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: **PC173**

DATE VERIFIED: **June 8, 2016**

QUALITY ASSURANCE TECHNICIAN: **Natalie Prevette**

Natalie Prevette

LOCATION: WILLIAMSBURG, VIRGINIA

Stormwater Division

MEMORANDUM

DATE: March 9, 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: PC173

PIN: 3842400001A

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

Property Description: Common Area BMP Parcel 1 portion of former parcel 2

Site Address:

(For internal use only) **Box** 7 **Drawer:** 4

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

Comments

1. Maintenance agreement

COPY

COUNTY OF JAMES CITY, VIRGINIA

DECLARATION OF COVENANTS
INSPECTION/MAINTENANCE OF DRAINAGE SYSTEM

THIS DECLARATION, made this 3rd day of October, 20 07, between New Town Associates, LLC, and all successors in interest, ("COVENANTOR(S)"), owner(s) of the following property:

Parcel Identification Number: 3842400001A
Legal Description: BMP Parcel 1 Portion of Former Parcel 2 New Town Sec 2 & 4
Project or Subdivision Name: New Town
Document No. 040009441
OR Deed Book _____, Page No. _____,
and the County of James City, Virginia ("COUNTY.")

WITNESSETH:

I (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, monitoring, 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,

Instrument # 070029730
Recorded on Oct. 25, 2007

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.

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of the date first above written.

COVENANTOR(S)
New Town Associates, LLC

Signature

John P. McCann, Executive Director
Print Name and Title

ACKNOWLEDGMENT

COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF James City, to wit:

I hereby certify that on this 4th day of October, 2007, before the subscribed, a Notary Public for the Commonwealth of Virginia, personally appeared John P. McCann and did acknowledge the foregoing instrument to be his/her A
ct.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this 4th day of October, 2007.

[SEAL]

Teresa Curyman Knighten
Notary Public

Notary Registration Number: 351207

My Commission expires: 08/31/08

COVENANTOR(S)

_____
Signature

_____
Print Name and Title

ACKNOWLEDGMENT

COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF _____, to wit:

I hereby certify that on this _____ day of _____, 20____, before the subscribed, a Notary Public for the Commonwealth of Virginia, personally appeared _____ and did acknowledge the foregoing instrument to be his/her Act.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this _____ day of _____, 20____.

[SEAL]

_____
Notary Public

Notary Registration Number: _____

My Commission expires: _____

Approved as to form:

Adam Kinsman
County Attorney

This Declaration of Covenants prepared by:

Name: John P. McCann Atk
Print Name: John P. McCann
Title: Executive Director
Address: 4801 Courthouse St, Ste 203
Williamsburg, VA 23188
Phone Number: (757) 565-6200

(drainage1.pre)

2. Completed construction certification

James City County, Virginia
Environmental Division

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

County Plan No.: SP-125-97
Project Name: WILLIAMSBURG - JCC Courthouse
Stormwater Management Facility: OFFSITE DRY POND (NEWTOWN)
Phase: ☐ I ☒ II ☐ III

- ☑ Information Received. Date: Sept 19 2002 AES
- ☐ Administrative Check.
  - ☑ Record Drawing Date: 9/20/02 AES (Cert 9/30/02)
  - ☑ Construction Certification Date: 9/27/02 BernieFarmer JCC
  - ☑ RD/CC Standard Forms (Required after Feb 1st 2001Only)
  - ☐ Insp/Maint Agreement ?? Info: None Found
  - ☐ BMP Maintenance Plan Location: N/A.
  - ☐ Other: _____
- ☑ Standard E&SC Note on Approved Plan Requiring RD/CC or County comment in plan review file. ☐ Yes ☐ No Location: Note 18 Sheet C9; DAM CONST NOTES Sheet C10
- ☑ Assign County BMP ID Code Code: PC 173
- ☑ 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.).
- ☑ N/A. Inspector Check of RD/CC. Yes GEL.
- ☑ Pre-Inspection Drawing Review - Approved Plan (Quick look prior to field inspection).
- ☑ Final Inspection (FI) Performed Date: 5/1/02; 12/12/02 follow up
- ☑ Record Drawing (RD) Review Date: 12/11/02; Approved 1/22/03
- ☐ Construction Certification (CC) Review Date: 12/11/02
- ☑ Actions:
  - ☐ No comments.
  - ☑ Comments. Letter Forwarded. Date: _____
    - ☐ Record Drawing (RD) OK
    - ☑ Construction Certification (CC) Changes made. No support info
    - ☐ Construction-Related (CR)
    - ☐ Site Issues (SI)
    - ☐ Other :
- ☐ Second Submission: CC dated JAN 7 '03 & 9/27/02 OK
- ☐ Third Submission: _____
- ☐ Acceptable for stormwater managment 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.
- ☐ N/A Add to JCC Hydrology & Hydraulic database (optional).

BMP Certification Information Acceptable

Plan Reviewer: _____ Date: _____

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: WILLIAMSBURG / JAMES CITY COUNTY COURTHOUSE
Structure/BMP Name: CASEY TRACT REGIONAL STORMWATER FACILITY
Project Location: 5201 MONTICELLO AVE
BMP Location: APPROX 1500' NW OF COURTHOUSE
County Plan No.: SP - 125 - 97

Project Type: ☐ Residential ☐ Business ☐ Commercial ☐ Office ☐ Institutional ☐ Industrial ☑ ~~Public~~ ☐ Roadway ☐ Other _____

Tax Map/Parcel No.: 3840100050
BMP ID Code (if known): PC 173
Zoning District:: MU
Land Use: COMMERCIAL
Site Area (sf or acres): COURTHOUSE 11 AC. BMP DRAINAGE AREA 110 AC.

Brief Description of Stormwater Management/BMP Facility: REGIONAL STORMWATER FACILITY DESIGNED AS EXTENDED DETENTION DRY BASIN SERVING INITIAL PHASES OF 'NEW TOWN' PROJECT TAKING DRAINAGE FROM APPROX 110 ACRES WEST OF IRONBOUND ROAD.

Nearest Visible Landmark to SWM/BMP Facility: W/JCC COURTHOUSE

Nearest Vertical Ground Control (if known):
☐ JCC Geodetic Ground Control ☑ USGS ☐ Temporary ☐ Arbitrary ☐ Other
Station Number or Name: _____
Datum or Reference Elevation: _____
Control Description: _____
Control Location from Subject Facility: _____

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: APPROX MAY 1998
Facility Monitored by County Representative during Construction: ☑ Yes ☐ No ☐ Unknown
Name of Site Work Contractor Who Constructed Facility: AMW CONSTRUCTION
Name of Professional Firm Who Routinely Monitored Construction: ECS, LTD.
Date of Completion for SWM/BMP Facility: APPROX. MAR. 1999
Date of Record Drawing/Construction Certification Submittal: 9/27/02

(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: JAMES CITY COUNTY
Mailing Address: PO BOX 8783
WILLIAMSBURG, VA 23188
Business Phone: 757 2594117 Fax: 757 2594118
Contact Person: BERNARD FARMER Title: CAPITAL PROJECTS ADMINISTRATOR

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
Mailing Address: 5248 OLDE TOWNE ROAD
WILLIAMSBURG VA 23188
Business Phone: 757 2530040
Fax: 757 220-8994
Responsible Plan Preparer: G. ARCHER MARSTON, P.E
Title: ENGINEER
Plan Name: WILLIAMSBURG/JAMES CITY COUNTY COURTHOUSE
Firm's Project No. AES 8289
Plan Date: DEC 22 1997 w/ REVISIONS 1 thru 4
Sheet No.'s Applicable to SWM/BMP Facility: C-6 / C-10 / ____ / ____ / ____

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

Name: A.M. WOMACK CONSTRUCTION
Mailing Address: NO LONGER IN BUSINESS
Business Phone:
Fax:
Contact Person:
Site Foreman/Supervisor:
Specialty Subcontractors & Purpose (for BMP Construction Only):
SOUTHSIDE UTILITIES FOR PIPING
AXEL NIXON FOR CONCRETE

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: 5248 Olde Towne Rd, Suite 1
Williamsburg, VA 23188
Business Phone: 757 253 0040
Fax: 757 220 8994

Name: G. Archer Marston, III
Title: Vice President

Signature:
Date: 9/30/02

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.

COMMONWEALTH OF VIRGINIA
G. ARCHER MARSTON III
No. 018232
PROFESSIONAL ENGINEER

_____ (Seal)

Virginia Registered Professional Engineer or Certified Land Surveyor

Construction Certification

Firm Name: James City County
Mailing Address: C/o Bernard Farmer
105 Tewning Rd. Wmbg. 23188
Business Phone: 757 259 4117
Fax: 757 259 4118

Name: Bernard Farmer
Title: Capital Projects Administrator

Signature:
Date: 9/27/02

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. SEE ATTACHED DETAILS REGARDING USE OF GEOTEXTILES, SOILS & RELOCATION OF PIPES.

COMMONWEALTH OF VIRGINIA
BERNARD M. FARMER, JR.
No. 14849
PROFESSIONAL ENGINEER

_____ (Seal)

Virginia Registered Professional Engineer

James City County Environmental Division
Stormwater Management/BMP Record Drawing & Construction Certification Review
Tracking Form

Project Name: New Town Sec. 2&4 BMP 53 Converted (Dry to We
County Plan No.: SP-38-07
Stormwater Management Facility: Wet Pond
BMP Phase #: ☐ I ☐ II ☐ III
☒ Information Package Received. Date/By: 8/09
☐ Completeness Check:
- ☒ Record Drawing Date/By: 2/18/09
- ☒ Construction Certification Date/By: 2/18/09
- ☒ RD/CC Standard Forms (Required for all BMPs after Feb 1st 2001Only)
- ☒ Insp/Maint Agreement # / Date: 04000944 1/10/3/07
- ☒ BMP Maintenance Plan Location: as-built + pg. 6 on approved plan
- ☐ Other:

☒ Standard E&SC Note on Approved Plan Requiring RD/CC or County comment in plan review
☒ Yes ☐ No Location:
☒ Assign **County BMP ID Code #**: Code: PC-173
☒ Preliminary Input/Log into Division's "As-Built Tracking Log"
☒ Add Location to GIS Map. Obtain basic site information (GPIN, Owner, Address, etc.)
☐ Preliminary Log into Access Database (BMP ID #, Plan No., GPIN, Project Name, etc.)
☒ Active Project File Review (correspondence, H&H, design computations, etc.).
☒ Initial As-Built File setup (File label, folder, copy plan/details/design information, etc.).
☒ Inspector Check of RD/CC (forward to Inspector using transmittal for cursory review).
☒ Pre-Inspection Drawing Review of Approved Plan (Quick look prior to Field Inspection).
☒ Final Inspection (FI) Performed Date: ~~9/24/09~~ 9/17/09
☒ Record Drawing (RD) Review Date: ~~9/24/09~~ 9/17/09
☒ Construction Certification (CC) Review Date: ~~9/24/09~~ 9/17/09
☐ Actions:
- ☐ No comments.
- ☒ Comments. Letter Forwarded. Date: 9/24/09
- ☐ Record Drawing (RD)
- ☐ Construction Certification (CC)
- ☐ Construction-Related (CR)
- ☒ Site Issues (SI)
- ☐ Other :

☐ Second Submission: N/A
☒ Reinspection (if necessary): 5/25/10
☒ Acceptable for SWM Purposes (RD/CC/CR/Other). Ok to proceed with bond release.
☒ Complete "Surety Request Form".
☒ 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.
☐ Obtain Digital Photographs of BMP and save into County BMP Inventory.
☒ Request mylar/reproducible from As-Built plan preparer.
☒ Complete "As-built Tracking Log".
☐ Last check of BMP Access Database (County BMP Inventory).
☐ Add BMP to JCC Hydrology & Hydraulic database (optional).
☐ Add BMP to Municipal BMP list (if a County-owned facility)
☐ Add BMP to PRIDE BMP ratings database.

Final Sign-Off

Inspector: [signature] Date: 5/25/10

Chief Engineer: _____ Date: _____

*** See separate checklist, if needed.

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: New Town - BMP #53
Structure/BMP Name: BMP 53
Project Location: New Town Section 2&4
BMP Location: Adjacent to New Town Avenue between Monticello Avenue and Center Street
County Plan No.: SP - 0038 - 2007

Project Type:
- ☒ Residential
- ☐ Commercial
- ☐ Institutional
- ☐ Public
- ☐ Other
- ☐ Business
- ☐ Office
- ☐ Industrial
- ☐ Roadway

Tax Map/Parcel No.: 3411500011
BMP ID Code (if known): PC173
Zoning District: MU
Land Use: Apartments
Site Area (sf or acres): 13.60 Acres

Brief Description of Stormwater Management/BMP Facility: Wet Extended Detention Basin (A-3)

Nearest Visible Landmark to SWM/BMP Facility: SunTrust Building & Towne Bank Building

Nearest Vertical Ground Control (if known):
☒ JCC Geodetic Ground Control ☐ USGS ☐ Temporary ☐ Arbitrary ☐ Other
Station Number or Name: 325
Datum or Reference Elevation: NGVD29 Elevation 110.67
Control Description: Benchmark Station #325
Control Location from Subject Facility: _____

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: September 2007
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: AES Consulting Engineers
Date of Completion for SWM/BMP Facility: April 2008
Date of Record Drawing/Construction Certification Submittal: April 2008

(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: New Town Associates, LLC
Mailing Address: 4801 Courthouse Street, Suite 203
Williamsburg, VA 23188
Business Phone: (757) 565-6200 Fax:
Contact Person: Title:

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: Robert E. Cosby, III, P.E.
Title: Project Manager
Plan Name: New Town BMP #53 Conversion
Firm's Project No. 6632-E-10-4
Plan Date: April 5, 2007, last revised August 20, 2007
Sheet No.'s Applicable to SWM/BMP Facility: ALL / / / / /

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

Name: Henderson, Inc.
Mailing Address: 5806 Mooretown Road
Williamsburg, Virginia 23187
Business Phone: 757-565-1090
Fax: 757-564-9120
Contact Person: Peter Henderson
Site Foreman/Supervisor:
Specialty Subcontractors & Purpose (for BMP Construction Only):

Section 4 – Professional Certifications:

Certifying Professionals: *(Note: A Registered Professional Engineer of 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: 5248 Olde Towne Road Suite 1
Williamsburg, Virginia 23188
Business Phone: 757-253-0040
Fax: 757-220-8994

Name: Robert D. Mann, L.S.
Title: Senior ~~Land~~ Surveyor/Project Manager

Signature: Robert D Mann
Date: 2/18/09

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.

COMMONWEALTH OF VIRGINIA
ROBERT D. MANN
Lic. No. 002509
2/18/09
LAND SURVEYOR

(Seal)

Virginia Registered Professional Engineer
Or Certified Land Surveyor

Construction Certification

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

Name: Robert E. Cosby, III, P.E.
Title: Senior Project Manager

Signature:
Date: 2/18/09

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.

NOTE: Existing Material was an extremely wet clay and bottom of BMP was not able to be excavated to full depth as shown on the siteplan. The Record Drawing represents an actual surveyed bottom of the facility. This represents a reduction in the Wet Volume which has been reviewed and discussed with James City County Staff. The Facility is now considered as a 9 Point Facility with a reduction of 1 point based on the reduced "wet" volume provided. The overall development maintains 10 points based on current cumulated overall point tabulation as updated based on drainage areas and final calculations on various BMP's throughout the site.

COMMONWEALTH OF VIRGINIA
ROBERT
PROFESSIONAL
2/18/09

(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 reproducibles.

- ❑ 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 plans 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.

XX 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.

XX 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.

XX 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.

XX	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.
XX	10.	Dimensions, locations and elevations of outlet orifices, weirs, slots and drains.
XX	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.
N/A	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.**
XX	13.	Top of impervious core embankment, core trench limits and elevation of cut-off trench bottom. **May need to obtain this information during construction.**
XX	14.	Elevation of the principal spillway barrel (outlet pipe) inlet and outlet invert.
XX	15.	Outlet barrel diameter, length, slope, type and thickness class of material and type of flared end sections, headwall or endwall.
XX	16.	Outfall protection dimension, type and depth of rock and if underlain filter fabric is present.
XX	17.	BMP interior and periphery landscaping zones conform with arrangements and requirements of the approved design plan.
XX	18.	Maintenance plan taken from approved design plan transposed onto record drawing set.
XX	19.	Fencing location and type, if applicable to facility.
XX	20.	BMP vicinity properly cleaned of stockpiles and construction debris.
XX	21.	No visual signs of erosion or channel degradation immediately downstream of facility.
XX	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.)*

XX	A1.	All requirements of Section II, Minimum Standards, apply to Group A facilities.
XX	A2.	Principal spillway consists of reinforced concrete pipe with O-Ring gaskets for watertight joint construction.
XX	A3.	Sediment forebays or pretreatment devices provided at inlets to pond. Generally 4 to 6 ft. deep.
XX	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.
N/A	A5.	Adequate fixed vertical sediment depth markers installed in the forebay(s) for future sediment monitoring purposes.
N/A	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.
XX	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).
XX	A8.	No trees are present within a zone 15 feet around the embankment toe and 25 feet from the principal spillway structure.
XX	A9.	Wet permanent pool, typically 3 to 6 feet deep, is provided and maintains level within facility.
XX	A10.	Low flow orifice has a non-clogging mechanism.
N/A	A11.	A pond drain pipe with valve was provided.
XX	A12.	Pond side slopes are not steeper than 3H:1V, unless approved plan allowed for steeper slope.
N/A	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).*

_____ 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.

_____ 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)*

_____ 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.

_____ 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)*

_____ 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.

_____ D14. Adequate, direct access provided to the pretreatment area and/or filter bed for future maintenance.

STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING 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)*

_____ 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 vegctative 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 diaphrahm provided in areas where lateral sheet flow from impervious surgaces 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.

_____ 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)*

_____ F1. All requirements of Section II, Minimum Standards, apply to Group F facilities.

_____ F2. Basin bottom has positive slope and drainage from all basin inflow points to the riser (or outflow) location.

_____ F3. Timber wall BMP used in intermittent stream only. (ie. Prohibited in perennial streams.)

_____ F4. Forebay provided approximately 20 ft. upstream of the facility. Forebays generally 4 to 6 feet in depth.

_____ F5. A reverse slope pipe, vertical stand pipe or mini-barrel and riser was provided to prevent clogging

_____ F6. Principal spillway and outlet barrel provided consisting of reinforced concrete pipe with O-Ring gaskets for watertight joint construction.

_____ F7. Mini-barrel and riser, if used, contains a removable trash rack to reduce clogging.

_____ 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.

_____ F9. Timbers properly reinforced or concrete footing provided if soil conditions were prohibitive.

_____ F10. Timber wall cross members extended to a minimum depth of two (2) feet below ground elevation.

_____ F11. Protection against erosion and scour from the low flow orifice and weir-flow trajectory provided.

_____ F12. Stilling basin or standard outlet protection provided at principal spillway outlet.

_____ 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.

_____ F14. No visual signs of undercutting of timber walls or clogging of the low orifice were present.

_____ F15. No visual signs of erosion or channel degradation immediately downstream of facility.

_____ 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)*

_____ 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.

_____ 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.)

XX SD1. All requirements of Section II, Minimum Standards, apply to Storm Drainage Systems.

XX SD2. Horizontal location of all pipe and structures relative to the SWM/BMP facility.

XX SD3. Type, top elevation and invert elevation of all access type structures (inlets, manholes, etc.).

XX SD4. Material type, size or diameter, class, invert elevations, lengths and slopes for all pipe segments.

XX 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.

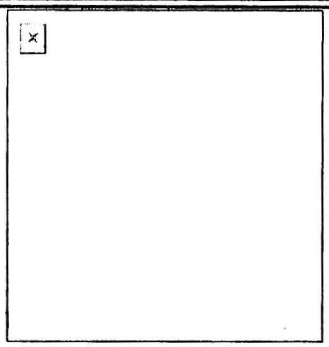
____ O2. Certification criteria to be determined on a case-by-case basis by the Environmental Division specific to the proposed SWM/BMP facility.

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.



James City County, Virginia
Environmental Division

Stormwater Management / BMP Facilities
Record Drawing and Construction Certification

Standard Forms & Instructions

PC 173 MODIF.
SP-38-07

Issue Date
February 1, 2001

Record Drawing/Construction Certification Submittal for a BMP Facility

Date: 10/2/02

Inspector:
- ☒ Pat Menichino
- ☐ Gerry Lewis
- ☐ Beth Davis
- ☐ Mike Woolson
- ☐ Joe Buchite
- ☐ Other: _____

?

Project: Williamsburg/JCC Courthouse
BMP Facility: OFFSITE DRY POND ON NEW TOWN TRACT
Plan No. SP-125-97
BMP ID Code: PC173

I have received a transmittal for a ☒ Record Drawing and ☒ Construction Certification for the above referenced facility on Oct 1 2002. Prior to full engineering review of these items and a field inspection, I am first forwarding the items to you to cursory review in case any major field changes were performed that I should be aware of and/or to ensure the record drawing accurately portrays what you saw in the field. Please review the drawing and return to me promptly so I can proceed with the review for certification purposes.

During my review, I will look at issues related to the BMP and its primary inflow and outflow conveyance systems, and will make comment in the following areas: Record Drawing (RD), Construction Certification (CC) and Construction-Related (CR) punch list items. If you have any other related non-BMP site issues such as erosion, stabilization, removal of erosion & sediment controls, etc. that are not related to the BMP, I can easily add these items to any comment letter that I may forward to the Owner/Engineer. Let me know if any outstanding site issues remain.

If I don't hear from you I will ask you if any other outstanding issues remain before I forward any letters to the Owner/Engineer.

Scott

3.

As-built plan

SITE PLAN

FOR

WILLIAMSBURG - JAMES CITY COUNTY COURTHOUSE

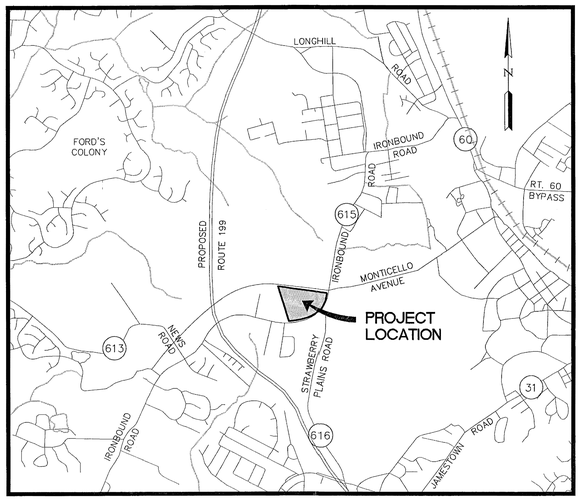
JAMES CITY COUNTY, VIRGINIA

JAMES CITY COUNTY
SITE PLAN SUBMITTAL
LIST OF DRAWINGS

SHEET NUMBER	DESCRIPTION
CIVIL	COVER SHEET
C1	OVERALL SITE PLAN
C2	SITE PLAN
C3	GRADING PLAN
C4	DRAINAGE AND UTILITY PLAN
C5	EROSION AND SEDIMENT CONTROL PLAN
C6	BMP/SWM POND SITE PLAN
C7	OVERALL DRAINAGE PLAN AND ENVIRONMENTAL INVENTORY
C8	PROFILE DRAWING
C9	NOTES AND DETAILS
C10	NOTES AND DETAILS
C11	NOTES AND DETAILS
C12	NOTES AND DETAILS
L1	LANDSCAPE PLAN
L2	LANDSCAPE DETAILS
L3	DETAIL PLAZA PLAN
L4	HARDSCAPE DETAILS
L5	HARDSCAPE DETAILS

LEGEND

EXISTING		PROPOSED
EX. W	WATER	W
EX. S	SANITARY SEWER	S
	STORM SEWER	
EX. FM	FORCE MAIN	F.M.
	MANHOLE	
	CURB DROP INLET AND YARD DROP INLET	
	FLARED END SECTION	
	VALVE	
	FIRE HYDRANT ASSEMBLY	
	BLOW-OFF VALVE	
	AIR RELEASE ASSEMBLY	
	CLEAN OUT	
	WATER METER	
	STREETLIGHT	
	CENTERLINE/BASELINE	
	RIGHT OF WAY	
	PROPERTY LINE	
	℄ DITCH/SWALE	
	CONCRETE LINED DITCH	
	EC-3 LINED DITCH	
	EXISTING TREELINE	
	LIMITS OF CLEARING	
	SILT FENCE	
	INLET PROTECTION	
	CHECK DAM	
	STRAW BALE BARRIER	
	RIP RAP	
	REVERSE GRADE GUTTER PAN	
25.1	GROUND ELEVATION	25.1
	TOP OF CURB ELEV.	TOP ELEV.
	GRADING LINE TIE-IN	
80	EXISTING CONTOUR ELEV.	
	CONTOUR ELEV.	80
	GRADING BY OTHERS	80
	PARKING	
	YARD HYDRANT	W



VICINITY MAP (APROX. SCALE 1"=2000')

I HEREBY CERTIFY TO THE BEST OF MY JUDGEMENT, KNOWLEDGE, AND BELIEF THAT THIS RECORD DRAWING REPRESENTS THE CONDITIONS OF THE SITE ON THE DATE IT WAS SURVEYED. THE SITE APPEARS TO CONFORM WITH THE PROVISIONS OF THE APPROVED DESIGN PLAN.

ENGINEER _____ DATE 9/20/02

COMMONWEALTH OF VIRGINIA
G. ARCHER MARSTON, III
No. 018232
9/20/02
PROFESSIONAL ENGINEER

GENERAL NOTES

1. THE SITE IS CURRENTLY ZONED MU, MIXED USE.
2. ALL UTILITIES SHALL BE PLACED UNDERGROUND.
3. CONTACT MISS UTILITY (1-800-552-7001) FOR EXISTING UTILITY LOCATIONS PRIOR TO COMMENCING THE WORK.
4. EXISTING UTILITY LOCATIONS INDICATED ARE APPROXIMATE. FIELD VERIFY PRIOR TO COMMENCING THE WORK.
5. A LAND DISTURBING PERMIT AND SILTATION AGREEMENT, WITH SURETY ARE REQUIRED FOR THIS PROJECT.
6. A CERTIFICATE TO CONSTRUCT WATER AND SEWER FACILITIES IS REQUIRED FOR THIS PROJECT.
7. A VDOT CE-7 PERMIT IS REQUIRED FOR ALL WORK WITHIN THE VDOT R/W.
8. PARKING SPACES SHALL BE DELINEATED BY PAVEMENT STRIPING. HANDICAP PARKING SPACES SHALL BE DESIGNATED BY ABOVE GROUND SIGNS PER USBC REQUIREMENTS.
9. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
10. VERIFY ALL DIMENSIONS AND NOTIFY JAMES CITY SERVICE AUTHORITY PRIOR TO ANY EXCAVATION OR DEMOLITION WITHIN UTILITY CORRIDORS.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF CONSTRUCTION EFFORTS WITH VIRGINIA NATURAL GAS, VIRGINIA POWER, C & P TELEPHONE, APPROPRIATE TELEVISION CABLE COMPANY, AND OTHERS THAT MAY BE REQUIRED.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR THE WORK INDICATED.
13. CONTOUR INTERVAL IS 2 FEET.
14. FUTURE EXPANSION IS SHOWN FOR INFORMATION PURPOSES ONLY. ANY FUTURE CONSTRUCTION WILL REQUIRE ADDITIONAL SITE PLANS.
15. ALL UTILITIES SHALL HAVE 36" MIN. COVER.
16. STONE MUST BE 4 INCHES DEEP AND EXTEND 1 FT. BEHIND THE BACK OF THE CURB. THE STONE UNDER THE CURB AND GUTTER SHALL BE CHECKED BY VDOT PRIOR TO PAVING OR BACKFILLING WITHIN THE VDOT RIGHT-OF-WAY.
17. VDOT DOES NOT ASSUME RESPONSIBILITY FOR MAINTENANCE OF THE DETENTION/RETENTION POND OR ITS STRUCTURES, AND SHALL BE SAVED HARMLESS FROM ANY DAMAGE.
18. EVERYTHING BEYOND THE RIGHT-OF-WAY LINE WILL BE CONSIDERED PRIVATE AND NOT MAINTAINED BY VDOT.
19. R1 THE DEVELOPER/CONTRACTOR/PERMITEE MUST OBTAIN PERMISSION FROM JACK MASSIE IN WRITING TO WORK IN THE AREA OF THE VDOT MOTICELLO ROAD PROJECT. THIS WORK SHALL NOT DELAY OR IMPACT VDOT'S PROJECT IN ANY WAY.

PROPOSED SITE STATISTICS

	AREA	% OF SITE
SITE AREA	11.19 AC.	100.0
BUILDING AREA	0.54 AC.	4.8
PAVEMENT AREA	3.37 AC.	30.1
OPEN SPACE	7.28 AC.	65.1

FUTURE SITE STATISTICS

	AREA	% OF SITE
SITE AREA	11.19 AC.	100.0
BUILDING AREA	0.77 AC.	6.9
PAVEMENT AREA	5.72 AC.	51.1
OPEN SPACE	4.70 AC.	42.0

APPROVED
James City County
Environmental Division
By _____
Date 11-22-02
PC 173

PARKING TABULATIONS:

PARKING SPACES PROVIDED:

R1

272	SPACES
9	HANDICAP
281	TOTAL

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

HERNANDEZ & LYN
and
MOSELEY
HARRIS &
McCLINTOCK

A Joint Venture

7550 SW 57 th Avenue
Suite 211
Miami, FL 33143
tel. (305) 666-2181
fax. (305) 666-1353

601 Southlake Boulevard
Richmond, VA 23236
tel. (804) 794-7555
fax. (804) 379-8660

WILLIAMSBURG - JAMES CITY COUNTY COURTHOUSE

CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 229-5648
Fx (757) 220-8994

DATE:
DECEMBER 22 1997

PROJECT NO.:
H&L: 96-0801

MHM: 30260

AES: 0289

REVISIONS:
January 14, 1998 - ADDENDUM No.1
January 21, 1998 - ADDENDUM No.2
March 9, 1998 - ADDENDUM No.2
April 24, 1998 - REVISION No.1 R1

COMMONWEALTH OF VIRGINIA
G. ARCHER MARSTON, III
No. 018232
4/24/98
PROFESSIONAL ENGINEER

TITLE:
COVER SHEET

DRAWING NO.:
CIVIL

PROGRESS SET: 10-3-97
SITE PLAN SUBMITTAL 10-29-97
SITE PLAN RESUBMITTAL 1-26-98
SITE PLAN RESUBMITTAL 4-24-98

MAP 04.24.98-07.04 8288C00.dwg

RECORD DRAWING-9/20/02

I HEREBY CERTIFY TO THE BEST OF MY JUDGEMENT, KNOWLEDGE, AND BELIEF THAT THIS RECORD DRAWING REPRESENTS THE CONDITIONS OF THE SITE ON THE DATE IT WAS SURVEYED. THE SITE APPEARS TO CONFORM WITH THE PROVISIONS OF THE APPROVED DESIGN PLAN.

ENGINEER _____ DATE 9/24/02

COMMONWEALTH OF VIRGINIA
G. ARCHER MARSTON, III
No. 018232
9/20/02
PROFESSIONAL ENGINEER

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

GRAPHIC SCALE
40' 0' 40' 80'
SCALE: 1" = 40'

N

TEMPORARY ACCESS EASEMENT
SITE 4
SITE 3
SITE 2
SITE 1
15' MAINTENANCE EASEMENT
100 YR STORM
PLACED AT TOE OF SLOPE, TYP.
PROVIDE RIP RAP APRON 27'± 11'± 20' LONG X 20' WIDE @ OUTLET X 24' WIDE @ END) CONSISTING OF CLASS AI STONE (MIN. 18" DEEP, APPROX. 25 CY REQ'D.)
1 – 103 L.F. OF 42" RCP @ 1.64% INV.IN.=66.44 INV.OUT=64.75
2 – 124 L.F. OF 42" RCP @ 0.81% INV.IN.=66.8 INV.OUT=65.8
1 – 103 L.F. OF 42" RCP @ 1.26% INV.IN.=66.51 INV.OUT=65.21
16'x8' 1 – 20'x8' MODIFIED FW-11 AND 2 – 5'x5' CONC. JUNCTION BOXES (SEE DETAIL DRAWING C10)
REVERSE SLOPED PIPE 60 56 LF OF 8" PVC @ 6.39% 2.92% INV. IN=64.56 65.09 INV. OUT=66.80 66.84
PROVIDE ROCK CHECK DAM IN FLOW PATH CONSISTING OF CLASS AI RIP RAP STONE
MICROPOOL NP=66.80 66.84 INV=62.39 63.94
SEE SECTION A~A, DRAWING C10
LIMITS OF CLEARING
TOP OF DAM
SWM POND
VDOT STORMWATER MANAGEMENT POND
BERM
ACCESS EASEMENT
NOTE: ACCESS EASEMENT MAY BE ALTERED, AS ADJACENT PROPERTY DEVELOPS.
FUTURE RAMP
20th CENTURY SAW PIT
CONSTRUCTION ENTRANCE
SOIL
EXISTING 10'± RIP RAP APRON
Dr-4B TOP=92.11 INV. IN=86.89 INV. IN=86.89 INV. OUT=85.89
Dr-4B TOP=91.52 INV=87.19
Dr-3B TOP=93.45 INV=89.28
Dr-3B TOP=94.97 INV=90.80
EXISTING 42" RCP
WEST BOUND LANE
EAST BOUND LANE
MONTICELLO AVENUE EXTE
I-1/2"VC
Pc 173

NOTE:
VDOT DOES NOT ASSUME RESPONSIBILITY FOR MAINTENANCE OF THE DETENTION/ RETENTION POND OR ITS STRUCTURES, AND SHALL BE SAVED HARMLESS FROM ANY DAMAGE.

HERNANDEZ & LYN and MOSELEY HARRIS & McCLINTOCK
A Joint Venture
7550 SW 57 th Avenue
Suite 211
Miami, FL 33143
tel. (305) 666-2181
fax. (305) 666-1353

601 Southlake Boulevard
Richmond, VA 23236
tel. (804) 794-7555
fax. (804) 379-8660

WILLIAMSBURG - JAMES CITY COUNTY COURTHOUSE

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-9994

DATE: DECEMBER 22 1997

PROJECT NO.:
H&L: 96-0801
MHM: 36260
ABS: 9289

REVISIONS:
January 14, 1998 – ADDENDUM No.1
January 21, 1998 – ADDENDUM No.2
March 9, 1998 – ADDENDUM No.2
April 24, 1998 – REVISION No.1 (1)

COMMONWEALTH OF VIRGINIA
G. ARCHER MARSTON, III
No. 018232
4/24/98
PROFESSIONAL ENGINEER

TITLE:
BMP/SWM POND SITE PLAN

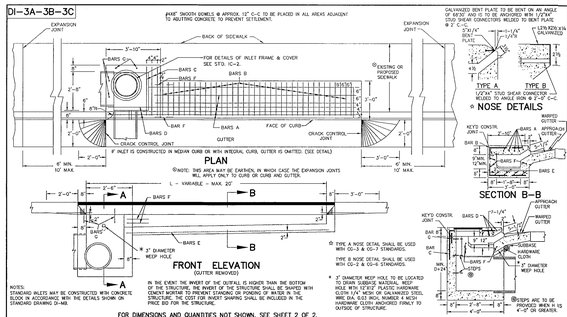
DRAWING NO.:
C6

PROGRESS SET: 11-1-97
SITE PLAN RESUBMITTAL: 12-29-97
SITE PLAN RESUBMITTAL: 1-27-98
SITE PLAN RESUBMITTAL: 4-24-98

07.22.98-14:28 P:\96\0801\DWG\C06.dwg EAW

RECORD DRAWING-9/20/02

DI-3A-3B-3C



ANY SMOOTH DOWELS @ APPROX. 12" C-C TO BE PLACED IN ALL AREAS ADJACENT TO ABUTTING CONCRETE TO PREVENT SETTLEMENT.

GALVANIZED BENT PLATE TO BE BENT ON AN ANGLE OF 60°30' AND TO BE ANCHORED WITH 1/2"ø EXPANSION ANCHORS WELDED TO BENT PLATE @ 2' C-C.

TYPE A: 5"W x 1/4" THICK STEEL CONNECTOR @ EXPANSION JOINTS

TYPE B: 1-1/4"W x 1/4" THICK STEEL CONNECTOR @ CRACK CONTROL JOINTS

NOSE DETAILS

NOTE: THIS AREA MAY BE EARTHEN, IN WHICH CASE THE EXPANSION JOINTS WILL APPLY ONLY TO CURB OR CURB AND GUTTER.

IF INLET IS CONSTRUCTED IN MEDIAN CURB OR WITH INTEGRAL CURB, GUTTER IS OMITTED. (SEE DETAIL)

L = VARIABLE - MAX. 20'

* TYPE A NOSE DETAIL SHALL BE USED WITH CG-3 & CG-7 STANDARDS.

TYPE B NOSE DETAIL SHALL BE USED WITH CG-2 & CG-6 STANDARDS.

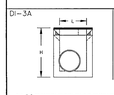
* 3" DIAMETER WEEP HOLE TO BE LOCATED TO DRAIN SUBBASE MATERIAL. WEEP HOLE WITH 12"X12" PLASTIC HARDWARE CLOTH 1/4" MESH OR GALVANIZED STEEL WIRE, MINIMUM WIRE DIA. 0.03 INCH, NUMBER 4 MESH HARDWARE CLOTH ANCHORED FIRMLY OUTSIDE OF STRUCTURE.

NOTES:
SHADED INLETS MAY BE CONSTRUCTED IN CONCRETE BLOCK IN ACCORDANCE WITH THE DETAILS SHOWN ON STANDARD DRAWING DI-NB.

IN THE EVENT THE INVERT OF THE OUTFALL IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE. THE COST FOR INVERT SHAPING SHALL BE INCLUDED IN THE PRICE BID FOR THE STRUCTURE.

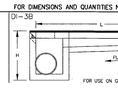
FOR DIMENSIONS AND QUANTITES NOT SHOWN, SEE SHEET 2 OF 2.

DI-3A

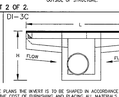


FOR USE ON GRADES

DI-3B



DI-3C

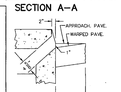


THE "H" DIMENSION SHOWN ON THE STANDARDS AND SPECIFIED ON THE PLANS WILL BE MEASURED FROM THE INVERT OF THE OUTFALL PIPE TO THE TOP OF THE STRUCTURE. PLAN "H" DIMENSIONS ARE APPROXIMATE ONLY FOR ESTIMATING PURPOSES AND THE ACTUAL DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FROM FIELD CONDITIONS.

WHEN SPECIFIED ON THE PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD PLAN D-3. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE PRICE BID FOR THE STRUCTURE.

LENGTH OF SLOT (L) WILL, IN EVERY CASE, BE SHOWN ON PLANS.

THIS NOTE MAY BE PRECAST OR CAST IN PLACE.



DETAIL WHEN USED ADJACENT TO CURB WITHOUT GUTTER

STANDARD CURB DROP INLET
12"-30" PIPE MAXIMUM DEPTH (H)=8'

VIRGINIA DEPARTMENT OF TRANSPORTATION

PC 173

SPECIFICATION REFERENCE
233
302

104.09

SHEET 1 OF 2

DI-3A-3B-3C SHEET 2 OF 2

TABLE OF CONTENTS

TYPE	L	AREA OF SLOT	CONCRETE	REINFORCING STEEL BARS A		BARS B		BARS C		BARS D		BARS E		BARS F		BARS G		WEIGHT
	FT.	SQ. FT.	CU. YDS.	NO.	LIN. FT.	NO.	LIN. FT.	NO.	LIN. FT.	NO.	LIN. FT.	NO.	LIN. FT.	NO.	LIN. FT.	NO.	LIN. FT.	LBS.
DI-3A	2'-6"	1.15	2.26	–	–	–	–	1	5'-7"	3	3'-2"	–	–	–	–	6	1'-0"	22
DI-3B	4'	1.83	2.59	5	1'-6"	2	6'7"to6'10"	3	5'-7"	3	3'-2"	4	1'-6"	3	1'-6"	4	1'-0"	64
	6'	2.75	3.00	5	3'-6"	6	6'7"to6'10"	3	5'-7"	3	3'-2"	4	3'-6"	3	1'-6"	4	1'-0"	111
	8'	3.67	3.46	5	5'-6"	10	6'7"to6'10"	3	5'-7"	3	3'-2"	4	5'-6"	3	1'-6"	4	1'-0"	158
	10'	4.58	3.90	5	7'-6"	14	6'7"to6'10"	3	5'-7"	3	3'-2"	4	7'-6"	3	1'-6"	4	1'-0"	204
	12'	5.50	4.34	5	9'-6"	18	6'7"to6'10"	3	5'-7"	3	3'-2"	4	9'-6"	3	1'-6"	4	1'-0"	251
	14'	6.42	4.78	5	11'-6"	22	6'7"to6'10"	3	5'-7"	3	3'-2"	4	11'-6"	3	1'-6"	4	1'-0"	298
	16'	7.33	5.22	5	13'-6"	26	6'7"to6'10"	3	5'-7"	3	3'-2"	4	13'-6"	3	1'-6"	4	1'-0"	345
	18'	8.25	5.66	5	15'-6"	30	6'7"to6'10"	3	5'-7"	3	3'-2"	4	15'-6"	3	1'-6"	4	1'-0"	391
	20'	9.17	6.09	5	17'-6"	34	6'7"to6'10"	3	5'-7"	3	3'-2"	4	17'-6"	3	1'-6"	4	1'-0"	438
DI-3C	6'	2.75	3.01	10	1'-9"	4	6'7"to6'10"	5	5'-7"	3	3'-2"	8	1'-9"	6	1'-6"	2	1'-0"	111
	8'	3.67	3.45	10	2'-9"	8	6'7"to6'10"	5	5'-7"	3	3'-2"	8	2'-9"	6	1'-6"	2	1'-0"	158
	10'	4.58	3.89	10	3'-9"	12	6'7"to6'10"	5	5'-7"	3	3'-2"	8	3'-9"	6	1'-6"	2	1'-0"	205
	12'	5.50	4.33	10	4'-9"	16	6'7"to6'10"	5	5'-7"	3	3'-2"	8	4'-9"	6	1'-6"	2	1'-0"	252
	14'	6.42	4.77	10	5'-9"	20	6'7"to6'10"	5	5'-7"	3	3'-2"	8	5'-9"	6	1'-6"	2	1'-0"	298
	16'	7.33	5.21	10	6'-9"	24	6'7"to6'10"	5	5'-7"	3	3'-2"	8	6'-9"	6	1'-6"	2	1'-0"	345
	18'	8.25	5.65	10	7'-9"	28	6'7"to6'10"	5	5'-7"	3	3'-2"	8	7'-9"	6	1'-6"	2	1'-0"	392
	20'	9.17	6.09	10	8'-9"	32	6'7"to6'10"	5	5'-7"	3	3'-2"	8	8'-9"	6	1'-6"	2	1'-0"	439

* DENOTES LENGTH OF (1) BAR.

NOTES: ALL REINFORCING BARS TO BE NO. ⑤.

ALL CAST IN PLACE CONCRETE TO BE CLASS A3. FOR ACCEPTABLE ALTERNATE SEE PRECAST STANDARD DESIGNS.

CONCRETE QUANTITIES ARE SHOWN FOR DEPTH (H) OF 5'-2" WITHOUT PIPES. THE AMOUNT DISPLACED BY PIPES MUST BE DEDUCTED TO OBTAIN TRUE QUANTITIES. FOR INLETS OF DIFFERENT DEPTHS ADD OR SUBTRACT 0.32 CU. YDS. OF CONCRETE FOR EACH FOOT OF DIFFERENCE OF DEPTH.

LENGTH OF ANGLE IRON AS SHOWN ON SHEET 1 IS TO BE L + 16" @ 4.10 LBS. PER FT.

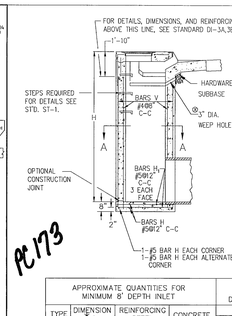
STANDARD CURB DROP INLET
12"-30" PIPE MAXIMUM DEPTH (H)=8'

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
233
302

104.10

DI-3AA, -3BB, -3CC



PC 173

3" DIA. WEEP HOLE TO BE LOCATED TO DRAIN SUBBASE MATERIAL. WEEP HOLE WITH 12"X12" PLASTIC HARDWARE CLOTH 1/4" MESH OR GALVANIZED STEEL WIRE, MINIMUM WIRE DIA. 0.03 INCH, NUMBER 4 MESH HARDWARE CLOTH ANCHORED FIRMLY OUTSIDE OF STRUCTURE.

NOTES:

ALL CAST IN PLACE CONCRETE TO BE CLASS A3. FOR ACCEPTABLE ALTERNATE SEE PRECAST STANDARD DESIGNS.
MINIMUM DEPTH (H) TO BE 8'-0". MAXIMUM DEPTH TO BE 20'-0". FOR INLETS LESS THAN 8' USE STD. DI-3A,3B,3C.

LENGTH OF SLOT (L) WILL, IN ALL CASES, BE SHOWN ON PLANS.

WHEN INLET IS USED IN 4' MEDIAN, BACK OF INLET IS TO BE SHAPED TO CONFORM TO PROPOSED CURB.

FOR PLAN VIEW OF INLET SEE STD. DI-3A,3B,3C.

IF OPTIONAL CONSTRUCTION IS USED IT IS TO BE KEYED. ALL SPLICES IN BARS V TO BE A MINIMUM OF 400 (20").

WHEN SPECIFIED ON PLANS INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD PLAN D-3.

THIS ITEM MAY BE PRECAST OR CAST IN PLACE.

SEE STD. SL-1 FOR APPLICABILITY OF SAFETY SLABS.

#4X8" SMOOTH DOWELS @ APPROX. 12" C-C- TO BE PLACED IN ALL AREAS ADJACENT TO ABUTTING CONCRETE TO PREVENT SETTLEMENT.

IN LIEU OF DOWELS A 3"X4" NOTCH MAY BE PROVIDED. SEE STANDARD T-DI-3,4 ALTERNATE DESIGN.

APPROXIMATE QUANTITIES FOR MINIMUM 8' DEPTH INLET				INCREMENTS TO BE ADDED FOR EACH ADDITIONAL FOOT OF DEPTH (H) AND/OR SLOT LENGTH (L)					
				H				L	
TYPE	DIMENSION * L	REINFORCING STEEL	CONCRETE	CU. YDS. CONCRETE	LBS. STEEL	CU. YDS. CONCRETE	LBS. STEEL	CU. YDS. CONCRETE	LBS. STEEL
DI-	LIN. FT.	LBS.	CU. YDS.						
3AA	2'-6"	452	3.14	0.317	54	0.22	23.5		
3BB	4'-0"	494	3.47	0.317	54	0.22	23.5		
3CC	6'-0"	541	3.83	0.317	54	0.22	23.5		

SCHEDULE OF REINFORCING STEEL **							
BARS H		BARS H_1		BARS H			
NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH		
4X(H+1)	3'-6"	4X(H+1)	3'-8"	36	H-1"+		

THE "H" DIMENSION SHOWN ON THE STANDARDS AND SPECIFIED ON THE PLANS WILL BE MEASURED FROM THE INVERT OF THE OUTFALL PIPE TO THE TOP OF THE STRUCTURE. PLAN "H" DIMENSIONS ARE APPROXIMATE ONLY FOR ESTIMATING PURPOSES AND THE ACTUAL DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FROM FIELD CONDITIONS.

* FOR DESCRIPTION AND LOCATION OF DIMENSION L SEE SHEET 104.09.

** FOR NUMBER OF BARS A-G REQUIRED AND LENGTHS SEE SHEET 104.10

QUANTITIES SHOWN ARE FOR MINIMUM INLETS OF EACH TYPE. FOR INLETS OF GREATER DEPTH (H) OR LONGER SLOTS (L) INCREMENTS SHOWN PER FOOT MUST BE ADDED.

THE AMOUNT OF CONCRETE AND STEEL DISPLACED BY PIPES MUST BE DEDUCTED TO OBTAIN TRUE QUANTITIES.

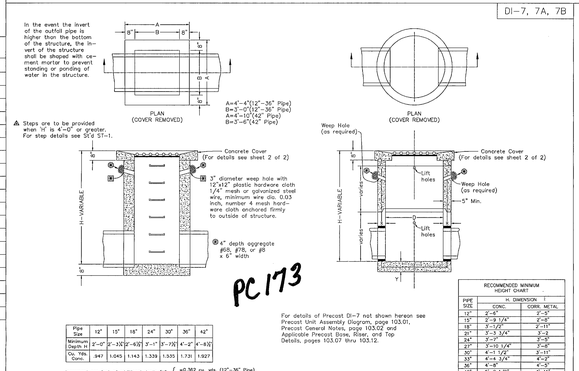
IN THE EVENT THE INVERT OF THE OUTFALL PIPE IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE.

STANDARD CURB DROP INLET
12" - 30" PIPE DEPTH (H) 8' - 20'

N.T.S.

D-DI3AA

DI-7, 7A, 7B



RECOMMENDED MINIMUM HEIGHT CHART		
PIPE	'H' DIMENSION ↑	
	CONC.	CORR. METAL
12"	2'-5"	2'-0"
15"	2'-9 1/4"	2'-4"
18"	3'-1 1/2"	2'-11"
21"	3'-5 3/4"	3'-2
24"	3'-7"	3'-5"
27"	3'-10 1/4"	3'-8"
30"	4'-1 1/2"	3'-11"
33"	4'-4 3/4"	4'-2"
36"	4'-8"	4'-5"
42"	5'-2 1/2"	4'-11"

Pipe Size	12"	15"	18"	24"	30"	36"	42"
Minimum Depth 'H'	8'-0"	8'-32"	8'-63"	9'-1"	9'-75"	9'-4"	9'-83"
Dia. 76th Conc.	947	1.043	1.142	1.339	1.535	1.731	1.927

Increment per foot of additional depth (H) $\begin{cases} +0.362 \text{ cu. yds. (12"-36" Pipe)} \\ +0.410 \text{ cu. yds. (42" Pipe)} \end{cases}$

Reinforcing concrete footing may be precast or cast in place. Two lifting hooks of fabricators design to be provided in precast footing.

For details of Precast DI-7 and shown hereon see Precast Unit Assembly Diagram, page 103.01, Precast General Notes, page 103.02 and Applicable Precast Base, Riser, and Top Details, pages 103.07 thru 103.12.

DI-7 -- No gutter
DI-7A -- Single gutter when drop inlet is on a grade.
DI-7B -- Double gutter when drop inlet is in a sag between two grades.

The type of inlet detailed hereon to be constructed will be at the option of the contractor.

GENERAL NOTES

When specified on plans the invert is to be shaped in accordance with ST-6, IS-1.

For details of concrete cover, collar and grate, and method of placing approach gutter see sheet 2 of 2.

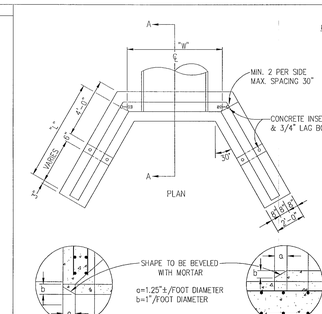
Increments shown are for inlets without pipes. Pipe displacements must be deducted to obtain true quantities.
Paved ditches are to be transitioned to meet inlet gutter as shown in ST-6, IS-1.
Safety Slabs are to be provided at 6' minimum and 12' maximum vertical intervals and are to be spaced so as not to conflict with openings for pipes as directed by the Engineer.

STANDARD MEDIAN DROP INLET

NOT TO SCALE

D-2X6

EV-2PC



NOTES:

HEADWALL TO BE BEVELED IN ALL AREAS EXCEPT WHERE A CONFLICT WITH INVERT OR WINGWALLS OCCUR.
BEVEL EDGE IS REQUIRED ON THE HEADWALL AT THE INLET END OF THE CULVERT (WHERE THE FLOW ENTERS THE CULVERT).
HEADWALL AT THE OUTLET END OF THE CULVERT MAY BE EITHER SQUARE EDGE OR BEVEL EDGE.
CONCRETE TO BE 4000 PSI MINIMUM COMPRESSIVE STRENGTH.
IF PIPE IS TO BE SKEWED, THE OPENING WILL BE ADJUSTED TO ACCOMMODATE ANGLES UP TO 15°.
REINFORCING STEEL IN ACCORDANCE WITH ASTM A-615 (REINFORCING BARS).
PIPE OPENING AS REQUIRED, 4" MIN. 8" MAX. LARGER THAN O D PIPE
DIMENSIONS SHOWN ARE MINIMUM. ACTUAL MEASUREMENTS MAY VARY WITH MANUFACTURER'S TOLERANCES.
IN NO CASE TOP OF ENDWALL PROJECT ABOVE FILL SLOPE, DITCH SLOPE, OR SHOULDER.

DIMENSIONS						
PIPE I.D.	H	W	1½:1 SLOPE	2:1 SLOPE	a	b
42"	5'-6"	6'-3"	6'-7 1/2"	8'-8"	0'-5 1/2"	0'-3 1/2"
48"	6'-0"	6'-10"	7'-6"	9'-10"	0'-6"	0'-4"
54"	6'-6"	7'-5"	8'-4 1/2"	11'-0"	0'-7"	0'-4 1/2"
60"	7'-0"	8'-0"	9'-3"	12'-1 1/2"	0'-7 1/2"	0'-5"
66"	7'-7"	8'-8 1/2"	10'-1 1/2"	13'-3 1/2"	0'-8 1/2"	0'-5 1/2"
72"	8'-2"	9'-3 1/2"	11'-0"	14'-5 1/2"	0'-9"	0'-6"
78"	8'-8 1/2"	9'-10"	11'-10"	15'-7"	0'-10"	0'-6 1/2"
84"	9'-3"	10'-4"	12'-8 1/2"	16'-9"	0'-10 1/2"	0'-7"

3/4" CHAMFER SHALL BE PROVIDED ON ALL EXPOSED EDGES.

D-EW-2PC

PRECAST ENDWALL FOR CIRCULAR PIPE CULVERTS

VIRGINIA DEPARTMENT OF TRANSPORTATION

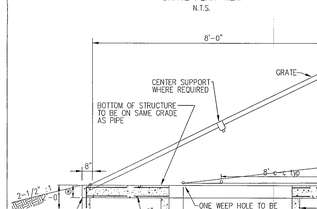
SPECIFICATION REFERENCE
105.04
302

101.06

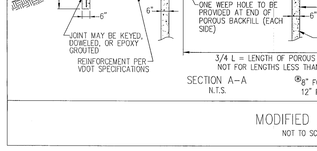
EW-11

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.
-STANDARD EW-11 TO BE INSTALLED SO THE GRATE ORIENTATION ALWAYS PERPENDICULAR TO THE EDGE OF SHOULDER.



PC 173



*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

D-EW-11

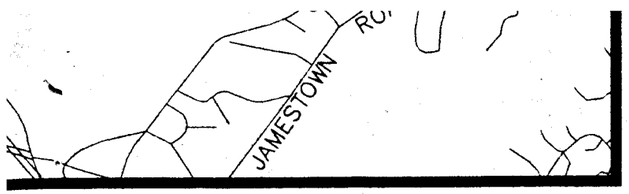
MODIFIED EW-11
NOT TO SCALE

VDOT GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION WITHIN THE PUBLIC RIGHT OF WAY SHALL BE IN ACCORDANCE WITH CURRENT VIRGINIA DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS AND STANDARDS.
2. PERMITS MUST BE OBTAINED FROM THE VIRGINIA DEPARTMENT OF TRANSPORTATION BEFORE CONSTRUCTION IS STARTED WITHIN THE EXISTING RIGHT OF WAY.
3. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL CONSULT THE ENGINEER AND VERIFY THE APPROVAL OF THE PLANS BY THE VARIOUS AGENCIES.
4. THE CONTRACTOR SHALL VERIFY THE ELEVATIONS OF ALL POINTS OF CONNECTION OR PROPOSED WORK TO EXISTING CURBS, SANITARY LINES, WATER LINES, ETC., PRIOR TO CONSTRUCTION.
5. WHEN SOILS OCCUR THAT ARE UNSUITABLE FOR FOUNDATIONS, SUBGRADES, OR OTHER ROADWAY PURPOSES, THE CONTRACTOR SHALL BE REQUIRED TO EXCAVATE SUCH MATERIAL BELOW THE GRADE SHOWN ON THE PLANS. THE AREAS SO EXCAVATED SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED IN ACCORDANCE WITH VDOT SPECIFICATIONS. THE CONTRACTOR SHALL IMMEDIATELY INFORM THE ENGINEER UPON DISCOVERY OF THE UNSUITABLE MATERIAL. CONCURRENCE OF THE DEVELOPER SHALL BE OBTAINED BEFORE ADDITIONAL ON-SITE WORK IS UNDERTAKEN.
6. ALL STORM SEWER PIPE SHALL BE REINFORCED TONGUE AND GROOVE CONCRETE PIPE IN ACCORDANCE WITH ASTM-C-76 OR ALTERNATIVE PIPE THAT HAS BEEN APPROVED ON THE PLANS. PIPE WITHIN THE RIGHT OF WAY SHALL BE A MINIMUM CL-111 OR GREATER IN ACCORDANCE WITH VDOT STANDARDS 107.05 AND SPECIFICATIONS 232 AND 302.
7. TEMPORARY DRAINAGE DURING CONSTRUCTION IS TO BE PROVIDED BY THE CONTRACTOR TO RELIEVE AREAS THAT MAY CAUSE DAMAGE TO ROADWAYS OR ADJACENT PROPERTY.
8. ALL CONCRETE SHALL BE CLASS A3=AE (AIR ENTRAINED 3,000 PSI).
9. CURB AND GUTTER SHALL HAVE 4" OF AGGREGATE BASE 21B UNDER THE CURB AND GUTTER AND AGGREGATE SHALL EXTEND 1' BEYOND THE BACK OF THE CURB.
10. ALL CURB AND GUTTER SHALL HAVE A STANDARD GUTTER ENTRANCE IN ACCORDANCE WITH VDOT STANDARDS.
11. ALL ENTRANCES ARE TO BE BUILT IN ACCORDANCE WITH VDOT STANDARDS.
12. THE DEVELOPER IS RESPONSIBLE FOR FURNISHING AND INSTALLING STOP SIGNS AT STREET INTERSECTIONS.
13. DESIGN OR SPECIFIED MATERIALS CHANGES FROM THE APPROVED PLANS NEED TO BE RE-SUBMITTED TO VDOT. A LETTER NEEDS TO ACCOMPANY THE REVISED PLANS AND/OR DRAINAGE CALCULATIONS WHICH SHALL BE SUBMITTED TO VDOT FOR REVIEW AND APPROVAL BY THE RESIDENT ENGINEER.
14. THE CONTRACTOR/SUB-CONTRACTOR SHALL HAVE A CURRENT COPY OF VDOT'S "ROAD AND BRIDGE SPECIFICATIONS" AND "ROAD AND BRIDGE STANDARDS" ON THE PROJECT.
15. VDOT IS TO RECEIVE WRITTEN NOTIFICATION 48 HOURS PRIOR TO THE START OF ANY WORK.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES, WHETHER OR NOT SHOWN ON THE PLANS, AND SHALL REPAIR AT HIS OWN EXPENSE ALL UTILITIES DAMAGED BY CONSTRUCTION. MISS UTILITY MUST BE CONTACTED AT 1-800-552-7001 72 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.
17. ALL UTILITY PEDESTALS, CABINETS, FIRE HYDRANTS, AND STREET LIGHTS SHALL BE LOCATED A MINIMUM OF 9.5' FROM THE EDGE OF PAVEMENT ADJACENT TO THE RIGHT OF WAY LINE ON CURB AND GUTTER STREETS AND/OR LOCATED BEHIND THE DITCH LINE ON OPEN DITCH STREETS. PEDESTALS AND CABINETS SHOULD BE LOCATED AT THE PROPERTY LINES BETWEEN LOTS. WHERE REQUIRED, FIRE HYDRANT CROSSINGS SHALL HAVE A MINIMUM OF 15" OF RCP OR LARGER, AS WARRANTED IN OPEN ROADSIDE DITCHES AND HAVE 8' LENGTH.
18. ALL STORM SEWER PIPES, DROP INLETS, AND CURB INLETS SHALL BE CLEANED OF DEBRIS AND ERODED MATERIAL DURING LAST STAGES OF CONSTRUCTION.
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING, WITH MATCHING MATERIALS, ANY PAVEMENT, DRIVEWAYS, WALKS, CURBS, ETC., THAT MUST BE CUT OR THAT ARE DAMAGED DURING CONSTRUCTION.
20. ANY ERRORS, CONFLICTS, OR DISCREPANCIES IN THIS PLAN SHALL BE REPORTED TO THE ENGINEER FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
21. COMPACTION REPORTS, WITH PROCTOR, ARE REQUIRED FOR SUBGRADE, SUBBASE, BASE, SURFACE COURSE, CULVERTS, DRAINAGE STRUCTURES, AND UTILITIES WITHIN THE RIGHT OF WAY BY A CERTIFIED MATERIALS TEST LAB IN ACCORDANCE WITH VDOT SPECIFICATIONS AND STANDARDS.
22. INSTALLATION OF PIPE CULVERTS, STORM SEWERS, AND DRAINAGE STRUCTURES SHALL HAVE BEDDING MATERIAL IN ACCORDANCE WITH VDOT SPECIFICATIONS AND STANDARDS. BACKFILL SHALL BE SUITABLE MATERIAL FREE OF DEBRIS, TREE ROOTS, AND EXCESS MOISTURE, AND COMPACTED.
23. ALL ROADSIDE DITCHES SHOWN AS PAVED ON PLANS ARE TO BE PAVED IN ACCORDANCE WITH THE STANDARD TYPICAL SECTION AS SHOWN ON THE PLANS, UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER IN WRITING. ANY ADDITIONAL PAVING OF THE DITCHES, OTHER THAN THOSE SHOWN ON THE ROAD PLANS WILL BE DETERMINED PRIOR TO ACCEPTANCE OF THE ROADS INTO THE VDOT SECONDARY ROAD SYSTEM.
24. VDOT AND COUNTY APPROVAL OF SUBDIVISION ROAD PLANS DOES NOT PRECLUDE THE RIGHT TO ADD ADDITIONAL FACILITIES.
25. VDOT APPROVAL OF THESE PLANS WILL EXPIRE THREE YEARS FROM THE DATE OF APPROVAL.
26. CLEARING AND GRUBBING SHALL BE COMPLETED WITHIN THE RIGHT OF WAYS, AND INDICATED ON THE LAYOUT PLAN.
27. THE SUBGRADE MUST BE APPROVED BY VDOT PRIOR TO PLACEMENT OF BASE.
28. BASE MUST BE APPROVED BY VDOT FOR DEPTH, TEMPLATE, AND COMPACTION BEFORE SURFACE IS APPLIED.
29. ALL UTILITIES ARE TO BE IN PLACE PRIOR TO LAYING BASE MATERIAL.
30. AN ACTUAL COPY OF THE CBR REPORT IS TO BE SUBMITTED TO VDOT PRIOR TO APPROVAL OF THE PAVEMENT TYPICAL DESIGN. IF THE CBR VALUES ARE LESS THAN 10, THE DEVELOPER WILL BE REQUIRED TO SUBMIT FOR OUR APPROVAL, HIS PROPOSED METHOD OF CONSTRUCTION.
31. PAVED DITCHES MAY BE REQUIRED WHERE FIELD CONDITIONS WARRANT. GENERALLY, ALL DITCHES WITH SLOPES EXCEEDING 3% OR 1% OR LESS SHALL BE PAVED UNLESS OTHERWISE APPROVED BY THE ENGINEER, OWNER, VDOT, AND THE LOCAL GOVERNING BODY.
32. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE ROAD CONTRACTOR.
33. ALL VEGETATION AND OVERBURDEN TO BE REMOVED FROM SHOULDER TO SHOULDER PRIOR TO THE CONDITION OF SUBGRADE.
34. CERTIFICATION AND SOURCE OF MATERIALS ARE TO BE SUBMITTED TO VDOT OF ALL MATERIALS AND BE IN ACCORDANCE WITH THE "ROAD AND BRIDGE SPECIFICATIONS" AND "ROAD AND BRIDGE STANDARDS."
35. DRY GUTTER IS NOT ALLOWED IN VDOT RIGHT OF WAY.
36. THE DEVELOPER WILL BE RESPONSIBLE FOR THE COST OF THE SIGNAL MODIFICATION UNDER AN ACCOUNTS RECEIVABLE NUMBER.
37. AN OVERALL DEVELOPMENT PLAN IS NEEDED FOR THIS REVIEW.
38. A TRAFFIC IMPACT STUDY IS NEEDED FOR THIS REVIEW.
39. SHOW BOTH SIDES OF ROADWAY(S). INCLUDE ALL ENTRANCES, CROSSOVERS, TURN LANES, SPEED LIMITS, PAVEMENT MARKINGS, AND DISTANCE TO INTERSECTIONS.
40. A NOTE, "ANY DITCH WHICH HAS NOT DEVELOPED A GOOD SOD BY THE TIME OF ACCEPTANCE, MUST BE PAVED" NEEDS TO BE ADDED.
41. SHOW ELEVATIONS AT THE EDGE OF PAVEMENT IN 10' INTERVALS AROUND THE BULB OF THE CUL-DE-SAC.

RECORD DRAW

5. Construction plan



ALE 1"=2000')

15. ALL UTILITIES SHALL HAVE 36" MIN. COVER.
16. STONE MUST BE 4 INCHES DEEP AND EXTEND 1 FT. BEHIND THE BACK OF THE CURB.
17. VDOT DOES NOT ASSUME RESPONSIBILITY FOR MAINTENANCE OF THE DETENTION/RETENTION POND OR ITS STRUCTURES, AND SHALL BE SAVED HARMLESS FROM ANY DAMAGE.
18. EVERYTHING BEYOND THE RIGHT-OF-WAY LINE WILL BE CONSIDERED PRIVATE AND NOT MAINTAINED BY VD

PROPOSED SITE STATISTICS

	AREA	% OF SITE
SITE AREA	11.19 AC.	100.0
BUILDING AREA	0.54 AC.	4.8
PAVEMENT AREA	3.37 AC.	30.1
OPEN SPACE	7.28 AC.	65.1

FUTURE SITE STATISTICS

	AREA	% OF SITE
SITE AREA	11.19 AC.	100.0
BUILDING AREA	0.77 AC.	6.9
PAVEMENT AREA	5.72 AC.	51.1
OPEN SPACE	4.70 AC.	42.0

PARKING TABULATIONS:

PARKING SPACES PROVIDED:

280	SPACES
8	HANDICAP
288	TOTAL

SP-125-97
PC 173

CASEY PROPERTY
(EAST SIDE)
(38-4)(1-7)
302.0 Ac ±

SITE 2

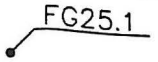
LOCATION OF STILL

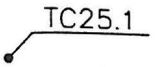
SWM POND CONSTRUCTION ENTRANCE

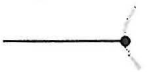
DOT DETENSION BASIN

RIP RAP 

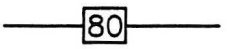
REVERSE ROLL TOP GUTTER 

25.1 GROUND ELEVATION 

PROPOSED TOP OF CURB ELEV. 

GRADING LINE TIE–IN 

80 EXISTING CONTOUR ELEV.

PROPOSED CONTOUR ELEV. 

PROPOSED CONTOURS
(BY OTHERS) 

INDEX OF SHEETS

SHEET NUMBER	DESCRIPTION
1	COVER SHEET
2	AREA TABULATIONS
3	ENVIRONMENTAL INVENTORY SHEET
4	SITE AND UTILITY PLAN
5	GRADING, DRAINAGE, EROSION AND SEDIME
6	SANITARY SEWER PLAN AND PROFILE
7	LANDSCAPE PLAN
8	LIGHTING PLAN
9	NOTES AND DETAILS
10	NOTES AND DETAILS

NOTE:
ALL STORM WATER RUNOFF ASSOCIATED WITH THIS PROJECT IS DIRECTED INTO EXISTING AND PROPOSED STORM DRAINAGE PIPING ASSOCIATED WITH NEW TOWN PHASE I ROADWAY (JCC–SP–050–02) AND PHASE III ROADWAY (JCC–SP–082–04). ALL RUNOFF IS COLLECTED AND TREATED BY BMP #53 (COUNTY BMP ID# PC 173)

VDOT DOES N
THE BMP(S)
HARMLESS FF

1"=40'

TEMPORARY ACCESS EASEMENT

SITE 4

SF

TEMPORARY ACCESS EASEMENT
OF-WAY DEDICATION

X85.8

X84.4

2 – 124 L.F. OF 42"
RCP @ 0.81%
INV.IN.=66.8
INV.OUT=65.8

100 YR STO

PLACED AT TOE
OF SLOPE, TYP.

1 – 20'x8' MODIFIED EW-11 AND
2 – 5'x5' CONC. JUNCTION BOXES
(SEE DETAIL DRAWING C10)

REVERSE SLOPED PIPE
36 LF OF 8" PVC @ 6.39%
INV. IN=64.50
INV. OUT=66.80

TOP OF DAM=83.25

A

X87.1

PROVIDE ROCK CHECK
DAM IN FLOW PATH
CONSISTING OF CLASS
A1 RIP RAP STONE

MICROPOOL
NP=66.80
INV=62.00

SEE SECTION A-A,
DRAWING C10

70

LIMITS OF
CLEARING

100 YR STORM

80

X87.8

SWM
POND

20th CEN
SAW PIT

FUTURE

VDOT STORMWATER
MANAGEMENT POND

1"=40'

TEMPORARY ACCESS EASEMENT

SITE 4

SITE 3

TEMPORARY ACCESS EASEMENT OR RIGHT-OF-WAY DEDICATION

SF

OP PROVIDE RIP RAP APRON (20' LONG X 20' WIDE @ OUTLET X 24' WIDE @ END) CONSISTING OF CLASS AI STONE (MIN. 18" DEEP, APPROX. 25 CY REQ'D.)

2 - 124 L.F. OF 42" RCP @ 0.81%
INV.IN.=66.8
INV.OUT=65.8

100 YR STORM

15'

15' MAINTENANCE E

PLACED AT TOE OF SLOPE, TYP.

1 - 20'x8' MODIFIED EW-11 AND
2 - 5'x5' CONC. JUNCTION BOXES
(SEE DETAIL DRAWING C10)

REVERSE SLOPED PIPE
36 LF OF 8" PVC @ 6.39%
INV. IN=64.50
INV. OUT=66.80

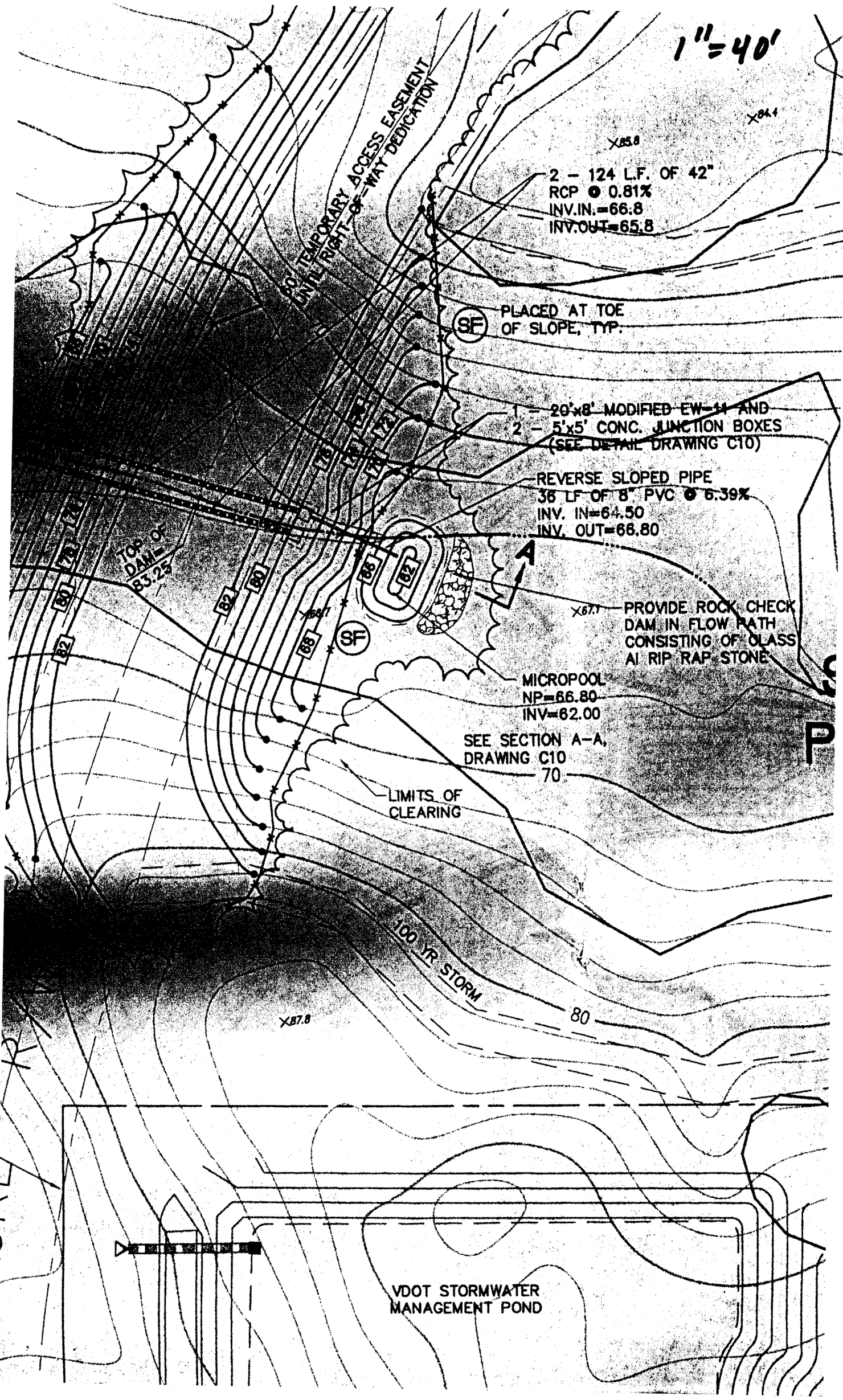
TOP OF DAM=83.25

A

PROVIDE ROCK CHECK DAM IN FLOW PATH CONSISTING OF CLASS AI RIP RAP STONE

S W M

X89.6
X89.4
X91.0
X84.4
X85.8
X87.4
X87.1
66.8
90
80
78
76
74
72
70
68
66
64
62
60
82
84
86
88


1"=40'
50' TEMPORARY ACCESS EASEMENT UNTIL RIGHT-OF-WAY DEDICATION
2 - 124 L.F. OF 42" RCP @ 0.81%
INV.IN.=66.8
INV.OUT=65.8
SF
PLACED AT TOE OF SLOPE, TYP.
1 - 20'x8' MODIFIED EW-11 AND
2 - 5'x5' CONC. JUNCTION BOXES
(SEE DETAIL DRAWING C10)
REVERSE SLOPED PIPE
36 LF OF 8" PVC @ 6.39%
INV. IN=64.50
INV. OUT=66.80
TOP OF DAM=83.25
A
PROVIDE ROCK CHECK DAM IN FLOW PATH CONSISTING OF CLASS A1 RIP RAP STONE
MICROPOOL
NP=66.80
INV=62.00
SEE SECTION A-A, DRAWING C10
70
LIMITS OF CLEARING
100 YR STORM
80
VDOT STORMWATER MANAGEMENT POND

TEL:

Apr 30'98 13:10 No.006 P.01

WILLIAMSBURG ENVIRONMENTAL GROUP, INC.

FILE - W/JCC Courthouse

Environmental Consultants

FACSIMILE TRANSMITTAL

File CASEY

Date 4-30-98

To DARRYL COOK

From ERIK ALLEN

Phone Number of Receiving Fax Machine 253-6850

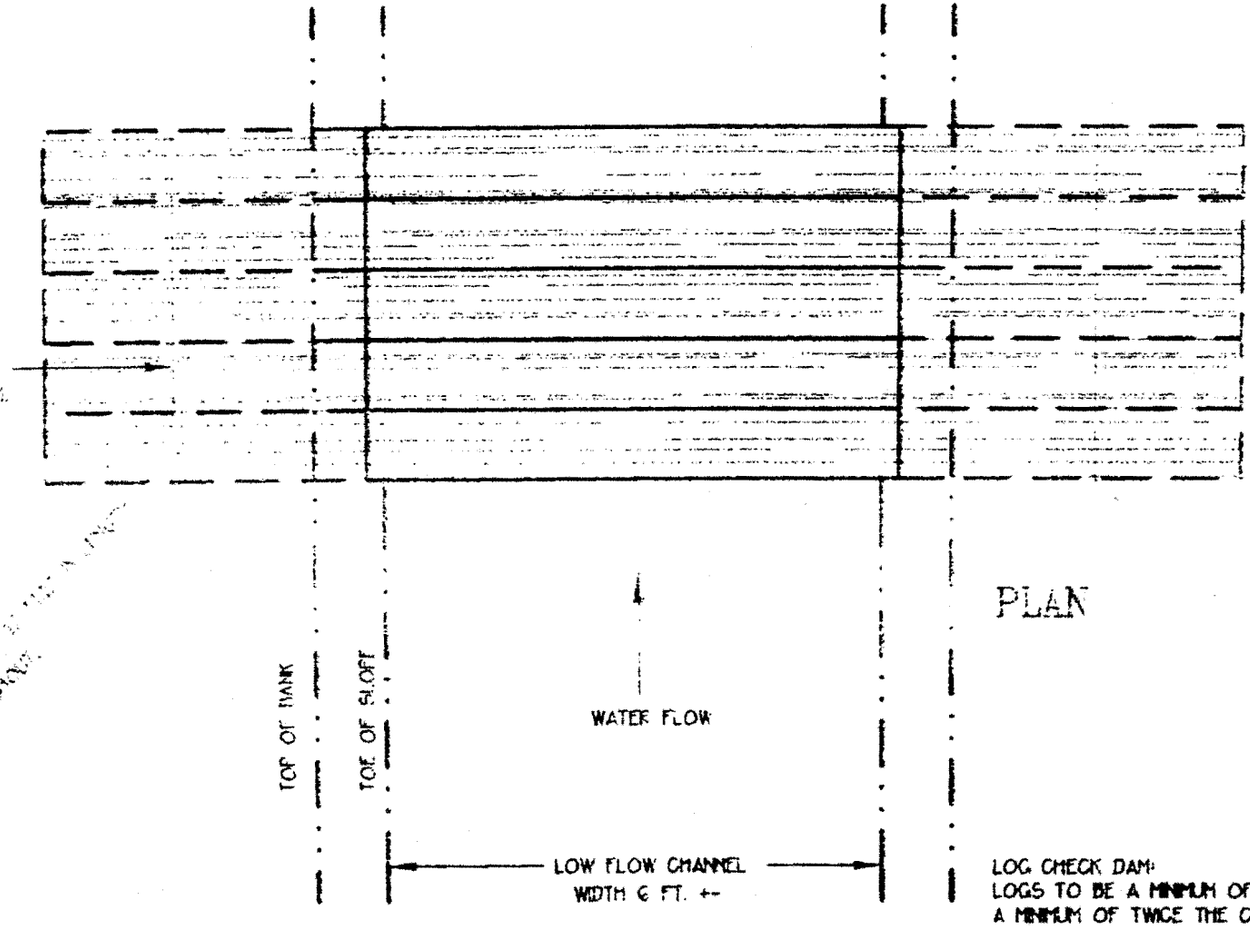
Number of Pages Following 1

If you do not receive all pages of this transmittal, please contact _____ **at (757) 220-6869 as soon as possible.**

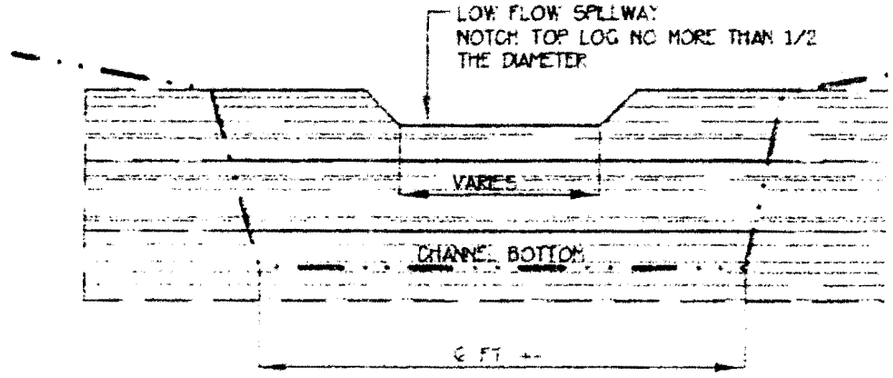
Special Instructions

- LOG CHECK DAM DETAIL

516-B South Henry Street Williamsburg, Virginia 23185 (757) 220-6869 FAX (757) 229-4507

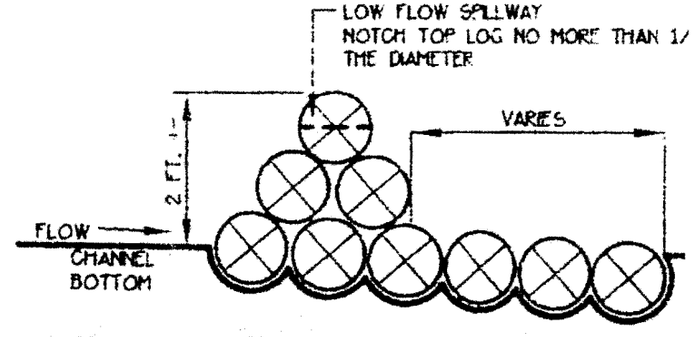


PLAN



PROFILE

LOG CHECK DAM:
LOGS TO BE A MINIMUM OF 9 INCHES IN DIAMETER.
A MINIMUM OF TWICE THE CHANNEL BOTTOM WIDTH
AND CENTERED WITHIN THE LOW FLOW CHANNEL.



SECTION

DETAIL: LOG CHECK DAM

NTS

6. Design calculations

HYDROLOGIC REPORT FOR

JCC/WILLIAMSBURG

COURTHOUSE BMP/SWM POND

AES JOB NUMBER 8289

SP-125-97
PC 173

AES CONSULTING ENGINEERS

5248 OLDE TOWNE ROAD

WILLIAMSBURG, VA. 23188

JULY 1, 1997

JCC/WILLIAMSBURG COURTHOUSE 7/1/97 #8289

SWM/BMP POND DESIGN

DESIGN TYPE #2 - 1" RAINFALL DETAINED FOR 24 HRS

REQ. VOL. = (1")(DA)(1/12')(43,560 SF/AC)(%IMP)

= (1)(109.5)(1/12)(43,560)(0.70)

REQ VOL = 278,240 CF

RISER CREST @ EL=77.0 = 405,893 CF STORAGE ✓

SIZE WATER QUALITY ORIFICE

Q = 405,893 / 86,400 24 HRS = 86,400 SEC

Q = 4.7 CFS

* ORIFICE @ ELEV. = 66.8

ORIFICE FLOW EQ

$Q = KA_o\sqrt{2g\Delta h}$

$\Delta h = 77 - 66.8/2 = 5.1$ $K = 0.73$

$4.7 = 0.73A\sqrt{2(32.2)(5.1)}$

$4.7 = 13.23A$ $A = 0.36 ft^2 = \pi r^2$

$r^2 = 0.1146$

$r = 0.34 ft$

$r = 4"$

∴ USE 8" DIA ORIFICE

POND DESIGN

7/1/97
#8289

PRE DEV DA = 79.0 AC

33 AC	FARMLAND	— CN = 81
46 AC	WOODED	— CN = 65
		CN = 72

* SOILS ARE HYDROLOGIC GROUPS B & C

POST DEVELOPMENT DA = 109.5

77 AC	COMMERCIAL	CN = 93
32.5 AC	GREEN SPACE	CN = 68
		CN = 85

Option 1 STAGE / STORAGE TABLE R to reset

1. RESERVOIR No = 1. 2. RESERVOIR NAME = swm/bmp.....
3. S = Ks * Z^b
Ks = 0..... b = 0.....
START ELEV = 0..... INCREMENT = 0...

	STAGE ft	ELEVATION ft	CO AREA sq ft	INC STORAGE cu ft	TOT STORAGE cu ft
4	0.00	66.80.	1260....	0	0
5	1.20	68.00.	8591....	5910	5910
6	5.20	72.00.	36703...	90587	96497
7	9.20	76.00.	71615...	216636	313133
8	13.20	80.00.	113904..	371038	684171
9	15.20	82.00.	144407..	258311	942482
10	16.20	83.00.	158733..	151570	1094052
11	0.00	0.00.	0.....	0	0
12	0.00	0.00.	0.....	0	0
13	0.00	0.00.	0.....	0	0
14	0.00	0.00.	0.....	0	0

Change item number: 0 ↵ to cont

Reservoir No. 1 OUTLET STRUCTURES

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

1. WIDTH (in) = 42.
2. HEIGHT (in) = 42.
3. No. BARRELS = 2..
4. INVERT ELEV. = 66.8.....
5. Co = 0.60
6. CULVERT LENGTH (ft) = 122.
7. CULVERT SLOPE (%) = .82.
8. MANNING'S N-VALUE = .013

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

9. WIDTH (in) = 8..
10. HEIGHT (in) = 8..
11. No. BARRELS = 1..
12. INVERT ELEV. = 66.8.....
13. Co = 0.60
14. CULVERT LENGTH (ft) = 0...
15. CULVERT SLOPE (%) = 0...
16. MANNING'S N-VALUE = .013
17. MULTI-STAGE OPTION ? (Y/N) Y

WEIR STRUCTURE A. Q=CwLH^EXP

18. CREST LENGTH (ft) = 19.62..
19. CREST ELEVATION = 77.....
20. Cw = 3.00
21. EXP = 1.50
22. MULTI-STAGE OPTION ? (Y/N) Y

WEIR STRUCTURE B. Q=CwLH^EXP

23. CREST LENGTH (ft) = 19.62..
24. CREST ELEVATION = 77.....
25. Cw = 3.00
26. EXP = 1.50
27. MULTI-STAGE OPTION ? (Y/N) Y

Change item number: 0 ↵ to cont

HYDROLOGIC REPORT

2yr Pre-Development...
.....
.....

Hyd. No. 1

Hydrograph type	= S.C.S. RUNOFF	Peak discharge	= 49.81 cfs
Storm frequency	= 2 yr	Time interval	= 2 min
Basin area	= 79 ac	Basin curve No.	= 72
Ave basin slope	= 2 %	Hydraulic len	= 2200 ft
Basin lag	= 32.0 min	Time of concen	= 53.45 min
Total precip.	= 3.50 in	Distribution	= S.C.S. II

HYDROGRAPH DISCHARGE TABLE

TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfS)	
11.63	0.97	11.67	1.21	11.70	1.54	11.73	1.96
11.77	2.53	11.80	3.30	11.83	4.35	11.87	5.78
11.90	7.73	11.93	10.18	11.97	12.97	12.00	15.94
12.03	18.96	12.07	22.04	12.10	25.16	12.13	28.29
12.17	31.42	12.20	34.51	12.23	37.53	12.27	40.43
12.30	43.16	12.33	45.62	12.37	47.66	12.40	49.12
12.43	49.81	12.47	49.72	12.50	49.09	12.53	48.21
12.57	47.25	12.60	46.20	12.63	45.08	12.67	43.87
12.70	42.60	12.73	41.25	12.77	39.84	12.80	38.37
12.83	36.84	12.87	35.27	12.90	33.64	12.93	31.97
12.97	30.27	13.00	28.54	13.03	26.79	13.07	25.04
13.10	23.30	13.13	21.58	13.17	19.89	13.20	18.25
13.23	16.71	13.27	15.32	13.30	14.13	13.33	13.21
13.37	12.58	13.40	12.14	13.43	11.78	13.47	11.44
13.50	11.12	13.53	10.82	13.57	10.55	13.60	10.29
13.63	10.05	13.67	9.82	13.70	9.61	13.73	9.42
13.77	9.23	13.80	9.06	13.83	8.90	13.87	8.74
13.90	8.59	13.93	8.45	13.97	8.31	14.00	8.17
14.03	8.04	14.07	7.91	14.10	7.78	14.13	7.66
14.17	7.54	14.20	7.43	14.23	7.32	14.27	7.21
14.30	7.10	14.33	7.01	14.37	6.91	14.40	6.82
14.43	6.73	14.47	6.64	14.50	6.56	14.53	6.48
14.57	6.40	14.60	6.33	14.63	6.26	14.67	6.20
14.70	6.14	14.73	6.08	14.77	6.02	14.80	5.97
14.83	5.92	14.87	5.87	14.90	5.82	14.93	5.77
14.97	5.73	15.00	5.69	15.03	5.65	15.07	5.60
15.10	5.57	15.13	5.53	15.17	5.49	15.20	5.45
15.23	5.42	15.27	5.38	15.30	5.35	15.33	5.31
15.37	5.28	15.40	5.25	15.43	5.21	15.47	5.18

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfS)	
15.50	5.14	15.53	5.11	15.57	5.07	15.60	5.04
15.63	5.00	15.67	4.97	15.70	4.93	15.73	4.90
15.77	4.86	15.80	4.83	15.83	4.79	15.87	4.76
15.90	4.72	15.93	4.69	15.97	4.65	16.00	4.61
16.03	4.58	16.07	4.54	16.10	4.51	16.13	4.47
16.17	4.44	16.20	4.40	16.23	4.37	16.27	4.33
16.30	4.30	16.33	4.26	16.37	4.23	16.40	4.20
16.43	4.17	16.47	4.14	16.50	4.11	16.53	4.08
16.57	4.06	16.60	4.03	16.63	4.01	16.67	3.98
16.70	3.96	16.73	3.94	16.77	3.92	16.80	3.90
16.83	3.88	16.87	3.86	16.90	3.84	16.93	3.83
16.97	3.81	17.00	3.79	17.03	3.78	17.07	3.76
17.10	3.75	17.13	3.74	17.17	3.72	17.20	3.71
17.23	3.70	17.27	3.68	17.30	3.67	17.33	3.66
17.37	3.64	17.40	3.63	17.43	3.62	17.47	3.61
17.50	3.59	17.53	3.58	17.57	3.57	17.60	3.56
17.63	3.54	17.67	3.53	17.70	3.52	17.73	3.51
17.77	3.49	17.80	3.48	17.83	3.47	17.87	3.45
17.90	3.44	17.93	3.43	17.97	3.42	18.00	3.40
18.03	3.39	18.07	3.38	18.10	3.36	18.13	3.35
18.17	3.34	18.20	3.32	18.23	3.31	18.27	3.30
18.30	3.29	18.33	3.27	18.37	3.26	18.40	3.25
18.43	3.23	18.47	3.22	18.50	3.21	18.53	3.19
18.57	3.18	18.60	3.17	18.63	3.15	18.67	3.14
18.70	3.13	18.73	3.11	18.77	3.10	18.80	3.09
18.83	3.07	18.87	3.06	18.90	3.05	18.93	3.03
18.97	3.02	19.00	3.01	19.03	2.99	19.07	2.98
19.10	2.96	19.13	2.95	19.17	2.94	19.20	2.92
19.23	2.91	19.27	2.90	19.30	2.88	19.33	2.87
19.37	2.86	19.40	2.84	19.43	2.83	19.47	2.81
19.50	2.80	19.53	2.79	19.57	2.77	19.60	2.76
19.63	2.75	19.67	2.73	19.70	2.72	19.73	2.70
19.77	2.69	19.80	2.68	19.83	2.66	19.87	2.65
19.90	2.63	19.93	2.62	19.97	2.61	20.00	2.59
20.03	2.58	20.07	2.56	20.10	2.55	20.13	2.54
20.17	2.52	20.20	2.51	20.23	2.50	20.27	2.48
20.30	2.47	20.33	2.46	20.37	2.45	20.40	2.43
20.43	2.42	20.47	2.41	20.50	2.40	20.53	2.39
20.57	2.38	20.60	2.37	20.63	2.37	20.67	2.36
20.70	2.35	20.73	2.34	20.77	2.34	20.80	2.33
20.83	2.33	20.87	2.32	20.90	2.32	20.93	2.31
20.97	2.31	21.00	2.30	21.03	2.30	21.07	2.30
21.10	2.29	21.13	2.29	21.17	2.29	21.20	2.28
21.23	2.28	21.27	2.28	21.30	2.27	21.33	2.27
21.37	2.27	21.40	2.27	21.43	2.27	21.47	2.26
21.50	2.26	21.53	2.26	21.57	2.26	21.60	2.25

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfS)	
21.63	2.25	21.67	2.25	21.70	2.25	21.73	2.24
21.77	2.24	21.80	2.24	21.83	2.24	21.87	2.23
21.90	2.23	21.93	2.23	21.97	2.23	22.00	2.22
22.03	2.22	22.07	2.22	22.10	2.22	22.13	2.21
22.17	2.21	22.20	2.21	22.23	2.21	22.27	2.20
22.30	2.20	22.33	2.20	22.37	2.20	22.40	2.19
22.43	2.19	22.47	2.19	22.50	2.19	22.53	2.18
22.57	2.18	22.60	2.18	22.63	2.18	22.67	2.17
22.70	2.17	22.73	2.17	22.77	2.17	22.80	2.16
22.83	2.16	22.87	2.16	22.90	2.16	22.93	2.15
22.97	2.15	23.00	2.15	23.03	2.15	23.07	2.14
23.10	2.14	23.13	2.14	23.17	2.14	23.20	2.13
23.23	2.13	23.27	2.13	23.30	2.13	23.33	2.12
23.37	2.12	23.40	2.12	23.43	2.12	23.47	2.11
23.50	2.11	23.53	2.11	23.57	2.11	23.60	2.10
23.63	2.10	23.67	2.10	23.70	2.09	23.73	2.09
23.77	2.09	23.80	2.09	23.83	2.08	23.87	2.08
23.90	2.08	23.93	2.08	23.97	2.07	24.00	0.00

HYDROLOGIC REPORT

2yr Post Development..
.....
.....

Hyd. No. 3

Hydrograph type	= S.C.S. RUNOFF	Peak discharge	= 187.87 cfs
Storm frequency	= 2 yr	Time interval	= 2 min
Basin area	= 109.5 ac	Basin curve No.	= 85
Ave basin slope	= 2.5 %	Hydraulic len	= 2200 ft
Basin lag	= 19.2 min	Time of concen	= 32.08 min
Total precip.	= 3.50 in	Distribution	= S.C.S. II

HYDROGRAPH DISCHARGE TABLE

TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfS)	
8.70	0.97	8.73	1.01	8.77	1.05	8.80	1.09
8.83	1.13	8.87	1.18	8.90	1.23	8.93	1.27
8.97	1.32	9.00	1.37	9.03	1.42	9.07	1.47
9.10	1.52	9.13	1.57	9.17	1.63	9.20	1.68
9.23	1.73	9.27	1.78	9.30	1.83	9.33	1.88
9.37	1.93	9.40	1.98	9.43	2.03	9.47	2.07
9.50	2.12	9.53	2.16	9.57	2.21	9.60	2.25
9.63	2.29	9.67	2.34	9.70	2.39	9.73	2.43
9.77	2.48	9.80	2.54	9.83	2.59	9.87	2.65
9.90	2.72	9.93	2.78	9.97	2.86	10.00	2.93
10.03	3.01	10.07	3.09	10.10	3.17	10.13	3.26
10.17	3.35	10.20	3.45	10.23	3.55	10.27	3.65
10.30	3.76	10.33	3.88	10.37	3.99	10.40	4.12
10.43	4.24	10.47	4.37	10.50	4.51	10.53	4.64
10.57	4.79	10.60	4.93	10.63	5.09	10.67	5.25
10.70	5.41	10.73	5.59	10.77	5.77	10.80	5.96
10.83	6.15	10.87	6.36	10.90	6.57	10.93	6.80
10.97	7.03	11.00	7.27	11.03	7.49	11.07	7.71
11.10	7.95	11.13	8.21	11.17	8.48	11.20	8.77
11.23	9.08	11.27	9.42	11.30	9.78	11.33	10.18
11.37	10.65	11.40	11.16	11.43	11.69	11.47	12.26
11.50	12.85	11.53	13.56	11.57	14.46	11.60	15.66
11.63	17.29	11.67	19.47	11.70	22.35	11.73	26.10
11.77	30.92	11.80	37.21	11.83	45.46	11.87	56.07
11.90	69.50	11.93	85.36	11.97	102.46	12.00	119.47
12.03	135.60	12.07	150.56	12.10	164.00	12.13	175.24
12.17	183.49	12.20	187.87	12.23	187.43	12.27	182.44
12.30	174.50	12.33	165.34	12.37	155.84	12.40	146.00
12.43	135.91	12.47	125.61	12.50	115.18	12.53	104.71

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfS)	
12.57	94.31	12.60	84.10	12.63	74.19	12.67	64.73
12.70	55.99	12.73	48.29	12.77	41.96	12.80	37.38
12.83	34.47	12.87	32.64	12.90	31.25	12.93	29.97
12.97	28.79	13.00	27.71	13.03	26.71	13.07	25.80
13.10	24.97	13.13	24.20	13.17	23.51	13.20	22.87
13.23	22.29	13.27	21.75	13.30	21.26	13.33	20.81
13.37	20.38	13.40	19.98	13.43	19.59	13.47	19.21
13.50	18.84	13.53	18.49	13.57	18.15	13.60	17.82
13.63	17.51	13.67	17.20	13.70	16.90	13.73	16.62
13.77	16.34	13.80	16.07	13.83	15.81	13.87	15.55
13.90	15.30	13.93	15.06	13.97	14.82	14.00	14.59
14.03	14.36	14.07	14.13	14.10	13.92	14.13	13.70
14.17	13.50	14.20	13.30	14.23	13.11	14.27	12.93
14.30	12.76	14.33	12.60	14.37	12.45	14.40	12.31
14.43	12.18	14.47	12.06	14.50	11.95	14.53	11.84
14.57	11.74	14.60	11.64	14.63	11.55	14.67	11.46
14.70	11.38	14.73	11.30	14.77	11.22	14.80	11.15
14.83	11.08	14.87	11.00	14.90	10.93	14.93	10.86
14.97	10.79	15.00	10.71	15.03	10.64	15.07	10.57
15.10	10.49	15.13	10.42	15.17	10.35	15.20	10.28
15.23	10.20	15.27	10.13	15.30	10.06	15.33	9.98
15.37	9.91	15.40	9.84	15.43	9.76	15.47	9.69
15.50	9.61	15.53	9.54	15.57	9.47	15.60	9.39
15.63	9.32	15.67	9.24	15.70	9.17	15.73	9.10
15.77	9.02	15.80	8.95	15.83	8.87	15.87	8.80
15.90	8.72	15.93	8.65	15.97	8.57	16.00	8.50
16.03	8.42	16.07	8.35	16.10	8.28	16.13	8.20
16.17	8.13	16.20	8.07	16.23	8.00	16.27	7.94
16.30	7.88	16.33	7.82	16.37	7.77	16.40	7.72
16.43	7.67	16.47	7.62	16.50	7.58	16.53	7.54
16.57	7.51	16.60	7.47	16.63	7.44	16.67	7.41
16.70	7.38	16.73	7.35	16.77	7.32	16.80	7.29
16.83	7.27	16.87	7.24	16.90	7.21	16.93	7.19
16.97	7.16	17.00	7.14	17.03	7.11	17.07	7.08
17.10	7.06	17.13	7.03	17.17	7.00	17.20	6.98
17.23	6.95	17.27	6.93	17.30	6.90	17.33	6.87
17.37	6.85	17.40	6.82	17.43	6.79	17.47	6.77
17.50	6.74	17.53	6.71	17.57	6.69	17.60	6.66
17.63	6.63	17.67	6.61	17.70	6.58	17.73	6.55
17.77	6.53	17.80	6.50	17.83	6.47	17.87	6.45
17.90	6.42	17.93	6.39	17.97	6.37	18.00	6.34
18.03	6.31	18.07	6.29	18.10	6.26	18.13	6.23
18.17	6.21	18.20	6.18	18.23	6.15	18.27	6.13
18.30	6.10	18.33	6.07	18.37	6.04	18.40	6.02
18.43	5.99	18.47	5.96	18.50	5.94	18.53	5.91
18.57	5.88	18.60	5.86	18.63	5.83	18.67	5.80

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfS)	
18.70	5.77	18.73	5.75	18.77	5.72	18.80	5.69
18.83	5.67	18.87	5.64	18.90	5.61	18.93	5.58
18.97	5.56	19.00	5.53	19.03	5.50	19.07	5.48
19.10	5.45	19.13	5.42	19.17	5.39	19.20	5.37
19.23	5.34	19.27	5.31	19.30	5.28	19.33	5.26
19.37	5.23	19.40	5.20	19.43	5.18	19.47	5.15
19.50	5.12	19.53	5.09	19.57	5.07	19.60	5.04
19.63	5.01	19.67	4.98	19.70	4.96	19.73	4.93
19.77	4.90	19.80	4.87	19.83	4.85	19.87	4.82
19.90	4.79	19.93	4.76	19.97	4.74	20.00	4.71
20.03	4.68	20.07	4.65	20.10	4.63	20.13	4.60
20.17	4.58	20.20	4.55	20.23	4.53	20.27	4.51
20.30	4.48	20.33	4.47	20.37	4.45	20.40	4.43
20.43	4.42	20.47	4.40	20.50	4.39	20.53	4.38
20.57	4.37	20.60	4.36	20.63	4.35	20.67	4.34
20.70	4.34	20.73	4.33	20.77	4.33	20.80	4.32
20.83	4.31	20.87	4.31	20.90	4.30	20.93	4.30
20.97	4.29	21.00	4.29	21.03	4.28	21.07	4.28
21.10	4.27	21.13	4.27	21.17	4.26	21.20	4.26
21.23	4.25	21.27	4.25	21.30	4.24	21.33	4.24
21.37	4.23	21.40	4.23	21.43	4.22	21.47	4.22
21.50	4.21	21.53	4.20	21.57	4.20	21.60	4.19
21.63	4.19	21.67	4.18	21.70	4.18	21.73	4.17
21.77	4.17	21.80	4.16	21.83	4.16	21.87	4.15
21.90	4.15	21.93	4.14	21.97	4.14	22.00	4.13
22.03	4.13	22.07	4.12	22.10	4.12	22.13	4.11
22.17	4.10	22.20	4.10	22.23	4.09	22.27	4.09
22.30	4.08	22.33	4.08	22.37	4.07	22.40	4.07
22.43	4.06	22.47	4.06	22.50	4.05	22.53	4.05
22.57	4.04	22.60	4.04	22.63	4.03	22.67	4.03
22.70	4.02	22.73	4.01	22.77	4.01	22.80	4.00
22.83	4.00	22.87	3.99	22.90	3.99	22.93	3.98
22.97	3.98	23.00	3.97	23.03	3.97	23.07	3.96
23.10	3.96	23.13	3.95	23.17	3.95	23.20	3.94
23.23	3.94	23.27	3.93	23.30	3.92	23.33	3.92
23.37	3.91	23.40	3.91	23.43	3.90	23.47	3.90
23.50	3.89	23.53	3.89	23.57	3.88	23.60	3.88
23.63	3.87	23.67	3.87	23.70	3.86	23.73	3.85
23.77	3.85	23.80	3.84	23.83	3.84	23.87	3.83
23.90	3.83	23.93	3.82	23.97	3.82	24.00	0.00

HYDROLOGIC REPORT

2yr Post Develpoment..
Routed through Pond...
.....

Hyd. No. 4

Hydrograph type = RESERVOIR ROUTE Peak discharge = 31.56 cfs
Storm frequency = 2 yr Time interval = 2 min
Inflow hyd. no. = 3 Reservoir no. = 1

HYDROGRAPH DISCHARGE TABLE

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
8.73	1.01	1.05	27.04	27.81	0.39
8.77	1.05	1.09	28.28	29.10	0.41
8.80	1.09	1.13	29.54	30.42	0.44
8.83	1.13	1.18	30.84	31.77	0.46
8.87	1.18	1.23	32.17	33.15	0.49
8.90	1.23	1.27	33.52	34.57	0.52
8.93	1.27	1.32	34.91	36.02	0.56
8.97	1.32	1.37	36.33	37.50	0.59
9.00	1.37	1.42	37.78	39.02	0.62
9.03	1.42	1.47	39.27	40.57	0.65
9.07	1.47	1.52	40.78	42.16	0.69
9.10	1.52	1.57	42.32	43.77	0.73
9.13	1.57	1.63	43.88	45.41	0.77
9.17	1.63	1.68	45.47	47.08	0.80
9.20	1.68	1.73	47.09	48.78	0.84
9.23	1.73	1.78	48.73	50.50	0.88
9.27	1.78	1.83	50.42	52.24	0.91
9.30	1.83	1.88	52.15	54.03	0.94
9.33	1.88	1.93	53.92	55.87	0.97
9.37	1.93	1.98	55.73	57.73	1.00
9.40	1.98	2.03	57.56	59.64	1.04
9.43	2.03	2.07	59.43	61.57	1.07
9.47	2.07	2.12	61.34	63.53	1.10
9.50	2.12	2.16	63.28	65.53	1.13
9.53	2.16	2.21	65.24	67.56	1.16

. HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
9.57	2.21	2.25	67.23	69.61	1.19
9.60	2.25	2.29	69.28	71.69	1.20
9.63	2.29	2.34	71.40	73.83	1.21
9.67	2.34	2.39	73.59	76.04	1.22
9.70	2.39	2.43	75.86	78.32	1.23
9.73	2.43	2.48	78.17	80.68	1.25
9.77	2.48	2.54	80.48	83.09	1.30
9.80	2.54	2.59	82.80	85.51	1.35
9.83	2.59	2.65	85.12	87.93	1.41
9.87	2.65	2.72	87.45	90.36	1.46
9.90	2.72	2.78	89.86	92.83	1.48
9.93	2.78	2.86	92.34	95.36	1.51
9.97	2.86	2.93	94.90	97.98	1.54
10.00	2.93	3.01	97.55	100.68	1.57
10.03	3.01	3.09	100.34	103.49	1.57
10.07	3.09	3.17	103.28	106.44	1.58
10.10	3.17	3.26	106.37	109.54	1.58
10.13	3.26	3.35	109.62	112.80	1.59
10.17	3.35	3.45	113.03	116.23	1.60
10.20	3.45	3.55	116.62	119.84	1.61
10.23	3.55	3.65	120.39	123.62	1.62
10.27	3.65	3.76	124.35	127.59	1.62
10.30	3.76	3.88	128.50	131.76	1.63
10.33	3.88	3.99	132.85	136.14	1.64
10.37	3.99	4.12	137.42	140.72	1.65
10.40	4.12	4.24	142.20	145.53	1.66
10.43	4.24	4.37	147.21	150.56	1.67
10.47	4.37	4.51	152.46	155.83	1.68
10.50	4.51	4.64	157.94	161.34	1.70
10.53	4.64	4.79	163.67	167.09	1.71
10.57	4.79	4.93	169.66	173.10	1.72
10.60	4.93	5.09	175.91	179.38	1.74
10.63	5.09	5.25	182.43	185.93	1.75
10.67	5.25	5.41	189.24	192.77	1.76
10.70	5.41	5.59	196.34	199.90	1.78
10.73	5.59	5.77	203.75	207.34	1.80
10.77	5.77	5.96	211.47	215.10	1.81
10.80	5.96	6.15	219.54	223.20	1.83
10.83	6.15	6.36	227.95	231.64	1.85
10.87	6.36	6.57	236.72	240.46	1.87
10.90	6.57	6.80	245.88	249.66	1.89
10.93	6.80	7.03	255.44	259.25	1.91

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
10.97	7.03	7.27	265.42	269.27	1.92
11.00	7.27	7.49	275.83	279.72	1.94
11.03	7.49	7.71	286.66	290.59	1.96
11.07	7.71	7.95	297.90	301.86	1.98
11.10	7.95	8.21	309.55	313.56	2.01
11.13	8.21	8.48	321.66	325.71	2.03
11.17	8.48	8.77	334.24	338.35	2.05
11.20	8.77	9.08	347.34	351.49	2.08
11.23	9.08	9.42	361.00	365.20	2.10
11.27	9.42	9.78	375.25	379.50	2.13
11.30	9.78	10.18	390.15	394.46	2.15
11.33	10.18	10.65	405.74	410.11	2.18
11.37	10.65	11.16	422.16	426.57	2.21
11.40	11.16	11.69	439.49	443.97	2.24
11.43	11.69	12.26	457.81	462.34	2.27
11.47	12.26	12.85	477.16	481.76	2.30
11.50	12.85	13.56	497.60	502.27	2.33
11.53	13.56	14.46	519.28	524.01	2.37
11.57	14.46	15.66	542.49	547.30	2.41
11.60	15.66	17.29	567.73	572.62	2.44
11.63	17.29	19.47	595.71	600.68	2.49
11.67	19.47	22.35	627.39	632.46	2.53
11.70	22.35	26.10	664.04	669.21	2.59
11.73	26.10	30.92	707.20	712.50	2.65
11.77	30.92	37.21	758.78	764.22	2.72
11.80	37.21	45.46	821.30	826.91	2.81
11.83	45.46	56.07	898.16	903.97	2.91
11.87	56.07	69.50	993.64	999.69	3.03
11.90	69.50	85.36	1112.86	1119.21	3.17
11.93	85.36	102.46	1261.05	1267.73	3.34
11.97	102.46	119.47	1441.81	1448.87	3.53
12.00	119.47	135.60	1656.30	1663.74	3.72
12.03	135.60	150.56	1903.75	1911.38	3.81
12.07	150.56	164.00	2182.07	2189.91	3.92
12.10	164.00	175.24	2488.57	2496.63	4.03
12.13	175.24	183.49	2819.53	2827.82	4.15
12.17	183.49	187.87	3169.72	3178.26	4.27
12.20	187.87	187.43	3532.28	3541.08	4.40
12.23	187.43	182.44	3898.53	3907.58	4.53
12.27	182.44	174.50	4259.10	4268.39	4.65
12.30	174.50	165.34	4606.51	4616.03	4.76
12.33	165.34	155.84	4936.62	4946.35	4.87

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
12.37	155.84	146.00	5247.88	5257.80	4.96
12.40	146.00	135.91	5539.69	5549.72	5.01
12.43	135.91	125.61	5811.48	5821.60	5.06
12.47	125.61	115.18	6062.78	6073.00	5.11
12.50	115.18	104.71	6293.27	6303.57	5.15
12.53	104.71	94.31	6501.04	6513.17	6.06
12.57	94.31	84.10	6681.63	6700.07	9.22
12.60	84.10	74.19	6836.19	6860.04	11.93
12.63	74.19	64.73	6966.08	6994.48	14.20
12.67	64.73	55.99	7071.36	7105.00	16.82
12.70	55.99	48.29	7146.83	7192.08	22.63
12.73	48.29	41.96	7197.97	7251.10	26.56
12.77	41.96	37.38	7230.14	7288.22	29.04
12.80	37.38	34.47	7248.56	7309.48	30.46
12.83	34.47	32.64	7258.04	7320.41	31.19
12.87	32.64	31.25	7262.14	7325.15	31.50
12.90	31.25	29.97	7262.90	7326.02	31.56
12.93	29.97	28.79	7261.24	7324.11	31.43
12.97	28.79	27.71	7257.68	7320.00	31.16
13.00	27.71	26.71	7252.63	7314.17	30.77
13.03	26.71	25.80	7246.46	7307.05	30.30
13.07	25.80	24.97	7239.46	7298.97	29.76
13.10	24.97	24.20	7231.87	7290.22	29.17
13.13	24.20	23.51	7223.92	7281.04	28.56
13.17	23.51	22.87	7215.76	7271.63	27.93
13.20	22.87	22.29	7207.54	7262.14	27.30
13.23	22.29	21.75	7199.35	7252.69	26.67
13.27	21.75	21.26	7191.29	7243.39	26.05
13.30	21.26	20.81	7183.42	7234.31	25.44
13.33	20.81	20.38	7175.77	7225.49	24.86
13.37	20.38	19.98	7168.39	7216.96	24.29
13.40	19.98	19.59	7161.26	7208.74	23.74
13.43	19.59	19.21	7154.40	7200.82	23.21
13.47	19.21	18.84	7147.79	7193.19	22.70
13.50	18.84	18.49	7141.42	7185.84	22.21
13.53	18.49	18.15	7135.28	7178.76	21.74
13.57	18.15	17.82	7129.35	7171.92	21.28
13.60	17.82	17.51	7123.64	7165.33	20.84
13.63	17.51	17.20	7118.13	7158.97	20.42
13.67	17.20	16.90	7112.82	7152.84	20.01
13.70	16.90	16.62	7107.69	7146.92	19.62
13.73	16.62	16.34	7102.74	7141.21	19.24

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
13.77	16.34	16.07	7097.95	7135.69	18.87
13.80	16.07	15.81	7093.33	7130.36	18.51
13.83	15.81	15.55	7088.87	7125.21	18.17
13.87	15.55	15.30	7084.56	7120.23	17.84
13.90	15.30	15.06	7080.38	7115.41	17.52
13.93	15.06	14.82	7076.34	7110.75	17.20
13.97	14.82	14.59	7072.42	7106.23	16.90
14.00	14.59	14.36	7068.61	7101.83	16.61
14.03	14.36	14.13	7064.91	7097.56	16.32
14.07	14.13	13.92	7061.31	7093.41	16.05
14.10	13.92	13.70	7057.75	7089.36	15.80
14.13	13.70	13.50	7053.90	7085.37	15.74
14.17	13.50	13.30	7049.77	7081.10	15.66
14.20	13.30	13.11	7045.39	7076.57	15.59
14.23	13.11	12.93	7040.79	7071.80	15.51
14.27	12.93	12.76	7035.99	7066.83	15.42
14.30	12.76	12.60	7031.01	7061.68	15.34
14.33	12.60	12.45	7025.88	7056.37	15.25
14.37	12.45	12.31	7020.63	7050.94	15.15
14.40	12.31	12.18	7015.28	7045.40	15.06
14.43	12.18	12.06	7009.84	7039.77	14.97
14.47	12.06	11.95	7004.35	7034.09	14.87
14.50	11.95	11.84	6998.81	7028.36	14.77
14.53	11.84	11.74	6993.25	7022.60	14.67
14.57	11.74	11.64	6987.67	7016.82	14.58
14.60	11.64	11.55	6982.08	7011.04	14.48
14.63	11.55	11.46	6976.51	7005.27	14.38
14.67	11.46	11.38	6970.95	6999.52	14.28
14.70	11.38	11.30	6965.42	6993.79	14.19
14.73	11.30	11.22	6959.91	6988.10	14.09
14.77	11.22	11.15	6954.45	6982.44	14.00
14.80	11.15	11.08	6949.02	6976.82	13.90
14.83	11.08	11.00	6943.63	6971.24	13.81
14.87	11.00	10.93	6938.28	6965.71	13.71
14.90	10.93	10.86	6932.97	6960.21	13.62
14.93	10.86	10.79	6927.71	6954.76	13.53
14.97	10.79	10.71	6922.48	6949.35	13.44
15.00	10.71	10.64	6917.28	6943.98	13.35
15.03	10.64	10.57	6912.13	6938.64	13.26
15.07	10.57	10.49	6907.00	6933.34	13.17
15.10	10.49	10.42	6901.91	6928.07	13.08
15.13	10.42	10.35	6896.86	6922.83	12.99

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
15.17	10.35	10.28	6891.83	6917.63	12.90
15.20	10.28	10.20	6886.83	6912.45	12.81
15.23	10.20	10.13	6881.85	6907.31	12.73
15.27	10.13	10.06	6876.91	6902.19	12.64
15.30	10.06	9.98	6871.99	6897.10	12.55
15.33	9.98	9.91	6867.09	6892.03	12.47
15.37	9.91	9.84	6862.22	6886.99	12.38
15.40	9.84	9.76	6857.37	6881.97	12.30
15.43	9.76	9.69	6852.55	6876.97	12.21
15.47	9.69	9.61	6847.74	6872.00	12.13
15.50	9.61	9.54	6842.96	6867.04	12.04
15.53	9.54	9.47	6838.19	6862.11	11.96
15.57	9.47	9.39	6833.44	6857.20	11.88
15.60	9.39	9.32	6828.71	6852.30	11.80
15.63	9.32	9.24	6824.00	6847.42	11.71
15.67	9.24	9.17	6819.30	6842.56	11.63
15.70	9.17	9.10	6814.62	6837.71	11.55
15.73	9.10	9.02	6809.95	6832.88	11.47
15.77	9.02	8.95	6805.30	6828.07	11.39
15.80	8.95	8.87	6800.66	6823.26	11.30
15.83	8.87	8.80	6796.03	6818.48	11.22
15.87	8.80	8.72	6791.42	6813.70	11.14
15.90	8.72	8.65	6786.81	6808.94	11.06
15.93	8.65	8.57	6782.22	6804.19	10.98
15.97	8.57	8.50	6777.64	6799.45	10.90
16.00	8.50	8.42	6773.07	6794.72	10.82
16.03	8.42	8.35	6768.51	6790.00	10.74
16.07	8.35	8.28	6763.96	6785.29	10.66
16.10	8.28	8.20	6759.43	6780.59	10.58
16.13	8.20	8.13	6754.90	6775.91	10.50
16.17	8.13	8.07	6750.39	6771.24	10.42
16.20	8.07	8.00	6745.90	6766.59	10.35
16.23	8.00	7.94	6741.43	6761.96	10.27
16.27	7.94	7.88	6736.98	6757.36	10.19
16.30	7.88	7.82	6732.57	6752.80	10.11
16.33	7.82	7.77	6728.19	6748.27	10.04
16.37	7.77	7.72	6723.86	6743.78	9.96
16.40	7.72	7.67	6719.57	6739.34	9.89
16.43	7.67	7.62	6715.33	6734.95	9.81
16.47	7.62	7.58	6711.15	6730.62	9.74
16.50	7.58	7.54	6707.02	6726.35	9.67
16.53	7.54	7.51	6702.96	6722.15	9.59

.HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
16.57	7.51	7.47	6698.96	6718.01	9.52
16.60	7.47	7.44	6695.03	6713.94	9.46
16.63	7.44	7.41	6691.16	6709.94	9.39
16.67	7.41	7.38	6687.36	6706.01	9.32
16.70	7.38	7.35	6683.64	6702.15	9.26
16.73	7.35	7.32	6679.98	6698.36	9.19
16.77	7.32	7.29	6676.39	6694.65	9.13
16.80	7.29	7.27	6672.87	6691.00	9.07
16.83	7.27	7.24	6669.41	6687.43	9.01
16.87	7.24	7.21	6666.02	6683.92	8.95
16.90	7.21	7.19	6662.70	6680.48	8.89
16.93	7.19	7.16	6659.44	6677.10	8.83
16.97	7.16	7.14	6656.23	6673.79	8.78
17.00	7.14	7.11	6653.09	6670.53	8.72
17.03	7.11	7.08	6650.00	6667.33	8.67
17.07	7.08	7.06	6646.96	6664.19	8.61
17.10	7.06	7.03	6643.98	6661.10	8.56
17.13	7.03	7.00	6641.05	6658.07	8.51
17.17	7.00	6.98	6638.16	6655.08	8.46
17.20	6.98	6.95	6635.32	6652.14	8.41
17.23	6.95	6.93	6632.53	6649.25	8.36
17.27	6.93	6.90	6629.77	6646.40	8.31
17.30	6.90	6.87	6627.07	6643.60	8.27
17.33	6.87	6.85	6624.40	6640.84	8.22
17.37	6.85	6.82	6621.77	6638.12	8.17
17.40	6.82	6.79	6619.18	6635.43	8.13
17.43	6.79	6.77	6616.62	6632.79	8.08
17.47	6.77	6.74	6614.10	6630.18	8.04
17.50	6.74	6.71	6611.62	6627.61	8.00
17.53	6.71	6.69	6609.16	6625.07	7.95
17.57	6.69	6.66	6606.74	6622.56	7.91
17.60	6.66	6.63	6604.35	6620.09	7.87
17.63	6.63	6.61	6601.99	6617.65	7.83
17.67	6.61	6.58	6599.66	6615.23	7.79
17.70	6.58	6.55	6597.35	6612.85	7.75
17.73	6.55	6.53	6595.07	6610.49	7.71
17.77	6.53	6.50	6592.82	6608.15	7.67
17.80	6.50	6.47	6590.59	6605.85	7.63
17.83	6.47	6.45	6588.39	6603.57	7.59
17.87	6.45	6.42	6586.21	6601.31	7.55
17.90	6.42	6.39	6584.05	6599.07	7.51
17.93	6.39	6.37	6581.91	6596.86	7.48

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
17.97	6.37	6.34	6579.79	6594.67	7.44
18.00	6.34	6.31	6577.69	6592.50	7.40
18.03	6.31	6.29	6575.61	6590.35	7.37
18.07	6.29	6.26	6573.55	6588.21	7.33
18.10	6.26	6.23	6571.51	6586.10	7.29
18.13	6.23	6.21	6569.49	6584.00	7.26
18.17	6.21	6.18	6567.48	6581.92	7.22
18.20	6.18	6.15	6565.49	6579.86	7.19
18.23	6.15	6.13	6563.51	6577.82	7.15
18.27	6.13	6.10	6561.55	6575.79	7.12
18.30	6.10	6.07	6559.60	6573.77	7.09
18.33	6.07	6.04	6557.67	6571.77	7.05
18.37	6.04	6.02	6555.75	6569.78	7.02
18.40	6.02	5.99	6553.84	6567.81	6.98
18.43	5.99	5.96	6551.94	6565.85	6.95
18.47	5.96	5.94	6550.06	6563.90	6.92
18.50	5.94	5.91	6548.19	6561.96	6.89
18.53	5.91	5.88	6546.33	6560.03	6.85
18.57	5.88	5.86	6544.48	6558.12	6.82
18.60	5.86	5.83	6542.64	6556.22	6.79
18.63	5.83	5.80	6540.81	6554.32	6.76
18.67	5.80	5.77	6538.99	6552.44	6.72
18.70	5.77	5.75	6537.18	6550.57	6.69
18.73	5.75	5.72	6535.38	6548.70	6.66
18.77	5.72	5.69	6533.58	6546.84	6.63
18.80	5.69	5.67	6531.80	6545.00	6.60
18.83	5.67	5.64	6530.02	6543.16	6.57
18.87	5.64	5.61	6528.25	6541.33	6.54
18.90	5.61	5.58	6526.49	6539.50	6.51
18.93	5.58	5.56	6524.74	6537.69	6.48
18.97	5.56	5.53	6522.99	6535.88	6.44
19.00	5.53	5.50	6521.25	6534.08	6.41
19.03	5.50	5.48	6519.51	6532.28	6.38
19.07	5.48	5.45	6517.78	6530.49	6.35
19.10	5.45	5.42	6516.06	6528.71	6.32
19.13	5.42	5.39	6514.34	6526.93	6.29
19.17	5.39	5.37	6512.63	6525.16	6.26
19.20	5.37	5.34	6510.92	6523.39	6.23
19.23	5.34	5.31	6509.22	6521.63	6.20
19.27	5.31	5.28	6507.53	6519.87	6.17
19.30	5.28	5.26	6505.83	6518.12	6.14
19.33	5.26	5.23	6504.15	6516.38	6.11

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
19.37	5.23	5.20	6502.46	6514.63	6.09
19.40	5.20	5.18	6500.78	6512.90	6.06
19.43	5.18	5.15	6499.11	6511.16	6.03
19.47	5.15	5.12	6497.44	6509.43	6.00
19.50	5.12	5.09	6495.77	6507.71	5.97
19.53	5.09	5.07	6494.10	6505.98	5.94
19.57	5.07	5.04	6492.44	6504.26	5.91
19.60	5.04	5.01	6490.79	6502.55	5.88
19.63	5.01	4.98	6489.13	6500.84	5.85
19.67	4.98	4.96	6487.48	6499.13	5.82
19.70	4.96	4.93	6485.83	6497.42	5.79
19.73	4.93	4.90	6484.18	6495.72	5.77
19.77	4.90	4.87	6482.54	6494.01	5.74
19.80	4.87	4.85	6480.90	6492.32	5.71
19.83	4.85	4.82	6479.26	6490.62	5.68
19.87	4.82	4.79	6477.63	6488.93	5.65
19.90	4.79	4.76	6475.99	6487.24	5.62
19.93	4.76	4.74	6474.36	6485.55	5.59
19.97	4.74	4.71	6472.73	6483.86	5.57
20.00	4.71	4.68	6471.10	6482.17	5.54
20.03	4.68	4.65	6469.48	6480.49	5.51
20.07	4.65	4.63	6467.85	6478.81	5.48
20.10	4.63	4.60	6466.23	6477.13	5.45
20.13	4.60	4.58	6464.61	6475.46	5.42
20.17	4.58	4.55	6463.00	6473.79	5.39
20.20	4.55	4.53	6461.39	6472.13	5.37
20.23	4.53	4.51	6459.79	6470.47	5.34
20.27	4.51	4.48	6458.21	6468.83	5.31
20.30	4.48	4.47	6456.63	6467.20	5.28
20.33	4.47	4.45	6455.07	6465.58	5.26
20.37	4.45	4.43	6453.52	6463.98	5.23
20.40	4.43	4.42	6452.00	6462.40	5.20
20.43	4.42	4.40	6450.49	6460.84	5.18
20.47	4.40	4.39	6448.96	6459.31	5.18
20.50	4.39	4.38	6447.40	6457.75	5.18
20.53	4.38	4.37	6445.82	6456.17	5.18
20.57	4.37	4.36	6444.22	6454.57	5.17
20.60	4.36	4.35	6442.60	6452.95	5.17
20.63	4.35	4.34	6440.97	6451.32	5.17
20.67	4.34	4.34	6439.32	6449.67	5.17
20.70	4.34	4.33	6437.65	6448.00	5.17
20.73	4.33	4.33	6435.97	6446.32	5.17

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
20.77	4.33	4.32	6434.28	6444.63	5.17
20.80	4.32	4.31	6432.58	6442.93	5.17
20.83	4.31	4.31	6430.87	6441.22	5.17
20.87	4.31	4.30	6429.15	6439.50	5.17
20.90	4.30	4.30	6427.42	6437.76	5.17
20.93	4.30	4.29	6425.68	6436.02	5.17
20.97	4.29	4.29	6423.93	6434.27	5.17
21.00	4.29	4.28	6422.17	6432.51	5.17
21.03	4.28	4.28	6420.40	6430.74	5.17
21.07	4.28	4.27	6418.62	6428.96	5.17
21.10	4.27	4.27	6416.83	6427.17	5.17
21.13	4.27	4.26	6415.03	6425.37	5.17
21.17	4.26	4.26	6413.22	6423.56	5.17
21.20	4.26	4.25	6411.40	6421.74	5.17
21.23	4.25	4.25	6409.57	6419.91	5.17
21.27	4.25	4.24	6407.73	6418.07	5.17
21.30	4.24	4.24	6405.89	6416.22	5.17
21.33	4.24	4.23	6404.03	6414.36	5.17
21.37	4.23	4.23	6402.16	6412.49	5.17
21.40	4.23	4.22	6400.28	6410.62	5.17
21.43	4.22	4.22	6398.39	6408.73	5.17
21.47	4.22	4.21	6396.50	6406.83	5.17
21.50	4.21	4.20	6394.59	6404.92	5.17
21.53	4.20	4.20	6392.67	6403.00	5.17
21.57	4.20	4.19	6390.75	6401.08	5.17
21.60	4.19	4.19	6388.81	6399.14	5.17
21.63	4.19	4.18	6386.86	6397.19	5.16
21.67	4.18	4.18	6384.91	6395.24	5.16
21.70	4.18	4.17	6382.94	6393.27	5.16
21.73	4.17	4.17	6380.97	6391.29	5.16
21.77	4.17	4.16	6378.98	6389.31	5.16
21.80	4.16	4.16	6376.98	6387.31	5.16
21.83	4.16	4.15	6374.98	6385.30	5.16
21.87	4.15	4.15	6372.96	6383.29	5.16
21.90	4.15	4.14	6370.94	6381.26	5.16
21.93	4.14	4.14	6368.91	6379.23	5.16
21.97	4.14	4.13	6366.86	6377.18	5.16
22.00	4.13	4.13	6364.81	6375.13	5.16
22.03	4.13	4.12	6362.74	6373.06	5.16
22.07	4.12	4.12	6360.67	6370.99	5.16
22.10	4.12	4.11	6358.59	6368.91	5.16
22.13	4.11	4.10	6356.49	6366.81	5.16

HYDROGRAPH DISCHARGE TABLE Cont'd

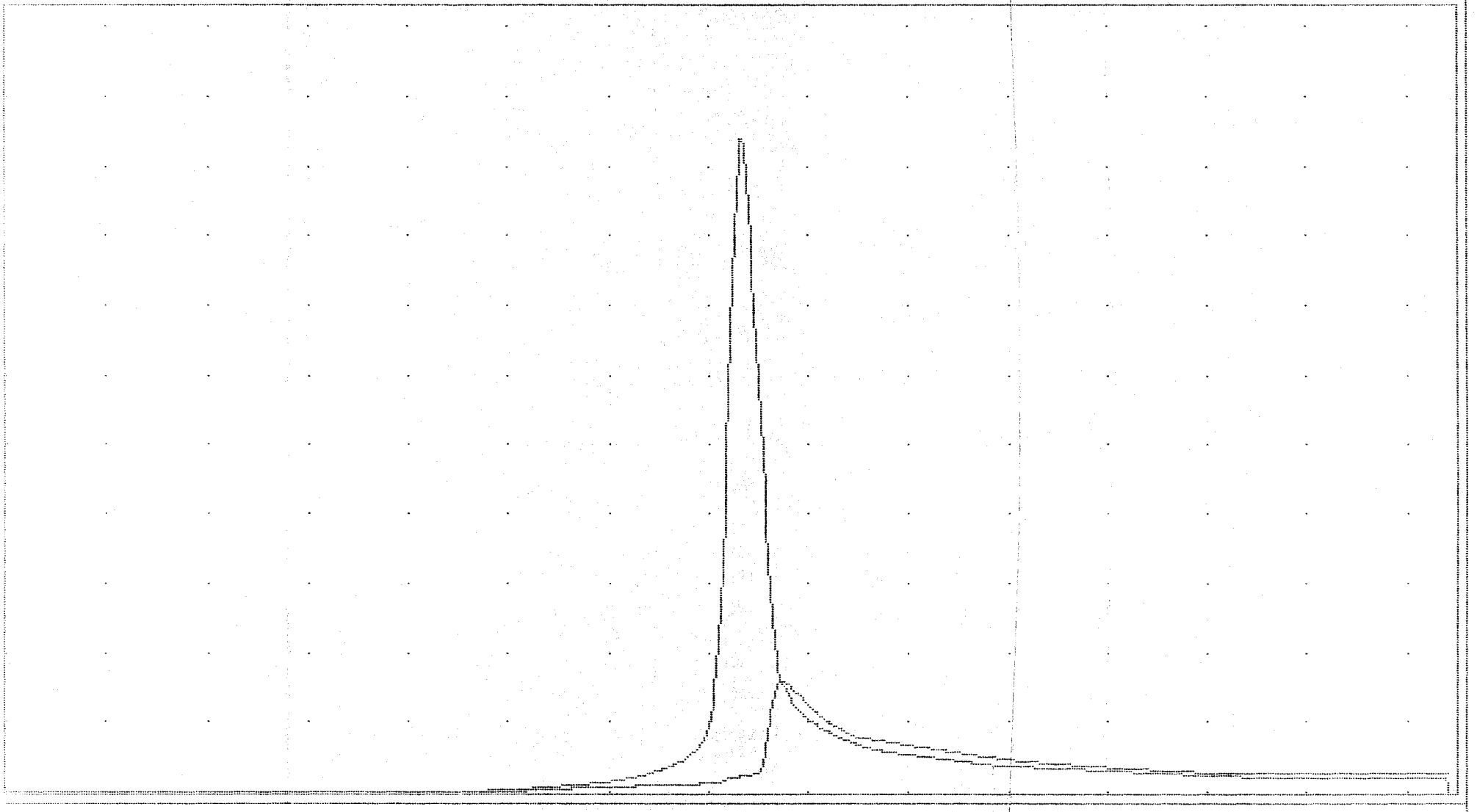
TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
22.17	4.10	4.10	6354.39	6364.71	5.16
22.20	4.10	4.09	6352.28	6362.59	5.16
22.23	4.09	4.09	6350.15	6360.47	5.16
22.27	4.09	4.08	6348.02	6358.34	5.16
22.30	4.08	4.08	6345.88	6356.19	5.16
22.33	4.08	4.07	6343.73	6354.04	5.16
22.37	4.07	4.07	6341.56	6351.88	5.16
22.40	4.07	4.06	6339.39	6349.71	5.16
22.43	4.06	4.06	6337.21	6347.52	5.16
22.47	4.06	4.05	6335.02	6345.33	5.16
22.50	4.05	4.05	6332.82	6343.13	5.16
22.53	4.05	4.04	6330.61	6340.92	5.15
22.57	4.04	4.04	6328.39	6338.69	5.15
22.60	4.04	4.03	6326.16	6336.46	5.15
22.63	4.03	4.03	6323.91	6334.22	5.15
22.67	4.03	4.02	6321.66	6331.97	5.15
22.70	4.02	4.01	6319.40	6329.71	5.15
22.73	4.01	4.01	6317.13	6327.44	5.15
22.77	4.01	4.00	6314.85	6325.16	5.15
22.80	4.00	4.00	6312.57	6322.87	5.15
22.83	4.00	3.99	6310.27	6320.57	5.15
22.87	3.99	3.99	6307.96	6318.26	5.15
22.90	3.99	3.98	6305.64	6315.94	5.15
22.93	3.98	3.98	6303.31	6313.61	5.15
22.97	3.98	3.97	6300.97	6311.27	5.15
23.00	3.97	3.97	6298.62	6308.92	5.15
23.03	3.97	3.96	6296.26	6306.56	5.15
23.07	3.96	3.96	6293.90	6304.19	5.15
23.10	3.96	3.95	6291.52	6301.81	5.15
23.13	3.95	3.95	6289.13	6299.43	5.15
23.17	3.95	3.94	6286.73	6297.03	5.15
23.20	3.94	3.94	6284.33	6294.62	5.15
23.23	3.94	3.93	6281.91	6292.20	5.15
23.27	3.93	3.92	6279.48	6289.77	5.15
23.30	3.92	3.92	6277.05	6287.34	5.15
23.33	3.92	3.91	6274.60	6284.89	5.15
23.37	3.91	3.91	6272.14	6282.43	5.14
23.40	3.91	3.90	6269.68	6279.97	5.14
23.43	3.90	3.90	6267.20	6277.49	5.14
23.47	3.90	3.89	6264.72	6275.00	5.14
23.50	3.89	3.89	6262.22	6272.51	5.14
23.53	3.89	3.88	6259.71	6270.00	5.14

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
23.57	3.88	3.88	6257.20	6267.48	5.14
23.60	3.88	3.87	6254.67	6264.96	5.14
23.63	3.87	3.87	6252.14	6262.42	5.14
23.67	3.87	3.86	6249.60	6259.88	5.14
23.70	3.86	3.85	6247.04	6257.32	5.14
23.73	3.85	3.85	6244.48	6254.76	5.14
23.77	3.85	3.84	6241.90	6252.18	5.14
23.80	3.84	3.84	6239.32	6249.60	5.14
23.83	3.84	3.83	6236.73	6247.00	5.14
23.87	3.83	3.83	6234.12	6244.40	5.14
23.90	3.83	3.82	6231.51	6241.78	5.14
23.93	3.82	3.82	6228.89	6239.16	5.14
23.97	3.82	0.00	6226.25	6236.53	5.14
24.00	0.00	0.00	6219.80	6230.07	5.14

Maximum outflow (cfs) = 31.56
Maximum storage (cu ft) = 437668
Maximum elevation (ft) = 77.34

Qp = 31.6 RESERVOIR ROUTE 2 Yr

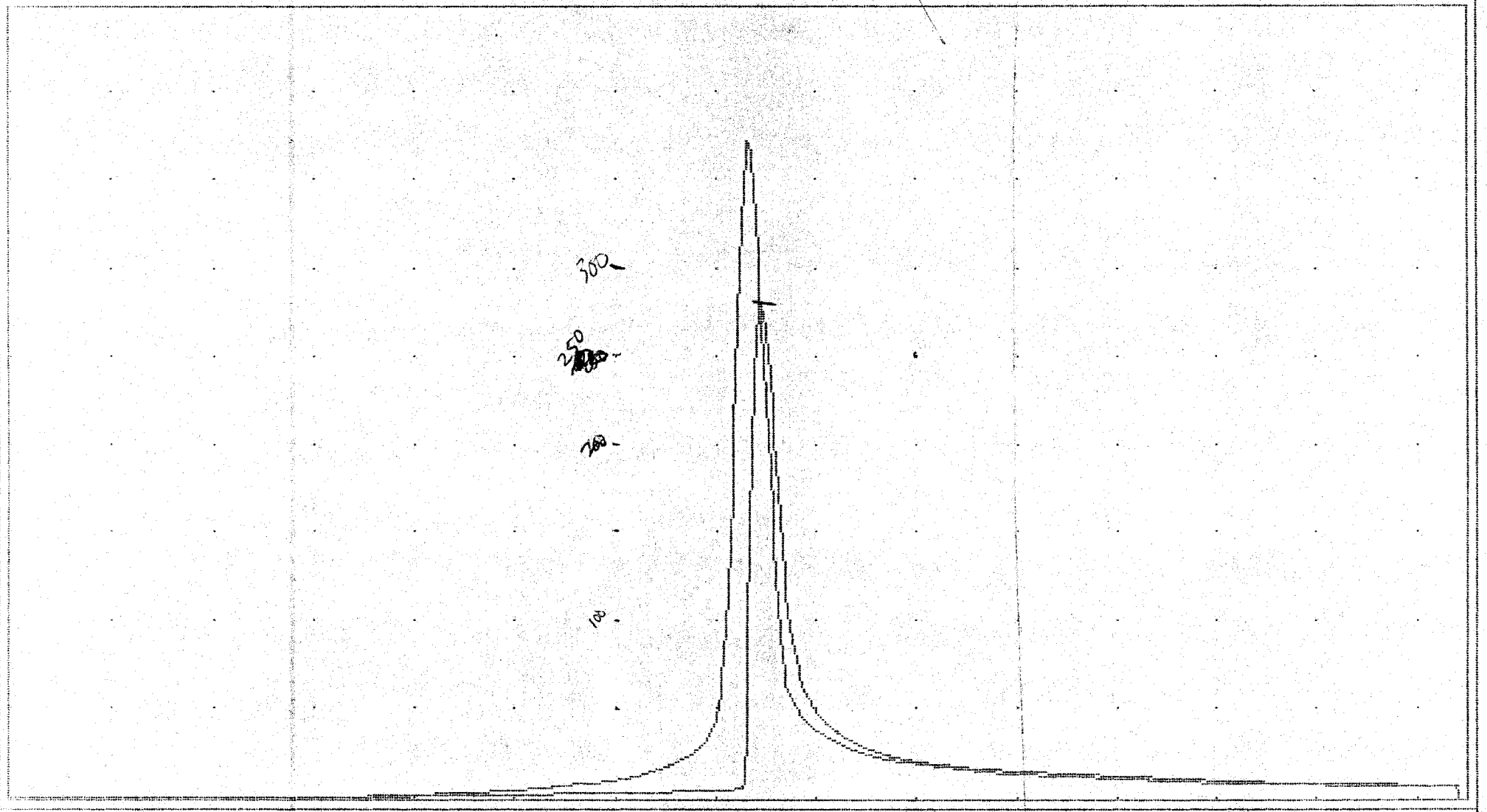


HGU = 100 min 4 VGU = 20.0 cfs

MAX STORAGE = 437668

MAX ELEVATION = 77.34

Qp = 281.4 RESERVOIR ROUTE 10 Yr



HGU = 100 min 6 VGU = 50.0 cfs

MAX STORAGE = 569976

MAX ELEVATION = 78.77

DRAINAGE CALCULATIONS

FOR

NEW TOWN

BMP #53

GPIN 3824000014
4124 New Town Ave

New Town Assoc LLC
P.O. Box 5010
Wmb, VA 23188

CA BMP Parcel 1
2-906

SITE:

James City County

SP-38-07
3RD Review
FINAL

SUBMITTED TO:

Environmental Division
James City County

Prepared By:

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

COMMONWEALTH OF VIRGINIA
ROBERT E. COSBY, III
Lic. No. 035664
8/20/07
PROFESSIONAL ENGINEER

April 5, 2007
Revised : June 27, 2007
Revised : August 20, 2007

AES Project No. 6632-E-10-4

AES CONSULTING ENGINEERS

DRAINAGE CALCULATIONS

FOR

NEW TOWN

BMP #53

SITE:

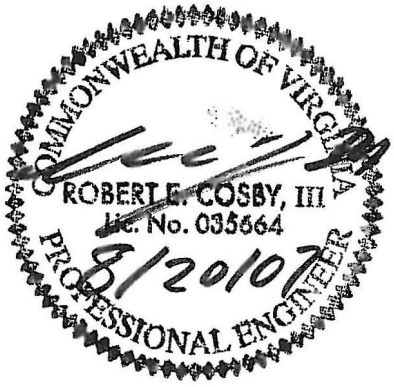
James City County

SUBMITTED TO:

Environmental Division
James City County

Prepared By:

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



April 5, 2007
Revised : June 27, 2007
Revised : August 20, 2007

AES Project No. 6632-E-10-4

CONSULTING ENGINEERS

TABLE OF CONTENTS

CONSULTING ENGINEERS

I INTRODUCTION

The proposed best management practice BMP #53 conversion consists of converting the existing dry extended detention basin to a wet extended detention basin. The stormwater master plan for New Town requires that this best management practice BMP #53 to be a 10-point pond. Best management practice BMP # 53 is located off New Town Avenue between Towne Bank and Block 5 within Section 2 & 4 in New Town, located in James City County.

II EXISTING SITE CONDITIONS

Currently the site is a dry extended detention pond that was constructed as part of the Courthouse. There are currently 4 pipes that provide drainage to the BMP, an existing 42" RCP, 42" RCP, 60" RCP, and an 18" RCP. The existing 42" RCP outfalls at the east end of the BMP and collects runoff from New Town Section 1 and a portion of Block 2 running between the buildings and Monticello Avenue. The existing 42" RCP outfalls at the south side of the BMP and collects runoff from the portion of Monticello Avenue from Ironbound Road to the high point near Settlers Market Boulevard in addition to the Towne Bank site. The existing 18" RCP outfalls at the southwest corner of the BMP near the inflow pipe for the primary spillway and collects runoff from a portion of New Town Avenue from Monticello Avenue to the dam for the BMP and some area from Langley. The existing 60" RCP outfalls at the northwest corner also near the inflow pipe for the primary spillway and collects runoff from a portion of Discovery Park Boulevard from Ironbound Road to New Town Avenue, Courthouse Street, Block 2, Block 3, Main Street, Block 6 & 7, Block 5, and New Town Avenue from Discovery Park Boulevard to Dam for the BMP.

This BMP serves 107.7 acres of developed area within New Town and adjacent offsite areas. This drainage areas consists of approximately 70 acres of impervious coverage with existing development and future impervious cover planned within the watershed.

III PROPOSED SITE CONDITIONS

A portion of the BMP is to be cleared and excavated to elevation 55.5 to provide the required water quality wet volume. The design maintains the existing outfall structure an 8" orifice (As-Built invert 66.84) and 16' weir (As-Built elevation 76.62) with twin 42" outfall pipes. A DI-1 structure is added to the existing 8" orifice pipe to maintain the low flow orifice and minimize potential clogging. A 12" pipe is provided to connect this DI-1 to the permanent pool. A 12-foot aquatic bench is added to the BMP around the entire perimeter to assist in nutrient uptake and are to be planted with wetland seeding mixture. One sediment forebay is provided at the 42" RCP inflow from Courthouse Street. This sediment forebay is raised above the normal pool with a small dam section which consists primarily of existing material at the upstream end of the pond. The spillway from the forebay to the main pool is a

concrete spillway to prevent erosion on the dam as runoff flows from the forebay into the main pool. Sediment forebays could not be added to the other pipes due to their location with the primary spillway for the BMP. To minimize the chance of short circuiting particularly from the existing 60" pipe which was directly adjacent to the principal spillway the last pipe segment is being adjusted and relocated to minimize the potential of short circuiting. The BMP has been excavated to provide additional flood storage and has reduced the peak flow for the 2-yr, 10-yr, and 100-yr storms below previously designed levels (previous 100-yr WSE=81.0, currently design 80.93). 1-yr channel protection is provided with substantial over capacity (≈60% additional) and a minimum of 36-hour drawdown.

Curve Number utilized for this BMP has historically been 85. A weighted analysis of this is provided in the Appendix which provides for several categories. Specifically Woodland Preserve, Open Space or Lawn Area which are public open areas, area treated by LID which includes the Courthouse Bio-Retention Area, and remaining developed area. Based on revised values as requested by the James City County Environmental Division, the analysis provided increase the curve number to 88 to be utilized in the current design.

As requested by County Staff a small retaining wall is provided adjacent to the existing trail with a decretive fence at the top of the wall to promote safety and minimize the potential of danger with the existing pedestrian trail being located adjacent to this pool and within the limits of the flood storage zone of the BMP.

In addition based on County Recommendations additional Rip Rap Outlet Protection is provided at the outfall of the 42" pipe from Courthouse Street to reduce potential erosion within this area in the future.

Comment #15
Response.

3RD REVIEW

New Town - BMP 53
Curve Number Variation Analysis as requested by JCC Environmental Division
8/20/2007

Curve Number	1 yr-inflow	1 yr outflow	1 yr elev	100 yr inflow	100 yr outflow	100 yr elev
88	131.6	4.8	75.46	513.2	316.0	80.93
89	137.9	4.9	75.80	519.9	318.7	81.06
90	144.5	5.0	76.13	526.2	321.1	81.18
91	151.2	5.1	76.47	532.1	323.5	81.31
92	157.8	6.5	76.70	538.6	325.8	81.43
93	164.4	9.3	76.80	542.6	328.0	81.55
94	170.8	12.5	76.89	547.1	330.0	81.66

DA

DA = 107.7 AC.

1-YEAR VOL
CN 88 661,182 CF

Check setups!

81.66
80.93
0.73' DIFFERENCE CN 88-94
IF DATA IS ALL THE SAME.

Form SP-125-97

SP-38-07
(Form SP-125-97)

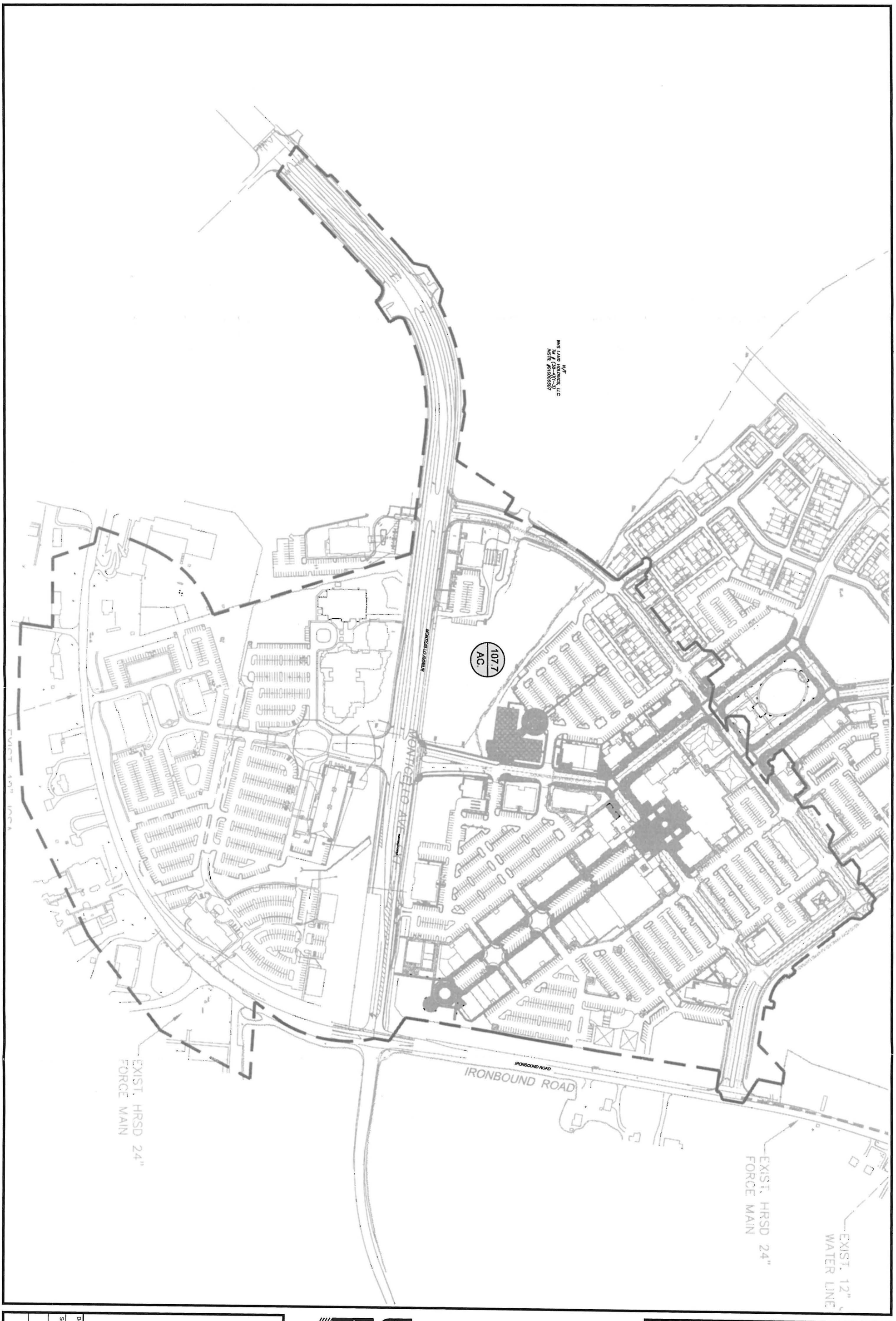
FINAL BMP Computations

APPENDIX A

DRAINAGE AREA MAP

CONSULTING ENGINEERS

4. Watershed map



Designed	REC
Drawn	SDC
Scale	N.T.S.
Date	4/05/07
Project No.	6632-E-10-4
Drawing No.	

DRAINAGE AREA MAP

CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND • GLOUCESTER

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

No.	DATE	REVISION / COMMENT / NOTE	REVISED BY	REVIEWED BY

APPENDIX B

BEST MANAGEMENT PRACTICE (BMP #53) FACILITY

WATER QUALITY VOLUME
CHANNEL PROTECTION
DI-1 BUOYANCY CALCULATIONS
WEIGHTED CURVER NUMBER
STORMWATER ROUTING 1, 2, 10, & 100 YEAR STORM
OUTLET PROTECTION 42" PIPE

Storm Event	Incoming Flow (cfs)	Outgoing Flow (cfs)	Water Surface Elevation
1	132	4.8	75.46
2	182	15.8	76.96
10	352	209.5	79.08
100	513	316.0	80.93

Water Surface Elevation – Existing Condition versus Proposed

Storm Event	Existing Condition	Proposed Condition
Normal Pool	66.84	66.84
1	76.12	75.46
2	76.97	76.96
10	78.89	79.08
100	80.99	80.93 D.H.W

CONSULTING ENGINEERS

AES Consulting Engineers
Project #6632-E-10-4

New Town Section 2-4
BMP #53
James City County

BMP #53 Water Quality Volumes **"Wet" Volume**

Elev.	Contour Area (in s.f.)	Storage (Between contours)	Cumulative Storage Volume
73	Area = 5259 s.f.		Cumulative Storage = 604 c.y.
		Storage = 4949 c.f.= 183 c.y.	
72	Area = 4639 s.f.		Cumulative Storage = 421 c.y.
		Storage = 4346 c.f.= 161 c.y.	
71	Area = 4054 s.f.		Cumulative Storage = 260 c.y.
		Storage = 3778 c.f.= 140 c.y.	
70	Area = 3503 s.f.		Cumulative Storage = 120 c.y.
		Storage = 3245 c.f.= 120 c.y.	
69	Area = 2987 s.f.		Cumulative Storage = 0 c.y.
		Storage = 0 c.f.= 0 c.y.	
66.84	Area = 38702 s.f.		Cumulative Storage = 8827 c.y.
		Storage = 29138 c.f.= 1079 c.y.	
66	Area = 30673 s.f.		Cumulative Storage = 7748 c.y.
		Storage = 29571 c.f.= 1095 c.y.	
65	Area = 28468 s.f.		Cumulative Storage = 6653 c.y.
		Storage = 27392 c.f.= 1015 c.y.	
64	Area = 26316 s.f.		Cumulative Storage = 5638 c.y.
		Storage = 25265 c.f.= 936 c.y.	
63	Area = 24215 s.f.		Cumulative Storage = 4702 c.y.
		Storage = 23191 c.f.= 859 c.y.	
62	Area = 22166 s.f.		Cumulative Storage = 3843 c.y.
		Storage = 21168 c.f.= 784 c.y.	
61	Area = 20169 s.f.		Cumulative Storage = 3059 c.y.
		Storage = 19197 c.f.= 711 c.y.	
60	Area = 18224 s.f.		Cumulative Storage = 2348 c.y.
		Storage = 17278 c.f.= 640 c.y.	
59	Area = 16332 s.f.		Cumulative Storage = 1708 c.y.
		Storage = 15412 c.f.= 571 c.y.	
58	Area = 14492 s.f.		Cumulative Storage = 1137 c.y.
		Storage = 13599 c.f.= 504 c.y.	
57	Area = 12706 s.f.		Cumulative Storage = 633 c.y.
		Storage = 11839 c.f.= 438 c.y.	
56	Area = 10973 s.f.		Cumulative Storage = 195 c.y.
		Storage = 5276 c.f.= 195 c.y.	
55.5	Area = 10130 s.f.		Cumulative Storage = 0 c.y.
		Storage = 0 c.f.= 0 c.y.	

SED REQ'D

N.P.

Volume Required
2 * WQV
WQV = 1/2" per impervious acre

Impervious Area = 70 acre

Wet WQV = 127050 c.f.
Wet Volume Required = 254100 c.f.

Bond for Volume Bottom Basin to EL 68 not ground EXIST.

AES Consulting Engineers
Project #6632-E-10-4

New Town Section 2-4
BMP #53
James City County

Wet WQV Volume Provided =	9432	c.y.	At Elevation 66.84
Wet WQV Volume Provided =	254653	c.f.	and Elevation 73

Adequate Wet Water Quality Volume is provided in BMP

AES Consulting Engineers
Project #6632-E-10-4

New Town Section 2-4
BMP #53
James City County

BMP #53 Water Quality Volumes **"Dry" Volume**

Elev.	Contour Area (in s.f.)	Storage (Between contours)	Cumulative Storage Volume
77	Area = 87599 s.f.		Cumulative Storage = 21865 c.y.
		Storage = 32460 c.f.= 1202 c.y.	
76.62	Area = 83242 s.f.		Cumulative Storage = 20663 c.y.
		Storage = 50856 c.f.= 1884 c.y.	
76	Area = 80809 s.f.		Cumulative Storage = 18779 c.y.
		Storage = 77953 c.f.= 2887 c.y.	
75	Area = 75097 s.f.		Cumulative Storage = 15892 c.y.
		Storage = 69282 c.f.= 2566 c.y.	
74	Area = 63467 s.f.		Cumulative Storage = 13326 c.y.
		Storage = 61073 c.f.= 2262 c.y.	
73	Area = 58680 s.f.		Cumulative Storage = 11064 c.y.
		Storage = 56437 c.f.= 2090 c.y.	
72	Area = 54194 s.f.		Cumulative Storage = 8974 c.y.
		Storage = 52709 c.f.= 1952 c.y.	
71	Area = 51224 s.f.		Cumulative Storage = 7022 c.y.
		Storage = 49900 c.f.= 1848 c.y.	
70	Area = 48576 s.f.		Cumulative Storage = 5174 c.y.
		Storage = 47155 c.f.= 1746 c.y.	
69	Area = 45734 s.f.		Cumulative Storage = 3428 c.y.
		Storage = 44386 c.f.= 1644 c.y.	
68	Area = 43039 s.f.		Cumulative Storage = 1784 c.y.
		Storage = 41614 c.f.= 1541 c.y.	
67	Area = 40188 s.f.		Cumulative Storage = 243 c.y.
		Storage = 6556 c.f.= 243 c.y.	
66.84	Area = 41766 s.f.		Cumulative Storage = 0 c.y.
		Storage = 0 c.f.= 0 c.y.	

Volume Required
2 * WQV
WQV = 1/2" per impervious acre

Impervious Area = 70 acre

Dry WQV = 127050 c.f.
Dry Volume Required = 254100 c.f.

Dry WQV Volume Provided = 20663 c.y. At Elevation 76.62
Dry WQV Volume Provided = 557901 c.f.

Adequate Dry Water Quality Volume is provided in BMP

AES Consulting Engineers
Project #6632-E-10-4

New Town Section 2-4
BMP #53
James City County

BMP #53 East Sediment Forebay Volumes

Elev.	Contour Area (in s.f.)	Storage (Between contours)	Cumulative Storage Volume
73	Area = 5259 s.f.		Cumulative Storage = 604 c.y.
		Storage = 4949 c.f.= 183 c.y.	
72	Area = 4639 s.f.		Cumulative Storage = 421 c.y.
		Storage = 4346 c.f.= 161 c.y.	
71	Area = 4054 s.f.		Cumulative Storage = 260 c.y.
		Storage = 3778 c.f.= 140 c.y.	
70	Area = 3503 s.f.		Cumulative Storage = 120 c.y.
		Storage = 3245 c.f.= 120 c.y.	
69	Area = 2987 s.f.		Cumulative Storage = 0 c.y.
		Storage = 0 c.f.= 0 c.y.	

Volume Required
0.1" per acre

Impervious Area = 29.25 acre

Volume Required = 393.3 c.y.
Volume Required = 10618 c.f.

Volume Provided = 604.0 c.y. At Elevation 73.00
Volume Provided = 16308.0 c.f.

Adequate Volume is provided in Sediment Forebay Area

CONSULTING ENGINEERS
Williamsburg (757) 253-0040
Gloucester (804) 693-4450
Richmond (804) 330-8040

Project	New Town BMP #53
Project No.	6632-E-10-4
Subject	Pond # 53
Sheet No.	1 of 1
Calculated By	VAB Date 8/20/07

Channel Protection Volume:

Drainage Area	=	107.7 Acres
Runoff Curve No.	=	88
1-Yr, 24-Hr Storm Volume	=	2.8 inches

Direct Runoff (From TR55 Equations 2-3 & 2-4)
Q = 1.64 inches

Channel Protection Volume = DA * Q * 60% (Virginia Stormwater Managment Handbook section 5-6.2 - Method 2)
Vcp = 176.79 Ac-in = **385,059** cubic feet

Determine Volume of Pond by Contour (starting at normal pool):

AB 66.94

Elevation	Incremental Depth	Area (sq. ft.)	Volume (cu. ft.)	Volume (cu. yd.)	Sum Volume (cu. ft.)	Sum Volume (cu. yd.)	Incremental Avg Head[1] (feet)	Incremental Avg Flow[1] (feet)	Incremental Drawdown Time[1] (hrs)
66.8	0.0	41,766	-	-	-	-			
68.0	1.2	43,039	49,187	1,822	49,187	1,822	0.58	0.83	16.37
69.0	1.0	45,734	44,387	1,644	93,573	3,466	1.66	1.94	6.37
70.0	1.0	48,576	47,155	1,746	140,728	5,212	2.66	2.56	5.11
71.0	1.0	51,224	49,900	1,848	190,628	7,060	3.66	3.07	4.52
72.0	1.0	54,194	52,709	1,952	243,337	9,012	4.66	3.50	4.19
73.0	1.0	58,680	29,340	1,087	272,677	10,099	5.66	3.88	2.10
74.0	1.0	63,467	61,074	2,262	333,751	12,361	6.66	4.23	4.01
75.0	1.0	75,097	64,646	2,394	398,396	14,755	7.56	4.52	3.16
76.0	1.0	80,809	77,953	2,887	476,349	17,643	0.00	0.00	0.00
76.6	0.6	83,242	44,013	1,630	520,362	19,273	0.00	0.00	0.00
		Total	520,362	19,273	cPV				36.56

[1] Incremental values computed from Channel Protection Volume Elevation

Elevation of Normal Pool	=	66.84 feet	AB-66.94
Elevation of 1-yr, 24-hr Storage Volume	=	74.79 feet	
Size of Orifice	=	8.00 inches	
Total Average Drawdown Time	=	**36.56 hrs**	**>24 HRS, OK**

76.62
74.79 → 66.84

NEW TOWN BMP #53
BMP BUOYANCY CALCULATIONS
August 19, 2007

Note: THESE CALCULATION PROVIDED TO INSURE THE PRINCIPAL SPILLWAY / RISER DOES NOT HAS THE TENDENCY TO FLOAT.

ELEVATION OF RISER CREST =	72.00	
ELEVATION OF INVERT OF RISER =	64.00	
WIDTH OF RISER =	4.17	feet
LENGTH OF RISER =	4.17	feet
THICKNESS OF STRUCTURE =	9.5	inches
BOTTOM THICKNESS OF STRUCTURE	9	inches

WEIGHT OF WATER DISPLACED BY STRUCTURE

Volume of Riser =	289.63	
Weight of water displaced by air		Weight of water per cu. Ft. * Volume of Riser
Weight of water displaced by air	18,073	lbs.

WEIGHT OF PRINCIPAL SPILLWAY / RISER

Volume of Concrete = (Volume of Riser - Inside Volume of Air)	175.35	
Weight of concrete of riser =		Weight of concrete per cu. Ft. * Volume of Concrete
Weight of Concrete Riser =	26,302	lbs.
Weight of Grate =	50	lbs.
Total Weight of Riser =	26,352	lbs.

Total Weight of Riser > Weight of Water Displaced, i.e. Will not float !
Safety Factor = 1.5

CONSULTING ENGINEERS

Williamsburg (757) 253-0040
Gloucester (804) 693-4450
Richmond (804) 330-8040

Project:	New Town - BMP#53
Project No.:	6632-E-10-4
Subject:	Runoff Curve Number
Date:	August 20, 2007
Calculated By:	R. Cosby

Subject Area: Site Drainage Area to BMP #53

Soil Name and Hydrologic Group	Cover Description	CN	Area	CN x Area
				0
Urban	Comercial 78%	92	87.2	8022.4
B	Woodland (Good Condition)	55	3	165
C	Open Space/ Lawn	74	4.5	333
LID	Served by LID	77	13	1001
				0
				0
				0
		Totals =	107.7	9521.4

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{9521.4}{107.7} = 88.4$$

Use CN = **88**

Pond Report

Hydraflow Hydrographs by Intelisolve — Sunday, Aug 19 2007, 2:57 PM

Pond No. 1 - BMP #53

NP 66.84

Pond Data

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

10-YR 79.08 7.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	66.84	38,702	0	0
0.16	67.00	40,188	6,311	6,311
1.16	68.00	43,039	41,614	47,925
2.16	69.00	45,734	44,387	92,311
3.16	70.00	48,576	47,155	139,466
4.16	71.00	51,224	49,900	189,366
5.16	72.00	54,194	52,709	242,075
6.16	73.00	58,680	56,437	298,512
7.16	74.00	69,729	64,205	362,717
8.16	75.00	75,097	72,413	435,130
9.16	76.00	80,809	77,953	513,083
10.16	77.00	87,599	84,204	597,287
11.16	78.00	95,727	91,663	688,950
12.16	79.00	104,473	100,100	789,050
13.16	80.00	113,930	109,202	898,251
14.16	81.00	123,211	118,571	1,016,822
15.16	82.00	131,782	127,496	1,144,318

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise (in)	= 42.00	8.00	0.00	0.00
Span (in)	= 42.00	8.00	0.00	0.00
No. Barrels	= 2	1	0	0
Invert El. (ft)	= 66.51	66.84	0.00	0.00
Length (ft)	= 103.00	0.00	0.00	0.00
Slope (%)	= 1.26	0.00	0.00	0.00
N-Value	= .013	.013	.000	.000
Orif. Coeff.	= 0.60	0.60	0.00	0.00
Multi-Stage	= n/a	Yes	No	No

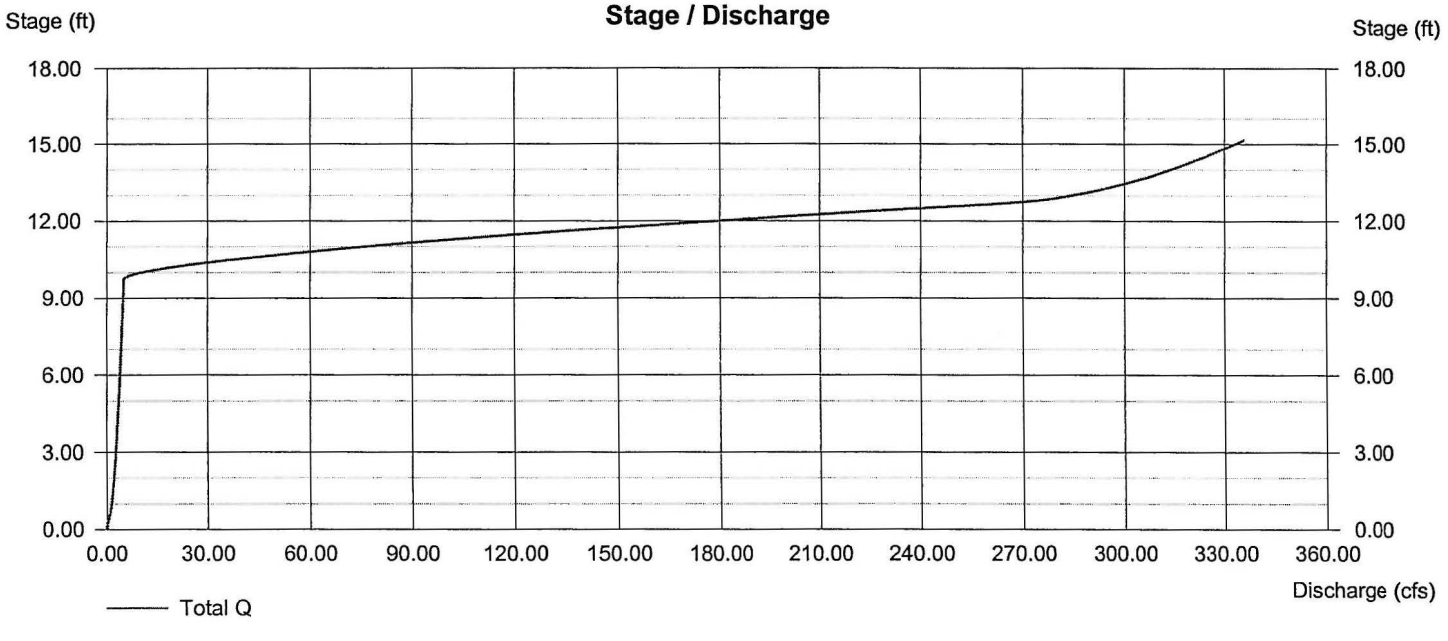
Weir Structures — CONC BOX STRUCT.

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 16.00	0.00	0.00	0.00
Crest El. (ft)	= 76.62	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= Broad	---	---	---
Multi-Stage	= Yes	No	No	No

Exfiltration = 0.000 in/hr (Contour) Tailwater Elev. = 0.00 ft

BARREL N.P CONTROL

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control. Weir riser checked for orifice conditions.



