormwater management/BMP facility at the site:

Construction Certification:

- 1. In accordance with the Note # 18 on Sheet 8 of the approved plan, construction certification for the stormwater management/BMP facility is required. None was provided. However, due to the fact that the pond is not a water quality type BMP, the principal flow control structure is of a simple nature and due to the pond storage area mainly being in excavation (ie. no fill embankment), this requirement will be *waived for this specific review case only*.

NO ACTION

Record Drawing:

- 2. The record drawing set dated December 13th 2001 is **satisfactory**. Please forward one reproducible and one blue/black line set of the record drawings to our office.

*OK
6-18-03*

Construction - Related Items:

- 3. Clean and remove sediment accumulations, debris and vegetation within 10 feet of the outfall ends of the 18-inch and 24-inch diameter storm drain pipes which enters the basin along the north (road) side. Sediment accumulation was 8-inches deep at one of the inflow pipes and most of the outlet protection pads were covered. Flow into the facility shall not be obstructed by debris and sediment.

*✓
OK
6-2-03*

✓
OK
6-2-03
✓
OK
6-2-17

4.

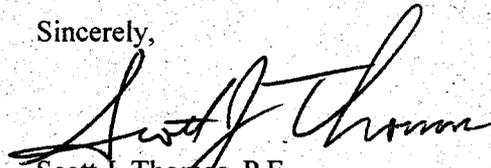
Clean and remove localized sediment deposits, debris and vegetation within the principal flow control structure and clear all vegetation within 10 feet of the principal flow control structure. The principal flow control structure for the pond is a VDOT EW-11 unit situated in the southwest corner of the pond. Flow into flow control structures shall not be obstructed by sediment, debris or vegetation.

5.

Refill with compacted material soil which has settled above the 10-inch outfall barrel. Settlement was observed 8 to 12 along the barrel just behind the EW-11 structure.

Once this work is satisfactorily completed, contact our office appropriately. We can then proceed with final release of the surety on the project. Please contact me at 757-253-6639 or the assigned Environmental Division inspector, Joe Buchite, at 757-253-6643 if you have any further comments or questions.

Sincerely,



Scott J. Thomas, P.E.
Civil Engineer
Environmental Division

cc: Marc Bennett, AES - via fax
Joe Buchite, JCC Env Div Inspector

G:\AsBuilts\S3298.jr040



**James City County Environmental Division
Stormwater Management / BMP Inspection Report
Detention and Retention Pond Facilities**

5-32-98

County BMP ID Code (if known): JB-040
 Name of Facility: Lytle Hamlet BMP No.: 1 of 1 Date: 11/22/02
 Location: Governor's Land John Hancock Ct.
 Name of Owner: Governors Land Foundation
 Name of Inspector: Rick Hall
 Type of Facility: Dry pond
 Weather Conditions: cloudy Type: Final Inspection County BMP Inspection Program Owner Inspection

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

- O.K. - The item checked is in adequate condition and the maintenance program is currently satisfactory. No action required.
- Routine - The item checked requires attention, but does not present an immediate threat to the function/integrity of the BMP.
- Urgent - The item checked requires immediate attention to keep the BMP operational and to prevent damage to the facility.

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

Facility Item	O.K.	Routine	Urgent	Comments
Embankments and Side Slopes:				
Grass Height	✓			
Vegetation Condition	✓			
Tree Growth	✓			
Erosion	✓			
Trash & Debris	✓			
Seepage	✓			
Fencing or Benches				
Interior Landscaping/Planted Areas: <input type="checkbox"/> None <input checked="" type="checkbox"/> Constructed Wetland/Shallow Marsh <input type="checkbox"/> Naturally Established Vegetation				
Vegetated Conditions	✓			
Trash & Debris	✓			
Floating Material	✓			
Erosion	✓			
Sediment	✓			
Dead Plant	✓			
Aesthetics	✓			
Other				
Notes:				

Facility Item	O.K.	Routine	Urgent	Comments
Water Pools: <input type="checkbox"/> Permanent Pool (Retention Basin) <input type="checkbox"/> Shallow Marsh (Detention Basin) <input checked="" type="checkbox"/> None, Dry (Detention Basin)				
Shoreline Erosion				
Algae				
Trash & Debris				
Sediment				
Aesthetics				
Other				
Inflows (Describe Types/Locations): <i>24" RCP north, 18" RCP east</i>				
Condition of Structure	✓			
Erosion	✓			
Trash and Debris		✓		<i>Outlet 50% blocked</i>
Sediment		✓		<i>w/ sediment, leaves, etc.</i>
Outlet Protection		✓		
Other				
Principal Flow Control Structure - Riser, Intake, etc. (Describe Type): <i>Grated box inlet</i>				
Condition of Structure	✓			
Corrosion	✓			
Trash and Debris		✓		<i>Minor amounts of leaves</i>
Sediment	✓			<i>and debris in box.</i>
Vegetation	✓			
Other				
Principal Outlet Structure - Barrel, Conduit, etc. : <i>10" PVC to storm sewer</i>				
Condition of Structure	✓			
Settlement		✓		<i>settled 8"-12"</i>
Trash & Debris		✓		
Erosion/Sediment	✓			
Outlet Protection	<i>NA</i>			
Other				
Emergency Spillway (Overflow): <i>None</i>				
Vegetation				
Lining				
Erosion				
Trash & Debris				
Other				
Notes:				

Facility Item	O.K.	Routine	Urgent	Comments
Nuisance Type Conditions:				
Mosquito Breeding	✓			
Animal Burrows	✓			
Graffiti	✓			
Other				
Surrounding Perimeter Conditions:				
Land Uses	✓			
Vegetation	✓			
Trash & Debris	✓			
Aesthetics	✓			
Access /Maintenance Roads or Paths	✓			
Other				

Remarks:

- o Routine maintenance to clean leaves, sediment and trash from basin, outlets and inlets
- o Basin has heavy growth of aquatic + ornamental grasses also bayberry and small pines.

Overall Environmental Division Internal Rating: 3

AT
12-9-02

Signature: *Rick Hall*

Date: 11/22/02

Title: ENVIRON. Specialist

Reports OK!

James City County Stormwater Division Stormwater Management Facility (SWMF) Inspection Report

Score Definitions: 0-N/A, 1-Adequate, 2-Routine Maintenance, 3-Non-routine repair, 4-Urgent repair(s), item has failed or is failing.

BMP ID # JR040 PIN 4321300001A Responsible Party: GOVERNORS LAND

Site Address: 1816 JOHN HANCOCK (ACROSS THE ROADWAY FROM) District: 3

Location (other):

Date: 2/16/2010 Inspector: TC

(3 or 4 requires attention):

Structure Type: Detention

Total Score 2

Criteria	Score	Comments: (Listed below are the items/tasks that should be rectified/ completed prior to re-inspection)
1. Forebay Score:	0	
2. Inlet(s):	1	
*3. Outlet:	2	Concrete grout around outlet is non-existent, inspect and repair.
*4. Principal Spillway:	2	Remove trees and woody vegetation within 10' of the structure.
5. Emergency Spillway:	1	
6. Basin Bottom and Side Slopes:	2	Bottom of dry pond is retaining water, provide positive flows to the principal spillway.
7. Safety Devices:	0	
*8. Embankments:	1	
*9. Structural Components:	2	Inspect structures for settling, cracking, and deterioration and repair.
*10. Media:	0	

James City County Stormwater Division Stormwater Management Facility (SWMF) Inspection Report

Score Definitions: 0-N/A, 1-Adequate, 2-Routine Maintenance, 3-Non-routine repair, 4-Urgent repair(s), item has failed or is failing.