Hydrograph Plot

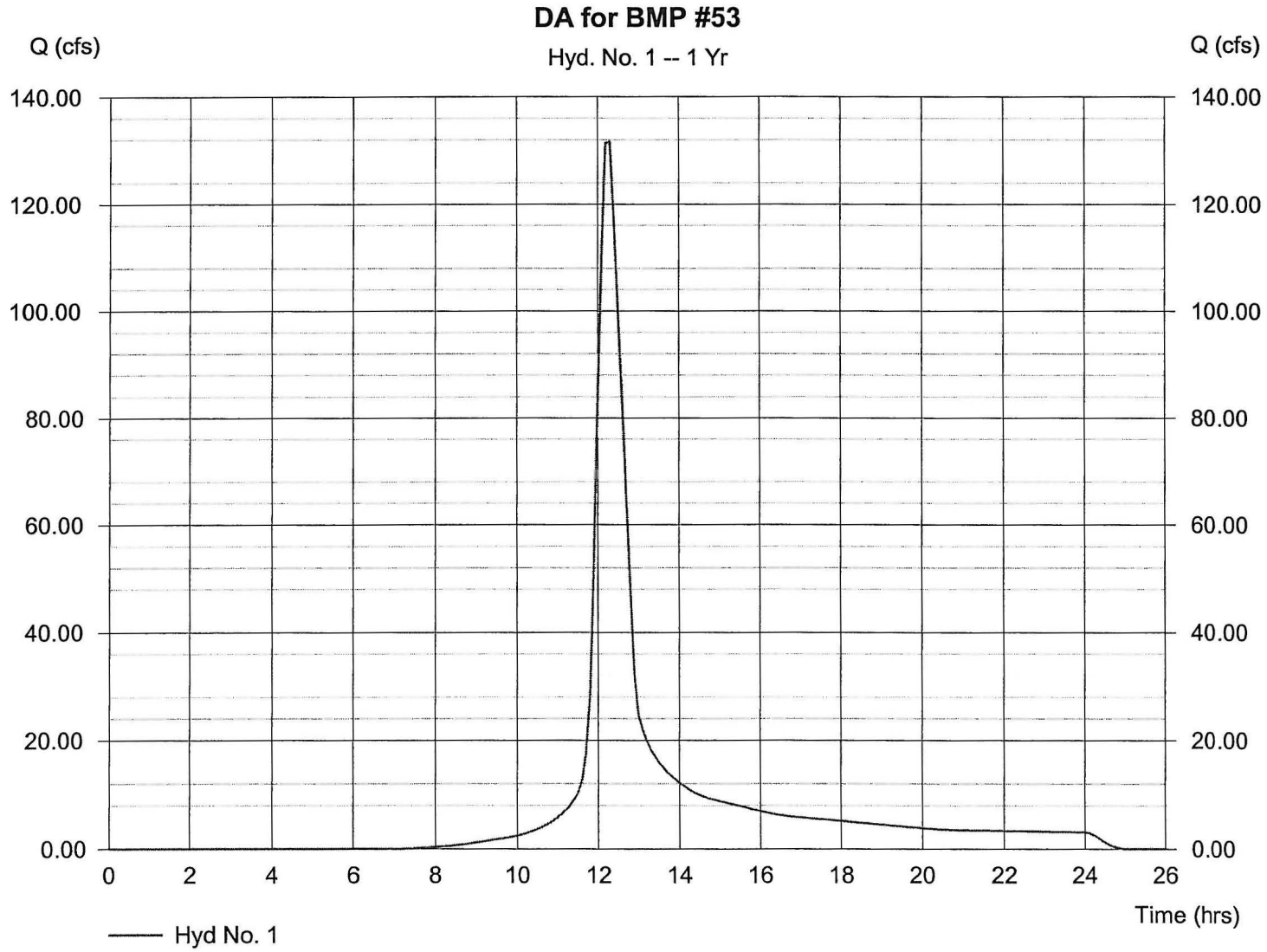
Hydraflow Hydrographs by Intelisolve | Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 1

DA for BMP #53

Hydrograph type	= SCS Runoff	Peak discharge	= 131.63 cfs
Storm frequency	= 1 yrs	Time interval	= 6 min
Drainage area	= 107.70 ac	Curve number	= 88
Basin Slope	= 2.5 %	Hydraulic length	= 2200 ft
Tc method	= USER	Time of conc. (Tc)	= 32 min
Total precip.	= 2.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 661,819 cuft



Hydrograph Plot

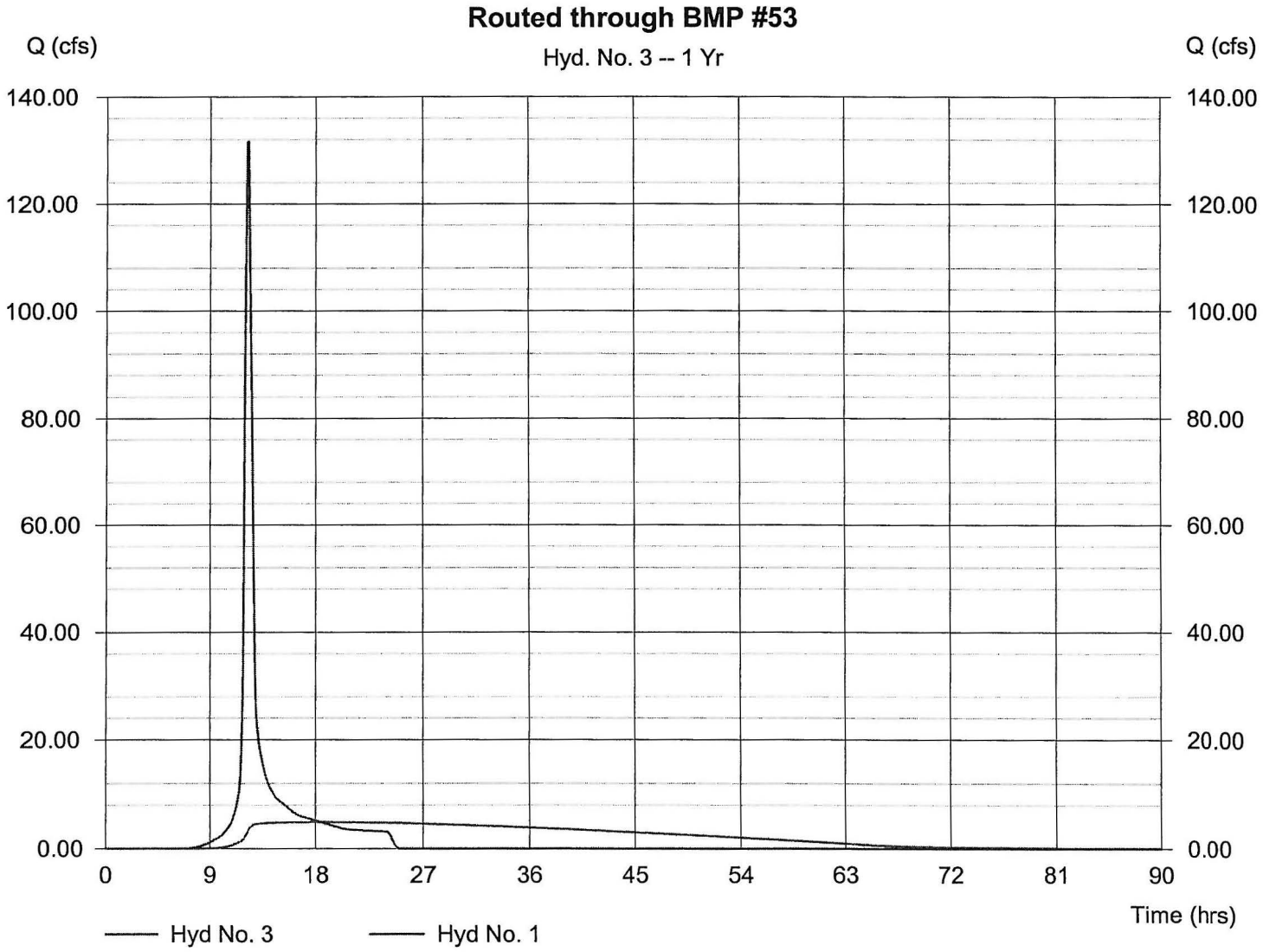
Hydraflow Hydrographs by Intelisolve | Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 3

Routed through BMP #53

Hydrograph type	= Reservoir	Peak discharge	= 4.84 cfs
Storm frequency	= 1 yrs	Time interval	= 6 min
Inflow hyd. No.	= 1	Max. Elevation	= 75.46 ft
Reservoir name	= BMP #53	Max. Storage	= 470,910 cuft

Storage Indication method used. | Hydrograph Volume = 661,182 cuft



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	131.63	6	738	661,819	----	------	------	DA for BMP #53
3	Reservoir	4.84	6	1110	661,182	1	75.46	470,910	Routed through BMP #53

Hydrograph Plot

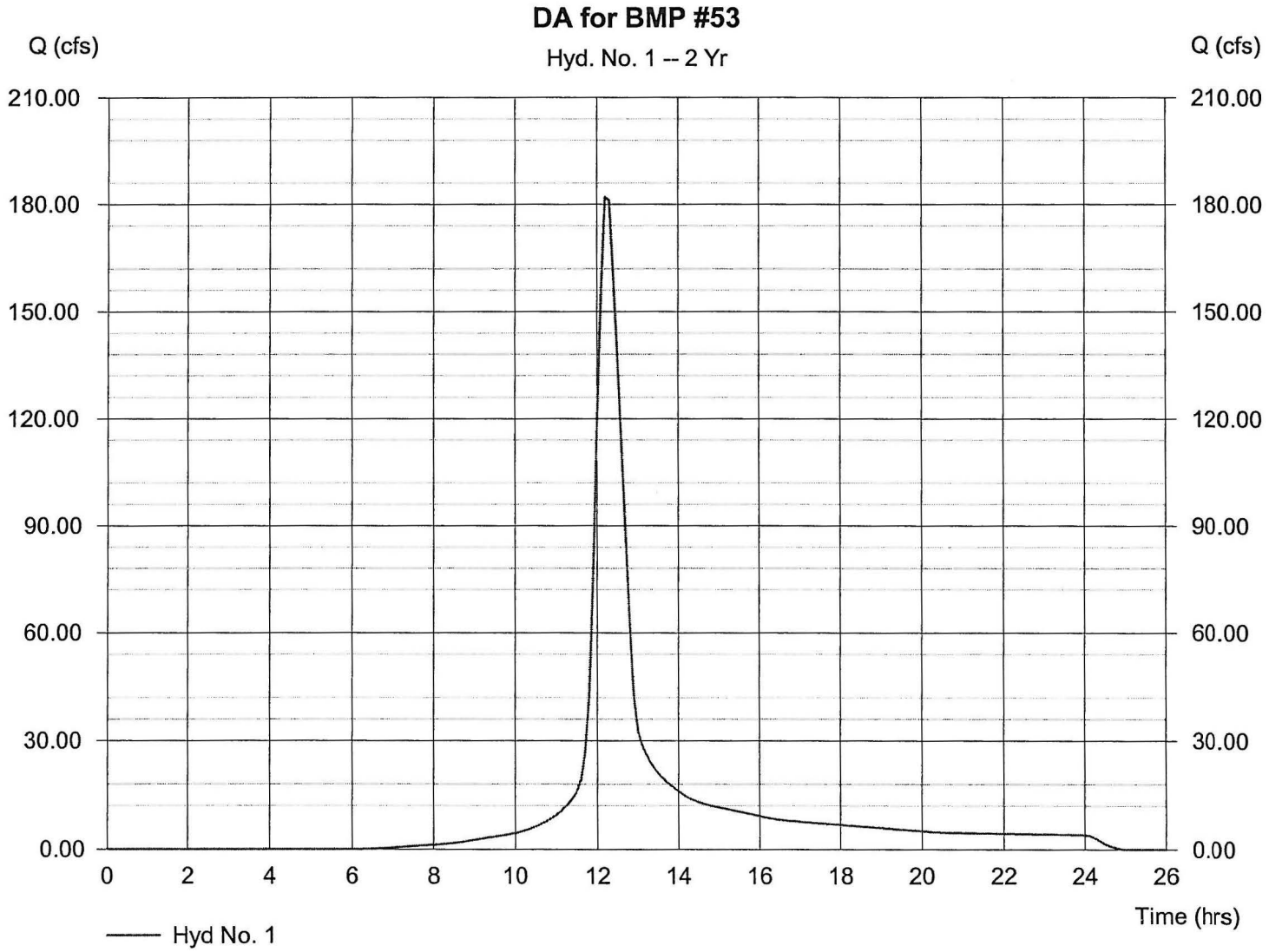
Hydraflow Hydrographs by Intelisolve | Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 1

DA for BMP #53

Hydrograph type	= SCS Runoff	Peak discharge	= 182.03 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Drainage area	= 107.70 ac	Curve number	= 88
Basin Slope	= 2.5 %	Hydraulic length	= 2200 ft
Tc method	= USER	Time of conc. (Tc)	= 32 min
Total precip.	= 3.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 914,658 cuft



Hydrograph Plot

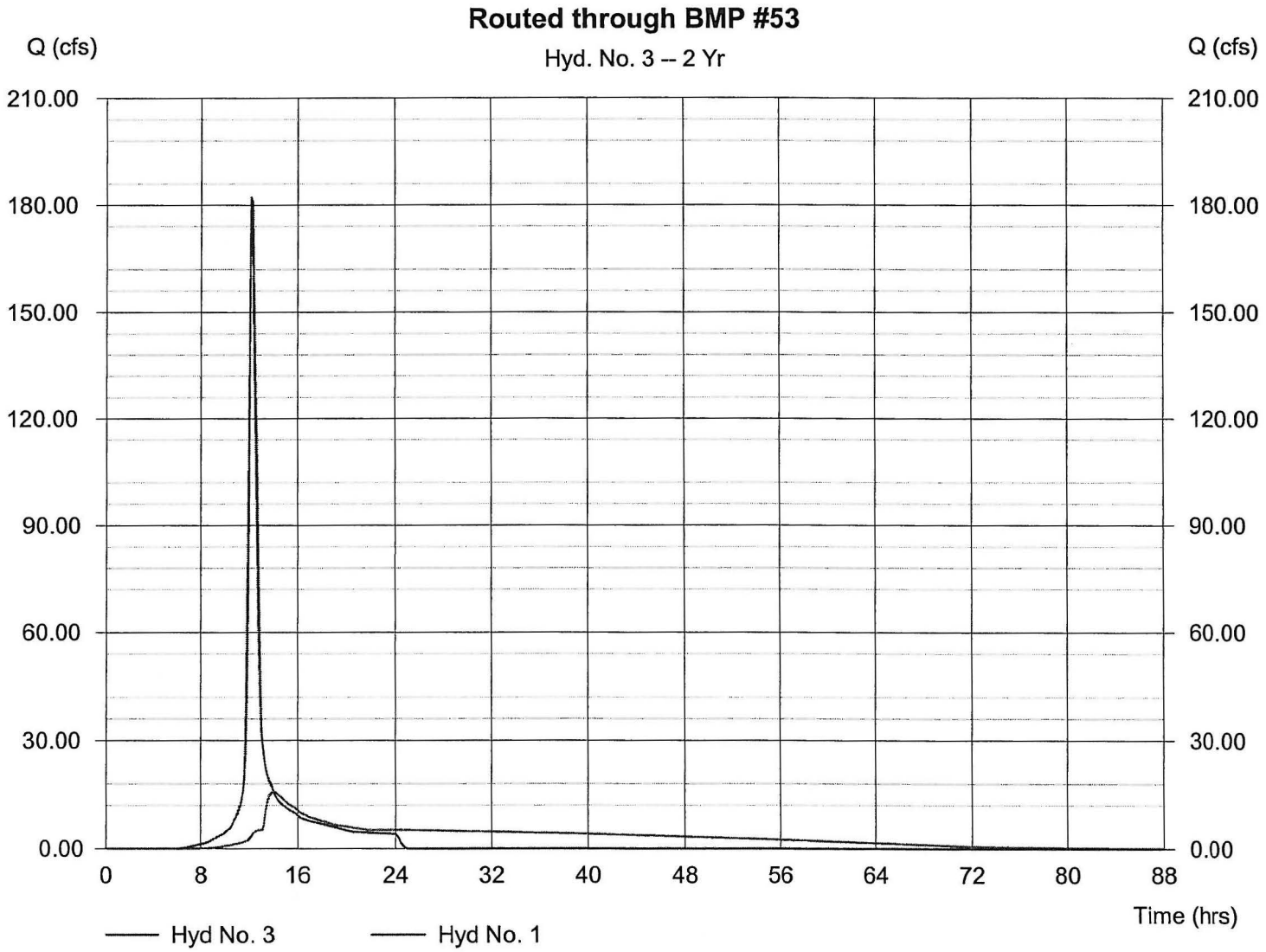
Hydraflow Hydrographs by Intelisolve | Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 3

Routed through BMP #53

Hydrograph type	= Reservoir	Peak discharge	= 15.78 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Inflow hyd. No.	= 1	Max. Elevation	= 76.96 ft
Reservoir name	= BMP #53	Max. Storage	= 593,852 cuft

Storage Indication method used. | Hydrograph Volume = 914,021 cuft



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	182.03	6	732	914,658	----	------	------	DA for BMP #53
3	Reservoir	15.78	6	840	914,021	1	76.96	593,852	Routed through BMP #53

Hydrograph Plot

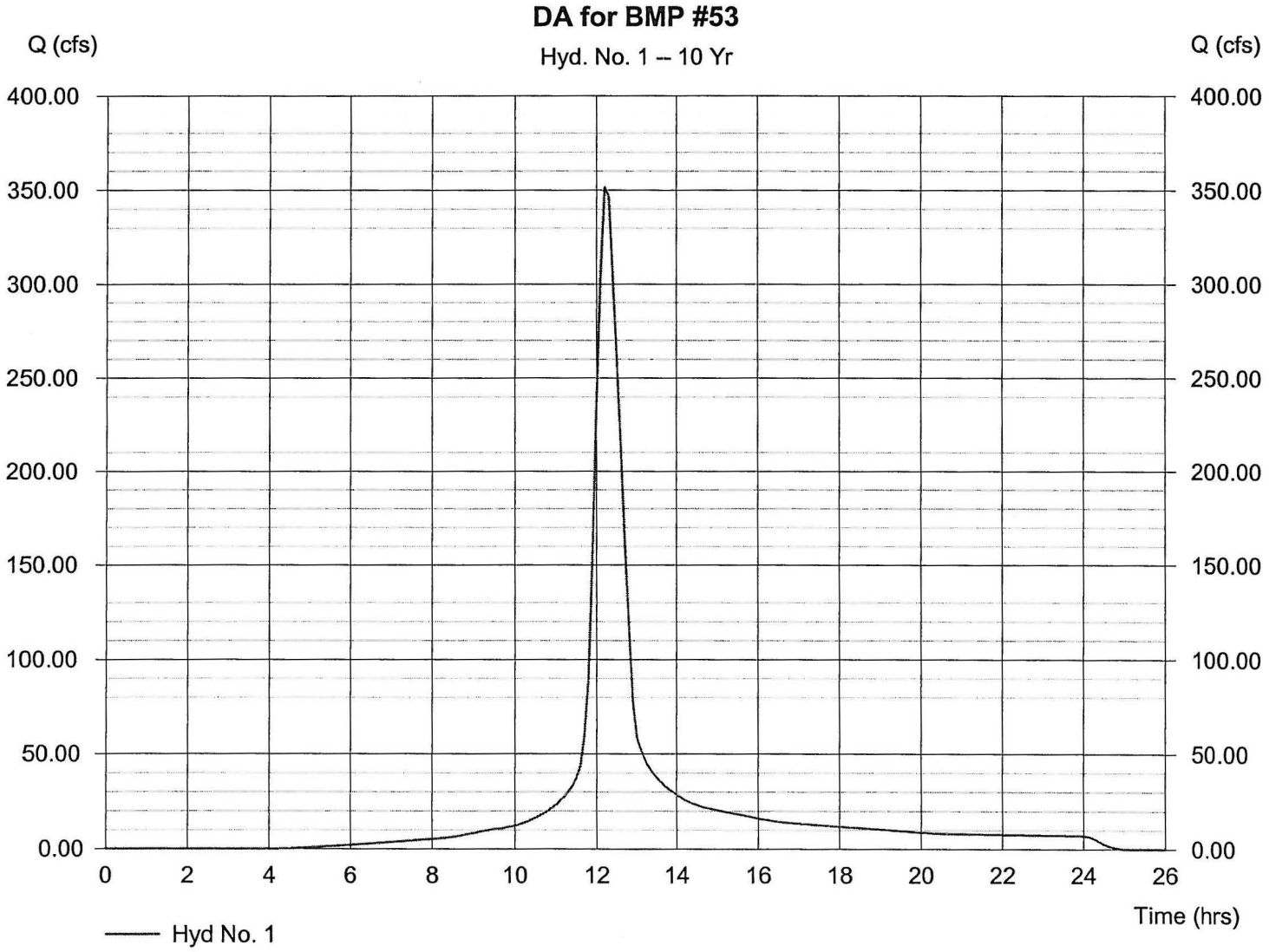
Hydraflow Hydrographs by Intelisolve | Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 1

DA for BMP #53

Hydrograph type	= SCS Runoff	Peak discharge	= 351.53 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Drainage area	= 107.70 ac	Curve number	= 88
Basin Slope	= 2.5 %	Hydraulic length	= 2200 ft
Tc method	= USER	Time of conc. (Tc)	= 32 min
Total precip.	= 5.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 1,787,439 cuft



Hydrograph Plot

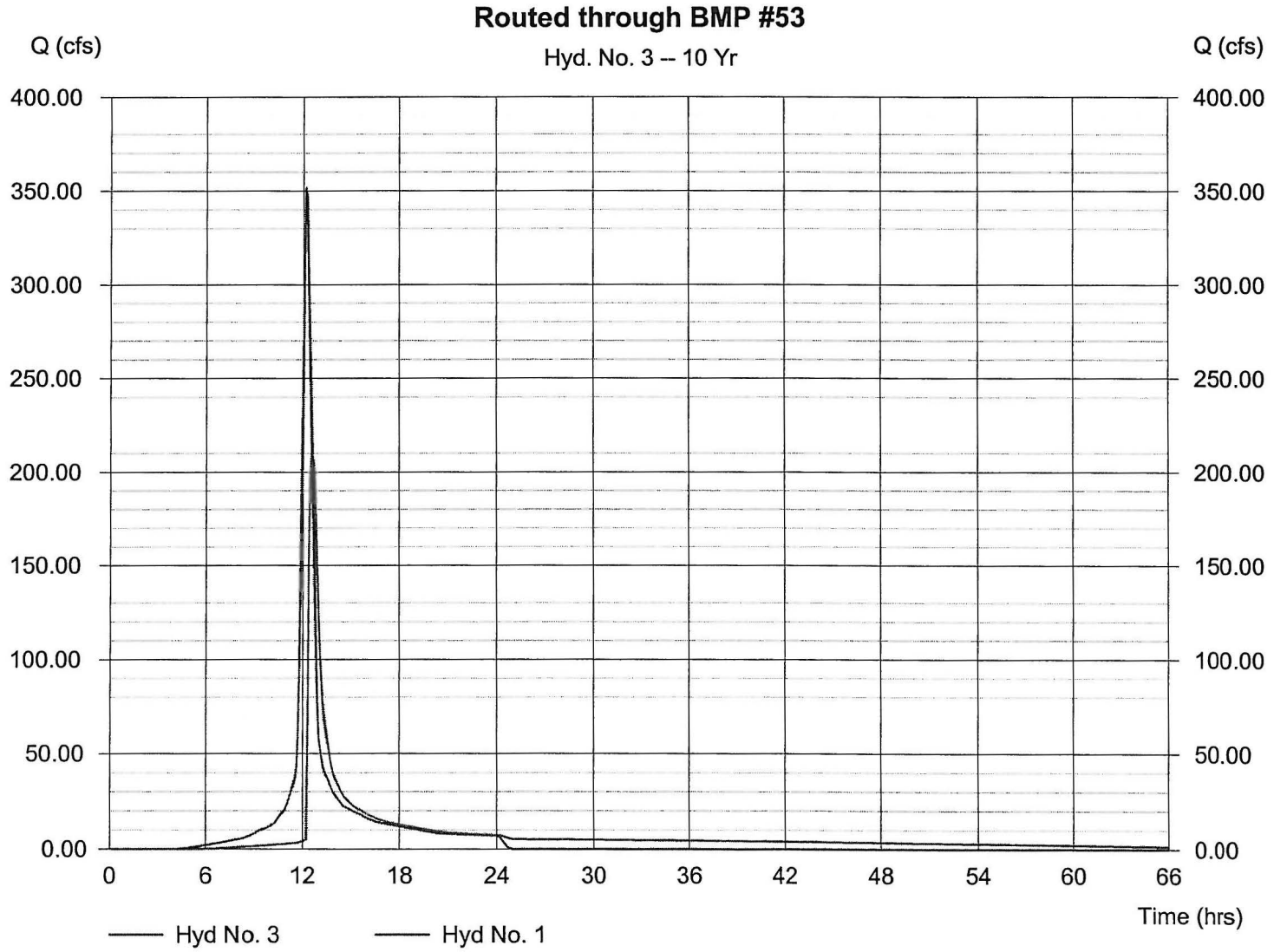
Hydraflow Hydrographs by Intelisolve | Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 3

Routed through BMP #53

Hydrograph type	= Reservoir	Peak discharge	= 209.54 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Inflow hyd. No.	= 1	Max. Elevation	= 79.08 ft
Reservoir name	= BMP #53	Max. Storage	= 797,730 cuft

Storage Indication method used. | Hydrograph Volume = 1,786,801 cuft



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	351.53	6	732	1,787,439	----	------	------	DA for BMP #53
3	Reservoir	209.54	6	756	1,786,801	1	79.08	797,730	Routed through BMP #53

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

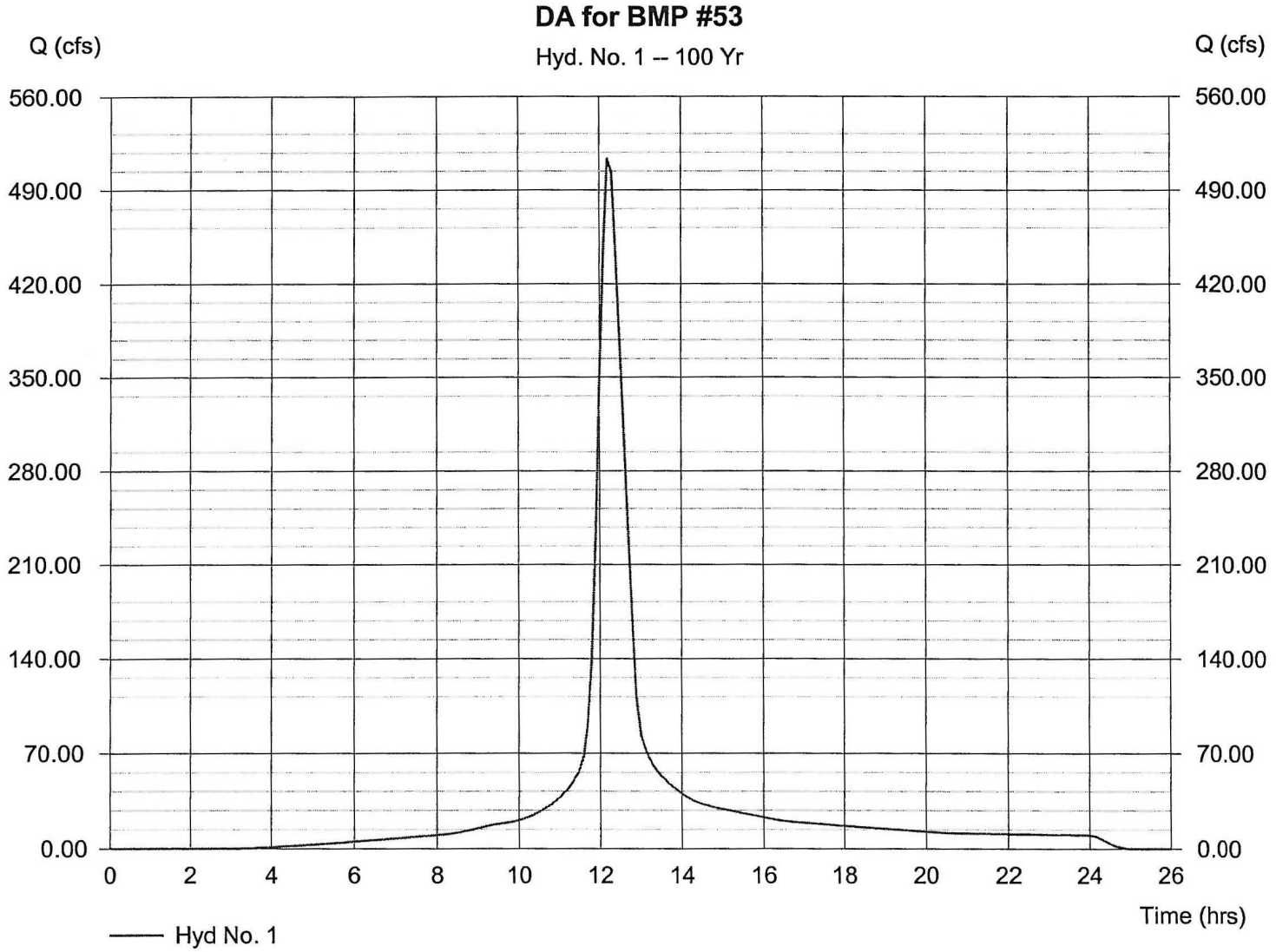
Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 1

DA for BMP #53

Hydrograph type	= SCS Runoff	Peak discharge	= 513.20 cfs
Storm frequency	= 100 yrs	Time interval	= 6 min
Drainage area	= 107.70 ac	Curve number	= 88
Basin Slope	= 2.5 %	Hydraulic length	= 2200 ft
Tc method	= USER	Time of conc. (Tc)	= 32 min
Total precip.	= 8.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 2,648,080 cuft



Hydrograph Plot

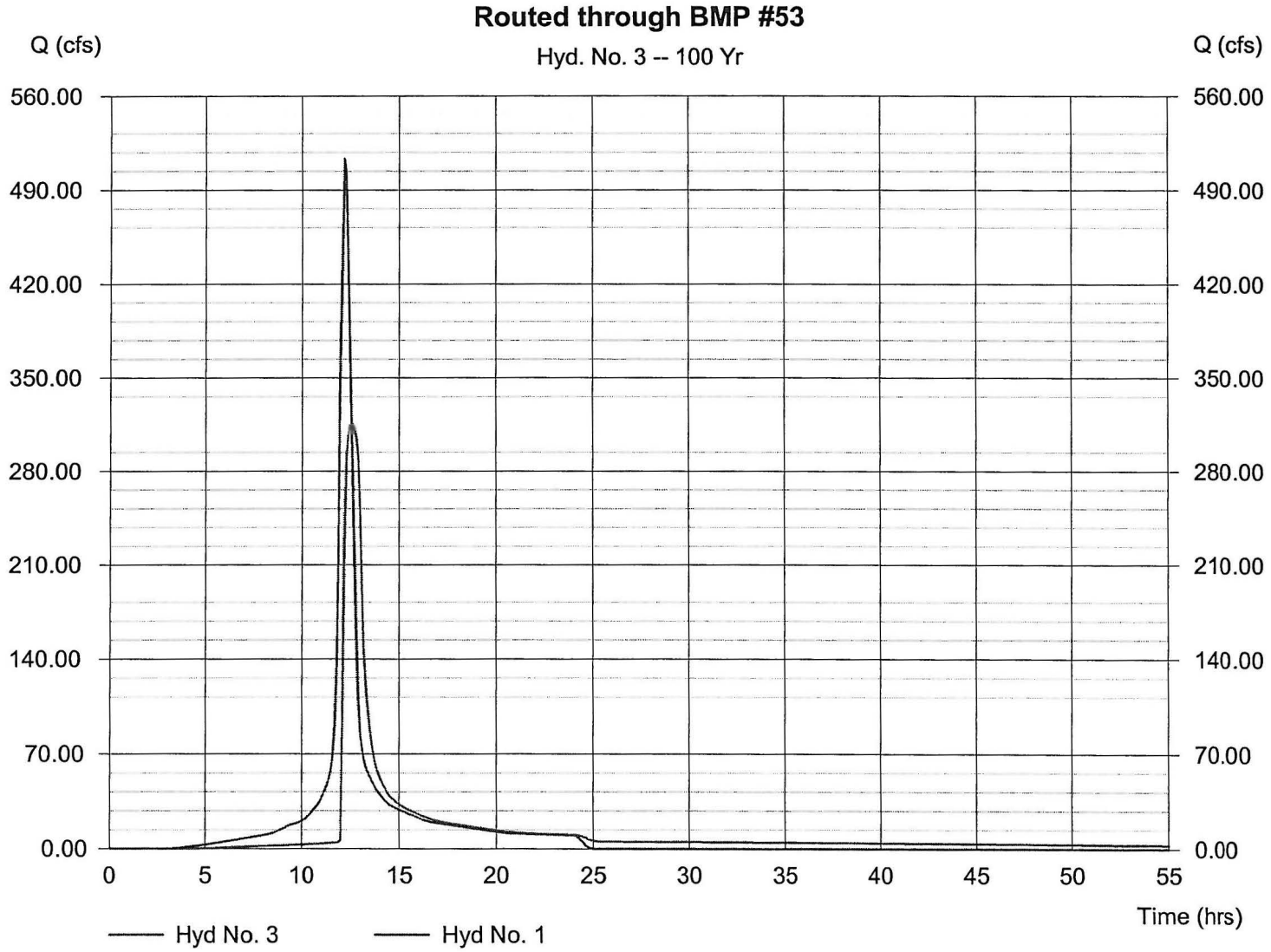
Hydraflow Hydrographs by Intelisolve | Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 3

Routed through BMP #53

Hydrograph type	= Reservoir	Peak discharge	= 316.01 cfs
Storm frequency	= 100 yrs	Time interval	= 6 min
Inflow hyd. No.	= 1	Max. Elevation	= 80.93 ft
Reservoir name	= BMP #53	Max. Storage	= 1,008,940 cuft

Storage Indication method used. | Hydrograph Volume = 2,647,446 cuft



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	513.20	6	732	2,648,080	----	------	------	DA for BMP #53
3	Reservoir	316.01	6	756	2,647,446	1	80.93	1,008,940	Routed through BMP #53

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	-------	131.63	182.03	-------	270.30	351.53	395.75	454.57	513.20	DA for BMP #53
3	Reservoir	1	4.84	15.78	-------	108.87	209.54	259.02	295.08	316.01	Routed through BMP #53

AES Consulting Engineers
Project #6632-E-10-4

New Town Section 2-4
BMP #53
James City County

BMP #53 Water Quality Volumes **"Dry" Volume**

Elev.	Contour Area (in s.f.)	Storage (Between contours)	Cumulative Storage Volume
77	Area = 87599 s.f.		Cumulative Storage = 21865 c.y.
		Storage = 32460 c.f.= 1202 c.y.	
76.62	Area = 83242 s.f.		Cumulative Storage = 20663 c.y.
		Storage = 50856 c.f.= 1884 c.y.	
76	Area = 80809 s.f.		Cumulative Storage = 18779 c.y.
		Storage = 77953 c.f.= 2887 c.y.	
75	Area = 75097 s.f.		Cumulative Storage = 15892 c.y.
		Storage = 69282 c.f.= 2566 c.y.	
74	Area = 63467 s.f.		Cumulative Storage = 13326 c.y.
		Storage = 61073 c.f.= 2262 c.y.	
73	Area = 58680 s.f.		Cumulative Storage = 11064 c.y.
		Storage = 56437 c.f.= 2090 c.y.	
72	Area = 54194 s.f.		Cumulative Storage = 8974 c.y.
		Storage = 52709 c.f.= 1952 c.y.	
71	Area = 51224 s.f.		Cumulative Storage = 7022 c.y.
		Storage = 49900 c.f.= 1848 c.y.	
70	Area = 48576 s.f.		Cumulative Storage = 5174 c.y.
		Storage = 47155 c.f.= 1746 c.y.	
69	Area = 45734 s.f.		Cumulative Storage = 3428 c.y.
		Storage = 44386 c.f.= 1644 c.y.	
68	Area = 43039 s.f.		Cumulative Storage = 1784 c.y.
		Storage = 41614 c.f.= 1541 c.y.	
67	Area = 40188 s.f.		Cumulative Storage = 243 c.y.
		Storage = 6556 c.f.= 243 c.y.	
66.84	Area = 41766 s.f.		Cumulative Storage = 0 c.y.
		Storage = 0 c.f.= 0 c.y.	

Volume Required
2 * WQV
WQV = 1/2" per impervious acre

Impervious Area = 70 acre

Dry WQV = 127050 c.f.
Dry Volume Required = 254100 c.f.

Dry WQV Volume Provided = 20663 c.y. At Elevation 76.62
Dry WQV Volume Provided = 557901 c.f.

Adequate Dry Water Quality Volume is provided in BMP

Wmbg/JCC Courthouse BMP

1. Drainage Area = 109.5 ac

   Assumes 70% Impervious Cover

2. Courthouse Site - 11.19 ac

   Buildout Impervious Cover 58%

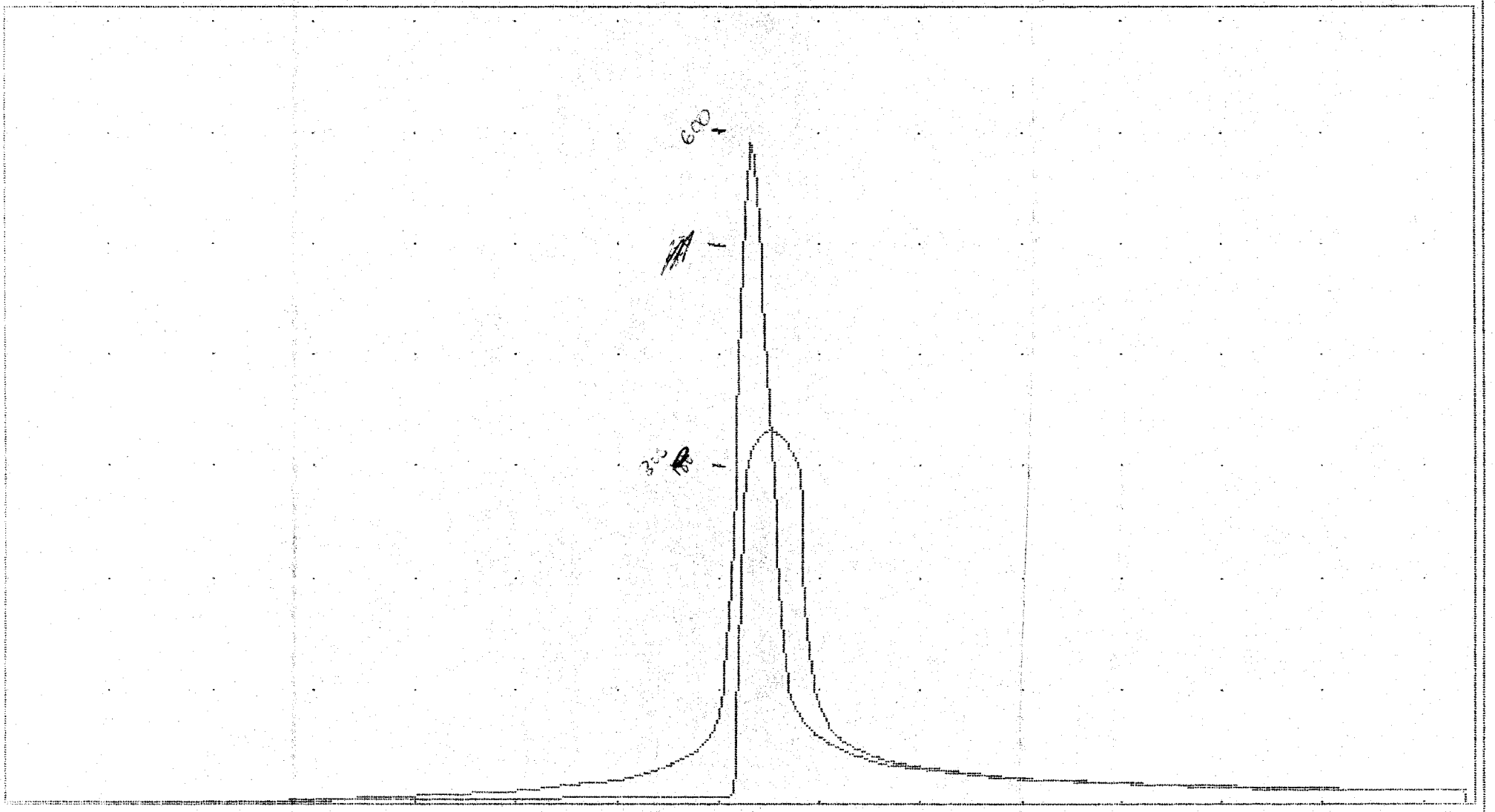
3. Based on drainage area

$$\frac{11.19\ ac}{109.5\ ac} = 10.2\%$$

4. Based on Impervious Cover

$$\frac{6.5\ ac}{76.65\ ac} = 8.5\%$$

Qp = 331.8 RESERVOIR ROUTE 100 Yr



HGU = 100 min 10 VGU = 100.0 cfs

MAX STORAGE = 862172

MAX ELEVATION = 81.38

7. Geotechnical reports

ECS MID-ATLANTIC, LLC
Geotechnical • Construction Materials • Environmental • Facilities

August 20, 2007

SP-38-07
PC-173 Conversion

Mr. Jon McCann
Newtown Associates, LLC
4801 Courthouse Street
Suite 329
Williamsburg, Virginia 23188

ECS Project No. 07:9321

Reference: Subsurface Exploration and Geotechnical Engineering Analysis
Newtown BMP 53 Conversion
James City County, Virginia

Dear Mr. McCann,

ECS Mid-Atlantic, LLC has completed a subsurface exploration and engineering evaluation for above referenced project. This report presents the results of the subsurface exploration and engineering analyses for the proposed BMP conversion.

Introduction:

We understand BMP No. 53 is proposed to be converted to a wet pond. The existing earth dam for BMP 53 currently exists as Newtown Avenue just off the intersection with Monticello Avenue within the New Town Development. We understand this dam was constructed sometime around 1999 as part of the stormwater management facility during the construction of the nearby James City County Courts building. The BMP was originally designed as a dry retention basin with a 24 hour water retention capability. ECS performed a subsurface exploration and engineering evaluation of the existing dam structure and a report was issued November 15, 2002.

The purpose of this exploration was to explore the soil and groundwater conditions at the site and to develop soils-related engineering recommendations to guide design and construction of the planned BMP conversion. Our limited investigation included drilling two (2) hand augers to explore the subsurface soil and groundwater conditions, performing a site reconnaissance to observe general topography, and analyzing field data to develop appropriate geotechnical engineering recommendations regarding the planned construction. A boring Location Plan is included in Appendix I.

Field Exploration Procedures:

Two (2) hand augers were drilled in the vicinity of the proposed aquatic bench area of the BMP. For the purposes of this limited study, no other areas were accessible at this time without disturbance. Hand auger probes utilizing a 3-inch diameter bucket auger at the proposed parking lot as shown on the hand auger location plan attached in Appendix I. The auger is screwed into the ground generally in 6-inch intervals and soil can be extracted for visual inspection. This method can not determine the exact consistency or density of in place soils. Rather, it is used to determine the general soil types but can provide alternative determination of the consistency or density of in-place soils by the ease of which the hand auger turns and advances. Representative samples were sealed in plastic bags and delivered to our laboratory in Williamsburg, Virginia, for further visual examination and testing.

Subsurface Conditions:

Experienced personnel from our office classified each soil sample in accordance with the Unified Soil Classification System (USCS). The group symbols for each soil type are indicated in parentheses following the soil descriptions on the boring logs. The geotechnical engineer grouped the various soil types into the major zones noted on the boring logs. The stratification lines designating the interfaces between earth materials on the boring logs are approximate; in situ, the transitions may be gradual. A brief explanation of the USCS is provided in Appendix III of this report.

The hand augers revealed the ground surface was covered with approximately 1 to 1.5 feet of topsoil. Underlying the topsoil, we encountered mixed deposits of Silty and Clayey SAND (SM and SC) to boring termination depth of 4.5 to 6 feet below site grades at which depth the auger holes were caving-in.

Groundwater was encountered at 3.5 to 5.75 feet at the hand auger locations. Please note that groundwater levels are influenced by seasonal conditions and by periods of significant precipitation or prolonged drought. If ground water is encountered, we recommend it be pumped from sumps located below the bottom of foundation elevation.

BMP 53:

ECS performed an evaluation of the existing earth dam structure for this BMP and a report was issued November 15, 2002. We understand the dam was constructed in 1999 as the stormwater management facility for the James City County Courts facility located across Monticello Avenue. Two soil test borings were performed within the existing dam alignment prior to the construction of Newtown Avenue. The borings generally revealed mixed deposits of compacted

structural fill to depths of about 12 to 26 feet below site grades at the time of that study. No information was available as to if the dam was monitored during construction although we generally understand no testing was performed. Based on our evaluation at the time, the dam appeared to be in generally good condition and we generally considered the dam to have been constructed in accordance with acceptable construction practices and considered suitable for support of the proposed roadway and generally under its current capacity as an earth dam for the stormwater management facility.

We now understand the BMP is planned to be converted to a wet pond design as opposed to the current dry pond configuration. Existing elevations across the pond site range from El 67 to 74, msl. The proposed BMP basin elevation will be established at new grades of about El 56 to 66. That will require a cut of about 10 ft below existing site grades. The side slopes of the embankments should be graded no steeper than 3:1 for stability and no steeper than 2:1 for the forebay slopes which will be below the water surface.

The hand augers revealed mixed deposits of Silty and Clayey Sand along the higher elevations of the side slopes and mixed deposits of Silty and Clayey Sand and Sandy Clay Fill within the existing dam structure. Based on the soil types encountered, we estimate infiltration rates ranging between 0.17 to 1.02 inches per hour and Hydrologic Soil Group designations of B to C with the side slopes and infiltration rates within the existing dam structure and below the existing basin elevation ranging between 0.02 and 0.52 inches per hour with Hydrologic Soil Group designations of C to D.

Generally, we believe the dam is of sound construction and should perform adequately for water retention purposes. Also, based on the elevation we encountered the groundwater table, we understand the planned permanent pool elevation will be below this level. As such, we believe the pond will perform as designed with respect to water retention capabilities.

General Comments:

This report has been prepared in order to aid in the evaluation of this site and to assist the Contractor, Architect and Engineer in the design and planning of the project. The report scope is limited to the specific project and location described, and the project description represents our understanding of the significant aspects relevant to soil and foundation characteristics.

We have appreciated being of service to you during the design phase of this project and look forward to its successful construction. If you should have any questions regarding the information and recommendations contained in this report or if we can be of any further assistance, please contact our office.

Respectfully,

ECS MID-ATLANTIC, LLC

David Gordinier, E.I.T.
Geotechnical Engineer

Michael J. Galli, P.E.
Principal Engineer

DJG/MJG

Appendix:
I. Hand Auger Location Plan (1)
II. Hand Auger and Boring Logs (3)
III. Unified Soil Classification System (1)

I:\Projects\2007 Projects\Geo\9321 - Newtown BMP 53 Conversion\9.321 BMP Letter.doc

PREPARED FOR:

JAMES CITY COUNTY
CAPITAL OUTLAY

ENGINEERING
CONSULTING
SERVICES, LTD

ECS LTD

J.C.C. COURTHOUSE SWM POND
JAMES CITY CO., VIRGINIA
ECS, LTD. PROJECT NO. R4388

NOT TO SCALE - DRAWING IS SCHEMATIC

DRAWING NOTES:

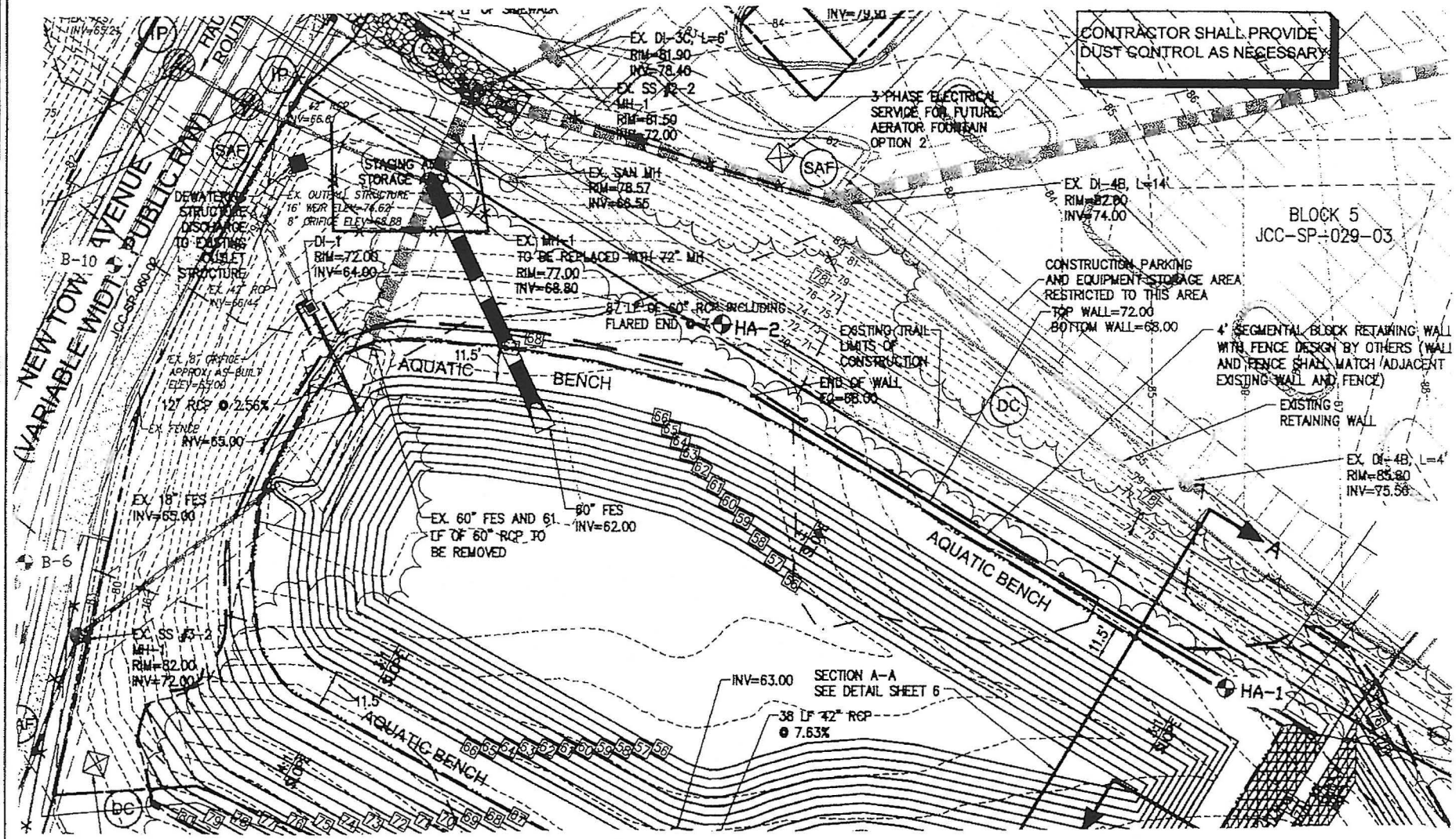
1. CLEAN SAND LESS THAN 10% PASSING NO. 200 SIEVE (MIN. 2 FT. THICK)
2. UNIAXAL GEOGRID TO BE TENSAR UX1400HS
3. BIAXIAL GEOGRID TO BE TENSAR BX1100

CONSTRUCTION NOTES:

1. BX1100 TO BE PLACED PARALLEL TO LENGTH OF DAM
2. UX1400HS TO BE PLACED PERPENDICULAR TO LENGTH OF DAM
3. SUBGRADE TO BE STRIPPED MIN. 15"

APPENDIX I

HAND AUGER AND BORING LOCATION PLAN



LEGEND:

-APPROX. HAND AUGER LOCATION

*Base plan provided by AES

ECS LLC MID-ATLANTIC

ECS Mid-Atlantic
108 Ingram Road, Unit 1
Williamsburg, Virginia 23188
Ph (757) 229-6677 Fax (757) 229-9978

HAND AUGER LOCATION PLAN

Newtown BMP 53 Conversion
James City County, Virginia

CHECKED:	SCALE:	DATE:	FIGURE:
D.J.G.	N.T.S.	08/16/07	Fig. 1
DRAWN: J.A.R.	PROJECT NO. 07:9321		

APPENDIX II

HAND AUGER AND BORING LOGS

HAND AUGER BORING LOGS

ECS PROJECT #: 07:9321

NEWTOWN SECTION 2 & 4 - BMP 53 CONVERSION
COUNTY, STATE: JAMES CITY COUNTY, VIRGINIA

DEPTH (inches)	LOCATION: HA-1 DESCRIPTION OF MATERIALS
0-18	Topsoil
18-24	Fine to Medium Silty SAND (SM), Dark Gray, Moist
24-48	Fine to Medium Silty SAND (SM), Gray, Moist
48-66	Fine to Medium Silty SAND (SM), Gray, Moist
66-72	Fine to Medium Clayey SAND (SC), Dark Gray, Moist to Wet
	GROUNDWATER WAS ENCOUNTERED AT 5 FEET 9 INCHES
	END OF BORING AT 72 INCHES

DEPTH (inches)	LOCATION: HA-2 DESCRIPTION OF MATERIALS
0-12	Topsoil
12-24	Fine to Medium Silty SAND (SM), Dark Gray, Moist
24-48	Fine to Medium Silty SAND (SM), Dark Gray, Moist to Wet
48-54	Fine to Medium Silty SAND (SM), Dark Gray, Wet
54	Cave-In
	GROUNDWATER WAS ENCOUNTERED AT 3 FEET 6 INCHES
	END OF BORING AT 54 INCHES

Note: Soils were classified in general accordance with ASTM D-2488 (Description and Identification of Soils - Visual/Manual Procedures)

CLIENT	JOB #	BORING #	SHEET
NEWTOWN ASSOCIATES	07:5886	B-6	1 OF 1
PROJECT NAME NEWTOWN DEVELOPEMENT-PHASE I	ARCHITECT-ENGINEER AES CONSULTING ENGINEERS		

SITE LOCATION
MONTICELLO AVENUE, JAMES CITY CO., VIRGINIA

CALIBRATED PENETROMETER TONS/FT.^{2} 1 2 3 4 5+

PLASTIC LIMIT % X — WATER CONTENT % ● — LIQUID LIMIT % Δ

10 20 30 40 50+

STANDARD PENETRATION BLOWS/FT. ⊗

10 20 30 40 50+

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS ELEVATION (FT)	STANDARD PENETRATION BLOWS/FT.
					ENGLISH UNITS		
					SURFACE ELEVATION 83.0		
0	1	SS	24	24	TOPSOIL DEPTH 36"		9
	2	SS	24	24		80	7
5	3	SS	24	24	Fine Sandy CLAY, With Fine Gravel, Reddish Brown, Moist, Medium Stiff, (CL) PossibleFILL to 6 feet.		7
	4	SS	24	24			10
	5	SS	24	24		75	12
10					Clayey Fine to Medium SAND, Reddish Brown, Moist, Loose, (SC)		
	6	SS	24	24		70 ▽	6
15					Fine Sandy CLAY, With Marine Shell Fragments, Dark Brown, Wet, Medium Stiff, (CL)		
	7	SS	24	24		65	6
20					END OF BORING @ 20.0'		
25						60	
						55	
30							

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL

▽WL 14.0' WS OR (D)	BORING STARTED 10-2-02	
▽WL(AB) ▽WL(AC)	BORING COMPLETED 10-2-02	CAVE IN DEPTH ● 18.0'
▽WL	RIG ATV FOREMAN TOM	DRILLING METHOD HSA

CLIENT	JOB #	BORING #	SHEET
NEWTOWN ASSOCIATES	07:5886	B-10	1 OF 1
PROJECT NAME NEWTOWN DEVELOPEMENT-PHASE I	ARCHITECT-ENGINEER AES CONSULTING ENGINEERS		

SITE LOCATION
MONTICELLO AVENUE, JAMES CITY CO., VIRGINIA

ENGLISH UNITS

SURFACE ELEVATION 82.0

CALIBRATED PENETROMETER TONS/FT.^{2} (1 2 3 4 5+)

PLASTIC LIMIT % (X) — WATER CONTENT % — LIQUID LIMIT % (Δ) (10 20 30 40 50+)

STANDARD PENETRATION BLOWS/FT. (⊗) (10 20 30 40 50+)

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS ELEVATION (FT)	STANDARD PENETRATION BLOWS/FT.
0	1	SS	24	24	TOPSOIL DEPTH 2"	80	10
	2	SS	24	24	Silty Fine SAND, With Roots, Dark Brown, Moist, Loose to Medium Dense, (SM) FILL		9
5	3	SS	24	24	Clayey Fine SAND, Reddish Brown, Moist, Loose to Medium Dense, (SC) FILL		10
	4	SS	24	24		75	11
	5	SS	24	24	Silty Fine SAND, Trace Clay and Roots, Medium Brown, Moist, Medium Dense, (SM) FILL		12
10						70	
	6	SS	24	24			9
15	7	SS	24	24			11
					Clayey Fine SAND, Light to Dark Brown, Moist, Medium Dense, (SC) FILL	65	
	8	SS	24	24			11
20						60	
	9	SS	24	24			11
25							
					Fine Sandy CLAY, Reddish Brown, Moist, Medium Stiff, (CL)	55	
	10	SS	24	24			8
30							

END OF BORING @ 30.0'

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL

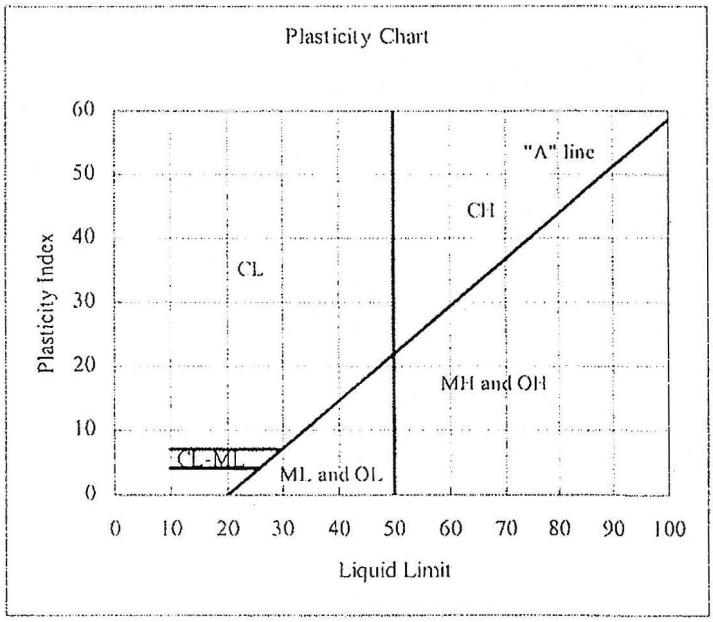
▽WL 22.0' WS OR (CD)	BORING STARTED 10-02-02	
▽WL(AB) ▽WL(AC)	BORING COMPLETED 10-02-02	CAVE IN DEPTH ● 20.0
▽WL	RIG ATV FOREMAN SDS	DRILLING METHOD MUD ROTATRY

APPENDIX III

UNIFIED SOIL CLASSIFICATION SYSTEM

Unified Soil Classification System (ASTM D-2487)

Major Divisions			Group Symbols		Typical Names	Laboratory Classification Criteria	
Coarse-grained soils (More than half of material is larger than No. 200 Sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW		Well-graded gravels, gravel-sand mixtures, little or no fines	$C_u = D_{60}/D_{10}$ greater than 4 $C_c = (D_{30})^2/(D_{10} \times D_{60})$ between 1 and 3	
			GP		Poorly graded gravels, gravel-sand mixtures, little or no fines	Not meeting all gradation requirements for GW	
		Gravels with fines (Appreciable amount of fines)	GM[a]	d	Silty gravels, gravel-sand mixtures	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
				u			
			GC		Clayey gravels, gravel-sand-clay mixtures	Atterberg limits below "A" line or P.I. less than 7	
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines	$C_u = D_{60}/D_{10}$ greater than 6 $C_c = (D_{30})^2/(D_{10} \times D_{60})$ between 1 and 3	
			SP		Poorly graded sands, gravelly sands, little or no fines	Not meeting all gradation requirements for SW	
		Sands with fines (Appreciable amount o fines)	SM[a]	d	Silty sands, sand-silt mixtures	Atterberg limits above "A" line or P.I. less than 4	Limits plotting in CL-ML zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
				u			
			SC		Clayey sands, sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7	
Fine-grained soils (More than half material is smaller than No. 200 Sieve)	Silts and clays (Liquid limit less than 50)		ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity	Determine percentage of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows: Less than 5 percent GW, GP, SW, SP More than 12 percent GM, GC, SM, SC 5 to 12 percent Border 4 line cases requiring dual symbols[b]	
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays		
			OL		Organic silts and organic silty clays of low plasticity		
	Silts and clays (Liquid limit greater than 50)		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts		
			CH		Inorganic clays of high plasticity, fat clays		
			OH		Organic clays of medium to high plasticity, organic silts		
	Highly Organic soils		Pt		Peat and other highly organic soils		



[a] Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits; suffix d used when L.L. is 28 or less and the P.I. is 6 or less; the suffix u used when L.L. is greater than 28.

[b] Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC, well-graded gravel-sand mixture with clay binder.

From Winterkorn and Fang, 1975.

ENGINEERING CONSULTING SERVICES, LTD.
Geotechnical • Construction Materials • Environmental

May 7, 1998

DRAFT

James City County Capital Outlay
105 Tewing Road
Williamsburg, Virginia 23188-2739
Attn: Mr. Bernie Farmer, P.E.

GEOTECH INVESTIGATION NOT TESTING RESULTS

REF: Courthouse Stormwater Management Pond Dam
James City County, Virginia

ECS Project No. R4388

Dear Mr. Farmer:

Submitted herewith are the results of our soil test borings performed at the site of the above referenced project. The purpose of this investigation was to explore the subsurface soils in the vicinity of the proposed dam to provide recommendations to guide earthwork operations for the dam construction. Specifically, the purpose of this study was to provide specifications for excavation of unsuitable material from below the general dam embankment as well as prescribe the depth to which key construction should be extended.

This investigation was accomplished by performing 3 soil test borings in the vicinity of the dam alignment. Boring B-1 was performed on the north shoulder of the dam and borings B-2 and B-3 were performed within the flood plain of the existing drainageway. Attached hereto are soil boring logs for the soil test borings as well as a boring location diagram indicating the locations at which the borings were performed.

The proposed dam site is located approximately 1,200 feet northwest of the Williamsburg/James City County Courthouse Building construction site. The impoundment created by the dam will be a dry pond with only temporary storage of water. The dam will be up to about 16 feet in height above existing grades, will have a crest width of about 60 feet, and will have side slopes graded at 2.5H:1V. A key is to be constructed below the approximate centerline of the dam to minimize long term seepage below the dam embankment. The principal horizontal spillways for the dam will be located generally in the center of the dam structure near the center of the existing drainage feature.

DRAFT

The results of our soil test borings indicate that soft sediments associated with the natural drainage feature extend to depths up to about 12 feet below existing grades near the center of the flood plain. These sediments become shallower towards the shoulder of the flood plain. These sediments consist of interbedded layers of very loose sands, very soft clays, and organic peat deposits. Underlying these sediments are medium dense deposits of the Yorktown formation consisting of silty to clayey, fine to medium sands with shell fragments. Soils which comprise the shoulders of the ravine in which the dam will be constructed consist primarily of silty, fine and fine to medium sands of loose to medium density. Groundwater occurs in the bottom of the ravine at an elevation consistent with the ground surface elevation of the flood plain. Groundwater elevations within the shoulders of the ravine are slightly higher.

In order to sufficiently remove soft and compressible sediments from below the dam embankment, it would be necessary to excavate below existing grades to depths on the order of 8 feet near the center of the existing drainage feature. Near the shoulders of the drainage feature, the excavation depth would become shallower. We recommend that this excavation depth be maintained for the entire width of the dam embankment. In this manner, the key will be defectively constructed and adequate bearing will be provided for the proposed horizontal spillway pipes. No separate key construction would be required. Alternatively, the key could be constructed by excavating to the estimated 8-foot depth required to penetrate the softest sediments. The key should be at least 8 feet wide with side slopes of 1:1. The bottom of the key should be extended horizontally a sufficient distance into the shoulders of the ravine to expose firm, natural soil. Beyond the key and below the remainder of the embankment, a 4-foot undercut could be maintained. However, in order to achieve stable bearing and minimize sloughing of the embankment due to failure of soft sediments, we recommend that a geo-grid, such as Tensar BX 1100 (SS-1), be placed above the subgrades at the 4 foot cut elevation prior to placement of engineered fill. As this 4 foot cut would leave compressible sediments below the general embankment, it would be necessary to perform the approximately 8 foot undercut, as was employed in the key, below the horizontal spillway pipes so as to avoid excessive settlement of these pipes.

It will be necessary to maintain dewatering throughout the fill placement period so that fill can be properly placed and compacted. Diversion trenches and dykes and continuous pumping from sumps will be required to achieve this. We do anticipate some difficulty with sloughing and "running sand" in the bottom and sides of the excavation and some over-excavation to remove cave-in material should be expected.

We recommend that the dam be constructed as a homogenous earth dam. In this manner, it would not be necessary to create separate core and cover zones. A similar material could be used throughout the dam cross section. Material used in dam construction should consist of a material classified as SM, SC, CL, or ML, with a minimum 30%

DRAFT

passing the No. 200 Sieve. Most material available from borrow within the Courthouse area should satisfy this requirement. The fill should be placed and compacted in maximum 10-inch lifts to a dry density of at least 95% of the Standard Proctor maximum dry density (ASTM D-698). The initial lift in the bottom of the key trench or above the geo-grid layer should be 18-inches.

The geotechnical engineer should be called on to observe all excavation within the embankment to assure that adequate subgrade materials have been exposed. The geotechnical engineer should be called on to perform density testing of embankment fills with at least 2 tests per lift to assure that adequate compaction is being achieved.

We appreciate this opportunity to be of service to you on this project and trust you will call on us as we can be of further assistance.

Very truly yours,

ENGINEERING CONSULTING SERVICES, LTD.

Robert C. Moss, III, P.E.
Vice President
Richmond Branch Manager

Copies: (3) Client
(1) AES Consulting Engineers

GEOTECH/LTRS/4388LTR

ENGINEERING CONSULTING SERVICES, LTD.
Geotechnical • Construction Materials • Environmental

May 22, 1998

James City County
Capital Outlay
105 Tewning Road
Williamsburg, Virginia 23188-2639
Attn: Mr. Bernie M. Farmer, P.E.

ECS Project No. R4338

REF: Courthouse Stormwater Management Pond
Design Option #3
James City County, Virginia

Dear Mr. Farmer:

The following is an addendum to our report of subsurface exploration dated May 7, 1998, for the above referenced project. As you are aware, that report described two options for construction of the proposed earthen embankment. After further review, we have submitted a third design option which employs geogrids to achieve subgrade and embankment stabilization. A sketch indicating the proposed geogrid placement and embankment dimensioning is attached hereto.

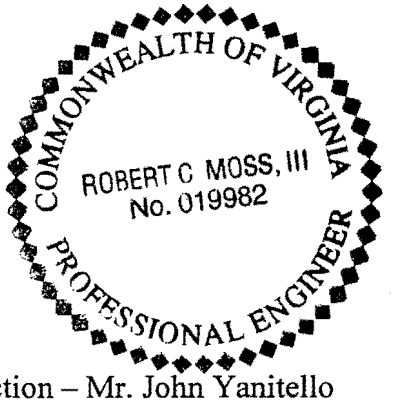
In order to minimize construction costs associated with mass excavation below the embankment to remove soft sediments, Option #3 employs geogrids to achieve subgrade and embankment stabilization. Since compressible materials will be left below the dam embankment, settlement in excess of that anticipated for Options #1 and #2 will occur due to the weight of the embankment on compressible sediment. As this sediment will be removed from the key trench and from below all rigid pipes, the effects of this settlement on structures will be minimal. We do anticipate that the embankment itself may experience up to 3 or 4 inches of total settlement. We anticipate that this settlement will be 90% complete within one year following completion of the embankment. Therefore, construction of roadways or utilities across the embankment following this one-year period should not be adversely affected by the Option #3 design and construction methods.

We appreciate this opportunity to be of service to you on this project and trust you will call on us if we can be of further assistance.

Very truly yours,

ENGINEERING CONSULTING SERVICES, LTD.

Robert C. Moss, III, P.E.
Vice President
Richmond Branch Manager



Attachment

Copies: (1) Oyster Point Construction – Mr. John Yanitello
(1) AES Consulting Engineers – Mr. Arch Marston, P.E.
(1) Moseley Harris McClintock – Mr. Tony Bell

GEOTECH/REPORTS/43880522

8. Correspondence

Scott Thomas

From: Peter Henderson [peter@hendersoninc.com]
Sent: Friday, May 02, 2008 10:53 AM
To: Scott Thomas
Subject: FW: BMP 53 - Volumes
Attachments: 6632-E-10-4-Basin Volumes-BMP-53-2007-06-27.xls

Scott, I will call you to discuss.

Thanks,
Peter

Sent by GoodLink (www.good.com)

-----Original Message-----
From: Cosby, Bob [mailto:bob.cosby@aesva.com]
Sent: Monday, April 21, 2008 10:08 AM Eastern Standard Time
To: Peter Henderson
Subject: BMP 53 - Volumes

Peter,

Attached is the design spreadsheet for the BMP. Use the "Wet Volume (Pond)" tab to reference the design. The BMP is designed for 70 acres of impervious cover which at 1" per acre equates to 254,100 CF (9,411 CY) of wet volume required. The pond as designed provided 254,653 CF (9,431 CY) of volume. The Main Pool provides 8827 CY and the upper pool provides 604 CY of the provided volume. The "Sediment Forebay" tab notes the design requirement for the forebay which is 0.1" per acre, or a required volume of 10,618 CF (393 CY). Designed was 604 CY.

Based on the As-built survey of the pond. The lower pool has 5,228 CY and the upper pool has 450 CY, with a total volume of 5,678 CY. This equates to a volume of approximately 0.6" per impervious acre (70 acres). While the upper pool is short 156CY of the designed volume, it is still 57 CY above the required volume of the sediment forebay. The BMP as a whole provides basically 60% of the required "wet" volume in the main pool which provides the contact time and settlement time for various materials and pollutants which enter the BMP. From a BMP Point Total, this BMP provides service for 33% of the area within New Town. As a 10 point facility this BMP provides 3.32 of the total points for New Town.

The "dry" volume or flood storage volume is adequate based on design. Therefore as rainfall occurs the BMP will fill and empty as designed, the various storm events will raise the water surface elevation as designed. Therefore adequate flood control or MS-19 requirements are met or exceeded by the designed and constructed BMP.

As an additional positive for New Town. Based on the final wetland buffers and RPA buffers the preserved open space has actually increased since the BMP Points were calculated. Furthermore at least 2 – 4 point facilities which served 20 acres have been eliminated and rerouted into 10 point facilities. Additional LID acreage has been provided within Settler's Market and Section 7&8 which are above and beyond the required LID treatment for New Town, which has not been accounted for within the BMP Points. If JCC assumes that BMP 53 functions as a 6 point facility this will reduce the available points by approximately 1 point, however the other various increases throughout New Town approximately offset this loss so the system maintains approximately 10 points as a whole and does continue to provide water quality protection in accordance with the 10 point facility. Unfortunately several of the LID measures which may be necessary to raise the total points to 10

points were proffered to be excluded from the Master Stormwater Plan as above and beyond the 10 points.

Hopefully this information helps. Please let me know if you need any additional information.

Thanks

Bob Cosby

Robert E. Cosby III, P.E.

Project Manager

AES Consulting Engineers

Williamsburg | Richmond | Gloucester | Fredericksburg

(757) 253-0040

fax: (757) 220-8994

bob.cosby@aesva.com <mailto:bob.cbob.cosby@aesva.com>

www.aesva.com

Scott Thomas

From: Scott Thomas
Sent: Tuesday, October 23, 2007 11:31 AM
To: John J. McGlennon
Cc: John Horne; Jose Ribeiro
Subject: RE: New Town BMP 53 Upgrade

John – I will answer your question about the BMP behind Towne Bank…

What is the nature of the work being done in the gully next to Towne Bank, between the bank and the parking lo for SunTrust, etc.?

This is the upgrade of existing dry pond BMP # 53 at New Town to a wet pond. This pond was initially constructed as pa of the courthouse construction SP-125-97 and has serviced the early phases of Sections 2 & 4 in New Town. This upgrade was in accordance with the approval of the revised master stormwater management plan for New Town and we also worked it in to the proffers for Section 7 & 8 rezoning to get this done before approval of plans in Sections 7 & 8. W reviewed the upgrade plan under County Plan No. SP-38-07. It went through 3 reviews in our Division before approval was issued on September 24, 2007. A preconstruction meeting was held of September 9th.

One of the things our Division was animate about in the review was not to apply a typical wet pond template but to work i a wet pond design, in more of an urban fashion, which meets our quantity and quality control requirements but also fits th character of the area.

If you have any more questions, let me know.

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

Visit:
http://www.james-city.va.us/resources/devmgmt/div_devmgmt_environ.html
and
www.protectedwithpride.org

From: John J. McGlennon
Sent: Friday, October 19, 2007 8:54 AM
To: Sandy Wanner; Board Only
Cc: John Horne; Scott Thomas
Subject: RE: New Town Section 9 Violation Meeting

Thanks for the update. I know we will press vigorously to make sure that this violation is corrected. On a related matter, what is the nature of the work being done in the gully next to Towne Bank, between the bank and the parking lot for SunTrust, etc.?

John

From: Sandy Wanner
Sent: Friday, October 19, 2007 8:32 AM
To: Board Only
Subject: FW: New Town Section 9 Violation Meeting

CONSULTING ENGINEERS

5248 Olde Towne Road, Su
Williamsburg, VA 23
(757) 253-(
Fax (757) 220-8
www.aesva.

February 18, 2009

Mr. Joe Buchite
James City County Environmental Division
101 - E Mounts Bay Road
Williamsburg, VA 23187

RE: New Town BMP 53 Conversion – Record Drawing
AES Project No. 6632-E-10-4
JCC Project No. SP-0038-2007

Dear Mr. Buchite:

Please find attached the BMP Certification and Record Drawing for BMP #53 @ New Town. This is the large Wet Pond located adjacent to the SunTrust Building. As discussed previously with JCC Staff due to the native material at the bottom of the facility additional wet volume was unobtainable. Therefore this BMP provides the design flood storage elevation and more than adequate dry water quality volume per the design. However, only 60% of the Wet Storage volume is provided. To account for the deficit in the Wet Storage the pollutant removal efficiency of this facility is reduced to a 9 Point Facility.

The Master Stormwater Plan has been revised based on actual drainage areas and designs to date of all facilities and is included with this submittal. This revision to the plan notes that 10.85 points are still provided throughout New Town through the use of Natural Open Space, Multiple Structural BMP, and 17 acres of area treated with LID. We therefore request that this Certification be accepted along with the revised Master Stormwater Plan which accounts for BMP #53 as a 9 Point Facility.

This concerns me. Acceptance of const cert & release of bond, results in auto-revision of MSWMP. I think need to do letter

We appreciate your time in reviewing this Certification and releasing the remaining Erosion and Sediment Control Surety to New Town Associates for this project. Should you have any questions on this facility please do not hesitate to contact me at 253-0040.

Sincerely,

AES Consulting Engineers

Robert E. Cosby III, P.E.
Project Manager
Bob.Cosby@aesva.com

cc: John McCann, New Town Associates
Peter Henderson, Henderson

REC:rec
Enclosure: BMP Certification Form
BMP Record Drawing
Revised Master Stormwater Plan (with Graphic)

Z:\Support\Templates & Documents\Correspondence\Letter.doc

Scott Thomas

From: Cosby, Bob [bob.cosby@aesva.com]
Sent: Monday, June 02, 2008 3:32 PM
To: Peter Henderson; bruce gilliam; Scott Thomas; William A. Cain
Subject: New Town - BMP #53 - BMP Point Tabulation
Attachments: New Town - Master BMP Points 2008-06-02.pdf

Gentleman,

Please find attached an updated version of the BMP Points Tabulation as found within the New Town Master Stormwater Plan. This update of the total BMP points accounts for the drainage areas of BMP's designed to date. For those which have not yet been designed either original plan information (C06 and C07) or updated basis of design (A01 and A14) is indicated. Final drainage areas may vary for those ponds not yet completely designed.

Specific changes that negatively affect the overall points is the reduction of BMP #53 from a 10 point to a 9 point facility a well as the elimination of BMP A03 and B05 both of which were planned as 4 point facilities.

Specific changes that increase the overall points is the increase of restricted area (Please note that at time of master stormwater plan buffers were smaller on non-RPA wetlands, they have since been increased as shown in the permit documentation and recorded plats/easements). The drainage area for BMP A01 and A04 have been modified to accept runoff from eliminated A03. BMP C01 has been increased to accept runoff from eliminated B05.

These updates to the drainage areas, increase of natural open space, and modification of BMP Point totals increases the Water Quality BMP Points from 10.07 in the Master Plan to 10.89 Points based on the revised condition. Please note tha this does not account for several acres within Section 9, Section 7&8, as well as the Bio-Retention at Courthouse which provide additional water quality benefits within the New Town Project Area, but are not typically included within the 17 acres required to be treated by LID measures per the Master Stormwater Plan.

Thanks
Bob Cosby

Robert E. Cosby III, P.E.
Project Manager

AES Consulting Engineers
Williamsburg | Richmond | Gloucester | Fredericksburg
(757) 253-0040
fax: (757) 220-8994
bob.cosby@aesva.com
www.aesva.com

Table 4-1
BMP Worksheet for New Town
Revised Master Stormwater Plan
2-Jun-08

Project Area =	374	acres
Revised Site Area* =	310.87	acres

A. STRUCTURAL BMP POINT ALLOCATION

BMP	Area of Project Served by BMP (acres)	BMP Points	Fraction of Site Served by BMP	Weighted BMP Points	
A01	18.90	10	0.061	0.61	*Estimated from Concept Plan
A03	0.00	4	0.000	0.00	*Eliminated based on Agency Issues
A04	35.50	10	0.114	1.14	*Updated based on Information from LAI
A06	17.60	4	0.057	0.23	*Updated based on Information from LAI
53*	107.70	9	0.346	3.12	*Updated based on Final Design
A14	34.00	10	0.109	1.09	*Estimated based on Concept Plan
B02	26.40	10	0.085	0.85	*Updated based on Phase 7 Design
B05	0.00	4	0.000	0.00	*Eliminated based on Phase 8 Design
C01	20.87	10	0.067	0.67	*Updated based on Phase 8 Design
C03	12.87	4	0.041	0.17	*Updated based on Phase 4 Design
C05	14.25	10	0.046	0.46	*Updated based on Final Oxford Design
C06	7.80	4	0.025	0.10	
C07	2.87	4	0.009	0.04	
TOTAL				8.47	

B. NATURAL OPEN SPACE CREDIT

*Only includes Restricted Areas

Area of Open Space (acres)	Fraction of Site	Natural Open Space Credit	Natural Open Space	
14.17	0.038	0.15 per 1% of site area	0.57	*Updated based on Restricted Area Plats
48.96	0.131	0.10 per 1% of site area	1.31	
TOTAL			1.88	

C. LOW IMPACT DEVELOPMENT

Area Served by IMPs (acres)	Fraction of Site	Area Served by IMPs	Points for Area Served by IMPs
17.00	0.055	0.10 per 1% of site area	0.55
TOTAL			0.55

D. TOTAL WEIGHTED POINTS

Structural BMP Points		Natural Open Space Points		Points for Area Served by IMPs		Total
8.47	+	1.88	+	0.55	=	10.89

* Note: JCC allows natural open space downstream of a structural BMP to be reduced from the site area when computing the fraction of the site served by the BMP and therefore the Structural BMP points.

Table 4-1
BMP Worksheet for New Town
Revised Master Stormwater Plan
2-Jun-08

Project Area =	374	acres
Revised Site Area* =	310.87	acres

A. STRUCTURAL BMP POINT ALLOCATION

BMP	Area of Project Served by BMP (acres)	BMP Points	Fraction of Site Served by BMP	Weighted BMP Points	
A01	18.90	10	0.061	0.61	*Estimated from Concept Plan
A03	0.00	4	0.000	0.00	*Eliminated based on Agency Issues
A04	35.50	10	0.114	1.14	*Updated based on Information from LAI
A06	17.60	4	0.057	0.23	*Updated based on Information from LAI
53*	107.70	9	0.346	3.12	*Updated based on Final Design
A14	32.75	10	0.105	1.05	*Estimated based on Concept Plan
B02	26.40	10	0.085	0.85	*Updated based on Phase 7 Design
B05	0.00	4	0.000	0.00	*Eliminated based on Phase 8 Design
C01	20.87	10	0.067	0.67	*Updated based on Phase 8 Design
C03	12.87	4	0.041	0.17	*Updated based on Phase 4 Design
C05	14.25	10	0.046	0.46	*Updated based on Final Oxford Design
C06	7.80	4	0.025	0.10	
C07	2.87	4	0.009	0.04	
TOTAL				8.43	

B. NATURAL OPEN SPACE CREDIT

*Only includes Restricted Areas

Area of Open Space (acres)	Fraction of Site	Natural Open Space Credit	Points for Natural Open Space	
14.17	0.038	0.15 per 1% of site area	0.57	*Updated based on Restricted Area Plats
48.96	0.131	0.10 per 1% of site area	1.31	
TOTAL			1.88	

C. LOW IMPACT DEVELOPMENT

Area Served by IMPs (acres)	Fraction of Site	Area Served by IMPs	Points for Area Served by IMPs
17.00	0.055	0.10 per 1% of site area	0.55
TOTAL			0.55

D. TOTAL WEIGHTED POINTS

Structural BMP Points		Natural Open Space Points		Points for Area Served by IMPs		Total
8.43	+	1.88	+	0.55	=	10.85

* Note: JCC allows natural open space downstream of a structural BMP to be reduced from the site area when computing the fraction of the site served by the BMP and therefore the Structural BMP points.

CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1, Williamsburg, VA 23188 (757) 253-
614 Moorefield Park Drive, Richmond, VA 23236 (804) 330-
6632 Main Street, Gloucester, VA 23061 (804) 693-
www.aesva.

August 20, 2007

ADDRESSES #14. COMMENT

Environmental Division Director
James City County
101-E Mounts Bay Road
Williamsburg, VA 23185

RE: New Town – BMP #53 Conversion
JCC-SP-0038-07

AES Job No. 6632-E-10-4

Dear Gentleman:

This letter is provided in response to County Comments regarding the design of BMP 53 and how this design meets the intents of discussions held with James City County Staff on June 7, 2007 regarding the creative use of shape, grading, landscaping, and walls.

This design of the BMP is designed as a wet pond with aquatic bench in accordance with the Stormwater Master Plan and County Requirements to the maximum extent practical. The facility provides a minimum of clearing of existing woodlands to create the permanent pool while providing adequate storage for water quality. The BMP matches into existing contours and property lines to create some curves within the feature and not make the BMP a standard rectangle. To match into the existing features and provide a bench around the entire perimeter a 4' high retaining wall is provided to match the existing retaining wall adjacent to the parking lot on the north side. To provide a more natural shape various grading patterns are provided with different slopes to provide interest to the BMP and create a more natural appearance. The south side of the BMP is heavily landscaped with native trees and shrubs and seeded with a conservation seed mixture to quickly establish the slope. This area is intended to return to a natural state. The north side of the BMP has the trail which provides access to the area and creates a more formalized appearance to be consistent with the urban nature of the adjacent New Town Development.

Based on the information available this design of the BMP meets the intents of the New Town Design Guidelines, provides flood storage and water quality benefits in accordance with ordinances, and is believed to be a positive addition to the New Town Development.

AES Consulting Engineers

James Peters, LA
Project Manager

S:\Jobs\6632\E\10-4-BMP Conv\Admin\Correspondence\Letters\6632-e-10-4-L03-rec.doc

CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1, Williamsburg, VA 23188 (757) 253-0
614 Moorefield Park Drive, Richmond, VA 23236 (804) 330-8
6632 Main Street, Gloucester, VA 23061 (804) 693-4
www.aesva.c

August 20, 2007

Mr. Scott Thomas, P.E.
Environmental Division Director
James City County
101-E Mounts Bay Road
Williamsburg, VA 23185

RE: New Town – BMP #53 Conversion
JCC-SP-0038-07

AES Job No. 6632-E-10-4

Dear Mr. Thomas:

AES Consulting Engineers, on behalf of New Town Associates LLC, respectfully requests an exception to the BMP Manual, to reduce the benches provided within the BMP located on the property.

The proposed BMP is a wet-extended detention facility (County Type A-3) which serves 107.7 acres. This BMP contains an 11.5' Aquatic Bench. An existing JCSA sanitary sewer is adjacent to the north side which limits the potential for additional aquatic bench. In addition as this BMP is being excavated in existing wetlands and wooded areas it is desirable to minimize the impacts to the natural system which would be necessary to provide the required wet volume in addition to the required 15' aquatic bench.

The safety bench for this BMP is eliminated based on the site conditions. The south side of the BMP is adjacent to the parking lot from Towne Bank and natural wooded areas which do not have pedestrians in the vicinity. The west side of the BMP is adjacent to New Town Avenue which has an existing fence at the top of the slope adjacent to the sidewalk. The east side of the BMP is the slope to the sediment forebay, in addition the sediment forebay has a depth of 4' which does not require a safety bench. Finally the north side of the BMP does have a walking trail close to the BMP which is a concern. Closest to New Town Avenue safety is addressed by providing shallow slopes adjacent to the wet pool. At the eastern portions a 4' high retaining wall with fence is provided to reduce the potential of pedestrians accessing the BMP.

Please see the siteplan and detail sheets, which indicate the location and dimensions of the BMP. Please advise me of your decision on this exception at your earliest convenience.

Respectfully requested,

AES Consulting Engineers

Robert E. Cosby III, P.E.
Project Manager

S:\Jobs\6632\E\10-4-BMP Conv\Admin\Correspondence\Letters\6632-e-10-4-L02-rec.doc

2. Per the applicant and plan preparer's response, a fountain/aerator will be required to be implemented to provide water quality benefits to address County comments related to short-circuiting and to compensate for reduced aquatic bench widths;

3. Full implementation of landscaping and stabilization measures shown on Sheet 4 of the approved plan set;

4. The variance approval shall become part of the approved site stormwater management plan.

Please note that approval of this variance, with the conditions stated, in no way implies final approval of a site or subdivision plan as required by the Chapter 24 Zoning or Chapter 19 Subdivisions of the County Code; nor, does it constitute final approval of an erosion and sediment control or stormwater management plan as required by Chapter 8 Erosion and Sediment Control and Chapter 23 Chesapeake Bay Preservation of the County Code. Approval of this variance is also contingent upon no major (substantial) changes in the development plan, the subject best management practice facility, or if site conditions change, become apparent or alter significantly following the date of this approval.

Sincerely,

Scott J. Thomas, P.E.
Director
Environmental Division

SJT/sjt

cc: Jose Ribeiro, Planning Division (via email)

SWMProg/Variances/SPvar/Var092407.SP3807

Home of America's 400th Anniversary
James City County 1607-2007 Jamestown

DEVELOPMENT MANAGEMENT

101-A MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6671
E-MAIL: devman@james-city
FAX: (757) 253-

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

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

COUNTY ENGINEER
(757) 253-6678

INTEGRATED PEST MANAG
(757) 259-4116

September 24, 2007

Mr. Robert E. Cosby III, P.E.
AES Consulting Engineers
5248 Olde Towne Road, Suite 1
Williamsburg, VA 23188

Re: Pond Bench Variance Requests
New Town BMP # 53 Conversion
County Plan No. SP-38-07
County BMP ID Code: PC 173

Dear Mr. Cosby:

The Environmental Division is in receipt of your written request dated August 20, 2007 to obtain variance from the County BMP manual for a reduced width aquatic bench and elimination of the safety bench requirement for BMP 53. The BMP is an existing dry pond BMP constructed as part of approved County Plan No. SP-125-97 which is proposed to be converted to a County type A-3 wet extended detention pond as part of the approved master stormwater management plan for New Town as revised on December 22, 2004. The proposed basin is about 2 acres in size with a 11.3 feet deep permanent pool. Interior graded side slopes for the basin are variable, mainly consisting of 4H:1V slopes above normal pool and 3H:1V slopes below normal pool. The variance request is to reduce the required aquatic bench from 15 feet required to 11.5 feet and to eliminate the safety bench requirement altogether.

Based on our review of information as submitted, the variance as requested is hereby ***approved***. It should be noted that normally our Division would not grant a variance to reduce the width of the aquatic bench in combination with full elimination of the safety bench, especially in a highly urbanized location. However, the variance was considered appropriate *for this specific review case* due to the following: 1) to limit clearing impacts to existing wooded areas; 2) to limit impacts to jurisdictional wetland and stream features; 3) compliance with approved master stormwater management plan requirements; 4) the urban setting of the BMP and conformance with established New Town Design Guidelines; 5) creative use of flatter slopes, curvilinear geometry and retaining walls, with fences, for safety; and 6) heavy landscaping and stabilization requirements proposed for the project.

The following conditions apply to approval of this waiver request:

1. The owner should be made completely aware of reduced widths for the aquatic and elimination of the safety benches;

DEVELOPMENT MANAGEMENT

101-A MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6671
E-MAIL: devman@james-city.
FAX: (757) 253-

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

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

COUNTY ENGINEER
(757) 253-6678

INTEGRATED PEST MANAGE
(757) 259-4116

October 4, 2007

Mr. Robert E. Cosby III, P.E.
AES Consulting Engineers
5248 Olde Towne Road, Suite 1
Williamsburg, Va. 23188

Re: Variance Request for Reduced Freeboard
New Town – BMP # 53 Conversion
County BMP ID Code: PC 173
County Plan No.: SP-38-07

Dear Mr. Cosby:

The Environmental Division is in receipt of your written request dated September 26, 2007 to obtain variance for reduced freeboard for BMP # 53 in New Town. BMP # 53 is situated in Sections 2 & 4 of New Town in back of Olde Towne Bank along New Town Avenue. Minimum Standard & Specification 3.01 of the Virginia Stormwater Management Handbook requires a minimum of 2 feet of freeboard between the lowest point on top of dam and the maximum 100-year design water surface elevation. However, under 4VAC50-30-50 of the Virginia Erosion and Sediment Control regulations, the plan-approving authority may waive or modify any of the regulations that are deemed inappropriate or too restrictive for site conditions. The applicant must explain the reasons for requesting a variance, in writing, and the plan-approving authority shall consider variance requests judiciously, keeping in mind both the need of the applicant to maximize cost effectiveness and the need to protect off-site properties and resources from damage.

Based on our review of information as submitted, the variance as requested is hereby ***approved*** for this specific review case only. The variance was considered appropriate due to information as submitted in the letter request and the plan of development including:

- 90 percent of the freeboard requirement is achieved.
- The basin has not exhibited any evidence of frequent overtopping since it was initially constructed as a dry pond facility.
- A high level of routine and non-routine maintenance is expected due to this basin's location within New Town.
- A hydrologic/hydraulic check of the function of the basin was performed using a runoff curve number well in excess of the design value. The result of this analyses showed that the facility does not overtop.

The following conditions apply to approval of this waiver request:

1. The Owner should be made completely aware of reduced freeboard requirement for BMP # 53.

2. The basin shall be maintained in strict compliance with the approved BMP maintenance plan.

3. The variance approval shall become part of the approved site erosion and sediment control and stormwater management plan for the project.

Please note that approval of this variance, with the conditions stated, in no way implies final approval of a site or subdivision plan as required by the Chapter 24 Zoning or Chapter 19 Subdivisions of the County Code; nor, does it constitute final approval of an erosion and sediment control or stormwater management plan as required by Chapter 8 Erosion and Sediment Control and Chapter 23 Chesapeake Bay Preservation of the County Code. Approval of this variance is also contingent upon no major (substantial) changes in the development plan, the subject temporary sediment basin or best management practice facility, or if site conditions change, become apparent or alter significantly following the date of this approval.

Sincerely,

Scott J. Thomas, P.E.
Director
Environmental Division

SJT/sjt

cc: Jose Ribeiro, Planning (via email)

SWMProg/Variances/SPvar/Var100407.SP3807

CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1, Williamsburg, VA 23188
614 Moorefield Park Drive, Richmond, VA 23236
6632 Main Street, Gloucester, VA 23061
(757) 253-0
(804) 330-8
(804) 693-4
www.aesva.

September 26, 2007

Mr. Scott Thomas, P.E.
Environmental Division Director
James City County
101-E Mounts Bay Road
Williamsburg, VA 23185

RE: New Town – BMP #53 Conversion
JCC-SP-0038-07

AES Job No. 6632-E-10-4

Dear Mr. Thomas:

AES Consulting Engineers, on behalf of New Town Associates LLC, respectfully requests an exception to the Virginia Stormwater Management Handbook (VSMH) to reduce the freeboard provided within BMP #53 located on the property.

The proposed BMP is a wet-extended detention facility (County Type A-3) which serves 107.7 acres. The top of dam for this structure is New Town Avenue which has a low point elevation of 82.76. The principal outflow structure for this BMP is twin 42" pipes with a 16' weir with a trash rack. The design 100 year water surface elevation within this facility is 80.93' which provides a freeboard of 1.8'. This analysis assumes a Runoff Curve Number of 88. Please note that the previous curve number utilized for this facility was 85, which based on the current facility would have a design 100 year water surface elevation of 80.51 and a freeboard of 2.25' which is in accordance with the minimum standard.

The VSMH, Minimum Standard 3.01 (Earthen Embankment) notes that "an embankment without an emergency spillway must provide at least 2 feet of freeboard from the maximum 100 year storm WSE to lowest point on the top of the embankment." This BMP does not meet this condition of the Minimum Standard based on the current hydrologic design condition, however, did meet the condition based on the original hydrologic design. In addition the principal spillway is a twin 42" outfall pipe which is unlikely to clog especially with the trash rack preventing the flow of debris into the structure. Furthermore as included with the submittal package various hydrologic analysis was provided with a maximum curve number of 94 which produced a maximum high water elevation of 81.66 which still does not overtop the roadway and provides 1.1 feet of freeboard. Furthermore this embankment top is a roadway with concrete sidewalks, which should water begin to flow across the top of embankment would provide protection against erosive forces directly on the top of the embankment and therefore reduce the potential of embankment failure versus a standard 12' wide earthen embankment top.

Therefore based on the 1.8 feet of freeboard provided, the size of the outfall pipes, additional analysis previously provided, and the improved condition of the top of embankment we request an exception to the minimum freeboard requirement for this facility be approved. Please advise me of your decision on this exception at your earliest convenience.

Respectfully requested,

AES Consulting Engineers

Robert E. Cosby III, P.E.
Project Manager

S:\Jobs\6632\E\10-4-BMP Conv\Admin\Correspondence\Letters\6632-e-10-4-L02-rec.doc

Development Management
101-A Mounts Bay Road
P.O. Box 8784
Williamsburg, VA 23187-8784
P: 757-253-6671
F: 757-253-6822
devman@james-city.va.us

jccEgov.com

Code Compliance
757-253-6620
codecomp@james-city.va.us

Environmental Division
757-253-6670
environ@james-city.va.us

Planning and Zoning
757-253-6685
planning@james-city.va.us

September 17, 2009

Mr. Robert E. Cosby
AES Consulting Engineers
5248 Olde Towne Road, Suite 1
Williamsburg, Va. 23188

Re: Revised Master Stormwater Management Plan
New Town
Division Plan No. SWM-01-09
(formerly WQIA-011-04)

Dear Mr. Cosby:

The Environmental Division has reviewed proposed revisions to the previously approved Master Stormwater Management Plan (MSWMP) for the above referenced project. The previously approved MSWMP was revised due to construction-excavation difficulties encountered with BMP 53 conversion. BMP 53 serves a drainage area of 107.7 acres. BMP 53 was converted from a dry detention basin to a wet extended detention basin in accordance with approved County Plan No. SP-38-07 and was intended to be a 10-point BMP facility. The revised MSWMP includes a 1" = 200 ft. scale exhibit map dated June 24, 2008 which show primary structural BMPs with updated drainage areas.

To avoid any confusion, the current revised MSWMP has the following characteristics:

- Total site area is 374 acres.
- Total site area for BMP worksheet purposes is 310.87 acres, accounting for areas downstream of BMPs.
- The structural BMP component of the plan shows 11 primary wet and dry pond water quality BMPs serving approximately 297.50 acres of drainage area which obtain 8.43 BMP points;
- BMP 53 (County BMP ID Code: PC173) is now assigned a BMP point value of 9 points as it only achieves about 60 percent of required treatment volume in the wet poolwater quality volume in the wet pool (0.6 inches rather than 1 inch treatment per impervious acre);
- Previous BMPs A03 and B05 were eliminated due to agency issues and Phase 8 design, respectively;
- The natural open space component of the plan totals 63.13 acres and obtains 1.88 BMP points;
- A LID component is required for stormwater compliance purposes. The LID component contains distinct IMP measures which serve 17 acres and obtain 0.55 BMP points.
- Total BMP points per the standard County worksheet is 10.85 points.

Prior to this submission, the MSWMP was previously approved with conditions as outlined on approval letter dated December 22, 2004. Based on our review of this most recent revision, the revised Master Stormwater Management Plan (MSWMP) is hereby **approved**. All established conditions placed on previously approved master stormwater management plan and the RPA exception still apply to this revision.

It should be noted that upon acceptance and release of surety being held for the BMP 53 conversion project (SP-38-07), it would appear that condition #2 of the master stormwater management plan is satisfied. This condition was for conversion of BMP 53 to a wet pond and construction of an associated forebay. In addition, it would also appear that upon the same, proffer condition # 13a for New Town Sections 7 & 8 (Z-05-06) will also be satisfied. This proffer condition required the owner to complete and have in service BMP Parcel # 1 in accordance with such site plan prior to the issuance of any land-disturbing permit for development on Section 8 of the property.

Please note that approval of this revised MSWMP in no way implies final approval of any site or subdivision plan as required by the Chapter 24 Zoning or Chapter 19 Subdivisions of the County Code; nor, does it constitute final approval of an erosion and sediment control or stormwater management plan as required by the Chapter 8 Erosion and Sediment Control and Chapter 23 Chesapeake Bay Preservation ordinances of the County.

Thank you for your time and efforts to resolve issues associated with this master stormwater plan. If you have any additional questions or comments, contact me at 757-253-6639.

Sincerely,

Scott J. Thomas, P.E.
Director of Environmental
James City County

SJT/sjt
Attachments

cc: Christy Parrish, Planning (via email)
William Cain, Environmental (via email)
Mike Woolson, Environmental (via email)

PlanReview\2009\SWM-001-09.approval

Table 4-1
BMP Worksheet for New Town
Revised Master Stormwater Plan
2-Jun-08

APPROVED
James City County
Environmental Division
By:
Date: 09-17-09
SWM-001-09
WQIA-011-04

Project Area = 374 acres
Revised Site Area* = 310.87 acres

A. STRUCTURAL BMP POINT ALLOCATION

BMP	Area of Project Served by BMP (acres)	BMP Points	Fraction of Site Served by BMP	Weighted BMP Points	
A01	18.90	10	0.061	0.61	*Estimated from Concept Plan
A03	0.00	4	0.000	0.00	*Eliminated based on Agency Issues
A04	35.50	10	0.114	1.14	*Updated based on Information from LAI
A06	17.60	4	0.057	0.23	*Updated based on Information from LAI
53*	107.70	9	0.346	3.12	*Updated based on Final Design
A14	34.00	10	0.109	1.09	*Estimated based on Concept Plan
B02	26.40	10	0.085	0.85	*Updated based on Phase 7 Design
B05	0.00	4	0.000	0.00	*Eliminated based on Phase 8 Design
C01	20.87	10	0.067	0.67	*Updated based on Phase 8 Design
C03	12.87	4	0.041	0.17	*Updated based on Phase 4 Design
C05	14.25	10	0.046	0.46	*Updated based on Final Oxford Design
C06	7.80	4	0.025	0.10	
C07	2.87	4	0.009	0.04	
TOTAL				8.47	

B. NATURAL OPEN SPACE CREDIT

*Only includes Restricted Areas

Area of Open Space (acres)	Fraction of Site	Natural Open Space Credit	Natural Open Space	
14.17	0.038	0.15 per 1% of site area	0.57	*Updated based on Restricted Area Plats
48.96	0.131	0.10 per 1% of site area	1.31	
TOTAL			1.88	

C. LOW IMPACT DEVELOPMENT

Area Served by IMPs (acres)	Fraction of Site	Area Served by IMPs	Points for Area Served by IMPs
17.00	0.055	0.10 per 1% of site area	0.55
TOTAL			0.55

D. TOTAL WEIGHTED POINTS

Structural BMP Points		Natural Open Space Points		Points for Area Served by IMPs		Total
8.47	+	1.88	+	0.55	=	10.89

* Note: JCC allows natural open space downstream of a structural BMP to be reduced from the site area when computing the fraction of the site served by the BMP and therefore the Structural BMP points.

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 22, 2004

Ms. Toni Small
Williamsburg Environmental Group
3000 Easter Circle
Williamsburg, VA 23188

RE: New Town Master Stormwater Management Plan; Revised November, 2004
New Town Water Quality Impact Assessment; November, 2004

Dear Ms. Small:

The Environmental Division has reviewed the New Town Master Stormwater Management Plan for the overall project with a revision date of November, 2004, and transmitted by a letter dated December 2, 2004. The letter contained a request for an exception to the stormwater management criteria of the Chesapeake Bay Preservation Ordinance contained in Section 23-10(4). Also submitted were an Resource Protection Area (RPA) exception request letter for a variance to Section 23-7 of the Ordinance dated December 2, 2004, and a Water Quality Impact Assessment (WQIA) to allow impacts to the 100-foot RPA buffer. The submissions were made to address comments made in a conceptual approval letter dated October 7, 2004, for the project's Master Stormwater Management Plan.

Concerning the exception request for the stormwater master plan, the current plan indicates that with the use of 13 structural BMPs and the dedication of 58.11 acres of natural open space, the master stormwater plan achieves only 9.62 of the required 10 points under the James City County's 10-point BMP Evaluation Procedure. The point deficit is proposed to be made up by the use of various integrated management practices (IMPs) or Low Impact Development (LID) strategies on approximately 17 of the project's 374 acres. The plan shows that 13 IMPs would be provided to treat the 17 acres. The exception request to the 10-point system is hereby **granted** with the following conditions:

1. LID strategies and IMPs (integrated management practices) as schematically shown in the plan report must be utilized on at least 17 acres of the project.
2. The conversion of BMP 53 to a wet pond needs to include a forebay. This can be constructed within the permanent pool area of the pond and can even be slightly submerged below the water surface if there are concerns with aesthetics of the forebay.
3. The total BMP point count for the project will need to be updated as land planning continues and drainage divides are modified by development activities.

The WQIA was submitted to support the RPA exception request for the proposed impacts to the RPA in the form of road construction, sewer extensions, and stormwater management facilities (BMPs). There are no proposed impact to the seaward 50-foot buffer except for road crossings, BMP outfalls, and utilities. Impacts to the buffer in Section 4, Block 8 were approved in a separate RPA exception request approved on May 11, 2004. The WQIA proposes a variable width buffer to replace the standard 100-foot buffer with a 25-foot minimum undisturbed buffer around intermittent streams and

a 50-foot minimum buffer around perennial streams (except for the previously approved Section 4, Block 8 buffer). The WQIA documents that the variable width buffer removes more phosphorus than the 100-foot buffer. The major factor for consideration of the exception request is that a strict application of the 100-foot RPA buffer greatly impacts the master planning efforts and approvals that had been granted for the project prior to the revised perennial stream and RPA identification process that became effective on January 1, 2004. None of the streams on the New Town site were designated as perennial prior to the Ordinance revisions. This variable width buffer proposal is being allowed for application in this case only because of the master planning that occurred on the project prior to January 1, 2004. Therefore, based on these factors, the RPA exception is **granted** with the following conditions:

1. Individual exceptions will also be required at time of site or subdivision plan approval for the specific encroachments into the buffer for BMP outfalls, utility lines, and road crossings shown on the plan.
2. The excess clearing (approximately 40-foot wide) associated with the sewer line located in the RPA buffer located along the east side of the stream channel along Section 7 must be restored with native vegetation. Indigenous trees and shrubs must be planted along the approximately 20-foot wide cleared portion of the sewer easement but this will not include any plants in the 20-foot wide permanently maintained JCSA sewer easement. This is the same requirement as for the exception approved for Section 4, Block 8. The timing of the restoration of this part of the buffer will be discussed with the applicant.

Please contact me at 253-6670 if you have any questions.

Sincerely,

Darryl E Cook

Darryl E. Cook, P.E.
Environmental Director

As-Builts

AES CONSULTING ENGINEERS
Engineering, Surveying, and Planning
5248 Olde Towne Road, Suite 1
Williamsburg, VA 23188

Phone: (757) 253-0040
Fax: (757) 220-8994

LETTER OF TRANSMITTAL

ATTN: **Amy Parker**

CO.: JCC Environmental Division

Address:

cc:

DATE	JOB NO.
8/11/09	6632-e-10-4
FROM: Bob Cosby	
RE: New Town - BMP 53	

PC173
SP-38-07

WE ARE SENDING YOU THE FOLLOWING ITEMS:

☒ Attached
☐ Under separate cover via

☐ Original(s) ☐ Print(s) ☐ Plan(s) ☐ Specification(s) ☐ Change Order

☒ Copy of letter(s) ☐ Other:

COPIES	DATE	No. of Pages	DESCRIPTION
1	2/18/09	2	Letter to Joe Buchite
1	2/18/09	1	Stormwater Master Plan Tabulation
1		1	Graphic Denoting Drainage Areas for Stormwater Master Plan
1	2/18/09	16	BMP Certfication and Checklist
1		1	Record Drawing

THESE ARE TRANSMITTED as checked below:

☒ For your approval ☐ For your signature ☐ For review and comment

☒ For your use ☐ As you requested ☐ As requested by:

☐ Other:

REMARKS:
Copy of package submitted February 18, 2009 for final release of BMP 53.

VIA: ☐Hand Deliver ☐UPS Ground ☐UPS Next Day Air ☐USPS Mail ☐ Other:

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

New Town Associates, LLC
4801 Courthouse St. Suite 203
Williamsburg, VA 23188

September 24, 2009

Re:
James City County County Plan No. SP-38-07
James City County County BMP ID Code: PC-173

Dear Mr. McCann:

The Environmental Divisions has received a record drawing (as-built) for the above referenced project. The record drawing provides as-built information for master planned wet pond BMP known as BMP 53.

Based on our review of the project and a concurrent field inspection as performed on September 18, the following items must be addressed prior to release of the developer's surety instrument for the stormwater management/BMP facility at the site and to proceed with closing out the project:

Construction - Related Items:

1. Sink Holes. It has been noticed that depressions (sink holes) have formed around the principal structure as located on the dam, and the flat top structure as located in proximity to the Town Bank. While it is important to repair these areas of subsidence, it is more important to insure that these depressions are not the result of water entering the associated structure in the location of the pipe connection. Please ensure that a water tight connection has been obtained in this area and repair as necessary.

2. Remove localized sediment deposits that have accumulated in the rip rap outlet protection at the outfall end of the 18-inch storm drain which enters into the BMP along the southwest side of the BMP. Flow into the pond must not be obstructed by vegetation; therefore, maintenance in this area must be provided prior to final approval of these as-builts.

   As a Note: During the field inspection, it appeared that curb repairs were recently done in the area directly above the barrel pipe. Due to the subsidence around the structure and the curb

repairs, it is recommended that the owner look into possible piping along the dam to ensure structural integrity of the dam. This is not an item that will hold up the release of the bond associated with the conversion of the BMP.

Once the constructed related items above are satisfactorily completed, contact our office appropriately for reinspection. We can then proceed with final release of the surety and/or closing out the project. One reproducible and one blue/black line set of the record drawings will be required once the above items are adequately addressed.

Please contact me at 757-253-6851 if you have any further comments or questions.

Sincerely,

Amy Parker
Environmental Inspector II
Environmental Division

cc: Henderson Contractors via email

File: environmental on 'deptstore\dmo1\dmdata'\Projects\AsBuilts\Reviews\Final

Scott Thomas

From: Scott Thomas
Sent: Wednesday, September 16, 2009 4:28 PM
To: 'John McCann'; Robert Cosby
Cc: Joe Buchite; Amy Parker; William Cain
Subject: RE: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

To All:

I am going to step in here and help out as I reviewed the plan and was then involved with AES and Henderson when the construction difficulties arose. I had insisted on an asbuilt routing to be provided to ensure all was ok, back at the time we met with Henderson. I have reviewed Bob's information here and in conjunction with looking at the pond design routing and the asbuilt plan, concur with his finding. Therefore, there is no need to submit asbuilts and certification information again. This is what we need to do to keep moving forward:

1. I need to issue a letter amending the master stormwater management for New Town for BMP 53 being a 9-point facility now and due to change in overall point value for New Town. This will close the loop on that.
2. Inspection staff needs to perform a final inspection to ensure there are no stabilization issues and to ensure all the perimeter landscaping, in accordance with the plan, was installed. Our inspector is going to perform this inspection tomorrow.
3. The BMP maintenance plan located on Sheet 6 of the approved plan needs to be put on the asbuilt (record drawing). Do this and provide our office with one additional blue/black line drawing of the asbuilt and also a mylar.

It's our sense at this point that everything is on track for full release, rather than reduction, pending satisfactory final BMP inspection.

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

Visit:
www. jccegov.com
www. protectedwithpride.org

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Wednesday, September 16, 2009 10:58 AM
To: Joe Buchite; Scott Thomas
Cc: Robert Cosby
Subject: Fw: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Gentlemen, We had addressed this issue several months ago and I thought we had satisfied you on New Town BMP 53. If you feel that we have not satisfied the JCC Environmental requirements on this pond, I'd like to set up a meeting with you to discuss any open issues.

Thanks, John McCann
New Town Associates, LLC

John P. McCann

McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

----- Forwarded Message ----
From: "Cosby, Bob" <bob.cosby@aesva.com>
To: John McCann <jmccann213@yahoo.com>
Cc: Peter Henderson <peter@hendersoninc.com>
Sent: Tuesday, September 15, 2009 1:29:47 PM
Subject: RE: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

John,

To the best of my knowledge JCC has all of the information that they have requested related to BMP 53. This information has been provided to JCC on at least 2 separate occasions.

The Pond above water surface does meet the grading requirements of the original design. Therefore no additional changes to the routing are required. Revisions to the routing would be the exact same routing that was originally submitted and approved with the design plans. I have already submitted statements to this affect which were previously accepted by JCC.

Record Drawing and Certification have been provided to JCC twice already. I will provide these again this week to get this bond released.

I currently have a call into Joe Buchite to confirm this information and verify if I need to provide the Record Drawing, Certification, and any other Calculations that they want.

Thanks
Bob Cosby

Robert E. Cosby III, P.E.
Project Manager

AES Consulting Engineers
Williamsburg | Richmond | Gloucester | Fredericksburg
(757) 253-0040
fax: (757) 220-8994
bob.cosby@aesva.com
www.aesva.com

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Tuesday, September 15, 2009 2:32 PM
To: Cosby, Bob

McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

Amy Parker

From: Amy Parker
Sent: Wednesday, May 26, 2010 9:15 AM
To: 'John McCann'; Joe Buchite
Cc: Larry Salzman; William Cain
Subject: RE: New Town Associates' Siltation Bonds

Tracking:

Recipient	Read
'John McCann'	
Joe Buchite	Read: 5/26/2010 9:38 AM
Larry Salzman	
William Cain	Read: 5/26/2010 1:17 PM

Hi Mr. McCann,
I have reviewed your requests.

1. New Town Section 3&6 Roadway Infrastructure Phase 8- This bond has already been reduced by half (actually a little more than half) as a result of receiving the interim record drawings. The remainder of the bond must be held in place as long as it is being used as a sediment basin. Once the upslope areas are permanently stabilized, the BMP is converted, we receive/review the final record drawings and construction certifications, and all items are satisfactory we can look at reducing or releasing the remaining $76,000.

2. New Town Section 2&4 Roadway Infrastructure Phase II Block 8 Commercial- The current bond is being held for the Temporary Sediment Basin which is currently serving as a temporary BMP to handle runoff from Casey Boulevard and adjacent areas. This facility must remain in operation until the permanent BMP is constructed in the back of Section 7 consistent with the New Town Master Stormwater Management Plan. Be advised that this is not a dry type pond; however, it may dry out periodically due to infiltration and evaporation depending on the frequency of rain events. The bond also covers maintenance and/or removal of E&S controls (Silt fence) as needed, and maintenance of the associated stormwater conveyance system (pipes, swales, inlets, etc) should the system become inundated with silt and/or debris. In addition, as-built and construction certifications are required, and have not been provided to date, for the two Filterra units. In addition, it must be understood that should this facility be closed out prior to the construction of the regional BMP, BMP A-14, the stormwater conveyance system serving Casey Boulevard will have no outfall.

3. New Town Section 2&4 BMP 53 Conversion- I expressed the concerns of our division in the email(s) dated 3/12/10 and 5/7/10. Your response to my previous comment indicates your willingness to accept this basin in its current condition and your understanding of the existing conditions of this stormwater management facility. This being the case, the surety paperwork has been processed (internally) for full release. Should you have any questions or concerns regarding this issue, please feel free to contact me at your convenience.

4. New Town Casey Corner Park- The surety paperwork has been processed (internally) for full release.

I am also keeping an eye on the block 21 grading plan. I'd like to give it a few more weeks for the vegetation to establish and then I'll look into what I can reduce for that project.

Please feel free to contact me with any questions.

Best Regards,

Amy Parker
James City County
Environmental Inspector
Office (757) 253-6851
Mobile (757) 592-0135

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Wednesday, May 19, 2010 3:24 PM
To: Amy Parker; Joe Buchite
Cc: Larry Salzman
Subject: New Town Associates' Siltation Bonds

I have two Siltation Bonds that expire in June and two other siltation bonds that I'd like to get released.
1. New town Section 3&6 Roadway Infrastructure - Phase VIII siltation bond is in the amount of $76,000. I know we have some silt to be removed but are waiting until the adjacent new medical building is constructed on discovery Park Blvd. I believe that you have the as-built drawings and the certification for this BMP. Can we reduce the amount of this bond upon renewal on June 20?
2. New Town Section 2 and 4 Roadway Infrastructure - Phase II and Block 8 siltation bond is in the amount of $40,000. We have a temporary pond on the north side of Casey Blvd which was needed while the work was being done. When we develop this part of Section 7 probably in 2011 or 2012, the temporary pond which is dry will be filled. I'd really like to have this bond released. It currently expires on June 30.
Can you do that?
3. New Town BMP 53 siltation bond in the amount of $68,000. We had some small erosion near New Town Avenue which we filled with dirt and planted. We will continue to maintain this BMP. It functions very well. We'd like this bond released.
4. New Town Casey Corners Park on Discovery Park Blvd. siltation bond in the amount of $5,000 cash. this park was completed in April and is doing well. Can we please have this bond released.

I appreciate your consideration of this request. If you have any questions, please give me a call.

John

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

Amy Parker

From: Amy Parker
Sent: Friday, March 12, 2010 10:38 AM
To: 'John McCann'
Cc: Joe Buchite; Scott Thomas; William Cain; 'Cosby, Bob'
Subject: RE: Update on E&S Bonds

Tracking:

Recipient	Read
'John McCann'	
Joe Buchite	Read: 3/12/2010 1:46 PM
Scott Thomas	Read: 9/8/2010 12:03 PM
William Cain	Read: 3/12/2010 4:45 PM
'Cosby, Bob'	

Mr. McCann,

Item #1— The basin to which you are referring is currently operating in erosion and sediment control mode as a Temporary Sediment Basin and pursuant to information provided on plan sheet 20 of approved plan SP-015-04, this basin is to be converted to a dry BMP with a bypass pipe for upland undisturbed areas. Because this work has not been accomplished at this time and remains outstanding, the associated bonds cannot be released.

Item #2— The release of bonds associated with this facility ($25,000 Cash) has been initialed.

BMP 53-CONVERSION

Item #3— I have been keeping a close eye on this facility and we have conducted a complete review of the RD/CC for the construction of this pond. Though the basin elevations appear rather consistent with the approved plans, construction related concerns remain. In our previous meeting and email correspondence, you were aware of the sink holes forming around both structures and the measures taken to repair them. Though repairs have been made, experience with these types of issues lends us to believe that there is a high potential for recurrence of the subsidence and formation of the sink holes. This may continue to be an issue for some time and, therefore, inspections must be made on a regular basis to protect the safety and welfare of the public and maintenance staff. If New Town is aware of these conditions and is willing to accept the responsibilities associated with them and is willing to take the BMP in its current condition, we will release the bond in full. Please respond as such to this email and I will begin the processes involved.

Item #4 – The basin to which you are referring is operating in Temporary Sediment Basin mode and cannot be modified into its final configuration until such time that all of the surrounding areas have obtained final stabilization. In addition, the establishment of vegetation atop the stabilization matting in this area has not been accomplished at this time and additional work is required to obtain this. Further, though an interim record drawing has been provided, a final record drawing remains a requirement once the basin has been converted as will a final construction certification. All of this prevents us from reducing the bonds any further than what has already occurred.

I look forward to hearing from you.

Best Regards,

Amy Parker
James City County
Environmental Inspector
Office (757) 253-6851
Mobile (757) 592-0135

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Wednesday, March 10, 2010 6:35 PM
To: Joe Buchite; Amy Parker
Cc: Scott Thomas
Subject: Update on E&S Bonds

I am working with Keith Letchworth and VDOT on getting remaining utilities and roads in New Town accepted.

I have four E&S bonds that I had hoped would be release by now.

1. Phase II and block 8 - $40,000 letter of credit. We have a small silt pond on the north side of Casey Blvd in Section 7 of New Town which was installed in 2004/2005 when this part of Casey Blvd was built. It wremains there until that part of Section 7 is developed and a BMP is built. There is no E&S work to be done. GCR has told me that you released their E&S bond for block 8. Can i please get this released.

2. Block 3 - $25,000 cash. When we met, you told me that the as built drawing and certification for the IMP in the block
had never been submitted even though the IMP has functioned as designed for three years. AES submitted the drawing and the certification to you in early February. I'd love to get this IMP accepted and my cash bond released.

3. BMP 53 - $75,000 letter of credit. As you know, this BMP has been completed and is functioning as designed fortwo plus years. We were asked about a sink hole near the dam. It was actually some very small erosion that had resulted from water coming over the New Town Ave. curb andcausing very modest erosion. Our maintenance staff filled the area with about a I/2 bucket of dirt and compacted it and added some seed. It was about $10 worth of work. Please release this bond or tell me exactly what why it isn't released.

4. Phase VII - $45,000 letter of credit. This BMP along Rollison Drive was completed in late 2008. It is fully functioning and has good grass and plantings. The aquatic plants are doing very well. Please release this bond or tell me why it can't be released/ or what needs to still be done.

We really need to get these E&S bonds released. I appreciate any help you can give us.

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

Amy Parker

From: Amy Parker
Sent: Friday, May 07, 2010 8:13 AM
To: 'John McCann'
Cc: Joe Buchite; Scott Thomas; William Cain; 'Cosby, Bob'
Subject: FW: Update on E&S Bonds

Tracking:

Recipient	Read
'John McCann'	
Joe Buchite	Read: 5/7/2010 9:26 AM
Scott Thomas	Read: 9/8/2010 12:15 PM
William Cain	Read: 5/7/2010 8:47 AM
'Cosby, Bob'	

Hi Mr. McCann,
I was going over some New Town items with Mr. Salzmann yesterday and BMP 53 came to mind. I am still anticipating a response from you on item #3 (see previous email). Do you want me to move forward with the bond release? Just let me know and I'll be happy to work on it.

Hope you are enjoying the weather!

Best Regards,

Amy Parker
James City County
Environmental Inspector
Office (757) 253-6851
Mobile (757) 592-0135

From: Amy Parker
Sent: Friday, March 12, 2010 10:38 AM
To: 'John McCann'
Cc: Joe Buchite; Scott Thomas; William Cain; 'Cosby, Bob'
Subject: RE: Update on E&S Bonds

Mr. McCann,
Item #1— The basin to which you are referring is currently operating in erosion and sediment control mode as a Temporary Sediment Basin and pursuant to information provided on plan sheet 20 of approved plan SP-015-04, this basin is to be converted to a dry BMP with a bypass pipe for upland undisturbed areas. Because this work has not been accomplished at this time and remains outstanding, the associated bonds cannot be released.

Item #2— The release of bonds associated with this facility ($25,000 Cash) has been initialed.

Item #3— I have been keeping a close eye on this facility and we have conducted a complete review of the RD/CC for the construction of this pond. Though the basin elevations appear rather consistent with the approved plans, construction related concerns remain. In our previous meeting and email correspondence, you were aware of the sink holes forming around both structures and the measures taken to repair them. Though repairs have been made, experience with these types of issues lends us to believe that there is a high potential for recurrence of the subsidence and formation of the sink holes. This may continue to be an issue for some time and, therefore, inspections must be

made on a regular basis to protect the safety and welfare of the public and maintenance staff. If New Town is aware of these conditions and is willing to accept the responsibilities associated with them and is willing to take the BMP in its current condition, we will release the bond in full. Please respond as such to this email and I will begin the processes involved.

Item #4 – The basin to which you are referring is operating in Temporary Sediment Basin mode and cannot be modified into its final configuration until such time that all of the surrounding areas have obtained final stabilization. In addition, the establishment of vegetation atop the stabilization matting in this area has not been accomplished at this time and additional work is required to obtain this. Further, though an interim record drawing has been provided, a final record drawing remains a requirement once the basin has been converted as will a final construction certification. All of this prevents us from reducing the bonds any further than what has already occurred.

I look forward to hearing from you.

Best Regards,

Amy Parker
James City County
Environmental Inspector
Office (757) 253-6851
Mobile (757) 592-0135

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Wednesday, March 10, 2010 6:35 PM
To: Joe Buchite; Amy Parker
Cc: Scott Thomas
Subject: Update on E&S Bonds

I am working with Keith Letchworth and VDOT on getting remaining utilities and roads in New Town accepted.

I have four E&S bonds that I had hoped would be release by now.

1. Phase II and block 8 - $40,000 letter of credit. We have a small silt pond on the north side of Casey Blvd in Section 7 of New Town which was installed in 2004/2005 when this part of Casey Blvd was built. It wremains there until that part of Section 7 is developed and a BMP is built. There is no E&S work to be done. GCR has told me that you released their E&S bond for block 8. Can i please get this released.

2. Block 3 - $25,000 cash. When we met, you told me that the as built drawing and certification for the IMP in the block
had never been submitted even though the IMP has functioned as designed for three years. AES submitted the drawing and the certification to you in early February. I'd love to get this IMP accepted and my cash bond released.

3. BMP 53 - $75,000 letter of credit. As you know, this BMP has been completed and is functioning as designed fortwo plus years. We were asked about a sink hole near the dam. It was actually some very small erosion that had resulted from water coming over the New Town Ave. curb andcausing very modest erosion. Our maintenance staff filled the area with about a I/2 bucket of dirt and compacted it and added some seed. It was about $10 worth of work. Please release this bond or tell me exactly what why it isn't released.

4. Phase VII - $45,000 letter of credit. This BMP along Rollison Drive was completed in late 2008. It is fully functioning and has good grass and plantings. The aquatic plants are doing very well. Please release this bond or tell me why it can't be released/ or what needs to still be done.

We really need to get these E&S bonds released. I appreciate any help you can give us.

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

Amy Parker

From: John McCann [jmccann213@yahoo.com]
Sent: Wednesday, May 19, 2010 3:24 PM
To: Amy Parker; Joe Buchite
Cc: Larry Salzman
Subject: New Town Associates' Siltation Bonds

I have two Siltation Bonds that expire in June and two other siltation bonds that I'd like to get released.
1. New town Section 3&6 Roadway Infrastructure - Phase VIII siltation bond is in the amount of $76,000. I know we have some silt to be removed but are waiting until the adjacent new medical building is constructed on discovery Park Blvd. I believe that you have the as-built drawings and the certification for this BMP. Can we reduce the amount of this bond upon renewal on June 20?
2. New Town Section 2 and 4 Roadway Infrastructure - Phase II and Block 8 siltation bond is in the amount of $40,000. We have a temporary pond on the north side of Casey Blvd which was needed while the work was being done. When we develop this part of Section 7 probably in 2011 or 2012, the temporary pond which is dry will be filled. I'd really like to have this bond released. It currently expires on June 30.
Can you do that?
3. New Town BMP 53 siltation bond in the amount of $68,000. We had some small erosion near New Town Avenue which we filled with dirt and planted. We will continue to maintain this BMP. It functions very well. We'd like this bond released.
4. New Town Casey Corners Park on Discovery Park Blvd. siltation bond in the amount of $5,000 cash. this park was completed in April and is doing well. Can we please have this bond released.

I appreciate your consideration of this request. If you have any questions, please give me a call.

John

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

Amy Parker

From: Amy Parker
Sent: Friday, September 25, 2009 9:17 AM
To: 'jmccann213@yahoo.com'
Cc: Joe Buchite; Scott Thomas; 'bills@hendersoninc.com'; Melanie Davis
Subject: BMP 53 Conversion -SP-38-07 Final Inspection-Bond reduction
Attachments: SP3807.PC173.doc

Tracking:

Recipient	Read
'jmccann213@yahoo.com'	
Joe Buchite	Read: 9/25/2009 9:37 AM
Scott Thomas	
'bills@hendersoninc.com'	
Melanie Davis	

Mr. McCann,
Please find the attached letter associated with the subject project. The bond is being reduced from $68,000 to $10,000. Once the field items have been completed, let me know and I'll inspect those items for full release. Please feel free to contact me with any questions.

Best Regards,

Amy Parker
James City County
Environmental Inspector
Office (757) 253-6851
Mobile (757) 592-0135

Amy Parker

From: Cosby, Bob [bob.cosby@aesva.com]
Sent: Wednesday, September 16, 2009 4:38 PM
To: Scott Thomas; John McCann
Cc: Joe Buchite; Amy Parker; William Cain
Subject: RE: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

AES will include the Maintenance Plan on the As-built and provide 1 Paper and 1 Mylar Copy of the Record Drawing on Thursday September 17, 2009.

Scott, Thank you for attention to this matter.

Thanks
Bob Cosby

Robert E. Cosby III, P.E.
Project Manager

AES Consulting Engineers
Williamsburg | Richmond | Gloucester | Fredericksburg
(757) 253-0040
fax: (757) 220-8994
bob.cosby@aesva.com
www.aesva.com

From: Scott Thomas [mailto:SCOTTT@james-city.va.us]
Sent: Wednesday, September 16, 2009 4:28 PM
To: 'John McCann'; Cosby, Bob
Cc: Joe Buchite; Amy Parker; William Cain
Subject: RE: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

To All:

I am going to step in here and help out as I reviewed the plan and was then involved with AES and Henderson when the construction difficulties arose. I had insisted on an asbuilt routing to be provided to ensure all was ok, back at the time we met with Henderson. I have reviewed Bob's information here and in conjunction with looking at the pond design routing and the asbuilt plan, concur with his finding. Therefore, there is no need to submit asbuilts and certification information again. This is what we need to do to keep moving forward:

1. I need to issue a letter amending the master stormwater management for New Town for BMP 53 being a 9-point facility now and due to change in overall point value for New Town. This will close the loop on that.
2. Inspection staff needs to perform a final inspection to ensure there are no stabilization issues and to ensure all the perimeter landscaping, in accordance with the plan, was installed. Our inspector is going to perform this inspection tomorrow.

3. The BMP maintenance plan located on Sheet 6 of the approved plan needs to be put on the asbuilt (record drawing). Do this and provide our office with one additional blue/black line drawing of the asbuilt and also a mylar.

It's our sense at this point that everything is on track for full release, rather than reduction, pending satisfactory final BMP inspection.

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

Visit:
www. jccegov.com
www. protectedwithpride.org

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Wednesday, September 16, 2009 10:58 AM
To: Joe Buchite; Scott Thomas
Cc: Robert Cosby
Subject: Fw: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Gentlemen, We had addressed this issue several months ago and I thought we had satisfied you on New Town BMP 53. If you feel that we have not satisfied the JCC Environmental requirements on this pond, I'd like to set up a meeting with you to discuss any open issues.

Thanks, John McCann
New Town Associates, LLC

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

----- Forwarded Message ----
From: "Cosby, Bob" <bob.cosby@aesva.com>
To: John McCann <jmccann213@yahoo.com>
Cc: Peter Henderson <peter@hendersoninc.com>
Sent: Tuesday, September 15, 2009 1:29:47 PM
Subject: RE: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

John,

To the best of my knowledge JCC has all of the information that they have requested related to BMP 53. This information has been provided to JCC on at least 2 separate occasions.

The Pond above water surface does meet the grading requirements of the original design. Therefore no additional changes to the routing are required. Revisions to the routing would be the exact same routing that was originally

submitted and approved with the design plans. I have already submitted statements to this affect which were previously accepted by JCC.

Record Drawing and Certification have been provided to JCC twice already. I will provide these again this week to get this bond released.

I currently have a call into Joe Buchite to confirm this information and verify if I need to provide the Record Drawing, Certification, and any other Calculations that they want.

Thanks
Bob Cosby

Robert E. Cosby III, P.E.
Project Manager

AES Consulting Engineers
Williamsburg | Richmond | Gloucester | Fredericksburg
(757) 253-0040
fax: (757) 220-8994
bob.cosby@aesva.com
www.aesva.com

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Tuesday, September 15, 2009 2:32 PM
To: Cosby, Bob
Cc: Peter Henderson
Subject: Fw: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Bob, Please let me know what this means. What does Environmental want?

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

----- Forwarded Message ----
From: Joe Buchite <JBUCHITE@james-city.va.us>
To: John McCann <jmccann213@yahoo.com>
Cc: Amy Parker <AParker@james-city.va.us>
Sent: Tuesday, September 15, 2009 6:30:36 AM
Subject: RE: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Mr. Mc Cann,

It is my understanding that the reason why the pond is not being released is that a stormwater routing was never provided for the BMP after modifications were performed and fell short of the proposed plan elevations. Also a final inspection of the record drawings and construction certification is required combined with any field items that might arise as a result of the field inspection.
Thank you,

Joe Buchite
Environmental Inspections Supervisor
Environmental Division
James City County
101-E Mounts Bay Road
Williamsburg, VA 23187-8784
(757) 253-6643

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Monday, September 14, 2009 5:24 PM
To: Joe Buchite
Subject: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Joe, As per the attached, I'm scheduled to renew the Siltation Bond letter of credit that bonds BMP53, the large BMP on New Town Ave., behind Towne Bank. This work has been complete for a couple of years and the as built drawings and certification for BMP 53 were submitted a long time ago. This is one of the bonds that I had asked to be released. Do you have an answer as to why this bond shouldn't be released? I'd like to avoid paying the renewal fees.

Thanks for your help.

John

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

Amy Parker

From: Joe Buchite
Sent: Tuesday, September 15, 2009 9:31 AM
To: 'John McCann'
Cc: Amy Parker
Subject: RE: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Mr. Mc Cann,
It is my understanding that the reason why the pond is not being released is that a stormwater routing was never provided for the BMP after modifications were performed and fell short of the proposed plan elevations. Also a final inspection of the record drawings and construction certification is required combined with any field items that might arise as a result of the field inspection.
Thank you,

Joe Buchite
Environmental Inspections Supervisor
Environmental Division
James City County
101-E Mounts Bay Road
Williamsburg, VA 23187-8784
(757) 253-6643

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Monday, September 14, 2009 5:24 PM
To: Joe Buchite
Subject: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Joe, As per the attached, I'm scheduled to renew the Siltation Bond letter of credit that bonds BMP53, the large BMP on New Town Ave., behind Towne Bank. This work has been complete for a couple of years and the as built drawings and certification for BMP 53 were submitted a long time ago. This is one of the bonds that I had asked to be released. Do you have an answer as to why this bond shouldn't be released? I'd like to avoid paying the renewal fees.

Thanks for your help.

John

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

Amy Parker

From: Melanie Davis
Sent: Monday, September 28, 2009 12:05 PM
To: 'John McCann'
Cc: Amy Parker
Subject: RE: BMP 53 Conversion -SP-38-07 Final Inspection-Bond reduction & Section 4 Roadway Infrastructure-Phase 2 and Block 8

John,
We received renewal on the $68,000 late Friday afternoon. Please contact me or Amy Parker when you are ready for the next review of the project for release of the surety.
We received renewal on the $118,750 earlier in the week.
Please let me know if you need any further assistance.

Melanie Davis
Senior Engineering Assistant
James City County Environmental Division
email: mdavis@james-city.va.us
phone: 757-253-6866
fax: 757-259-4032

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Monday, September 28, 2009 11:48 AM
To: Melanie Davis
Subject: Re: BMP 53 Conversion -SP-38-07 Final Inspection-Bond reduction & Section 4 Roadway Infrastructure-Phase 2 and Block 8

Melanie, When I couldn't get a definitive answer from either Scott or Joe on a reduction to the $68,000 letter of credit siltation bond two weeks ago for Section 2 & 4 BMP 53 conversion, I had it renewed for an additional year at the $68,000 amount. You should have received the amendment renewing it late last week. Since we already paid for it, we are going to leave it in place for for the next 30 days until we complete the final repair item.

The subdivision bond in the amount of $118,750 for Section 4 Roadway Infrastructure -Phase 2 & Block 8 Commercial was due to expire on Sept. 30. We also renewed it last week for one additional year until Sept. 30, 2010. You should also have received the amendment extending the term at the end of last week.

Please email or call me if you have any questions.

Best, John

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

From: Melanie Davis <MDavis@james-city.va.us>
To: "jmccann213@yahoo.com" <jmccann213@yahoo.com>
Cc: Amy Parker <AParker@james-city.va.us>

Sent: Friday, September 25, 2009 6:34:01 AM
Subject: RE: BMP 53 Conversion -SP-38-07 Final Inspection-Bond reduction

Mr. McCann,
Attached is a copy of the revised authorization letter for renewal and reduction of the SunTrust LC #F851060. A copy has also been mailed to the bank.
As this Letter of Credit expires on October 3, 2009 the amendment to extend and reduce must be received no later than next Thursday, 10/1/09.
Please call me if you have any questions regarding this renewal.
Thank you

Melanie Davis
Senior Engineering Assistant
James City County Environmental Division
email: mdavis@james-city.va.us
phone: 757-253-6866
fax: 757-259-4032

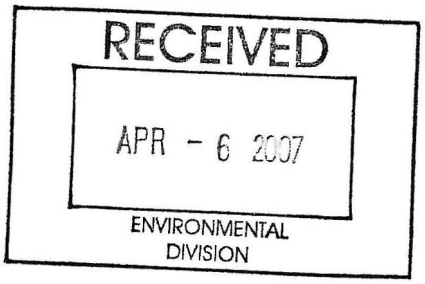
From: Amy Parker
Sent: Friday, September 25, 2009 9:17 AM
To: 'jmccann213@yahoo.com'
Cc: Joe Buchite; Scott Thomas; 'bills@hendersoninc.com'; Melanie Davis
Subject: BMP 53 Conversion -SP-38-07 Final Inspection-Bond reduction

Mr. McCann,
Please find the attached letter associated with the subject project. The bond is being reduced from $68,000 to $10,000. Once the field items have been completed, let me know and I'll inspect those items for full release. Please feel free to contact me with any questions.

Best Regards,

Amy Parker
James City County
Environmental Inspector
Office (757) 253-6851
Mobile (757) 592-0135

TRANSMITTAL



DATE: April 6, 2007

TO: → Environmental Division ←
VDOT
Fire Department
County Engineer
Senior Landscape Planner
JCSA

FROM: Jose Ribeiro, Planner

(COUNTY BMP ID CODE:

SUBJECT: SP-0038-07-BMP 53 Conversion New Town Section 2 & 4.

ITEMS ATTACHED:
Site Plan
Drainage Calculations for New Town BMP# 53 *
Erosion and Sediment Control and Stormwater Management Design Plan Checklists*

ACTION: **Please review and return comments by April 20, 2007**

NOTE: **Pease submit comments on line.**

Thank you for your review,

APR 20 2007
Due Apr 27

José-Ricardo Linhares Ribeiro
JCC Planner

Scott Thomas

From: Scott Thomas
Sent: Friday, May 25, 2007 5:01 PM
To: Jose Ribeiro; Marvin Sowers
Cc: John Horne
Subject: New Town BMP 53 Conversion

As I discussed with Jose today, I would like to meet with Marvin and Jose to discuss the site plan which is in on BMP 53. I have some history to go over and feel we are trying to fit a square peg into a round hole on this one and there needs to be some flexibility from our end to get a stormwater basin here that meets the master stormwater management plan requirements but also fits the character and concept of New Town (especially at this location). I have some ideas, but I think it starts with the Planners agreeing.

Scott J. Thomas, P.E.
Chief Engineer - Stormwater
James City County
Environmental Division

Visit:
http://www.james-city.va.us/resources/devmgmt/div_devmgmt_environ.html
and
www.protectedwithpride.org

FILE - Courthouse Proj.

From: Darryl Cook (DARRYLC)
To: JOHNH
Date: Wednesday, July 16, 1997 9:25 am
Subject: Courthouse Plan

The stormwater plan looks to be okay in concept. The BMP controls a significantly larger drainage area than the courthouse site - 109 acres. Is some cost sharing arrangement being worked out here? There may also be the need to do some channel improvements between the outfall under Monticello Extended and the BMP embankment. There is about 500 feet of channel that will be exposed to the high flow levels generated by the courthouse site and the rest of the drainage area. It maybe possible to use some of the bioengineering techniques there but that will be dependant on how fast the velocity is through that channel.

One issue I have relates to the design of the outlet structures. Currently the outfall is proposed to be two 60-inch diameter riser pipes that will each require a 114-inch (9.5') diameter anti-vortex device on top. This will have lousy aesthetics. I would recommend that we use a design like we used on the BMP we built at Bradshaw Ordinary where the outlet conformed to the slope and is barely visible. If appearance is a concern at all and money is not so tight that we have to be low budget, I think this would be a major improvement. It is a design they are familiar with and have used in Ford's Colony.

Concerning the erosion control plan, they are proposing to control the site with 2 sediment basins. There appears to be adequate space allowed for the placement of the basins. An issue will be the phasing of the removal of the basins as they will need to come out in order to allow the site to be completed. Installation of the pipe system on the northeast side of the site will divert much of the flow from the basin in that area possibly allowing its removal relatively early in the site development or at least a reduction in its size.

There is an issue I need to discuss with Arch and I have placed a call to him regarding it. The basins appear to be sized based on the disturbed area rather than the drainage area. The requirement in the E&S Handbook is for the basins to be designed on drainage area. For the larger basin, there is a significant amount of offsite drainage area that will go through the basin and it has not been accounted for. There is a provision for a variance from the requirement and I have used it on occasion where a large drainage area is involved but only a small disturbed area needs to be controlled. Arch maybe planning to divert the offsite water or in some other fashion deal with the issue but I haven't spoken to him yet. It is not a fatal flaw by any means but just an issue we need to work through and deal with in a manner that we would with other sites.

6/24/97
BERNIE FARMER

ARCH MARSTON

RE; DESIGN OF COURTHOUSE/CASEY BMP

THE ATTACHED PAGE COMPARES DOWNSTRERAM CHANNEL DAMAGE CAUSED BY 2 YR DESIGN STORM PEAK SHAVING WITH A 1 IN DESIGN STORM.

THE DOWNSTREAM CHANNEL ON THE CASEY PROPERTY IS CURRENTLY FRAGILE BY INSPECTION AND IS PART OF THE POWHATAN CREEK NATURAL RECOURCE AREA. I RECOMMEND USING THE 1 IN DESIGN STORM AND PERHAPS A COMPARISON WITH THE 2 YR DESIGN STORM TO CHECK FOR COST DIFFERENCES.

WNB WNB

CC;
DARRYL COOK
JOHN HORNE

AES CONSULTING ENGINEERS
Engineering, Surveying and Planning
5248 Olde Towne Road, Suite 1
WILLIAMSBURG, VIRGINIA 23188

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

LETTER OF TRANSMITTAL

TO JCC - ENVIRONMENTAL

DATE	JOB NO.
1-9-03	8289-00

ATTENTION DARRYL COOK

RE: JCC COURTHOUSE
POND RECORD DWG's

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	1-9-03	1	MYLAR SET OF REC. DWG'S
1		1	BLACK LINE SET OF REC. DWGS

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

COPY TO _____ SIGNED: Dean C Dye

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

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

ATTN: **Mr. Darryl Cook**

CO.: **JCC Environmental Division**

Address:

cc: Mr. Bernie Farmer, 1 copy

DATE	JOB NO.
9-19-02	6632-E-1

FROM: Charles Records

RE: **JCC Courthouse SWM/BMP Facility Record Drawing**

WE ARE SENDING YOU THE FOLLOWING ITEMS:

☒ Attached
☐ Under separate cover via

☐ Original(s) ☒ Print(s) ☐ Plan(s) ☐ Specification(s) ☐ Change Order

☒ Copy of letter(s) ☐ Other:

COPIES	DATE	No. of Pages	DESCRIPTION
1			Cover Letter
2			Record Drawing of BMP Facility

PC 17?
SP-125-97

THESE ARE TRANSMITTED as checked below:

☒ For your approval ☐ For your signature ☐ For review and comment

☐ For your use ☐ As you requested ☐ As requested by:

☐ Other:

REMARKS:
Darryl,
Please call if you have any questions.

Thanks,
Charles Records

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

Scott Thomas

To: Darryl Cook; Mike Woolson
Subject: Wmbg-JCC Courthouse BMP

FYI. I logged in the Wmbg-JCC Courthouse offsite dry ext det pond BMP into the database. The BMP ID Code is PC 173 under County Plan No. SP-125-97. Some important facts.

Drainage area=109.5 acres (serving 11.19 ac. CH site & Newtown Sections 2 and 4)
Risers: Dual 5'x5' Junction boxes with EW-11 tops.
Barrels: Dual 42 inch RCPs
Extended Detention basin with micropool
Design type 2, 4 point BMP. Treats 1 inch runoff over entire drainage area.
No Emerg Spillway, Riser/barrels pass 100-year with 1.70 feet of freeboard to top of dam
Design high water El. 81.55 per plan; El. 81.38 per routings.
20 ft. wide access and 15 ft. wide maintenance easement from 100-year WSEL required during plan review.

I/M Agreement: Comment # 18d per JCC Env Div comments dated Nov 13 1997 (SP-125-97) required an inspection/maintenance agreement. I couldn't find evidence of one.

RD/CC: Note # 18 on Sheet C-9 of plan SP-125-97 required asbuilts and construction certification. Also, comment # 18d from JCC Env Div comments dated Nov 13 1997 (SP-125-97) required asbuilts and construction certification. I don't see any.

Scott

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

ATTN: **Mr. Darryl Cook**

CO.: **JCC Environmental Division**

Address:

cc:

DATE	JOB NO.
9-30-02	6632-E-1

FROM: Charles Records

RE

JCC Courthouse SWM/BMP

Facility Record Drawing

WE ARE SENDING YOU THE FOLLOWING ITEMS:

☒ Attached
☐ Under separate cover via

☐ Original(s) ☒ Print(s) ☐ Plan(s) ☐ Specification(s) ☐ Change Order

☒ Copy of letter(s) ☐ Other:

COPIES	DATE	No. of Pages	DESCRIPTION
1			Construction Certification Documents

No geotech info to support the CC. Major changes were made.

PC 173; SP-125-97

THESE ARE TRANSMITTED as checked below:

☒ For your approval ☐ For your signature ☐ For review and comment

☐ For your use ☐ As you requested ☐ As requested by:

☐ Other:

OCT 2002
RECEIVED
ENVIRONMENTAL DIVISION

REMARKS:
Darryl,
Please call if you have any questions.

Thanks,
Charles Records

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

Fax Transmittal Cover Letter

FROM:	Bernard M. Farmer, Jr. Capital Program Administrator	105 Tewning Road, Williamsburg, VA 23185 Tel: (757) 565-1879	Fax: (757) 565-2725
REF:	Williamsburg/James City County Courthouse	**DATE:** 5/18/98	

TO	COPY	FIRM	NAME	FAX NO.	Btn.
___	___	James City County	Don Allen	(757) 259-1755	02
___	___	Moseley Harris McClintock	Jay Moore	(804) 379-8660	04
___	___	Moseley Harris McClintock	Tony Bell	(804) 379-8660	04
X	___	Moseley Harris McClintock	Dave Chase	(757) 368-2233	18
___	___	Hernandez & Lyn	Jorge Hernandez	(305) 666-1353	03
___	___	Hernandez & Lyn	Francis Lyn	(305) 666-1353	03
___	___	Hanover Engineers	Bob Wilson	(804) 730-4012	11
___	___	AES	Arch Marston	(757) 220-8994	17
___	___	Higgins & Associates	Bill Jarvis	(804) 740-1620	09
___	___	Oyster Point Const	Hugh Riley	(757) 873-3892	15
___	___	Oyster Point Const	John Yanitello	(757) 220-9337	20
___	___	Circuit Court	Judge Powell	(757) 220-8753	
___	___	James City County	John McDonald	(757) 253-6663	16
___	___	James City County	Fletcher Frye	(757) 258-5291	21
___	___				

I am sending 2 additional pages. This ~~will~~/will not be mailed

HERE IS THIRD ALTERNATIVE FOR DAM. IT MAY BE DIFFICULT TO READ. KEY TRENCH IS AT EL. 59 ± 6' DEEP. EXCAVATION MUST BE DONE TO BED PIPE ALSO. OTHER SOIL REMAINS. BOTTOM GRID IS BX1100, A BI-AXIAL GRID. OTHER LAYERS ARE 15' WIDTHS OF UX1400. LAYER OF CLEAN SAND IS TO BE A BRIDGE LIFT ON THE DOWNHILL SIDE, 2' THICK. I'VE ASKED O.P. TO PRICE BASED ON SHIFTING 42" PIPES TO THE NORTH SHOULDER TO MINIMIZE THE UNDERCUT FOR THE PIPES. BASED ON ECS's ESTIMATES THE MATERIAL COSTS SHOULD BE ± 20K FOR THIS ALTERNATIVE, MAKING THIS SIGNIFICANTLY LESS THAN EARLIER PROPOSALS.

Bernie

Bernard M. Farmer, Jr.

MOSELEY HARRIS & McCLINTOCK
601 SOUTHLAKE BOULEVARD • RICHMOND, VIRGINIA 23236 • (804) 794-7555

REQUEST FOR PROPOSAL

Proposal No.: 002

Project : **Williamsburg James City County Courts** Project No.: 36260

Contractor : Oyster Point Construction Company Date : 05/18/98

SCOPE:

Pursuant to Geotechnical Report for the Stormwater Management Dam as prepared by ECS, please determine the cost to accomplish the following;

Excavation/Construction Alternate 1.

Excavate a key trench consisting of an area 100ft. in width by 140ft. length by 8ft. in depth for the purpose of removing soft and compressible sediments from below the proposed dam embankment.

The excavation is to commence at current existing grade elevation.

The excavated area is to be back filled with the same material to be used for the construction of the dam. The material to be used is to consist of soils classified as SM, SC, CL or ML, with a minimum of 30% passing the No. 200 Sieve. The fill is to be placed and compacted in maximum 10 inch lifts to a dry density of at least 95% of the Standard Proctor maximum dry density (ASTM D-698). The initial lift in the bottom of the key trench is to be placed at 18" in depth.

Dam construction is to be homogeneous. It will not be necessary to create separate core and cover zones. The material used to construct the dam shall be as noted above.

Excavation/Construction Alternate 2.

Excavate a key trench consisting of an area 100ft. in width by 140ft. length by 4ft. in depth for the purpose of removing soft and compressible sediments from below the proposed dam embankment.

Excavate an additional area of 140ft. in width by 40ft. length by 4ft. in depth for the purpose of removing soft and compressible sediments from below the proposed 2 - 42" RCP.

Excavate under the entire dam are to a depth of 4ft.

Excavate a key trench 8ft. w x 4ft. d x length of the dam. Side slopes are to be 1:1.

Excavate along the line of the 42" pipes to a depth of 8' with side slopes to be 1:1.

Install specified geo-grid over the entire undercut area prior to placing any backfill material.

The excavation is to commence at current existing grade elevation.

The excavated area is to be back filled with the same material to be used for the construction of the dam. The material to be used is to consist of soils classified as SM, SC, CL or ML, with a minimum of 30% passing the No. 200 Sieve. The fill is to be placed and compacted in maximum 10 inch lifts to a dry density of at least 95% of the Standard Proctor maximum dry density (ASTM D-698). The initial lift in the bottom of the key trench is to be placed at 18" in depth.

Install geo-grid, such as Tensar BX 1100 (SS-1) over the entire area of excavation, at the elevation of the initial 4 ft. cut, prior to commencing construction of the dam. Geo-grid is to be installed below pipe bedding and extend horizontally across the top of the key for the entire width of the dam.

Dam construction is to be homogeneous. It will not be necessary to create separate core and cover zones. The material used to construct the dam shall be as noted above.

ACCEPTED → ALTERNATIVE

Excavation/Construction Alternate 3.

All work is to be performed as per the attached sketch SK-1. where

Excavate a key trench 10ft. w x 11ft. d x length of the dam. Side slopes are to be 1:1.

Install a 2ft. thick bridge lift layer of clean sand, less than 10% passing #200 sieve, on the down stream side of the key.

Install a layer of BX 1100 (SS-1) over the entire are of the dam. Lap 3ft. min.

Install 15ft. wide layers of Tensar UX 1400 (HS) as shown on sketch SK-1.

Relocate the 42" RCP as per sketch SK-2.

Unit Costs:

1. Provide a unit cost add/deduct, per cubic yard, for excavation of unsuitable material as directed by the Geotechnical Engineer.
2. Provide a unit cost, per cubic yard, to stock pile the excavated material on site in the approximate location indicated. Stock piled material will require stabilization and the installation of E&S controls.
3. Provide a unit cost, per cubic yard, to dispose of excavated material off site.
4. Provide a unit cost, per square yard, for the addition or deletion of geo-grid.

Please note the following:

1. The area to be excavated encompasses the 15" of excavation called for in the original Contract Documents, see Sht. C.10 Typical Dam Section A-A. The quantity of material for the originally specified excavation is to be clearly stipulated in the response to this RFP.
2. As stated above, the change to a homogeneously constructed dam eliminates the requirement to construct separate core and cover zones. Please stipulate the amount of credit attributable to the elimination of this portion of the work.

Receipt Of Your Proposal Is Requested By: ASAP

THIS IS NOT A CHANGE ORDER NOR A DIRECTIVE TO PROCEED WITH THE WORK DESCRIBE HEREIN.

SIGNED : _____

D. W. Chase R. A.

PROPOSAL

In response to the request above, the Contractor proposes to perform the changes described for an increase / decrease in the contract sum in the amount of $_____ and increase / decrease in the contract time of _____ calendar days.

A detailed breakdown of labor and material costs is attached hereto which includes all costs and time associated with the proposed change(s).

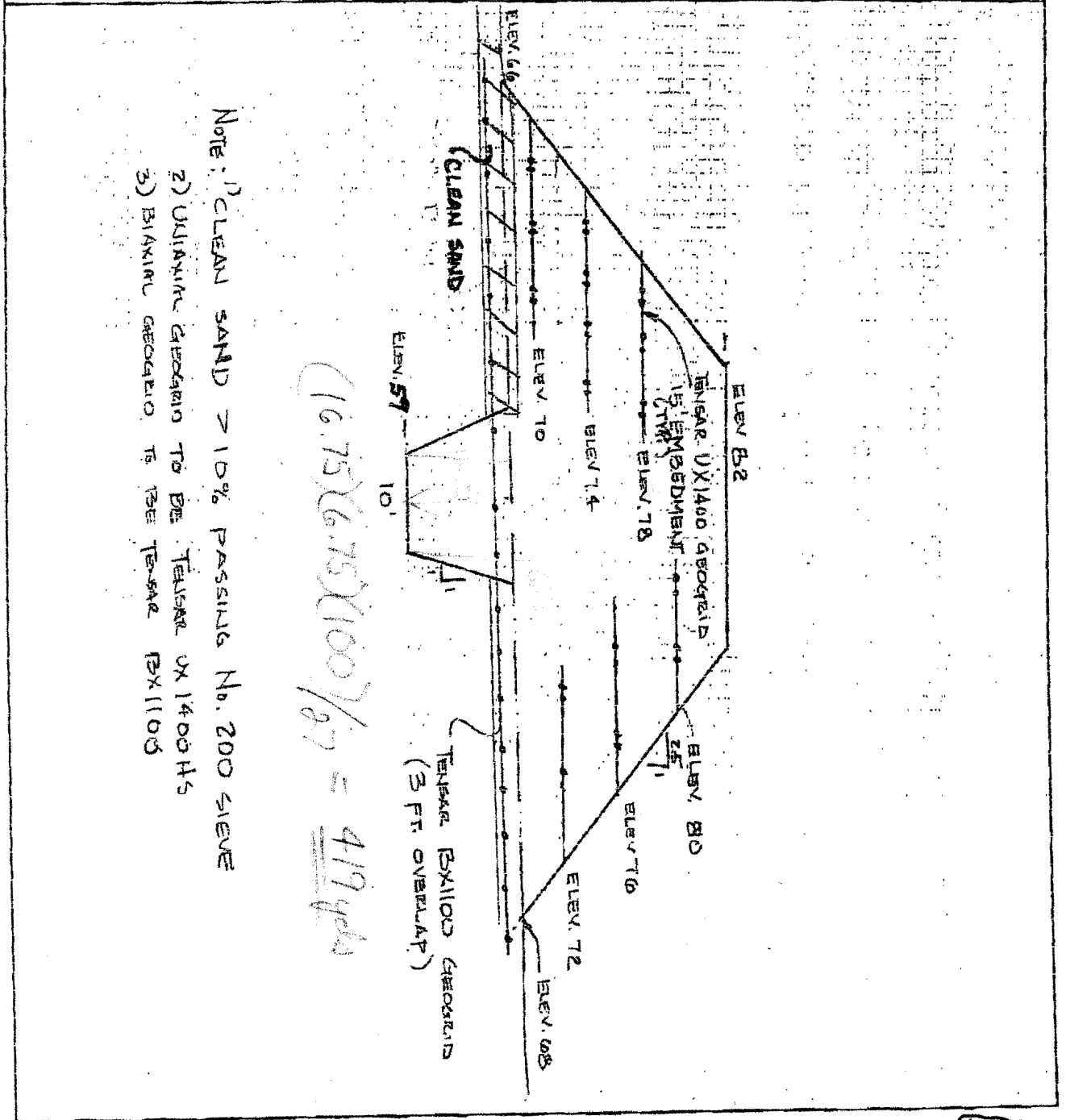
SIGNED : _____ DATE : _____

36260 • C2 • RFP • 002

ENGINEERING CONSULTING SERVICES, LTD.

CALCULATION SHEET

PROJECT: STORMWATER MGMT POND			FIGURE NO.
TITLE: GEOGRID REINFORCED EMBANKMENT			JOB NO. P4388
			SCALE:
BY: HMM	DATE: 5/15/98	APPROVED BY:	DATE

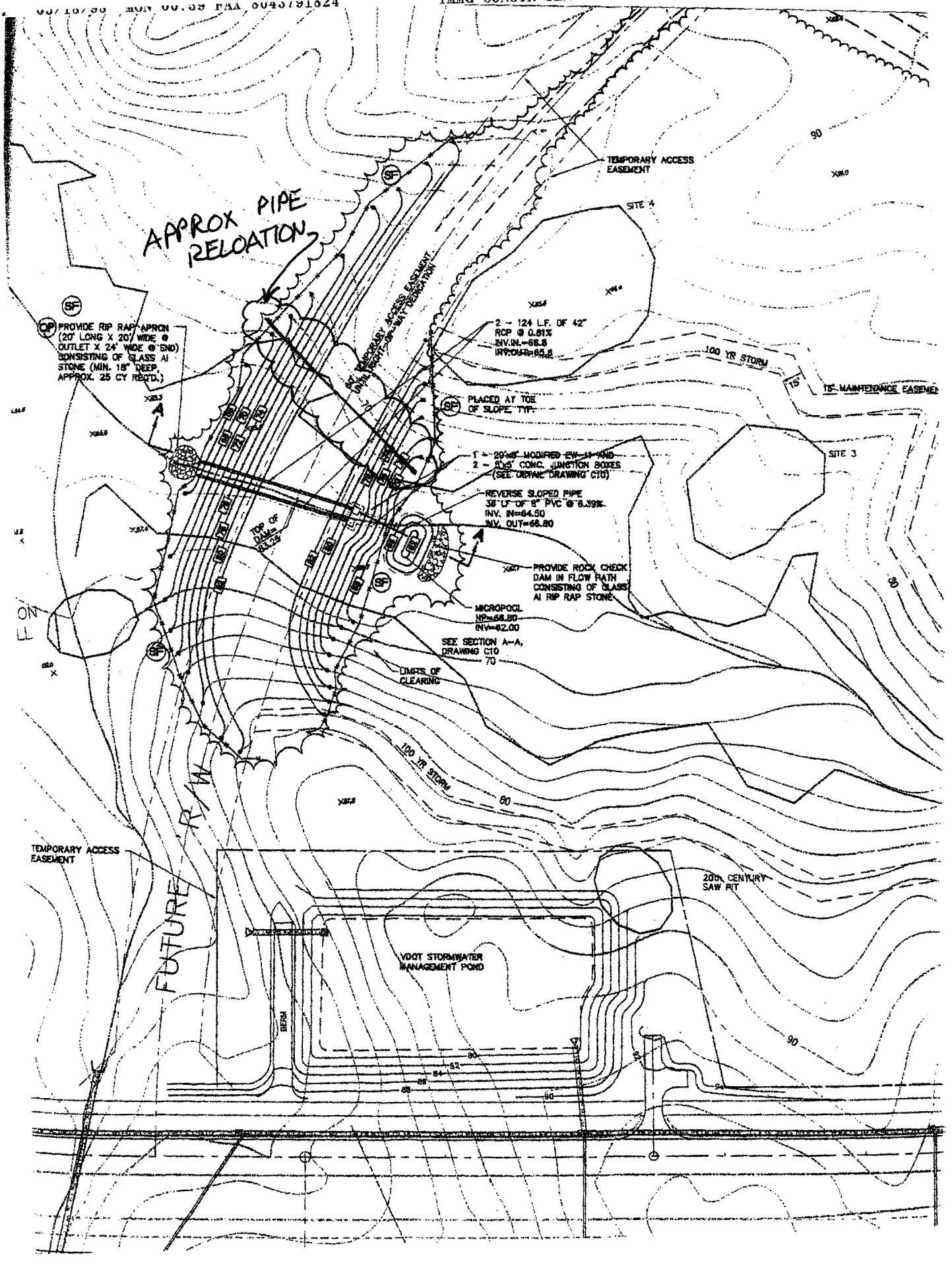


NOTE: 1) CLEAN SAND > 10% PASSING No. 200 SIEVE

2) UNIAXIAL GEOGRID TO BE TENSAR UX1400HS

3) BIAXIAL GEOGRID TO BE TENSAR BX1100

(16.75)(6.75)(100')/27 = 419 yds


APPROX PIPE RELOATION
TEMPORARY ACCESS EASEMENT
SITE 4
SITE 3
PROVIDE RIP RAP APRON (20' LONG X 20' WIDE @ OUTLET X 24' WIDE @ END) CONSISTING OF CLASS AI STONE (MIN. 18" DEEP, APPROX. 25 CY REQ'D.)
2 - 124 L.F. OF 42" RCP @ 0.81%
INV.IN.=66.6
INV.OUT=65.6
100 YR STORM
15' MAINTENANCE EASEMENT
PLACED AT TOE OF SLOPE, TYP.
1 - 20'x6' MODIFIED EW-11 AND
2 - 5'x5' CONC. JUNCTION BOXES
(SEE DETAIL DRAWING C10)
REVERSE SLOPED PIPE
38 LF OF 8" PVC @ 8.39%
INV. IN=64.50
INV. OUT=68.80
PROVIDE ROCK CHECK DAM IN FLOW PATH CONSISTING OF CLASS AI RIP RAP STONE
MICROPOOL
NP=68.80
INV=62.00
SEE SECTION A-A, DRAWING C10
LIMITS OF CLEARING
100 YR STORM
FUTURE R/W
TEMPORARY ACCESS EASEMENT
20th CENTURY SAW PIT
VDOT STORMWATER MANAGEMENT POND
BERM

COUNTY ADMINISTRATION

101-C MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6605

E-MAIL: cadm@james-city.va.us
Fax: (757) 253-6833

Mr. Scott Thomas, P. E.
James City County Environmental Division
P. O. Box 8784
Williamsburg, VA 23185

January 7, 2003

Dear Mr. Thomas,

I am responding to your letter of December 12, 2002, pertaining to the 'as built certifications' for the stormwater facility that serves the initial sections of New Town. This facility was constructed during the courthouse project. Hopefully this letter will provide you some clarity and better understanding circumstances related to the construction of the stormwater facility.

When the Courthouse was bid, only schematic design information existed for the stormwater facility. No access existed to the wetlands bottom area where it was to be built, and the plan was to wait until full clearing was done for construction to provide access for the drill rigs. Notes on the bid documents required the 'contractor' to hire a geotechnical engineer and submit detailed recommendations for the dam construction, with those recommendations to be incorporated into the construction. Due to excessively high bids for the entire courthouse project, significant negotiations occurred to reduce the contract amount. The provision related to dam design responsibility was removed from the contractor's responsibility and assumed by the county as a part of these negotiations. Engineering Consulting Services, Ltd. (ECS) was hired by me to do the geotechnical exploration and make recommendations for the dam construction. You were provided with their report when given the previous certification. This soils report also outlined alternatives 1 and 2 for the dam construction. Soil borings indicated an underlying layer of compressible organics in the channel bottom situated under a significant portion of the dam fill section.

ECS initially recommended either full or partial excavation of the organic material. These two alternatives were deemed to be too expensive given the work effort involved. After further consultation and at my request, ECS provided an alternative design that allowed for the organic material to be excavated only in the vicinity of the key trench, and the remainder of the organic layer to be left under the rest of the dam fill. This was outlined in the letter from ECS dated May 22, a copy of which you were furnished. Alternative recommendations from ECS were transmitted to the design team and issued as a request for proposal #002 by Moseley, Harris and McClintock, project architects. You were furnished a copy of this RFP. Under alternate #3, (the chosen alternate for construction) the bridge lift of sand was added on one side of the dam to allow for the initial compaction and fill work to continue over underlying soft natural materials. Since compression of the organic material was expected, stability of the face of the dam was at

question so ECS recommended several horizontal layers of geosynthetics to be placed in the dam fill section. The location of the twin outfall pipes as originally indicated fell over the deepest part of the underlying organic material so the barrel was moved to the north face of the dam, also as part of alternate #3. RFP #002 was issued with the full knowledge and agreement of the civil designers (AES) and the project architects, and constituted something substantially more than a 'field change'. The changes in the work from the bid documents could best be characterized as being "the preferred design alternative recommended by the consulting engineers". All work proceeded under the basis of Alternate 3 outlined in the RFP. To the best of my knowledge the Environmental Division was aware and kept appraised of the work through consultation with the assigned inspector during the project.

While the work was ongoing ECS representatives conducted routine compaction testing, observed the construction efforts and rendered reports to me and the design team. Any noted discrepancies outlined in their reports were cleared up before work was allowed to proceed. ECS was hired by the County for their geotechnical design efforts and also served as the principal inspection agency for special inspections and material testing throughout the courthouse project. This helped assure continuity and appropriate oversight for the work of the contractor in all aspects of the project. The County also employed a degreed full time 'clerk of the works' on the project, Mr. Fletcher Frye, to provide additional inspection oversight. Part of Mr. Frye's duties were to schedule and assure that ECS technicians were present to observe earth moving activity and to perform the necessary compaction testing. Additionally, I was present daily to observe and monitor work and review all inspection reports. Due to my substantial knowledge of the work, my daily involvement with the project, my review of all testing, and my personal observations I provided you with the required construction certification. I note that the physical survey provided by AES and given to you as part of the construction certification/as built submittal appears to show the side slopes of the dam at less than the design limit of 2.5/1, the dam horizontal alignment is consistent with the design, and the elevations of the major components of the dam and release are all within several tenths of the design elevations. By all appearances and to the best of my knowledge, given normally expected construction tolerances, this work was completely consistent with design alternate #3 outlined in the Moseley, Harris & McClintock Request For Proposal dated 5/18/98.

I hope that this letter provides you the clarification you were seeking in your recent review dated December 12, 2002. If you believe that any part of the work for the dam is inconsistent with the requirements as outlined by our designers and consulting engineers, please contact me immediately.

Sincerely

Bernard M. Farmer, Jr., P. E.
Capital Projects Administrator

Scott Thomas

From: Scott Thomas
Sent: Thursday, December 19, 2002 11:51 AM
To: Bernard M. Farmer
Cc: Darryl Cook; John Horne
Subject: RE: Clarification for courthouse dam certification

Yes. Due to the major changes, this part of the letter is what I needed to support the construction certification. The rest of the letter supports the changes that occurred. Please forward a signed and sealed copy to our office.

"During the work ECS representatives conducted routine compaction testing, observed the construction efforts and rendered reports to me and the design team. Any noted discrepancies outlined in their reports were cleared up before work was allowed to proceed. ECS was hired by the County for their geotechnical design efforts and also served as the principal inspection agency for special inspections and material testing throughout the courthouse project. This helped assure continuity and appropriate oversight for the work of the contractor in all aspects of the project."

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

Visit www.protectedwithpride.org

-----Original Message-----
From: Bernard M. Farmer
Sent: Tuesday, December 17, 2002 5:11 PM
To: John Horne; Scott Thomas
Subject: Clarification for courthouse dam certification

Let me know if this draft letter contains the information you are seeking.

Bernie

<< File: dam certification ltr.doc >>

As Built 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 12, 2002

Mr. Bernard M. Farmer
Capital Project Administrator
James City County
105 Tewning Road
Williamsburg, Va. 23188

Re: Williamsburg/JCC Courthouse
County Plan No. SP-125-97
Offsite Dry Detention Pond (Newtown)
County BMP ID Code: PC 173

Dear Mr. Farmer:

The Environmental Division has reviewed certification information as submitted to our office for the BMP for the above referenced project. The record drawing and construction certification provides as-built information for an offsite dry extended detention pond facility situated across Monticello Avenue approximately 1,200 ft. northwest of the Courthouse building.

Based on our review of the certification information and field inspections performed on May 1st 2002 and December 12th 2002, the following items must be addressed in order to close out the BMP for the project. (Note, this also relates to comments pending for New Town Sections 3 and 4, County Plan No. SP-50-02).

Record Drawing:

1. The record drawing set dated September 20th 2002 and record drawing certification dated September 30th are both **satisfactory.** Please forward one reproducible and one blue/black line set of the record drawings to our office.

Construction Certification:

2. The geotechnical investigation by ECS, LTD dated May 7th 1998 recommended that " *the geotechnical engineer should be called on to observe all excavation within the embankment to assure that adequate subgrade materials have been exposed. The geotechnical engineer should be called on to perform density testing of embankment fills with at least 2 tests per lift to assure that adequate compaction is being achieved.* " In addition, Dam Construction Note # 1 on Sheet 10 of the approved plan stated "*The geotechnical engineer will inspect the dam during construction to ensure that proper materials and construction methods are used during construction. After construction, the geotechnical engineer shall also submit to the County a letter certifying that the dam was built in accordance with the plans, specifications and*

recommendations for the project." Based on a review of certification information, significant changes were made to the approved embankment configuration as outlined in an addendum report by ECS, LTD dated May 22nd 1998. Option 3, or Excavation/Construction Alternate 3, recommended a key trench along the length of the dam, steeper embankment side slopes, a clean-sand bridge lift, placement of geogrid reinforcement within specified zones of the dam and a northward shift of the principal flow control structure (riser/dual barrel system). Although the Engineer has the authority and responsibility to make minor changes to the approved plan in order to compensate for unsafe or unusual conditions encountered during construction, those changes cannot adversely affect the integrity of the structure and original testing/observation requirements imposed for the project should not be absolved. Therefore, provide additional information to support the construction certification including representative field compaction density reports for dam soil fill lifts and/or construction inspection logs by the geotechnical engineer to support proper installation of embankment soils per the approved plan and key trench, bridge lift and geogrid placement per the plan change. *(Note: Attached details as supplied with the construction certification clearly indicate that significant changes were made to the embankment; however, it offers no information to support that these changes were properly constructed in the field in accordance with the recommendations.)*

Construction - Related Items:

3. Remove silt fence present along the upstream and downstream toes of the dam embankment and the micropool area.

4. Repair subsidence holes present around the primary flow control (riser) structure, especially the bottom (upstream side). Use compacted soil and stabilize with seed and mulch when complete.

5. Clear and remove trees and vegetation 10 feet from the principal flow control structure (riser).

6. Clean and remove sediment accumulations, debris, trees and vegetation within 15 feet of the outfall ends of the dual 42-inch pipe barrels through the dam. Sediment accumulations and tree growth was significant at the outfall end of the pipes and covered most of the outlet protection pads. Flow out of the facility shall not be obstructed by debris, sediment and vegetation.

Once this work is satisfactorily completed, contact our office appropriately. We can then proceed with closing out the project. Please contact me at 757-253-6639 or the assigned Environmental Division inspector, Ms. Beth Davis, at 757-253-6702 if you have any further comments or questions.

Sincerely,

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

cc: Arch Marston, AES - via fax
Beth Davis, JCC Environmental Division Inspector

G:\AsBuilts\SP12597.pc173

✓ Scott T.
✓ Bill Cain
✓ Amy Parker
✓ Put in asbuilt file

RE: AB/CC Review of orginal Courthouse pond, now New Town's BMP 53.

NORMAL POOL IS BELOW ORIGINAL POND BOTTOM SO PHREATIC LINE IS NOT AN ISSUE AND NEITHER SHOULD BE SEEPAGE DUE TO HYDRAULIC HEAD. POOL ALSO IS NOT VERY DEEP DUE TO WATER TABLE. I AM VERY CURIOUS TO KNOW WHAT IS AT THE BASE OF THE ROAD FILL SECTION.

B

December 12

Mr. Bernard M. Farmer
Capital Project Administrator
James City County
105 Tewning Road
Williamsburg, Va. 23188

Re: Williamsburg/JCC Courthouse
County Plan No. SP-125-97
Offsite Dry Detention Pond (Newtown)
County BMP ID Code: PC 173

RE: WAS DAY POND NOW WET POND CONVERTED

Dear Mr. Farmer:

The Environmental Division has reviewed certification information as submitted to our office for the BMP for the above referenced project. The record drawing and construction certification provides as-built information for an offsite dry extended detention pond facility situated across Monticello Avenue approximately 1,200 ft. northwest of the Courthouse building.

Based on our review of the certification information and field inspections performed on May 1st 2002 and December 12th 2002, the following items must be addressed in order to close out the BMP for the project. (Note, this also relates to comments pending for New Town Sections 3 and 4, County Plan No. SP-50-02).

Record Drawing:

1. The record drawing set dated September 20th 2002 and record drawing certification dated September 30th are both **satisfactory.** Please forward one reproducible and one blue/black line set of the record drawings to our office.

Construction Certification:

2. The geotechnical investigation by ECS, LTD dated May 7th 1998 recommended that " *the geotechnical engineer should be called on to observe all excavation within the embankment to assure that adequate subgrade materials have been exposed. The geotechnical engineer should be called on to perform density testing of embankment fills with at least 2 tests per lift to assure that adequate compaction is being achieved.* " In addition, Dam Construction Note # 1 on Sheet 10 of the approved plan stated "*The geotechnical engineer will inspect the dam during construction to ensure that proper materials and construction methods are used during construction. After construction, the geotechnical engineer shall also submit to the County a letter certifying that the dam was built in accordance with the plans, specifications and*

recommendations for the project." Based on a review of certification information, significant changes were made to the approved embankment configuration as outlined in an addendum report by ECS, LTD dated May 22nd 1998. Option 3, or Excavation/Construction Alternate 3, recommended a key trench along the length of the dam, steeper embankment side slopes, a clean-sand bridge lift, placement of geogrid reinforcement within specified zones of the dam and a northward shift of the principal flow control structure (riser/dual barrel system). Although the Engineer has the authority and responsibility to make minor changes to the approved plan in order to compensate for unsafe or unusual conditions encountered during construction, those changes cannot adversely affect the integrity of the structure and original testing/observation requirements imposed for the project should not be absolved. Therefore, provide additional information to support the construction certification including representative field compaction density reports for dam soil fill lifts and/or construction inspection logs by the geotechnical engineer to support proper installation of embankment soils per the approved plan and key trench, bridge lift and geogrid placement per the plan change. *(Note: Attached details as supplied with the construction certification clearly indicate that significant changes were made to the embankment; however, it offers no information to support that these changes were properly constructed in the field in accordance with the recommendations.)*

Construction - Related Items:

3. Remove silt fence present along the upstream and downstream toes of the dam embankment and the micropool area.

4. Repair subsidence holes present around the primary flow control (riser) structure, especially the bottom (upstream side). Use compacted soil and stabilize with seed and mulch when complete.

5. Clear and remove trees and vegetation 10 feet from the principal flow control structure (riser).

6. Clean and remove sediment accumulations, debris, trees and vegetation within 15 feet of the outfall ends of the dual 42-inch pipe barrels through the dam. Sediment accumulations and tree growth was significant at the outfall end of the pipes and covered most of the outlet protection pads. Flow out of the facility shall not be obstructed by debris, sediment and vegetation.

Once this work is satisfactorily completed, contact our office appropriately. We can then proceed with closing out the project. Please contact me at 757-253-6639 or the assigned Environmental Division inspector, Ms. Beth Davis, at 757-253-6702 if you have any further comments or questions.

Sincerely,

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

cc: Arch Marston, AES - via fax
Beth Davis, JCC Environmental Division Inspector

G:\AsBuilts\SP12597.pc173

CONSULTING ENGINEERS

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

September 19, 2002

Mr. Darryl E. Cook, P.E.
Environmental Division Director
James City County
101-E Mounts Bay Road
Williamsburg, VA 23187

RE: Record Drawing for James City County Courthouse SWM/BMP Facility
AES Project No. 6632-E-1

Dear Mr. Cook:

Per your request, AES Consulting Engineers hereby submits the record drawing for the SWM Facility referenced above. As you know, a VDOT-owned roadway will be constructed on the dam of the BMP facility shown on the attached drawing. The submission of this drawing is now a requirement for the release of the land-disturbing permit for the New Town Sections 2 and 4 Roadway Infrastructure Plans.

Per previous discussions between Mr. Bernie Farmer and Mr. Arch Marston, Mr. Farmer will be providing you with the Engineer's construction certification necessary for the approval of the attached record drawing.

Your expedient review of this drawing is greatly appreciated. It is our understanding that the land-disturbing permit for the New Town project can be released following the submission of this drawing, and the satisfactory resolution of the conditions set forth in your September 6, 2002 comment letter. Please let me know if you have any questions or need any additional information.

Sincerely,

AES Consulting Engineers

Charles B. Records
Project Engineer

cc: Mr. Bernard Farmer, P.E.
Mr. James Franklin

S:\jobs\6632\E\00-BASEMAP\Wordproc\Document\6632EL03.cbr.doc

10-9-02

SCOTT, THE ONLY PROBLEM I SEE, IS THE EMERGENCY SPILLWAY WILL NOT BE THERE IN THE FUTURE, DUE TO ROADBED PROPOSED, IT (EMERGENCY SPILLWAY) IS NOT SHOWN ON THIS DRAWING (CED

9. Inspection records

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

County BMP ID Code (if known): PC 173

Name of Facility: New Town Sec 2+4 BMP 53 Conversion BMP No.: ____ of ____ Date: 9/24/09

Location: Adjacent to New Town Ave. between Monticello & Center St

Name of Owner: New Town Associates, LLC

Name of Inspector: Amy Parker

Type of Facility: Wet Pond

Weather Conditions: Sunny 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	✓	✓		end of paved flume (stabilize)
Trash & Debris	✓			
Seepage	✓			
Fencing or Benches	✓			
Interior Landscaping/Planted Areas: ☑ None ☐ Constructed Wetland/Shallow Marsh ☐ 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: ☒ Permanent Pool (Retention Basin) ☐ Shallow Marsh (Detention Basin) ☐ None, Dry (Detention Basin)				
Shoreline Erosion	✓			
Algae	✓			
Trash & Debris	✓			
Sediment	✓			
Aesthetics	✓			
Other				
Inflows (Describe Types/Locations):				
Condition of Structure	✓		✓	sinkholes around flat top structure
Erosion	✓			
Trash and Debris	✓			
Sediment			✓	18" outlet protect. contaminated
Outlet Protection			✓	
Other				
Principal Flow Control Structure - Riser, Intake, etc. (Describe Type):				
Condition of Structure			✓	sinkholes around perimeter & evident cracks along curb on top of outfall barrel possible compaction issues
Corrosion	✓			
Trash and Debris	✓			
Sediment	✓			
Vegetation	✓			
Other				
Principal Outlet Structure - Barrel, Conduit, etc. :				
Condition of Structure	✓		✓	see above for cracked curb
Settlement	✓			
Trash & Debris	✓			
Erosion/Sediment				
Outlet Protection	N/A			
Other				
Emergency Spillway (Overflow):				
Vegetation				trees embankment outfall side
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:

Overall Environmental Division Internal Rating: 4

Signature: Amy Parker **Date:** 9/17/09

Title: Inspector

SWMProg\BMP\CoInspProg\InspForms\DetRet.wpd

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

County BMP ID Code (if known): PC173

Name of Facility: Williamsburg-James City Courthouse BMP No.: 1 of 1 Date: 5/1/02

Location: Offsite BMP on Casey Newtown-Tract

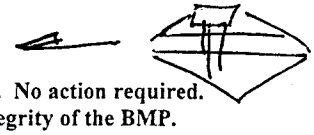
Name of Owner: County of James City, Va.

Name of Inspector: S/Thomas, MDWoolson

Type of Facility: Dry EXT DET Pond with Micropool

Weather Conditions: Hot, Sunny 80's 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.

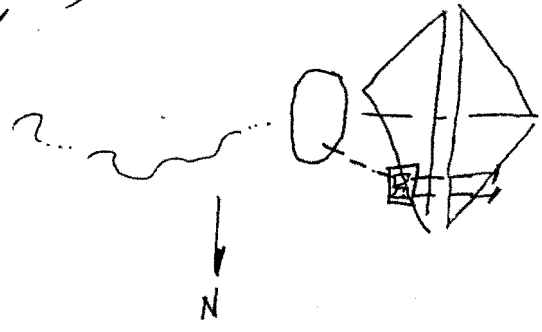
Facility Item	O.K.	Routine	Urgent	Comments
Embankments and Side Slopes:	Earthen DAm 2H:1V SIDESLOPES; HIGH DAM; Tem ROAD			
Grass Height	✓			5' TALL GRASSES, JUNCIS ON TOP?
Vegetation Condition	✓			High tall Grass + weeds
Tree Growth	✓	✓		None. 2-3' HIGH Trees along
Erosion	✓			bottom edge.
Trash & Debris	✓			
Seepage	✓			None Observed.
Fencing or Benches				NA
Interior Landscaping/Planted Areas:	☐ None ☐ Constructed Wetland/Shallow Marsh ☒ Naturally Established Vegetation			
Vegetated Conditions	✓			Micropool 20×50 size
Trash & Debris	✓			Pool 2-4' deep, willows +
Floating Material	✓	some		cattails, 70% open water
Erosion	✓			
Sediment	✓			Very Little.
Dead Plant	✓			
Aesthetics	✓			
Other				
Notes:	Sanitary Sewer to North; Serves WJCC Courthouse			

Facility Item	O.K.	Routine	Urgent	Comments
Water Pools: ☐ Permanent Pool (Retention Basin) ☐ Shallow Marsh (Detention Basin) ☒ None, Dry (Detention Basin)				
Shoreline Erosion				Micropool. Dry ED Basin.
Algae				
Trash & Debris				
Sediment				
Aesthetics				
Other				
Inflows (Describe Types/Locations): Open Channels, Natural, East (UNOEV)				
Condition of Structure				WMBG-JCC Courthouse
Erosion				Across Monticello Ave.
Trash and Debris				
Sediment				VIA 30" RCP culvert under
Outlet Protection				Monticello Ave @ CH ENTRANCE (30" not 42" per plan).
Other				Open channel, meandering to BMP.
Principal Flow Control Structure - Riser, Intake, etc. (Describe Type): DUAL 5x5 CON Boxes; 10' Deep				
Condition of Structure	✓	✓		8" PVC LFont From Micro Pool
Corrosion	✓			Subsidence Around Riser
Trash and Debris	✓			clean
Sediment	✓			Little
Vegetation				
Other				BARS — 3" BAR @ 1' SPACING 11 TOTAL
Principal Outlet Structure - Barrel, Conduit, etc. : 42" DUAL RCP w/ ES-1's				
Condition of Structure	✓			
Settlement	✓			
Trash & Debris	✓			6" sediment in ES-1
Erosion/Sediment	✓			
Outlet Protection		✓		Covered w/ sed, veg, willows (5')
Other	✓			Downstream channel Stable.
Emergency Spillway (Overflow): None Per Plan or Field. Would overtop road.				
Vegetation				
Lining				
Erosion				
Trash & Debris				
Other				

Notes: 8" PVC Pipe Flowing, 2" deep. Left (south) Riser/Barrel only.
U/s Channel to micropool good shape, good wetland.

Facility Item	O.K.	Routine	Urgent	Comments
Nuisance Type Conditions:				
Mosquito Breeding	✓			
Animal Burrows	✓			
Graffiti	✓			
Other				
Surrounding Perimeter Conditions:	Wooded All around. Temp Road Embank			
Land Uses	✓			Sanitary Sewer to north.
Vegetation	✓			Monticello Ave. to South
Trash & Debris	✓			
Aesthetics	✓			
Access /Maintenance Roads or Paths				Good Access by walk. Remote Location
Other				

Remarks:
- o Remove SF DS Toe
- o Subsidence around riser – moderate.
- o Trees are small along bottom edge of DS embank. 2-3' sweetgums. Will need cut in a year or so. Could do now. (3-YEAR OLD GROWTH)
- o Reestablish OP. Full of sediment, veg + trees. (Plan-20' x 20' CLASS A1, 18" deep 25CY). Needs CLASS I.
- o Remove SF along Sanit. Sewer easement, Upslope of BMP3



Overall Environmental Division Internal Rating: 3

Signature: _____ **Date:** 5/1/02 3:20pm

Title: Civil Engineer, ENV DIV

SWMProg\BMP\CoInspProg\DetRet.wpd

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

County BMP ID Code (if known): PC173 REINSPECT 12/12/02

Name of Facility: Williamsburg-James City Courthouse BMP No.: 1 of 1 Date: 5/1/02

Location: Offsite BMP on Casey Newtown-Tract

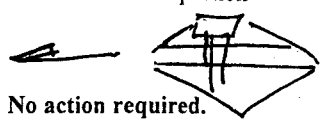
Name of Owner: County of James City, Va.

Name of Inspector: S/Thomas, MDWorkson

Type of Facility: Dry EXT DET Pond with Micropool

Weather Conditions: Hot, Sunny 80's 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.

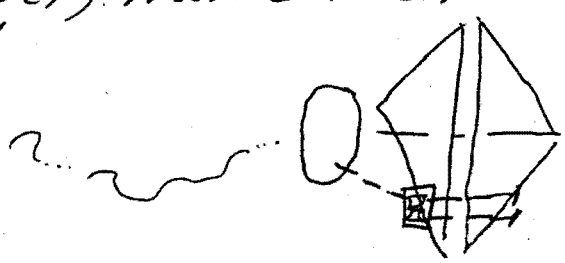
Provide an explanation and details in the comment column, if routine or urgent are marked.

Facility Item	O.K.	Routine	Urgent	Comments
Embankments and Side Slopes:	Earthen Dam 2H:1V Sideslopes; High Dam; Tem Road			
Grass Height	✓			5' Tall Grasses, Juncis on Top?
Vegetation Condition	✓			High tall Grass + weeds
Tree Growth	✓	✓		None. 2-3' High Trees along
Erosion	✓			bottom edge.
Trash & Debris	✓			
Seepage	✓			None Observed.
Fencing or Benches				NA
Interior Landscaping/Planted Areas:	☐ None ☐ Constructed Wetland/Shallow Marsh ☒ Naturally Established Vegetation			
Vegetated Conditions	✓			Micropool 20x50 size
Trash & Debris	✓			Pool 2-4' deep, willows +
Floating Material	✓	some		cattails, 70% open water
Erosion	✓			
Sediment	✓			Very Little.
Dead Plant	✓			
Aesthetics	✓			
Other				
Notes: Sanitary Sewer to North; Serves WJCC Courthouse				

Facility Item	O.K.	Routine	Urgent	
Water Pools: ☐ Permanent Pool (Retention Basin) ☐ Shallow Marsh (Detention Basin) ☒ None, Dry (Detention Basin)				
Shoreline Erosion				Microopool. Dry ED Basin.
Algae				
Trash & Debris				
Sediment				
Aesthetics				
Other				
Inflows (Describe Types/Locations): Open Channels, Natural, East (UNOEV)				
Condition of Structure				WMBG-JCC Courthouse
Erosion				Across Monticello Ave.
Trash and Debris				
Sediment				VIA 30" RCP culvert under
Outlet Protection				Monticello Ave at CH ENTRANCE (30" not 42" per plan).
Other				Open channel, meandering to BMP.
Principal Flow Control Structure - Riser, Intake, etc. (Describe Type): DUAL 5x5 CON Boxes; 10' Deep				
Condition of Structure	✓	✓		8" PVC LFont from Micro Pool
Corrosion	✓			Subsidence Around Riser
Trash and Debris	✓			clean
Sediment	✓			Little
Vegetation				
Other				BARS — 3" BAR @ 1' SPACING 11 TOTAL
Principal Outlet Structure - Barrel, Conduit, etc. : 42" DUAL RCP w/ ES-1's				
Condition of Structure	✓			
Settlement	✓			
Trash & Debris	✓			6" sediment in ES-1
Erosion/Sediment	✓			
Outlet Protection		✓		Covered w/ sed, veg, willows (5')
Other	✓			Downstream channel Stable.
Emergency Spillway (Overflow): None Per Plan or Field. Would overtop road.				
Vegetation				
Lining				
Erosion				
Trash & Debris				
Other				
Notes: 8" PVC Pipe Flowing, 2" deep Left (south) Riser/Barrel only. U/s Channel to microopool good shape, good wetland.				

Facility Item	O.K.	Routine	Urgent	Comments
Nuisance Type Conditions:				
Mosquito Breeding	✓			
Animal Burrows	✓			
Graffiti	✓			
Other				
Surrounding Perimeter Conditions:	Wooded All around. Temp Road Embank			
Land Uses	✓			Sanitary Sewer to north.
Vegetation	✓			Monticello Ave. to South
Trash & Debris	✓			
Aesthetics	✓			
Access /Maintenance Roads or Paths				Good Access by WALK. Remote Location
Other				

Remarks:
- o Remove SF DS Toe + UPSTREAM TOE/MICROPOOL.
- o Subsidence around riser – moderate (bottom edge)
- o Trees are small along bottom edge of DS embank. 2-3' sweetgums. Will need cut in a year or so. Could do now. (3-YEAR OLD GROWTH)
- o Reestablish OP. Full of sediment, veg + trees. (Plan – 20' x 20' CLASS A1, 18" deep 25CY). Needs CLASS I.
- o Remove SF along Sanit. Sewer easement, Upslope of BMP (not part of BMP Work)



Overall Environmental Division Internal Rating: 3 3 12-12-02 SA

Signature: Scott Thomas P.E. **Date:** 12/12/02 11:30AM 5/1/02 3:20pm

Title: Civil Engineer, Env Div

SWMProg\BMP\CoInspProg\DetRet.wpd

SWMF Inspection Form

Site	WMBG/JCC COURTHOUSE - BIORETENTION	**Inspector Name**	Bob DeBellis
Site ID	T-03-009	**Inspection Date**	1/23/2009
SWMF	J34	**Follow Up Action Required**	No
SWMF Type	Bioretention Basins	**Notes:**	Mailed to Scott Thomas of James City County on 2/04/09.

Criteria	Sat/UnSat/NA	Comments
1. **Forebay** (> 50% filled with sediment = UNSAT and check ATTN required)	Sat	
2. **Inlet(s)** (note signs of erosion, low spots)	Sat	
3. **Outlet** (note signs of erosion, damage, obstructions)	Sat	
4. **Principal Spillway** (note signs of erosion, obstructions, seeping)	Sat	
5. **Emergency Spillway** (note signs of erosion, obstructions)	Sat	

6. **Basin Bottom and Side Slopes** (note erosion, ground cover, woody vegetation)	Sat
7. **Safety Devices** (fences, gates, locks, etc.)	NA
8. **Embankments** (note adequate ground cover, signs of erosion, woody vegetation, low spots, cracking, animal burrows, signs of instability)	Sat
9. **Structural Components** (note signs of settling, cracking, bulging, misalignment, or other deterioration)	Sat
10. **Media** (note signs that media should be replaced)	Sat
11. **Routine Maintenance** (Does facility require mowing, trash pickup?)	Sat
13. **Vegetation** (Is vegetation healthy and providing appropriate cover? Note presence of unwanted vegetation.)	Sat
14. **Storage Volume** (note evidence of conditions that significantly reduce storage volume.)	Sat
15. **Debris / Sediment Accumulation** (note evidence of trash, floating/floatable debris, or sediment accumulation not otherwise noted. Note location.)	Sat
16. **Standing Water** (Is there standing water in appropriate areas? Inappropriate areas?)	Sat

20. Other	NA

Re-inspections

CITY OF WILLIAMSBURG

Public Works & Utilities Department

February 4, 2009

Williamsburg – James City County Courthouse
Attn: Scott J. Thomas
101-F Mounts Bay Road
Williamsburg, Virginia 23187

Dear Mr. Thomas:

On January 23rd. City staff conducted an inspection of the stormwater management facility constructed at the Williamsburg – James City County Courthouse on Monticello Avenue in Williamsburg. Enclosed is a copy of the inspection report. There were no deficiencies noted in the current inspection. Annual inspections are performed on all SWMF's throughout the city. Thank you for your cooperation in maintaining this facility.

Sincerely,

Robert J. DeBellis
SWM Supervisor

cc: Steve Martin, City Engineer

401 Lafayette Street, Williamsburg, Virginia 23185-3617 / (757) 220-6140 / Fax (757) 259-3798 / publicworks@williamsburgva.gov

RECEIVED ON
FEB 06 '09
Stormwater Division

ENVIRONMENTAL – STORMWATER TRANSMITTAL

PROTECTING RESOURCES
PRIDE
IN DELICATE ENVIRONMENTS

James City County
Jamestown 1607

COUNTY PLAN NO: Williamsburg-James City Co Courthouse BIORETENTION BASIN County SP-77-03 / City SPR #03-09

BMP ID CODE: PC 180

WATERSHED: Powhatan

- ☐ **ENTIRE RECORD FILE**
- ☐ **ASBUILTS**
- ☐ **CONSTRUCTION CERTIFICATION**
- ☐ **COMPUTATIONS**
- ☒ **OTHER:** Please put this City of Williamsburg Inspection report for the Courthouse Bioretention Basin (PC180) in the asbuilt file. Let Fran See it first before it is filed.

NAME: Scott J. Thomas

SIGNATURE: Scott J. Thomas

DATE: 02/05/09

TRANSMITTAL

Date: March 30, 2005

To:

Environmental	Fire
JCSA	VDOT
Co. Engineer	REA
Scott	Codes Compliance

From: Tammy Rosario, Senior Planner

Subject: SP-32-05. New Town – Village Square

Items Attached: Site Plan

Instructions: Please review and comment, or sign plan and transmittal if approved. *Remarks from the applicant – "Please note that the water and electricity for the foundation are provided by Building 1000. In addition, all land disturbances are existing through approved plans of Retail Phase 1 (SP-127-04), the Theater (SP-103-04) and Section 2 & 4 Phase III Roadways (SP-82-04). Therefore, no Environmental Review (fee) is required."* No

Return By: April 13, 2005

Agency Comments:

Due April 21

10. Enforcement actions

MDW/SJT

ENVIRONMENTAL DIVISION REVIEW COMMENTS
NEW TOWN – VILLAGE SQUARE
COUNTY PLAN NO. SP – 32 - 05
April 15, 2005

General:

1. Erosion and sediment control review and inspection fees are required for this project.

2. It is unclear if a Land-Disturbing permit is required for this project as a disturbed area estimate was not provided. Provide a site area, impervious cover and disturbed area estimate for the project on the cover sheet. *(Note: Based on rough scaling of plan Sheet 2, it appears the work area is about 0.85 acres; therefore, it would appear a land-disturbing permit is required for the project.)*

3. Only plan Sheet 2, provide proper referenced to other approved County plans including the Section 2 & 4 Phase III Roadway (SP-82-04), the Theater (SP-103-04) and Retail Phase I (SP-127-04) and others as applicable.

Erosion & Sediment Control:

4. Standard County Erosion and Sediment Control notes were not found in the plan set.

5. Show and label a distinct limit of work around the project site.

Stormwater Management / Drainage:

6. Provide a note on the cover sheet to state "All stormwater runoff associated with this project is directed into existing storm drainage piping systems and conveyed to previously approved BMP # 53 (County BMP ID Code PC 173).

7. Ensure impervious cover associated with this site is consistent with computations for existing or previously approved downstream storm drainage piping systems.

11. Miscellaneous

Date Record Created: 9/17/2009

Created By: Scott Thomas

If BMP is active in ERP please check box ☐

If BMP has been turned over to STW please check box ☑

Watershep and BMP ID Combined Ex: SC003

PC173

WATERSHED	PC
BMP ID NO	173
PLAN NO	SP-38-07
TAX PARCEL	(38-04)(24-1A)
PIN NO	3842400001A
CONSTRUCTION DATE	4/1/2008
PROJECT NAME	New Town BMP 53
FACILITY LOCATION	4124 New Town Avenue
CITY-STATE	Williamsburg, Va. 23188
CURRENT OWNER	New Town Associates LLC
OWNER ADDRESS	P.O. Box 5000
OWNER ADDRESS 2	
CITY-STATE-ZIP CODE	Williamsburg, VA 23188
OWNER PHONE	
MAINT AGREEMENT	Yes
EMERG ACTION PLAN	No

Get Last BMP No | Return to Menu

MAINTENANCE PLAN	Yes	CTRL STRUC DESC	Inlet Box
SITE AREA acre	2.906	CTRL STRUC SIZE inches	
LAND USE	Common Area	OTLT BARRL DESC	Dual RCP
old BMP TYP	Wet Pond	OTLT BARRL SIZE inch	42
JCC BMP CODE	A3 Wet ED Pond		
POINT VALUE	9	EMERG SPILLWAY	No
		DESIGN HW ELEV	80.93
		PERM POOL ELE	66.84
SVC DRAIN AREA acres	107.7	2-YR OUTFLOW cfs	15.78
		10-YR OUTFLOW cfs	209.54
		REC DRAWING	Yes
SERVICE AREA DESCRI	11.19 CH site plus Newtown Ph 2&4		
IMPERV AREA acres	70.00	CONSTR CERTI	Yes
RECV STREAM	Subwat 208-103-1		
EXT DET-WQ-CTRL	Yes	LAST INSP DATE	5/1/2002
WTR QUAL VOL acre-ft	3.51	INTERNAL RATING	3
CHAN PROT CTRL	Yes		
CHAN PROT VOL acre-ft	11.94		
SW/FLOOD CONTROL	Yes		
GEOTECH REPORT	Yes		

Inspected by:

MISC/COMMENTS

Prev. dry pond under SP-125-97 (see file), upgraded for MSWP and Sec 7 & 8. Waiver for reduced FB approved. Upstream of stream monitor plan SMP-01-07

Additional Comments:

See WQIA -011-04 and amended master SWM plan SWM-01-009. Construction difficulties in being able to excavate to design bottom elevation resulted in only about 60% of wet pool WQV being able to be achieved. Instead of 10-pt facility downgraded to 9-pt facilty. Master SWM was amended. Has trail, retaining wall and planted bench. Urban type setting BMP with fountain. Geogrid in d/s dam embankment, difficulties during early construction.

WATERSHED	PC	MAINTENANCE PLAN	No	CTRL STRUC DESC	Dual Junct B
BMP ID NO	173	SITE AREA acre	11.19	CTRL STRUC SIZE inches	60"x60"
PLAN NO	SP-125-97	LAND USE	M1 Public Building	OTLT BARRL DESC	Dual RCP
TAX PARCEL	(38-04)(01-50)	old BMP TYP	Dry ED Pond	OTLT BARRL SIZE inch	42
PIN NO	3840100040	JCC BMP CODE			
CONSTRUCTION DATE		POINT VALUE	4	EMERG SPILLWAY	No
PROJECT NAME	Williamsburg-JCC Courthouse			DESIGN HW ELEV	81.55
FACILITY LOCATION	Offsite Newtown (Casey) Property			PERM POOL ELE	na
CITY-STATE	Williamsburg, Va. 23188	SVC DRAIN AREA acres	109.5	2-YR OUTFLOW cfs	31.56
CURRENT OWNER	James City County			10-YR OUTFLOW cfs	281.40
OWNER ADDRESS				REC DRAWING	No
OWNER ADDRESS 2		SERVICE AREA DESCRI	11.19 CH site plus Newtown Ph 2&4		
CITY-STATE-ZIP CODE		IMPERV AREA acres	76.65	CONSTR CERTI	No
OWNER PHONE		RECV STREAM	UT of Powhatan Creek		
MAINT AGREEMENT	No	EXT DET-WQ-CTRL	Yes	LAST INSP DATE	5/1/2002
EMERG ACTION PLAN	No	WTR QUAL VOL acre-ft	9.31	INTERNAL RATING	3
		CHAN PROT CTRL	No	MISC/COMMENTS	
		CHAN PROT VOL acre-ft	0	Treat 1" RV over entire DA. Design Type 2. No ES. Micropool. BMP 53.	
		SW/FLOOD CONTROL	Yes		
		GEOTECH REPORT	No		

Get Last BMP No

Return to Menu

Previous

Date Record Created: 9/17/2009

Created By: Scott Thomas

WS_BMPNO: PC173

Print Record

PRINTED ON
Tuesday, March 09, 2010
4:30:53 PM

WATERSHED	PC
BMP ID NO	173
PLAN NO	SP-38-07
TAX PARCEL	(38-04)(24-1A)
PIN NO	3842400001A
CONSTRUCTION DATE	4/1/2008
PROJECT NAME	New Town BMP 53
FACILITY LOCATION	4124 New Town Avenue
CITY-STATE	Williamsburg, Va. 23188
CURRENT OWNER	New Town Associates LLC
OWNER ADDRESS	P.O. Box 5000
OWNER ADDRESS 2	
CITY-STATE-ZIP CODE	Williamsburg, VA 23188
OWNER PHONE	
MAINT AGREEMENT	Yes
EMERG ACTION PLAN	No

Get Last BMP No | Return to Menu

MAINTENANCE PLAN	Yes	CTRL STRUC DESC	Inlet Box
SITE AREA acre	2.906	CTRL STRUC SIZE inches	
LAND USE	Common Area	OTLT BARRL DESC	Dual RCP
old BMP TYP	Wet Pond	OTLT BARRL SIZE inch	42
JCC BMP CODE	A3 Wet ED Pond		
POINT VALUE	9	EMERG SPILLWAY	No
		DESIGN HW ELEV	80.93
		PERM POOL ELEV	66.84
SVC DRAIN AREA acres	107.7	2-YR OUTFLOW cfs	15.78
		10-YR OUTFLOW cfs	209.54
		REC DRAWING	Yes

SERVICE AREA DESCRI: 11.19 CH site plus Newtown Ph 2&4

IMPERV AREA acres	70.00	CONSTR CERTIF	Yes
RECV STREAM	Subwat 208-103-1		
EXT DET-WQ-CTRL	Yes	LAST INSP DATE 5/1/2002	Inspected by:
WTR QUAL VOL acre-ft	3.51	INTERNAL RATING	3
CHAN PROT CTRL	Yes		
CHAN PROT VOL acre-ft	11.94	MISC/COMMENTS	
SW/FLOOD CONTROL	Yes	Prev. dry pond under SP-125-97 (see file), upgraded for MSWP and Sec 7 & 8. Waiver for reduced FB approved. Upstream of stream monitor plan SMP-01-07	
GEOTECH REPORT	Yes		

Additional Comments: **See WQIA -011-04 and amended master SWM plan SWM-01-009. Construction difficulties in being able to excavate to design bottom elevation resulted in only about 60% of wet pool WQV being able to be achieved. Instead of 10-pt facility downgraded to 9-pt facility. Master SWM was amended. Has trail, retaining wall and planted bench. Urban type setting BMP with fountain. Geogrid in d/s dam embankment, difficulties during early construction.**

New Plan

ENVIRONMENTAL DIVISION PROJECT REVIEW and COMMENTS - TRACKING SLIP

Plan Type: ☐ C (Concept Plan) ☐ M (Master Plan) ☐ Other, Specify: _____
☑ SP (Site Plan) ☐ SUP (Special Use Permit)
☐ S (Subdivision) ☐ Z (Rezoning)

☐ EXPEDITED REVIEW STATUS (TOP PRIORITY)
☐ DRC Case REVIEW STATUS

Project Information:
Case No.: SP . 32 . 05
Project Name: NEW TOWN Sec 2 Village Square
Planner: TAMMY KOSARIN Extension: 6688
☑ Original Plan (1st Submission, 1st Plan Review)
☐ Revised Plan 1 (2nd Submission, 2nd Plan Review) ☐ "Slip-Sheet to Env. Div.
☐ Revised Plan 2 (3rd Submission, 3rd Plan Review) ☐ Amendment to Prev. Approved Plan
☐ Revised Plan 3 (4th Submission, 4th Plan Review)

Date Tracking:

	Date	
Transmittal Date:	MAR 30 '05	(from Planning)
Received Environmental Division:	MAR 30 '05	(Date Stamped Env Div)
Due / Return Date (Planning):	APR 13 '05	(Planning Return Date)
21 days from Transmittal Date:	APR 21 '05	(Env Div Goal Date)
Erosion & Sediment Control Plan Review Complete:	APR 04 '05	(E&SC Review Complete)
Stormwater Management/Drainage Review Complete:	APR 15 '05	(SWM Review Complete)
Environmental Division Completion Date:	APR 15 '05	(All Personnel)

☑ Forwarded to Planning
☐ Email ☐ Fax to Professional
Tammy Kosarin
Bob Cosby AES

Environmental Review Computer File Setup:

☐ Old Files	(Previous Reviews, Old files)	File: _____
☑ Original Plan	(1st Submission, 1st Review)	File: SP-032-05 .0 ←
☐ Revised Plan 1	(2nd Submission, 2nd Review)	File: _____ .1
☐ Revised Plan 2	(3rd Submission, 3rd Review)	File: _____ .2
☐ Revised Plan 3	(4th Submission, 4th Review)	File: _____ .3

Erosion & Sediment Control Plan Review (~~William A. Cain~~ / Mike D. Woolson)
Date Received: MAR 30 '05 (Received for E&SC Plan Review)
Review Complete: APR 04 '05 (E&SC Plan Review Complete)

Stormwater Management / Drainage Plan Review (Scott J. Thomas)
Date Received: APR 07 '05 (Received for SWM Plan Review)
Review Complete: APR 15 '05 (SWM Plan Review Complete)

Comments: Minor ENS. ISSUES

4-15-05

Staff. 4/4/05
No comments. 1ST
Mike

Tax Parcel I.D. Numbers: (38-4)(1-51) and (38-4)(1-56)

070005134

PROFFERS

NEW TOWN – SECTION 7 & 8

Z-5-06

Prepared by:
Kaufman & Canoles, P.C.
4801 Courthouse Street, Suite 300
Williamsburg, VA 23188

such Association shall be responsible for ensuring that any nutrients applied to the common areas which are controlled by such Association be applied in accordance with the applicable Nutrient Management Plan or any updates or amendments thereto as may be approved by the County Environmental Director. Within twelve (12) months after issuance of the Certificate of Occupancy for the final Residential Unit on the Property and every three (3) years thereafter, a nutrient management information seminar shall be conducted regarding the Property. Such seminars shall be designed to acquaint residents with the tools, methods, and procedures necessary to maintain healthy lawns and landscaping.

13. Stormwater Management.

(a) A site plan for the that certain stormwater management facility shown as "BMP PARCEL # 1" on that certain plat entitled "PLAT OF SUBDIVISION SHOWING CENTER STREET, NEW TOWN AVENUE, BLOCK 5, AND COMMON AREA, (BMP PARCEL#1) PREPARED FOR NEW TOWN ASSOCIATES, LLC", dated December 11, 2003, prepared by AES Consulting Engineers, and recorded in the Clerk's Office of the Circuit Court of the City of Williamsburg and the County of James City, Virginia as Instrument Number 040009441, as the same may be amended from time to time, shall be submitted to the County prior to issuance of a land disturbance permit for development of the Property. Owner shall complete and have in service BMP Parcel # 1 in accordance with such site plan prior to issuance of any land disturbance permit for development on Section 8 of the Property.

(b) Commencing at the date of issuance of the first land disturbing permit for any area within the Property and continuing for a period of five (5) years after Build-Out (defined below) of Sections 2&4, 3&6, and 7&8 of New Town, Owner shall at its expense monitor the certain stream located on the Property starting at the outfall of BMP # 1, shown on

ENVIRONMENTAL DIVISION REVIEW COMMENTS
WILLIAMSBURG/JCC COURTHOUSE
PLAN NO. SP-125-97 PTM/OEC
November 13, 1997

1. A Land Disturbing Permit and Siltation Agreement, with surety, are required for this project.

2. Water and sewer inspection fees must be paid prior to the issuance of a Land Disturbing Permit.

3. Provide a stone construction entrance at entrance to project.

4. If the diversion dike located on the West side of the project is a permanent structure, provide a drainage inlet to capture the flows. This could be accomplished by turning structure 9A which is currently a manhole into an inlet.

5. Show any temporary soil stockpile areas, staging and equipment storage areas.

6. There are two inlets, 8A and 17A, in the calculations that do not appear on the plan. They appear to be future extensions of the system. How will the drainage be handled until the systems are extended? Also, the drainage area for 8A is shown as 1.52 acres on the plan and 1.1 acres in the calculations. Please revise.

7. The Sediment Basin Design Data Sheets submitted for the sediment basins proposed do not accurately reflect the drainage areas served by each proposed basin. Resubmit the design sheets with correct sizing for the drainage areas served, in accordance with the 1992 VESCH criteria. Discussion with the project engineer indicated that diversions were to be used to divert clean water from the sediment basins to reduce their size. These diversions need to be included on the plan.

8. Identify by number, each sediment basin shown on sheet C-4.

9. The sediment basin on the east side of the project shows conflicts with both the storm drainage as well as the sewer system. Please provide a sequence of construction that details how the installation of these three items will be accomplished while meeting the requirement for the sediment basin to be in place to control the initial site disturbance. Investigate the feasibility of rerouting the storm drain so that it does not have to flow through the basin by rerouting it under the Sally Port area, replacing the 18" pipe.

10. Provide a stabilized inlet channel to convey the sediment laden water down the slope and into the proposed basins.

11. Show the elevations for the barrel, crest of riser, dewatering orifice, etc. for each basin on sheets C-4 & C-9. Also show the size of the barrel, riser, and anti-vortex device, etc.

12. Add to the note on sheet C-4 regarding removal of the basin to the west of the entrance that the wall and columns will be installed after basin removal.

13. Provide details on how the sediment basins will continue to capture all of the sediment laden runoff after the storm drainage system has been installed and the site is brought to

subgrade.

14. Provide details for the existing 42" outfall pipe shown on sheet C-4 across Monticello Extension. Is it in place? is there outfall protection below it?

15. Identify any off-site land disturbing areas required with proper erosion control measures.

16. Due to the nature of this project, provide a phasing plan and sequence of construction on the plan.

17. Submit an adequacy analysis for all receiving channels to ensure that the channel is stable for the 2-year velocity.

18. The following comments refer to the design of the BMP facility:

    A. Provide on plan sheet C-5 the following; limits of clearing and grading with appropriate erosion control measures, tree protection, a construction entrance, identify the contractors staging and stockpile area and show the extent of the 100-year storm flooding.
    B. Provide a stormwater management facility easement to include a 20-foot wide access easement and a 15-foot wide maintenance easement measured from the 100-year storm elevation and including the dam and outlet structure.
    C. An Inspection/Maintenance Agreement shall be executed with the county for the BMP facility for this project.
    D. As-built drawings must be provided for the detention basin on completion. Also, a note shall be provided on the plan stating that upon completion, the construction of the dam will be certified by a professional engineer who has inspected the structure during construction.
    E. Submit a BMP calculation worksheet that demonstrates that this project meets the county's 10-point BMP criteria. Provide conservation easements for all Natural Open Space areas claimed in the BMP worksheet.
    G. Provide evidence that any required wetlands permits have been obtained.
    H. The calculations specify that the barrels' upstream inverts are 66.8 while the plan shows them at 66.8. Also the barrels' slope is specified as 0.82% in the calculations while the plan shows 0.71%. Please revise as necessary.
    I. The type of outlet structure should be revised by eliminating the 2-60" risers and utilizing instead a modified EW-11 structure such as AES used on a Fords Colony BMP and was used on a county BMP facility. This will greatly improve the appearance of the structure as the weir can be made to conform to the slope of the embankment and not be exposed to view. The existing arrangement will require two 96" diameter anti-vortex devices on top of the risers.
    J. Specify the minimum width and depth dimensions of the core trench as four feet.
    K. Provide filter cloth under the riprap outfall protection.
    L. Provide anti-seep collars sufficient to increase the flow length by 10%.
    M. Provide a geotechnical report to verify the design of the dam structure.
    N. Investigate changing the low release structure to a reverse grade pipe installed in a micropool, a small area of standing water in front of the riser. This will provide for a more maintenance free outfall than the perforated pipe arrangement proposed. The pool should be about 3 feet deep to allow the pipe to be submerged about 12-18" below the water surface.

WAC/SJT

ENVIRONMENTAL DIVISION REVIEW COMMENTS
NEW TOWN – CONVERSION OF BMP # 53
COUNTY PLAN NO. SP – 38 - 07
May 29, 2007

General:

1. A Land-Disturbing Permit and Siltation Agreement, with surety, are required for this project.

2. Wetlands. Provide evidence of a wetland permit for proposed BMP conversion activities and specifically that the USCOE is acceptable with work as proposed within their existing easement. It is unclear if this easement, which coincides with the location of this BMP, still exists or if it has been abandoned or become void with new wetland permits.

3. A Standard Inspection / Maintenance agreement is required to be executed with the County due to the proposed stormwater conveyance systems and Stormwater Management/BMP facilities associated with this project.

4. Proffers. It should be noted that Proffer Condition # 13a from approved rezoning Z-05-06 requires submission of this site plan prior to issuance of a Land-Disturbing permit for development of New Town Section 7 & 8 and the BMP shall be complete and in service (in accordance with the approved plan) prior to the issuance of any land-disturbing permit in New Town Section 8.

5. Offsite Work. Information provided in the plan set reflects that a portion of the work, as proposed along the southern side of the stormwater basin, will encroach onto the Towne Bank property (approved County Plan No. SP-31-04). Provide evidence of permission to occupy and disturb this area from the parcel owner.

6. A Geotechnical Report, prepared by a professional engineer, is required to be submitted for the BMP design prior to issuance of a Land-Disturbing permit for the project. Information necessary to be contained in the report includes, but should not be limited to, indication that the basin will be capable of maintaining a normal pool, slopes will be stable under saturated conditions and assurance that the existing or modified embankment has stability and will be capable of withstanding the effects of a permanent standing pool.

7. Record Drawing and Construction Certification. The stormwater management/BMP facility as proposed for this project will require submission, review and approval of a record drawing (as-built) and construction certification prior to release of the posted bond/surety. Provide notes on the plan accordingly to ensure this activity is adequately coordinated and performed before, during and following construction in accordance with current County guidelines.

8. VSMP. It appears construction activity for the site will exceed 2,500 square feet. Therefore, it is the owner's responsibility to register for coverage under the General Permit for Discharge of Stormwater from Construction Activities, in accordance with current requirements of the Virginia Department of Conservation and Recreation and the Virginia Stormwater Management Program. Visit http://www.dcr.virginia.gov/sw/vsmp.htm or contact the DCR Central Office at 804-371-7330 for additional information.

9. Existing Information. All existing storm drainage pipe information needs to be shown on the grading/drainage plan Sheet 3, especially at the four primary inflow pipes into the stormwater basin. Pipe sizes and invert elevations need to be labeled appropriately as well as structure identification numbers from previously approved plans. Also, clearly label information for the existing JCSA sewer which traverses in an east to west direction just to the north of the proposed stormwater basin. No pipe sizes or manhole information was shown on the grading/drainage plan.

Chesapeake Bay Preservation:

10. Environmental inventory Sheet 2 needs to show and label a distinct limit of work for the project, consistent with the site erosion and sediment control and grading plans.

11. The environmental inventory map needs to show and label the presence of delineated wetland, RPA and RPA buffer at the outfall end of the principal flow control structures for the stormwater basin, on the west side of New Town Avenue and to the north of Langley Federal Credit Union.

12. Section 23-5 of the Chesapeake Bay Preservation Ordinance does not allow land-disturbing activities to be performed on slopes 25 percent or greater. It appears that steep slope areas are impacted at the west end of the project; therefore, a request for a waiver or exception is required, in writing.

Grading Plan:

13. Grading Plan. The following comments pertain to the grading plan for the proposed stormwater basin:

    13a. In the area to the southwest of the "Towne Bank" outfall, there is a very steep vertical drop between proposed contour El. 78 and El. 81. It does not appear a wall is present or proposed at this location.

    13b. Along the western portion of the basin at or near the dam embankment, the proposed contours in this area do not appear to consider the elevation of existing outfalls. The existing outfall to the south reflects an apparent invert (by contour) of 65 as does the outfall at the northern location; however, the revised contours in these areas reflect elevations of 66 and 67 respectively.

    13c. Information reflects that grading will be required along and across the existing James City Service Authority easement. Ensure there are no detrimental effects to public utilities at this location (such as inadequate depth of cover) and that the JCSA approves of the proposed grading plan.

    13d. There appears to be a problem with existing contours on Sheet 3 where grading along the north slope of the stormwater basin meets the parking bay where the construction laydown area is proposed. Either a retaining wall is not labeled or there is a "bust" in elevations between plans.

Erosion & Sediment Control Plan:

14. Material Removal. Provide a note on the title sheet of the plans indicating that all objectionable and deleterious material is to be removed from the site and disposed of in a state approved facility meeting the requirements of all applicable local, state, and federal regulations.

15. Temporary Stockpile Areas. Currently, an area measuring approximately 50' X 40' is being proposed as a stockpile and laydown area for construction. With the proposal reflecting more than 7,500 cubic yards of material is to be removed from the basin area, information will be necessary to show that this area is large enough to serve the site throughout the duration of construction.

16. Offsite Land Disturbing. There is a statement beneath the Sequence of Construction provided on plan Sheet 4 indicating that no off-site land disturbing is proposed with this project; however, the plan reflects that disturbance will be on the Town Bank property, within the limits of the VDOT Right-of-way, in the Block 5 area (unknown if private), and across the JCSA Sanitary Easement. Be advised that a land disturbing permit cannot be issued for the proposed improvements until appropriate information has been provided to reflect permission and/or approvals have been granted by the property and easement owners to conduct work as proposed.

17. Limits of Work. Show and label a distinct limit of work (clearing and grading) around the site periphery. Be sure to include work associated with installation of erosion and sediment controls, offsite utility connections, access and construction laydown areas. Ensure disturbed area estimates match land-disturbance inclusive within the limits of work. Remove the leader stating that the existing trail is the limit of work along the northern side of the project as the trail extends to Courthouse Street, extending well beyond the apparent limits of work. Provide information in the erosion and sediment control narrative to reflect how the work near the Town Bank portion will be accessed.

18. E&S Plan. The following comments pertain to the erosion and sediment control plan as presented for the project on Sheet 3.

    18a. The erosion and sediment control plan as presented is more geared toward a final product with pond grading complete and storm drainage pipes upgraded. Disturbance associated with dewatering the existing dry pond and initial clearing and grubbing of the basin area will be very invasive and disruptive to surrounding roads, residences and businesses and the downstream natural environment. Ensure the erosion and sediment control plan adequately addresses this early phase of land-disturbing and site work.

    18b. The plan does not address how flows from within the existing streams/channel will be handled while the proposed modifications are under construction and what erosion and sediment control measures are needed to ensure adequate downstream protection.

    18c. The boxed note on the left side of plan Sheet 3 needs to indicate a greater frequency of road sweeping/brushing than weekly. Cleaning in this manner needs to follow the provisions of Minimum Standard # 17 of the Virginia Erosion and Sediment Control regulations.

18d. The location of the proposed construction entrance appears to be located on a severe cross slope. Ensure that the location of the entrance will be appropriate for the anticipated construction traffic.

18e. Provide for outlet protection at the outfall of the barrel pipes on the western side of New Town Boulevard and all system outfalls in the basin area.

19. Sequence of Construction. The Sequence of Construction as presented on plan Sheet 4 needs to be revised to incorporate the following comments:

19a. Provide additional steps to indicate the timing of installation of specific components as the installation of some items will be dependent on others. For example, the upper limits of the basin will need to excavated prior to the placement of the revised dewatering orifice. Without the additional storage in the basin, the principal spillway may be used more frequently resulting in large amounts of sediment being transported off-site and the potential for a USACOE violation.

19b. Provide a statement that no erosion control measures are to be removed without proper permission from the assigned Environmental Division inspector.

19c. The sequence refers to the installation of silt fence and dewatering structure but there is no indication of where these items are to be installed on the plan set.

20. Inlet Protections. Provide inlet protection at the inlets in proximity to the construction entrance on New Town Boulevard. Manufactured BMP inlet protections such as gutter buddies or equal may be less invasive.

21. Seeding and Mulching Specification. Revise the permanent seeding and mulching specification to indicate a conservation seed mix.

22. Dewatering. As dewatering operations will be required at various times throughout the duration of construction, provide all appropriate references to the VESCH and show on the erosion and sediment control plan the location of the dewatering structure or device. Be advised that these structures need to be placed on a level surface that may not exist near the proposed improvements. Provide information for anticipated dewatering methods and required erosion and sediment controls (secondary filtering structures, bags, etc.). This may need to be further elaborated on in the narrative.

23. Safety Fence. Use of orange colored safety fence in accordance with VESCH Minimum Standard & Spec. 3.01 of the VESCH may be warranted along the frontage of the site and at all locations of ingress and egress to all trails and sidewalks as they will be closed to, or traffic patterns altered for, pedestrian traffic during construction.

24. Tree Protection. Information is provided in the sequence of construction for the installation of tree protection; however, there is nothing shown on the erosion control plan to indicate specifically where the measure is to be used. Revise the plans as necessary to appropriately protect all vegetation that is to remain. Tree protection devices must comply with the provisions of Minimum Standard & Specification 3.38 and 3.01 of the VESCH.

25. Dust Control. Due to the project site's proximity to Monticello Avenue, New Town Avenue and Courthouse Street and existing residences and businesses in New Town, add dust control in accordance with Minimum Standard & Spec. 3.39 of the VESCH to the erosion and sediment control plan for the project.

Stormwater Management / Drainage:

26. Ensure a wet pond, rather than a dry pond at this location, is consistent with the established *New Town Design Guidelines.*

27. Provide a general note on the cover sheet of the plan to indicate that the County BMP ID Code for BMP # 53 is PC 173.

28. General. This stormwater management review is very unique compared to any other known case in the County. It is rare that an existing stormwater basin in a very new development is retrofitted in full. This is especially true in New Town which in itself is a very unique concept compared to most other new developments. It's neo-traditional urban design concept is based on creating a pedestrian-friendly atmosphere. This in combination with project history, permit requirements (wetlands, stream, Chesapeake Bay exception, etc.), master stormwater management plan requirements, County/state BMP design/construction requirements and community design guideline conditions, makes this review very unique in nature. As such our Division is not opposed to the proposal. We recognize that this is necessary to meet wetland permit and master stormwater management plan requirements and actually finishes off many years of discussion on converting this basin from a dry to a wet pond. Actually a wet pond at this location may make for a more suitable visual aesthetic condition and fit well into the New Town character and scheme, especially if fountain features are incorporated into the design. However, the location of the project and features of the conversion from a dry to a wet basin raises three other issues:

    1) Conversion to a 10-point BMP means that it must have all features necessary to meet the intent of a County type A-3 BMP.
    2) Safety issues must be considered as a high priority to this basin.
    3) The potential for an urban-style wet pond BMP at this location may fit the development scheme of the project better rather than a template wet pond meant for typical commercial or subdivision sites.

    In all scenarios, the BMP redesign must meet all applicable design/construction requirements from the County BMP manual and the Virginia Stormwater Management handbook including, but not limited to: forebays; aquatic and safety benches; aquatic plantings, buffers and other requirements as contained in the County BMP manual and applicable Virginia Stormwater Management Handbook (VSMH) section must be adhered to. *(Note: One of the things our Division stressed to the applicant when it was known that the master stormwater plan needed revised to meet wetland permit requirements was that if BMPs were pulled upland out of natural stream and wetland areas that this would or may conflict with developable land and exceptions or waivers to stormwater management basin requirements would not be compromised.)*

With regard to the urban-style BMP as mentioned above, our Division will be discussing this internally with the Planning Division and may request a meeting with the owner and plan preparer after these comments are issued. Further discussions may occur on this subject; however, for now the comments as issued pertain to this plan of development as submitted.

29. Curve Number. Provide a composite breakdown of impervious cover amount per approved site plans to support the runoff curve number of 85 as used in BMP design.

30. Water Quality. Provide a composite breakdown of impervious cover amount per approved site plans to support the impervious cover acreage of 70 acres as used for water quality design.

31. Forebays. The following comments pertain to the pretreatment sediment forebays as shown on the grading/drainage plan and detail sheets.

    31a. For clarity purposes, label the "east" and "south" forebays on the plan consistent with the design report.

    31b. The current plan only shows two pretreatment sediment forebays for four primary storm drain inflow locations. For this basin redesign, it is not preferred that the location of the forebays be situated within the normal pool are of the basin, as this will make access and maintenance difficult, especially for the forebay which handles the most drainage area of the 115.90 acre watershed. The primary forebay needs to follow design/construction requirements from Minimum Standard & Spec. 3.04 of the VSMH, to the greatest extent possible.

    31c. It must be demonstration that the "east" and "south" pretreatment sediment forebays sizes are based on volume associated with impervious cover, not drainage area. Computations in the design report only shown drainage area, volume required and volume provided. *(Note: The standard is 0.1 inch per impervious acre.)*

32. Riser. Provide a section on the detail sheet showing the riser and outlet barrel with all critical construction information (inverts, orifices, crests, etc.) in relation to proposed pond bottom and water surface elevations. Information must match elevations and sizes shown in the Hydraflow Pond Report (Pond No. 1-BMP # 53).

33. Inflows. Short-circuiting will occur at two of the primary storm drain inflows with regard to the principle flow control structure.

34. Safety Bench. As the normal pool of the basin is four feet or greater in depth and there are not uniform 4H:1V interior graded slopes around the entire periphery of the basin (above normal pool), the safety bench cannot be eliminated. Provide a safety bench meeting County BMP manual requirements. *(Note: As outlined above, it is not the intent of our Division to grant a waiver or exception to safety requirements of the BMP, given the nature of surrounding development.)*

35. Aquatic Bench. The aquatic bench is not consistent in configuration and minimum width dimensions around the entire stormwater basin normal pool perimeter. In some places it is shown as up to 13.7 feet wide, in other areas it is non-existent or only 2-4 feet in width.

36. Principal Spillway Crest. The flat DI-1 top grate unit as proposed for the principal spillway structure is generally not acceptable for use. James City County and the Virginia Stormwater Management Handbook (VSMH) do not recommend flat grates for trash racks due to clogging and maintenance problems. The structure should be recessed into the embankment with sloped grates consisting of inclined, larger bar unit such as a modified VDOT DI-7 grate; however, beehive, convex, basket type, inverted DI-5 type or similar applications, such as HDPE trash racks per Technical Bulletin # 7 of the VaDCR can be considered on a case-by-case basis. Provide appropriate riser, grate and bar details as applicable.

37. MS-19. Provide computations to demonstrate that the inflow stormwater conveyance channel into the "east" forebay meets Minimum Standard # 19 criteria. It must be demonstrated that the 10 ft. wide and 9.5 percent graded channel has adequate erosion resistance for the 2-year design storm event and adequate capacity for the 10-year design storm event.

38. SSC. Without getting into a lengthy historical discussion, special stormwater criteria has not been applied to new land bay developments at New Town for several reasons. However, this is a retrofit scenario and due to concerns raised during the rezoning case for New Town Sections 7 and 8 about the adequacy and condition of the downstream natural receiving stream and wetland channel system, an attempt must be made to comply with Special Stormwater Criteria for this specific project only.

39. Pond Hydraulics. There is no information in the design report to indicate what effect changes to the normal and 1-, 2-, 10- and 100-year water surface elevations in the pond will have to adjacent stormwater drainage piping systems (at four inflow locations). As the previous facility was a dry pond with different WSEL's, this must be examined to ensure changes to design in the basin will not result in upstream flooding to existing roadways, parking areas or structures. Provide revised pond and upstream storm drainage piping computations as necessary.

40. Maintenance Plan. Provide a maintenance plan for the stormwater management/BMP facility. Section 23-10(4)(b) of the Chesapeake Bay Preservation Ordinance requires stormwater management plans to include a long-term schedule for inspection and maintenance of stormwater management/BMP facilities. The plan should be specific for a *{County BMP Type}* facility.

41. Landscaping. Provide a landscaping plan for the BMP conversion. A boxed note on Sheet 3 shows simple seeding of the aquatic bench with a wetland seed mixture which would not meet the requirements of the County BMP manual and Minimum Standard & Spec. 3.05 of the VSMH.

42. Design High Water. It must be ensured that the 100-year design high water elevation for the stormwater basin (El. 80.63) does not flood existing adjacent travelways, parking areas or structures.

43. Our Division reserves the right to further discuss final design and configuration issues associated with the stormwater basin with the applicant and plan preparer.

History of BMP 53

- Dry pond servicing the Courthouse construction, early phase of New Town.
- Original MSWMP proposal was large BMPs in wetland areas.
- WEG identified problems USACOE had with issuing a wetland permit under this concept.
- WEG identified that the USACOE and they felt an upland BMP plan was better and could obtain approval.
- WEG presented their idea to create a MSWMP which moved all BMP uplands.
- WEG stated that they wanted County review and approval of the MSWMP before the approached the USACOE.
- County stated upland BMP proposal looked ok, but we would not stand for the master planned BMPs, which would conflict more with developed land areas, constantly requesting waivers for:
    - Water quality volume
    - Channel protection volume
    - Freeboard
    - Benches (aquatic and safety)
    - Forebays
    - Buffers
- County at that time recognized that BMP 53 and existing dry pond to be converted to a wet pond may be an exception due to existing development all around and highly centralized area to the New Town concept.
- New Town Sec 7 & 8 proffer
- In comes SP-38-07
- Very unique situation, must understand retrofit needs, SWM needs and land use needs.
    - Never before encountered by staff
    - Highly urbanized area
    - Must meet 10-point requirements
    - Safety concerns (traffic/pedestrian)
    - Oyster Point/Downtown Norfolk-Newport News type (walls, fountains, railings, lights, amenity, etc.)

All Previous Comments

ENVIRONMENTAL DIVISION REVIEW COMMENTS
NEW TOWN – CONVERSION OF BMP # 53
COUNTY PLAN NO. SP – 38 - 07
August 17, 2007

General:

1. A meeting was held for this project on June 7, 2007 between the applicant, plan preparer and County Environmental and Planning Division staff. General layout and design features were discussed.

2. Wetlands. Response to previous comment stated that the permit was contained in the submittal package; however, none was found. A Land Disturbing Permit cannot be issued for this project until the approved and signed copy of the permit has been provided to our Division. Additionally, the latter portion of the comment was also not responded to. Ensure the USCOE is acceptable with work as proposed within their existing easement. It is unclear if this easement, which coincides with the location of this BMP, still exists or if it has been abandoned or become void with new wetland permits.

3. Offsite Work. Response to previous comment # 5 stated that the work was in an existing drainage easement. The current plan clearly shows clearing and grading required on the bank parcel at the southwest corner of the basin. Also, there is an area in the northeast corner of the basin that also appears offsite and within the JCSA easement. Therefore, previous comment # 5 remains outstanding. Provide evidence of permission to occupy and disturb offsite parcels from applicable parcel owner(s).

4. Geotechnical Report. Response to previous comment is not understood and the comment remains to be addressed. Regardless of the retrofit, the age of the existing dam, and the time the current basin has been in operation, it is necessary, and will be required, that a Geotechnical Report (or assessment), prepared by a professional engineer, is submitted for the BMP design prior to issuance of a Land-Disturbing permit for the project. The report needs to address items such as the basin's ability to maintain a normal pool, indicate slopes will be stable under saturated conditions, and assurances need to be made that the existing or modified embankment is stable and will be capable of withstanding the effects of a permanent standing pool. *(Discussion: It is unclear how the response to the comment can state that the pond will be converted from a dry pond function to a wet pond function yet the water surface elevation - normal pool - will remain unchanged. There will be a considerable increase in the amount and volume of normal, permanent pool stored behind the impounding structure dam. Based on our knowledge of the construction of the basin, there was intricate geogrid system installed at lower levels of the embankment due to poor soil conditions. What effect an increased normal pool and storm volume will have on the dam embankment and New Town Avenue road structure must be examined.)* 8.

5. Existing Information. Although some information was added to the plans to address previous comment # 9, not all information was provided. No existing storm pipe data or information could be found for the storm systems on the Towne Bank parcel, to the west of the bank building along New Town Avenue and within the large parking lot northwest of the Suntrust Building. The plan should reflect all existing storm drain pipe information in the vicinity of the project. *(This is required per the design plan checklist.)*

6. The new retaining wall added to the plan along the north side of the stormwater basin may require a building permit through Codes Compliance.

Grading Plan:

7. In response to previous comment # 13b, grading has been revised at the western limits of the basin at the 18-inch outfall. An uncharacteristic and non-traditional outfall configuration is being created at this location. Contours were pulled back to create an "alcove" type configuration and deflection angle is about 60 degrees compared to the normal pool location. This will result in scour to the graded side slope. Either an additional structure needs to be provided to change the alignment into the basin, or the outfall configuration needs to be revised to prevent scour in this location.

Erosion & Sediment Control Plan:

8. Material Removal. Additional information was provided to address previous comment # 14. Add "existing trash and debris" to Note # 24 on the cover sheet. Note 24 as provided in response to previous comment 14 does not address the concerns and needs to be revised to reflect what was previously requested. The current basin area is littered with debris, bottles, and various types of garbage which will need disposed of in a proper manner before, during or after construction.

9. Temporary Stockpile Areas. Response to previous comment # 15 indicated that "material excavated from the BMP is removed for the site and not stockpiled." It must be verified that disposal sites or areas fall under the provisions of an approved erosion and sediment control plan and land-disturbing permit or the disposal site E&S plan must be provided as part of this part. State the intent of where and how excess material is to be disposed, whether in other areas/sections of New Town or elsewhere. *(This is in accordance with Minimum Standard # 2 of the Virginia Erosion and Sediment Control regulations.)*

10. Offsite Land Disturbing. The response to previous comment # 16 is incorrect as the limit of work for the project clearly shows clearing and grading and utility work on offsite parcels. Provide information in support of the statement made in response to previous comment 16. See comment # 3 above. A land-disturbing permit cannot be issued for the project until evidence of proper permission to occupy and disturb offsite parcels is demonstrated.

11. Limits of Work. The limits of work shown for the project to address previous comment # 17 (and # 10) does not address access to the project site area consistent with the placement of the proposed construction entrance shown on Sheet 3. Ensure disturbed area estimates match land-disturbance inclusive within the limits of work.

12. E&S Plan. The following comments pertain to the erosion and sediment control plan as presented for the project on Sheet 3.

    12a. Response to previous comment #18 does not address the comment. While dewatering the basin is needed to conduct the work below the proposed normal pool of the basin, it is not the only way to control erosion in the basin and to prevent sediment laden stormwater from leaving the site. Work in a live system that cannot be taken off line is difficult;

however, there are several ways to combat the issue while lessening the potential for sediment loss. One is to specify that only the peripheral improvements are to be conducted during periods of relatively dry weather or while the current basin remains in operation as a dry facility. Another method is phasing portions of the project while creating modes of bypass. Another is use of insertable sediment filter bags in the primary flow control structure. Also, it must be clear that dewatering operations must follow the provisions of Minimum Standard & Spec. 3.26 of the VESCH.

12b. Response to previous comment #18b does not address the comment. Stating that dewatering is the only option is unacceptable. Containing the current channel flows to an area upland of the construction site and preventing this water from coming in contact with the newly disturbed areas is the main goal. This could be accomplished with the construction and stabilization of the forebay area up front of all other construction. This water could then be pumped directly to the riser. There are additional options to control the existing stormwater flows that could also be explored. This is not for the contractor to decide as is stated in response to comment #19, but for the plan preparer to provide. Without this information provided in the erosion and sediment control plan, the plan cannot be approved as it will not be deemed adequate.

12c. It is preferred that the boxed note provided to address street sweeping and to address previous comment # 18c be revised to change from "a minimum of once a week" to state that street sweeping will be performed on a daily basis or at the end of each workday. This will be an important measure not only for erosion control but also for public perception.

12d. Concern is still expressed about outlet protection or slope stabilization needed at the three primary storm drain outfalls into the proposed stormwater basin. Although it is understood that in it's final configuration, the outfalls are at or below proposed normal pool elevation, during construction the work area will be kept dry and vertical distance between the storm outfalls and the bottom of the basin range from 4 to 9 feet. Temporary erosion control matting or rock stabilization may be necessary along the interior graded side slopes of the basin (during all phases of work activities and once at final grade) to prevent erosion. *(This is in accordance with Minimum Standard # 7 and # 8 of the Virginia Erosion and Sediment Control regulations.)*

13. Matting. All 2H:1V graded slopes in the pretreatment forebay (above normal pool) will require erosion control matting.

Stormwater Management / Drainage:

14. General. Provide a response from a landscape architect (or similar professional) stating how the primary features of this urban BMP pond design fits the intent of discussions held at the project meeting of June 7, 2007, previous comment # 28 and the intent of Section 24-98(d)(4) of the zoning ordinance (sensitive to the character of the site, curvilinear shape, complements existing topography, etc.). This includes the creative use of shape, grading, landscaping and walls to create an urban BMP configuration.

15. Curve Number. The following comments pertain to the design runoff curve number as selected for the project and to the response provided to previous comment # 29.

15a. The basis for the adjustment to CN for LID treatment area is unclear. The breakdown shows a CN of 72 for 13 acres treated by LID. Most LID features within the watershed were designed for water quality and not larger storm events. Therefore, it is our position that CN within those subareas should not be adjusted.

15b. There is no indication in the weighted curve number analyses of what hydrologic soil group (HSGs) were used to select the CN values for land uses.

15c. The representative CN value for commercial and business districts at 78 percent impervious is much higher than a CN of 89 based on most standard hydrology references.

15d. There is no indication in the composite breakdown as to whether the CN value selection accounts for build-out within the 110 acre watershed or whether it is based on current conditions. The design should consider infill and buildout, especially within the limits of New Town and within the "south" portion of the watershed between Monticello Avenue and old Ironbound Road (ie. south of the Courthouse).

15e. Based on information provided, impervious cover within the 109.8 acre watershed is 70 acres. This reflects an impervious cover percentage within the watershed of about 63 percent. The CN value of 85 does not appear representative of a urban commercial/business district which is over 60 percent impervious.

15f. Above related comments may result in revision to the overall weighted CN value as used in the design.

16. Routing. Ensure model input in the design report (Pond Report-Pond No. 1-BMP # 53 Pond Data) for the riser/barrel structure reflects asbuilt conditions and data for the structure. *(Information provided in the plan set for the riser structure is not consistent with the information provided in the as-built file and that provided in the supporting documentation. For example, the information related to the invert of the 8" dewatering device is noted at Elevation 68.88 while the routing and as-built information reveals 66.84. Please ensure that all information provided throughout the plan set is current and up to date.)*

17. Inflows. Provide additional information to address previous comment # 33. The rezoning has no bearing in plan of development requirements to adhere to standard design and construction standards in the VESCH, VSMH, the County BMP manual and other applicable standards & specifications. As this basin was deemed to be a 10-point BMP with 60 percent removal efficiency per the current approved master stormwater management plan, any short-circuiting will lessen the pollutant removal efficiency of the basin and will lessen the pollutant removal capability of the basin to something less than 60 percent (10 points). If the intent is to not address short-circuiting due to space and configuration constraints, then revision of the overall master stormwater management plan for the project may be required. This is a serious issue that must be addressed by response. *(Note: If it is felt that some other pond feature is being provided to compensate for the short-circuiting from two primary inflow storm drains, then this must be explained by response in further detail.)*

18. Freeboard. As the stormwater basin does not have a designed emergency (overflow) spillway mechanism, confirm if the basin achieves adequate freeboard of 2 feet to the lowest point on top of dam (roadway).

19. Safety Bench. The response to previous comment # 34 is acknowledged; however, a request to waive the safety bench requirement from the County BMP manual is still necessary, in writing. Explain features that are being provided to promote safety in lieu of the bench to support the waiver request.

20. Aquatic Bench. The response to previous comment # 35 is acknowledged. Although a full perimeter aquatic bench is now provided, it is only 11.5 feet wide which does not conform to the requirements of the County BMP manual (up to 15 feet). Provide a waiver request in writing.

21. DI-1. With regard to the response to previous comment # 36, an access manhole with a DI-1 grate top is not easily accessible. An alternative structure should be considered which has durability and which is able to be removed to perform required maintenance.

22. Forebay. The following comments pertain to the pretreatment sediment forebay as shown on plan Sheet 3 and on details on Sheet 6:

    22a. Provide soil and compaction specifications for the embankment of the forebay.

    22b. The forebay contains a low flow or overflow channel. As this channel will more than likely be flowing throughout the year, and as the channel is being placed atop fill, an armored channel is needed to be places down the slope and across the aquatic bench to the normal pool.

23. WSELs. It appears that higher design water surface elevations for the basin design will result in indundation of the trail and the possibly the cooling tower pad west of the Suntrust Building. Ensure there is no impact to these facilities.

24. Pond Hydraulics. In the "Water Surface Elevation – Existing Conditions versus Proposed" tables as provided in the design report and in the response to previous comment # 39, add a row which shows the water surface elevation of normal (permanent) pool in the existing-currrent state versus proposed.

25. Maintenance Plan. There is nothing in the BMP maintenance plan on Sheet 6 to indicate requirements or frequency for routine debris, trash and sediment removal from the principal and normal pool flow control structures, including the DI-1 box and the 12-inch low flow orifice.

26. Landscaping. Provide a general note on landscaping plan Sheet 4 to indicate reference to Minimum Standard & Spec. 3.05 of the Virginia Stormwater Management Handbook.

27. SSC. Based on the entire history of the New Town development and other factors, it has been determined that Special Stormwater Criteria will not be required to be achieved for the project. Therefore, previous comment # 38 is determined to be addressed without any additional information.

ENVIRONMENTAL DIVISION REVIEW COMMENTS
WILLIAMSBURG JCC COURTHOUSE
PLAN NO. SP-125-97
February 17, 1998
(resubmittal) PTM/DEC

1. The Stone Construction Entrances (CE) shown on plan sheet C-5 will require the use of Construction Road Stabilization (CRS); VESCH std.& spec. 3.03. Provide notes requiring the use of CRS at both locations as follows:
   A. The proposed entrance located on Ironbound Rd. and leading to the rear of the courthouse must have CRS along its entire length, to provide a stable access route for ingress & egress to the project site.
   B. The proposed entrance for the construction of the BMP must include the use of CRS for the first two to three hundred feet beyond the CE to enhance the effectiveness of the entrance.

   The contractor needs to be made aware that if the placement of stone on the entrance roads is not sufficient to prevent tracking of mud on the roads that it will be necessary to installa wash rack to control the construction traffic.

2. Provide culverts along each construction entrance and road where necessary to promote proper drainage.

3. Provide Temporary Slope Drains (TSD), VESCH std. & specs. 3.15, at each location where the storm water is diverted into the sediment basins by the diversion dikes.

4. Provide a note on plan sheet C-5 that states the diversion dike located on the north side of the project site will remain in place and functional until the parking areas are stabilized with the stone base required for paving.

5. The modeling of the receiving channel downstream from the project site did not include the baseflow channel which has an approximate bottom width of two feet with almost vertical side slopes. While the floodplain section has adequate capacity to handle the increased flows, I have real concerns about the stability of this smaller, incised channel. While permanent improvements are not warranted in this channd as it will likely be paved or piped in the future, temporary check dams would increase its stability. There was an analysis done by Williamsburg Environmental Group early on in the study of stormwater management for the Casey Tract that proposed the use of log check dams and other bioengineering techniques to shore up the existing channels. These techniques need to be included as part of this project to protect the stream between Monticello Avenue and the proposed BMP.

6. The following comments pertain to the BMP Facility:

   A. Provide a note on the detail for the Dam Section "A-A" on sheet C-10 that requires the use of water tight rubber o-ring type joints for the 42" RCP barrels.

   B. Revise Dam Construction Note #1 on plan sheet C-10 starting in the third sentence as follows - "The Geotechnical Engineer shall submit to the James City County Environmental Division for approval recommendations for Dam design, Core Trench width and depth, Anti Seepage Control, etc. These recommendations are hereby made a part of the dam's construction specifications. The Geotechnical Engineer will inspect the dam during construction to ensure that proper materials and construction methods are used during construction. After construction, the Geotechnical Engineer shall also submit to the County a letter certifying that the dam was built in accordance with the plans, specifications and recommendations for the project."

Section 6. Profile of the Powhatan Creek Mainstem (non-tidal)

OVERALL PROGNOSIS

Although hard to reach, the mainstem of Powhatan Creek is truly the jewel of the entire watershed. It contains extensive wetland complexes of outstanding quality, as well as the largest tract of contiguous floodplain forest in the watershed. About a fourth of this segment is influenced by beaver, which creates a diverse mosaic of wetland zones. The free-flowing creek still has good to excellent stream habitat scores, is home to several RTE species, and contains essential habitats for wildlife, waterfowl and wading birds. Currently classified as SENSITIVE, this segment is expected to be adversely influenced by greater stormwater flows and pollutant loadings as its 19.7 square mile upstream watershed continues to develop. Current monitoring should shed light on changes in water quality due to upstream development. Based on current zoning, the impervious cover for the contributing watershed could climb from 10 to 15%.

Segment Area: 3.43 square miles

Contributing Watershed Area: 19.7 square miles

Creek Miles: the free-flowing creek is about 5.7 miles long

Mainstem map (see Figure 11)

Current Land Use and Stream Classification

1998 impervious cover 8.1%
2000 impervious cover 10.6%
rate of increase from 1998 17%
Initial Creek Classification SENSITIVE

Future Land Use and Stream Classification

Developable Area in Contributing Watershed: 4162 acres or 30% of subwatershed area
Maximum impervious cover 15.5%
Key Growth trends:
Projected Creek Classification: IMPACTED

4.0 OVERALL STORMWATER MANAGEMENT PLAN

In order to develop the most efficient and effective management plan, WEG performed an extensive alternatives analysis to determine the most appropriate combination of BMP locations based on stormwater treatment benefits, cost, and environmental impacts. A combination of structural BMP points, LID measures, and natural open space credit was selected to try to achieve a total of 10-points for the project. The Master Stormwater Plan previously submitted to James City County on August 19, 2004 has been modified to account for some minor changes to open space areas and BMP drainage areas.

4.1 WATER QUALITY

This Revised Master Stormwater Plan was developed subsequent to receipt of comments from state and federal agencies related to permits for impacts to wetlands. Agency comments for this project were strongly against stormwater BMPs within wetlands. Therefore, the previous Master Stormwater Plan was revised to eliminate the proposed wet ponds previously identified as BMP #3 and BMP #4 and instead includes a total of 13 BMPs, 12 of which are proposed upland BMPs. The revised plan assumes forced drainage areas to upland BMPs. Although some of the proposed drainage areas for the upland BMPs are small (less than 25 acres), based on discussions at the July 29, 2004 meeting, this does not appear to be a major issue for the County. A total of thirteen structural BMPs were identified on the site to provide stormwater treatment, including conversion of the existing extended dry detention BMP #53 to a 10-point wet pond. Seven of the thirteen are 10-point wet ponds and the remaining six are 4-point dry detention facilities. These thirteen BMPs treat approximately 297-acres both within the 374-acre parcel and including some additional areas immediately adjacent to the New Town development. The stormwater worksheet for the overall project is presented in Table 4-1.

This plan provides stormwater treatment using mostly upland stormwater BMPs with the exception of converting the existing dry detention BMP #53 to a 10-point wet pond. Previously, alternate stormwater plans prepared by WEG for New Town included upland BMPs but these plans were never able to achieve the 10-points required by James City County. This revised Master Stormwater Plan achieves that goal through the upland BMPs in combination with the conversion of BMP #53 to a wet pond. The conversion of BMP #53 is critical to achieving the required 10-points for water quality compliance since it provides approximately one-third of the total required 10 points.

Conceptual pond information indicates that BMP #53 can be converted to a wet facility through excavation and can provide flow attenuation without exceeding current temporary water surface elevations during storm events. The proposed normal pool of this facility would be at elevation 69 ft msl based on preliminary calculations. Based on site constraints at the pond location, conversion of the existing facility to a wet pond could not include construction of a forebay. The current dry facility does not include a forebay and this issue was discussed at a previous meeting. However, the future upland BMPs proposed on the Revised Master Stormwater Plan (Map Pocket) would incorporate the County required forebays and safety benches.

This revised Master Stormwater Plan allows the New Town project to meet County stormwater requirements while reducing wetland impacts. The proposed BMPs would provide stormwater quantity control in order to protect the existing wetland systems and still achieve the goal outlined by the Center for Watershed Protection of having stormwater runoff from developed areas treated through BMPs before entering the wetland systems. Although a road crossing is shown at the previous BMP #2 location, this revised Conceptual Master Stormwater Plan would not require the need for flow attenuation at this road crossing since quantity control will be provided at each of the proposed upland stormwater BMPs.

In addition to the structural BMPs, approximately 58 acres of open space are necessary to help achieve the required 10-points for the project. The open space includes property line buffers, RPA buffers, and proposed variable width buffers outside of the RPA. Every effort would be made to avoid any additional encroachments into the proposed variable width buffers. However, minor encroachments would be necessary to provide outfall locations from the proposed upland BMPs to the wetland system. This open space will be maintained as natural open space and will be protected from development. Conservation easements would be placed on all proposed buffers and open space on a section-by-section basis. Based on previous discussions with James City County, the County would be included as co-holder of the easement. Approximately nine acres of the total open space for the development is adjacent to a wetland, mature forest, or Resource Protection Area (RPA).

As seen in Table 4-1, the combination of structural controls and open space provided a total of 9.62 points towards the requirement outlined in James City County's 10-point BMP method to demonstrate compliance with the County's CBPO. Therefore, additional measures in the form of low impact development (LID) integrated management practices (IMPs) are proposed to be incorporated into the development as part of the Master Stormwater Plan. James City County's current 10-point

Table 4-1
BMP Worksheet for New Town
Revised Master Stormwater Plan

Project Area =	374	acres
Revised Site Area* =	328.29	acres

A. STRUCTURAL BMP POINT ALLOCATION

BMP	Area of Project Served by BMP (acres)	BMP Points	Fraction of Site Served by BMP	Weighted BMP Points
A01	18.44	10	0.06	0.56
A03	11.04	4	0.03	0.13
A04	32.95	10	0.10	1.00
A06	13.12	4	0.04	0.16
53*	109.00	10	0.33	3.32
A14	20.67	10	0.06	0.63
B02	31.35	10	0.10	0.95
B05	9.36	4	0.03	0.11
C01	9.80	10	0.03	0.30
C03	15.82	4	0.05	0.19
C05	14.51	10	0.04	0.44
C06	7.80	4	0.02	0.10
C07	2.87	4	0.01	0.03
TOTAL				7.94

B. NATURAL OPEN SPACE CREDIT

Area of Open Space (acres)	Fraction of Site	Natural Open Space Credit	Points for Natural Open Space
9.15	0.02	0.15 per 1% of site area	0.37
48.96	0.13	0.10 per 1% of site area	1.31
TOTAL			1.68

C. LOW IMPACT DEVELOPMENT

Area Served by IMPs (acres)	Fraction of Site	Area Served by IMPs	Points for Area Served by IMPs
17.00	0.05	0.10 per 1% of site area	0.45
TOTAL			0.45

D. TOTAL WEIGHTED POINTS

Structural BMP Points		Natural Open Space Points		Points for Area Served by IMPs		Total
7.94	+	1.68	+	0.45	=	10.07

* Note: JCC allows natural open space downstream of a structural BMP to be reduced from the site area when computing the fraction of the site served by the BMP and therefore the Structural BMP points.

Peak Discharges from Detention Basins for Different Erosion Control Criteria

Land Use	% Impervious	Peak Discharge (inches of runoff per hour)		
		Traditional Design (2-yr Storm)	ED Storage Design	
			1-yr Storm	1.0 in. Storm
SF Residential	25%	0.06 - 0.12	0.03	0.01
MF Residential	50%	0.06 - 0.12	0.05	0.02
Office/Industrial	65%	0.06 - 0.12	0.06	0.02
Commercial	85%	0.06 - 0.12	0.07	0.03

NOTES:
1. "Traditional Design" is based on peak-shaving storage (2-yr storm) which reduces post-development peak flow to pre-development peak.
2. The 1-yr (24-hr) storm volume is 2.7 inches.
3. Peak discharge from ED basins assumes the release of ED storage over 30 hours.

Frequency of Bankfull Flows (2-Year Predevelopment Peak) for Different Detention Basin Criteria

Land Use	% Impervious	Avg. No. of Bankfull Flows per Year		
		Traditional Design (2-yr Storm)	ED Storage Design	
			1-yr Storm	1.0 in. Storm
SF Residential	25%	2 - 3	< 1	< 1
MF Residential	50%	5 - 6	< 1	< 1
Office/Industrial	65%	7	< 1	< 1
Commercial	85%	8 - 9	< 1	< 1

NOTES:
1. "Traditional Design" is based on peak-shaving storage (2-yr storm) which reduces post-development peak flow to pre-development peak.
2. The 1-yr (24-hr) storm volume is 2.7 inches.
3. Peak discharge from ED basins assumes the release of ED storage over 30 hours.

*Pipe system only
No on site BMP
*Drains to PC-173

James City County Engineering and Resource Protection Division
Stormwater Management/BMP Record Drawing and Construction Certification Review Tracking Form

Project Name: New Town Building 900 and Main St. Terminus
County Plan No. (List any amendments): SP-116-10 and SP-23-11
Stormwater Management Facility Type: Pipe only (Drains to PC-173
BMP Phase #: ☐ I ☐ II ☐ III

- ☒ Information Package Submittal Date: 2/22/12
- ☐ Completeness Check:
  - ☒ Record Drawing Date/By: 12/27/11 Landtech
  - ☒ Construction Certification Date/By: 3/23/12 ECS
  - ☒ RD/CC Standard Forms (Ensure that all forms for the BMP type are included)
  - ☒ Insp/Maint Agreement # / Date: N/A
  - ☒ BMP Maintenance Plan Location: N/A
  - ☒ Special Considerations: N/A
- ☐ Standard E&SC Notes on Approved Plan Requiring RD/CC or County comment in plan review
  Location (sheet #):
- ☒ **County BMP ID Code #:** N/A Pipe only (Drains to PC-173)
- ☒ Log into Division's "As-Built Tracking Log"
- ☐ Obtain basic site information (GPIN, Owner, Address, etc.)
- ☒ Log into Access Database (BMP ID #, Plan No., GPIN, Project Name, etc.) N/A
- ☒ Copy from Active Project File (correspondence, H&H, design computations, etc.).
- ☒ Create As-Built File using Project File information (File label, folder, copy plan/details/design information, etc.).
- ☒ Inspector Review of RD/CC (consult with Chief Engineer prior to completion of comments).
- ☒ Record Drawing Review against Approved Plan prior to Field Inspection.
- ☒ Final Site Inspection (FI) Performed Date: 1/11/12
- ☒ Record Drawing (RD) Review Date: 1/11/12
- ☒ Construction Certification (CC) Review Date: 3/23/12
- ☒ Actions:
  - ☒ No comments.
  - ☐ Comments. Letter Forwarded. Date:
  - ☐ Record Drawing (RD)
  - ☐ Construction Certification (CC)
  - ☐ Construction-Related (CR)
  - ☐ Site Issues (SI)
  - ☐ Other :
- ☒ Resubmittal (# and date): N/A
- ☒ Re-inspection (if necessary): N/A
- ☒ Drainage System Information Acceptable (RD/CC/System Info). Ok for bond release.
- ☒ Complete "Surety Request Form".
- ☒ Final Inspection of active file copying any relevant information to "As-Built" file.
- ☐ On County BMP Inventory (Phase I, II or III).
- ☐ Copy Final Inspection Report into County BMP Inspection Program file.
- ☐ Provide Digital Photographs of BMP and save into County BMP Inventory.
- ☐ Request mylar/reproducible from As-Built plan preparer.
- ☐ Complete "As-built Tracking Log".
- ☐ Last check of BMP Access Database (County BMP Inventory).
- ☑ Add BMP to JCC Hydrology & Hydraulic database (optional).
- ☐ Add BMP to Municipal BMP list (if a County-owned facility)
- ☐ Add BMP to PRIDE BMP ratings database.

Final Sign-Off

Inspector: Amy Pala Date: 4/2/12

Chief Engineer: [signature] Date: 4/2/12

*** See separate checklist, if needed.

TRANSMITTAL

DATE: March 15, 2011

TO: Records Management
JCSA
Fire
Environmental

FROM: **Jennifer VanDyke, Administrative Services Coordinator**

SUBJECT: **SP-0076-2010, American Family Fitness SP Amend. Bldg 900**

TAX ID: **3930400005**

ACTION: For your files.

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: Newtown Building 900 and Terminus - American Family Fitness
Structure/BMP Name:
Project Location: 5137 Main Street, Williamsburg, VA
BMP Location:
County Plan No.: SP-76-10 / SP-23-11

Project Type: ☐ Residential ☑ Business ☐ Commercial ☐ Office ☐ Institutional ☐ Industrial ☐ Public ☐ Roadway ☐ Other

Tax Map/Parcel No.: (39-3)(04-0-0005)
BMP ID Code (if known):
Zoning District::
Land Use:
Site Area (sf or acres):

Brief Description of Stormwater Management/BMP Facility:

There is approximately 250 linear feet of storm line, 95 linear feet of roof drain, 61 linear feet of trench drain and two new drop inlets utilized for the stormwater management at the site. The system is tied into the existing stormwater system at the site and there are no BMPs on-site.

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:
Datum or Reference Elevation:
Control Description:
Control Location from Subject Facility:

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: February 3, 2011
Facility Monitored by County Representative during Construction: ☐ Yes ☐ No ☑ Unknown
Name of Site Work Contractor Who Constructed Facility: Toano Contractors
Name of Professional Firm Who Routinely Monitored Construction: ECS Mid-Atlantic, LLC
Date of Completion for SWM/BMP Facility: _____
Date of Record Drawing/Construction Certification Submittal: _____

(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: Williamsburg Land Developers, LLC
Mailing Address: 433 South Main Street, Suite 310
West Hartford, Connecticut 06110
Business Phone: (860) 561-0121 Fax: (860) 521-4323
Contact Person: Joseph Baronowski Title: _____

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: Balzer and Associates, Inc
Mailing Address: 15871 City View Drive, Suite 200
Midlothian, VA 23113
Business Phone: (804) 794-0571
Fax: (804) 794-2635
Responsible Plan Preparer: _____
Title: _____
Plan Name: _____
Firm's Project No. _____
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: Toano Contractors, Inc.
Mailing Address: 8589 Richmond Road
Toano, VA 23168
Business Phone: (757) 566-0097
Fax: (757) 566-8874
Contact Person: Randy Taylor
Site Foreman/Supervisor: Randy Taylor
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: _____
Mailing Address: _____
_____
Business Phone: _____
Fax: _____

Name: _____
Title: _____

Signature: _____
Date: _____

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.

_____ (Seal)

Virginia Registered Professional Engineer or Certified Land Surveyor

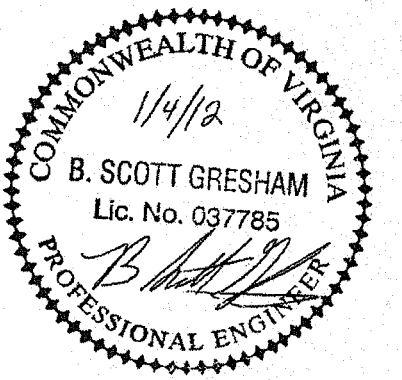
Construction Certification

Firm Name: ECS Mid-Atlantic, LLC
Mailing Address: 108 Ingram Road, Suite 1
Williamsburg, VA 23188
Business Phone: (757) 229-6677
Fax: (757) 229-9978

Name: B. Scott Gresham, P.E.
Title: Construction Services Manager

Signature: _____
Date: 1/4/12

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.



_____ (Seal)

Virginia Registered Professional Engineer

Environmental Division

FEB 22 2012

RECEIVED

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: NEW TOWN - MAIN STREET TERMINUS
Structure/BMP Name:
Project Location: EAST OF MAIN STREET IN NEWTOWN
BMP Location:
County Plan No.: JCC-SP - 0023 - 2011

Project Type:
- ☐ Residential
- ☐ Business
- ☒ Commercial
- ☐ Office
- ☐ Institutional
- ☐ Industrial
- ☐ Public
- ☐ Roadway
- ☐ Other _____

Tax Map/Parcel No.: 3930400006
BMP ID Code (if known): N/A
Zoning District:: MU W/PROFFERS
Land Use: MIX USE " "
Site Area (sf or acres): 23,020 S.F. / 0.53 AC.

Brief Description of Stormwater Management/BMP Facility:

INSTALLATION OF 2 STORM AND 2 STORM STRUCTURES AND MODIFICATION OF 1 STORM STRUCTURE

Nearest Visible Landmark to SWM/BMP Facility: PAVILLION EAST OF MAIN ST.

Nearest Vertical Ground Control (if known):
- ☐ JCC Geodetic Ground Control
- ☐ USGS
- ☐ Temporary
- ☐ Arbitrary
- ☒ Other

Station Number or Name: —
Datum or Reference Elevation: SITE PLAN DATUMN
Control Description: EXIST. STRUCTURE #4-9A AES SHT # 03
Control Location from Subject Facility: —

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: N/A
Facility Monitored by County Representative during Construction: ☐ Yes ☐ No ☒ Unknown
Name of Site Work Contractor Who Constructed Facility: TOANO CONTRACTORS
Name of Professional Firm Who Routinely Monitored Construction: NOT KNOWN TO THIS FIRM
Date of Completion for SWM/BMP Facility: 2011
Date of Record Drawing/Construction Certification Submittal: 12/27/2011

(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: NEWTOWN COMMERCIAL ASSOCIATION
Mailing Address: 4801 COURTHOUSE ST. SUITE 128
WILLIAMSBURG, VA 23188
Business Phone: 757-565-6200 Fax: 757-565-6291
Contact Person: RANDY CASEY - RUTLAND Title:

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, VA 23188
Business Phone: 757-253-0040
Fax: 757-220-8994
Responsible Plan Preparer: ROBERT E. COSBY III
Title: P.E.
Plan Name: NEWTOWN - MAIN STREET TERMINUS
Firm's Project No. W06632-E-21-12
Plan Date: 3/03/2011
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: BMP NOT CONSTRUCTED
Mailing Address: —
—
Business Phone: —
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: LANDTECH RESOURCES, INC.
Mailing Address: 205-E BUTLER FARMS BLVD.
WILLIAMSBURG, VA 23188
Business Phone: 757-565-1677
Fax: 757-565-0782

Name: MATTHEW H. CONNOLLY
Title: PRESIDENT

Signature: [signature]
Date: 12/27/2011

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.

COMMONWEALTH OF VIRGINIA
MATTHEW H. CONNOLLY
Lic. No. 2053
12/27/2011
LAND SURVEYOR

_____ (Seal)

Virginia Registered Professional Engineer or Certified Land Surveyor

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.

_____ (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 purposes 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 reproducibles.

❒ 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).

N/A 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.)*

N/A 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.

N/A 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.

N/A 4. Top widths, berm widths and embankment side slopes.

N/A 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.

N/A 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.

N/A 7. Profile or elevations along the entire centerline of the emergency spillway. Emergency spillway may be steeper, but no flatter or narrower than design.

N/A 8. Elevation of the principal spillway crest or outlet crest of the structure.

N/A 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.

N/A 10. Dimensions, locations and elevations of outlet orifices, weirs, slots and drains.

N/A 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.

N/A 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.**

N/A 13. Top of impervious core embankment, core trench limits and elevation of cut-off trench bottom. **May need to obtain this information during construction.**

N/A 14. Elevation of the principal spillway barrel (outlet pipe) inlet and outlet invert.

N/A 15. Outlet barrel diameter, length, slope, type and thickness class of material and type of flared end sections, headwall or endwall.

N/A 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.

N/A 20. BMP vicinity properly cleaned of stockpiles and construction debris.

N/A 21. No visual signs of erosion or channel degradation immediately downstream of facility.

XX 22. Any other information formally requested by the Environmental Division specific to the constructed SWM/~~BMP~~ facility.

* STORM PIPES SHOWN WITH SIZE AND SLOPES PER ASBUILT CONDITION.

* STORM STRUCTURES SHOWN WITH TYPE & RIM ELEVATIONS PER ASBUILT CONDITION.

* THERE IS NO BMP PROPOSED FOR THIS PROJECT.

(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.)*

_____ 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.

_____ A13. End walls above barrels (outlet pipe) greater than 48 inch in diameter are fenced to prevent a fall hazard.

Transmittal

LandTech Resources, Inc.
Surveying - Mapping - GPS
5810-F Mooretown Road, Williamsburg, VA 23188
Tel: 757-565-1677 Fax: 757-565-0782

To: Engineering and Resource Protection Division
Company: JCC
From: Peter Farrell
Date: 12-27-11
Job Name/Number: New Town Building 900 Expansion

★New Town - Section 2 - Block 2 Parcel E - Main St Bldg 900 SP Amendment (American Family Fitness)

ENGINEERING DEPT. DEC 27 2011

The following have been sent:

- ☐ as requested
- ☒ for review and comment
- ☐ please sign and return
- ☐ for temporary use, please return by _____

RECEIVED

Quantity	Drawing Date	Description
5	12/27/2011	Drainage As-Builts
		SP-76-10
		Pipe only Asbuilts
		DRAINS TO FC173
		BMP #53

Remarks:

Landtech Job #11-045

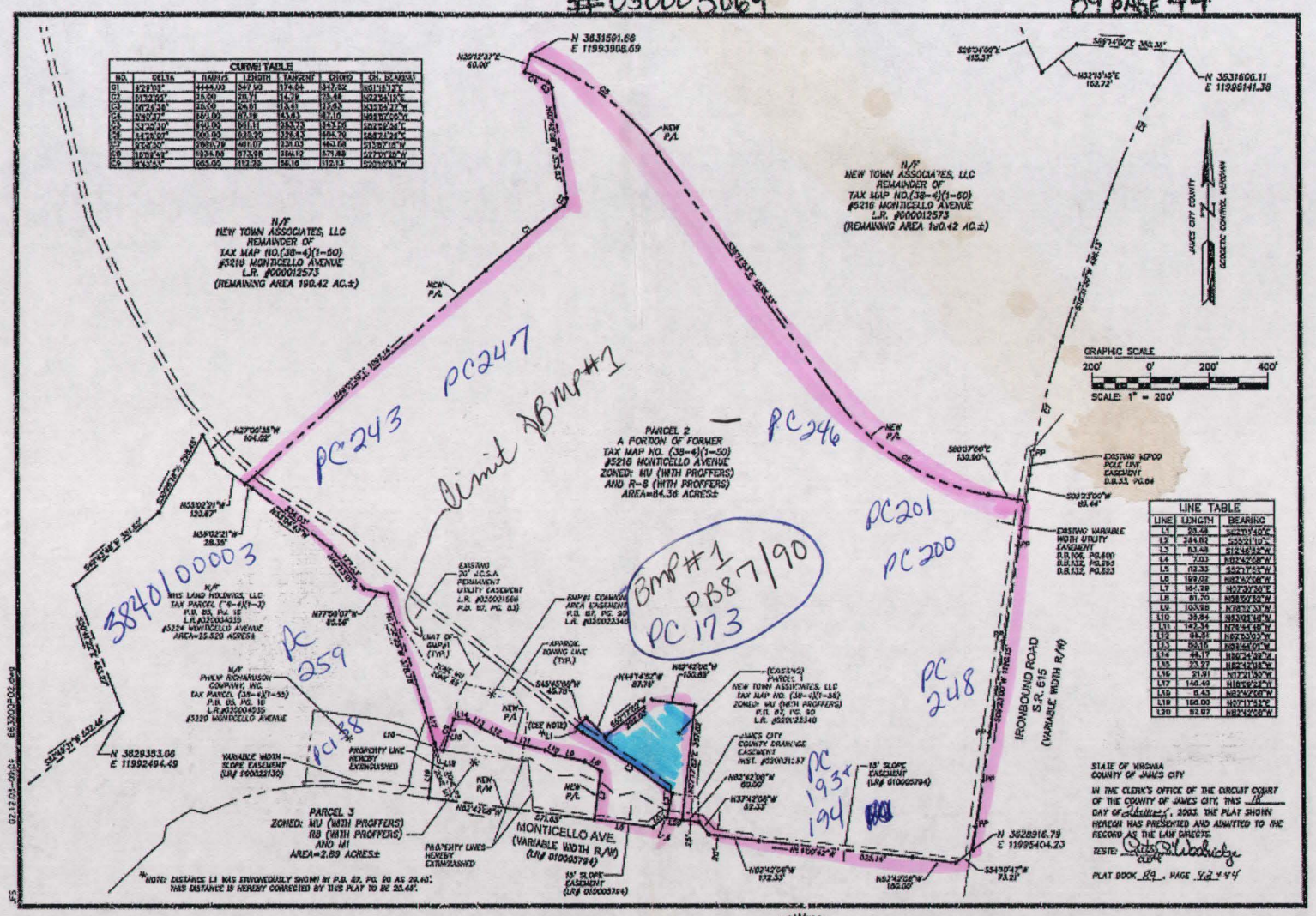
cc:

Signature:

PC173

#030005069

89 PAGE 44



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

PLAT OF SUBDIVISION AND
LOT LINE EXTINGUISHMENT
SHOWING PARCELS "2" AND "3"
OWNED BY NEW TOWN ASSOCIATES, LLC

BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

C.T. WILSON JR.
CERTIFICATE No.
1183
LAND SURVEYOR

City of Williamsburg & County of James City Circuit Court. This PLAT was recorded on February 24, 2003 at 10:35 A. M. in Plat Book 89 Page 44
DOCUMENT # 030005069
BETH D. WOODRIDGE, CLERK
By Beth D. Woodridge Dep. Clerk

No.	DATE	REVISION / COMMENT / NOTE	BY

DESIGNED	DRAWN
AES	MFS
Scale	Date
1" = 200'	1/8/03
Project No.	
0632-E1	
Drawing No.	
2 OF 2	

Lookup
0 1 00029730
0 portion of former
parcel 2
Section 2 & 4

This is what parcel 2 a portion of 3840100003 looked like prior to subdivision

parcels 2+3 used to be parcel 1

3842400001A
PC 173
Legal = Common area BMP Parcel 1 Portion of
former Parcel 2 New Town ~~PC 173~~ 57

3842400015 – Parcel created by split in 11/23/05 out of 3840100050
PC 193+194

legal = Block 2 Parcel H New Town; CA NewTown Parking Area
5122 Main St
New Town Commercial Assoc.

prior legal = AKA original legal
portion of 300.714 AC CC Casey Limited
Company (38-4)(1-7)

2003 – In 2003 it is still the large not subdivided parcel

legal = 2
for split
parcel 2, portion of former (38-4)(1-50)

Split is apparent in 2004 historic parcel layer

doc# 07003768

Construction date 6/1/04
no Maint agreement for PC 193+194

#0400013864

PC173

REMAINDER OF PARCEL 2
NEW TOWN ASSOCIATES, LLC
5206 MONTICELLO AVENUE
TAX MAP (38-4)(1-50)
P.B. 89, PG. 44
LR# 030005069
P.B. 90, PG. 21
LR# 030010942

BLOCK 8, PARCEL "C"
405,827 sq.ft.
9.312 acres

BLOCK 8, PARCEL "A"
95,286 sq.ft.
2.187 acres

BLOCK 8, PARCEL "B"
53,084 sq.ft.
1.218 acres

BLOCK 5, PARCEL "F"
49,961 sq.ft.
1.147 acres

REMAINDER BLOCK 5 PARCEL "A"
166,657 sq.ft.
3.827 Acres
A PORTION OF FORMER PARCEL 2
TAX MAP NO. (38-4)(1-50)
#5206 MONTICELLO AVENUE
P.B. 89, PG. 44
LR# 030005069
P.B. 90, PG. 21
LR# 030010942
ZONED: MU (WITH PROFFERS)

OPEN SPACE
85,943 sq.ft.
1.973 acres

199 S.F.± RESERVED FOR FUTURE R/W

REMAINDER OF PARCEL 2
NEW TOWN ASSOCIATES, LLC
5206 MONTICELLO AVENUE
TAX MAP (38-4)(1-50)
P.B. 89, PG. 44
LR# 030005069
P.B. 90, PG. 21
LR# 030010942

CENTER STREET (64' R/W)
(LR# 040009441)

NEW TOWN AVENUE (VARIABLE WIDTH R/W)
(LR# 040009441)

COURTHOUSE STREET (VARIABLE WIDTH R/W)
(LR# 030010942 - P.B. 90, PG. 21)

MONTICELLO AVE. (VARIABLE WIDTH R/W)

JAMES CITY COUNTY SECTION CONTROL MONUMENT

RIVER CITY ASSOCIATES, LLC
BLOCK 5, PARCEL C
TAX MAP NO. (38-4)(24-2)
L.R. #030010942
P.B. 90, PG. 20-21

CASEY OFFICE, L.L.C.
BLOCK 5, PARCEL B
TAX MAP NO. (38-4)(1-56)
ZONED: MU (WITH PROFFERS)
L.R. #020022489
L.R. #030010942
P.B. 90, PG. 20-21

WHS LAND HOLDINGS, LLC
TAX PARCEL
(38-4)(1-3)
#5224 MONTICELLO AVENUE
LR 010006507

PHILIP RICHARDSON COMPANY, INC.
TAX PARCEL
(38-4)(1-55)
LR 020004035
P.B. 85, PG. 16
#5220 MONTICELLO AVENUE

BLOCK 12, PARCEL "A"
(FORMER PARCEL 3)
5216 MONTICELLO AVENUE
T.M. (38-4) (24-3)
L.R. #040001967
ZONED: MU (WITH PROFFERS)

EDGE OF RPA WETLANDS PER WILLIAMSBURG ENVIRONMENTAL GROUP 1/21/04 (TYPICAL)

EDGE OF WETLANDS (TYPICAL)

EDGE OF WETLANDS (TYPICAL)

EDGE OF RPA WETLANDS PER WILLIAMSBURG ENVIRONMENTAL GROUP 1/21/04 (TYPICAL)

EXISTING 20' L.C.S.A. PERMANENT UTILITY EASEMENT L.R. #020021566 P.B. 87, PG. 83)

VARIABLE WIDTH WETLANDS BUFFER (HATCHED AREAS) PER ENVIRONMENTAL DIVISION

EXISTING 20' L.C.S.A. PERMANENT UTILITY EASEMENT L.R. #020021566 P.B. 87, PG. 83)

VARIABLE WIDTH BMP#1 MAINTENANCE EASEMENT L.R. 020022348

COMMON AREA (BMP PARCEL #1) CONSERVATION EASEMENT P.B. 87, PG. 90 L.R. #020022348

BMP POND BUFFER

VARIABLE WIDTH BMP MAINTENANCE EASEMENT

EXISTING 20' PRIVATE DRAINAGE EASEMENT INSTR. #030010942

EXISTING 5' UTILITY EASEMENT

EXISTING JCSA URBAN EASEMENT

JCSA URBAN EASEMENT

C.A. EASEMENT

EXISTING PARCEL E

EXISTING PARCEL D

CURVE TABLE						
NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
C1	0°39'52"	3170.69	36.77	18.39	36.77	N47°18'46"E
C2	2°28'25"	3170.69	136.89	68.45	136.88	N45°44'39"E
C3	91°16'47"	25.00	39.84	25.58	35.76	S89°50'10"E
C4	23°31'22"	797.00	327.21	165.94	324.92	S55°26'27"E
C5	30°00'00"	79.00	41.36	21.17	40.89	S52°42'08"E
C6	90°00'00"	25.00	39.27	25.00	35.36	S07°17'52"W
C7	9°14'37"	1032.00	166.49	83.43	166.31	S47°40'33"W
C8	3°58'10"	1032.00	71.80	35.91	71.78	S41°03'40"W
C9	6°45'51"	1026.50	121.19	60.66	121.12	S34°34'58"W
C10	5°41'45"	968.00	96.23	48.16	96.19	N41°59'03"E
C11	7°27'56"	968.00	126.13	63.15	126.04	N48°33'54"E
C12	23°34'41"	30.00	12.35	6.26	12.26	S70°54'48"E
C13	36°52'12"	20.00	12.87	6.67	12.65	N78°51'46"E
C14	0°00'22"	1026.50	0.10	0.05	0.10	S37°58'04"W

EASEMENT LINE TABLE		
LINE	LENGTH	BEARING
L1	22.03	N37°42'08"W
L2	20.63	N01°50'38"W
L3	18.05	N31°55'02"E
L4	18.61	N37°42'08"W
L5	20.00	N52°17'52"E
L6	20.64	S37°42'08"E
L7	178.64	N52°17'52"E
L8	20.00	S37°42'08"E
L9	28.64	S52°17'52"W
L10	173.00	S37°42'08"E
L11	173.00	N37°42'08"W
L12	33.00	S52°17'52"W
L13	23.00	S37°42'08"E
L14	23.00	N37°42'08"W
L15	71.00	S52°17'52"W
L16	15.36	S01°50'38"E
L17	10.55	S37°42'08"E

GRAPHIC SCALE
100' 0' 100' 200'
SCALE: 1" = 100'

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

PLAT OF SUBDIVISION
BLOCK 5, PARCEL F AND BLOCK 8, PARCELS A, B AND C
NEW TOWN
BEING A PORTION OF THE PROPERTY OWNED BY
NEW TOWN ASSOCIATES, LLC

COMMONWEALTH OF VIRGINIA
3/5/04
G.T. WILSON, JR.
No. 1183

City of Williamsburg & County of James City
Circuit Court: This PLAT was recorded on
28 May 2004
at 3:46 AM/PM. PB — PG —
DOCUMENT # 040013864
BETSY B. WOOLRIDGE, CLERK
Clerk

2	5/13/04	REVISED VARIABLE WIDTH WET. BUFFER	JFS
1	4/30/04	REVISED PER COUNTY COMMENTS	JFS

Designed	Drawn
AES	JFS
Scale	Date
1"=100'	3/5/04
Project No.	
6632-E-12-1	
Drawing No.	

S:\JOBS\6632\C\12-1 Block Conv_Proj Boundary\Plats\6632E12P02.dwg 05/13/04 01:54:20 PM EDT

#040013864

CERTIFICATION OF SOURCE OF TITLE: NEW TOWN ASSOCIATES, LLC

THE PROPERTY SHOWN ON THIS PLAT WAS CONVEYED BY C.C. CASEY LIMITED COMPANY, A LIMITED LIABILITY COMPANY AND THE COLLEGE OF WILLIAM AND MARY REAL ESTATE FOUNDATION, INC. A VIRGINIA NONSTOCK CORPORATION TO NEW TOWN ASSOCIATES, LLC BY DEED DATED JUNE 30, 2000 AND RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF THE CITY OF WILLIAMSBURG AND THE COUNTY OF JAMES CITY, VIRGINIA AS L.R.# 000012573.

OWNER'S CONSENT AND DEDICATION

THE SUBDIVISION OF LAND SHOWN ON THIS PLAT IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRES OF THE UNDERSIGNED OWNER.

FOR:
NEW TOWN ASSOCIATES, LLC
A VIRGINIA LIMITED LIABILITY COMPANY

BY: _____ 5/17/04
JOHN P. McCANN — DATE
PRINTED NAME

EXECUTIVE DIRECTOR
TITLE

NOTARY

STATE OF VIRGINIA, CITY/COUNTY OF James City, TO-WIT:

I, Roseanna C. Dykstra A NOTARY PUBLIC IN AND FOR THE CITY/COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT THE ABOVE PERSON WHOSE NAME IS SIGNED TO THE FOREGOING WRITING HAS ACKNOWLEDGED THE SAME BEFORE ME IN MY CITY/COUNTY AND STATE AFORESAID.

GIVEN UNTO MY HAND THIS 17th DAY OF May, 2004.
MY COMMISSION EXPIRES April 30, 2005.
Roseanna C. Dykstra
NOTARY PUBLIC

CERTIFICATION OF SOURCE OF TITLE

THE PROPERTY SHOWN ON THIS PLAT AS BLOCK 5, PARCEL "B" WAS CONVEYED TO CASEY OFFICE, L.L.C. BY NEW TOWN ASSOCIATES, LLC BY DEED DATED SEPTEMBER 26, 2002 AND RECORDED AS L.R.# 020022489 AND DULY RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF THE CITY OF WILLIAMSBURG AND THE COUNTY OF JAMES CITY, VIRGINIA.

OWNER'S CONSENT AND DEDICATION

THE SUBDIVISION OF LAND SHOWN ON THIS PLAT IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRES OF THE UNDERSIGNED OWNER.

FOR:
CASEY OFFICE, L.L.C.

BY: Robert T. Casey — 5/18/2004
Robert T. Casey — DATE
PRINTED NAME

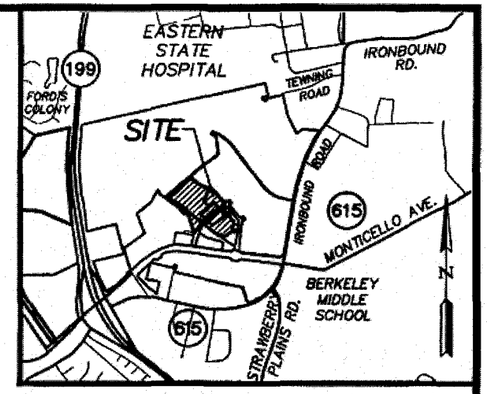
SECRETARY
TITLE

NOTARY

STATE OF VIRGINIA, CITY/COUNTY OF James City, TO-WIT:

I, Roseanna C. Dykstra A NOTARY PUBLIC IN AND FOR THE CITY/COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT THE ABOVE PERSON WHOSE NAME IS SIGNED TO THE FOREGOING WRITING HAS ACKNOWLEDGED THE SAME BEFORE ME IN MY CITY/COUNTY AND STATE AFORESAID.

GIVEN UNTO MY HAND THIS 18th DAY OF May, 2004.
MY COMMISSION EXPIRES April 30, 2005.
Roseanna C. Dykstra
NOTARY PUBLIC



VICINITY MAP
SCALE: 1" = 2000'±

AREA TABULATION	S.F.±	AC.±
AREA OF BLOCK 5 (PARCEL "A")	167,161	3.837
AREA OF BLOCK 5 (PARCEL "F")	49,961	1.147
AREA OF BLOCK 8 (PARCEL "A")	95,286	2.188
AREA OF BLOCK 8 (PARCEL "B")	53,064	1.218
AREA OF BLOCK 8 (PARCEL "C")	405,627	9.312
AREA OF OPEN SPACE	85,943	1.973
TOTAL AREA SUBDIVIDED	857,042	19.675

SURVEYOR'S CERTIFICATE

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

G.T. WILSON, JR., L.S. #1183 — 5/6/04 DATE

CERTIFICATE OF APPROVAL

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

VIRGINIA DEPARTMENT OF TRANSPORTATION — 05/18/04 DATE

SUBDIVISION AGENT OF THE COUNTY OF JAMES CITY — 5/21/04 DATE

GENERAL NOTES

1. ALL UTILITIES SHALL BE INSTALLED UNDERGROUND.
2. UNLESS OTHERWISE NOTED ALL DRAINAGE EASEMENTS DESIGNATED ON THIS PLAT SHALL REMAIN PRIVATE.
3. NEW MONUMENTS SHALL BE SET PER THE REQUIREMENTS FOUND IN SECTION 19-34 THROUGH 19-36 OF THE JAMES CITY COUNTY SUBDIVISION ORDINANCE.
4. PROPERTY IS IN FLOOD ZONE "X" AS SHOWN ON COMMUNITY PANEL #510201 0035 B, DATED 2/6/1991 OF THE FLOOD INSURANCE RATE MAPS FOR JAMES CITY COUNTY, VIRGINIA.
5. PROPERTY IS A PORTION OF FORMER TAX MAP NO: (38-4)(1-50). THE PROPERTY ADDRESS FOR FORMER TAX MAP NO: (38-4)(1-50) IS 5206 MONTICELLO AVE, WILLIAMSBURG, VA.
6. PROPERTY IS CURRENTLY ZONED "MU"-MIXED USE WITH PROFFERS.
7. LOTS TO BE SERVED BY PUBLIC WATER AND SEWER.
8. ALL EXISTING UNUSED WELLS SHALL BE ABANDONED IN ACCORDANCE WITH STATE PRIVATE WELL REGULATIONS AND JAMES CITY COUNTY CODE.
9. THE SETBACK REQUIREMENTS ARE DESCRIBED IN THE PROFFERS FOR THE PROPERTY.
10. UTILITY EASEMENTS DENOTED AS "JCSA URBAN EASEMENTS" ARE FOR THE EXCLUSIVE USE OF THE JCSA AND THE PROPERTY OWNER. OTHER UTILITY SERVICE PROVIDERS DESIRING TO USE THESE EASEMENTS WITH THE EXCEPTION OF APPROXIMATELY PERPENDICULAR (60° TO 120°) UTILITY CROSSINGS MUST OBTAIN AUTHORIZATION FOR ACCESS AND USE FROM THE JCSA AND THE PROPERTY OWNER. ADDITIONALLLY, JCSA SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGE TO IMPROVEMENTS WITHIN THIS EASEMENT, FROM ANY CAUSE.
11. WETLANDS AND LAND WITHIN RESOURCE PROTECTION AREAS SHALL REMAIN IN A NATURAL UNDISTURBED STATE EXCEPT FOR THOSE ACTIVITIES PERMITTED BY SECTION 23-7(C)(1) OF THE JAMES CITY COUNTY CODE.

pc 173

STATE OF VIRGINIA
CITY OF WILLIAMSBURG & COUNTY OF JAMES CITY CIRCUIT COURT. THIS 28 DAY OF May, 2004
THE PLAT SHOWN HEREON WAS PRESENTED AND ADMITTED TO THE RECORD AS THE LAW DIRECTS. @ 3:46 AM/PM
INSTRUMENT # 040013864
TESTE: Betsy B. Woolridge
BETSY B. WOOLRIDGE, CLERK

S:\JOBS\6632\LV12-1 BMP Conc_Pmt Roads\dwg\Plats\6632EEPP01.dwg 05/13/04 10:55:22 PM EDT

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

PLAT OF SUBDIVISION
BLOCK 5, PARCEL F AND BLOCK 8, PARCELS A, B AND C
NEW TOWN
BEING A PORTION OF THE PROPERTY OWNED BY
NEW TOWN ASSOCIATES, LLC

COMMONWEALTH OF VIRGINIA
5/6/04
G.T. WILSON, JR.
No. 1183

2	5/13/04	REVISED VARIABLE WIDTH WET BUFFER	JFS
1	4/30/04	REVISED PER COUNTY COMMENTS	JFS

Designed: AES	Drawn: JFS
Scale: 1"=100'	Date: 3/5/04
Project No.: 6632-E-12-1	
Drawing No.	

#040027333

CERTIFICATION OF SOURCE OF TITLE: NEW TOWN ASSOCIATES, LLC

THE PROPERTY SHOWN ON THIS PLAT WAS CONVEYED BY C.C. CASEY LIMITED COMPANY, A LIMITED LIABILITY COMPANY AND THE COLLEGE OF WILLIAM AND MARY REAL ESTATE FOUNDATION, INC. A VIRGINIA NONSTOCK CORPORATION TO NEW TOWN ASSOCIATES, LLC BY DEED DATED JUNE 30, 2000 AND RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF THE CITY OF WILLIAMSBURG AND THE COUNTY OF JAMES CITY, VIRGINIA AS L.R.# 000012573. (SEE ALSO L.R.# 040013864)

OWNER'S CONSENT AND DEDICATION

THE SUBDIVISION OF LAND SHOWN ON THIS PLAT IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRES OF THE UNDERSIGNED OWNER.

FOR:
NEW TOWN ASSOCIATES, LLC
A VIRGINIA LIMITED LIABILITY COMPANY

BY: _____ 9/23/04
JOHN P. McCANN — DATE
PRINTED NAME

EXECUTIVE DIRECTOR
TITLE

NOTARY

STATE OF VIRGINIA, CITY/COUNTY OF James City, TO-WIT:

I, Brittany Mangold A NOTARY PUBLIC IN AND FOR THE CITY/COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT THE ABOVE PERSON WHOSE NAME IS SIGNED TO THE FOREGOING WRITING HAS ACKNOWLEDGED THE SAME BEFORE ME IN MY CITY/COUNTY AND STATE AFORES

GIVEN UNTO MY HAND THIS 23 DAY OF September, 2004.

MY COMMISSION EXPIRES June 30 2007.

Brittany L Mangold
NOTARY PUBLIC

SURVEYOR'S CERTIFICATE

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

G.T. WILSON, JR., L.S. #1183 — 9/16/04 DATE

COMMONWEALTH OF VIRGINIA
9/16/04
G.T. WILSON, JR.
No. 1183
LAND SURVEYOR

CERTIFICATE OF APPROVAL

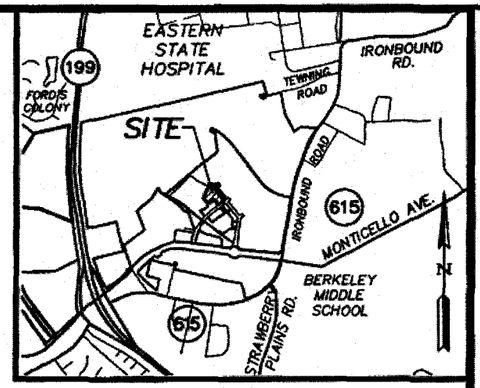
THIS SUBDIVISION IS APPROVED BY THE UNDERSIGNED IN ACCORDANCE WITH EXISTING SUBDIVISION REGULATIONS AND MAY BE ADMITTED TO RECORD.

VIRGINIA DEPARTMENT OF TRANSPORTATION — 9/23/04 DATE

SUBDIVISION AGENT OF THE COUNTY OF JAMES CITY — 10/25/04 DATE

GENERAL NOTES

1. ALL UTILITIES SHALL BE INSTALLED UNDERGROUND.
2. UNLESS OTHERWISE NOTED ALL DRAINAGE EASEMENTS DESIGNATED ON THIS PLAT SHALL REMAIN PRIVATE.
3. NEW MONUMENTS SHALL BE SET PER THE REQUIREMENTS FOUND IN SECTION 19-34 THROUGH 19-36 OF THE JAMES CITY COUNTY SUBDIVISION ORDINANCE.
4. PROPERTY IS IN FLOOD ZONE "X" AS SHOWN ON COMMUNITY PANEL #510201 0035 B, DATED 2/6/1991 OF THE FLOOD INSURANCE RATE MAPS FOR JAMES CITY COUNTY, VIRGINIA.
5. PROPERTY IS A PORTION OF FORMER TAX MAP NO: (38-2)(26-0-0002). THE PROPERTY ADDRESS FOR FORMER TAX MAP NO: (38-2)(26-0-0002) IS 4155 NEW TOWN AVENUE WILLIAMSBURG, VA.
6. PROPERTY IS CURRENTLY ZONED "MU"-MIXED USE WITH PROFFERS.
7. LOTS TO BE SERVED BY PUBLIC WATER AND SEWER.
8. ALL EXISTING UNUSED WELLS SHALL BE ABANDONED IN ACCORDANCE WITH STATE PRIVATE WELL REGULATIONS AND JAMES CITY COUNTY CODE.
9. THE SETBACK REQUIREMENTS ARE DESCRIBED IN THE PROFFERS FOR THE PROPERTY.
10. UTILITY EASEMENTS DENOTED AS "JCSA URBAN EASEMENTS" ARE FOR THE EXCLUSIVE USE OF THE JCSA AND THE PROPERTY OWNER. OTHER UTILITY SERVICE PROVIDERS DESIRING TO USE THESE EASEMENTS WITH THE EXCEPTION OF APPROXIMATELY PERPENDICULAR (60° TO 120°) UTILITY CROSSINGS MUST OBTAIN AUTHORIZATION FOR ACCESS AND USE FROM THE JCSA AND THE PROPERTY OWNER. ADDITIONALLY, JCSA SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGE TO IMPROVEMENTS WITHIN THIS EASEMENT, FROM ANY CAUSE. (SEE DOC. #040014419)
11. WETLANDS AND LAND WITHIN RESOURCE PROTECTION AREAS SHALL REMAIN IN A NATURAL UNDISTURBED STATE EXCEPT FOR THOSE ACTIVITIES PERMITTED BY SECTION 23-7(C)(1) OF THE JAMES CITY COUNTY CODE.
12. CENTER STREET IS HEREBY DEDICATED FOR PUBLIC USE.
13. THIS PLAT WAS REVIEWED BY THE NEW TOWN DESIGN REVIEW BOARD ON SEPTEMBER 15, 2004 IN ACCORDANCE WITH THE NEW TOWN PROFFERS.



VICINITY MAP
SCALE: 1" = 2000'±

AREA TABULATION	S.F.±	AC.±
AREA OF BLOCK 8 (PARCEL "D")	16,575	0.380
AREA OF BLOCK 8 (PARCEL "E")	20,591	0.473
AREA OF BLOCK 8 (PARCEL "A") (REMAINDER)	58,120	1.334
CENTER STREET R/W (PUBLIC)	34,195	0.785
TOTAL AREA SUBDIVIDED	129,481	2.972

City of Williamsburg & County of James City Circuit Court: This PLAT was recorded on October 29, 2004 at 1:13 AM/PM, PB ___ PG ___ DOCUMENT # 040027333
BETSY B. WOOLRIDGE, CLERK
Betsy B. Woolridge Clerk

STATE OF VIRGINIA
CITY OF WILLIAMSBURG & COUNTY OF JAMES CITY CIRCUIT COURT, THIS 29th DAY OF October, 2004
THE PLAT SHOWN HEREON WAS PRESENTED AND ADMITTED TO THE RECORD AS THE LAW DIRECTS. @ 1:13 AM/PM
INSTRUMENT # 040027333
TESTE: _____
BETSY B. WOOLRIDGE, CLERK

No.	DATE	REVISION / COMMENT / NOTE	BY
No. 9/22/04		REVISED PER COUNTY COMMENTS	JFS

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

PLAT OF SUBDIVISION
SHOWING A PORTION OF CENTER STREET, BLOCK 8 PARCEL D, BLOCK 8 PARCEL E AND THE REMAINDER OF BLOCK 8 PARCEL A
PREPARED FOR
NEW TOWN ASSOCIATES, LLC
BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

Designed	Drawn
AES	JFS
Scale	Date
1"=30'	8/16/04
Project No.	
6632-E-12	
Drawing No.	
1 OF 2	

#040027333

GRAPHIC SCALE
30' 0' 30' 60'
SCALE: 1" = 30'

CURVE TABLE						
NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
C1	60°00'00"	25.00	26.18	14.43	25.00	N82°17'52"E
C2	90°00'00"	25.00	39.27	25.00	35.36	S07°17'52"W
C3	30°00'00"	79.00	41.36	21.17	40.89	S52°42'08"E
C4	90°00'00"	25.00	39.27	25.00	35.36	S07°17'52"W

S37°42'08"E 84.02'
N37°17'52"E 87.09'
S37°17'52"W 43.00'
REMAINDER OF PARCEL 2
NEW TOWN ASSOCIATES, LLC
5206 MONTICELLO AVENUE
TAX MAP (38-4)(1-50)
P.B. 89, PG. 44
LR# 030005069
P.B. 90, PG. 21
LR# 030010942
LR# 040013864
5' UTILITY EASEMENT
S37°42'08"E 104.69'
C1 R=25.00' L=26.18'
C2 25.00' 39.27'
CENTER STREET (64' R/W)
5' UTILITY EASEMENT
S37°42'08"E 305.07'
JAMES CITY COUNTY GEODETIC CONTROL MONUMENT
EXISTING 5' UTILITY EASEMENT
N37°17'52"E 64.00'
C3 R=79.00' L=41.36'
S37°42'08"E 107.69'
48.36'
58.50'
N37°17'52"E 64.00'
188.36'
S37°42'08"E 283.36'
S37°17'52"W 64.00'
CENTER STREET (64' R/W)
(LR# 040009441)
BLOCK 8
PARCEL E
A=20,591 SF OR
0.473 AC.±
EXISTING JCSA URBAN EASEMENT LR# 040013864 LR# 040014419
EXISTING 5' UTILITY EASEMENT LR# 040013864
EXISTING JCSA URBAN EASEMENT LR# 040013864 LR# 040014419
N37°17'52"E 64.00'
C4 R=25.00' L=39.27'
10' PEDESTRIAN EASEMENT
BLOCK 8
PARCEL D
AREA=16,575 SF OR
0.380 AC.±
205.33'
N37°42'08"W 277.72'
71.39'
N52°17'52"E 18.00'
N37°42'08"W 88.61'
S37°17'52"W 127.00'
N37°42'08"W 150.00'
S37°17'52"W 150.00'
N37°42'08"W 58.88'
N37°17'52"E 264.86'
REMAINDER OF BLOCK
PARCEL "A"
AREA=58,120 SF O
1.334 AC.±
4155 NEW TOWN AVEE
TAX MAP (38-2)(26-0-(2)
LR# 040013864
BLOCK 8, PARCEL "C"
NEW TOWN ASSOCIATES, LLC
4135 NEW TOWN AVENUE
TAX MAP (38-4)(26-0-0002)
LR# 040013864
BLOCK 8, PARCEL "B"
NEW TOWN ASSOCIATES, LLC
4143 NEW TOWN AVENUE
TAX MAP (38-2)(26-0-0001)
LR# 040013864
NEW TOWN AVENUE (VARIABLE WIDTH R/W)
(LR# 040009441)
BLOCK 5, PARCEL "E"
N/F
NEW TOWN ASSOCIATES, LLC
5109 CENTER STREET
TAX MAP NO. (38-2) (24-0-0001)
LR# 040012609
BLOCK 5, PARCEL "A"
N/F
NEW TOWN ASSOCIATES, LLC
4803 COURTHOUSE STREET
TAX MAP NO. (38-4) (24-0-0008)
LR# 040012609

City of Williamsburg & County of James City
Circuit Court: This PLAT was recorded on
27 October 2004
at 1:13 A.M./P.M. PB — PG —
DOCUMENT # 040027333
BETSY B. WOOLRIDGE, CLERK
Betsy B. Woolridge Clerk

COMMONWEALTH OF VIRGINIA
9/16/04
G.T. WILSON, JR.
No. 1183
LAND SURVEYOR

No.	DATE	REVISION / COMMENT / NOTE	BY
1	9/22/04	REVISED PER COUNTY COMMENTS	JFS

8248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994
AES CONSULTING ENGINEERS

PLAT OF SUBDIVISION
SHOWING A PORTION OF CENTER STREET, BLOCK 8 PARCEL D, BLOCK 8 PARCEL E AND THE REMAINDER OF BLOCK 8 PARCEL A
PREPARED FOR
NEW TOWN ASSOCIATES, LLC
BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

Designed	Drawn
AES	JFS
Scale	Date
1"=30'	8/16/04
Project No.	
6632-E-12	
Drawing No.	
2 OF 2	

S:\Jobs\6632\E\12-2 Block 8\dwg\Plats\6632EBLKBDEP02.DWG 9/23/2004 9:04:28 AM EST

3840100050

(38-4)(24-15) is wtoz

#020022348

87 PAGE 90

0000114769

* 0700255730
I think it is two
one for BMP 193+194

NO BMPs
on this
parcel

(38-4)(1-50)

parcel 1

CERTIFICATION OF SOURCE OF TITLE

THE PROPERTY SHOWN ON THIS PLAT WAS CONVEYED BY C.C. CASEY LIMITED COMPANY, A LIMITED LIABILITY COMPANY AND THE COLLEGE OF WILLIAM AND MARY REAL ESTATE FOUNDATION, INC., A VIRGINIA NONSTOCK CORPORATION BY DEED DATED JUNE 30, 2000 BY AND RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF THE CITY OF WILLIAMSBURG AND THE COUNTY OF JAMES CITY, VIRGINIA AS LIBER 000012673.

OWNER'S CONSENT AND DEDICATION

THE SUBDIVISION OF LAND SHOWN ON THIS PLAT IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRES OF THE UNDERSIGNED OWNER.

FOR:
NEW TOWN ASSOCIATES, L.L.C.
A VIRGINIA LIMITED LIABILITY COMPANY

BY: _____ 6-19-02
JOHN P. McCANN — DATE
PRINTED NAME
EXECUTIVE DIRECTOR
TITLE

NOTARY

STATE OF VIRGINIA, CITY/COUNTY OF James City, TO-WIT:
Rosanna C. Sylvester, A NOTARY PUBLIC IN AND FOR THE CITY/COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT THE ABOVE PERSON WHOSE NAME IS SIGNED TO THE FOREGOING WRITING HAS ACKNOWLEDGED THE SAME BEFORE ME IN MY CITY/COUNTY AND STATE AFORESAID.

GIVEN UNTO MY HAND THIS 19th DAY OF June, 2002.

MY COMMISSION EXPIRES April 30, 2005.

Rosanna C. Sylvester
NOTARY PUBLIC

SURVEYOR'S CERTIFICATE

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

G.T. WILSON, JR., C.L.S. #1103 — DATE 6/19/02

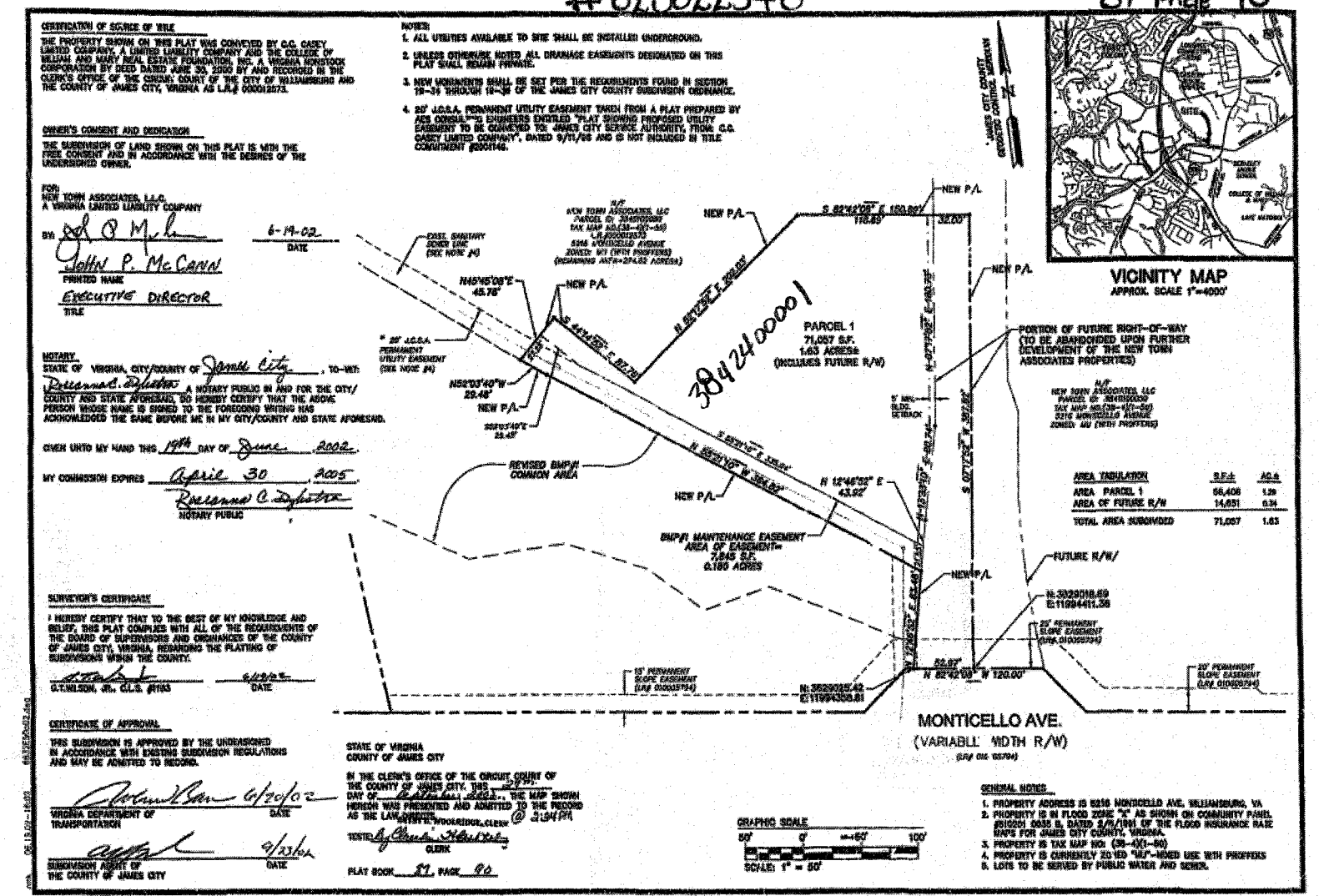
CERTIFICATE OF APPROVAL

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

VIRGINIA DEPARTMENT OF TRANSPORTATION — DATE 6/20/02

SUBDIVISION AGENT OF THE COUNTY OF JAMES CITY — DATE 6/25/02

NOTES:
1. ALL UTILITIES AVAILABLE TO SITE SHALL BE INSTALLED UNDERGROUND.
2. UNLESS OTHERWISE NOTED ALL DRAINAGE EASEMENTS DESIGNATED ON THIS PLAT SHALL REMAIN PRIVATE.
3. NEW MONUMENTS SHALL BE SET PER THE REQUIREMENTS FOUND IN SECTION 19-34 THROUGH 19-36 OF THE JAMES CITY COUNTY SUBDIVISION ORDINANCE.
4. 20' J.C.S.A. PERMANENT UTILITY EASEMENT TAKEN FROM A PLAT PREPARED BY AES CONSULTING ENGINEERS ENTITLED "PLAT SHOWING PROPOSED UTILITY EASEMENT TO BE CONVEYED TO JAMES CITY SERVICE AUTHORITY FROM C.C. CASEY LIMITED COMPANY", DATED 9/21/98 AND IS NOT INCLUDED IN TITLE COMMITMENT #2000146.



VICINITY MAP
APPROX. SCALE 1"=4000'

AREA TABULATION	S.F.±	AC.±
AREA PARCEL 1	56,406	1.29
AREA OF FUTURE R/W	14,651	0.34
TOTAL AREA SUBDIVIDED	71,057	1.63

GRAPHIC SCALE
50' 0' 50' 100'
SCALE: 1" = 50'

GENERAL NOTES
1. PROPERTY ADDRESS IS 5316 MONTICELLO AVE, WILLIAMSBURG, VA
2. PROPERTY IS IN FLOOD ZONE "X" AS SHOWN ON COMMUNITY PANEL (510201 0035 B, DATED 5/15/1991 OF THE FLOOD INSURANCE RATE MAPS FOR JAMES CITY COUNTY, VIRGINIA.
3. PROPERTY IS TAX MAP NO: (38-4)(1-50)
4. PROPERTY IS CURRENTLY ZONED "MU"-MIXED USE WITH PROFFERS
5. LOTS TO BE SERVED BY PUBLIC WATER AND SEWER.

STATE OF VIRGINIA
COUNTY OF JAMES CITY

IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF THE COUNTY OF JAMES CITY, THIS 25th DAY OF June, 2002, THE MAP SHOWN HEREON WAS PRESENTED AND ADMITTED TO THE RECORD AT 2:54 PM.
BETSY B. WOOLRIDGE, CLERK
TESTE: By Glenda Hall Pool, CLERK

PLAT BOOK 87, PAGE 90

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 258-0040
Fax (757) 220-8994

PLAT OF SUBDIVISION
SHOWING PARCEL 1
NEW TOWN ASSOCIATES, L.L.C.
BERKELEY DISTRICT — COUNTY OF JAMES CITY — VIRGINIA

COMMONWEALTH OF VIRGINIA — G.T. WILSON, JR. — CERTIFICATE No. 1103 — LAND

City of Williamsburg & County of James City Circuit Courts. This PLAT was recorded at 2:54 PM/AM on the 25th day of June, 2002 in Deed Book/Plat Book No. 87 Page No. 90
Teste: Betsy B. Woolridge, Clerk
By: Glenda Hall Pool, Dep. Clerk

No.	DATE	REVISION / COMMENT / NOTE	BY

Designed	Drawn
GAM	RMK
Scale	Date
1"=50'	6/19/02
Project No.	
5832-E-50	
Drawing No.	
1 OF 1	

SP-95-05

DRAINAGE CALCULATIONS

FOR

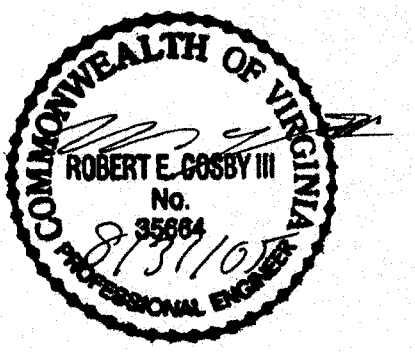
NEW TOWN
Retail Phase 3

SITE:

James City County

SUBMITTED TO:

Environmental Division
James City County



Prepared By:

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

July 15, 2005
Revised: August 31, 2005

AES Project No. 6632-E-21-6

6632E21-6.drncalcs.doc

AES CONSULTING ENGINEERS

TABLE OF CONTENTS

CONSULTING ENGINEERS

I INTRODUCTION

This project, known as Retail Phase 3 is a continuation of the commercial development of New Town. This infrastructure will support the continued development associated with New Town Sections 2 and 4. The drainage associated with this development will be collected into a storm drainage system draining to an existing best management practice (BMP) facility (BMP 53). The construction of Retail Phase 3 will take place concurrently with Roadways Phase III and will utilize erosion and sediment control devices and facilities for that phase.

II EXISTING SITE CONDITIONS

The majority of this site is open fallow farmland. Stormwater is currently conveyed via sheet flow to natural channels downstream.

III PROPOSED STORMDRAIN SYSTEM

This project will be collected by two storm drainage systems which are designed to collect the runoff from the proposed buildings and parking area upon the completion of all construction. The drainage system outfalls to an existing best management practice (BMP) facility (BMP 53). The BMP 53 facility was designed and approved as part of the James City County Courthouse Site Plan.

The major storm drainage system originally begun as part of Phase 1 Infrastructure has been modified to account for the final design of inlets and pipes in and around Civic Green. In addition a small drainage system is proposed parallel to Monticello Avenue to drain to the existing ditch adjacent to the William E. Wood Building. The downstream system was originally designed for this area as part of previous phases.

I INTRODUCTION

This project, known as Retail Phase 3 is a continuation of the commercial development of New Town. This infrastructure will support the continued development associated with New Town Sections 2 and 4. The drainage associated with this development will be collected into a storm drainage system draining to an existing best management practice (BMP) facility (BMP 53). The construction of Retail Phase 3 will take place concurrently with Roadways Phase III and will utilize erosion and sediment control devices and facilities for that phase.

II EXISTING SITE CONDITIONS

The majority of this site is open fallow farmland. Stormwater is currently conveyed via sheet flow to natural channels downstream.

III PROPOSED STORMDRAIN SYSTEM

This project will be collected by two storm drainage systems which are designed to collect the runoff from the proposed buildings and parking area upon the completion of all construction. The drainage system outfalls to an existing best management practice (BMP) facility (BMP 53). The BMP 53 facility was designed and approved as part of the James City County Courthouse Site Plan.

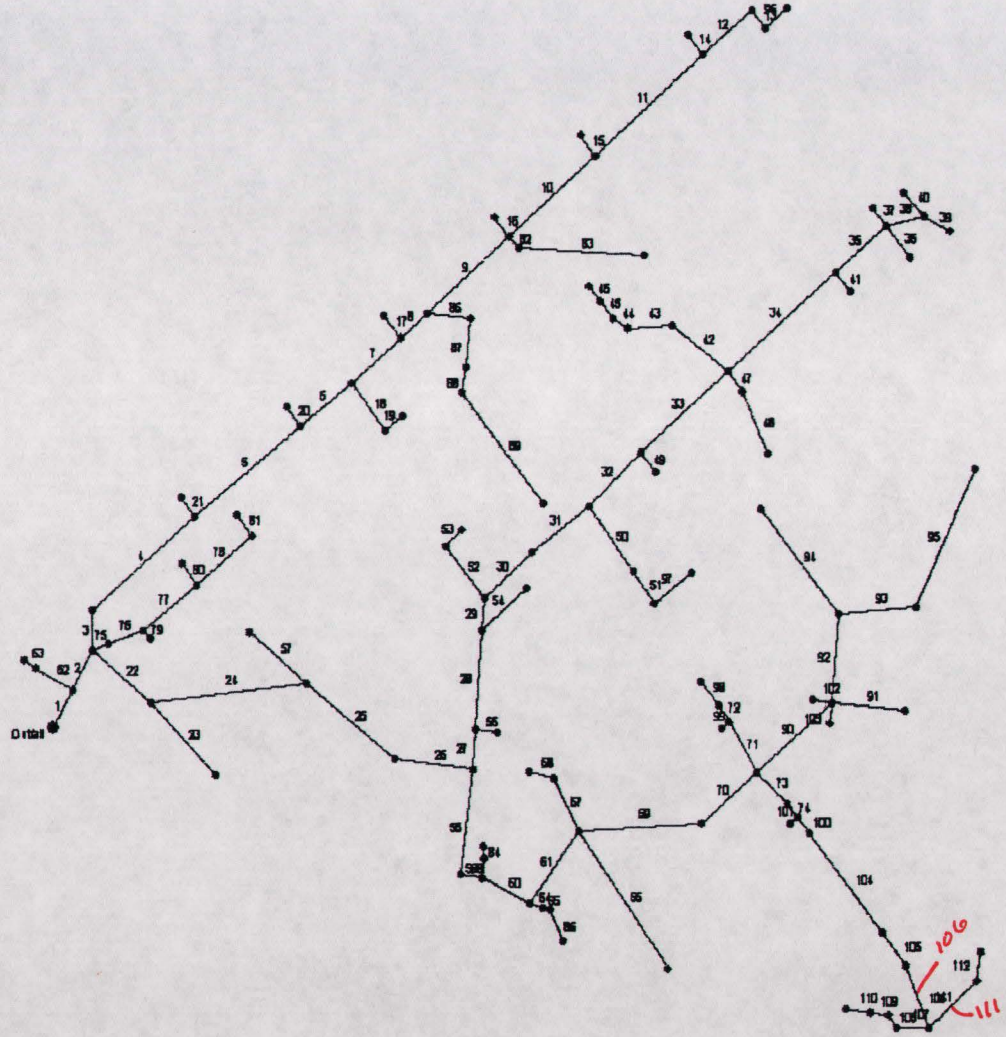
The major storm drainage system originally begun as part of Phase 1 Infrastructure has been modified to account for the final design of inlets and pipes in and around Civic Green. In addition a small drainage system is proposed parallel to Monticello Avenue to drain to the existing ditch adjacent to the William E. Wood Building. The downstream system was originally designed for this area as part of previous phases.

APPENDIX A

STORM SEWER SYSTEM

CONSULTING ENGINEERS

Hydraflow Plan View



Project File: 6632E19-sys2(REV-2).stm	No. Lines: 112	08-31-2005

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
1	End	61.0	-60.0	MH	0.00	0.00	0.00	0.0	65.00	6.23	68.80	60	Cir	0.013	1.00	77.00	#2-1A TO #2-1
2	1	68.0	0.0	MH	0.00	0.00	0.00	0.0	68.80	4.71	72.00	60	Cir	0.013	1.00	81.50	#2-2 TO #2-1A
3	2	59.0	-30.0	MH	0.00	0.26	0.85	5.0	72.00	7.46	76.40	36	Cir	0.013	0.75	83.80	#2-20 TO #2-2
4	3	220.0	51.0	MH	0.00	0.49	0.65	5.0	76.40	2.73	82.40	30	Cir	0.013	1.00	89.89	#2-21 TO #2-20
5	4	219.0	2.0	MH	0.00	0.12	0.65	5.0	82.40	2.15	87.10	30	Cir	0.013	1.00	96.70	#2-22 TO #2-21
6	5	105.0	1.0	MH	0.00	0.00	0.00	0.0	87.10	1.05	88.20	30	Cir	0.013	1.00	98.76	#2-23 TO #2-22
7	6	105.0	-3.0	MH	0.00	0.04	0.65	5.0	88.20	1.05	89.30	30	Cir	0.013	0.15	99.65	#2-24 TO #2-23
8	7	56.0	0.0	MH	0.00	0.17	0.70	5.0	89.30	0.34	89.49	30	Cir	0.013	1.00	99.92	#2-24B TO #2-24
9	8	178.0	0.0	MH	0.00	0.17	0.70	5.0	89.49	1.00	91.27	24	Cir	0.013	1.00	101.41	#2-25 TO #2-24B
10	9	185.0	0.0	MH	0.00	0.46	0.80	5.0	91.27	3.17	97.14	15	Cir	0.013	1.00	104.52	#2-27 TO #2-26
11	10	230.0	0.0	MH	0.00	0.17	0.80	5.0	97.14	1.73	101.13	15	Cir	0.013	1.00	108.51	#2-29 TO #2-27
12	11	105.0	0.0	MH	0.00	0.00	0.00	0.0	101.13	1.73	102.95	15	Cir	0.013	1.00	110.00	#2-31A TO #2-29
13	12	35.0	90.0	MH	0.00	0.32	0.70	5.0	102.95	1.77	103.57	15	Cir	0.013	0.45	111.04	#2-31 TO #2-31A
14	11	38.0	-90.0	MH	0.00	0.15	0.80	5.0	101.13	1.00	101.51	15	Cir	0.013	1.00	108.51	#2-30 TO #2-29
15	10	38.0	-90.0	MH	0.00	0.22	0.75	5.0	97.14	1.00	97.52	15	Cir	0.013	1.00	104.52	#2-28 TO #2-27
16	9	38.0	-90.0	MH	0.00	0.21	0.80	5.0	91.27	8.26	94.41	15	Cir	0.013	1.00	101.41	#2-25A TO #2-25
17	7	43.0	-90.0	MH	0.00	0.10	0.80	5.0	92.10	1.05	92.55	12	Cir	0.013	1.00	99.50	#2-24A TO #2-24
18	6	90.0	87.0	MH	0.00	0.36	0.65	5.0	89.10	1.33	90.30	15	Cir	0.013	1.00	97.75	#2-23A TO #2-23
19	18	36.0	-88.0	MH	0.00	0.29	0.75	5.0	90.30	1.11	90.70	12	Cir	0.013	1.00	97.75	#2-23B TO #2-23A
20	5	36.0	-90.0	MH	0.00	0.09	0.70	5.0	89.20	1.11	89.60	12	Cir	0.013	1.00	96.70	#2-22A TO #2-22
21	4	36.0	-88.0	MH	0.00	0.47	0.65	5.0	82.40	1.11	82.80	12	Cir	0.013	1.00	89.89	#2-21A TO #2-21

Project File: 6632E19-sys2(REV-2).stm | Number of lines: 112 | Date: 08-31-2005

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
22	2	123.0	99.0	MH	0.00	2.51	0.85	5.0	72.00	1.63	74.00	54	Cir	0.013	0.75	82.00	#2-3 TO #2-2
23	22	150.0	6.0	MH	0.00	0.59	0.84	5.0	74.00	2.00	77.00	15	Cir	0.013	1.00	85.80	#2-4 TO #2-3
24	22	258.0	-45.0	MH	0.00	0.29	0.84	5.0	74.00	1.36	77.50	54	Cir	0.013	1.00	91.00	#2-5 TO #2-3
25	24	183.0	43.0	MH	0.00	0.14	0.84	5.0	77.50	0.98	79.30	54	Cir	0.013	0.45	94.30	#2-6 TO #2-5
26	25	131.0	-30.0	MH	0.00	0.00	0.00	0.0	79.30	0.99	80.60	54	Cir	0.013	1.00	95.04	#2-7 TO #2-6
27	26	59.0	-93.0	MH	0.00	0.27	0.65	5.0	86.00	1.02	86.60	30	Cir	0.013	1.00	96.37	#2-8 TO #2-7
28	27	145.0	1.0	MH	0.00	0.00	0.00	0.0	86.60	1.03	88.10	30	Cir	0.013	0.75	98.54	#2-9 TO #2-8
29	28	48.0	0.0	MH	0.00	0.00	0.00	0.0	88.10	1.04	88.60	30	Cir	0.013	0.75	98.55	#2-10 TO #2-9
30	29	104.0	45.0	MH	0.00	0.85	0.70	5.0	88.60	0.96	89.60	30	Cir	0.013	0.15	99.68	#2-11 TO #2-10
31	30	116.0	5.0	MH	0.00	0.00	0.00	0.0	89.60	1.72	91.59	30	Cir	0.013	0.45	100.49	#2-12 TO #2-11
32	31	118.0	-8.0	MH	0.00	0.17	0.80	5.0	91.59	1.53	93.39	30	Cir	0.013	0.45	102.02	#2-13A TO #2-12
33	32	185.0	4.0	MH	0.00	0.18	0.70	5.0	93.39	1.57	96.30	30	Cir	0.013	1.00	104.93	#2-14A TO #2-13A
34	33	230.0	0.0	MH	0.00	0.16	0.70	5.0	96.30	2.17	101.29	18	Cir	0.013	1.00	108.67	#2-15A TO #2-14A
35	34	108.0	0.0	MH	0.00	0.00	0.00	0.0	101.29	1.27	102.66	18	Cir	0.013	1.00	110.46	#2-16A TO #2-15A
36	35	59.0	90.0	MH	0.00	0.63	0.70	5.0	102.66	1.12	103.32	18	Cir	0.013	0.45	110.75	#2-16B TO #2-16A
37	35	34.0	-90.0	MH	0.00	0.30	0.70	5.0	102.66	6.29	104.80	15	Cir	0.013	1.00	111.08	#2-16C TO #2-16A
38	35	63.0	26.0	MH	0.00	0.12	0.80	5.0	102.66	1.33	103.50	15	Cir	0.013	0.75	110.79	#2-17A TO #2-16A
39	38	48.0	41.0	MH	0.00	0.44	0.80	5.0	103.50	2.00	104.46	15	Cir	0.013	1.00	110.97	#2-16B TO #2-16A
40	38	48.0	-122.0	MH	0.00	0.16	0.80	5.0	103.50	2.00	104.46	15	Cir	0.013	1.00	110.98	#2-16C TO #2-16A
41	34	38.0	90.0	MH	0.00	0.19	0.70	5.0	101.29	1.00	101.67	15	Cir	0.013	1.00	108.67	#2-15B TO #2-15A
42	33	113.0	-104.0	MH	0.00	1.47	0.85	10.0	96.30	1.50	98.00	24	Cir	0.013	0.75	102.30	#7-1 TO #2-14A

Project File: 6632E19-sys2(REV-2).stm | Number of lines: 112 | Date: 08-31-2005

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
43	42	74.0	-40.0	MH	0.00	0.17	0.90	5.0	98.00	2.30	99.70	15	Cir	0.013	0.45	102.70	#7-4 TO #7-1
44	43	29.0	33.0	MH	0.00	0.15	0.90	5.0	99.70	1.03	100.00	12	Cir	0.013	0.45	102.75	#7-5 TO #7-4
45	44	32.0	20.0	MH	0.00	0.12	0.90	5.0	100.00	0.94	100.30	12	Cir	0.013	0.15	102.75	#7-6 TO #7-5
46	45	28.0	0.0	MH	0.00	0.17	0.90	5.0	100.30	1.07	100.60	12	Cir	0.013	1.00	102.75	#7-7 TO #7-6
47	33	38.0	90.0	MH	0.00	0.23	0.75	5.0	96.30	4.29	97.93	24	Cir	0.013	0.45	104.93	#2-14B TO #2-14A
48	47	100.0	14.0	MH	0.00	1.09	0.84	5.0	97.93	0.19	98.12	24	Cir	0.013	1.00	102.00	#3-7 TO #2-14B
49	32	38.0	94.0	MH	0.00	0.19	0.70	5.0	93.39	4.29	95.02	15	Cir	0.013	1.00	102.02	#2-13B TO #2-13A
50	31	120.0	88.0	MH	0.00	0.57	0.89	5.0	91.59	1.00	92.79	15	Cir	0.013	1.00	100.06	#4-1 TO #2-12
51	50	59.0	0.0	MH	0.00	0.15	0.89	5.0	92.79	4.27	95.31	15	Cir	0.013	1.00	100.37	#4-2 to #4-1
52	29	101.0	-45.0	MH	0.00	0.37	0.65	5.0	89.60	0.99	90.60	15	Cir	0.013	1.00	97.75	#2-10A TO #2-10
53	52	36.0	92.0	MH	0.00	0.27	0.75	5.0	90.60	1.11	91.00	12	Cir	0.013	1.00	97.75	#2-10B TO #2-10A
54	28	96.0	45.0	MH	0.00	0.25	0.65	5.0	91.70	1.04	92.70	15	Cir	0.013	1.00	99.68	#2-9A TO #2-9
55	27	36.0	93.0	MH	0.00	0.34	0.70	5.0	89.00	1.11	89.40	12	Cir	0.013	1.00	96.37	#2-8A TO #2-8
56	26	155.0	91.0	MH	0.00	0.35	0.65	5.0	80.60	0.97	82.10	54	Cir	0.013	1.00	92.73	#2-7A TO #2-7
57	24	120.0	-135.0	MH	0.00	0.54	0.85	5.0	83.00	1.67	85.00	15	Cir	0.013	1.00	90.40	#2-5A TO #2-5
58	56	36.0	-90.0	MH	0.00	0.00	0.00	0.0	82.10	1.11	82.50	48	Cir	0.013	1.00	92.45	#2-7B TO #2-7A
59	58	29.0	-90.0	MH	0.00	0.00	0.00	0.0	85.00	4.48	86.30	12	Cir	0.013	0.45	93.10	#2-7BB TO #2-7B
60	58	88.0	16.5	MH	0.00	0.00	0.00	0.0	82.50	1.40	83.73	48	Cir	0.013	1.00	92.80	#6-1 TO #2-7B
61	60	132.0	-76.9	MH	0.00	0.70	0.84	5.0	83.73	2.37	86.86	42	Cir	0.013	1.00	95.50	#6-2 TO #6-1
62	1	67.0	-90.0	MH	0.00	0.11	0.80	5.0	68.80	10.00	75.50	15	Cir	0.013	0.15	82.76	#2-1B TO #2-1A
63	62	24.0	0.0	MH	0.00	0.53	0.80	5.0	75.50	1.25	75.80	12	Cir	0.013	1.00	82.76	#2-1C TO #2-1B

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
64	60	23.0	-5.0	MH	0.00	0.19	0.90	5.0	83.73	5.52	85.00	15	Cir	0.013	0.15	93.20	#6-1B TO #6-2
65	64	11.0	0.0	MH	0.00	0.65	0.84	5.0	85.00	5.91	85.65	15	Cir	0.013	0.75	93.00	#6-1A TO #6-1B
66	61	249.0	106.0	MH	0.00	1.49	0.84	5.0	86.86	2.00	91.84	18	Cir	0.013	1.00	95.50	#6-6 TO #6-2
67	61	86.0	-65.0	MH	0.00	0.49	0.84	5.0	86.86	1.50	88.15	15	Cir	0.013	0.75	95.50	#6-8 TO #6-2
68	67	43.0	-50.0	MH	0.00	0.98	0.75	5.0	88.15	1.51	88.80	15	Cir	0.013	1.00	95.00	#6-9 TO #6-8
69	61	205.0	49.3	MH	0.00	0.00	0.00	0.0	86.86	2.11	91.18	36	Cir	0.013	0.75	100.50	#6-3 TO #6-2
70	69	116.0	-36.1	MH	0.00	0.00	0.00	0.0	91.18	2.00	93.50	36	Cir	0.013	1.00	99.50	#6-4 TO #6-3
71	70	87.0	-81.0	MH	0.00	0.26	0.89	5.0	94.65	1.37	95.84	15	Cir	0.013	1.00	100.43	#4-5 to #6-4
72	71	30.0	-9.0	MH	0.00	0.22	0.89	5.0	95.84	1.50	96.29	15	Cir	0.013	1.00	100.35	#4-4 to #4-5
73	70	69.0	81.0	MH	0.00	0.18	0.89	5.0	94.50	1.01	95.20	24	Cir	0.013	1.00	100.60	#4-6 to #6-4
74	73	25.0	9.0	MH	0.00	0.18	0.89	5.0	95.20	0.80	95.40	24	Cir	0.013	1.00	100.52	#4-7 to #4-6
75	2	29.0	41.6	MH	0.00	0.27	0.80	5.0	72.00	22.07	78.40	15	Cir	0.011	0.15	81.90	#1-1 TO #2-2
76	75	59.0	-0.3	MH	0.00	0.07	0.85	5.0	78.40	2.03	79.60	15	Cir	0.011	0.85	84.60	#1-2 TO #1-1
77	76	113.0	-18.6	MH	0.00	0.17	0.85	5.0	79.60	3.16	83.17	12	Cir	0.011	1.00	87.67	#1-3 TO #1-2
78	77	116.0	-0.3	MH	0.00	0.12	0.85	8.0	83.17	3.26	86.95	12	Cir	0.011	1.00	91.45	#1-4 TO #1-3
79	76	16.0	59.9	MH	0.00	0.28	0.85	10.0	79.60	1.94	79.91	12	Cir	0.011	1.00	84.64	#1-2A TO 1-2
80	77	40.0	-90.0	MH	0.00	0.05	0.85	5.0	83.17	5.83	85.50	12	Cir	0.011	1.00	87.50	#1-3A TO 1-3
81	78	40.0	-90.0	MH	0.00	0.11	0.85	5.0	86.95	6.38	89.50	12	Cir	0.011	1.00	91.50	#1-4A TO #1-4
82	9	23.0	88.0	MH	0.00	0.77	0.75	5.0	91.27	1.00	91.50	18	Cir	0.013	0.75	101.00	#7-2 TO #2-25
83	82	210.0	-46.0	MH	0.00	1.23	0.85	10.0	91.50	2.00	95.70	15	Cir	0.013	1.00	102.70	#7-3 TO #7-2
84	59	18.0	-15.0	MH	0.00	0.36	0.75	5.0	86.30	6.67	87.50	12	Cir	0.013	1.00	93.50	#2-7BBB TO #2-7BB

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
85	65	50.0	45.0	MH	0.00	0.38	0.75	5.0	85.65	7.70	89.50	15	Cir	0.013	1.00	93.50	#6-1A TO #6-1
86	8	74.0	45.0	MH	0.00	0.48	0.90	5.0	91.65	1.00	92.39	15	Cir	0.013	0.75	100.00	#7-8 TO #2-25
87	86	71.0	90.0	MH	0.00	0.69	0.90	5.0	92.39	1.00	93.10	15	Cir	0.013	0.45	99.70	#7-9 TO #7-8
88	87	38.0	5.0	MH	0.00	0.44	0.90	5.0	93.10	2.00	93.86	15	Cir	0.013	0.45	99.10	#7-10 TO #7-9
89	88	211.0	-50.0	MH	0.00	0.34	0.90	5.0	93.86	1.01	96.00	15	Cir	0.013	0.15	102.90	#7-11 TO #7-10
90	70	161.0	0.0	MH	0.00	0.00	0.00	0.0	93.50	0.50	94.30	36	Cir	0.013	0.00	101.50	#3-1 TO #6-4
91	90	120.0	45.0	MH	0.00	2.65	0.84	5.0	94.30	2.00	96.70	24	Cir	0.013	0.75	101.00	#3-2 TO #3-1
92	90	129.0	-45.0	MH	0.00	1.71	0.84	7.0	94.30	1.01	95.60	30	Cir	0.013	1.00	101.00	#3-3 TO #3-1
93	92	126.0	80.0	MH	0.00	0.40	0.84	5.0	95.60	3.49	100.00	15	Cir	0.013	1.00	104.00	#3-5 TO #3-3
94	92	201.0	-45.0	MH	0.00	1.44	0.84	5.0	95.60	0.36	96.33	24	Cir	0.013	1.00	101.00	#3-4 TO #3-3
95	93	227.0	-60.0	MH	0.00	1.27	0.84	5.0	100.00	2.42	105.50	15	Cir	0.013	1.00	108.50	#3-6 TO #3-5
96	13	46.0	-90.0	MH	0.00	0.12	0.80	5.0	103.57	1.02	104.04	15	Cir	0.013	1.00	111.04	#2-32 TO #2-31
97	51	76.0	-90.0	MH	0.00	0.25	0.90	5.0	95.31	5.18	99.25	8	Cir	0.009	1.00	102.25	Bldg 600 to #4-2
98	72	44.0	0.0	MH	0.00	0.20	0.89	5.0	96.29	1.50	96.95	12	Cir	0.013	0.00	100.45	#4-3 to #4-4
99	71	16.0	-99.0	MH	0.00	0.36	0.90	5.0	96.52	3.00	97.00	8	Cir	0.009	1.00	101.00	Bldg 300 to #4-5
100	74	30.0	0.0	MH	0.00	0.19	0.89	5.0	95.40	1.00	95.70	24	Cir	0.013	0.00	100.63	#4-8 to #4-7
101	74	15.0	90.0	MH	0.00	0.29	0.90	5.0	96.53	4.80	97.25	8	Cir	0.009	1.00	101.25	Bldg 200 to #4-7
102	90	30.0	-135.0	MH	0.00	0.39	0.90	5.0	97.50	2.50	98.25	8	Cir	0.009	1.00	102.25	Bldg 700 to #3-1
103	90	30.0	135.0	MH	0.00	0.32	0.90	5.0	97.50	3.33	98.50	8	Cir	0.009	0.75	102.50	Bldg 800 to #3-1
104	100	189.0	0.0	MH	0.00	0.85	0.90	5.0	95.70	0.50	96.64	24	Cir	0.013	0.00	101.50	#4-9 to #4-8
105	104	63.0	0.0	MH	0.00	0.48	0.85	5.0	96.64	0.89	97.20	18	Cir	0.013	0.00	101.20	#4-9A to #4-9

Project File: 6632E19-sys2(REV-2).stm | Number of lines: 112 | Date: 08-31-2005

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
106	105	97.8	16.7	MH	0.00	0.22	0.40	10.0	97.20	1.36	98.53	12	Cir	0.013	0.34	103.50	#4-10 to #4-9
107	106	53.0	113.0	MH	0.00	0.09	0.90	5.0	98.53	0.57	98.83	8	Cir	0.013	1.00	101.40	#4-11 to #4-10
108	107	22.0	55.0	MH	0.00	0.01	0.90	5.0	98.83	0.95	99.04	8	Cir	0.013	0.70	101.40	#4-12 to #4-11
109	108	29.9	-48.0	MH	0.00	0.06	0.90	5.0	99.04	0.50	99.19	8	Cir	0.013	0.55	101.40	#4-13 to #4-12
110	109	40.5	0.0	MH	0.00	0.07	0.90	5.0	99.19	0.52	99.40	8	Cir	0.013	0.70	101.40	#4-14 to #4-13
111	106	104.9	-109.2	MH	0.00	0.12	0.40	5.0	98.53	1.00	99.58	8	Cir	0.013	1.00	104.00	#4-15 to #4-14
112	111	42.0	-39.2	MH	0.00	0.09	0.40	5.0	99.58	1.00	100.00	8	Cir	0.013	0.72	103.30	#4-16 to #4-15

Project File: 6632E19-sys2(REV-2).stm | Number of lines: 112 | Date: 08-31-2005

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	61.0	0.00	40.84	0.00	0.00	33.16	0.0	16.5	4.9	163.6	650.1	8.33	60	6.23	68.80	65.00	79.14	78.90	77.00	82.76	#2-1A TO #2-1
2	1	68.0	0.00	40.20	0.00	0.00	32.65	0.0	16.4	5.0	161.8	565.0	8.24	60	4.71	72.00	68.80	80.51	80.24	81.50	77.00	#2-2 TO #2-1A
3	2	59.0	0.26	8.16	0.85	0.22	6.44	5.0	13.3	5.4	34.75	182.1	4.92	36	7.46	76.40	72.00	82.40	82.24	83.80	81.50	#2-20 TO #2-2
4	3	220.0	0.49	7.90	0.65	0.32	6.22	5.0	12.7	5.5	34.13	67.73	7.63	30	2.73	82.40	76.40	84.35	82.69	89.89	83.80	#2-21 TO #2-20
5	4	219.0	0.12	6.94	0.65	0.08	5.59	5.0	12.1	5.6	31.27	60.08	7.21	30	2.15	87.10	82.40	88.97	84.79	96.70	89.89	#2-22 TO #2-21
6	5	105.0	0.00	6.73	0.00	0.00	5.45	0.0	11.8	5.6	30.76	41.98	7.26	30	1.05	88.20	87.10	90.05	89.34	98.76	96.70	#2-23 TO #2-22
7	6	105.0	0.04	6.08	0.65	0.03	5.00	5.0	11.5	5.7	28.49	41.98	6.82	30	1.05	89.30	88.20	91.08	90.50	99.65	98.76	#2-24 TO #2-23
8	7	56.0	0.17	5.94	0.70	0.12	4.89	5.0	11.3	5.7	28.03	23.89	6.10	30	0.34	89.49	89.30	91.52	91.48	99.92	99.65	#2-24B TO #2-24
9	8	178.0	0.17	3.82	0.70	0.12	3.02	5.0	10.8	5.8	17.59	22.62	5.80	24	1.00	91.27	89.49	93.05	92.08	101.41	99.92	#2-25 TO #2-24B
10	9	185.0	0.46	1.44	0.80	0.37	1.11	5.0	8.9	6.2	6.87	11.50	5.93	15	3.17	97.14	91.27	98.19	93.61	104.52	101.41	#2-27 TO #2-26
11	10	230.0	0.17	0.76	0.80	0.14	0.58	5.0	7.7	6.5	3.72	8.51	3.85	15	1.73	101.13	97.14	101.90	98.65	108.51	104.52	#2-29 TO #2-27
12	11	105.0	0.00	0.44	0.00	0.00	0.32	0.0	6.7	6.7	2.14	8.50	2.86	15	1.73	102.95	101.13	103.54	102.19	110.00	108.51	#2-31A TO #2-29
13	12	35.0	0.32	0.44	0.70	0.22	0.32	5.0	6.4	6.8	2.16	8.59	3.29	15	1.77	103.57	102.95	104.16	103.71	111.04	110.00	#2-31 TO #2-31A
14	11	38.0	0.15	0.15	0.80	0.12	0.12	5.0	5.0	7.1	0.86	6.46	0.99	15	1.00	101.51	101.13	102.21	102.21	108.51	108.51	#2-30 TO #2-29
15	10	38.0	0.22	0.22	0.75	0.17	0.17	5.0	5.0	7.1	1.18	6.46	0.96	15	1.00	97.52	97.14	98.79	98.78	104.52	104.52	#2-28 TO #2-27
16	9	38.0	0.21	0.21	0.80	0.17	0.17	5.0	5.0	7.1	1.20	18.56	2.05	15	8.26	94.41	91.27	94.85	93.61	101.41	101.41	#2-25A TO #2-25
17	7	43.0	0.10	0.10	0.80	0.08	0.08	5.0	5.0	7.1	0.57	3.64	2.63	12	1.05	92.55	92.10	92.87	92.42	99.50	99.65	#2-24A TO #2-24
18	6	90.0	0.36	0.65	0.65	0.23	0.45	5.0	5.3	7.0	3.18	7.46	3.21	15	1.33	90.30	89.10	91.07	90.92	97.75	98.76	#2-23A TO #2-23
19	18	36.0	0.29	0.29	0.75	0.22	0.22	5.0	5.0	7.1	1.55	3.75	2.53	12	1.11	90.70	90.30	91.24	91.30	97.75	97.75	#2-23B TO #2-23
20	5	36.0	0.09	0.09	0.70	0.06	0.06	5.0	5.0	7.1	0.45	3.75	1.29	12	1.11	89.60	89.20	89.95	89.95	96.70	96.70	#2-22A TO #2-22
21	4	36.0	0.47	0.47	0.65	0.31	0.31	5.0	5.0	7.1	2.18	3.75	2.77	12	1.11	82.80	82.40	85.44	85.30	89.89	89.89	#2-21A TO #2-21

Project File: 6632E19-sys2(REV-2).stm

Number of lines: 112

Run Date: 08-31-2005

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
22	2	123.0	2.51	30.97	0.85	2.13	25.31	5.0	16.1	5.0	126.5	250.8	7.95	54	1.63	74.00	72.00	82.14	81.64	82.00	81.50	#2-3 TO #2-2
23	22	150.0	0.59	0.59	0.84	0.50	0.50	5.0	5.0	7.1	3.53	9.13	2.88	15	2.00	77.00	74.00	84.18	83.74	85.80	82.00	#2-4 TO #2-3
24	22	258.0	0.29	27.87	0.84	0.24	22.68	5.0	15.4	5.1	115.4	229.1	7.26	54	1.36	77.50	74.00	83.93	83.05	91.00	82.00	#2-5 TO #2-3
25	24	183.0	0.14	27.04	0.84	0.12	21.98	5.0	14.9	5.2	113.3	195.0	7.12	54	0.98	79.30	77.50	85.39	84.78	94.30	91.00	#2-6 TO #2-5
26	25	131.0	0.00	26.90	0.00	0.00	21.86	0.0	14.6	5.2	113.7	195.9	7.15	54	0.99	80.60	79.30	86.18	85.74	95.04	94.30	#2-7 TO #2-6
27	26	59.0	0.27	9.26	0.65	0.18	7.23	5.0	12.5	5.5	39.96	41.36	9.03	30	1.02	86.60	86.00	88.71	88.11	96.37	95.04	#2-8 TO #2-7
28	27	145.0	0.00	8.65	0.00	0.00	6.82	0.0	12.2	5.6	38.05	41.71	8.29	30	1.03	88.10	86.60	90.16	89.05	98.54	96.37	#2-9 TO #2-8
29	28	48.0	0.00	8.40	0.00	0.00	6.66	0.0	12.1	5.6	37.27	41.86	8.21	30	1.04	88.60	88.10	90.65	90.47	98.55	98.54	#2-10 TO #2-9
30	29	104.0	0.85	7.76	0.70	0.60	6.21	5.0	11.8	5.6	35.06	40.22	7.14	30	0.96	89.60	88.60	92.12	91.90	99.68	98.55	#2-11 TO #2-10
31	30	116.0	0.00	6.91	0.00	0.00	5.62	0.0	11.5	5.7	32.00	53.72	7.28	30	1.72	91.59	89.60	93.48	92.91	100.49	99.68	#2-12 TO #2-11
32	31	118.0	0.17	5.94	0.80	0.14	4.75	5.0	11.1	5.8	27.38	50.65	6.55	30	1.53	93.39	91.59	95.14	94.00	102.02	100.49	#2-13A TO #2-12
33	32	185.0	0.18	5.58	0.70	0.13	4.48	5.0	10.6	5.9	26.30	51.44	6.57	30	1.57	96.30	93.39	98.01	95.56	104.93	102.02	#2-14A TO #2-13
34	33	230.0	0.16	2.00	0.70	0.11	1.47	5.0	6.8	6.7	9.81	15.47	6.03	18	2.17	101.29	96.30	102.49	98.37	108.67	104.93	#2-15A TO #2-14
35	34	108.0	0.00	1.65	0.00	0.00	1.23	0.0	6.4	6.8	8.29	11.83	5.33	18	1.27	102.66	101.29	103.76	102.80	110.46	108.67	#2-16A TO #2-15
36	35	59.0	0.63	0.63	0.70	0.44	0.44	5.0	5.0	7.1	3.14	11.11	2.46	18	1.12	103.32	102.66	104.15	104.15	110.75	110.46	#2-16B TO #2-
37	35	34.0	0.30	0.30	0.70	0.21	0.21	5.0	5.0	7.1	1.50	16.20	2.29	15	6.29	104.80	102.66	105.29	104.29	111.08	110.46	#2-16C TO #2-16
38	35	63.0	0.12	0.72	0.80	0.10	0.58	5.0	6.1	6.8	3.94	7.46	3.99	15	1.33	103.50	102.66	104.30	104.15	110.79	110.46	#2-17A TO #2-16
39	38	48.0	0.44	0.44	0.80	0.35	0.35	5.0	5.0	7.1	2.51	9.13	3.03	15	2.00	104.46	103.50	105.09	104.85	110.97	110.79	#2-16B TO #2-16
40	38	48.0	0.16	0.16	0.80	0.13	0.13	5.0	5.0	7.1	0.91	9.13	1.55	15	2.00	104.46	103.50	104.82	104.91	110.98	110.79	#2-16C TO #2-16
41	34	38.0	0.19	0.19	0.70	0.13	0.13	5.0	5.0	7.1	0.95	6.46	0.77	15	1.00	101.67	101.29	103.14	103.13	108.67	108.67	#2-15B TO #2-15
42	33	113.0	1.47	2.08	0.85	1.25	1.80	10.0	10.0	6.0	10.74	27.74	4.55	24	1.50	98.00	96.30	99.16	98.67	102.30	104.93	#7-1 TO #2-14A

Project File: 6632E19-sys2(REV-2).stm

Number of lines: 112

Run Date: 08-31-2005

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
43	42	74.0	0.17	0.61	0.90	0.15	0.55	5.0	5.7	6.9	3.81	9.79	3.91	15	2.30	99.70	98.00	100.48	99.51	102.70	102.30	#7-4 TO #7-1
44	43	29.0	0.15	0.44	0.90	0.14	0.40	5.0	5.6	7.0	2.76	3.62	4.13	12	1.03	100.00	99.70	100.71	100.64	102.75	102.70	#7-5 TO #7-4
45	44	32.0	0.12	0.29	0.90	0.11	0.26	5.0	5.3	7.0	1.84	3.45	2.51	12	0.94	100.30	100.00	101.12	101.06	102.75	102.75	#7-6 TO #7-5
46	45	28.0	0.17	0.17	0.90	0.15	0.15	5.0	5.0	7.1	1.09	3.69	2.10	12	1.07	100.60	100.30	101.03	101.13	102.75	102.75	#7-7 TO #7-6
47	33	38.0	0.23	1.32	0.75	0.17	1.09	5.0	5.8	6.9	7.52	46.84	3.68	24	4.29	97.93	96.30	98.90	98.76	104.93	104.93	#2-14B TO #2-14
48	47	100.0	1.09	1.09	0.84	0.92	0.92	5.0	5.0	7.1	6.52	9.86	3.12	24	0.19	98.12	97.93	99.36	99.22	102.00	104.93	#3-7 TO #2-14B
49	32	38.0	0.19	0.19	0.70	0.13	0.13	5.0	5.0	7.1	0.95	13.37	0.85	15	4.29	95.02	93.39	96.00	96.00	102.02	102.02	#2-13B TO #2-13
50	31	120.0	0.57	0.97	0.89	0.51	0.87	5.0	5.8	6.9	5.99	6.46	4.88	15	1.00	92.79	91.59	95.15	94.11	100.06	100.49	#4-1 TO #2-12
51	50	59.0	0.15	0.40	0.89	0.13	0.36	5.0	5.3	7.0	2.53	13.35	3.04	15	4.27	95.31	92.79	95.95	95.82	100.37	100.06	#4-2 to #4-1
52	29	101.0	0.37	0.64	0.65	0.24	0.44	5.0	5.3	7.0	3.12	6.43	2.54	15	0.99	90.60	89.60	92.83	92.59	97.75	98.55	#2-10A TO #2-10
53	52	36.0	0.27	0.27	0.75	0.20	0.20	5.0	5.0	7.1	1.44	3.75	1.84	12	1.11	91.00	90.60	93.03	92.97	97.75	97.75	#2-10B TO #2-10
54	28	96.0	0.25	0.25	0.65	0.16	0.16	5.0	5.0	7.1	1.16	6.59	3.09	15	1.04	92.70	91.70	93.13	92.13	99.68	98.54	#2-9A TO #2-9
55	27	36.0	0.34	0.34	0.70	0.24	0.24	5.0	5.0	7.1	1.70	3.75	3.03	12	1.11	89.40	89.00	89.95	89.91	96.37	96.37	#2-8A TO #2-8
56	26	155.0	0.35	17.64	0.65	0.23	14.63	5.0	14.0	5.3	77.34	193.5	4.86	54	0.97	82.10	80.60	87.64	87.41	92.73	95.04	#2-7A TO #2-7
57	24	120.0	0.54	0.54	0.85	0.46	0.46	5.0	5.0	7.1	3.27	8.34	3.39	15	1.67	85.00	83.00	85.81	85.46	90.40	91.00	#2-5A TO #2-5
58	56	36.0	0.00	17.29	0.00	0.00	14.40	0.0	13.9	5.3	76.37	151.4	6.08	48	1.11	82.50	82.10	88.11	88.01	92.45	92.73	#2-7B TO #2-7A
59	58	29.0	0.00	0.36	0.00	0.00	0.27	0.0	5.1	7.1	1.91	7.54	2.44	12	4.48	86.30	85.00	89.25	89.17	93.10	92.45	#2-7BB TO #2-7
60	58	88.0	0.00	16.93	0.00	0.00	14.13	0.0	13.6	5.3	75.50	169.8	6.01	48	1.40	83.73	82.50	88.94	88.70	92.80	92.45	#6-1 TO #2-7B
61	60	132.0	0.70	15.71	0.84	0.59	13.13	5.0	13.3	5.4	70.79	154.9	7.54	42	2.37	86.86	83.73	89.93	89.51	95.50	92.80	#6-2 TO #6-1
62	1	67.0	0.11	0.64	0.80	0.09	0.51	5.0	5.1	7.1	3.63	20.42	2.96	15	10.00	75.50	68.80	81.38	81.16	82.76	77.00	#2-1B TO #2-1A
63	62	24.0	0.53	0.53	0.80	0.42	0.42	5.0	5.0	7.1	3.02	3.98	3.85	12	1.25	75.80	75.50	81.57	81.40	82.76	82.76	#2-1C TO #2-1B

Project File: 6632E19-sys2(REV-2).stm | Number of lines: 112 | Run Date: 08-31-2005

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
64	60	23.0	0.19	1.22	0.90	0.17	1.00	5.0	5.5	7.0	6.99	15.17	5.70	15	5.52	85.00	83.73	89.83	89.56	93.20	92.80	#6-1B TO #6-2
65	64	11.0	0.65	1.03	0.84	0.55	0.83	5.0	5.5	7.0	5.81	15.70	4.73	15	5.91	85.65	85.00	90.15	90.06	93.00	93.20	#6-1A TO #6-1B
66	61	249.0	1.49	1.49	0.84	1.25	1.25	5.0	5.0	7.1	8.92	14.85	5.62	18	2.00	91.84	86.86	92.98	90.86	95.50	95.50	#6-6 TO #6-2
67	61	86.0	0.49	1.47	0.84	0.41	1.15	5.0	5.2	7.1	8.12	7.91	6.62	15	1.50	88.15	86.86	92.22	90.86	95.50	95.50	#6-8 TO #6-2
68	67	43.0	0.98	0.98	0.75	0.74	0.74	5.0	5.0	7.1	5.24	7.94	4.27	15	1.51	88.80	88.15	93.41	93.12	95.00	95.50	#6-9 TO #6-8
69	61	205.0	0.00	12.05	0.00	0.00	10.15	0.0	12.9	5.5	55.42	96.82	8.54	36	2.11	91.18	86.86	93.55	90.86	100.50	95.50	#6-3 TO #6-2
70	69	116.0	0.00	12.05	0.00	0.00	10.15	0.0	12.6	5.5	55.82	94.32	8.77	36	2.00	93.50	91.18	95.88	93.91	99.50	100.50	#6-4 TO #6-3
71	70	87.0	0.26	1.04	0.89	0.23	0.93	5.0	5.7	6.9	6.45	7.55	5.26	15	1.37	95.84	94.65	97.66	96.79	100.43	99.50	#4-5 to #6-4
72	71	30.0	0.22	0.42	0.89	0.20	0.37	5.0	5.5	7.0	2.62	7.91	2.13	15	1.50	96.29	95.84	98.50	98.45	100.35	100.43	#4-4 to #4-5
73	70	69.0	0.18	2.83	0.89	0.16	2.30	5.0	12.3	5.5	12.78	22.78	4.11	24	1.01	95.20	94.50	97.09	96.90	100.60	99.50	#4-6 to #6-4
74	73	25.0	0.18	2.65	0.89	0.16	2.14	5.0	12.2	5.6	11.93	20.23	3.80	24	0.80	95.40	95.20	97.47	97.40	100.52	100.60	#4-7 to #4-6
75	2	29.0	0.27	1.07	0.80	0.22	0.90	5.0	10.4	5.9	5.27	35.85	4.30	15	22.07	78.40	72.00	82.47	82.33	81.90	81.50	#1-1 TO #2-2
76	75	59.0	0.07	0.80	0.85	0.06	0.68	5.0	10.1	5.9	4.04	10.88	3.29	15	2.03	79.60	78.40	82.80	82.63	84.60	81.90	#1-2 TO #1-1
77	76	113.0	0.17	0.45	0.85	0.14	0.38	5.0	9.2	6.1	2.34	7.48	3.66	12	3.16	83.17	79.60	83.82	82.97	87.67	84.60	#1-3 TO #1-2
78	77	116.0	0.12	0.23	0.85	0.10	0.20	8.0	8.0	6.4	1.25	7.60	2.54	12	3.26	86.95	83.17	87.42	84.07	91.45	87.67	#1-4 TO #1-3
79	76	16.0	0.28	0.28	0.85	0.24	0.24	10.0	10.0	6.0	1.42	5.86	1.81	12	1.94	79.91	79.60	83.08	83.06	84.64	84.60	#1-2A TO 1-2
80	77	40.0	0.05	0.05	0.85	0.04	0.04	5.0	5.0	7.1	0.30	10.16	1.28	12	5.83	85.50	83.17	85.73	84.11	87.50	87.67	#1-3A TO 1-3
81	78	40.0	0.11	0.11	0.85	0.09	0.09	5.0	5.0	7.1	0.67	10.63	2.00	12	6.38	89.50	86.95	89.85	87.59	91.50	91.45	#1-4A TO #1-4
82	9	23.0	0.77	2.00	0.75	0.58	1.62	5.0	10.7	5.8	9.48	10.50	5.36	18	1.00	91.50	91.27	93.80	93.61	101.00	101.41	#7-2 TO #2-25
83	82	210.0	1.23	1.23	0.85	1.05	1.05	10.0	10.0	6.0	6.24	9.13	5.51	15	2.00	95.70	91.50	96.70	94.18	102.70	101.00	#7-3 TO #7-2
84	59	18.0	0.36	0.36	0.75	0.27	0.27	5.0	5.0	7.1	1.92	9.20	2.45	12	6.67	87.50	86.30	89.35	89.30	93.50	93.10	#2-7BBB TO #2-

Project File: 6632E19-sys2(REV-2).stm | Number of lines: 112 | Run Date: 08-31-2005

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
85	65	50.0	0.38	0.38	0.75	0.29	0.29	5.0	5.0	7.1	2.03	17.92	1.65	15	7.70	89.50	85.65	90.75	90.72	93.50	93.00	#6-1A TO #6-1
86	8	74.0	0.48	1.95	0.90	0.43	1.76	5.0	7.3	6.5	11.48	6.46	9.39	15	1.00	92.39	91.65	95.19	92.86	100.00	99.92	#7-8 TO #2-25
87	86	71.0	0.69	1.47	0.90	0.62	1.32	5.0	7.1	6.6	8.70	6.46	7.09	15	1.00	93.10	92.39	97.84	96.55	99.70	100.00	#7-9 TO #7-8
88	87	38.0	0.44	0.78	0.90	0.40	0.70	5.0	7.0	6.6	4.64	9.13	3.79	15	2.00	93.86	93.10	98.95	98.75	99.10	99.70	#7-10 TO #7-9
89	88	211.0	0.34	0.34	0.90	0.31	0.31	5.0	5.0	7.1	2.18	6.50	1.78	15	1.01	96.00	93.86	99.46	99.22	102.90	99.10	#7-11 TO #7-10
90	70	161.0	0.00	8.18	0.00	0.00	6.91	0.0	7.4	6.5	45.06	47.01	6.38	36	0.50	94.30	93.50	96.81	96.59	101.50	99.50	#3-1 TO #6-4
91	90	120.0	2.65	2.65	0.84	2.23	2.23	5.0	5.0	7.1	15.86	31.99	5.87	24	2.00	96.70	94.30	98.11	97.44	101.00	101.50	#3-2 TO #3-1
92	90	129.0	1.71	4.82	0.84	1.44	4.05	7.0	7.0	6.6	26.77	41.17	5.54	30	1.01	95.60	94.30	97.55	97.44	101.00	101.50	#3-3 TO #3-1
93	92	126.0	0.40	1.67	0.84	0.34	1.40	5.0	5.6	7.0	9.76	12.07	8.05	15	3.49	100.00	95.60	101.18	98.04	104.00	101.00	#3-5 TO #3-3
94	92	201.0	1.44	1.44	0.84	1.21	1.21	5.0	5.0	7.1	8.62	13.63	2.74	24	0.36	96.33	95.60	98.33	98.04	101.00	101.00	#3-4 TO #3-3
95	93	227.0	1.27	1.27	0.84	1.07	1.07	5.0	5.0	7.1	7.60	10.05	6.43	15	2.42	105.50	100.00	106.60	101.61	108.50	104.00	#3-6 TO #3-5
96	13	46.0	0.12	0.12	0.80	0.10	0.10	5.0	5.0	7.1	0.68	6.53	1.62	15	1.02	104.04	103.57	104.36	104.38	111.04	111.04	#2-32 TO #2-31
97	51	76.0	0.25	0.25	0.90	0.23	0.23	5.0	5.0	7.1	1.60	3.97	4.79	8	5.18	99.25	95.31	99.84	95.95	102.25	100.37	Bldg 600 to #4-2
98	72	44.0	0.20	0.20	0.89	0.18	0.18	5.0	5.0	7.1	1.27	4.36	1.62	12	1.50	96.95	96.29	98.65	98.60	100.45	100.35	#4-3 to #4-4
99	71	16.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.1	2.31	3.02	6.61	8	3.00	97.00	96.52	98.42	98.09	101.00	100.43	Bldg 300 to #4-
100	74	30.0	0.19	2.18	0.89	0.17	1.72	5.0	12.1	5.6	9.63	22.62	3.07	24	1.00	95.70	95.40	97.83	97.77	100.63	100.52	#4-8 to #4-7
101	74	15.0	0.29	0.29	0.90	0.26	0.26	5.0	5.0	7.1	1.86	3.82	5.42	8	4.80	97.25	96.53	97.87	97.70	101.25	100.52	Bldg 200 to #4-7
102	90	30.0	0.39	0.39	0.90	0.35	0.35	5.0	5.0	7.1	2.50	2.76	7.21	8	2.50	98.25	97.50	98.90	98.15	102.25	101.50	Bldg 700 to #3-1
103	90	30.0	0.32	0.32	0.90	0.29	0.29	5.0	5.0	7.1	2.05	3.18	6.00	8	3.33	98.50	97.50	99.13	98.13	102.50	101.50	Bldg 800 to #3-1
104	100	189.0	0.85	1.99	0.90	0.77	1.55	5.0	11.0	5.8	8.98	15.95	3.25	24	0.50	96.64	95.70	98.11	97.85	101.50	100.63	#4-9 to #4-8
105	104	63.0	0.48	1.14	0.85	0.41	0.79	5.0	10.6	5.9	4.61	9.90	3.01	18	0.89	97.20	96.64	98.28	98.21	101.20	101.50	#4-9A to #4-9

Project File: 6632E19-sys2(REV-2).stm | Number of lines: 112 | Run Date: 08-31-2005

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

Storm Sewer Tabulation

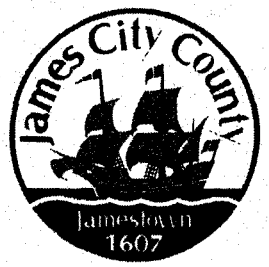
Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
106	105	97.8	0.22	0.66	0.40	0.09	0.38	10.0	10.0	6.0	2.26	4.15	3.58	12	1.36	98.53	97.20	99.17	98.33	103.50	101.20	#4-10 to #4-9
107	106	53.0	0.09	0.23	0.90	0.08	0.21	5.0	5.9	6.9	1.43	0.91	4.09	8	0.57	98.83	98.53	99.91	99.19	101.40	103.50	#4-11 to #4-10
108	107	22.0	0.01	0.14	0.90	0.01	0.13	5.0	5.7	6.9	0.87	1.18	2.50	8	0.95	99.04	98.83	100.45	100.33	101.40	101.40	#4-12 to #4-11
109	108	29.9	0.06	0.13	0.90	0.05	0.12	5.0	5.5	7.0	0.82	0.86	2.34	8	0.50	99.19	99.04	100.66	100.53	101.40	101.40	#4-13 to #4-12
110	109	40.5	0.07	0.07	0.90	0.06	0.06	5.0	5.0	7.1	0.45	0.87	1.29	8	0.52	99.40	99.19	100.83	100.77	101.40	101.40	#4-14 to #4-13
111	106	104.9	0.12	0.21	0.40	0.05	0.08	5.0	6.0	6.9	0.58	1.21	2.34	8	1.00	99.58	98.53	99.94	99.41	104.00	103.50	#4-15 to #4-14
112	111	42.0	0.09	0.09	0.40	0.04	0.04	5.0	5.0	7.1	0.26	1.21	1.61	8	1.00	100.00	99.58	100.24	100.07	103.30	104.00	#4-16 to #4-15

Project File: 6632E19-sys2(REV-2).stm

Number of lines: 112

Run Date: 08-31-2005

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.



James City County, Virginia
Environmental Division

Erosion and Sediment Control and Stormwater Management Design Plan Checklists

Table of Contents

GENERAL INFORMATION

Project Name: New Town Main Street - Building 900
Owner / Applicant: James City County
Plan Preparer: Robert E. Cosby III, P.E. Email: Rcosby@AESVA.com
Project Location: New Town
Tax Map / Parcel: (39-1)(15-0-0005)
County Plan No. (if known): _____
County BMP Type: _____ (-)
Other information submitted in addition to this checklist (Check all that apply):

- ☒ Design or Construction Drawings (Plans, Profiles, Details, etc.).
- ☒ Erosion & Sediment Control Plan (Plan, Details, etc.).
- ☒ Erosion & Sediment Control Plan Design Report.
- ☐ Stormwater Management Design Plan (Plans, Profiles, Details, etc.).
- ☐ Stormwater Management Design Report.
- ☐ Other, List: _____

Issue Date
March 1, 2001

JAMES CITY COUNTY, VIRGINIA
ENVIRONMENTAL DIVISION

EROSION AND SEDIMENT CONTROL PLAN CHECKLIST

I. ***GENERAL:***

Yes	No	N/A	
☒	☐	☐	*FAMILIARITY* with current versions of Chapter 8, Erosion and Sedimentation Control and Chapter 23, Chesapeake Bay Preservation ordinances of the Code of James City County, Virginia and the Virginia Erosion and Sediment Control Handbook (VESCH).
☒	☐	☐	*LAND DISTURBING PERMIT AND SILTATION AGREEMENT* with surety are required for the project.
☐	☒	☐	*VARIANCE* if necessary, requested in writing, for the plan approving authority to waive or modify any of the minimum standards and specifications of the VESCH deemed inappropriate based on site conditions specific to this review case only. Variances which are approved shall be properly documented in the plan and become part of the approved erosion and sediment control plan for the site.

II. ***SITE PLAN:***

Yes	No	N/A	
☒	☐	☐	*VICINITY MAP* locating the site in relation to the surrounding area. Include any major landmarks which might assist in physically locating the site.
☒	☐	☐	*INDICATE NORTH* direction in relation to the site.
☒	☐	☐	*LIMITS OF CLEARING AND GRADING* for the site including that required for implementation of erosion and sediment controls, stockpile areas and utilities.
☒	☐	☐	*DISTURBED AREA ESTIMATES* in acres or square feet for the project.
☒	☐	☐	*EXISTING TOPOGRAPHY* or contours for the site at no more than 5 foot contour interval.
☒	☐	☐	*FINAL TOPOGRAPHY,* contours or proposed site grading in accordance with the design plan which indicates changes to existing topography and drainage patterns at no more than 2 foot contour interval (or 1 foot contours where required).
☒	☐	☐	*EXISTING AND PROPOSED SPOT ELEVATIONS* to supplement existing and proposed contours, topography or site grading information. Spot elevations may replace final contours in some instances, especially if terrain is in a low lying area or relatively flat.
☒	☐	☐	*EXISTING VEGETATION* including existing tree lines, grassed or unique vegetation areas.

Yes	No	N/A	
☒	☐	☐	*EXISTING SITE FEATURES* including roads, buildings, homes, utilities, streams, fences, structures and other important surface features of the site.
☐	☒	☐	*SOILS MAP* with soil symbols, boundaries and legend in accordance with the current Soil Survey of James City and York Counties and the City of Williamsburg, Virginia.
☒	☐	☐	*ENVIRONMENTAL INVENTORY* in accordance with Section 23-10(2) of the Chesapeake Bay Preservation Ordinance of James City County. Inventory generally includes: tidal shores and wetlands, non-tidal wetlands, resource protection area, hydric soils and slopes steeper than 25 percent. For wetlands, provide a copy of issued permits or satisfactory evidence that appropriate permits are being pursued for the entire project.
☒	☐	☐	*100-YEAR FLOODPLAIN LIMITS* or any special flood hazard areas or flood zones based on appropriate Federal Management Agency Flood Insurance Rate Maps (FIRMs) or Flood Hazard Boundary Maps (FHBMs) of James City County, Virginia.
☒	☐	☐	*DRAINAGE AREAS* for offsite and onsite areas, existing or proposed as applicable. Include drainage divides and directional labels for all subareas at points of interest and size (in acres), weighted runoff coefficient or curve number and times of concentration for each subarea.
☒	☐	☐	*CRITICAL EROSION AREAS* which require special consideration or unique erosion and sediment control measures. Refer to the VESCH, Chapter 6 for criteria.
☒	☐	☐	*DEVELOPMENT PLAN* for the site showing all improvements such as buildings, structures, parking areas, access roadways, above and below ground utilities, stormwater management and drainage facilities, trails or sidewalks, proposed vegetation and landscaping, amenities, etc.
☒	☐	☐	*LOCATION OF PRACTICES* proposed for erosion and sediment control, tree protection and temporary stormwater management due to land disturbance activities at the site. Use standard abbreviations, labels and symbols consistent for plan views based on minimum standards and specifications in Chapter 3 of the VESCH.
☐	☐	☒	*TEMPORARY STOCKPILE AREAS* or staging and equipment storage areas as required for onsite or offsite construction activities or indicate that none are anticipated for this project.
☐	☐	☒	*OFFSITE LAND DISTURBING AREAS* including borrow sites, waste areas, utility extensions, etc. and required erosion and sediment controls. If none are anticipated for the project, then indicate on the plans by general or erosion and sediment control notes.
☒	☐	☐	*DETAILS* or alternately, appropriate reference to current minimum standards and specifications of the VESCH for each measure proposed for the project. Non-modified, standard duplicated details (silt fence, diversion dikes, etc.) may be referenced to the current version of the VESCH. Specific dimensional or modified standards (basins, traps, outlet protections, check dams, etc.) require presentation on detail sheets. Schedules or tables may be used for multiple site measures such as sediment traps, basins, channels, slope drains, etc. Any modification to standard details should be clearly defined, explained and illustrated.

Yes	No	N/A	
☒	☐	☐	*MAINTENANCE PLAN* or alternately, appropriate reference to current minimum standards and specifications of the VESCH, outlining the inspection frequency and maintenance requirements for all erosion and sediment control measures proposed for the project.
☐	☐	☒	*TRENCH DEWATERING* methods and erosion and sediment controls, if anticipated for the project.
☒	☐	☐	*CONSTRUCTION SEQUENCE* outlining the anticipated sequence for installation of erosion and sediment controls and site, grading and utility work to be performed for the project by the site contractor.
☐	☐	☒	*PHASING PLAN* if required for larger project sites that are to be developed in stages or phases.
☒	☐	☐	*STANDARD COUNTY NOTES* are required to be placed on the erosion and sediment control plan. Refer to the standard James City County Erosion and Sediment Control Notes dated May 5, 1999.
☒	☐	☐	*PROFESSIONAL SEAL AND SIGNATURE* required on final and complete approved plans, drawings, technical reports and specifications.

III. *NARRATIVE:*

Yes	No	N/A	
☒	☐	☐	*PROJECT DESCRIPTION* briefly describing the nature and purpose of the land disturbing activity and the acreage to be disturbed.
☒	☐	☐	*EXISTING SITE CONDITIONS* description of existing topography, land use, cover and drainage patterns at the site.
☒	☐	☐	*ADJACENT AREA* descriptions of neighboring onsite or offsite areas such as streams, lakes, property, roads, etc. and potential impacts due to concentrated flow or runoff from the land disturbing activity.
☒	☐	☐	*OFFSITE DISTURBED AREA* descriptions of proposed borrow sites, water or surplus areas, utility extensions and erosion and sediment controls to be implemented.
☒	☐	☐	*SOILS DESCRIPTION* briefly summarizing site, disturbed area and drainage basin soils including name, unit, hydrologic soil group (HSG) classification, surface runoff potential, erodibility, permeability, depth, texture, structure, erosion hazards, shrink-swell potential, limitations for use and anticipated depths to bedrock and the seasonal water table, as applicable.
☒	☐	☐	*CRITICAL AREAS* on the site which may have potentially serious erosion and sediment control problems and special considerations required (i.e. steep slopes, hydric soils, channels, springs, sinkholes, water supply reservoirs, groundwater recharge areas, etc.)

Yes	No	N/A	
☒	☐	☐	*PROPOSED EROSION & SEDIMENT CONTROL MEASURES* inclusive to the specific erosion and sediment control plan as proposed for the land disturbing activity. Measures should be consistent with those proposed on the site drawings. Address general use, installation, limitations, sequencing and maintenance requirements for each control measure.
☒	☐	☐	*STABILIZATION MEASURES* required for the site, either temporary or permanent, and during and following construction including temporary and permanent seeding and mulching, paving, stone, soil stabilization blankets and matting, sodding, landscaping or special stabilization techniques to be utilized at the site.
☒	☐	☐	*STORMWATER MANAGEMENT CONSIDERATIONS* for the site, either of temporary or permanent nature, and strategies, sequences and measures required for control. May reference the stormwater management plan for the site, if prepared, for permanent stormwater management facilities and control of drainage once the site is stabilized.

IV. *CALCULATIONS:*

Yes	No	N/A	
☒	☐	☐	*CALCULATIONS AND COMPUTATIONS* associated with hydrology, hydraulics and design of proposed temporary and permanent erosion and sediment control measures including: sediment traps and basins, diversions, stormwater conveyance channels, culverts, slope drains, outlet protections, etc. Computations are not required on the construction plan and may be attached in a supplemental erosion and sediment control plan design report, if presented in a clear and organized format.
☐	☐	☒	*TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET* submitted for each basin along with schematic or sketch cross-section showing applicable design and construction data, storage volumes (wet-dry), dimensions and elevations. Peak design runoff to be based on the 2- or 25-year design storm event based on maximum disturbed site conditions (existing, interim or proposed conditions) in accordance with Minimum Standard 3.14 of the VESCH.

JAMES CITY COUNTY, VIRGINIA
ENVIRONMENTAL DIVISION

STORMWATER MANAGEMENT DESIGN PLAN CHECKLIST

I. ***GENERAL*:**

Yes	No	N/A	
☒	☐	☐	*FAMILIARITY* with current versions of the James City County Guidelines for Design and Construction of Stormwater Management BMPs manual; Chapter 8, Erosion and Sediment Control and Chapter 23, Chesapeake Bay Preservation ordinances of the Code of James City County, Virginia; the Virginia Erosion and Sediment Control Handbook (VESCH); and the Virginia Stormwater Management Handbook (VSMH).
☐	☐	☒	*WAIVER OR EXCEPTION* if necessary, requested in writing, for the plan approving authority to waive or except the requirements of Chapter 23, Chesapeake Bay Preservation ordinance in accordance with procedure established in Sections 23-14 through 23-17 of the ordinance. Applies to the review case only.
☐	☐	☒	*VARIANCE REQUEST* if necessary, requested in writing for the plan approving authority to waive or modify any of the minimum standards and specifications of the VESCH deemed inappropriate based on site conditions specific to this review case only. Variances which are approved shall be properly documented in the plan and become part of the approved erosion and sediment control plan for the site.
☒	☐	☐	*PROFESSIONAL SEAL AND SIGNATURE* required on final and complete approved stormwater management plans, drawings, technical reports and specifications.
☐	☐	☒	*WORKSHEET FOR BMP POINT SYSTEM* to ensure the stormwater management plan for the project attains at least 10 BMP points (New Development) or traditional pollutant load reduction computations per the Chesapeake Bay Local Assistance Manual (Redevelopment Only)
☐	☐	☒	*PROPOSED CONSERVATION EASEMENT AREAS* for any natural open space points claimed in the BMP worksheet.
☐	☐	☒	*INSPECTION/MAINTENANCE AGREEMENT* is required to be prepared and executed with the County for the project.
☒	☐	☐	*FEMA FIRM PANEL* reference with designated special flood hazard areas or zone designations associated with the site, as applicable.
☐	☐	☒	*DRAINAGE AREA MAP* at a maximum scale of 1"=200' scale showing drainage area boundaries for pre- and postdevelopment conditions and associated time of concentration flow paths. Labels to include drainage area size, runoff coefficient or curve number and time of concentration for each subarea shown on the map.

Yes	No	N/A	
☐	☐	☒	*SOILS MAP* with soil symbols, boundaries and legend in accordance with the current Soil Survey of James City and York Counties and the City of Williamsburg, Virginia with approximate locations of the project site, BMPs and applicable drainage basins.
☐	☐	☒	*STORMWATER MANAGEMENT NARRATIVE* in a brief and simple format which describes the project; location; site and drainage basin soil characteristics; receiving water or drainage facility; existing site and drainage basin conditions (topography, land use, cover, slopes, etc.); proposed site development; proposed stormwater management and drainage plan including County BMP type selected; summary of hydrology and hydraulics; maintenance program; and any special assumptions utilized for development of the stormwater management and drainage design plan or computations.
☐	☐	☒	*TEMPORARY STORMWATER MANAGEMENT* (if applicable) for control of stormwater runoff encountered during construction activities in addition to measures provided in the erosion and sediment control plan or stormwater management/drainage plan for the site. Adequate protection measures or sequencing provided.
☐	☐	☒	*MODIFICATION PLAN* clearly defined for temporary sediment control structures which will be converted to permanent SWM/BMP structures. Includes appropriate hydrologic and hydraulic computations, conversions, sequencing and cleanout information or details. Normally related to primary control structures associated with dry detention or wet retention ponds. Normally not permitted for Group C or D categories such as bioretention, infiltration and filtering system facilities.
☐	☐	☒	*STORMWATER MANAGEMENT and DRAINAGE DESIGN REPORT* in a bound 8-1/2 x 11 inch size format. Report shall generally include a title sheet, date, project identification, owner and preparer information, table of contents, narrative, summaries and computations as required. Computations may include: backwater, closed conduit, headwater, hydraulic, hydraulic grade line, hydrology, inlet, open channel, storm sewer, water quality, extended detention or stream channel protection and multi-stage storm routing calculations, as applicable, for the project. Computation data may include hand or computer generated computations, maps or schematics. All information should be presented in a clear, easy to follow format and should closely match construction plan information.
☒	☐	☐	*PLAN VIEW* at 1 inch = 50 ft. scale or less (1" = 40', 1" = 30', etc.)
☒	☐	☐	North arrow and plan legend.
☒	☐	☐	Property lines.
☒	☐	☐	Adjacent property information.
☒	☐	☐	Existing site features and existing impervious cover areas.
☒	☐	☐	Impervious cover tabulations.
☒	☐	☐	Existing drainage facilities (natural or manmade)
☒	☐	☐	Existing environmentally sensitive areas (RPA, wetlands, floodplain, steep slopes, critical soils, buffers, etc.)
☒	☐	☐	Existing and proposed contours (1' or 2' contour interval) and spot elevations as necessary to define high and low topography.
☒	☐	☐	Existing and proposed easement locations.

Yes	No	N/A	
☒	☐	☐	Proposed site improvements and proposed impervious cover areas.
☒	☐	☐	Proposed stormwater conveyance, drainage and management facilities with appropriate labeled construction data and information.
☒	☐	☐	Proposed landscaping and seeding plans (disturbed areas, pond interior, etc.)
☒	☐	☐	Proposed slope stabilization areas (riprap, blankets, mattings, walls, etc.)
☒	☐	☐	Delineation of permanent pools and the 1-, 2-, 10- and 100-year Design Water Surface Elevations.
☒	☐	☐	Delineation of ponding, headwater, surcharge or backwater areas which may affect adjacent existing or proposed buildings, structures or upstream adjacent properties.
☐	☐	☒	Test boring locations with reference surface elevations (if known).
☒	☐	☐	Risers, barrels, underdrains, overflows and outlet protections.
☐	☐	☒	Emergency spillway level section and outlet channel.
☒	☐	☐	Existing and proposed site utilities and protection measures.
☒	☐	☐	Erosion and sediment control measures (for site or BMP).
☐	☐	☒	Maintenance or access corridors to permanent stormwater management, BMP or drainage facilities.

II. ***STORMWATER CONVEYANCE SYSTEMS***:

Yes	No	N/A	
☐	☐	☒	*PLAN VIEWS*
☐	☐	☒	Storm drain lengths, sizes, types, classes and slopes for all segments. Label directly on plan or use structure/pipe schedule.
☐	☐	☒	Access structure (inlets, manholes, junctions, etc.) rim elevations, inverts, type and required grate or top unit and lengths labeled.
☐	☐	☒	All structure numbers labeled.
☐	☐	☒	Adequate horizontal clearance from other site utilities or structures.
☐	☐	☒	*PROFILES* generally are not required but are encouraged to expedite review. If not provided, ensure all pipe segments have adequate minimum cover, do not exceed maximum depths of cover for the type/class of pipe specified and do not conflict with other site utilities or excavation areas.
☐	☐	☒	*DETAILS*
☐	☐	☒	Typical storm drain bedding details or reference note.
☐	☐	☒	Standard details or reference note for all proposed access structure types (inlets, manholes, junctions, etc.).
☐	☐	☒	Inlet shaping detail or applicable reference note.
☐	☐	☒	Step detail or applicable reference note (if depth 4 ft. or more).
☐	☐	☒	Typical open channel details with designation, location, shape, type, bottom width, top width, lining, slope, length, side slope, and installation depth required for construction. Channel design data as necessary may also be included.
☐	☐	☒	Outlet protections at all pipe outfalls.

Yes No N/A

☐ ☐ ☒ *STORMWATER CONVEYANCE SYSTEM COMPUTATIONS*

☐ ☐ ☒ Storm Sewer Design computations based on 10-year design event.

☐ ☐ ☒ Hydraulic Grade Line computations based on 10-year design event.

☐ ☐ ☒ Inlet computations based on current VDOT procedure for spread, ponding depth and grate size required.

☐ ☐ ☒ Culvert Headwater computations. Design based on 10-year design storm event and check only for 100-year storm event.

☐ ☐ ☒ Open Channel computations based on 2-year design event for velocity and 10-year design event for capacity.

☐ ☐ ☒ Standard outlet protection or special energy dissipators.

☐ ☐ ☒ Pipe thickness design computations, as required, for selected pipe type (live load, minimum cover, maximum height of cover, etc.).

☐ ☐ ☒ Adequate channel computations for receiving channels (based on field measured channel section data).

III. ***STORMWATER MANAGEMENT/BMP FACILITIES***:

Yes No N/A

☐ ☐ ☒ *HYDROLOGY* – An SCS based methodology is required for the design of stormwater management/BMP facilities with watersheds exceeding 20 acres.
Under 20 acres, other generally accepted methodologies such as the modified rational, critical storm are allowable. Refer to Chapter 5 of the VESCH or Chapter 5 of the VSMH.

☐ ☐ ☒ Runoff Curve Number or Coefficient determinations: predeveloped and ultimate development land use scenarios.

☐ ☐ ☒ Time of concentration: predeveloped and ultimate development indicating overland, shallow concentrated, and channel flow components (200 ft. maximum length for overland flow).

☐ ☐ ☒ Hydrograph generation (tabular or graphical): pre- and postdevelopment conditions for the 1-, 2-, 10- and 100-year design storm events.

☐ ☐ ☒ *FACILITY CONFIGURATION and MINIMUM SEPARATIONS*

☐ ☐ ☒ Screening and layout consistent with Section 24-98(d) of the Chapter 24 Zoning ordinance (landscaping, screening, visibility, etc.).

☐ ☐ ☒ Basic considerations for safety and unauthorized entry.

☐ ☐ ☒ Proper length to width ratio (Typically 2H:1V).

☐ ☐ ☒ Facilities with deep pools (4 feet or more in depth) provided with two benches. Fifteen (15) ft. safety bench outward from normal pool at maximum 6 percent slope and aquatic bench inward from normal shoreline below normal pool. Narrower widths may be considered on a case-by-case basis.

☐ ☐ ☒ Pond buffer minimum 25 feet outward from maximum design WSEL. Additional setbacks may be required to permanent structures.

☐ ☐ ☒ No trees, shrubs or woody plants within 15 feet of embankment toe or 25 feet from principal spillway structure.

☐ ☐ ☒ Infiltration and filtering system facilities generally located at least 100 feet horizontally from any water supply well; 100 feet from any downslope building; and 25 feet from any upslope buildings, unless site specific investigation allows for reduced separation.

Yes	No	N/A	
☐	☐	☒	*HYDRAULIC COMPUTATIONS*
☐	☐	☒	Elevation- or Stage-Storage curve and/or tabular data.
☐	☐	☒	Weir / Orifice Control – Extended Detention.
☐	☐	☒	Weir / Orifice Control – riser 1-year control for channel protection.
☐	☐	☒	Weir / Orifice Control – riser 2-year control for quantity (if required).
☐	☐	☒	Weir / Orifice Control – riser 10-year control for quantity (if required).
☐	☐	☒	Inlet / Outlet (barrel) control – (All Storms).
☐	☐	☒	Check for barrel control prior to riser orifice flow to prevent slug flow-water hammer conditions.
☐	☐	☒	Emergency spillway capacity and depth of flow.
☐	☐	☒	Elevation – Discharge (Outlet Rating) curve and/or table. Provide all supporting calculations and/or design assumptions.
☐	☐	☒	Adequate channel computations for receiving channel. May be waived if facility is designed based on current Stream Channel Protection criteria.
☐	☐	☒	*POND or RESERVOIR ROUTING*
☐	☐	☒	Storage-Indication Routing of postdeveloped inflow hydrographs for the 1-, 2-, 10-, and 100-year design storms. Preference is for structure to discharge up to the 10-year storm through the principal spillway and pass the 100-year storm with a minimum 1 foot of freeboard through a combination principal and emergency spillways. If no emergency spillway is provided, riser must be large enough to pass the design high water flow and trash without overtopping the facility, have 3 square feet or more of cross-sectional area, contain a hood type inlet and have a minimum freeboard of 2 feet. Token spillways with minimum 8 ft. width are also recommended at or above the design 100-year storm elevation.
☐	☐	☒	Downstream hydrographs at established study points, if conditions warrant (i.e. facility discharge combined with uncontrolled bypass).
☐	☐	☒	*MISCELLANEOUS COMPUTATIONS*
☐	☐	☒	Water quality volume for permanent pool based on selected BMP treatment volume (WQv).
☐	☐	☒	Water quality volume for extended detention base on selected BMP treatment volume (WQv) with drawdown computations.
☐	☐	☒	Drawdown computations for the 1-year, 24 hour detention for stream channel protection criteria.
☐	☐	☒	Pond drain computations (within 24 hours).
☐	☐	☒	Anti-seep collar design (concrete preferred) or match material type.
☐	☐	☒	Filter diaphragm design (or alternative method of controlling seepage).
☐	☐	☒	Riser / base structure flotation analyses. FS = 1.25 minimum.
☐	☐	☒	Downstream danger reach study and/or emergency action plan (if conditions warrant).
☐	☐	☒	Upstream backwater analyses onto offsite adjacent property (if conditions warrant).
☐	☐	☒	100 year floodplain impacts (if conditions warrant).

Yes	No	N/A	
☐	☐	☒	*GEOTECHNICAL REQUIREMENTS*
☐	☐	☒	Geotechnical Report with recommendations specific to BMP facility type selected. Report prepared by a registered professional engineer. Requires submission, review and approval prior to issuance of Land Disturbance Permit.
☐	☐	☒	Initial Feasibility Testing requirements satisfied as per Appendix E of the James City County Guidelines fro Design and Construction of Stormwater Management BMPs manual. (Infiltration, Bioretention and Filtering System BMP types only).
☐	☐	☒	Concept Design Testing requirements satisfied as per Appendix E of the James City County Guidelines for Design and Construction of Stormwater Management BMPs manual. . (Infiltration, Bioretention and Filtering System BMP types only).
☐	☐	☒	Minimum Boring locations: borrow area, pool area, principal control structure, top of facility near one abutment and emergency spillway if provided.
☐	☐	☒	Boring logs with Unified Soil Classification (ASTM D2487), soils descriptions and depths to bedrock and the seasonal water table indicated.
☐	☐	☒	Standard County Record Drawing/Construction Certification note provided on plan. *Note: It is understood that preparation of record drawings and construction certifications as required for project facilities may not necessarily be performed by the plan preparer. These components may be performed by others.*
☐	☐	☒	*PRINCIPAL SPILLWAY PROFILE AND ASSOCIATED DETAILS*
☐	☐	☒	*EXISTING GROUND AND PROPOSED GRADE*
☐	☐	☒	Embankment or excavation side slopes labeled (3H:1V maximum).
☐	☐	☒	Minimum top width labeled (per VESCH or VSMH requirements).
☐	☐	☒	Removal of unsuitable material under proposed facility (per Geotechnical Report requirements).

Yes	No	N/A	
☐	☐	☒	*CORE TRENCH*
☐	☐	☒	Material (per plan or Geotechnical Report).
☐	☐	☒	Bottom width (4' minimum or greater as dictated by Geotechnial Report recommendations).
☐	☐	☒	Side slopes (1:1 maximum steepness)
☐	☐	☒	Depth (4' minimum or greater as dictated by Geotechnical Report).
☐	☐	☒	*PRINCIPAL CONTROL STRUCTURE. RISER OR SIMILAR STRUCTURE (DETAILS REQUIRED FOR ALL ITEMS)*
☐	☐	☒	Durable, watertight, resistant material (concrete preferred).
☐	☐	☒	Riser diameter is at least 1.25 times larger than barrel diameter.
☐	☐	☒	All pertinent dimensions and elevations shown.
☐	☐	☒	Control orifice or weir dimensions and elevations shown.
☐	☐	☒	Trash rack – removable – for each release.
☐	☐	☒	Anti-vortex device, baffle or plate.
☐	☐	☒	Riser base structure with dimensions and embedment specifications (concrete preferred).
☐	☐	☒	Interior access (steps, ladders, etc.) for maintenance for structures over 4 feet in height. Excessively high risers may need some form of exterior access on top portion.
☐	☐	☒	Low flow orifice with trash rack device.
☐	☐	☒	*PRINCIPAL CONTROL STRUCTURE OUTLET BARREL*
☐	☐	☒	Material (ASTM C-361 reinforced concrete pipe) with watertight joints. Prior approval required for all other pipe material (other RCP types, CMP, CPP, PVC, etc.).
☐	☐	☒	Support and bedding requirements for barrel – concrete cradles, etc. or as recommended by the Geotechnical Report.
☐	☐	☒	Pipe inverts, length, size, class and slope shown.
☐	☐	☒	Flared end section or endwall provided on barrel outlet.
☐	☐	☒	*SEEPAGE CONTROL*
☐	☐	☒	Phreatic line shown (4:1 slope measured from the intersection of the embankment and the principal spillway design high water).
☐	☐	☒	*ANTI-SEEP COLLARS*
☐	☐	☒	Anti-seep collar, concrete preferred.
☐	☐	☒	Size – 15 percent increase in length of saturation using outside pipe diameter.
☐	☐	☒	Spacing and location on barrel (located at least 2 feet from a pipe joint).
☐	☐	☒	*FILTER DIAPHRAGMS*
☐	☐	☒	Design based on latest NRCS design methods and certified by a professional engineer.

Yes	No	N/A	
☐	☐	☒	*ELEVATION AND DIMENSIONAL DESIGN DATA*
			☐ ☐ ☒ Top of facility – construction height and settled height (10 percent settlement).
			☐ ☐ ☒ Crest of principal control structure spillway at least one (1) foot below crest of emergency spillway, if provided.
			☐ ☐ ☒ Minimum freeboard of one (1) foot above the 100-year design high water elevation for facilities <u>with</u> an emergency spillway.
			☐ ☐ ☒ Minimum freeboard of two (2) feet above the 100-year design high water elevation for facilities <u>without</u> an emergency spillway or in accordance with the SCS National Engineering Handbook (prior approval required).
			☐ ☐ ☒ Basin Sediment Clean-Out elevation (permanent mode). Typically 10 to 25 percent of water quality volume.
☐	☐	☒	*CROSS SECTION THROUGH FACILITY*
			☐ ☐ ☒ Existing Ground.
			☐ ☐ ☒ Proposed grade.
			☐ ☐ ☒ Top of facility – constructed and settled.
			☐ ☐ ☒ Location of emergency spillway with side slopes labeled (emergency spillway in cut).
			☐ ☐ ☒ Bottom of core trench (4' minimum).
			☐ ☐ ☒ Location of each soil boring.
			☐ ☐ ☒ Barrel location.
			☐ ☐ ☒ Existing and proposed utility location/protection.
☐	☐	☒	*EMERGENCY SPILLWAY PROFILE*
			☐ ☐ ☒ Existing ground.
			☐ ☐ ☒ Inlet, level (control) and outlet sections per SCS.
			☐ ☐ ☒ Spillway and crest elevations.
☐	☐	☒	*PRETREATMENT DEVICES* of adequate depth and properly designed using required pretreatment volumes for the selected County BMP facility type. Including, but not limited to: sediment forebays, sediment basins, sumps, grass channels, gravel diaphragms, plunge pools, chamber separators, manufactured systems or other acceptable methods.

Yes	No	N/A	
☐	☐	☒	*CONSTRUCTION SPECIFICATIONS and NOTES*
☐	☐	☒	Anticipated sequence of construction for BMP (consistent with erosion and sediment control plan).
☐	☐	☒	Provisions to control base stream or storm flow conditions encountered during construction.
☐	☐	☒	Site and subgrade preparation requirements.
☐	☐	☒	Embankment, fill and backfill material soil and placement (lift) thickness requirements.
☐	☐	☒	Compaction and soil moisture content requirements.
☐	☐	☒	Geosynthetics for drainage, filtration, moisture barrier, separation, and reinforcement purposes.
☐	☐	☒	Clay or synthetic (PVC or HDPE) pond liners.
☐	☐	☒	Storm drain, underdrain and pipe conduit requirements.
☐	☐	☒	Minimum depth of pipe cover for temporary (construction) and final cover conditions.
☐	☐	☒	Permanent shutoff valve and pond drain.
☐	☐	☒	Concrete requirements for structural components.
☐	☐	☒	Riprap and slope protection.
☐	☐	☒	Access or maintenance road surface, base, subbase.
☐	☐	☒	Temporary and permanent stabilization measures.
☐	☐	☒	Temporary or permanent safety fencing.
☐	☐	☒	BMP Landscaping (deep, shallow, fringe, perimeter, etc.)
☐	☐	☒	Dust and traffic control (if warranted).
☐	☐	☒	Construction monitoring and certification by professional.
☐	☐	☒	Other: _____
☐	☐	☒	Other: _____
☐	☐	☒	*MAINTENANCE PROVISIONS*
☐	☐	☒	Entity responsible for maintenance identified.
☐	☐	☒	Maintenance Plan which outlines the long-term schedule for inspection/maintenance of the facility and forebays.
☐	☐	☒	Maintenance access from public right-of-way or publicly traveled road.
☐	☐	☒	Maintenance easement provided encompassing high water pool and buffer, principal and emergency spillways, outlet structures, forebays, embankment area and possible sediment-removal stockpile areas.
☐	☐	☒	Minimum 6 foot wide public safety shelf (landing) or alternative fencing.

IV. ***OUTLET PROTECTIONS***:

Yes	No	N/A	
☐	☐	☒	Sized for maximum design release (generally 10-year storm).
☐	☐	☒	Flared end section or endwall.
☐	☐	☒	Dimensions.
☐	☐	☒	Rock or riprap size, quantity and placement thickness.
☐	☐	☒	Slope at 0 percent (Level Grade).
☐	☐	☒	Geotextiles (nonwoven).
☐	☐	☒	Special energy dissipators are required for design discharge velocities that exceed eighteen (18) feet per second; or if use of standard outlet protection would result in velocities exceeding permissible channel velocities; or if space restricts or limits their use.

IV. ***ADDITIONAL COMMENTS OR INFORMATION SPECIFIC TO THE PLAN:***

Plan Preparer: RBC
Date: 12/21/05

Copy of JCC: SWMProg/BMP/Checklist/ChkList

Transmittal

LandTech Resources, Inc.
Surveying - Mapping - GPS
5810-F Mooretown Road, Williamsburg, VA 23188
Tel: 757-565-1677 Fax: 757-565-0782

To: Engineering and Resource Protection Division
Company: JCC
From: Peter Farrell
Date: 12-27-11
Job Name/Number: New Town main Street Terminus

The following have been sent:

- ☐ as requested
- ☒ for review and comment
- ☐ please sign and return
- ☐ for temporary use, please return by _____

Quantity	Drawing Date	Description
5	12/27/2011	Drainage As-Builts
		SP-23-11
		Pipe Only System
		Drains to PC173
		BMP 53

Remarks:

Landtech Job #11-214

cc:

Signature:

DRAINAGE CALCULATIONS

FOR

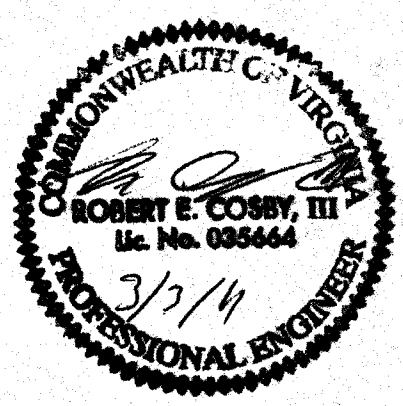
NEW TOWN
MAIN STREET TERMINUS

SITE:

James City County

SUBMITTED TO:

Environmental Division
James City County



Prepared By:

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

March 3, 2011

AES Project No. 6632-E-21-12

6632E21-12.drncalcs.doc

CONSULTING ENGINEERS

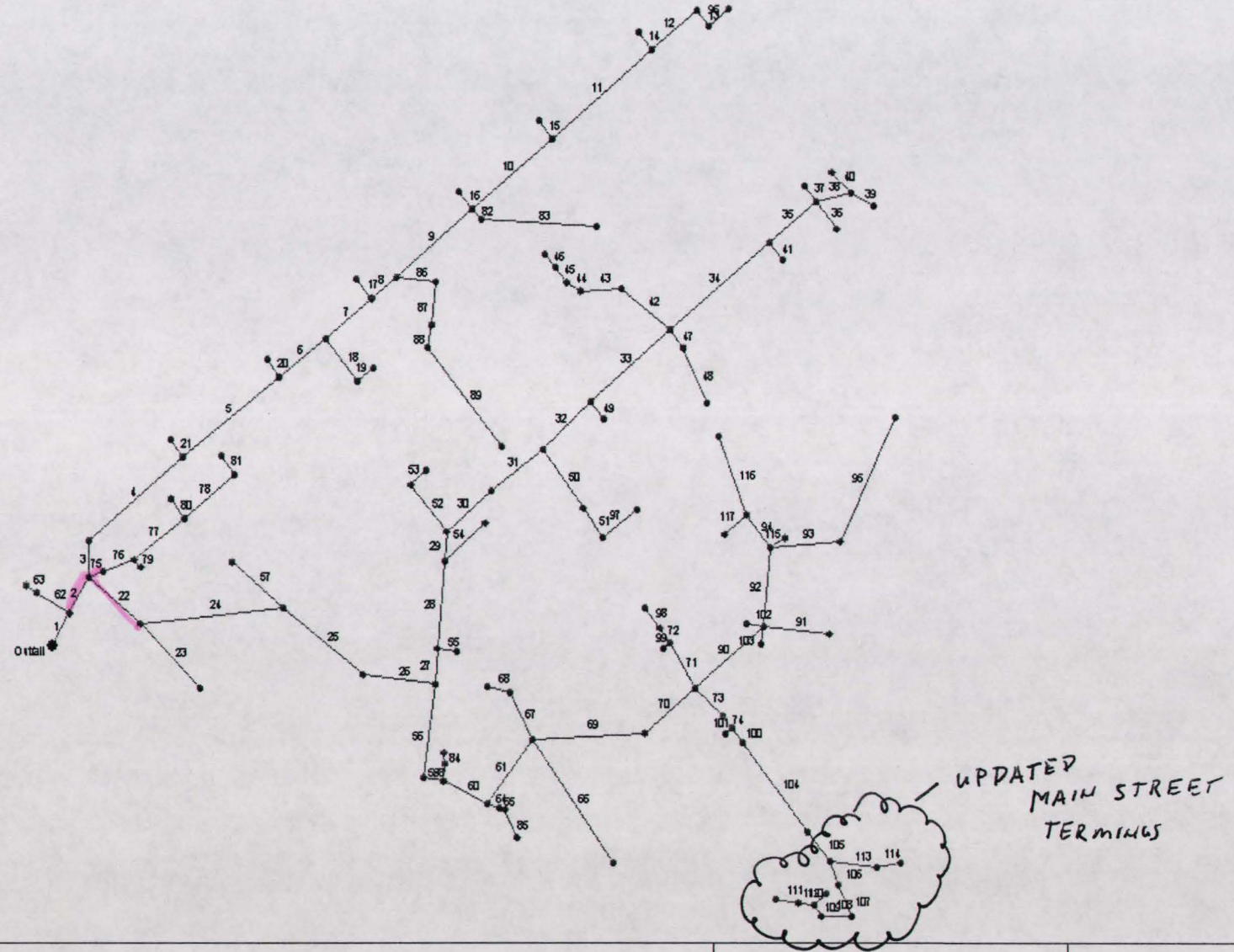
This project, known as Main Street Terminus reconstructs the existing end of Main Street. 22 additional parking spaces are added in addition to connecting drive lanes. The existing drainage system is modified to match the new grading and curb structures. Overall Drainage patterns and watersheds boundaries have not been altered by this revision.

This disturbed area for this project will be collected by the existing storm drainage system which is designed to collect the runoff from the improvements. The drainage system outfalls to an existing best management practice (BMP) facility (BMP 53).

The major storm drainage system originally begun as part of Phase 1 Infrastructure has been modified to account for the reconstruction of the pipes at the terminus of Main Street. Attached is the Drainage Area Map and updated storm drain analysis. Based on this revision there is no significant change to the overall functionality of the overall drainage system. The overall drainage area did not change, the "C" factor increased slightly, however the change did not significantly alter the downstream system. Capacity and hydraulic gradeline remain consistent with the original design for the terminus of Main Street and the downstream system.

CONSULTING ENGINEERS

Hydraflow Plan View



Project File: 6632E19-sys2(REV-5).stm	No. Lines: 117	03-02-2011

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
1	End	61.0	-60.0	MH	0.00	0.00	0.00	0.0	65.00	6.23	68.80	60	Cir	0.013	1.00	77.00	#2-1A TO #2-1
2	1	68.0	0.0	MH	0.00	0.00	0.00	0.0	68.80	4.71	72.00	60	Cir	0.013	1.00	81.50	#2-2 TO #2-1A
3	2	59.0	-30.0	MH	0.00	0.26	0.85	5.0	72.00	7.46	76.40	36	Cir	0.013	0.75	83.80	#2-20 TO #2-2
4	3	220.0	51.0	MH	0.00	0.49	0.65	5.0	76.40	2.73	82.40	30	Cir	0.013	1.00	89.89	#2-21 TO #2-20
5	4	219.0	2.0	MH	0.00	0.12	0.65	5.0	82.40	2.15	87.10	30	Cir	0.013	1.00	96.70	#2-22 TO #2-21
6	5	105.0	1.0	MH	0.00	0.00	0.00	0.0	87.10	1.05	88.20	30	Cir	0.013	1.00	98.76	#2-23 TO #2-22
7	6	105.0	-3.0	MH	0.00	0.04	0.65	5.0	88.20	1.05	89.30	30	Cir	0.013	0.15	99.65	#2-24 TO #2-23
8	7	56.0	0.0	MH	0.00	0.17	0.70	5.0	89.30	0.34	89.49	30	Cir	0.013	1.00	99.92	#2-24B TO #2-24
9	8	178.0	0.0	MH	0.00	0.17	0.70	5.0	89.49	1.00	91.27	24	Cir	0.013	1.00	101.41	#2-25 TO #2-24B
10	9	185.0	0.0	MH	0.00	0.46	0.80	5.0	91.27	3.17	97.14	15	Cir	0.013	1.00	104.52	#2-27 TO #2-26
11	10	230.0	0.0	MH	0.00	0.17	0.80	5.0	97.14	1.73	101.13	15	Cir	0.013	1.00	108.51	#2-29 TO #2-27
12	11	105.0	0.0	MH	0.00	0.00	0.00	0.0	101.13	1.73	102.95	15	Cir	0.013	1.00	110.00	#2-31A TO #2-29
13	12	35.0	90.0	MH	0.00	0.32	0.70	5.0	102.95	1.77	103.57	15	Cir	0.013	0.45	111.04	#2-31 TO #2-31A
14	11	38.0	-90.0	MH	0.00	0.15	0.80	5.0	101.13	1.00	101.51	15	Cir	0.013	1.00	108.51	#2-30 TO #2-29
15	10	38.0	-90.0	MH	0.00	0.22	0.75	5.0	97.14	1.00	97.52	15	Cir	0.013	1.00	104.52	#2-28 TO #2-27
16	9	38.0	-90.0	MH	0.00	0.44	0.80	5.0	91.27	8.26	94.41	15	Cir	0.013	1.00	101.41	#2-25A TO #2-25
17	7	43.0	-90.0	MH	0.00	0.10	0.80	5.0	92.10	1.05	92.55	12	Cir	0.013	1.00	99.50	#2-24A TO #2-24
18	6	90.0	87.0	MH	0.00	0.36	0.65	5.0	89.10	1.33	90.30	15	Cir	0.013	1.00	97.75	#2-23A TO #2-23
19	18	36.0	-88.0	MH	0.00	0.29	0.75	5.0	90.30	1.11	90.70	12	Cir	0.013	1.00	97.75	#2-23B TO #2-23A
20	5	36.0	-90.0	MH	0.00	0.09	0.70	5.0	89.20	1.11	89.60	12	Cir	0.013	1.00	96.70	#2-22A TO #2-22
21	4	36.0	-88.0	MH	0.00	0.47	0.65	5.0	82.40	1.11	82.80	12	Cir	0.013	1.00	89.89	#2-21A TO #2-21

Project File: 6632E19-sys2(REV-5).stm | Number of lines: 117 | Date: 03-02-2011

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
22	2	123.0	99.0	MH	0.00	2.51	0.85	5.0	72.00	1.63	74.00	54	Cir	0.013	0.75	82.00	#2-3 TO #2-2
23	22	150.0	6.0	MH	0.00	0.59	0.84	5.0	74.00	2.00	77.00	15	Cir	0.013	1.00	85.80	#2-4 TO #2-3
24	22	258.0	-45.0	MH	0.00	0.29	0.84	5.0	74.00	1.36	77.50	54	Cir	0.013	1.00	91.00	#2-5 TO #2-3
25	24	183.0	43.0	MH	0.00	0.14	0.84	5.0	77.50	0.98	79.30	54	Cir	0.013	0.45	94.30	#2-6 TO #2-5
26	25	131.0	-30.0	MH	0.00	0.00	0.00	0.0	79.30	0.99	80.60	54	Cir	0.013	1.00	95.04	#2-7 TO #2-6
27	26	59.0	-93.0	MH	0.00	0.27	0.65	5.0	86.00	1.02	86.60	30	Cir	0.013	1.00	96.37	#2-8 TO #2-7
28	27	145.0	1.0	MH	0.00	0.00	0.00	0.0	86.60	1.03	88.10	30	Cir	0.013	0.75	98.54	#2-9 TO #2-8
29	28	48.0	0.0	MH	0.00	0.00	0.00	0.0	88.10	1.04	88.60	30	Cir	0.013	0.75	98.55	#2-10 TO #2-9
30	29	104.0	45.0	MH	0.00	0.85	0.70	5.0	88.60	0.96	89.60	30	Cir	0.013	0.15	99.68	#2-11 TO #2-10
31	30	116.0	5.0	MH	0.00	0.00	0.00	0.0	89.60	1.72	91.59	30	Cir	0.013	0.45	100.49	#2-12 TO #2-11
32	31	118.0	-8.0	MH	0.00	0.17	0.80	5.0	91.59	1.53	93.39	30	Cir	0.013	0.45	102.02	#2-13A TO #2-12
33	32	185.0	4.0	MH	0.00	0.18	0.70	5.0	93.39	1.57	96.30	30	Cir	0.013	1.00	104.93	#2-14A TO #2-13A
34	33	230.0	0.0	MH	0.00	0.16	0.70	5.0	96.30	2.17	101.29	18	Cir	0.013	1.00	108.67	#2-15A TO #2-14A
35	34	108.0	0.0	MH	0.00	0.00	0.00	0.0	101.29	1.27	102.66	18	Cir	0.013	1.00	110.46	#2-16A TO #2-15A
36	35	59.0	90.0	MH	0.00	0.63	0.70	5.0	102.66	1.12	103.32	18	Cir	0.013	0.45	110.75	#2-16B TO #2-16A
37	35	34.0	-90.0	MH	0.00	0.30	0.70	5.0	102.66	6.29	104.80	15	Cir	0.013	1.00	111.08	#2-16C TO #2-16A
38	35	63.0	26.0	MH	0.00	0.12	0.80	5.0	102.66	1.33	103.50	15	Cir	0.013	0.75	110.79	#2-17A TO #2-16A
39	38	48.0	41.0	MH	0.00	0.44	0.80	5.0	103.50	2.00	104.46	15	Cir	0.013	1.00	110.97	#2-16B TO #2-16A
40	38	48.0	-122.0	MH	0.00	0.16	0.80	5.0	103.50	2.00	104.46	15	Cir	0.013	1.00	110.98	#2-16C TO #2-16A
41	34	38.0	90.0	MH	0.00	0.19	0.70	5.0	101.29	1.00	101.67	15	Cir	0.013	1.00	108.67	#2-15B TO #2-15A
42	33	113.0	-104.0	MH	0.00	1.47	0.85	10.0	96.30	1.50	98.00	24	Cir	0.013	0.75	102.30	#7-1 TO #2-14A

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
43	42	74.0	-40.0	MH	0.00	0.17	0.90	5.0	98.00	2.30	99.70	15	Cir	0.013	0.45	102.70	#7-4 TO #7-1
44	43	29.0	33.0	MH	0.00	0.15	0.90	5.0	99.70	1.03	100.00	12	Cir	0.013	0.45	102.75	#7-5 TO #7-4
45	44	32.0	20.0	MH	0.00	0.12	0.90	5.0	100.00	0.94	100.30	12	Cir	0.013	0.15	102.75	#7-6 TO #7-5
46	45	28.0	0.0	MH	0.00	0.17	0.90	5.0	100.30	1.07	100.60	12	Cir	0.013	1.00	102.75	#7-7 TO #7-6
47	33	38.0	90.0	MH	0.00	0.23	0.75	5.0	96.30	4.29	97.93	24	Cir	0.013	0.45	104.93	#2-14B TO #2-14A
48	47	100.0	14.0	MH	0.00	1.02	0.84	5.0	97.93	0.19	98.12	24	Cir	0.013	1.00	102.00	#3-7 TO #2-14B
49	32	38.0	94.0	MH	0.00	0.19	0.70	5.0	93.39	4.29	95.02	15	Cir	0.013	1.00	102.02	#2-13B TO #2-13A
50	31	120.0	88.0	MH	0.00	0.55	0.89	5.0	91.59	1.00	92.79	15	Cir	0.013	1.00	100.06	#4-1 TO #2-12
51	50	59.0	0.0	MH	0.00	0.15	0.89	5.0	92.79	4.27	95.31	15	Cir	0.013	1.00	100.37	#4-2 to #4-1
52	29	101.0	-45.0	MH	0.00	0.37	0.65	5.0	89.60	0.99	90.60	15	Cir	0.013	1.00	97.75	#2-10A TO #2-10
53	52	36.0	92.0	MH	0.00	0.27	0.75	5.0	90.60	1.11	91.00	12	Cir	0.013	1.00	97.75	#2-10B TO #2-10A
54	28	96.0	45.0	MH	0.00	0.25	0.65	5.0	91.70	1.04	92.70	15	Cir	0.013	1.00	99.68	#2-9A TO #2-9
55	27	36.0	93.0	MH	0.00	0.34	0.70	5.0	89.00	1.11	89.40	12	Cir	0.013	1.00	96.37	#2-8A TO #2-8
56	26	155.0	91.0	MH	0.00	0.35	0.65	5.0	80.60	0.97	82.10	54	Cir	0.013	1.00	92.73	#2-7A TO #2-7
57	24	120.0	-135.0	MH	0.00	0.54	0.85	5.0	83.00	1.67	85.00	15	Cir	0.013	1.00	90.40	#2-5A TO #2-5
58	56	36.0	-90.0	MH	0.00	0.00	0.00	0.0	82.10	1.11	82.50	48	Cir	0.013	1.00	92.45	#2-7B TO #2-7A
59	58	29.0	-90.0	MH	0.00	0.00	0.00	0.0	85.00	4.48	86.30	12	Cir	0.013	0.45	93.10	#2-7BB TO #2-7B
60	58	88.0	16.5	MH	0.00	0.00	0.00	0.0	82.50	1.40	83.73	48	Cir	0.013	1.00	92.80	#6-1 TO #2-7B
61	60	132.0	-76.9	MH	0.00	0.69	0.84	5.0	83.73	2.37	86.86	42	Cir	0.013	1.00	95.50	#6-2 TO #6-1
62	1	67.0	-90.0	MH	0.00	0.11	0.80	5.0	68.80	10.00	75.50	15	Cir	0.013	0.15	82.76	#2-1B TO #2-1A
63	62	24.0	0.0	MH	0.00	0.53	0.80	5.0	75.50	1.25	75.80	12	Cir	0.013	1.00	82.76	#2-1C TO #2-1B

Project File: 6632E19-sys2(REV-5).stm | Number of lines: 117 | Date: 03-02-2011

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
64	60	23.0	-5.0	MH	0.00	0.19	0.90	5.0	83.73	5.52	85.00	15	Cir	0.013	0.15	93.20	#6-1B TO #6-2
65	64	11.0	0.0	MH	0.00	0.65	0.84	5.0	85.00	5.91	85.65	15	Cir	0.013	0.75	93.00	#6-1A TO #6-1B
66	61	249.0	106.0	MH	0.00	1.49	0.84	5.0	86.86	2.00	91.84	18	Cir	0.013	1.00	95.50	#6-6 TO #6-2
67	61	86.0	-65.0	MH	0.00	0.49	0.84	5.0	86.86	1.50	88.15	15	Cir	0.013	0.75	95.50	#6-8 TO #6-2
68	67	43.0	-50.0	MH	0.00	0.98	0.75	5.0	88.15	1.51	88.80	15	Cir	0.013	1.00	95.00	#6-9 TO #6-8
69	61	205.0	49.3	MH	0.00	0.00	0.00	0.0	86.86	2.11	91.18	36	Cir	0.013	0.75	100.50	#6-3 TO #6-2
70	69	116.0	-36.1	MH	0.00	0.00	0.00	0.0	91.18	2.00	93.50	36	Cir	0.013	1.00	99.50	#6-4 TO #6-3
71	70	87.0	-81.0	MH	0.00	0.25	0.89	5.0	94.65	1.37	95.84	15	Cir	0.013	1.00	100.43	#4-5 to #6-4
72	71	30.0	-9.0	MH	0.00	0.22	0.89	5.0	95.84	1.50	96.29	15	Cir	0.013	1.00	100.35	#4-4 to #4-5
73	70	69.0	81.0	MH	0.00	0.18	0.89	5.0	94.50	1.01	95.20	24	Cir	0.013	1.00	100.60	#4-6 to #6-4
74	73	25.0	9.0	MH	0.00	0.18	0.89	5.0	95.20	0.80	95.40	24	Cir	0.013	1.00	100.52	#4-7 to #4-6
75	2	29.0	41.6	MH	0.00	0.27	0.80	5.0	72.00	22.07	78.40	15	Cir	0.011	0.15	81.90	#1-1 TO #2-2
76	75	59.0	-0.3	MH	0.00	0.07	0.85	5.0	78.40	2.03	79.60	15	Cir	0.011	0.85	84.60	#1-2 TO #1-1
77	76	113.0	-18.6	MH	0.00	0.17	0.85	5.0	79.60	3.16	83.17	12	Cir	0.011	1.00	87.67	#1-3 TO #1-2
78	77	116.0	-0.3	MH	0.00	0.12	0.85	8.0	83.17	3.26	86.95	12	Cir	0.011	1.00	91.45	#1-4 TO #1-3
79	76	16.0	59.9	MH	0.00	0.28	0.85	10.0	79.60	1.94	79.91	12	Cir	0.011	1.00	84.64	#1-2A TO 1-2
80	77	40.0	-90.0	MH	0.00	0.05	0.85	5.0	83.17	5.83	85.50	12	Cir	0.011	1.00	87.50	#1-3A TO 1-3
81	78	40.0	-90.0	MH	0.00	0.11	0.85	5.0	86.95	6.38	89.50	12	Cir	0.011	1.00	91.50	#1-4A TO #1-4
82	9	23.0	88.0	MH	0.00	0.77	0.75	5.0	91.27	1.00	91.50	18	Cir	0.013	0.75	101.00	#7-2 TO #2-25
83	82	210.0	-46.0	MH	0.00	1.23	0.85	10.0	91.50	2.00	95.70	15	Cir	0.013	1.00	102.70	#7-3 TO #7-2
84	59	18.0	-15.0	MH	0.00	0.36	0.75	5.0	86.30	6.67	87.50	12	Cir	0.013	1.00	93.50	#2-7BBB TO #2-7BB

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
85	65	50.0	45.0	MH	0.00	0.38	0.75	5.0	85.65	7.70	89.50	15	Cir	0.013	1.00	93.50	#6-1A TO #6-1
86	8	74.0	45.0	MH	0.00	0.48	0.90	5.0	91.65	1.00	92.39	15	Cir	0.013	0.75	100.00	#7-8 TO #2-25
87	86	71.0	90.0	MH	0.00	0.69	0.90	5.0	92.39	1.00	93.10	15	Cir	0.013	0.45	99.70	#7-9 TO #7-8
88	87	38.0	5.0	MH	0.00	0.44	0.90	5.0	93.10	2.00	93.86	15	Cir	0.013	0.45	99.10	#7-10 TO #7-9
89	88	211.0	-50.0	MH	0.00	0.34	0.90	5.0	93.86	1.01	96.00	15	Cir	0.013	0.15	102.90	#7-11 TO #7-10
90	70	161.0	0.0	MH	0.00	0.00	0.00	0.0	93.50	0.50	94.30	36	Cir	0.013	0.00	101.50	#3-1 TO #6-4
91	90	120.0	45.0	MH	0.00	2.65	0.84	8.0	94.30	2.00	96.70	24	Cir	0.013	0.75	101.00	#3-2 TO #3-1
92	90	129.0	-45.0	MH	0.00	0.00	0.00	0.0	94.30	1.01	95.60	30	Cir	0.013	1.00	101.00	#3-3 TO #3-1
93	92	126.0	80.0	MH	0.00	0.39	0.75	5.0	95.60	3.49	100.00	15	Cir	0.013	1.00	104.00	#3-5 TO #3-3
94	92	70.0	-45.0	MH	0.00	0.06	0.90	5.0	95.60	0.36	95.85	24	Cir	0.013	1.00	101.00	#3-4 TO #3-3
95	93	227.0	-60.0	MH	0.00	1.27	0.84	5.0	100.00	2.42	105.50	15	Cir	0.013	1.00	108.50	#3-6 TO #3-5
96	13	46.0	-90.0	MH	0.00	0.12	0.80	5.0	103.57	1.02	104.04	15	Cir	0.013	1.00	111.04	#2-32 TO #2-31
97	51	76.0	-90.0	MH	0.00	0.58	0.90	5.0	95.31	5.18	99.25	12	Cir	0.009	1.00	102.25	Bldg 600 to #4-2
98	72	44.0	0.0	MH	0.00	0.16	0.89	5.0	96.29	1.50	96.95	12	Cir	0.013	0.00	100.45	#4-3 to #4-4
99	71	16.0	-99.0	MH	0.00	0.36	0.90	5.0	96.52	3.00	97.00	8	Cir	0.009	1.00	101.00	Bldg 300 to #4-5
100	74	30.0	0.0	MH	0.00	0.19	0.89	5.0	95.40	1.00	95.70	24	Cir	0.013	0.00	100.63	#4-8 to #4-7
101	74	15.0	90.0	MH	0.00	0.29	0.90	5.0	96.53	4.80	97.25	8	Cir	0.009	1.00	101.25	Bldg 200 to #4-7
102	90	30.0	-135.0	MH	0.00	0.24	0.90	5.0	97.50	2.50	98.25	8	Cir	0.009	1.00	102.25	Bldg 700 to #3-1
103	90	30.0	135.0	MH	0.00	0.32	0.90	5.0	97.50	3.33	98.50	8	Cir	0.009	0.75	102.50	Bldg 800 to #3-1
104	100	189.0	0.0	MH	0.00	0.85	0.90	5.0	95.70	0.50	96.64	24	Cir	0.013	0.00	101.50	#4-9 to #4-8
105	104	63.0	0.0	MH	0.00	0.30	0.85	5.0	96.64	0.89	97.20	18	Cir	0.013	0.00	101.20	#4-9A to #4-9

Project File: 6632E19-sys2(REV-5).stm | Number of lines: 117 | Date: 03-02-2011

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
106	105	40.0	16.7	MH	0.00	0.36	0.85	10.0	97.70	1.13	98.15	12	Cir	0.013	0.34	102.30	#4-10A to #4-9A
107	106	57.8	0.0	MH	0.00	0.00	0.00	0.0	98.15	1.00	98.73	12	Cir	0.013	0.00	103.50	#4-10 to #4-10A
108	107	53.0	113.0	MH	0.00	0.05	0.40	5.0	98.83	0.94	99.33	8	Cir	0.013	1.00	101.40	#4-11 to #4-10
109	108	22.0	55.0	MH	0.00	0.01	0.90	5.0	99.33	0.68	99.48	8	Cir	0.013	0.70	101.40	#4-12 to #4-11
110	109	29.9	-48.0	MH	0.00	0.06	0.90	5.0	99.53	0.74	99.75	8	Cir	0.013	0.55	101.40	#4-13 to #4-12
111	110	40.5	0.0	MH	0.00	0.07	0.90	5.0	99.75	0.37	99.90	8	Cir	0.013	0.70	101.40	#4-14 to #4-13
112	109	28.0	80.0	MH	0.00	0.06	0.90	5.0	99.64	1.25	99.99	6	Cir	0.013	0.00	101.61	#4-12A to #4-12
113	105	85.0	-45.0	MH	0.00	0.14	0.85	5.0	97.45	1.47	98.70	12	Cir	0.013	1.00	102.80	#4-15 to #4-9A
114	113	44.0	-15.0	MH	0.00	0.09	0.40	5.0	98.70	3.39	100.19	8	Cir	0.013	0.72	102.85	#4-16 to #4-15
115	92	30.0	52.0	MH	0.00	1.49	0.84	8.0	96.50	2.00	97.10	15	Cir	0.013	0.70	101.00	#3-3A to #3-3
116	94	138.0	18.0	MH	0.00	1.07	0.84	5.0	95.85	1.20	97.50	15	Cir	0.013	0.15	101.50	#3-4A to #3-4
117	94	50.0	-90.0	MH	0.00	0.35	0.90	5.0	95.85	1.08	96.39	8	Cir	0.013	1.00	102.25	Bldg 567 to #3-4

Mich 12"

Project File: 6632E19-sys2(REV-5).stm | Number of lines: 117 | Date: 03-02-2011

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
		(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
1	End	61.0	0.00	40.91	0.00	0.00	33.33	0.0	15.9	5.0	167.1	650.1	8.51	60	6.23	68.80	65.00	79.15	78.90	77.00	82.76	#2-1A TO #2-1
2	1	68.0	0.00	40.27	0.00	0.00	32.82	0.0	15.8	5.0	165.2	565.0	8.42	60	4.71	72.00	68.80	80.58	80.30	81.50	77.00	#2-2 TO #2-1A
3	2	59.0	0.26	8.39	0.85	0.22	6.62	5.0	13.2	5.4	35.84	182.1	5.07	36	7.46	76.40	72.00	82.55	82.38	83.80	81.50	#2-20 TO #2-2
4	3	220.0	0.49	8.13	0.65	0.32	6.40	5.0	12.6	5.5	35.22	67.73	7.80	30	2.73	82.40	76.40	84.38	82.85	89.89	83.80	#2-21 TO #2-20
5	4	219.0	0.12	7.17	0.65	0.08	5.78	5.0	12.0	5.6	32.36	60.08	7.37	30	2.15	87.10	82.40	89.00	84.81	96.70	89.89	#2-22 TO #2-21
6	5	105.0	0.00	6.96	0.00	0.00	5.63	0.0	11.7	5.7	31.84	41.98	7.42	30	1.05	88.20	87.10	90.09	89.36	98.76	96.70	#2-23 TO #2-22
7	6	105.0	0.04	6.31	0.65	0.03	5.18	5.0	11.4	5.7	29.57	41.98	6.98	30	1.05	89.30	88.20	91.12	90.52	99.65	98.76	#2-24 TO #2-23
8	7	56.0	0.17	6.17	0.70	0.12	5.08	5.0	11.3	5.7	29.11	23.89	6.26	30	0.34	89.49	89.30	91.59	91.50	99.92	99.65	#2-24B TO #2-24
9	8	178.0	0.17	4.05	0.70	0.12	3.20	5.0	10.8	5.8	18.66	22.62	5.94	24	1.00	91.27	89.49	93.15	92.18	101.41	99.92	#2-25 TO #2-24B
10	9	185.0	0.46	1.44	0.80	0.37	1.11	5.0	8.9	6.2	6.87	11.50	5.93	15	3.17	97.14	91.27	98.19	93.70	104.52	101.41	#2-27 TO #2-26
11	10	230.0	0.17	0.76	0.80	0.14	0.58	5.0	7.7	6.5	3.72	8.51	3.85	15	1.73	101.13	97.14	101.90	98.65	108.51	104.52	#2-29 TO #2-27
12	11	105.0	0.00	0.44	0.00	0.00	0.32	0.0	6.7	6.7	2.14	8.50	2.86	15	1.73	102.95	101.13	103.54	102.19	110.00	108.51	#2-31A TO #2-29
13	12	35.0	0.32	0.44	0.70	0.22	0.32	5.0	6.4	6.8	2.16	8.59	3.29	15	1.77	103.57	102.95	104.16	103.71	111.04	110.00	#2-31 TO #2-31A
14	11	38.0	0.15	0.15	0.80	0.12	0.12	5.0	5.0	7.1	0.86	6.46	0.99	15	1.00	101.51	101.13	102.21	102.21	108.51	108.51	#2-30 TO #2-29
15	10	38.0	0.22	0.22	0.75	0.17	0.17	5.0	5.0	7.1	1.18	6.46	0.96	15	1.00	97.52	97.14	98.79	98.78	104.52	104.52	#2-28 TO #2-27
16	9	38.0	0.44	0.44	0.80	0.35	0.35	5.0	5.0	7.1	2.51	18.56	3.03	15	8.26	94.41	91.27	95.04	93.70	101.41	101.41	#2-25A TO #2-25
17	7	43.0	0.10	0.10	0.80	0.08	0.08	5.0	5.0	7.1	0.57	3.64	2.63	12	1.05	92.55	92.10	92.87	92.42	99.50	99.65	#2-24A TO #2-24
18	6	90.0	0.36	0.65	0.65	0.23	0.45	5.0	5.3	7.0	3.18	7.46	3.05	15	1.33	90.30	89.10	91.04	90.98	97.75	98.76	#2-23A TO #2-23
19	18	36.0	0.29	0.29	0.75	0.22	0.22	5.0	5.0	7.1	1.55	3.75	2.85	12	1.11	90.70	90.30	91.23	91.23	97.75	97.75	#2-23B TO #2-23
20	5	36.0	0.09	0.09	0.70	0.06	0.06	5.0	5.0	7.1	0.45	3.75	1.25	12	1.11	89.60	89.20	89.96	89.96	96.70	96.70	#2-22A TO #2-22
21	4	36.0	0.47	0.47	0.65	0.31	0.31	5.0	5.0	7.1	2.18	3.75	2.77	12	1.11	82.80	82.40	85.50	85.37	89.89	89.89	#2-21A TO #2-21

Project File: 6632E19-sys2(REV-5).stm

Number of lines: 117

Run Date: 03-02-2011

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
22	2	123.0	2.51	30.81	0.85	2.13	25.31	5.0	15.5	5.1	128.4	250.8	8.08	54	1.63	74.00	72.00	82.29	81.76	82.00	81.50	#2-3 TO #2-2
23	22	150.0	0.59	0.59	0.84	0.50	0.50	5.0	5.0	7.1	3.53	9.13	2.88	15	2.00	77.00	74.00	84.38	83.94	85.80	82.00	#2-4 TO #2-3
24	22	258.0	0.29	27.71	0.84	0.24	22.68	5.0	14.8	5.2	117.2	229.1	7.37	54	1.36	77.50	74.00	84.14	83.22	91.00	82.00	#2-5 TO #2-3
25	24	183.0	0.14	26.88	0.84	0.12	21.97	5.0	14.4	5.2	115.1	195.0	7.24	54	0.98	79.30	77.50	85.64	85.01	94.30	91.00	#2-6 TO #2-5
26	25	131.0	0.00	26.74	0.00	0.00	21.86	0.0	14.0	5.3	115.5	195.9	7.26	54	0.99	80.60	79.30	86.46	86.00	95.04	94.30	#2-7 TO #2-6
27	26	59.0	0.27	9.50	0.65	0.18	7.45	5.0	12.5	5.5	41.20	41.36	9.14	30	1.02	86.60	86.00	88.76	88.16	96.37	95.04	#2-8 TO #2-7
28	27	145.0	0.00	8.89	0.00	0.00	7.04	0.0	12.2	5.6	39.29	41.71	8.49	30	1.03	88.10	86.60	90.20	89.06	98.54	96.37	#2-9 TO #2-8
29	28	48.0	0.00	8.64	0.00	0.00	6.88	0.0	12.0	5.6	38.51	41.86	8.41	30	1.04	88.60	88.10	90.68	90.48	98.55	98.54	#2-10 TO #2-9
30	29	104.0	0.85	8.00	0.70	0.60	6.43	5.0	11.8	5.6	36.30	40.22	7.40	30	0.96	89.60	88.60	92.21	91.95	99.68	98.55	#2-11 TO #2-10
31	30	116.0	0.00	7.15	0.00	0.00	5.84	0.0	11.5	5.7	33.25	53.72	7.35	30	1.72	91.59	89.60	94.15	93.06	100.49	99.68	#2-12 TO #2-11
32	31	118.0	0.17	5.87	0.80	0.14	4.69	5.0	11.1	5.8	27.03	50.65	5.79	30	1.53	93.39	91.59	95.37	95.12	102.02	100.49	#2-13A TO #2-12
33	32	185.0	0.18	5.51	0.70	0.13	4.43	5.0	10.6	5.9	25.96	51.44	6.29	30	1.57	96.30	93.39	98.00	95.94	104.93	102.02	#2-14A TO #2-13
34	33	230.0	0.16	2.00	0.70	0.11	1.47	5.0	6.8	6.7	9.81	15.47	6.03	18	2.17	101.29	96.30	102.49	98.35	108.67	104.93	#2-15A TO #2-14
35	34	108.0	0.00	1.65	0.00	0.00	1.23	0.0	6.4	6.8	8.29	11.83	5.33	18	1.27	102.66	101.29	103.76	102.80	110.46	108.67	#2-16A TO #2-15
36	35	59.0	0.63	0.63	0.70	0.44	0.44	5.0	5.0	7.1	3.14	11.11	2.46	18	1.12	103.32	102.66	104.15	104.15	110.75	110.46	#2-16B TO #2-16
37	35	34.0	0.30	0.30	0.70	0.21	0.21	5.0	5.0	7.1	1.50	16.20	2.29	15	6.29	104.80	102.66	105.29	104.29	111.08	110.46	#2-16C TO #2-16
38	35	63.0	0.12	0.72	0.80	0.10	0.58	5.0	6.1	6.8	3.94	7.46	3.99	15	1.33	103.50	102.66	104.30	104.15	110.79	110.46	#2-17A TO #2-16
39	38	48.0	0.44	0.44	0.80	0.35	0.35	5.0	5.0	7.1	2.51	9.13	3.03	15	2.00	104.46	103.50	105.09	104.85	110.97	110.79	#2-16B TO #2-16
40	38	48.0	0.16	0.16	0.80	0.13	0.13	5.0	5.0	7.1	0.91	9.13	1.55	15	2.00	104.46	103.50	104.82	104.91	110.98	110.79	#2-16C TO #2-16
41	34	38.0	0.19	0.19	0.70	0.13	0.13	5.0	5.0	7.1	0.95	6.46	0.77	15	1.00	101.67	101.29	103.14	103.13	108.67	108.67	#2-15B TO #2-15
42	33	113.0	1.47	2.08	0.85	1.25	1.80	10.0	10.0	6.0	10.74	27.74	4.55	24	1.50	98.00	96.30	99.16	98.65	102.30	104.93	#7-1 TO #2-14A

Project File: 6632E19-sys2(REV-5).stm | Number of lines: 117 | Run Date: 03-02-2011

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
43	42	74.0	0.17	0.61	0.90	0.15	0.55	5.0	5.7	6.9	3.81	9.79	3.91	15	2.30	99.70	98.00	100.48	99.51	102.70	102.30	#7-4 TO #7-1
44	43	29.0	0.15	0.44	0.90	0.14	0.40	5.0	5.6	7.0	2.76	3.62	4.13	12	1.03	100.00	99.70	100.71	100.64	102.75	102.70	#7-5 TO #7-4
45	44	32.0	0.12	0.29	0.90	0.11	0.26	5.0	5.3	7.0	1.84	3.45	2.51	12	0.94	100.30	100.00	101.12	101.06	102.75	102.75	#7-6 TO #7-5
46	45	28.0	0.17	0.17	0.90	0.15	0.15	5.0	5.0	7.1	1.09	3.69	2.10	12	1.07	100.60	100.30	101.03	101.13	102.75	102.75	#7-7 TO #7-6
47	33	38.0	0.23	1.25	0.75	0.17	1.03	5.0	5.9	6.9	7.10	46.84	3.56	24	4.29	97.93	96.30	98.87	98.75	104.93	104.93	#2-14B TO #2-14
48	47	100.0	1.02	1.02	0.84	0.86	0.86	5.0	5.0	7.1	6.11	9.86	3.03	24	0.19	98.12	97.93	99.32	99.18	102.00	104.93	#3-7 TO #2-14B
49	32	38.0	0.19	0.19	0.70	0.13	0.13	5.0	5.0	7.1	0.95	13.37	0.87	15	4.29	95.02	93.39	95.95	95.94	102.02	102.02	#2-13B TO #2-13
50	31	120.0	0.55	1.28	0.89	0.49	1.15	5.0	5.5	7.0	7.99	6.46	6.51	15	1.00	92.79	91.59	96.96	95.12	100.06	100.49	#4-1 TO #2-12
51	50	59.0	0.15	0.73	0.89	0.13	0.66	5.0	5.3	7.1	4.62	13.35	3.77	15	4.27	95.31	92.79	98.36	98.06	100.37	100.06	#4-2 to #4-1
52	29	101.0	0.37	0.64	0.65	0.24	0.44	5.0	5.3	7.0	3.12	6.43	2.54	15	0.99	90.60	89.60	92.93	92.70	97.75	98.55	#2-10A TO #2-10
53	52	36.0	0.27	0.27	0.75	0.20	0.20	5.0	5.0	7.1	1.44	3.75	1.84	12	1.11	91.00	90.60	93.14	93.08	97.75	97.75	#2-10B TO #2-10
54	28	96.0	0.25	0.25	0.65	0.16	0.16	5.0	5.0	7.1	1.16	6.59	3.09	15	1.04	92.70	91.70	93.13	92.13	99.68	98.54	#2-9A TO #2-9
55	27	36.0	0.34	0.34	0.70	0.24	0.24	5.0	5.0	7.1	1.70	3.75	2.80	12	1.11	89.40	89.00	89.99	89.99	96.37	96.37	#2-8A TO #2-8
56	26	155.0	0.35	17.24	0.65	0.23	14.40	5.0	13.4	5.4	77.40	193.5	4.87	54	0.97	82.10	80.60	87.97	87.73	92.73	95.04	#2-7A TO #2-7
57	24	120.0	0.54	0.54	0.85	0.46	0.46	5.0	5.0	7.1	3.27	8.34	2.90	15	1.67	85.00	83.00	85.99	85.71	90.40	91.00	#2-5A TO #2-5
58	56	36.0	0.00	16.89	0.00	0.00	14.17	0.0	13.3	5.4	76.42	151.4	6.08	48	1.11	82.50	82.10	88.44	88.34	92.45	92.73	#2-7B TO #2-7A
59	58	29.0	0.00	0.36	0.00	0.00	0.27	0.0	5.1	7.1	1.91	7.54	2.44	12	4.48	86.30	85.00	89.58	89.50	93.10	92.45	#2-7BB TO #2-7B
60	58	88.0	0.00	16.53	0.00	0.00	13.90	0.0	13.1	5.4	75.54	169.8	6.01	48	1.40	83.73	82.50	89.27	89.03	92.80	92.45	#6-1 TO #2-7B
61	60	132.0	0.69	15.31	0.84	0.58	12.90	5.0	12.8	5.5	70.75	154.9	7.35	42	2.37	86.86	83.73	89.96	89.83	95.50	92.80	#6-2 TO #6-1
62	1	67.0	0.11	0.64	0.80	0.09	0.51	5.0	5.1	7.1	3.63	20.42	2.96	15	10.00	75.50	68.80	81.48	81.27	82.76	77.00	#2-1B TO #2-1A
63	62	24.0	0.53	0.53	0.80	0.42	0.42	5.0	5.0	7.1	3.02	3.98	3.85	12	1.25	75.80	75.50	81.67	81.50	82.76	82.76	#2-1C TO #2-1B

Project File: 6632E19-sys2(REV-5).stm | Number of lines: 117 | Run Date: 03-02-2011

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(In/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
64	60	23.0	0.19	1.22	0.90	0.17	1.00	5.0	5.5	7.0	6.99	15.17	5.70	15	5.52	85.00	83.73	90.16	89.89	93.20	92.80	#6-1B TO #6-2
65	64	11.0	0.65	1.03	0.84	0.55	0.83	5.0	5.5	7.0	5.81	15.70	4.73	15	5.91	85.65	85.00	90.48	90.39	93.00	93.20	#6-1A TO #6-1B
66	61	249.0	1.49	1.49	0.84	1.25	1.25	5.0	5.0	7.1	8.92	14.85	5.62	18	2.00	91.84	86.86	92.98	90.80	95.50	95.50	#6-6 TO #6-2
67	61	86.0	0.49	1.47	0.84	0.41	1.15	5.0	5.2	7.1	8.12	7.91	6.62	15	1.50	88.15	86.86	92.16	90.80	95.50	95.50	#6-8 TO #6-2
68	67	43.0	0.98	0.98	0.75	0.74	0.74	5.0	5.0	7.1	5.24	7.94	4.27	15	1.51	88.80	88.15	93.35	93.06	95.00	95.50	#6-9 TO #6-8
69	61	205.0	0.00	11.66	0.00	0.00	9.92	0.0	12.3	5.6	55.16	96.82	8.51	36	2.11	91.18	86.86	93.55	90.80	100.50	95.50	#6-3 TO #6-2
70	69	116.0	0.00	11.66	0.00	0.00	9.92	0.0	12.0	5.6	55.58	94.32	8.75	36	2.00	93.50	91.18	95.88	93.91	99.50	100.50	#6-4 TO #6-3
71	70	87.0	0.25	0.99	0.89	0.22	0.88	5.0	5.8	6.9	6.11	7.55	4.98	15	1.37	95.84	94.65	97.60	96.82	100.43	99.50	#4-5 to #6-4
72	71	30.0	0.22	0.38	0.89	0.20	0.34	5.0	5.6	7.0	2.36	7.91	1.92	15	1.50	96.29	95.84	98.35	98.31	100.35	100.43	#4-4 to #4-5
73	70	69.0	0.18	2.83	0.89	0.16	2.43	5.0	11.8	5.6	13.73	22.78	4.49	24	1.01	95.20	94.50	97.00	96.79	100.60	99.50	#4-6 to #6-4
74	73	25.0	0.18	2.65	0.89	0.16	2.27	5.0	11.7	5.7	12.86	20.23	4.09	24	0.80	95.40	95.20	97.48	97.40	100.52	100.60	#4-7 to #4-6
75	2	29.0	0.27	1.07	0.80	0.22	0.90	5.0	10.4	5.9	5.27	35.85	4.30	15	22.07	78.40	72.00	82.63	82.49	81.90	81.50	#1-1 TO #2-2
76	75	59.0	0.07	0.80	0.85	0.06	0.68	5.0	10.1	5.9	4.04	10.88	3.29	15	2.03	79.60	78.40	82.96	82.79	84.60	81.90	#1-2 TO #1-1
77	76	113.0	0.17	0.45	0.85	0.14	0.38	5.0	9.2	6.1	2.34	7.48	3.66	12	3.16	83.17	79.60	83.82	83.13	87.67	84.60	#1-3 TO #1-2
78	77	116.0	0.12	0.23	0.85	0.10	0.20	8.0	8.0	6.4	1.25	7.60	2.54	12	3.26	86.95	83.17	87.42	84.07	91.45	87.67	#1-4 TO #1-3
79	76	16.0	0.28	0.28	0.85	0.24	0.24	10.0	10.0	6.0	1.42	5.86	1.81	12	1.94	79.91	79.60	83.24	83.22	84.64	84.60	#1-2A TO 1-2
80	77	40.0	0.05	0.05	0.85	0.04	0.04	5.0	5.0	7.1	0.30	10.16	1.28	12	5.83	85.50	83.17	85.73	84.11	87.50	87.67	#1-3A TO 1-3
81	78	40.0	0.11	0.11	0.85	0.09	0.09	5.0	5.0	7.1	0.67	10.63	2.00	12	6.38	89.50	86.95	89.85	87.59	91.50	91.45	#1-4A TO #1-4
82	9	23.0	0.77	2.00	0.75	0.58	1.62	5.0	10.7	5.8	9.48	10.50	5.36	18	1.00	91.50	91.27	93.88	93.70	101.00	101.41	#7-2 TO #2-25
83	82	210.0	1.23	1.23	0.85	1.05	1.05	10.0	10.0	6.0	6.24	9.13	5.51	15	2.00	95.70	91.50	96.70	94.26	102.70	101.00	#7-3 TO #7-2
84	59	18.0	0.36	0.36	0.75	0.27	0.27	5.0	5.0	7.1	1.92	9.20	2.45	12	6.67	87.50	86.30	89.67	89.62	93.50	93.10	#2-7BBB TO #2-7

Project File: 6632E19-sys2(REV-5).stm | Number of lines: 117 | Run Date: 03-02-2011

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
85	65	50.0	0.38	0.38	0.75	0.29	0.29	5.0	5.0	7.1	2.03	17.92	1.65	15	7.70	89.50	85.65	91.10	91.05	93.50	93.00	#6-1A TO #6-1
86	8	74.0	0.48	1.95	0.90	0.43	1.76	5.0	7.3	6.5	11.48	6.46	9.39	15	1.00	92.39	91.65	95.19	92.86	100.00	99.92	#7-8 TO #2-25
87	86	71.0	0.69	1.47	0.90	0.62	1.32	5.0	7.1	6.6	8.70	6.46	7.09	15	1.00	93.10	92.39	97.84	96.55	99.70	100.00	#7-9 TO #7-8
88	87	38.0	0.44	0.78	0.90	0.40	0.70	5.0	7.0	6.6	4.64	9.13	3.79	15	2.00	93.86	93.10	98.95	98.75	99.10	99.70	#7-10 TO #7-9
89	88	211.0	0.34	0.34	0.90	0.31	0.31	5.0	5.0	7.1	2.18	6.50	1.78	15	1.01	96.00	93.86	99.46	99.22	102.90	99.10	#7-11 TO #7-10
90	70	161.0	0.00	7.84	0.00	0.00	6.61	0.0	8.5	6.3	41.45	47.01	5.87	36	0.50	94.30	93.50	97.27	96.67	101.50	99.50	#3-1 TO #6-4
91	90	120.0	2.65	2.65	0.84	2.23	2.23	8.0	8.0	6.4	14.21	31.99	5.45	24	2.00	96.70	94.30	98.03	97.49	101.00	101.50	#3-2 TO #3-1
92	90	129.0	0.00	4.63	0.00	0.00	3.88	0.0	8.1	6.4	24.69	41.17	5.22	30	1.01	95.60	94.30	97.43	97.41	101.00	101.50	#3-3 TO #3-1
93	92	126.0	0.39	1.66	0.75	0.29	1.36	5.0	5.6	7.0	9.46	12.07	7.81	15	3.49	100.00	95.60	101.17	97.88	104.00	101.00	#3-5 TO #3-3
94	92	70.0	0.06	1.48	0.90	0.05	1.27	5.0	5.4	7.0	8.88	13.52	2.83	24	0.36	95.85	95.60	97.99	97.88	101.00	101.00	#3-4 TO #3-3
95	93	227.0	1.27	1.27	0.84	1.07	1.07	5.0	5.0	7.1	7.60	10.05	6.43	15	2.42	105.50	100.00	106.60	101.55	108.50	104.00	#3-6 TO #3-5
96	13	46.0	0.12	0.12	0.80	0.10	0.10	5.0	5.0	7.1	0.68	6.53	1.62	15	1.02	104.04	103.57	104.36	104.38	111.04	111.04	#2-32 TO #2-31
97	51	76.0	0.58	0.58	0.90	0.52	0.52	5.0	5.0	7.1	3.72	11.71	5.07	12	5.18	99.25	95.31	100.07	98.59	102.25	100.37	Bldg 600 to #4-2
98	72	44.0	0.16	0.16	0.89	0.14	0.14	5.0	5.0	7.1	1.01	4.36	1.29	12	1.50	96.95	96.29	98.48	98.44	100.45	100.35	#4-3 to #4-4
99	71	16.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.1	2.31	3.02	6.61	8	3.00	97.00	96.52	98.42	97.99	101.00	100.43	Bldg 300 to #4-5
100	74	30.0	0.19	2.18	0.89	0.17	1.85	5.0	11.5	5.7	10.53	22.62	3.35	24	1.00	95.70	95.40	97.89	97.83	100.63	100.52	#4-8 to #4-7
101	74	15.0	0.29	0.29	0.90	0.26	0.26	5.0	5.0	7.1	1.86	3.82	5.39	8	4.80	97.25	96.53	98.30	97.74	101.25	100.52	Bldg 200 to #4-7
102	90	30.0	0.24	0.24	0.90	0.22	0.22	5.0	5.0	7.1	1.54	2.76	4.78	8	2.50	98.25	97.50	98.83	98.08	102.25	101.50	Bldg 700 to #3-1
103	90	30.0	0.32	0.32	0.90	0.29	0.29	5.0	5.0	7.1	2.05	3.18	6.00	8	3.33	98.50	97.50	99.13	98.13	102.50	101.50	Bldg 800 to #3-1
104	100	189.0	0.85	1.99	0.90	0.77	1.68	5.0	10.5	5.9	9.87	15.95	3.42	24	0.50	96.64	95.70	98.22	97.91	101.50	100.63	#4-9 to #4-8
105	104	63.0	0.30	1.14	0.85	0.26	0.92	5.0	10.2	5.9	5.44	9.90	3.32	18	0.89	97.20	96.64	98.41	98.29	101.20	101.50	#4-9A to #4-9

Project File: 6632E19-sys2(REV-5).stm

Number of lines: 117

Run Date: 03-02-2011

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

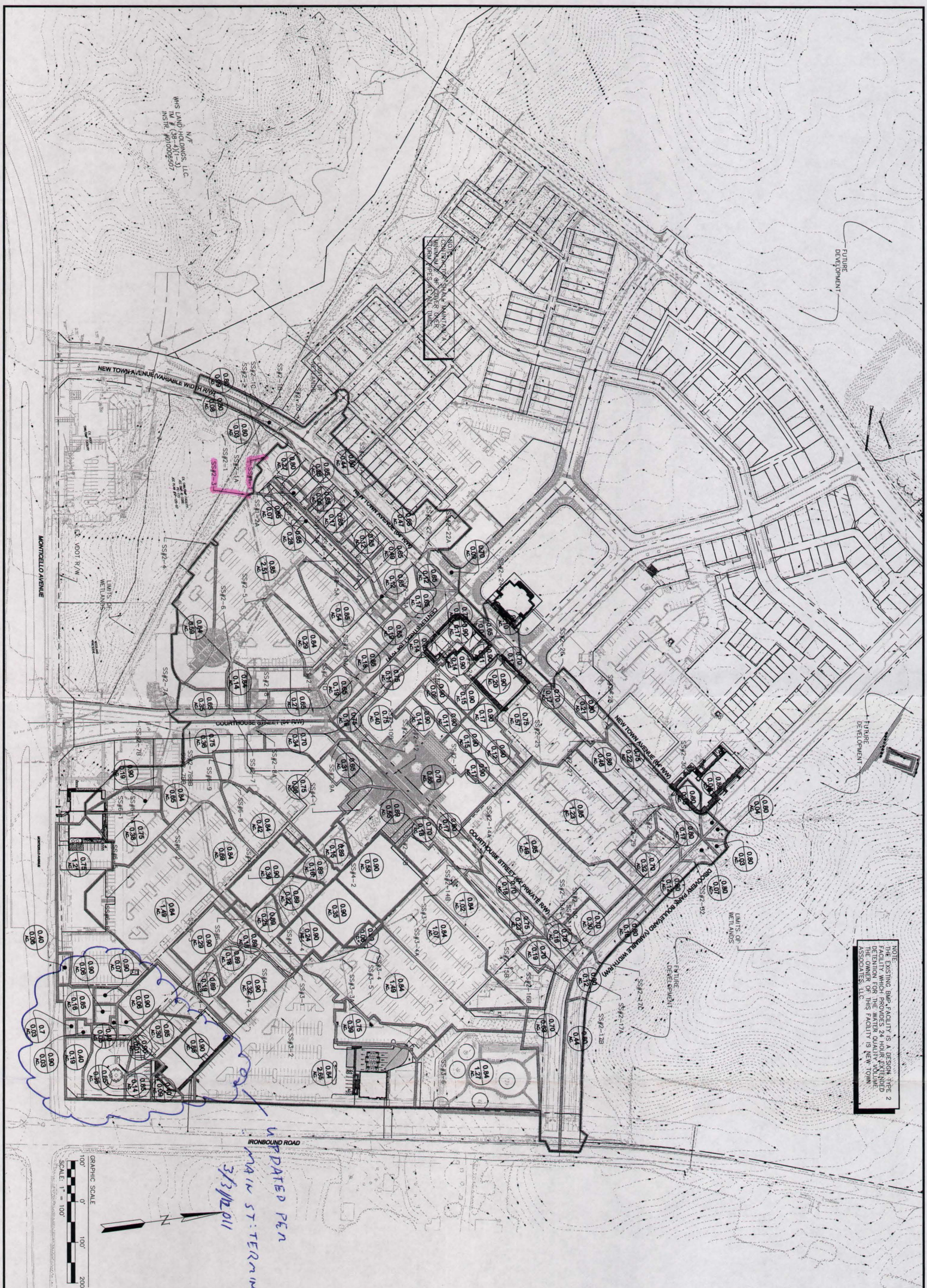
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
106	105	40.0	0.36	0.61	0.85	0.31	0.51	10.0	10.0	6.0	3.02	3.78	4.87	12	1.13	98.15	97.70	98.89	98.44	102.30	101.20	#4-10A to #4-9A
107	106	57.8	0.00	0.25	0.00	0.00	0.20	0.0	6.1	6.8	1.37	3.57	2.44	12	1.00	98.73	98.15	99.25	99.21	103.50	102.30	#4-10 to #4-10A
108	107	53.0	0.05	0.25	0.40	0.02	0.20	5.0	5.8	6.9	1.38	1.17	4.15	8	0.94	99.33	98.83	100.05	99.40	101.40	103.50	#4-11 to #4-10
109	108	22.0	0.01	0.20	0.90	0.01	0.18	5.0	5.7	6.9	1.25	1.00	3.57	8	0.68	99.48	99.33	100.53	100.30	101.40	101.40	#4-12 to #4-11
110	109	29.9	0.06	0.13	0.90	0.05	0.12	5.0	5.5	7.0	0.82	1.04	2.34	8	0.74	99.75	99.53	100.92	100.78	101.40	101.40	#4-13 to #4-12
111	110	40.5	0.07	0.07	0.90	0.06	0.06	5.0	5.0	7.1	0.45	0.74	1.29	8	0.37	99.90	99.75	101.08	101.03	101.40	101.40	#4-14 to #4-13
112	109	28.0	0.06	0.06	0.90	0.05	0.05	5.0	5.0	7.1	0.38	0.63	1.96	6	1.25	99.99	99.64	100.94	100.81	101.61	101.40	#4-12A to #4-12
113	105	85.0	0.14	0.23	0.85	0.12	0.16	5.0	6.0	6.9	1.06	4.32	2.29	12	1.47	98.70	97.45	99.14	98.58	102.80	101.20	#4-15 to #4-9A
114	113	44.0	0.09	0.09	0.40	0.04	0.04	5.0	5.0	7.1	0.26	2.22	1.53	8	3.39	100.19	98.70	100.43	99.29	102.85	102.80	#4-16 to #4-15
115	92	30.0	1.49	1.49	0.84	1.25	1.25	8.0	8.0	6.4	7.99	9.13	6.60	15	2.00	97.10	96.50	98.80	97.88	101.00	101.00	#3-3A to #3-3
116	94	138.0	1.07	1.07	0.84	0.90	0.90	5.0	5.0	7.1	6.40	7.06	5.22	15	1.20	97.50	95.85	99.47	98.11	101.50	101.00	#3-4A to #3-4
117	94	50.0	0.35	0.35	0.90	0.32	0.32	5.0	5.0	7.1	2.24	1.26	6.43	8	1.08	96.39	95.85	99.84	98.11	102.25	101.00	Bldg 567 to #3-4

Project File: 6632E19-sys2(REV-5).stm | Number of lines: 117 | Run Date: 03-02-2011

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

S:\Jobs\6632\E\19 Ph3 Roads\dwg\Cad\6632E19c09overalldrainage.dwg, 3/2/2011 4:04:01 PM, bob.cosby



OVERALL DRAINAGE PLAN

NEW TOWN

SECTION 2 AND 4
ROADWAY INFRASTRUCTURE PLANS
PHASE III

BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

Designed	JSR
Scale	1"=100'
Drawn	AES
Date	7/6/04
Project No.	6632-E-19
Drawing No.	9

CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND

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

No.	DATE	REVISION / COMMENT / NOTE	BY
7	04/12/10	REVISED PER VDOT & HOT COMMENTS	REC
6	03/30/10	ADDED CURBLET @ DISCOVERY PARK BOULEVARD ISLAND	REC
5	02/24/10	REVISED PER HOSA COMMENTS DATED 2/19/10	REC
4	11/20/09	ADDED PONDS MAIN ON DISCOVERY PARK BOULEVARD	REC
3	11/16/09	REVISED PER JCC COMMENTS DATED 11/5/09	REC
2	03/19/04	REVISED PER JCC COMMENTS	REC
1	03/2/04	REVISED PER JCC COMMENTS DATED 2/23/04	REC

Bill 04/11/2011

✓

No comments.

Ready ~~for~~ to be approved

Thanks Ru

DRAINAGE CALCULATIONS

FOR

NEW TOWN
MAIN STREET TERMINUS

Environmental Division
APR 01 2011
RECEIVED

SITE:

RECEIVED
MAR 2011
Planning Department

James City County

SUBMITTED TO:

Environmental Division
James City County

Prepared By:

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

COMMONWEALTH OF VIRGINIA
ROBERT E. COSBY, III
Lic. No. 035664
3/31/11
PROFESSIONAL ENGINEER

March 3, 2011

AES Project No. 6632-E-21-12

SP-23-11 amends
(SP-95-05)

6632E21-12.drncalcs.doc

AES CONSULTING ENGINEERS

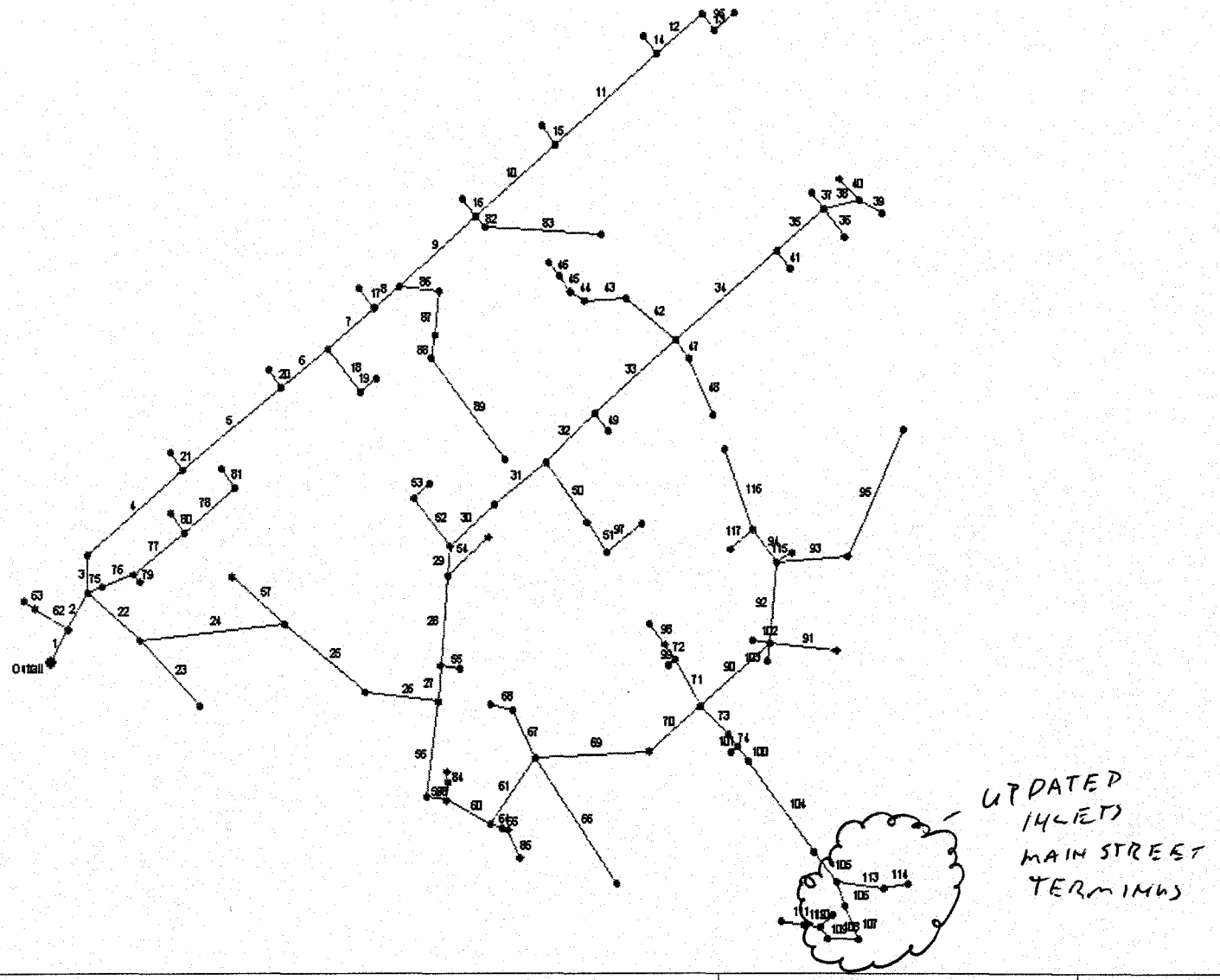
This project, known as Main Street Terminus reconstructs the existing end of Main Street. 22 additional parking spaces are added in addition to connecting drive lanes. The existing drainage system is modified to match the new grading and curb structures. Overall Drainage patterns and watersheds boundaries have not been altered by this revision.

This disturbed area for this project will be collected by the existing storm drainage system which is designed to collect the runoff from the improvements. The drainage system outfalls to an existing best management practice (BMP) facility (BMP 53).

The major storm drainage system originally begun as part of Phase 1 Infrastructure has been modified to account for the reconstruction of the pipes at the terminus of Main Street. Attached is the Drainage Area Map and updated storm drain analysis. Based on this revision there is no significant change to the overall functionality of the overall drainage system. The overall drainage area did not change, the "C" factor increased slightly, however the change did not significantly alter the downstream system. Capacity and hydraulic gradeline remain consistent with the original design for the terminus of Main Street and the downstream system.

AES
CONSULTING ENGINEERS

Hydraflow Plan View



Project File: 6632E19-sys2(REV-5).stm	No. Lines: 117	03-31-2011

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
1	End	61.0	-60.0	MH	0.00	0.00	0.00	0.0	65.00	6.23	68.80	60	Cir	0.013	1.00	77.00	#2-1A TO #2-1
2	1	68.0	0.0	MH	0.00	0.00	0.00	0.0	68.80	4.71	72.00	60	Cir	0.013	1.00	81.50	#2-2 TO #2-1A
3	2	59.0	-30.0	MH	0.00	0.26	0.85	5.0	72.00	7.46	76.40	36	Cir	0.013	0.75	83.80	#2-20 TO #2-2
4	3	220.0	51.0	MH	0.00	0.49	0.65	5.0	76.40	2.73	82.40	30	Cir	0.013	1.00	89.89	#2-21 TO #2-20
5	4	219.0	2.0	MH	0.00	0.12	0.65	5.0	82.40	2.15	87.10	30	Cir	0.013	1.00	96.70	#2-22 TO #2-21
6	5	105.0	1.0	MH	0.00	0.00	0.00	0.0	87.10	1.05	88.20	30	Cir	0.013	1.00	98.76	#2-23 TO #2-22
7	6	105.0	-3.0	MH	0.00	0.04	0.65	5.0	88.20	1.05	89.30	30	Cir	0.013	0.15	99.65	#2-24 TO #2-23
8	7	56.0	0.0	MH	0.00	0.17	0.70	5.0	89.30	0.34	89.49	30	Cir	0.013	1.00	99.92	#2-24B TO #2-24
9	8	178.0	0.0	MH	0.00	0.17	0.70	5.0	89.49	1.00	91.27	24	Cir	0.013	1.00	101.41	#2-25 TO #2-24B
10	9	185.0	0.0	MH	0.00	0.46	0.80	5.0	91.27	3.17	97.14	15	Cir	0.013	1.00	104.52	#2-27 TO #2-26
11	10	230.0	0.0	MH	0.00	0.17	0.80	5.0	97.14	1.73	101.13	15	Cir	0.013	1.00	108.51	#2-29 TO #2-27
12	11	105.0	0.0	MH	0.00	0.00	0.00	0.0	101.13	1.73	102.95	15	Cir	0.013	1.00	110.00	#2-31A TO #2-29
13	12	35.0	90.0	MH	0.00	0.32	0.70	5.0	102.95	1.77	103.57	15	Cir	0.013	0.45	111.04	#2-31 TO #2-31A
14	11	38.0	-90.0	MH	0.00	0.15	0.80	5.0	101.13	1.00	101.51	15	Cir	0.013	1.00	108.51	#2-30 TO #2-29
15	10	38.0	-90.0	MH	0.00	0.22	0.75	5.0	97.14	1.00	97.52	15	Cir	0.013	1.00	104.52	#2-28 TO #2-27
16	9	38.0	-90.0	MH	0.00	0.44	0.80	5.0	91.27	8.26	94.41	15	Cir	0.013	1.00	101.41	#2-25A TO #2-25
17	7	43.0	-90.0	MH	0.00	0.10	0.80	5.0	92.10	1.05	92.55	12	Cir	0.013	1.00	99.50	#2-24A TO #2-24
18	6	90.0	87.0	MH	0.00	0.36	0.65	5.0	89.10	1.33	90.30	15	Cir	0.013	1.00	97.75	#2-23A TO #2-23
19	18	36.0	-88.0	MH	0.00	0.29	0.75	5.0	90.30	1.11	90.70	12	Cir	0.013	1.00	97.75	#2-23B TO #2-23A
20	5	36.0	-90.0	MH	0.00	0.09	0.70	5.0	89.20	1.11	89.60	12	Cir	0.013	1.00	96.70	#2-22A TO #2-22
21	4	36.0	-88.0	MH	0.00	0.47	0.65	5.0	82.40	1.11	82.80	12	Cir	0.013	1.00	89.89	#2-21A TO #2-21

Project File: 6632E19-sys2(REV-5).stm | Number of lines: 117 | Date: 03-31-2011

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
22	2	123.0	99.0	MH	0.00	2.51	0.85	5.0	72.00	1.63	74.00	54	Cir	0.013	0.75	82.00	#2-3 TO #2-2
23	22	150.0	6.0	MH	0.00	0.59	0.84	5.0	74.00	2.00	77.00	15	Cir	0.013	1.00	85.80	#2-4 TO #2-3
24	22	258.0	-45.0	MH	0.00	0.29	0.84	5.0	74.00	1.36	77.50	54	Cir	0.013	1.00	91.00	#2-5 TO #2-3
25	24	183.0	43.0	MH	0.00	0.14	0.84	5.0	77.50	0.98	79.30	54	Cir	0.013	0.45	94.30	#2-6 TO #2-5
26	25	131.0	-30.0	MH	0.00	0.00	0.00	0.0	79.30	0.99	80.60	54	Cir	0.013	1.00	95.04	#2-7 TO #2-6
27	26	59.0	-93.0	MH	0.00	0.27	0.65	5.0	86.00	1.02	86.60	30	Cir	0.013	1.00	96.37	#2-8 TO #2-7
28	27	145.0	1.0	MH	0.00	0.00	0.00	0.0	86.60	1.03	88.10	30	Cir	0.013	0.75	98.54	#2-9 TO #2-8
29	28	48.0	0.0	MH	0.00	0.00	0.00	0.0	88.10	1.04	88.60	30	Cir	0.013	0.75	98.55	#2-10 TO #2-9
30	29	104.0	45.0	MH	0.00	0.85	0.70	5.0	88.60	0.96	89.60	30	Cir	0.013	0.15	99.68	#2-11 TO #2-10
31	30	116.0	5.0	MH	0.00	0.00	0.00	0.0	89.60	1.72	91.59	30	Cir	0.013	0.45	100.49	#2-12 TO #2-11
32	31	118.0	-8.0	MH	0.00	0.17	0.80	5.0	91.59	1.53	93.39	30	Cir	0.013	0.45	102.02	#2-13A TO #2-12
33	32	185.0	4.0	MH	0.00	0.18	0.70	5.0	93.39	1.57	96.30	30	Cir	0.013	1.00	104.93	#2-14A TO #2-13A
34	33	230.0	0.0	MH	0.00	0.16	0.70	5.0	96.30	2.17	101.29	18	Cir	0.013	1.00	108.67	#2-15A TO #2-14A
35	34	108.0	0.0	MH	0.00	0.00	0.00	0.0	101.29	1.27	102.66	18	Cir	0.013	1.00	110.46	#2-16A TO #2-15A
36	35	59.0	90.0	MH	0.00	0.63	0.70	5.0	102.66	1.12	103.32	18	Cir	0.013	0.45	110.75	#2-16B TO #2-16A
37	35	34.0	-90.0	MH	0.00	0.30	0.70	5.0	102.66	6.29	104.80	15	Cir	0.013	1.00	111.08	#2-16C TO #2-16A
38	35	63.0	26.0	MH	0.00	0.12	0.80	5.0	102.66	1.33	103.50	15	Cir	0.013	0.75	110.79	#2-17A TO #2-16A
39	38	48.0	41.0	MH	0.00	0.44	0.80	5.0	103.50	2.00	104.46	15	Cir	0.013	1.00	110.97	#2-16B TO #2-16A
40	38	48.0	-122.0	MH	0.00	0.16	0.80	5.0	103.50	2.00	104.46	15	Cir	0.013	1.00	110.98	#2-16C TO #2-16A
41	34	38.0	90.0	MH	0.00	0.19	0.70	5.0	101.29	1.00	101.67	15	Cir	0.013	1.00	108.67	#2-15B TO #2-15A
42	33	113.0	-104.0	MH	0.00	1.47	0.85	10.0	96.30	1.50	98.00	24	Cir	0.013	0.75	102.30	#7-1 TO #2-14A

Project File: 6632E19-sys2(REV-5).stm | Number of lines: 117 | Date: 03-31-2011

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
43	42	74.0	-40.0	MH	0.00	0.17	0.90	5.0	98.00	2.30	99.70	15	Cir	0.013	0.45	102.70	#7-4 TO #7-1
44	43	29.0	33.0	MH	0.00	0.15	0.90	5.0	99.70	1.03	100.00	12	Cir	0.013	0.45	102.75	#7-5 TO #7-4
45	44	32.0	20.0	MH	0.00	0.12	0.90	5.0	100.00	0.94	100.30	12	Cir	0.013	0.15	102.75	#7-6 TO #7-5
46	45	28.0	0.0	MH	0.00	0.17	0.90	5.0	100.30	1.07	100.60	12	Cir	0.013	1.00	102.75	#7-7 TO #7-6
47	33	38.0	90.0	MH	0.00	0.23	0.75	5.0	96.30	4.29	97.93	24	Cir	0.013	0.45	104.93	#2-14B TO #2-14A
48	47	100.0	14.0	MH	0.00	1.02	0.84	5.0	97.93	0.19	98.12	24	Cir	0.013	1.00	102.00	#3-7 TO #2-14B
49	32	38.0	94.0	MH	0.00	0.19	0.70	5.0	93.39	4.29	95.02	15	Cir	0.013	1.00	102.02	#2-13B TO #2-13A
50	31	120.0	88.0	MH	0.00	0.55	0.89	5.0	91.59	1.00	92.79	15	Cir	0.013	1.00	100.06	#4-1 TO #2-12
51	50	59.0	0.0	MH	0.00	0.15	0.89	5.0	92.79	4.27	95.31	15	Cir	0.013	1.00	100.37	#4-2 to #4-1
52	29	101.0	-45.0	MH	0.00	0.37	0.65	5.0	89.60	0.99	90.60	15	Cir	0.013	1.00	97.75	#2-10A TO #2-10
53	52	36.0	92.0	MH	0.00	0.27	0.75	5.0	90.60	1.11	91.00	12	Cir	0.013	1.00	97.75	#2-10B TO #2-10A
54	28	96.0	45.0	MH	0.00	0.25	0.65	5.0	91.70	1.04	92.70	15	Cir	0.013	1.00	99.68	#2-9A TO #2-9
55	27	36.0	93.0	MH	0.00	0.34	0.70	5.0	89.00	1.11	89.40	12	Cir	0.013	1.00	96.37	#2-8A TO #2-8
56	26	155.0	91.0	MH	0.00	0.35	0.65	5.0	80.60	0.97	82.10	54	Cir	0.013	1.00	92.73	#2-7A TO #2-7
57	24	120.0	-135.0	MH	0.00	0.54	0.85	5.0	83.00	1.67	85.00	15	Cir	0.013	1.00	90.40	#2-5A TO #2-5
58	56	36.0	-90.0	MH	0.00	0.00	0.00	0.0	82.10	1.11	82.50	48	Cir	0.013	1.00	92.45	#2-7B TO #2-7A
59	58	29.0	-90.0	MH	0.00	0.00	0.00	0.0	85.00	4.48	86.30	12	Cir	0.013	0.45	93.10	#2-7BB TO #2-7B
60	58	88.0	16.5	MH	0.00	0.00	0.00	0.0	82.50	1.40	83.73	48	Cir	0.013	1.00	92.80	#6-1 TO #2-7B
61	60	132.0	-76.9	MH	0.00	0.69	0.84	5.0	83.73	2.37	86.86	42	Cir	0.013	1.00	95.50	#6-2 TO #6-1
62	1	67.0	-90.0	MH	0.00	0.11	0.80	5.0	68.80	10.00	75.50	15	Cir	0.013	0.15	82.76	#2-1B TO #2-1A
63	62	24.0	0.0	MH	0.00	0.53	0.80	5.0	75.50	1.25	75.80	12	Cir	0.013	1.00	82.76	#2-1C TO #2-1B

Project File: 6632E19-sys2(REV-5).stm | Number of lines: 117 | Date: 03-31-2011

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
64	60	23.0	-5.0	MH	0.00	0.19	0.90	5.0	83.73	5.52	85.00	15	Cir	0.013	0.15	93.20	#6-1B TO #6-2
65	64	11.0	0.0	MH	0.00	0.65	0.84	5.0	85.00	5.91	85.65	15	Cir	0.013	0.75	93.00	#6-1A TO #6-1B
66	61	249.0	106.0	MH	0.00	1.49	0.84	5.0	86.86	2.00	91.84	18	Cir	0.013	1.00	95.50	#6-6 TO #6-2
67	61	86.0	-65.0	MH	0.00	0.49	0.84	5.0	86.86	1.50	88.15	15	Cir	0.013	0.75	95.50	#6-8 TO #6-2
68	67	43.0	-50.0	MH	0.00	0.98	0.75	5.0	88.15	1.51	88.80	15	Cir	0.013	1.00	95.00	#6-9 TO #6-8
69	61	205.0	49.3	MH	0.00	0.00	0.00	0.0	86.86	2.11	91.18	36	Cir	0.013	0.75	100.50	#6-3 TO #6-2
70	69	116.0	-36.1	MH	0.00	0.00	0.00	0.0	91.18	2.00	93.50	36	Cir	0.013	1.00	99.50	#6-4 TO #6-3
71	70	87.0	-81.0	MH	0.00	0.25	0.89	5.0	94.65	1.37	95.84	15	Cir	0.013	1.00	100.43	#4-5 to #6-4
72	71	30.0	-9.0	MH	0.00	0.22	0.89	5.0	95.84	1.50	96.29	15	Cir	0.013	1.00	100.35	#4-4 to #4-5
73	70	69.0	81.0	MH	0.00	0.18	0.89	5.0	94.50	1.01	95.20	24	Cir	0.013	1.00	100.60	#4-6 to #6-4
74	73	25.0	9.0	MH	0.00	0.18	0.89	5.0	95.20	0.80	95.40	24	Cir	0.013	1.00	100.52	#4-7 to #4-6
75	2	29.0	41.6	MH	0.00	0.27	0.80	5.0	72.00	22.07	78.40	15	Cir	0.011	0.15	81.90	#1-1 TO #2-2
76	75	59.0	-0.3	MH	0.00	0.07	0.85	5.0	78.40	2.03	79.60	15	Cir	0.011	0.85	84.60	#1-2 TO #1-1
77	76	113.0	-18.6	MH	0.00	0.17	0.85	5.0	79.60	3.16	83.17	12	Cir	0.011	1.00	87.67	#1-3 TO #1-2
78	77	116.0	-0.3	MH	0.00	0.12	0.85	8.0	83.17	3.26	86.95	12	Cir	0.011	1.00	91.45	#1-4 TO #1-3
79	76	16.0	59.9	MH	0.00	0.28	0.85	10.0	79.60	1.94	79.91	12	Cir	0.011	1.00	84.64	#1-2A TO 1-2
80	77	40.0	-90.0	MH	0.00	0.05	0.85	5.0	83.17	5.83	85.50	12	Cir	0.011	1.00	87.50	#1-3A TO 1-3
81	78	40.0	-90.0	MH	0.00	0.11	0.85	5.0	86.95	6.38	89.50	12	Cir	0.011	1.00	91.50	#1-4A TO #1-4
82	9	23.0	88.0	MH	0.00	0.77	0.75	5.0	91.27	1.00	91.50	18	Cir	0.013	0.75	101.00	#7-2 TO #2-25
83	82	210.0	-46.0	MH	0.00	1.23	0.85	10.0	91.50	2.00	95.70	15	Cir	0.013	1.00	102.70	#7-3 TO #7-2
84	59	18.0	-15.0	MH	0.00	0.36	0.75	5.0	86.30	6.67	87.50	12	Cir	0.013	1.00	93.50	#2-7BBB TO #2-7BB

Project File: 6632E19-sys2(REV-5).stm | Number of lines: 117 | Date: 03-31-2011

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
85	65	50.0	45.0	MH	0.00	0.38	0.75	5.0	85.65	7.70	89.50	15	Cir	0.013	1.00	93.50	#6-1A TO #6-1
86	8	74.0	45.0	MH	0.00	0.48	0.90	5.0	91.65	1.00	92.39	15	Cir	0.013	0.75	100.00	#7-8 TO #2-25
87	86	71.0	90.0	MH	0.00	0.69	0.90	5.0	92.39	1.00	93.10	15	Cir	0.013	0.45	99.70	#7-9 TO #7-8
88	87	38.0	5.0	MH	0.00	0.44	0.90	5.0	93.10	2.00	93.86	15	Cir	0.013	0.45	102.90	#7-10 TO #7-9
89	88	211.0	-50.0	MH	0.00	0.34	0.90	5.0	93.86	1.01	96.00	15	Cir	0.013	0.15	102.90	#7-11 TO #7-10
90	70	161.0	0.0	MH	0.00	0.00	0.00	0.0	93.50	0.50	94.30	36	Cir	0.013	0.00	101.50	#3-1 TO #6-4
91	90	120.0	45.0	MH	0.00	2.65	0.84	8.0	94.30	2.00	96.70	24	Cir	0.013	0.75	101.00	#3-2 TO #3-1
92	90	129.0	-45.0	MH	0.00	0.00	0.00	0.0	94.30	1.01	95.60	30	Cir	0.013	1.00	101.00	#3-3 TO #3-1
93	92	126.0	80.0	MH	0.00	0.39	0.75	5.0	95.60	3.49	100.00	15	Cir	0.013	1.00	104.00	#3-5 TO #3-3
94	92	70.0	-45.0	MH	0.00	0.06	0.90	5.0	95.60	0.36	95.85	24	Cir	0.013	1.00	101.00	#3-4 TO #3-3
95	93	227.0	-60.0	MH	0.00	1.27	0.84	5.0	100.00	2.42	105.50	15	Cir	0.013	1.00	108.50	#3-6 TO #3-5
96	13	46.0	-90.0	MH	0.00	0.12	0.80	5.0	103.57	1.02	104.04	15	Cir	0.013	1.00	111.04	#2-32 TO #2-31
97	51	76.0	-90.0	MH	0.00	0.58	0.90	5.0	95.31	5.18	99.25	12	Cir	0.009	1.00	102.25	Bldg 600 to #4-2
98	72	44.0	0.0	MH	0.00	0.16	0.89	5.0	96.29	1.50	96.95	12	Cir	0.013	0.00	100.45	#4-3 to #4-4
99	71	16.0	-99.0	MH	0.00	0.36	0.90	5.0	96.52	3.00	97.00	8	Cir	0.009	1.00	101.00	Bldg 300 to #4-5
100	74	30.0	0.0	MH	0.00	0.19	0.89	5.0	95.40	1.00	95.70	24	Cir	0.013	0.00	100.63	#4-8 to #4-7
101	74	15.0	90.0	MH	0.00	0.29	0.90	5.0	96.53	4.80	97.25	8	Cir	0.009	1.00	101.25	Bldg 200 to #4-7
102	90	30.0	-135.0	MH	0.00	0.24	0.90	5.0	97.50	2.50	98.25	8	Cir	0.009	1.00	102.25	Bldg 700 to #3-1
103	90	30.0	135.0	MH	0.00	0.32	0.90	5.0	97.50	3.33	98.50	8	Cir	0.009	0.75	102.50	Bldg 800 to #3-1
104	100	189.0	0.0	MH	0.00	0.85	0.90	5.0	95.70	0.50	96.64	24	Cir	0.013	0.00	101.50	#4-9 to #4-8
105	104	63.0	0.0	MH	0.00	0.30	0.85	5.0	96.64	0.89	97.20	18	Cir	0.013	0.00	101.20	#4-9A to #4-9

Project File: 6632E19-sys2(REV-5).stm | Number of lines: 117 | Date: 03-31-2011

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
106	105	40.0	16.7	MH	0.00	0.36	0.85	10.0	97.70	1.13	98.15	12	Cir	0.013	0.34	102.30	#4-10A to #4-9A
107	106	57.8	0.0	MH	0.00	0.00	0.00	0.0	98.15	1.00	98.73	12	Cir	0.013	0.00	103.50	#4-10 to #4-10A
108	107	53.0	113.0	MH	0.00	0.05	0.40	5.0	98.83	0.94	99.33	8	Cir	0.013	1.00	101.40	#4-11 to #4-10
109	108	22.0	55.0	MH	0.00	0.01	0.90	5.0	99.33	0.68	99.48	8	Cir	0.013	0.70	101.40	#4-12 to #4-11
110	109	29.9	-48.0	MH	0.00	0.06	0.90	5.0	99.53	0.74	99.75	8	Cir	0.013	0.55	101.40	#4-13 to #4-12
111	110	40.5	0.0	MH	0.00	0.07	0.90	5.0	99.75	0.37	99.90	8	Cir	0.013	0.70	101.40	#4-14 to #4-13
112	109	28.0	80.0	MH	0.00	0.06	0.90	5.0	99.64	1.25	99.99	6	Cir	0.013	0.00	101.61	#4-12A to #4-12
113	105	85.0	-45.0	MH	0.00	0.14	0.85	5.0	97.45	1.47	98.70	12	Cir	0.013	1.00	102.80	#4-15 to #4-9A
114	113	44.0	-15.0	MH	0.00	0.09	0.40	5.0	98.70	3.39	100.19	8	Cir	0.013	0.72	102.85	#4-16 to #4-15
115	92	30.0	52.0	MH	0.00	1.49	0.84	8.0	96.50	2.00	97.10	15	Cir	0.013	0.70	101.00	#3-3A to #3-3
116	94	138.0	18.0	MH	0.00	1.07	0.84	5.0	95.85	1.20	97.50	15	Cir	0.013	0.15	101.50	#3-4A to #3-4
117	94	50.0	-90.0	MH	0.00	0.35	0.90	5.0	95.85	1.08	96.39	8	Cir	0.013	1.00	102.25	Bldg 567 to #3-4

Project File: 6632E19-sys2(REV-5).stm | Number of lines: 117 | Date: 03-31-2011

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	61.0	0.00	40.91	0.00	0.00	33.33	0.0	15.9	5.0	167.1	650.1	8.51	60	6.23	68.80	65.00	79.15	78.90	77.00	82.76	#2-1A TO #2-1
2	1	68.0	0.00	40.27	0.00	0.00	32.82	0.0	15.8	5.0	165.2	565.0	8.42	60	4.71	72.00	68.80	80.58	80.30	81.50	77.00	#2-2 TO #2-1A
3	2	59.0	0.26	8.39	0.85	0.22	6.62	5.0	13.2	5.4	35.84	182.1	5.07	36	7.46	76.40	72.00	82.55	82.38	83.80	81.50	#2-20 TO #2-2
4	3	220.0	0.49	8.13	0.65	0.32	6.40	5.0	12.6	5.5	35.22	67.73	7.80	30	2.73	82.40	76.40	84.38	82.85	89.89	83.80	#2-21 TO #2-20
5	4	219.0	0.12	7.17	0.65	0.08	5.78	5.0	12.0	5.6	32.36	60.08	7.37	30	2.15	87.10	82.40	89.00	84.81	96.70	89.89	#2-22 TO #2-21
6	5	105.0	0.00	6.96	0.00	0.00	5.63	0.0	11.7	5.7	31.84	41.98	7.42	30	1.05	88.20	87.10	90.09	89.36	98.76	96.70	#2-23 TO #2-22
7	6	105.0	0.04	6.31	0.65	0.03	5.18	5.0	11.4	5.7	29.57	41.98	6.98	30	1.05	89.30	88.20	91.12	90.52	99.65	98.76	#2-24 TO #2-23
8	7	56.0	0.17	6.17	0.70	0.12	5.08	5.0	11.3	5.7	29.11	23.89	6.26	30	0.34	89.49	89.30	91.59	91.50	99.92	99.65	#2-24B TO #2-24
9	8	178.0	0.17	4.05	0.70	0.12	3.20	5.0	10.8	5.8	18.66	22.62	5.94	24	1.00	91.27	89.49	93.15	92.18	101.41	99.92	#2-25 TO #2-24B
10	9	185.0	0.46	1.44	0.80	0.37	1.11	5.0	8.9	6.2	6.87	11.50	5.93	15	3.17	97.14	91.27	98.19	93.70	104.52	101.41	#2-27 TO #2-26
11	10	230.0	0.17	0.76	0.80	0.14	0.58	5.0	7.7	6.5	3.72	8.51	3.85	15	1.73	101.13	97.14	101.90	98.65	108.51	104.52	#2-29 TO #2-27
12	11	105.0	0.00	0.44	0.00	0.00	0.32	0.0	6.7	6.7	2.14	8.50	2.86	15	1.73	102.95	101.13	103.54	102.19	110.00	108.51	#2-31A TO #2-29
13	12	35.0	0.32	0.44	0.70	0.22	0.32	5.0	6.4	6.8	2.16	8.59	3.29	15	1.77	103.57	102.95	104.16	103.71	111.04	110.00	#2-31 TO #2-31A
14	11	38.0	0.15	0.15	0.80	0.12	0.12	5.0	5.0	7.1	0.86	6.46	0.99	15	1.00	101.51	101.13	102.21	102.21	108.51	108.51	#2-30 TO #2-29
15	10	38.0	0.22	0.22	0.75	0.17	0.17	5.0	5.0	7.1	1.18	6.46	0.96	15	1.00	97.52	97.14	98.79	98.78	104.52	104.52	#2-28 TO #2-27
16	9	38.0	0.44	0.44	0.80	0.35	0.35	5.0	5.0	7.1	2.51	18.56	3.03	15	8.26	94.41	91.27	95.04	93.70	101.41	101.41	#2-25A TO #2-25
17	7	43.0	0.10	0.10	0.80	0.08	0.08	5.0	5.0	7.1	0.57	3.64	2.63	12	1.05	92.55	92.10	92.87	92.42	99.50	99.65	#2-24A TO #2-24
18	6	90.0	0.36	0.65	0.65	0.23	0.45	5.0	5.3	7.0	3.18	7.46	3.05	15	1.33	90.30	89.10	91.04	90.98	97.75	98.76	#2-23A TO #2-23
19	18	36.0	0.29	0.29	0.75	0.22	0.22	5.0	5.0	7.1	1.55	3.75	2.85	12	1.11	90.70	90.30	91.23	91.23	97.75	97.75	#2-23B TO #2-23
20	5	36.0	0.09	0.09	0.70	0.06	0.06	5.0	5.0	7.1	0.45	3.75	1.25	12	1.11	89.60	89.20	89.96	89.96	96.70	96.70	#2-22A TO #2-22
21	4	36.0	0.47	0.47	0.65	0.31	0.31	5.0	5.0	7.1	2.18	3.75	2.77	12	1.11	82.80	82.40	85.50	85.37	89.89	89.89	#2-21A TO #2-21

Project File: 6632E19-sys2(REV-5).stm

Number of lines: 117

Run Date: 03-31-2011

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
22	2	123.0	2.51	30.81	0.85	2.13	25.31	5.0	15.5	5.1	128.4	250.8	8.08	54	1.63	74.00	72.00	82.29	81.76	82.00	81.50	#2-3 TO #2-2
23	22	150.0	0.59	0.59	0.84	0.50	0.50	5.0	5.0	7.1	3.53	9.13	2.88	15	2.00	77.00	74.00	84.38	83.94	85.80	82.00	#2-4 TO #2-3
24	22	258.0	0.29	27.71	0.84	0.24	22.68	5.0	14.8	5.2	117.2	229.1	7.37	54	1.36	77.50	74.00	84.14	83.22	91.00	82.00	#2-5 TO #2-3
25	24	183.0	0.14	26.88	0.84	0.12	21.97	5.0	14.4	5.2	115.1	195.0	7.24	54	0.98	79.30	77.50	85.64	85.01	94.30	91.00	#2-6 TO #2-5
26	25	131.0	0.00	26.74	0.00	0.00	21.86	0.0	14.0	5.3	115.5	195.9	7.26	54	0.99	80.60	79.30	86.46	86.00	95.04	94.30	#2-7 TO #2-6
27	26	59.0	0.27	9.50	0.65	0.18	7.45	5.0	12.5	5.5	41.20	41.36	9.14	30	1.02	86.60	86.00	88.76	88.16	96.37	95.04	#2-8 TO #2-7
28	27	145.0	0.00	8.89	0.00	0.00	7.04	0.0	12.2	5.6	39.29	41.71	8.49	30	1.03	88.10	86.60	90.20	89.06	98.54	96.37	#2-9 TO #2-8
29	28	48.0	0.00	8.64	0.00	0.00	6.88	0.0	12.0	5.6	38.51	41.86	8.41	30	1.04	88.60	88.10	90.68	90.48	98.55	98.54	#2-10 TO #2-9
30	29	104.0	0.85	8.00	0.70	0.60	6.43	5.0	11.8	5.6	36.30	40.22	7.40	30	0.96	89.60	88.60	92.21	91.95	99.68	98.55	#2-11 TO #2-10
31	30	116.0	0.00	7.15	0.00	0.00	5.84	0.0	11.5	5.7	33.25	53.72	7.35	30	1.72	91.59	89.60	94.15	93.06	100.49	99.68	#2-12 TO #2-11
32	31	118.0	0.17	5.87	0.80	0.14	4.69	5.0	11.1	5.8	27.03	50.65	5.79	30	1.53	93.39	91.59	95.37	95.12	102.02	100.49	#2-13A TO #2-12
33	32	185.0	0.18	5.51	0.70	0.13	4.43	5.0	10.6	5.9	25.96	51.44	6.29	30	1.57	96.30	93.39	98.00	95.94	104.93	102.02	#2-14A TO #2-13
34	33	230.0	0.16	2.00	0.70	0.11	1.47	5.0	6.8	6.7	9.81	15.47	6.03	18	2.17	101.29	96.30	102.49	98.35	108.67	104.93	#2-15A TO #2-14
35	34	108.0	0.00	1.65	0.00	0.00	1.23	0.0	6.4	6.8	8.29	11.83	5.33	18	1.27	102.66	101.29	103.76	102.80	110.46	108.67	#2-16A TO #2-15
36	35	59.0	0.63	0.63	0.70	0.44	0.44	5.0	5.0	7.1	3.14	11.11	2.46	18	1.12	103.32	102.66	104.15	104.15	110.75	110.46	#2-16B TO #2-16
37	35	34.0	0.30	0.30	0.70	0.21	0.21	5.0	5.0	7.1	1.50	16.20	2.29	15	6.29	104.80	102.66	105.29	104.29	111.08	110.46	#2-16C TO #2-16
38	35	63.0	0.12	0.72	0.80	0.10	0.58	5.0	6.1	6.8	3.94	7.46	3.99	15	1.33	103.50	102.66	104.30	104.15	110.79	110.46	#2-17A TO #2-16
39	38	48.0	0.44	0.44	0.80	0.35	0.35	5.0	5.0	7.1	2.51	9.13	3.03	15	2.00	104.46	103.50	105.09	104.85	110.97	110.79	#2-16B TO #2-16
40	38	48.0	0.16	0.16	0.80	0.13	0.13	5.0	5.0	7.1	0.91	9.13	1.55	15	2.00	104.46	103.50	104.82	104.91	110.98	110.79	#2-16C TO #2-16
41	34	38.0	0.19	0.19	0.70	0.13	0.13	5.0	5.0	7.1	0.95	6.46	0.77	15	1.00	101.67	101.29	103.14	103.13	108.67	108.67	#2-15B TO #2-15
42	33	113.0	1.47	2.08	0.85	1.25	1.80	10.0	10.0	6.0	10.74	27.74	4.55	24	1.50	98.00	96.30	99.16	98.65	102.30	104.93	#7-1 TO #2-14A

Project File: 6632E19-sys2(REV-5).stm

Number of lines: 117

Run Date: 03-31-2011

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
		(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
43	42	74.0	0.17	0.61	0.90	0.15	0.55	5.0	5.7	6.9	3.81	9.79	3.91	15	2.30	99.70	98.00	100.48	99.51	102.70	102.30	#7-4 TO #7-1
44	43	29.0	0.15	0.44	0.90	0.14	0.40	5.0	5.6	7.0	2.76	3.62	4.13	12	1.03	100.00	99.70	100.71	100.64	102.75	102.70	#7-5 TO #7-4
45	44	32.0	0.12	0.29	0.90	0.11	0.26	5.0	5.3	7.0	1.84	3.45	2.51	12	0.94	100.30	100.00	101.12	101.06	102.75	102.75	#7-6 TO #7-5
46	45	28.0	0.17	0.17	0.90	0.15	0.15	5.0	5.0	7.1	1.09	3.69	2.10	12	1.07	100.60	100.30	101.03	101.13	102.75	102.75	#7-7 TO #7-6
47	33	38.0	0.23	1.25	0.75	0.17	1.03	5.0	5.9	6.9	7.10	46.84	3.56	24	4.29	97.93	96.30	98.87	98.75	104.93	104.93	#2-14B TO #2-14
48	47	100.0	1.02	1.02	0.84	0.86	0.86	5.0	5.0	7.1	6.11	9.86	3.03	24	0.19	98.12	97.93	99.32	99.18	102.00	104.93	#3-7 TO #2-14B
49	32	38.0	0.19	0.19	0.70	0.13	0.13	5.0	5.0	7.1	0.95	13.37	0.87	15	4.29	95.02	93.39	95.95	95.94	102.02	102.02	#2-13B TO #2-13
50	31	120.0	0.55	1.28	0.89	0.49	1.15	5.0	5.5	7.0	7.99	6.46	6.51	15	1.00	92.79	91.59	96.96	95.12	100.06	100.49	#4-1 TO #2-12
51	50	59.0	0.15	0.73	0.89	0.13	0.66	5.0	5.3	7.1	4.62	13.35	3.77	15	4.27	95.31	92.79	98.36	98.06	100.37	100.06	#4-2 to #4-1
52	29	101.0	0.37	0.64	0.65	0.24	0.44	5.0	5.3	7.0	3.12	6.43	2.54	15	0.99	90.60	89.60	92.93	92.70	97.75	98.55	#2-10A TO #2-10
53	52	36.0	0.27	0.27	0.75	0.20	0.20	5.0	5.0	7.1	1.44	3.75	1.84	12	1.11	91.00	90.60	93.14	93.08	97.75	97.75	#2-10B TO #2-10
54	28	96.0	0.25	0.25	0.65	0.16	0.16	5.0	5.0	7.1	1.16	6.59	3.09	15	1.04	92.70	91.70	93.13	92.13	99.68	98.54	#2-9A TO #2-9
55	27	36.0	0.34	0.34	0.70	0.24	0.24	5.0	5.0	7.1	1.70	3.75	2.80	12	1.11	89.40	89.00	89.99	89.99	96.37	96.37	#2-8A TO #2-8
56	26	155.0	0.35	17.24	0.65	0.23	14.40	5.0	13.4	5.4	77.40	193.5	4.87	54	0.97	82.10	80.60	87.97	87.73	92.73	95.04	#2-7A TO #2-7
57	24	120.0	0.54	0.54	0.85	0.46	0.46	5.0	5.0	7.1	3.27	8.34	2.90	15	1.67	85.00	83.00	85.99	85.71	90.40	91.00	#2-5A TO #2-5
58	56	36.0	0.00	16.89	0.00	0.00	14.17	0.0	13.3	5.4	76.42	151.4	6.08	48	1.11	82.50	82.10	88.44	88.34	92.45	92.73	#2-7B TO #2-7A
59	58	29.0	0.00	0.36	0.00	0.00	0.27	0.0	5.1	7.1	1.91	7.54	2.44	12	4.48	86.30	85.00	89.58	89.50	93.10	92.45	#2-7BB TO #2-7
60	58	88.0	0.00	16.53	0.00	0.00	13.90	0.0	13.1	5.4	75.54	169.8	6.01	48	1.40	83.73	82.50	89.27	89.03	92.80	92.45	#6-1 TO #2-7B
61	60	132.0	0.69	15.31	0.84	0.58	12.90	5.0	12.8	5.5	70.75	154.9	7.35	42	2.37	86.86	83.73	89.96	89.83	95.50	92.80	#6-2 TO #6-1
62	1	67.0	0.11	0.64	0.80	0.09	0.51	5.0	5.1	7.1	3.63	20.42	2.96	15	10.00	75.50	68.80	81.48	81.27	82.76	77.00	#2-1B TO #2-1A
63	62	24.0	0.53	0.53	0.80	0.42	0.42	5.0	5.0	7.1	3.02	3.98	3.85	12	1.25	75.80	75.50	81.67	81.50	82.76	82.76	#2-1C TO #2-1B

Project File: 6632E19-sys2(REV-5).stm

Number of lines: 117

Run Date: 03-31-2011

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
64	60	23.0	0.19	1.22	0.90	0.17	1.00	5.0	5.5	7.0	6.99	15.17	5.70	15	5.52	85.00	83.73	90.16	89.89	93.20	92.80	#6-1B TO #6-2
65	64	11.0	0.65	1.03	0.84	0.55	0.83	5.0	5.5	7.0	5.81	15.70	4.73	15	5.91	85.65	85.00	90.48	90.39	93.00	93.20	#6-1A TO #6-1B
66	61	249.0	1.49	1.49	0.84	1.25	1.25	5.0	5.0	7.1	8.92	14.85	5.62	18	2.00	91.84	86.86	92.98	90.80	95.50	95.50	#6-6 TO #6-2
67	61	86.0	0.49	1.47	0.84	0.41	1.15	5.0	5.2	7.1	8.12	7.91	6.62	15	1.50	88.15	86.86	92.16	90.80	95.50	95.50	#6-8 TO #6-2
68	67	43.0	0.98	0.98	0.75	0.74	0.74	5.0	5.0	7.1	5.24	7.94	4.27	15	1.51	88.80	88.15	93.35	93.06	95.00	95.50	#6-9 TO #6-8
69	61	205.0	0.00	11.66	0.00	0.00	9.92	0.0	12.3	5.6	55.16	96.82	8.51	36	2.11	91.18	86.86	93.55	90.80	100.50	95.50	#6-3 TO #6-2
70	69	116.0	0.00	11.66	0.00	0.00	9.92	0.0	12.0	5.6	55.58	94.32	8.75	36	2.00	93.50	91.18	95.88	93.91	99.50	100.50	#6-4 TO #6-3
71	70	87.0	0.25	0.99	0.89	0.22	0.88	5.0	5.8	6.9	6.11	7.55	4.98	15	1.37	95.84	94.65	97.60	96.82	100.43	99.50	#4-5 to #6-4
72	71	30.0	0.22	0.38	0.89	0.20	0.34	5.0	5.6	7.0	2.36	7.91	1.92	15	1.50	96.29	95.84	98.35	98.31	100.35	100.43	#4-4 to #4-5
73	70	69.0	0.18	2.83	0.89	0.16	2.43	5.0	11.8	5.6	13.73	22.78	4.49	24	1.01	95.20	94.50	97.00	96.79	100.60	99.50	#4-6 to #6-4
74	73	25.0	0.18	2.65	0.89	0.16	2.27	5.0	11.7	5.7	12.86	20.23	4.09	24	0.80	95.40	95.20	97.48	97.40	100.52	100.60	#4-7 to #4-6
75	2	29.0	0.27	1.07	0.80	0.22	0.90	5.0	10.4	5.9	5.27	35.85	4.30	15	22.07	78.40	72.00	82.63	82.49	81.90	81.50	#1-1 TO #2-2
76	75	59.0	0.07	0.80	0.85	0.06	0.68	5.0	10.1	5.9	4.04	10.88	3.29	15	2.03	79.60	78.40	82.96	82.79	84.60	81.90	#1-2 TO #1-1
77	76	113.0	0.17	0.45	0.85	0.14	0.38	5.0	9.2	6.1	2.34	7.48	3.66	12	3.16	83.17	79.60	83.82	83.13	87.67	84.60	#1-3 TO #1-2
78	77	116.0	0.12	0.23	0.85	0.10	0.20	8.0	8.0	6.4	1.25	7.60	2.54	12	3.26	86.95	83.17	87.42	84.07	91.45	87.67	#1-4 TO #1-3
79	76	16.0	0.28	0.28	0.85	0.24	0.24	10.0	10.0	6.0	1.42	5.86	1.81	12	1.94	79.91	79.60	83.24	83.22	84.64	84.60	#1-2A TO 1-2
80	77	40.0	0.05	0.05	0.85	0.04	0.04	5.0	5.0	7.1	0.30	10.16	1.28	12	5.83	85.50	83.17	85.73	84.11	87.50	87.67	#1-3A TO 1-3
81	78	40.0	0.11	0.11	0.85	0.09	0.09	5.0	5.0	7.1	0.67	10.63	2.00	12	6.38	89.50	86.95	89.85	87.59	91.50	91.45	#1-4A TO #1-4
82	9	23.0	0.77	2.00	0.75	0.58	1.62	5.0	10.7	5.8	9.48	10.50	5.36	18	1.00	91.50	91.27	93.88	93.70	101.00	101.41	#7-2 TO #2-25
83	82	210.0	1.23	1.23	0.85	1.05	1.05	10.0	10.0	6.0	6.24	9.13	5.51	15	2.00	95.70	91.50	96.70	94.26	102.70	101.00	#7-3 TO #7-2
84	59	18.0	0.36	0.36	0.75	0.27	0.27	5.0	5.0	7.1	1.92	9.20	2.45	12	6.67	87.50	86.30	89.67	89.62	93.50	93.10	#2-7BBB TO #2-

Project File: 6632E19-sys2(REV-5).stm

Number of lines: 117

Run Date: 03-31-2011

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
85	65	50.0	0.38	0.38	0.75	0.29	0.29	5.0	5.0	7.1	2.03	17.92	1.65	15	7.70	89.50	85.65	91.10	91.05	93.50	93.00	#6-1A TO #6-1
86	8	74.0	0.48	1.95	0.90	0.43	1.76	5.0	7.3	6.5	11.48	6.46	9.39	15	1.00	92.39	91.65	95.19	92.86	100.00	99.92	#7-8 TO #2-25
87	86	71.0	0.69	1.47	0.90	0.62	1.32	5.0	7.1	6.6	8.70	6.46	7.09	15	1.00	93.10	92.39	97.84	96.55	99.70	100.00	#7-9 TO #7-8
88	87	38.0	0.44	0.78	0.90	0.40	0.70	5.0	7.0	6.6	4.64	9.13	3.79	15	2.00	93.86	93.10	98.95	98.75	102.90	99.70	#7-10 TO #7-9
89	88	211.0	0.34	0.34	0.90	0.31	0.31	5.0	5.0	7.1	2.18	6.50	1.78	15	1.01	96.00	93.86	99.46	99.22	102.90	102.90	#7-11 TO #7-10
90	70	161.0	0.00	7.84	0.00	0.00	6.61	0.0	8.5	6.3	41.45	47.01	5.87	36	0.50	94.30	93.50	97.27	96.67	101.50	99.50	#3-1 TO #6-4
91	90	120.0	2.65	2.65	0.84	2.23	2.23	8.0	8.0	6.4	14.21	31.99	5.45	24	2.00	96.70	94.30	98.03	97.49	101.00	101.50	#3-2 TO #3-1
92	90	129.0	0.00	4.63	0.00	0.00	3.88	0.0	8.1	6.4	24.69	41.17	5.22	30	1.01	95.60	94.30	97.43	97.41	101.00	101.50	#3-3 TO #3-1
93	92	126.0	0.39	1.66	0.75	0.29	1.36	5.0	5.6	7.0	9.46	12.07	7.81	15	3.49	100.00	95.60	101.17	97.88	104.00	101.00	#3-5 TO #3-3
94	92	70.0	0.06	1.48	0.90	0.05	1.27	5.0	5.4	7.0	8.88	13.52	2.83	24	0.36	95.85	95.60	97.99	97.88	101.00	101.00	#3-4 TO #3-3
95	93	227.0	1.27	1.27	0.84	1.07	1.07	5.0	5.0	7.1	7.60	10.05	6.43	15	2.42	105.50	100.00	106.60	101.55	108.50	104.00	#3-6 TO #3-5
96	13	46.0	0.12	0.12	0.80	0.10	0.10	5.0	5.0	7.1	0.68	6.53	1.62	15	1.02	104.04	103.57	104.36	104.38	111.04	111.04	#2-32 TO #2-31
97	51	76.0	0.58	0.58	0.90	0.52	0.52	5.0	5.0	7.1	3.72	11.71	5.07	12	5.18	99.25	95.31	100.07	98.59	102.25	100.37	Bldg 600 to #4-2
98	72	44.0	0.16	0.16	0.89	0.14	0.14	5.0	5.0	7.1	1.01	4.36	1.29	12	1.50	96.95	96.29	98.48	98.44	100.45	100.35	#4-3 to #4-4
99	71	16.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.1	2.31	3.02	6.61	8	3.00	97.00	96.52	98.42	97.99	101.00	100.43	Bldg 300 to #4-5
100	74	30.0	0.19	2.18	0.89	0.17	1.85	5.0	11.5	5.7	10.53	22.62	3.35	24	1.00	95.70	95.40	97.89	97.83	100.63	100.52	#4-8 to #4-7
101	74	15.0	0.29	0.29	0.90	0.26	0.26	5.0	5.0	7.1	1.86	3.82	5.39	8	4.80	97.25	96.53	98.30	97.74	101.25	100.52	Bldg 200 to #4-7
102	90	30.0	0.24	0.24	0.90	0.22	0.22	5.0	5.0	7.1	1.54	2.76	4.78	8	2.50	98.25	97.50	98.83	98.08	102.25	101.50	Bldg 700 to #3-1
103	90	30.0	0.32	0.32	0.90	0.29	0.29	5.0	5.0	7.1	2.05	3.18	6.00	8	3.33	98.50	97.50	99.13	98.13	102.50	101.50	Bldg 800 to #3-1
104	100	189.0	0.85	1.99	0.90	0.77	1.68	5.0	10.5	5.9	9.87	15.95	3.42	24	0.50	96.64	95.70	98.22	97.91	101.50	100.63	#4-9 to #4-8
105	104	63.0	0.30	1.14	0.85	0.26	0.92	5.0	10.2	5.9	5.44	9.90	3.32	18	0.89	97.20	96.64	98.41	98.29	101.20	101.50	#4-9A to #4-9

Project File: 6632E19-sys2(REV-5).stm

Number of lines: 117

Run Date: 03-31-2011

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
106	105	40.0	0.36	0.61	0.85	0.31	0.51	10.0	10.0	6.0	3.02	3.78	4.87	12	1.13	98.15	97.70	98.89	98.44	102.30	101.20	#4-10A to #4-9A
107	106	57.8	0.00	0.25	0.00	0.00	0.20	0.0	6.1	6.8	1.37	3.57	2.44	12	1.00	98.73	98.15	99.25	99.21	103.50	102.30	#4-10 to #4-10A
108	107	53.0	0.05	0.25	0.40	0.02	0.20	5.0	5.8	6.9	1.38	1.17	4.15	8	0.94	99.33	98.83	100.05	99.40	101.40	103.50	#4-11 to #4-10
109	108	22.0	0.01	0.20	0.90	0.01	0.18	5.0	5.7	6.9	1.25	1.00	3.57	8	0.68	99.48	99.33	100.53	100.30	101.40	101.40	#4-12 to #4-11
110	109	29.9	0.06	0.13	0.90	0.05	0.12	5.0	5.5	7.0	0.82	1.04	2.34	8	0.74	99.75	99.53	100.92	100.78	101.40	101.40	#4-13 to #4-12
111	110	40.5	0.07	0.07	0.90	0.06	0.06	5.0	5.0	7.1	0.45	0.74	1.29	8	0.37	99.90	99.75	101.08	101.03	101.40	101.40	#4-14 to #4-13
112	109	28.0	0.06	0.06	0.90	0.05	0.05	5.0	5.0	7.1	0.38	0.63	1.96	6	1.25	99.99	99.64	100.94	100.81	101.61	101.40	#4-12A to #4-12
113	105	85.0	0.14	0.23	0.85	0.12	0.16	5.0	6.0	6.9	1.06	4.32	2.29	12	1.47	98.70	97.45	99.14	98.58	102.80	101.20	#4-15 to #4-9A
114	113	44.0	0.09	0.09	0.40	0.04	0.04	5.0	5.0	7.1	0.26	2.22	1.53	8	3.39	100.19	98.70	100.43	99.29	102.85	102.80	#4-16 to #4-15
115	92	30.0	1.49	1.49	0.84	1.25	1.25	8.0	8.0	6.4	7.99	9.13	6.60	15	2.00	97.10	96.50	98.80	97.88	101.00	101.00	#3-3A to #3-3
116	94	138.0	1.07	1.07	0.84	0.90	0.90	5.0	5.0	7.1	6.40	7.06	5.22	15	1.20	97.50	95.85	99.47	98.11	101.50	101.00	#3-4A to #3-4
117	94	50.0	0.35	0.35	0.90	0.32	0.32	5.0	5.0	7.1	2.24	1.26	6.43	8	1.08	96.39	95.85	99.84	98.11	102.25	101.00	Bldg 567 to #3-4

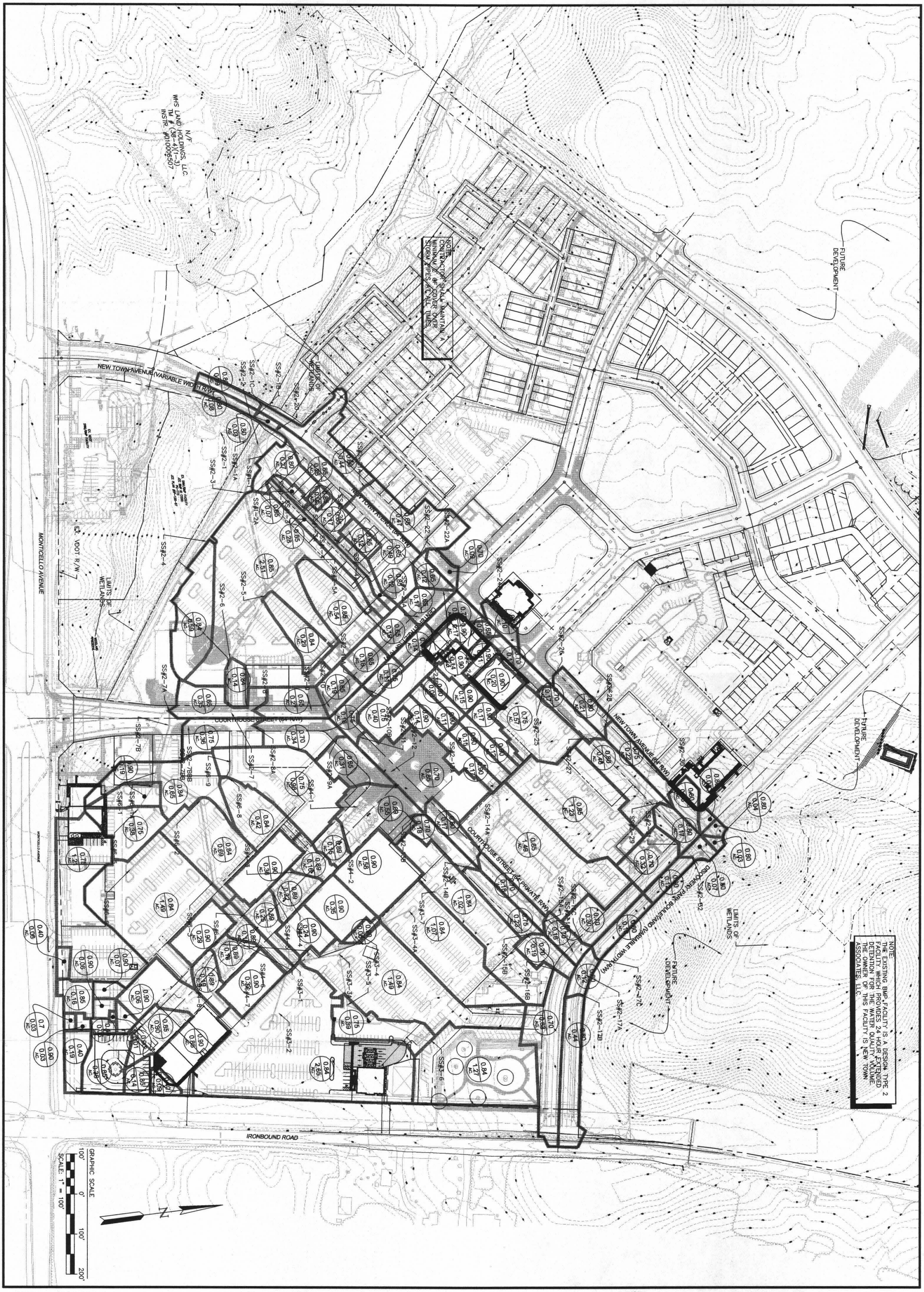
Project File: 6632E19-sys2(REV-5).stm

Number of lines: 117

Run Date: 03-31-2011

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs.

S:\Jobs\6632\E\19 Ph3 Roads\dwg\Cad\6632E19c09overalldrainage.dwg, 3/31/2011 3:34:35 PM, graham.corson



OVERALL DRAINAGE PLAN

NEW TOWN

SECTION 2 AND 4
ROADWAY INFRASTRUCTURE PLANS
PHASE III

BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

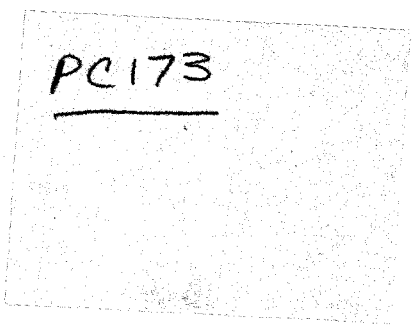
Designed	Drawn
CBR/RMK	AES
Scale	Date
1"=100'	7/6/04
Project No.	
6632-E-19	
Drawing No.	
9	

CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND

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

COMMONWEALTH OF VIRGINIA
ROBERT E. COSBY III
No. 35664
PROFESSIONAL ENGINEER

No.	DATE	REVISION / COMMENT / NOTE	BY
7	04/15/05	REVISED PER JCSA & VDOT COMMENTS	REC
6	03/09/05	ADDED CONDUIT @ DISCOVERY PARK BOULEVARD (SHEET 6)	REC
5	03/04/05	REVISED PER JCSA COMMENTS DATED 2/16/05	REC
4	1/20/05	ADDED FORCE MAIN ON DISCOVERY PARK BOULEVARD	REC
3	11/18/04	REVISED PER JCC COMMENTS DATED 11/12/04	CBR
2	10/18/04	REVISED PER JCC COMMENT	CBR
1	9/3/04	REVISED PER JCC COMMENT DATED 8/2/04	CBR


PC173

CONSULTING ENGINEERS

5248 Olde Towne Road, Suite 1
Williamsburg, VA 23188
(757) 253-0040
Fax (757) 220-8994
www.aesva.com

February 18, 2009

Mr. Joe Buchite
James City County Environmental Division
101 - E Mounts Bay Road
Williamsburg, VA 23187

RE: New Town BMP 53 Conversion – Record Drawing
AES Project No. 6632-E-10-4
JCC Project No. SP-0038-2007

Dear Mr. Buchite:

Please find attached the BMP Certification and Record Drawing for BMP #53 @ New Town. This is the large Wet Pond located adjacent to the SunTrust Building. As discussed previously with JCC Staff due to the native material at the bottom of the facility additional wet volume was unobtainable. Therefore this BMP provides the design flood storage elevation and more than adequate dry water quality volume per the design. However, only 60% of the Wet Storage volume is provided. To account for the deficit in the Wet Storage the pollutant removal efficiency of this facility is reduced to a 9 Point Facility.

The Master Stormwater Plan has been revised based on actual drainage areas and designs to date of all facilities and is included with this submittal. This revision to the plan notes that 10.85 points are still provided throughout New Town through the use of Natural Open Space, Multiple Structural BMP, and 17 acres of area treated with LID. We therefore request that this Certification be accepted along with the revised Master Stormwater Plan which accounts for BMP #53 as a 9 Point Facility.

This concerns me. Acceptance of Const cert & release of bond, results in auto-revision of MSWMP. I think need to do letter

We appreciate your time in reviewing this Certification and releasing the remaining Erosion and Sediment Control Surety to New Town Associates for this project. Should you have any questions on this facility please do not hesitate to contact me at 253-0040.

Sincerely,

AES Consulting Engineers

Robert E. Cosby III, P.E.
Project Manager
Bob.Cosby@aesva.com

cc: John McCann, New Town Associates
Peter Henderson, Henderson

REC:rec
Enclosure: BMP Certification Form
BMP Record Drawing
Revised Master Stormwater Plan (with Graphic)

Z:\Support\Templates & Documents\Correspondence\Letter.doc

$$5{,}178\ \text{yd}^3 \times \frac{(3\ \text{ft})^3}{(1\ \text{yd})^3}$$

Scott Thomas

From: Cosby, Bob [bob.cosby@aesva.com]
Sent: Monday, June 02, 2008 3:32 PM
To: Peter Henderson; bruce gilliam; Scott Thomas; William A. Cain
Subject: New Town - BMP #53 - BMP Point Tabulation
Attachments: New Town - Master BMP Points 2008-06-02.pdf

Gentleman,

Please find attached an updated version of the BMP Points Tabulation as found within the New Town Master Stormwater Plan. This update of the total BMP points accounts for the drainage areas of BMP's designed to date. For those which have not yet been designed either original plan information (C06 and C07) or updated basis of design (A01 and A14) is indicated. Final drainage areas may vary for those ponds not yet completely designed.

Specific changes that negatively affect the overall points is the reduction of BMP #53 from a 10 point to a 9 point facility as well as the elimination of BMP A03 and B05 both of which were planned as 4 point facilities.

Specific changes that increase the overall points is the increase of restricted area (Please note that at time of master stormwater plan buffers were smaller on non-RPA wetlands, they have since been increased as shown in the permit documentation and recorded plats/easements). The drainage area for BMP A01 and A04 have been modified to accept runoff from eliminated A03. BMP C01 has been increased to accept runoff from eliminated B05.

These updates to the drainage areas, increase of natural open space, and modification of BMP Point totals increases the Water Quality BMP Points from 10.07 in the Master Plan to 10.89 Points based on the revised condition. Please note that this does not account for several acres within Section 9, Section 7&8, as well as the Bio-Retention at Courthouse which provide additional water quality benefits within the New Town Project Area, but are not typically included within the 17 acres required to be treated by LID measures per the Master Stormwater Plan.

Thanks
Bob Cosby

Robert E. Cosby III, P.E.
Project Manager

AES Consulting Engineers
Williamsburg | Richmond | Gloucester | Fredericksburg
(757) 253-0040
fax: (757) 220-8994
bob.cosby@aesva.com
www.aesva.com

Table 4-1
BMP Worksheet for New Town
Revised Master Stormwater Plan
2-Jun-08

Project Area = 374 acres
Revised Site Area* = 310.87 acres

A. STRUCTURAL BMP POINT ALLOCATION

BMP	Area of Project Served by BMP (acres)	BMP Points	Fraction of Site Served by BMP	Weighted BMP Points	
A01	18.90	10	0.061	0.61	*Estimated from Concept Plan
A03	0.00	4	0.000	0.00	*Eliminated based on Agency Issues
A04	35.50	10	0.114	1.14	*Updated based on Information from LAI
A06	17.60	4	0.057	0.23	*Updated based on Information from LAI
53*	107.70	9	0.346	3.12	*Updated based on Final Design
A14	34.00	10	0.109	1.09	*Estimated based on Concept Plan
B02	26.40	10	0.085	0.85	*Updated based on Phase 7 Design
B05	0.00	4	0.000	0.00	*Eliminated based on Phase 8 Design
C01	20.87	10	0.067	0.67	*Updated based on Phase 8 Design
C03	12.87	4	0.041	0.17	*Updated based on Phase 4 Design
C05	14.25	10	0.046	0.46	*Updated based on Final Oxford Design
C06	7.80	4	0.025	0.10	
C07	2.87	4	0.009	0.04	
TOTAL				8.47	

B. NATURAL OPEN SPACE CREDIT

*Only includes Restricted Areas

Area of Open Space (acres)	Fraction of Site	Natural Open Space Credit	Natural Open Space	
14.17	0.038	0.15 per 1% of site area	0.57	*Updated based on Restricted Area Plats
48.96	0.131	0.10 per 1% of site area	1.31	
TOTAL			1.88	

C. LOW IMPACT DEVELOPMENT

Area Served by IMPs (acres)	Fraction of Site	Area Served by IMPs	Points for Area Served by IMPs
17.00	0.055	0.10 per 1% of site area	0.55
TOTAL			0.55

D. TOTAL WEIGHTED POINTS

Structural BMP Points		Natural Open Space Points		Points for Area Served by IMPs		Total
8.47	+	1.88	+	0.55	=	10.89

* Note: JCC allows natural open space downstream of a structural BMP to be reduced from the site area when computing the fraction of the site served by the BMP and therefore the Structural BMP points.

Table 4-1
BMP Worksheet for New Town
Revised Master Stormwater Plan
2-Jun-08

Project Area = 374 acres
Revised Site Area* = 310.87 acres

A. STRUCTURAL BMP POINT ALLOCATION

BMP	Area of Project Served by BMP (acres)	BMP Points	Fraction of Site Served by BMP	Weighted BMP Points	
A01	18.90	10	0.061	0.61	*Estimated from Concept Plan
A03	0.00	4	0.000	0.00	*Eliminated based on Agency Issues
A04	35.50	10	0.114	1.14	*Updated based on Information from LAI
A06	17.60	4	0.057	0.23	*Updated based on Information from LAI
53*	107.70	9	0.346	3.12	*Updated based on Final Design
A14	32.75	10	0.105	1.05	*Estimated based on Concept Plan
B02	26.40	10	0.085	0.85	*Updated based on Phase 7 Design
B05	0.00	4	0.000	0.00	*Eliminated based on Phase 8 Design
C01	20.87	10	0.067	0.67	*Updated based on Phase 8 Design
C03	12.87	4	0.041	0.17	*Updated based on Phase 4 Design
C05	14.25	10	0.046	0.46	*Updated based on Final Oxford Design
C06	7.80	4	0.025	0.10	
C07	2.87	4	0.009	0.04	
TOTAL				8.43	

B. NATURAL OPEN SPACE CREDIT

*Only includes Restricted Areas

Area of Open Space (acres)	Fraction of Site	Natural Open Space Credit	Points for Natural Open Space	
14.17	0.038	0.15 per 1% of site area	0.57	*Updated based on Restricted Area Plats
48.96	0.131	0.10 per 1% of site area	1.31	
TOTAL			1.88	

C. LOW IMPACT DEVELOPMENT

Area Served by IMPs (acres)	Fraction of Site	Area Served by IMPs	Points for Area Served by IMPs
17.00	0.055	0.10 per 1% of site area	0.55
TOTAL			0.55

D. TOTAL WEIGHTED POINTS

Structural BMP Points		Natural Open Space Points		Points for Area Served by IMPs		Total
8.43	+	1.88	+	0.55	=	10.85

* Note: JCC allows natural open space downstream of a structural BMP to be reduced from the site area when computing the fraction of the site served by the BMP and therefore the Structural BMP points.

Scott Thomas

From: Cosby, Bob [bob.cosby@aesva.com]
Sent: Monday, June 02, 2008 3:32 PM
To: Peter Henderson; bruce gilliam; Scott Thomas; William A. Cain
Subject: New Town - BMP #53 - BMP Point Tabulation
Attachments: New Town - Master BMP Points 2008-06-02.pdf

Gentleman,

Please find attached an updated version of the BMP Points Tabulation as found within the New Town Master Stormwater Plan. This update of the total BMP points accounts for the drainage areas of BMP's designed to date. For those which have not yet been designed either original plan information (C06 and C07) or updated basis of design (A01 and A14) is indicated. Final drainage areas may vary for those ponds not yet completely designed.

Specific changes that negatively affect the overall points is the reduction of BMP #53 from a 10 point to a 9 point facility as well as the elimination of BMP A03 and B05 both of which were planned as 4 point facilities.

Specific changes that increase the overall points is the increase of restricted area (Please note that at time of master stormwater plan buffers were smaller on non-RPA wetlands, they have since been increased as shown in the permit documentation and recorded plats/easements). The drainage area for BMP A01 and A04 have been modified to accept runoff from eliminated A03. BMP C01 has been increased to accept runoff from eliminated B05.

These updates to the drainage areas, increase of natural open space, and modification of BMP Point totals increases the Water Quality BMP Points from 10.07 in the Master Plan to 10.89 Points based on the revised condition. Please note that this does not account for several acres within Section 9, Section 7&8, as well as the Bio-Retention at Courthouse which provide additional water quality benefits within the New Town Project Area, but are not typically included within the 17 acres required to be treated by LID measures per the Master Stormwater Plan.

Thanks
Bob Cosby

Robert E. Cosby III, P.E.
Project Manager

AES Consulting Engineers
Williamsburg | Richmond | Gloucester | Fredericksburg
(757) 253-0040
fax: (757) 220-8994
bob.cosby@aesva.com
www.aesva.com

Table 4-1
BMP Worksheet for New Town
Revised Master Stormwater Plan
2-Jun-08

Project Area = 374 acres
Revised Site Area* = 310.87 acres

A. STRUCTURAL BMP POINT ALLOCATION

BMP	Area of Project Served by BMP (acres)	BMP Points	Fraction of Site Served by BMP	Weighted BMP Points	
A01	18.90	10	0.061	0.61	*Estimated from Concept Plan
A03	0.00	4	0.000	0.00	*Eliminated based on Agency Issues
A04	35.50	10	0.114	1.14	*Updated based on Information from LAI
A06	17.60	4	0.057	0.23	*Updated based on Information from LAI
53*	107.70	9	0.346	3.12	*Updated based on Final Design
A14	34.00	10	0.109	1.09	*Estimated based on Concept Plan
B02	26.40	10	0.085	0.85	*Updated based on Phase 7 Design
B05	0.00	4	0.000	0.00	*Eliminated based on Phase 8 Design
C01	20.87	10	0.067	0.67	*Updated based on Phase 8 Design
C03	12.87	4	0.041	0.17	*Updated based on Phase 4 Design
C05	14.25	10	0.046	0.46	*Updated based on Final Oxford Design
C06	7.80	4	0.025	0.10	
C07	2.87	4	0.009	0.04	
TOTAL				8.47	

B. NATURAL OPEN SPACE CREDIT

*Only includes Restricted Areas

Area of Open Space (acres)	Fraction of Site	Natural Open Space Credit	Natural Open Space	
14.17	0.038	0.15 per 1% of site area	0.57	*Updated based on Restricted Area Plats
48.96	0.131	0.10 per 1% of site area	1.31	
TOTAL			1.88	

C. LOW IMPACT DEVELOPMENT

Area Served by IMPs (acres)	Fraction of Site	Area Served by IMPs	Points for Area Served by IMPs
17.00	0.055	0.10 per 1% of site area	0.55
TOTAL			0.55

D. TOTAL WEIGHTED POINTS

Structural BMP Points		Natural Open Space Points		Points for Area Served by IMPs		Total
8.47	+	1.88	+	0.55	=	10.89

* Note: JCC allows natural open space downstream of a structural BMP to be reduced from the site area when computing the fraction of the site served by the BMP and therefore the Structural BMP points.

CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1, Williamsburg, VA 23188 (757) 253-0040
614 Moorefield Park Drive, Richmond, VA 23236 (804) 330-8040
6632 Main Street, Gloucester, VA 23061 (804) 693-4450
www.aesva.com

August 20, 2007

ADDRESSES COMMENT #14.

Environmental Division Director
James City County
101-E Mounts Bay Road
Williamsburg, VA 23185

RE: New Town – BMP #53 Conversion
JCC-SP-0038-07

AES Job No. 6632-E-10-4

Dear Gentleman:

This letter is provided in response to County Comments regarding the design of BMP 53 and how this design meets the intents of discussions held with James City County Staff on June 7, 2007 regarding the creative use of shape, grading, landscaping, and walls.

This design of the BMP is designed as a wet pond with aquatic bench in accordance with the Stormwater Master Plan and County Requirements to the maximum extent practical. The facility provides a minimum of clearing of existing woodlands to create the permanent pool while providing adequate storage for water quality. The BMP matches into existing contours and property lines to create some curves within the feature and not make the BMP a standard rectangle. To match into the existing features and provide a bench around the entire perimeter a 4' high retaining wall is provided to match the existing retaining wall adjacent to the parking lot on the north side. To provide a more natural shape various grading patterns are provided with different slopes to provide interest to the BMP and create a more natural appearance. The south side of the BMP is heavily landscaped with native trees and shrubs and seeded with a conservation seed mixture to quickly establish the slope. This area is intended to return to a natural state. The north side of the BMP has the trail which provides access to the area and creates a more formalized appearance to be consistent with the urban nature of the adjacent New Town Development.

Based on the information available this design of the BMP meets the intents of the New Town Design Guidelines, provides flood storage and water quality benefits in accordance with ordinances, and is believed to be a positive addition to the New Town Development.

AES Consulting Engineers

James Peters, LA
Project Manager

S:\Jobs\6632\E\10-4-BMP Conv\Admin\Correspondence\Letters\6632-e-10-4-L03-rec.doc

CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1, Williamsburg, VA 23188 (757) 253-0040
614 Moorefield Park Drive, Richmond, VA 23236 (804) 330-8040
6632 Main Street, Gloucester, VA 23061 (804) 693-4450
www.aesva.com

August 20, 2007

Mr. Scott Thomas, P.E.
Environmental Division Director
James City County
101-E Mounts Bay Road
Williamsburg, VA 23185

RE: New Town – BMP #53 Conversion
JCC-SP-0038-07

AES Job No. 6632-E-10-4

Dear Mr. Thomas:

AES Consulting Engineers, on behalf of New Town Associates LLC, respectfully requests an exception to the BMP Manual, to reduce the benches provided within the BMP located on the property.

The proposed BMP is a wet-extended detention facility (County Type A-3) which serves 107.7 acres. This BMP contains an 11.5' Aquatic Bench. An existing JCSA sanitary sewer is adjacent to the north side which limits the potential for additional aquatic bench. In addition as this BMP is being excavated in existing wetlands and wooded areas it is desirable to minimize the impacts to the natural system which would be necessary to provide the required wet volume in addition to the required 15' aquatic bench.

The safety bench for this BMP is eliminated based on the site conditions. The south side of the BMP is adjacent to the parking lot from Towne Bank and natural wooded areas which do not have pedestrians in the vicinity. The west side of the BMP is adjacent to New Town Avenue which has an existing fence at the top of the slope adjacent to the sidewalk. The east side of the BMP is the slope to the sediment forebay, in addition the sediment forebay has a depth of 4' which does not require a safety bench. Finally the north side of the BMP does have a walking trail close to the BMP which is a concern. Closest to New Town Avenue safety is addressed by providing shallow slopes adjacent to the wet pool. At the eastern portions a 4' high retaining wall with fence is provided to reduce the potential of pedestrians accessing the BMP.

Please see the siteplan and detail sheets, which indicate the location and dimensions of the BMP. Please advise me of your decision on this exception at your earliest convenience.

Respectfully requested,

AES Consulting Engineers

Robert E. Cosby III, P.E.
Project Manager

S:\Jobs\6632\E\10-4-BMP Conv\Admin\Correspondence\Letters\6632-e-10-4-L02-rec.doc

2. Per the applicant and plan preparer's response, a fountain/aerator will be required to be implemented to provide water quality benefits to address County comments related to short-circuiting and to compensate for reduced aquatic bench widths;

3. Full implementation of landscaping and stabilization measures shown on Sheet 4 of the approved plan set;

4. The variance approval shall become part of the approved site stormwater management plan.

Please note that approval of this variance, with the conditions stated, in no way implies final approval of a site or subdivision plan as required by the Chapter 24 Zoning or Chapter 19 Subdivisions of the County Code; nor, does it constitute final approval of an erosion and sediment control or stormwater management plan as required by Chapter 8 Erosion and Sediment Control and Chapter 23 Chesapeake Bay Preservation of the County Code. Approval of this variance is also contingent upon no major (substantial) changes in the development plan, the subject best management practice facility, or if site conditions change, become apparent or alter significantly following the date of this approval.

Sincerely,

Scott J. Thomas, P.E.
Director
Environmental Division

SJT/sjt

cc: Jose Ribeiro, Planning Division (via email)

SWMProg/Variances/SPvar/Var092407.SP3807

Home of America's 400th Anniversary
James City County 1607-2007 Jamestown

DEVELOPMENT MANAGEMENT

101-A MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6671
E-MAIL: devman@james-city.va.us
FAX: (757) 253-6822

ENVIRONMENTAL DIVISION (757) 253-6670 EnvDiv@james-city.va.us
PLANNING (757) 253-6685 planning@james-city.va.us
COUNTY ENGINEER (757) 253-6678
INTEGRATED PEST MANAGEMENT (757) 259-4116

September 24, 2007

Mr. Robert E. Cosby III, P.E.
AES Consulting Engineers
5248 Olde Towne Road, Suite 1
Williamsburg, VA 23188

Re: Pond Bench Variance Requests
New Town BMP # 53 Conversion
County Plan No. SP-38-07
County BMP ID Code: PC 173

Dear Mr. Cosby:

The Environmental Division is in receipt of your written request dated August 20, 2007 to obtain variance from the County BMP manual for a reduced width aquatic bench and elimination of the safety bench requirement for BMP 53. The BMP is an existing dry pond BMP constructed as part of approved County Plan No. SP-125-97 which is proposed to be converted to a County type A-3 wet extended detention pond as part of the approved master stormwater management plan for New Town as revised on December 22, 2004. The proposed basin is about 2 acres in size with a 11.3 feet deep permanent pool. Interior graded side slopes for the basin are variable, mainly consisting of 4H:1V slopes above normal pool and 3H:1V slopes below normal pool. The variance request is to reduce the required aquatic bench from 15 feet required to 11.5 feet and to eliminate the safety bench requirement altogether.

Based on our review of information as submitted, the variance as requested is hereby ***approved***. It should be noted that normally our Division would not grant a variance to reduce the width of the aquatic bench in combination with full elimination of the safety bench, especially in a highly urbanized location. However, the variance was considered appropriate *for this specific review case* due to the following: 1) to limit clearing impacts to existing wooded areas; 2) to limit impacts to jurisdictional wetland and stream features; 3) compliance with approved master stormwater management plan requirements; 4) the urban setting of the BMP and conformance with established New Town Design Guidelines; 5) creative use of flatter slopes, curvilinear geometry and retaining walls, with fences, for safety; and 6) heavy landscaping and stabilization requirements proposed for the project.

The following conditions apply to approval of this waiver request:

1. The owner should be made completely aware of reduced widths for the aquatic and elimination of the safety benches;

DEVELOPMENT MANAGEMENT

101-A MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6671
E-MAIL: devman@james-city.va.us
FAX: (757) 253-6822

ENVIRONMENTAL DIVISION (757) 253-6670 EnvDiv@james-city.va.us
PLANNING (757) 253-6685 planning@james-city.va.us
COUNTY ENGINEER (757) 253-6678
INTEGRATED PEST MANAGEMENT (757) 259-4116

October 4, 2007

Mr. Robert E. Cosby III, P.E.
AES Consulting Engineers
5248 Olde Towne Road, Suite 1
Williamsburg, Va. 23188

Re: Variance Request for Reduced Freeboard
New Town – BMP # 53 Conversion
County BMP ID Code: PC 173
County Plan No.: SP-38-07

Dear Mr. Cosby:

The Environmental Division is in receipt of your written request dated September 26, 2007 to obtain variance for reduced freeboard for BMP # 53 in New Town. BMP # 53 is situated in Sections 2 & 4 of New Town in back of Olde Towne Bank along New Town Avenue. Minimum Standard & Specification 3.01 of the Virginia Stormwater Management Handbook requires a minimum of 2 feet of freeboard between the lowest point on top of dam and the maximum 100-year design water surface elevation. However, under 4VAC50-30-50 of the Virginia Erosion and Sediment Control regulations, the plan-approving authority may waive or modify any of the regulations that are deemed inappropriate or too restrictive for site conditions. The applicant must explain the reasons for requesting a variance, in writing, and the plan-approving authority shall consider variance requests judiciously, keeping in mind both the need of the applicant to maximize cost effectiveness and the need to protect off-site properties and resources from damage.

Based on our review of information as submitted, the variance as requested is hereby ***approved*** for this specific review case only. The variance was considered appropriate due to information as submitted in the letter request and the plan of development including:

- 90 percent of the freeboard requirement is achieved.
- The basin has not exhibited any evidence of frequent overtopping since it was initially constructed as a dry pond facility.
- A high level of routine and non-routine maintenance is expected due to this basin's location within New Town.
- A hydrologic/hydraulic check of the function of the basin was performed using a runoff curve number well in excess of the design value. The result of this analyses showed that the facility does not overtop.

The following conditions apply to approval of this waiver request:

1. The Owner should be made completely aware of reduced freeboard requirement for BMP # 53.

2. The basin shall be maintained in strict compliance with the approved BMP maintenance plan.

3. The variance approval shall become part of the approved site erosion and sediment control and stormwater management plan for the project.

Please note that approval of this variance, with the conditions stated, in no way implies final approval of a site or subdivision plan as required by the Chapter 24 Zoning or Chapter 19 Subdivisions of the County Code; nor, does it constitute final approval of an erosion and sediment control or stormwater management plan as required by Chapter 8 Erosion and Sediment Control and Chapter 23 Chesapeake Bay Preservation of the County Code. Approval of this variance is also contingent upon no major (substantial) changes in the development plan, the subject temporary sediment basin or best management practice facility, or if site conditions change, become apparent or alter significantly following the date of this approval.

Sincerely,

Scott J. Thomas, P.E.
Director
Environmental Division

SJT/sjt

cc: Jose Ribeiro, Planning (via email)

SWMProg/Variances/SPvar/Var100407.SP3807

CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1, Williamsburg, VA 23188 (757) 253-0040
614 Moorefield Park Drive, Richmond, VA 23236 (804) 330-8040
6632 Main Street, Gloucester, VA 23061 (804) 693-4450
www.aesva.com

September 26, 2007

Mr. Scott Thomas, P.E.
Environmental Division Director
James City County
101-E Mounts Bay Road
Williamsburg, VA 23185

RE: New Town – BMP #53 Conversion
JCC-SP-0038-07

AES Job No. 6632-E-10-4

Dear Mr. Thomas:

AES Consulting Engineers, on behalf of New Town Associates LLC, respectfully requests an exception to the Virginia Stormwater Management Handbook (VSMH) to reduce the freeboard provided within BMP #53 located on the property.

The proposed BMP is a wet-extended detention facility (County Type A-3) which serves 107.7 acres. The top of dam for this structure is New Town Avenue which has a low point elevation of 82.76. The principal outflow structure for this BMP is twin 42" pipes with a 16' weir with a trash rack. The design 100 year water surface elevation within this facility is 80.93' which provides a freeboard of 1.8'. This analysis assumes a Runoff Curve Number of 88. Please note that the previous curve number utilized for this facility was 85, which based on the current facility would have a design 100 year water surface elevation of 80.51 and a freeboard of 2.25' which is in accordance with the minimum standard.

The VSMH, Minimum Standard 3.01 (Earthen Embankment) notes that "an embankment without an emergency spillway must provide at least 2 feet of freeboard from the maximum 100 year storm WSE to lowest point on the top of the embankment." This BMP does not meet this condition of the Minimum Standard based on the current hydrologic design condition, however, did meet the condition based on the original hydrologic design. In addition the principal spillway is a twin 42" outfall pipe which is unlikely to clog especially with the trash rack preventing the flow of debris into the structure. Furthermore as included with the submittal package various hydrologic analysis was provided with a maximum curve number of 94 which produced a maximum high water elevation of 81.66 which still does not overtop the roadway and provides 1.1 feet of freeboard. Furthermore this embankment top is a roadway with concrete sidewalks, which should water begin to flow across the top of embankment would provide protection against erosive forces directly on the top of the embankment and therefore reduce the potential of embankment failure versus a standard 12' wide earthen embankment top.

Therefore based on the 1.8 feet of freeboard provided, the size of the outfall pipes, additional analysis previously provided, and the improved condition of the top of embankment we request an exception to the minimum freeboard requirement for this facility be approved. Please advise me of your decision on this exception at your earliest convenience.

Respectfully requested,

AES Consulting Engineers

Robert E. Cosby III, P.E.
Project Manager

S:\Jobs\6632\E\10-4-BMP Conv\Admin\Correspondence\Letters\6632-e-10-4-L02-rec.doc

Development Management
101-A Mounts Bay Road
P.O. Box 8784
Williamsburg, VA 23187-8784
P: 757-253-6671
F: 757-253-6822
devman@james-city.va.us

jccEgov.com

Code Compliance
757-253-6620
codecomp@james-city.va.us

Environmental Division
757-253-6670
environ@james-city.va.us

Planning and Zoning
757-253-6685
planning@james-city.va.us

September 17, 2009

Mr. Robert E. Cosby
AES Consulting Engineers
5248 Olde Towne Road, Suite 1
Williamsburg, Va. 23188

Re: Revised Master Stormwater Management Plan
New Town
Division Plan No. SWM-01-09
(formerly WQIA-011-04)

Dear Mr. Cosby:

The Environmental Division has reviewed proposed revisions to the previously approved Master Stormwater Management Plan (MSWMP) for the above referenced project. The previously approved MSWMP was revised due to construction-excavation difficulties encountered with BMP 53 conversion. BMP 53 serves a drainage area of 107.7 acres. BMP 53 was converted from a dry detention basin to a wet extended detention basin in accordance with approved County Plan No. SP-38-07 and was intended to be a 10-point BMP facility. The revised MSWMP includes a 1" = 200 ft. scale exhibit map dated June 24, 2008 which show primary structural BMPs with updated drainage areas.

To avoid any confusion, the current revised MSWMP has the following characteristics:

- Total site area is 374 acres.
- Total site area for BMP worksheet purposes is 310.87 acres, accounting for areas downstream of BMPs.
- The structural BMP component of the plan shows 11 primary wet and dry pond water quality BMPs serving approximately 297.50 acres of drainage area which obtain 8.43 BMP points;
- BMP 53 (County BMP ID Code: PC173) is now assigned a BMP point value of 9 points as it only achieves about 60 percent of required treatment volume in the wet poolwater quality volume in the wet pool (0.6 inches rather than 1 inch treatment per impervious acre);
- Previous BMPs A03 and B05 were eliminated due to agency issues and Phase 8 design, respectively;
- The natural open space component of the plan totals 63.13 acres and obtains 1.88 BMP points;
- A LID component is required for stormwater compliance purposes. The LID component contains distinct IMP measures which serve 17 acres and obtain 0.55 BMP points.
- Total BMP points per the standard County worksheet is 10.85 points.

Prior to this submission, the MSWMP was previously approved with conditions as outlined on approval letter dated December 22, 2004. Based on our review of this most recent revision, the revised Master Stormwater Management Plan (MSWMP) is hereby **approved**. All established conditions placed on previously approved master stormwater management plan and the RPA exception still apply to this revision.

It should be noted that upon acceptance and release of surety being held for the BMP 53 conversion project (SP-38-07), it would appear that condition #2 of the master stormwater management plan is satisfied. This condition was for conversion of BMP 53 to a wet pond and construction of an associated forebay. In addition, it would also appear that upon the same, proffer condition # 13a for New Town Sections 7 & 8 (Z-05-06) will also be satisfied. This proffer condition required the owner to complete and have in service BMP Parcel # 1 in accordance with such site plan prior to the issuance of any land-disturbing permit for development on Section 8 of the property.

Please note that approval of this revised MSWMP in no way implies final approval of any site or subdivision plan as required by the Chapter 24 Zoning or Chapter 19 Subdivisions of the County Code; nor, does it constitute final approval of an erosion and sediment control or stormwater management plan as required by the Chapter 8 Erosion and Sediment Control and Chapter 23 Chesapeake Bay Preservation ordinances of the County.

Thank you for your time and efforts to resolve issues associated with this master stormwater plan. If you have any additional questions or comments, contact me at 757-253-6639.

Sincerely,

Scott J. Thomas, P.E.
Director of Environmental
James City County

SJT/sjt
Attachments

cc: Christy Parrish, Planning (via email)
William Cain, Environmental (via email)
Mike Woolson, Environmental (via email)

PlanReview\2009\SWM-001-09.approval

Table 4-1
BMP Worksheet for New Town
Revised Master Stormwater Plan
2-Jun-08

APPROVED
James City County
Environmental Division
By:
Date: 09-17-09
SWM-001-09
WQIA-011-04

Project Area = 374 acres
Revised Site Area* = 310.87 acres

A. STRUCTURAL BMP POINT ALLOCATION

BMP	Area of Project Served by BMP (acres)	BMP Points	Fraction of Site Served by BMP	Weighted BMP Points	
A01	18.90	10	0.061	0.61	*Estimated from Concept Plan
A03	0.00	4	0.000	0.00	*Eliminated based on Agency Issues
A04	35.50	10	0.114	1.14	*Updated based on Information from LAI
A06	17.60	4	0.057	0.23	*Updated based on Information from LAI
53*	107.70	9	0.346	3.12	*Updated based on Final Design
A14	34.00	10	0.109	1.09	*Estimated based on Concept Plan
B02	26.40	10	0.085	0.85	*Updated based on Phase 7 Design
B05	0.00	4	0.000	0.00	*Eliminated based on Phase 8 Design
C01	20.87	10	0.067	0.67	*Updated based on Phase 8 Design
C03	12.87	4	0.041	0.17	*Updated based on Phase 4 Design
C05	14.25	10	0.046	0.46	*Updated based on Final Oxford Design
C06	7.80	4	0.025	0.10	
C07	2.87	4	0.009	0.04	
TOTAL				8.47	

B. NATURAL OPEN SPACE CREDIT

*Only includes Restricted Areas

Area of Open Space (acres)	Fraction of Site	Natural Open Space Credit	Natural Open Space	
14.17	0.038	0.15 per 1% of site area	0.57	*Updated based on Restricted Area Plats
48.96	0.131	0.10 per 1% of site area	1.31	
TOTAL			1.88	

C. LOW IMPACT DEVELOPMENT

Area Served by IMPs (acres)	Fraction of Site	Area Served by IMPs	Points for Area Served by IMPs
17.00	0.055	0.10 per 1% of site area	0.55
TOTAL			0.55

D. TOTAL WEIGHTED POINTS

Structural BMP Points		Natural Open Space Points		Points for Area Served by IMPs		Total
8.47	+	1.88	+	0.55	=	10.89

* Note: JCC allows natural open space downstream of a structural BMP to be reduced from the site area when computing the fraction of the site served by the BMP and therefore the Structural BMP points.

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	ENVIRONMENTAL DIVISION	PLANNING	COUNTY ENGINEER
(757) 253-6626	(757) 253-6670	(757) 253-6685	(757) 253-6678
codecomp@james-city.va.us	environ@james-city.va.us	planning@james-city.va.us	INTEGRATED PEST MANAGEMENT
			(757) 253-2620

December 22, 2004

Ms. Toni Small
Williamsburg Environmental Group
3000 Easter Circle
Williamsburg, VA 23188

RE: New Town Master Stormwater Management Plan; Revised November, 2004
New Town Water Quality Impact Assessment; November, 2004

Dear Ms. Small:

The Environmental Division has reviewed the New Town Master Stormwater Management Plan for the overall project with a revision date of November, 2004, and transmitted by a letter dated December 2, 2004. The letter contained a request for an exception to the stormwater management criteria of the Chesapeake Bay Preservation Ordinance contained in Section 23-10(4). Also submitted were an Resource Protection Area (RPA) exception request letter for a variance to Section 23-7 of the Ordinance dated December 2, 2004, and a Water Quality Impact Assessment (WQIA) to allow impacts to the 100-foot RPA buffer. The submissions were made to address comments made in a conceptual approval letter dated October 7, 2004, for the project's Master Stormwater Management Plan.

Concerning the exception request for the stormwater master plan, the current plan indicates that with the use of 13 structural BMPs and the dedication of 58.11 acres of natural open space, the master stormwater plan achieves only 9.62 of the required 10 points under the James City County's 10-point BMP Evaluation Procedure. The point deficit is proposed to be made up by the use of various integrated management practices (IMPs) or Low Impact Development (LID) strategies on approximately 17 of the project's 374 acres. The plan shows that 13 IMPs would be provided to treat the 17 acres. The exception request to the 10-point system is hereby **granted** with the following conditions:

1. LID strategies and IMPs (integrated management practices) as schematically shown in the plan report must be utilized on at least 17 acres of the project.
2. The conversion of BMP 53 to a wet pond needs to include a forebay. This can be constructed within the permanent pool area of the pond and can even be slightly submerged below the water surface if there are concerns with aesthetics of the forebay.
3. The total BMP point count for the project will need to be updated as land planning continues and drainage divides are modified by development activities.

The WQIA was submitted to support the RPA exception request for the proposed impacts to the RPA in the form of road construction, sewer extensions, and stormwater management facilities (BMPs). There are no proposed impact to the seaward 50-foot buffer except for road crossings, BMP outfalls, and utilities. Impacts to the buffer in Section 4, Block 8 were approved in a separate RPA exception request approved on May 11, 2004. The WQIA proposes a variable width buffer to replace the standard 100-foot buffer with a 25-foot minimum undisturbed buffer around intermittent streams and

a 50-foot minimum buffer around perennial streams (except for the previously approved Section 4, Block 8 buffer). The WQIA documents that the variable width buffer removes more phosphorus than the 100-foot buffer. The major factor for consideration of the exception request is that a strict application of the 100-foot RPA buffer greatly impacts the master planning efforts and approvals that had been granted for the project prior to the revised perennial stream and RPA identification process that became effective on January 1, 2004. None of the streams on the New Town site were designated as perennial prior to the Ordinance revisions. This variable width buffer proposal is being allowed for application in this case only because of the master planning that occurred on the project prior to January 1, 2004. Therefore, based on these factors, the RPA exception is **granted** with the following conditions:

1. Individual exceptions will also be required at time of site or subdivision plan approval for the specific encroachments into the buffer for BMP outfalls, utility lines, and road crossings shown on the plan.
2. The excess clearing (approximately 40-foot wide) associated with the sewer line located in the RPA buffer located along the east side of the stream channel along Section 7 must be restored with native vegetation. Indigenous trees and shrubs must be planted along the approximately 20-foot wide cleared portion of the sewer easement but this will not include any plants in the 20-foot wide permanently maintained JCSA sewer easement. This is the same requirement as for the exception approved for Section 4, Block 8. The timing of the restoration of this part of the buffer will be discussed with the applicant.

Please contact me at 253-6670 if you have any questions.

Sincerely,

Darryl E Cook

Darryl E. Cook, P.E.
Environmental Director

As-Builts

LETTER OF TRANSMITTAL

AES CONSULTING ENGINEERS
Engineering, Surveying, and Planning
5248 Olde Towne Road, Suite 1
Williamsburg, VA 23188

Phone: (757) 253-0040
Fax: (757) 220-8994

ATTN: **Amy Parker**

CO.: JCC Environmental Division

Address:

cc:

DATE	JOB NO.
8/11/09	6632-e-10-4
FROM: Bob Cosby	
RE: New Town - BMP 53	

PC173
SP-38-07

WE ARE SENDING YOU THE FOLLOWING ITEMS:

☒ Attached
☐ Under separate cover via

☐ Original(s) ☐ Print(s) ☐ Plan(s) ☐ Specification(s) ☐ Change Order

☒ Copy of letter(s) ☐ Other:

COPIES	DATE	No. of Pages	DESCRIPTION
1	2/18/09	2	Letter to Joe Buchite
1	2/18/09	1	Stormwater Master Plan Tabulation
1		1	Graphic Denoting Drainage Areas for Stormwater Master Plan
1	2/18/09	16	BMP Certfication and Checklist
1		1	Record Drawing

THESE ARE TRANSMITTED as checked below:

☒ For your approval ☐ For your signature ☐ For review and comment

☒ For your use ☐ As you requested ☐ As requested by:

☐ Other:

REMARKS:
Copy of package submitted February 18, 2009 for final release of BMP 53.

VIA: ☐Hand Deliver ☐UPS Ground ☐UPS Next Day Air ☐USPS Mail ☐ Other:

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

NORMAL POOL IS BELOW ORIGINAL POND BOTTOM SO PHREATIC LINE IS NOT AN ISSUE AND NEITHER SHOULD BE SEEPAGE DUE TO HYDRAULIC HEAD. POOL ALSO IS NOT VERY DEEP DUE TO WATER TABLE. I AM VERY CURIOUS TO KNOW WHAT IS AT THE BASE OF THE ROAD FILL SECTION.

B

✓ Scott T.
✓ Bill Cain
✓ Amy Parker
✓ Put in asbuilt file

RE: AB/CC Review of orginal Courthouse pond, now New Town BMP 53.

December 12, 2002

Mr. Bernard M. Farmer
Capital Project Administrator
James City County
105 Tewning Road
Williamsburg, Va. 23188

Re: Williamsburg/JCC Courthouse
County Plan No. SP-125-97
Offsite Dry Detention Pond (Newtown)
County BMP ID Code: PC 173

RE: WAS DRY POND NOW WET POND CONVERTED

Dear Mr. Farmer:

The Environmental Division has reviewed certification information as submitted to our office for the BMP for the above referenced project. The record drawing and construction certification provides as-built information for an offsite dry extended detention pond facility situated across Monticello Avenue approximately 1,200 ft. northwest of the Courthouse building.

Based on our review of the certification information and field inspections performed on May 1st 2002 and December 12th 2002, the following items must be addressed in order to close out the BMP for the project. (Note, this also relates to comments pending for New Town Sections 3 and 4, County Plan No. SP-50-02).

Record Drawing:

1. The record drawing set dated September 20th 2002 and record drawing certification dated September 30th are both **satisfactory.** Please forward one reproducible and one blue/black line set of the record drawings to our office.

Construction Certification:

2. The geotechnical investigation by ECS, LTD dated May 7th 1998 recommended that " *the geotechnical engineer should be called on to observe all excavation within the embankment to assure that adequate subgrade materials have been exposed. The geotechnical engineer should be called on to perform density testing of embankment fills with at least 2 tests per lift to assure that adequate compaction is being achieved.* " In addition, Dam Construction Note # 1 on Sheet 10 of the approved plan stated "*The geotechnical engineer will inspect the dam during construction to ensure that proper materials and construction methods are used during construction. After construction, the geotechnical engineer shall also submit to the County a letter certifying that the dam was built in accordance with the plans, specifications and*

recommendations for the project." Based on a review of certification information, significant changes were made to the approved embankment configuration as outlined in an addendum report by ECS, LTD dated May 22nd 1998. Option 3, or Excavation/Construction Alternate 3, recommended a key trench along the length of the dam, steeper embankment side slopes, a clean-sand bridge lift, placement of geogrid reinforcement within specified zones of the dam and a northward shift of the principal flow control structure (riser/dual barrel system). Although the Engineer has the authority and responsibility to make minor changes to the approved plan in order to compensate for unsafe or unusual conditions encountered during construction, those changes cannot adversely affect the integrity of the structure and original testing/observation requirements imposed for the project should not be absolved. Therefore, provide additional information to support the construction certification including representative field compaction density reports for dam soil fill lifts and/or construction inspection logs by the geotechnical engineer to support proper installation of embankment soils per the approved plan and key trench, bridge lift and geogrid placement per the plan change. *(Note: Attached details as supplied with the construction certification clearly indicate that significant changes were made to the embankment; however, it offers no information to support that these changes were properly constructed in the field in accordance with the recommendations.)*

Construction - Related Items:

3. Remove silt fence present along the upstream and downstream toes of the dam embankment and the micropool area.

4. Repair subsidence holes present around the primary flow control (riser) structure, especially the bottom (upstream side). Use compacted soil and stabilize with seed and mulch when complete.

5. Clear and remove trees and vegetation 10 feet from the principal flow control structure (riser).

6. Clean and remove sediment accumulations, debris, trees and vegetation within 15 feet of the outfall ends of the dual 42-inch pipe barrels through the dam. Sediment accumulations and tree growth was significant at the outfall end of the pipes and covered most of the outlet protection pads. Flow out of the facility shall not be obstructed by debris, sediment and vegetation.

Once this work is satisfactorily completed, contact our office appropriately. We can then proceed with closing out the project. Please contact me at 757-253-6639 or the assigned Environmental Division inspector, Ms. Beth Davis, at 757-253-6702 if you have any further comments or questions.

Sincerely,

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

cc: Arch Marston, AES - via fax
Beth Davis, JCC Environmental Division Inspector

G:\AsBuilts\SP12597.pc173

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

County BMP ID Code (if known): PC 173

Name of Facility: New Town Sec 2+4 BMP 53 Conversion BMP No.: ___ of ___ Date: 9/24/09

Location: Adjacent to New Town Ave. between Monticello & Center St

Name of Owner: New Town Associates, LLC

Name of Inspector: Amy Parker

Type of Facility: Wet Pond

Weather Conditions: Sunny 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	✓	✓		end of paved flume (stabilize)
Trash & Debris	✓			
Seepage	✓			
Fencing or Benches	✓			
Interior Landscaping/Planted Areas: ☑ None ☐ Constructed Wetland/Shallow Marsh ☐ 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: ☑ Permanent Pool (Retention Basin) ☐ Shallow Marsh (Detention Basin) ☐ None, Dry (Detention Basin)				
Shoreline Erosion	✓			
Algae	✓			
Trash & Debris	✓			
Sediment	✓			
Aesthetics	✓			
Other				
Inflows (Describe Types/Locations):				
Condition of Structure	✓		✓	sinkholes around flat top structure
Erosion	✓			
Trash and Debris	✓			
Sediment			✓	18" outlet protect. contaminated
Outlet Protection			✓	
Other				
Principal Flow Control Structure - Riser, Intake, etc. (Describe Type):				
Condition of Structure			✓	sinkholes around perimeter & evident cracks along curb on top of outfall barrel possible compaction issues
Corrosion	✓			
Trash and Debris	✓			
Sediment	✓			
Vegetation	✓			
Other				
Principal Outlet Structure - Barrel, Conduit, etc. :				
Condition of Structure	✓		✓	see above for cracked curb
Settlement	✓			
Trash & Debris	✓			
Erosion/Sediment				
Outlet Protection	N/A			
Other				
Emergency Spillway (Overflow):				
Vegetation				trees embankment outfall side
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:

Overall Environmental Division Internal Rating: 4

Signature: Amy Parker **Date:** 9/17/09

Title: Inspector

SWMProg\BMP\CoInspProg\InspForms\DetRet.wpd

New Town Associates, LLC
4801 Courthouse St. Suite 203
Williamsburg, VA 23188

September 24, 2009

Re:
James City County County Plan No. SP-38-07
James City County County BMP ID Code: PC-173

Dear Mr. McCann:

The Environmental Divisions has received a record drawing (as-built) for the above referenced project. The record drawing provides as-built information for master planned wet pond BMP known as BMP 53.

Based on our review of the project and a concurrent field inspection as performed on September 18, the following items must be addressed prior to release of the developer's surety instrument for the stormwater management/BMP facility at the site and to proceed with closing out the project:

Construction - Related Items:

1. Sink Holes. It has been noticed that depressions (sink holes) have formed around the principal structure as located on the dam, and the flat top structure as located in proximity to the Town Bank. While it is important to repair these areas of subsidence, it is more important to insure that these depressions are not the result of water entering the associated structure in the location of the pipe connection. Please ensure that a water tight connection has been obtained in this area and repair as necessary.

2. Remove localized sediment deposits that have accumulated in the rip rap outlet protection at the outfall end of the 18-inch storm drain which enters into the BMP along the southwest side of the BMP. Flow into the pond must not be obstructed by vegetation; therefore, maintenance in this area must be provided prior to final approval of these as-builts.

   As a Note: During the field inspection, it appeared that curb repairs were recently done in the area directly above the barrel pipe. Due to the subsidence around the structure and the curb

repairs, it is recommended that the owner look into possible piping along the dam to ensure structural integrity of the dam. This is not an item that will hold up the release of the bond associated with the conversion of the BMP.

Once the constructed related items above are satisfactorily completed, contact our office appropriately for reinspection. We can then proceed with final release of the surety and/or closing out the project. One reproducible and one blue/black line set of the record drawings will be required once the above items are adequately addressed.

Please contact me at 757-253-6851 if you have any further comments or questions.

Sincerely,

Amy Parker
Environmental Inspector II
Environmental Division

cc: Henderson Contractors via email

File: environmental on 'deptstore\dmo1\dmdata'\Projects\AsBuilts\Reviews\Final

Scott Thomas

From: Scott Thomas
Sent: Wednesday, September 16, 2009 4:28 PM
To: 'John McCann'; Robert Cosby
Cc: Joe Buchite; Amy Parker; William Cain
Subject: RE: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

To All:

I am going to step in here and help out as I reviewed the plan and was then involved with AES and Henderson when the construction difficulties arose. I had insisted on an asbuilt routing to be provided to ensure all was ok, back at the time we met with Henderson. I have reviewed Bob's information here and in conjunction with looking at the pond design routing and the asbuilt plan, concur with his finding. Therefore, there is no need to submit asbuilts and certification information again. This is what we need to do to keep moving forward:

1. I need to issue a letter amending the master stormwater management for New Town for BMP 53 being a 9-point facility now and due to change in overall point value for New Town. This will close the loop on that.
2. Inspection staff needs to perform a final inspection to ensure there are no stabilization issues and to ensure all the perimeter landscaping, in accordance with the plan, was installed. Our inspector is going to perform this inspection tomorrow.
3. The BMP maintenance plan located on Sheet 6 of the approved plan needs to be put on the asbuilt (record drawing). Do this and provide our office with one additional blue/black line drawing of the asbuilt and also a mylar.

It's our sense at this point that everything is on track for full release, rather than reduction, pending satisfactory final BMP inspection.

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

Visit:
www. jccegov.com
www. protectedwithpride.org

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Wednesday, September 16, 2009 10:58 AM
To: Joe Buchite; Scott Thomas
Cc: Robert Cosby
Subject: Fw: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Gentlemen, We had addressed this issue several months ago and I thought we had satisfied you on New Town BMP 53. If you feel that we have not satisfied the JCC Environmental requirements on this pond, I'd like to set up a meeting with you to discuss any open issues.

Thanks, John McCann
New Town Associates, LLC

John P. McCann

McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

----- Forwarded Message ----
From: "Cosby, Bob" <bob.cosby@aesva.com>
To: John McCann <jmccann213@yahoo.com>
Cc: Peter Henderson <peter@hendersoninc.com>
Sent: Tuesday, September 15, 2009 1:29:47 PM
Subject: RE: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

John,

To the best of my knowledge JCC has all of the information that they have requested related to BMP 53. This information has been provided to JCC on at least 2 separate occasions.

The Pond above water surface does meet the grading requirements of the original design. Therefore no additional changes to the routing are required. Revisions to the routing would be the exact same routing that was originally submitted and approved with the design plans. I have already submitted statements to this affect which were previously accepted by JCC.

Record Drawing and Certification have been provided to JCC twice already. I will provide these again this week to get this bond released.

I currently have a call into Joe Buchite to confirm this information and verify if I need to provide the Record Drawing, Certification, and any other Calculations that they want.

Thanks
Bob Cosby

Robert E. Cosby III, P.E.
Project Manager

AES Consulting Engineers
Williamsburg | Richmond | Gloucester | Fredericksburg
(757) 253-0040
fax: (757) 220-8994
bob.cosby@aesva.com
www.aesva.com

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Tuesday, September 15, 2009 2:32 PM
To: Cosby, Bob

Cc: Peter Henderson
Subject: Fw: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Bob, Please let me know what this means. What does Environmental want?

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

----- Forwarded Message ----
From: Joe Buchite <JBUCHITE@james-city.va.us>
To: John McCann <jmccann213@yahoo.com>
Cc: Amy Parker <AParker@james-city.va.us>
Sent: Tuesday, September 15, 2009 6:30:36 AM
Subject: RE: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Mr. Mc Cann,
It is my understanding that the reason why the pond is not being released is that a stormwater routing was never provided for the BMP after modifications were performed and fell short of the proposed plan elevations. Also a final inspection of the record drawings and construction certification is required combined with any field items that might arise as a result of the field inspection.
Thank you,

Joe Buchite
Environmental Inspections Supervisor
Environmental Division
James City County
101-E Mounts Bay Road
Williamsburg, VA 23187-8784
(757) 253-6643

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Monday, September 14, 2009 5:24 PM
To: Joe Buchite
Subject: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Joe, As per the attached, I'm scheduled to renew the Siltation Bond letter of credit that bonds BMP53, the large BMP on New Town Ave., behind Towne Bank. This work has been complete for a couple of years and the as built drawings and certification for BMP 53 were submitted a long time ago. This is one of the bonds that I had asked to be released. Do you have an answer as to why this bond shouldn't be released? I'd like to avoid paying the renewal fees.

Thanks for your help.

John

John P. McCann

McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

Amy Parker

From: Amy Parker
Sent: Wednesday, May 26, 2010 9:15 AM
To: 'John McCann'; Joe Buchite
Cc: Larry Salzman; William Cain
Subject: RE: New Town Associates' Siltation Bonds

Tracking:

Recipient	Read
'John McCann'	
Joe Buchite	Read: 5/26/2010 9:38 AM
Larry Salzman	
William Cain	Read: 5/26/2010 1:17 PM

Hi Mr. McCann,
I have reviewed your requests.

1. New Town Section 3&6 Roadway Infrastructure Phase 8- This bond has already been reduced by half (actually a little more than half) as a result of receiving the interim record drawings. The remainder of the bond must be held in place as long as it is being used as a sediment basin. Once the upslope areas are permanently stabilized, the BMP is converted, we receive/review the final record drawings and construction certifications, and all items are satisfactory we can look at reducing or releasing the remaining $76,000.

2. New Town Section 2&4 Roadway Infrastructure Phase II Block 8 Commercial- The current bond is being held for the Temporary Sediment Basin which is currently serving as a temporary BMP to handle runoff from Casey Boulevard and adjacent areas. This facility must remain in operation until the permanent BMP is constructed in the back of Section 7 consistent with the New Town Master Stormwater Management Plan. Be advised that this is not a dry type pond; however, it may dry out periodically due to infiltration and evaporation depending on the frequency of rain events. The bond also covers maintenance and/or removal of E&S controls (Silt fence) as needed, and maintenance of the associated stormwater conveyance system (pipes, swales, inlets, etc) should the system become inundated with silt and/or debris. In addition, as-built and construction certifications are required, and have not been provided to date, for the two Filterra units. In addition, it must be understood that should this facility be closed out prior to the construction of the regional BMP, BMP A-14, the stormwater conveyance system serving Casey Boulevard will have no outfall.

3. New Town Section 2&4 BMP 53 Conversion- I expressed the concerns of our division in the email(s) dated 3/12/10 and 5/7/10. Your response to my previous comment indicates your willingness to accept this basin in its current condition and your understanding of the existing conditions of this stormwater management facility. This being the case, the surety paperwork has been processed (internally) for full release. Should you have any questions or concerns regarding this issue, please feel free to contact me at your convenience.

4. New Town Casey Corner Park- The surety paperwork has been processed (internally) for full release.

I am also keeping an eye on the block 21 grading plan. I'd like to give it a few more weeks for the vegetation to establish and then I'll look into what I can reduce for that project.

Please feel free to contact me with any questions.

Best Regards,

Amy Parker
James City County
Environmental Inspector
Office (757) 253-6851
Mobile (757) 592-0135

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Wednesday, May 19, 2010 3:24 PM
To: Amy Parker; Joe Buchite
Cc: Larry Salzman
Subject: New Town Associates' Siltation Bonds

I have two Siltation Bonds that expire in June and two other siltation bonds that I'd like to get released.
1. New town Section 3&6 Roadway Infrastructure - Phase VIII siltation bond is in the amount of $76,000. I know we have some silt to be removed but are waiting until the adjacent new medical building is constructed on discovery Park Blvd. I believe that you have the as-built drawings and the certification for this BMP. Can we reduce the amount of this bond upon renewal on June 20?
2. New Town Section 2 and 4 Roadway Infrastructure - Phase II and Block 8 siltation bond is in the amount of $40,000. We have a temporary pond on the north side of Casey Blvd which was needed while the work was being done. When we develop this part of Section 7 probably in 2011 or 2012, the temporary pond which is dry will be filled. I'd really like to have this bond released. It currently expires on June 30.
Can you do that?
3. New Town BMP 53 siltation bond in the amount of $68,000. We had some small erosion near New Town Avenue which we filled with dirt and planted. We will continue to maintain this BMP. It functions very well. We'd like this bond released.
4. New Town Casey Corners Park on Discovery Park Blvd. siltation bond in the amount of $5,000 cash. this park was completed in April and is doing well. Can we please have this bond released.

I appreciate your consideration of this request. If you have any questions, please give me a call.

John

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

Amy Parker

From: Amy Parker
Sent: Friday, March 12, 2010 10:38 AM
To: 'John McCann'
Cc: Joe Buchite; Scott Thomas; William Cain; 'Cosby, Bob'
Subject: RE: Update on E&S Bonds

Tracking:

Recipient	Read
'John McCann'	
Joe Buchite	Read: 3/12/2010 1:46 PM
Scott Thomas	Read: 9/8/2010 12:03 PM
William Cain	Read: 3/12/2010 4:45 PM
'Cosby, Bob'	

Mr. McCann,
Item #1— The basin to which you are referring is currently operating in erosion and sediment control mode as a Temporary Sediment Basin and pursuant to information provided on plan sheet 20 of approved plan SP-015-04, this basin is to be converted to a dry BMP with a bypass pipe for upland undisturbed areas. Because this work has not been accomplished at this time and remains outstanding, the associated bonds cannot be released.

Item #2— The release of bonds associated with this facility ($25,000 Cash) has been initialed.

BMP 53-CONVERSION

Item #3— I have been keeping a close eye on this facility and we have conducted a complete review of the RD/CC for the construction of this pond. Though the basin elevations appear rather consistent with the approved plans, construction related concerns remain. In our previous meeting and email correspondence, you were aware of the sink holes forming around both structures and the measures taken to repair them. Though repairs have been made, experience with these types of issues lends us to believe that there is a high potential for recurrence of the subsidence and formation of the sink holes. This may continue to be an issue for some time and, therefore, inspections must be made on a regular basis to protect the safety and welfare of the public and maintenance staff. If New Town is aware of these conditions and is willing to accept the responsibilities associated with them and is willing to take the BMP in its current condition, we will release the bond in full. Please respond as such to this email and I will begin the processes involved.

Item #4 – The basin to which you are referring is operating in Temporary Sediment Basin mode and cannot be modified into its final configuration until such time that all of the surrounding areas have obtained final stabilization. In addition, the establishment of vegetation atop the stabilization matting in this area has not been accomplished at this time and additional work is required to obtain this. Further, though an interim record drawing has been provided, a final record drawing remains a requirement once the basin has been converted as will a final construction certification. All of this prevents us from reducing the bonds any further than what has already occurred.

I look forward to hearing from you.

Best Regards,

Amy Parker
James City County
Environmental Inspector
Office (757) 253-6851
Mobile (757) 592-0135

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Wednesday, March 10, 2010 6:35 PM
To: Joe Buchite; Amy Parker
Cc: Scott Thomas
Subject: Update on E&S Bonds

I am working with Keith Letchworth and VDOT on getting remaining utilities and roads in New Town accepted.

I have four E&S bonds that I had hoped would be release by now.

1. Phase II and block 8 - $40,000 letter of credit. We have a small silt pond on the north side of Casey Blvd in Section 7 of New Town which was installed in 2004/2005 when this part of Casey Blvd was built. It wremains there until that part of Section 7 is developed and a BMP is built. There is no E&S work to be done. GCR has told me that you released their E&S bond for block 8. Can i please get this released.

2. Block 3 - $25,000 cash. When we met, you told me that the as built drawing and certification for the IMP in the block
had never been submitted even though the IMP has functioned as designed for three years. AES submitted the drawing and the certification to you in early February. I'd love to get this IMP accepted and my cash bond released.

3. BMP 53 - $75,000 letter of credit. As you know, this BMP has been completed and is functioning as designed fortwo plus years. We were asked about a sink hole near the dam. It was actually some very small erosion that had resulted from water coming over the New Town Ave. curb andcausing very modest erosion. Our maintenance staff filled the area with about a I/2 bucket of dirt and compacted it and added some seed. It was about $10 worth of work. Please release this bond or tell me exactly what why it isn't released.

4. Phase VII - $45,000 letter of credit. This BMP along Rollison Drive was completed in late 2008. It is fully functioning and has good grass and plantings. The aquatic plants are doing very well. Please release this bond or tell me why it can't be released/ or what needs to still be done.

We really need to get these E&S bonds released. I appreciate any help you can give us.

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

made on a regular basis to protect the safety and welfare of the public and maintenance staff. If New Town is aware of these conditions and is willing to accept the responsibilities associated with them and is willing to take the BMP in its current condition, we will release the bond in full. Please respond as such to this email and I will begin the processes involved.

Item #4 – The basin to which you are referring is operating in Temporary Sediment Basin mode and cannot be modified into its final configuration until such time that all of the surrounding areas have obtained final stabilization. In addition, the establishment of vegetation atop the stabilization matting in this area has not been accomplished at this time and additional work is required to obtain this. Further, though an interim record drawing has been provided, a final record drawing remains a requirement once the basin has been converted as will a final construction certification. All of this prevents us from reducing the bonds any further than what has already occurred.

I look forward to hearing from you.

Best Regards,

Amy Parker
James City County
Environmental Inspector
Office (757) 253-6851
Mobile (757) 592-0135

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Wednesday, March 10, 2010 6:35 PM
To: Joe Buchite; Amy Parker
Cc: Scott Thomas
Subject: Update on E&S Bonds

I am working with Keith Letchworth and VDOT on getting remaining utilities and roads in New Town accepted.

I have four E&S bonds that I had hoped would be release by now.

1. Phase II and block 8 - $40,000 letter of credit. We have a small silt pond on the north side of Casey Blvd in Section 7 of New Town which was installed in 2004/2005 when this part of Casey Blvd was built. It wremains there until that part of Section 7 is developed and a BMP is built. There is no E&S work to be done. GCR has told me that you released their E&S bond for block 8. Can i please get this released.

2. Block 3 - $25,000 cash. When we met, you told me that the as built drawing and certification for the IMP in the block
had never been submitted even though the IMP has functioned as designed for three years. AES submitted the drawing and the certification to you in early February. I'd love to get this IMP accepted and my cash bond released.

3. BMP 53 - $75,000 letter of credit. As you know, this BMP has been completed and is functioning as designed fortwo plus years. We were asked about a sink hole near the dam. It was actually some very small erosion that had resulted from water coming over the New Town Ave. curb andcausing very modest erosion. Our maintenance staff filled the area with about a I/2 bucket of dirt and compacted it and added some seed. It was about $10 worth of work. Please release this bond or tell me exactly what why it isn't released.

4. Phase VII - $45,000 letter of credit. This BMP along Rollison Drive was completed in late 2008. It is fully functioning and has good grass and plantings. The aquatic plants are doing very well. Please release this bond or tell me why it can't be released/ or what needs to still be done.

We really need to get these E&S bonds released. I appreciate any help you can give us.

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

Amy Parker

From: John McCann [jmccann213@yahoo.com]
Sent: Wednesday, May 19, 2010 3:24 PM
To: Amy Parker; Joe Buchite
Cc: Larry Salzman
Subject: New Town Associates' Siltation Bonds

I have two Siltation Bonds that expire in June and two other siltation bonds that I'd like to get released.
1. New town Section 3&6 Roadway Infrastructure - Phase VIII siltation bond is in the amount of $76,000. I know we have some silt to be removed but are waiting until the adjacent new medical building is constructed on discovery Park Blvd. I believe that you have the as-built drawings and the certification for this BMP. Can we reduce the amount of this bond upon renewal on June 20?
2. New Town Section 2 and 4 Roadway Infrastructure - Phase II and Block 8 siltation bond is in the amount of $40,000. We have a temporary pond on the north side of Casey Blvd which was needed while the work was being done. When we develop this part of Section 7 probably in 2011 or 2012, the temporary pond which is dry will be filled. I'd really like to have this bond released. It currently expires on June 30.
Can you do that?
3. New Town BMP 53 siltation bond in the amount of $68,000. We had some small erosion near New Town Avenue which we filled with dirt and planted. We will continue to maintain this BMP. It functions very well. We'd like this bond released.
4. New Town Casey Corners Park on Discovery Park Blvd. siltation bond in the amount of $5,000 cash. this park was completed in April and is doing well. Can we please have this bond released.

I appreciate your consideration of this request. If you have any questions, please give me a call.

John

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

Amy Parker

From: Amy Parker
Sent: Friday, May 07, 2010 8:13 AM
To: 'John McCann'
Cc: Joe Buchite; Scott Thomas; William Cain; 'Cosby, Bob'
Subject: FW: Update on E&S Bonds

Tracking:

Recipient	Read
'John McCann'	
Joe Buchite	Read: 5/7/2010 9:26 AM
Scott Thomas	Read: 9/8/2010 12:15 PM
William Cain	Read: 5/7/2010 8:47 AM
'Cosby, Bob'	

Hi Mr. McCann,
I was going over some New Town items with Mr. Salzmann yesterday and BMP 53 came to mind. I am still anticipating a response from you on item #3 (see previous email). Do you want me to move forward with the bond release? Just let me know and I'll be happy to work on it.

Hope you are enjoying the weather!

Best Regards,

Amy Parker
James City County
Environmental Inspector
Office (757) 253-6851
Mobile (757) 592-0135

From: Amy Parker
Sent: Friday, March 12, 2010 10:38 AM
To: 'John McCann'
Cc: Joe Buchite; Scott Thomas; William Cain; 'Cosby, Bob'
Subject: RE: Update on E&S Bonds

Mr. McCann,
Item #1— The basin to which you are referring is currently operating in erosion and sediment control mode as a Temporary Sediment Basin and pursuant to information provided on plan sheet 20 of approved plan SP-015-04, this basin is to be converted to a dry BMP with a bypass pipe for upland undisturbed areas. Because this work has not been accomplished at this time and remains outstanding, the associated bonds cannot be released.

Item #2— The release of bonds associated with this facility ($25,000 Cash) has been initialed.

Item #3— I have been keeping a close eye on this facility and we have conducted a complete review of the RD/CC for the construction of this pond. Though the basin elevations appear rather consistent with the approved plans, construction related concerns remain. In our previous meeting and email correspondence, you were aware of the sink holes forming around both structures and the measures taken to repair them. Though repairs have been made, experience with these types of issues lends us to believe that there is a high potential for recurrence of the subsidence and formation of the sink holes. This may continue to be an issue for some time and, therefore, inspections must be

Amy Parker

From: Cosby, Bob [bob.cosby@aesva.com]
Sent: Wednesday, September 16, 2009 4:38 PM
To: Scott Thomas; John McCann
Cc: Joe Buchite; Amy Parker; William Cain
Subject: RE: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

AES will include the Maintenance Plan on the As-built and provide 1 Paper and 1 Mylar Copy of the Record Drawing on Thursday September 17, 2009.

Scott, Thank you for attention to this matter.

Thanks
Bob Cosby

Robert E. Cosby III, P.E.
Project Manager

AES Consulting Engineers
Williamsburg | Richmond | Gloucester | Fredericksburg
(757) 253-0040
fax: (757) 220-8994
bob.cosby@aesva.com
www.aesva.com

From: Scott Thomas [mailto:SCOTTT@james-city.va.us]
Sent: Wednesday, September 16, 2009 4:28 PM
To: 'John McCann'; Cosby, Bob
Cc: Joe Buchite; Amy Parker; William Cain
Subject: RE: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

To All:

I am going to step in here and help out as I reviewed the plan and was then involved with AES and Henderson when the construction difficulties arose. I had insisted on an asbuilt routing to be provided to ensure all was ok, back at the time we met with Henderson. I have reviewed Bob's information here and in conjunction with looking at the pond design routing and the asbuilt plan, concur with his finding. Therefore, there is no need to submit asbuilts and certification information again. This is what we need to do to keep moving forward:

1. I need to issue a letter amending the master stormwater management for New Town for BMP 53 being a 9-point facility now and due to change in overall point value for New Town. This will close the loop on that.
2. Inspection staff needs to perform a final inspection to ensure there are no stabilization issues and to ensure all the perimeter landscaping, in accordance with the plan, was installed. Our inspector is going to perform this inspection tomorrow.

3. The BMP maintenance plan located on Sheet 6 of the approved plan needs to be put on the asbuilt (record drawing). Do this and provide our office with one additional blue/black line drawing of the asbuilt and also a mylar.

It's our sense at this point that everything is on track for full release, rather than reduction, pending satisfactory final BMP inspection.

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

Visit:
www. jccegov.com
www. protectedwithpride.org

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Wednesday, September 16, 2009 10:58 AM
To: Joe Buchite; Scott Thomas
Cc: Robert Cosby
Subject: Fw: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Gentlemen, We had addressed this issue several months ago and I thought we had satisfied you on New Town BMP 53. If you feel that we have not satisfied the JCC Environmental requirements on this pond, I'd like to set up a meeting with you to discuss any open issues.

Thanks, John McCann
New Town Associates, LLC

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

----- Forwarded Message ----
From: "Cosby, Bob" <bob.cosby@aesva.com>
To: John McCann <jmccann213@yahoo.com>
Cc: Peter Henderson <peter@hendersoninc.com>
Sent: Tuesday, September 15, 2009 1:29:47 PM
Subject: RE: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

John,

To the best of my knowledge JCC has all of the information that they have requested related to BMP 53. This information has been provided to JCC on at least 2 separate occasions.

The Pond above water surface does meet the grading requirements of the original design. Therefore no additional changes to the routing are required. Revisions to the routing would be the exact same routing that was originally

submitted and approved with the design plans. I have already submitted statements to this affect which were previously accepted by JCC.

Record Drawing and Certification have been provided to JCC twice already. I will provide these again this week to get this bond released.

I currently have a call into Joe Buchite to confirm this information and verify if I need to provide the Record Drawing, Certification, and any other Calculations that they want.

Thanks
Bob Cosby

Robert E. Cosby III, P.E.
Project Manager

AES Consulting Engineers
Williamsburg | Richmond | Gloucester | Fredericksburg
(757) 253-0040
fax: (757) 220-8994
bob.cosby@aesva.com
www.aesva.com

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Tuesday, September 15, 2009 2:32 PM
To: Cosby, Bob
Cc: Peter Henderson
Subject: Fw: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Bob, Please let me know what this means. What does Environmental want?

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

----- Forwarded Message ----
From: Joe Buchite <JBUCHITE@james-city.va.us>
To: John McCann <jmccann213@yahoo.com>
Cc: Amy Parker <AParker@james-city.va.us>
Sent: Tuesday, September 15, 2009 6:30:36 AM
Subject: RE: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Mr. Mc Cann,

It is my understanding that the reason why the pond is not being released is that a stormwater routing was never provided for the BMP after modifications were performed and fell short of the proposed plan elevations. Also a final inspection of the record drawings and construction certification is required combined with any field items that might arise as a result of the field inspection.
Thank you,

Joe Buchite
Environmental Inspections Supervisor
Environmental Division
James City County
101-E Mounts Bay Road
Williamsburg, VA 23187-8784
(757) 253-6643

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Monday, September 14, 2009 5:24 PM
To: Joe Buchite
Subject: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Joe, As per the attached, I'm scheduled to renew the Siltation Bond letter of credit that bonds BMP53, the large BMP on New Town Ave., behind Towne Bank. This work has been complete for a couple of years and the as built drawings and certification for BMP 53 were submitted a long time ago. This is one of the bonds that I had asked to be released. Do you have an answer as to why this bond shouldn't be released? I'd like to avoid paying the renewal fees.

Thanks for your help.

John

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

Amy Parker

From: Joe Buchite
Sent: Tuesday, September 15, 2009 9:31 AM
To: 'John McCann'
Cc: Amy Parker
Subject: RE: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Mr. Mc Cann,
It is my understanding that the reason why the pond is not being released is that a stormwater routing was never provided for the BMP after modifications were performed and fell short of the proposed plan elevations. Also a final inspection of the record drawings and construction certification is required combined with any field items that might arise as a result of the field inspection.
Thank you,

Joe Buchite
Environmental Inspections Supervisor
Environmental Division
James City County
101-E Mounts Bay Road
Williamsburg, VA 23187-8784
(757) 253-6643

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Monday, September 14, 2009 5:24 PM
To: Joe Buchite
Subject: Siltation Bond, Sect. 2 & 4 BMP 53 Conversion

Joe, As per the attached, I'm scheduled to renew the Siltation Bond letter of credit that bonds BMP53, the large BMP on New Town Ave., behind Towne Bank. This work has been complete for a couple of years and the as built drawings and certification for BMP 53 were submitted a long time ago. This is one of the bonds that I had asked to be released. Do you have an answer as to why this bond shouldn't be released? I'd like to avoid paying the renewal fees.

Thanks for your help.

John

John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

Amy Parker

From: Melanie Davis
Sent: Monday, September 28, 2009 12:05 PM
To: 'John McCann'
Cc: Amy Parker
Subject: RE: BMP 53 Conversion -SP-38-07 Final Inspection-Bond reduction & Section 4 Roadway Infrastructure-Phase 2 and Block 8

John,
We received renewal on the $68,000 late Friday afternoon. Please contact me or Amy Parker when you are ready for the next review of the project for release of the surety.
We received renewal on the $118,750 earlier in the week.
Please let me know if you need any further assistance.

Melanie Davis
Senior Engineering Assistant
James City County Environmental Division
email: mdavis@james-city.va.us
phone: 757-253-6866
fax: 757-259-4032

From: John McCann [mailto:jmccann213@yahoo.com]
Sent: Monday, September 28, 2009 11:48 AM
To: Melanie Davis
Subject: Re: BMP 53 Conversion -SP-38-07 Final Inspection-Bond reduction & Section 4 Roadway Infrastructure-Phase 2 and Block 8

Melanie, When I couldn't get a definitive answer from either Scott or Joe on a reduction to the $68,000 letter of credit siltation bond two weeks ago for Section 2 & 4 BMP 53 conversion, I had it renewed for an additional year at the $68,000 amount. You should have received the amendment renewing it late last week. Since we already paid for it, we are going to leave it in place for for the next 30 days until we complete the final repair item.

The subdivision bond in the amount of $118,750 for Section 4 Roadway Infrastructure -Phase 2 & Block 8 Commercial was due to expire on Sept. 30. We also renewed it last week for one additional year until Sept. 30, 2010. You should also have received the amendment extending the term at the end of last week.

Please email or call me if you have any questions.

Best, John
John P. McCann
McCann Realty Partners, LLC
2520-B Gaskins Road
Richmond, VA 23238
804-290-8870 (office)
804-747-7848 (fax)
804-690-2158 (cell)
jmccann213@yahoo.com

From: Melanie Davis <MDavis@james-city.va.us>
To: "jmccann213@yahoo.com" <jmccann213@yahoo.com>
Cc: Amy Parker <AParker@james-city.va.us>

Sent: Friday, September 25, 2009 6:34:01 AM
Subject: RE: BMP 53 Conversion -SP-38-07 Final Inspection-Bond reduction

Mr. McCann,
Attached is a copy of the revised authorization letter for renewal and reduction of the SunTrust LC #F851060. A copy has also been mailed to the bank.
As this Letter of Credit expires on October 3, 2009 the amendment to extend and reduce must be received no later than next Thursday, 10/1/09.
Please call me if you have any questions regarding this renewal.
Thank you

Melanie Davis
Senior Engineering Assistant
James City County Environmental Division
email: mdavis@james-city.va.us
phone: 757-253-6866
fax: 757-259-4032

From: Amy Parker
Sent: Friday, September 25, 2009 9:17 AM
To: 'jmccann213@yahoo.com'
Cc: Joe Buchite; Scott Thomas; 'bills@hendersoninc.com'; Melanie Davis
Subject: BMP 53 Conversion -SP-38-07 Final Inspection-Bond reduction

Mr. McCann,
Please find the attached letter associated with the subject project. The bond is being reduced from $68,000 to $10,000. Once the field items have been completed, let me know and I'll inspect those items for full release. Please feel free to contact me with any questions.

Best Regards,

Amy Parker
James City County
Environmental Inspector
Office (757) 253-6851
Mobile (757) 592-0135

WAC/SJT

ENVIRONMENTAL DIVISION REVIEW COMMENTS
NEW TOWN – CONVERSION OF BMP # 53
COUNTY PLAN NO. SP – 38 - 07
May 29, 2007

General:

1. A Land-Disturbing Permit and Siltation Agreement, with surety, are required for this project.

2. Wetlands. Provide evidence of a wetland permit for proposed BMP conversion activities and specifically that the USCOE is acceptable with work as proposed within their existing easement. It is unclear if this easement, which coincides with the location of this BMP, still exists or if it has been abandoned or become void with new wetland permits.

3. A Standard Inspection / Maintenance agreement is required to be executed with the County due to the proposed stormwater conveyance systems and Stormwater Management/BMP facilities associated with this project.

4. Proffers. It should be noted that Proffer Condition # 13a from approved rezoning Z-05-06 requires submission of this site plan prior to issuance of a Land-Disturbing permit for development of New Town Section 7 & 8 and the BMP shall be complete and in service (in accordance with the approved plan) prior to the issuance of any land-disturbing permit in New Town Section 8.

5. Offsite Work. Information provided in the plan set reflects that a portion of the work, as proposed along the southern side of the stormwater basin, will encroach onto the Towne Bank property (approved County Plan No. SP-31-04). Provide evidence of permission to occupy and disturb this area from the parcel owner.

6. A Geotechnical Report, prepared by a professional engineer, is required to be submitted for the BMP design prior to issuance of a Land-Disturbing permit for the project. Information necessary to be contained in the report includes, but should not be limited to, indication that the basin will be capable of maintaining a normal pool, slopes will be stable under saturated conditions and assurance that the existing or modified embankment has stability and will be capable of withstanding the effects of a permanent standing pool.

7. Record Drawing and Construction Certification. The stormwater management/BMP facility as proposed for this project will require submission, review and approval of a record drawing (as-built) and construction certification prior to release of the posted bond/surety. Provide notes on the plan accordingly to ensure this activity is adequately coordinated and performed before, during and following construction in accordance with current County guidelines.

8. VSMP. It appears construction activity for the site will exceed 2,500 square feet. Therefore, it is the owner's responsibility to register for coverage under the General Permit for Discharge of Stormwater from Construction Activities, in accordance with current requirements of the Virginia Department of Conservation and Recreation and the Virginia Stormwater Management Program. Visit http://www.dcr.virginia.gov/sw/vsmp.htm or contact the DCR Central Office at 804-371-7330 for additional information.

9. Existing Information. All existing storm drainage pipe information needs to be shown on the grading/drainage plan Sheet 3, especially at the four primary inflow pipes into the stormwater basin. Pipe sizes and invert elevations need to be labeled appropriately as well as structure identification numbers from previously approved plans. Also, clearly label information for the existing JCSA sewer which traverses in an east to west direction just to the north of the proposed stormwater basin. No pipe sizes or manhole information was shown on the grading/drainage plan.

Chesapeake Bay Preservation:

10. Environmental inventory Sheet 2 needs to show and label a distinct limit of work for the project, consistent with the site erosion and sediment control and grading plans.

11. The environmental inventory map needs to show and label the presence of delineated wetland, RPA and RPA buffer at the outfall end of the principal flow control structures for the stormwater basin, on the west side of New Town Avenue and to the north of Langley Federal Credit Union.

12. Section 23-5 of the Chesapeake Bay Preservation Ordinance does not allow land-disturbing activities to be performed on slopes 25 percent or greater. It appears that steep slope areas are impacted at the west end of the project; therefore, a request for a waiver or exception is required, in writing.

Grading Plan:

13. Grading Plan. The following comments pertain to the grading plan for the proposed stormwater basin:

    13a. In the area to the southwest of the "Towne Bank" outfall, there is a very steep vertical drop between proposed contour El. 78 and El. 81. It does not appear a wall is present or proposed at this location.

    13b. Along the western portion of the basin at or near the dam embankment, the proposed contours in this area do not appear to consider the elevation of existing outfalls. The existing outfall to the south reflects an apparent invert (by contour) of 65 as does the outfall at the northern location; however, the revised contours in these areas reflect elevations of 66 and 67 respectively.

    13c. Information reflects that grading will be required along and across the existing James City Service Authority easement. Ensure there are no detrimental effects to public utilities at this location (such as inadequate depth of cover) and that the JCSA approves of the proposed grading plan.

    13d. There appears to be a problem with existing contours on Sheet 3 where grading along the north slope of the stormwater basin meets the parking bay where the construction laydown area is proposed. Either a retaining wall is not labeled or there is a "bust" in elevations between plans.

Erosion & Sediment Control Plan:

14. Material Removal. Provide a note on the title sheet of the plans indicating that all objectionable and deleterious material is to be removed from the site and disposed of in a state approved facility meeting the requirements of all applicable local, state, and federal regulations.

15. Temporary Stockpile Areas. Currently, an area measuring approximately 50' X 40' is being proposed as a stockpile and laydown area for construction. With the proposal reflecting more than 7,500 cubic yards of material is to be removed from the basin area, information will be necessary to show that this area is large enough to serve the site throughout the duration of construction.

16. Offsite Land Disturbing. There is a statement beneath the Sequence of Construction provided on plan Sheet 4 indicating that no off-site land disturbing is proposed with this project; however, the plan reflects that disturbance will be on the Town Bank property, within the limits of the VDOT Right-of-way, in the Block 5 area (unknown if private), and across the JCSA Sanitary Easement. Be advised that a land disturbing permit cannot be issued for the proposed improvements until appropriate information has been provided to reflect permission and/or approvals have been granted by the property and easement owners to conduct work as proposed.

17. Limits of Work. Show and label a distinct limit of work (clearing and grading) around the site periphery. Be sure to include work associated with installation of erosion and sediment controls, offsite utility connections, access and construction laydown areas. Ensure disturbed area estimates match land-disturbance inclusive within the limits of work. Remove the leader stating that the existing trail is the limit of work along the northern side of the project as the trail extends to Courthouse Street, extending well beyond the apparent limits of work. Provide information in the erosion and sediment control narrative to reflect how the work near the Town Bank portion will be accessed.

18. E&S Plan. The following comments pertain to the erosion and sediment control plan as presented for the project on Sheet 3.

    18a. The erosion and sediment control plan as presented is more geared toward a final product with pond grading complete and storm drainage pipes upgraded. Disturbance associated with dewatering the existing dry pond and initial clearing and grubbing of the basin area will be very invasive and disruptive to surrounding roads, residences and businesses and the downstream natural environment. Ensure the erosion and sediment control plan adequately addresses this early phase of land-disturbing and site work.

    18b. The plan does not address how flows from within the existing streams/channel will be handled while the proposed modifications are under construction and what erosion and sediment control measures are needed to ensure adequate downstream protection.

    18c. The boxed note on the left side of plan Sheet 3 needs to indicate a greater frequency of road sweeping/brushing than weekly. Cleaning in this manner needs to follow the provisions of Minimum Standard # 17 of the Virginia Erosion and Sediment Control regulations.

18d. The location of the proposed construction entrance appears to be located on a severe cross slope. Ensure that the location of the entrance will be appropriate for the anticipated construction traffic.

18e. Provide for outlet protection at the outfall of the barrel pipes on the western side of New Town Boulevard and all system outfalls in the basin area.

19. Sequence of Construction. The Sequence of Construction as presented on plan Sheet 4 needs to be revised to incorporate the following comments:

19a. Provide additional steps to indicate the timing of installation of specific components as the installation of some items will be dependent on others. For example, the upper limits of the basin will need to excavated prior to the placement of the revised dewatering orifice. Without the additional storage in the basin, the principal spillway may be used more frequently resulting in large amounts of sediment being transported off-site and the potential for a USACOE violation.

19b. Provide a statement that no erosion control measures are to be removed without proper permission from the assigned Environmental Division inspector.

19c. The sequence refers to the installation of silt fence and dewatering structure but there is no indication of where these items are to be installed on the plan set.

20. Inlet Protections. Provide inlet protection at the inlets in proximity to the construction entrance on New Town Boulevard. Manufactured BMP inlet protections such as gutter buddies or equal may be less invasive.

21. Seeding and Mulching Specification. Revise the permanent seeding and mulching specification to indicate a conservation seed mix.

22. Dewatering. As dewatering operations will be required at various times throughout the duration of construction, provide all appropriate references to the VESCH and show on the erosion and sediment control plan the location of the dewatering structure or device. Be advised that these structures need to be placed on a level surface that may not exist near the proposed improvements. Provide information for anticipated dewatering methods and required erosion and sediment controls (secondary filtering structures, bags, etc.). This may need to be further elaborated on in the narrative.

23. Safety Fence. Use of orange colored safety fence in accordance with VESCH Minimum Standard & Spec. 3.01 of the VESCH may be warranted along the frontage of the site and at all locations of ingress and egress to all trails and sidewalks as they will be closed to, or traffic patterns altered for, pedestrian traffic during construction.

24. Tree Protection. Information is provided in the sequence of construction for the installation of tree protection; however, there is nothing shown on the erosion control plan to indicate specifically where the measure is to be used. Revise the plans as necessary to appropriately protect all vegetation that is to remain. Tree protection devices must comply with the provisions of Minimum Standard & Specification 3.38 and 3.01 of the VESCH.

25. Dust Control. Due to the project site's proximity to Monticello Avenue, New Town Avenue and Courthouse Street and existing residences and businesses in New Town, add dust control in accordance with Minimum Standard & Spec. 3.39 of the VESCH to the erosion and sediment control plan for the project.

Stormwater Management / Drainage:

26. Ensure a wet pond, rather than a dry pond at this location, is consistent with the established *New Town Design Guidelines.*

27. Provide a general note on the cover sheet of the plan to indicate that the County BMP ID Code for BMP # 53 is PC 173.

28. General. This stormwater management review is very unique compared to any other known case in the County. It is rare that an existing stormwater basin in a very new development is retrofitted in full. This is especially true in New Town which in itself is a very unique concept compared to most other new developments. It's neo-traditional urban design concept is based on creating a pedestrian-friendly atmosphere. This in combination with project history, permit requirements (wetlands, stream, Chesapeake Bay exception, etc.), master stormwater management plan requirements, County/state BMP design/construction requirements and community design guideline conditions, makes this review very unique in nature. As such our Division is not opposed to the proposal. We recognize that this is necessary to meet wetland permit and master stormwater management plan requirements and actually finishes off many years of discussion on converting this basin from a dry to a wet pond. Actually a wet pond at this location may make for a more suitable visual aesthetic condition and fit well into the New Town character and scheme, especially if fountain features are incorporated into the design. However, the location of the project and features of the conversion from a dry to a wet basin raises three other issues:

    1) Conversion to a 10-point BMP means that it must have all features necessary to meet the intent of a County type A-3 BMP.
    2) Safety issues must be considered as a high priority to this basin.
    3) The potential for an urban-style wet pond BMP at this location may fit the development scheme of the project better rather than a template wet pond meant for typical commercial or subdivision sites.

    In all scenarios, the BMP redesign must meet all applicable design/construction requirements from the County BMP manual and the Virginia Stormwater Management handbook including, but not limited to: forebays; aquatic and safety benches; aquatic plantings, buffers and other requirements as contained in the County BMP manual and applicable Virginia Stormwater Management Handbook (VSMH) section must be adhered to. *(Note: One of the things our Division stressed to the applicant when it was known that the master stormwater plan needed revised to meet wetland permit requirements was that if BMPs were pulled upland out of natural stream and wetland areas that this would or may conflict with developable land and exceptions or waivers to stormwater management basin requirements would not be compromised.)*

With regard to the urban-style BMP as mentioned above, our Division will be discussing this internally with the Planning Division and may request a meeting with the owner and plan preparer after these comments are issued. Further discussions may occur on this subject; however, for now the comments as issued pertain to this plan of development as submitted.

29. Curve Number. Provide a composite breakdown of impervious cover amount per approved site plans to support the runoff curve number of 85 as used in BMP design.

30. Water Quality. Provide a composite breakdown of impervious cover amount per approved site plans to support the impervious cover acreage of 70 acres as used for water quality design.

31. Forebays. The following comments pertain to the pretreatment sediment forebays as shown on the grading/drainage plan and detail sheets.

    31a. For clarity purposes, label the "east" and "south" forebays on the plan consistent with the design report.

    31b. The current plan only shows two pretreatment sediment forebays for four primary storm drain inflow locations. For this basin redesign, it is not preferred that the location of the forebays be situated within the normal pool are of the basin, as this will make access and maintenance difficult, especially for the forebay which handles the most drainage area of the 115.90 acre watershed. The primary forebay needs to follow design/construction requirements from Minimum Standard & Spec. 3.04 of the VSMH, to the greatest extent possible.

    31c. It must be demonstration that the "east" and "south" pretreatment sediment forebays sizes are based on volume associated with impervious cover, not drainage area. Computations in the design report only shown drainage area, volume required and volume provided. *(Note: The standard is 0.1 inch per impervious acre.)*

32. Riser. Provide a section on the detail sheet showing the riser and outlet barrel with all critical construction information (inverts, orifices, crests, etc.) in relation to proposed pond bottom and water surface elevations. Information must match elevations and sizes shown in the Hydraflow Pond Report (Pond No. 1-BMP # 53).

33. Inflows. Short-circuiting will occur at two of the primary storm drain inflows with regard to the principle flow control structure.

34. Safety Bench. As the normal pool of the basin is four feet or greater in depth and there are not uniform 4H:1V interior graded slopes around the entire periphery of the basin (above normal pool), the safety bench cannot be eliminated. Provide a safety bench meeting County BMP manual requirements. *(Note: As outlined above, it is not the intent of our Division to grant a waiver or exception to safety requirements of the BMP, given the nature of surrounding development.)*

35. Aquatic Bench. The aquatic bench is not consistent in configuration and minimum width dimensions around the entire stormwater basin normal pool perimeter. In some places it is shown as up to 13.7 feet wide, in other areas it is non-existent or only 2-4 feet in width.

36. Principal Spillway Crest. The flat DI-1 top grate unit as proposed for the principal spillway structure is generally not acceptable for use. James City County and the Virginia Stormwater Management Handbook (VSMH) do not recommend flat grates for trash racks due to clogging and maintenance problems. The structure should be recessed into the embankment with sloped grates consisting of inclined, larger bar unit such as a modified VDOT DI-7 grate; however, beehive, convex, basket type, inverted DI-5 type or similar applications, such as HDPE trash racks per Technical Bulletin # 7 of the VaDCR can be considered on a case-by-case basis. Provide appropriate riser, grate and bar details as applicable.

37. MS-19. Provide computations to demonstrate that the inflow stormwater conveyance channel into the "east" forebay meets Minimum Standard # 19 criteria. It must be demonstrated that the 10 ft. wide and 9.5 percent graded channel has adequate erosion resistance for the 2-year design storm event and adequate capacity for the 10-year design storm event.

38. SSC. Without getting into a lengthy historical discussion, special stormwater criteria has not been applied to new land bay developments at New Town for several reasons. However, this is a retrofit scenario and due to concerns raised during the rezoning case for New Town Sections 7 and 8 about the adequacy and condition of the downstream natural receiving stream and wetland channel system, an attempt must be made to comply with Special Stormwater Criteria for this specific project only.

39. Pond Hydraulics. There is no information in the design report to indicate what effect changes to the normal and 1-, 2-, 10- and 100-year water surface elevations in the pond will have to adjacent stormwater drainage piping systems (at four inflow locations). As the previous facility was a dry pond with different WSEL's, this must be examined to ensure changes to design in the basin will not result in upstream flooding to existing roadways, parking areas or structures. Provide revised pond and upstream storm drainage piping computations as necessary.

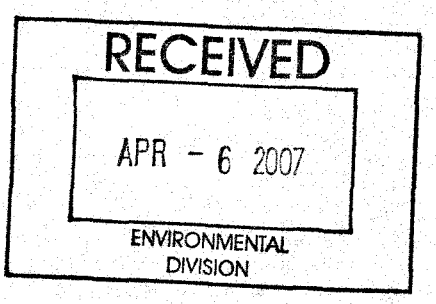
40. Maintenance Plan. Provide a maintenance plan for the stormwater management/BMP facility. Section 23-10(4)(b) of the Chesapeake Bay Preservation Ordinance requires stormwater management plans to include a long-term schedule for inspection and maintenance of stormwater management/BMP facilities. The plan should be specific for a *{County BMP Type}* facility.

41. Landscaping. Provide a landscaping plan for the BMP conversion. A boxed note on Sheet 3 shows simple seeding of the aquatic bench with a wetland seed mixture which would not meet the requirements of the County BMP manual and Minimum Standard & Spec. 3.05 of the VSMH.

42. Design High Water. It must be ensured that the 100-year design high water elevation for the stormwater basin (El. 80.63) does not flood existing adjacent travelways, parking areas or structures.

43. Our Division reserves the right to further discuss final design and configuration issues associated with the stormwater basin with the applicant and plan preparer.

TRANSMITTAL



DATE: April 6, 2007

TO: Environmental Division *
VDOT
Fire Department
County Engineer
Senior Landscape Planner
JCSA

FROM: Jose Ribeiro, Planner

(COUNTY BMP ID CODE:

SUBJECT: SP-0038-07-BMP 53 Conversion New Town Section 2 & 4.

ITEMS ATTACHED:
Site Plan
Drainage Calculations for New Town BMP# 53 *
Erosion and Sediment Control and Stormwater Management Design Plan Checklists*

ACTION: **Please review and return comments by April 20, 2007**

NOTE: **Pease submit comments on line.**

Thank you for your review,

APR 20 2007
Due Apr 1 27

José-Ricardo Linhares Ribeiro
JCC Planner

Scott Thomas

From: Scott Thomas
Sent: Friday, May 25, 2007 5:01 PM
To: Jose Ribeiro; Marvin Sowers
Cc: John Horne
Subject: New Town BMP 53 Conversion

As I discussed with Jose today, I would like to meet with Marvin and Jose to discuss the site plan which is in on BMP 53. I have some history to go over and feel we are trying to fit a square peg into a round hole on this one and there needs to be some flexibility from our end to get a stormwater basin here that meets the master stormwater management plan requirements but also fits the character and concept of New Town (especially at this location). I have some ideas, but I think it starts with the Planners agreeing.

Scott J. Thomas, P.E.
Chief Engineer - Stormwater
James City County
Environmental Division

Visit:
http://www.james-city.va.us/resources/devmgmt/div_devmgmt_environ.html
and
www.protectedwithpride.org

History of BMP 53

- Dry pond servicing the Courthouse construction, early phase of New Town.
- Original MSWMP proposal was large BMPs in wetland areas.
- WEG identified problems USACOE had with issuing a wetland permit under this concept.
- WEG identified that the USACOE and they felt an upland BMP plan was better and could obtain approval.
- WEG presented their idea to create a MSWMP which moved all BMP uplands.
- WEG stated that they wanted County review and approval of the MSWMP before the approached the USACOE.
- County stated upland BMP proposal looked ok, but we would not stand for the master planned BMPs, which would conflict more with developed land areas, constantly requesting waivers for:
    - Water quality volume
    - Channel protection volume
    - Freeboard
    - Benches (aquatic and safety)
    - Forebays
    - Buffers
- County at that time recognized that BMP 53 and existing dry pond to be converted to a wet pond may be an exception due to existing development all around and highly centralized area to the New Town concept.
- New Town Sec 7 & 8 proffer
- In comes SP-38-07
- Very unique situation, must understand retrofit needs, SWM needs and land use needs.
    - Never before encountered by staff
    - Highly urbanized area
    - Must meet 10-point requirements
    - Safety concerns (traffic/pedestrian)
    - Oyster Point/Downtown Norfolk-Newport News type (walls, fountains, railings, lights, amenity, etc.)

WAC/SJT

ENVIRONMENTAL DIVISION REVIEW COMMENTS
NEW TOWN – CONVERSION OF BMP # 53
COUNTY PLAN NO. SP – 38 - 07
August 17, 2007

General:

1. A meeting was held for this project on June 7, 2007 between the applicant, plan preparer and County Environmental and Planning Division staff. General layout and design features were discussed.

2. Wetlands. Response to previous comment stated that the permit was contained in the submittal package; however, none was found. A Land Disturbing Permit cannot be issued for this project until the approved and signed copy of the permit has been provided to our Division. Additionally, the latter portion of the comment was also not responded to. Ensure the USCOE is acceptable with work as proposed within their existing easement. It is unclear if this easement, which coincides with the location of this BMP, still exists or if it has been abandoned or become void with new wetland permits.

3. Offsite Work. Response to previous comment # 5 stated that the work was in an existing drainage easement. The current plan clearly shows clearing and grading required on the bank parcel at the southwest corner of the basin. Also, there is an area in the northeast corner of the basin that also appears offsite and within the JCSA easement. Therefore, previous comment # 5 remains outstanding. Provide evidence of permission to occupy and disturb offsite parcels from applicable parcel owner(s).

4. Geotechnical Report. Response to previous comment is not understood and the comment remains to be addressed. Regardless of the retrofit, the age of the existing dam, and the time the current basin has been in operation, it is necessary, and will be required, that a Geotechnical Report (or assessment), prepared by a professional engineer, is submitted for the BMP design prior to issuance of a Land-Disturbing permit for the project. The report needs to address items such as the basin's ability to maintain a normal pool, indicate slopes will be stable under saturated conditions, and assurances need to be made that the existing or modified embankment is stable and will be capable of withstanding the effects of a permanent standing pool. *(Discussion: It is unclear how the response to the comment can state that the pond will be converted from a dry pond function to a wet pond function yet the water surface elevation - normal pool - will remain unchanged. There will be a considerable increase in the amount and volume of normal, permanent pool stored behind the impounding structure dam. Based on our knowledge of the construction of the basin, there was intricate geogrid system installed at lower levels of the embankment due to poor soil conditions. What effect an increased normal pool and storm volume will have on the dam embankment and New Town Avenue road structure must be examined.)* 8.

5. Existing Information. Although some information was added to the plans to address previous comment # 9, not all information was provided. No existing storm pipe data or information could be found for the storm systems on the Towne Bank parcel, to the west of the bank building along New Town Avenue and within the large parking lot northwest of the Suntrust Building. The plan should reflect all existing storm drain pipe information in the vicinity of the project. *(This is required per the design plan checklist.)*

6. The new retaining wall added to the plan along the north side of the stormwater basin may require a building permit through Codes Compliance.

Grading Plan:

7. In response to previous comment # 13b, grading has been revised at the western limits of the basin at the 18-inch outfall. An uncharacteristic and non-traditional outfall configuration is being created at this location. Contours were pulled back to create an "alcove" type configuration and deflection angle is about 60 degrees compared to the normal pool location. This will result in scour to the graded side slope. Either an additional structure needs to be provided to change the alignment into the basin, or the outfall configuration needs to be revised to prevent scour in this location.

Erosion & Sediment Control Plan:

8. Material Removal. Additional information was provided to address previous comment # 14. Add "existing trash and debris" to Note # 24 on the cover sheet. Note 24 as provided in response to previous comment 14 does not address the concerns and needs to be revised to reflect what was previously requested. The current basin area is littered with debris, bottles, and various types of garbage which will need disposed of in a proper manner before, during or after construction.

9. Temporary Stockpile Areas. Response to previous comment # 15 indicated that "material excavated from the BMP is removed for the site and not stockpiled." It must be verified that disposal sites or areas fall under the provisions of an approved erosion and sediment control plan and land-disturbing permit or the disposal site E&S plan must be provided as part of this part. State the intent of where and how excess material is to be disposed, whether in other areas/sections of New Town or elsewhere. *(This is in accordance with Minimum Standard # 2 of the Virginia Erosion and Sediment Control regulations.)*

10. Offsite Land Disturbing. The response to previous comment # 16 is incorrect as the limit of work for the project clearly shows clearing and grading and utility work on offsite parcels. Provide information in support of the statement made in response to previous comment 16. See comment # 3 above. A land-disturbing permit cannot be issued for the project until evidence of proper permission to occupy and disturb offsite parcels is demonstrated.

11. Limits of Work. The limits of work shown for the project to address previous comment # 17 (and # 10) does not address access to the project site area consistent with the placement of the proposed construction entrance shown on Sheet 3. Ensure disturbed area estimates match land-disturbance inclusive within the limits of work.

12. E&S Plan. The following comments pertain to the erosion and sediment control plan as presented for the project on Sheet 3.

    12a. Response to previous comment #18 does not address the comment. While dewatering the basin is needed to conduct the work below the proposed normal pool of the basin, it is not the only way to control erosion in the basin and to prevent sediment laden stormwater from leaving the site. Work in a live system that cannot be taken off line is difficult;

however, there are several ways to combat the issue while lessening the potential for sediment loss. One is to specify that only the peripheral improvements are to be conducted during periods of relatively dry weather or while the current basin remains in operation as a dry facility. Another method is phasing portions of the project while creating modes of bypass. Another is use of insertable sediment filter bags in the primary flow control structure. Also, it must be clear that dewatering operations must follow the provisions of Minimum Standard & Spec. 3.26 of the VESCH.

12b. Response to previous comment #18b does not address the comment. Stating that dewatering is the only option is unacceptable. Containing the current channel flows to an area upland of the construction site and preventing this water from coming in contact with the newly disturbed areas is the main goal. This could be accomplished with the construction and stabilization of the forebay area up front of all other construction. This water could then be pumped directly to the riser. There are additional options to control the existing stormwater flows that could also be explored. This is not for the contractor to decide as is stated in response to comment #19, but for the plan preparer to provide. Without this information provided in the erosion and sediment control plan, the plan cannot be approved as it will not be deemed adequate.

12c. It is preferred that the boxed note provided to address street sweeping and to address previous comment # 18c be revised to change from "a minimum of once a week" to state that street sweeping will be performed on a daily basis or at the end of each workday. This will be an important measure not only for erosion control but also for public perception.

12d. Concern is still expressed about outlet protection or slope stabilization needed at the three primary storm drain outfalls into the proposed stormwater basin. Although it is understood that in it's final configuration, the outfalls are at or below proposed normal pool elevation, during construction the work area will be kept dry and vertical distance between the storm outfalls and the bottom of the basin range from 4 to 9 feet. Temporary erosion control matting or rock stabilization may be necessary along the interior graded side slopes of the basin (during all phases of work activities and once at final grade) to prevent erosion. *(This is in accordance with Minimum Standard # 7 and # 8 of the Virginia Erosion and Sediment Control regulations.)*

13. Matting. All 2H:1V graded slopes in the pretreatment forebay (above normal pool) will require erosion control matting.

Stormwater Management / Drainage:

14. General. Provide a response from a landscape architect (or similar professional) stating how the primary features of this urban BMP pond design fits the intent of discussions held at the project meeting of June 7, 2007, previous comment # 28 and the intent of Section 24-98(d)(4) of the zoning ordinance (sensitive to the character of the site, curvilinear shape, complements existing topography, etc.). This includes the creative use of shape, grading, landscaping and walls to create an urban BMP configuration.

15. Curve Number. The following comments pertain to the design runoff curve number as selected for the project and to the response provided to previous comment # 29.

15a. The basis for the adjustment to CN for LID treatment area is unclear. The breakdown shows a CN of 72 for 13 acres treated by LID. Most LID features within the watershed were designed for water quality and not larger storm events. Therefore, it is our position that CN within those subareas should not be adjusted.

15b. There is no indication in the weighted curve number analyses of what hydrologic soil group (HSGs) were used to select the CN values for land uses.

15c. The representative CN value for commercial and business districts at 78 percent impervious is much higher than a CN of 89 based on most standard hydrology references.

15d. There is no indication in the composite breakdown as to whether the CN value selection accounts for build-out within the 110 acre watershed or whether it is based on current conditions. The design should consider infill and buildout, especially within the limits of New Town and within the "south" portion of the watershed between Monticello Avenue and old Ironbound Road (ie. south of the Courthouse).

15e. Based on information provided, impervious cover within the 109.8 acre watershed is 70 acres. This reflects an impervious cover percentage within the watershed of about 63 percent. The CN value of 85 does not appear representative of a urban commercial/business district which is over 60 percent impervious.

15f. Above related comments may result in revision to the overall weighted CN value as used in the design.

16. Routing. Ensure model input in the design report (Pond Report-Pond No. 1-BMP # 53 Pond Data) for the riser/barrel structure reflects asbuilt conditions and data for the structure. *(Information provided in the plan set for the riser structure is not consistent with the information provided in the as-built file and that provided in the supporting documentation. For example, the information related to the invert of the 8" dewatering device is noted at Elevation 68.88 while the routing and as-built information reveals 66.84. Please ensure that all information provided throughout the plan set is current and up to date.)*

17. Inflows. Provide additional information to address previous comment # 33. The rezoning has no bearing in plan of development requirements to adhere to standard design and construction standards in the VESCH, VSMH, the County BMP manual and other applicable standards & specifications. As this basin was deemed to be a 10-point BMP with 60 percent removal efficiency per the current approved master stormwater management plan, any short-circuiting will lessen the pollutant removal efficiency of the basin and will lessen the pollutant removal capability of the basin to something less than 60 percent (10 points). If the intent is to not address short-circuiting due to space and configuration constraints, then revision of the overall master stormwater management plan for the project may be required. This is a serious issue that must be addressed by response. *(Note: If it is felt that some other pond feature is being provided to compensate for the short-circuiting from two primary inflow storm drains, then this must be explained by response in further detail.)*

18. Freeboard. As the stormwater basin does not have a designed emergency (overflow) spillway mechanism, confirm if the basin achieves adequate freeboard of 2 feet to the lowest point on top of dam (roadway).

19. Safety Bench. The response to previous comment # 34 is acknowledged; however, a request to waive the safety bench requirement from the County BMP manual is still necessary, in writing. Explain features that are being provided to promote safety in lieu of the bench to support the waiver request.

20. Aquatic Bench. The response to previous comment # 35 is acknowledged. Although a full perimeter aquatic bench is now provided, it is only 11.5 feet wide which does not conform to the requirements of the County BMP manual (up to 15 feet). Provide a waiver request in writing.

21. DI-1. With regard to the response to previous comment # 36, an access manhole with a DI-1 grate top is not easily accessible. An alternative structure should be considered which has durability and which is able to be removed to perform required maintenance.

22. Forebay. The following comments pertain to the pretreatment sediment forebay as shown on plan Sheet 3 and on details on Sheet 6:

    22a. Provide soil and compaction specifications for the embankment of the forebay.

    22b. The forebay contains a low flow or overflow channel. As this channel will more than likely be flowing throughout the year, and as the channel is being placed atop fill, an armored channel is needed to be places down the slope and across the aquatic bench to the normal pool.

23. WSELs. It appears that higher design water surface elevations for the basin design will result in indundation of the trail and the possibly the cooling tower pad west of the Suntrust Building. Ensure there is no impact to these facilities.

24. Pond Hydraulics. In the "Water Surface Elevation – Existing Conditions versus Proposed" tables as provided in the design report and in the response to previous comment # 39, add a row which shows the water surface elevation of normal (permanent) pool in the existing-currrent state versus proposed.

25. Maintenance Plan. There is nothing in the BMP maintenance plan on Sheet 6 to indicate requirements or frequency for routine debris, trash and sediment removal from the principal and normal pool flow control structures, including the DI-1 box and the 12-inch low flow orifice.

26. Landscaping. Provide a general note on landscaping plan Sheet 4 to indicate reference to Minimum Standard & Spec. 3.05 of the Virginia Stormwater Management Handbook.

27. SSC. Based on the entire history of the New Town development and other factors, it has been determined that Special Stormwater Criteria will not be required to be achieved for the project. Therefore, previous comment # 38 is determined to be addressed without any additional information.

All Previous Comments

ENVIRONMENTAL DIVISION REVIEW COMMENTS
NEW TOWN – CONVERSION OF BMP # 53
COUNTY PLAN NO. SP – 38 - 07
August 17, 2007

General:

1. A meeting was held for this project on June 7, 2007 between the applicant, plan preparer and County Environmental and Planning Division staff. General layout and design features were discussed.

2. Wetlands. Response to previous comment stated that the permit was contained in the submittal package; however, none was found. A Land Disturbing Permit cannot be issued for this project until the approved and signed copy of the permit has been provided to our Division. Additionally, the latter portion of the comment was also not responded to. Ensure the USCOE is acceptable with work as proposed within their existing easement. It is unclear if this easement, which coincides with the location of this BMP, still exists or if it has been abandoned or become void with new wetland permits.

3. Offsite Work. Response to previous comment # 5 stated that the work was in an existing drainage easement. The current plan clearly shows clearing and grading required on the bank parcel at the southwest corner of the basin. Also, there is an area in the northeast corner of the basin that also appears offsite and within the JCSA easement. Therefore, previous comment # 5 remains outstanding. Provide evidence of permission to occupy and disturb offsite parcels from applicable parcel owner(s).

4. Geotechnical Report. Response to previous comment is not understood and the comment remains to be addressed. Regardless of the retrofit, the age of the existing dam, and the time the current basin has been in operation, it is necessary, and will be required, that a Geotechnical Report (or assessment), prepared by a professional engineer, is submitted for the BMP design prior to issuance of a Land-Disturbing permit for the project. The report needs to address items such as the basin's ability to maintain a normal pool, indicate slopes will be stable under saturated conditions, and assurances need to be made that the existing or modified embankment is stable and will be capable of withstanding the effects of a permanent standing pool. *(Discussion: It is unclear how the response to the comment can state that the pond will be converted from a dry pond function to a wet pond function yet the water surface elevation - normal pool - will remain unchanged. There will be a considerable increase in the amount and volume of normal, permanent pool stored behind the impounding structure dam. Based on our knowledge of the construction of the basin, there was intricate geogrid system installed at lower levels of the embankment due to poor soil conditions. What effect an increased normal pool and storm volume will have on the dam embankment and New Town Avenue road structure must be examined.)* 8.

5. Existing Information. Although some information was added to the plans to address previous comment # 9, not all information was provided. No existing storm pipe data or information could be found for the storm systems on the Towne Bank parcel, to the west of the bank building along New Town Avenue and within the large parking lot northwest of the Suntrust Building. The plan should reflect all existing storm drain pipe information in the vicinity of the project. *(This is required per the design plan checklist.)*

6. The new retaining wall added to the plan along the north side of the stormwater basin may require a building permit through Codes Compliance.

Grading Plan:

7. In response to previous comment # 13b, grading has been revised at the western limits of the basin at the 18-inch outfall. An uncharacteristic and non-traditional outfall configuration is being created at this location. Contours were pulled back to create an "alcove" type configuration and deflection angle is about 60 degrees compared to the normal pool location. This will result in scour to the graded side slope. Either an additional structure needs to be provided to change the alignment into the basin, or the outfall configuration needs to be revised to prevent scour in this location.

Erosion & Sediment Control Plan:

8. Material Removal. Additional information was provided to address previous comment # 14. Add "existing trash and debris" to Note # 24 on the cover sheet. Note 24 as provided in response to previous comment 14 does not address the concerns and needs to be revised to reflect what was previously requested. The current basin area is littered with debris, bottles, and various types of garbage which will need disposed of in a proper manner before, during or after construction.

9. Temporary Stockpile Areas. Response to previous comment # 15 indicated that "material excavated from the BMP is removed for the site and not stockpiled." It must be verified that disposal sites or areas fall under the provisions of an approved erosion and sediment control plan and land-disturbing permit or the disposal site E&S plan must be provided as part of this part. State the intent of where and how excess material is to be disposed, whether in other areas/sections of New Town or elsewhere. *(This is in accordance with Minimum Standard # 2 of the Virginia Erosion and Sediment Control regulations.)*

10. Offsite Land Disturbing. The response to previous comment # 16 is incorrect as the limit of work for the project clearly shows clearing and grading and utility work on offsite parcels. Provide information in support of the statement made in response to previous comment 16. See comment # 3 above. A land-disturbing permit cannot be issued for the project until evidence of proper permission to occupy and disturb offsite parcels is demonstrated.

11. Limits of Work. The limits of work shown for the project to address previous comment # 17 (and # 10) does not address access to the project site area consistent with the placement of the proposed construction entrance shown on Sheet 3. Ensure disturbed area estimates match land-disturbance inclusive within the limits of work.

12. E&S Plan. The following comments pertain to the erosion and sediment control plan as presented for the project on Sheet 3.

    12a. Response to previous comment #18 does not address the comment. While dewatering the basin is needed to conduct the work below the proposed normal pool of the basin, it is not the only way to control erosion in the basin and to prevent sediment laden stormwater from leaving the site. Work in a live system that cannot be taken off line is difficult;

however, there are several ways to combat the issue while lessening the potential for sediment loss. One is to specify that only the peripheral improvements are to be conducted during periods of relatively dry weather or while the current basin remains in operation as a dry facility. Another method is phasing portions of the project while creating modes of bypass. Another is use of insertable sediment filter bags in the primary flow control structure. Also, it must be clear that dewatering operations must follow the provisions of Minimum Standard & Spec. 3.26 of the VESCH.

12b. Response to previous comment #18b does not address the comment. Stating that dewatering is the only option is unacceptable. Containing the current channel flows to an area upland of the construction site and preventing this water from coming in contact with the newly disturbed areas is the main goal. This could be accomplished with the construction and stabilization of the forebay area up front of all other construction. This water could then be pumped directly to the riser. There are additional options to control the existing stormwater flows that could also be explored. This is not for the contractor to decide as is stated in response to comment #19, but for the plan preparer to provide. Without this information provided in the erosion and sediment control plan, the plan cannot be approved as it will not be deemed adequate.

12c. It is preferred that the boxed note provided to address street sweeping and to address previous comment # 18c be revised to change from "a minimum of once a week" to state that street sweeping will be performed on a daily basis or at the end of each workday. This will be an important measure not only for erosion control but also for public perception.

12d. Concern is still expressed about outlet protection or slope stabilization needed at the three primary storm drain outfalls into the proposed stormwater basin. Although it is understood that in it's final configuration, the outfalls are at or below proposed normal pool elevation, during construction the work area will be kept dry and vertical distance between the storm outfalls and the bottom of the basin range from 4 to 9 feet. Temporary erosion control matting or rock stabilization may be necessary along the interior graded side slopes of the basin (during all phases of work activities and once at final grade) to prevent erosion. *(This is in accordance with Minimum Standard # 7 and # 8 of the Virginia Erosion and Sediment Control regulations.)*

13. Matting. All 2H:1V graded slopes in the pretreatment forebay (above normal pool) will require erosion control matting.

Stormwater Management / Drainage:

14. General. Provide a response from a landscape architect (or similar professional) stating how the primary features of this urban BMP pond design fits the intent of discussions held at the project meeting of June 7, 2007, previous comment # 28 and the intent of Section 24-98(d)(4) of the zoning ordinance (sensitive to the character of the site, curvilinear shape, complements existing topography, etc.). This includes the creative use of shape, grading, landscaping and walls to create an urban BMP configuration.

15. Curve Number. The following comments pertain to the design runoff curve number as selected for the project and to the response provided to previous comment # 29.

15a. The basis for the adjustment to CN for LID treatment area is unclear. The breakdown shows a CN of 72 for 13 acres treated by LID. Most LID features within the watershed were designed for water quality and not larger storm events. Therefore, it is our position that CN within those subareas should not be adjusted.

15b. There is no indication in the weighted curve number analyses of what hydrologic soil group (HSGs) were used to select the CN values for land uses.

15c. The representative CN value for commercial and business districts at 78 percent impervious is much higher than a CN of 89 based on most standard hydrology references.

15d. There is no indication in the composite breakdown as to whether the CN value selection accounts for build-out within the 110 acre watershed or whether it is based on current conditions. The design should consider infill and buildout, especially within the limits of New Town and within the "south" portion of the watershed between Monticello Avenue and old Ironbound Road (ie. south of the Courthouse).

15e. Based on information provided, impervious cover within the 109.8 acre watershed is 70 acres. This reflects an impervious cover percentage within the watershed of about 63 percent. The CN value of 85 does not appear representative of a urban commercial/business district which is over 60 percent impervious.

15f. Above related comments may result in revision to the overall weighted CN value as used in the design.

16. Routing. Ensure model input in the design report (Pond Report-Pond No. 1-BMP # 53 Pond Data) for the riser/barrel structure reflects asbuilt conditions and data for the structure. *(Information provided in the plan set for the riser structure is not consistent with the information provided in the as-built file and that provided in the supporting documentation. For example, the information related to the invert of the 8" dewatering device is noted at Elevation 68.88 while the routing and as-built information reveals 66.84. Please ensure that all information provided throughout the plan set is current and up to date.)*

17. Inflows. Provide additional information to address previous comment # 33. The rezoning has no bearing in plan of development requirements to adhere to standard design and construction standards in the VESCH, VSMH, the County BMP manual and other applicable standards & specifications. As this basin was deemed to be a 10-point BMP with 60 percent removal efficiency per the current approved master stormwater management plan, any short-circuiting will lessen the pollutant removal efficiency of the basin and will lessen the pollutant removal capability of the basin to something less than 60 percent (10 points). If the intent is to not address short-circuiting due to space and configuration constraints, then revision of the overall master stormwater management plan for the project may be required. This is a serious issue that must be addressed by response. *(Note: If it is felt that some other pond feature is being provided to compensate for the short-circuiting from two primary inflow storm drains, then this must be explained by response in further detail.)*

18. Freeboard. As the stormwater basin does not have a designed emergency (overflow) spillway mechanism, confirm if the basin achieves adequate freeboard of 2 feet to the lowest point on top of dam (roadway).

19. Safety Bench. The response to previous comment # 34 is acknowledged; however, a request to waive the safety bench requirement from the County BMP manual is still necessary, in writing. Explain features that are being provided to promote safety in lieu of the bench to support the waiver request.

20. Aquatic Bench. The response to previous comment # 35 is acknowledged. Although a full perimeter aquatic bench is now provided, it is only 11.5 feet wide which does not conform to the requirements of the County BMP manual (up to 15 feet). Provide a waiver request in writing.

21. DI-1. With regard to the response to previous comment # 36, an access manhole with a DI-1 grate top is not easily accessible. An alternative structure should be considered which has durability and which is able to be removed to perform required maintenance.

22. Forebay. The following comments pertain to the pretreatment sediment forebay as shown on plan Sheet 3 and on details on Sheet 6:

    22a. Provide soil and compaction specifications for the embankment of the forebay.

    22b. The forebay contains a low flow or overflow channel. As this channel will more than likely be flowing throughout the year, and as the channel is being placed atop fill, an armored channel is needed to be places down the slope and across the aquatic bench to the normal pool.

23. WSELs. It appears that higher design water surface elevations for the basin design will result in indundation of the trail and the possibly the cooling tower pad west of the Suntrust Building. Ensure there is no impact to these facilities.

24. Pond Hydraulics. In the "Water Surface Elevation – Existing Conditions versus Proposed" tables as provided in the design report and in the response to previous comment # 39, add a row which shows the water surface elevation of normal (permanent) pool in the existing-currrent state versus proposed.

25. Maintenance Plan. There is nothing in the BMP maintenance plan on Sheet 6 to indicate requirements or frequency for routine debris, trash and sediment removal from the principal and normal pool flow control structures, including the DI-1 box and the 12-inch low flow orifice.

26. Landscaping. Provide a general note on landscaping plan Sheet 4 to indicate reference to Minimum Standard & Spec. 3.05 of the Virginia Stormwater Management Handbook.

27. SSC. Based on the entire history of the New Town development and other factors, it has been determined that Special Stormwater Criteria will not be required to be achieved for the project. Therefore, previous comment # 38 is determined to be addressed without any additional information.

ENVIRONMENTAL DIVISION REVIEW COMMENTS
NEW TOWN – CONVERSION OF BMP # 53
COUNTY PLAN NO. SP – 38 - 07
May 29, 2007

General:

1. A Land-Disturbing Permit and Siltation Agreement, with surety, are required for this project.

2. Wetlands. Provide evidence of a wetland permit for proposed BMP conversion activities and specifically that the USCOE is acceptable with work as proposed within their existing easement. It is unclear if this easement, which coincides with the location of this BMP, still exists or if it has been abandoned or become void with new wetland permits.

3. A Standard Inspection / Maintenance agreement is required to be executed with the County due to the proposed stormwater conveyance systems and Stormwater Management/BMP facilities associated with this project.

4. Proffers. It should be noted that Proffer Condition # 13a from approved rezoning Z-05-06 requires submission of this site plan prior to issuance of a Land-Disturbing permit for development of New Town Section 7 & 8 and the BMP shall be complete and in service (in accordance with the approved plan) prior to the issuance of any land-disturbing permit in New Town Section 8.

5. Offsite Work. Information provided in the plan set reflects that a portion of the work, as proposed along the southern side of the stormwater basin, will encroach onto the Towne Bank property (approved County Plan No. SP-31-04). Provide evidence of permission to occupy and disturb this area from the parcel owner.

6. A Geotechnical Report, prepared by a professional engineer, is required to be submitted for the BMP design prior to issuance of a Land-Disturbing permit for the project. Information necessary to be contained in the report includes, but should not be limited to, indication that the basin will be capable of maintaining a normal pool, slopes will be stable under saturated conditions and assurance that the existing or modified embankment has stability and will be capable of withstanding the effects of a permanent standing pool.

7. Record Drawing and Construction Certification. The stormwater management/BMP facility as proposed for this project will require submission, review and approval of a record drawing (as-built) and construction certification prior to release of the posted bond/surety. Provide notes on the plan accordingly to ensure this activity is adequately coordinated and performed before, during and following construction in accordance with current County guidelines.

8. VSMP. It appears construction activity for the site will exceed 2,500 square feet. Therefore, it is the owner's responsibility to register for coverage under the General Permit for Discharge of Stormwater from Construction Activities, in accordance with current requirements of the Virginia Department of Conservation and Recreation and the Virginia Stormwater Management Program. Visit http://www.dcr.virginia.gov/sw/vsmp.htm or contact the DCR Central Office at 804-371-7330 for additional information.

9. Existing Information. All existing storm drainage pipe information needs to be shown on the grading/drainage plan Sheet 3, especially at the four primary inflow pipes into the stormwater basin. Pipe sizes and invert elevations need to be labeled appropriately as well as structure identification numbers from previously approved plans. Also, clearly label information for the existing JCSA sewer which traverses in an east to west direction just to the north of the proposed stormwater basin. No pipe sizes or manhole information was shown on the grading/drainage plan.

Chesapeake Bay Preservation:

10. Environmental inventory Sheet 2 needs to show and label a distinct limit of work for the project, consistent with the site erosion and sediment control and grading plans.

11. The environmental inventory map needs to show and label the presence of delineated wetland, RPA and RPA buffer at the outfall end of the principal flow control structures for the stormwater basin, on the west side of New Town Avenue and to the north of Langley Federal Credit Union.

12. Section 23-5 of the Chesapeake Bay Preservation Ordinance does not allow land-disturbing activities to be performed on slopes 25 percent or greater. It appears that steep slope areas are impacted at the west end of the project; therefore, a request for a waiver or exception is required, in writing.

Grading Plan:

13. Grading Plan. The following comments pertain to the grading plan for the proposed stormwater basin:

    13a. In the area to the southwest of the "Towne Bank" outfall, there is a very steep vertical drop between proposed contour El. 78 and El. 81. It does not appear a wall is present or proposed at this location.

    13b. Along the western portion of the basin at or near the dam embankment, the proposed contours in this area do not appear to consider the elevation of existing outfalls. The existing outfall to the south reflects an apparent invert (by contour) of 65 as does the outfall at the northern location; however, the revised contours in these areas reflect elevations of 66 and 67 respectively.

    13c. Information reflects that grading will be required along and across the existing James City Service Authority easement. Ensure there are no detrimental effects to public utilities at this location (such as inadequate depth of cover) and that the JCSA approves of the proposed grading plan.

    13d. There appears to be a problem with existing contours on Sheet 3 where grading along the north slope of the stormwater basin meets the parking bay where the construction laydown area is proposed. Either a retaining wall is not labeled or there is a "bust" in elevations between plans.

Erosion & Sediment Control Plan:

14. Material Removal. Provide a note on the title sheet of the plans indicating that all objectionable and deleterious material is to be removed from the site and disposed of in a state approved facility meeting the requirements of all applicable local, state, and federal regulations.

15. Temporary Stockpile Areas. Currently, an area measuring approximately 50' X 40' is being proposed as a stockpile and laydown area for construction. With the proposal reflecting more than 7,500 cubic yards of material is to be removed from the basin area, information will be necessary to show that this area is large enough to serve the site throughout the duration of construction.

16. Offsite Land Disturbing. There is a statement beneath the Sequence of Construction provided on plan Sheet 4 indicating that no off-site land disturbing is proposed with this project; however, the plan reflects that disturbance will be on the Town Bank property, within the limits of the VDOT Right-of-way, in the Block 5 area (unknown if private), and across the JCSA Sanitary Easement. Be advised that a land disturbing permit cannot be issued for the proposed improvements until appropriate information has been provided to reflect permission and/or approvals have been granted by the property and easement owners to conduct work as proposed.

17. Limits of Work. Show and label a distinct limit of work (clearing and grading) around the site periphery. Be sure to include work associated with installation of erosion and sediment controls, offsite utility connections, access and construction laydown areas. Ensure disturbed area estimates match land-disturbance inclusive within the limits of work. Remove the leader stating that the existing trail is the limit of work along the northern side of the project as the trail extends to Courthouse Street, extending well beyond the apparent limits of work. Provide information in the erosion and sediment control narrative to reflect how the work near the Town Bank portion will be accessed.

18. E&S Plan. The following comments pertain to the erosion and sediment control plan as presented for the project on Sheet 3.

    18a. The erosion and sediment control plan as presented is more geared toward a final product with pond grading complete and storm drainage pipes upgraded. Disturbance associated with dewatering the existing dry pond and initial clearing and grubbing of the basin area will be very invasive and disruptive to surrounding roads, residences and businesses and the downstream natural environment. Ensure the erosion and sediment control plan adequately addresses this early phase of land-disturbing and site work.

    18b. The plan does not address how flows from within the existing streams/channel will be handled while the proposed modifications are under construction and what erosion and sediment control measures are needed to ensure adequate downstream protection.

    18c. The boxed note on the left side of plan Sheet 3 needs to indicate a greater frequency of road sweeping/brushing than weekly. Cleaning in this manner needs to follow the provisions of Minimum Standard # 17 of the Virginia Erosion and Sediment Control regulations.

18d. The location of the proposed construction entrance appears to be located on a severe cross slope. Ensure that the location of the entrance will be appropriate for the anticipated construction traffic.

18e. Provide for outlet protection at the outfall of the barrel pipes on the western side of New Town Boulevard and all system outfalls in the basin area.

19. Sequence of Construction. The Sequence of Construction as presented on plan Sheet 4 needs to be revised to incorporate the following comments:

19a. Provide additional steps to indicate the timing of installation of specific components as the installation of some items will be dependent on others. For example, the upper limits of the basin will need to excavated prior to the placement of the revised dewatering orifice. Without the additional storage in the basin, the principal spillway may be used more frequently resulting in large amounts of sediment being transported off-site and the potential for a USACOE violation.

19b. Provide a statement that no erosion control measures are to be removed without proper permission from the assigned Environmental Division inspector.

19c. The sequence refers to the installation of silt fence and dewatering structure but there is no indication of where these items are to be installed on the plan set.

20. Inlet Protections. Provide inlet protection at the inlets in proximity to the construction entrance on New Town Boulevard. Manufactured BMP inlet protections such as gutter buddies or equal may be less invasive.

21. Seeding and Mulching Specification. Revise the permanent seeding and mulching specification to indicate a conservation seed mix.

22. Dewatering. As dewatering operations will be required at various times throughout the duration of construction, provide all appropriate references to the VESCH and show on the erosion and sediment control plan the location of the dewatering structure or device. Be advised that these structures need to be placed on a level surface that may not exist near the proposed improvements. Provide information for anticipated dewatering methods and required erosion and sediment controls (secondary filtering structures, bags, etc.). This may need to be further elaborated on in the narrative.

23. Safety Fence. Use of orange colored safety fence in accordance with VESCH Minimum Standard & Spec. 3.01 of the VESCH may be warranted along the frontage of the site and at all locations of ingress and egress to all trails and sidewalks as they will be closed to, or traffic patterns altered for, pedestrian traffic during construction.

24. Tree Protection. Information is provided in the sequence of construction for the installation of tree protection; however, there is nothing shown on the erosion control plan to indicate specifically where the measure is to be used. Revise the plans as necessary to appropriately protect all vegetation that is to remain. Tree protection devices must comply with the provisions of Minimum Standard & Specification 3.38 and 3.01 of the VESCH.

25. Dust Control. Due to the project site's proximity to Monticello Avenue, New Town Avenue and Courthouse Street and existing residences and businesses in New Town, add dust control in accordance with Minimum Standard & Spec. 3.39 of the VESCH to the erosion and sediment control plan for the project.

Stormwater Management / Drainage:

26. Ensure a wet pond, rather than a dry pond at this location, is consistent with the established *New Town Design Guidelines.*

27. Provide a general note on the cover sheet of the plan to indicate that the County BMP ID Code for BMP # 53 is PC 173.

28. General. This stormwater management review is very unique compared to any other known case in the County. It is rare that an existing stormwater basin in a very new development is retrofitted in full. This is especially true in New Town which in itself is a very unique concept compared to most other new developments. It's neo-traditional urban design concept is based on creating a pedestrian-friendly atmosphere. This in combination with project history, permit requirements (wetlands, stream, Chesapeake Bay exception, etc.), master stormwater management plan requirements, County/state BMP design/construction requirements and community design guideline conditions, makes this review very unique in nature. As such our Division is not opposed to the proposal. We recognize that this is necessary to meet wetland permit and master stormwater management plan requirements and actually finishes off many years of discussion on converting this basin from a dry to a wet pond. Actually a wet pond at this location may make for a more suitable visual aesthetic condition and fit well into the New Town character and scheme, especially if fountain features are incorporated into the design. However, the location of the project and features of the conversion from a dry to a wet basin raises three other issues:

    1) Conversion to a 10-point BMP means that it must have all features necessary to meet the intent of a County type A-3 BMP.
    2) Safety issues must be considered as a high priority to this basin.
    3) The potential for an urban-style wet pond BMP at this location may fit the development scheme of the project better rather than a template wet pond meant for typical commercial or subdivision sites.

    In all scenarios, the BMP redesign must meet all applicable design/construction requirements from the County BMP manual and the Virginia Stormwater Management handbook including, but not limited to: forebays; aquatic and safety benches; aquatic plantings, buffers and other requirements as contained in the County BMP manual and applicable Virginia Stormwater Management Handbook (VSMH) section must be adhered to. *(Note: One of the things our Division stressed to the applicant when it was known that the master stormwater plan needed revised to meet wetland permit requirements was that if BMPs were pulled upland out of natural stream and wetland areas that this would or may conflict with developable land and exceptions or waivers to stormwater management basin requirements would not be compromised.)*

With regard to the urban-style BMP as mentioned above, our Division will be discussing this internally with the Planning Division and may request a meeting with the owner and plan preparer after these comments are issued. Further discussions may occur on this subject; however, for now the comments as issued pertain to this plan of development as submitted.

29. Curve Number. Provide a composite breakdown of impervious cover amount per approved site plans to support the runoff curve number of 85 as used in BMP design.

30. Water Quality. Provide a composite breakdown of impervious cover amount per approved site plans to support the impervious cover acreage of 70 acres as used for water quality design.

31. Forebays. The following comments pertain to the pretreatment sediment forebays as shown on the grading/drainage plan and detail sheets.

    31a. For clarity purposes, label the "east" and "south" forebays on the plan consistent with the design report.

    31b. The current plan only shows two pretreatment sediment forebays for four primary storm drain inflow locations. For this basin redesign, it is not preferred that the location of the forebays be situated within the normal pool are of the basin, as this will make access and maintenance difficult, especially for the forebay which handles the most drainage area of the 115.90 acre watershed. The primary forebay needs to follow design/construction requirements from Minimum Standard & Spec. 3.04 of the VSMH, to the greatest extent possible.

    31c. It must be demonstration that the "east" and "south" pretreatment sediment forebays sizes are based on volume associated with impervious cover, not drainage area. Computations in the design report only shown drainage area, volume required and volume provided. *(Note: The standard is 0.1 inch per impervious acre.)*

32. Riser. Provide a section on the detail sheet showing the riser and outlet barrel with all critical construction information (inverts, orifices, crests, etc.) in relation to proposed pond bottom and water surface elevations. Information must match elevations and sizes shown in the Hydraflow Pond Report (Pond No. 1-BMP # 53).

33. Inflows. Short-circuiting will occur at two of the primary storm drain inflows with regard to the principle flow control structure.

34. Safety Bench. As the normal pool of the basin is four feet or greater in depth and there are not uniform 4H:1V interior graded slopes around the entire periphery of the basin (above normal pool), the safety bench cannot be eliminated. Provide a safety bench meeting County BMP manual requirements. *(Note: As outlined above, it is not the intent of our Division to grant a waiver or exception to safety requirements of the BMP, given the nature of surrounding development.)*

35. Aquatic Bench. The aquatic bench is not consistent in configuration and minimum width dimensions around the entire stormwater basin normal pool perimeter. In some places it is shown as up to 13.7 feet wide, in other areas it is non-existent or only 2-4 feet in width.

36. Principal Spillway Crest. The flat DI-1 top grate unit as proposed for the principal spillway structure is generally not acceptable for use. James City County and the Virginia Stormwater Management Handbook (VSMH) do not recommend flat grates for trash racks due to clogging and maintenance problems. The structure should be recessed into the embankment with sloped grates consisting of inclined, larger bar unit such as a modified VDOT DI-7 grate; however, beehive, convex, basket type, inverted DI-5 type or similar applications, such as HDPE trash racks per Technical Bulletin # 7 of the VaDCR can be considered on a case-by-case basis. Provide appropriate riser, grate and bar details as applicable.

37. MS-19. Provide computations to demonstrate that the inflow stormwater conveyance channel into the "east" forebay meets Minimum Standard # 19 criteria. It must be demonstrated that the 10 ft. wide and 9.5 percent graded channel has adequate erosion resistance for the 2-year design storm event and adequate capacity for the 10-year design storm event.

38. SSC. Without getting into a lengthy historical discussion, special stormwater criteria has not been applied to new land bay developments at New Town for several reasons. However, this is a retrofit scenario and due to concerns raised during the rezoning case for New Town Sections 7 and 8 about the adequacy and condition of the downstream natural receiving stream and wetland channel system, an attempt must be made to comply with Special Stormwater Criteria for this specific project only.

39. Pond Hydraulics. There is no information in the design report to indicate what effect changes to the normal and 1-, 2-, 10- and 100-year water surface elevations in the pond will have to adjacent stormwater drainage piping systems (at four inflow locations). As the previous facility was a dry pond with different WSEL's, this must be examined to ensure changes to design in the basin will not result in upstream flooding to existing roadways, parking areas or structures. Provide revised pond and upstream storm drainage piping computations as necessary.

40. Maintenance Plan. Provide a maintenance plan for the stormwater management/BMP facility. Section 23-10(4)(b) of the Chesapeake Bay Preservation Ordinance requires stormwater management plans to include a long-term schedule for inspection and maintenance of stormwater management/BMP facilities. The plan should be specific for a *{County BMP Type}* facility.

41. Landscaping. Provide a landscaping plan for the BMP conversion. A boxed note on Sheet 3 shows simple seeding of the aquatic bench with a wetland seed mixture which would not meet the requirements of the County BMP manual and Minimum Standard & Spec. 3.05 of the VSMH.

42. Design High Water. It must be ensured that the 100-year design high water elevation for the stormwater basin (El. 80.63) does not flood existing adjacent travelways, parking areas or structures.

43. Our Division reserves the right to further discuss final design and configuration issues associated with the stormwater basin with the applicant and plan preparer.

WATERSHED	PC	MAINTENANCE PLAN	No	CTRL STRUC DESC	Dual Junct B
BMP ID NO	173	SITE AREA acre	11.19	CTRL STRUC SIZE inches	60"x60"
PLAN NO	SP-125-97	LAND USE	M1 Public Building	OTLT BARRL DESC	Dual RCP
TAX PARCEL	(38-04)(01-50)	old BMP TYP	Dry ED Pond	OTLT BARRL SIZE inch	42
PIN NO	3840100040	JCC BMP CODE			
CONSTRUCTION DATE		POINT VALUE	4	EMERG SPILLWAY	No
PROJECT NAME	Williamsburg-JCC Courthouse			DESIGN HW ELEV	81.55
FACILITY LOCATION	Offsite Newtown (Casey) Property			PERM POOL ELE	na
CITY-STATE	Williamsburg, Va. 23188	SVC DRAIN AREA acres	109.5	2-YR OUTFLOW cfs	31.56
CURRENT OWNER	James City County			10-YR OUTFLOW cfs	281.40
OWNER ADDRESS				REC DRAWING	No
OWNER ADDRESS 2		SERVICE AREA DESCRI	11.19 CH site plus Newtown Ph 2&4		
CITY-STATE-ZIP CODE		IMPERV AREA acres	76.65	CONSTR CERTI	No
OWNER PHONE		RECV STREAM	UT of Powhatan Creek		
MAINT AGREEMENT	No	EXT DET-WQ-CTRL	Yes	LAST INSP DATE	5/1/2002
EMERG ACTION PLAN	No	WTR QUAL VOL acre-ft	9.31	INTERNAL RATING	3
		CHAN PROT CTRL	No	MISC/COMMENTS	
		CHAN PROT VOL acre-ft	0	Treat 1" RV over entire DA. Design Type 2. No ES. Micropool. BMP 53.	
		SW/FLOOD CONTROL	Yes		
		GEOTECH REPORT	No		

Get Last BMP No.

Return to Menu

Previous

Amy Parker

From: Amy Parker
Sent: Friday, September 25, 2009 9:17 AM
To: 'jmccann213@yahoo.com'
Cc: Joe Buchite; Scott Thomas; 'bills@hendersoninc.com'; Melanie Davis
Subject: BMP 53 Conversion -SP-38-07 Final Inspection-Bond reduction
Attachments: SP3807.PC173.doc

Tracking:

Recipient	Read
'jmccann213@yahoo.com'	
Joe Buchite	Read: 9/25/2009 9:37 AM
Scott Thomas	
'bills@hendersoninc.com'	
Melanie Davis	

Mr. McCann,
Please find the attached letter associated with the subject project. The bond is being reduced from $68,000 to $10,000. Once the field items have been completed, let me know and I'll inspect those items for full release. Please feel free to contact me with any questions.

Best Regards,

Amy Parker
James City County
Environmental Inspector
Office (757) 253-6851
Mobile (757) 592-0135

Date Record Created: 9/17/2009

Created By: Scott Thomas

If BMP is active in ERP please check box ☐

If BMP has been turned over to STW please check box ☑

Watershep and BMP ID Combined Ex: SC003 PC173

WATERSHED	PC
BMP ID NO	173
PLAN NO	SP-38-07
TAX PARCEL	(38-04)(24-1A)
PIN NO	3842400001A
CONSTRUCTION DATE	4/1/2008
PROJECT NAME	New Town BMP 53
FACILITY LOCATION	4124 New Town Avenue
CITY-STATE	Williamsburg, Va. 23188
CURRENT OWNER	New Town Associates LLC
OWNER ADDRESS	P.O. Box 5000
OWNER ADDRESS 2	
CITY-STATE-ZIP CODE	Williamsburg, VA 23188
OWNER PHONE	
MAINT AGREEMENT	Yes
EMERG ACTION PLAN	No

Get Last BMP No | Return to Menu

MAINTENANCE PLAN	Yes
SITE AREA acre	2.906
LAND USE	Common Area
old BMP TYP	Wet Pond
JCC BMP CODE	A3 Wet ED Pond
POINT VALUE	9
SVC DRAIN AREA acres	107.7
SERVICE AREA DESCRI	11.19 CH site plus Newtown Ph 2&4
IMPERV AREA acres	70.00
RECV STREAM	Subwat 208-103-1
EXT DET-WQ-CTRL	Yes
WTR QUAL VOL acre-ft	3.51
CHAN PROT CTRL	Yes
CHAN PROT VOL acre-ft	11.94
SW/FLOOD CONTROL	Yes
GEOTECH REPORT	Yes

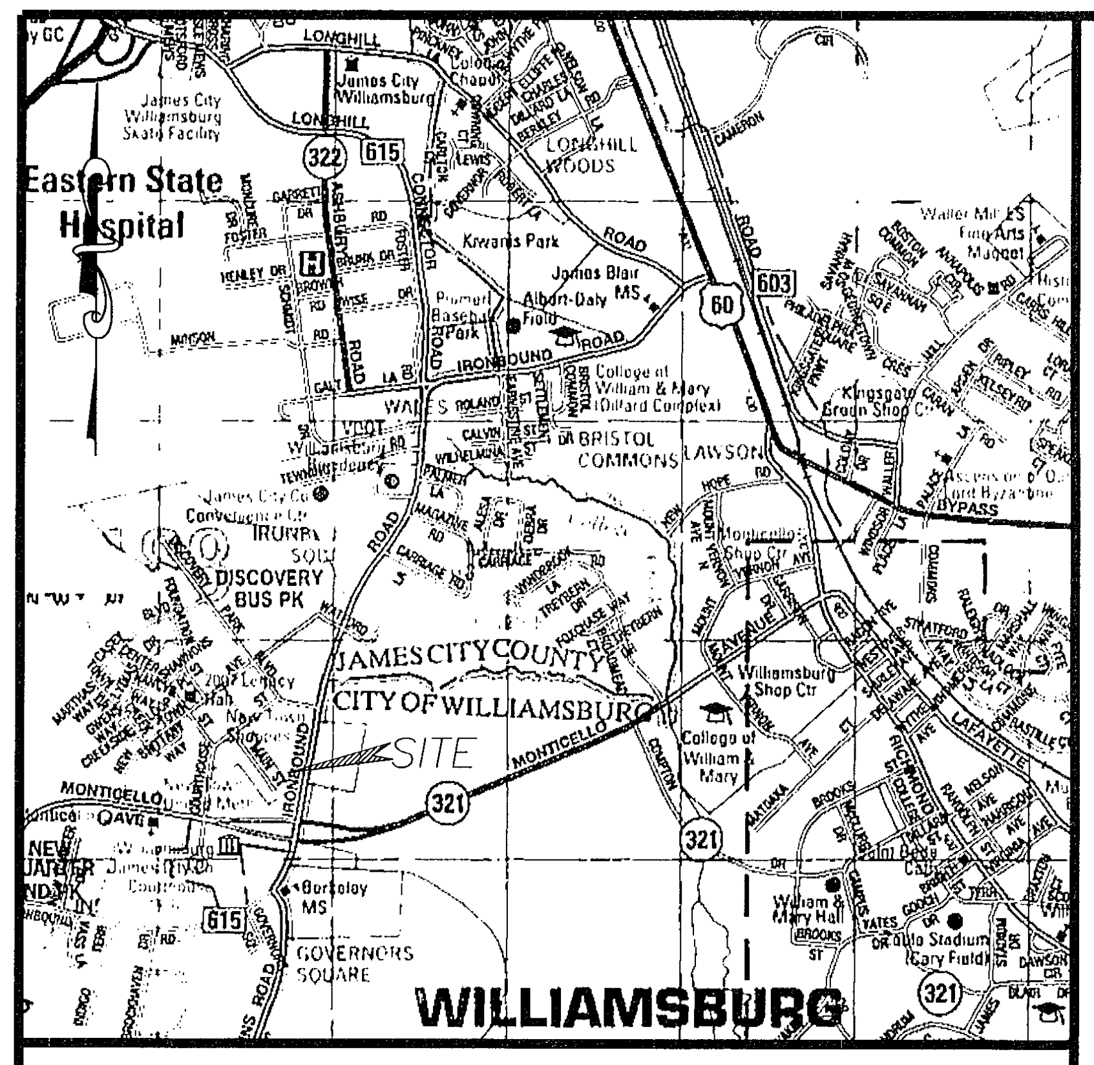
CTRL STRUC DESC	Inlet Box
CTRL STRUC SIZE inches	
OTLT BARRL DESC	Dual RCP
OTLT BARRL SIZE inch	42
EMERG SPILLWAY	No
DESIGN HW ELEV	80.93
PERM POOL ELE	66.84
2-YR OUTFLOW cfs	15.78
10-YR OUTFLOW cfs	209.54
REC DRAWING	Yes
CONSTR CERTI	Yes
LAST INSP DATE	5/1/2002
INTERNAL RATING	3

Inspected by:

MISC/COMMENTS

Prev. dry pond under SP-125-97 (see file), upgraded for MSWP and Sec 7 & 8. Waiver for reduced FB approved. Upstream of stream monitor plan SMP-01-07

Additional Comments: See WQIA -011-04 and amended master SWM plan SWM-01-009. Construction difficulties in being able to excavate to design bottom elevation resulted in only about 60% of wet pool WQV being able to be achieved. Instead of 10-pt facility downgraded to 9-pt facilty. Master SWM was amended. Has trail, retaining wall and planted bench. Urban type setting BMP with fountain. Geogrid in d/s dam embankment, difficulties during early construction.

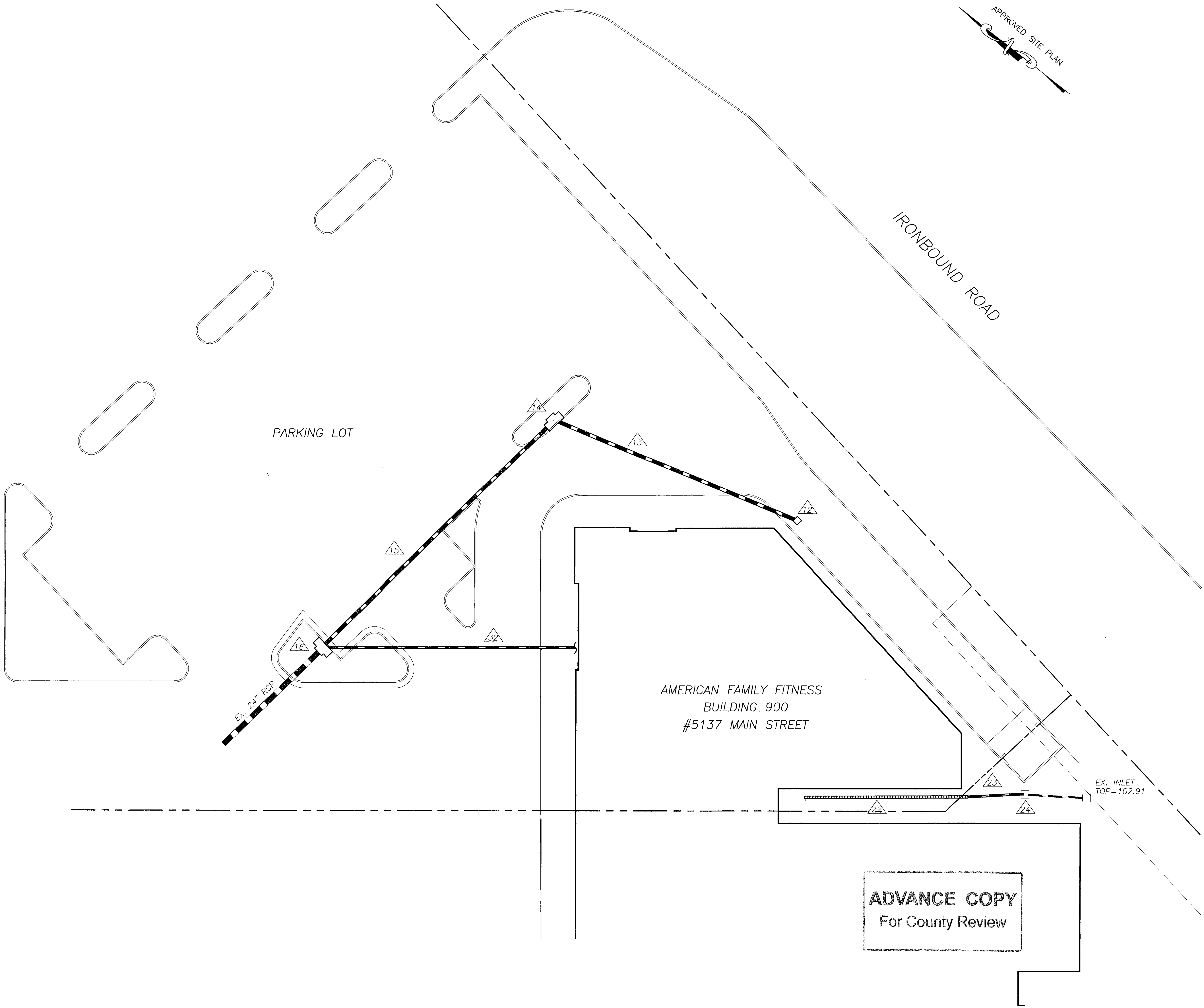


VICINITY MAP SCALE: 1"=2000'

COPYRIGHT ADC THE MAP PEOPLE
PERMITTED USE NUMBER 21001208

Environmental Division
DEC 27 2011
RECEIVED

	PLAN	AS-BUILT
12	PROPOSED DI-2 TOP=101.10	**DI-3C 6'** **TOP=100.94**
13	PROPOSED 110 LF OF 15" RCP @0.3% INV. IN=98.31 INV. OUT=97.98	**110 LF OF 15" RCP @0.35%** **INV. IN=98.41** **INV. OUT=98.02**
14	PROPOSED DI-3C 6' TOP=102.25	**DI-3C 6'** **TOP=102.25**
15	PROPOSED 118 LF OF 15" RCP @0.3% INV. IN=97.88 INV. OUT=97.53	**118 LF OF 15" RCP @0.24%** **INV. IN=97.88** **INV. OUT=97.60**
16	EXISTING DI-10C TOP 101.15	EXISTING DI-10C TOP 101.15 **INV.15" RCP= 97.60** **INV. 8" PVC= 97.65** EX. 24" RCP OUT= 97.43
22	PROPOSED 61 LF OF TRENCH DRAIN TOP=102.90	**61 LF OF TRENCH DRAIN** **TOP=102.95**
23	PROPOSED 21 LF OF 4" PVC @2.8% INV. IN=102.20 INV. OUT=101.60	**21 LF OF 4" PVC @3.2%** **INV. IN=102.58** **INV. OUT=101.91**
24	EXISTING YARD DRAIN EX. TOP=102.94 NEW TOP=102.60	EXISTING YARD DRAIN EX. TOP=102.94 **NEW TOP=102.94**
32	PROPOSED 95 LF OF 8" PVC @1.0% INV. IN=98.48 (at the building) INV. OUT=97.53	**95 LF OF 8" PVC** **INV. IN WAS INACCESSIBLE** **INV. OUT=97.65**



ADVANCE COPY
For County Review

20 0 20 40 60
Scale: 1" = 20'

SITE INFORMATION:

PARCEL ID: 3840100050
ZONING DISTRICT: MU (MIXED USE)

EXISTING ADDRESS:

5216 MONTICELLO AVENUE
WILLIAMSBURG, VA 23188

GENERAL NOTES:

1) A TITLE REPORT HAS NOT BEEN FURNISHED TO THIS FIRM.
2) THIS FIRM MADE NO ATTEMPT TO VERIFY UNDERGROUND UTILITIES EXCEPT THOSE SHOWN.
3) ELEVATIONS SHOWN ARE RELATIVE TO THE APPROVED SITE PLAN.
4) PROPERTY LINES ARE SHOWN PER APPROVED SITE PLAN.
5) DESIGN INFORMATION IS SHOWN PER APPROVED PLANS BY BALZER AND ASSOCIATES, INC., LAST REVISED OCTOBER 15, 2010, FOR BUILDING 900 EXPANSION.
6) THIS FIRM HAS ONLY VERIFIED THAT INFORMATION SHOWN IN BOLD FONT.

RECORD DRAWING CERTIFICATION:

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

MATTHEW H. CONNOLLY, LIC NO. 2053 DATE

RECORD DRAWING

JCC-SP-0076-2010

DRAINAGE AS-BUILTS
FOR
NEW TOWN
BUILDING 900 EXPANSION

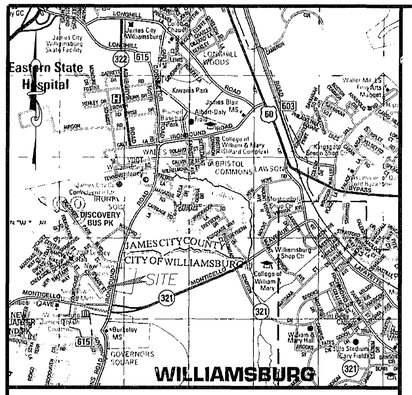
JAMES CITY COUNTY VIRGINIA

NO.	DATE	REVISION / COMMENT / NOTE

MATTHEW H. CONNOLLY
Lic. No. 2053

LandTech Resources, Inc.
Surveying · GPS · Engineering
205 Bulifants Blvd., Ste. E, Williamsburg, VA 23188
Phone: (757) 565-1677 Fax: (757) 565-0782
web: landtechresources.com

SCALE: 1" = 10'
DATE: 12/27/11
JOB: 11-045
DRAWN BY: PF
SHEET: 1 OF 1

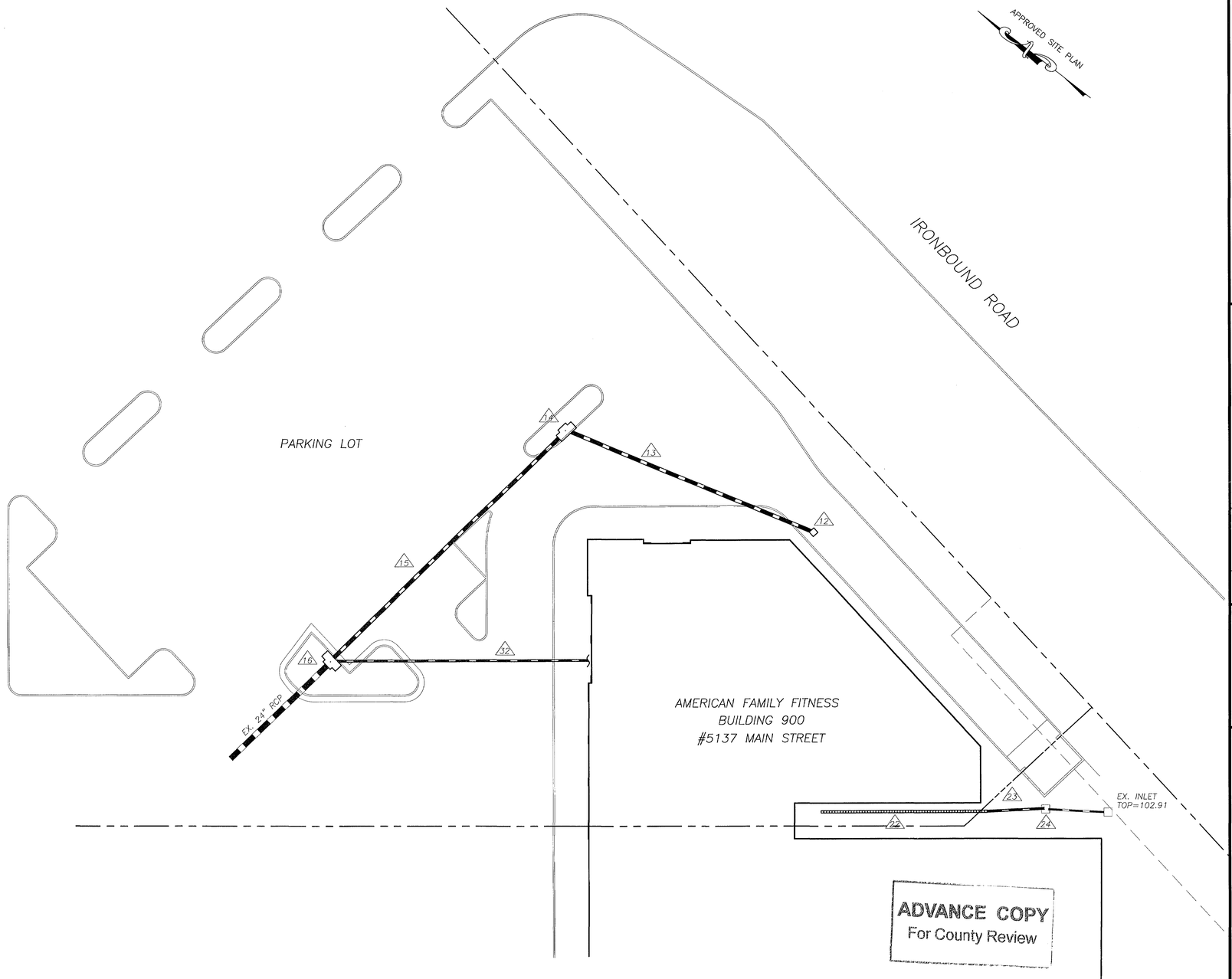


VICINITY MAP SCALE: 1"=2000'

DRAINAGE AS-BUILTS FOR NEW TOWN BUILDING 900 EXPANSION

JAMES CITY COUNTY VIRGINIA

PLAN	AS-BUILT
12 PROPOSED DI-2 TOP=101.10	12 DI-3C 6' TOP=100.94
13 PROPOSED 110 LF OF 15" RCP @0.3% INV. IN=98.31 INV. OUT=97.98	13 110 LF OF 15" RCP @0.35% INV. IN=98.41 INV. OUT=98.02
14 PROPOSED DI-3C 6' TOP=102.25	14 DI-3C 6' TOP=102.25
15 PROPOSED 118 LF OF 15" RCP @0.3% INV. IN=97.88 INV. OUT=97.53	15 118 LF OF 15" RCP @0.24% INV. IN=97.88 INV. OUT=97.60
16 EXISTING DI-10C TOP 101.15	16 EXISTING DI-10C TOP 101.15 INV.15" RCP= 97.60 INV. 8" PVC= 97.65 EX. 24" RCP OUT= 97.43
22 PROPOSED 61 LF OF TRENCH DRAIN TOP=102.90	22 61 LF OF TRENCH DRAIN TOP=102.95
23 PROPOSED 21 LF OF 4" PVC @2.8% INV. IN=102.20 INV. OUT=101.60	23 21 LF OF 4" PVC @3.2% INV. IN=102.58 INV. OUT=101.91
24 EXISTING YARD DRAIN EX. TOP=102.94 NEW TOP=102.60	24 EXISTING YARD DRAIN EX. TOP=102.94 NEW TOP=102.94
32 PROPOSED 95 LF OF 8" PVC @1.0% INV. IN=98.48 (at the building) INV. OUT=97.53	32 95 LF OF 8" PVC INV. IN WAS INACCESSIBLE INV. OUT=97.65



SITE INFORMATION:

PARCEL ID: 3840100050
ZONING DISTRICT: MU (MIXED USE)

EXISTING ADDRESS:

5216 MONTICELLO AVENUE
WILLIAMSBURG, VA 23188

GENERAL NOTES:

1) A TITLE REPORT HAS NOT BEEN FURNISHED TO THIS FIRM.
2) THIS FIRM MADE NO ATTEMPT TO VERIFY UNDERGROUND UTILITIES EXCEPT THOSE SHOWN.
3) ELEVATIONS SHOWN ARE RELATIVE TO THE APPROVED SITE PLAN.
4) PROPERTY LINES ARE SHOWN PER APPROVED SITE PLAN.
5) DESIGN INFORMATION IS SHOWN PER APPROVED PLANS BY BALZER AND ASSOCIATES, INC., LAST REVISED OCTOBER 15, 2010, FOR BUILDING 900 EXPANSION.
6) THIS FIRM HAS ONLY VERIFIED THAT INFORMATION SHOWN IN BOLD FONT.

RECORD DRAWING CERTIFICATION:

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

MATTHEW H. CONNOLLY, LIC NO. 2053 DATE

20 0 20 40 60
Scale: 1" = 20'

RECORD DRAWING

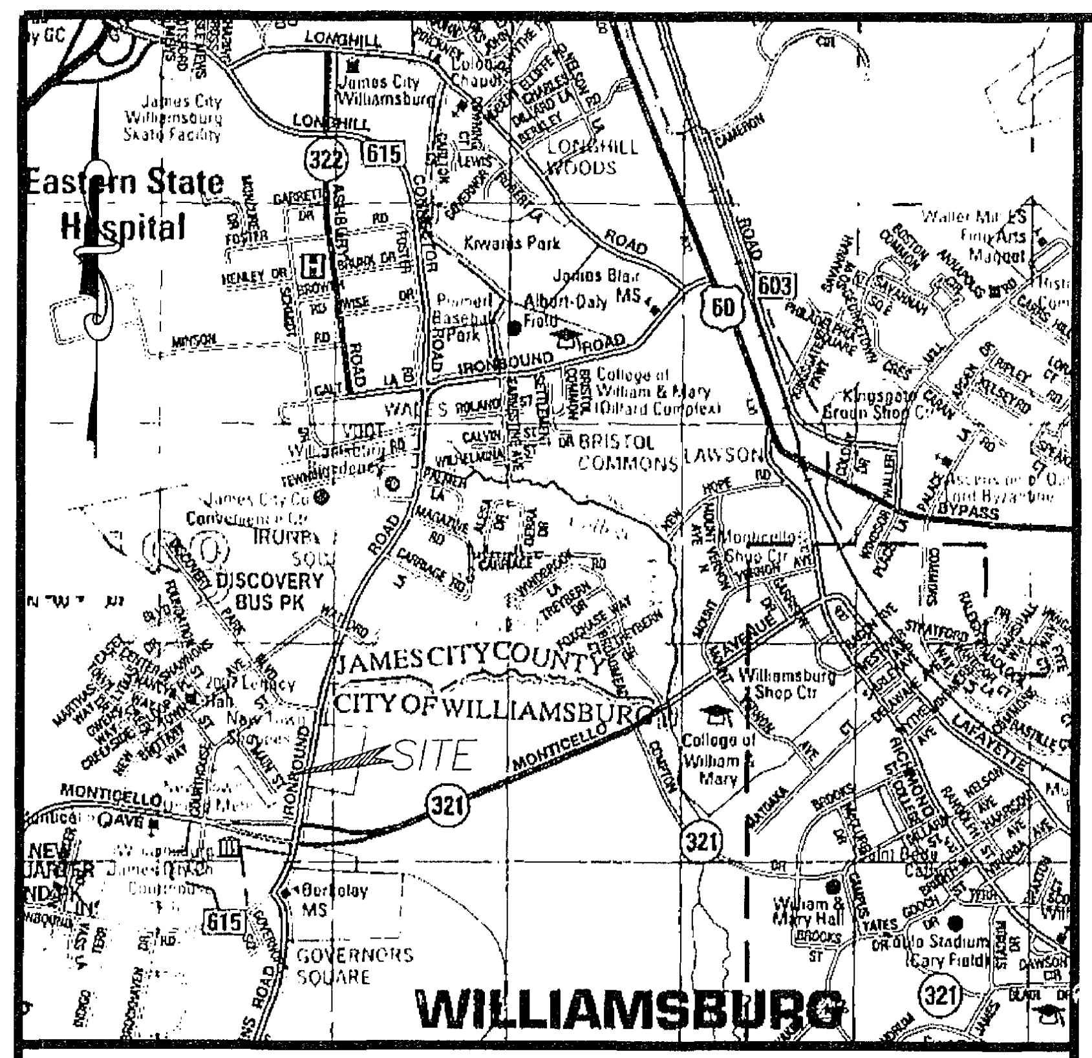
JCC-SP-0076-2010

NO.	DATE	REVISION / COMMENT / NOTE

COMMONWEALTH OF VIRGINIA
MATTHEW H. CONNOLLY
Lic. No. 2053
LAND SURVEYOR

LandTech Resources, Inc.
Surveying • GPS • Engineering
205 Bulifants Blvd., Ste. E, Williamsburg, VA 23188
Phone: (757) 565-1877 Fax: (757) 565-0782
web: landtechresources.com

SCALE: 1" = 10'
DATE: 12/27/11
JOB: 11-045
DRAWN BY: PF
SHEET: 1 OF 1



VICINITY MAP SCALE: 1"=2000'

	PLAN		AS-BUILT
12	PROPOSED DI-2 TOP=101.10	12	**DI-3C 6'** **TOP=100.94**
13	PROPOSED 110 LF OF 15" RCP @0.3% INV. IN=98.31 INV. OUT=97.98	13	**110 LF OF 15" RCP @0.35%** **INV. IN=98.41** **INV. OUT=98.02**
14	PROPOSED DI-3C 6' TOP=102.25	14	**DI-3C 6'** **TOP=102.25**
15	PROPOSED 118 LF OF 15" RCP @0.3% INV. IN=97.88 INV. OUT=97.53	15	**118 LF OF 15" RCP @0.24%** **INV. IN=97.88** **INV. OUT=97.60**
16	EXISTING DI-10C TOP 101.15	16	EXISTING DI-10C TOP 101.15 **INV.15" RCP= 97.60** **INV. 8" PVC= 97.65** EX. 24" RCP OUT= 97.43
22	PROPOSED 61 LF OF TRENCH DRAIN TOP=102.90	22	**61 LF OF TRENCH DRAIN** **TOP=102.95**
23	PROPOSED 21 LF OF 4" PVC @2.8% INV. IN=102.20 INV. OUT=101.60	23	**21 LF OF 4" PVC @3.2%** **INV. IN=102.58** **INV. OUT=101.91**
24	EXISTING YARD DRAIN EX. TOP=102.94 NEW TOP=102.60	24	EXISTING YARD DRAIN EX. TOP=102.94 **NEW TOP=102.94**
32	PROPOSED 95 LF OF 8" PVC @1.0% INV. IN=98.48 (at the building) INV. OUT=97.53	32	**95 LF OF 8" PVC** **INV. IN WAS INACCESSIBLE** **INV. OUT=97.65**

SITE INFORMATION:

PARCEL ID: 3840100050
ZONING DISTRICT: MU (MIXED USE)

EXISTING ADDRESS:

5216 MONTICELLO AVENUE
WILLIAMSBURG, VA 23188

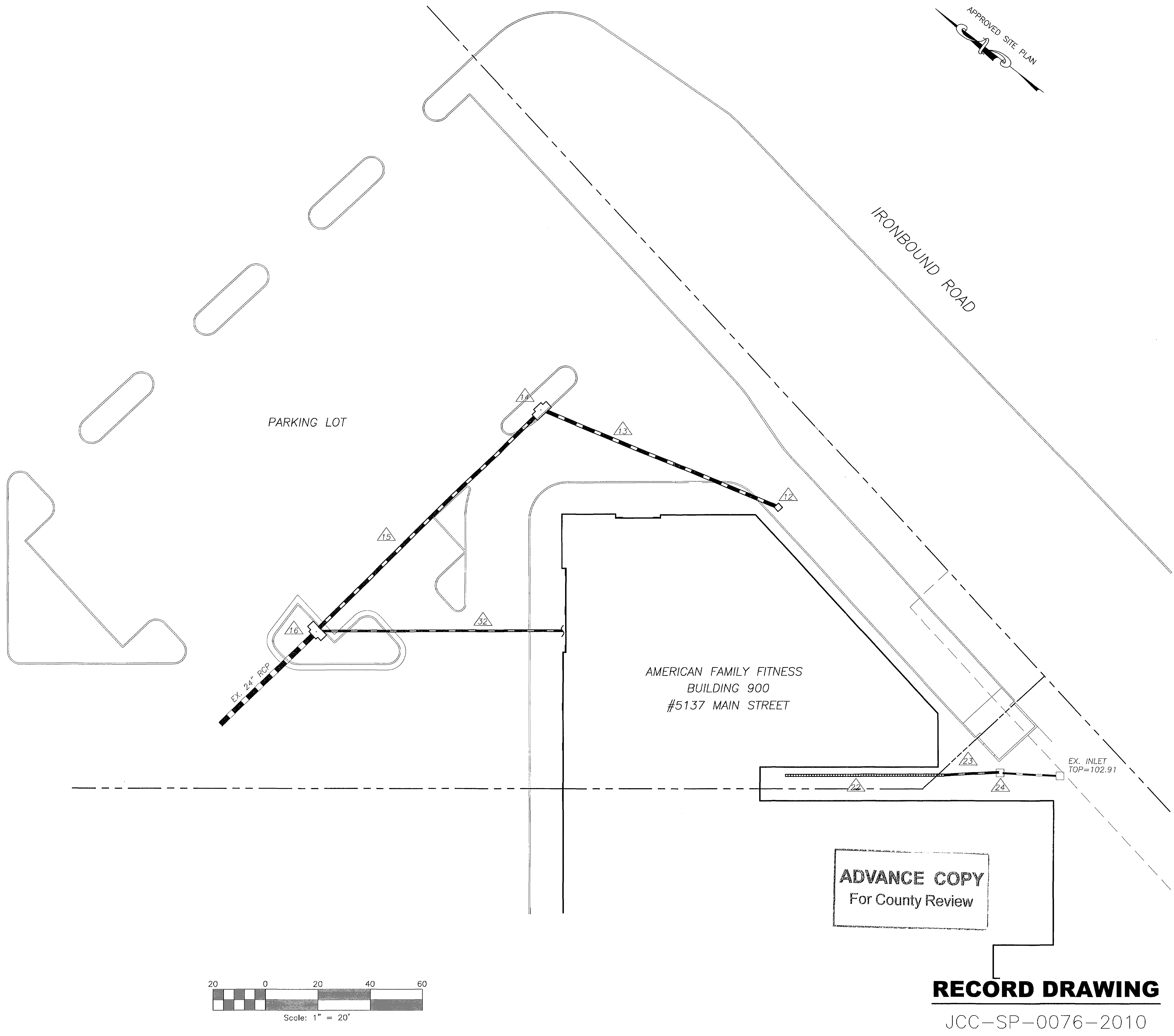
GENERAL NOTES:

1) A TITLE REPORT HAS NOT BEEN FURNISHED TO THIS FIRM.
2) THIS FIRM MADE NO ATTEMPT TO VERIFY UNDERGROUND UTILITIES EXCEPT THOSE SHOWN.
3) ELEVATIONS SHOWN ARE RELATIVE TO THE APPROVED SITE PLAN.
4) PROPERTY LINES ARE SHOWN PER APPROVED SITE PLAN.
5) DESIGN INFORMATION IS SHOWN PER APPROVED PLANS BY BALZER AND ASSOCIATES, INC., LAST REVISED OCTOBER 15, 2010, FOR BUILDING 900 EXPANSION.
6) THIS FIRM HAS ONLY VERIFIED THAT INFORMATION SHOWN IN BOLD FONT.

RECORD DRAWING CERTIFICATION:

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

MATTHEW H. CONNOLLY, LIC NO. 2053 DATE



ADVANCE COPY
For County Review

RECORD DRAWING

JCC-SP-0076-2010

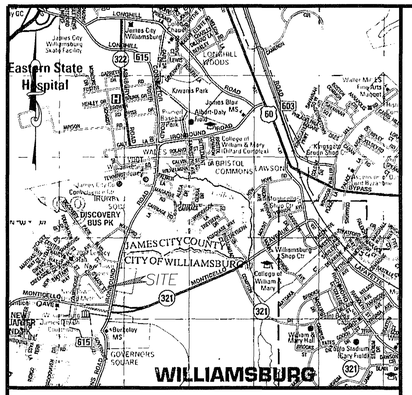
DRAINAGE AS-BUILTS
FOR
NEW TOWN
BUILDING 900 EXPANSION
JAMES CITY COUNTY VIRGINIA

NO.	DATE	REVISION / COMMENT / NOTE

MATTHEW H. CONNOLLY
Lic. No. 2053

LandTech Resources, Inc.
Surveying · GPS · Engineering
205 Bulifants Blvd., Ste. E, Williamsburg, VA 23188
Phone: (757) 565-1677 Fax: (757) 565-0782
web: landtechresources.com

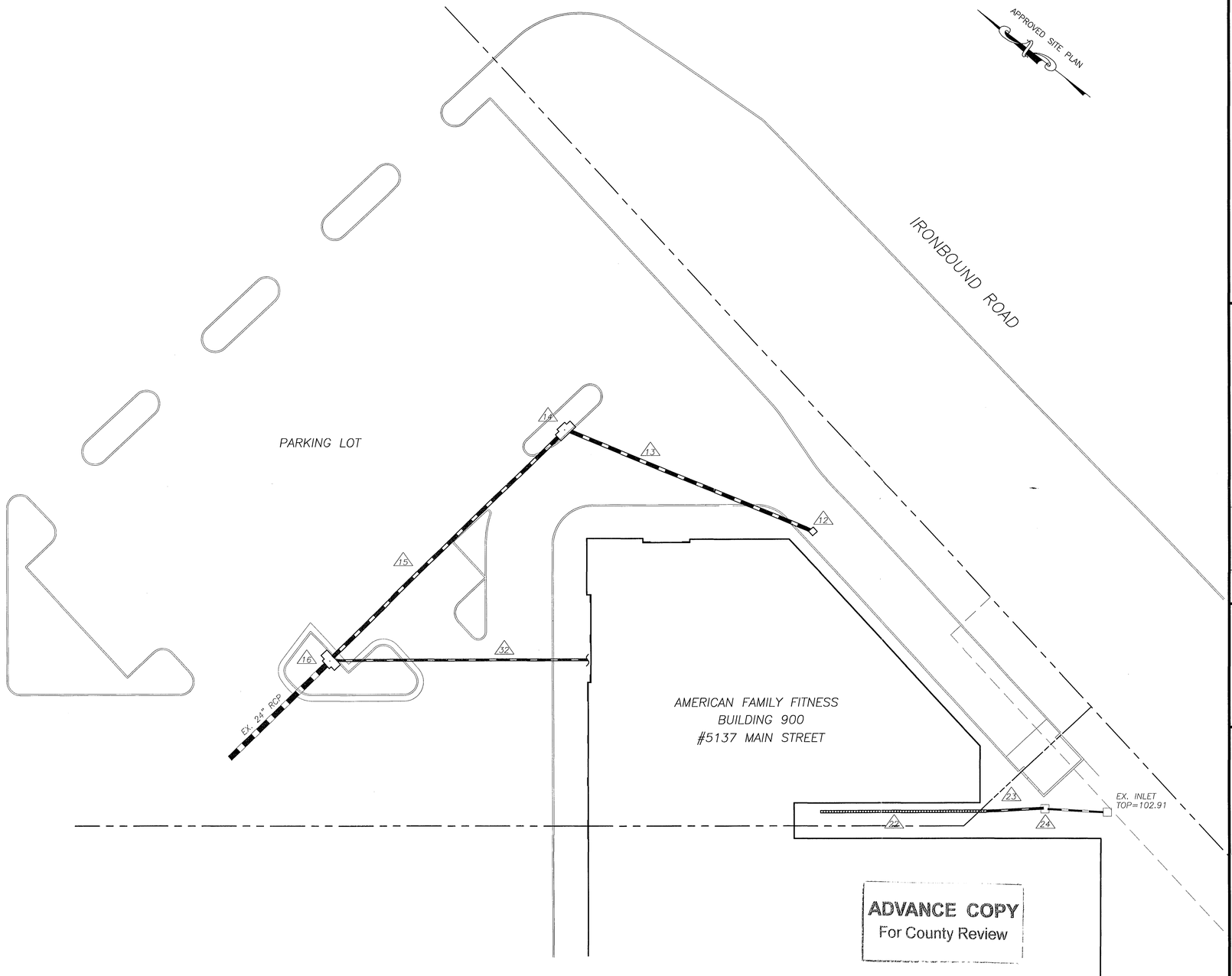
SCALE: 1" = 10'
DATE: 12/27/11
JOB: 11-045
DRAWN BY: PF
SHEET: 1 OF 1



VICINITY MAP SCALE: 1"=2000'

APPROVED SITE PLAN

PLAN	AS-BUILT
12 PROPOSED DI-2 TOP=101.10	12 DI-3C 6' **TOP=100.94**
13 PROPOSED 110 LF OF 15" RCP @0.3% INV. IN=98.31 INV. OUT=97.98	13 **110 LF OF 15" RCP @0.35%** **INV. IN=98.41** **INV. OUT=98.02**
14 PROPOSED DI-3C 6' TOP=102.25	14 **DI-3C 6'** **TOP=102.25**
15 PROPOSED 118 LF OF 15" RCP @0.3% INV. IN=97.88 INV. OUT=97.53	15 **118 LF OF 15" RCP @0.24%** **INV. IN=97.88** **INV. OUT=97.60**
16 EXISTING DI-10C TOP 101.15	16 EXISTING DI-10C TOP 101.15 **INV.15" RCP= 97.60** **INV. 8" PVC= 97.65** EX. 24" RCP OUT= 97.43
22 PROPOSED 61 LF OF TRENCH DRAIN TOP=102.90	22 **61 LF OF TRENCH DRAIN** **TOP=102.95**
23 PROPOSED 21 LF OF 4" PVC @2.8% INV. IN=102.20 INV. OUT=101.60	23 **21 LF OF 4" PVC @3.2%** **INV. IN=102.58** **INV. OUT=101.91**
24 EXISTING YARD DRAIN EX. TOP=102.94 NEW TOP=102.60	24 EXISTING YARD DRAIN EX. TOP=102.94 **NEW TOP=102.94**
32 PROPOSED 95 LF OF 8" PVC @1.0% INV. IN=98.48 (at the building) INV. OUT=97.53	32 **95 LF OF 8" PVC** **INV. IN WAS INACCESSIBLE** **INV. OUT=97.65**



SITE INFORMATION:

PARCEL ID: 3840100050
ZONING DISTRICT: MU (MIXED USE)

EXISTING ADDRESS:

5216 MONTICELLO AVENUE
WILLIAMSBURG, VA 23188

GENERAL NOTES:

1) A TITLE REPORT HAS NOT BEEN FURNISHED TO THIS FIRM.
2) THIS FIRM MADE NO ATTEMPT TO VERIFY UNDERGROUND UTILITIES EXCEPT THOSE SHOWN.
3) ELEVATIONS SHOWN ARE RELATIVE TO THE APPROVED SITE PLAN.
4) PROPERTY LINES ARE SHOWN PER APPROVED SITE PLAN.
5) DESIGN INFORMATION IS SHOWN PER APPROVED PLANS BY BALZER AND ASSOCIATES, INC., LAST REVISED OCTOBER 15, 2010, FOR BUILDING 900 EXPANSION.
6) THIS FIRM HAS ONLY VERIFIED THAT INFORMATION SHOWN IN BOLD FONT.

RECORD DRAWING CERTIFICATION:

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

MATTHEW H. CONNOLLY, LIC NO. 2053 DATE

20 0 20 40 60
Scale: 1" = 20'

ADVANCE COPY
For County Review

RECORD DRAWING
JCC-SP-0076-2010

DRAINAGE AS-BUILTS FOR NEW TOWN BUILDING 900 EXPANSION

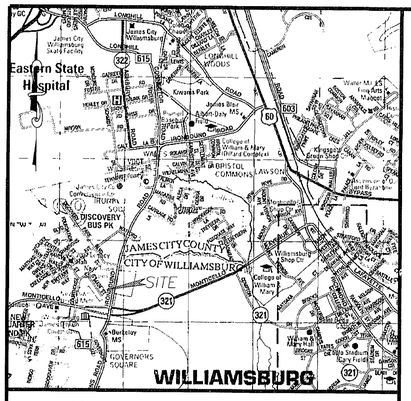
JAMES CITY COUNTY VIRGINIA

NO.	DATE	REVISION / COMMENT / NOTE

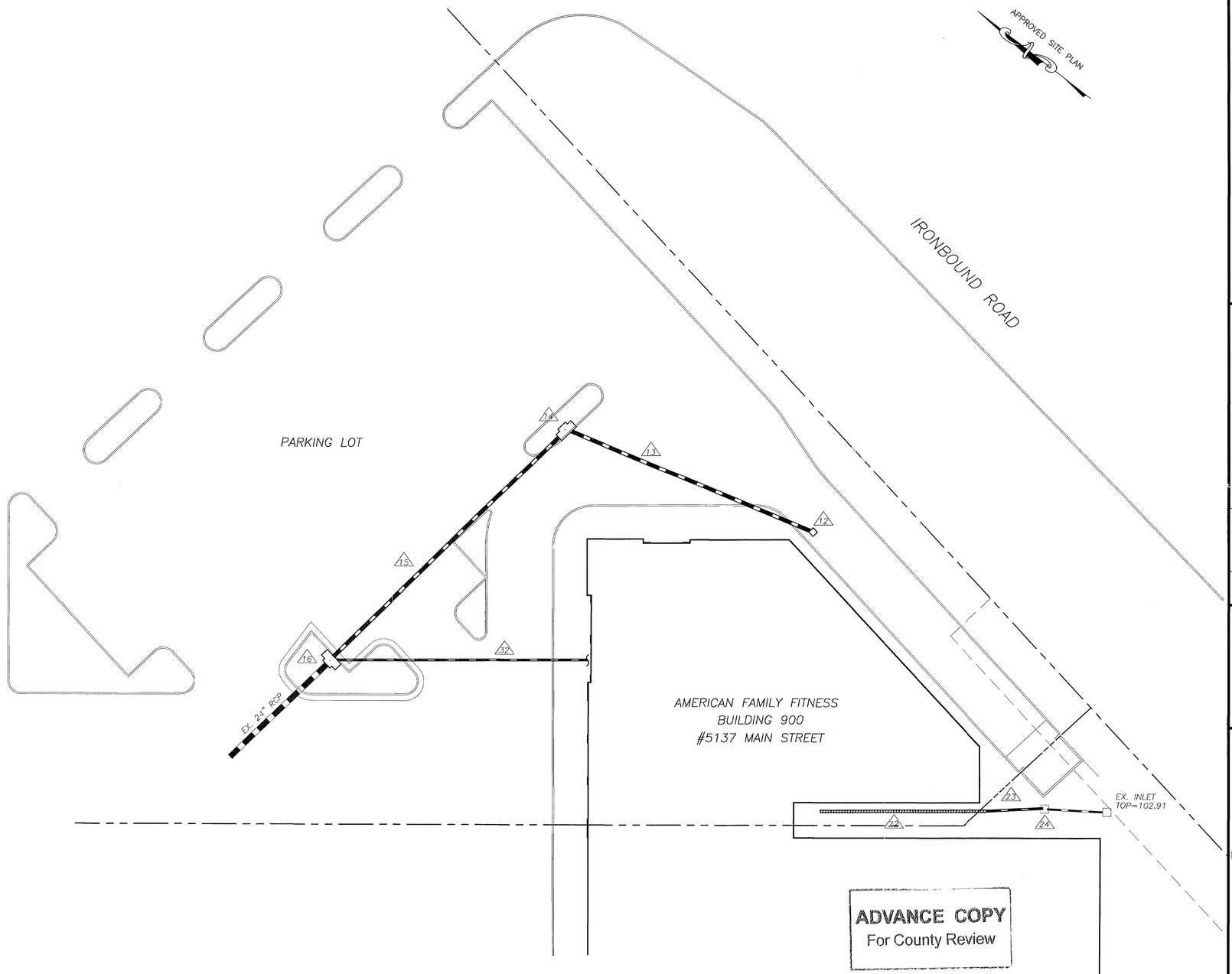
COMMONWEALTH OF VIRGINIA
MATTHEW H. CONNOLLY
Lic. No. 2053
LAND SURVEYOR

LandTech Resources, Inc.
Surveying • GPS • Engineering
205 Bulifants Blvd., Ste. E, Williamsburg, VA 23188
Phone: (757) 565-1877 Fax: (757) 565-0782
web: landtechresources.com

SCALE: 1" = 10'
DATE: 12/27/11
JOB: 11-045
DRAWN BY: PF
SHEET: 1 OF 1



VICINITY MAP SCALE: 1"=2000'



PLAN

12 PROPOSED DI-2
TOP=101.10

13 PROPOSED 110 LF OF 15" RCP @0.3%
INV. IN=98.31
INV. OUT=97.98

14 PROPOSED DI-3C 6'
TOP=102.25

15 PROPOSED 118 LF OF 15" RCP @0.3%
INV. IN=97.88
INV. OUT=97.53

16 EXISTING DI-10C
TOP 101.15

22 PROPOSED 61 LF OF TRENCH DRAIN
TOP=102.90

23 PROPOSED 21 LF OF 4" PVC @2.8%
INV. IN=102.20
INV. OUT=101.60

24 EXISTING YARD DRAIN
EX. TOP=102.94
NEW TOP=102.60

32 PROPOSED 95 LF OF 8" PVC @1.0%
INV. IN=98.48 (at the building)
INV. OUT=97.53

AS-BUILT

12 **DI-3C 6'**
TOP=100.94

13 **110 LF OF 15" RCP @0.35%**
INV. IN=98.41
INV. OUT=98.02

14 **DI-3C 6'**
TOP=102.25

15 **118 LF OF 15" RCP @0.24%**
INV. IN=97.88
INV. OUT=97.60

16 EXISTING DI-10C
TOP 101.15
INV.15" RCP= 97.60
INV. 8" PVC= 97.65
EX. 24" RCP OUT= 97.43

22 **61 LF OF TRENCH DRAIN**
TOP=102.95

23 **21 LF OF 4" PVC @3.2%**
INV. IN=102.53
INV. OUT=101.91

24 EXISTING YARD DRAIN
EX. TOP=102.94
NEW TOP=102.94

32 **95 LF OF 8" PVC**
INV. IN WAS INACCESSIBLE
INV. OUT=97.65

SITE INFORMATION:

PARCEL ID: 3840100050
ZONING DISTRICT: MU (MIXED USE)

EXISTING ADDRESS:

5216 MONTICELLO AVENUE
WILLIAMSBURG, VA 23188

GENERAL NOTES:

1) A TITLE REPORT HAS NOT BEEN FURNISHED TO THIS FIRM.
2) THIS FIRM MADE NO ATTEMPT TO VERIFY UNDERGROUND UTILITIES EXCEPT THOSE SHOWN.
3) ELEVATIONS SHOWN ARE RELATIVE TO THE APPROVED SITE PLAN.
4) PROPERTY LINES ARE SHOWN PER APPROVED SITE PLAN.
5) DESIGN INFORMATION IS SHOWN PER APPROVED PLANS BY BALZER AND ASSOCIATES, INC., LAST REVISED OCTOBER 15, 2010, FOR BUILDING 900 EXPANSION.
6) THIS FIRM HAS ONLY VERIFIED THAT INFORMATION SHOWN IN BOLD FONT.

RECORD DRAWING CERTIFICATION:

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

MATTHEW H. CONNOLLY, LIC NO. 2053 DATE

20 0 20 40 60
Scale: 1" = 20'

DRAINAGE AS-BUILTS FOR NEW TOWN BUILDING 900 EXPANSION

JAMES CITY COUNTY VIRGINIA

NO.	DATE	REVISION / COMMENT / NOTE

COMMONWEALTH OF VIRGINIA
MATTHEW H. CONNOLLY
Lic. No. 2053
LAND SURVEYOR

LandTech Resources, Inc.
Surveying • GPS • Engineering
205 Bulifants Blvd., Ste. E, Williamsburg, VA 23188
Phone: (757) 565-1877 Fax: (757) 565-0782
web: landtechresources.com

SCALE: 1" = 10'
DATE: 12/27/11
JOB: 11-045
DRAWN BY: PF
SHEET: 1 OF 1

RECORD DRAWING

JCC-SP-0076-2010

VDOT IS-1 (INLET SHAPING) SHALL BE PROVIDED IN ALL STRUCTURES WITH 2 OR MORE PIPES

DISCOVERY PARK BOULEVARD (VARIABLE WIDTH PUBLIC R/W) (JCC-SP-082-04)

COURTHOUSE STREET (64' PUBLIC R/W) (JCC-SP-082-04)

MAIN STREET (85' PRIVATE R/W)

CONSERVATION AREA

EXISTING PECAN TREE

EXISTING PECAN TREE

EXISTING PECAN TREE

ROOT PRUNING AS DIRECTED BY ARBORIST

ROOT PRUNING AS DIRECTED BY ARBORIST

SS#3-6
DI-3C, L=6'
RIM=108.50
INV=105.50

SS#3-5
DI-7
RIM=103.50
INV=100.00

228 LF 15" RCP @ 2.43%

6" CLEANOUT

BIO-RETENTION CELL 3-1
GROUND ELEV TYPICAL=103.0

126 LF OF 15" RCP @ 3.46%

30 LF 6" PERFORATED DRAIN @ 0.50%

SLOPE VARIES 4:1 MAX SLOPE

SS#2-14B
EX DI-9B
RIM=106.93
INV IN=97.93
INV OUT=97.93

99 LF 24" RCP @ 0.20%

SS#3-7
DI-3C, L=6'
RIM=102.00
INV=98.11

101 LF 24" RCP @ 0.36%

129 LF 30" RCP @ 1.01%

SS#3-2
DI-3C, L=10'
RIM=109.00
INV=98.70

120 LF OF 24" RCP @ 2.00%

SS#3-4
DI-3C, L=6'
RIM=101.00
INV=96.33

SS#3-3
DI-3C, L=8'
RIM=101.00
INV IN(15")=95.60
INV IN(18")=95.60
INV OUT=95.60

SS#3-1
SS MH-#1
RIM= 101.50
INV IN(18")=94.30
INV IN(24")=94.30
INV OUT=94.30

161 LF OF 36" RCP @ 0.48%

SS#6-4
EX DI-7
TOP=99.50
INV IN(36")=93.53
AS-BUILT INV OUT(36")=93.53

EXIST 36" RCP
SEE BLOCK 2 (JCC-SP-25-03, JCC-SP-118-03)

GRAPHIC SCALE
40' 0' 40' 80'
SCALE: 1" = 40'

SP-126-09

SP-025-03

SP-126-03

No.	DATE	REVISION / COMMENT / NOTE	BY
1	1/10/05	REVISED PER COUNTY COMMENTS	REC
2	12/29/05	REVISED PER COUNTY COMMENTS DATED 12/22/04	REC

COMMONWEALTH OF VIRGINIA
ROBERT E. COSBY III
35664
PROFESSIONAL ENGINEER
01/25/05

COPY

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

CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND

GRADING AND DRAINAGE PLAN
NEW TOWN - SECTION 2 - BLOCK 3
BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

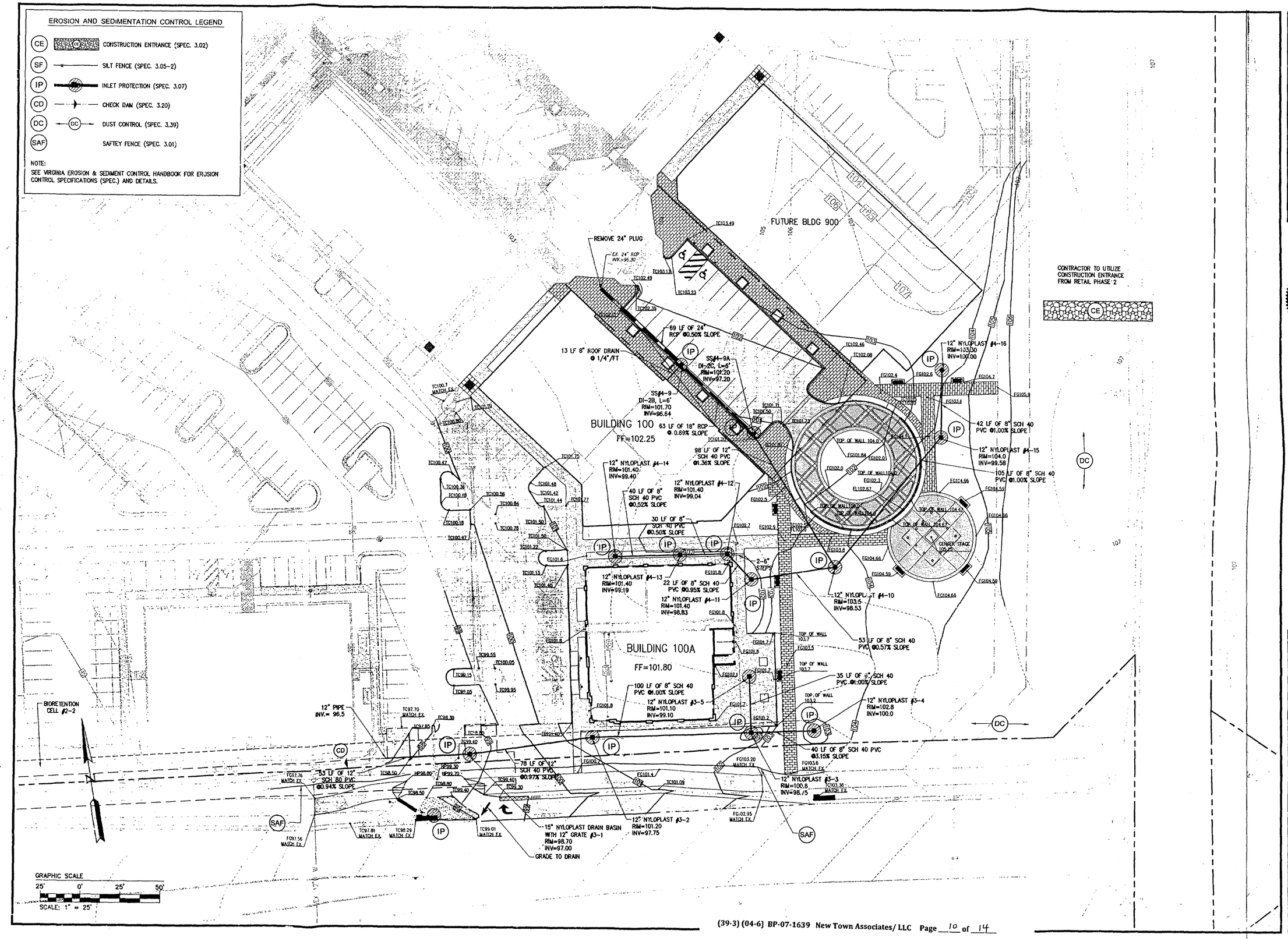
Designed	Drawn
REC	MFW
Scale	Date
1"=40'	10/22/04
Project No.	
6632-E-20-1	
Drawing No.	
5	

S:\Jobs\6632

EROSION AND SEDIMENTATION CONTROL LEGEND

- (CE) CONSTRUCTION ENTRANCE (SPEC. 3.02)
- (SF) SILT FENCE (SPEC. 3.05-2)
- (IP) INLET PROTECTION (SPEC. 3.07)
- (CD) CHECK DAM (SPEC. 3.20)
- (DC) DUST CONTROL (SPEC. 3.39)
- (SAF) SAFTEY FENCE (SPEC. 3.01)

NOTE:
SEE VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK FOR EROSION CONTROL SPECIFICATIONS (SPEC.) AND DETAILS.



No.	DATE	REVISION / COMMENT / NOTE	BY
3	10/19/05	REVISED HANDICAP PARKING PER CODES COMPLIANCE	REC
2	10/11/05	REVISED PER COUNTY COMMENTS	REC
1	8/31/05	REVISED PER COUNTY COMMENTS	REC

COMMONWEALTH OF VIRGINIA
ROBERT E. COST III
3966
10/19/05
PROFESSIONAL ENGINEER

COPY

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

CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND

GRADING, DRAINAGE, EROSION AND SEDIMENT CONTROL PLAN
NEW TOWN
SECTION 2 & 4
RETAIL PHASE 3

JAMES CITY COUNTY VIRGINIA

Designed	Drawn
REC/VAB	SDC/EHH
Scale	Date
1"=25'	7/15/05
Project No.	
6632-E-21-6	
Drawing No.	
5	

SP-95-05

SP- 0076-2010

Building 900 - 15,330 SF Addition for American Family Fitness Center

New Town - Block 3, Parcel E
Section 2

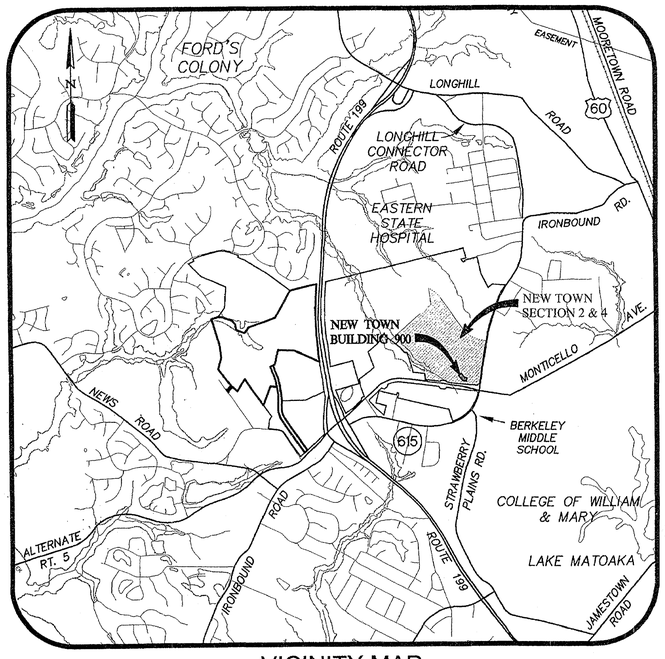
Environmental Division
MAR 15 2011
RECEIVED

RECEIVED
DEC 2010
Planning Department

COUNTY OF JAMES CITY
FINAL SITE PLAN

APPROVALS	DATE
Fire Dept. JB/ler	11/24/10
Health Dept.	
VDOT	
Planning CMJ	2/8/11
Environ. SJT/ler	11/2/10
Zoning Adm. mcd	2/8/11
JCSA DAW/ler	1/31/11
County Eng.	
JCEA	
CODE Other TC/ler	11/17/10

JCC CASE No. SP-0076-2010



VICINITY MAP
(APROX. SCALE 1"=2000')

SHEET INDEX

GENERAL NOTES

1. THE SITE IS CURRENTLY ZONED MIXED USE WITH PROFFERS. FOR PROFFERS REFERENCE JCC CASE NO. Z-06-03 AND MP-04-03 APPROVED BY THE BOARD OF SUPERVISORS ON OCTOBER 14, 2003.
2. ALL NEW UTILITIES SHALL BE PLACED UNDERGROUND.
3. CONTACT MISS UTILITY (1-800-552-7001) AT LEAST 48 HOURS IN ADVANCE FOR MARKING OF EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION OR DEMOLITION.
4. EXISTING UTILITY LOCATIONS INDICATED ARE APPROXIMATE. FIELD VERIFY PRIOR TO COMMENCING THE WORK AND NOTIFY ENGINEER OF ANY CONFLICTS OR ISSUES.
5. A LAND DISTURBING PERMIT AND SILTATION AGREEMENT, WITH SURETY ARE REQUIRED FOR THIS PROJECT.
6. PARKING SPACES SHALL BE DELINEATED BY PAVEMENT STRIPING. HANDICAP PARKING SPACES SHALL BE DESIGNATED BY ABOVE GROUND SIGNS PER USBC REQUIREMENTS.
7. VERIFY ALL DIMENSIONS AND NOTIFY JAMES CITY SERVICE AUTHORITY PRIOR TO ANY EXCAVATION OR DEMOLITION WITHIN UTILITY CORRIDORS.
8. ANY EXISTING UNUSED WELLS SHALL BE ABANDONED ACCORDING TO STATE PRIVATE WELL REGULATIONS AND JAMES CITY COUNTY CODE.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF CONSTRUCTION EFFORTS WITH VIRGINIA NATURAL GAS, DOMINION VIRGINIA POWER, VERIZON TELEPHONE, APPROPRIATE TELEVISION CABLE COMPANY, AND OTHERS THAT MAY BE REQUIRED.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR THE WORK INDICATED.
11. ALL NEW SIGNS SHALL BE IN ACCORDANCE WITH ARTICLE II, DIVISION 3 OF THE JAMES CITY COUNTY ZONING ORDINANCE.
12. CONTOUR INTERVAL IS 1 FOOT.
13. THIS PROPERTY LIES IN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 50 YEAR FLOOD PLAIN) PER F.I.R.M. # 510201 0035 B DATED 2/6/91.
14. THIS SITE IS SERVED BY PUBLIC WATER AND SEWER. ALL COMPONENTS OF THE WATER DISTRIBUTION AND SANITARY SEWER SYSTEM SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH THE LATEST EDITION OF THE JCSA DESIGN AND ACCEPTANCE CRITERIA FOR WATER DISTRIBUTION AND SANITARY SEWER SYSTEMS, THE HRPDC REGIONAL CONSTRUCTION STANDARDS (THIRD EDITION WITH AMENDMENTS DATED JANUARY 2003), AND THE COMMONWEALTH OF VIRGINIA DEPARTMENT OF HEALTH WATERWORKS AND SANITARY SEWERAGE REGULATIONS. THE CONTRACTOR SHALL USE ONLY NEW MATERIALS, PARTS, AND PRODUCTS ON ALL PROJECTS. ALL MATERIALS SHALL BE STORED SO AS TO ASSURE THE PRESERVATION OF THEIR QUALITY AND FITNESS FOR THE WORK. A COPY OF THE JCSA DESIGN AND ACCEPTANCE CRITERIA AND HRPDC REGIONAL CONSTRUCTION STANDARDS MUST BE KEPT ON-SITE BY THE CONTRACTOR DURING TIME OF INSTALLING, TESTING, AND CONVEYING FACILITIES TO JCSA.
15. STORM STRUCTURES, SEWER AND BEDDING SHALL CONFORM TO THE VDOT ROAD AND BRIDGE STANDARDS AND VDOT SPECIFICATIONS. ALL PIPE BEDDING SHALL BE IN ACCORDANCE WITH PB-1 AND MANUFACTURER SPECS. AND GUIDELINES, AND MANHOLES DEEPER THAN 4 FEET SHALL HAVE STEPS (ST-1). ALL REINFORCED CONCRETE PIPE (RCP) SHALL; BE CLASS III UNLESS OTHERWISE NOTED. STORM SEWER OUTSIDE OF VDOT R.O.W. CAN BE HIGH DENSITY POLYETHYLENE (HDPE).
16. OWNER/DEVELOPER: WILLIAMSBURG LAND DEVELOPERS, L.L.C.
    433 SOUTH MAIN STREET, SUITE 310
    WEST HARTFORD, CONNECTICUT, 06110
    TELEPHONE: 860-561-0121
    FAX: 860-521-4323
    CONTACT: MR. JOSEPH BARONOWSKI
17. SITE ADDRESS: 5137 MAIN STREET
18. TAX PARCEL ID NO.: (39-3) (04-0-0005)
19. LEGAL DESCRIPTION: BLOCK 3, PARCEL E
20. PROPERTY REF.: INSTRUMENT #05-0027946
21. THE PROFESSIONAL WHOSE SEAL IS AFFIXED HEREON SHALL ACT AS THE "RESPONSIBLE LAND DISTURBER" FOR PURPOSES OF PLAN APPROVAL ONLY. PRIOR TO ISSUANCE OF THE LAND DISTURBING PERMIT, THE OWNER OR DEVELOPER SHALL PROVIDE THE NAME OF A "RESPONSIBLE LAND DISTURBER" WHO SHALL ASSUME RESPONSIBILITY AS THE "RESPONSIBLE LAND DISTURBER" FOR THE CONSTRUCTION PHASE OF THE PROJECT. THE OWNER OR DEVELOPER SHALL PROVIDE WRITTEN NOTIFICATION SHOULD THE "RESPONSIBLE LAND DISTURBER" CHANGE DURING CONSTRUCTION.
22. THIS PROJECT IS LOCATED IN JAMES CITY COUNTY SUB WATERSHED 208 (LOWER CHISEL RUN) AND CATCHMENT 208-103-1 OF THE POWHATAN CREEK WATERSHED.
23. THE CONTRACTOR SHALL SATISFY HIMSELF AS TO ALL SITE CONDITIONS PRIOR TO CONSTRUCTION.
24. HORIZONTAL DATUM: JAMES CITY COUNTY
    GEODETIC CONTROL NETWORK
    VA. STATE PLANE COORDINATE
    SYSTEM - SOUTH ZONE
    NAD 083 (1994 VA HARN)

    VERTICAL DATUM: JAMES CITY COUNTY\
    GEODETIC CONTROL NETWORK
    NGVD 29
25. THERE WILL BE A TOTAL OF 57 PARKING SPACES LOST IN THE DEVELOPMENT OF THIS PROJECT. THE FITNESS CENTER IS ANTICIPATED TO GENERATE THE NEED FOR 62 PARKING SPACES. THIS AREA OF NEW TOWN IS SUBJECT TO THE SECTION 2 AND 4 SHARED PARKING PLAN.
26. SITE PLANS APPROVED BY DRB ON OCTOBER 21,2010.
27. THIS SITE PLAN AMENDS JCC CASE NOS. SP-0161-2005 (BUILDING 900) AND SP-0068-2005 (PARKING LOT).
28. BUILDING HEIGHT: 31' - 6"
29. THE INFORMATION PRESENTED IN THE APPLICATION AND FROM WHICH THE SITE PLAN HAS BEEN DESIGNED WAS BASED ON FIELD RUN SURVEY DONE ON AUGUST 10, 2010 FOR THE EXISTING STORMWATER STRUCTURES.

NOTES:

1.) A WAIVER TO SEC. 24-527(A), SETBACK REQUIREMENTS FROM A PLANNED OR EXISTING PUBLIC ROAD RIGHT OF WAY, WAS GRANTED BY THE JAMES CITY COUNTY PLANNING COMMISSION ON FEBRUARY 2, 2005, PROVIDED PROPOSALS ARE IN ACCORDANCE WITH THE NEW TOWN DESIGN GUIDELINES.

2.) A WAIVER TO SEC. 24-55, LOCATION OF OFF-SITE PARKING AND MINIMUM OFF STREET PARKING REQUIREMENTS WAS GRANTED BY THE JAMES CITY COUNTY PLANNING COMMISSION ON MARCH 1, 2004 PROVIDED PROPOSALS ARE IN ACCORDANCE WITH "NEW TOWN CENTER PARKING OVERVIEW" LETTER JANUARY 2004.

ENVIRONMENTAL INVENTORY IN ACCORDANCE WITH SEC.23-10(2) OF THE CHESAPEAKE BAY PRESERVATION ORDINANCE:

PER SITE TOPOGRAPHY, JAMES CITY COUNTY TAX MAP ATLAS, AND SITE PLAN FOR BUILDING 900 ADDITION, PREPARED BY BALZER & ASSOCIATES, INC., DATED JULY 30, 2010, THE FOLLOWING COMPONENTS DO NOT APPEAR TO BE PRESENT:

1. TIDAL WETLANDS
2. TIDAL SHORES
3. NONTIDAL WETLANDS IN RPA
4. A 100-FOOT BUFFER AREA LOCATED ADJACENT TO AND LANDWARD OF THE COMPONENTS LISTED IN ITEMS 1 THRU 3 ABOVE, AND ALONG BOTH SIDES OF ANY TRIBUTARY STREAM
5. NONTIDAL WETLANDS IN RMA
6. HYDRIC SOILS
7. SLOPES 25% OR GREATER

BALZER AND ASSOCIATES INC
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
Lic. No. 927
12/1/10
LANDSCAPE ARCHITECT

Building 900 Expansion

COVER SHEET

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE N/A

REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

SHEET NO.
C01

JOB NO. C1000301.00

JCC CASE No. SP-0076-2010

BALZER AND ASSOCIATES, INC.
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
NO. 927
LANDSCAPE ARCHITECT

Building 900 Expansion

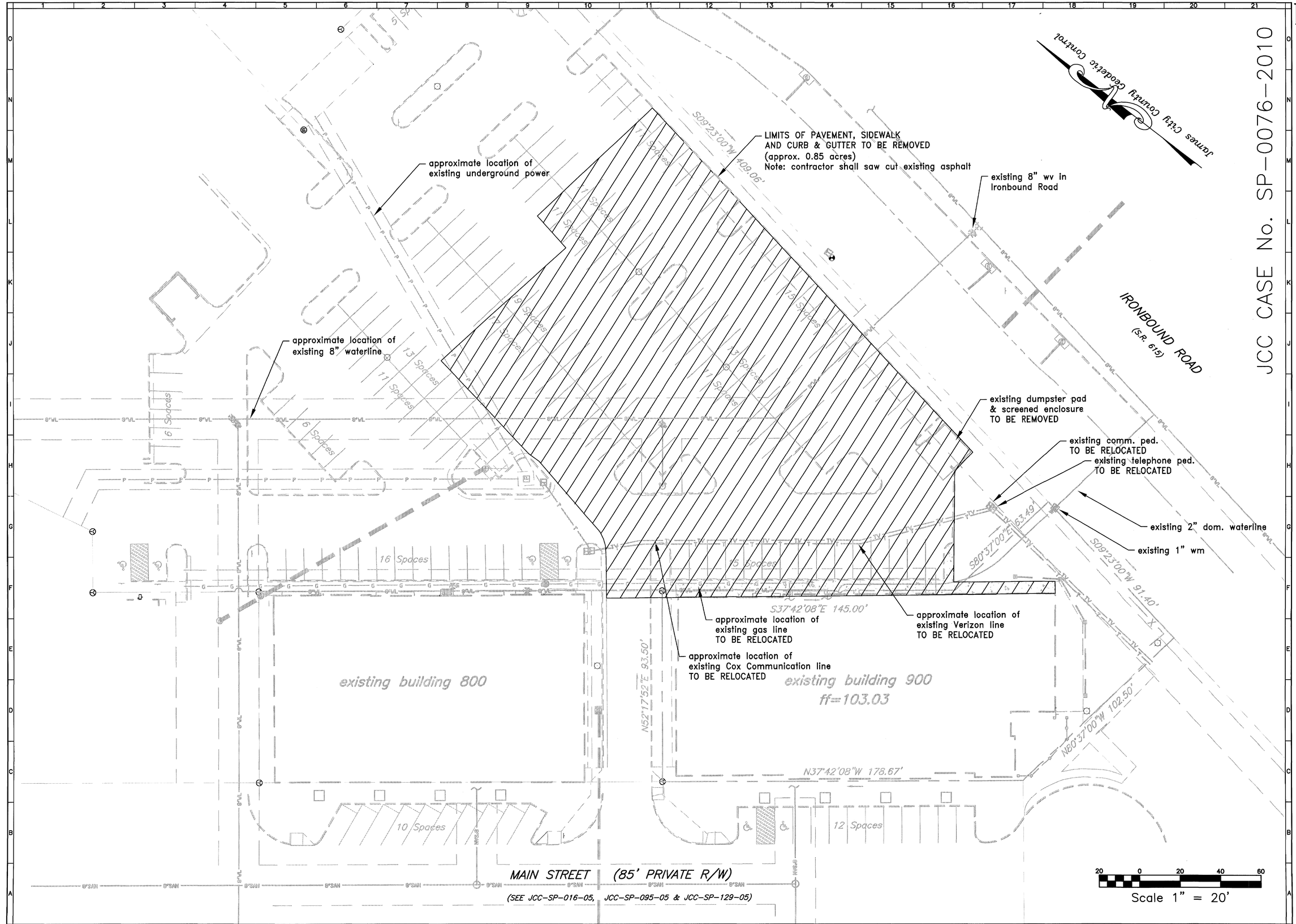
OVERALL DEVELOPMENT PLAN

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE 1"=200'

REVISIONS:
October 15, 2010
November 12, 2010

SHEET NO.
C02
JOB NO. C1000301.00



JCC CASE No. SP-0076-2010

BALZER AND ASSOCIATES INC
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
No. 927
LANDSCAPE ARCHITECT

Building 900 Expansion

EXISTING CONDITIONS

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE 1"=20'

REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

SHEET NO.
C03
JOB NO. C1000301.00

JCC CASE No. SP-0076-2010

BM – exist. MH
Top = 108.07

James City County Geodetic Control

existing ditchline

existing curb & gutter

PROPOSED RELOCATED LIGHT POLE

PROP. BUMPER BLOCK

PROP. HANDICAP SIGN TYP.

PROPOSED PAINTED ISLAND & HANDICAP ACCESS

existing lightpole to remain

PROPOSED CG-12 TYPE A W/ TRUNCATED DOMES

PROPOSED LOADING STRIPING FOR SERVICE DRIVE

PROPOSED CG-2 TYP.

existing VDOT r/w

IRONBOUND ROAD
(S.R. 615)

DOOR TYP.

existing lightpole TO BE RELOCATED

PROPOSED CG-6 (DRY GUTTER)

PROPOSED BIKE RACK

PROPOSED 15,330 SF BUILDING ADDITION
FF=103.03
HEIGHT 31'-6"

2,930 SF OF MEZZANINE LEVEL

PROPOSED SIDEWALK (MATCH EXISTING)

PROPOSED TREEWELL TYP.

existing building 800

existing building 900
ff=103.03

existing treewell typ.

6 Spaces
11 Spaces
11 Spaces
11 Spaces
11 Spaces
19 Spaces
17 Spaces
13 Spaces
11 Spaces
6 Spaces
16 Spaces
10 Spaces
12 Spaces

UTTER ROAD

MAIN STREET (85' PRIVATE R/W)

(SEE JCC-SP-016-05, JCC-SP-095-05 & JCC-SP-129-05)

8"SAN

Scale 1" = 20'

BALZER AND ASSOCIATES, INC.
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
NO. 927
LANDSCAPE ARCHITECT

Building 900 Expansion

LAYOUT PLAN

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE 1"=20'

REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

SHEET NO.
C04
JOB NO. C1000301.00

WATERLINE SHUT DOWN PROCEDURES:

1. THE CONTRACTOR SHALL NOTIFY JCSA AT LEAST 5 BUSINESS DAYS PRIOR TO PERFORMING THE WATERLINE SHUTDOWN. CONTACT JCSA AT (757) 253-6800 TO SCHEDULE THE WORK AND VALVE CLOSURES.

2. WATERLINE SHUTDOWN SHALL OCCUR BETWEEN MONDAY THRU THURSDAY DURING NORMAL BUSINESS HOURS. WORK WILL NOT BE PERMITTED ON WEEKENDS OR HOLIDAYS.

3. ONLY JCSA PERSONNEL ARE AUTHORIZED TO OPERATE VALVES ON THE EXISTING JCSA WATERMAIN OR FORCE MAIN.

HRPDC and JCSA standard details:

JR.1	Joint Restraint Table
W15.0	Water Meter Setting (1 1/2" meter)
WD_06	Fire Hydrant Setting (type I)

BM - exist. MH
Top = 108.07

James City County Geodetic Control

existing 12" watermain

PROPOSED 8" 45° BEND
STA 1+26.55

RELOCATED JCSA URBAN EASEMENT

PROPOSED 121 LF OF 8" PVC

existing gate valve to be closed for isolation of waterline during construction of new waterline

PROPOSED HRPDC WD_06
8" x 6" TEE w/ 6" GV
13 LF OF 6" DI
NEW ATTACK FH
STA 0+91.72

1+26.55

8"VL

1+50

2+00

2+48.17

PROPOSED 126 LF OF 8" PVC

1+00

0+91.72

PROPOSED HRPDC WD_06
8" x 6" TEE w/ 6" GV
20 LF OF 6" DI
NEW DEDICATED FH
STA 0+59.27

existing 20' JCSA urban esmt.
(instrument #050027946)

(2) existing water valves to be closed for isolation of waterline during construction of new waterline.

(2) 45° BENDS (VERTICAL)

0+59.27

0+50

PROPOSED 8" PVC FIRE SUPPRESSION LINE WITH FIRE DEPT. CONNECTION

existing 8" watermain
(see JCC-SP-068-05)

PROPOSED 8" 45° BEND
STA 0+00

0+00

PROPOSED 8" 45° BEND

PROPOSED P.I.V. IN SIDEWALK

existing fire hydrant
TO BE REMOVED

PROPOSED 15,330 SF
BUILDING ADDITION
FF=103.03
HEIGHT 31'-6"

PROPOSED 8" 45° BEND
STA 2+48.17

PROPOSED 231 LF OF 8" PVC WATERLINE
TO BE ABANDONED OR REMOVED

APPROXIMATE LOCATION OF RELOCATED
CABLE, GAS AND TELEPHONE LINES

existing 2" corp. stop
TO BE REPLACED WITH
PROPOSED 4" TS&V *

existing comm. ped.
TO BE RELOCATED

existing JCSA URBAN esmt.
TO BE ABANDONED

existing telephone ped.
TO BE RELOCATED

* ALL EXISTING WATER METER BOXES AND WATER SERVICE LINES PROPOSED AS "ABANDONED" FOR THIS PROPERTY SHALL BE REMOVED. WATER SERVICE LINES SHALL BE DISCONNECTED FROM THE WATER MAIN WHICH SHALL INVOLVE REMOVAL OF THE SERVICE SADDLE AND INSTALLING A FULL CIRCLE STAINLESS STEEL REPAIR BAND ON THE EXISTING WATERMAIN.

existing 2" waterline
TO BE REPLACED
WITH 4" WATERLINE

existing 1" water meter
TO BE REPLACED WITH 2" NEPTUNE
COMPOUND WATER METER (PER W15.0)

PROPOSED RELOCATED
TELE. PED.

PROPOSED RELOCATED
COMM. PED.

existing 2" private
water service line

IRONBOUND ROAD
(S.R. 615)

existing gas line

PROPOSED 8" 90° BEND

PROPOSED 26 LF OF 8" PVC

PROPOSED 8" 90° BEND

existing 8" fire suppression line

existing building 800

PROPOSED 8"X8" CROSS
W/ 8" P.I.V. & 8" PLUG

approx. 94 LF of 8"
fire suppression line
TO BE REMOVED

existing gas meter & valve
TO BE RELOCATED

PROPOSED RELOCATED
GAS METERS & VALVE

existing building 900
ff=103.03

NEW SPRINKLER ROOM

PROPOSED 29 LF 8" FIRE SUPPRESSION
LINE TO BE RELOCATED INTO NEW SPRINKLER
ROOM WITH 8" GATE VALVE

MAIN STREET (85' PRIVATE R/W)

(SEE JCC-SP-016-05, JCC-SP-095-05 & JCC-SP-129-05)

20 0 20 40 60
Scale 1" = 20'

JCC CASE No. SP-0076-2010

BALZER AND ASSOCIATES, INC.
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
NO. 927
LANDSCAPE ARCHITECT

Building 900 Expansion

UTILITY PLAN

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE 1"=20'

REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

SHEET NO.
C05
JOB NO. C1000301.00

STRUCTURE SCHEDULE:

12 — PROPOSED DI-3C 6'
TOP=101.10

13 — PROPOSED 110 LF OF 15" RCP @0.3%
INV. IN=98.31
INV. OUT=97.98

14 — PROPOSED DI-3C 6'
TOP=102.25

15 — PROPOSED 118 LF OF 15" RCP @0.3%
INV. IN=97.88
INV. OUT=97.53

16 — EXISTING DI-10C
TOP=101.15

17 — EXISTING 151 LF OF 24" RCP @2.0%
INV. IN=97.43
INV. OUT=94.35

18 — EXISTING MH-1
TOP=101.74

22 — PROPOSED 61 LF OF TRENCH DRAIN
TOP=102.90

23 — PROPOSED 21 LF OF 4" PVC @2.8%
INV. IN=102.20
INV. OUT=101.60

24 — EXISTING YARD DRAIN
EX. TOP=102.94 NEW TOP=102.60

25 — EXISTING 22 LF OF 8" PVC @1.8%
INV. IN=101.50
INV. OUT=101.10

32 — PROPOSED ROOF DRAIN
95 LF OF 10" PVC @1.0%
INV. IN=98.48 (at the building)
INV. OUT=97.53

BM – exist. MH
Top = 108.07

James City County Geodetic Control

tie to existing curb & gutter

PROPOSED LIMITS OF NEW PAVEMENT
NOTE: CONTRACTOR TO SAW CUT ALL EXSITING ASPHALT

PROPOSED CG-6
(HATCHING DENOTES DRY GUTTER)

ROOF LEADER

PROPOSED 15,330 SF
BUILDING ADDITION
FF=103.03
HEIGHT 31'-6"

match existing sidewalk grade

existing building 800

existing building 900
ff=103.03

existing walk to remain

ex inlet top=102.91
NEW TOP=102.60

102.66* match exist.

ex inlet top 102.85

ex inlet top 102.83

The information presented in the application and from which the site plan has been designed was based on field run survey done on August 11, 2010 for the existing stormwater structures.

Scale 1" = 20'

JCC CASE No. SP-0076-2010

BALZER AND ASSOCIATES INC
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
NO. 27
LANDSCAPE ARCHITECT

Building 900 Expansion

GRADIN PLAN

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY AFB
DESIGNED BY JLS
CHECKED BY JLS
DATE July 30, 2010
SCALE 1"=20'

REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

SHEET NO.
C06
JOB NO. C1000301.00

James City County Environmental Division
Standard Erosion and Sediment Control Notes
Revised October 1, 2009

The following standard erosion and sediment control (E&SC) notes shall become part of approved erosion and sediment control plans for all plan of development projects in James City County, Virginia.

1. All the provisions of Virginia Erosion and Sediment Control Law and Regulations, Minimum Standards, Handbooks, and Technical Bulletins as published by the Virginia Soil & Water Conservation Board and/or the Virginia Department of Conservation and Recreation, Division of Soil & Water Conservation shall apply to the project.

2. Minimum Standards # 1 through # 19 of the Virginia Erosion and Sediment Control Regulations (4VAC50-30-40) shall apply to the project.

3. The Owner or Applicant shall be responsible to register for coverage under the General Permit for Discharge of Stormwater from Construction Activities, in accordance with current requirements of the Virginia Stormwater Management Program (VSMP) and the Virginia Department of Conservation and Recreation.

4. The Owner or Applicant shall provide the name of an individual holding a valid Responsible Land Disturber (RLD) certificate of competence who will be responsible for the land-disturbing activity prior to engaging in the land-disturbing activity. This will be necessary prior to issuance of a land-disturbing permit for the project. The RLD is required to attend the preconstruction conference for the project.

5. The Contractor is responsible to contact Miss Utility (Dial 811 in VA or 1-800-552-7001) prior to any utility or site work excavations.

6. All erosion and sediment control measures shall be planned, designed, implemented, installed and maintained in accordance with the provisions of the latest edition of the Virginia Erosion and Sediment Control Handbook (VESCH). The Contractor shall maintain, inspect and repair all erosion and sediment control measures as needed throughout the life of the project to ensure continued acceptable performance.

7. A preconstruction conference (meeting) shall be held on site between the County Environmental Division, the Owner-Applicant, the Responsible Land-Disturber (RLD), the Contractor and other responsible agencies, as applicable, prior to issuance of a land-disturbing permit. The Owner or Applicant is required to coordinate scheduling of the preconstruction conference between all applicable parties. The Contractor shall submit a Sequence of Construction to the County Environmental Division for review and approval prior to the preconstruction meeting.

8. All perimeter erosion and sediment control measures shall be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place.

9. Additional safety fence or dust control measures, in accordance with the provisions of Minimum Standards & Specs. 3.01 and 3.39 of the Virginia Erosion and Sediment Control Handbook (VESCH), may be required to be implemented in addition to that shown on the approved plan in order to ensure adequate protection of the health, safety and welfare of the public or if site conditions change, become apparent or alter significantly following the date of plan approval.

10. Erosion and sediment control measures may require minor field adjustments at or following time of construction to ensure their intended purpose is accomplished, to ensure adequate protection of the health, safety and welfare of the public, or if site conditions change, become apparent or alter significantly following the date of plan approval. County Environmental Division approval shall be required for any deviation of erosion and sediment control measures from the approved plan.

11. Off-site waste or borrow areas shall be approved by the County Environmental Division prior to the import of any borrow or export of any waste to or from the project site.

12. Culvert and storm drain inlet protections, in accordance with the provisions of Minimum Standards & Specs. 3.07 & 3.08 of the Virginia Erosion and Sediment Control Handbook (VESCH), may be removed at the discretion of the assigned County Environmental Division inspector should placement of the measure result in excessive road flooding or traffic hazard or result in the redirection of drainage onto or toward existing lots, driveways or structures. Decisions shall be made on a case-by-case basis based on field situations encountered.

13. Drainage facilities shall be installed and functional within 30 days following completion of rough grading at any point within the project.

14. No more than 300 feet of trench may be open at one time for underground utility lines, including storm water conveyances. All other provisions of Minimum Standard # 16 of the Virginia Erosion and Sediment Control regulations apply.

15. If disturbed area stabilization is to be accomplished during the months of December, January or February, stabilization shall consist of Mulching in accordance with Minimum Standard & Spec. 3.35 of the Virginia Erosion and Sediment Control Handbook (VESCH). Seeding will then take place as soon as the season permits.

16. The term seeding, final vegetative cover or stabilization on the approved plan shall mean the successful germination and establishment of a stable grass cover from a properly prepared seedbed, in accordance with Minimum Standards & Specs. 3.29 through 3.37 of the Virginia Erosion and Sediment Control Handbook (VESCH), as applicable. Irrigation, if necessary, shall comply with all applicable outdoor water use restrictions of the James City Service Authority.

17. Temporary erosion and sediment control measures shall not be removed until all disturbed areas are stabilized. Removal shall not occur without authorization by the County Environmental Division. Disturbances associated with the removal of temporary erosion and sediment control measures shall be properly stabilized.

18. No sediment trap or sediment basin shall be removed until a) at least 75 percent of the single-family lots within the drainage area to the trap or basin have been sold to a third party for the construction of homes (unrelated to the developer); and/or, b) 60 percent of the single-family lots within the drainage area to the trap or basin are completed and stabilized. A bulk sale of the lots to another builder does not satisfy this provision. Sediment traps and sediment basins shall not be removed without authorization of the County Environmental Division.

19. Applicable provisions of the County BMP Manual (James City County Guidelines for Design and Construction of Stormwater Management BMPs) and the Virginia Stormwater Management Handbook (VSMH) apply to the project.

20. Design and construction of private-type storm drainage systems, outside VDOT right-of-way, shall be performed in accordance with the current version of the James City County Environmental Division, Stormwater Drainage Conveyance Systems (Non-BMP related), General Design and Construction Guidelines.

21. Record Drawings (Asbuilts) and Construction Certifications are required for all stormwater facilities including stormwater management/BMP facilities and storm drainage conveyance systems. Record drawings and construction certifications must meet established program requirements of both the County Environmental and Stormwater Divisions.

22. All stormwater facilities including BMPs, storm drainage pipes, stormwater conveyances, inlets, manholes, outfalls and roadside and other open channels shall be inspected by the County Stormwater Division and geotechnical engineer in accordance with established County Stormwater Division program requirements.

SEQUENCE OF CONSTRUCTION:

NO LAND DISTURBING OPERATIONS MAY BEGIN UNTIL THE E&S MEASURES AS PROPOSED WITH THIS PLAN, HAVE BEEN IMPLEMENTED.

REAR PARKING ISLANDS, ASPHALT AND SIDEWALKS TO BE DEMOLISHED AND REMOVED.

ESTABLISH GRADES OF PROPOSED BUILDING ADDITION PAD.

CONSTRUCT BUILDING ADDITION, INSTALL SIDEWALK, C&G AND LANDSCAPING.

REPAIR ANY INADVERTENT EROSION AND REMOVE ANY INADVERTENT SEDIMENTATION. DRESS AND SEED ALL DISTURBED AREAS AS NECESSARY TO EFFECT PERMANENT VEGETATIVE COVER.

REMOVE EROSION AND SEDIMENT CONTROL MEASURES WITHIN THIRTY DAYS AFTER FINAL SITE STABILIZATION.

INLET SCHEDULE - AMERICAN FAMILY

2 & 10 YEAR FREQUENCY

DATE: 10/14/2010

INLET NO.	TYPE	L	STA	DA (AC.)	C	CA	CA W	I IN/HR	Qincr CFS	Qco CFS	Qt GUTTER FLOW	S GUTTER SLOPE	Sx CROSS SLOPE	T SPREAD	W (FT)	WT	Sw FT/FT	Sw/Sx (#10)	Es a	Sw + a/Sx(ft/ft) Sx+Sw Es	P Eff=c LENGTH	L / Lt d (FT)	E (#16) h (FT)	Qi CFS d/h	Qb CFS Carryover	T SPREAD @ SAG (ft)	REMARKS
16	3C	10		1.26	0.82	1.03	5.5				5.67	0.013	0.020								13.60	0.32	0.458			16.01	2
							7.1				7.31											0.38				18.96	10
14	3C	6		0.21	0.78	0.16	5.5				0.88	0.025	0.020								9.60	0.12	0.458			5.83	2
							7.1				1.14											0.14				6.93	10
12	3C	6		0.40	0.61	0.24	5.5				1.32	0.013	0.024								9.60	0.15	0.458			6.36	2
							7.1				1.70											0.18				7.53	10
22	TD	61		0.02	0.9	0.02	5.5				0.11		0.018									0.02				1.19	2
							7.1				0.14											0.03				1.40	10
24	YD	1		0.03	0.52	0.02	5.5				0.11		0.260									0.03				0.98	2
							7.1				0.14											0.03				1.15	10

HYDRAULIC GRADELINE - AMERICAN FAMILY

10 YEAR FREQUENCY

DATE: 10/14/2010

INLET STATION	OUTLET W.S.E.	Do	Qo	Lo	Sf%	Hf	Vo	Ho	Qi	Vi	Qi/Vi	V/2 2g	Hi	ANGLE	Hi(bend)	Ht	1.3Ht	0.5Ht	FINAL H	INLET WATER	RIM ELEV
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
12	98.98	15	1.70	110	0.069	0.076	2.88	0.000	0.00	0.00	0.00	0.000	0.000	0	0.000	0.032	0.042	0.00	0.118	99.10	101.10
14	99.10	15	3.20	118	0.245	0.289	2.88	0.032	1.70	2.88	4.90	0.128	0.045	60	0.071	0.148	0.193	0.00	0.482	99.58	102.25
16	99.58	24	12.28	151	0.295	0.444	10.18	0.402	3.20	2.88	9.22	0.128	0.045	5	0.004	0.451	0.587	0.00	1.032	100.61	101.15

STORM SEWER DESIGN - AMERICAN FAMILY

10 YEAR FREQUENCY

DATE: 10/14/10

FROM POINT	TO POINT	DA (ACRES)	C RUNOFF	CA INCR.	CA ACCUM.	TC MINUTES	RAINFALL IN/HR	RUN-OFF CFS	INVERT UPPER	INVERT LOWER	LENGTH FEET	SLOPE %	DIA. INCHES	CAPACITY CFS	VELOCITY F.P.S.	FLOW TIME MIN.
12	14	0.40	0.61	0.24	0.24	5.0	7.1	1.70	98.31	97.98	110	0.30%	15	3.54	2.88	0.64
14	16	0.21	0.78	0.21	0.45	5.0	7.1	3.20	97.88	97.53	118	0.30%	15	3.54	2.88	0.68
Roof	16	0.28	0.90	0.25	0.25	5.0	7.1	1.78	98.48	97.53	95	1.00%	10	2.59	4.75	0.33
16	18	1.26	0.82	1.03	1.73	5.0	7.1	12.28	97.43	94.35	151	2.00%	24	31.99	10.18	0.25
22	24	0.02	0.90	0.02	0.02	5.0	7.1	0.13	102.20	101.60	21	2.80%	4	0.38	4.31	0.08
24	25	0.03	0.52	0.02	0.04	5.0	7.1	0.28	101.50	101.10	22	1.80%	8	1.91	5.49	0.07

E&S NARRATIVE:

PROJECT DESCRIPTION:
THE PROPOSED PROJECT CONSISTS OF A BUILDING ADDITION TO "BUILDING 900" AND ADJUSTING THE REAR PARKING LOT AND SERVICE CORRIDOR IN NEW TOWN, LOCATED IN JAMES CITY COUNTY.

EXISTING SITE CONDITIONS:
THIS SITE IS CURRENTLY AN ASPHALT PARKING LOT.

ADJACENT PROPERTIES:
THIS AREA IS SURROUNDED BY FULLY DEVELOPED AREAS. TO THE EAST IS IRONBOUND ROAD, AND THE REST OF THE ADJACENT PROPERTY IS PART OF THE NEW TOWN DEVELOPMENT.

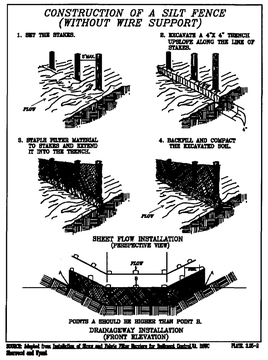
SOIL DESCRIPTION:
ACCORDING TO THE PREVIOUS SITE PLANS AND CONSERVATION SERVICE SOILS MAPS, THIS AREA CONTAINS SOIL TYPES 19B AND 29B.

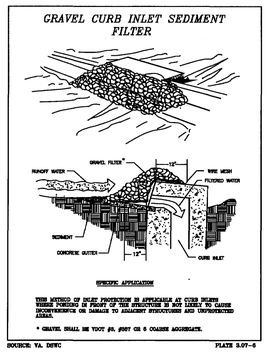
CRITICAL AREAS:
TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE EXISTING BMP AND STORM SEWER SYSTEM, INLET PROTECTION SHALL BE UTILIZED IN IMMEDIATELY AFFECTED AREAS.

EROSION & SEDIMENT CONTROL MEASURES:
FOR EROSION AND SEDIMENT CONTROL PROTECTION, INLET PROTECTION AND DUST CONTROL WILL BE UTILIZED AND INSTALLED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK TO MINIMIZE THE TRANSPORTATION OF SEDIMENT OFF-SITE.

PERMANENT STABILIZATION:
TEMPORARY SEEDING, LANDSCAPING, HARDSCAPING AND TURF WILL BE USED TO STABILIZED THE SITE AFTER CONSTRUCTION IS COMPLETE.

STORM WATER MANAGEMENT/BMP:
STORMWATER RUNOFF WILL BE COLLECTED, TREATED, AND ATTENUATED BY MEANS OF A PROPOSED AND EXISTING STORM SEWER AND BMP POND # 53.

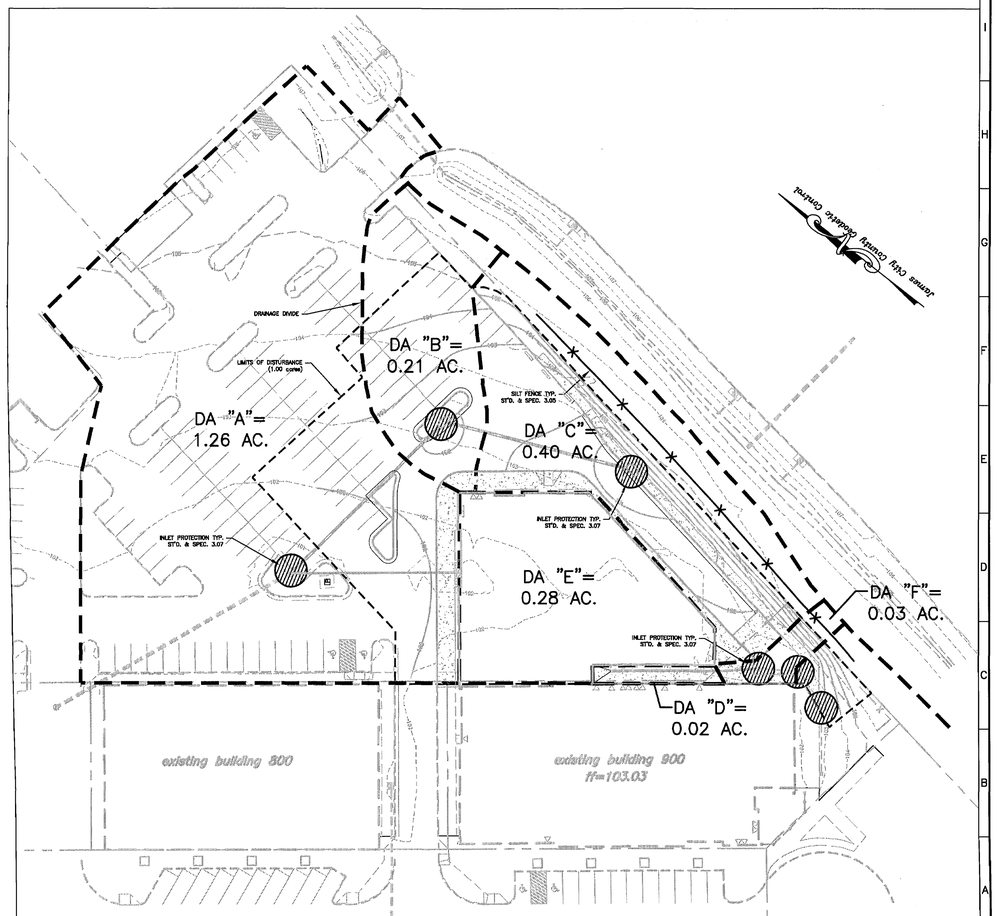




HYDROLOGY WORKSHEET

PROJECT NAME: American Family
PROJECT #: C1000301.00
PAGE:
DATE: 10/14/10
BY: JLS

DA#	DATA				CALCULATIONS											
A	Area =	1.26	ac		C Value							Time of Concentration				
	CA =	1.03				ac =	13	%@	0.90	C =	0.04	ft OLF@		% =		min
	Tc =	5				ac =	87	%@	0.90	C =	0.78	ft CF @		% =		min
	I2 =	5.5	in/hr	Q2 =	5.67 cfs	ac =		%@		C =		ft CF @		% =		min
	I10 =	7.1	in/hr	Q10 =	7.31 cfs	ac =		%@		C =				Tc =	5.00	min
	I25 =	8.25	in/hr	Q25 =	9.35 cfs	ac =		%@		C =		User defined				
	I100 =	9.8	in/hr	Q100 =	12.62 cfs				ADJ. C* =		0.820	C factor for OLF=				
B	Area =	0.21	ac		C Value							Time of Concentration				
	CA =	0.16				ac =	20	%@	0.90	C =	0.06	ft OLF@		% =		min
	Tc =	5				ac =	80	%@	0.90	C =	0.72	ft CF @		% =		min
	I2 =	5.5	in/hr	Q2 =	0.88 cfs	ac =		%@		C =		ft CF @		% =		min
	I10 =	7.1	in/hr	Q10 =	1.14 cfs	ac =		%@		C =				Tc =	5.00	min
	I25 =	8.25	in/hr	Q25 =	1.45 cfs	ac =		%@		C =		User defined				
	I100 =	9.8	in/hr	Q100 =	1.96 cfs				ADJ. C* =		0.780	C factor for OLF=				
C	Area =	0.4	ac		C Value							Time of Concentration				
	CA =	0.24				ac =	48	%@	0.90	C =	0.14	ft OLF@		% =		min
	Tc =	5				ac =	52	%@	0.90	C =	0.47	ft CF @		% =		min
	I2 =	5.5	in/hr	Q2 =	1.32 cfs	ac =		%@		C =		ft CF @		% =		min
	I10 =	7.1	in/hr	Q10 =	1.70 cfs	ac =		%@		C =				Tc =	5.00	min
	I25 =	8.25	in/hr	Q25 =	2.18 cfs	ac =		%@		C =		User defined				
	I100 =	9.8	in/hr	Q100 =	2.94 cfs				ADJ. C* =		0.610	C factor for OLF=				
D	Area =	0.02	ac		C Value							Time of Concentration				
	CA =	0.02				ac =	100	%@	0.90	C =	0.90	ft OLF@		% =		min
	Tc =	5				ac =		%@		C =		ft CF @		% =		min
	I2 =	5.5	in/hr	Q2 =	0.11 cfs	ac =		%@		C =		ft CF @		% =		min
	I10 =	7.1	in/hr	Q10 =	0.14 cfs	ac =		%@		C =				Tc =	5.00	min
	I25 =	8.25	in/hr	Q25 =	0.18 cfs	ac =		%@		C =		User defined				
	I100 =	9.8	in/hr	Q100 =	0.25 cfs				ADJ. C* =		0.900	C factor for OLF=				
E	Area =	0.28	ac		C Value							Time of Concentration				
	CA =	0.25				ac =	100	%@	0.90	C =	0.90	ft OLF@		% =		min
	Tc =	5				ac =		%@		C =		ft CF @		% =		min
	I2 =	5.5	in/hr	Q2 =	1.38 cfs	ac =		%@		C =		ft CF @		% =		min
	I10 =	7.1	in/hr	Q10 =	1.78 cfs	ac =		%@		C =				Tc =	5.00	min
	I25 =	8.25	in/hr	Q25 =	2.27 cfs	ac =		%@		C =		User defined				
	I100 =	9.8	in/hr	Q100 =	3.06 cfs				ADJ. C* =		0.900	C factor for OLF=				
F	Area =	0.03	ac		C Value							Time of Concentration				
	CA =	0.02				ac =	63	%@	0.90	C =	0.19	ft OLF@		% =		min
	Tc =	5				ac =	37	%@	0.90	C =	0.33	ft CF @		% =		min
	I2 =	5.5	in/hr	Q2 =	0.11 cfs	ac =		%@		C =		ft CF @		% =		min
	I10 =	7.1	in/hr	Q10 =	0.14 cfs	ac =		%@		C =				Tc =	5.00	min
	I25 =	8.25	in/hr	Q25 =	0.18 cfs	ac =		%@		C =		User defined				
	I100 =	9.8	in/hr	Q100 =	0.25 cfs				ADJ. C* =		0.520	C factor for OLF=				



BALZER AND ASSOCIATES INC
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
NO. 927
LANDSCAPE ARCHITECT

JCC CASE No. SP-0076-2010

Building 900 Expansion
DRAINAGE & EROSION CONTROL
BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE 1"=40'

REVISIONS:
October 15, 2010
November 12, 2010

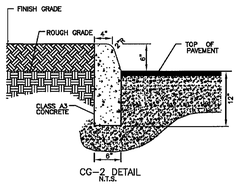
SHEET NO.
C07
JOB NO. C1000301.00

STANDARD NOTES

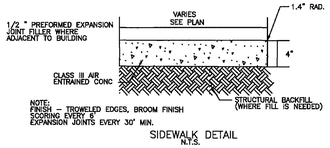
1. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM WITH THE 1989 STANDARDS AND SPECIFICATIONS OF THE VIRGINIA DEPARTMENT OF HIGHWAYS AND TRANSPORTATION, EXCEPT WHERE JAMES CITY COUNTY STANDARDS ARE APPLICABLE.
2. ALL STORM SEWER SHALL BE ASTM, C-76, CLASS III, EXCEPT AS NOTED.
3. ALL DRAINAGE STRUCTURES SHALL BE EITHER PRECAST OR CAST-IN-PLACE.
4. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC UTILITIES PRIOR TO MAKING ANY ADJUSTMENTS TO THE WATER OR SEWERAGE SYSTEMS.
5. THE CONTRACTOR SHALL NOTIFY THE COUNTY ENGINEER AT LEAST 24 HOURS PRIOR TO STARTING WORK ON THE PROJECT.
6. ALL STORM SEWER LOCATED WITHIN AN EASEMENT OR RIGHT-OF-WAY SHALL HAVE A MINIMUM OF 4" AGGREGATE BEDDING MATERIAL.
7. A PERMIT MUST BE OBTAINED FROM THE OFFICE OF THE COUNTY ENGINEER PRIOR TO DOING ANY UTILITY WORK WITHIN EXISTING COUNTY RIGHT-OF-WAY.
8. ALL CURB AND GUTTER AND STORM SEWER LOCATED WITHIN EXISTING COUNTY RIGHT-OF-WAY SHALL BE STAKED BY THE COUNTY, UPON WRITTEN REQUEST BEING MADE TO THE COUNTY ENGINEER.
9. ALL CURB AND GUTTER SHALL BE COUNTY STANDARD, EXCEPT AS NOTED.
10. A DI ON GRADE SHALL BE POURED WITH THE THROAT ON THE SAME GRADE AS THE ADJOINING CURB AND GUTTER.
11. THE PAVEMENT DESIGN IS SUBJECT TO CHANGE DUE TO SOIL CONDITION AT THE TIME OF CONSTRUCTION, AS DETERMINED BY THE CONSTRUCTION ENGINEER FOR JAMES CITY COUNTY.
12. THE APPROVAL OF THIS PLAN DOES NOT ESTABLISH THE CURB AND GUTTER ELEVATIONS ALONG THE PUBLIC RIGHT-OF-WAY. THE ELEVATIONS WILL BE SET BY VDOT.
13. ANY NECESSARY PAVEMENT WIDENING BETWEEN THE EXISTING PAVEMENT AND PROPOSED IMPROVEMENTS IS THE RESPONSIBILITY OF THE DEVELOPER.
14. ALL UTILITY POLES WITHIN THE PUBLIC RIGHT-OF WAY WHICH ARE IN CONFLICT WITH PROPOSED IMPROVEMENTS TO THE RIGHT-OF-WAY, SUCH AS CURB AND GUTTER, DRAINAGE ITEMS, OR PAVEMENT WIDENING SHALL BE RELOCATED AT THE OWNER'S EXPENSE.
15. ADEQUATE SIGHT DISTANCE, AS REQUIRED BY THE TRAFFIC ENGINNER, SHALL BE REQUIRED AT ALL INTERSECTIONS AND ON ALL ROADWAYS INCLUDED IN THIS DEVELOPMENT.

CONSTRUCTION NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS FROM JAMES CITY COUNTY.
2. CURB AND GUTTER WITHIN PARKING LOT TO BE VDOT STANDARD CG-2 & CG-6 WHERE CALLED FOR.
3. PAVEMENT IS TO BE INSTALLED IN ACCORDANCE WITH THE VIRGINIA DEPARTMENT OF HIGHWAYS SPECIFICATIONS.
4. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES. CONTACT ENGINEER IF THERE APPEARS TO BE A CONFLICT OR UPON DISCOVERY OF A UTILITY NOT SHOWN.
5. ALL CONSTRUCTION METHODS AND MATERIALS WILL BE IN ACCORDANCE WITH THE VDH&T ROAD AND BRIDGE SPECIFICATIONS DATED JULY 1, 1989 AND WHERE JAMES CITY COUNTY STANDARDS ARE APPLICABLE.
6. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC UTILITIES PRIOR TO STARTING WORK ON THE PROJECT.



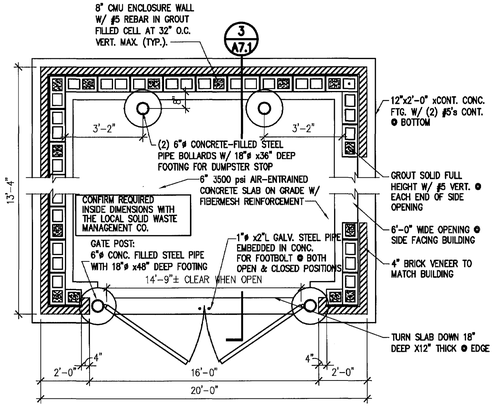
CG-2 DETAIL
N.T.S.

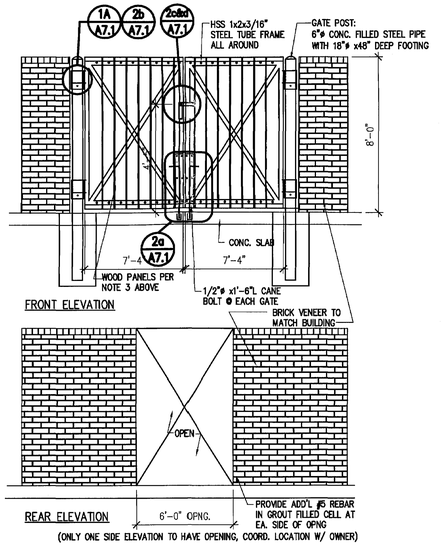


SIDEWALK DETAIL
N.T.S.

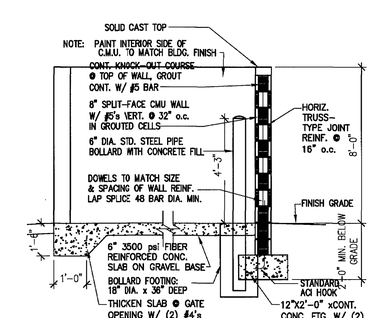
GEN. NOTES

1.) 6"DIA STEEL POSTS SHALL BE SET A MINIMUM OF 36" INTO CONCRETE.
2.) BRICK COLOR TO MATCH THE BRICK ON THE BUILDING, U.N.O.
3.) INSTALL 1x6 BOARDS ¾" APART. PAINT DUMPSTER GATE WOOD BOARDS, POST, HINGES AND ACCESSORIES AS SPECIFIED ON "EXTERIOR FINISH SCHEDULE". ALL WOOD BOARD SHALL BE #1 CEDAR OR REDWOOD.

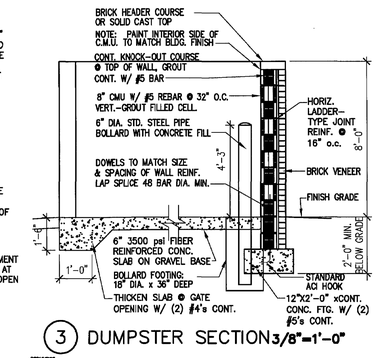




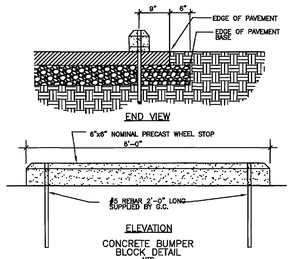
1 DUMPSTER PLAN & ELEVATIONS 3/8"=1'-0"



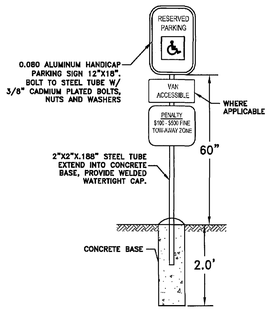
3 DUMPSTER SECTION 3/8"=1'-0"



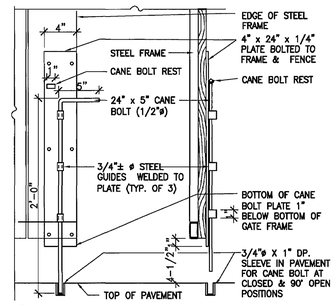
3 DUMPSTER SECTION 3/8"=1'-0"



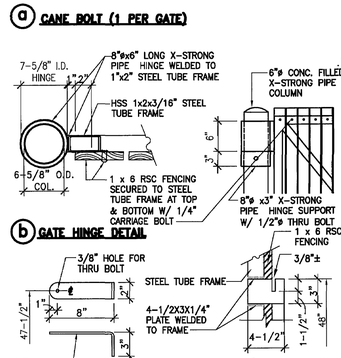
CONCRETE BUMPER BLOCK DETAIL
NTS



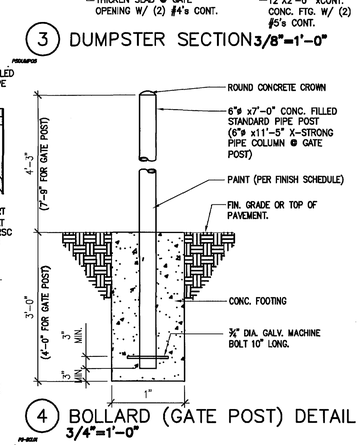
HANDICAP PARKING SIGN
N.T.S.



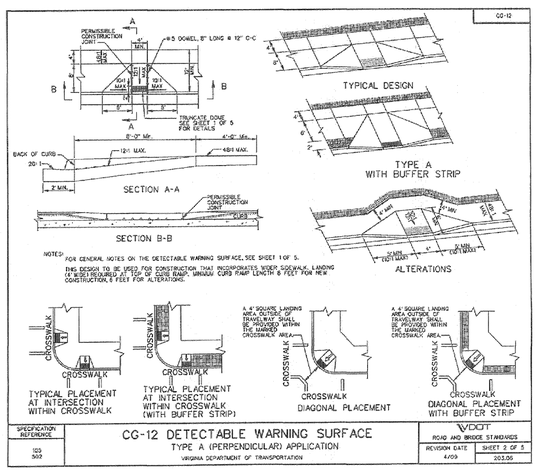
a CANE BOLT (1 PER GATE)

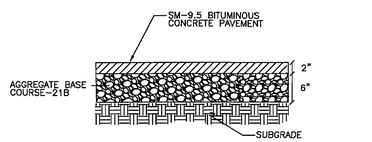


b GATE HINGE DETAIL
c SWING LATCH
d STOP PLATE
2 GATE HARDWARE DETAILS
NTS

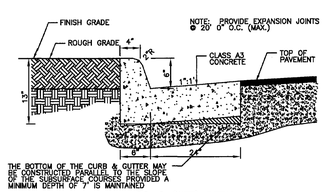


4 BOLLARD (GATE POST) DETAIL 3/4"=1'-0"

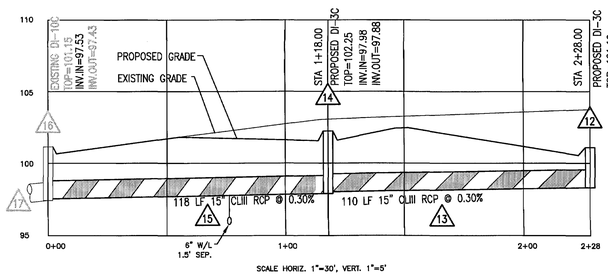




*NOTE: PAVEMENT SECTION BASED ON A CBR VALUE OF 10 OR GREATER. ACTUAL DESIGN MAY VARY DEPENDING ON SOIL CONDITIONS.
LIGHT DUTY PAVING DETAIL
N.T.S.



CG-6 (WET) DETAIL
N.T.S.



SCALE HORIZ. 1"=30', VERT. 1"=5'

JCC CASE No. SP-0076-2010

BALZER AND ASSOCIATES INC
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
NO. 927
LANDSCAPE ARCHITECT

Building 900 Expansion

NOTES & DETAILS

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE N/A

REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

SHEET NO.
C08
JOB NO. C1000301.00

SECTION 5. GENERAL NOTES:

5.1 The following notes shall be provided on all Developer constructed water distribution and sanitary sewer system facility construction plans and specifications and compliance is required by the Contractor/Developer:

JCSA GENERAL NOTES FOR WATER DISTRIBUTION AND SANITARY SEWER SYSTEMS: (Revised March 2008)

A. All components of the water distribution and sanitary sewer system shall be installed and tested in accordance with the latest edition of the JCSA Design and Acceptance Criteria for Water Distribution and Sanitary Sewer Systems, the HRPDC Regional Construction Standards (Fourth Edition with amendments dated October 2006), and the Commonwealth of Virginia Department of Health *Waterworks and Sanitary Sewerage Regulations*. The Contractor shall use only new materials, parts, and products on all projects. All materials shall be stored so as to assure the preservation of their quality and fitness for the work. A copy of the JCSA Design and Acceptance Criteria and HRPDC Regional Construction Standards must be kept on-site by the contractor during time of installing, testing, and conveying facilities to JCSA.

B. The Contractor/Developer shall acquire a Certificate to Construct Water and Sanitary Sewer Facilities prior to commencement of construction of any water or sanitary sewer facilities.

C. A preconstruction meeting shall be held between JCSA, the Developer, the Contractor including relevant subcontractor(s), and the Project Engineer prior to issuance of a JCSA Certificate to Construct. It shall be the responsibility of the Contractor to schedule this meeting with JCSA and coordinate with the other attendees.

D. The Developer's representative shall submit shop drawings for all materials and receive JCSA approval prior to commencement of construction. All materials ordered and installed prior to JCSA's review and acceptance will be at the Contractor's/Developer's risk.

E. Pipe lines and services shall be installed after grading to within 6-inches of final grade and prior to placement of base material.

F. All water mains shall be fully flushed, pressure tested, and disinfected and satisfactory bacteriological samples obtained, in accordance with JCSA Design and Acceptance Criteria. Flushing of water mains shall be scheduled with the JCSA Inspector minimum 3 business days prior to the flushing. Contractor shall provide the required duration and volume to the Inspector. Flushing will be scheduled only on Mondays, unless authorized otherwise by JCSA, and will be on a first come-first serve basis.

G. Routine periodic inspections during construction will be provided by JCSA. These inspections do not relieve the Developer/Contractor/Owner from his obligation and responsibility for constructing a water distribution and sanitary sewer system in strict accordance with the JCSA Design and Acceptance Criteria.

H. Any field modifications or changes to the approved plans shall be verified and checked by the Engineer of Record and approved by JCSA prior to any field modifications or changes. All approved changes and field modifications shall be accurately indicated on the record drawings.

I. All lots shall be provided with water service and sanitary sewer connections. The connections shall be extended from the main to the property line or easement line, and shall terminate with a yoke in a meter box, or at the clean out, set at final finished grade. Meters for all lots (units) shall be paid for by the Developer or builder and installed by JCSA.

J. Any required easements, permits and approvals shall be acquired by the Developer prior to commencement of water main and/or sanitary sewer construction.

K. The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. The Contractor shall erect and maintain, as required by the conditions and progress of the work, all necessary safeguards for safetyandprotection. TheContractorshallalsonotify "MissUtility"at1-800-552-7001 or 811 prior to performing any underground excavation.

L. Water meter box installation shall maintain a minimum 18-inch horizontal edge-to-edge clearance from driveways and/or drive paths, sidewalks, bike paths, curbing and adjacent water meter boxes.

M. Only JCSA personnel are authorized to operate valves on existing JCSA water mains and sanitary force mains. Once a system has been hydraulically energized, JCSA will be responsible for operating the valves. The Contractor shall contact JCSA Operations at 757-229-7421 if there is an emergency or need to open/close a valve.

N. Any existing unused well(s) shall be abandoned in accordance with State Private Well Regulations and James City County Code.

O. Bedding of JCSA utilities shall be in accordance with HRPDC Detail EW_01.

P. No trees, shrubs, structures, fences, irrigation mains, invisible pet fences or other obstacles shall be placed within an easement which would render the easement inaccessible by equipment. Shrubs shall be a minimum of 5 feet, and trees a minimum of 10 feet, from the center of water and sanitary sewer pipelines.

Q. Joint restraint shall be provided in accordance with minimum requirements of JCSA detail JR.1, unless shown otherwise on the plans. All pressure pipelines shall have joint restraint. Fire hydrants shall be restrained at least one full joint of pipe in each direction on the mainline.

R. Proposed water and sanitary sewer systems shall maintain a minimum horizontal separation of 5-feet from other utilities and structures, including but not limited to storm sewers, street lights, etc. Water and sanitary sewer facilities shall have a minimum 10foot horizontal edge-to-edge separation.

S. Any proposed backflow prevention device and/or grease trap must be inspected by the JCSA Utility Special Projects Coordinator at (757) 259-4138.

T. The Contractor/Developer shall acquire a Certificate to Construct Water and Sanitary Sewer Facilities prior to commencement of construction of any water or sanitary sewer facilities. Plumbing inside of proposed buildings must be inspected by JCSA's Utility Special Projects Coordinator at (757) 259-4138, for potential cross connections. Any cross connections must be protected by the appropriate backflow prevention device(s)".

U. Easements denoted as "JCSA Utility Easements" are for the exclusive use of the James City Service Authority and the property owner. Other utility service providers desiring to use these easements with the exception of perpendicular utility crossings must obtain authorization for access and use from JCSA and the property owner. Additionally, JCSA shall not be held responsible for any damage to improvements within this easement, from any cause.

V. JCSA shall not be held responsible for any pavement settlement due to pipe bedding, backfilling, backfill materials or compaction for Water or Sanitary Sewer facilities for this project.

W. Fire hydrants to be installed within existing or proposed VDOT right-of-ways shall be located in accordance with VDOT Requirements.

X. Privately owned utilities, (e.g., water and sewer lines and private fire service mains), shown on this plan are regulated by the Virginia Uniform Statewide Building Code, and enforced by the James City County Codes Compliance Division. These privately owned utilities must comply fully with the International Plumbing Code, the National Fire Protection Association Standard 24, and the Virginia Statewide Fire Prevention Code. Contractors working from this site plan are cautioned not to install or conceal privately owned site utilities without first obtaining the required permits and inspections.

Y. Sanitary sewer laterals shall not connect to the mainline within 5-feet of a manhole. Laterals upstream and within 5-feet of the manhole shall connect directly into the manhole where necessary.

5.2 The following notes are a supplement to the JCSA General Notes for Water Distribution Systems and shall be provided on all Developer constructed water production facility construction plans and specifications and compliance is required by the Contractor/Developer:

JCSA GENERAL NOTES FOR WATER PRODUCTION FACILITIES: (Revised March 2008):

A. All well facilities shall be designed by a Commonwealth of Virginia Registered Professional Engineer (Consultant), and the design, construction and installation shall be in accordance with the following:

1 Commonwealth of Virginia Department of Health (VDH) Waterworks Regulations.
2 James City Service Authority (JCSA) Design and Acceptance Criteria and policies.
3 Approvals of JCSA and VDH shall be obtained prior to commencement of construction.

B. Construction plans shall be submitted through the James City County Planning Department for review and approval. The Developer/Contractor/Consultant shall supply minimum three (3) sets of construction plans and specifications detailing all phases of the well and water production construction including testing, materials, shop drawing submittals, painting and installation. These shall be submitted to, and approved by, JCSA.

C. The Developer/Contractor/Consultant shall be responsible for assuring that all work is performed in accordance with the approved plans and specifications. Any deviation from the approved plans and specifications shall be approved by JCSA and VDH prior to performing such work.

D. Drilling fluid shall be sodium bentonite drilling clay commercially processed to meet or surpass the viscosity specifications in API "Standard 13-A for Drilling Fluid Materials", or approved equal.

E. Organic drilling muds shall not be used in any phase of drilling or construction. Lime shall not be used to thicken the drilling mud.

F. Drilling fluid mix water shall be from a potable source and initially Chlorinated to 50 mg/l free Chlorine concentration. Periodic addition will be required to maintain a 10 mg/l free Chlorine residual. All drilling fluids additives shall comply with industry standards and practices.

G. During drilling and well construction, a "Driller's Log" shall be prepared and submitted to JCSA upon completion of the drilling.

H. Upon completion of the geophysical logging, recommendations shall be submitted to JCSA for approval prior to the installation of the well casing and screens.

I. Grout of the surface casing shall be placed under pressure using an external tremie pipe in one continuous operation to a minimum depth of 100-feet.

J. Grouting operations shall be performed in the presence of JCSA's Inspector and a VDH representative. Both agencies shall be notified a minimum of 48-hours in advance of the grouting operations.

K. Grout mixtures shall be approved by the VDH and JCSA prior to installation. Grout shall be firmly set (minimum of 72-hours) prior to proceeding with the well construction.

L. The well casing shall be stainless steel 316L. PVC well casing may be used with the prior approval of the JCSA and VDH as to material specifications and construction installation methods.

M. The screen shall be stainless steel 316L continuous slot wire wound screen, reinforced with longitudinal bars; the bars having a cross section that will form an opening between each adjacent coil of wire.

N. Prior to installation, the Consultant/Driller's recommended screen slot and gravel size along with supporting calculations shall be submitted to JCSA for approval.

O. Prior to gravel packing, the hole shall be conditioned to ensure stability and to provide a clear filter cake. The gravel shall be disinfected by adding sufficient Chlorine to the placement fluid to produce a minimum Chlorine residual of 400 mg/l.

P. The well shall be developed in such a way as to remove the fines and sort the gravel pack. Records of the development steps and the chemicals used shall be submitted to JCSA.

Q. A well plumbness and alignment, 48-hour pump test and recovery test shall be performed and the results documented and submitted to JCSA.

R. Water samples shall be collected and analyzed for all parameters, required by the VDH, including VOC's.

S. Final pump size and setting recommendations, along with test results and supporting documentation, shall be submitted to JCSA for review and approval prior to installation.

T. The well shall be disinfected in accordance with VDH requirements.
U. The Developer shall obtain construction and operational permits from the VDH and DEQ.

V. The Developer shall obtain all easements, approvals and regulatory permits.

W. The Developer shall acquire and provide 3-phase electrical service for the facility.

X. The water production facilities shall be equipped with a standby generator. Generator shall be rated for continuous duty and provide all power to operate the complete facility and systems.

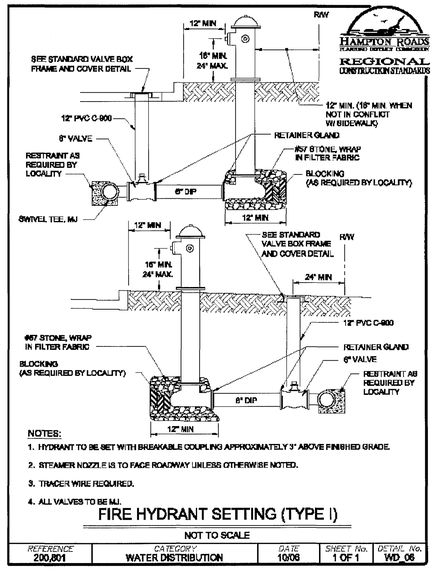
Y. The water production facility shall be equipped with a JCSA compatible SCADA system.
BB. The facility shall be fenced.

Z. Shop drawings and operational, maintenance and repair manuals shall be provided to JCSA, along with a one-year warranty on all facility components and workmanship.

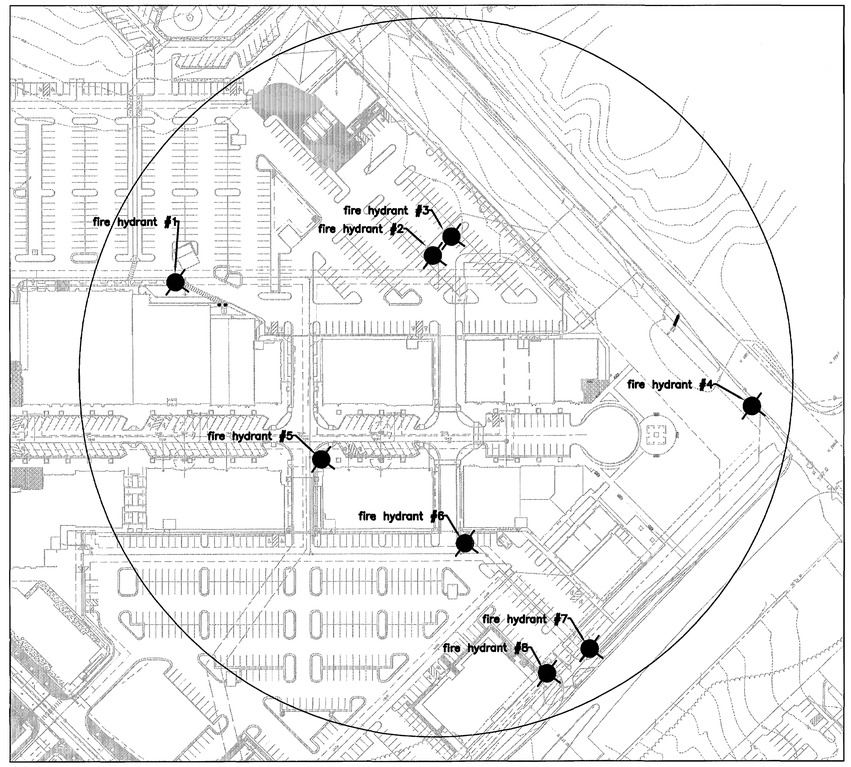
AA. Record drawings shall be submitted and the facilities shall be dedicated as a public water supply prior to acceptance by JCSA. All required easements shall be dedicated to JCSA with recorded documents submitted to JCSA.

HRPDC and JCSA standard details:

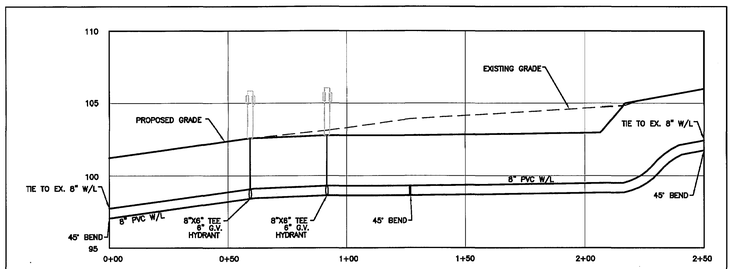
JR.1	Joint Restraint Table
W15.0	Water Meter Setting (1 1/2" meter)
WD_06	Fire Hydrant Setting (type I)



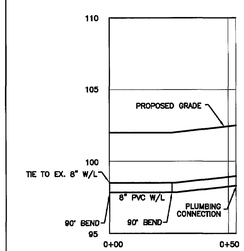
EXISTING FIRE HYDRANT LOCATIONS



WITH THE INSTALLATION OF THIS PROJECT THERE WILL BE EIGHT (8) FIRE HYDRANTS WITHIN A 500' RADIUS OF THIS PROJECT AREA.



WATERLINE PROFILE



WATERLINE PROFILE

SCALE HORIZ. 1"=30', VERT. 1"=5'

BALZER AND ASSOCIATES, INC.
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
No. 927
LANDSCAPE ARCHITECT

JCC CASE No. SP-0076-2010

Building 900 Expansion

NOTES & DETAILS

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE N/A

REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

SHEET NO.
C09

JOB NO. C1000301.00

1. PLANT MATERIAL NAMES ARE IN COMPLIANCE WITH HORTUS THIRD. SIZES AND GRADING ARE TO COMPLY WITH THE LATEST EDITION OF AMERICAN STANDARDS FOR NURSERY STOCK. PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

2. ALL WORK SHALL BE COORDINATED WITH TRADES.

3. USE EXISTING TOPSOIL AND/OR PROVIDE NEW TOPSOIL, WHICH IS FERTILE, FRIABLE, NATURAL LOAM, SURFACE SOIL, REASONABLY FREE OF SUBSOIL, FOREIGN MATTER, ROOTS, STUMPS AND STONES LARGER THAN 2" IN DIMENSION.

4. CONTRACTOR SHALL ASCERTAIN LOCATION OF ALL UTILITIES PRIOR TO EXCAVATION.

5. CONTRACTOR SHALL MAINTAIN PLANT MATERIAL DURING INSTALL-ATION MAINTENANCE SHALL BECOME RESPONSIBILITY OF OWNER UPON ACCEPTANCE OF WORK.

6. WHEN THE LANDSCAPE WORK IS COMPLETED, THE OWNER'S REP-RESENTATIVE WILL, UPON WRITTEN REQUEST, MAKE AN INSPECTION TO DETERMINE ACCEPTABILITY. IF WORK IS NOT ACCEPTABLE, REPLACE REJECTED WORK AND CONTINUE MAINTENANCE UNTIL REINSPECTION AND APPROVAL.

7. GUARANTEE ALL MATERIALS AND LABOR FOR 12 CALENDAR MONTHS AFTER ACCEPTANCE.
   A. MAKE REPLACEMENTS OF ALL DEAD PLANTS IN IMPAIRED CONDITIONS IN EARLY FALL FOLLOWING PLANTING.
   B. ADD ADDITIONALLY IN THE EARLY SPRING FOR THE SAME OR OTHER MATERIALS WHICH ARE DEAD OR IMPAIRED FROM THE WINTER CONDITIONS.

8. WITHIN 10 DAYS AFTER ACCEPTANCE, THE CONTRACTOR SHALL DELIVER AN OUTLINE OF MAINTENANCE PROCEDURES RECOMMENDED FOR THIS PLANTING FOR THE OWNER.

9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY DURING THE GUARANTEE PERIOD TO PROVIDE WRITTEN NOTICE TO THE OWNER OF ANY MAINTENANCE PRACTICE WHICH IN THEIR OPINION WILL AFFECT THE GUARANTEE IF NOT REMEDIED PROMPTLY.

10. DO NOT MAKE SUBSTITUTIONS. BID MATERIALS SHOWN ON PLANS. CONTRACTOR IS ENCOURAGED TO PROVIDE WRITTEN ALTERNATE LIST OF MATERIALS, SIZES AND NUMBERS SUBSTITUTION FOR COST-EFFECTIVE MAINTENANCE OF DESIGN INTEGRITY.

11. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO ACCEPT OR REJECT ANY MATERIAL THAT HE/SHE DEEMS UNACCEPTABLE. REJECTED MATERIAL SHALL BE REMOVED PROMPTLY FROM THE SITE.

12. SELECTIVE CUTTING AND CLEARING SHALL BE PROVIDED IN THE EXISTING WOODED AREAS OF THE DRAINAGE EASEMENT. SELECTIVE CUTTING WITHIN THESE AREAS SHALL BE LIMITED TO THE REMOVAL OF UNDERGROWTH AND TREES ABSOLUTELY NECESSARY FOR THE CONSTRUCTION OF THE DRAINAGE OUTFALL.

13. BALLED AND BURLAPPED PLANTS SHALL BE DUG WITH FIRM NATURAL BALLS OF EARTH. BALL SIZES SHALL BE IN ACCORDANCE WITH A.A.N. SPECIFICATIONS. ALL CONTAINER GROWN STOCK SHALL BE WELL ROOTED AND ESTABLISHED IN THE CONTAINER IN WHICH IT IS SOLD. AN ESTABLISHED CONTAINER GROWN PLANT SHALL HAVE A ROOT SYSTEM DEVELOPED SUFFICIENTLY ENOUGH TO RETAIN ITS SHAPE WHEN REMOVED FROM THE CONTAINER.

14. ALL PLANT MATERIAL SHALL BE NURSERY GROWN UNLESS OTHER-WISE SPECIFIED. PRUNING SHALL BE DONE BEFORE PLANTING OR DURING THE PLANTING OPERATION.

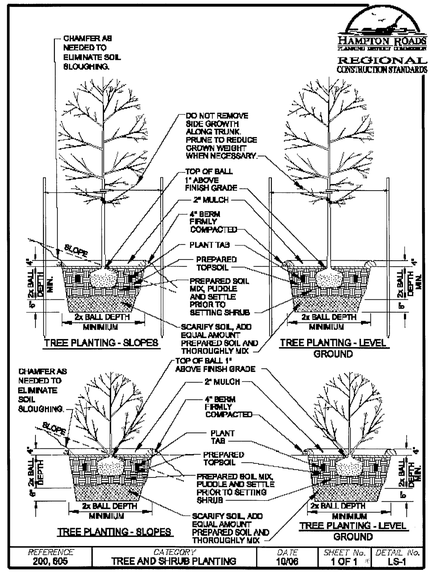
15. ALL PLANT MATERIAL SHALL BE COVERED AND PROTECTED FROM EXCESSIVE DRYING DURING TRANSIT.

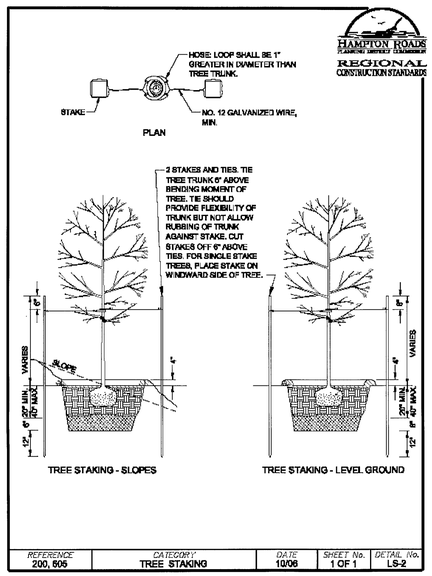
16. ANTI-DESICCANTS SHALL BE APPLIED ON ALL MATERIAL DUG WHILE IN FOLIAGE.

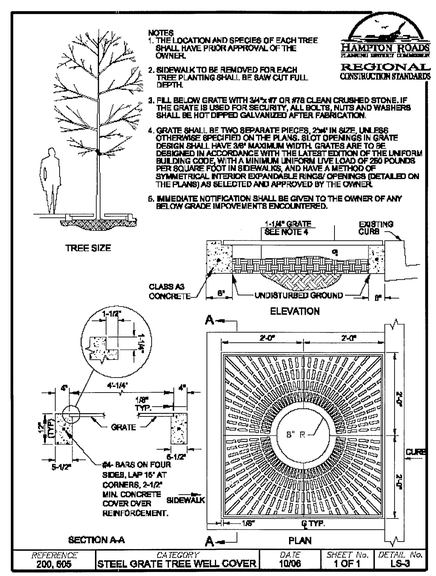
17. MULCH MATERIAL SHALL BE EITHER SHREDDED HARDWOOD MULCH OR APPROVED EQUAL. MATERIAL SHALL BE MULCHING GRADE, UNIFORM IN SIZE AND FREE OF FOREIGN MATTER.

18. TOPSOIL MIXTURE SHALL BE 2 PARTS EXISTING SOIL MIXED EVENLY WITH 1 PART SPHAGNUM PEAT MOSS OR PEAT HUMUS. EXISTING SOIL SHALL BE FREE OF STONES, LUMPS, PLANTS,ROOTS AND OTHER DEBRIS OVER 1 1/2 INCHES. IT SHALL NOT CONTAIN TOXIC SUB-STANCES HARMFUL TO PLANT GROWTH. TOPSOIL SHALL HAVE A pH RANGE OF 5.0 TO 7.0.

19. PLANTING PROCEDURES FOR TREES AND SHRUBS
   A. PLANTING SHALL OCCUR IN ACCORDANCE WITH ALL DETAILS.
   B. TREES AND SHRUBS SHALL BE PLACED IN THE PLANTING PIT, BY LIFTING FROM THE BALL (NEVER FROM THE BRANCHES OR TRUNK). ALL PLANT MATERIAL SHALL BE PLACED IN A STRAIGHT POSITION WITHIN THE PLANTING PIT. WITH THE MOST DESIRABLE SIDE PLACED TOWARDS THE PROMINENT VIEW (SIDEWALK, STREET, ETC.).
   C. THE TREE PIT SHALL BE BACK FILLED WITH A SOIL MIXTURE AS PER SPECIFICATIONS. THE PIT SHALL BE FILLED HALFWAY INITIALLY AND TAMPED FIRMLY. ALL ROPES, WIRES, ETC. ON THE ROOTBALL SHALL BE CUT AND THE BURLAP OR BALL WRAP PULLED BACK TO THE EDGE OF THE ROOTBALL. COMPLETE BACKFILLING PLANT PIT AND TAMP FIRMLY. BACKFILL SOIL SHALL NOT COVER TOP OF ROOTBALL. MULCH ROOTBALL AND SAUCER WITH MINIMUM OF 3 INCHES SHREDDED OR CHIPPED HARDWOOD OR PINE MULCH. WATER THOROUGHLY OR UNTIL PLANT PIT IS FILLED.



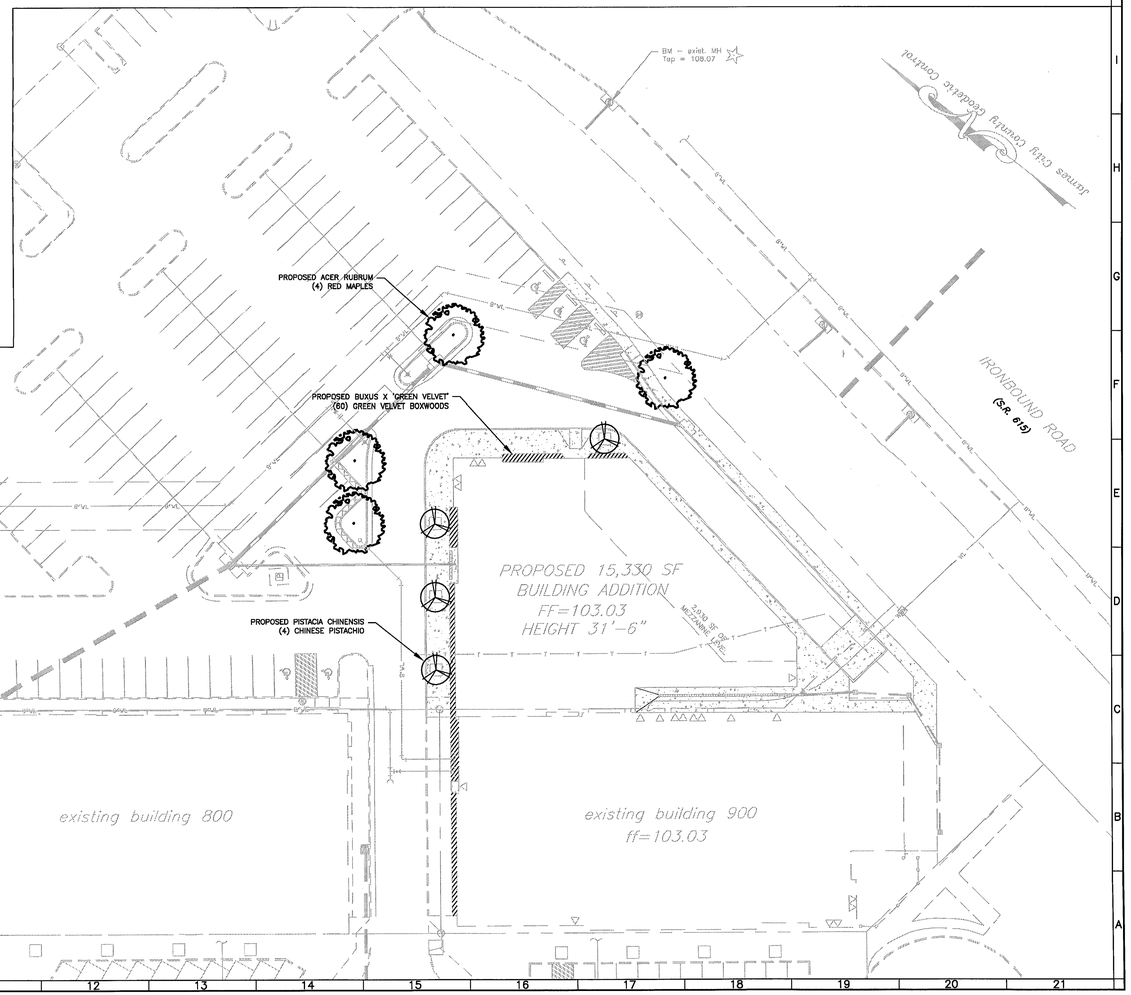




PLANT LIST

QTY.	BOTANICAL NAME	COMMON NAME	SIZE
4	ACER RUBRUM	RED MAPLE	2 1/2" CAL.
4	PISTACIA CHINENSIS	CHINESE PISTACHIO	8' HT.
60	BUXUS X 'GREEN VELVET'	GREEN VELVET BOXWOOD	15-18" HT.

*THIS PLAN IS SUBJECT TO ALL REQUIRED LANDSCAPING AND PLANTINGS AS SHOWN AND APPROVED ON JCC CASE No. SP-0161-2005.



JCC CASE No. SP-0076-2010

BALZER AND ASSOCIATES INC
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
NO. 927
LANDSCAPE ARCHITECT

Building 900 Expansion

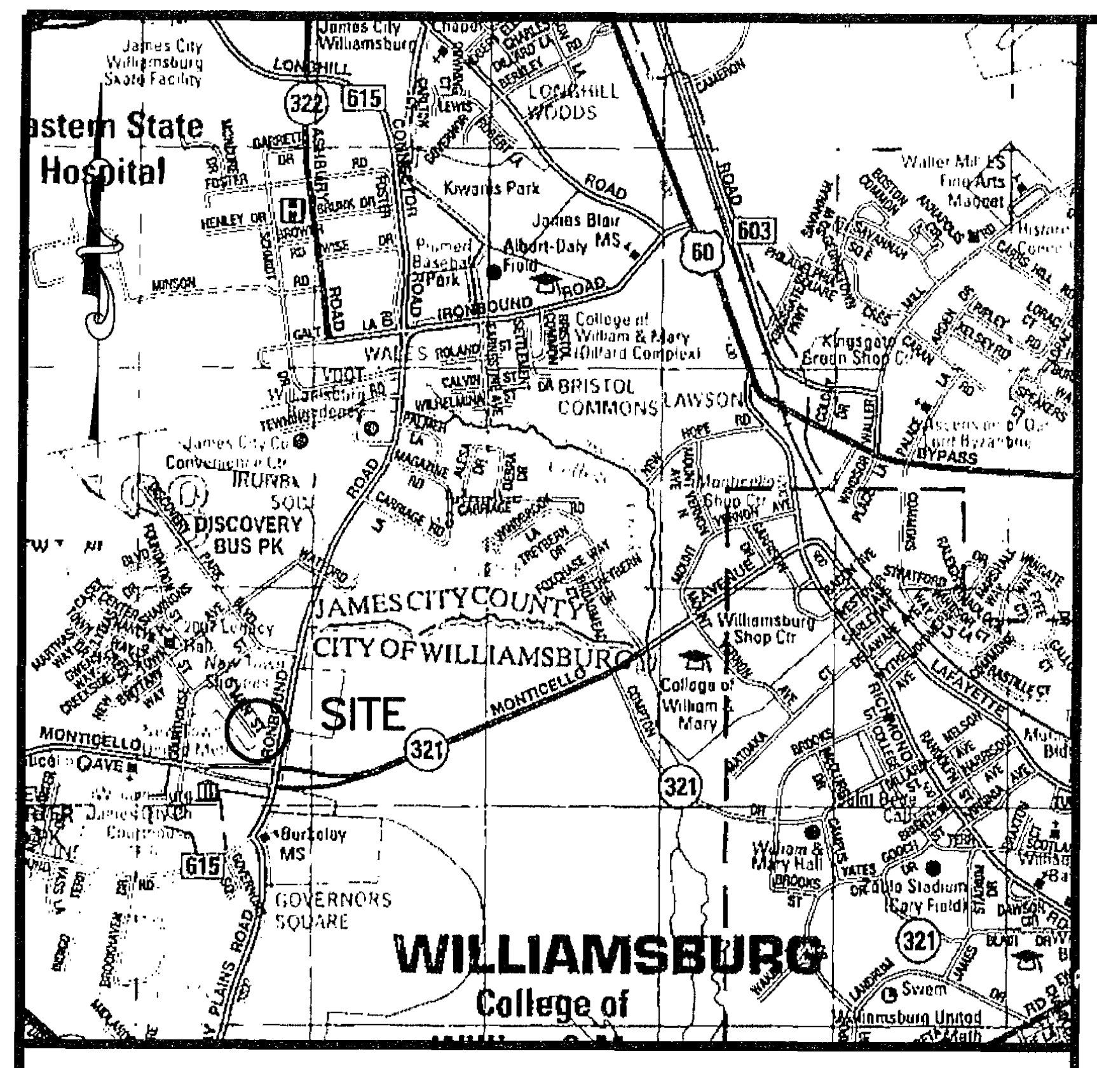
LANDSCAPE PLAN

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE 1"=30'

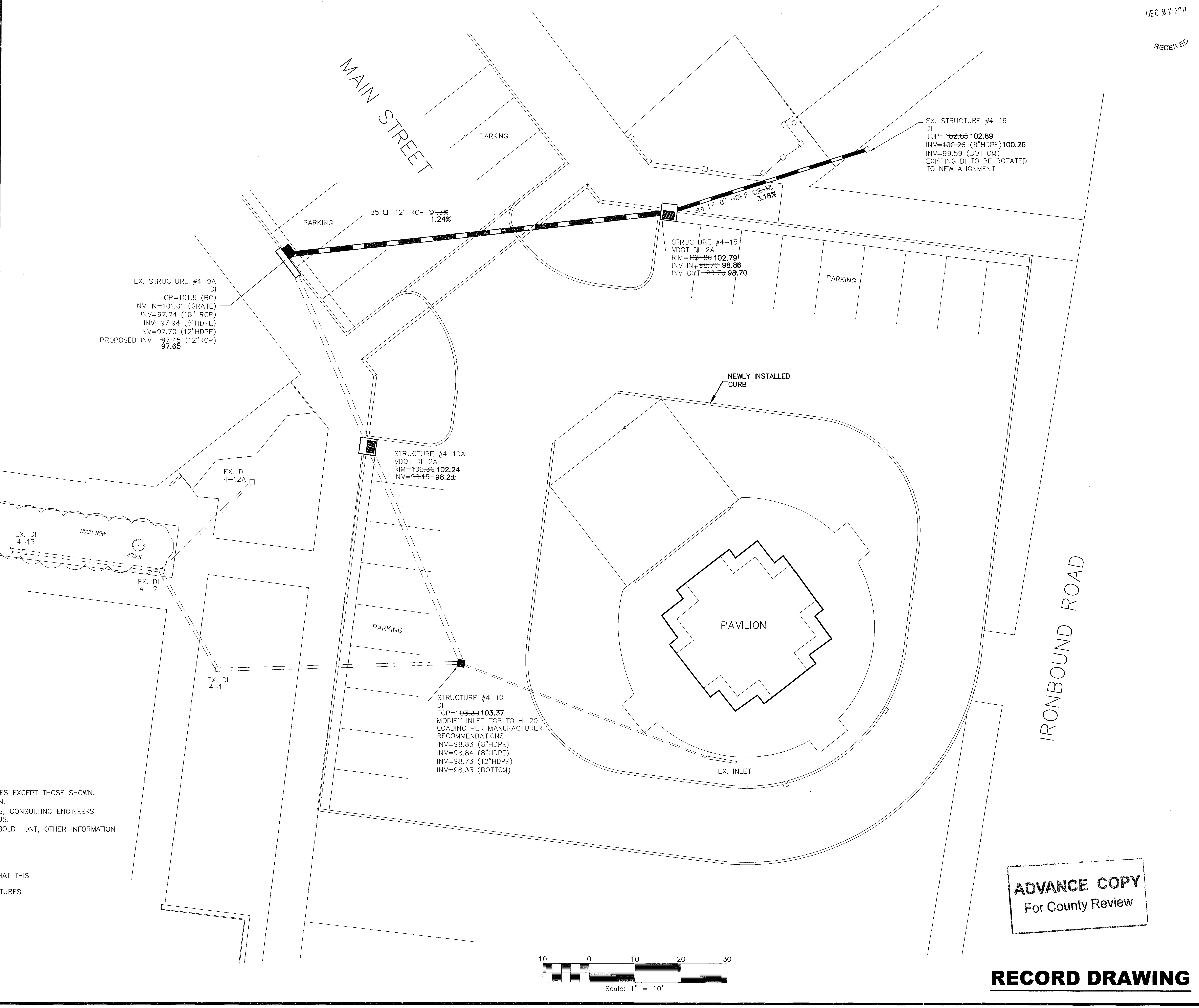
REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

SHEET NO.
C10
JOB NO. C1000301.00



VICINITY MAP SCALE: 1"=2000'

COPYRIGHT ADC THE MAP PEOPLE
PERMITTED USE NUMBER 21001208



SITE INFORMATION:

PARCEL ID: 3930400006
ZONING DISTRICT: MU (MIXED USE)

EXISTING ADDRESS:

5150 MAIN STREET
WILLIAMSBURG, VA 23188

GENERAL NOTES:

1) A TITLE REPORT HAS NOT BEEN FURNISHED TO THIS FIRM.
2) THIS FIRM MADE NO ATTEMPT TO VERIFY UNDERGROUND UTILITIES EXCEPT THOSE SHOWN.
3) ELEVATIONS SHOWN ARE RELATIVE TO THE APPROVED SITE PLAN.
4) DESIGN INFORMATION IS SHOWN PER APPROVED PLANS BY AES, CONSULTING ENGINEERS LAST REVISED 06/17/11 FOR NEWTOWN MAIN STREET TERMINUS.
5) THIS FIRM HAS ONLY VERIFIED THAT INFORMATION SHOWN IN BOLD FONT, OTHER INFORMATION IS SHOWN PER THE DESIGN PLANS.
6) PROPERTY LINES ARE SHOWN PER APPROVED SITE PLAN.

RECORD DRAWING CERTIFICATION:

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THIS RECORD DRAWING REPRESENTS THE ACUTAL CONDITION OF THE STORMWATER STRUCTURES SHOW HEREON. THE STORMWATER STRUCTURES APPEAR TO CONFORM WITH THE PROVISIONS OF THE APPROVED DESIGN PLAN, SPECIFICATIONS AND STORMWATER MANAGEMENT PLAN, EXCEPT AS SPECIFICALLY NOTED.

MATTHEW H. CONNOLLY, LIC NO. 2053 DATE

ADVANCE COPY
For County Review

RECORD DRAWING

DRAINAGE AS-BUILTS
FOR
NEW TOWN
MAIN STREET TERMINUS
JAMES CITY COUNTY VIRGINIA

NO.	DATE	REVISION / COMMENT / NOTE

MATTHEW H. CONNOLLY
Lic. No. 2053

LandTech Resources, Inc.
Surveying • GPS • Engineering
205 Bulifants Blvd., Ste. E, Williamsburg, VA 23188
Phone: (757) 565-1677 Fax: (757) 565-0782
web: landtechresources.com

SCALE: 1" = 10'
DATE: 12/27/11
JOB: 11-214
DRAWN BY: PF
SHEET: 1 OF 1

SP- 0076-2010

Building 900 - 15,330 SF Addition for American Family Fitness Center

New Town - Block 3, Parcel E
Section 2

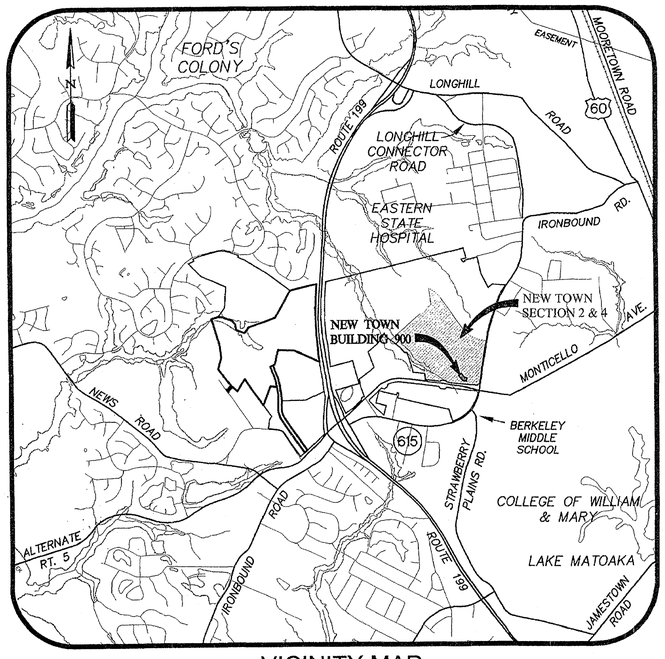
Environmental Division
MAR 15 2011
RECEIVED

RECEIVED
DEC 2010
Planning Department

COUNTY OF JAMES CITY
FINAL SITE PLAN

APPROVALS	DATE
Fire Dept. JB/ler	11/24/10
Health Dept.	
VDOT	
Planning CMJ	2/8/11
Environ. SJT/ler	11/2/10
Zoning Adm. mcd	2/8/11
JCSA DAW/ler	1/31/11
County Eng.	
JCEA	
CODE Other TC/ler	11/17/10

JCC CASE No. SP-0076-2010



VICINITY MAP
(APROX. SCALE 1"=2000')

SHEET INDEX

GENERAL NOTES

1. THE SITE IS CURRENTLY ZONED MIXED USE WITH PROFFERS. FOR PROFFERS REFERENCE JCC CASE NO. Z-06-03 AND MP-04-03 APPROVED BY THE BOARD OF SUPERVISORS ON OCTOBER 14, 2003.
2. ALL NEW UTILITIES SHALL BE PLACED UNDERGROUND.
3. CONTACT MISS UTILITY (1-800-552-7001) AT LEAST 48 HOURS IN ADVANCE FOR MARKING OF EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION OR DEMOLITION.
4. EXISTING UTILITY LOCATIONS INDICATED ARE APPROXIMATE. FIELD VERIFY PRIOR TO COMMENCING THE WORK AND NOTIFY ENGINEER OF ANY CONFLICTS OR ISSUES.
5. A LAND DISTURBING PERMIT AND SILTATION AGREEMENT, WITH SURETY ARE REQUIRED FOR THIS PROJECT.
6. PARKING SPACES SHALL BE DELINEATED BY PAVEMENT STRIPING. HANDICAP PARKING SPACES SHALL BE DESIGNATED BY ABOVE GROUND SIGNS PER USBC REQUIREMENTS.
7. VERIFY ALL DIMENSIONS AND NOTIFY JAMES CITY SERVICE AUTHORITY PRIOR TO ANY EXCAVATION OR DEMOLITION WITHIN UTILITY CORRIDORS.
8. ANY EXISTING UNUSED WELLS SHALL BE ABANDONED ACCORDING TO STATE PRIVATE WELL REGULATIONS AND JAMES CITY COUNTY CODE.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF CONSTRUCTION EFFORTS WITH VIRGINIA NATURAL GAS, DOMINION VIRGINIA POWER, VERIZON TELEPHONE, APPROPRIATE TELEVISION CABLE COMPANY, AND OTHERS THAT MAY BE REQUIRED.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR THE WORK INDICATED.
11. ALL NEW SIGNS SHALL BE IN ACCORDANCE WITH ARTICLE II, DIVISION 3 OF THE JAMES CITY COUNTY ZONING ORDINANCE.
12. CONTOUR INTERVAL IS 1 FOOT.
13. THIS PROPERTY LIES IN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 50 YEAR FLOOD PLAIN) PER F.I.R.M. # 510201 0035 B DATED 2/6/91.
14. THIS SITE IS SERVED BY PUBLIC WATER AND SEWER. ALL COMPONENTS OF THE WATER DISTRIBUTION AND SANITARY SEWER SYSTEM SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH THE LATEST EDITION OF THE JCSA DESIGN AND ACCEPTANCE CRITERIA FOR WATER DISTRIBUTION AND SANITARY SEWER SYSTEMS, THE HRPDC REGIONAL CONSTRUCTION STANDARDS (THIRD EDITION WITH AMENDMENTS DATED JANUARY 2003), AND THE COMMONWEALTH OF VIRGINIA DEPARTMENT OF HEALTH WATERWORKS AND SANITARY SEWERAGE REGULATIONS. THE CONTRACTOR SHALL USE ONLY NEW MATERIALS, PARTS, AND PRODUCTS ON ALL PROJECTS. ALL MATERIALS SHALL BE STORED SO AS TO ASSURE THE PRESERVATION OF THEIR QUALITY AND FITNESS FOR THE WORK. A COPY OF THE JCSA DESIGN AND ACCEPTANCE CRITERIA AND HRPDC REGIONAL CONSTRUCTION STANDARDS MUST BE KEPT ON-SITE BY THE CONTRACTOR DURING TIME OF INSTALLING, TESTING, AND CONVEYING FACILITIES TO JCSA.
15. STORM STRUCTURES, SEWER AND BEDDING SHALL CONFORM TO THE VDOT ROAD AND BRIDGE STANDARDS AND VDOT SPECIFICATIONS. ALL PIPE BEDDING SHALL BE IN ACCORDANCE WITH PB-1 AND MANUFACTURER SPECS. AND GUIDELINES, AND MANHOLES DEEPER THAN 4 FEET SHALL HAVE STEPS (ST-1). ALL REINFORCED CONCRETE PIPE (RCP) SHALL; BE CLASS III UNLESS OTHERWISE NOTED. STORM SEWER OUTSIDE OF VDOT R.O.W. CAN BE HIGH DENSITY POLYETHYLENE (HDPE).
16. OWNER/DEVELOPER: WILLIAMSBURG LAND DEVELOPERS, L.L.C.
    433 SOUTH MAIN STREET, SUITE 310
    WEST HARTFORD, CONNECTICUT, 06110
    TELEPHONE: 860-561-0121
    FAX: 860-521-4323
    CONTACT: MR. JOSEPH BARONOWSKI
17. SITE ADDRESS: 5137 MAIN STREET
18. TAX PARCEL ID NO.: (39-3) (04-0-0005)
19. LEGAL DESCRIPTION: BLOCK 3, PARCEL E
20. PROPERTY REF.: INSTRUMENT #05-0027946
21. THE PROFESSIONAL WHOSE SEAL IS AFFIXED HEREON SHALL ACT AS THE "RESPONSIBLE LAND DISTURBER" FOR PURPOSES OF PLAN APPROVAL ONLY. PRIOR TO ISSUANCE OF THE LAND DISTURBING PERMIT, THE OWNER OR DEVELOPER SHALL PROVIDE THE NAME OF A "RESPONSIBLE LAND DISTURBER" WHO SHALL ASSUME RESPONSIBILITY AS THE "RESPONSIBLE LAND DISTURBER" FOR THE CONSTRUCTION PHASE OF THE PROJECT. THE OWNER OR DEVELOPER SHALL PROVIDE WRITTEN NOTIFICATION SHOULD THE "RESPONSIBLE LAND DISTURBER" CHANGE DURING CONSTRUCTION.
22. THIS PROJECT IS LOCATED IN JAMES CITY COUNTY SUB WATERSHED 208 (LOWER CHISEL RUN) AND CATCHMENT 208-103-1 OF THE POWHATAN CREEK WATERSHED.
23. THE CONTRACTOR SHALL SATISFY HIMSELF AS TO ALL SITE CONDITIONS PRIOR TO CONSTRUCTION.
24. HORIZONTAL DATUM: JAMES CITY COUNTY
    GEODETIC CONTROL NETWORK
    VA. STATE PLANE COORDINATE
    SYSTEM - SOUTH ZONE
    NAD 083 (1994 VA HARN)

    VERTICAL DATUM: JAMES CITY COUNTY\
    GEODETIC CONTROL NETWORK
    NGVD 29
25. THERE WILL BE A TOTAL OF 57 PARKING SPACES LOST IN THE DEVELOPMENT OF THIS PROJECT. THE FITNESS CENTER IS ANTICIPATED TO GENERATE THE NEED FOR 62 PARKING SPACES. THIS AREA OF NEW TOWN IS SUBJECT TO THE SECTION 2 AND 4 SHARED PARKING PLAN.
26. SITE PLANS APPROVED BY DRB ON OCTOBER 21,2010.
27. THIS SITE PLAN AMENDS JCC CASE NOS. SP-0161-2005 (BUILDING 900) AND SP-0068-2005 (PARKING LOT).
28. BUILDING HEIGHT: 31' - 6"
29. THE INFORMATION PRESENTED IN THE APPLICATION AND FROM WHICH THE SITE PLAN HAS BEEN DESIGNED WAS BASED ON FIELD RUN SURVEY DONE ON AUGUST 10, 2010 FOR THE EXISTING STORMWATER STRUCTURES.

NOTES:

1.) A WAIVER TO SEC. 24-527(A), SETBACK REQUIREMENTS FROM A PLANNED OR EXISTING PUBLIC ROAD RIGHT OF WAY, WAS GRANTED BY THE JAMES CITY COUNTY PLANNING COMMISSION ON FEBRUARY 2, 2005, PROVIDED PROPOSALS ARE IN ACCORDANCE WITH THE NEW TOWN DESIGN GUIDELINES.

2.) A WAIVER TO SEC. 24-55, LOCATION OF OFF-SITE PARKING AND MINIMUM OFF STREET PARKING REQUIREMENTS WAS GRANTED BY THE JAMES CITY COUNTY PLANNING COMMISSION ON MARCH 1, 2004 PROVIDED PROPOSALS ARE IN ACCORDANCE WITH "NEW TOWN CENTER PARKING OVERVIEW" LETTER JANUARY 2004.

ENVIRONMENTAL INVENTORY IN ACCORDANCE WITH SEC.23-10(2) OF THE CHESAPEAKE BAY PRESERVATION ORDINANCE:

PER SITE TOPOGRAPHY, JAMES CITY COUNTY TAX MAP ATLAS, AND SITE PLAN FOR BUILDING 900 ADDITION, PREPARED BY BALZER & ASSOCIATES, INC., DATED JULY 30, 2010, THE FOLLOWING COMPONENTS DO NOT APPEAR TO BE PRESENT:

1. TIDAL WETLANDS
2. TIDAL SHORES
3. NONTIDAL WETLANDS IN RPA
4. A 100-FOOT BUFFER AREA LOCATED ADJACENT TO AND LANDWARD OF THE COMPONENTS LISTED IN ITEMS 1 THRU 3 ABOVE, AND ALONG BOTH SIDES OF ANY TRIBUTARY STREAM
5. NONTIDAL WETLANDS IN RMA
6. HYDRIC SOILS
7. SLOPES 25% OR GREATER

BALZER AND ASSOCIATES INC
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
Lic. No. 927
12/1/10
LANDSCAPE ARCHITECT

Building 900 Expansion

COVER SHEET

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE N/A

REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

SHEET NO.
C01

JOB NO. C1000301.00

JCC CASE No. SP-0076-2010

BALZER AND ASSOCIATES, INC.
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
NO. 927
LANDSCAPE ARCHITECT

Building 900 Expansion

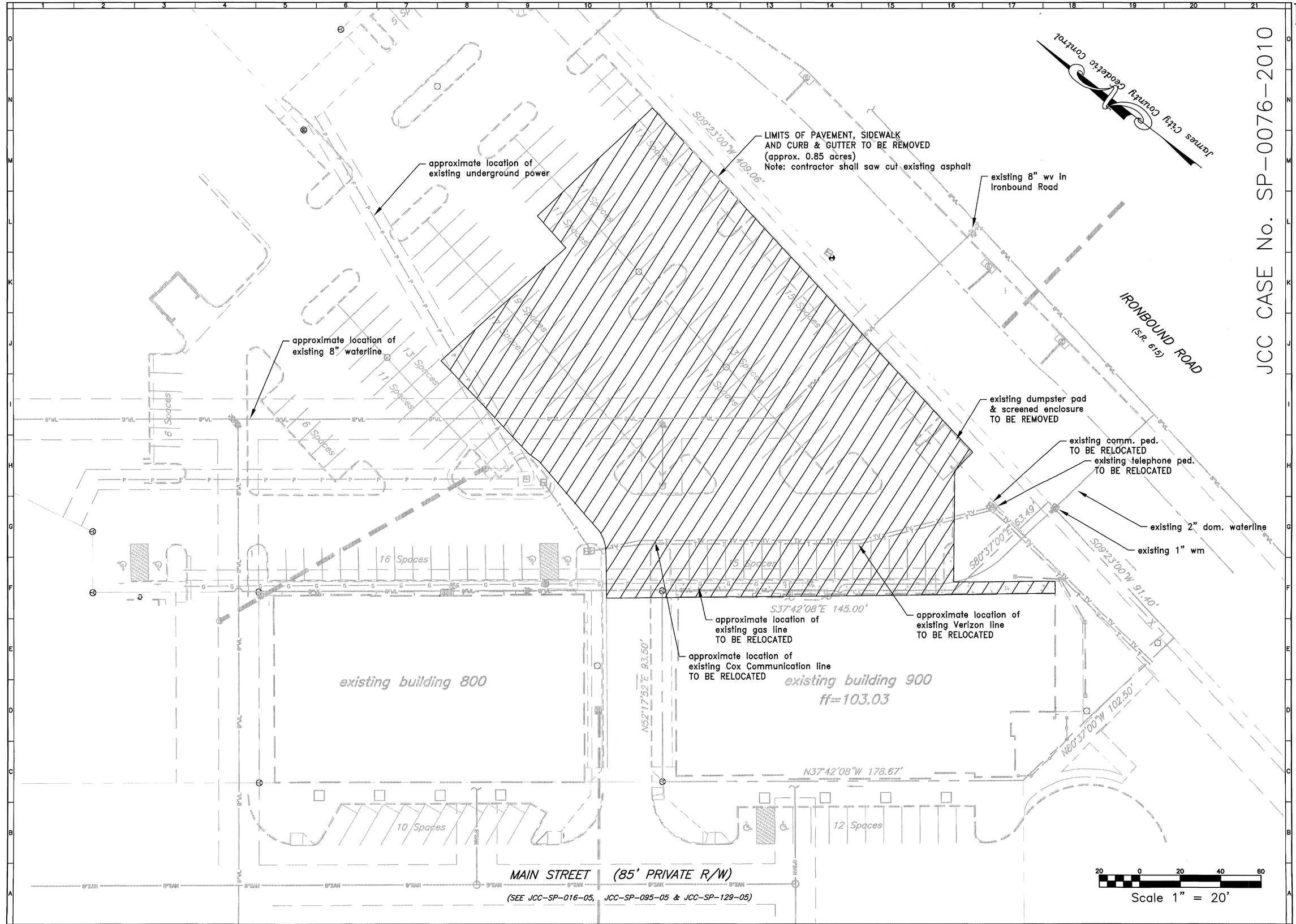
OVERALL DEVELOPMENT PLAN

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE 1"=200'

REVISIONS:
October 15, 2010
November 12, 2010

SHEET NO.
C02
JOB NO. C1000301.00



JCC CASE No. SP-0076-2010

BALZER AND ASSOCIATES INC
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
No. 927
LANDSCAPE ARCHITECT

Building 900 Expansion

EXISTING CONDITIONS

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE 1"=20'

REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

SHEET NO.
C03
JOB NO. C1000301.00

JCC CASE No. SP-0076-2010

BM – exist. MH
Top = 108.07

James City County Geodetic Control

existing ditchline

existing curb & gutter

PROPOSED RELOCATED LIGHT POLE

PROP. BUMPER BLOCK

PROP. HANDICAP SIGN TYP.

PROPOSED PAINTED ISLAND & HANDICAP ACCESS

existing lightpole to remain

PROPOSED CG-12 TYPE A W/ TRUNCATED DOMES

PROPOSED LOADING STRIPING FOR SERVICE DRIVE

PROPOSED CG-2 TYP.

existing VDOT r/w

IRONBOUND ROAD
(S.R. 615)

DOOR TYP.

existing lightpole TO BE RELOCATED

PROPOSED CG-6 (DRY GUTTER)

PROPOSED BIKE RACK

PROPOSED 15,330 SF BUILDING ADDITION
FF=103.03
HEIGHT 31'-6"

2,930 SF OF MEZZANINE LEVEL

PROPOSED SIDEWALK (MATCH EXISTING)

PROPOSED TREEWELL TYP.

existing building 800

existing building 900
ff=103.03

existing treewell typ.

6 Spaces
11 Spaces
11 Spaces
11 Spaces
11 Spaces
19 Spaces
17 Spaces
13 Spaces
11 Spaces
6 Spaces
16 Spaces
10 Spaces
12 Spaces

UTTER ROAD

MAIN STREET (85' PRIVATE R/W)

(SEE JCC-SP-016-05, JCC-SP-095-05 & JCC-SP-129-05)

8"SAN

Scale 1" = 20'

BALZER AND ASSOCIATES, INC.
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
NO. 927
LANDSCAPE ARCHITECT

Building 900 Expansion

LAYOUT PLAN

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE 1"=20'

REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

SHEET NO.
C04
JOB NO. C1000301.00

WATERLINE SHUT DOWN PROCEDURES:

1. THE CONTRACTOR SHALL NOTIFY JCSA AT LEAST 5 BUSINESS DAYS PRIOR TO PERFORMING THE WATERLINE SHUTDOWN. CONTACT JCSA AT (757) 253-6800 TO SCHEDULE THE WORK AND VALVE CLOSURES.

2. WATERLINE SHUTDOWN SHALL OCCUR BETWEEN MONDAY THRU THURSDAY DURING NORMAL BUSINESS HOURS. WORK WILL NOT BE PERMITTED ON WEEKENDS OR HOLIDAYS.

3. ONLY JCSA PERSONNEL ARE AUTHORIZED TO OPERATE VALVES ON THE EXISTING JCSA WATERMAIN OR FORCE MAIN.

HRPDC and JCSA standard details:

JR.1	Joint Restraint Table
W15.0	Water Meter Setting (1 1/2" meter)
WD_06	Fire Hydrant Setting (type I)

BM - exist. MH
Top = 108.07

James City County Geodetic Control

existing 12" watermain

PROPOSED 8" 45° BEND
STA 1+26.55

RELOCATED JCSA URBAN EASEMENT

PROPOSED 121 LF OF 8" PVC

existing gate valve to be closed for isolation of waterline during construction of new waterline

PROPOSED HRPDC WD_06
8" x 6" TEE w/ 6" GV
13 LF OF 6" DI
NEW ATTACK FH
STA 0+91.72

1+26.55

8"VL

1+50

2+00

2+48.17

PROPOSED 126 LF OF 8" PVC

1+00

0+91.72

PROPOSED HRPDC WD_06
8" x 6" TEE w/ 6" GV
20 LF OF 6" DI
NEW DEDICATED FH
STA 0+59.27

existing 20' JCSA urban esmt.
(instrument #050027946)

(2) existing water valves to be closed for isolation of waterline during construction of new waterline.

(2) 45° BENDS (VERTICAL)

0+59.27

0+50

PROPOSED 8" PVC FIRE SUPPRESSION LINE WITH FIRE DEPT. CONNECTION

existing 8" watermain
(see JCC-SP-068-05)

PROPOSED 8" 45° BEND
STA 0+00

0+00

PROPOSED 8" 45° BEND

PROPOSED P.I.V. IN SIDEWALK

existing fire hydrant
TO BE REMOVED

PROPOSED 15,330 SF
BUILDING ADDITION
FF=103.03
HEIGHT 31'-6"

PROPOSED 8" 45° BEND
STA 2+48.17

PROPOSED 231 LF OF 8" PVC WATERLINE
TO BE ABANDONED OR REMOVED

APPROXIMATE LOCATION OF RELOCATED
CABLE, GAS AND TELEPHONE LINES

existing 2" corp. stop
TO BE REPLACED WITH
PROPOSED 4" TS&V *

existing comm. ped.
TO BE RELOCATED

existing JCSA URBAN esmt.
TO BE ABANDONED

existing telephone ped.
TO BE RELOCATED

* ALL EXISTING WATER METER BOXES AND WATER SERVICE LINES PROPOSED AS "ABANDONED" FOR THIS PROPERTY SHALL BE REMOVED. WATER SERVICE LINES SHALL BE DISCONNECTED FROM THE WATER MAIN WHICH SHALL INVOLVE REMOVAL OF THE SERVICE SADDLE AND INSTALLING A FULL CIRCLE STAINLESS STEEL REPAIR BAND ON THE EXISTING WATERMAIN.

existing 2" waterline
TO BE REPLACED
WITH 4" WATERLINE

existing 1" water meter
TO BE REPLACED WITH 2" NEPTUNE
COMPOUND WATER METER (PER W15.0)

PROPOSED RELOCATED
TELE. PED.

PROPOSED RELOCATED
COMM. PED.

existing 2" private
water service line

IRONBOUND ROAD
(S.R. 615)

existing gas line

PROPOSED 8" 90° BEND

PROPOSED 26 LF OF 8" PVC

PROPOSED 8" 90° BEND

existing 8" fire suppression line

existing building 800

PROPOSED 8"X8" CROSS
W/ 8" P.I.V. & 8" PLUG

approx. 94 LF of 8"
fire suppression line
TO BE REMOVED

existing gas meter & valve
TO BE RELOCATED

PROPOSED RELOCATED
GAS METERS & VALVE

existing building 900
ff=103.03

NEW SPRINKLER ROOM

PROPOSED 29 LF 8" FIRE SUPPRESSION
LINE TO BE RELOCATED INTO NEW SPRINKLER
ROOM WITH 8" GATE VALVE

MAIN STREET (85' PRIVATE R/W)

(SEE JCC-SP-016-05, JCC-SP-095-05 & JCC-SP-129-05)

20 0 20 40 60
Scale 1" = 20'

JCC CASE No. SP-0076-2010

BALZER AND ASSOCIATES, INC.
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
NO. 927
LANDSCAPE ARCHITECT

Building 900 Expansion

UTILITY PLAN

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE 1"=20'

REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

SHEET NO.
C05
JOB NO. C1000301.00

STRUCTURE SCHEDULE:

12 — PROPOSED DI-3C 6'
TOP=101.10

13 — PROPOSED 110 LF OF 15" RCP @0.3%
INV. IN=98.31
INV. OUT=97.98

14 — PROPOSED DI-3C 6'
TOP=102.25

15 — PROPOSED 118 LF OF 15" RCP @0.3%
INV. IN=97.88
INV. OUT=97.53

16 — EXISTING DI-10C
TOP=101.15

17 — EXISTING 151 LF OF 24" RCP @2.0%
INV. IN=97.43
INV. OUT=94.35

18 — EXISTING MH-1
TOP=101.74

22 — PROPOSED 61 LF OF TRENCH DRAIN
TOP=102.90

23 — PROPOSED 21 LF OF 4" PVC @2.8%
INV. IN=102.20
INV. OUT=101.60

24 — EXISTING YARD DRAIN
EX. TOP=102.94 NEW TOP=102.60

25 — EXISTING 22 LF OF 8" PVC @1.8%
INV. IN=101.50
INV. OUT=101.10

32 — PROPOSED ROOF DRAIN
95 LF OF 10" PVC @1.0%
INV. IN=98.48 (at the building)
INV. OUT=97.53

BM – exist. MH
Top = 108.07

James City County Geodetic Control

tie to existing curb & gutter

PROPOSED LIMITS OF NEW PAVEMENT
NOTE: CONTRACTOR TO SAW CUT ALL EXSITING ASPHALT

PROPOSED CG-6
(HATCHING DENOTES DRY GUTTER)

ROOF LEADER

PROPOSED 15,330 SF
BUILDING ADDITION
FF=103.03
HEIGHT 31'-6"

match existing sidewalk grade

existing building 800

existing building 900
ff=103.03

existing walk to remain

ex inlet top=102.91
NEW TOP=102.60

102.66* match exist.

ex inlet top 102.85

ex inlet top 102.83

The information presented in the application and from which the site plan has been designed was based on field run survey done on August 11, 2010 for the existing stormwater structures.

Scale 1" = 20'

JCC CASE No. SP-0076-2010

BALZER AND ASSOCIATES INC
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
NO. 27
LANDSCAPE ARCHITECT

Building 900 Expansion

GRADIN PLAN

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY AFB
DESIGNED BY JLS
CHECKED BY JLS
DATE July 30, 2010
SCALE 1"=20'

REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

SHEET NO.
C06
JOB NO. C1000301.00

James City County Environmental Division
Standard Erosion and Sediment Control Notes
Revised October 1, 2009

The following standard erosion and sediment control (E&SC) notes shall become part of approved erosion and sediment control plans for all plan of development projects in James City County, Virginia.

1. All the provisions of Virginia Erosion and Sediment Control Law and Regulations, Minimum Standards, Handbooks, and Technical Bulletins as published by the Virginia Soil & Water Conservation Board and/or the Virginia Department of Conservation and Recreation, Division of Soil & Water Conservation shall apply to the project.

2. Minimum Standards # 1 through # 19 of the Virginia Erosion and Sediment Control Regulations (4VAC50-30-40) shall apply to the project.

3. The Owner or Applicant shall be responsible to register for coverage under the General Permit for Discharge of Stormwater from Construction Activities, in accordance with current requirements of the Virginia Stormwater Management Program (VSMP) and the Virginia Department of Conservation and Recreation.

4. The Owner or Applicant shall provide the name of an individual holding a valid Responsible Land Disturber (RLD) certificate of competence who will be responsible for the land-disturbing activity prior to engaging in the land-disturbing activity. This will be necessary prior to issuance of a land-disturbing permit for the project. The RLD is required to attend the preconstruction conference for the project.

5. The Contractor is responsible to contact Miss Utility (Dial 811 in VA or 1-800-552-7001) prior to any utility or site work excavations.

6. All erosion and sediment control measures shall be planned, designed, implemented, installed and maintained in accordance with the provisions of the latest edition of the Virginia Erosion and Sediment Control Handbook (VESCH). The Contractor shall maintain, inspect and repair all erosion and sediment control measures as needed throughout the life of the project to ensure continued acceptable performance.

7. A preconstruction conference (meeting) shall be held on site between the County Environmental Division, the Owner-Applicant, the Responsible Land-Disturber (RLD), the Contractor and other responsible agencies, as applicable, prior to issuance of a land-disturbing permit. The Owner or Applicant is required to coordinate scheduling of the preconstruction conference between all applicable parties. The Contractor shall submit a Sequence of Construction to the County Environmental Division for review and approval prior to the preconstruction meeting.

8. All perimeter erosion and sediment control measures shall be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place.

9. Additional safety fence or dust control measures, in accordance with the provisions of Minimum Standards & Specs. 3.01 and 3.39 of the Virginia Erosion and Sediment Control Handbook (VESCH), may be required to be implemented in addition to that shown on the approved plan in order to ensure adequate protection of the health, safety and welfare of the public or if site conditions change, become apparent or alter significantly following the date of plan approval.

10. Erosion and sediment control measures may require minor field adjustments at or following time of construction to ensure their intended purpose is accomplished, to ensure adequate protection of the health, safety and welfare of the public, or if site conditions change, become apparent or alter significantly following the date of plan approval. County Environmental Division approval shall be required for any deviation of erosion and sediment control measures from the approved plan.

11. Off-site waste or borrow areas shall be approved by the County Environmental Division prior to the import of any borrow or export of any waste to or from the project site.

12. Culvert and storm drain inlet protections, in accordance with the provisions of Minimum Standards & Specs. 3.07 & 3.08 of the Virginia Erosion and Sediment Control Handbook (VESCH), may be removed at the discretion of the assigned County Environmental Division inspector should placement of the measure result in excessive road flooding or traffic hazard or result in the redirection of drainage onto or toward existing lots, driveways or structures. Decisions shall be made on a case-by-case basis based on field situations encountered.

13. Drainage facilities shall be installed and functional within 30 days following completion of rough grading at any point within the project.

14. No more than 300 feet of trench may be open at one time for underground utility lines, including storm water conveyances. All other provisions of Minimum Standard # 16 of the Virginia Erosion and Sediment Control regulations apply.

15. If disturbed area stabilization is to be accomplished during the months of December, January or February, stabilization shall consist of Mulching in accordance with Minimum Standard & Spec. 3.35 of the Virginia Erosion and Sediment Control Handbook (VESCH). Seeding will then take place as soon as the season permits.

16. The term seeding, final vegetative cover or stabilization on the approved plan shall mean the successful germination and establishment of a stable grass cover from a properly prepared seedbed, in accordance with Minimum Standards & Specs. 3.29 through 3.37 of the Virginia Erosion and Sediment Control Handbook (VESCH), as applicable. Irrigation, if necessary, shall comply with all applicable outdoor water use restrictions of the James City Service Authority.

17. Temporary erosion and sediment control measures shall not be removed until all disturbed areas are stabilized. Removal shall not occur without authorization by the County Environmental Division. Disturbances associated with the removal of temporary erosion and sediment control measures shall be properly stabilized.

18. No sediment trap or sediment basin shall be removed until a) at least 75 percent of the single-family lots within the drainage area to the trap or basin have been sold to a third party for the construction of homes (unrelated to the developer); and/or, b) 60 percent of the single-family lots within the drainage area to the trap or basin are completed and stabilized. A bulk sale of the lots to another builder does not satisfy this provision. Sediment traps and sediment basins shall not be removed without authorization of the County Environmental Division.

19. Applicable provisions of the County BMP Manual (James City County Guidelines for Design and Construction of Stormwater Management BMPs) and the Virginia Stormwater Management Handbook (VSMH) apply to the project.

20. Design and construction of private-type storm drainage systems, outside VDOT right-of-way, shall be performed in accordance with the current version of the James City County Environmental Division, Stormwater Drainage Conveyance Systems (Non-BMP related), General Design and Construction Guidelines.

21. Record Drawings (Asbuilts) and Construction Certifications are required for all stormwater facilities including stormwater management/BMP facilities and storm drainage conveyance systems. Record drawings and construction certifications must meet established program requirements of both the County Environmental and Stormwater Divisions.

22. All stormwater facilities including BMPs, storm drainage pipes, stormwater conveyances, inlets, manholes, outfalls and roadside and other open channels shall be inspected by the County Stormwater Division and geotechnical engineer in accordance with established County Stormwater Division program requirements.

SEQUENCE OF CONSTRUCTION:

NO LAND DISTURBING OPERATIONS MAY BEGIN UNTIL THE E&S MEASURES AS PROPOSED WITH THIS PLAN, HAVE BEEN IMPLEMENTED.

REAR PARKING ISLANDS, ASPHALT AND SIDEWALKS TO BE DEMOLISHED AND REMOVED.

ESTABLISH GRADES OF PROPOSED BUILDING ADDITION PAD.

CONSTRUCT BUILDING ADDITION, INSTALL SIDEWALK, C&G AND LANDSCAPING.

REPAIR ANY INADVERTENT EROSION AND REMOVE ANY INADVERTENT SEDIMENTATION. DRESS AND SEED ALL DISTURBED AREAS AS NECESSARY TO EFFECT PERMANENT VEGETATIVE COVER.

REMOVE EROSION AND SEDIMENT CONTROL MEASURES WITHIN THIRTY DAYS AFTER FINAL SITE STABILIZATION.

INLET SCHEDULE - AMERICAN FAMILY

2 & 10 YEAR FREQUENCY

DATE: 10/14/2010

INLET NO.	TYPE	L	STA	DA (AC.)	C	CA	CA W	I IN/HR	Qincr CFS	Qco CFS	Qt GUTTER FLOW	S GUTTER SLOPE	Sx CROSS SLOPE	T SPREAD	W (FT)	WT	Sw FT/FT	Sw/Sx (#10)	Es a	Sw + a/Sx(ft/ft) Sx+Sw Es	P Eff=c LENGTH	L / Lt d (FT)	E (#16) h (FT)	Qi CFS d/h	Qb CFS Carryover	T SPREAD @ SAG (ft)	REMARKS
16	3C	10		1.26	0.82	1.03	5.5				5.67	0.013	0.020								13.60	0.32	0.458			16.01	2
							7.1				7.31											0.38				18.96	10
14	3C	6		0.21	0.78	0.16	5.5				0.88	0.025	0.020								9.60	0.12	0.458			5.83	2
							7.1				1.14											0.14				6.93	10
12	3C	6		0.40	0.61	0.24	5.5				1.32	0.013	0.024								9.60	0.15	0.458			6.36	2
							7.1				1.70											0.18				7.53	10
22	TD	61		0.02	0.9	0.02	5.5				0.11		0.018									0.02				1.19	2
							7.1				0.14											0.03				1.40	10
24	YD	1		0.03	0.52	0.02	5.5				0.11		0.260									0.03				0.98	2
							7.1				0.14											0.03				1.15	10

HYDRAULIC GRADELINE - AMERICAN FAMILY

10 YEAR FREQUENCY

DATE: 10/14/2010

INLET STATION	OUTLET W.S.E.	Do	Qo	Lo	Sf%	Hf	Vo	Ho	Qi	Vi	Qi/Vi	V/2 2g	Hi	ANGLE	Hi(bend)	Ht	1.3Ht	0.5Ht	FINAL H	INLET WATER	RIM ELEV
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
12	98.98	15	1.70	110	0.069	0.076	2.88	0.000	0.00	0.00	0.00	0.000	0.000	0	0.000	0.032	0.042	0.00	0.118	99.10	101.10
14	99.10	15	3.20	118	0.245	0.289	2.88	0.032	1.70	2.88	4.90	0.128	0.045	60	0.071	0.148	0.193	0.00	0.482	99.58	102.25
16	99.58	24	12.28	151	0.295	0.444	10.18	0.402	3.20	2.88	9.22	0.128	0.045	5	0.004	0.451	0.587	0.00	1.032	100.61	101.15

STORM SEWER DESIGN - AMERICAN FAMILY

10 YEAR FREQUENCY

DATE: 10/14/10

FROM POINT	TO POINT	DA (ACRES)	C RUNOFF	CA INCR.	CA ACCUM.	TC MINUTES	RAINFALL IN/HR	RUN-OFF CFS	INVERT UPPER	INVERT LOWER	LENGTH FEET	SLOPE %	DIA. INCHES	CAPACITY CFS	VELOCITY F.P.S.	FLOW TIME MIN.
12	14	0.40	0.61	0.24	0.24	5.0	7.1	1.70	98.31	97.98	110	0.30%	15	3.54	2.88	0.64
14	16	0.21	0.78	0.21	0.45	5.0	7.1	3.20	97.88	97.53	118	0.30%	15	3.54	2.88	0.68
Roof	16	0.28	0.90	0.25	0.25	5.0	7.1	1.78	98.48	97.53	95	1.00%	10	2.59	4.75	0.33
16	18	1.26	0.82	1.03	1.73	5.0	7.1	12.28	97.43	94.35	151	2.00%	24	31.99	10.18	0.25
22	24	0.02	0.90	0.02	0.02	5.0	7.1	0.13	102.20	101.60	21	2.80%	4	0.38	4.31	0.08
24	25	0.03	0.52	0.02	0.04	5.0	7.1	0.28	101.50	101.10	22	1.80%	8	1.91	5.49	0.07

E&S NARRATIVE:

PROJECT DESCRIPTION:
THE PROPOSED PROJECT CONSISTS OF A BUILDING ADDITION TO "BUILDING 900" AND ADJUSTING THE REAR PARKING LOT AND SERVICE CORRIDOR IN NEW TOWN, LOCATED IN JAMES CITY COUNTY.

EXISTING SITE CONDITIONS:
THIS SITE IS CURRENTLY AN ASPHALT PARKING LOT.

ADJACENT PROPERTIES:
THIS AREA IS SURROUNDED BY FULLY DEVELOPED AREAS. TO THE EAST IS IRONBOUND ROAD, AND THE REST OF THE ADJACENT PROPERTY IS PART OF THE NEW TOWN DEVELOPMENT.

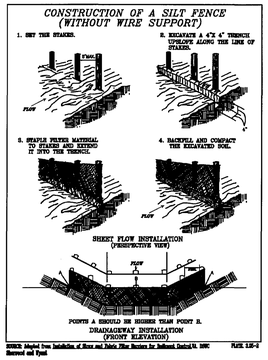
SOIL DESCRIPTION:
ACCORDING TO THE PREVIOUS SITE PLANS AND CONSERVATION SERVICE SOILS MAPS, THIS AREA CONTAINS SOIL TYPES 19B AND 29B.

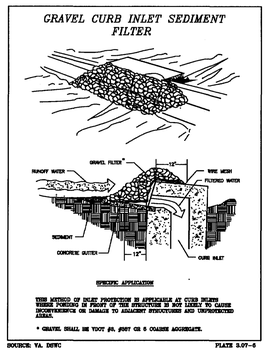
CRITICAL AREAS:
TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE EXISTING BMP AND STORM SEWER SYSTEM, INLET PROTECTION SHALL BE UTILIZED IN IMMEDIATELY AFFECTED AREAS.

EROSION & SEDIMENT CONTROL MEASURES:
FOR EROSION AND SEDIMENT CONTROL PROTECTION, INLET PROTECTION AND DUST CONTROL WILL BE UTILIZED AND INSTALLED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK TO MINIMIZE THE TRANSPORTATION OF SEDIMENT OFF-SITE.

PERMANENT STABILIZATION:
TEMPORARY SEEDING, LANDSCAPING, HARDSCAPING AND TURF WILL BE USED TO STABILIZED THE SITE AFTER CONSTRUCTION IS COMPLETE.

STORM WATER MANAGEMENT/BMP:
STORMWATER RUNOFF WILL BE COLLECTED, TREATED, AND ATTENUATED BY MEANS OF A PROPOSED AND EXISTING STORM SEWER AND BMP POND # 53.

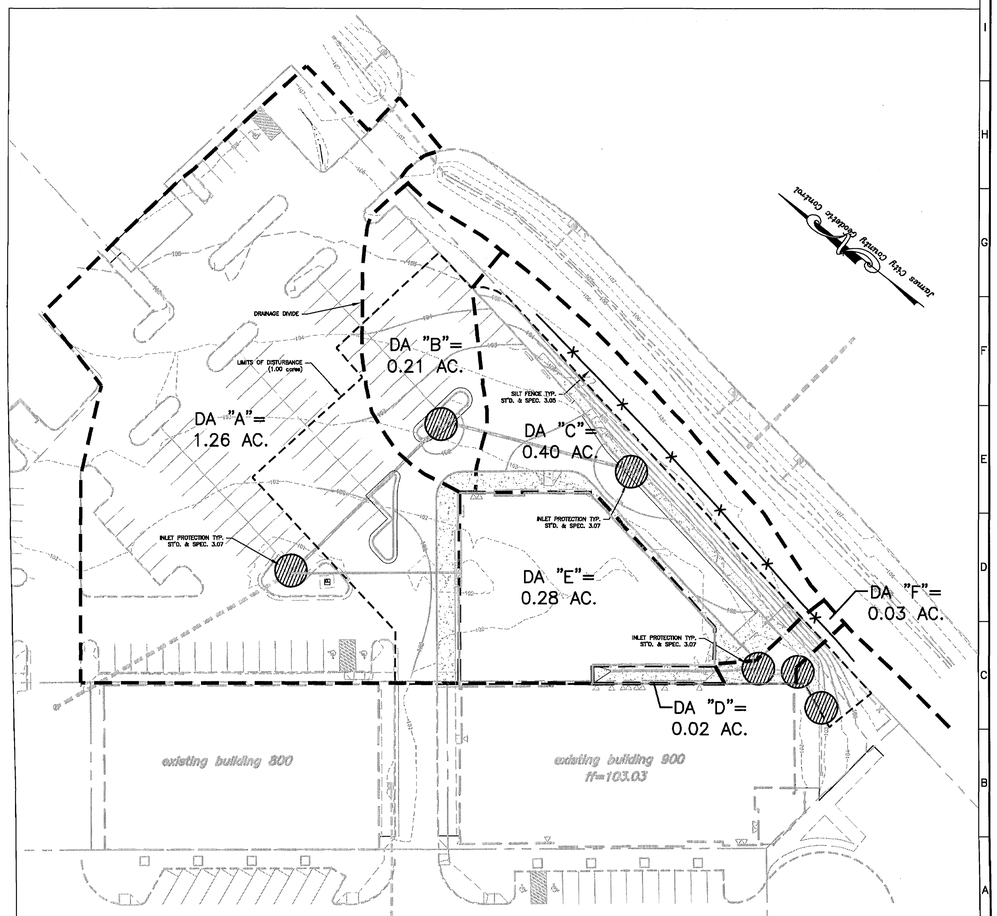




HYDROLOGY WORKSHEET

PROJECT NAME: American Family
PROJECT #: C1000301.00
PAGE:
DATE: 10/14/10
BY: JLS

DA#	DATA				CALCULATIONS											
A	Area =	1.26	ac		C Value							Time of Concentration				
	CA =	1.03				ac =	13	%@	0.90	C =	0.04	ft OLF@		% =		min
	Tc =	5				ac =	87	%@	0.90	C =	0.78	ft CF @		% =		min
	I2 =	5.5	in/hr	Q2 =	5.67 cfs	ac =		%@		C =		ft CF @		% =		min
	I10 =	7.1	in/hr	Q10 =	7.31 cfs	ac =		%@		C =				Tc =	5.00	min
	I25 =	8.25	in/hr	Q25 =	9.35 cfs	ac =		%@		C =		User defined				
	I100 =	9.8	in/hr	Q100 =	12.62 cfs				ADJ. C* =		0.820	C factor for OLF=				
B	Area =	0.21	ac		C Value							Time of Concentration				
	CA =	0.16				ac =	20	%@	0.90	C =	0.06	ft OLF@		% =		min
	Tc =	5				ac =	80	%@	0.90	C =	0.72	ft CF @		% =		min
	I2 =	5.5	in/hr	Q2 =	0.88 cfs	ac =		%@		C =		ft CF @		% =		min
	I10 =	7.1	in/hr	Q10 =	1.14 cfs	ac =		%@		C =				Tc =	5.00	min
	I25 =	8.25	in/hr	Q25 =	1.45 cfs	ac =		%@		C =		User defined				
	I100 =	9.8	in/hr	Q100 =	1.96 cfs				ADJ. C* =		0.780	C factor for OLF=				
C	Area =	0.4	ac		C Value							Time of Concentration				
	CA =	0.24				ac =	48	%@	0.90	C =	0.14	ft OLF@		% =		min
	Tc =	5				ac =	52	%@	0.90	C =	0.47	ft CF @		% =		min
	I2 =	5.5	in/hr	Q2 =	1.32 cfs	ac =		%@		C =		ft CF @		% =		min
	I10 =	7.1	in/hr	Q10 =	1.70 cfs	ac =		%@		C =				Tc =	5.00	min
	I25 =	8.25	in/hr	Q25 =	2.18 cfs	ac =		%@		C =		User defined				
	I100 =	9.8	in/hr	Q100 =	2.94 cfs				ADJ. C* =		0.610	C factor for OLF=				
D	Area =	0.02	ac		C Value							Time of Concentration				
	CA =	0.02				ac =	100	%@	0.90	C =	0.90	ft OLF@		% =		min
	Tc =	5				ac =		%@		C =		ft CF @		% =		min
	I2 =	5.5	in/hr	Q2 =	0.11 cfs	ac =		%@		C =		ft CF @		% =		min
	I10 =	7.1	in/hr	Q10 =	0.14 cfs	ac =		%@		C =				Tc =	5.00	min
	I25 =	8.25	in/hr	Q25 =	0.18 cfs	ac =		%@		C =		User defined				
	I100 =	9.8	in/hr	Q100 =	0.25 cfs				ADJ. C* =		0.900	C factor for OLF=				
E	Area =	0.28	ac		C Value							Time of Concentration				
	CA =	0.25				ac =	100	%@	0.90	C =	0.90	ft OLF@		% =		min
	Tc =	5				ac =		%@		C =		ft CF @		% =		min
	I2 =	5.5	in/hr	Q2 =	1.38 cfs	ac =		%@		C =		ft CF @		% =		min
	I10 =	7.1	in/hr	Q10 =	1.78 cfs	ac =		%@		C =				Tc =	5.00	min
	I25 =	8.25	in/hr	Q25 =	2.27 cfs	ac =		%@		C =		User defined				
	I100 =	9.8	in/hr	Q100 =	3.06 cfs				ADJ. C* =		0.900	C factor for OLF=				
F	Area =	0.03	ac		C Value							Time of Concentration				
	CA =	0.02				ac =	63	%@	0.90	C =	0.19	ft OLF@		% =		min
	Tc =	5				ac =	37	%@	0.90	C =	0.33	ft CF @		% =		min
	I2 =	5.5	in/hr	Q2 =	0.11 cfs	ac =		%@		C =		ft CF @		% =		min
	I10 =	7.1	in/hr	Q10 =	0.14 cfs	ac =		%@		C =				Tc =	5.00	min
	I25 =	8.25	in/hr	Q25 =	0.18 cfs	ac =		%@		C =		User defined				
	I100 =	9.8	in/hr	Q100 =	0.25 cfs				ADJ. C* =		0.520	C factor for OLF=				



BALZER AND ASSOCIATES INC
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
NO. 927
LANDSCAPE ARCHITECT

JCC CASE No. SP-0076-2010

Building 900 Expansion
DRAINAGE & EROSION CONTROL
BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE 1"=40'

REVISIONS:
October 15, 2010
November 12, 2010

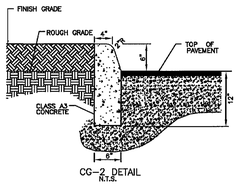
SHEET NO.
C07
JOB NO. C1000301.00

STANDARD NOTES

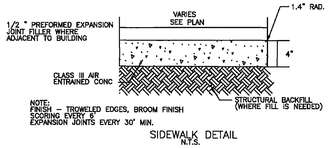
1. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM WITH THE 1989 STANDARDS AND SPECIFICATIONS OF THE VIRGINIA DEPARTMENT OF HIGHWAYS AND TRANSPORTATION, EXCEPT WHERE JAMES CITY COUNTY STANDARDS ARE APPLICABLE.
2. ALL STORM SEWER SHALL BE ASTM, C-76, CLASS III, EXCEPT AS NOTED.
3. ALL DRAINAGE STRUCTURES SHALL BE EITHER PRECAST OR CAST-IN-PLACE.
4. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC UTILITIES PRIOR TO MAKING ANY ADJUSTMENTS TO THE WATER OR SEWERAGE SYSTEMS.
5. THE CONTRACTOR SHALL NOTIFY THE COUNTY ENGINEER AT LEAST 24 HOURS PRIOR TO STARTING WORK ON THE PROJECT.
6. ALL STORM SEWER LOCATED WITHIN AN EASEMENT OR RIGHT-OF-WAY SHALL HAVE A MINIMUM OF 4" AGGREGATE BEDDING MATERIAL.
7. A PERMIT MUST BE OBTAINED FROM THE OFFICE OF THE COUNTY ENGINEER PRIOR TO DOING ANY UTILITY WORK WITHIN EXISTING COUNTY RIGHT-OF-WAY.
8. ALL CURB AND GUTTER AND STORM SEWER LOCATED WITHIN EXISTING COUNTY RIGHT-OF-WAY SHALL BE STAKED BY THE COUNTY, UPON WRITTEN REQUEST BEING MADE TO THE COUNTY ENGINEER.
9. ALL CURB AND GUTTER SHALL BE COUNTY STANDARD, EXCEPT AS NOTED.
10. A DI ON GRADE SHALL BE POURED WITH THE THROAT ON THE SAME GRADE AS THE ADJOINING CURB AND GUTTER.
11. THE PAVEMENT DESIGN IS SUBJECT TO CHANGE DUE TO SOIL CONDITION AT THE TIME OF CONSTRUCTION, AS DETERMINED BY THE CONSTRUCTION ENGINEER FOR JAMES CITY COUNTY.
12. THE APPROVAL OF THIS PLAN DOES NOT ESTABLISH THE CURB AND GUTTER ELEVATIONS ALONG THE PUBLIC RIGHT-OF-WAY. THE ELEVATIONS WILL BE SET BY VDOT.
13. ANY NECESSARY PAVEMENT WIDENING BETWEEN THE EXISTING PAVEMENT AND PROPOSED IMPROVEMENTS IS THE RESPONSIBILITY OF THE DEVELOPER.
14. ALL UTILITY POLES WITHIN THE PUBLIC RIGHT-OF WAY WHICH ARE IN CONFLICT WITH PROPOSED IMPROVEMENTS TO THE RIGHT-OF-WAY, SUCH AS CURB AND GUTTER, DRAINAGE ITEMS, OR PAVEMENT WIDENING SHALL BE RELOCATED AT THE OWNER'S EXPENSE.
15. ADEQUATE SIGHT DISTANCE, AS REQUIRED BY THE TRAFFIC ENGINNER, SHALL BE REQUIRED AT ALL INTERSECTIONS AND ON ALL ROADWAYS INCLUDED IN THIS DEVELOPMENT.

CONSTRUCTION NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS FROM JAMES CITY COUNTY.
2. CURB AND GUTTER WITHIN PARKING LOT TO BE VDOT STANDARD CG-2 & CG-6 WHERE CALLED FOR.
3. PAVEMENT IS TO BE INSTALLED IN ACCORDANCE WITH THE VIRGINIA DEPARTMENT OF HIGHWAYS SPECIFICATIONS.
4. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES. CONTACT ENGINEER IF THERE APPEARS TO BE A CONFLICT OR UPON DISCOVERY OF A UTILITY NOT SHOWN.
5. ALL CONSTRUCTION METHODS AND MATERIALS WILL BE IN ACCORDANCE WITH THE VDH&T ROAD AND BRIDGE SPECIFICATIONS DATED JULY 1, 1989 AND WHERE JAMES CITY COUNTY STANDARDS ARE APPLICABLE.
6. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC UTILITIES PRIOR TO STARTING WORK ON THE PROJECT.



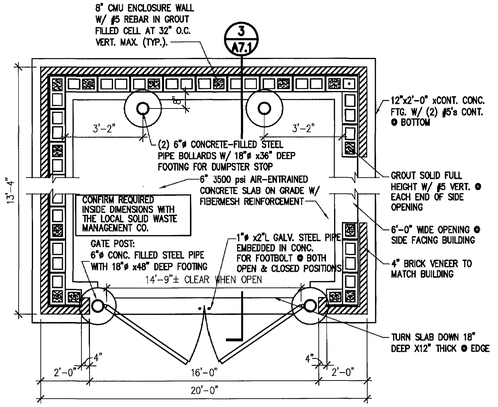
CG-2 DETAIL
N.T.S.

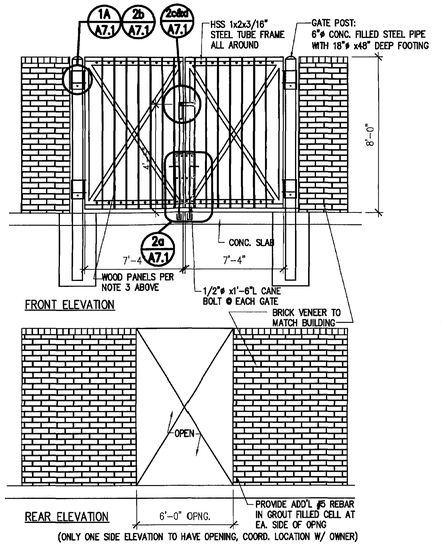


SIDEWALK DETAIL
N.T.S.

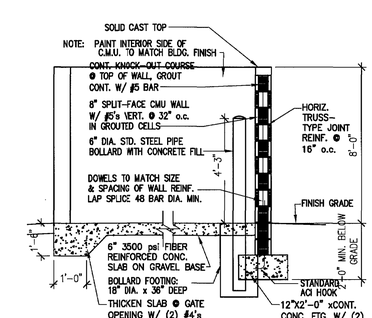
GEN. NOTES

1.) 6"DIA STEEL POSTS SHALL BE SET A MINIMUM OF 36" INTO CONCRETE.
2.) BRICK COLOR TO MATCH THE BRICK ON THE BUILDING, U.N.O.
3.) INSTALL 1x6 BOARDS ¾" APART. PAINT DUMPSTER GATE WOOD BOARDS, POST, HINGES AND ACCESSORIES AS SPECIFIED ON "EXTERIOR FINISH SCHEDULE". ALL WOOD BOARD SHALL BE #1 CEDAR OR REDWOOD.

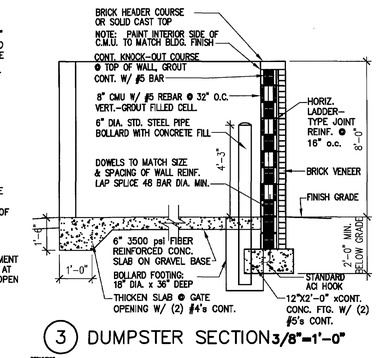




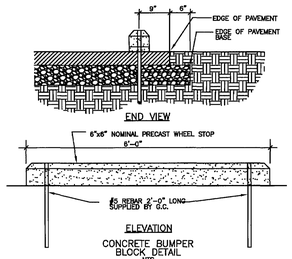
1 DUMPSTER PLAN & ELEVATIONS 3/8"=1'-0"



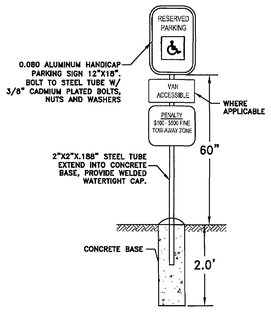
3 DUMPSTER SECTION 3/8"=1'-0"



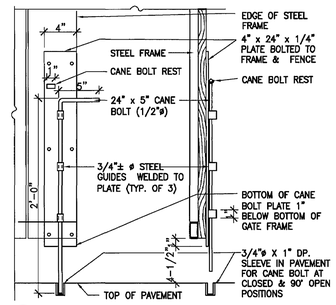
3 DUMPSTER SECTION 3/8"=1'-0"



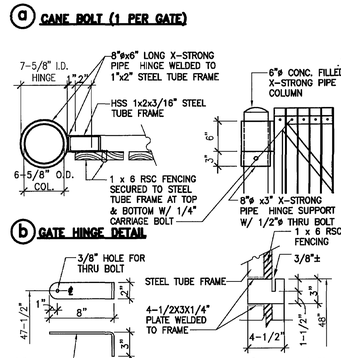
CONCRETE BUMPER BLOCK DETAIL
NTS



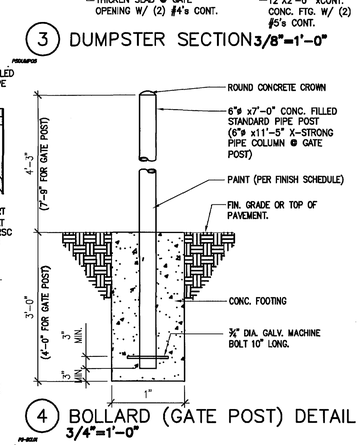
HANDICAP PARKING SIGN
N.T.S.



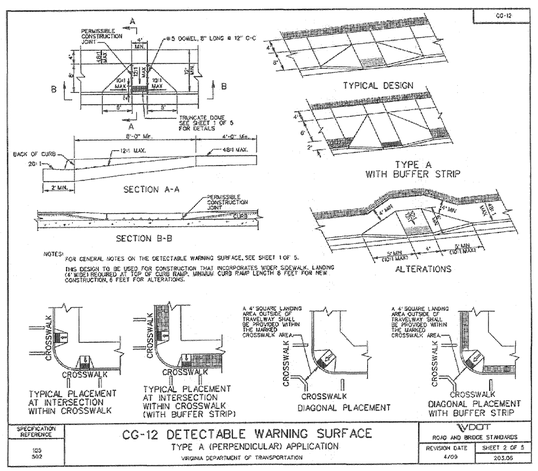
a CANE BOLT (1 PER GATE)

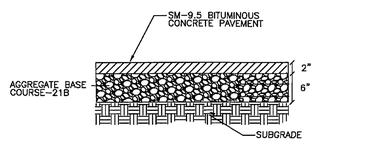


b GATE HINGE DETAIL
c SWING LATCH
d STOP PLATE
2 GATE HARDWARE DETAILS
NTS

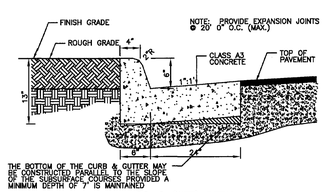


4 BOLLARD (GATE POST) DETAIL 3/4"=1'-0"

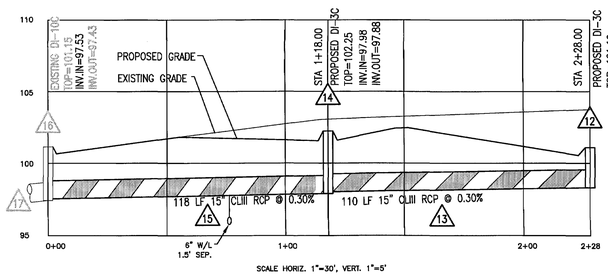




*NOTE: PAVEMENT SECTION BASED ON A CBR VALUE OF 10 OR GREATER. ACTUAL DESIGN MAY VARY DEPENDING ON SOIL CONDITIONS.
LIGHT DUTY PAVING DETAIL
N.T.S.



CG-6 (WET) DETAIL
N.T.S.



SCALE HORIZ. 1"=30', VERT. 1"=5'

JCC CASE No. SP-0076-2010

BALZER AND ASSOCIATES INC
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
NO. 927
LANDSCAPE ARCHITECT

Building 900 Expansion

NOTES & DETAILS

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE N/A

REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

SHEET NO.
C08
JOB NO. C1000301.00

SECTION 5. GENERAL NOTES:

5.1 The following notes shall be provided on all Developer constructed water distribution and sanitary sewer system facility construction plans and specifications and compliance is required by the Contractor/Developer:

JCSA GENERAL NOTES FOR WATER DISTRIBUTION AND SANITARY SEWER SYSTEMS: (Revised March 2008)

A. All components of the water distribution and sanitary sewer system shall be installed and tested in accordance with the latest edition of the JCSA Design and Acceptance Criteria for Water Distribution and Sanitary Sewer Systems, the HRPDC Regional Construction Standards (Fourth Edition with amendments dated October 2006), and the Commonwealth of Virginia Department of Health *Waterworks and Sanitary Sewerage Regulations*. The Contractor shall use only new materials, parts, and products on all projects. All materials shall be stored so as to assure the preservation of their quality and fitness for the work. A copy of the JCSA Design and Acceptance Criteria and HRPDC Regional Construction Standards must be kept on-site by the contractor during time of installing, testing, and conveying facilities to JCSA.

B. The Contractor/Developer shall acquire a Certificate to Construct Water and Sanitary Sewer Facilities prior to commencement of construction of any water or sanitary sewer facilities.

C. A preconstruction meeting shall be held between JCSA, the Developer, the Contractor including relevant subcontractor(s), and the Project Engineer prior to issuance of a JCSA Certificate to Construct. It shall be the responsibility of the Contractor to schedule this meeting with JCSA and coordinate with the other attendees.

D. The Developer's representative shall submit shop drawings for all materials and receive JCSA approval prior to commencement of construction. All materials ordered and installed prior to JCSA's review and acceptance will be at the Contractor's/Developer's risk.

E. Pipe lines and services shall be installed after grading to within 6-inches of final grade and prior to placement of base material.

F. All water mains shall be fully flushed, pressure tested, and disinfected and satisfactory bacteriological samples obtained, in accordance with JCSA Design and Acceptance Criteria. Flushing of water mains shall be scheduled with the JCSA Inspector minimum 3 business days prior to the flushing. Contractor shall provide the required duration and volume to the Inspector. Flushing will be scheduled only on Mondays, unless authorized otherwise by JCSA, and will be on a first come-first serve basis.

G. Routine periodic inspections during construction will be provided by JCSA. These inspections do not relieve the Developer/Contractor/Owner from his obligation and responsibility for constructing a water distribution and sanitary sewer system in strict accordance with the JCSA Design and Acceptance Criteria.

H. Any field modifications or changes to the approved plans shall be verified and checked by the Engineer of Record and approved by JCSA prior to any field modifications or changes. All approved changes and field modifications shall be accurately indicated on the record drawings.

I. All lots shall be provided with water service and sanitary sewer connections. The connections shall be extended from the main to the property line or easement line, and shall terminate with a yoke in a meter box, or at the clean out, set at final finished grade. Meters for all lots (units) shall be paid for by the Developer or builder and installed by JCSA.

J. Any required easements, permits and approvals shall be acquired by the Developer prior to commencement of water main and/or sanitary sewer construction.

K. The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. The Contractor shall erect and maintain, as required by the conditions and progress of the work, all necessary safeguards for safetyandprotection. TheContractorshallalsonotify "MissUtility"at1-800-552-7001 or 811 prior to performing any underground excavation.

L. Water meter box installation shall maintain a minimum 18-inch horizontal edge-to-edge clearance from driveways and/or drive paths, sidewalks, bike paths, curbing and adjacent water meter boxes.

M. Only JCSA personnel are authorized to operate valves on existing JCSA water mains and sanitary force mains. Once a system has been hydraulically energized, JCSA will be responsible for operating the valves. The Contractor shall contact JCSA Operations at 757-229-7421 if there is an emergency or need to open/close a valve.

N. Any existing unused well(s) shall be abandoned in accordance with State Private Well Regulations and James City County Code.

O. Bedding of JCSA utilities shall be in accordance with HRPDC Detail EW_01.

P. No trees, shrubs, structures, fences, irrigation mains, invisible pet fences or other obstacles shall be placed within an easement which would render the easement inaccessible by equipment. Shrubs shall be a minimum of 5 feet, and trees a minimum of 10 feet, from the center of water and sanitary sewer pipelines.

Q. Joint restraint shall be provided in accordance with minimum requirements of JCSA detail JR.1, unless shown otherwise on the plans. All pressure pipelines shall have joint restraint. Fire hydrants shall be restrained at least one full joint of pipe in each direction on the mainline.

R. Proposed water and sanitary sewer systems shall maintain a minimum horizontal separation of 5-feet from other utilities and structures, including but not limited to storm sewers, street lights, etc. Water and sanitary sewer facilities shall have a minimum 10foot horizontal edge-to-edge separation.

S. Any proposed backflow prevention device and/or grease trap must be inspected by the JCSA Utility Special Projects Coordinator at (757) 259-4138.

T. The Contractor/Developer shall acquire a Certificate to Construct Water and Sanitary Sewer Facilities prior to commencement of construction of any water or sanitary sewer facilities. Plumbing inside of proposed buildings must be inspected by JCSA's Utility Special Projects Coordinator at (757) 259-4138, for potential cross connections. Any cross connections must be protected by the appropriate backflow prevention device(s)".

U. Easements denoted as "JCSA Utility Easements" are for the exclusive use of the James City Service Authority and the property owner. Other utility service providers desiring to use these easements with the exception of perpendicular utility crossings must obtain authorization for access and use from JCSA and the property owner. Additionally, JCSA shall not be held responsible for any damage to improvements within this easement, from any cause.

V. JCSA shall not be held responsible for any pavement settlement due to pipe bedding, backfilling, backfill materials or compaction for Water or Sanitary Sewer facilities for this project.

W. Fire hydrants to be installed within existing or proposed VDOT right-of-ways shall be located in accordance with VDOT Requirements.

X. Privately owned utilities, (e.g., water and sewer lines and private fire service mains), shown on this plan are regulated by the Virginia Uniform Statewide Building Code, and enforced by the James City County Codes Compliance Division. These privately owned utilities must comply fully with the International Plumbing Code, the National Fire Protection Association Standard 24, and the Virginia Statewide Fire Prevention Code. Contractors working from this site plan are cautioned not to install or conceal privately owned site utilities without first obtaining the required permits and inspections.

Y. Sanitary sewer laterals shall not connect to the mainline within 5-feet of a manhole. Laterals upstream and within 5-feet of the manhole shall connect directly into the manhole where necessary.

5.2 The following notes are a supplement to the JCSA General Notes for Water Distribution Systems and shall be provided on all Developer constructed water production facility construction plans and specifications and compliance is required by the Contractor/Developer:

JCSA GENERAL NOTES FOR WATER PRODUCTION FACILITIES: (Revised March 2008):

A. All well facilities shall be designed by a Commonwealth of Virginia Registered Professional Engineer (Consultant), and the design, construction and installation shall be in accordance with the following:

1 Commonwealth of Virginia Department of Health (VDH) Waterworks Regulations.
2 James City Service Authority (JCSA) Design and Acceptance Criteria and policies.
3 Approvals of JCSA and VDH shall be obtained prior to commencement of construction.

B. Construction plans shall be submitted through the James City County Planning Department for review and approval. The Developer/Contractor/Consultant shall supply minimum three (3) sets of construction plans and specifications detailing all phases of the well and water production construction including testing, materials, shop drawing submittals, painting and installation. These shall be submitted to, and approved by, JCSA.

C. The Developer/Contractor/Consultant shall be responsible for assuring that all work is performed in accordance with the approved plans and specifications. Any deviation from the approved plans and specifications shall be approved by JCSA and VDH prior to performing such work.

D. Drilling fluid shall be sodium bentonite drilling clay commercially processed to meet or surpass the viscosity specifications in API "Standard 13-A for Drilling Fluid Materials", or approved equal.

E. Organic drilling muds shall not be used in any phase of drilling or construction. Lime shall not be used to thicken the drilling mud.

F. Drilling fluid mix water shall be from a potable source and initially Chlorinated to 50 mg/l free Chlorine concentration. Periodic addition will be required to maintain a 10 mg/l free Chlorine residual. All drilling fluids additives shall comply with industry standards and practices.

G. During drilling and well construction, a "Driller's Log" shall be prepared and submitted to JCSA upon completion of the drilling.

H. Upon completion of the geophysical logging, recommendations shall be submitted to JCSA for approval prior to the installation of the well casing and screens.

I. Grout of the surface casing shall be placed under pressure using an external tremie pipe in one continuous operation to a minimum depth of 100-feet.

J. Grouting operations shall be performed in the presence of JCSA's Inspector and a VDH representative. Both agencies shall be notified a minimum of 48-hours in advance of the grouting operations.

K. Grout mixtures shall be approved by the VDH and JCSA prior to installation. Grout shall be firmly set (minimum of 72-hours) prior to proceeding with the well construction.

L. The well casing shall be stainless steel 316L. PVC well casing may be used with the prior approval of the JCSA and VDH as to material specifications and construction installation methods.

M. The screen shall be stainless steel 316L continuous slot wire wound screen, reinforced with longitudinal bars; the bars having a cross section that will form an opening between each adjacent coil of wire.

N. Prior to installation, the Consultant/Driller's recommended screen slot and gravel size along with supporting calculations shall be submitted to JCSA for approval.

O. Prior to gravel packing, the hole shall be conditioned to ensure stability and to provide a clear filter cake. The gravel shall be disinfected by adding sufficient Chlorine to the placement fluid to produce a minimum Chlorine residual of 400 mg/l.

P. The well shall be developed in such a way as to remove the fines and sort the gravel pack. Records of the development steps and the chemicals used shall be submitted to JCSA.

Q. A well plumbness and alignment, 48-hour pump test and recovery test shall be performed and the results documented and submitted to JCSA.

R. Water samples shall be collected and analyzed for all parameters, required by the VDH, including VOC's.

S. Final pump size and setting recommendations, along with test results and supporting documentation, shall be submitted to JCSA for review and approval prior to installation.

T. The well shall be disinfected in accordance with VDH requirements.
U. The Developer shall obtain construction and operational permits from the VDH and DEQ.

V. The Developer shall obtain all easements, approvals and regulatory permits.

W. The Developer shall acquire and provide 3-phase electrical service for the facility.

X. The water production facilities shall be equipped with a standby generator. Generator shall be rated for continuous duty and provide all power to operate the complete facility and systems.

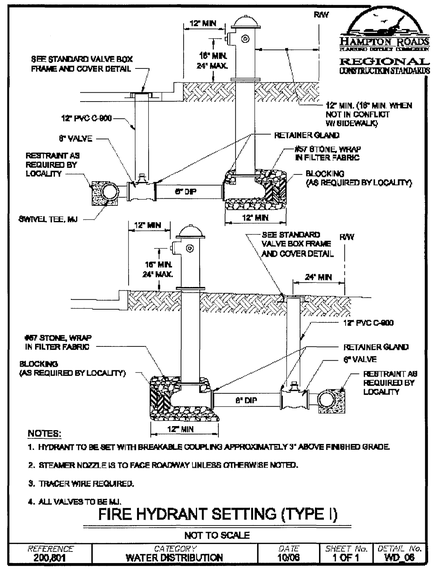
Y. The water production facility shall be equipped with a JCSA compatible SCADA system.
BB. The facility shall be fenced.

Z. Shop drawings and operational, maintenance and repair manuals shall be provided to JCSA, along with a one-year warranty on all facility components and workmanship.

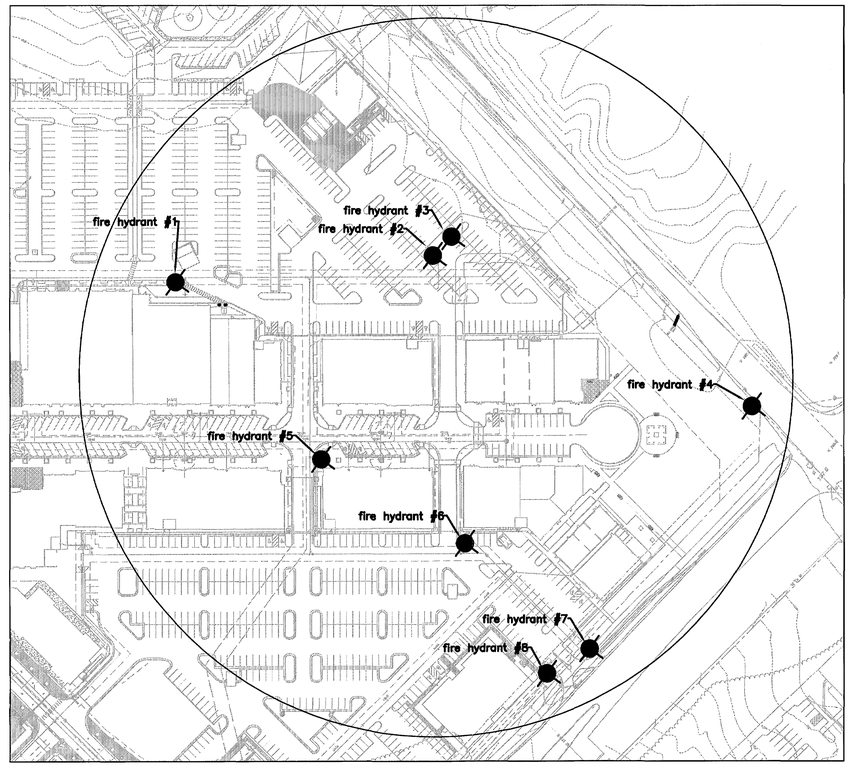
AA. Record drawings shall be submitted and the facilities shall be dedicated as a public water supply prior to acceptance by JCSA. All required easements shall be dedicated to JCSA with recorded documents submitted to JCSA.

HRPDC and JCSA standard details:

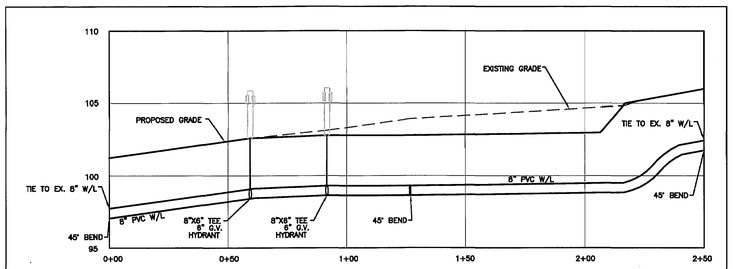
JR.1	Joint Restraint Table
W15.0	Water Meter Setting (1 1/2" meter)
WD_06	Fire Hydrant Setting (type I)



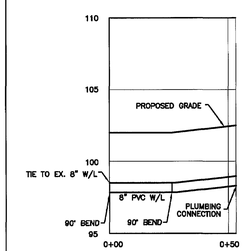
EXISTING FIRE HYDRANT LOCATIONS



WITH THE INSTALLATION OF THIS PROJECT THERE WILL BE EIGHT (8) FIRE HYDRANTS WITHIN A 500' RADIUS OF THIS PROJECT AREA.



WATERLINE PROFILE



WATERLINE PROFILE

SCALE HORIZ. 1"=30', VERT. 1"=5'

BALZER AND ASSOCIATES, INC.
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
No. 927
LANDSCAPE ARCHITECT

JCC CASE No. SP-0076-2010

Building 900 Expansion

NOTES & DETAILS

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE N/A

REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

SHEET NO.
C09

JOB NO. C1000301.00

1. PLANT MATERIAL NAMES ARE IN COMPLIANCE WITH HORTUS THIRD. SIZES AND GRADING ARE TO COMPLY WITH THE LATEST EDITION OF AMERICAN STANDARDS FOR NURSERY STOCK. PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

2. ALL WORK SHALL BE COORDINATED WITH TRADES.

3. USE EXISTING TOPSOIL AND/OR PROVIDE NEW TOPSOIL, WHICH IS FERTILE, FRIABLE, NATURAL LOAM, SURFACE SOIL, REASONABLY FREE OF SUBSOIL, FOREIGN MATTER, ROOTS, STUMPS AND STONES LARGER THAN 2" IN DIMENSION.

4. CONTRACTOR SHALL ASCERTAIN LOCATION OF ALL UTILITIES PRIOR TO EXCAVATION.

5. CONTRACTOR SHALL MAINTAIN PLANT MATERIAL DURING INSTALL-ATION MAINTENANCE SHALL BECOME RESPONSIBILITY OF OWNER UPON ACCEPTANCE OF WORK.

6. WHEN THE LANDSCAPE WORK IS COMPLETED, THE OWNER'S REP-RESENTATIVE WILL, UPON WRITTEN REQUEST, MAKE AN INSPECTION TO DETERMINE ACCEPTABILITY. IF WORK IS NOT ACCEPTABLE, REPLACE REJECTED WORK AND CONTINUE MAINTENANCE UNTIL REINSPECTION AND APPROVAL.

7. GUARANTEE ALL MATERIALS AND LABOR FOR 12 CALENDAR MONTHS AFTER ACCEPTANCE.
   A. MAKE REPLACEMENTS OF ALL DEAD PLANTS IN IMPAIRED CONDITIONS IN EARLY FALL FOLLOWING PLANTING.
   B. ADD ADDITIONALLY IN THE EARLY SPRING FOR THE SAME OR OTHER MATERIALS WHICH ARE DEAD OR IMPAIRED FROM THE WINTER CONDITIONS.

8. WITHIN 10 DAYS AFTER ACCEPTANCE, THE CONTRACTOR SHALL DELIVER AN OUTLINE OF MAINTENANCE PROCEDURES RECOMMENDED FOR THIS PLANTING FOR THE OWNER.

9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY DURING THE GUARANTEE PERIOD TO PROVIDE WRITTEN NOTICE TO THE OWNER OF ANY MAINTENANCE PRACTICE WHICH IN THEIR OPINION WILL AFFECT THE GUARANTEE IF NOT REMEDIED PROMPTLY.

10. DO NOT MAKE SUBSTITUTIONS. BID MATERIALS SHOWN ON PLANS. CONTRACTOR IS ENCOURAGED TO PROVIDE WRITTEN ALTERNATE LIST OF MATERIALS, SIZES AND NUMBERS SUBSTITUTION FOR COST-EFFECTIVE MAINTENANCE OF DESIGN INTEGRITY.

11. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO ACCEPT OR REJECT ANY MATERIAL THAT HE/SHE DEEMS UNACCEPTABLE. REJECTED MATERIAL SHALL BE REMOVED PROMPTLY FROM THE SITE.

12. SELECTIVE CUTTING AND CLEARING SHALL BE PROVIDED IN THE EXISTING WOODED AREAS OF THE DRAINAGE EASEMENT. SELECTIVE CUTTING WITHIN THESE AREAS SHALL BE LIMITED TO THE REMOVAL OF UNDERGROWTH AND TREES ABSOLUTELY NECESSARY FOR THE CONSTRUCTION OF THE DRAINAGE OUTFALL.

13. BALLED AND BURLAPPED PLANTS SHALL BE DUG WITH FIRM NATURAL BALLS OF EARTH. BALL SIZES SHALL BE IN ACCORDANCE WITH A.A.N. SPECIFICATIONS. ALL CONTAINER GROWN STOCK SHALL BE WELL ROOTED AND ESTABLISHED IN THE CONTAINER IN WHICH IT IS SOLD. AN ESTABLISHED CONTAINER GROWN PLANT SHALL HAVE A ROOT SYSTEM DEVELOPED SUFFICIENTLY ENOUGH TO RETAIN ITS SHAPE WHEN REMOVED FROM THE CONTAINER.

14. ALL PLANT MATERIAL SHALL BE NURSERY GROWN UNLESS OTHER-WISE SPECIFIED. PRUNING SHALL BE DONE BEFORE PLANTING OR DURING THE PLANTING OPERATION.

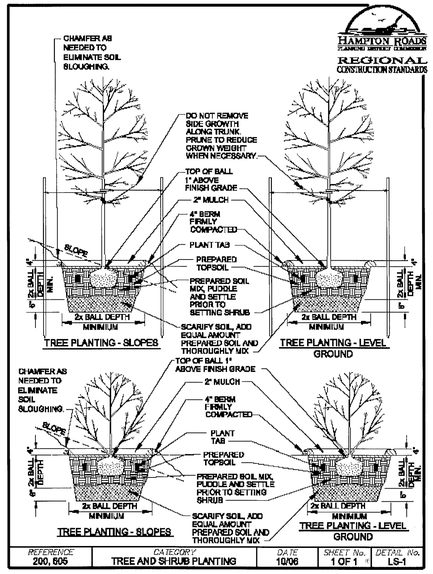
15. ALL PLANT MATERIAL SHALL BE COVERED AND PROTECTED FROM EXCESSIVE DRYING DURING TRANSIT.

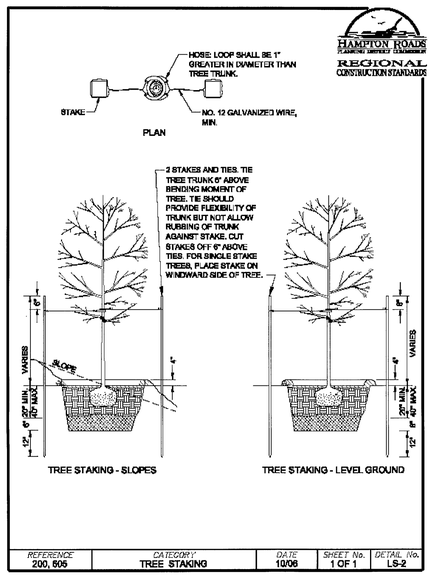
16. ANTI-DESICCANTS SHALL BE APPLIED ON ALL MATERIAL DUG WHILE IN FOLIAGE.

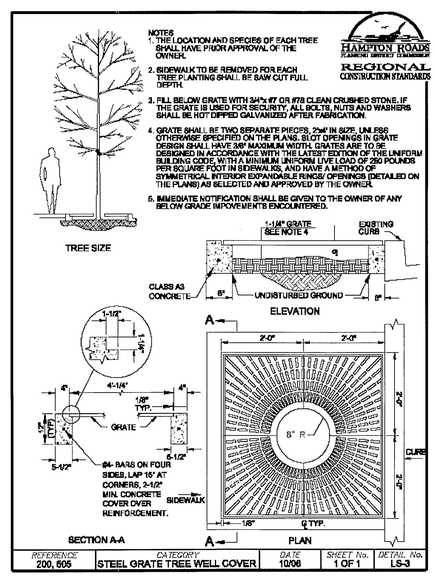
17. MULCH MATERIAL SHALL BE EITHER SHREDDED HARDWOOD MULCH OR APPROVED EQUAL. MATERIAL SHALL BE MULCHING GRADE, UNIFORM IN SIZE AND FREE OF FOREIGN MATTER.

18. TOPSOIL MIXTURE SHALL BE 2 PARTS EXISTING SOIL MIXED EVENLY WITH 1 PART SPHAGNUM PEAT MOSS OR PEAT HUMUS. EXISTING SOIL SHALL BE FREE OF STONES, LUMPS, PLANTS,ROOTS AND OTHER DEBRIS OVER 1 1/2 INCHES. IT SHALL NOT CONTAIN TOXIC SUB-STANCES HARMFUL TO PLANT GROWTH. TOPSOIL SHALL HAVE A pH RANGE OF 5.0 TO 7.0.

19. PLANTING PROCEDURES FOR TREES AND SHRUBS
   A. PLANTING SHALL OCCUR IN ACCORDANCE WITH ALL DETAILS.
   B. TREES AND SHRUBS SHALL BE PLACED IN THE PLANTING PIT, BY LIFTING FROM THE BALL (NEVER FROM THE BRANCHES OR TRUNK). ALL PLANT MATERIAL SHALL BE PLACED IN A STRAIGHT POSITION WITHIN THE PLANTING PIT. WITH THE MOST DESIRABLE SIDE PLACED TOWARDS THE PROMINENT VIEW (SIDEWALK, STREET, ETC.).
   C. THE TREE PIT SHALL BE BACK FILLED WITH A SOIL MIXTURE AS PER SPECIFICATIONS. THE PIT SHALL BE FILLED HALFWAY INITIALLY AND TAMPED FIRMLY. ALL ROPES, WIRES, ETC. ON THE ROOTBALL SHALL BE CUT AND THE BURLAP OR BALL WRAP PULLED BACK TO THE EDGE OF THE ROOTBALL. COMPLETE BACKFILLING PLANT PIT AND TAMP FIRMLY. BACKFILL SOIL SHALL NOT COVER TOP OF ROOTBALL. MULCH ROOTBALL AND SAUCER WITH MINIMUM OF 3 INCHES SHREDDED OR CHIPPED HARDWOOD OR PINE MULCH. WATER THOROUGHLY OR UNTIL PLANT PIT IS FILLED.



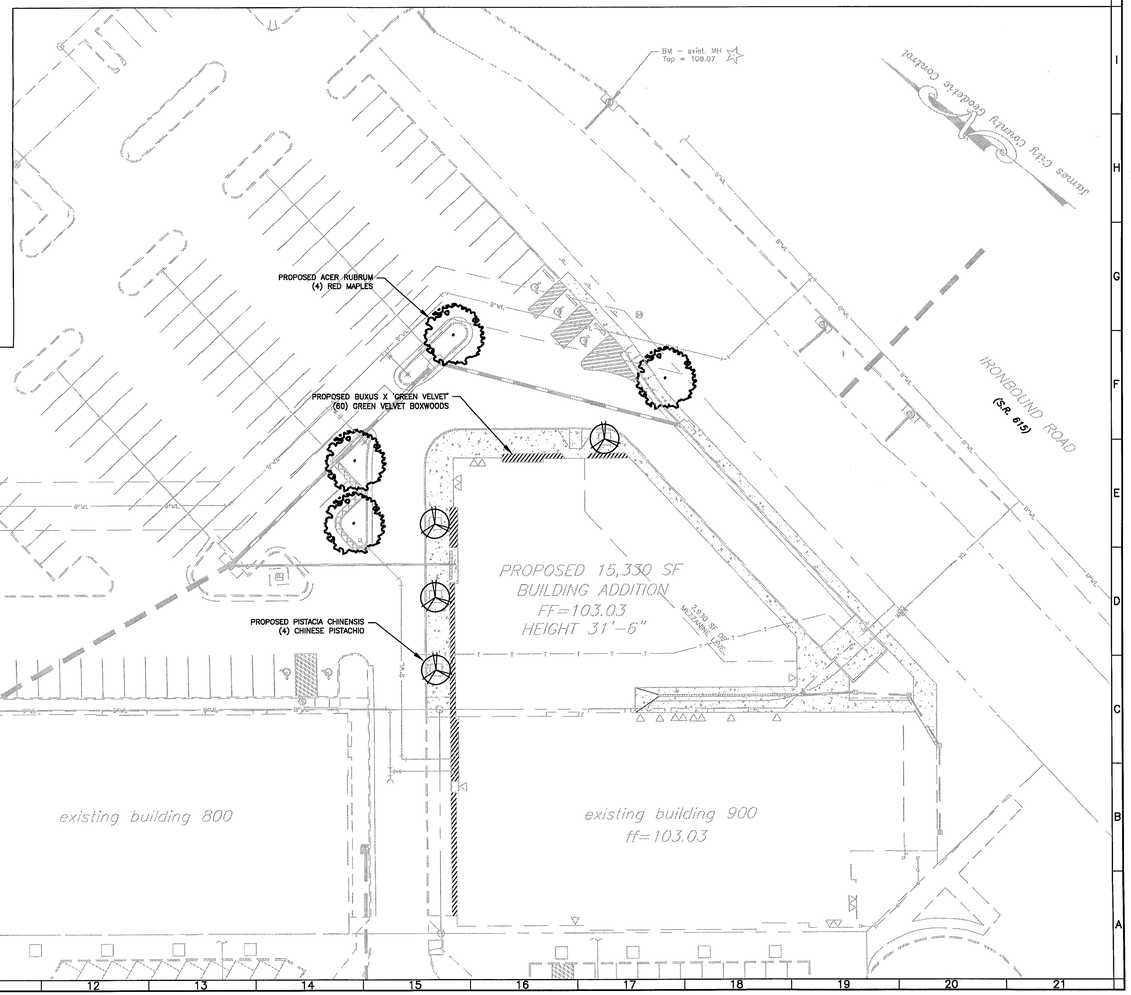




PLANT LIST

QTY.	BOTANICAL NAME	COMMON NAME	SIZE
4	ACER RUBRUM	RED MAPLE	2 1/2" CAL.
4	PISTACIA CHINENSIS	CHINESE PISTACHIO	8' HT.
60	BUXUS X 'GREEN VELVET'	GREEN VELVET BOXWOOD	15-18" HT.

*THIS PLAN IS SUBJECT TO ALL REQUIRED LANDSCAPING AND PLANTINGS AS SHOWN AND APPROVED ON JCC CASE No. SP-0161-2005.



JCC CASE No. SP-0076-2010

BALZER AND ASSOCIATES INC
REFLECTING TOMORROW
www.balzer.cc
Richmond
New River Valley
Roanoke
Shenandoah Valley

RESIDENTIAL LAND DEVELOPMENT ENGINEERING
SITE DEVELOPMENT ENGINEERING
LAND USE PLANNING & ZONING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ARCHITECTURE
STRUCTURAL ENGINEERING
GEOTECHNICAL ENGINEERING
TRANSPORTATION ENGINEERING
ENVIRONMENTAL & SOIL SCIENCE
WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
15871 CITY VIEW DRIVE
Suite 200
MIDLOTHIAN, VA 23113
804-794-0571
FAX 804-794-2635

COMMONWEALTH OF VIRGINIA
JEFFREY L. STAUB
NO. 927
LANDSCAPE ARCHITECT

Building 900 Expansion

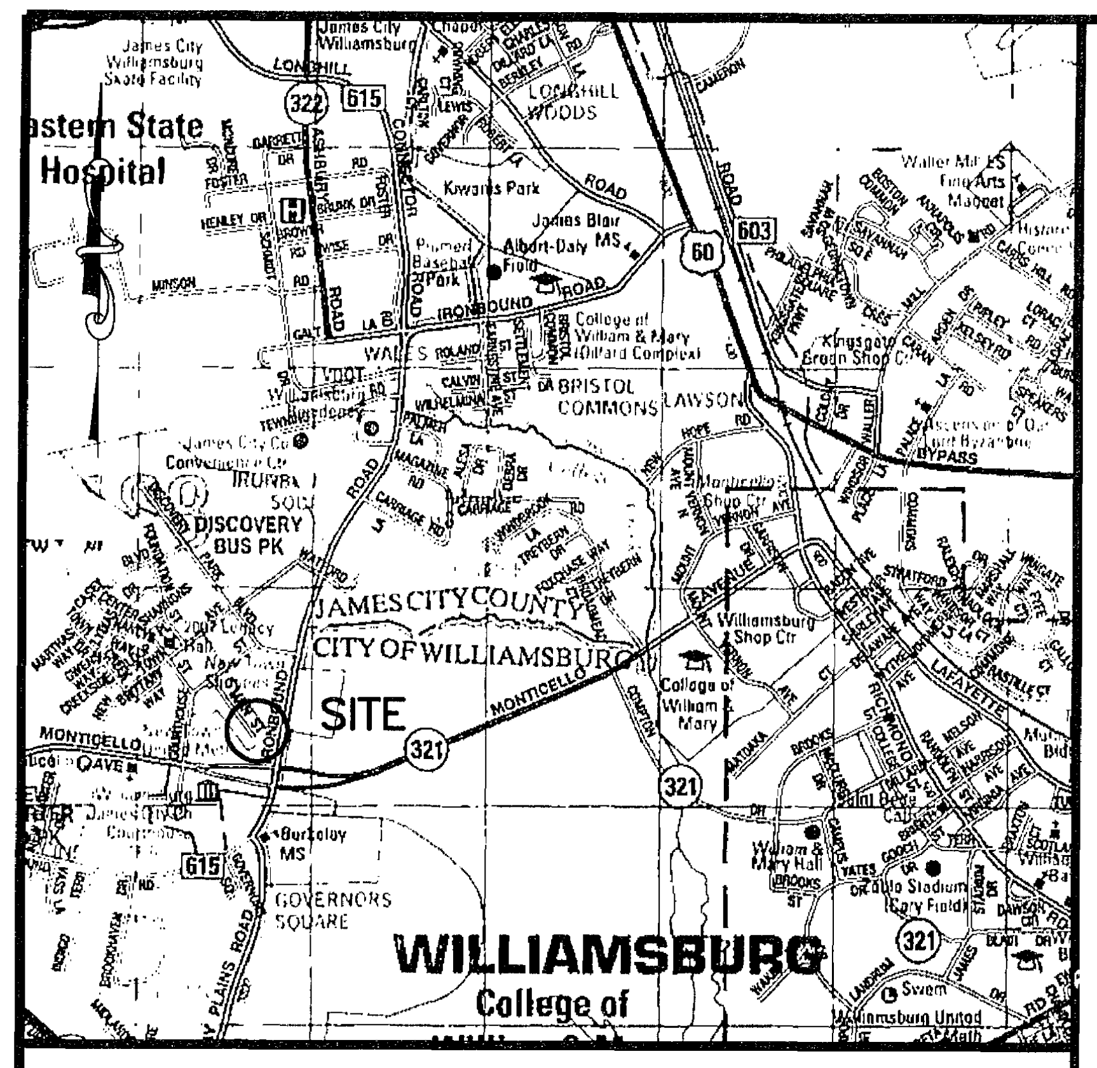
LANDSCAPE PLAN

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA

DRAWN BY JLS
DESIGNED BY JLS
CHECKED BY AMS
DATE Sept. 1, 2010
SCALE 1"=30'

REVISIONS:
October 15, 2010
November 12, 2010
December 1, 2010

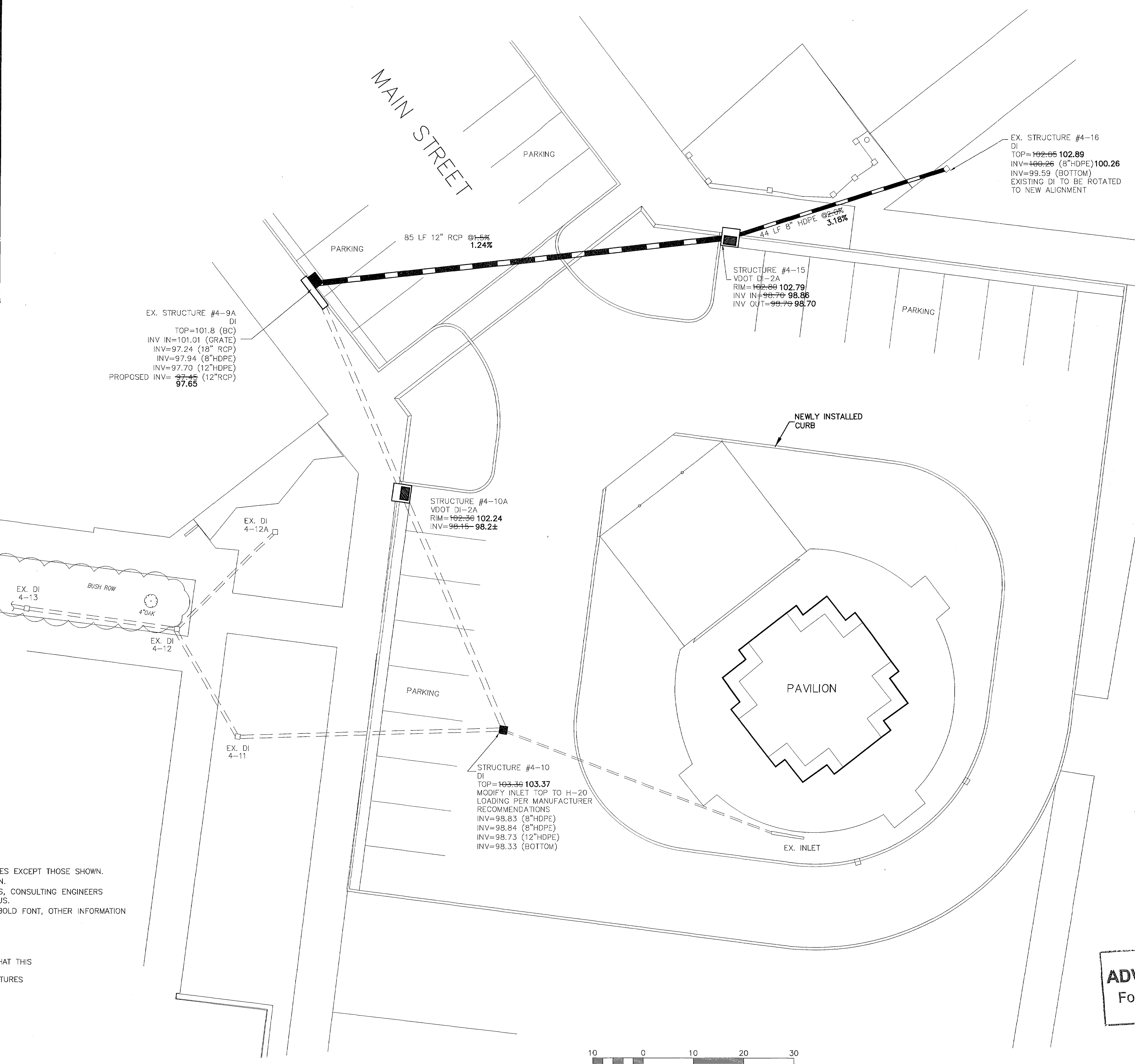
SHEET NO.
C10
JOB NO. C1000301.00



VICINITY MAP SCALE: 1"=2000'

COPYRIGHT ADC THE MAP PEOPLE
PERMITTED USE NUMBER 21001208

Environmental Division
DEC 27 2011
RECEIVED



EX. STRUCTURE #4-16
DI
TOP=~~102.85~~ **102.89**
INV=~~100.26~~ (8"HDPE)**100.26**
INV=99.59 (BOTTOM)
EXISTING DI TO BE ROTATED
TO NEW ALIGNMENT

STRUCTURE #4-15
VDOT DI-2A
RIM=~~102.80~~ **102.79**
INV IN=~~98.70~~ **98.86**
INV OUT=~~98.70~~ **98.70**

EX. STRUCTURE #4-9A
DI
TOP=101.8 (BC)
INV IN=101.01 (GRATE)
INV=97.24 (18" RCP)
INV=97.94 (8"HDPE)
INV=97.70 (12"HDPE)
PROPOSED INV= ~~97.45~~ (12"RCP)
97.65

STRUCTURE #4-10A
VDOT DI-2A
RIM=~~102.30~~ **102.24**
INV=~~98.15~~ **98.2±**

STRUCTURE #4-10
DI
TOP=~~103.39~~ **103.37**
MODIFY INLET TOP TO H-20
LOADING PER MANUFACTURER
RECOMMENDATIONS
INV=98.83 (8"HDPE)
INV=98.84 (8"HDPE)
INV=98.73 (12"HDPE)
INV=98.33 (BOTTOM)

APPROVED SITE PLAN

SITE INFORMATION:

PARCEL ID: 3930400006
ZONING DISTRICT: MU (MIXED USE)

EXISTING ADDRESS:

5150 MAIN STREET
WILLIAMSBURG, VA 23188

GENERAL NOTES:

1) A TITLE REPORT HAS NOT BEEN FURNISHED TO THIS FIRM.
2) THIS FIRM MADE NO ATTEMPT TO VERIFY UNDERGROUND UTILITIES EXCEPT THOSE SHOWN.
3) ELEVATIONS SHOWN ARE RELATIVE TO THE APPROVED SITE PLAN.
4) DESIGN INFORMATION IS SHOWN PER APPROVED PLANS BY AES, CONSULTING ENGINEERS LAST REVISED 06/17/11 FOR NEWTOWN MAIN STREET TERMINUS.
5) THIS FIRM HAS ONLY VERIFIED THAT INFORMATION SHOWN IN BOLD FONT, OTHER INFORMATION IS SHOWN PER THE DESIGN PLANS.
6) PROPERTY LINES ARE SHOWN PER APPROVED SITE PLAN.

RECORD DRAWING CERTIFICATION:

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THIS RECORD DRAWING REPRESENTS THE ACUTAL CONDITION OF THE STORMWATER STRUCTURES SHOW HEREON. THE STORMWATER STRUCTURES APPEAR TO CONFORM WITH THE PROVISIONS OF THE APPROVED DESIGN PLAN, SPECIFICATIONS AND STORMWATER MANAGEMENT PLAN, EXCEPT AS SPECIFICALLY NOTED.

MATTHEW H. CONNOLLY, LIC NO. 2053 DATE

10 0 10 20 30
Scale: 1" = 10'

ADVANCE COPY
For County Review

RECORD DRAWING

DRAINAGE AS-BUILTS
FOR
NEW TOWN MAIN STREET TERMINUS

JAMES CITY COUNTY VIRGINIA

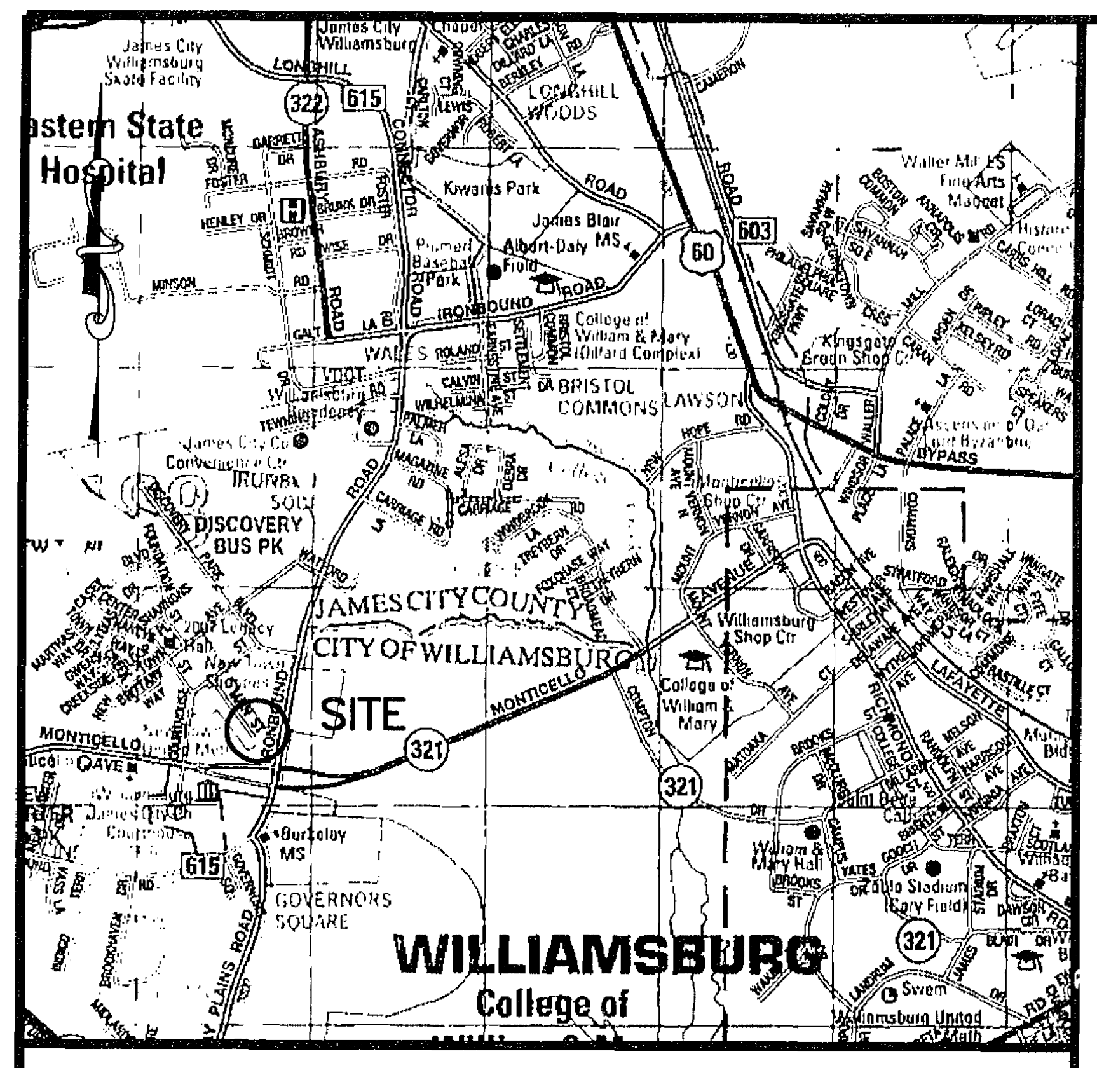
NO.	DATE	REVISION / COMMENT / NOTE

MATTHEW H. CONNOLLY
Lic. No. 2053

LandTech Resources, Inc.
Surveying • GPS • Engineering
205 Bulifants Blvd., Ste. E, Williamsburg, VA 23188
Phone: (757) 565-1677 Fax: (757) 565-0782
web: landtechresources.com

SCALE: 1" = 10'
DATE: 12/27/11
JOB: 11-214
DRAWN BY: PF
SHEET: 1 OF 1

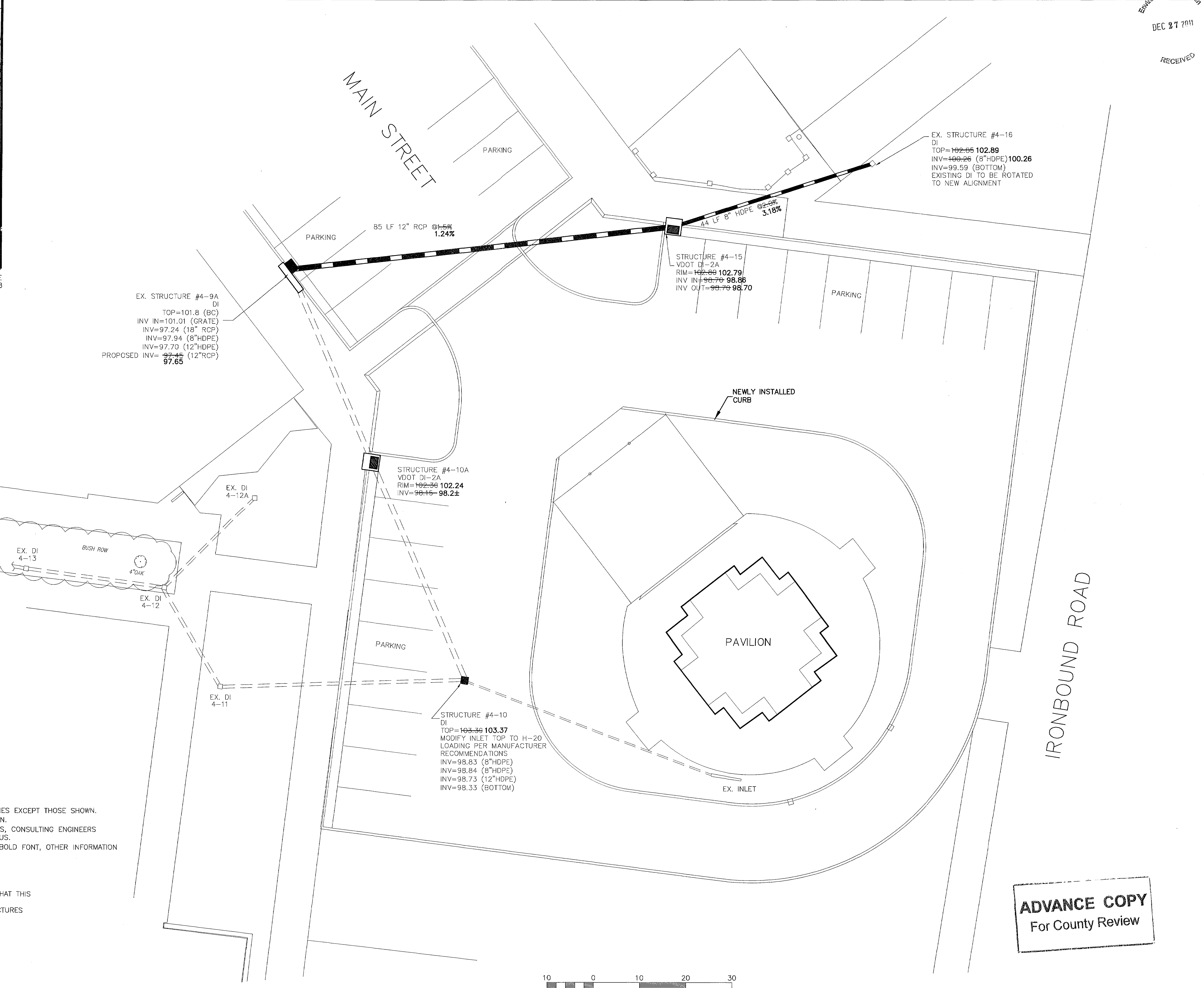
Environmental Division
DEC 27 2011
RECEIVED



VICINITY MAP SCALE: 1"=2000'

COPYRIGHT ADC THE MAP PEOPLE
PERMITTED USE NUMBER 21001208

APPROVED SITE PLAN



85 LF 12" RCP @~~1.5%~~ **1.24%**

44 LF 8" HDPE @~~2.0%~~ **3.18%**

EX. STRUCTURE #4-16
DI
TOP=~~102.85~~ **102.89**
INV=~~100.26~~ (8"HDPE)**100.26**
INV=99.59 (BOTTOM)
EXISTING DI TO BE ROTATED
TO NEW ALIGNMENT

STRUCTURE #4-15
VDOT DI-2A
RIM=~~102.89~~ **102.79**
INV IN=~~98.70~~ **98.86**
INV OUT=~~98.70~~ **98.70**

EX. STRUCTURE #4-9A
DI
TOP=101.8 (BC)
INV IN=101.01 (GRATE)
INV=97.24 (18" RCP)
INV=97.94 (8"HDPE)
INV=97.70 (12"HDPE)
PROPOSED INV= ~~97.45~~ (12"RCP)
97.65

STRUCTURE #4-10A
VDOT DI-2A
RIM=~~102.30~~ **102.24**
INV=~~98.15~~ **98.2±**

STRUCTURE #4-10
DI
TOP=~~103.39~~ **103.37**
MODIFY INLET TOP TO H-20
LOADING PER MANUFACTURER
RECOMMENDATIONS
INV=98.83 (8"HDPE)
INV=98.84 (8"HDPE)
INV=98.73 (12"HDPE)
INV=98.33 (BOTTOM)

10 0 10 20 30
Scale: 1" = 10'

SITE INFORMATION:

PARCEL ID: 3930400006
ZONING DISTRICT: MU (MIXED USE)

EXISTING ADDRESS:

5150 MAIN STREET
WILLIAMSBURG, VA 23188

GENERAL NOTES:

1) A TITLE REPORT HAS NOT BEEN FURNISHED TO THIS FIRM.
2) THIS FIRM MADE NO ATTEMPT TO VERIFY UNDERGROUND UTILITIES EXCEPT THOSE SHOWN.
3) ELEVATIONS SHOWN ARE RELATIVE TO THE APPROVED SITE PLAN.
4) DESIGN INFORMATION IS SHOWN PER APPROVED PLANS BY AES, CONSULTING ENGINEERS LAST REVISED 06/17/11 FOR NEWTOWN MAIN STREET TERMINUS.
5) THIS FIRM HAS ONLY VERIFIED THAT INFORMATION SHOWN IN BOLD FONT, OTHER INFORMATION IS SHOWN PER THE DESIGN PLANS.
6) PROPERTY LINES ARE SHOWN PER APPROVED SITE PLAN.

RECORD DRAWING CERTIFICATION:

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THIS RECORD DRAWING REPRESENTS THE ACUTAL CONDITION OF THE STORMWATER STRUCTURES SHOW HEREON. THE STORMWATER STRUCTURES APPEAR TO CONFORM WITH THE PROVISIONS OF THE APPROVED DESIGN PLAN, SPECIFICATIONS AND STORMWATER MANAGEMENT PLAN, EXCEPT AS SPECIFICALLY NOTED.

MATTHEW H. CONNOLLY, LIC NO. 2053 DATE

ADVANCE COPY
For County Review

RECORD DRAWING

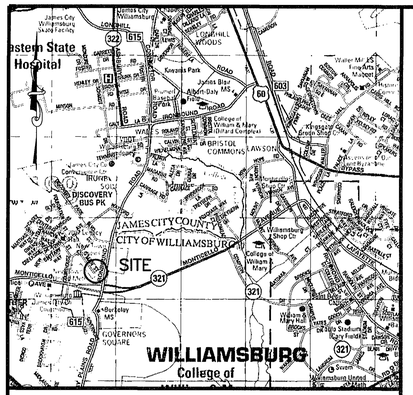
DRAINAGE AS-BUILTS
FOR
NEW TOWN
MAIN STREET TERMINUS
JAMES CITY COUNTY VIRGINIA

NO.	DATE	REVISION / COMMENT / NOTE

MATTHEW H. CONNOLLY
Lic. No. 2053

LandTech
Resources, Inc.
Surveying • GPS • Engineering
205 Bulifants Blvd., Ste. E, Williamsburg, VA 23188
Phone: (757) 565-1677 Fax: (757) 565-0782
web: landtechresources.com

SCALE: 1" = 10'
DATE: 12/27/11
JOB: 11-214
DRAWN BY: PF
SHEET: 1 OF 1



APPROVED SITE PLAN

MAIN STREET

PARKING

85 LF 12" RCP @~~1.5%~~ 1.24%

44 LF 8" HDPE @~~2.5%~~ 3.18%

EX. STRUCTURE #4-16
DI
TOP=~~102.85~~ 102.89
INV=~~100.26~~ (8"HDPE) 100.26
INV=99.59 (BOTTOM)
EXISTING DI TO BE ROTATED
TO NEW ALIGNMENT

STRUCTURE #4-15
VDOT DI-2A
RIM=~~102.88~~ 102.79
INV IN=~~98.70~~ 98.86
INV OUT=~~98.70~~ 98.70

EX. STRUCTURE #4-9A
DI
TOP=101.8 (BC)
INV IN=101.01 (GRATE)
INV=97.24 (18" RCP)
INV=97.94 (8"HDPE)
INV=97.70 (12"HDPE)
PROPOSED INV= ~~97.45~~ (12"RCP)
97.65

NEWLY INSTALLED
CURB

STRUCTURE #4-10A
VDOT DI-2A
RIM=~~103.36~~ 102.24
INV=~~98.15~~ 98.2±

EX. DI
4-12A

EX. DI
4-13

BUSH ROW

4" OAK

EX. DI
4-12

EX. DI
4-11

PARKING

PAVILION

EX. INLET

STRUCTURE #4-10
DI
TOP=~~103.39~~ 103.37
MODIFY INLET TOP TO H-20
LOADING PER MANUFACTURER
RECOMMENDATIONS
INV=98.83 (8"HDPE)
INV=98.84 (8"HDPE)
INV=98.73 (12"HDPE)
INV=98.33 (BOTTOM)

IRONBOUND ROAD

10 0 10 20 30
Scale: 1" = 10'

SITE INFORMATION:

PARCEL ID: 3930400006
ZONING DISTRICT: MU (MIXED USE)

EXISTING ADDRESS:

5150 MAIN STREET
WILLIAMSBURG, VA 23188

GENERAL NOTES:

1) A TITLE REPORT HAS NOT BEEN FURNISHED TO THIS FIRM.
2) THIS FIRM MADE NO ATTEMPT TO VERIFY UNDERGROUND UTILITIES EXCEPT THOSE SHOWN.
3) ELEVATIONS SHOWN ARE RELATIVE TO THE APPROVED SITE PLAN.
4) DESIGN INFORMATION IS SHOWN PER APPROVED PLANS BY AES, CONSULTING ENGINEERS LAST REVISED 06/17/11 FOR NEWTOWN MAIN STREET TERMINUS.
5) THIS FIRM HAS ONLY VERIFIED THAT INFORMATION SHOWN IN BOLD FONT, OTHER INFORMATION IS SHOWN PER THE DESIGN PLANS.
6) PROPERTY LINES ARE SHOWN PER APPROVED SITE PLAN.

RECORD DRAWING CERTIFICATION:

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THIS RECORD DRAWING REPRESENTS THE ACUTAL CONDITION OF THE STORMWATER STRUCTURES SHOW HEREON. THE STORMWATER STRUCTURES APPEAR TO CONFORM WITH THE PROVISIONS OF THE APPROVED DESIGN PLAN, SPECIFICATIONS AND STORMWATER MANAGEMENT PLAN, EXCEPT AS SPECIFICALLY NOTED.

MATTHEW H. CONNOLLY, LIC NO. 2053 DATE

ADVANCE COPY
For County Review

RECORD DRAWING

DRAINAGE AS-BUILTS FOR NEW TOWN MAIN STREET TERMINUS

VIRGINIA

JAMES CITY COUNTY

NO.	DATE	REVISION / COMMENT / NOTE

COMMONWEALTH OF VIRGINIA
MATTHEW H. CONNOLLY
Lic. No. 2053
LAND SURVEYOR

LandTech Resources, Inc.
Surveying • GPS • Engineering
205 Bulifants Blvd., Ste. E, Williamsburg, VA 23188
Phone: (757) 565-1677 Fax: (757) 565-0782
web: landtechresources.com

SCALE: 1" = 10'
DATE: 12/27/11
JOB: 11-214
DRAWN BY: PF
SHEET: 1 OF 1

SP-0023-2011

SITE PLAN

FOR

NEW TOWN - MAIN STREET TERMINUS

BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

RECEIVED
JUN 2011
Planning Department

COUNTY OF JAMES CITY
FINAL SITE PLAN

APPROVALS		DATE
Fire Dept.	KLD | ler	3/7/11
Health Dept.		
VDOT	RC | ler	3/28/11
Planning	CMJ	6/29/11
Environ.	SJT | ler	4/11/11
Zoning Adm.		6/29/11
JCSA	DAW | ler	3/18/11
County Eng.		
REA		
Other		

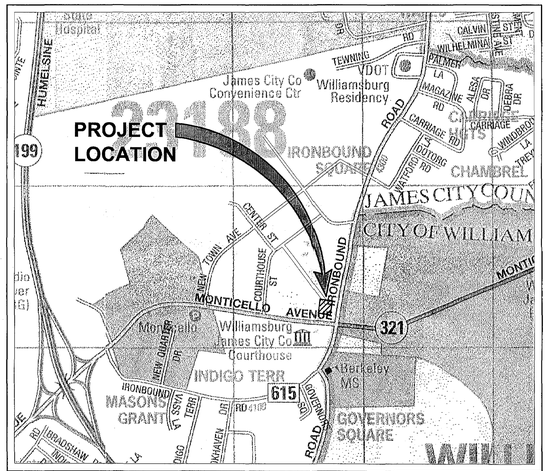
Environmental Division
JUN 29 2011
RECEIVED

Rev.	Date	Description	Revised By
3	06/17/11	Revised Per Owner	REC
2	05/20/11	Revised Per Owner	REC
1	03/31/11	Revised Per DRB & County Comments	REC

GENERAL NOTES:

1. THE SITE IS CURRENTLY ZONED MU WITH PROFFERS REFERENCING JCC CASE NO. Z-04-97 AND MP-02-97 APPROVED BY THE BOARD OF SUPERVISORS ON DECEMBER 22, 1997 AND REFERENCING Z-03-01 AND MP-05-01 APPROVED BY THE BOARD OF SUPERVISORS ON DECEMBER 11, 2001.
2. THIS PROJECT IS LOCATED IN JAMES CITY COUNTY SUB WATERSHED 208 (LOWER CHISEL RUN) AND CATCHMENT 208-103-1 OF THE POWHATAN CREEK WATERSHED.
3. A LAND DISTURBING PERMIT AND SILTATION AGREEMENT, WITH SURETY, ARE REQUIRED FOR THIS PROJECT.
4. PRIOR TO OBTAINING A LAND DISTURBING PERMIT, THE OWNER OR CONTRACTOR SHALL OBTAIN A VSMP PERMIT (VIRGINIA STORMWATER MANAGEMENT PROGRAM) FROM THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION FOR THE DISCHARGE OF STORMWATER FROM CONSTRUCTION ACTIVITIES. THIS PERMIT WILL REQUIRE DAILY LOGS OF EARTHWORK, RECORDATION OF STORM EVENTS, LOGS OF MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES, AND OTHER ACTIONS DURING CONSTRUCTION.
5. EXISTING UTILITY LOCATIONS INDICATED ARE APPROXIMATE. FIELD VERIFY PRIOR TO COMMENCING THE WORK.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING MISS UTILITY (1-800-552-7001) FOR EXISTING UTILITY LOCATIONS AT LEAST 3 WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION.
7. ALL ERRORS OR DISCREPANCIES WITH THE PLANS OR EXISTING SITE CONDITIONS SHALL BE REPORTED TO THE ENGINEER OR SURVEYOR OF RECORD BEFORE PROCEEDING WITH THE WORK.
8. THE CONTRACTOR SHALL SATISFY HIMSELF AS TO ALL SITE CONDITIONS PRIOR TO CONSTRUCTION.
9. CONTOUR INTERVAL IS 1 FOOT.
10. ANY EXISTING, UNUSED WELLS SHALL BE ABANDONED IN ACCORDANCE WITH THE VIRGINIA PRIVATE WELL REGULATIONS AND JAMES CITY COUNTY CODE.
11. SOLID WASTE DISPOSAL SHALL BE PROVIDED BY A PRIVATE HAULER.
12. EVERYTHING BEYOND THE RIGHT-OF-WAY LINE WILL BE CONSIDERED PRIVATE AND NOT MAINTAINED BY VDOT.
13. THE CONTRACTOR SHALL MAINTAIN A COMPLETE SET OF THE APPROVED PLANS AT THE PROJECT SITE AT ALL TIMES DURING CONSTRUCTION.
14. THE ABSENCE OF THE DEVELOPER OR THE ENGINEER AT THE JOB SITE DOES NOT, IN ANY WAY, RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PERFORM THE WORK IN ACCORDANCE WITH THE DRAWINGS, CONTRACT DOCUMENTS, ADDENDA, AND WRITTEN AUTHORIZED PLAN REVISIONS.
15. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF ANYBODY HAVING JURISDICTION. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY THE CONDITIONS AND PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR SAFETY AND PROTECTION.
16. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM WITH THE CURRENT JAMES CITY COUNTY STANDARDS AND SPECIFICATIONS, VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE STANDARDS AND SPECIFICATIONS, VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS, AND ANY OTHER APPLICABLE CITY OR STATE ORDINANCES, CODES, AND LAWS.
17. DESIGN MATERIAL, EQUIPMENT AND PRODUCTS OTHER THAN THOSE INDICATED IN THE DRAWINGS SHALL NOT BE CONSIDERED UNLESS PRIOR APPROVAL IS OBTAINED FROM THE OWNER'S REPRESENTATIVE, DESIGN ENGINEER AND THE APPLICABLE LOCAL GOVERNING CODE AUTHORITY.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR THE WORK INDICATED.
19. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF ALL SITE IMPROVEMENTS, INCLUDING LANDSCAPING, AS SHOWN ON THE APPROVED PLAN.
20. THE CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS OF THE VIRGINIA UNDERGROUND UTILITY DAMAGE PREVENTION ACT (SECTION 56-265.14 ET. SEQ. CODE OF VIRGINIA, 1950, AS AMENDED) AND HEREBY AGREES TO HOLD THE DEVELOPER AND THE ENGINEER HARMLESS AGAINST ANY LOSS, DAMAGE, OR CLAIMS OF ANY NATURE WHATSOEVER ARISING OUT OF THE CONTRACTOR'S FAILURE TO COMPLY WITH THE REQUIREMENTS OF SAID ACT.
21. CONSTRUCTION OF STORMWATER CONVEYANCE SYSTEMS OUTSIDE OF THE RIGHT-OF-WAY SHALL COMPLY WITH THE CURRENT JAMES CITY COUNTY ENVIRONMENTAL DIVISION STORMWATER DRAINAGE CONVEYANCE SYSTEMS, GENERAL DESIGN AND CONSTRUCTION GUIDELINES HANDBOOK. THE CONTRACTOR WILL IMMEDIATELY REPAIR OR REPLACE CHANNEL STABILIZATION BLANKETS AND EROSION CONTROL MATTINGS IF SITEWORK OR ASSOCIATED UTILITY OPERATIONS SUCH AS CABLE, ELECTRIC, GAS, PHONE, SEWER, WATER, ETC. DAMAGE THEIR FUNCTIONAL INTENT.
22. THE PROFESSIONAL WHOSE SEAL IS AFFIXED HEREON SHALL ACT AS THE "RESPONSIBLE LAND DISTURBER" FOR PURPOSES OF PLAN APPROVAL ONLY. PRIOR TO ISSUANCE OF THE LAND DISTURBING PERMIT, THE OWNER OR DEVELOPER SHALL PROVIDE THE NAME OF A "RESPONSIBLE LAND DISTURBER" WHO SHALL ASSUME RESPONSIBILITY AS THE "RESPONSIBLE LAND DISTURBER" FOR THE CONSTRUCTION PHASE OF THE PROJECT. THE OWNER OR DEVELOPER SHALL PROVIDE WRITTEN NOTIFICATION SHOULD THE "RESPONSIBLE LAND DISTURBER" CHANGE DURING CONSTRUCTION.
23. NO OFFSITE LAND DISTURBANCE IS ANTICIPATED FOR THIS PROJECT.
24. ALL OBJECTIONABLE AND DELETERIOUS MATERIAL IS TO BE REMOVED FROM THE SITE AND DISPOSED OF IN A STATE APPROVED FACILITY MEETING THE REQUIREMENTS OF ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
25. SITE BOUNDARY IS BASED ON RECORD INFORMATION AND DOES NOT REPRESENT A CURRENT BOUNDARY BY AES CONSULTING ENGINEERS.
26. THE CONTRACTOR SHALL REESTABLISH ALL EXISTING PROPERTY PINS, MONUMENTS, WATER METERS, DRAINAGE CULVERTS, FENCES, UTILITY POLES, DRIVEWAYS, CURBS, GUTTERS, ETC. DISTURBED DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE DEVELOPER.
27. PARKING SPACES SHALL BE DELINEATED BY 4" PAVEMENT STRIPING.
28. ALL UTILITIES SHALL BE PLACED UNDERGROUND.
29. ANY NEW SIGNS SHALL BE IN ACCORDANCE WITH ARTICLE II DIVISION 3 OF THE JAMES CITY COUNTY ZONING ORDINANCE AND THE NEW TOWN DESIGN GUIDELINES. ALL SIGNAGE IS REQUIRED TO BE REVIEWED AND APPROVED BY JAMES CITY COUNTY ZONING AND THE DESIGN REVIEW BOARD.
30. ALL IMPROVEMENTS SHOWN ON THE PLAN ARE PRIVATE AND WILL NOT BE MAINTAINED BY VDOT OR JAMES CITY COUNTY.
31. NEW TOWN DESIGN REVIEW BOARD (DRB) GRANTED APPROVAL OF THIS PROJECT ON MARCH 28, 2011 AND JUNE 16, 2011.

INDEX OF SHEETS:



VICINITY MAP
(APPROXIMATE SCALE: 1"=1,000')
COPYRIGHT ADC THE MAP PEOPLE PERMITTED USE NUMBER: 21004223

COUNTY PROJECT NO.: JCC-SP-0023-2011
ORIGINAL SUBMITTAL DATE: March 03, 2011
APPROVAL DATE:

OWNER/DEVELOPER INFORMATION:

OWNER: NEW TOWN COMMERCIAL ASSOCIATION

CONTACT: MR. RANDY CASEY-RUTLAND
4801 COURTHOUSE STREET, SUITE 128
WILLIAMSBURG, VA. 23188
PHONE NO.: (757) 565-6200
FAX NO.: (757) 565-6291

DEVELOPER: WILLIAMSBURG DEVELOPERS, LLC

MR. JOSEPH BARONOWSKI
1224 MILL STREET, BLDG D
EAST BERLIN, CONNECTICUT, 06023
PHONE NO.: (860) 561-0121
FAX NO.: (860) 521-4323

CERTIFIED RESPONSIBLE LAND DISTURBER:

ROBERT E. COSBY III, P.E.
AES CONSULTING ENGINEERS
5248 OLDE TOWNE ROAD, SUITE 1
WILLIAMSBURG, VIRGINIA 23188
TELEPHONE: 757-253-0040

* FOR SITE PLAN REVIEW PROCESS ONLY. OWNER OR CONTRACTOR SHALL NAME RESPONSIBLE LAND DISTURBER FOR CONSTRUCTION PROCESS.

SITE DATA:

SITE ADDRESS:	5150 MAIN STREET WILLIAMSBURG, VA 23188
TAX MAP:	3930400006 (5150 MAIN STREET) 3842400001D (MAIN STREET PRIVATE R/W)
ZONING:	MU W/PROFFERS
PROJECT LIMITS:	23,020 S.F.±, 0.53 AC.±
SITE AREA:	33,496 S.F.±, 0.77 AC.±
TOTAL IMPERVIOUS AREA: EXISTING AREA: PROPOSED AREA:	 10,227 S.F.±, 0.23 AC.± 17,550 S.F.±, 0.40 AC.±
TOTAL DISTURBED AREA:	23,020 S.F.±, 0.53 AC.±
FLOOD HAZARD MAP:	THIS PROPERTY IS IN X AS SHOWN ON MAP NUMBER 0035 , PANEL B FOR COMMUNITY NUMBER 510201, DATED 02/06/1991 OF THE FLOOD INSURANCE RATE MAPS FOR JAMES CITY COUNTY, VA. ZONE X IS DEFINED AS OUTSIDE THE 500 YEAR FLOODPLAIN
PARKING PROVIDED:	22 ADDITIONAL PARKING SPACES

NOTE:
1) A WAIVER TO SEC. 24-527(A), SETBACK REQUIREMENTS FROM A PLANNED OR EXISTING PUBLIC ROAD RIGHT OF WAY, WAS GRANTED BY THE JAMES CITY COUNTY PLANNING COMMISSION ON FEBRUARY 2, 2005 PROVIDED PROPOSALS ARE IN ACCORDANCE WITH THE NEW TOWN DESIGN GUIDELINES.

2) A WAIVER TO SEC. 24-55, LOCATION OF OFF-SITE PARKING AND MINIMUM OFF STREET PARKING REQUIREMENTS WAS GRANTED BY THE JAMES CITY COUNTY PLANNING COMMISSION ON MARCH 1, 2004 PROVIDED PROPOSALS ARE IN ACCORDANCE WITH THE "NEW TOWN TOWN CENTER PARKING OVERVIEW" LETTER JANUARY 2004.

THIS SITE PLAN AMENDS SP-0095-2005 TO ALTER THE TERMINUS OF MAIN STREET AND ADD 22 PARKING SPACES.

NOTE:
ALL STORM WATER RUNOFF ASSOCIATED WITH THIS PROJECT IS DIRECTED INTO EXISTING STORM DRAINAGE PIPING ASSOCIATED WITH NEW TOWN PHASE I ROADWAY (JCC-SP-050-02) AND PHASE III ROADWAY (JCC-SP-082-04). ALL RUNOFF IS COLLECTED AND TREATED BY BMP #53 (COUNTY BMP ID# PC 173).

COMMONWEALTH OF VIRGINIA
ROBERT E. COSBY III
Lic. No. 35664
PROFESSIONAL ENGINEER
06/17/11

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
Phone: (757) 253-0040
Fax: (757) 220-8994
www.aesva.com
Hampton Roads | Central Virginia | Middle Peninsula

NEW TOWN
MAIN STREET TERMINUS
BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	REC
Project Number:	W06632-E-21-12
Scale: AS NOTED	Date: 03/03/11
Sheet Title:	COVER SHEET
Sheet Number	01

S:\Jobs\6632\E21-12- Main Terminus\Engineering\Plans\6632E21-12c01-cover.dwg, 6/17/2011 12:20:27 PM, matt.short

MAIN STREET

IRONBOUND ROAD

EXISTING STREET AND ON-STREET PARKING

INV= 96.80 (18" RCP)

DI TOP=101.80 (BC) INV IN=101.01 (GRATE) INV= 97.24 (18" RCP) INV= 97.94 (8" HDPE) INV= 97.70 (12" HDPE)

DI TOP= 102.68 INV= 100.66 (8"HDPE) INV= 99.98 (BOTTOM)

DI TOP= 102.85 INV= 100.25 (8"HDPE) INV= 100.19 (8"HDPE) INV= 99.59 (BOTTOM)

DI TOP= 104.23 INV= 99.66 (8"HDPE) INV= 99.74 (6"HDPE) (TO BE REMOVED)

DI TOP= 101.61 INV= 99.99 (6"HDPE) INV= 99.81 (BOTTOM)

DI INV IN=102.22 (GRATE)

DI TOP= 101.44 INV= 99.75 (8"HDPE)

DI TOP= 101.56 INV= 99.53 (8"HDPE) INV= 99.48 (8"HDPE) INV= 99.64 (6"HDPE) INV= 99.00 (BOTTOM)

DI TOP= 101.46 INV= 99.33 (8"HDPE) INV= 99.33 (8"HDPE) INV= 98.71 (BOTTOM)

DI TOP= 103.39 INV= 98.83 (8"HDPE) INV= 98.84 (8"HDPE) INV= 98.73 (12"HDPE) INV= 98.33 (BOTTOM)

SAN CO

EXISTING STREET LIGHT (TO REMAIN)

EXISTING SIGN (TO BE RELOCATED)

EXISTING BRICK SIDEWALK (TO REMAIN)

EXISTING STREET LIGHT (TO REMAIN)

EXISTING SIGN (TO BE RELOCATED)

EXISTING STREET LIGHT (TO REMAIN)

EXISTING PAVILION & CIRCLE (TO REMAIN)

EXISTING RETAINING WALL (TO BE REMOVED)

EXISTING BRICK SIDEWALK (TO REMAIN)

EXISTING STREET LIGHT (TO REMAIN)

EXISTING BRICK SIDEWALK (TO REMAIN)

EXISTING TELECOMM BOX (TO BE RELOCATED BY VERIZON)

EXISTING IRRIGATION CONTROL BOX (TO BE RELOCATED)

EXISTING IRRIGATION CONTROL BOX (TO BE RELOCATED)

EXISTING IRRIGATION CONTROL BOX (TO BE RELOCATED)

REMOVE EXISTING UP-LIGHTS FOR 6 TREES (2 LIGHTS PER TREE)

REMOVE FENCING

REMOVE FENCING

ELECTRIC LINE (PAINT)

ELECTRIC LINE (PAINT)

ELECTRIC LINE (PAINT)

COMMUNICATION LINE (PAINT)

COMMUNICATION LINE (PAINT)

COMMUNICATION LINE (PAINT)

COMMUNICATION LINE (PAINT)

COMMUNICATION LINE (PAINT)

GAS LINE (PAINT)

GAS LINE (PAINT)

EXISTING 4' WOOD PICKET FENCE

4' WOOD PICKET FENCE

4' WOOD PICKET FENCE

TELECOMM BOX

IRRIGATION CONTROL BOX

WATER VALVE

BUSH ROW

BUSH (2')

BUSH (2')

4"OAK

4"TREE

8"HDPE

APPROXIMATE PROJECT LIMITS

DEMOLITION LEGEND

CONCRETE, PAVEMENT, BRICK PAVERS, WALKWAYS, & CURBING TO BE REMOVED

STORM PIPING TO BE REMOVED

ITEMS TO BE REMOVED OR RELOCATED

DEMOLITION NOTES:

- EXISTING TRASH CANS AND SIGNS SHALL BE REMOVED AND RELOCATED ON SITE BY CONTRACTOR.
- CONTRACTOR SHALL OBTAIN PERMITS FOR ADJUSTMENTS OF IRRIGATION CONTROLS.

N

GRAPHIC SCALE

10' 0' 10' 20'

SCALE: 1" = 10'

Rev.	Date	Description	Revised By
3	09/7/11	Revised Per Owner	REC
2	05/20/11	Revised Per Owner	REC
1	03/31/11	Revised Per DRB & County Comments	REC

COMMONWEALTH OF VIRGINIA ROBERT E. COSBY III LIC. NO. 35664 PROFESSIONAL ENGINEER 06/17/11

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
Phone: (757) 253-0040
Fax: (757) 220-8994
www.aesva.com
Hampton Roads | Central Virginia | Middle Peninsula

NEW TOWN
MAIN STREET TERMINUS
BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts: REC
Project Number: W06832-E-21-12
Scale: 1"=10'
Date: 03/03/11
Sheet Title: DEMOLITION PLAN
Sheet Number 02

S:\Jobs\6632\E\21-12- Main Terminus\Engineering\Plans\6632E21-12c02-demo.dwg, 6/17/2011 12:21:22 PM, matt.short

Rev.	Date	Description	Revised by
3	06/17/11	Revised Per Owner	REC
2	05/23/11	Revised Per Owner	REC
1	03/31/11	Revised Per DRB & County Comments	REC

MAIN STREET

AN ADDITIONAL 22 PARKING SPACES

EXISTING STREET AND ON-STREET PARKING

INV= 96.80 (18" RCP)

STRUCTURE #4-9A
DI
TOP=101.80 (BC)
INV IN=101.01 (GRATE)
INV= 97.24 (18" RCP)
INV= 97.94 (8" HDPE)
INV= 97.70 (12" HDPE)
PROPOSED INV= 97.45 (12" RCP)

CONTRACTOR SHALL REMOVE AND REINSTALL EXISTING BRICKS

STRUCTURE #4-12A
DI
TOP= 101.61
INV= 99.99 (6"HDPE)
INV= 99.81 (BOTTOM)

STRUCTURE #4-10A
VDOT DI-2A
RIM=102.30
INV=98.15

STRUCTURE #4-13
DI
TOP= 101.44
INV= 99.75 (8"HDPE)

BUSH ROW

4" OAK

STRUCTURE #4-12
DI
TOP= 101.56
INV= 99.53 (8"HDPE)
INV= 99.48 (8"HDPE)
INV= 99.64 (6"HDPE)
INV= 99.60 (BOTTOM)

STRUCTURE #4-11
DI
TOP= 101.46
INV= 99.33 (8"HDPE)
INV= 99.33 (6"HDPE)
INV= 98.71 (BOTTOM)

VDOT STD. CG-6

WATER VALVE

4" TREE

BUSH (2)

4" OAK

GAS LINE (PAINT)

COMMUNICATION LINE (PAINT)

TC102.60± MATCH EXIST.

2 PROPOSED SPACES @ 9' EA. = 18'

TC102.70

TC102.60 FG102.10

TC102.05 FG102.05

R5'

85 LF 12" RCP @ 1.5%

4"HDPE (APPROX. DIRECTION ONLY)

TC102.80

TC102.20 FG102.20

EXISTING STREET LIGHT

TC102.80 FG102.30

TC102.16 FG102.16

TC101.80± MATCH EXIST.

2 PROPOSED SPACES @ 9' EA. = 18'

TC101.85 FG101.85

TC101.96 FG101.96

TC102.00 FG102.00

TC102.30 FG101.80 TC102.00

R25'

TC102.80 FG102.10

TC102.73

TC102.80

TC102.70 TC102.30

R5'

TC102.45± MATCH EXIST.

EXISTING STREET LIGHT

TC103.00

TC103.10

R5'

18'

22'

TC104.00

TC103.70 FG103.20

TC103.20 FG103.20

TC103.20 FG103.20

FG103.20

FG103.70

REMOVABLE BOLLARDS (2)

REUSE EXISTING CONCRETE PAVERS

TC103.70 FG103.20

8 SPACES @ 9' EA. = 81'

VDOT STD. CG-2

TC104.30

STRUCTURE #4-10
TOP=103.30
MODIFY INLET TOP TO H-20 LOADING PER MANUFACTURER RECOMMENDATIONS
INV= 99.83 (6"HDPE)
INV= 99.83 (6"HDPE)
INV= 99.73 (12"HDPE)
INV= 99.33 (BOTTOM)

TC104.49

R25'

TC104.70

EXISTING INLET TO BE MAINTAINED

TC105.00

VDOT STD. CG-2

TC105.30

RELOCATED IRRIGATION CONTROL BOX

APPROXIMATE PROJECT LIMITS

DI
TOP= 102.68
INV= 100.66 (8"HDPE)
INV= 99.98 (BOTTOM)

44 LF 8" HDPE @ 2.0%

STRUCTURE #4-16
DI
TOP= 102.85
INV= 100.26 (8"HDPE)
INV= 100.19 (8"HDPE)
INV= 99.59 (BOTTOM)

EXISTING DI TO BE ROTATED TO NEW ALIGNMENT

TC103.00± MATCH EXIST.

TC104.00± MATCH EXIST.

STRUCTURE #4-15
VDOT DI-2A
RIM=102.80
INV=98.70

VDOT STD. CG-6

9 SPACES @ 9' EA. = 81'

TC108.03± MATCH EXIST.

EXISTING BRICK SIDEWALK TO REMAIN

COMMUNICATION LINE (PAINT)

ELECTRIC LINE (PAINT)

EXISTING 4' WOOD PICKET FENCE

STOCK PILE PINE HALL BRICK PAVERS FOR 50 S.F. OF SIDEWALK

EXTEND BRICK SIDEWALK TO LIMITS OF FENCE

ELECTRIC LINE (PAINT)

10' TEMPORARY CONSTRUCTION EASEMENT FOR VDOT IRONBOUND ROAD WIDENING

COMMUNICATION LINE (PAINT)

RELOCATED IRRIGATION CONTROL BOX

4' WOOD PICKET FENCE

EXISTING STREET LIGHT

TC105.14

EXISTING PAVILION TO REMAIN

FG104.80± MATCH EXIST.

FG104.80± MATCH EXIST.

TC106.00(HP)

ELECTRIC LINE (PAINT)

TC106.30(HP)

104.86

104.72

SOLDIER COURSE PAVERS MATCH EXISTING MATERIALS

104.73

FG104.80± MATCH EXIST.

104.55

104.50

104.62

104.47

104.67

16'

RELOCATED TELECOMM BOX BY VERIZON

TC105.78

TC106.10

INSTALL 15 LF FENCING (MATCH EXISTING)

R51'

R35'

TC105.50

TELECOMM BOX

4' WOOD PICKET FENCE

ELECTRIC LINE (PAINT)

GAS LINE (PAINT)

IRONBOUND ROAD

CONTRACTOR SHALL COORDINATE WITH VDOT PROJECT MANAGER THOMAS DRUHOTT (757) 253-5367 REGARDING ONGOING CONSTRUCTION OF IRONBOUND ROAD WIDENING.

EROSION AND SEDIMENTATION CONTROL LEGEND

IP — STORM DRAIN INLET PROTECTION (SPEC. 3.07)

NOTE:
SEE VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK FOR EROSION CONTROL SPECIFICATIONS (SPEC.) AND DETAILS.

GRAPHIC SCALE
10' 0' 10' 20'
SCALE: 1" = 10'

COMMONWEALTH OF VIRGINIA
ROBERT E. COSBY III
Lic. No. 35664
06/17/11
PROFESSIONAL ENGINEER

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
Phone: (757) 253-0040
Fax: (757) 220-8994
www.aesva.com
Hampton Roads | Central Virginia | Middle Peninsula

NEW TOWN
MAIN STREET TERMINUS

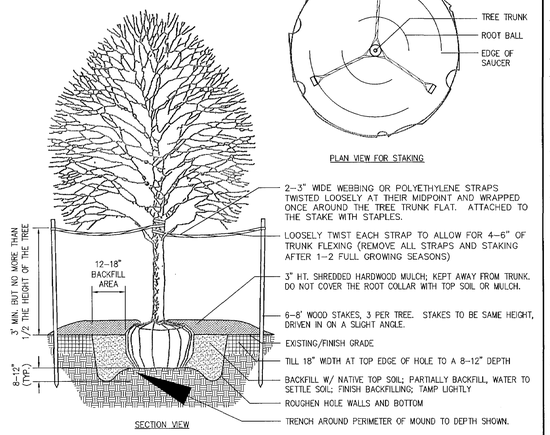
BERKELEY DISTRICT | JAMES CITY COUNTY | VIRGINIA

Project Contacts:	REC
Project Number:	W0632-E-21-12
Scale: 1"=10'	Date: 03/03/11

Sheet Title:
SITE, UTILITY, & GRADING PLAN

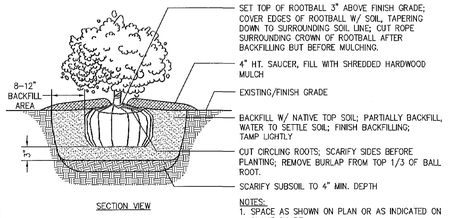
Sheet Number
03

S:\Jobs\6632\E\21-12- Main Terminus\Engineering\Plans\6632E21-12c03-site.dwg, 6/17/2011 11:31:20 AM, matt.short



DECIDUOUS TREE PLANTING

NOT TO SCALE



NOTES:
1. SPACE AS SHOWN ON PLAN OR AS INDICATED ON PLANT CHART.
2. WATER IMMEDIATELY AFTER PLANTING.

SHRUB PLANTING

NOT TO SCALE

GENERAL NOTES

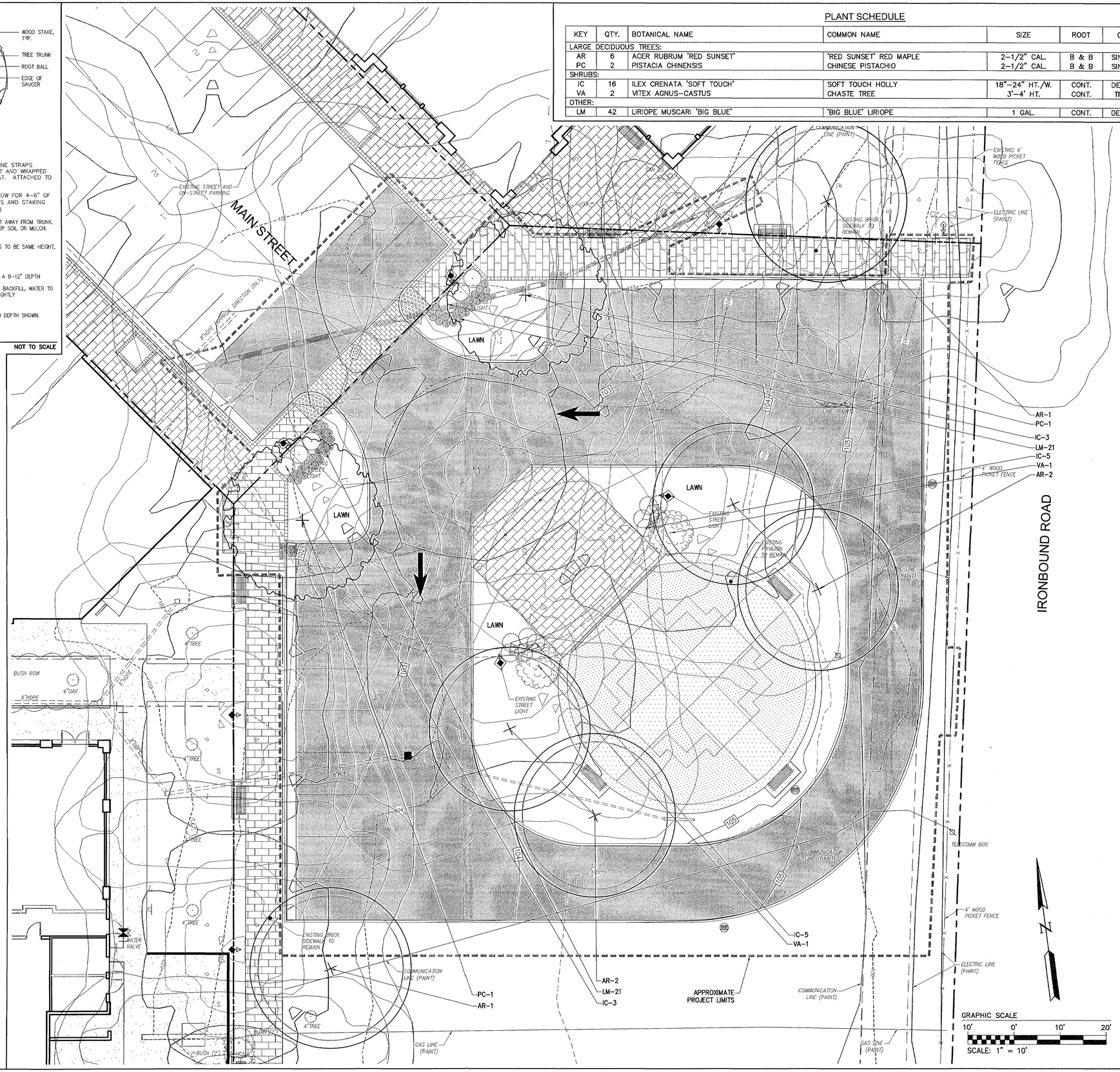
1. ALL PLANT STOCK SHALL MEET THE MINIMUM STANDARDS & SPECIFICATIONS DESCRIBED IN THE "AMERICAN STANDARD FOR NURSERY STOCK," LATEST EDITION, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
2. ALL PLANT MATERIAL SHALL BE INSTALLED AS SPECIFIED IN THE VNLA STANDARDIZED LANDSCAPE SPECIFICATIONS, LATEST EDITION.
3. THE CONTRACTOR SHALL SUPPLY ALL NEW PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE ALL PLANTING SHOWN ON THE DRAWINGS. WHERE DISCREPANCIES EXIST BETWEEN THE PLANS & THE PLANT LIST, THE PLANS SHALL TAKE PRECEDENCE.
3. GROUPINGS OF PLANTS SHALL BE MULCHED IN CONTINUOUS PLANT BEDS.
4. AREAS DISTURBED BY CONSTRUCTION, NOT OTHERWISE WITHIN PLANT BEDS OR COVERED IN SITE CONTRACT, ARE TO BE SODDED OR SEEDED WITH A STATE CERTIFIED TURF–TYPE TALL FESCUE VARIETY SELECTED FROM THE FOLLOWING LIST:

   Biltmore, Bingo, Cochise III, Constitution, Coyote II, Crossfire II, Endeavor, Fidelity, Good–en, Grande, Greenkeeper WAF, Inferno, Kalahari, Magellan, Masterpiece, Onyx, Padre, Picasso, Penn 1901, Quest, Raptor, Rebel Exeda, Rembrandt, Rendition, SR 8250, SR 8300, Tahoed, Titanium, Watchdog, Wolfpack, WPEIE.

5. TREES SUPPORT STAKING IS OPTIONAL FOR TREES THAT ARE 1" CAL. OR 6' HT. OR LESS. ALL TREE STAKING SHALL BE REMOVED AFTER 1–2 GROWING SEASONS.
9. ALL TREES ARE TO BE PLANTED SO TOP OF ROOT BALL IS 3" ABOVE FINISH GRADE.
10. TREE SHALL BE INSTALLED PLUMB & STRAIGHT.
11. PRUNE ALL SUCKERS, RUBBING OR CROSSED BRANCHES, CODOMINANT LEADERS, NARROW CROTCH ANGLES, WATER SPROUTS, BROKEN BRANCHES.
12. DO NOT PRUNE CENTRAL LEADER OR BRANCH TIPS.
13. REMOVE TAGS, LABELS & PLASTIC SLEEVING.
14. DO NOT WRAP TRUNK.
15. IF PLANT MATERIAL IS CONTAINER–GROWN, REMOVE TOP OF WIRE BASKET, OR REMOVE CONTAINER & CUT CIRCLING ROOT; IF FIELD–GROWN, CUT ROPE SURROUNDING BOTTOM OF TREE TRUNK AFTER BACKFILLING BUT BEFORE MULCHING & REMOVE BURLAP FROM TOP 1/3 OF BALL ROOT.
16. REMOVE ALL STAKES, STRAPS, WIRES, RUBBER HOSES, ETC. AFTER 1–2 GROWING SEASONS.
17. PLANT SUBSTITUTIONS WILL NOT BE MADE WITHOUT THE WRITTEN CONSENT OF THE OWNER OR THE OWNER'S DESIGNATED REPRESENTATIVE PRIOR TO INSTALLATION.
18. ALL INSTALLED PLANT MATERIAL SHALL BE SUBJECT TO REGULAR MAINTENANCE, INCLUDING FERTILIZATION, PRUNING, REPLACEMENT, INSECT AND DISEASE CONTROL, WATERING, MULCHING, AND WEED CONTROL.
19. CONTRACTORS ARE RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO THE BEGINNING OF WORK AND AVOIDING THEM DURING LANDSCAPING OPERATIONS.

PLANT SCHEDULE

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	COMMENT
LARGE DECIDUOUS TREES:						
AR	6	ACER RUBRUM 'RED SUNSET'	'RED SUNSET' RED MAPLE	2–1/2" CAL.	B & B	SINGLE STEM
PC	2	PISTACIA CHINENSIS	CHINESE PISTACHIO	2–1/2" CAL.	B & B	SINGLE STEM
SHRUBS:						
IC	16	ILEX CRENATA 'SOFT TOUCH'	SOFT TOUCH HOLLY	18"–24" HT./W.	CONT.	DENSE, FULL
VA	2	VITEX AGNUS–CASTUS	CHASTE TREE	3'–4' HT.	CONT.	TREE FORM
OTHER:						
LM	42	LIRIOPE MUSCARI 'BIG BLUE'	'BIG BLUE' LIRIOPE	1 GAL.	CONT.	DENSE, FULL



Rev.	Date	Description	Revised By
3	06/17/11	Revised Per Owner	REC
2	05/20/11	Revised Per Owner	REC
1	03/31/11	Revised Per DRB & County Comments	REC

COMMONWEALTH OF VIRGINIA 13511 GAVIN R. ROBEY LANDSCAPE ARCHITECT Lic. No. 001299 6/17/11

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
Phone: (757) 253-0040
Fax: (757) 220-8994
www.aesva.com
Hampton Roads | Central Virginia | Middle Peninsula

NEW TOWN
MAIN STREET TERMINUS

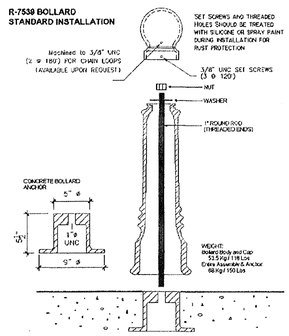
BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

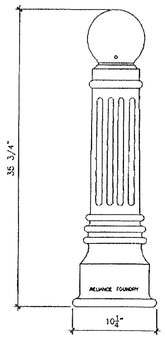
Project Contacts:	REC
Project Number:	W06632-E-21-12
Scale: 1"=10'	Date: 03/03/11

Sheet Title:
LANDSCAPE & LIGHTING PLAN

Sheet Number
04

R-7538 BOLLARD STANDARD INSTALLATION





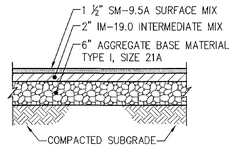
R-7539 36" BOLLARD

- BOLLARDS SHALL BE REMOVABLE
- BOLLARDS SHALL BE BY RELIANCE FOUNDRY CO. LTD. R-7539-36"
- COLOR BLACK MATTE FINISH OR APPROVED SUBSTITUTE.
- BOLLARD TO BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.

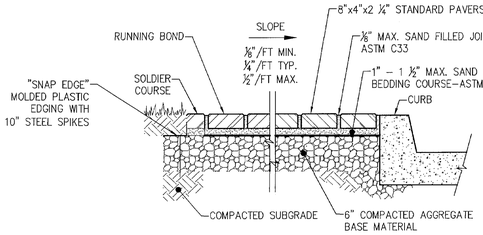
RELIANCE FOUNDRY
#207-6450 148TH STREET, SURREY, BRITISH COLUMBIA, CANADA V3S-7G7
PHONE: (604) 590-4333 FAX:(604) 590-8875
EMAIL: INFO@RELIANCE-FOUNDRY.COM

CONTRACTOR MAY SUBSTITUTE BOLLARDS WITH PERMISSION OF NEW TOWN COMMERCIAL ASSOCIATION.

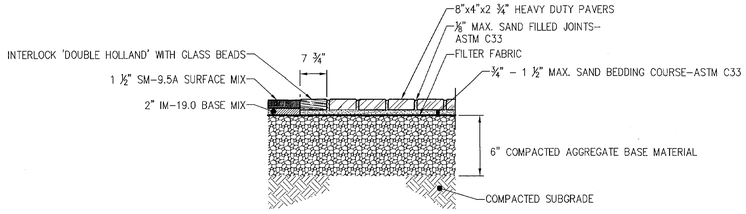
BOLLARD
N.T.S.



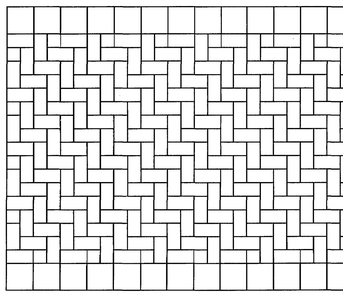
TYPICAL PARKING LOT SECTION
N.T.S.



TYPICAL BRICK SIDEWALK SECTION
N.T.S.

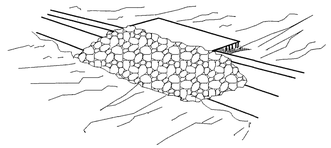


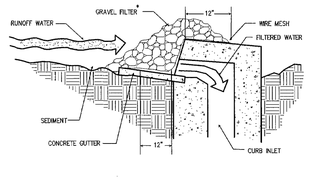
SECTION VIEW OF PAVER PATTERN FOR CROSSWALK
N.T.S.



PLAN VIEW OF PAVER PATTERN FOR CROSSWALK
N.T.S.

GRAVEL CURB INLET SEDIMENT FILTER





SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE PONDING IN FRONT OF THE STRUCTURE IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

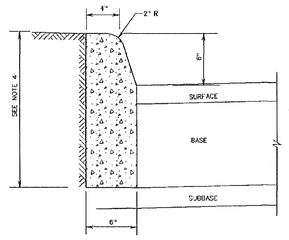
* GRAVEL SHALL BE VDOT #3, #357 OR 5 COARSE AGGREGATE.

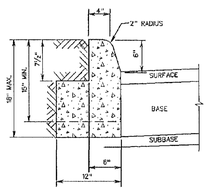
(IP)

Plate 3.07-6

CG-2

NOTES:
1. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
2. CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
3. CURB HAVING A RADIUS OF 200 FEET OR LESS ALONG FACE OF CURB WILL BE PAID FOR AS RADIAL CURB.
4. THE DEPTH OF CURB MAY BE REDUCED AS MUCH AS 3" (2H' DEPTH) OR INCREASED AS MUCH AS 5" (2H' DEPTH) IN ORDER THAT THE BOTTOM OF CURB WILL COINCIDE WITH THE TOP OF A COURSE OF THE PAVEMENT SUBSTRUCTURE. OTHERWISE, THE DEPTH IS TO BE 18" AS SHOWN. NO ADJUSTMENT IN THE PRICE BID IS TO BE MADE FOR A DECREASE OR AN INCREASE IN DEPTH.
5. CG-2 IS TO BE USED ON ROADWAYS MEETING THE REQUIREMENTS FOR CG-15 AS SHOWN IN APPENDIX A OF THE VDOT ROAD DESIGN MANUAL, IN THE SECTION ON GS URBAN STANDARDS.





ACCEPTABLE ALTERNATIVE IF CURB IS EXTRUDED

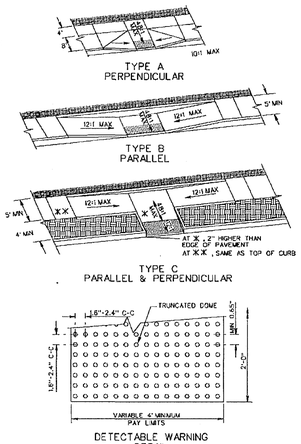
SPECIFICATION REFERENCE	STANDARD 6" CURB	VDOT ROAD AND BRIDGE STANDARDS
105 502	VIRGINIA DEPARTMENT OF TRANSPORTATION	REVISION DATE: 201.01 — SHEET 1 OF 1

CG-12

GENERAL NOTES:

1. THE DETECTABLE WARNING SHALL BE PROVIDED BY TRUNCATED DOMES.
2. DETECTABLE WARNING TO BE CLASS A-3 CONCRETE (CLASS A-4 IF PRECAST) WITH SLIP RESISTANT INTEGRAL SURFACE COVERING THE FULL WIDTH OF THE RAMP FLOOR BY 2 FOOT IN LENGTH IN THE DIRECTION OF PEDESTRIAN TRAVEL. OTHER TYPES OF MATERIAL WITH THE TRUNCATED DOMES DETECTABLE WARNING MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
3. SLOPING SIDES OF CURB RAMP MAY BE FINISHED MONOLITHICALLY WITH RAMP FLOOR OR BY USING PERMISSIBLE CONSTRUCTION JOINT WITH REQUIRED BARS.
4. IF RAMP FLOOR IS PRECAST, HOLES MUST BE PROVIDED FOR DOWEL BARS SO THAT ADJOINING FLARED SIDES CAN BE CAST IN PLACE AFTER PLACEMENT OF PRECAST RAMP FLOOR. PRECAST CONCRETE SHALL BE CLASS A-4.
5. REQUIRED BARS ARE TO BE NO. 3 X 8'-0" PLACED 1 CENTER TO CENTER ALONG BOTH SIDES OF THE RAMP FLOOR, NO DEPTH OF RAMP FLOOR MINIMUM CONCRETE COVER 1½".
6. CURB / GUTTER AND GUTTER SLOPE TRANSITIONS ADJACENT TO CURB RAMPS ARE INCLUDED IN PAYMENT FOR CURB / CURB AND GUTTER.
7. CURB RAMPS ARE TO BE LOCATED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THEY ARE TO BE PROVIDED AT INTERSECTIONS WHEREVER AN ACCESSIBLE ROUTE WITHIN THE RIGHT OF WAY OF A HIGHWAY FACILITY CROSSES A CURB REGARDLESS OF WHETHER SIDEWALK IS EXISTING, PROPOSED, OR NONEXISTENT, THEY MUST BE LOCATED WITHIN PEDESTRIAN CROSSWALKS AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER AND SHOULD NOT BE LOCATED BEHIND VEHICLE STOP LINES, EXISTING LIGHT POLES, FIRE HYDRANTS, OR OTHER OBJECTS. ACCESSIBLE ROUTES PROVIDE A CONTINUOUS UNOBSTRUCTED, STABLE, FIRM AND SLIP RESISTANT PATH CONNECTING ALL ACCESSIBLE ELEMENTS OF A FACILITY THAT CAN BE APPROACHED, ENTERED AND USED BY PEDESTRIANS.
8. RAMPS MAY BE PLACED ON RADIAL OR TANGENTIAL SECTIONS PROVIDED THAT THE CURB OPENING IS PLACED WITHIN THE LIMITS OF THE CROSSWALK AND THAT THE SLOPE AT THE CONNECTION OF THE CURB OPENING IS PERPENDICULAR TO THE CURB.
9. TYPICAL CONCRETE SIDEWALK IS 4" THICK. WHEN THE ENTRANCE RADII CANNOT ACCOMMODATE THE TURNING REQUIREMENTS OF ANTICIPATED HEAVY TRUCK TRAFFIC, REFER TO STANDARD CG-15, COMMERCIAL ENTRANCE HEAVY TRUCK TRAFFIC) FOR CONCRETE GOPTH.
10. WHEN CURB RAMPS ARE USED IN CONJUNCTION WITH A SHARED USE PATH, THE MINIMUM WIDTH SHALL BE THE WIDTH OF THE SHARED USE PATH
11. WHEN ONLY ONE CURB RAMP IS PROVIDED FOR TWO CROSSINGS (DIAGONAL), A 4'x 4' LANDING AREA SHALL BE PROVIDED TO MANEUVER A WHEELCHAIR INTO THE CROSSWALK WITHOUT GOING INTO THE TRAVELWAY. THIS 4'x 4' LANDING AREA MAY INCLUDE THE GUTTER PAN.

TRUNCATED DOME DETAIL



DETECTABLE WARNING DETAIL

TYPE A PERPENDICULAR

TYPE B PARALLEL

TYPE C PARALLEL & PERPENDICULAR

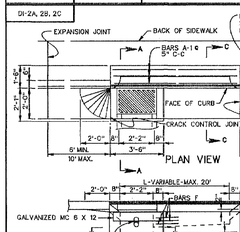
ROADWAY GRADE IN PERCENT	MINIMUM RAMP LENGTH IN FEET	
	4" CURB	6" CURB
0	4	6
1	5	7
2	5	8
3	6	9
4	8	12
5	10	15
6	14	15

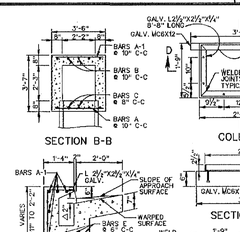
TYPE B PARALLEL APPLICATION

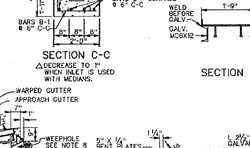
ROADWAY GRADE	DIRECTION OF TRAVEL	CROSS SLOPE
5% MAX.	ALL	2% MAX.

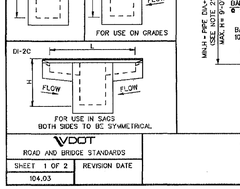
VDOT ROAD AND BRIDGE STANDARDS	CG-12 DETECTABLE WARNING SURFACE (GENERAL NOTES) VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE: 105 502
SHEET 1 OF 5 — REVISION DATE: 10/09		203.03

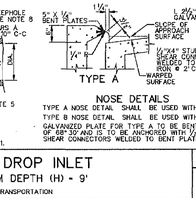
DI-2A, 2B, 2C











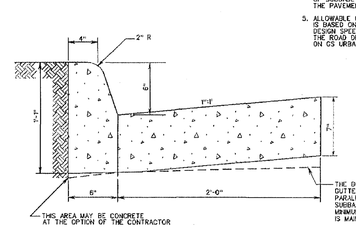
NOSE DETAILS

TYPE A NOSE DETAIL SHALL BE USED WITH CG-7 STANDARD.
TYPE B NOSE DETAIL SHALL BE USED WITH CG-6 STANDARD.
GALVANIZED PLATE FOR TYPE A TO BE BENT ON AN ANGLE OF 88° 30' AND IS TO BE ANCHORED WITH ⅞"x4" STUD SHEAR CONNECTORS WELDED TO BENT PLATE AT 2'-0" C.

VDOT ROAD AND BRIDGE STANDARDS	STANDARD CURB DROP INLET 12" - 24" PIPE: MAXIMUM DEPTH (H) - 9' VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE: 233 302
SHEET 1 OF 2 — REVISION DATE: 104.03		

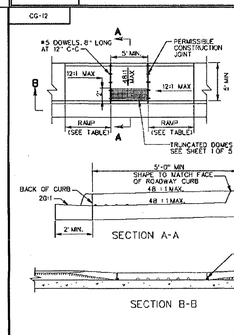
CG-6

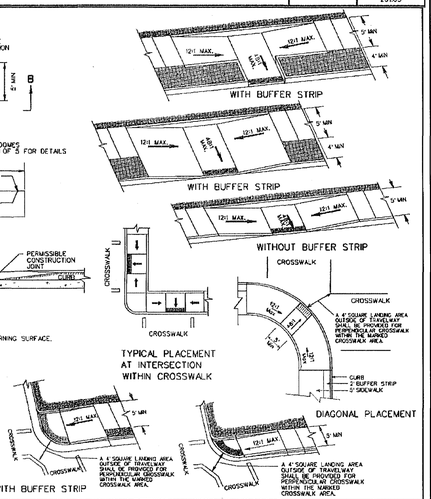
NOTES:
1. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
2. CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
3. COMBINATION CURB & GUTTER HAVING A RADIUS OF 300 FEET OR LESS ALONG FACE OF CURB SHALL BE PAID FOR AS RADIAL COMBINATION CURB & GUTTER.
4. FOR USE WITH STABILIZED OPEN-GRADED DRAINAGE LAYER, THE BOTTOM OF THE CURB & GUTTER SHALL BE CONSTRUCTED PARALLEL TO THE SLOPE OF SUBBASE COURSES AND TO THE DEPTH OF THE PAVEMENT.
5. ALLOWABLE CRITERIA FOR THE USE OF CG-6 IS BASED ON ROADWAY CLASSIFICATION AND DESIGN SPEED AS SHOWN IN APPENDIX A OF THE ROAD DESIGN MANUAL, IN THE SECTION ON GS URBAN STANDARDS.



SPECIFICATION REFERENCE	COMBINATION 6" CURB AND GUTTER VIRGINIA DEPARTMENT OF TRANSPORTATION	VDOT ROAD AND BRIDGE STANDARDS
105 502		REVISION DATE: 201.03 — SHEET 1 OF 1

CG-12





NOTES: FOR GENERAL NOTES ON THE DETECTABLE WARNING SURFACE, SEE SHEET 1 OF 5.

THE REQUIRED LENGTH OF A PARALLEL RAMP IS LIMITED TO 15 FEET, REGARDLESS OF THE SLOPE.

VDOT ROAD AND BRIDGE STANDARDS	CG-12 DETECTABLE WARNING SURFACE TYPE B (PARALLEL) APPLICATION VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE: 105 502
SHEET 3 OF 5 — REVISION DATE: 10/09		203.07

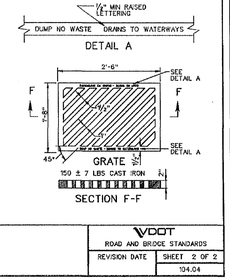
TABLE OF QUANTITIES

DI-2A, 2B, 2C

TYPE	L	REINFORCING STEEL												WEIGHT
		CONCRETE	BARS A		BARS A-1		BARS B		BARS B-1		BARS C		BARS E		BARS F		
	F'c	Cu. Yds.	No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.	Lbs.
DI-2A	2'-2"	1.71	4	3'-2"	5	3'-0"	4	3'-6"			5	2'-0"			3	1'-6"	56
	4'	1.95	4	3'-2"	5	5'-0"	4	3'-6"	3	4'-3" to 4'-6"	5	2'-0"	3	2'-0"	3	1'-6"	84
	6"	2.23	4	3'-2"	5	7'-0"	4	3'-6"	7	4'-3" to 4'-6"	5	2'-0"	3	4'-0"	3	1'-6"	119
	8"	2.50	4	3'-2"	5	9'-0"	4	3'-6"	11	4'-3" to 4'-6"	5	2'-0"	3	6'-0"	3	1'-6"	154
DI-2B	10'	2.79	4	3'-2"	5	11'-0"	4	3'-6"	15	4'-3" to 4'-6"	5	2'-0"	3	8'-0"	3	1'-6"	189
	12'	3.05	4	3'-2"	5	13'-0"	4	3'-6"	19	4'-3" to 4'-6"	5	2'-0"	3	10'-0"	3	1'-6"	224
	14'	3.34	4	3'-2"	5	15'-0"	4	3'-6"	23	4'-3" to 4'-6"	5	2'-0"	3	12'-0"	3	1'-6"	259
	16'	3.61	4	3'-2"	5	17'-0"	4	3'-6"	27	4'-3" to 4'-6"	5	2'-0"	3	14'-0"	3	1'-6"	294
	18'	3.89	4	3'-2"	5	19'-0"	4	3'-6"	31	4'-3" to 4'-6"	5	2'-0"	3	16'-0"	3	1'-6"	329
	20'	4.17	4	3'-2"	5	21'-0"	4	3'-6"	35	4'-3" to 4'-6"	5	2'-0"	3	18'-0"	3	1'-6"	364
DI-2C	6"	2.24	4	3'-2"	5	7'-0"	4	3'-6"	6	4'-3" to 4'-6"	5	2'-0"	6	2'-5"	6	1'-6"	115
	8"	2.55	4	3'-2"	5	9'-0"	4	3'-6"	10	4'-3" to 4'-6"	5	2'-0"	6	3'-7"	6	1'-6"	150
	10'	2.82	4	3'-2"	5	11'-0"	4	3'-6"	14	4'-3" to 4'-6"	5	2'-0"	6	4'-5"	6	1'-6"	185
	12"	3.09	4	3'-2"	5	13'-0"	4	3'-6"	18	4'-3" to 4'-6"	5	2'-0"	6	5'-1"	6	1'-6"	220
	14'	3.37	4	3'-2"	5	15'-0"	4	3'-6"	22	4'-3" to 4'-6"	5	2'-0"	6	6'-3"	6	1'-6"	255
	16'	3.65	4	3'-2"	5	17'-0"	4	3'-6"	26	4'-3" to 4'-6"	5	2'-0"	6	7'-1"	6	1'-6"	290
	18'	3.93	4	3'-2"	5	19'-0"	4	3'-6"	30	4'-3" to 4'-6"	5	2'-0"	6	8'-0"	6	1'-6"	325
	20'	4.20	4	3'-2"	5	21'-0"	4	3'-6"	34	4'-3" to 4'-6"	5	2'-0"	6	9'-1"	6	1'-6"	360

NOTES

1. DEPTH OF INLET (H) TO BE SHOWN ON PLANS.
2. THE "H" DIMENSION SHOWN ON THE STANDARDS AND SPECIFIED ON THE PLANS WILL BE MEASURED FROM THE INVERT OF THE OUTFALL PIPE TO THE TOP OF THE STRUCTURE PLAN "H" DIMENSIONS ARE APPROXIMATE ONLY FOR ESTIMATING PURPOSES AND THE ACTUAL DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FROM FIELD CONDITIONS.
3. WHEN SPECIFIED ON THE PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
4. IN THE EVENT THE INVERT OF THE OUTFALL PIPE IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THIS SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
5. STEPS ARE TO BE PROVIDED WHEN H IS 4'-0" OR GREATER, FOR DETAILS SEE STANDARD ST-1.
6. THIS ITEM MAY BE PRECAST OR CAST-IN-PLACE.
7. ⊕ X 8" SMOOTH DOWELS AT APPROXIMATELY 12" C-C TO BE PLACED IN ALL AREAS ADJACENT TO ADJOINING CONCRETE TO PREVENT SETTLEMENT.
8. 3" DIAMETER WEEP HOLE TO BE LOCATED TO DRAIN SUBBASE MATERIAL. WEEP HOLE WITH 12"x12" PLASTIC HARDWARE CLOTH 1/4" MESH OR 12"x12" GALVANIZED HARDWARE CLOTH WIRE DIAMETER 0.03", STAPLED TO MESH HARDWARE CLOTH ANCHORED FIRMLY TO THE OUTSIDE OF THE STRUCTURE.
9. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 2".
10. ALL REINFORCING STEEL TO BE CUT CLEAR OF ALL OPENINGS BY 2".
11. CAST-IN PLACE CONCRETE IS TO BE CLASS A3 (3000 PSI). PRECAST CONCRETE IS TO BE 4000 PSI.
12. LENGTH OF SLOT (L) WILL IN EVERY CASE, BE SHOWN ON PLANS.
13. THIS STANDARD IS INTENDED FOR USE IN CURB AND GUTTER SITUATIONS ONLY.
14. STANDARD INLETS MAY BE CONSTRUCTED WITH CONCRETE BLOCKS IN ACCORDANCE WITH THE DETAILS SHOWN ON STANDARD DRAWING DI-MB.
15. THIS AREA MAY BE EARTHEN, IN WHICH CASE THE EXPANSION JOINTS WILL APPLY ONLY TO CURB AND GUTTER.
16. CONCRETE QUANTITIES SHOWN ARE FOR DEPTH DE OF 5'-2" WITHOUT PIPES. THE AMOUNT DISPLACED BY PIPES MUST BE DEDUCTED TO OBTAIN TRU QUANTITIES FOR INLETS OF DIFFERENT DEPTHS AND DIS SUBTRACT 0.28 CUBIC YARDS OF CONCRETE FOR EACH FOOT.
17. LENGTH OF ANGLE IRON AS SHOWN ON SHEET 1 OF 2 IS for L 10" AT 4.10 LBS./FT.
18. ⊕ DENOTES LENGTH OF ONE (1) BAR.
19. ALL REINFORCING BARS TO BE #3.
20. GRATE TO BE INSTALLED SO SLOTS WILL DIRECT WATER TOWARD THE INLET THROAT.
21. MINIMUM HEIGHT = PIPE DIA. + 2'-6" WHEN PIPES ARE LOCATED UNDER EXTENDED SLOT OF INLET.
22. DUMP NO WASTE DRAINS TO WATERWAYS LETTERING IS REQUIRED ON ALL DI-2 GRATES. LOCATION OF LETTERING MAY VARY BY MANUFACTURER.



VDOT ROAD AND BRIDGE STANDARDS	STANDARD CURB DROP INLET 12" - 24" PIPE: MAXIMUM DEPTH (H)-9' VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE: 233 302
	REVISION DATE	SHEET 2 OF 2 — 104.04

Rev.	Date	Description	Revised By
3	06/17/11	Revised Per Owner	REC
2	05/20/11	Revised Per Owner	REC
1	03/31/11	Revised Per DRB & County Comments	REC

COMMONWEALTH OF VIRGINIA — ROBERT E. COSBY III — Lic. No. 35664 — PROFESSIONAL ENGINEER — 06/17/11

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, VA 23188
Phone: (757) 253-0040
Fax: (757) 220-8864
www.aesva.com
Hampton Roads | Central Virginia | Middle Peninsula

NEW TOWN
MAIN STREET TERMINUS
BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	REC
Project Number:	W06632-E-21-12
Scale: AS NOTED	Date: 03/03/11
Sheet Title:	NOTES & DETAILS
Sheet Number	05

S:\Jobs\6632\E\21-12- Main Terminus\Engineering\Plans\6632E21-12c05-detail.dwg, 6/17/2011 11:32:33 AM, matt.short

PC 173

HARDSCAPE IN FRONT OF THEATER
SOME AT MAIN STREET

SP-32-05

COUNTY OF JAMES CITY
FINAL SITE PLAN

APPROVALS		DATE
Fire Dept.	JB	8-11-05
Health Dept.		
VDOT	BW	9-19-05
Planning	A	7/19/05 8-2-05
Environ.	ST	7/19/05
Zoning Adm.	M	9-16-05
JCSA	SUM	3-30-05
County Eng.	WB	3-30-05
Attn.	MS	9-11-05
Other	CC-DB	3-30-05

VILLAGE SQUARE

NEW TOWN - SECTION 2 AND 4

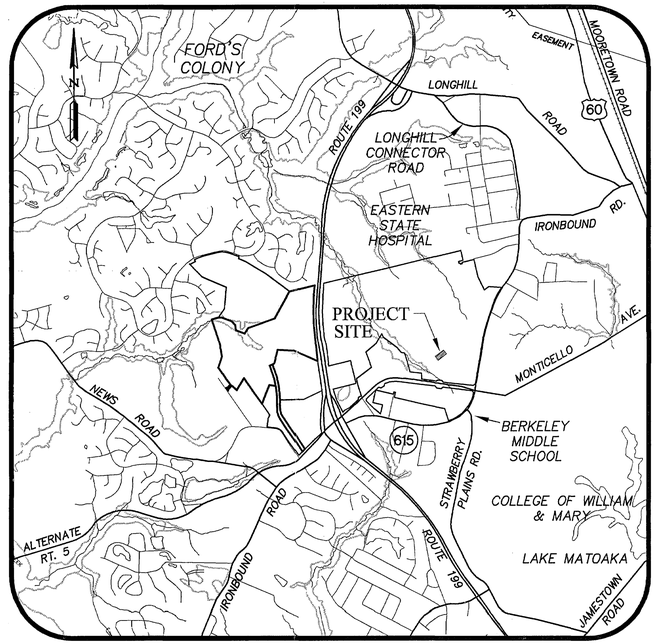
BERKELEY DISTRICT

JAMES CITY COUNTY, VIRGINIA

LEGEND

EXISTING		PROPOSED
EX. W	WATER	
EX. S	SANITARY SEWER	
	STORM SEWER	
EX. FM	FORCE MAIN	F.M.
	MANHOLE	
	CURB DROP INLET	
	YARD DROP INLET	
	FLARED END SECTION	
	VALVE	
	FIRE HYDRANT ASSEMBLY	
	BLOW-OFF VALVE	
	AIR RELEASE ASSEMBLY	
	CLEAN OUT	
	WATER METER	
	STREETLIGHT	
	CENTERLINE/BASELINE	
	RIGHT OF WAY	
	PROPERTY LINE	
	℄ DITCH/SWALE	
	CONCRETE LINED DITCH	
	EC-3 LINED DITCH	
	EXISTING TREELINE	
	LIMITS OF CLEARING	
	SILT FENCE	
	INLET PROTECTION	
	CHECK DAM	
	STRAW BALE BARRIER	
	RIP RAP	
	REVERSE ROLL TOP GUTTER	
25.1	GROUND ELEVATION	FG25.1
	PROPOSED TOP OF CURB ELEV.	TC25.1
	PROPOSED TOP STEP ELEV.	TS93.77
	PROPOSED BOTTOM STEP ELEV.	BS92.77
	GRADING LINE TIE-IN	
80	EXISTING CONTOUR ELEV.	
	PROPOSED CONTOUR ELEV.	80

INDEX OF SHEETS



VICINITY MAP
(APPROX. SCALE 1"=2000')

MARCH 23, 2005
JCC-SP-032-05
PROJECT NO.: 6632-E-19-1
SHEET 1 OF 6

PROJECT AREA = 47,260 SF 1.08 AC
IMPERVIOUS AREA = 43,438 SF 1.00 AC
DISTURBED AREA = 0 SF
AREA FULLY DISTURBED AS PART OF ON GOING PROJECTS:
PHASE III ROADS (JCC-SP-082-04)
BLOCK 6 & 7 (JCC-SP-103-04)
RETAIL PHASE 1 (JCC-SP-127-04)

ENVIRONMENTAL INVENTORY IN ACCORDANCE WITH SECTION 23-10(2) OF THE CHESAPEAKE BAY PRESERVATION ORDINANCE:

PER SITE TOPOGRAPHY, JAMES CITY COUNTY TAX MAP ATLAS, AND SITE PLAN FOR NEW TOWN SECTION 2 AND 4 ROADWAY INFRASTRUCTURE PLANS PHASE III, SHEET 10, PREPARED BY AES CONSULTING ENGINEERS, DATED JULY 6, 2004 REFERENCING THE SITE, THE FOLLOWING COMPONENTS DO NOT APPEAR TO BE PRESENT:

1. TIDAL WETLANDS
2. TIDAL SHORES
3. NONTIDAL WETLANDS IN RPA
4. A 100-FOOT BUFFER AREA LOCATED ADJACENT TO AND LANDWARD OF THE COMPONENTS LISTED IN ITEMS 1. THROUGH 3. ABOVE, AND ALONG BOTH SIDES OF ANY TRIBUTARY STREAM
5. NONTIDAL WETLANDS IN RMA
6. HYDRIC SOILS
7. SLOPES 25 PERCENT OR GREATER

COMMONWEALTH OF VIRGINIA
ROBERT C. CASEY III
No. 35664
8/23/05
PROFESSIONAL ENGINEER

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

GENERAL NOTES

1. THE SITE IS CURRENTLY ZONED MIXED USE WITH PROFFERS. FOR PROFFERS REFERENCE JCC CASE NO. Z-06-03 AND MP-04-03 APPROVED BY THE BOARD OF SUPERVISORS ON OCTOBER 14, 2003.
2. ALL UTILITIES SHALL BE PLACED UNDERGROUND.
3. CONTACT MISS UTILITY (1-800-552-7001) AT LEAST 48 HOURS IN ADVANCE FOR MARKING OF EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION OR DEMOLITION.
4. EXISTING UTILITY LOCATIONS INDICATED ARE APPROXIMATE. FIELD VERIFY PRIOR TO COMMENCING THE WORK.
5. A LAND DISTURBING PERMIT AND SILTATION AGREEMENT, WITH SURETY ARE REQUIRED FOR THIS PROJECT.
6. PARKING SPACES SHALL BE DELINEATED BY PAVEMENT STRIPING. HANDICAP PARKING SPACES SHALL BE DESIGNATED BY ABOVE GROUND SIGNS PER USBC REQUIREMENTS.
7. VERIFY ALL DIMENSIONS AND NOTIFY JAMES CITY SERVICE AUTHORITY PRIOR TO ANY EXCAVATION OR DEMOLITION WITHIN UTILITY CORRIDORS.
8. ANY EXISTING UNUSED WELLS SHALL BE ABANDONED ACCORDING TO STATE PRIVATE WELL REGULATIONS AND JAMES CITY COUNTY CODE.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF CONSTRUCTION EFFORTS WITH VIRGINIA NATURAL GAS, VIRGINIA POWER, VERIZON TELEPHONE, APPROPRIATE TELEVISION CABLE COMPANY, AND OTHERS THAT MAY BE REQUIRED.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR THE WORK INDICATED.
11. ALL NEW SIGNS SHALL BE IN ACCORDANCE WITH ARTICLE II, DIVISION 3 OF THE JAMES CITY COUNTY ZONING ORDINANCE.
12. CONTOUR INTERVAL IS 1 FOOT.
13. EVERYTHING BEYOND THE RIGHT-OF-WAY LINE WILL BE CONSIDERED PRIVATE AND NOT MAINTAINED BY VDOT.
14. THIS PROPERTY LIES IN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 500 YEAR FLOOD PLAIN) PER F.I.R.M. # 510201 0035 B DATED 2/6/91.
15. ALL COMPONENTS OF THE WATER DISTRIBUTION AND SANITARY SEWER SYSTEM SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AUTHORITY STANDARDS AND SPECIFICATIONS FOR WATER DISTRIBUTION AND SANITARY SEWER SYSTEMS, THE HRPDC REGIONAL STANDARDS, AND THE COMMONWEALTH OF VIRGINIA WATERWORKS AND SEWERAGE REGULATIONS. THE CONTRACTOR SHALL USE ONLY NEW MATERIALS, PARTS AND PRODUCTS ON ALL PROJECTS. ALL MATERIALS SHALL BE STORED SO AS TO ASSURE THE PRESERVATION OF THEIR QUALITY AND FITNESS FOR THE WORK. A COPY OF THE JCSA STANDARDS AND REGIONAL STANDARDS MUST BE KEPT ON-SITE BY THE CONTRACTOR DURING THE FULL TIME OF INSTALLING, TESTING, AND CONVEYING THE FACILITIES TO JCSA.
16. STORM STRUCTURES, SEWER AND BEDDING SHALL CONFORM TO THE VDOT ROAD AND BRIDGE STANDARDS AND VDOT SPECIFICATIONS. ALL PIPE BEDDING SHALL BE IN ACCORDANCE WITH PB-1 AND MANUFACTURER SPECS. AND GUIDELINES, AND MANHOLES DEEPER THAN 4 FEET SHALL HAVE STEPS (ST-1). ALL REINFORCED CONCRETE PIPE (RCP) SHALL BE CLASS III UNLESS OTHERWISE NOTED. STORM SEWER OUTSIDE OF VDOT R.O.W. CAN BE HIGH DENSITY POLYETHYLENE (HDPE).
17. OWNER/DEVELOPER: NEW TOWN ASSOCIATES
    4601 COURTHOUSE STREET, SUITE 329
    WILLIAMSBURG, VA 23185
    CONTACT: MR. JOHN MCCANN
    PHONE NO.: (757) 565-6200
18. SITE ADDRESS: 5206 MONTICELLO AVENUE
19. TAX PARCEL ID NO.: 3840100050
20. LEGAL DESCRIPTION: A PORTION OF 300.714 AC. BELONGING TO C.C. CASEY LTD. CO.
21. PROPERTY REF.: INSTRUMENT # 000012573, P.B.77, PG.94-96
22. AS PART OF THE JCSA DROUGHT MANAGEMENT ORDINANCE, THE PROPOSED WATER FOUNTAIN MAY BE REQUIRED TO BE SHUT DOWN DURING A DROUGHT SITUATION AS DERTERMINED BY JAMES CITY COUNTY/JCSA
23. THE PROFESSIONAL WHOSE SEAL IS AFFIXED HEREON SHALL ACT AS THE "RESPONSIBLE LAND DISTURBER" FOR PURPOSES OF PLAN APPROVAL ONLY. PRIOR TO ISSUANCE OF THE LAND DISTURBING PERMIT, THE OWNER OR DEVELOPER SHALL PROVIDE THE NAME OF A "RESPONSIBLE LAND DISTURBER" WHO SHALL ASSUME RESPONSIBILITY AS THE "RESPONSIBLE LAND DISTURBER" FOR THE CONSTRUCTION PHASE OF THE PROJECT. THE OWNER OR DEVELOPER SHALL PROVIDE WRITTEN NOTIFICATION SHOULD THE "RESPONSIBLE LAND DISTURBER" CHANGE DURING CONSTRUCTION.

ALL STORM WATER RUNOFF ASSOCIATED WITH THIS PROJECT IS COLLECTED BY EXISTING STORM DRAINS.
RUNOFF IS TREATED BY EXISTING BMP #53 (COUNTY ID# PC 173).

APPROVAL DATE	No.	DATE	REVISION / COMMENT / NOTE	BY
	3	8/23/05	REVISED PER COUNTY COMMENTS	REC
	2	7/26/05	REVISED PER OWNER AND JCC COMMENTS	REC
	1	4/18/05	REVISED PER OWNER	REC

S:\Jobs\6632\E19 Ph3 Roads\dwg\Cad\VILLAGE SQUARE\CAD\6632E19c01cover.dwg, 8/23/2005 1:30:36 PM, stc

THEATER
JCC-SP-103-04

CENTER STREET
(64' PUBLIC R/W)

BLDG 1100
FF= 101.00
JCC-SP-127-04

BLDG 1000
FF=103.00
JCC-SP-127-04

BLDG 400
FF=101.00
JCC-SP-127-04

BLDG 500
FF=103.50
JCC-SP-127-04

BLDG 600

COURTHOUSE STREET
(64' PUBLIC R/W)

COURTHOUSE STREET
(64' PRIVATE R/W)
JCC-SP-042-04

MAIN STREET
(85' PRIVATE R/W)
JCC-SP-066-05

≈ 95 LF ROOF DRAIN BY OTHERS

LIMITS OF WORK ASSOCIATED WITH PROJECT (HARDSCAPE ONLY)

UTILITY SUPPLY TO FOUNTAIN (BY OTHERS)

3' DIA. CONC. PEDESTAL BENCH SEE DETAIL (TYP.)

28' OUTER DIA. FOUNTAIN

5' BRICK AREA

5'x5' FOUNTAIN ACCESS HATCH

4" C.O. INV=98.50

30 LF 4" PVC @ 1/4"/ FT. MIN

ADJUST STORM MH
RIM=101.10
INV 4"=97.00

BENCH (TYP.)

1" WATER SERVICE
SCH 40 PVC OR
TYPE K SOFT COPPER
ADEQUATE BACKFLOW PREVENTION
SHALL BE PROVIDED INTERNAL
TO BUILDING

NO PARKING SIGN

EX. 5' UTILITY EASEMENT

LIGHT POLE (TYP.)

90 LF 4" PVC @ 1/4"/ FT. MIN (FOUNTAIN/VAULT DRAIN)

FLUSH CURB

BOLLARD SEE DETAIL (TYP.)

36 LF 4" PVC SAN LATERAL @ 1/8"/FT

RAMP

FLUSH REV CURB

TRANSITION CURB (TYP.)

VARIABLE WIDTH JCSA URBAN EASEMENT INSTRUMENT #050009867

EX. VARIABLE WIDTH JCSA URBAN EASEMENT

VARIABLE HEIGHT STEP (0" MIN, 7" MAX)

ADJUST SAN MH
RIM=101.50
HRPDC SS_06
(12" MAX ADJUSTMENT RINGS)
SAN MH# 2-5
RIM=101.26
INV IN=87.60
INV IN=87.60
INV OUT=87.50

BOLLARD WITH CHAIN SEE DETAIL

OVERFLOW DRAIN FROM FOUNTAIN SHALL BE CONNECTED TO STORM DRAIN MANHOLE VIA PVC DRAIN AS SHOWN ABOVE

GRAPHIC SCALE
20' 0' 20' 40'
SCALE: 1" = 20'

64' RIGHT-OF-WAY
VDOT STD. CG-6 CURB AND GUTTER (TYP.)
CENTERLINE
VARIES 1/4":1' 1/4":1' VARIES
PROPOSED CL GRADE
17' 34' 39' 12.5' 12.5'

SECTION A-A

VDOT STD. CG-6 CURB AND GUTTER (TYP.)
VARIES LEVEL VARIES
CONCRETE PAVERS
FLUSH CURB FLUSH CURB

SECTION B-B

6" 2" 1" 1"/FT 7"
6" 2" 1" 1/4"/FT "REVERSE" 7"

FLUSH CURB

No.	DATE	REVISION / COMMENT / NOTE	BY
3	8/23/05	REVISED PER COUNTY COMMENTS	REC
2	7/26/05	REVISED PER OWNER AND JCC COMMENTS	REC
1	4/18/05	REVISED PER OWNER	REC

COMMONWEALTH OF VIRGINIA
ROBERT E. LOSITO
No. 35664
PROFESSIONAL ENGINEER
8/23/05

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

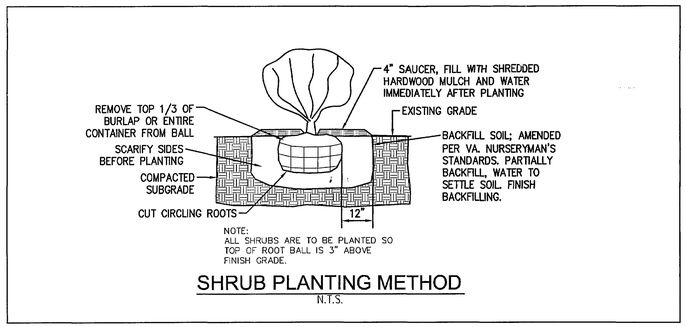
CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND

VILLAGE SQUARE
SITE PLAN AND GRADING PLAN
NEW TOWN - SECTION 2 AND 4
BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

Designed	Drawn
REC	SDC
Scale	Date
1"=20'	3/23/05
Project No.	
6632-E-19-1	
Drawing No.	
2	

S:\Jobs\6632\E\19 Phase Roads\dwg\Cad\VILLAGE SQUARE\CAD\6632E19VS02site&grading.dwg, 8/23/2005 3:38:32 PM, sdc

Numeric Summary							
Project: NEW TOWN SHOPS							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
B - VILLAGE SQUARE	Illuminance	Fc	1.95	13.4	0.0	0.00	0.00



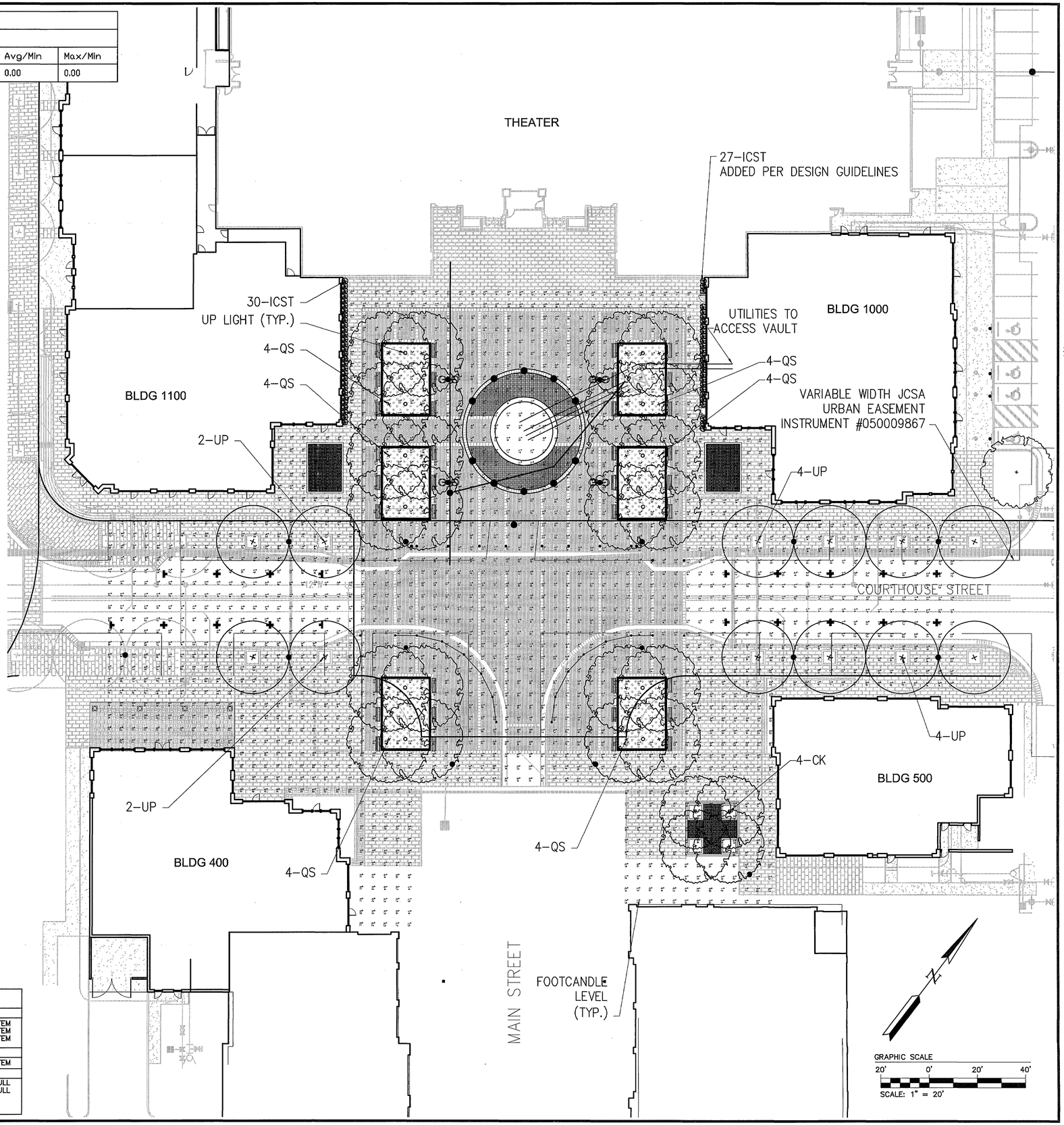
SHRUB PLANTING METHOD
N.T.S.

GENERAL NOTES:

1. ALL PLANT MATERIAL SHALL BE INSTALLED AS SPECIFIED IN THE VNLA STANDARDIZED LANDSCAPE SPECIFICATIONS, LATEST EDITION.
2. GROUPINGS OF PLANTS SHALL BE MULCHED IN CONTINUOUS BEDS.
3. AREAS NOT PLANTED, AREAS OUTSIDE EXISTING TREE LINES AND NOT COVERED IN SITE CONTRACT ARE TO BE SODDED OR SEEDED WITH AGRUM FESCUE OR APPROVED SUBSTITUTE.
4. SINGLE STEM DECIDUOUS SHADE TREES SHALL BE STAKED AS DETAILED IN TREE PLANTING METHOD.
5. PLANT SUBSTITUTIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
6. ALL INSTALLED PLANT MATERIAL SHALL BE SUBJECT TO REGULAR MAINTENANCE, INCLUDING FERTILIZATION, PRUNING, REPLACEMENT, INSECT AND DISEASE CONTROL, WATERING, MULCHING, AND WEED CONTROL.

PLANT SCHEDULE

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	COMMENT
TREES:						
CK	4	CLADRASTIS KENTUKEA	YELLOWWOOD	2-1/2" CAL.	B & B	SINGLE STEM
QS	24	QUERCUS SHUMARDII	SHUMARD OAK	4" CAL.	B & B	SINGLE STEM
UP	12	ULMUS PARVIFOLIA	CHINESE ELM	3-1/2" CAL.	B & B	SINGLE STEM
TREES:						
ICST	57	ILEX CRENATA SOFT TOUCH	SOFT TOUCH HOLLY	3 GAL.&18"HT.	B & B	SINGLE STEM
TREE WELL GROUND COVER:						
H	–	HEMEROCALLIS	DAY LILY VARIETIES	12-18"	#1 CONT.	DENSE, FULL
LM	696	LIRIOPE MUSCARI 'BIG BLUE'	'BIG BLUE' LIRIOPE	–	#1 CONT.	DENSE, FULL
Ann	1200 sf	ANNUALS/ PERENNIALS/SPRING BULBS SELECTED BY OWNER				



No.	DATE	REVISION / COMMENT / NOTE	BY
3	8/23/05	REVISED PER COUNTY COMMENTS	REC
2	7/26/05	REVISED PER OWNER AND JCC COMMENTS	REC
1	4/18/05	REVISED PER OWNER	REC

COMMONWEALTH OF VIRGINIA
JAMES S. PETERS
No. 000393
8/23/05
REGISTERED LANDSCAPE ARCHITECT

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

CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND

VILLAGE SQUARE
LANDSCAPE AND LIGHTING PLAN
NEW TOWN - SECTION 2 AND 4
BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

Designed	Drawn
JSP/SCB	SCB
Scale	Date
1"=20'	3/23/05

Project No.
6632-E-19-1
Drawing No.
3

S:\Jobs\6632\E19 Ph3 Roads\dwg\Cad\VILLAGE SQUARE\CAD\6632E19VS03land&light.dwg, 8/23/2005 1:14:41 PM, sdc

CENTER STREET
(64' PUBLIC R/W)

COURTHOUSE STREET
(64' PUBLIC R/W)

COURTHOUSE STREET
(64' PRIVATE R/W)
JCC-SP-062-04

MAIN STREET
(85' PRIVATE R/W)
JCC-SP-066-05

THEATER
JCC-SP-103-04

BLDG 1100
FF= 101.00
JCC-SP-127-

BLDG 1000
FF=103.00
JCC-SP-127-04

BLDG 400
FF=101.00
JCC-SP-127-04

BLDG 500
FF=103.50
JCC-SP-127-04

BLDG 600

75 x
23
225
150
=1725

147 x
147
61
147
882
=8967
-1400
=7567

+1725.
+7567.
+6824
16116 SF

218
38
174
658
=8324
-1500
=6824

1.5' 9.5' 1.5' 13.5' 1.5' 9.5' 1.5'

3' DIA. CONC. PEDESTAL BENCH SEE DETAIL (TYP.)

28' OUTER DIA. FOUNTAIN

4" C.O. INV=98.50

95 LF ROOF DRAIN BY OTHERS

F WORK
TED WITH PROJECT
(HARDSCAPE ONLY)

UTILITY SUPPLY TO FOUNTAIN (BY OTHERS)

ATER SERVICE
40 PVC OR
K SOFT COPPER
QUATE BACKFLOW PREVENTION
LL BE PROVIDED INTERNAL
BUILDING

ADJU
RIM=
INV 4

EX. 5' UTILITY EASEMENT

LIGHT POLE (TYP.)

NO PARKING SIGN

90 LF 4" PVC @ 1/4"/FT. MIN (FOUNTAIN/VAULT DRAIN)

FLUSH CURB

BOLLARD SEE DETAIL (TYP.)

36 LF 4" PVC SAN LATERAL @ 1/8"/FT

FLUSH REV CURB

RAMP

TRANSITION CURB (TYP.)

ADJUST SAN MH
RIM=101.50
HRPDC SS_06
(12" MAX ADJUSTMENT RINGS)
SAN MH# 2-5
RIM=101.26
INV IN=87.60
INV IN=87.60
INV OUT=87.50

BOLLARD WITH CHAIN SEE DETAIL

VARIABLE WIDTH JCSA URBAN EASEMENT INSTRUMENT #050009867

EX. VARIABLE WIDTH JCSA URBAN EASEMENT

VARIABLE HEIGHT STEP (0" MIN, 7" MAX)

OVERFLOW DRAIN FROM FOUNTAIN SHALL BE CONNECTED TO STORM DRAIN MANHOLE VIA PVC DRAIN AS SHOWN ABOVE

18+00 19+00 20+00 21+00 22+00

GRAPHIC SCALE
20' 0' 20' 40'
SCALE: 1" = 20'

64' RIGHT-OF-WAY
VDOT STD. CG-6 CURB AND GUTTER (TYP.)
CENTERLINE
VARIES 1/4":1' 1/4":1' VARIES
17'
PROPOSED CL GRADE
34'
12.5' 39' 12.5'

SECTION A-A

VDOT STD. CG-6 CURB AND GUTTER (TYP.)
VARIES LEVEL VARIES
CONCRETE PAVERS
FLUSH CURB FLUSH CURB

SECTION B-B

6" 2" 1" 1"/FT 7"
6" 2" 1" 1/4"/FT "REVERSE" 7"

FLUSH CURB

No.	DATE	REVISION / COMMENT / NOTE	BY
3	8/23/05	REVISED PER COUNTY COMMENTS	REC
2	7/26/05	REVISED PER OWNER AND JCC COMMENTS	REC
1	4/18/05	REVISED PER OWNER	REC

COMMONWEALTH OF VIRGINIA
ROBERT L. COSBY III
No. 35664
PROFESSIONAL ENGINEER
8/23/05

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

CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND

VILLAGE SQUARE
SITE PLAN AND GRADING PLAN
NEW TOWN - SECTION 2 AND 4
BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

Designed	Drawn
REC	SDC
Scale	Date
1"=20'	3/23/05
Project No.	
6632-E-19-1	
Drawing No.	
2	

S:\Jobs\6632\E19 Ph3 Roads\dwg\Cad\VILLAGE SQUARE\CAD\6632E19VSQ2site&grading.dwg, 8/23/2005 3:38:32 PM, sdc

HYDREL — SUITABLE FOR WET LOCATIONS IP68

M9710/M9730 SERIES
MODULAR IN-GRADE LUMINAIRE
SINGLE LENS

DESCRIPTION

Hydrel's M9710/M9730 Series modular in-grade lights are multi-purpose units designed for uplighting of architectural and landscape features. These units can be flushed mounted into a variety of substrates or landscape materials.

The M9710/M9730 consists of a factory-sealed, thermally protected lamp module and encapsulated power module. The components are secured inside a heavy-duty polymer rough-in housing designed with channeled connection cowling, an integral junction box, and finish door trim assembly.

FEATURES & SPECIFICATIONS

DOOR MATERIAL: Cast Aluminum, cast bronze, cast aluminum or bronze with stainless perforated trim insert or Stainless Steel. Available in round or square door trim.

ROUGH-IN SECTION: Injection molded polymer with integral junction box for thru- branch wiring. The housing is U.V. stabilized, impact and corrosion resistant for use in all types of environments. The rough-in section has a cylinder/vault configuration and houses the lamp and power module components and top door finishing section.

LAMP MODULE: Stainless steel housing, factory-sealed and purged of all moisture for longer component life. Lens is sealed with silicone gasket and stainless steel clamp band assembly with single fastener. Electrical connection to lamp module is done through a submersible quick pull plug connector with gold-plated contacts. Standard unit is thermally protected. LAMP INCLUDED

LAMP TYPE: **Incandescent:** PAR38 or T4 quartz halogen, 250 Watt max. **Fluorescent:** Compact fluorescent, 42 Watt max. **HID:** T6 or E17, 175 Watt max.
If a specific lamp is desired, specify manufacturer's lamp number. Most lamps can be supplied. LAMP INCLUDED.

VOLTAGE: See ordering guide.

DISTRIBUTIONS: See ordering guide

FINISHING SECTION: Single lens design includes door assembly with 360° Arc-Lock™ lamp module support ring. Module indexing provides easy maintenance and relamping without re-aiming. Active optical lenses are also available. Door trim locks into position with two stainless steel captive, tamper-resistant fasteners.

POWER MODULE: Ballast is encapsulated in a custom designed heat-dissipating epoxy resin that also eliminates all moisture intrusion to the ballast. Module is provided with submersible rated cord leads for connection to integral junction box and lamp module. Standard ballast is high power factor; fluorescent electronic or HID magnetic.

CONDUIT ENTRIES: Two (2) bottom or side entries available. Box suitable for through- branch wiring. Splicing volume is 25 in³ (410 cc cm)

ACCESSORIES: See ordering guide.

FINISH: Finish is natural aluminum or bronze. Stainless steel door is brushed finish. Aluminum doors may be painted. See ordering guide.

LISTING: U.L, CE

Hydrel is an ISO 9001 Certified Manufacturer

12581 Bradley Ave
Sylmar, CA 91342
Phone: 818-362-9405
Fax: 818-362-9546
www.hydrel.com

TYPE	JOB NAME
PART NUMBER	
Model / Material / Lamp Type / Voltage / Distribution / Lens	
Conduit Entry / Accessories / Gaskets / Lamp / Finishes / Listing	

Bronze or Aluminum Round — 13" Stainless Steel Round

12" DIA. (305) — 13" DIA. (330)

12" Bronze or Aluminum Square — 13" Stainless Steel Square

12" SQ. (305) — 13" SQ. (330)

15" (407) — 20" (508)

12" (305) — 12" (305)

Incandescent Rough-In housing — HID Rough-In housing

NOTE: HYDREL RESERVES THE RIGHT TO MODIFY SPECIFICATION WITHOUT NOTICE. Any dimension on this sheet is to be assumed as a reference dimension. *Used for information purposes only. It does not govern manufacturing or inspection requirements." (ANSI Y14.5-1973)

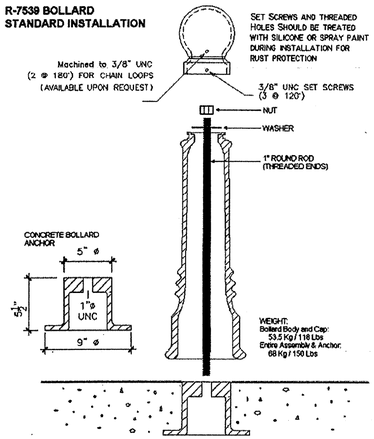
APPROVALS

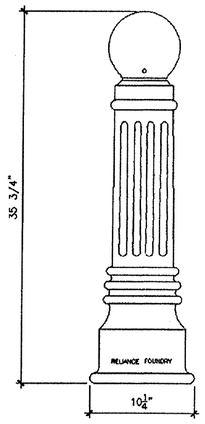
IN GROUND UP-LIGHT

FIXTURE:
HYDREL
M9710-SS-150M-120-MFL-FLC-34B-LP
150 WATT METAL HALIDE LAMP, STAINLESS STEEL, 120 VOLTS, MEDIUM FLOOD, FLAT LENS, IN GROUND RECESSED FIXTURE.

QUANTITY: 12

R-7539 BOLLARD STANDARD INSTALLATION





R-7539
36" BOLLARD

BOLLARDS:
BOLLARDS SHALL BE BY RELIANCE FOUNDRY CO. LTD.
R-7539-36"
COLOR PRATT AND LAMBERT GRAPHITE #2224 MATTE FINISH OR APPROVED SUBSTITUTE.
BOLLARD TO BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.

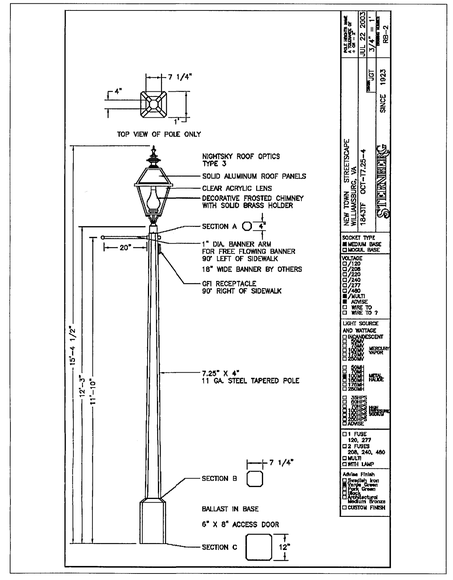
RELIANCE FOUNDRY
#207-6450 148TH STREET, SURREY, BRITISH COLUMBIA, CANADA V3S-7G7
PHONE: (604) 590-4333 FAX: (604) 590-8875
EMAIL: INFO@RELIANCE-FOUNDRY.COM

POLE:
STERNBERG 12' "NEW TOWN" 11 GA. STEEL SQUARE TAPERED POLE.
COLOR PRATT AND LAMBERT GRAPHITE #2224, MATTE FINISH.

QUANTITY: 18*

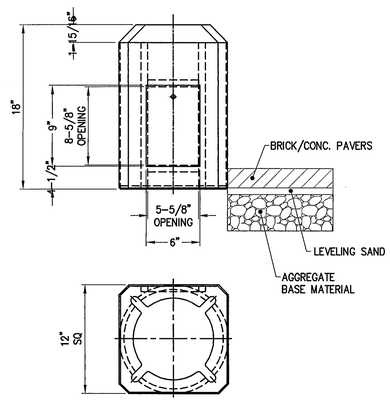
*INCLUDES FOUR POLES AROUND THE FOUNTAIN THAT WILL HAVE A DOUBLE FIXTURE CONFIGURATION.

STERNBERG POLE DETAIL

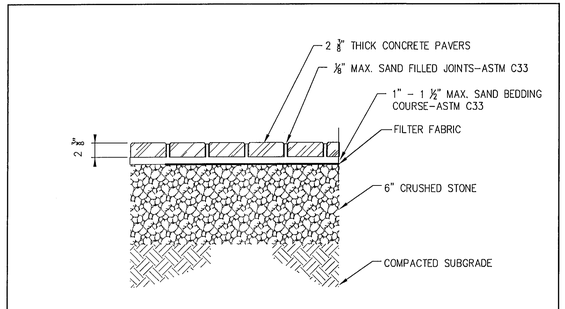


NOTES:
1.- ELECTRICAL CONDUITS SHALL MEET NEC REQUIREMENTS AND VDOT SPECIFICATIONS (SECTION 700 OF VDOT ROAD AND BRIDGE SPECIFICATIONS) AND SHALL BE A MINIMUM OF 18" BELOW GRADE. CONDUIT PULL BOXES SHALL BE CONFORMING TO VDOT ROAD AND BRIDGE STANDARD JB-3A AND SHALL BE INSTALLED IN ACCORDANCE TO VDOT SPECIFICATIONS.
2.- SIZING OF ELECTRICAL SERVICE WIRING SHALL BE THE CONTRACTORS RESPONSIBILITY AND SHALL MEET NEC REQUIREMENTS FOR APPLICATION.
3.- CONDUIT ELBOWS SHALL HAVE A 90° BEND. THE BEND RADIUS SHALL BE IN ACCORDANCE WITH THE NEC.

STERNBERG CONCEPT 100B296

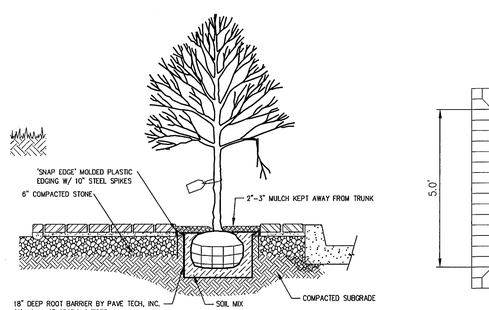


STERNBERG POLE BASE DETAIL



SECTION AT ASPHALT/ PAVER TRANSITION

SCALE: N.T.S.



SECTION AT ROAD

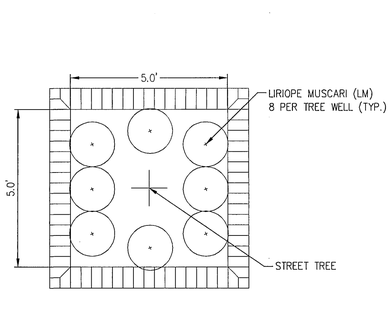
SCALE: N.T.S.

SECTION AT PEDESTRIAN AREA

SCALE: N.T.S.

SECTION AT TREE WELL (TYP.)

N.T.S.

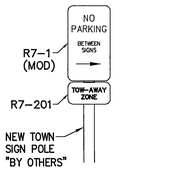


TREE WELL PLANTING DIAGRAM

N.T.S.

FIXTURE:
STERNBERG CARSON CITY
1843/175MH120/RO5/CA/BK
SOLID ROOF, 100 WATT METAL HALIDE LAMP, 120 VOLTS, HORIZONTALLY MOUNTED, RECESSED, TYPE V LAMP WITH A FROSTED CHIMNEY INSIDE A CLEAR ACRYLIC LENSE.
BLACK POWDER COAT FINISH.

QUANTITY: 22



NO PARKING SIGN DETAIL

N.T.S.

1. CHANGE "ANY TIME" TO "BETWEEN SIGNS".
2. 1 SIGN ARROW SHALL POINT LEFT, 1 SIGN ARROW SHALL POINT RIGHT.

No.	DATE	REVISION / COMMENT / NOTE	BY
3	8/23/05	REVISED PER COUNTY COMMENTS	REC
2	7/26/05	REVISED PER OWNER AND JCC COMMENTS	REC
1	4/18/05	REVISED PER OWNER	REC

COMMONWEALTH OF VIRGINIA — JAMES S. PETERS — No. 000393 — REGISTERED LANDSCAPE ARCHITECT — 8/23/05

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

CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND

VILLAGE SQUARE
NOTES AND DETAILS
NEW TOWN - SECTION 2 AND 4
BERKELEY DISTRICT — JAMES CITY COUNTY — VIRGINIA

Designed	Drawn
JSP	SCB
Scale	Date
AS SHOWN	3/23/05
Project No.	
6632-E-19-1	
Drawing No.	
4	

S:\Jobs\6632E\19 Ph3 Roads\dwg\Cad\VILLAGE SQUARE\CAD\6632E19VSO4details.dwg, 8/23/2005 1:18:17 PM, sdc

JAMES CITY COUNTY ENVIRONMENTAL DIVISION
EROSION AND SEDIMENT CONTROL NOTES
REVISED 7/6/01

THE PURPOSE OF THE EROSION CONTROL MEASURES SHOWN ON THESE PLANS SHALL BE TO PRECLUDE THE TRANSPORT OF ALL WATERBORNE SEDIMENTS RESULTING FROM CONSTRUCTION ACTIVITIES FROM ENTERING ONTO ADJACENT PROPERTIES OR STATE WATERS. IF FIELD INSPECTION REVEALS THE INADEQUACY OF THE PLAN TO CONFINE SEDIMENT TO THE PROJECT SITE, ALL APPROPRIATE MODIFICATIONS WILL BE MADE TO CORRECT ANY PLAN DEFICIENCIES. IN ADDITION TO THESE NOTES, ALL PROVISIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS SHALL APPLY TO THIS PROJECT.

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, 3RD EDITION, 1992. THE CONTRACTOR SHALL BE THOROUGHLY FAMILIAR WITH ALL APPLICABLE MEASURES CONTAINED THEREIN THAT MAY BE PERTINENT TO THIS PROJECT, INCLUDING MINIMUM STANDARDS 1 THROUGH 19. IF THE APPROVED EROSIN AND SEDIMENT CONTROL PLAN IS FOUND TO BE INADEQUATE IN THE FIELD, THE MINIMUM STANDARDS WILL APPLY IN ADDITION TO THE PROVISIONS OF THE APPROVED PLAN.

2. AS A PREREQUISITE TO APPROVAL OF AN EROSION AND SEDIMENT CONTROL PLAN FOR LAND-DISTURBING ACTIVITIES, THE NAME OF A RESPONSIBLE LAND-DISTURBER SHALL BE PROVIDED. THE RESPONSIBLE LAND-DISTURBER SHALL BE AN INDIVIDUAL WHO HOLDS A VALID CERTIFICATE OF COMPETENCE ISSUED BY THE VIRGINIA DEPARTMENT OF CONSERVATION AND IS DEFINED AS THE PERSON IN CHARGE OF AND RESPONSIBLE FOR CARRYING OUT THE LAND-DISTURBING ACTIVITY. PERMITS OR PLANS WITHOUT THIS INFORMATION ARE DEEMED INCOMPLETE AND WILL NOT BE APPROVED UNTIL PROPER NOTIFICATION IS RECEIVED. ALSO, IF THE PERSON DESIGNATED AS RESPONSIBLE LAND-DISTURBER CHANGES BETWEEN THE TIME OF PLAN APPROVAL AND THE SCHEDULED PRECONSTRUCTION MEETING, THE ENVIRONMENTAL DIVISION SHALL BE INFORMED OF THE CHANGE, IN WRITING, 24-HOURS IN ADVANCE OF THE PRECONSTRUCTION MEETING.

3. A PRECONSTRUCTION MEETING SHALL BE HELD ON SITE BETWEEN THE COUNTY, THE DEVELOPER, THE PROJECT ENGINEER, THE RESPONSIBLE LAND-DISTURBER AND THE CONTRACTOR PRIOR TO ISSUANCE OF THE LAND DISTURBING PERMIT. THE CONTRACTOR SHALL SUBMIT A SEQUENCE OF CONSTRUCTION TO THE COUNTY FOR APPROVAL PRIOR TO THE PRECONSTRUCTION MEETING. THE DESIGNATED RESPONSIBLE LAND-DISTURBER IS REQUIRED TO ATTEND THE PRECONSTRUCTION MEETING FOR THE PROJECT.

4. ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS SHALL BE PROTECTED BY A TEMPORARY CONSTRUCTION ENTRANCE TO PREVENT TRACKING OF MUD ONTO PUBLIC RIGHT-OF-WAYS. AN ENTRANCE PERMIT FROM VDOT IS REQUIRED PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN STATE RIGHT-OF-WAYS. WHERE SEDIMENT IS TRANSPORTED ONTO A PUBLIC ROAD SURFACE, THE ROAD SHALL BE THOROUGHLY CLEANED AT THE END OF EACH DAY (STD & SPEC 3.02).

5. SEDIMENT BASINS AND TRAPS (STD & SPEC 3.13 AND 3.14), PERIMETER DIKES (STD & SPEC 3.09 AND 3.12), SEDIMENT FILTER BARRIERS (STD. & AND SPEC 3.05) AND OTHER MEASURES INTENDED TO TRAP SEDIMENT ON-SITE MUST BE CONSTRUCTED AS A FIRST STEP IN GRADING AND MUST BE MADE FUNCTIONAL PRIOR TO ANY UPSLOPE LAND DISTURBANCE TAKING PLACE. EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS MUST BE SEEDED AND MULCHED IMMEDIATELY AFTER INSTALLATION.
PERIODIC INSPECTIONS OF THE EROSION CONTROL MEASURES BY THE OWNER OR OWNER'S REPRESENTATIVE SHALL BE MADE TO ASSESS THEIR CONDITION. ANY NECESSARY MAINTENANCE OF THE MEASURES SHALL BE ACCOMPLISHED IMMEDIATELY AND SHALL INCLUDE THE REPAIR OF MEASURES DAMAGED BY ANY SUBCONTRACTOR INCLUDING THOSE OF THE PUBLIC UTILITY COMPANIES.

6. 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) AND SLOPE
DRAIN (STD. & SPEC. 3.15) SHALL BE INSTALLED PRIOR TO THE END OF EACH WORKING DAY.

7. 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 PLAN.

8. THE CONTRACTOR SHALL PLACE SOIL STOCKPILES AT THE LOCATIONS SHOWN ON THE PLAN. 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.

9. 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 THE SAME (STD & SPEC 3.18). 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.

10. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAT 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

11. NO MORE THAN 300 FEET OF SANITARY SEWER, STORM DRAIN, WATER 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).

12. IF DISTURBED AREA STABILIZATION IS TO BE ACCOMPLISHED DURING THE MONTHS OF DECEMBER, JANUARY OR FEBRUARY, STABILIZATION SHALL CONSIST OF MULCHING (STD & SPEC 3.35). SEEDING WILL THEN TAKE PLACE AS SOON AS THE SEASON PERMITS.

13. THE TERM SEEDING, FINAL VEGETATIVE COVER OR STABILIZATION ON THIS PLAN SHALL MEAN THE SUCCESSFUL GERMINATION AND ESTABLISHMENT OF A STABLE GRASS COVER FROM A PROPERLY PREPARED SEEDED CONTAINING THE SPECIFIED AMOUNTS OF SEED, LIME AND FERTILIZER (STD & SPEC 3.32). IRRIGATION SHALL BE REQUIRED AS NECESSARY TO ENSURE ESTABLISHMENT OF GRASS COVER.

14. ALL SLOPES STEEPER THAN 3H:1V SHALL REQUIRE THE USE OF EROSION CONTROL BLANKETS AND MATTINGS TO AID IN THE ESTABLISHMENT OF A VEGETATIVE COVER. INSTALLATION SHALL BE IN ACCORDANCE WITH STD. & SPEC. 3.35, MULCHING, STD. & SPEC. 3.36, SOIL STABILIZATION BLANKETS AND MATTING AND MANUFACTURER'S INSTRUCTIONS. NO SLOPES SHALL BE CREATED STEEPER THAN 2H:1V.

15. INLET PROTECTION (STD & SPEC 3.07 AND 3.08) SHALL BE PROVIDED FOR ALL STORM DRAIN AND CULVERT INLETS FOLLOWING CONSTRUCTION OF THE SAME.

16. TEMPORARY LINERS, SUCH AS POLYETHYLENE SHEETS, SHALL BE PROVIDED FOR ALL PAVED DITCHES UNTIL THE PERMANENT CONCRETE LINER IS INSTALLED.

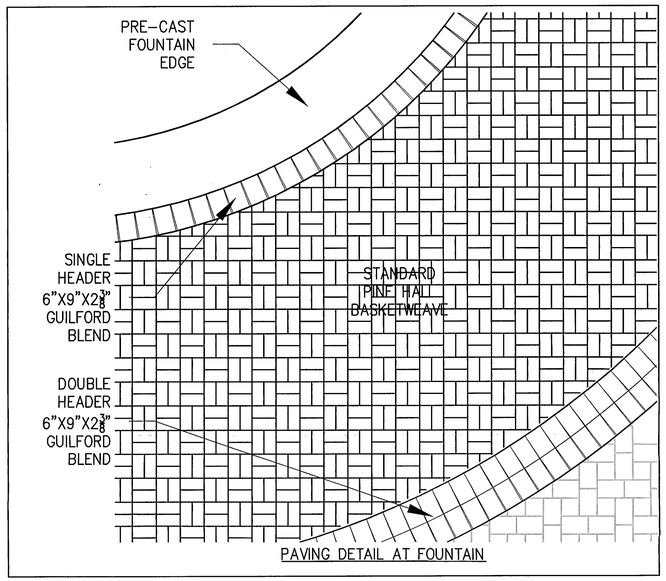
17. PAVED DITCHES SHALL BE REQUIRED WHEREVER ACCELERATED EROSION IS EVIDENT. PARTICULAR ATTENTION SHALL BE PAID TO THOSE AREAS WHERE GRADES EXCEED 3 PERCENT.

18. TEMPORARY EROSION CONTROL MEASURES SUCH AS SILT FENCE ARE NOT TO BE REMOVED UNTIL ALL DISTURBED AREAS ARE STABILIZED. TRAPPED SEDIMENT SHALL BE SPREAD, SEEDED AND MULCHED. AFTER THE PROJECT AND STABILIZATION IS COMPLETE, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS.

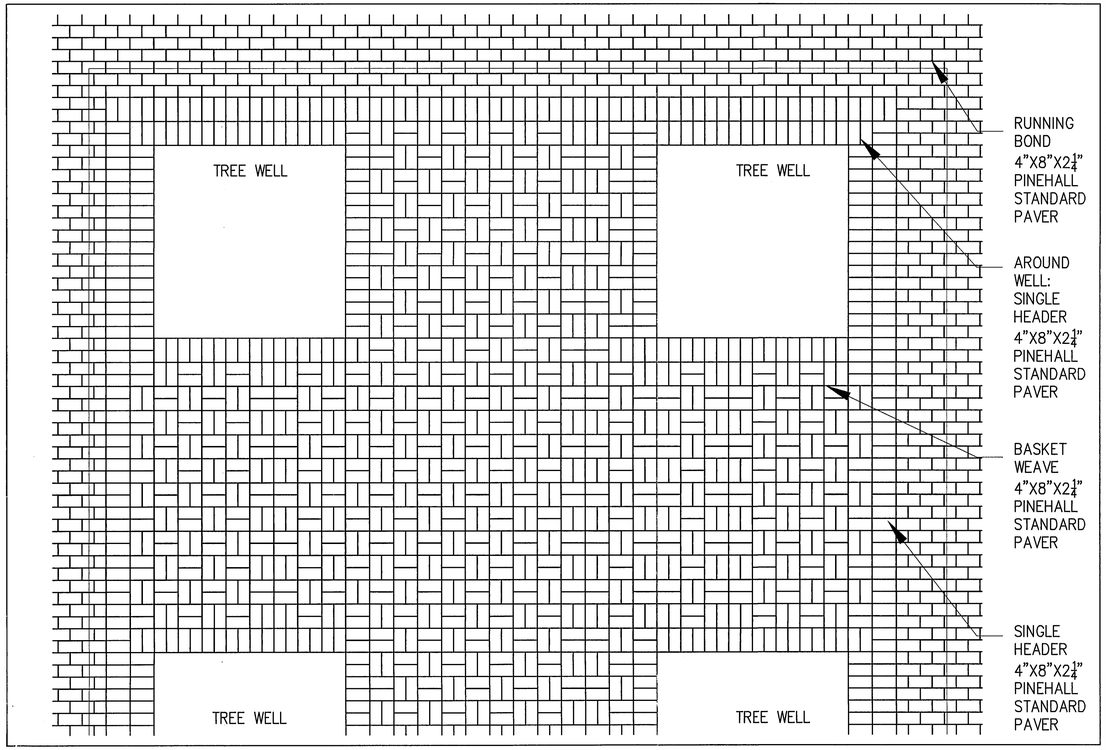
19. NO SEDIMENT TRAP OR SEDIMENT BASIN SHALL BE REMOVED UNTIL A) AT LEAST 75 PERCENT OF THE LOTS WITHIN THE DRAINAGE AREA TO THE TRAP OR BASIN HAVE BEEN SOLD TO A THIRD PARTY (UNRELATED TO THE DEVELOPER) FOR THE CONSTRUCTION OF HOMES AND/OR B) 60 PERCENT OF THE SINGLE FAMILY LOTS WITHIN THE DRAINAGE AREA TO THE TRAP OR BASIN HAVE BEEN COMPLETED AND THE SOIL STABILIZED. A BULK SALE OF THE LOTS TO ANOTHER BUILDER DOES NOT SATISFY THIS PROVISION. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL NOT BE REMOVED WITHOUT THE EXPRESS AUTHORIZATION OF THE JAMES CITY COUNTY ENVIRONMENTAL DIVISION.

20. RECORD DRAWINGS (AS-BUILTS) AND CONSTRUCTION CERTIFICATIONS ARE BOTH REQUIRED FOR NEWLY CONSTRUCTED OR MODIFIED STORMWATER MANAGEMENT/BMP FACILITIES. CERTIFICATION ACTIVITIES SHALL BE ADEQUATELY COORDINATED AND PERFORMED BEFORE, DURING AND FOLLOWING CONSTRUCTION IN ACCORDANCE WITH THE CURRENT VERSION OF THE JAMES CITY COUNTY ENVIRONMENTAL DIVISION, STORMWATER MANAGEMENT/BMP FACILITIES, RECORD DRAWING AND CONSTRUCTION CERTIFICATION, STANDARD FORMS & INSTRUCTIONS.

21. DESIGN AND CONSTRUCTION OF PRIVATE-TYPE SITE DRAINAGE SYSTEMS OUTSIDE VDOT RIGHTS-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT VERSION OF THE JAMES CITY COUNTY ENVIRONMENTAL DIVISION, STORMWATER DRAINAGE CONVEYANCE SYSTEMS (NON-BMP RELATED), GENERAL DESIGN AND CONSTRUCTION GUIDELINES.

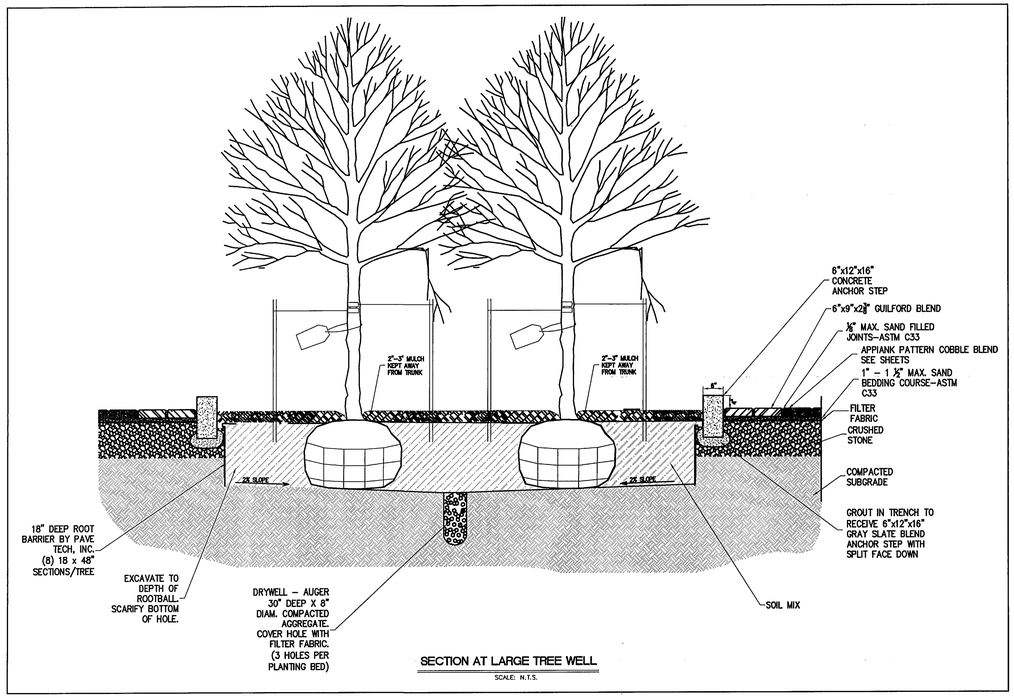


PAVING DETAIL AT FOUNTAIN

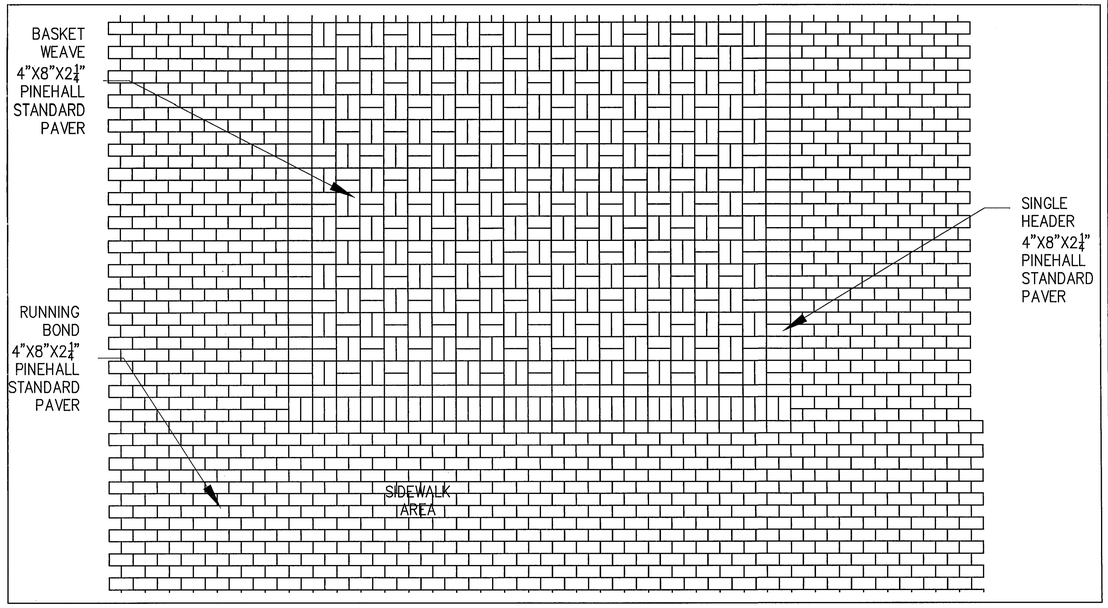


PAVING DETAIL AT SMALL TREE WELLS

PINE HALL, STANDARD PAVER
FULL RANGE, ENGLISH EDGE.
4"x8"2¼"., BASKET WEAVE PATTERN.



SECTION AT LARGE TREE WELL
SCALE: N.T.S.



PAVING DETAIL AT PAVER SQUARE AREA

No.	DATE	REVISION / COMMENT / NOTE	BY
3	8/23/05	REVISED PER COUNTY COMMENTS	REC
2	7/26/05	REVISED PER OWNER AND JCC COMMENTS	REC
1	4/18/05	REVISED PER OWNER	REC

COMMONWEALTH OF VIRGINIA
JAMES S. PETERS
No. 000393
8/23/05
REGISTERED PROFESSIONAL ENGINEER

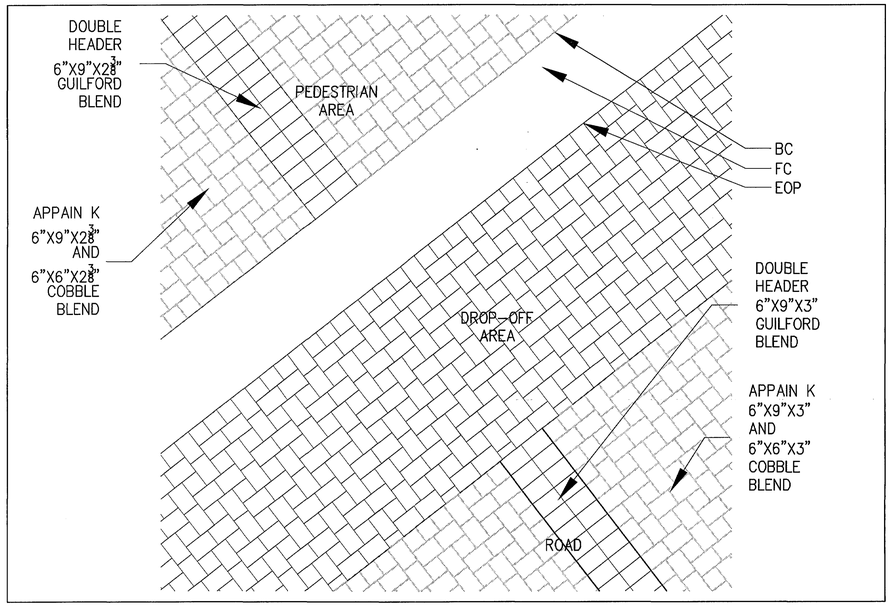
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994

CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND

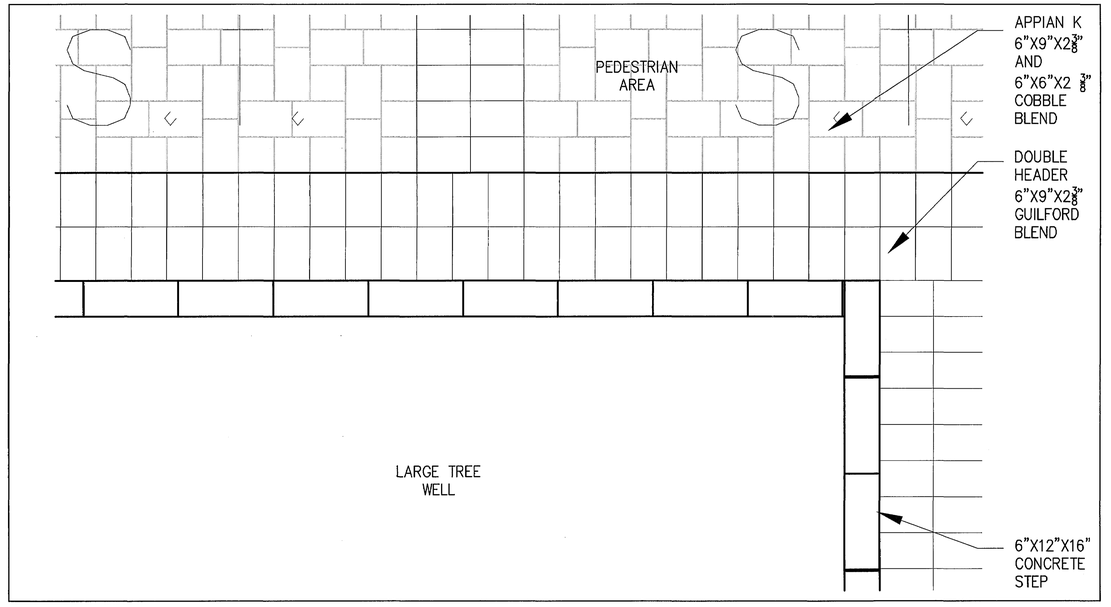
VILLAGE SQUARE
NOTES AND DETAILS
NEW TOWN - SECTION 2 AND 4
BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

Designed	Drawn
JSP/SCB	SCB
Scale	Date
N.T.S.	3/23/05
Project No.	
6632-E-19-1	
Drawing No.	
6	

S:\Jobs\6632\E\19 Phs3 Roads\dwg\Cad\VILLAGE SQUARE\CAD\6632E19VSD6detailsS2.dwg, 8/23/2005 1:22:42 PM, sdc



TYPICAL PAVING DETAIL AT TRANSITION BETWEEN PEDESTRIAN AND VEHICULAR AREAS



TYPICAL PAVING DETAIL AT LARGE TREE WELL

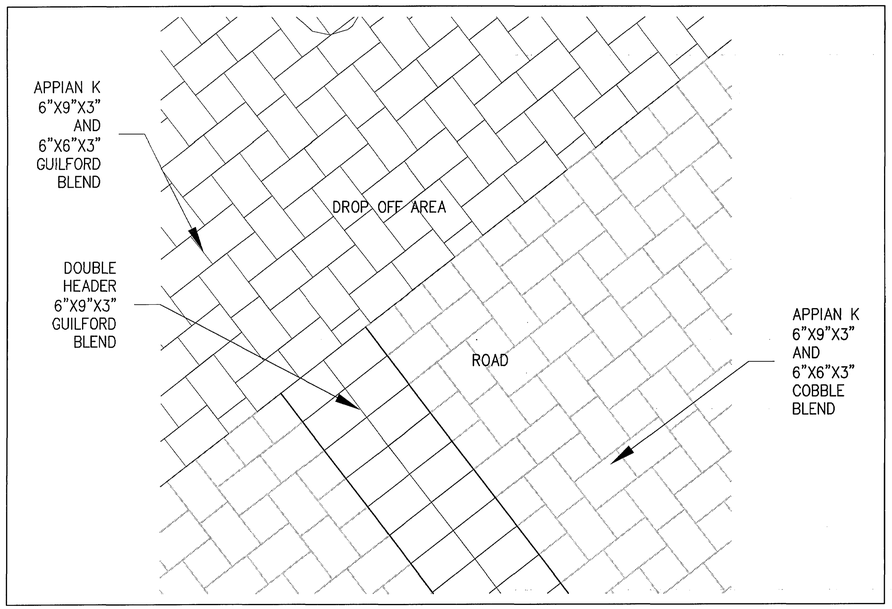
BELGARD/ GORIA ENTERPRISES/ CAMBRIDGE.
6"x9"2 3/8" (OR 6"x9"3" FOR ROAD APPLICATIONS).
COBBLE BLEND,
APPIAN K PATTERN.

BELGARD GORIA ENTERPRISES CAMBRIDGE
6"x9"2 3/8" (OR 6"x9"3" FOR ROAD APPLICATIONS).
GUILFORD BLEND,
DOUBLE HEADER.

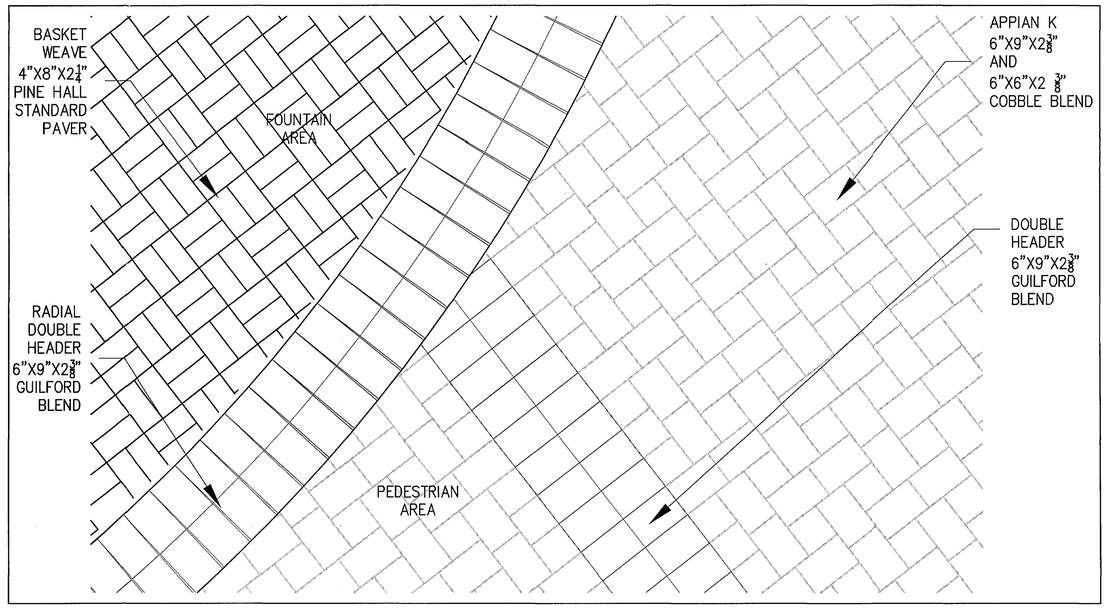
BELGARD/ GORIA ENTERPRISES/ CAMBRIDGE
6"x9x3". GUILFORD BLEND
APPIAN K PATTERN.

PINE HALL, STANDARD PAVER
FULL RANGE, ENGLISH EDGE.
4"x8"2 1/4"., BASKET WEAVE PATTERN.

ANCHOR STEP
6"x12"16". GRAY SLATE BLEND FINISH,
SINGLE HEADER.



TYPICAL PAVING DETAIL AT TRANSITION BETWEEN DROP OFF AND ROAD AREAS



TYPICAL PAVING DETAIL AROUND FOUNTAIN

No.	DATE	REVISION / COMMENT / NOTE	BY
3	8/23/05	REVISED PER COUNTY COMMENTS	REC
2	7/26/05	REVISED PER OWNER AND JCC COMMENTS	REC
1	4/18/05	REVISED PER OWNER	REC

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

CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND

COMMONWEALTH OF VIRGINIA
JAMES S. PETERS
No. 000393
8/23/05
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE SQUARE
NOTES AND DETAILS
NEW TOWN - SECTION 2 AND 4
BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

Designed	Drawn
JSP/SCB	SCB
Scale	Date
AS SHOWN	3/23/05
Project No.	
6632-E-19-1	
Drawing No.	
5	

S:\Jobs\6632\E\19 Ph3 Roads\dwg\Cad\VILLAGE SQUARE\CAD\6632E19VSD5details.dwg, 8/23/2005 1:21:11 PM, stc

I HEREBY CERTIFY TO THE BEST OF MY JUDGEMENT, KNOWLEDGE, AND BELIEF THAT THE INFORMATION SHOWN HEREON IS ACCURATE AND CORRECT. THE INFORMATION SHOWN IS BASED ON AN ACTUAL FIELD SURVEY PERFORMED BY AES CONSULTING ENGINEERS ON OCTOBER 15, 2008.

ROBERT D. MANN, L.S. #002509 — DATE 10/15/08

COMMONWEALTH OF VIRGINIA
ROBERT D. MANN
NO. 002509
10/15/08
LAND SURVEYOR

RECEIVED
SEP 17 2009
ENVIRONMENTAL DIVISION

No.	DATE	REVISION / COMMENT / NOTE	REVISED BY	REVIEWED BY

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

AES CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND • GLOUCESTER

BMP MAINTENANCE AND INSPECTION REQUIREMENTS

THE EMBANKMENT SHOULD BE MOWED PERIODICALLY DURING THE GROWING SEASON, ENSURING THAT THE LAST CUTTING OCCURS AT THE END OF THE SEASON. THE GRASS SHOULD NOT BE CUT LESS THAN 6 TO 8 INCHES IN HEIGHT.

IF NECESSARY, THE EMBANKMENT SHOULD BE LIMED, FERTILIZED AND SEEDED IN THE FALL, AFTER THE GROWING SEASON. LIME AND FERTILIZER APPLICATION RATES SHOULD BE CONSISTENT WITH THAT ORIGINALLY SPECIFIED ON THE CONSTRUCTION PLANS.

ALL EROSION GULLIES NOTED DURING THE GROWING SEASON SHOULD BE BACKFILLED WITH TOPSOIL, RESEEDED AND PROTECTED (MULCHED) UNTIL VEGETATION IS ESTABLISHED.

ALL BARE AREAS AND PATHWAYS ON THE EMBANKMENT SHOULD BE PROPERLY SEEDED AND PROTECTED (MULCHED) OR OTHERWISE STABILIZED TO ELIMINATE THE POTENTIAL FOR EROSION.

ALL ANIMAL BURROWS SHOULD BE BACKFILLED AND COMPACTED.

ALL TREES, WOODY VEGETATION AND OTHER DEEP-ROOTED GROWTH, INCLUDING STUMPS AND ASSOCIATED ROOT SYSTEMS, SHOULD BE REMOVED FROM THE EMBANKMENT AND ADJACENT AREAS EXTENDING TO AT LEAST 25 FEET BEYOND THE EMBANKMENT TOE AND ABUTMENT CONTACTS. THE ROOT SYSTEMS SHOULD BE EXTRACTED AND THE EXCAVATED VOLUME REPLACED AN COMPACTED WITH MATERIAL SIMILAR TO THE SURROUNDING AREA. ALL SEEDLINGS SHOULD BE REMOVED AT THE FIRST OPPORTUNITY. SIMILARLY, ANY VINE COVER AND BRUSH SHOULD BE REMOVED FROM THE EMBANKMENT TO ALLOW FOR INSPECTIONS.

ANY REPAIRS MADE TO THE PRINCIPAL SPILLWAY (RISER OR BARREL) SHALL BE REVIEWED BY A PROFESSIONAL ENGINEER. VERTICAL TRENCHING TO EXPOSE THE BARREL SHALL NOT BE ALLOWED UNDER ANY CIRCUMSTANCES. THE TRENCH SIDE SLOPES SHOULD BE STEPPED BACK AT A 2:1 SLOPE, MINIMUM.

TRASH AND DEBRIS SHOULD BE REMOVED FROM BASIN EVERY 3 MONTHS AND DISPOSED OF PROPERLY.

OUTLET STRUCTURES SHALL BE CHECKED MONTHLY OR AFTER MAJOR RAINFALL EVENTS (GREATER THAN 1") AND ANY ACCUMULATED DEBRIS REMOVED FROM STRUCTURES.

INV.=65.21
INV.=64.75
EX. 42" RCP
EX. 42" RCP
EX. 15" RCP
EX. STM MH RIM=81.84
EX. 60" RCP
EX. SAN MH RIM=78.77
EX. STM MH RIM=76.85
EX. OUTFALL STRUCTURE 16' WEIR ELEV=76.62 8" ORIFICE ELEV=66.84
8" INV=66.84
EX. 8" PVC
EX. FLAT TOP STORM STRUCTURE TOP=71.98 GRATE RIM=71.97 BTM INV=64.11 "FULL OF WATER"
NEW TOWN AVENUE
EX. 12"RCP INV=64.36
RIP RAP
EX. 18"RCP w/FES INV=66.45
EX. 60"RCP INV=61.34
GRAVEL WALKING PATH
DRY-STACKED RETAINING WALL TOP=71.75
EX. RETAINING WALL
DRY-STACKED RETAINING WALL TOP=72.34
EX. STM MH RIM=81.87 INV=72.00
WSE=66.84
DRY-STACKED RETAINING WALL TOP=72.88
DRY-STACKED RETAINING WALL TOP=73.58
DRY-STACKED RETAINING WALL TOP=74.27
DRY-STACKED RETAINING WALL TOP=74.46
EX. SAN MH. RIM=80.46
GRAVEL WALKING PATH
SUNTRUST BUILDING
RIP RAP
EX. 42"RCP INV=63.06
EX. RETAINING WALL
TOWNE BANK
EX. FLAT TOP STORM STRUCTURE TOP=77.38 ACCESS MH RIM=78.07 INV IN (15")=73.07 INV IN (42")=72.72 INV OUT=66.11
RIP RAP
FG68.41
FG72.28
FG72.80
FG68.96
FG72.92
FG72.82
WSE=72.80
RIP RAP
JAMES CITY COUNTY GEODETIC GROUND CONTROL NETWORK
VIRGINIA STATE PLANE COORDINATE SYSTEM SOUTH ZONE (NAD83)
N
GRAPHIC SCALE
20' 0' 20' 40'
SCALE: 1" = 20'

NOTE:
VERTICAL DATUM
JAMES CITY COUNTY GEODETIC CONTROL NETWORK (N6VD23)

MODIFICATION TO CONVERT TO WET POND

SP-38-07 PC173

BMP RECORD DRAWING
BMP 53 CONVERSION
NEW TOWN
SECTION 2 & 4
BERKELEY DISTRICT — JAMES CITY COUNTY — VIRGINIA

Designed	Drawn
REC	SDC
Scale	Date
1"=20'	10/15/08
Project No.	
6632E10-4	
Drawing No.	
1	

I HEREBY CERTIFY TO THE BEST OF MY JUDGEMENT, KNOWLEDGE, AND BELIEF THAT THE INFORMATION SHOWN HEREON IS ACCURATE AND CORRECT. THE INFORMATION SHOWN IS BASED ON AN ACTUAL FIELD SURVEY PERFORMED BY AES CONSULTING ENGINEERS ON OCTOBER 15, 2008.

ROBERT D. MANN, L.S. #002509 — 10/15/08 DATE

COMMONWEALTH OF VIRGINIA
ROBERT D. MANN
NO. 002509
10/15/08
LAND SURVEYOR

No.	DATE	REVISION / COMMENT / NOTE	REVISED BY	APPROVED BY

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

CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND • GLOUCESTER

BMP RECORD DRAWING
BMP 53 CONVERSION
NEW TOWN
SECTION 2 & 4

JAMES CITY COUNTY — VIRGINIA
BERKELEY DISTRICT

Designed	Drawn
REC	SDC
Scale	Date
1"=20'	10/15/08
Project No.	
6632E10-4	
Drawing No.	
1	

NEW TOWN AVENUE

EX. 42" RCP
EX. 42" RCP
EX. 15" RCP
EX. STM MH RIM=81.64
EX. 60" RCP
EX. STM MH RIM=76.85
EX. SAN MH RIM=78.77
EX. OUTFALL STRUCTURE 16' WEIR ELEV=76.62 8" ORIFICE ELEV=66.84
8" INV=66.84
EX. 8" PVC
EX. FLAT TOP STORM STRUCTURE TOP=71.98 GRATE ROM=71.92 BTM INV=64.11 "FULL OF WATER"
Dim 72.00
Inv Out 0
60"
GRAVEL WALKING PATH
EX. 12"RCP INV=64.36
EX. 60"RCP INV=61.34
RIP RAP
EX. 18"RCP w/FES INV=66.45
DRY-STACKED RETAINING WALL TOP=71.75
EX. RETAINING WALL
DRY-STACKED RETAINING WALL TOP=72.34
DRY-STACKED RETAINING WALL TOP=72.88
DRY-STACKED RETAINING WALL TOP=73.58
DRY-STACKED RETAINING WALL TOP=74.27
DRY-STACKED RETAINING WALL TOP=74.46
EX. STM MH RIM=81.87 INV=72.00
WSE=66.84
(D-66.94)
PC173
DESIGN BOTTOM 55.50
(* ENV DIV THEY KNEW TOWN NOT EXCAV TO D-55.50)
D.H.W EL. 80.93 (CN=88)
N.P. 66.94
EX. 42"RCP INV=63.06
42" ACTIVITY SITE
EX. FLAT TOP STORM STRUCTURE TOP=77.36 ACCESS MH RIM=78.07 INV IN (15")=73.17 INV IN (42")=72.72 INV OUT=66.11
TOWNE BANK
EX. RETAINING WALL
EX. SAN MH RIM=90.46
GRAVEL WALKING PATH
SUNTRUST BUILDING
FG68.41
FG72.28
FG72.80
FG68.96
FG72.82
FG72.82
WSE=72.80
(D-73.9') D-bottom 69.0
RIP RAP
RIP RAP
WAIVER ISSUED FOR FB62'.
REVIEW SET

JAMES CITY COUNTY GEODETIC GROUND CONTROL NETWORK
VIRGINIA STATE PLANE COORDINATE SYSTEM SOUTH ZONE (NAD83)

GRAPHIC SCALE
20' 0' 20' 40'
SCALE: 1" = 20'

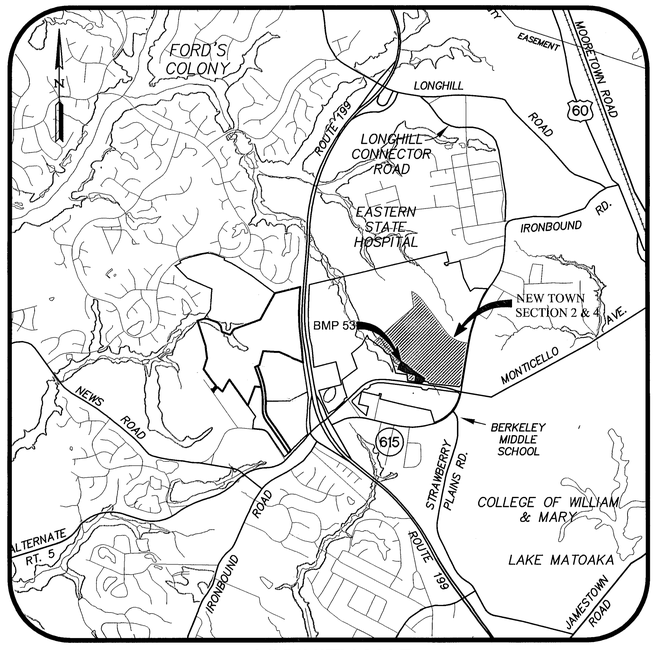
NOTE:
VERTICAL DATUM
JAMES CITY COUNTY GEODETIC CONTROL NETWORK (N6VD23)

S:\Jobs\6632E\E10-4-BMP Conv\dwg\SurfRecord\6632-E10-4H topo As-Bit.dwg, 2/19/2009 8:46:42 AM, mike.apperson

SP. 0038. 2007

SITE PLAN
FOR
BMP 53 CONVERSION
NEW TOWN
SECTION 2 & 4

BERKELEY DISTRICT
JAMES CITY COUNTY, VIRGINIA



VICINITY MAP
(APPROX.. SCALE 1"=2000')

APRIL 05, 2007
PROJECT NO.: 6632-E-10-4
SHEET 1 OF 6
JCC-SP-0038-07

COMMONWEALTH OF VIRGINIA
ROBERT E. DOOBY III
No. 35664
08/20/07
PROFESSIONAL ENGINEER

LEGEND

EXISTING		PROPOSED
EX. W	WATER	
EX. S	SANITARY SEWER	
	STORM SEWER	
EX. FM	FORCE MAIN	F.M.
	MANHOLE	
	CURB DROP INLET	
	YARD DROP INLET	
	FLARED END SECTION	
	VALVE	
	FIRE HYDRANT ASSEMBLY	
	BLOW-OFF VALVE	
	AIR RELEASE ASSEMBLY	
	CLEAN OUT	
	WATER METER	
	STREETLIGHT	
	CENTERLINE/BASELINE	
	RIGHT OF WAY	
	PROPERTY LINE	
	℄ DITCH/SWALE	
	CONCRETE LINED DITCH	
	EC-3 LINED DITCH	
	EXISTING TREELINE	
	LIMITS OF CLEARING	
	SILT FENCE	
	INLET PROTECTION	
	CHECK DAM	
	STRAW BALE BARRIER	
	RIP RAP	
	REVERSE ROLL TOP GUTTER	
25.1	GROUND ELEVATION	EG25.1
	PROPOSED TOP OF CURB ELEV.	TC25.1
	PROPOSED TOP STEP ELEV.	TS93.77
	PROPOSED BOTTOM STEP ELEV.	BS92.77
	GRADING LINE TIE-IN	
80	EXISTING CONTOUR ELEV.	
	PROPOSED CONTOUR ELEV.	80

INDEX OF SHEETS

GENERAL NOTES

1. THE SITE IS CURRENTLY ZONED MIXED USE WITH PROFFERS. FOR PROFFERS REFERENCE JCC CASE NO. Z-06-03 AND MP-04-03 APPROVED BY THE BOARD OF SUPERVISORS ON OCTOBER 14, 2003.
2. ALL UTILITIES SHALL BE PLACED UNDERGROUND.
3. CONTACT MISS UTILITY (1-800-552-7001) AT LEAST 48 HOURS IN ADVANCE FOR MARKING OF EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION OR DEMOLITION.
4. EXISTING UTILITY LOCATIONS INDICATED ARE APPROXIMATE. FIELD VERIFY PRIOR TO COMMENCING THE WORK.
5. A LAND DISTURBING PERMIT AND SILTATION AGREEMENT, WITH SURETY ARE REQUIRED FOR THIS PROJECT.
6. VERIFY ALL DIMENSIONS AND NOTIFY JAMES CITY SERVICE AUTHORITY PRIOR TO ANY EXCAVATION OR DEMOLITION WITHIN UTILITY CORRIDORS.
7. ANY EXISTING UNUSED WELLS SHALL BE ABANDONED ACCORDING TO STATE PRIVATE WELL REGULATIONS AND JAMES CITY COUNTY CODE.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF CONSTRUCTION EFFORTS WITH VIRGINIA NATURAL GAS, DOMINION VIRGINIA POWER, VERIZON TELEPHONE, APPROPRIATE TELEVISION CABLE COMPANY, AND OTHERS THAT MAY BE REQUIRED.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR THE WORK INDICATED.
10. CONTOUR INTERVAL IS 1 FOOT.
11. EVERYTHING BEYOND THE RIGHT-OF-WAY LINE WILL BE CONSIDERED PRIVATE AND NOT MAINTAINED BY VDOT.
12. THIS PROPERTY LIES IN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 500 YEAR FLOOD PLAIN) PER F.I.R.M. # 510201 0035 B DATED 2/6/91.
13. STORM STRUCTURES, SEWER AND BEDDING SHALL CONFORM TO THE VDOT ROAD AND BRIDGE STANDARDS AND VDOT SPECIFICATIONS. ALL PIPE BEDDING SHALL BE IN ACCORDANCE WITH PB-1 AND MANUFACTURER SPECS. AND GUIDELINES, AND MANHOLES DEEPER THAN 4 FEET SHALL HAVE STEPS (ST-1). ALL REINFORCED CONCRETE PIPE (RCP) SHALL BE CLASS III UNLESS OTHERWISE NOTED.
14. OWNER/DEVELOPER: NEW TOWN ASSOCIATES, L.L.C.
    CONTACT: JOHN McCANN
    PHONE NO.: (757) 565-6200
    FAX NO.: (757) 565-6291
15. TAX PARCEL ID NO.: 3842400001A
16. LEGAL DESCRIPTION: CA BMP PARCEL 1 PORTION OF FORMER PARCEL 2 NEW TOWN
17. PROPERTY REF.: 040009441
18. THE PROFESSIONAL WHOSE SEAL IS AFFIXED HEREON SHALL ACT AS THE "RESPONSIBLE LAND DISTURBER" FOR PURPOSES OF PLAN APPROVAL ONLY. PRIOR TO ISSUANCE OF THE LAND DISTURBING PERMIT, THE OWNER OR DEVELOPER SHALL PROVIDE THE NAME OF A "RESPONSIBLE LAND DISTURBER" WHO SHALL ASSUME RESPONSIBILITY AS THE "RESPONSIBLE LAND DISTURBER" FOR THE CONSTRUCTION PHASE OF THE PROJECT. THE OWNER OR DEVELOPER SHALL PROVIDE WRITTEN NOTIFICATION SHOULD THE "RESPONSIBLE LAND DISTURBER" CHANGE DURING CONSTRUCTION.
19. THIS PROJECT IS LOCATED IN JAMES CITY COUNTY SUB WATERSHED 208 (LOWER CHISEL RUN) AND CATCHMENT 208-103-1 OF THE POWHATAN CREEK WATERSHED.
20. THE CONTRACTOR SHALL SATISFY HIMSELF AS TO ALL SITE CONDITIONS PRIOR TO CONSTRUCTION
21. BENCHMARK: STATION NO. 325, EASTING(X) 11995286.983, NORTHING(Y) 3628200.301, ELEVATION=110.67
    HORIZONTAL DATUM: JAMES CITY COUNTY
    GEODETIC CONTROL NETWORK
    VA. STATE PLANE COORDINATE
    SYSTEM - SOUTH ZONE
    NAD 083 (1994 VA HARN)

    VERTICAL DATUM: JAMES CITY COUNTY
    GEODETIC CONTROL NETWORK
    NGVD 29
22. THE PROJECT AREA IS 2.91 AC. (PARCEL AREA)
23. THE DISTURBED AREA FOR THIS PROJECT IS 1.66 AC.
24. EXCESSIVE TOPSOIL AND SUBGRADE MATERIAL SHALL BE REMOVED AND PROPERLY DISPOSED. IN A STATE APPROVED FACILITY MEETING THE REQUIREMENTS OF ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
25. ⚠2 EXISTING TRASH AND DEBRIS SHALL BE REMOVED AND DISPOSED PROPERLY. IN A STATE APPROVED FACILITY MEETING THE REQUIREMENTS OF ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
26. JAMES CITY COUNTY BMP ID CODE IS PC 173 FOR BMP 53.

VDOT WILL HAVE NO MAINTENANCE RESPONSIBILITY FOR THE BMP AND SHALL BE SAVED HARMLESS FROM ANY DAMAGE CAUSED BY FAILURE OF THE BASIN OR ITS OUTFALL STRUCTURE.

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

APPROVAL DATE	No.	DATE	REVISION / COMMENT / NOTE	BY
	⚠2	8/20/07	REVISED PER JCC COMMENTS	REC
	1	6/27/07	REVISED PER JCC COMMENTS DATED 5/29/07	REC

NOTES:

1. THIS PROPERTY LIES IN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 500 YEAR FLOOD PLAIN) PER F.I.R.M. # 510201 0035 B DATED 2/6/91.
2. BY SOIL SURVEY, NO HYDRIC SOILS EXIST ON THIS SITE.
3. THERE ARE NO KNOWN RTE SPECIES OR SMALL WHORLED POGONIA POPULATIONS ON THIS SITE. THE NEAREST KNOWN INDIVIDUAL PLANT IS APPROXIMATELY 2500 FT±. NORTHWEST OFF PROJECT SITE. THE NEAREST KNOWN COLONY IS APPROXIMATELY 3000 FT±. WEST OF PROJECT SITE.

ENVIRONMENTAL INVENTORY IMPACTS

TIDAL WETLANDS:	NONE ON SITE
TIDAL SHORES:	NONE ON SITE
NON-TIDAL WETLANDS IN RPA:	NONE ON SITE
100 FT RPA BUFFER:	NONE ON SITE
NON-TIDAL WETLANDS IN RMA:	1.25 AC.
25% SLOPE IMPACTS	0.01 AC.

SOIL No.	SOIL NAME	TYPICAL SLOPES	EROSION FACTOR (K)	EROSION FACTOR (T)
11C	CRAVEN YELLOW FINE SANDY LOAM	2–10%	0.32–0.37	3
15E	EMPORIA BROWN FINE SANDY LOAM	2–50%	0.20–0.28	4

INFORMATION TAKEN FROM "SOIL SURVEY OF JAMES CITY AND YORK COUNTIESAND THE CITY OF WILLIAMSBURG, VIRGINIA" ISSUED IN APRIL, 1985, BY THE UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICEIN COOPERATION WITH VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY.

SOIL SUSCEPTIBILITY TO EROSION CLASSIFICATION (K)
0.23 AND LOWER – LOW ERODIBILITY
0.23 TO 0.36 – MODERATE ERODIBILITY
0.36 AND UP – HIGH ERODIBILITY

THE MAP SHOWN IS A "BEST FIT MODEL" OF THE SCS MAPS WITH EXISTING BASE INFORMATION.

DENOTES HIGHLY ERODIBLE SOILS / CRITICAL EROSION AREAS

DENOTES 25% OR GREATER SLOPES (NOTE ALL 25% SLOPES ARE TEMPORARY MANMADE SLOPES)

DENOTES 25% OR GREATER SLOPE IMPACTS (NOTE ALL 25% SLOPES ARE TEMPORARY MANMADE SLOPES)

No.	DATE	REVISION / COMMENT / NOTE	REVISED BY
2	08/20/07	REVISED PER JCC COMMENTS	REC
1	06/27/07	REVISED PER JCC COMMENTS DATED 5/29/07	REC
			REC

COMMONWEALTH OF VIRGINIA
ROBERT E. COSIFF
3564
PROFESSIONAL ENGINEER
08/20/07

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

CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND • GLOUCESTER

ENVIRONMENTAL INVENTORY SHEET
BMP 53 CONVERSION
NEW TOWN
SECTION 2 & 4
BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

Designed	Drawn
REC	SDC
Scale	Date
1" = 30'	04/05/07
Project No.	
6632E10–4	
Drawing No.	
2	

GRAPHIC SCALE
30' 0' 30' 60'
SCALE: 1" = 30'

N

CONTRACTOR SHALL PROVIDE SILT FENCE DOWNSTREAM OF STAGING AREA.

CONTRACTOR SHALL PROVIDE TREE PROTECTION ADJACENT TO EXISTING TREES TO REMAIN.

CONTRACTOR SHALL PROVIDE DUST CONTROL AS NECESSARY.

⚠ DEWATERING OPERATIONS SHALL FOLLOW PROVISIONS OF MINIMUM STANDARD AND SPECIFICATION 3.26 OF THE VESCH.

EXISTING 3 PHASE — SEQUENCE PANEL FOR ORION 2

EX. SAN MH RIM=82.91 INV=66.17

"TRAIL CLOSED" SIGN

NEW TOWN AVENUE (VARIABLE WIDTH PUBLIC R/W)

ROUTE 1P

EX. SS #2-20 DI-2E, L=8' RIM=83.20 INV=75.40

EX. DI-2A RIM=84.60 INV=79.60

EX. 1 PHASE TRANSFORMER

EX. SAN MH RIM=84.50 INV=76.50

EX. DI-2A RIM=84.64 INV=79.91

REMOVE AND REPLACE 20 LF OF SIDEWALK

EX. DI-3D, L=6' RIM=81.90 INV=75.40

EX. SS #2-2 MH-1 RIM=81.50 INV=72.00

SINGLE PHASE ELECTRICAL SERVICE FOR FUTURE AERATOR FOUNTAIN OPTION 2

EX. SS #2-1C DI-2G, L=8' RIM=82.76 INV=75.60

EX. SS #2-1D DI-2C, L=6' RIM=82.76 INV=76.50

STAGING AND STORAGE AREA

DEWATERING STRUCTURE DISCHARGE TO EXISTING OUTLET STRUCTURE

EX. SAN MH RIM=78.57 INV=66.55

DI-1 RIM=72.00 INV=64.00

EX. MH-1 TO BE REPLACED WITH 72" MH RIM=72.00 INV=68.80

87 LF OF 60" RCP INCLUDING FLARED END @ 7.82%

EXISTING TRAIL LIMITS OF CONSTRUCTION

END OF WALL EG=68.00

BLOCK 5 JCC-SP-029-03

EX. DI-4B, L=14' RIM=82.90 INV=74.00

CONSTRUCTION PARKING AND EQUIPMENT STORAGE AREA RESTRICTED TO THIS AREA

TOP WALL=72.00 BOTTOM WALL=68.00

4' SEGMENTAL BLOCK RETAINING WALL WITH FENCE DESIGN BY OTHERS (WALL AND FENCE SHALL MATCH ADJACENT EXISTING WALL AND FENCE) REQUIRES BUILDING PERMIT OBTAINED BY CONTRACTOR

EXISTING RETAINING WALL

EX. DI-4B, L=4' RIM=85.80 INV=75.50

CONTRACTOR SHALL REPAIR ANY DAMAGE TO THE TRAIL UPON COMPLETION OF CONSTRUCTION

TOP WALL=72.00 BOTTOM WALL=68.00

COOLING TOWER PAD ELEV=81.0

EX. SAN MH RIM=80.47 INV=68.26

SUNTRUST JCC-SP-029-03

END OF WALL EG=72.00

11.5' AQUATIC BENCH

127' RCP @ 2.56%

⚠ RIPE END INV=65.00

EX. 18" FES INV=65.00

60" FES INV=62.00

EX. 60" FES AND 61 LF OF 60" RCP TO BE REMOVED

⚠ INSTALL CLASS 1 RIP-RAP 30 CY.

INSTALL CLASS 1 RIP-RAP 30'Lx20'Wx18" DEEP ⚠ 17 CY.

EX. SS #3-2 MH-1 RIM=82.00 INV=72.00

⚠ INSTALL CLASS 1-RIP-RAP 30'Lx20'Wx18" DEEP 17 CY.

INV=63.00

SECTION A-A SEE DETAIL SHEET 6

38 LF 42" RCP @ 7.63%

SEDIMENT FOREBAY

SECTION B-B SEE DETAIL SHEET 6

CONTRACTOR IS REQUIRED TO SWEEP NEW TOWN AVENUE FROM SITE TO MONTICELLO DAILY OR AS NEEDED IN ACCORDANCE WITH VESCH

3 PHASE ELECTRICAL SERVICE FOR FUTURE AERATOR FOUNTAIN OPTION 1

APPROX. LOCATION EXIST. TRANSFORMER

EX. RETAINING WALL MAINTAIN EXISTING GRADE AT BASE OF WALL

FLAT TOP MH-1 RIM=77.00 INV IN (15")=72.00 INV IN (42")=72.55 INV OUT=65.90

15 LF 42" RCP @ 3.24%

14 LF 15" HDPE @ 6.67%

EC-2 MATTING

⚠ CONCRETE SPILLWAY

⚠ EC-2 MATTING

CLEARING LIMITS

TP

INSTALL CLASS I RIP-RAP WITH FILTER FABRIC 30' L x 10' W x 18" DEEP 17 CY.

EX. SAN MH RIM=85.05 INV OUT=74.88

"TRAIL CLOSED" SIGN

COURTHOUSE STREET (VARIABLE WIDTH PUBLIC R/W)

OUTLET PROTECTION 24 CY CLASS I RIP-RAP UPSTREAM W=10' DOWNSTREAM W=25' L=25' 18" DEEP

EX. 42" FES INV=79.00

EX. SS #1-2 DI-2FF, L=6' RIM=89.74 INV=80.00

EX. SAN MH RIM=86.84 INV=75.90

TOWNE BANK JCC-SP-131-04

EX. MH RIM=86.66 INV=79.00

EASEMENTS DENOTED AS "JCSA UTILITY EASEMENTS" ARE FOR THE EXCLUSIVE USE OF THE JAMES CITY SERVICE AUTHORITY AND THE PROPERTY OWNER. OTHER UTILITY SERVICE PROVIDERS DESIRING TO USE THESE EASEMENTS WITH THE EXCEPTION OF PERPENDICULAR UTILITY CROSSINGS MUST OBTAIN AUTHORIZATION FOR ACCESS AND USE FROM JCSA AND THE PROPERTY OWNER. ADDITIONALLY, JCSA SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGE TO IMPROVEMENTS WITHIN THIS EASEMENT , FROM ANY CAUSE.

SEE PLANTING PLAN FOR CONSERVATION LAWN AND LAWN SEEDING AREAS. SEE SHEET 6 FOR SEEDING MIXTURES.

⚠ ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF PROPERLY IN BORROW PIT, LANDFILL, OR OTHER APPROVED LOCATION WITH AN ADEQUATE EROSION AND AND SEDIMENT CONTROLS AND ABILITY TO ACCEPT MATERIALS.

MONTICELLO AVENUE (VARIABLE WIDTH PUBLIC R/W)

GRAPHIC SCALE
30' 0' 30' 60'
SCALE: 1" = 30'

N

No.	DATE	REVISED BY
1	08/20/07	REC
	06/27/07	REC
	REVISED PER JCC COMMENTS DATED 5/29/07	REC
	REVISED PER JCC COMMENTS	REC

REVISION / COMMENT / NOTE

COMMONWEALTH OF VIRGINIA ROBERT E. CROSBY III 35684 PROFESSIONAL ENGINEER 08/20/07

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

CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND • GLOUCESTER

GRADING & DRAINAGE & EROSION AND SEDIMENT CONTROL PLAN

BMP 53 CONVERSION NEW TOWN SECTION 2 & 4

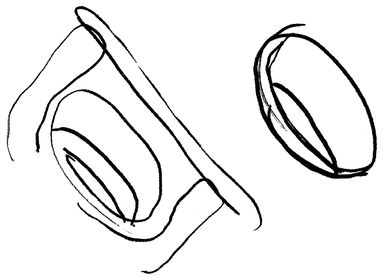
JAMES CITY COUNTY VIRGINIA

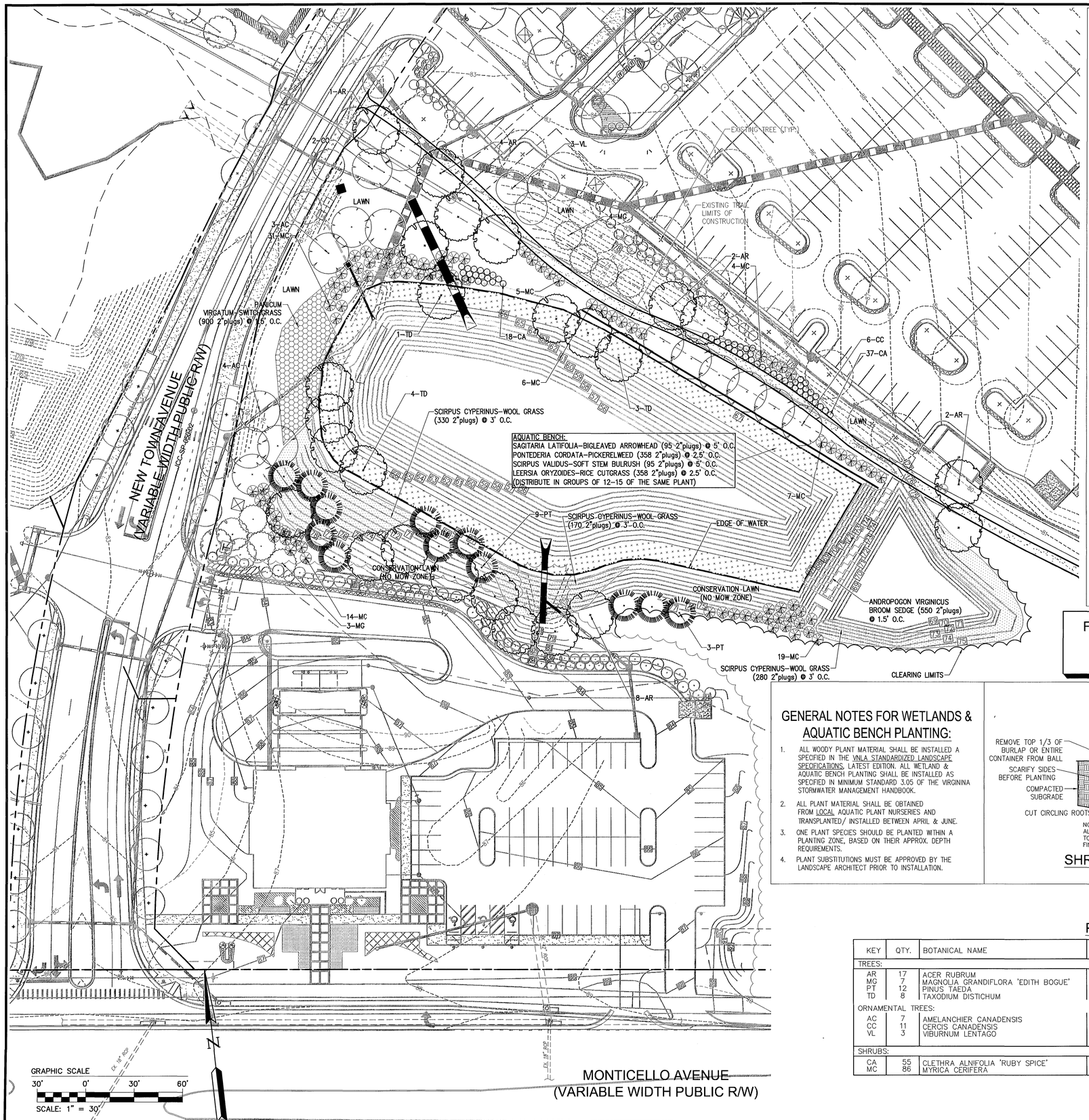
BERKELEY DISTRICT

Designed	Drawn
REC	SDC
Scale	Date
1" = 30'	04/05/07

Project No. 6632E10-4

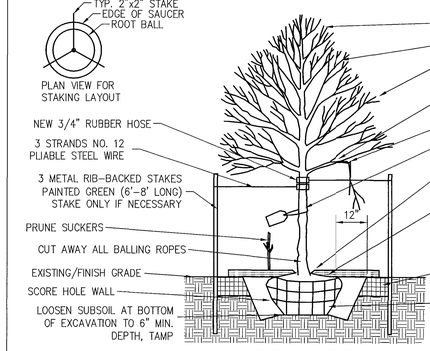
Drawing No. 3





TYP. 2"x2" STAKE
EDGE OF SAUCER
ROOT BALL

PLAN VIEW FOR STAKING LAYOUT



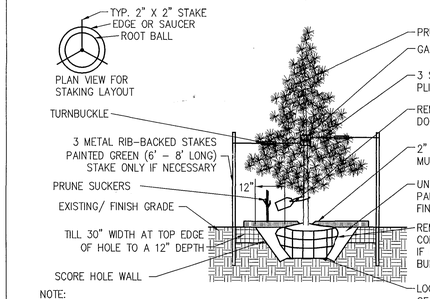
NOTE:
ALL TREES ARE TO BE PLANTED SO TOP OF ROOT BALL IS 2–3" ABOVE FINISH GRADE.

DECIDUOUS TREE PLANTING METHOD

N.T.S.

TYP. 2" X 2" STAKE
EDGE OR SAUCER
ROOT BALL

PLAN VIEW FOR STAKING LAYOUT



NOTE:
ALL TREES ARE TO BE PLANTED SO TOP OF ROOT BALL IS 2–3" ABOVE FINISH GRADE.

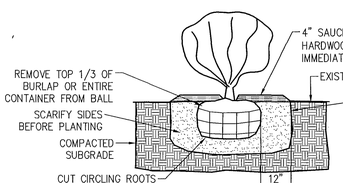
EVERGREEN TREE PLANTING METHOD

N.T.S.

FINAL PLANT LOCATION TO BE ESTABLISHED ON-SITE BY LANDSCAPE ARCHITECT.

GENERAL NOTES FOR WETLANDS & AQUATIC BENCH PLANTING:

1. ALL WOODY PLANT MATERIAL SHALL BE INSTALLED A SPECIFIED IN THE VNLA STANDARDIZED LANDSCAPE SPECIFICATIONS, LATEST EDITION. ALL WETLAND & AQUATIC BENCH PLANTING SHALL BE INSTALLED AS SPECIFIED IN MINIMUM STANDARD 3.05 OF THE VIRGININA STORMWATER MANAGEMENT HANDBOOK.
2. ALL PLANT MATERIAL SHALL BE OBTAINED FROM LOCAL AQUATIC PLANT NURSERIES AND TRANSPLANTED/ INSTALLED BETWEEN APRIL & JUNE.
3. ONE PLANT SPECIES SHOULD BE PLANTED WITHIN A PLANTING ZONE, BASED ON THEIR APPROX. DEPTH REQUIREMENTS.
4. PLANT SUBSTITUTIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.



NOTE:
ALL SHRUBS ARE TO BE PLANTED SO TOP OF ROOT BALL IS 3" ABOVE FINISH GRADE.

SHRUB PLANTING METHOD

N.T.S.

GENERAL NOTES:

1. ALL PLANT MATERIAL SHALL BE INSTALLED AS SPECIFIED IN THE VNLA STANDARDIZED LANDSCAPE SPECIFICATIONS, LATEST EDITION.
2. GROUPINGS OF PLANTS SHALL BE MULCHED IN CONTINUOUS BEDS.
3. AREAS NOT PLANTED, AREAS OUTSIDE EXISTING TREE LINES AND NOT COVERED IN SITE CONTRACT ARE TO BE SODDED OR SEEDED WITH TURF–TYPE TALL FESCUE FROM VIRGINIA COOPERATIVE EXTENSION LIST (BELOW) OR APPROVED SUBSTITUTE.

   Biltmore, Bingo, Cochise III, Constitution, Coyote II, Crossfire II, Endeavor, Fidelity, Good–en, Grande, Greenkeeper WAF, Inferno, Kalahari, Magellan, Masterpiece, Onyx, Padre, Picasso, Penn 1901, Quest, Raptor, Rebel Exeda, Rembrandt, Rendition, SR 8250, SR 8300, Tarheel, Titanium, Watchdog, Wolfpack, WPEZE.
4. SINGLE STEM DECIDUOUS SHADE TREES SHALL BE STAKED AS DETAILED IN TREE PLANTING METHOD.
5. PLANT SUBSTITUTIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
6. ALL INSTALLED PLANT MATERIAL SHALL BE SUBJECT TO REGULAR MAINTENANCE, INCLUDING FERTILIZATION, PRUNING, REPLACEMENT, INSECT AND DISEASE CONTROL, WATERING, MULCHING, AND WEED CONTROL.
7. LANDSCAPING PLAN DESIGNED IN ACCORDANCE WITH MINIMUM STANDARD AND SPECIFICATION 3.05 OF THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK.

PLANT SCHEDULE

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	COMMENT
TREES:						
AR	17	ACER RUBRUM	RED MAPLE	1.5–2" CAL.	B & B	SINGLE STEM
MG	7	MAGNOLIA GRANDIFLORA 'EDITH BOGUE'	EDITH BOGUE SOUTHERN MAGNOLIA	5–7' HT.	B & B	SINGLE STEM
PT	12	PINUS TAEDA	LOBLOLLY PINE	6–8' HT.	B & B	SINGLE STEM
TD	8	TAXODIUM DISTICHUM	BALD CYPRESS	1.5–2" CAL.	B & B	SINGLE STEM
ORNAMENTAL TREES:						
AC	7	AMELANCHIER CANADENSIS	SERVICEBERRY	1.25" CAL.	B & B	MULTI–STEM
CC	11	CERCIS CANADENSIS	EASTERN REDBUD	1.25" CAL.	B & B	MULTI–STEM
VL	3	VIBURNUM LENTAGO	NANNYBERRY VIBURNUM	1.25" CAL.	B & B	SINGLE STEM
SHRUBS:						
CA	55	CLETHRA ALNIFOLIA 'RUBY SPICE'	RUBY SPICE SUMMERSWEET	18–24" HT./ W	CONT.	DENSE, FULL
MC	86	MYRICA CERIFERA	SOUTHERN WAXMYRTLE	24–30" HT./ W	CONT.	DENSE, FULL

No.	DATE	REVISION / COMMENT / NOTE	REVISED BY	REVIEWED BY
2	08/20/07	REVISED PER JCC COMMENTS	REC	REC
1	05/27/07	REVISED PER JCC COMMENTS DATED 5/29/07	REC	REC

COMMONWEALTH OF VIRGINIA
SCOTT C. BRADLEY
Cert. No. 1298
08/20/07
LANDSCAPE ARCHITECT

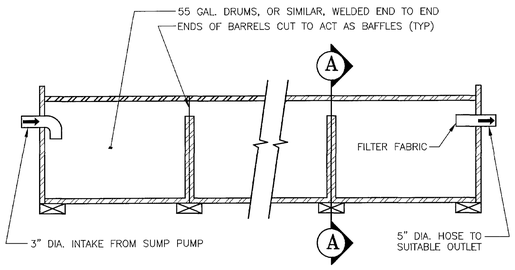
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994

CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND • GLOUCESTER

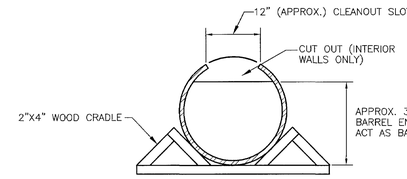
PLANTING PLAN
BMP 53 CONVERSION
NEW TOWN
SECTION 2 & 4
JAMES CITY COUNTY
VIRGINIA
BERKELEY DISTRICT

Designed	Drawn
SCB	SCB
Scale	Date
1" = 30'	04/05/07
Project No.	
6632E10–4	
Drawing No.	
4	

PORTABLE SEDIMENT TANK



ELEVATION



CROSS-SECTIONA-A

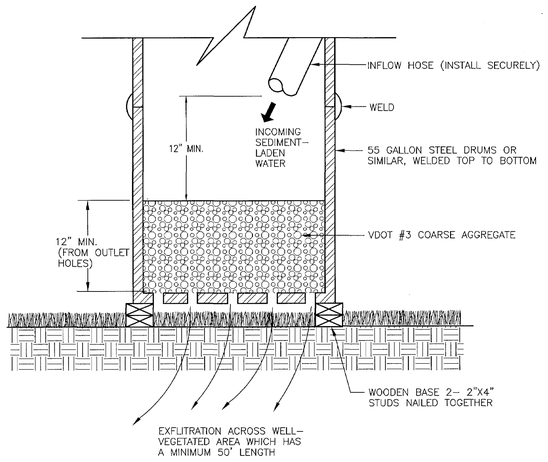
(PREFERRED)

SOURCE: USDA - SCS

DEWATERING STRUCTURE (3.26)
N.T.S.

PLATE: 3.26-1

FILTER BOX



ELEVATION VIEW

(OPTIONAL)

DEWATERING STRUCTURE (3.26)
N.T.S.

SOURCE: VA. DSWC

PLATE: 3.26-2

PS
VA DSWC
PG. III - 304

CONSERVATION PERMANENT SEEDING MIXTURE

KENTUCKY 31 TALL FESCUE	110 LBS.
ANNUAL RYE	35 LBS.
WEEPING LOVE GRASS	20 LBS.
RED TOP GRASS	5 LBS.
SERICEA LESPEDEZA	40 LBS.
FLAT PEA	20 LBS.
	200 LBS.

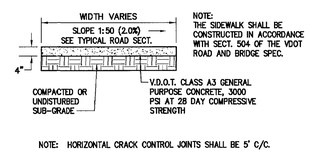
* SEDDING SHALL BE IN ACCORDANCE WITH STANDARDS & SPECIFICATIONS 3.32 VESCH.

PS
VA DSWC
PG. III - 304

LAWN PERMANENT SEEDING MIXTURE

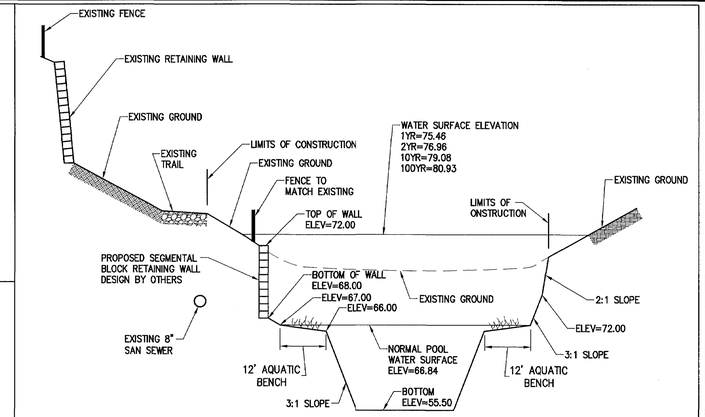
KENTUCKY 31 TALL FESCUE	150 LBS.
ANNUAL RYE	25 LBS.
	175 LBS.

* SEDDING SHALL BE IN ACCORDANCE WITH STANDARDS & SPECIFICATIONS 3.32 VESCH.

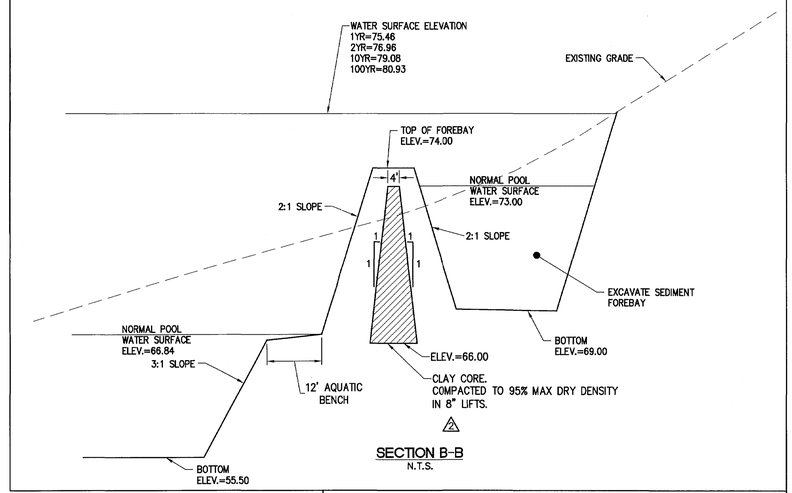


NOTE: HORIZONTAL CRACK CONTROL JOINTS SHALL BE 5' C/C.

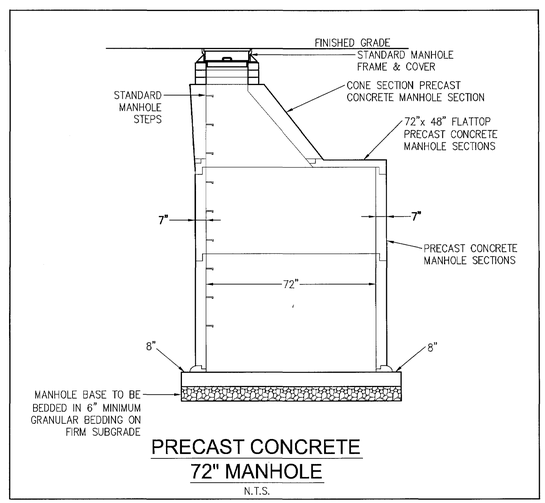
SIDEWALK DETAIL
N.T.S.



SECTION A-A
N.T.S.



SECTION B-B
N.T.S.



PRECAST CONCRETE
72" MANHOLE
N.T.S.

BMP MAINTENANCE AND INSPECTION REQUIREMENTS

THE EMBANKMENT SHOULD BE MOWED PERIODICALLY DURING THE GROWING SEASON, ENSURING THAT THE LAST CUTTING OCCURS AT THE END OF THE SEASON. THE GRASS SHOULD NOT BE CUT LESS THAN 6 TO 8 INCHES IN HEIGHT.

IF NECESSARY, THE EMBANKMENT SHOULD BE LIMED, FERTILIZED AND SEEDED IN THE FALL, AFTER THE GROWING SEASON. LIME AND FERTILIZER APPLICATION RATES SHOULD BE CONSISTENT WITH THAT ORIGINALLY SPECIFIED ON THE CONSTRUCTION PLANS.

ALL EROSION GULLIES NOTED DURING THE GROWING SEASON SHOULD BE BACKFILLED WITH TOPSOIL, RESEEDED AND PROTECTED (MULCHED) UNTIL VEGETATION IS ESTABLISHED.

ALL BARE AREAS AND PATHWAYS ON THE EMBANKMENT SHOULD BE PROPERLY SEEDED AND PROTECTED (MULCHED) OR OTHERWISE STABILIZED TO ELIMINATE THE POTENTIAL FOR EROSION.

ALL ANIMAL BURROWS SHOULD BE BACKFILLED AND COMPACTED.

ALL TREES, WOODY VEGETATION AND OTHER DEEP-ROOTED GROWTH, INCLUDING STUMPS AND ASSOCIATED ROOT SYSTEMS, SHOULD BE REMOVED FROM THE EMBANKMENT AND ADJACENT AREAS EXTENDING TO AT LEAST 25 FEET BEYOND THE EMBANKMENT TOE AND ABUTMENT CONTACTS. THE ROOT SYSTEMS SHOULD BE EXTRACTED AND THE EXCAVATED VOLUME REPLACED AN COMPACTED WITH MATERIAL SIMILAR TO THE SURROUNDING AREA. ALL SEEDLINGS SHOULD BE REMOVED AT THE FIRST OPPORTUNITY. SIMILARLY, ANY VINE COVER AND BRUSH SHOULD BE REMOVED FROM THE EMBANKMENT TO ALLOW FOR INSPECTIONS.

ANY REPAIRS MADE TO THE PRINCIPAL SPILLWAY (RISER OR BARREL) SHALL BE REVIEWED BY A PROFESSIONAL ENGINEER. VERTICAL TRENCHING TO EXPOSE THE BARREL SHALL NOT BE ALLOWED UNDER ANY CIRCUMSTANCES. THE TRENCH SIDE SLOPES SHOULD BE STEPPED BACK AT A 2:1 SLOPE, MINIMUM.

TRASH AND DEBRIS SHOULD BE REMOVED FROM BASIN EVERY 3 MONTHS AND DISPOSED OF PROPERLY.

OUTLET STRUCTURES SHALL BE CHECKED MONTHLY OR AFTER MAJOR RAINFALL EVENTS (GREATER THAN 1") AND ANY ACCUMULATED DEBRIS REMOVED FROM STRUCTURES.

NO.	DATE	REVISION / COMMENT / NOTE	REVISED BY
			REC
			REC
			REC
1	06/27/07	REVISED PER JCC COMMENTS DATED 5/29/07	REC
2	08/20/07	REVISED PER JCC COMMENTS	REC

COMMONWEALTH OF VIRGINIA
ENGINEER
ROBERT E. COSBY III
No. 35664
PROFESSIONAL
08/20/07

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

CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND • GLOUCESTER

NOTES AND DETAILS
BMP 53 CONVERSION
NEW TOWN
SECTION 2 & 4
JAMES CITY COUNTY
VIRGINIA
BERKELEY DISTRICT

Designed REC	Drawn SDC
Scale N.T.S.	Date 04/05/07
Project No. 6632E10-4	
Drawing No. 6	

JAMES CITY COUNTY ENVIRONMENTAL DIVISION
EROSION AND SEDIMENT CONTROL NOTES
REVISED 7/6/01

THE PURPOSE OF THE EROSION CONTROL MEASURES SHOWN ON THESE PLANS SHALL BE TO PRECLUDE THE TRANSPORT OF ALL WATERBORNE SEDIMENTS RESULTING FROM CONSTRUCTION ACTIVITIES FROM ENTERING ONTO ADJACENT PROPERTIES OR STATE WATERS. IF FIELD INSPECTION REVEALS THE INADEQUACY OF THE PLAN TO CONFINE SEDIMENT TO THE PROJECT SITE, ALL APPROPRIATE MODIFICATIONS WILL BE MADE TO CORRECT ANY PLAN DEFICIENCIES. IN ADDITION TO THESE NOTES, ALL PROVISIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS SHALL APPLY TO THIS PROJECT.

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, 3RD EDITION, 1992. THE CONTRACTOR SHALL BE THOROUGHLY FAMILIAR WITH ALL APPLICABLE MEASURES CONTAINED THEREIN THAT MAY BE PERTINENT TO THIS PROJECT, INCLUDING MINIMUM STANDARDS 1 THROUGH 19. IF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS FOUND TO BE INADEQUATE IN THE FIELD, THE MINIMUM STANDARDS WILL APPLY IN ADDITION TO THE PROVISIONS OF THE APPROVED PLAN.

2. AS A PREREQUISITE TO APPROVAL OF AN EROSION AND SEDIMENT CONTROL PLAN FOR LAND-DISTURBING ACTIVITIES, THE NAME OF A RESPONSIBLE LAND-DISTURBER SHALL BE PROVIDED. THE RESPONSIBLE LAND-DISTURBER SHALL BE AN INDIVIDUAL WHO HOLDS A VALID CERTIFICATE OF COMPETENCE ISSUED BY THE VIRGINIA DEPARTMENT OF CONSERVATION AND IS DEFINED AS THE PERSON IN CHARGE OF AND RESPONSIBLE FOR CARRYING OUT THE LAND-DISTURBING ACTIVITY. PERMITS OR PLANS WITHOUT THIS INFORMATION ARE DEEMED INCOMPLETE AND WILL NOT BE APPROVED UNTIL PROPER NOTIFICATION IS RECEIVED. ALSO, IF THE PERSON DESIGNATED AS RESPONSIBLE LAND-DISTURBER CHANGES BETWEEN THE TIME OF PLAN APPROVAL AND THE SCHEDULED PRECONSTRUCTION MEETING, THE ENVIRONMENTAL DIVISION SHALL BE INFORMED OF THE CHANGE, IN WRITING, 24-HOURS IN ADVANCE OF THE PRECONSTRUCTION MEETING.

3. A PRECONSTRUCTION MEETING SHALL BE HELD ON SITE BETWEEN THE COUNTY, THE DEVELOPER, THE PROJECT ENGINEER, THE RESPONSIBLE LAND-DISTURBER AND THE CONTRACTOR PRIOR TO ISSUANCE OF THE LAND DISTURBING PERMIT. THE CONTRACTOR SHALL SUBMIT A SEQUENCE OF CONSTRUCTION TO THE COUNTY FOR APPROVAL PRIOR TO THE PRECONSTRUCTION MEETING. THE DESIGNATED RESPONSIBLE LAND-DISTURBER IS REQUIRED TO ATTEND THE PRECONSTRUCTION MEETING FOR THE PROJECT.

4. ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS SHALL BE PROTECTED BY A TEMPORARY CONSTRUCTION ENTRANCE TO PREVENT TRACKING OF MUD ONTO PUBLIC RIGHT-OF-WAYS. AN ENTRANCE PERMIT FROM VDOT IS REQUIRED PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN STATE RIGHT-OF-WAYS. WHERE SEDIMENT IS TRANSPORTED ONTO A PUBLIC ROAD SURFACE, THE ROAD SHALL BE THOROUGHLY CLEANED AT THE END OF EACH DAY (STD & SPEC 3.02).

5. SEDIMENT BASINS AND TRAPS (STD & SPEC 3.13 AND 3.14), PERIMETER DIKES (STD & SPEC 3.09 AND 3.12), SEDIMENT FILTER BARRIERS (STD. & AND SPEC 3.05) AND OTHER MEASURES INTENDED TO TRAP SEDIMENT ON-SITE MUST BE CONSTRUCTED AS A FIRST STEP IN GRADING AND MUST BE MADE FUNCTIONAL PRIOR TO ANY UPSLOPE LAND DISTURBANCE TAKING PLACE. EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS MUST BE SEEDED AND MULCHED IMMEDIATELY AFTER INSTALLATION.
PERIODIC INSPECTIONS OF THE EROSION CONTROL MEASURES BY THE OWNER OR OWNER'S REPRESENTATIVE SHALL BE MADE TO ASSESS THEIR CONDITION. ANY NECESSARY MAINTENANCE OF THE MEASURES SHALL BE ACCOMPLISHED IMMEDIATELY AND SHALL INCLUDE THE REPAIR OF MEASURES DAMAGED BY ANY SUBCONTRACTOR INCLUDING THOSE OF THE PUBLIC UTILITY COMPANIES.

6. 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) AND SLOPE DRAIN (STD. & SPEC. 3.15) SHALL BE INSTALLED PRIOR TO THE END OF EACH WORKING DAY.

7. 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 PLAN.

8. THE CONTRACTOR SHALL PLACE SOIL STOCKPILES AT THE LOCATIONS SHOWN ON THE PLAN. 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.

9. 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 THE SAME (STD & SPEC 3.18). 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.

10. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAT 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

11. NO MORE THAN 300 FEET OF SANITARY SEWER, STORM DRAIN, WATER 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).

12. IF DISTURBED AREA STABILIZATION IS TO BE ACCOMPLISHED DURING THE MONTHS OF DECEMBER, JANUARY OR FEBRUARY, STABILIZATION SHALL CONSIST OF MULCHING (STD & SPEC 3.35). SEEDING WILL THEN TAKE PLACE AS SOON AS THE SEASON PERMITS.

13. THE TERM SEEDING, FINAL VEGETATIVE COVER OR STABILIZATION ON THIS 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 (STD & SPEC 3.32). IRRIGATION SHALL BE REQUIRED AS NECESSARY TO ENSURE ESTABLISHMENT OF GRASS COVER.

14. ALL SLOPES STEEPER THAN 3H:1V SHALL REQUIRE THE USE OF EROSION CONTROL BLANKETS AND MATTINGS TO AID IN THE ESTABLISHMENT OF A VEGETATIVE COVER. INSTALLATION SHALL BE IN ACCORDANCE WITH STD. & SPEC. 3.35, MULCHING, STD. & SPEC. 3.36, SOIL STABILIZATION BLANKETS AND MATTING AND MANUFACTURER=S INSTRUCTIONS. NO SLOPES SHALL BE CREATED STEEPER THAN 2H:1V.

15. INLET PROTECTION (STD & SPEC 3.07 AND 3.08) SHALL BE PROVIDED FOR ALL STORM DRAIN AND CULVERT INLETS FOLLOWING CONSTRUCTION OF THE SAME.

16. TEMPORARY LINERS, SUCH AS POLYETHYLENE SHEETS, SHALL BE PROVIDED FOR ALL PAVED DITCHES UNTIL THE PERMANENT CONCRETE LINER IS INSTALLED.

17. PAVED DITCHES SHALL BE REQUIRED WHEREVER ACCELERATED EROSION IS EVIDENT. PARTICULAR ATTENTION SHALL BE PAID TO THOSE AREAS WHERE GRADES EXCEED 3 PERCENT.

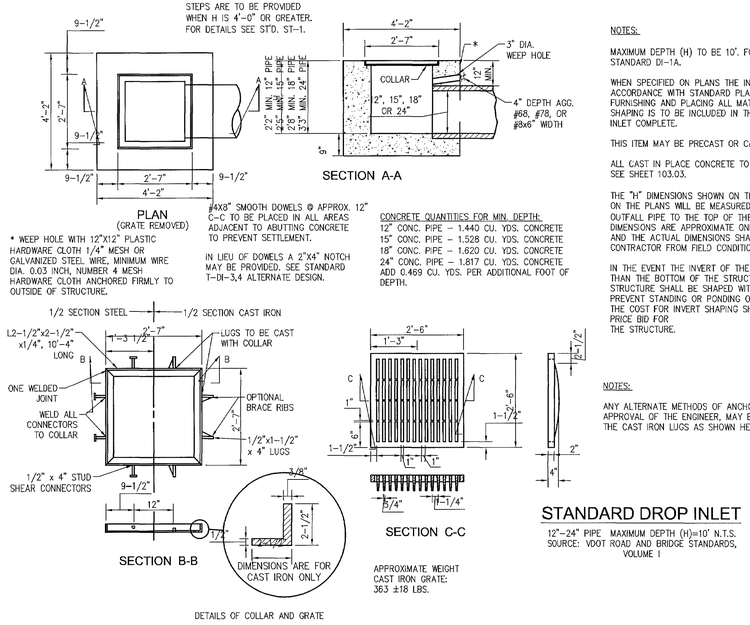
18. TEMPORARY EROSION CONTROL MEASURES SUCH AS SILT FENCE ARE NOT TO BE REMOVED UNTIL ALL DISTURBED AREAS ARE STABILIZED. TRAPPED SEDIMENT SHALL BE SPREAD, SEEDED AND MULCHED. AFTER THE PROJECT AND STABILIZATION IS COMPLETE, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS.

19. NO SEDIMENT TRAP OR SEDIMENT BASIN SHALL BE REMOVED UNTIL A) AT LEAST 75 PERCENT OF THE LOTS WITHIN THE DRAINAGE AREA TO THE TRAP OR BASIN HAVE BEEN SOLD TO A THIRD PARTY (UNRELATED TO THE DEVELOPER) FOR THE CONSTRUCTION OF HOMES AND/OR B) 60 PERCENT OF THE SINGLE FAMILY LOTS WITHIN THE DRAINAGE AREA TO THE TRAP OR BASIN HAVE BEEN COMPLETED AND THE SOIL STABILIZED. A BULK SALE OF THE LOTS TO ANOTHER BUILDER DOES NOT SATISFY THIS PROVISION. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL NOT BE REMOVED WITHOUT THE EXPRESS AUTHORIZATION OF THE JAMES CITY COUNTY ENVIRONMENTAL DIVISION.

20. RECORD DRAWINGS (AS-BUILTS) AND CONSTRUCTION CERTIFICATIONS ARE BOTH REQUIRED FOR NEWLY CONSTRUCTED OR MODIFIED STORMWATER MANAGEMENT/BMP FACILITIES. CERTIFICATION ACTIVITIES SHALL BE ADEQUATELY COORDINATED AND PERFORMED BEFORE, DURING AND FOLLOWING CONSTRUCTION IN ACCORDANCE WITH THE CURRENT VERSION OF THE JAMES CITY COUNTY ENVIRONMENTAL DIVISION, STORMWATER MANAGEMENT/BMP FACILITIES, RECORD DRAWING AND CONSTRUCTION CERTIFICATION, STANDARD FORMS & INSTRUCTIONS.

21. DESIGN AND CONSTRUCTION OF PRIVATE-TYPE SITE DRAINAGE SYSTEMS OUTSIDE VDOT RIGHTS-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT VERSION OF THE JAMES CITY COUNTY ENVIRONMENTAL DIVISION, STORMWATER DRAINAGE CONVEYANCE SYSTEMS (NON-BMP RELATED), GENERAL DESIGN AND CONSTRUCTION GUIDELINES.

DI-1



STANDARD DROP INLET

12"-24" PIPE MAXIMUM DEPTH (H)=10' N.T.S.
SOURCE: VDOT ROAD AND BRIDGE STANDARDS, VOLUME I

SEQUENCE OF CONSTRUCTION

1. CONTRACTOR SHALL FLAG LIMITS OF CLEARING
2. CONTRACTOR SHALL SETUP AND ATTEND A PRECONSTRUCTION MEETING WITH JAMES CITY COUNTY ENVIRONMENTAL INSPECTOR.
3. THE CONTRACTOR SHALL INSTALL THE CONSTRUCTION ENTRANCE.
4. INSTALL SILT FENCE, TREE PROTECTION, AND DEWATERING STRUCTURE.
5. CLEAR THE SITE.
6. EXCAVATE AND CONSTRUCT SEDIMENT FOREBAY WITH STABALIZATION AND CONCRETE SPILLWAY. (TO BE COMPLETED IN A DRY PERIOD WITHIN 1 WEEK OF COMPLETION OF SITE CLEARING).
7. FOREBAY SHALL BE DEWATERED AND MAINTAINED AS DRY UNTIL ROUGH GRADING OF BMP IS COMPLETE.
8. INSTALL FLAT TOP MANHOLE AND 42" OUTFALL PIPE ADJACENT TO TOWN BANK.
9. GRADE SOUTH SIDE OF BMP FROM AQUATIC BENCH TO EXISTING GRADE.
10. INSTALL VEGATATIVE COVER AND STABILIZE ON SOUTH SIDE OF BMP WITHIN 30 DAYS OF ACHIEVING FINAL GRADE. (SEE CONSERVATION SEED MIXTURE SHEET 6)
11. EXCAVATE BMP AND INSTALL OUTFALL STRUCTURE DI-1 AND PIPES (EXCLUDING 60"). SILT FENCE SHALL BE PROVIDED AROUND ALL STAGING AREAS DURING CONSTRUCTION. ROUGH GRADE BOTTOM OF BMP EXCEPT IN VICINITY OF EXISTING 60" OUTFALL PIPE. (TO BE COMPLETED IN A DRY PERIOD, ROUGH GRADE SHALL BE ESTABLISHED WITHIN 2 WEEKS OF BEGINNING EXCAVATION).
12. INSTALL NEW 60" PIPE FROM 10' OUTSIDE OF MANHOLE TO FLARED END SECTION.
13. EMOVE EXISTING MANHOLE AND EXISTING 60" PIPE. INSTALL NEW 72" MANHOLE AND CONNECT TO NEW OUTFALL PIPE.
14. OMPLETE FINAL GRADING OF BMP AND AQUATIC BENCH.
15. ESTABLISH VEGETATIVE COVER IN DENUDED AREAS WITHIN 30 DAYS OF ACHIEVING FINAL GRADE.
16. REMOVE ANY REMAINING TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WITHIN THIRTY DAYS AFTER FINAL SITE STABILIZATION ONLY WITH THE ENVIRONMENTAL DIVISION E & S INSPECTOR'S WRITTEN APPROVAL.

GENERAL NOTES:

ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED DURING CONSTRUCTION PROGRESS AS DIRECTED BY THE ENGINEER OWNER, OR ENVIRONMENTAL DIVISION INSPECTORTO MINIMIZE POTENTIAL FOR SEDIMENT TO LEAVE THE SITE.

E & S NARRATIVE

PROJECT DESCRIPTION
THE PROPOSED PROJECT IS THE CONVERSION OF BMP #53 FROM DRY ED POND TO A WET ED POND. THAT CONSISTS OF APPROXIMATELY 2.91 ACRES ADJACENT TO NEW TOWN AVENUE LOCATED BETWEEN SUNTRUST AND TOWNE BANK IN NEW TOWN, LOCATED IN JAMES CITY COUNTY.

EXISTING SITE CONDITIONS
THIS SITE IS CURRENTLY A DRY ED POND AND STORMWATER RUNOFF IS CURRENTLY CONVEYED TO THIS SITE

ADJACENT PROPERTIES
THE PROPOSED SITE IS SURROUNDED BY THE NEW TOWN DEVELOPMENT, THIS PARCEL ON THE SOUTH SIDE FRONTS ON MONTICELLO AVENUE AND TOWNE BANK.

OFF-SITE AREAS
NO OFFSITE AREAS ARE PROPOSED.

SOILS DESCRIPTION
THE SOIL CONSERVATION SERVICE HAS IDENTIFIED THE PRESENCE OF THE SOILS TYPES AS INDICATED ON MAP NUMBER 17 OF THE SOIL SURVEY OF JAMES CITY AND YORK COUNTIES AND THE CITY OF WILLIAMSBURG VIRGINIA. SEE THE ENVIRONMENTAL INVENTORY SHEET (SHEET 2) FOR SOIL TYPES AND LOCATIONS.

CRITICAL AREAS
SEE THE ENVIRONMENTAL INVENTORY FOR THE LOCATION OF WETLANDS AND 25% SLOPES. (NOTE NO CRITICAL AREAS ARE NOTED IN PROJECT LIMITS OF BLOCK 12).

EROSION AND SEDIMENT CONTROL MEASURES
UNLESS OTHERWISE INDICATED, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH). THE MINIMUM STANDARDS OF THE VESCH SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED AND APPROVED BY THE ON-SITE E&S CONTROL INSPECTOR. THESE MEASURES SHALL INCLUDE AND NOT TO BE LIMITED TO:

3.01 SAFETY FENCE
SAFETY FENCE WILL BE PLACED IN APPROPRIATE AREAS AS INDICATED ON THE PLANS TO PROVENT ACCESS.

3.02 CONSTRUCTION ENTRANCE
A CONSTRUCTION ENTRANCE WILL BE INSTALLED TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO PAVED ROADS BY VEHICLES AND/OR RUNOFF.

3.05 SILT FENCE
SILT FENCE WILL BE PLACED IN APPROPRIATE AREAS AS INDICATED ON THE PLANS TO PREVENT SILT LADEN RUNOFF FROM LEAVING THE SITE.

3.07 STORM DRAIN INLET PROTECTION
INLET PROTECTION SHALL BE USED TO REDUCE THE SEDIMENT ENTERING THE DRAINAGE SYSTEM.

3.26 DEWATERING STRUCTURE
ALL DEWATERING SHALL BE PUMPED THROUGH A PORTABLE SEDIMENT TANK OR FILTER BOX PRIOR TO BEING DISCHARGED TO OUTFALL STRUCTURE.

3.32 PERMANENT SEEDING
PERMANENT SEEDING MEASURES SHALL BE APPLIED IN AREAS INDICATED ON PLANS TO REDUCE EROSION OF AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR MORE THAN 30 DAYS.

MANAGEMENT STRATEGIES

1. CONSTRUCTION WILL BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.
2. TEMPORARY SEEDING OR OTHER STABILIZATION WILL FOLLOW IMMEDIATELY AFTER GRADING.
3. AREAS, WHICH ARE NOT TO BE DISTURBED, WILL BE CLEARLY MARKED BY FLAGS, SIGNS, ETC.
4. THE CONTRACTOR SHALL HAVE A CERTIFIED RESPONSIBLE LAND DISTURBER AND SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.
5. AFTER ACHIEVING ADEQUATE STABILIZATION, THE TEMPORARY E&S CONTROLS WILL BE CLEARED UP AND REMOVED.

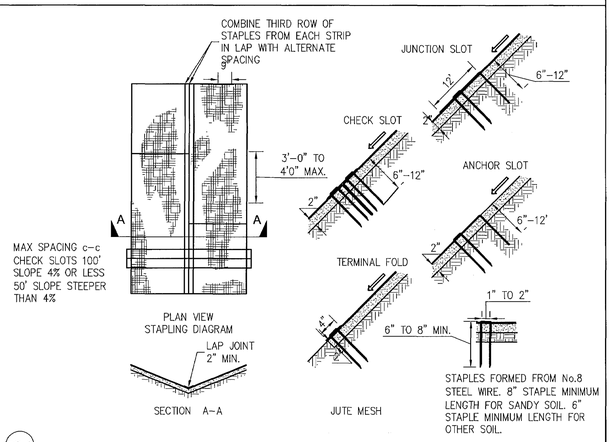
PERMANENT STABILIZATION

ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISH GRADING.

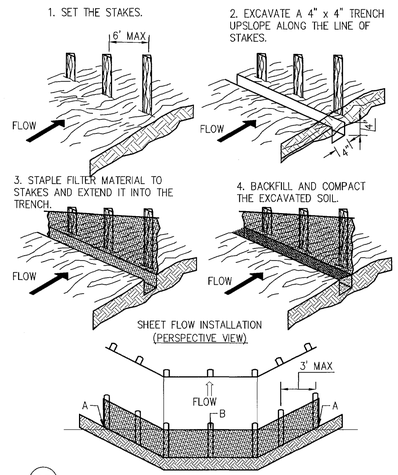
MAINTENANCE

IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL. THE FOLLOWING ITEMS WILL BE CHECKED IN PARTICULAR:

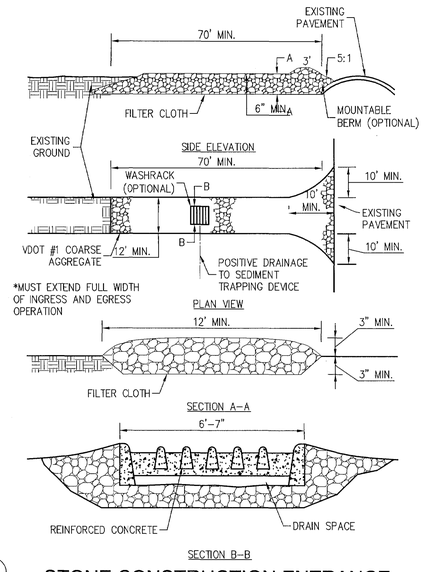
1. THE INLET PROTECTION WILL BE CHECKED REGULARLY FOR SEDIMENT BUILDUP, WHICH COULD PREVENT POSITIVE DRAINAGE. IF THE INLET PROTECTION IS CLOGGED BY SEDIMENT, IT SHALL BE REMOVED AND CLEANED OR REPLACED.
2. THE SILT FENCE BARRIER WILL BE CHECKED REGULARLY FOR UNDERMINING OR DETERIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF SEDIMENT DEPOSITION REACHES HALF WAY TO THE TOP OF THE BARRIER.
3. THE SEEDED AREAS WILL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED AND RE-SEEDED AS NEEDED.



EC-2 PROTECTIVE COVERING INSTALLATION CRITERIA
SOURCE: VDOT ROAD AND BRIDGE STANDARDS PLATE. N.T.S.



SF CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)
SOURCE: VA. DSWC PLATE. 3.05-2 N.T.S.



CE STONE CONSTRUCTION ENTRANCE
SOURCE: VA. DSWC PLATE. 3.02-1 N.T.S.

No.	DATE	REVISION / COMMENT / NOTE	REVISED BY
2	08/30/07	REVISED PER JCC COMMENTS DATED 5/29/07	REC
1	06/27/07	REVISED PER JCC COMMENTS	REC

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

COMMONWEALTH OF VIRGINIA
ROBERT E. OOSTERLEE III
No. 35664
PROFESSIONAL ENGINEER
08/30/07

ES CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND • GLOUCESTER

NOTES AND DETAILS
BMP 53 CONVERSION
NEW TOWN
SECTION 2 & 4
JAMES CITY COUNTY
VIRGINIA
BERKELEY DISTRICT

Designed	Drawn
REC	SDC
Scale	Date
N.T.S.	04/05/07
Project No.	
6632E10-4	
Drawing No.	
5	

4/4/05

Staff.

No comments.

1ST

Mike

New Plan

ENVIRONMENTAL DIVISION PROJECT REVIEW and COMMENTS - TRACKING SLIP

Plan Type: ☐ C (Concept Plan) ☐ M (Master Plan) ☐ Other, Specify: _____
☒ SP (Site Plan) ☐ SUP (Special Use Permit)
☐ S (Subdivision) ☐ Z (Rezoning)

☐ EXPEDITED REVIEW STATUS (TOP PRIORITY)
☐ DRC Case REVIEW STATUS

Project Information:
Case No.: SP . 32 . 05
Project Name: NEW TOWN Sec 2 Village Square
Planner: TAMMY KOSKIE Extension: 6688
☒ ~~Original Plan~~ (1st Submission, 1st Plan Review)
☐ Revised Plan 1 (2nd Submission, 2nd Plan Review) ☐ "Slip-Sheet to Env. Div.
☐ Revised Plan 2 (3rd Submission, 3rd Plan Review) ☐ Amendment to Prev. Approved Plan
☐ Revised Plan 3 (4th Submission, 4th Plan Review)

Date Tracking:

	Date	
Transmittal Date:	MAR 30 '05	(from Planning)
Received Environmental Division:	MAR 30 '05	(Date Stamped Env Div)
Due / Return Date (Planning):	APR 13 '05	(Planning Return Date)
21 days from Transmittal Date:	APR 21 '05	(Env Div Goal Date)
Erosion & Sediment Control Plan Review Complete:	APR 04 '05	(E&SC Review Complete)
Stormwater Management/Drainage Review Complete:	APR 15 '05	(SWM Review Complete)
Environmental Division Completion Date:	APR 15 '05	(All Personnel)

☒ ~~Forwarded to Planning~~ Tammy Koskie
☐ Email ☐ Fax to Professional Bob Cash/AES

Environmental Review Computer File Setup:

☐ Old Files	(Previous Reviews, Old files)	File: _____
☒ ~~Original Plan~~	(1st Submission, 1st Review)	File: SP-032-05 .0 ←
☐ Revised Plan 1	(2nd Submission, 2nd Review)	File: _____ .1
☐ Revised Plan 2	(3rd Submission, 3rd Review)	File: _____ .2
☐ Revised Plan 3	(4th Submission, 4th Review)	File: _____ .3

Erosion & Sediment Control Plan Review (~~William A. Cain~~ / Mike D. Woolson)
Date Received: MAR 30 '05 (Received for E&SC Plan Review)
Review Complete: APR 04 '05 (E&SC Plan Review Complete)

Stormwater Management / Drainage Plan Review (Scott J. Thomas)
Date Received: APR 02 '05 (Received for SWM Plan Review)
Review Complete: APR 15 '05 (SWM Plan Review Complete)

Comments: Minor ENS. ISSUES

4-15-05

TRANSMITTAL

DATE: October 11, 2005

TO: Records Management
Fire
Environmental
JCSA
VDOT
Mapping
Police

FROM: Geoff Cripe, Development Management Assistant

SUBJECT: **SP-032-05 New Town, Village Square**

TAX MAP: **(38-4)(1-50)**

ACTION: For your files.

MDW/SJT

ENVIRONMENTAL DIVISION REVIEW COMMENTS
NEW TOWN – VILLAGE SQUARE
COUNTY PLAN NO. SP – 32 - 05
April 15, 2005

General:

1. Erosion and sediment control review and inspection fees are required for this project.

2. It is unclear if a Land-Disturbing permit is required for this project as a disturbed area estimate was not provided. Provide a site area, impervious cover and disturbed area estimate for the project on the cover sheet. *(Note: Based on rough scaling of plan Sheet 2, it appears the work area is about 0.85 acres; therefore, it would appear a land-disturbing permit is required for the project.)*

3. Only plan Sheet 2, provide proper referenced to other approved County plans including the Section 2 & 4 Phase III Roadway (SP-82-04), the Theater (SP-103-04) and Retail Phase I (SP-127-04) and others as applicable.

Erosion & Sediment Control:

4. Standard County Erosion and Sediment Control notes were not found in the plan set.

5. Show and label a distinct limit of work around the project site.

Stormwater Management / Drainage:

6. Provide a note on the cover sheet to state "All stormwater runoff associated with this project is directed into existing storm drainage piping systems and conveyed to previously approved BMP # 53 (County BMP ID Code PC 173).

7. Ensure impervious cover associated with this site is consistent with computations for existing or previously approved downstream storm drainage piping systems.

TRANSMITTAL

Date: March 30, 2005

To:

Environmental	Fire
JCSA	VDOT
Co. Engineer	REA
Scott	Codes Compliance

From: Tammy Rosario, Senior Planner

Subject: SP-32-05. New Town – Village Square

Items Attached: Site Plan

Instructions: Please review and comment, or sign plan and transmittal if approved. *Remarks from the applicant – "Please note that the water and electricity for the foundation are provided by Building 1000. In addition, all land disturbances are existing through approved plans of Retail Phase 1 (SP-127-04), the Theater (SP-103-04) and Section 2 & 4 Phase III Roadways (SP-82-04). Therefore, no Environmental Review (fee) is required."* No

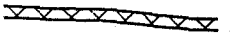
Return By: April 13, 2005

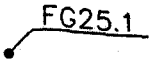
Agency Comments:

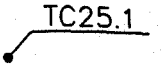
Due April 21

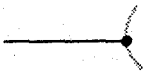
STRAW BALE [illegible]

RIP RAP 

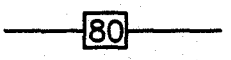
REVERSE ROLL TOP GUTTER 

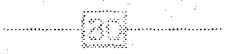
25.1 GROUND ELEVATION 

PROPOSED TOP OF CURB ELEV. 

GRADING LINE TIE-IN 

80 EXISTING CONTOUR ELEV.

PROPOSED CONTOUR ELEV. 

PROPOSED CONTOURS (BY OTHERS) 

INDEX OF SHEETS

SHEET NUMBER	DESCRIPTION
1	COVER SHEET
2	AREA TABULATIONS
3	ENVIRONMENTAL INVENTORY SHEET
4	SITE AND UTILITY PLAN
5	GRADING, DRAINAGE, EROSION AND SEDIME
6	SANITARY SEWER PLAN AND PROFILE
7	LANDSCAPE PLAN
8	LIGHTING PLAN
9	NOTES AND DETAILS
10	NOTES AND DETAILS

NOTE:
ALL STORM WATER RUNOFF ASSOCIATED WITH THIS PROJECT IS DIRECTED INTO EXISTING AND PROPOSED STORM DRAINAGE PIPING ASSOCIATED WITH NEW TOWN PHASE I ROADWAY (JCC-SP-050-02) AND PHASE III ROADWAY (JCC-SP-082-04). ALL RUNOFF IS COLLECTED AND TREATED BY BMP #53 (COUNTY BMP ID# PC 173)

VDOT DOES I
THE BMP(S)
HARMLESS FI

This pack all scanned & added to pdf.

~~plans only~~ no
only plans need

James City County Environmental Division
Stormwater Management/BMP Record Drawing & Construction Certification Review
Tracking Form

Project Name: New Town Sec. 2&4 BMP 53 Converted (Dry to Wet)
County Plan No.: SP-38-07
Stormwater Management Facility: Wet Pond
BMP Phase #: ☐ I ☐ II ☐ III
☒ Information Package Received. Date/By: 8/09
☐ Completeness Check:
- ☒ Record Drawing Date/By: 2/18/09
- ☒ Construction Certification Date/By: 2/18/09
- ☒ RD/CC Standard Forms (Required for all BMPs after Feb 1st 2001 Only)
- ☒ Insp/Maint Agreement # / Date: 040009441/10/3/07
- ☒ BMP Maintenance Plan Location: as-built + pg. 6 on approved plan
- ☐ Other:

☒ Standard E&SC Note on Approved Plan Requiring RD/CC or County comment in plan review
- ☒ Yes ☐ No Location:

☒ Assign **County BMP ID Code #**: Code: PC-173
☒ Preliminary Input/Log into Division's "As-Built Tracking Log"
☒ Add Location to GIS Map. Obtain basic site information (GPIN, Owner, Address, etc.)
☐ Preliminary Log into Access Database (BMP ID #, Plan No., GPIN, Project Name, etc.)
☒ Active Project File Review (correspondence, H&H, design computations, etc.).
☒ Initial As-Built File setup (File label, folder, copy plan/details/design information, etc.).
☒ Inspector Check of RD/CC (forward to Inspector using transmittal for cursory review).
☒ Pre-Inspection Drawing Review of Approved Plan (Quick look prior to Field Inspection).
☒ Final Inspection (FI) Performed Date: ~~9/24/09~~ 9/17/09
☒ Record Drawing (RD) Review Date: ~~9/24/09~~ 9/17/09
☒ Construction Certification (CC) Review Date: ~~9/24/09~~ 9/17/09
☐ Actions:
- ☐ No comments.
- ☒ Comments. Letter Forwarded. Date: 9/24/09
- ☐ Record Drawing (RD)
- ☐ Construction Certification (CC)
- ☐ Construction-Related (CR)
- ☒ Site Issues (SI)
- ☐ Other :

☐ Second Submission: N/A
☒ Reinspection (if necessary): 5/25/10
☒ Acceptable for SWM Purposes (RD/CC/CR/Other). Ok to proceed with bond release.
☒ Complete "Surety Request Form".
☒ 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.
☐ Obtain Digital Photographs of BMP and save into County BMP Inventory.
☒ Request mylar/reproducible from As-Built plan preparer.
☒ Complete "As-built Tracking Log".
☐ Last check of BMP Access Database (County BMP Inventory).
☐ Add BMP to JCC Hydrology & Hydraulic database (optional).
☐ Add BMP to Municipal BMP list (if a County-owned facility)
☐ Add BMP to PRIDE BMP ratings database.

Final Sign-Off

Inspector: [signature] Date: 5/25/10

Chief Engineer: _____ Date: _____

*** See separate checklist, if needed.

DATE: August 17, 2011

SUBJECT: PC 173 AB/CC File

PROJECT: New Town Sec. 2&4 BMP 53 Converted (Dry to Wet)

TO: Stormwater Division

FROM: Engineering and Resource Protection (Attn: Amy Parker)

COPY

COUNTY OF JAMES CITY, VIRGINIA

DECLARATION OF COVENANTS
INSPECTION/MAINTENANCE OF DRAINAGE SYSTEM

THIS DECLARATION, made this 3rd day of October, 20 07, between New Town Associates, LLC, and all successors in interest, ("COVENANTOR(S)"), owner(s) of the following property:

Parcel Identification Number: 3842400001A
Legal Description: BMP Parcel 1 Portion of Former Parcel 2 New Town Sec 2 & 4
Project or Subdivision Name: New Town
Document No. 040009441
OR Deed Book _____, Page No. _____,
and the County of James City, Virginia ("COUNTY.")

WITNESSETH:

I (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, monitoring, 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,

Instrument # 070029730
Recorded on Oct. 25, 2007

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.

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of the date first above written.

COVENANTOR(S)
New Town Associates, LLC

Signature

John P. McCann, Executive Director
Print Name and Title

ACKNOWLEDGMENT

COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF James City, to wit:

I hereby certify that on this 4th day of October, 2007, before the subscribed, a Notary Public for the Commonwealth of Virginia, personally appeared John P. McCann and did acknowledge the foregoing instrument to be his/her A
ct.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this 4th day of October, 2007.

[SEAL]

Teresa Cuyman Knighter
Notary Public

Notary Registration Number: 351207

My Commission expires: 08/31/08

COVENANTOR(S)

_____
Signature

_____
Print Name and Title

ACKNOWLEDGMENT

COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF _____, to wit:

I hereby certify that on this _____ day of _____, 20____, before the subscribed, a Notary Public for the Commonwealth of Virginia, personally appeared _____ and did acknowledge the foregoing instrument to be his/her Act.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this _____ day of _____, 20____.

[SEAL]

_____
Notary Public

Notary Registration Number: _____

My Commission expires: _____

Approved as to form:

_____
County Attorney

This Declaration of Covenants prepared by:

Name: John P. McCann Atk

Print Name: John P. McCann

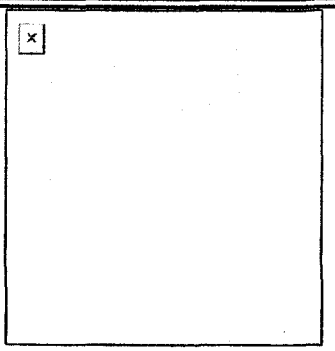
Title: Executive Director

Address: 4801 Courthouse St, Ste 203

Williamsburg, VA 23188

Phone Number: (757) 565-6200

(drainage1.pre)



James City County, Virginia
Environmental Division

Stormwater Management / BMP Facilities
Record Drawing and Construction Certification

Standard Forms & Instructions

PC 173 modif.
SP-38-07

Issue Date
February 1, 2001

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: New Town - BMP #53
Structure/BMP Name: BMP 53
Project Location: New Town Section 2&4
BMP Location: Adjacent to New Town Avenue between Monticello Avenue and Center Street
County Plan No.: SP - 0038 - 2007

Project Type:
- ☒ Residential
- ☐ Commercial
- ☐ Institutional
- ☐ Public
- ☐ Other
- ☐ Business
- ☐ Office
- ☐ Industrial
- ☐ Roadway

Tax Map/Parcel No.: 3411500011
BMP ID Code (if known): PC173
Zoning District: MU
Land Use: Apartments
Site Area (sf or acres): 13.60 Acres

Brief Description of Stormwater Management/BMP Facility: Wet Extended Detention Basin (A-3)

Nearest Visible Landmark to SWM/BMP Facility: SunTrust Building & Towne Bank Building

Nearest Vertical Ground Control (if known):
☒ JCC Geodetic Ground Control ☐ USGS ☐ Temporary ☐ Arbitrary ☐ Other
Station Number or Name: 325
Datum or Reference Elevation: NGVD29 Elevation 110.67
Control Description: Benchmark Station #325
Control Location from Subject Facility: _____

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: September 2007
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: AES Consulting Engineers
Date of Completion for SWM/BMP Facility: April 2008
Date of Record Drawing/Construction Certification Submittal: April 2008

(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: New Town Associates, LLC
Mailing Address: 4801 Courthouse Street, Suite 203
Williamsburg, VA 23188
Business Phone: (757) 565-6200 Fax:
Contact Person: Title:

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: Robert E. Cosby, III, P.E.
Title: Project Manager
Plan Name: New Town BMP #53 Conversion
Firm's Project No. 6632-E-10-4
Plan Date: April 5, 2007, last revised August 20, 2007
Sheet No.'s Applicable to SWM/BMP Facility: ALL / / / / /

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

Name: Henderson, Inc.
Mailing Address: 5806 Mooretown Road
Williamsburg, Virginia 23187
Business Phone: 757-565-1090
Fax: 757-564-9120
Contact Person: Peter Henderson
Site Foreman/Supervisor:
Specialty Subcontractors & Purpose (for BMP Construction Only):

Section 4 – Professional Certifications:

Certifying Professionals: *(Note: A Registered Professional Engineer of 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: 5248 Olde Towne Road Suite 1
Williamsburg, Virginia 23188
Business Phone: 757-253-0040
Fax: 757-220-8994

Name: Robert D. Mann, L.S.
Title: Senior Land Surveyor/Project Manager

Signature: Robert D Mann
Date: 2/18/09

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.

COMMONWEALTH OF VIRGINIA
ROBERT D MANN
Lic. No. 002509
2/18/09
LAND SURVEYOR

(Seal)

Virginia Registered Professional Engineer
Or Certified Land Surveyor

Construction Certification

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

Name: Robert E. Cosby, III, P.E.
Title: Senior Project Manager

Signature:
Date: 2/18/09

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.

NOTE: Existing Material was an extremely wet clay and bottom of BMP was not able to be excavated to full depth as shown on the siteplan. The Record Drawing represents an actual surveyed bottom of the facility. This represents a reduction in the Wet Volume which has been reviewed and discussed with James City County Staff. The Facility is now considered as a 9 Point Facility with a reduction of 1 point based on the reduced "wet" volume provided. The overall development maintains 10 points based on current cumulated overall point tabulation as updated based on drainage areas and final calculations on various BMP's throughout the site.

COMMONWEALTH OF VIRGINIA
ROBERT
Lic. No.
PROFESSIONAL E
2/18/09

(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 reproducibles.

- ❑ 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 plans 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.

XX 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.

XX 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.

XX 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.

XX	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.
XX	10.	Dimensions, locations and elevations of outlet orifices, weirs, slots and drains.
XX	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.
N/A	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.**
XX	13.	Top of impervious core embankment, core trench limits and elevation of cut-off trench bottom. **May need to obtain this information during construction.**
XX	14.	Elevation of the principal spillway barrel (outlet pipe) inlet and outlet invert.
XX	15.	Outlet barrel diameter, length, slope, type and thickness class of material and type of flared end sections, headwall or endwall.
XX	16.	Outfall protection dimension, type and depth of rock and if underlain filter fabric is present.
XX	17.	BMP interior and periphery landscaping zones conform with arrangements and requirements of the approved design plan.
XX	18.	Maintenance plan taken from approved design plan transposed onto record drawing set.
XX	19.	Fencing location and type, if applicable to facility.
XX	20.	BMP vicinity properly cleaned of stockpiles and construction debris.
XX	21.	No visual signs of erosion or channel degradation immediately downstream of facility.
XX	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.)*

XX	A1.	All requirements of Section II, Minimum Standards, apply to Group A facilities.
XX	A2.	Principal spillway consists of reinforced concrete pipe with O-Ring gaskets for watertight joint construction.
XX	A3.	Sediment forebays or pretreatment devices provided at inlets to pond. Generally 4 to 6 ft. deep.
XX	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.
N/A	A5.	Adequate fixed vertical sediment depth markers installed in the forebay(s) for future sediment monitoring purposes.
N/A	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.
XX	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).
XX	A8.	No trees are present within a zone 15 feet around the embankment toe and 25 feet from the principal spillway structure.
XX	A9.	Wet permanent pool, typically 3 to 6 feet deep, is provided and maintains level within facility.
XX	A10.	Low flow orifice has a non-clogging mechanism.
N/A	A11.	A pond drain pipe with valve was provided.
XX	A12.	Pond side slopes are not steeper than 3H:1V, unless approved plan allowed for steeper slope.
N/A	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).*

_____ 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.

_____ 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)*

_____ 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.

_____ 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)*

_____ 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.

_____ D14. Adequate, direct access provided to the pretreatment area and/or filter bed for future maintenance.

STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING 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)*

_____ 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 diaphrahm provided in areas where lateral sheet flow from impervious surgaces 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.

_____ 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)*

_____ F1. All requirements of Section II, Minimum Standards, apply to Group F facilities.

_____ F2. Basin bottom has positive slope and drainage from all basin inflow points to the riser (or outflow) location.

_____ F3. Timber wall BMP used in intermittent stream only. (ie. Prohibited in perennial streams.)

_____ F4. Forebay provided approximately 20 ft. upstream of the facility. Forebays generally 4 to 6 feet in depth.

_____ F5. A reverse slope pipe, vertical stand pipe or mini-barrel and riser was provided to prevent clogging

_____ F6. Principal spillway and outlet barrel provided consisting of reinforced concrete pipe with O-Ring gaskets for watertight joint construction.

_____ F7. Mini-barrel and riser, if used, contains a removable trash rack to reduce clogging.

_____ 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.

_____ F9. Timbers properly reinforced or concrete footing provided if soil conditions were prohibitive.

_____ F10. Timber wall cross members extended to a minimum depth of two (2) feet below ground elevation.

_____ F11. Protection against erosion and scour from the low flow orifice and weir-flow trajectory provided.

_____ F12. Stilling basin or standard outlet protection provided at principal spillway outlet.

_____ 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.

_____ F14. No visual signs of undercutting of timber walls or clogging of the low orifice were present.

_____ F15. No visual signs of erosion or channel degradation immediately downstream of facility.

_____ 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)*

_____ 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.

_____ 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.)

XX SD1. All requirements of Section II, Minimum Standards, apply to Storm Drainage Systems.

XX SD2. Horizontal location of all pipe and structures relative to the SWM/BMP facility.

XX SD3. Type, top elevation and invert elevation of all access type structures (inlets, manholes, etc.).

XX SD4. Material type, size or diameter, class, invert elevations, lengths and slopes for all pipe segments.

XX 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.

DRAINAGE CALCULATIONS

FOR

NEW TOWN

BMP #53

GPIN 3824 000001A
4124 New Town Ave
New Town Assoc LLC
P.O. Box 5010
Wmsb, VA 23188
CA BMP Parcel 1
Z-9a6

SP-38-07
3rd Review
Final

SITE:

James City County

SUBMITTED TO:

Environmental Division
James City County

Prepared By:

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

COMMONWEALTH OF VIRGINIA
ROBERT F. COSBY, III
Lic. No. 035664
8/20/07
PROFESSIONAL ENGINEER

April 5, 2007
Revised : June 27, 2007
Revised : August 20, 2007

AES Project No. 6632-E-10-4

AES CONSULTING ENGINEERS

DRAINAGE CALCULATIONS

FOR

NEW TOWN

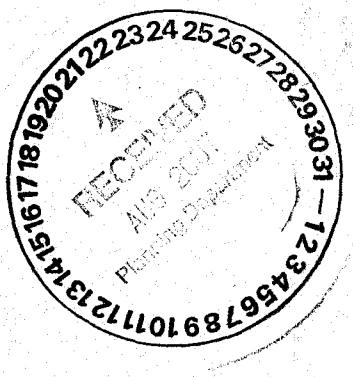
BMP #53

SITE:

James City County

SUBMITTED TO:

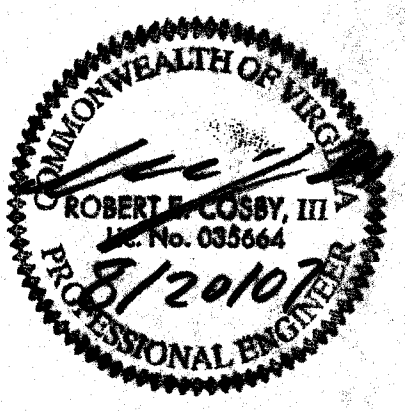
Environmental Division
James City County



Prepared By:

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

April 5, 2007
Revised : June 27, 2007
Revised : August 20, 2007



AES Project No. 6632-E-10-4

CONSULTING ENGINEERS

TABLE OF CONTENTS

CONSULTING ENGINEERS

I INTRODUCTION

The proposed best management practice BMP #53 conversion consists of converting the existing dry extended detention basin to a wet extended detention basin. The stormwater master plan for New Town requires that this best management practice BMP #53 to be a 10-point pond. Best management practice BMP # 53 is located off New Town Avenue between Towne Bank and Block 5 within Section 2 & 4 in New Town, located in James City County.

II EXISTING SITE CONDITIONS

Currently the site is a dry extended detention pond that was constructed as part of the Courthouse. There are currently 4 pipes that provide drainage to the BMP, an existing 42" RCP, 42" RCP, 60" RCP, and an 18" RCP. The existing 42" RCP outfalls at the east end of the BMP and collects runoff from New Town Section 1 and a portion of Block 2 running between the buildings and Monticello Avenue. The existing 42" RCP outfalls at the south side of the BMP and collects runoff from the portion of Monticello Avenue from Ironbound Road to the high point near Settlers Market Boulevard in addition to the Towne Bank site. The existing 18" RCP outfalls at the southwest corner of the BMP near the inflow pipe for the primary spillway and collects runoff from a portion of New Town Avenue from Monticello Avenue to the dam for the BMP and some area from Langley. The existing 60" RCP outfalls at the northwest corner also near the inflow pipe for the primary spillway and collects runoff from a portion of Discovery Park Boulevard from Ironbound Road to New Town Avenue, Courthouse Street, Block 2, Block 3, Main Street, Block 6 & 7, Block 5, and New Town Avenue from Discovery Park Boulevard to Dam for the BMP.

This BMP serves 107.7 acres of developed area within New Town and adjacent offsite areas. This drainage areas consists of approximately 70 acres of impervious coverage with existing development and future impervious cover planned within the watershed.

III PROPOSED SITE CONDITIONS

A portion of the BMP is to be cleared and excavated to elevation 55.5 to provide the required water quality wet volume. The design maintains the existing outfall structure an 8" orifice (As-Built invert 66.84) and 16' weir (As-Built elevation 76.62) with twin 42" outfall pipes. A DI-1 structure is added to the existing 8" orifice pipe to maintain the low flow orifice and minimize potential clogging. A 12" pipe is provided to connect this DI-1 to the permanent pool. A 12-foot aquatic bench is added to the BMP around the entire perimeter to assist in nutrient uptake and are to be planted with wetland seeding mixture. One sediment forebay is provided at the 42" RCP inflow from Courthouse Street. This sediment forebay is raised above the normal pool with a small dam section which consists primarily of existing material at the upstream end of the pond. The spillway from the forebay to the main pool is a

concrete spillway to prevent erosion on the dam as runoff flows from the forebay into the main pool. Sediment forebays could not be added to the other pipes due to their location with the primary spillway for the BMP. To minimize the chance of short circuiting particularly from the existing 60" pipe which was directly adjacent to the principal spillway the last pipe segment is being adjusted and relocated to minimize the potential of short circuiting. The BMP has been excavated to provide additional flood storage and has reduced the peak flow for the 2-yr, 10-yr, and 100-yr storms below previously designed levels (previous 100-yr WSE=81.0, currently design 80.93). 1-yr channel protection is provided with substantial over capacity ($\approx$60% additional) and a minimum of 36-hour drawdown.

Curve Number utilized for this BMP has historically been 85. A weighted analysis of this is provided in the Appendix which provides for several categories. Specifically Woodland Preserve, Open Space or Lawn Area which are public open areas, area treated by LID which includes the Courthouse Bio-Retention Area, and remaining developed area. Based on revised values as requested by the James City County Environmental Division, the analysis provided increase the curve number to 88 to be utilized in the current design.

As requested by County Staff a small retaining wall is provided adjacent to the existing trail with a decretive fence at the top of the wall to promote safety and minimize the potential of danger with the existing pedestrian trail being located adjacent to this pool and within the limits of the flood storage zone of the BMP.

In addition based on County Recommendations additional Rip Rap Outlet Protection is provided at the outfall of the 42" pipe from Courthouse Street to reduce potential erosion within this area in the future.

Comment #15 Response.

3RD REVIEW

New Town - BMP 53
Curve Number Variation Analysis as requested by JCC Environmental Division
8/20/2007

Curve Number	1 yr-inflow	1 yr outflow	1 yr elev	100 yr inflow	100 yr outflow	100 yr elev
88	131.6	4.8	75.46	513.2	316.0	80.93
89	137.9	4.9	75.80	519.9	318.7	81.06
90	144.5	5.0	76.13	526.2	321.1	81.18
91	151.2	5.1	76.47	532.1	323.5	81.31
92	157.8	6.5	76.70	538.6	325.8	81.43
93	164.4	9.3	76.80	542.6	328.0	81.55
94	170.8	12.5	76.89	547.1	330.0	81.66

DHW

DA = 107.7 AC.

1-YEAR VOL CN 88 661,182 CF

Check Setups!

81.66
80.93
0.73' DIFFERENCE CN 88-94
IF DATA IS ALL THE SAME.

Form SP-125-97

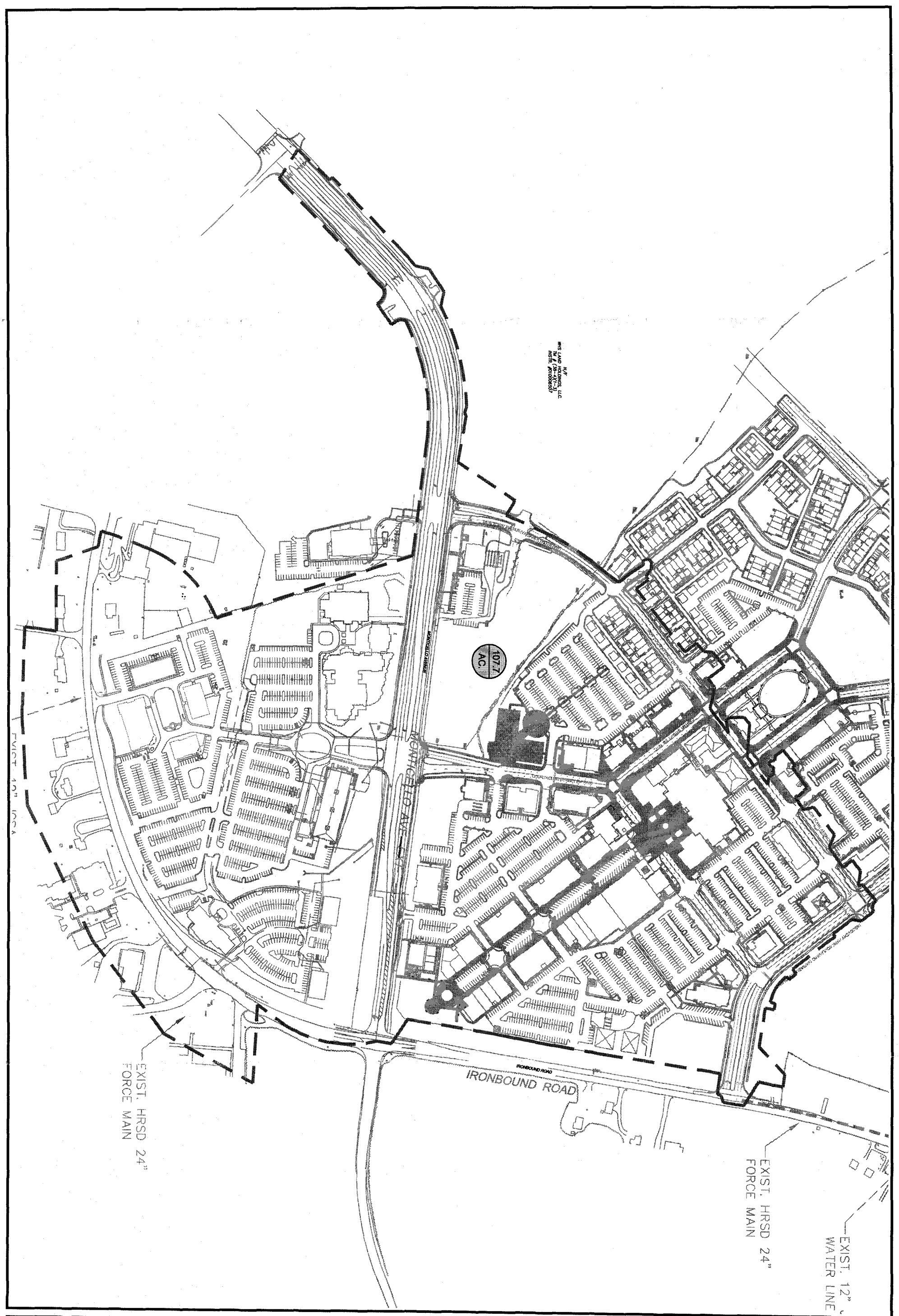
SP-38-07
(Form SP-125-97)

FINAL BMP Computations

APPENDIX A

DRAINAGE AREA MAP

CONSULTING ENGINEERS



DRAINAGE AREA MAP

Designed	REC
Drawn	SDC
Scale	N.T.S.
Date	4/05/07
Project No.	6632-E-10-4
Drawing No.	

AES CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND • GLOUCESTER

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

No.	DATE	REVISION / COMMENT / NOTE	REVISED BY	REVIEWED BY

APPENDIX B

BEST MANAGEMENT PRACTICE (BMP #53) FACILITY

WATER QUALITY VOLUME
CHANNEL PROTECTION
DI-1 BUOYANCY CALCULATIONS
WEIGHTED CURVER NUMBER
STORMWATER ROUTING 1, 2, 10, & 100 YEAR STORM
OUTLET PROTECTION 42" PIPE

Storm Event	Incoming Flow (cfs)	Outgoing Flow (cfs)	Water Surface Elevation
1	132	4.8	75.46
2	182	15.8	76.96
10	352	209.5	79.08
100	513	316.0	80.93

Water Surface Elevation – Existing Condition versus Proposed

Storm Event	Existing Condition	Proposed Condition
Normal Pool	66.84	66.84
1	76.12	75.46
2	76.97	76.96
10	78.89	79.08
100	80.99	80.93 D.H.W

CONSULTING ENGINEERS

AES Consulting Engineers
Project #6632-E-10-4

New Town Section 2-4
BMP #53
James City County

BMP #53 Water Quality Volumes **"Wet" Volume**

Elev.	Contour Area (in s.f.)	Storage (Between contours)	Cumulative Storage Volume
73	Area = 5259 s.f.		Cumulative Storage = 604 c.y.
		Storage = 4949 c.f.= 183 c.y.	
72	Area = 4639 s.f.		Cumulative Storage = 421 c.y.
		Storage = 4346 c.f.= 161 c.y.	
71	Area = 4054 s.f.		Cumulative Storage = 260 c.y.
		Storage = 3778 c.f.= 140 c.y.	
70	Area = 3503 s.f.		Cumulative Storage = 120 c.y.
		Storage = 3245 c.f.= 120 c.y.	
69	Area = 2987 s.f.		Cumulative Storage = 0 c.y.
		Storage = 0 c.f.= 0 c.y.	
66.84	Area = 38702 s.f.		Cumulative Storage = 8827 c.y.
		Storage = 29138 c.f.= 1079 c.y.	
66	Area = 30673 s.f.		Cumulative Storage = 7748 c.y.
		Storage = 29571 c.f.= 1095 c.y.	
65	Area = 28468 s.f.		Cumulative Storage = 6653 c.y.
		Storage = 27392 c.f.= 1015 c.y.	
64	Area = 26316 s.f.		Cumulative Storage = 5638 c.y.
		Storage = 25265 c.f.= 936 c.y.	
63	Area = 24215 s.f.		Cumulative Storage = 4702 c.y.
		Storage = 23191 c.f.= 859 c.y.	
62	Area = 22166 s.f.		Cumulative Storage = 3843 c.y.
		Storage = 21168 c.f.= 784 c.y.	
61	Area = 20169 s.f.		Cumulative Storage = 3059 c.y.
		Storage = 19197 c.f.= 711 c.y.	
60	Area = 18224 s.f.		Cumulative Storage = 2348 c.y.
		Storage = 17278 c.f.= 640 c.y.	
59	Area = 16332 s.f.		Cumulative Storage = 1708 c.y.
		Storage = 15412 c.f.= 571 c.y.	
58	Area = 14492 s.f.		Cumulative Storage = 1137 c.y.
		Storage = 13599 c.f.= 504 c.y.	
57	Area = 12706 s.f.		Cumulative Storage = 633 c.y.
		Storage = 11839 c.f.= 438 c.y.	
56	Area = 10973 s.f.		Cumulative Storage = 195 c.y.
		Storage = 5276 c.f.= 195 c.y.	
55.5	Area = 10130 s.f.		Cumulative Storage = 0 c.y.
		Storage = 0 c.f.= 0 c.y.	

SED FOREBAY

N.P.

Volume Required
2 * WQV
WQV = 1/2" per impervious acre

Impervious Area = 70 acre

Wet WQV = 127050 c.f.
Wet Volume Required = 254100 c.f.

Bond for Volume Bottom Basin to EL 68 not ground EXCAV.

AES Consulting Engineers
Project #6632-E-10-4

New Town Section 2-4
BMP #53
James City County

Wet WQV Volume Provided = 9432 c.y. At Elevation 66.84
Wet WQV Volume Provided = 254653 c.f. and Elevation 73

Adequate Wet Water Quality Volume is provided in BMP

AES Consulting Engineers
Project #6632-E-10-4

New Town Section 2-4
BMP #53
James City County

BMP #53 Water Quality Volumes **"Dry" Volume**

Elev.	Contour Area (in s.f.)	Storage (Between contours)	Cumulative Storage Volume
77	Area = 87599 s.f.		Cumulative Storage = 21865 c.y.
		Storage = 32460 c.f.= 1202 c.y.	
76.62	Area = 83242 s.f.		Cumulative Storage = 20663 c.y.
		Storage = 50856 c.f.= 1884 c.y.	
76	Area = 80809 s.f.		Cumulative Storage = 18779 c.y.
		Storage = 77953 c.f.= 2887 c.y.	
75	Area = 75097 s.f.		Cumulative Storage = 15892 c.y.
		Storage = 69282 c.f.= 2566 c.y.	
74	Area = 63467 s.f.		Cumulative Storage = 13326 c.y.
		Storage = 61073 c.f.= 2262 c.y.	
73	Area = 58680 s.f.		Cumulative Storage = 11064 c.y.
		Storage = 56437 c.f.= 2090 c.y.	
72	Area = 54194 s.f.		Cumulative Storage = 8974 c.y.
		Storage = 52709 c.f.= 1952 c.y.	
71	Area = 51224 s.f.		Cumulative Storage = 7022 c.y.
		Storage = 49900 c.f.= 1848 c.y.	
70	Area = 48576 s.f.		Cumulative Storage = 5174 c.y.
		Storage = 47155 c.f.= 1746 c.y.	
69	Area = 45734 s.f.		Cumulative Storage = 3428 c.y.
		Storage = 44386 c.f.= 1644 c.y.	
68	Area = 43039 s.f.		Cumulative Storage = 1784 c.y.
		Storage = 41614 c.f.= 1541 c.y.	
67	Area = 40188 s.f.		Cumulative Storage = 243 c.y.
		Storage = 6556 c.f.= 243 c.y.	
66.84	Area = 41766 s.f.		Cumulative Storage = 0 c.y.
		Storage = 0 c.f.= 0 c.y.	

Volume Required
2 * WQV
WQV = 1/2" per impervious acre

Impervious Area = 70 acre

Dry WQV = 127050 c.f.
Dry Volume Required = 254100 c.f.

Dry WQV Volume Provided = 20663 c.y. At Elevation 76.62
Dry WQV Volume Provided = 557901 c.f.

Adequate Dry Water Quality Volume is provided in BMP

AES Consulting Engineers
Project #6632-E-10-4

New Town Section 2-4
BMP #53
James City County

BMP #53 East Sediment Forebay Volumes

Elev.	Contour Area (in s.f.)	Storage (Between contours)			Cumulative Storage Volume
73	Area = 5259 s.f.				Cumulative Storage = 604 c.y.
		Storage =	4949 c.f.=	183 c.y.	
72	Area = 4639 s.f.				Cumulative Storage = 421 c.y.
		Storage =	4346 c.f.=	161 c.y.	
71	Area = 4054 s.f.				Cumulative Storage = 260 c.y.
		Storage =	3778 c.f.=	140 c.y.	
70	Area = 3503 s.f.				Cumulative Storage = 120 c.y.
		Storage =	3245 c.f.=	120 c.y.	
69	Area = 2987 s.f.				Cumulative Storage = 0 c.y.
		Storage =	0 c.f.=	0 c.y.	

Volume Required
0.1" per acre

Impervious Area = 29.25 acre

Volume Required = 393.3 c.y.
Volume Required = 10618 c.f.

Volume Provided = 604.0 c.y. At Elevation 73.00
Volume Provided = 16308.0 c.f.

Adequate Volume is provided in Sediment Forebay Area

CONSULTING ENGINEERS
Williamsburg (757) 253-0040
Gloucester (804) 693-4450
Richmond (804) 330-8040

Project	New Town BMP #53
Project No.	6632-E-10-4
Subject	Pond # 53
Sheet No.	1 of 1
Calculated By	VAB Date 8/20/07

Channel Protection Volume:

Drainage Area	=	107.7	Acres
Runoff Curve No.	=	88	
1-Yr, 24-Hr Storm Volume	=	2.8	inches

Direct Runoff (From TR55 Equations 2-3 & 2-4)
Q = 1.64 inches

Channel Protection Volume = DA * Q * 60% (Virginia Stormwater Managment Handbook section 5-6.2 - Method 2)

Vcp = 176.79 Ac-in = **385,059** cubic feet

Determine Volume of Pond by Contour (starting at normal pool):

AB 66.94

Elevation	Incremental Depth	Area (sq. ft.)	Volume (cu. ft.)	Volume (cu. yd.)	Sum Volume (cu. ft.)	Sum Volume (cu. yd.)	Incremental Avg Head[1] (feet)	Incremental Avg Flow[1] (feet)	Incremental Drawdown Time[1] (hrs)
66.8	0.0	41,766	-	-	-	-			
68.0	1.2	43,039	49,187	1,822	49,187	1,822	0.58	0.83	16.37
69.0	1.0	45,734	44,387	1,644	93,573	3,466	1.66	1.94	6.37
70.0	1.0	48,576	47,155	1,746	140,728	5,212	2.66	2.56	5.11
71.0	1.0	51,224	49,900	1,848	190,628	7,060	3.66	3.07	4.52
72.0	1.0	54,194	52,709	1,952	243,337	9,012	4.66	3.50	4.19
73.0	1.0	58,680	29,340	1,087	272,677	10,099	5.66	3.88	2.10
74.0	1.0	63,467	61,074	2,262	333,751	12,361	6.66	4.23	4.01
75.0	1.0	75,097	64,646	2,394	398,396	14,755	7.56	4.52	3.16
76.0	1.0	80,809	77,953	2,887	476,349	17,643	0.00	0.00	0.00
76.6	0.6	83,242	44,013	1,630	520,362	19,273	0.00	0.00	0.00
		Total	520,362	19,273	cPV				36.56

[1] Incremental values computed from Channel Protection Volume Elevation

Elevation of Normal Pool	=	66.84	feet
Elevation of 1-yr, 24-hr Storage Volume	=	74.79	feet
Size of Orifice	=	8.00	inches
Total Average Drawdown Time	=	**36.56**	**hrs**

AB-66.94

>24 HRS, OK

76.62
74.79 → 66.84

NEW TOWN BMP #53
BMP BUOYANCY CALCULATIONS
August 19, 2007

Note: THESE CALCULATION PROVIDED TO INSURE THE PRINCIPAL SPILLWAY / RISER DOES NOT HAS THE TENDENCY TO FLOAT.

ELEVATION OF RISER CREST =	72.00	
ELEVATION OF INVERT OF RISER =	64.00	
WIDTH OF RISER =	4.17	feet
LENGTH OF RISER =	4.17	feet
THICKNESS OF STRUCTURE =	9.5	inches
BOTTOM THICKNESS OF STRUCTURE	9	inches

WEIGHT OF WATER DISPLACED BY STRUCTURE

Volume of Riser =	289.63	
Weight of water displaced by air	Weight of water per cu. Ft. * Volume of Riser	
Weight of water displaced by air	18,073	lbs.

WEIGHT OF PRINCIPAL SPILLWAY / RISER

Volume of Concrete = (Volume of Riser - Inside Volume of Air)	175.35	
Weight of concrete of riser =	Weight of concrete per cu. Ft. * Volume of Concrete	
Weight of Concrete Riser =	26,302	lbs.
Weight of Grate =	50	lbs.
Total Weight of Riser =	26,352	lbs.

Total Weight of Riser > Weight of Water Displaced, i.e. Will not float !
Safety Factor = 1.5

CONSULTING ENGINEERS
Williamsburg (757) 253-0040
Gloucester (804) 693-4450
Richmond (804) 330-8040

Project:	New Town - BMP#53
Project No.:	6632-E-10-4
Subject:	Runoff Curve Number
Date:	August 20, 2007
Calculated By:	R. Cosby

Subject Area: Site Drainage Area to BMP #53

Soil Name and Hydrologic Group	Cover Description	CN	Area	CN x Area
				0
Urban	Comercial 78%	92	87.2	8022.4
B	Woodland (Good Condition)	55	3	165
C	Open Space/ Lawn	74	4.5	333
LID	Served by LID	77	13	1001
				0
				0
				0
		Totals =	107.7	9521.4

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{9521.4}{107.7} = 88.4$$

Use CN = **88**

Pond Report

Hydraflow Hydrographs by Intelisolve

Sunday, Aug 19 2007, 2:57 PM

Pond No. 1 - BMP #53

NP 66.84

Pond Data

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

10-YR 79.08 1'

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	66.84	38,702	0	0
0.16	67.00	40,188	6,311	6,311
1.16	68.00	43,039	41,614	47,925
2.16	69.00	45,734	44,387	92,311
3.16	70.00	48,576	47,155	139,466
4.16	71.00	51,224	49,900	189,366
5.16	72.00	54,194	52,709	242,075
6.16	73.00	58,680	56,437	298,512
7.16	74.00	69,729	64,205	362,717
8.16	75.00	75,097	72,413	435,130
9.16	76.00	80,809	77,953	513,083
10.16	77.00	87,599	84,204	597,287
11.16	78.00	95,727	91,663	688,950
12.16	79.00	104,473	100,100	789,050
13.16	80.00	113,930	109,202	898,251
14.16	81.00	123,211	118,571	1,016,822
15.16	82.00	131,782	127,496	1,144,318

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise (in)	= 42.00	8.00	0.00	0.00
Span (in)	= 42.00	8.00	0.00	0.00
No. Barrels	= 2	1	0	0
Invert El. (ft)	= 66.51	66.84	0.00	0.00
Length (ft)	= 103.00	0.00	0.00	0.00
Slope (%)	= 1.26	0.00	0.00	0.00
N-Value	= .013	.013	.000	.000
Orif. Coeff.	= 0.60	0.60	0.00	0.00
Multi-Stage	= n/a	Yes	No	No

Weir Structures

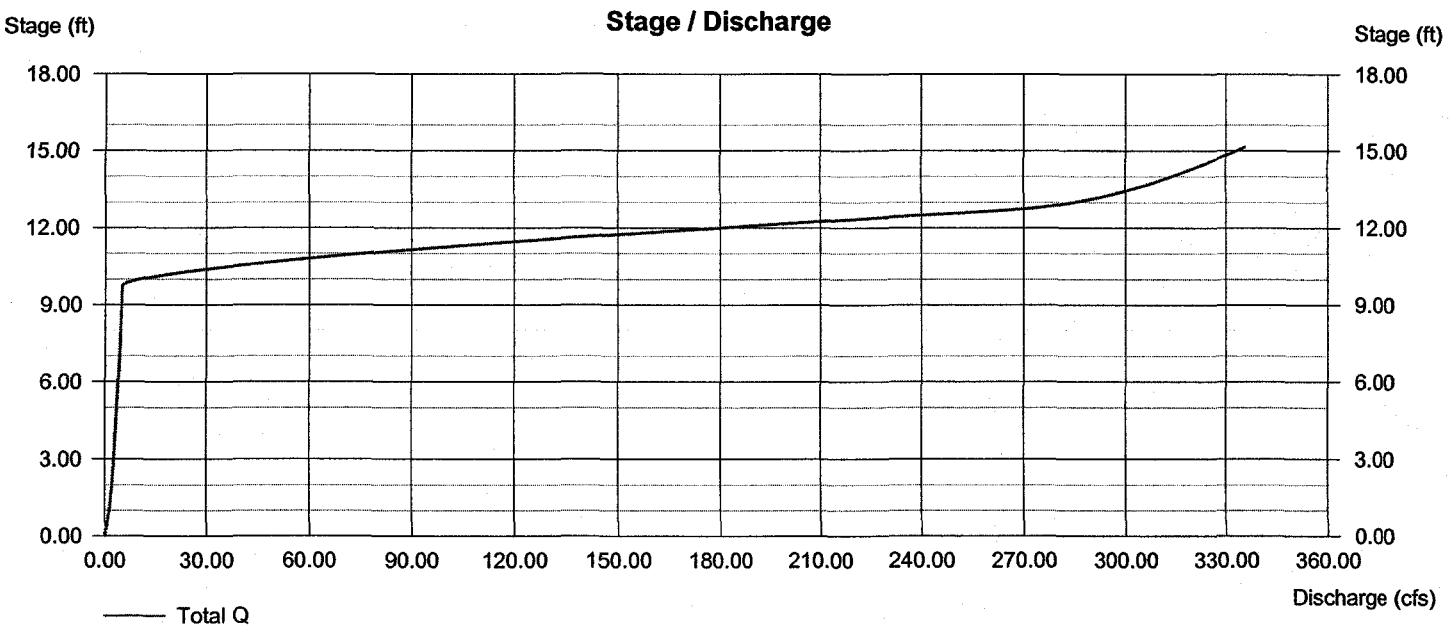
CONC BOX STRUCT.

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 16.00	0.00	0.00	0.00
Crest El. (ft)	= 76.62	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= Broad	---	---	---
Multi-Stage	= Yes	No	No	No

Exfiltration = 0.000 in/hr (Contour) Tailwater Elev. = 0.00 ft

BARREL N.P CONTROL

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control. Weir riser checked for orifice conditions.



Hydrograph Plot

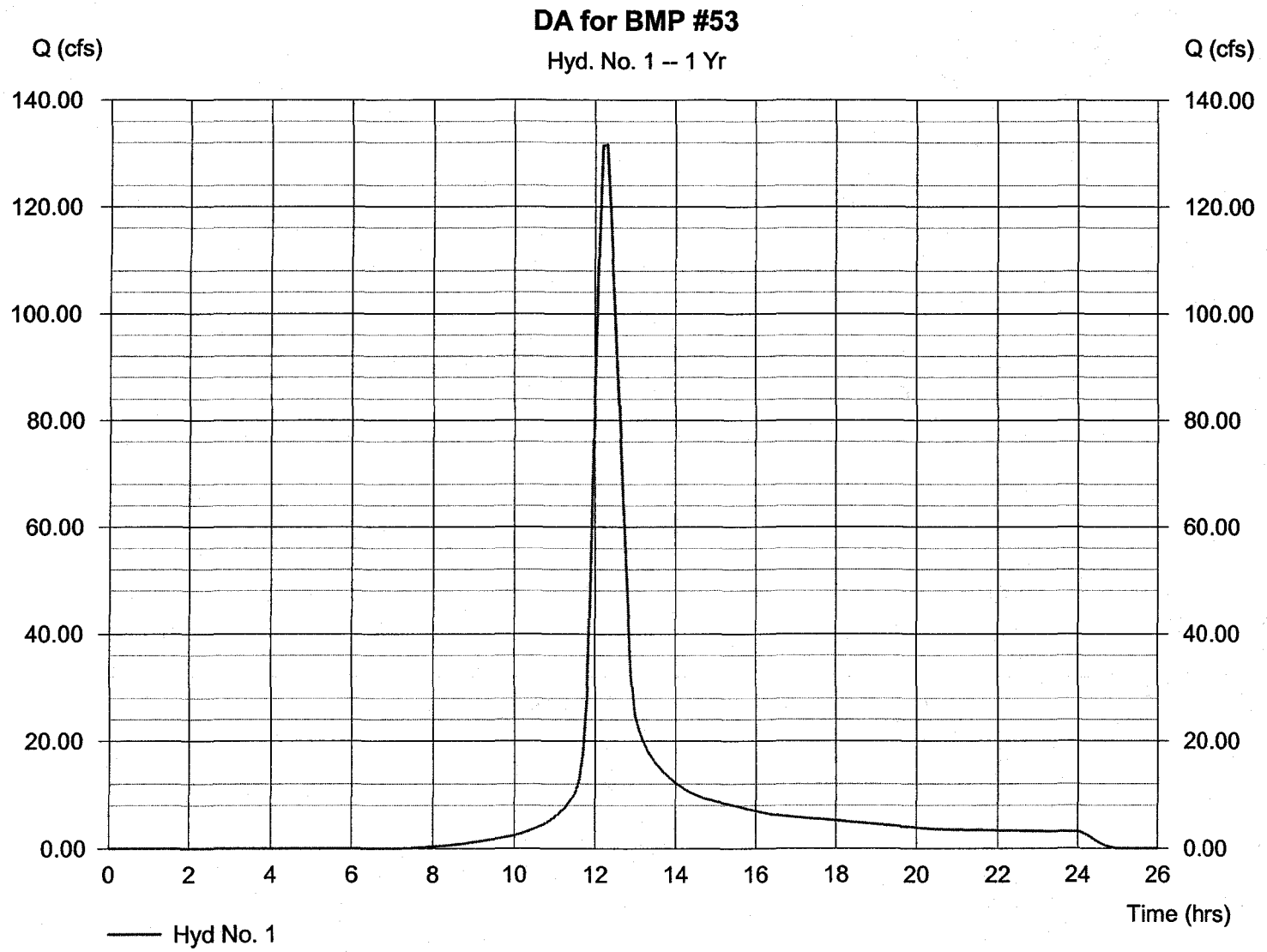
Hydraflow Hydrographs by Intelisolve | Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 1

DA for BMP #53

Hydrograph type	= SCS Runoff	Peak discharge	= 131.63 cfs
Storm frequency	= 1 yrs	Time interval	= 6 min
Drainage area	= 107.70 ac	Curve number	= 88
Basin Slope	= 2.5 %	Hydraulic length	= 2200 ft
Tc method	= USER	Time of conc. (Tc)	= 32 min
Total precip.	= 2.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 661,819 cuft



Hydrograph Plot

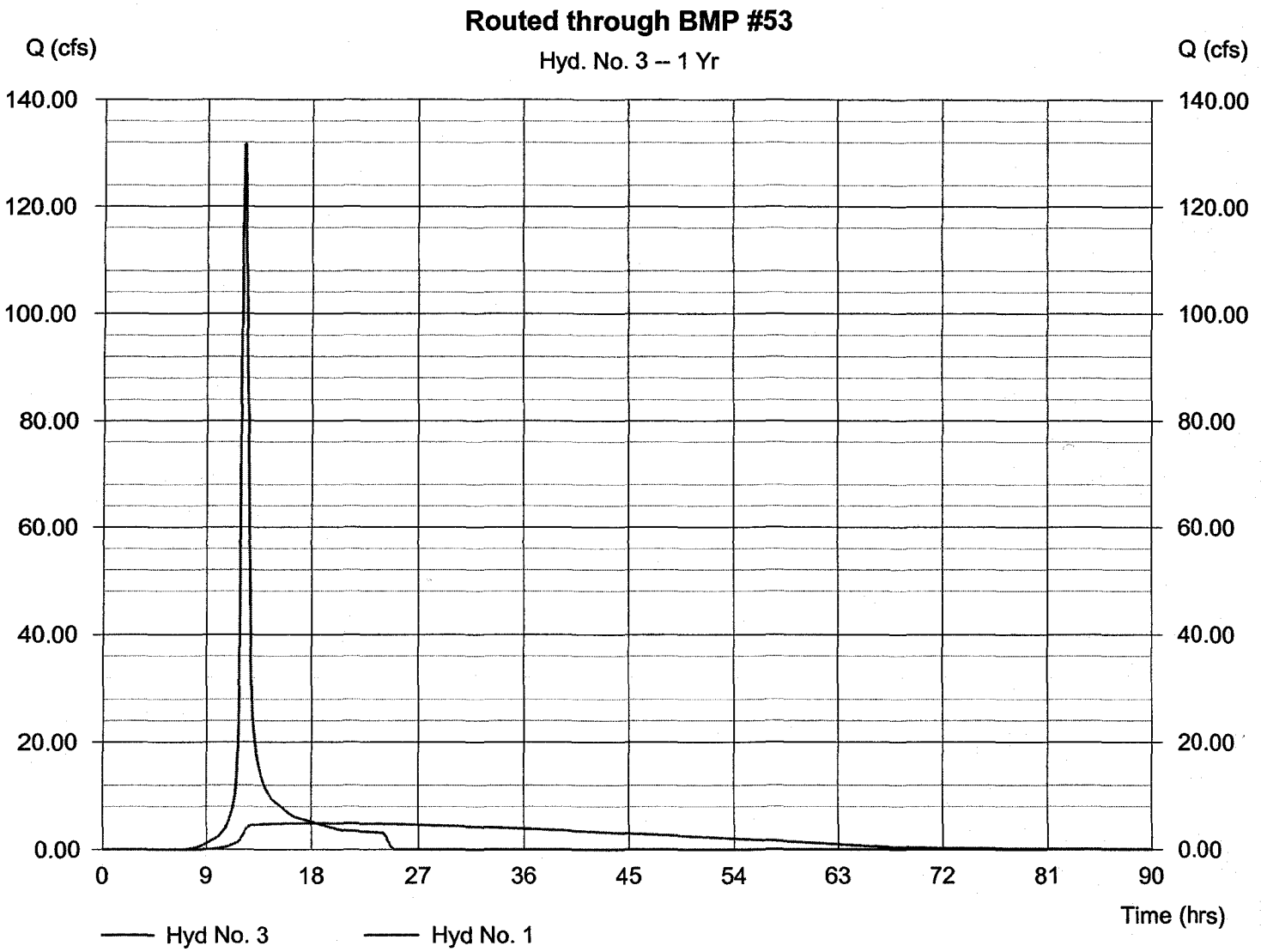
Hydraflow Hydrographs by Intelisolve | Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 3

Routed through BMP #53

Hydrograph type	= Reservoir	Peak discharge	= 4.84 cfs
Storm frequency	= 1 yrs	Time interval	= 6 min
Inflow hyd. No.	= 1	Max. Elevation	= 75.46 ft
Reservoir name	= BMP #53	Max. Storage	= 470,910 cuft

Storage Indication method used. | Hydrograph Volume = 661,182 cuft



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	131.63	6	738	661,819	----	------	------	DA for BMP #53
3	Reservoir	4.84	6	1110	661,182	1	75.46	470,910	Routed through BMP #53

Hydrograph Plot

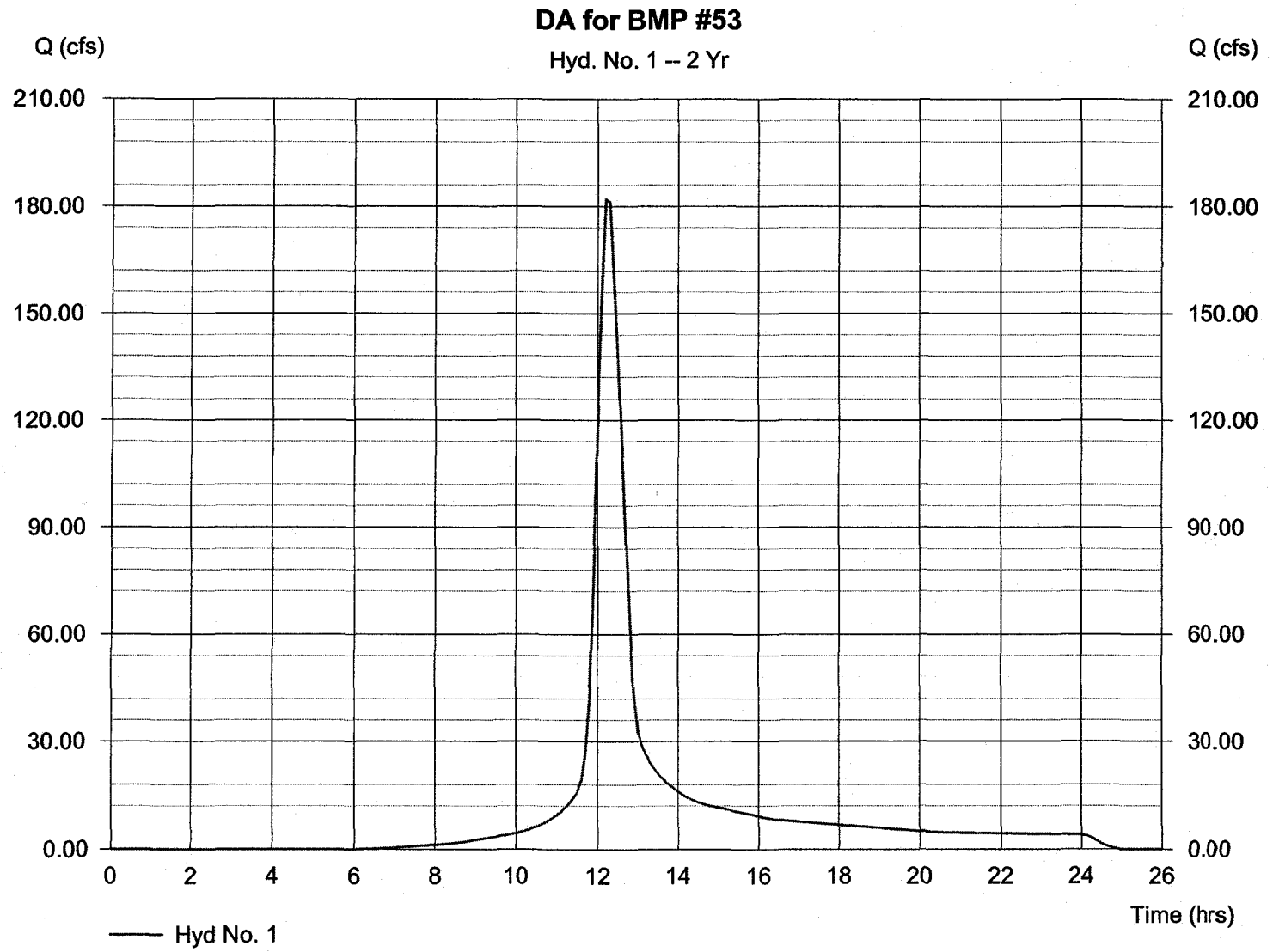
Hydraflow Hydrographs by Intelisolve | Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 1

DA for BMP #53

Hydrograph type	= SCS Runoff	Peak discharge	= 182.03 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Drainage area	= 107.70 ac	Curve number	= 88
Basin Slope	= 2.5 %	Hydraulic length	= 2200 ft
Tc method	= USER	Time of conc. (Tc)	= 32 min
Total precip.	= 3.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 914,658 cuft



Hydrograph Plot

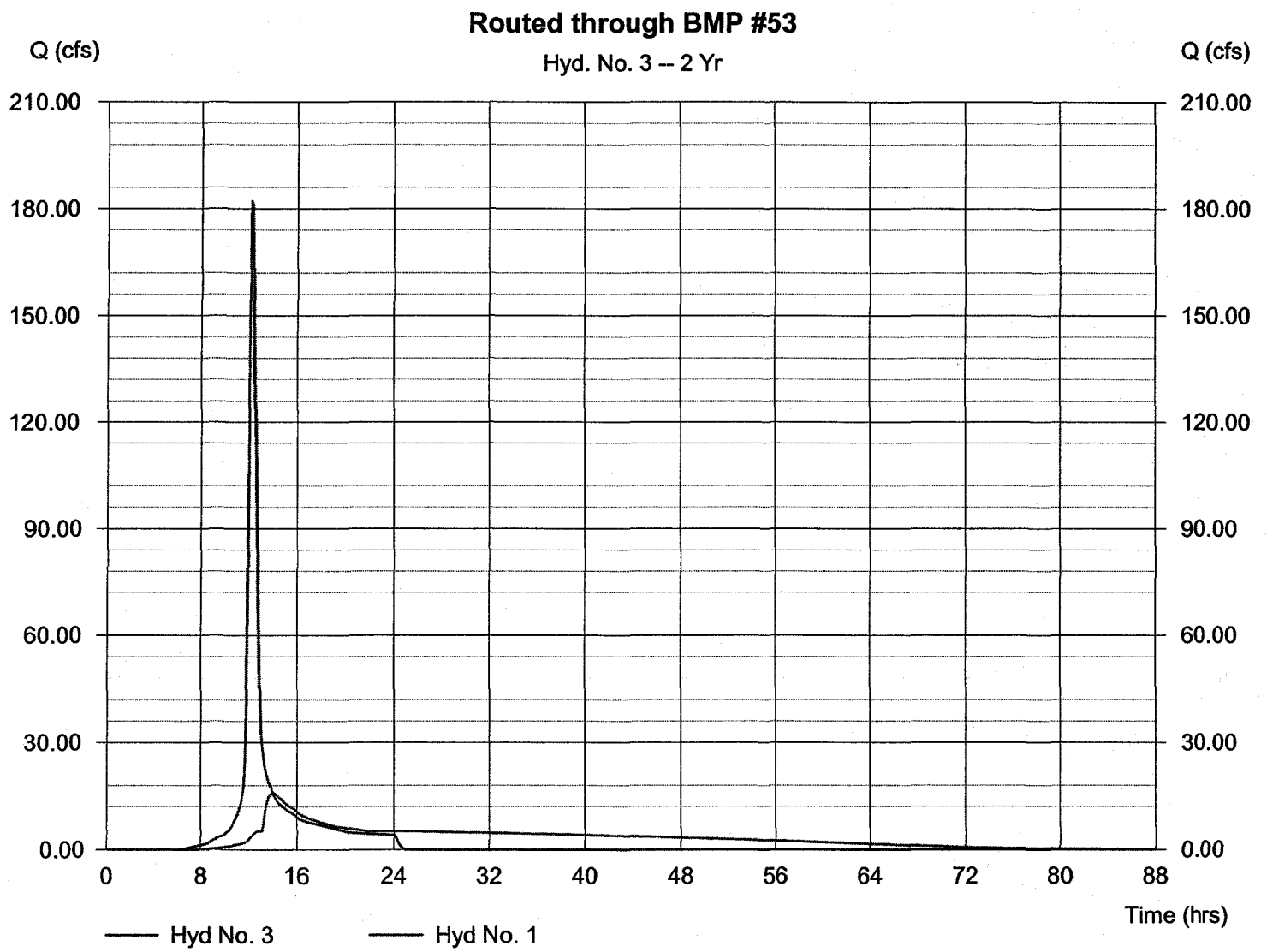
Hydraflow Hydrographs by Intelisolve | Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 3

Routed through BMP #53

Hydrograph type	= Reservoir	Peak discharge	= 15.78 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Inflow hyd. No.	= 1	Max. Elevation	= 76.96 ft
Reservoir name	= BMP #53	Max. Storage	= 593,852 cuft

Storage Indication method used. | Hydrograph Volume = 914,021 cuft



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	182.03	6	732	914,658	---	-----	-----	DA for BMP #53
3	Reservoir	15.78	6	840	914,021	1	76.96	593,852	Routed through BMP #53

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

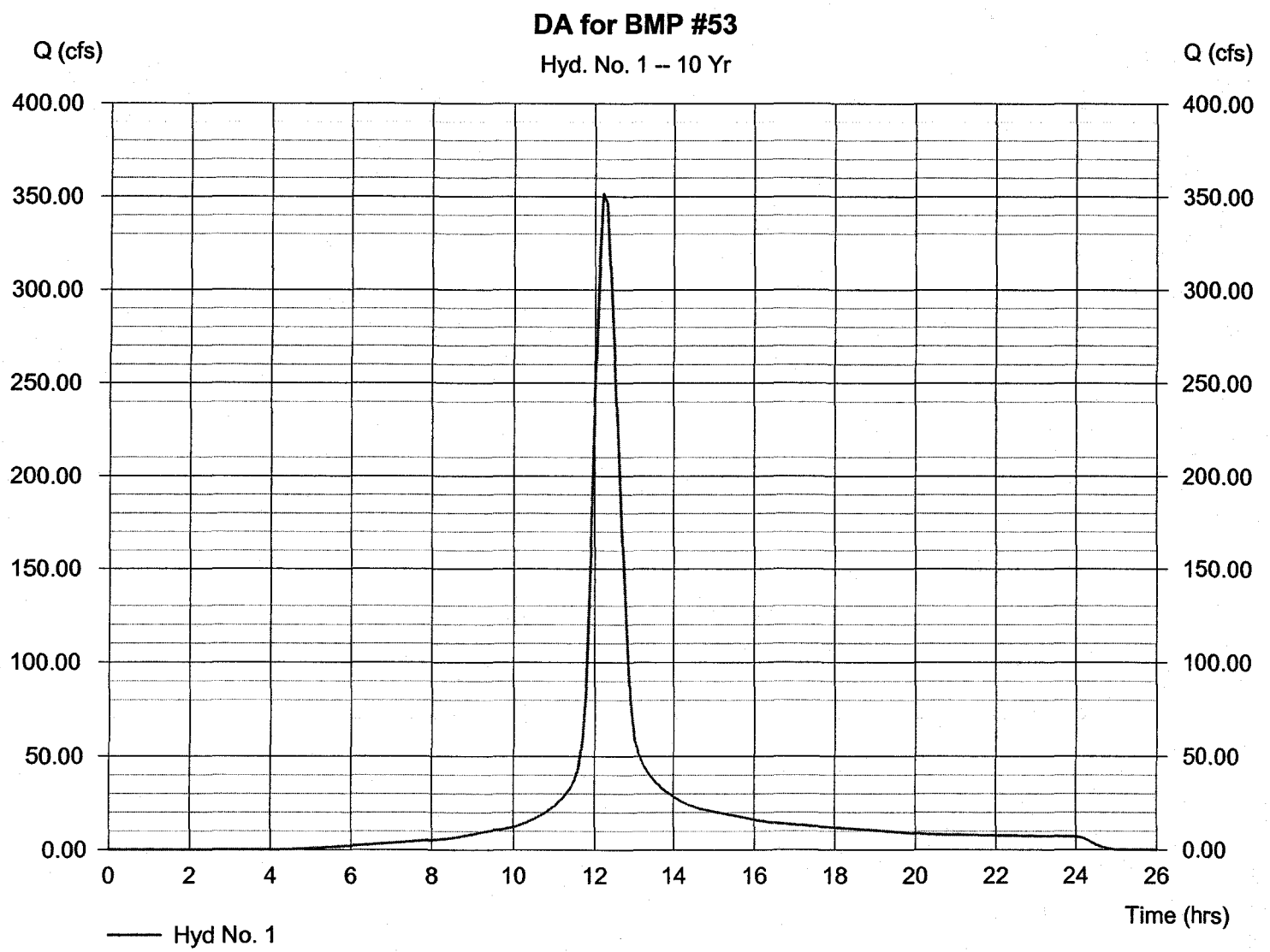
Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 1

DA for BMP #53

Hydrograph type	= SCS Runoff	Peak discharge	= 351.53 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Drainage area	= 107.70 ac	Curve number	= 88
Basin Slope	= 2.5 %	Hydraulic length	= 2200 ft
Tc method	= USER	Time of conc. (Tc)	= 32 min
Total precip.	= 5.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 1,787,439 cuft



Hydrograph Plot

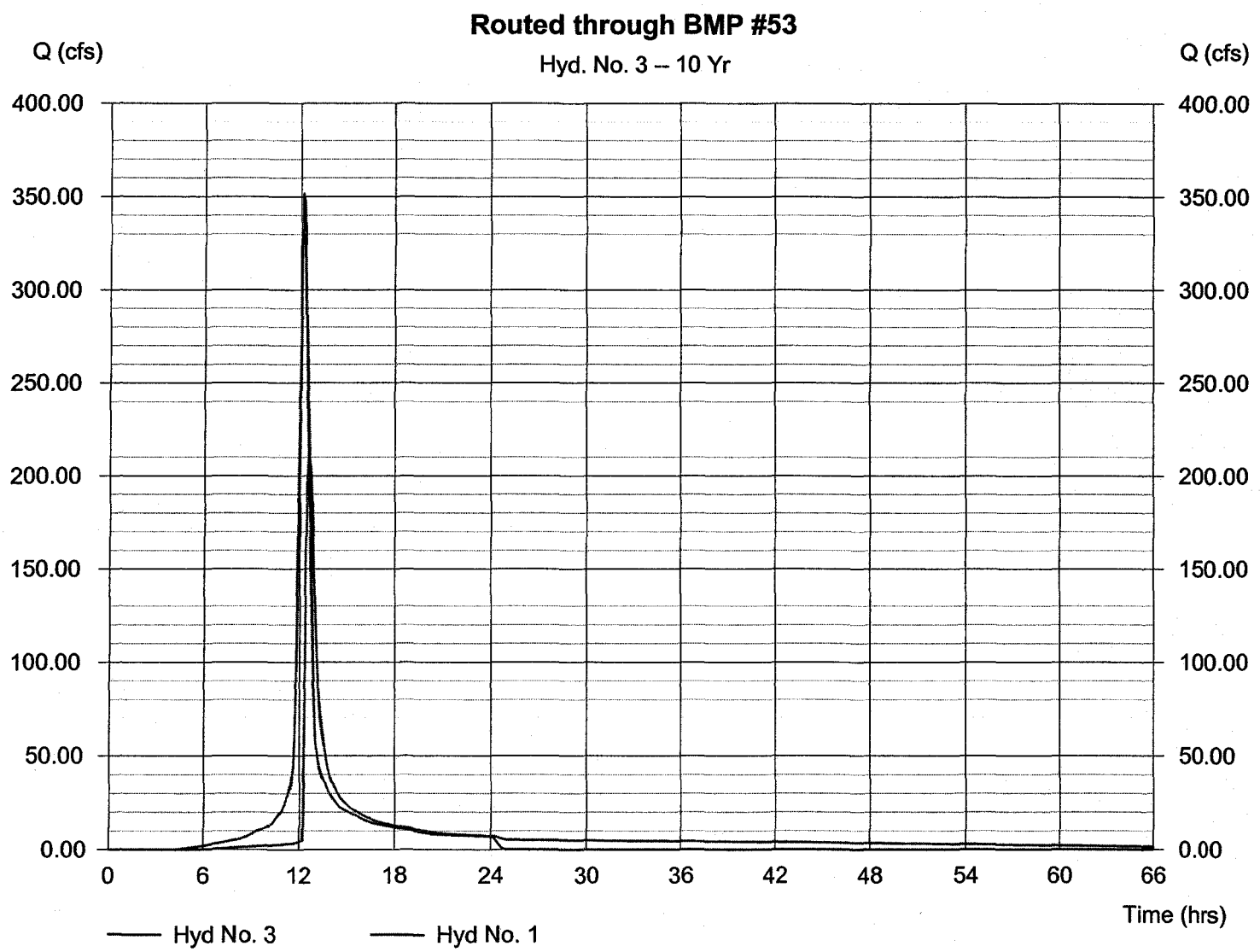
Hydraflow Hydrographs by Intelisolve | Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 3

Routed through BMP #53

Hydrograph type	= Reservoir	Peak discharge	= 209.54 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Inflow hyd. No.	= 1	Max. Elevation	= 79.08 ft
Reservoir name	= BMP #53	Max. Storage	= 797,730 cuft

Storage Indication method used. | Hydrograph Volume = 1,786,801 cuft



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	351.53	6	732	1,787,439	----	------	------	DA for BMP #53
3	Reservoir	209.54	6	756	1,786,801	1	79.08	797,730	Routed through BMP #53

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

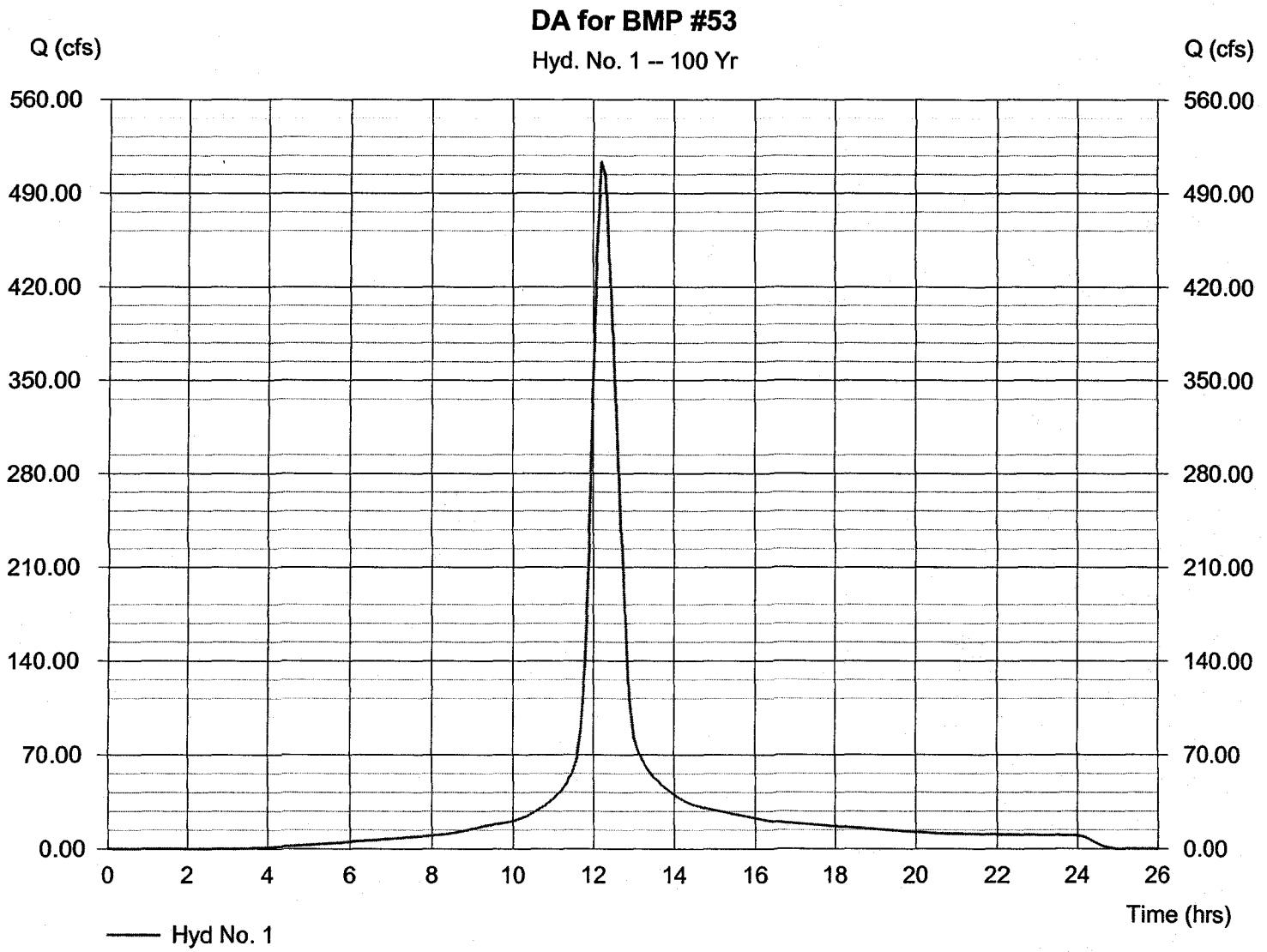
Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 1

DA for BMP #53

Hydrograph type	= SCS Runoff	Peak discharge	= 513.20 cfs
Storm frequency	= 100 yrs	Time interval	= 6 min
Drainage area	= 107.70 ac	Curve number	= 88
Basin Slope	= 2.5 %	Hydraulic length	= 2200 ft
Tc method	= USER	Time of conc. (Tc)	= 32 min
Total precip.	= 8.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 2,648,080 cuft



Hydrograph Plot

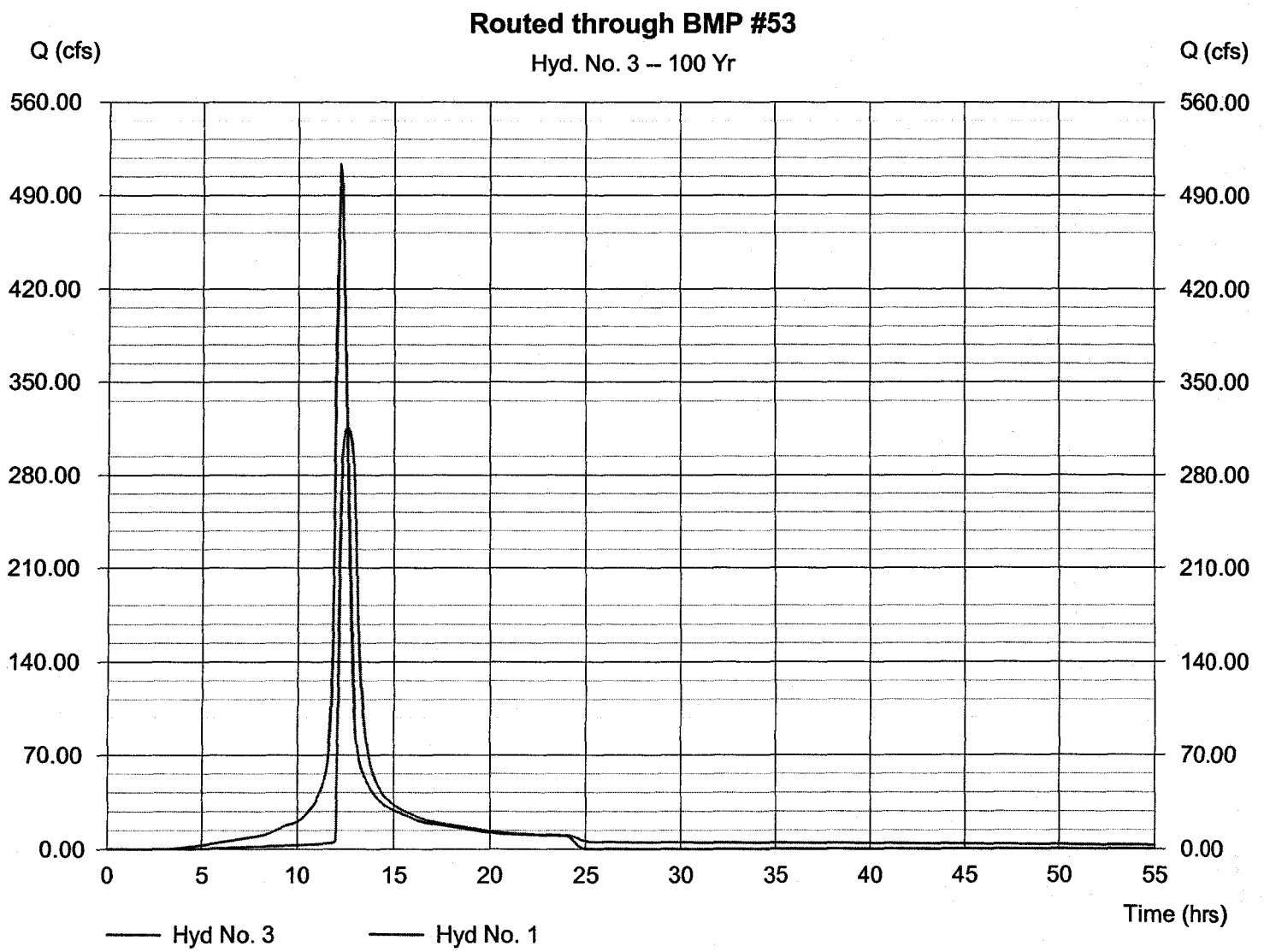
Hydraflow Hydrographs by Intelisolve | Sunday, Aug 19 2007, 2:57 PM

Hyd. No. 3

Routed through BMP #53

Hydrograph type	= Reservoir	Peak discharge	= 316.01 cfs
Storm frequency	= 100 yrs	Time interval	= 6 min
Inflow hyd. No.	= 1	Max. Elevation	= 80.93 ft
Reservoir name	= BMP #53	Max. Storage	= 1,008,940 cuft

Storage Indication method used. | Hydrograph Volume = 2,647,446 cuft



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	513.20	6	732	2,648,080	----	------	------	DA for BMP #53
3	Reservoir	316.01	6	756	2,647,446	1	80.93	1,008,940	Routed through BMP #53

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	-------	131.63	182.03	-------	270.30	351.53	395.75	454.57	513.20	DA for BMP #53
3	Reservoir	1	4.84	15.78	-------	108.87	209.54	259.02	295.08	316.01	Routed through BMP #53

Scott Thomas

From: Peter Henderson [peter@hendersoninc.com]
Sent: Friday, May 02, 2008 10:53 AM
To: Scott Thomas
Subject: FW: BMP 53 - Volumes
Attachments: 6632-E-10-4-Basin Volumes-BMP-53-2007-06-27.xls

Scott, I will call you to discuss.

Thanks,
Peter

Sent by GoodLink (www.good.com)

-----Original Message-----
From: Cosby, Bob [mailto:bob.cosby@aesva.com]
Sent: Monday, April 21, 2008 10:08 AM Eastern Standard Time
To: Peter Henderson
Subject: BMP 53 - Volumes

Peter,

Attached is the design spreadsheet for the BMP. Use the "Wet Volume (Pond)" tab to reference the design. The BMP is designed for 70 acres of impervious cover which at 1" per acre equates to 254,100 CF (9,411 CY) of wet volume required. The pond as designed provided 254,653 CF (9,431 CY) of volume. The Main Pool provides 8827 CY and the upper pool provides 604 CY of the provided volume. The "Sediment Forebay" tab notes the design requirement for the forebay which is 0.1" per acre, or a required volume of 10,618 CF (393 CY). Designed was 604 CY.

Based on the As-built survey of the pond. The lower pool has 5,228 CY and the upper pool has 450 CY, with a total volume of 5,678 CY. This equates to a volume of approximately 0.6" per impervious acre (70 acres). While the upper pool is short 156CY of the designed volume, it is still 57 CY above the required volume of the sediment forebay. The BMP as a whole provides basically 60% of the required "wet" volume in the main pool which provides the contact time and settlement time for various materials and pollutants which enter the BMP. From a BMP Point Total, this BMP provides service for 33% of the area within New Town. As a 10 point facility this BMP provides 3.32 of the total points for New Town.

The "dry" volume or flood storage volume is adequate based on design. Therefore as rainfall occurs the BMP will fill and empty as designed, the various storm events will raise the water surface elevation as designed. Therefore adequate flood control or MS-19 requirements are met or exceeded by the designed and constructed BMP.

As an additional positive for New Town. Based on the final wetland buffers and RPA buffers the preserved open space has actually increased since the BMP Points were calculated. Furthermore at least 2 – 4 point facilities which served 20 acres have been eliminated and rerouted into 10 point facilities. Additional LID acreage has been provided within Settler's Market and Section 7&8 which are above and beyond the required LID treatment for New Town, which has not been accounted for within the BMP Points. If JCC assumes that BMP 53 functions as a 6 point facility this will reduce the available points by approximately 1 point, however the other various increases throughout New Town approximately offset this loss so the system maintains approximately 10 points as a whole and does continue to provide water quality protection in accordance with the 10 point facility. Unfortunately several of the LID measures which may be necessary to raise the total points to 10

points were proffered to be excluded from the Master Stormwater Plan as above and beyond the 10 points.

Hopefully this information helps. Please let me know if you need any additional information.

Thanks

Bob Cosby

Robert E. Cosby III, P.E.

Project Manager

AES Consulting Engineers

Williamsburg | Richmond | Gloucester | Fredericksburg

(757) 253-0040

fax: (757) 220-8994

bob.cosby@aesva.com <mailto:bob.cbob.cosby@aesva.com>

www.aesva.com

AES Consulting Engineers
Project #6632-E-10-4

New Town Section 2-4
BMP #53
James City County

BMP #53 Water Quality Volumes **"Dry" Volume**

Elev.	Contour Area (in s.f.)	Storage (Between contours)	Cumulative Storage Volume
77	Area = 87599 s.f.		Cumulative Storage = 21865 c.y.
		Storage = 32460 c.f.= 1202 c.y.	
76.62	Area = 83242 s.f.		Cumulative Storage = 20663 c.y.
		Storage = 50856 c.f.= 1884 c.y.	
76	Area = 80809 s.f.		Cumulative Storage = 18779 c.y.
		Storage = 77953 c.f.= 2887 c.y.	
75	Area = 75097 s.f.		Cumulative Storage = 15892 c.y.
		Storage = 69282 c.f.= 2566 c.y.	
74	Area = 63467 s.f.		Cumulative Storage = 13326 c.y.
		Storage = 61073 c.f.= 2262 c.y.	
73	Area = 58680 s.f.		Cumulative Storage = 11064 c.y.
		Storage = 56437 c.f.= 2090 c.y.	
72	Area = 54194 s.f.		Cumulative Storage = 8974 c.y.
		Storage = 52709 c.f.= 1952 c.y.	
71	Area = 51224 s.f.		Cumulative Storage = 7022 c.y.
		Storage = 49900 c.f.= 1848 c.y.	
70	Area = 48576 s.f.		Cumulative Storage = 5174 c.y.
		Storage = 47155 c.f.= 1746 c.y.	
69	Area = 45734 s.f.		Cumulative Storage = 3428 c.y.
		Storage = 44386 c.f.= 1644 c.y.	
68	Area = 43039 s.f.		Cumulative Storage = 1784 c.y.
		Storage = 41614 c.f.= 1541 c.y.	
67	Area = 40188 s.f.		Cumulative Storage = 243 c.y.
		Storage = 6556 c.f.= 243 c.y.	
66.84	Area = 41766 s.f.		Cumulative Storage = 0 c.y.
		Storage = 0 c.f.= 0 c.y.	

Volume Required
2 * WQV
WQV = 1/2" per impervious acre

Impervious Area = 70 acre

Dry WQV = 127050 c.f.
Dry Volume Required = 254100 c.f.

Dry WQV Volume Provided = 20663 c.y. At Elevation 76.62
Dry WQV Volume Provided = 557901 c.f.

Adequate Dry Water Quality Volume is provided in BMP

ECS MID-ATLANTIC, LLC
Geotechnical • Construction Materials • Environmental • Facilities

August 20, 2007

SP-38-07
PC-173 Conversion

Mr. Jon McCann
Newtown Associates, LLC
4801 Courthouse Street
Suite 329
Williamsburg, Virginia 23188

ECS Project No. 07:9321

Reference: Subsurface Exploration and Geotechnical Engineering Analysis
Newtown BMP 53 Conversion
James City County, Virginia

Dear Mr. McCann,

ECS Mid-Atlantic, LLC has completed a subsurface exploration and engineering evaluation for above referenced project. This report presents the results of the subsurface exploration and engineering analyses for the proposed BMP conversion.

Introduction:

We understand BMP No. 53 is proposed to be converted to a wet pond. The existing earth dam for BMP 53 currently exists as Newtown Avenue just off the intersection with Monticello Avenue within the New Town Development. We understand this dam was constructed sometime around 1999 as part of the stormwater management facility during the construction of the nearby James City County Courts building. The BMP was originally designed as a dry retention basin with a 24 hour water retention capability. ECS performed a subsurface exploration and engineering evaluation of the existing dam structure and a report was issued November 15, 2002.

The purpose of this exploration was to explore the soil and groundwater conditions at the site and to develop soils-related engineering recommendations to guide design and construction of the planned BMP conversion. Our limited investigation included drilling two (2) hand augers to explore the subsurface soil and groundwater conditions, performing a site reconnaissance to observe general topography, and analyzing field data to develop appropriate geotechnical engineering recommendations regarding the planned construction. A boring Location Plan is included in Appendix I.

Field Exploration Procedures:

Two (2) hand augers were drilled in the vicinity of the proposed aquatic bench area of the BMP. For the purposes of this limited study, no other areas were accessible at this time without disturbance. Hand auger probes utilizing a 3-inch diameter bucket auger at the proposed parking lot as shown on the hand auger location plan attached in Appendix I. The auger is screwed into the ground generally in 6-inch intervals and soil can be extracted for visual inspection. This method can not determine the exact consistency or density of in place soils. Rather, it is used to determine the general soil types but can provide alternative determination of the consistency or density of in-place soils by the ease of which the hand auger turns and advances. Representative samples were sealed in plastic bags and delivered to our laboratory in Williamsburg, Virginia, for further visual examination and testing.

Subsurface Conditions:

Experienced personnel from our office classified each soil sample in accordance with the Unified Soil Classification System (USCS). The group symbols for each soil type are indicated in parentheses following the soil descriptions on the boring logs. The geotechnical engineer grouped the various soil types into the major zones noted on the boring logs. The stratification lines designating the interfaces between earth materials on the boring logs are approximate; in situ, the transitions may be gradual. A brief explanation of the USCS is provided in Appendix III of this report.

The hand augers revealed the ground surface was covered with approximately 1 to 1.5 feet of topsoil. Underlying the topsoil, we encountered mixed deposits of Silty and Clayey SAND (SM and SC) to boring termination depth of 4.5 to 6 feet below site grades at which depth the auger holes were caving-in.

Groundwater was encountered at 3.5 to 5.75 feet at the hand auger locations. Please note that groundwater levels are influenced by seasonal conditions and by periods of significant precipitation or prolonged drought. If ground water is encountered, we recommend it be pumped from sumps located below the bottom of foundation elevation.

BMP 53:

ECS performed an evaluation of the existing earth dam structure for this BMP and a report was issued November 15, 2002. We understand the dam was constructed in 1999 as the stormwater management facility for the James City County Courts facility located across Monticello Avenue. Two soil test borings were performed within the existing dam alignment prior to the construction of Newtown Avenue. The borings generally revealed mixed deposits of compacted

structural fill to depths of about 12 to 26 feet below site grades at the time of that study. No information was available as to if the dam was monitored during construction although we generally understand no testing was performed. Based on our evaluation at the time, the dam appeared to be in generally good condition and we generally considered the dam to have been constructed in accordance with acceptable construction practices and considered suitable for support of the proposed roadway and generally under its current capacity as an earth dam for the stormwater management facility.

We now understand the BMP is planned to be converted to a wet pond design as opposed to the current dry pond configuration. Existing elevations across the pond site range from El 67 to 74, msl. The proposed BMP basin elevation will be established at new grades of about El 56 to 66. That will require a cut of about 10 ft below existing site grades. The side slopes of the embankments should be graded no steeper than 3:1 for stability and no steeper than 2:1 for the forebay slopes which will be below the water surface.

The hand augers revealed mixed deposits of Silty and Clayey Sand along the higher elevations of the side slopes and mixed deposits of Silty and Clayey Sand and Sandy Clay Fill within the existing dam structure. Based on the soil types encountered, we estimate infiltration rates ranging between 0.17 to 1.02 inches per hour and Hydrologic Soil Group designations of B to C with the side slopes and infiltration rates within the existing dam structure and below the existing basin elevation ranging between 0.02 and 0.52 inches per hour with Hydrologic Soil Group designations of C to D.

Generally, we believe the dam is of sound construction and should perform adequately for water retention purposes. Also, based on the elevation we encountered the groundwater table, we understand the planned permanent pool elevation will be below this level. As such, we believe the pond will perform as designed with respect to water retention capabilities.

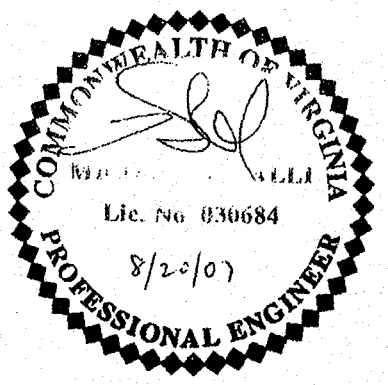
General Comments:

This report has been prepared in order to aid in the evaluation of this site and to assist the Contractor, Architect and Engineer in the design and planning of the project. The report scope is limited to the specific project and location described, and the project description represents our understanding of the significant aspects relevant to soil and foundation characteristics.

We have appreciated being of service to you during the design phase of this project and look forward to its successful construction. If you should have any questions regarding the information and recommendations contained in this report or if we can be of any further assistance, please contact our office.

Respectfully,

ECS MID-ATLANTIC, LLC



David Gordinier, E.I.T.
Geotechnical Engineer

Michael J. Galli, P.E.
Principal Engineer

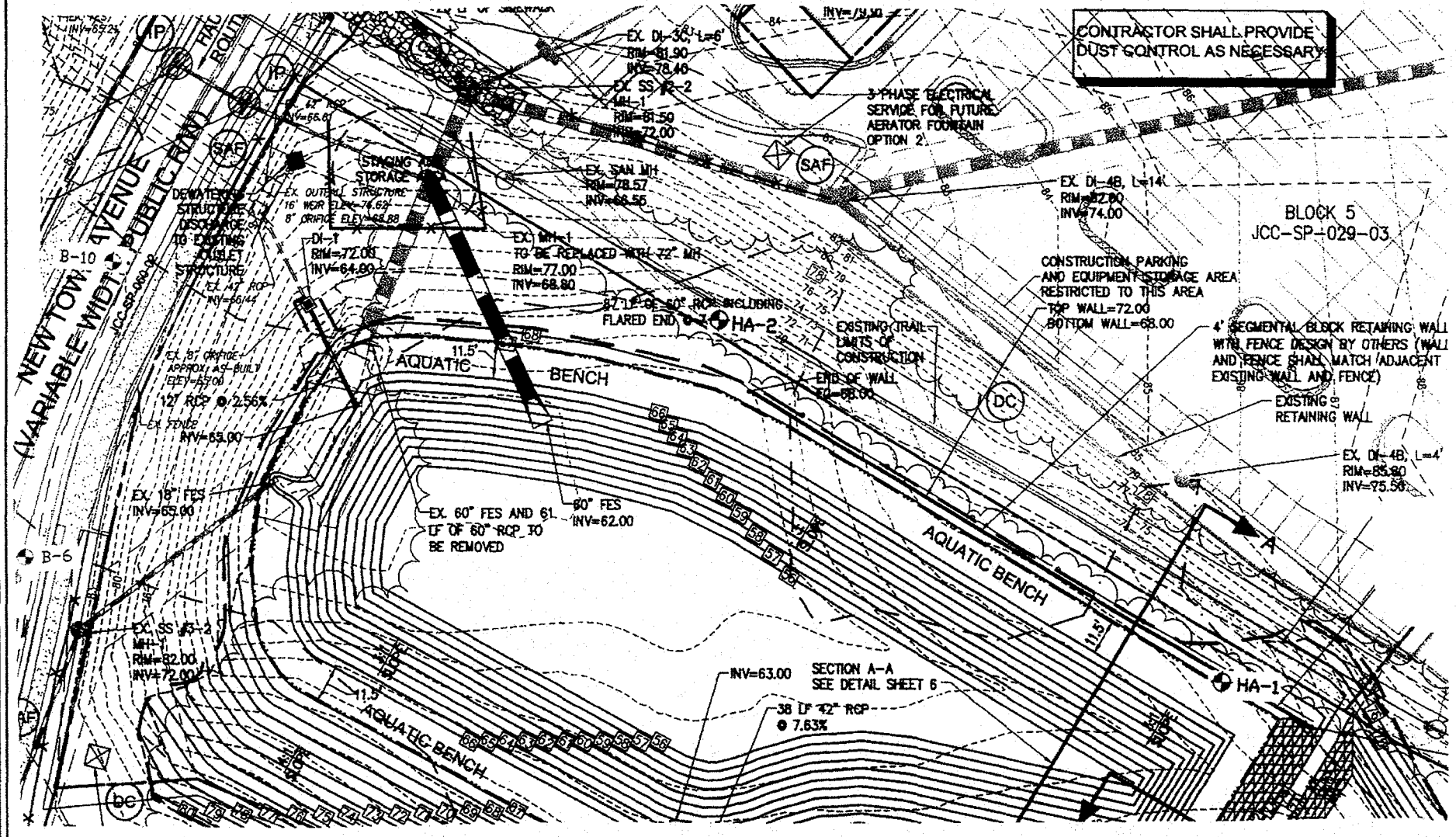
DJG/MJG

Appendix:
I. Hand Auger Location Plan (1)
II. Hand Auger and Boring Logs (3)
III. Unified Soil Classification System (1)

I:\Projects\2007 Projects\Geo\9321 - Newtown BMP 53 Conversion\9321 BMP Letter.doc

APPENDIX I

HAND AUGER AND BORING LOCATION PLAN



LEGEND:

-APPROX. HAND AUGER LOCATION

*Base plan provided by AES

ECS Mid-Atlantic
108 Ingram Road, Unit 1
Williamsburg, Virginia 23188

Ph (757) 229-6677 Fax (757) 229-9978

HAND AUGER LOCATION PLAN

Newtown BMP 53 Conversion
James City County, Virginia

CHECKED:	SCALE:	DATE:	FIGURE:
D.J.G.	N.T.S.	08/16/07	Fig. 1
DRAWN: J.A.R.	PROJECT NO. 07:9321		

APPENDIX II

HAND AUGER AND BORING LOGS

ECS LLC
MID-ATLANTIC

HAND AUGER BORING LOGS

ECS PROJECT #: 07:9321

NEWTOWN SECTION 2 & 4 - BMP 53 CONVERSION
COUNTY, STATE: JAMES CITY COUNTY, VIRGINIA

DEPTH (inches)	LOCATION: HA-1 DESCRIPTION OF MATERIALS
0-18	Topsoil
18-24	Fine to Medium Silty SAND (SM), Dark Gray, Moist
24-48	Fine to Medium Silty SAND (SM), Gray, Moist
48-66	Fine to Medium Silty SAND (SM), Gray, Moist
66-72	Fine to Medium Clayey SAND (SC), Dark Gray, Moist to Wet
	GROUNDWATER WAS ENCOUNTERED AT 5 FEET 9 INCHES
	END OF BORING AT 72 INCHES

DEPTH (inches)	LOCATION: HA-2 DESCRIPTION OF MATERIALS
0-12	Topsoil
12-24	Fine to Medium Silty SAND (SM), Dark Gray, Moist
24-48	Fine to Medium Silty SAND (SM), Dark Gray, Moist to Wet
48-54	Fine to Medium Silty SAND (SM), Dark Gray, Wet
54	Cave-In
	GROUNDWATER WAS ENCOUNTERED AT 3 FEET 6 INCHES
	END OF BORING AT 54 INCHES

Note: Soils were classified in general accordance with ASTM D-2488 (Description and Identification of Soils - Visual/Manual Procedures)

CLIENT	JOB #	BORING #	SHEET
NEWTOWN ASSOCIATES	07:5886	B-6	1 OF 1
PROJECT NAME NEWTOWN DEVELOPEMENT-PHASE I	ARCHITECT-ENGINEER AES CONSULTING ENGINEERS		

SITE LOCATION
MONTICELLO AVENUE, JAMES CITY CO., VIRGINIA

ENGLISH UNITS

SURFACE ELEVATION 83.0

CALIBRATED PENETROMETER TONS/FT.^{2} (1 2 3 4 5+)

PLASTIC LIMIT % X — WATER CONTENT % ● — LIQUID LIMIT % Δ (10 20 30 40 50+)

STANDARD PENETRATION BLOWS/FT. ⊗ (10 20 30 40 50+)

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS ELEVATION (FT)	STANDARD PENETRATION BLOWS/FT.
0	1	SS	24	24	TOPSOIL DEPTH 36"		9
	2	SS	24	24	Fine Sandy CLAY, With Fine Gravel, Reddish Brown, Moist, Medium Stiff, (CL) PossibleFILL to 6 feet.	80	7
5	3	SS	24	24			7
	4	SS	24	24			10
	5	SS	24	24		75	12
10					Clayey Fine to Medium SAND, Reddish Brown, Moist, Loose, (SC)		
	6	SS	24	24		70 ▽	6
15					Fine Sandy CLAY, With Marine Shell Fragments, Dark Brown, Wet, Medium Stiff, (CL)		
	7	SS	24	24		65	6
20					END OF BORING @ 20.0'		
						60	
25							
						55	
30							

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL

▽WL 14.0' WS OR (D)	BORING STARTED 10-2-02	
▽WL(AB) ▽WL(AC)	BORING COMPLETED 10-2-02	CAVE IN DEPTH ● 18.0'
▽WL	RIG ATV FOREMAN TOM	DRILLING METHOD HSA

CLIENT	JOB #	BORING #	SHEET
NEWTOWN ASSOCIATES	07:5886	B-10	1 OF 1
PROJECT NAME NEWTOWN DEVELOPEMENT-PHASE I	ARCHITECT-ENGINEER AES CONSULTING ENGINEERS		

ECS LTD

SITE LOCATION
MONTICELLO AVENUE, JAMES CITY CO., VIRGINIA

ENGLISH UNITS

SURFACE ELEVATION 82.0

CALIBRATED PENETROMETER TONS/FT.^{2} (1, 2, 3, 4, 5+)

PLASTIC LIMIT % X — WATER CONTENT % ● — LIQUID LIMIT % Δ (10, 20, 30, 40, 50+)

STANDARD PENETRATION BLOWS/FT. (10, 20, 30, 40, 50+)

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	STANDARD PENETRATION BLOWS/FT.
0	1	SS	24	24	TOPSOIL DEPTH 2" Silty Fine SAND, With Roots, Dark Brown, Moist, Loose to Medium Dense, (SM) FILL		80	10
	2	SS	24	24				9
5	3	SS	24	24	Clayey Fine SAND, Reddish Brown, Moist, Loose to Medium Dense, (SC) FILL			10
	4	SS	24	24			75	11
	5	SS	24	24	Silty Fine SAND, Trace Clay and Roots, Medium Brown, Moist, Medium Dense, (SM) FILL			12
10							70	
	6	SS	24	24				9
15	7	SS	24	24				11
					Clayey Fine SAND, Light to Dark Brown, Moist, Medium Dense, (SC) FILL		65	
	8	SS	24	24				11
20						▽	60	
	9	SS	24	24				11
25								
					Fine Sandy CLAY, Reddish Brown, Moist, Medium Stiff, (CL)		55	
	10	SS	24	24				8
30								

END OF BORING @ 30.0'

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL

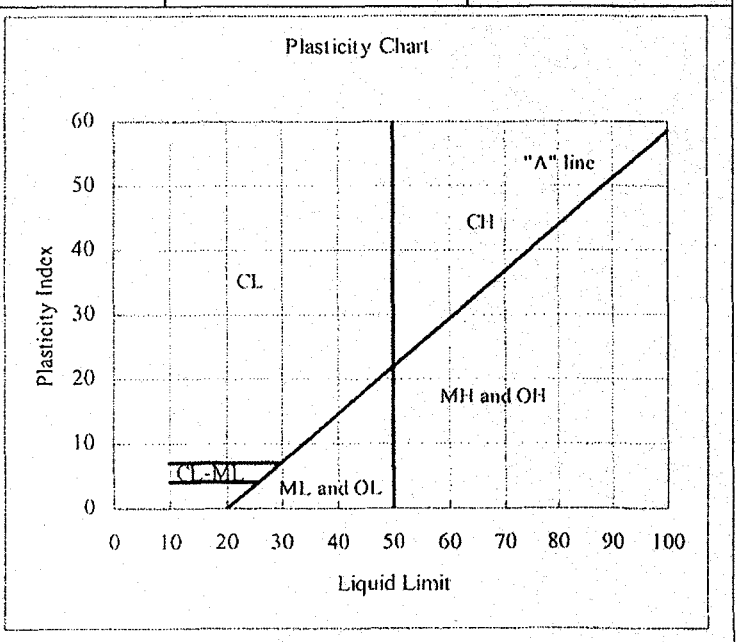
▽WL 22.0' WS OR (CD)	BORING STARTED 10-02-02	
▽WL(AB) ▽WL(AC)	BORING COMPLETED 10-02-02	CAVE IN DEPTH ● 20.0
▽WL	RIG ATV FOREMAN SDS	DRILLING METHOD MUD ROTATRY

APPENDIX III

UNIFIED SOIL CLASSIFICATION SYSTEM

Unified Soil Classification System (ASTM D-2487)

Major Divisions			Group Symbols		Typical Names	Laboratory Classification Criteria		
Coarse-grained soils (More than half of material is larger than No. 200 Sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW		Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentage of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows: Less than 5 percent GW, GP, SW, SP; More than 12 percent GM, GC, SM, SC; 5 to 12 percent Border 4 line cases requiring dual symbols [b]	$C_u = D_{60}/D_{10}$ greater than 4 $C_c = (D_{30})^2/(D_{10} \times D_{60})$ between 1 and 3	
			GP		Poorly graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW	
		Gravels with fines (Appreciable amount of fines)	GM [a]	d	Silty gravels, gravel-sand mixtures		Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
				u				
			GC		Clayey gravels, gravel-sand-clay mixtures		Atterberg limits below "A" line or P.I. less than 7	
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines		$C_u = D_{60}/D_{10}$ greater than 6 $C_c = (D_{30})^2/(D_{10} \times D_{60})$ between 1 and 3	
			SP		Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for SW	
		Sands with fines (Appreciable amount o fines)	SM [a]	d	Silty sands, sand-silt mixtures		Atterberg limits above "A" line or P.I. less than 4	Limits plotting in CL-ML zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
				u				
			SC		Clayey sands, sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
Fine-grained soils (More than half material is smaller than No. 200 Sieve)	Silts and clays (Liquid limit less than 50)		ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity			
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays			
			OL		Organic silts and organic silty clays of low plasticity			
	Silts and clays (Liquid limit greater than 50)		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts			
			CH		Inorganic clays of high plasticity, fat clays			
			OH		Organic clays of medium to high plasticity, organic silts			
	Highly Organic soils		Pt		Peat and other highly organic soils			



[a] Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits; suffix d used when L.L. is 28 or less and the P.I. is 6 or less; the suffix u used when L.L. is greater than 28.

[b] Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC, well-graded gravel-sand mixture with clay binder.

From Winterkorn and Fang. 1975.

4.0 OVERALL STORMWATER MANAGEMENT PLAN

In order to develop the most efficient and effective management plan, WEG performed an extensive alternatives analysis to determine the most appropriate combination of BMP locations based on stormwater treatment benefits, cost, and environmental impacts. A combination of structural BMP points, LID measures, and natural open space credit was selected to try to achieve a total of 10-points for the project. The Master Stormwater Plan previously submitted to James City County on August 19, 2004 has been modified to account for some minor changes to open space areas and BMP drainage areas.

4.1 WATER QUALITY

This Revised Master Stormwater Plan was developed subsequent to receipt of comments from state and federal agencies related to permits for impacts to wetlands. Agency comments for this project were strongly against stormwater BMPs within wetlands. Therefore, the previous Master Stormwater Plan was revised to eliminate the proposed wet ponds previously identified as BMP #3 and BMP #4 and instead includes a total of 13 BMPs, 12 of which are proposed upland BMPs. The revised plan assumes forced drainage areas to upland BMPs. Although some of the proposed drainage areas for the upland BMPs are small (less than 25 acres), based on discussions at the July 29, 2004 meeting, this does not appear to be a major issue for the County. A total of thirteen structural BMPs were identified on the site to provide stormwater treatment, including conversion of the existing extended dry detention BMP #53 to a 10-point wet pond. Seven of the thirteen are 10-point wet ponds and the remaining six are 4-point dry detention facilities. These thirteen BMPs treat approximately 297-acres both within the 374-acre parcel and including some additional areas immediately adjacent to the New Town development. The stormwater worksheet for the overall project is presented in Table 4-1.

This plan provides stormwater treatment using mostly upland stormwater BMPs with the exception of converting the existing dry detention BMP #53 to a 10-point wet pond. Previously, alternate stormwater plans prepared by WEG for New Town included upland BMPs but these plans were never able to achieve the 10-points required by James City County. This revised Master Stormwater Plan achieves that goal through the upland BMPs in combination with the conversion of BMP #53 to a wet pond. The conversion of BMP #53 is critical to achieving the required 10-points for water quality compliance since it provides approximately one-third of the total required 10 points.

Conceptual pond information indicates that BMP #53 can be converted to a wet facility through excavation and can provide flow attenuation without exceeding current temporary water surface elevations during storm events. The proposed normal pool of this facility would be at elevation 69 ft msl based on preliminary calculations. Based on site constraints at the pond location, conversion of the existing facility to a wet pond could not include construction of a forebay. The current dry facility does not include a forebay and this issue was discussed at a previous meeting. However, the future upland BMPs proposed on the Revised Master Stormwater Plan (Map Pocket) would incorporate the County required forebays and safety benches.

This revised Master Stormwater Plan allows the New Town project to meet County stormwater requirements while reducing wetland impacts. The proposed BMPs would provide stormwater quantity control in order to protect the existing wetland systems and still achieve the goal outlined by the Center for Watershed Protection of having stormwater runoff from developed areas treated through BMPs before entering the wetland systems. Although a road crossing is shown at the previous BMP #2 location, this revised Conceptual Master Stormwater Plan would not require the need for flow attenuation at this road crossing since quantity control will be provided at each of the proposed upland stormwater BMPs.

In addition to the structural BMPs, approximately 58 acres of open space are necessary to help achieve the required 10-points for the project. The open space includes property line buffers, RPA buffers, and proposed variable width buffers outside of the RPA. Every effort would be made to avoid any additional encroachments into the proposed variable width buffers. However, minor encroachments would be necessary to provide outfall locations from the proposed upland BMPs to the wetland system. This open space will be maintained as natural open space and will be protected from development. Conservation easements would be placed on all proposed buffers and open space on a section-by-section basis. Based on previous discussions with James City County, the County would be included as co-holder of the easement. Approximately nine acres of the total open space for the development is adjacent to a wetland, mature forest, or Resource Protection Area (RPA).

As seen in Table 4-1, the combination of structural controls and open space provided a total of 9.62 points towards the requirement outlined in James City County's 10-point BMP method to demonstrate compliance with the County's CBPO. Therefore, additional measures in the form of low impact development (LID) integrated management practices (IMPs) are proposed to be incorporated into the development as part of the Master Stormwater Plan. James City County's current 10-point

Table 4-1
BMP Worksheet for New Town
Revised Master Stormwater Plan

Project Area =	374	acres
Revised Site Area* =	328.29	acres

A. STRUCTURAL BMP POINT ALLOCATION

BMP	Area of Project Served by BMP (acres)	BMP Points	Fraction of Site Served by BMP	Weighted BMP Points
A01	18.44	10	0.06	0.56
A03	11.04	4	0.03	0.13
A04	32.95	10	0.10	1.00
A06	13.12	4	0.04	0.16
53*	109.00	10	0.33	3.32
A14	20.67	10	0.06	0.63
B02	31.35	10	0.10	0.95
B05	9.36	4	0.03	0.11
C01	9.80	10	0.03	0.30
C03	15.82	4	0.05	0.19
C05	14.51	10	0.04	0.44
C06	7.80	4	0.02	0.10
C07	2.87	4	0.01	0.03
TOTAL				7.94

B. NATURAL OPEN SPACE CREDIT

Area of Open Space (acres)	Fraction of Site	Natural Open Space Credit	Points for Natural Open Space
9.15	0.02	0.15 per 1% of site area	0.37
48.96	0.13	0.10 per 1% of site area	1.31
TOTAL			1.68

C. LOW IMPACT DEVELOPMENT

Area Served by IMPs (acres)	Fraction of Site	Area Served by IMPs	Points for Area Served by IMPs
17.00	0.05	0.10 per 1% of site area	0.45
TOTAL			0.45

D. TOTAL WEIGHTED POINTS

Structural BMP Points		Natural Open Space Points		Points for Area Served by IMPs		Total
7.94	+	1.68	+	0.45	=	10.07

* Note: JCC allows natural open space downstream of a structural BMP to be reduced from the site area when computing the fraction of the site served by the BMP and therefore the Structural BMP points.

Tax Parcel I.D. Numbers: (38-4)(1-51) and (38-4)(1-56)

070005134

PROFFERS

NEW TOWN – SECTION 7 & 8

Z-5-06

Prepared by:
Kaufman & Canoles, P.C.
4801 Courthouse Street, Suite 300
Williamsburg, VA 23188

such Association shall be responsible for ensuring that any nutrients applied to the common areas which are controlled by such Association be applied in accordance with the applicable Nutrient Management Plan or any updates or amendments thereto as may be approved by the County Environmental Director. Within twelve (12) months after issuance of the Certificate of Occupancy for the final Residential Unit on the Property and every three (3) years thereafter, a nutrient management information seminar shall be conducted regarding the Property. Such seminars shall be designed to acquaint residents with the tools, methods, and procedures necessary to maintain healthy lawns and landscaping.

13. Stormwater Management.

(a) A site plan for the that certain stormwater management facility shown as "BMP PARCEL # 1" on that certain plat entitled "PLAT OF SUBDIVISION SHOWING CENTER STREET, NEW TOWN AVENUE, BLOCK 5, AND COMMON AREA, (BMP PARCEL#1) PREPARED FOR NEW TOWN ASSOCIATES, LLC", dated December 11, 2003, prepared by AES Consulting Engineers, and recorded in the Clerk's Office of the Circuit Court of the City of Williamsburg and the County of James City, Virginia as Instrument Number 040009441, as the same may be amended from time to time, shall be submitted to the County prior to issuance of a land disturbance permit for development of the Property. Owner shall complete and have in service BMP Parcel # 1 in accordance with such site plan prior to issuance of any land disturbance permit for development on Section 8 of the Property.

(b) Commencing at the date of issuance of the first land disturbing permit for any area within the Property and continuing for a period of five (5) years after Build-Out (defined below) of Sections 2&4, 3&6, and 7&8 of New Town, Owner shall at its expense monitor the certain stream located on the Property starting at the outfall of BMP # 1, shown on

Scott Thomas

From: Scott Thomas
Sent: Tuesday, October 23, 2007 11:31 AM
To: John J. McGlennon
Cc: John Horne; Jose Ribeiro
Subject: RE: New Town BMP 53 Upgrade

John – I will answer your question about the BMP behind Towne Bank...

What is the nature of the work being done in the gully next to Towne Bank, between the bank and the parking lot for SunTrust, etc.?

This is the upgrade of existing dry pond BMP # 53 at New Town to a wet pond. This pond was initially constructed as part of the courthouse construction SP-125-97 and has serviced the early phases of Sections 2 & 4 in New Town. This upgrade was in accordance with the approval of the revised master stormwater management plan for New Town and we also worked it in to the proffers for Section 7 & 8 rezoning to get this done before approval of plans in Sections 7 & 8. We reviewed the upgrade plan under County Plan No. SP-38-07. It went through 3 reviews in our Division before approval was issued on September 24, 2007. A preconstruction meeting was held of September 9th.

One of the things our Division was animate about in the review was not to apply a typical wet pond template but to work in a wet pond design, in more of an urban fashion, which meets our quantity and quality control requirements but also fits the character of the area.

If you have any more questions, let me know.

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

Visit:
http://www.james-city.va.us/resources/devmgmt/div_devmgmt_environ.html
and
www.protectedwithpride.org

From: John J. McGlennon
Sent: Friday, October 19, 2007 8:54 AM
To: Sandy Wanner; Board Only
Cc: John Horne; Scott Thomas
Subject: RE: New Town Section 9 Violation Meeting

Thanks for the update. I know we will press vigorously to make sure that this violation is corrected. On a related matter, what is the nature of the work being done in the gully next to Towne Bank, between the bank and the parking lot for SunTrust, etc.?

John

From: Sandy Wanner
Sent: Friday, October 19, 2007 8:32 AM
To: Board Only
Subject: FW: New Town Section 9 Violation Meeting