Criteria	Score	Comments: (Listed below are the items/tasks that should be rectified/ completed prior to re-inspection)
11. Routine Maintenance:	2	
12. Condition of Aquatic Environment:	0	
13. Vegetation:	1	
*14. Storage Volume:	1	
15. Debris/Sediment Accumulation:	1	
16. Standing Water:	2	The dry pond is retaining water
17. Safety and Aquatic Bench:	0	
18. Side Slope Vegetation:	1	
19. Other:	0	

Checked below identify corrective work required on your stormwater management facility.

- Remove all trees and other woody vegetation from the embankment (earthen dam) and also within 10' of the toe of the embankment slope.
- Remove all trees and other woody vegetation from within 10' of the principal spillway, any principal inlet devices, and the principal outfall.
- Remove all trees and other woody vegetation from within 10' of any inlet structures, such as: pipes, end sections, concrete channels, flumes, rip rap channels, etc.
- Remove all trees and other woody vegetation from within the emergency spillway and also from within 10' of the spillway.
- Investigate the cause of any settlement, sink holes, subsidence, or erosion, noted on the report and develop and implement an appropriate plan to correct the deficiencies noted permanently.
- Remove all accumulated sediment, leaves and debris from within any pipes, end sections, concrete channels, emergency spillways, flumes, rip rap channels, etc. and dispose of the material in an appropriate method and location.
- Stabilize any disturbed, unstable, denuded or bare soil areas, by installing top soil and planting a permanent grass seed to establish an effective grass ground cover over these areas.
- All grassed areas of the BMP such as: access roads, emergency spillways, embankments (earthen dam), or other non-treed areas, shall be maintained at a minimum grass height of 8", and should not be subjected to low mowing.
- Trees and woody vegetation should be cut flush with the ground, and smaller trees and limbs (less than 4" dia) may be processed with a wood chipper and dispersed in natural areas.

Date Record Created:

WS_BMPNO:

Print Record

Created By:

JR040

PRINTED ON
Thursday, March 11, 2010
1:09:29 PM

WATERSHED JR
 BMP ID NO 040
 PLAN NO S-32-98
 TAX PARCEL (43-2)(13-1A)
 PIN NO 4321300001A
 CONSTRUCTION DATE 12/13/2001
 PROJECT NAME Governors Land - Wythe Hamlet
 FACILITY LOCATION Near (south of) 1816 John Hancock
 CITY-STATE Williamsburg, Va. 23185
 CURRENT OWNER Governors Land Foundation
 OWNER ADDRESS 2700 Two Rivers Road
 OWNER ADDRESS 2
 CITY-STATE-ZIP CODE Williamsburg, VA 23185
 OWNER PHONE 258-4600
 MAINT AGREEMENT Yes
 EMERG ACTION PLAN No

MAINTENANCE PLAN

No
 SITE AREA acre 11.63
 LAND USE R4 Res Planned Co
 old BMP TYP Dry Pond
 JCC BMP CODE F2 Dry ED with forebay
 POINT VALUE 4

SVC DRAIN AREA acres 5.3

SERVICE AREA DESCR Roads & SF Lots

IMPERV AREA acres 1.11

RECV STREAM UT of James River

EXT DET-WQ-CTRL No

WTR QUAL VOL acre-ft 0

CHAN PROT CTRL No

CHAN PROT VOL acre-ft 0

SW/FLOOD CONTROL Yes

GEOTECH REPORT No

CTRL STRUC DESC EW-11

CTRL STRUC SIZE inches 96 x 36

OTLT BARRL DESC PVC Barrel

OTLT BARRL SIZE inch 10

EMERG SPILLWAY No

DESIGN HW ELEV 29.52

PERM POOL ELEV na

2-YR OUTFLOW cfs 1.10

10-YR OUTFLOW cfs 1.80

REC DRAWING Yes

CONSTR CERTIF No

LAST INSP DATE 11/22/2002 Inspected by:

INTERNAL RATING 4

MISC/COMMENTS

Not a WQ BMP. 30% imperv est. DHW is for 25-year.

Get Last BMP No

Return to Menu

Additional Comments:

