



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.

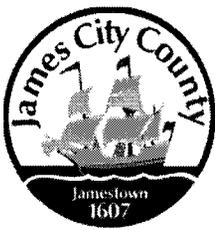
BMP NUMBER: 99122

DATE VERIFIED: April 20, 2012

QUALITY ASSURANCE TECHNICIAN: Leah Hardenbergh

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA



Stormwater Division

MEMORANDUM

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

General File ID or BMP ID: 99122

PIN: 6010100010

Subdivision, Tract, Business or Owner

Name (if known): Walmart
Property Description: Lot 2 Green Mount
Site Address: 9305 Pocahontas Trail

(For internal use only)

Box 18

Drawer: N/A

Agreements: (in file as of scan date)

Y

Book or Doc#:

040027475

Page:

000009492

658

565

Comments

Inspection Maintenance Agreements in file for SC009 through SC013 and SC019 through SC024

Contents for Stormwater Management Facilities As-built Files

Each File is to contain:

- 1. Maintenance Agreement
- 2. Construction certification
- 3. As-Built plan
- 4. Design Calculations
- 6. Correspondence
- 7. Inspection records
- 8. Miscellaneous

SC009-50013

PH I/II

COPY

DECLARATION OF COVENANTS

INSPECTION/MAINTENANCE OF DRAINAGE SYSTEM

THIS DECLARATION, made this 13 day of APRIL, 192000, between KIAA MART. STORES INC. and all successors in interest, hereinafter referred to as the "COVENANTOR(S)," owner(s) of the following property: KIAA MART BFF #88 9259 POQUANTAS TRAIL. Deed Book 658, Page No. 565 or Instrument No. _____ and James City County, Virginia, hereinafter referred to as the "COUNTY."

WITNESSETH:

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

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

instrument # 000009492
recorded: 5/18/00

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of this 13 day of April, 192000

COVENANTOR(S)

[Signature]
Anthony Fuller
Mar met.

Print Name/Title

ATTEST:

[Signature]
Michael G Tomlin

COVENANTOR(S)

Print Name/Title

ATTEST:

State Arkansas
COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF Benton

I hereby certify that on this 13 day of April, 192000, before the subscribed, a Notary Public of the State of Arkansas, and for the City/County of Benton, aforesaid personally appeared Anthony Fuller and did acknowledge the foregoing instrument to be their Act.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this 13 day of April, 192000.

[Signature]
Notary Public

My Commission expires: October 1, 2004

Approved as to form:

[Signature]
Deputy County Attorney

This Declaration of Covenants prepared by:

STEVE PERRY

(Print Name)

PROJECT MANAGER

(Title)

2501 BLUE RIDGE RD SUITE G-100

(Address)

RALEIGH NC 27607

(City)

(State)

(Zip)

SC 019-SC 024

PH III
SP-88-04

COPY

COUNTY OF JAMES CITY, VIRGINIA

DECLARATION OF COVENANTS

INSPECTION/MAINTENANCE OF DRAINAGE SYSTEM

THIS DECLARATION, made this 11 day of October, 2004,
between Wal-Mart Stores East LP, and
all successors in interest, ("COVENANTOR(S),") owner(s) of the following property:

Street Address: 180 Blow Flats Rd.
Legal Description: Refer to Attachment
Project Name: Wal-Mart Bulk Storage Facility No. 6088 - Phase III.
Document No. **, Deed Book N/A, Page No. N/A;
Instrument No. **, and the County of James City, Virginia ("COUNTY.")

WITNESSETH:

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

1. The COVENANTOR(S) shall provide maintenance for the drainage system including any runoff control facilities, conveyance systems and associated easements, hereinafter referred to as the "SYSTEM," located on and serving the above-described property to ensure that the SYSTEM is and remains in proper working condition in accordance with approved design standards, and with the law and applicable executive regulations. The SYSTEM shall not include any elements located within any Virginia Department of Transportation rights-of-way.

2. If necessary, the COVENANTOR(S) shall levy regular or special assessments against all present or subsequent owners of property served by the SYSTEM to ensure that the SYSTEM is properly maintained.

3. The COVENANTOR(S) shall provide and maintain perpetual access from public right-of-ways to the SYSTEM for the COUNTY, its agent and its contractor.

4. The COVENANTOR(S) shall grant the COUNTY, its agent and its contractor a right of entry to the SYSTEM for the purpose of inspecting, 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.

Instrument # 040027475
Recorded on Oct. 28, 2004.

6. The COVENANTOR(S) shall indemnify and save the COUNTY harmless from any and all claims for damages to persons or property arising from the installation, construction, maintenance, repair, operation or use of the SYSTEM, by Covenantor(s). *TFW*

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)

TFW *Roy E. Silva* 10/11/04

Print Name/Title ROY E. SILVA
STORM WATER COMPLIANCE MANAGER

ATTEST: *[Signature]*

COVENANTOR(S)

Print Name/Title _____

ATTEST: _____

Approved as to legal terms only
by *[Signature]*
WAL-MART LEGAL DEPT.
Date: 10/13/04

COMMONWEALTH OF VIRGINIA

CITY/COUNTY OF _____

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

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

Notary Public

My Commission expires: _____

Approved as to form:

M. L. H. King
Asst County Attorney

This Declaration of Covenants prepared by:

Joe Loethen P.E.

(Print Name)

Project Manager, Wal-Mart

(Title)

2001 SE 10th Street

(Address)

Bentonville AR 72712-6489

(City)

(State)

(Zip)

479-273-4000

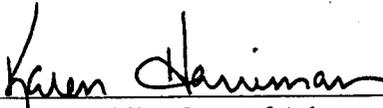
(Phone Number)

drainage1.pre

STATE OF ARKANSAS)
) SS
COUNTY OF BENTON)

On 11th day of October 2004, before me, Karen Harriman a Notary Public in and for said State, personally appeared Roy Silva who acknowledged himself to be the Storm Water Compliance Manager of Wal-Mart Stores East L.P., being authorized so to do executed the foregoing instrument for the purposes therein contained by signing the name of the corporation as the Storm Water Compliance Manager.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal in my office in Bentonville, Arkansas, the day and year last above written.



Notary Public - State of Arkansas
Commissioned in Benton County

KAREN HARRIMAN
NOTARY PUBLIC-STATE OF ARKANSAS
BENTON COUNTY
My Commission Expires 9-1-2012

My commission expires September 1, 2012.

LEGAL DESCRIPTION

LOT 4

ALL THAT CERTAIN PARCEL OF LAND WITH IMPROVEMENTS THEREON, SITUATE, LYING AND BEING IN JAMES CITY COUNTY, VIRGINIA AND KNOWN, NUMBERED AND DESIGNATED AS LOT 4 AS SHOWN ON THAT CERTAIN PLAT PREPARED BY LANGLEY AND MCDONALD, P.C. ENTITLED "PLAT OF SUBDIVISION OF PROPERTY OF GREEN MOUNT ASSOCIATES", DATED OCTOBER 2, 1992 AND RECORDED MAY 13, 1993, WHICH SAID PLAT IS DULY RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF JAMES CITY COUNTY, VIRGINIA IN MAP BOOK 57, PAGES 38 AND 39, AND MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:

STARTING AT A PIPE FOUND AT THE NORTHWEST CORNER OF LOT 1A ON THE SOUTH RIGHT-OF-WAY LINE OF U.S. ROUTE 60 SHOWN ON THE "RESUBDIVISION OF PROPERTY OF GREEN MOUNT ASSOCIATES" (LOTS 1, 2, & 3 AND PROPERTY OF SIMON R. CURTIS ESTATE (M.B. 57, PG. 38 & 39). PREPARED BY PATTON, HARRIS, RUST & ASSOCIATES, PC AND RECORDED IN THE CLERK'S OFFICE OF JAMES CITY COUNTY, VIRGINIA IN MAP BOOK 77 PG. 22 AND 23; THENCE SOUTH 32°28'25" WEST, 242.53' TO A POINT ON THE EAST RIGHT-OF-WAY LINE BLOW FLATS ROAD; THENCE ALONG THE EAST RIGHT-OF-WAY LINE OF THE BLOW FLATS ROAD .345 MI. TO A MONUMENT FOUND AT THE SOUTHWEST CORNER OF PROPERTY OWNED BY THE COLONIAL PIPELINE CO. INC. "THE POINT OF BEGINNING"; THENCE ALONG THE LINE OF THE COLONIAL PIPELINE CO. INC. SOUTH 64°13'07" EAST, 535.67' TO A MONUMENT FOUND; THENCE TURNING AND CONTINUING ALONG THE LINE OF THE COLONIAL PIPELINE CO. INC. NORTH 25°42'40" EAST, 126.44' TO A PIN SET; THENCE TURNING AND RUNNING ALONG THE SOUTH LINE OF LOT 1A, SOUTH 61°17'48" EAST, 296.43' TO A PIN FOUND AT THE SOUTHWEST CORNER OF LOT 2A, SAID PIN ALSO BEING AT THE CENTER OF VEPCO TOWER NO. 285-426; THENCE ALONG THE SOUTH LINE OF LOT 2A SOUTH 61°17'48" EAST, 908.71' TO A PIN FOUND AT THE CENTER OF VEPCO TOWER NO. 285-427; THENCE CONTINUING ALONG THE SOUTH LINE OF LOT 2A SOUTH 63°38'28" EAST, 840.37' TO A PIN FOUND AT THE CENTER OF VEPCO TOWER NO. 285-428; THENCE ALONG THE SOUTH LINE OF LOT 2A SOUTH 63°36'28" EAST, 824.46' TO A PIN FOUND AT THE CENTER OF VEPCO TOWER NO. 285-429; THENCE ALONG THE AFOREMENTIONED LINE SOUTH 69°00'38" EAST, 598.72' TO A PIN SET AT THE SOUTHEAST CORNER OF LOT 2A; THENCE NORTH 61°29'15" EAST, 57.21' TO A PIN SET IN THE LINE OF LOT 2A ON THE WEST, LOT 3A ON THE EAST AND LOT 4 ON THE SOUTH; THENCE TURNING AND RUNNING ALONG THE LINE OF LOT 3A SOUTH 18°16'45" EAST, 758.06' TO A PIN FOUND; THENCE TURNING AND RUNNING ALONG THE NORTHERLY LINE OF BRANSCOME INC., SOUTH 75°14'55" WEST, 2104.15' TO A PIPE FOUND AT THE NORTHERN MOST CORNER OF PROPERTY OF KEMPTON; THENCE ALONG THE NORTHERLY LINE OF KEMPTON, SOUTH 77°01'48" WEST, 720.61' TO A PIPE FOUND ON LINE; THENCE ALONG THE AFOREMENTIONED LINE SOUTH 77°01'48" WEST, 0.82' TO A PIN SET; THENCE SOUTH 29°28'45" WEST, 873.45' TO A POINT; THENCE SOUTH 29°28'45" WEST, 261.55' TO A POINT; THENCE SOUTH 44°23'43" WEST, 41.04' TO A POINT; THENCE SOUTH 19°30'44" WEST, 142.35' TO A POINT; THENCE NORTH 75°10'15" WEST, 53.70' TO A POINT; THENCE NORTH 63°57'37" WEST, 45.35' TO A POINT; THENCE SOUTH 24°26'28" WEST, 50.40' TO A POINT; THENCE SOUTH 50°57'31" WEST, 49.62' TO A POINT; THENCE NORTH 79°48'23" WEST 44.63' TO A POINT; THENCE NORTH 78°14'39" WEST, 59.80' TO A POINT; THENCE SOUTH 61°29'45" WEST, 185.13' TO A POINT; THENCE NORTH 7°19'41" EAST, 113.59' TO A POINT; THENCE NORTH 81°51'03" WEST, 44.79' TO A POINT; THENCE SOUTH 30°54'29" WEST, 70.90' TO A POINT; THENCE SOUTH 12°19'30" WEST, 137.59' TO A POINT; THENCE SOUTH 22°53'13" EAST, 38.00' TO A POINT; THENCE SOUTH 73°54'18" EAST, 72.56' TO A POINT; THENCE SOUTH 11°06'48" EAST, 32.98' TO A POINT; THENCE SOUTH 57°51'59" WEST, 91.02' TO A POINT; THENCE NORTH 84°53'03" WEST, 45.13' TO A POINT; THENCE NORTH 25°57'24" WEST, 134.97' TO A POINT; THENCE NORTH 02°57'17" WEST, 66.92' TO A POINT; THENCE NORTH 14°07'29" EAST, 97.79' TO A POINT; THENCE NORTH 04°10'20" EAST, 78.85' TO A POINT; THENCE NORTH 15°12'07" WEST, 139.33' TO A POINT; THENCE NORTH 71°24'25" WEST, 61.05' TO A POINT; THENCE NORTH 87°38'19" WEST, 81.68' TO A POINT; THENCE NORTH 69°54'50" WEST, 166.21' TO A POINT; THENCE NORTH 78°46'15" WEST, 242.54' TO A POINT; THENCE NORTH 48°36'21" WEST, 36.74' TO A POINT; THENCE NORTH 42°50'56" EAST, 282.37' TO A POINT; THENCE NORTH 00°28'20" EAST, 69.50' TO A POINT; THENCE NORTH 61°20'52" WEST, 182.83' TO A POINT; THENCE SOUTH 31°24'59" WEST, 58.96' TO A POINT; THENCE SOUTH 03°56'37" WEST, 148.55' TO A POINT; THENCE SOUTH 35°49'01" WEST, 99.58' TO A POINT; THENCE SOUTH 70°53'33" WEST, 51.69' TO A POINT; THENCE NORTH 23°37'29" WEST, 34.80' TO A POINT; THENCE NORTH 12°05'30" EAST, 337.02' TO A POINT; THENCE NORTH 25°46'20" WEST, 73.90' TO A POINT; THENCE SOUTH 79°04'18" WEST, 241.62' TO A POINT; THENCE NORTH 41°55'00" WEST, 29.23' TO A POINT; THENCE NORTH 17°27'51" EAST, 95.88' TO A POINT; THENCE NORTH 85°17'33" EAST, 118.64' TO A POINT; THENCE NORTH 12°12'17" EAST, 96.28' TO A POINT; THENCE NORTH 44°24'25" EAST, 34.10' TO A POINT; THENCE SOUTH 67°16'22" EAST, 139.99' TO A POINT; THENCE NORTH 32°34'25" EAST, 52.60' TO A POINT; THENCE NORTH 29°48'22" WEST, 133.48' TO A POINT; THENCE NORTH 67°03'12" EAST, 101.41' TO A POINT; THENCE SOUTH 68°49'51" EAST, 54.49' TO A POINT; THENCE NORTH 06°24'08" EAST, 43.77' TO A POINT; THENCE NORTH 66°10'09" EAST, 84.68' TO A POINT; THENCE NORTH 16°13'10" EAST, 82.58' TO A POINT; THENCE SOUTH 50°38'49" EAST, 72.06' TO A POINT; THENCE NORTH 34°15'08" EAST, 416.35' TO A POINT; THENCE NORTH 40°03'36" WEST, 1012.87' TO A POINT; THENCE NORTH 30°08'13" EAST, 63.42' TO A POINT; THENCE NORTH 14°47'34" EAST, 174.42' TO A POINT; THENCE NORTH 22°04'26" EAST, 117.98' TO A POINT; THENCE NORTH 36°28'38" EAST, 152.86' TO A POINT; THENCE NORTH 47°52'15" EAST, 135.54' TO A POINT; THENCE NORTH 26°13'50" EAST, 143.33' TO A POINT; THENCE NORTH 27°28'12" EAST, 132.61' TO A POINT; THENCE NORTH 58°35'12" EAST, 146.55' TO A POINT; THENCE NORTH 81°48'36" EAST, 62.98' TO A POINT; THENCE NORTH 15°19'24" EAST, 99.47' TO A POINT; THENCE NORTH 25°42'51" WEST, 81.20' TO A POINT; THENCE NORTH 30°48'56" WEST, 47.77' TO A POINT; THENCE NORTH 15°36'19" EAST 55.00' TO A PIPE FOUND; THENCE NORTH 15°36'19" EAST, 470.22' TO A PIPE FOUND IN THE SOUTH LINE OF PROPERTY OF BASE CORPORATION SAID PIPE ALSO BEING THE NORTH MOST CORNER OF THE PROPERTY OF JOE SHOUSE CONSTRUCTION CO. INC.; THENCE ALONG THE LINE OF BASE CORPORATION, NORTH 87°36'28" EAST, 83.26' TO A PIN FOUND; THENCE ALONG THE LINE OF BASE CORPORATION, NORTH 22°01'32" EAST, 5.57' TO A PIN FOUND ON THE SOUTH RIGHT-OF-WAY LINE OF BLOW FLATS ROAD, SOUTH 64°13'07" EAST, 65.43' TO A PIN SET; THENCE ALONG THE EAST RIGHT-OF-WAY LINE OF BLOW FLATS ROAD NORTH 25°46'53" EAST, 39.17' TO THE "POINT OF BEGINNING".

546

LEGAL DESCRIPTION:

LOT 30

ALL THAT CERTAIN PARCEL OF LAND WITH IMPROVEMENTS THEREON, SITUATE, LYING AND BEING IN JAMES CITY COUNTY, VIRGINIA AND KNOWN, NUMBERED AND DESIGNATED AS LOT 30 AS SHOWN ON THAT CERTAIN PLAT PREPARED BY PATTON HARRIS RUST & ASSOCIATED, PC, ENTITLED "PLAT SHOWING LOT 30 BEING A SUBDIVISION OF THE REMAINDER OF LOT 3A AS SHOWN ON INSTRUMENT #030032887 PROPERTY OF GREENMOUNT ASSOCIATES, L.L.C." DATED 04/07/04 AND REVISED 04/20/04 AND RECORDED 05/20/04, WHICH SAID PLAT IS DULY RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF JAMES CITY COUNTY, VIRGINIA IN DOCUMENT NO. 040013143, AND MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:

STARTING AT A PIN FOUND ON THE NORTHERLY LINE OF LOT 4 BELOW THE APPROXIMATE CENTER OF A "VEPCO" TOWER NUMBER 285-429; THENCE ALONG THE NORTHERLY LINE OF LOT 4, SOUTH 69°00'38" EAST, 598.72' TO A PIN SET; THENCE TURNING AND RUNNING NORTH 61°29'15" EAST, 57.21' TO A PIN SET. SAID PIN BEING THE " POINT OF BEGINNING "; THENCE NORTH 61°29'15" EAST, 305.98' TO A PIN FOUND; THENCE NORTH 27°18'49" EAST, 1042.06' TO A PIN FOUND; THENCE SOUTH 30°27'39" EAST, 177.00' TO A PIN SET; THENCE SOUTH 27°18'49" WEST, 1515.84' TO A PIN SET; THENCE NORTH 18°16'45" WEST, 450.18' TO A PIN SET. " THE POINT OF BEGINNING ".

6 of 6

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

Construction Certification

Firm Name: RANDY BIEBER, L.S.
Mailing Address: 5401 HUSBORNTON ST.
RALEIGH, NC 27606
Business Phone: 919-854-4833
Fax: 919-854-4834

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

Name: RANDY BIEBER
Title: LAND SURVEYOR

Name: _____
Title: _____

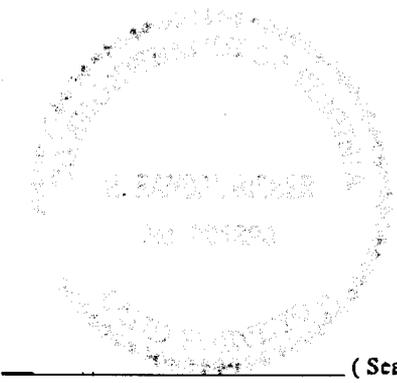
Signature: [Handwritten Signature]
Date: 12.22.05

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.

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.

(WAL-MART BULK STORAGE
FACILITY # 6088, PAGE III)
BMP CODES # SC019, SC020, SC021,
SC022, SC023, SC024



(Seal)

Virginia Registered Professional Engineer
or Certified Land Surveyor



(Seal)

Virginia Registered
Professional Engineer

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

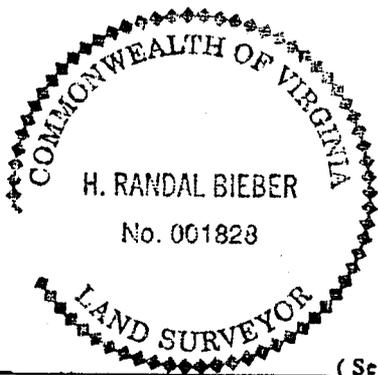
Firm Name: RANDY BIEBER, L.S.
Mailing Address: 5401 HILLSBOROUGH ST.
RALEIGH, NC 27606
Business Phone: 919-854-4833
Fax: 919-854-4834

Name: RANDY BIEBER
Title: LAND SURVEYOR

Signature: [Handwritten Signature]
Date: 12-22-05

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.

(WAL-MART BULK STORAGE FACILITY # 6088, PAGE III)
BMP CODES # S0019, S0020, S0021, S0022, S0023, S0024



(Seal)

Virginia Registered Professional Engineer or Certified Land Surveyor

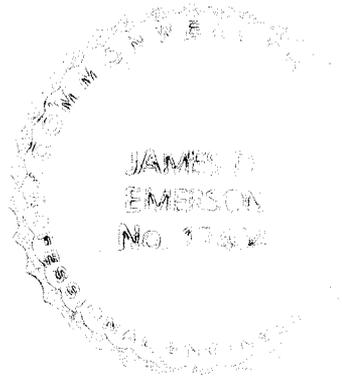
Construction Certification

Firm Name: Carter & Burgess, Inc.
Mailing Address: 777 Main Street, Floor 29,
Ft. Worth, TX 76102
Business Phone: 817-222-8446
Fax: 817-222-8780

Name: James D. Emerson
Title: Civil Engineer

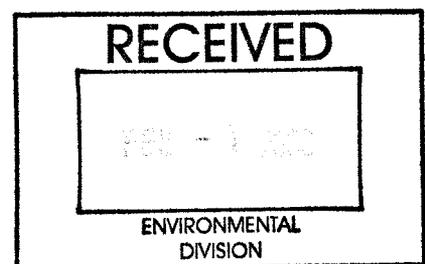
Signature: [Handwritten Signature]
Date: 1-17-06

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 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

Construction Certification

Firm Name: RANDY BIEBER, L.S.
Mailing Address: 5401 HILLSBOROUGH ST.
RALEIGH, NC 27606
Business Phone: 919-854-4833
Fax: 919-854-4834

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

Name: RANDY BIEBER
Title: LAND SURVEYOR

Name: _____
Title: _____

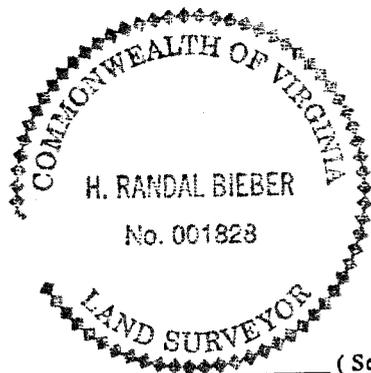
Signature: [Handwritten Signature]
Date: 12.22.05

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.

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.

(WAL-MART BULK STORAGE FACILITY # 6088, PAGE III)
BMP CODES # SC019, SC020, SC021, SC022, SC023, SC024



(Seal)
Virginia Registered Professional Engineer or Certified Land Surveyor

(Seal)
Virginia Registered Professional Engineer

WALMART BSF
PHASE 3
SP-88-04
SC019-SC024

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

Construction Certification

Firm Name: RANDY BIEBER, L.S.
Mailing Address: 5401 HILSBROOK ST.
RALEIGH, NC 27606
Business Phone: 919-854-4833
Fax: 919-854-4834

Firm Name: Carter & Burgess, Inc.
Mailing Address: 777 Main Street, Floor
29, Ft. Worth, TX 76102
Business Phone: 817-222-8646
Fax: 817-222-8780

Name: RANDY BIEBER
Title: LAND SURVEYOR

Name: James D. Emerson
Title: Civil Engineer

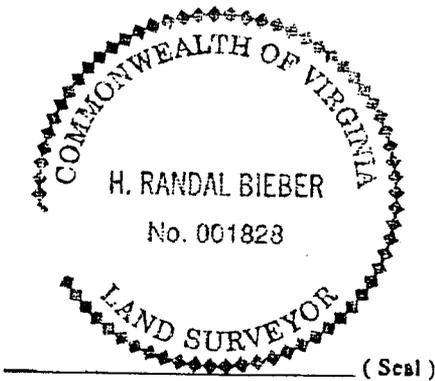
Signature: [Handwritten Signature]
Date: 12.22.05

Signature: [Handwritten Signature]
Date: 1-17-06

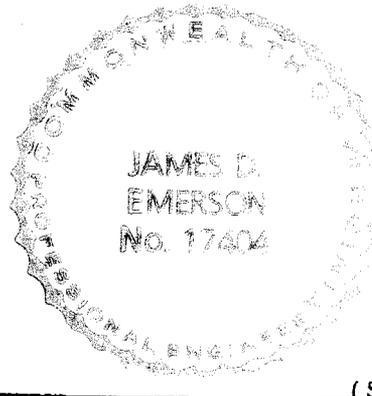
I hereby certify to the best of my knowledge and belief that this record drawing represents the actual condition of the Stormwater Management / BMP facility. The facility appears to conform with the provisions of the approved design plan, specifications and stormwater management plan, except as specifically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

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.

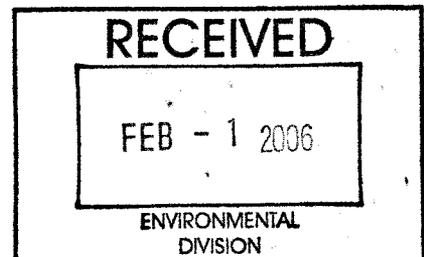
(WAL-MART BULK STORAGE FACILITY # 6088, PAGE III)
BMP CODES # SC019, SC020, SC021, SC022, SC023, SC024



Virginia Registered Professional Engineer or Certified Land Surveyor



Virginia Registered Professional Engineer



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: Glover Const. Co., Inc.

Mailing Address: P.O. Box 40
Pleasant Hill, N.C. 27866

Business Phone: 252-536-2660

Fax: 252-536-4600

Name: Ed Marks

Title: Engineer / Estimator

Signature: [Signature]

Date: 12/29/05

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.

Field shots taken of outlet structures on 11-30-05 and ponds "C" + "D" dams on 12-8-05.

Actual field elevations noted in red.

[Signature] (Seal)
Virginia Registered Professional Engineer
or Certified Land Surveyor

Construction Certification

Firm Name: McCallum Testing Lab, Inc.

Mailing Address: 1808 HAYWARD AVE
CHESAPEAKE, VA 23320

Business Phone: 757-420-2520

Fax: 757-424-2874

Name: Scott A. Deese

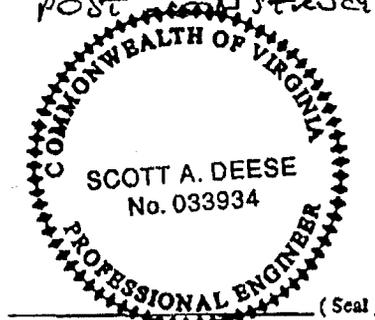
Title: PROJECT ENGINEER

Signature: [Signature]

Date: 2/17/06

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.

① OUTFALL STRUCTURES THROUGH DAM AND BELOW ROADWAYS COULD NOT BE OBSERVED POST CONSTRUCTION.



[Signature] (Seal)
Virginia Registered Professional Engineer

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: Glover Const. Co., Inc.
Mailing Address: P.O. Box 40
Pleasant Hill, N.C. 27866
Business Phone: 252-536-2660
Fax: 252-536-4600

Name: Ed Marks
Title: Engineer / Estimator

Signature: Ed Marks
Date: 12/20/05

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.

Field shots taken of outlet structures on 11-30-05 and ponds "C" + "D" dams on 12-8-05.

Actual field elevations noted in red.

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
or Certified Land Surveyor

(Seal)
Virginia Registered
Professional Engineer

McCALLUM

TESTING LABORATORIES, INC.

Geotechnical Engineering, Materials Testing & Environmental Services

February 17, 2006

Glover Construction Co., Inc.
P.O. Box 40
Pleasant Hill, NC 27866

Attention: Ed Marks

Subject: Stormwater Management / BMP Facilities
Wal-Mart Distribution Center - Phase I & II
James City County, Virginia
MTL Project 067515

Never got
on this date
got in 2009.

Dear Mr. Marks:

Post-Construction Certification for BMP's SC 009 through SC 013

Firm Name: McCallum Testing Laboratories, Inc.
Mailing Address: 1808 Hayward Avenue, Chesapeake, Virginia 23320
Phone: 757-420-2520
Fax: 757-424-2872
Name: Scott A. Deese, P.E.
Title: Project Engineer

CONST
CERTS
PH I + II

Signature: 
Date: 2/17/06

I hereby certify to the best of my knowledge and belief that these Stormwater Management / BMP Facilities were constructed in accordance with the provisions of the approved design plans, specifications and stormwater management plan, except as specifically noted:

1. The installation of outfall pipes through the dam or below the roadways could not be observed post-construction.





Scott A. Deese, P.E.
Project Engineer

DRAWING LEGEND:

- SEDIMENT BARRIER
- HAY OR STRAW
- STORM WATER CONVEYANCE CHANNEL
- SILT FENCE
- TEMPORARY CONSTRUCTION ENTRANCE
- TEMPORARY FILL DIVERSION
- CULVERT INLET PROTECTION
- TEMPORARY SLOPE DRAIN
- OUTLET PROTECTION
- LIMITS OF CONSTRUCTION (CB101)
- SLOPES OF 25% OR GREATER

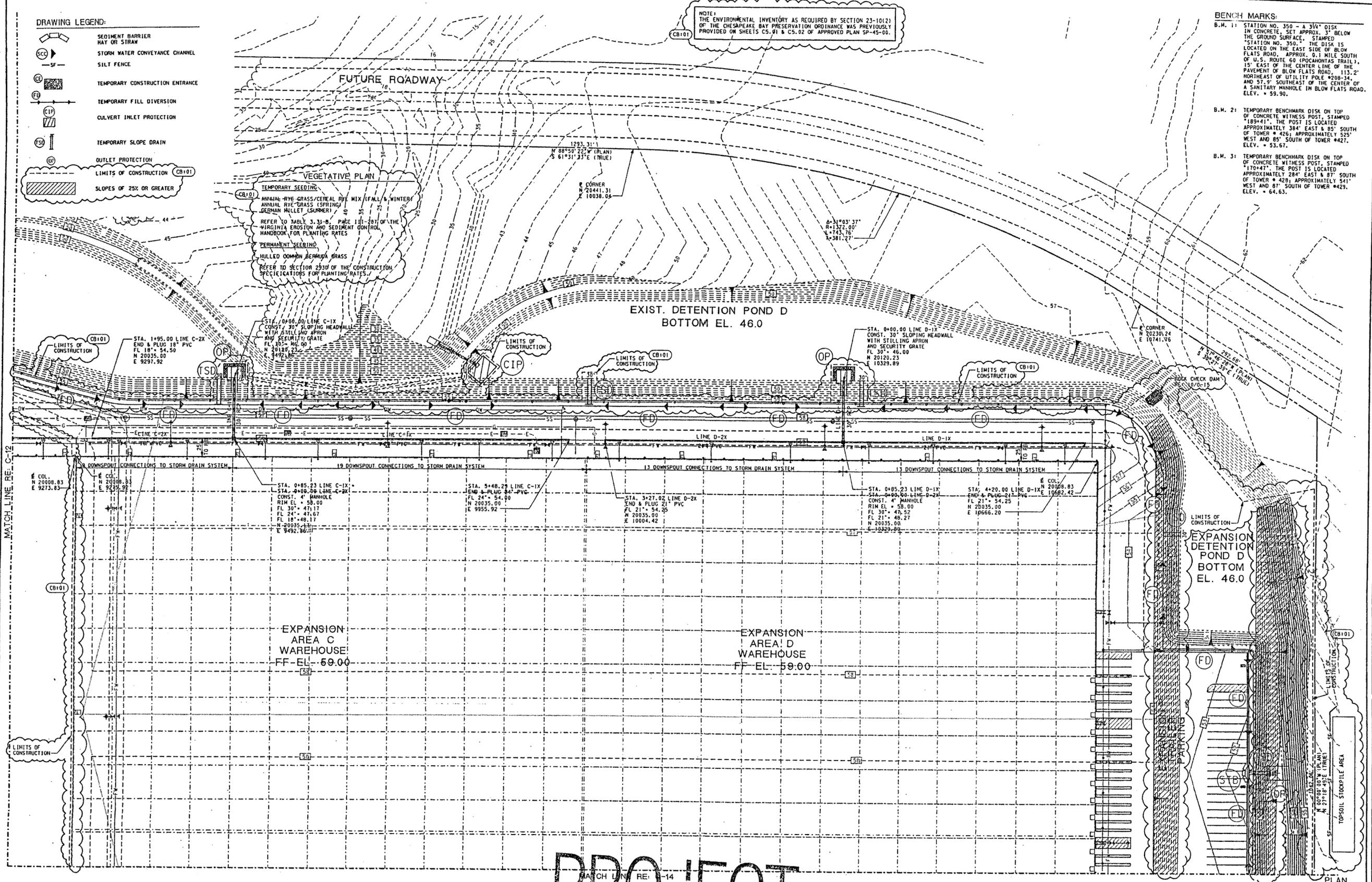
NOTE: THE ENVIRONMENTAL INVENTORY AS REQUIRED BY SECTION 23-101(2) OF THE CHESEAPEAKE BAY PRESERVATION ORDINANCE WAS PREVIOUSLY PROVIDED ON SHEETS C5.01 & C5.02 OF APPROVED PLAN SP-45-00.

BENCH MARKS:

B.M. 1: STATION NO. 350 - A 3/4" DISK IN CONCRETE, SET APPROX. 3' BELOW THE GROUND SURFACE. THE DISK IS LOCATED ON THE EAST SIDE OF BLOW FLATS ROAD, APPROX. 0.1 MILE SOUTH OF U.S. ROUTE 60 (PROCHONTAS TRAIL), 15' EAST OF THE CENTER LINE OF THE PAVEMENT OF BLOW FLATS ROAD, 113.2' NORTHEAST OF UTILITY POLE #208-34, AND 57.9' SOUTHEAST OF THE CENTER OF A SANITARY MANHOLE IN BLOW FLATS ROAD. ELEV. = 59.90.

B.M. 2: TEMPORARY BENCHMARK DISK ON TOP OF CONCRETE WITNESS POST, STAMPED "189*41". THE POST IS LOCATED APPROXIMATELY 384' EAST & 85' SOUTH OF TOWER # 426; APPROXIMATELY 525' WEST AND 85' SOUTH OF TOWER #427. ELEV. = 53.67.

B.M. 3: TEMPORARY BENCHMARK DISK ON TOP OF CONCRETE WITNESS POST, STAMPED "170*47". THE POST IS LOCATED APPROXIMATELY 284' EAST & 87' SOUTH OF TOWER # 428; APPROXIMATELY 541' WEST AND 87' SOUTH OF TOWER #429. ELEV. = 64.63.



PROJECT RECORD

PROJECT RECORD

AREA 2 - STORM DRAIN PLAN
C-11 SCALE: 1" = 50'-0"

Date: 10/15/01
Wal-Mart BSF #88 Expansion, James City County, VA
Miller Building Corporation
2501 Blue Ridge Rd., G-100, Raleigh, NC 27607
Tel: (919) 782-1004
This Plan, with the as-built notations accurately reflects the completed work.
Signature: _____



-27° 18' 49" TRUE NORTH

0 50 100 150 200
GRAPHIC SCALE IN FEET

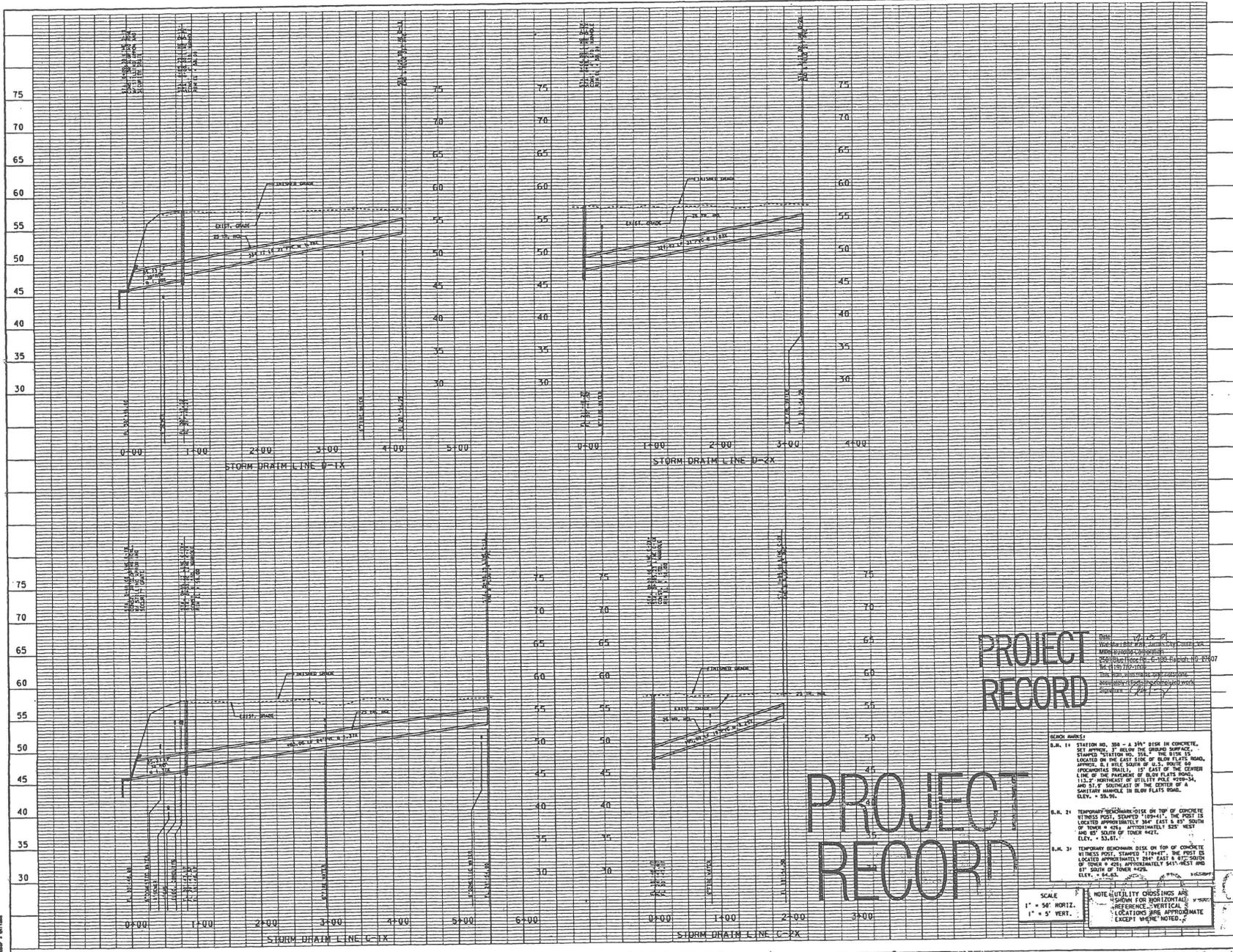
WAL-MART STORES, INC.
BULK STORAGE NO. 6088
EXPANSION
JAMES CITY COUNTY, VA

Carter & Burgess, Inc.
CONSULTANTS IN PLANNING, ENGINEERING, ARCHITECTURE, AND SURVEYING
CARTER & BURGESS, INC.
3001 WOODBRIDGE BLVD., SUITE 200, FORT WORTH, TEXAS 76107

APR 2001
Received
Miller Building Corporation

SHEET
C-11

DATE: 01/11/2011 10:58 AM
 PROJECT: WAL-MART BULK STORAGE EXPANSION
 DRAWING: STORM DRAIN PROFILES
 SHEET: C-13



PROJECT RECORD

PROJECT RECORD

Date: 2/15/07
 Project: WAL-MART BULK STORAGE EXPANSION
 Location: JAMES CITY COUNTY, VA
 Client: WAL-MART STORE NO. 6088
 Designer: CARTER & BURGESS, INC.
 Scale: 1" = 5' HORIZ., 1" = 5' VERT.

RECORD NUMBER:

S.D. 11 STATION NO. 358 - A 36" DISK IN CONCRETE, SET APPROX. 1' BELOW THE GROUND SURFACE, FLAGGED "STATION NO. 358." THE DISK IS LOCATED ON THE EAST SIDE OF BLOW FLATS ROAD, APPROX. 0.1 MILE SOUTH OF U.S. ROUTE 28, APPROXIMATELY 340' EAST OF THE CENTER LINE OF THE HIGHWAY. UTILITY POLE #200-34, 110' S.W. QUARTER IN THE CENTER OF A SANITARY MANHOLE IN BLOW FLATS ROAD. ELEV. = 53.81.

S.D. 21 TEMPORARY BENCHMARK DISK ON TOP OF CONCRETE WITNESS POOL, SHAPED "11847." THE FOOT IS LOCATED APPROXIMATELY 294' EAST & 510' SOUTH OF TOWER #200, APPROXIMATELY 50' WEST AND 8' SOUTH OF TOWER #422. ELEV. = 53.41.

S.D. 31 TEMPORARY BENCHMARK DISK ON TOP OF CONCRETE WITNESS POOL, SHAPED "11847." THE FOOT IS LOCATED APPROXIMATELY 294' EAST & 510' SOUTH OF TOWER #200, APPROXIMATELY 50' WEST AND 8' SOUTH OF TOWER #422. ELEV. = 53.41.

NOTE: UTILITY CROSSINGS ARE SHOWN FOR REFERENCE ONLY. WHERE REFERENCE IS VERTICAL, LOCATIONS ARE APPROXIMATE EXCEPT WHERE NOTED.

WAL-MART
 BULK STORAGE NO. 6088
 EXPANSION
 JAMES CITY COUNTY, VA

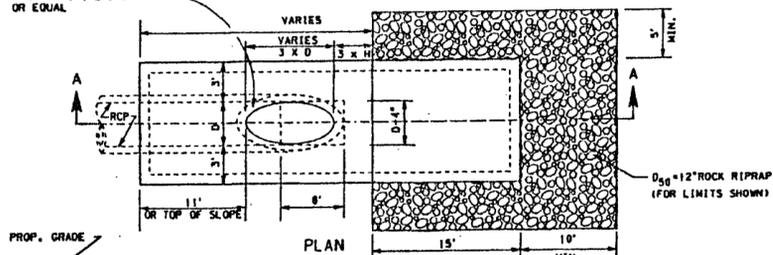
PROJECT RECORD

STORM DRAIN PROFILES
 LINES C-1X, C-2X,
 D-1X & D-2X

Carter & Burgess
 CONSULTING ENGINEERS
 3000 Sandstone Rd., Suite 200, Glen Allen, VA 22060
 (703) 477-1000

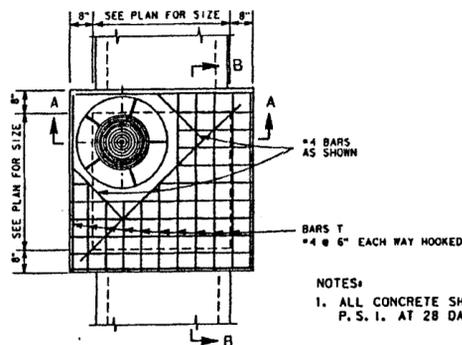
SHEET
C-13

GIFFORD HILL & CO.
PRECAST 3:1 END SECTION
OR EQUAL

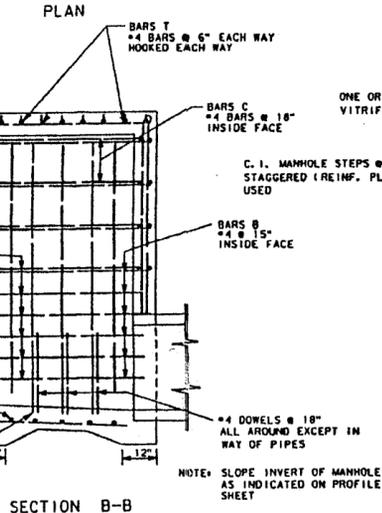


- NOTES:
1. ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 4000 P.S.I. AT 28 DAYS. ALL REINFORCING SHALL BE GRADE 60, AND SHALL BE PLACED IN THE MIDDLE OF THE SECTION.
 2. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".

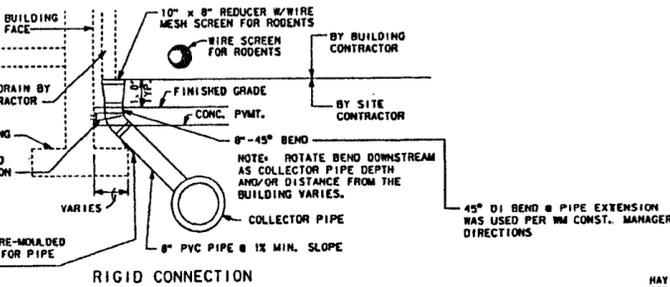
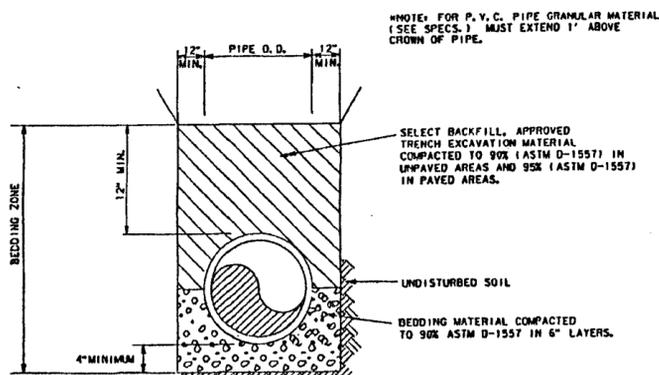
1 SLOPING REINFORCED CONCRETE HEADWALL DISCHARGE TO POND BOTTOM NOT TO SCALE



- NOTES:
1. ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 4000 P.S.I. AT 28 DAYS. ALL REINFORCING SHALL BE GRADE 60.



2 STORM DRAIN MANHOLE NOT TO SCALE

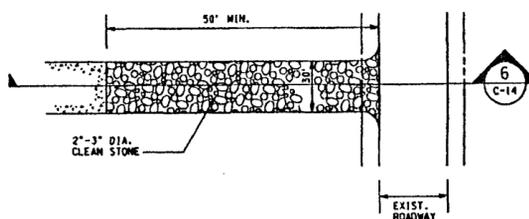


- NOTES:
1. THERE ARE 53 DOWNSPOUT CONNECTIONS TO BE MADE ON THIS PROJECT. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS.
 2. THAT PORTION OF THE DOWNSPOUT COLLECTOR SYSTEM EXTENDING ABOVE FINISHED GRADE TO 1' BELOW GRADE SHALL BE CAST IRON.
 3. THE DOWNSPOUTS FROM THE WAREHOUSE, GUARDHOUSE AND THE TRUCK MAINTENANCE GARAGE SHALL DISCHARGE INTO STORM DRAIN SYSTEMS. THE FIRE PUMP HOUSE AND FUEL BAY DOWNSPOUTS SHALL DISCHARGE ON THE GROUND.

3 STORM DRAIN BEDDING DETAILS NOT TO SCALE

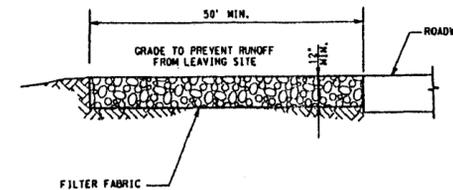
4 DOWNSPOUT COLLECTOR NOT TO SCALE

PROJECT RECORD



- DETAIL NOTES:
1. A STABILIZED CONSTRUCTION ENTRANCE SHALL APPLY TO POINTS OF CONSTRUCTION INGRESS AND EGRESS WHERE SEDIMENT MAY BE TRACKED OR FLOW OFF THE CONSTRUCTION SITE.
 2. A STABILIZED CONSTRUCTION ENTRANCE MUST BE CONSTRUCTED TO A MINIMUM LENGTH OF 50 FEET WHERE THE SOILS ARE SANDS OR GRAVEL OR 100 FEET MINIMUM WHERE SOILS ARE CLAYS OR SILT. THESE LENGTHS SHALL BE INCREASED WHERE FIELD CONDITIONS DICTATE.
 3. A FILTER FABRIC SHALL BE INSTALLED BEFORE INSTALLING THE STABILIZED CONSTRUCTION ENTRANCE.
 4. ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE.

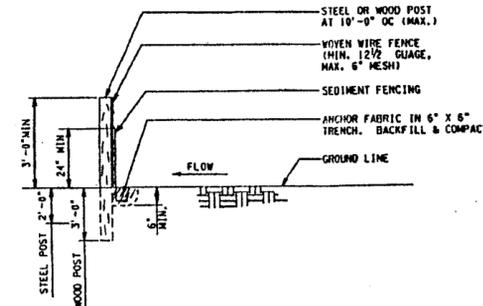
5 STABILIZED CONSTRUCTION ENTRANCE NOT TO SCALE



- DETAIL NOTES:
1. ALL HAY BALES SHALL BE TIED SECURELY WITH NYLON CORD OR STEEL WIRE AND PLACED ALONG A CONSISTENT ELEVATION.
 2. BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
 3. THE FIRST STAKE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE.

7 SEDIMENT BARRIER (ALTERNATIVE) BALED STRAW OR HAY BARRIER NOT TO SCALE

6 SECTION NOT TO SCALE



- DETAIL NOTES:
1. INSTALLATION TO BE PER MANUFACTURER'S RECOMMENDATION.
 2. TO BE USED FOR TERMINAL ENDS & PERIMETER SIDES.
 3. THE TWO POST OPTIONS ARE (1) WOOD - 1\"/>

8 SEDIMENT BARRIER (ALTERNATIVE) SEDIMENT FENCE NOT TO SCALE

PROJECT RECORD

Date: 10.18.01
Wal-Mart B3F Exp. Expansion, James City County, VA
Miller Building Corporation
2501 Blue Ridge Rd., G-100, Raleigh, NC 27607
Tel: (919) 782-1004
This Plan, with the as-built notations accurately reflects the completed work.
Signature: *[Signature]*



PROJECT NO.	DATE	ISSUE FOR CONSTRUCTION	NO.	DATE	ISSUE
10-18-01					

WAL-MART
BULK STORAGE NO. 6088
EXPANSION
JAMES CITY COUNTY, VA

STORM DRAIN &
EROSION CONTROL DETAILS
SHEET 1 OF 2

Carter & Burgess
Consultants in Planning, Engineering, Architecture,
Construction Management, and Related Services
CARTER & BURGESS, INC.
3001 Mountain Blvd., Suite 200, Fort Worth, Texas 76107

SHEET
C-14



PROJECT NO.	DATE	ISSUE
10331001	03/27/00	ISSUE FOR CONSTRUCTION

WAL-MART
STORE, INC.
BULK STORAGE NO. 88
JAMES CITY COUNTY, VA

PREDEVELOPED
DRAINAGE AREA MAP

Carter & Burgess
Construction, Environmental, and Related Services
CARTER & BURGESS, INC.
300 MECHANIC BOULEVARD, SUITE 200
PORT WORTH, TX 76177-7787

SHEET
C4.01

Copyright © 2000 by Carter & Burgess, Inc.

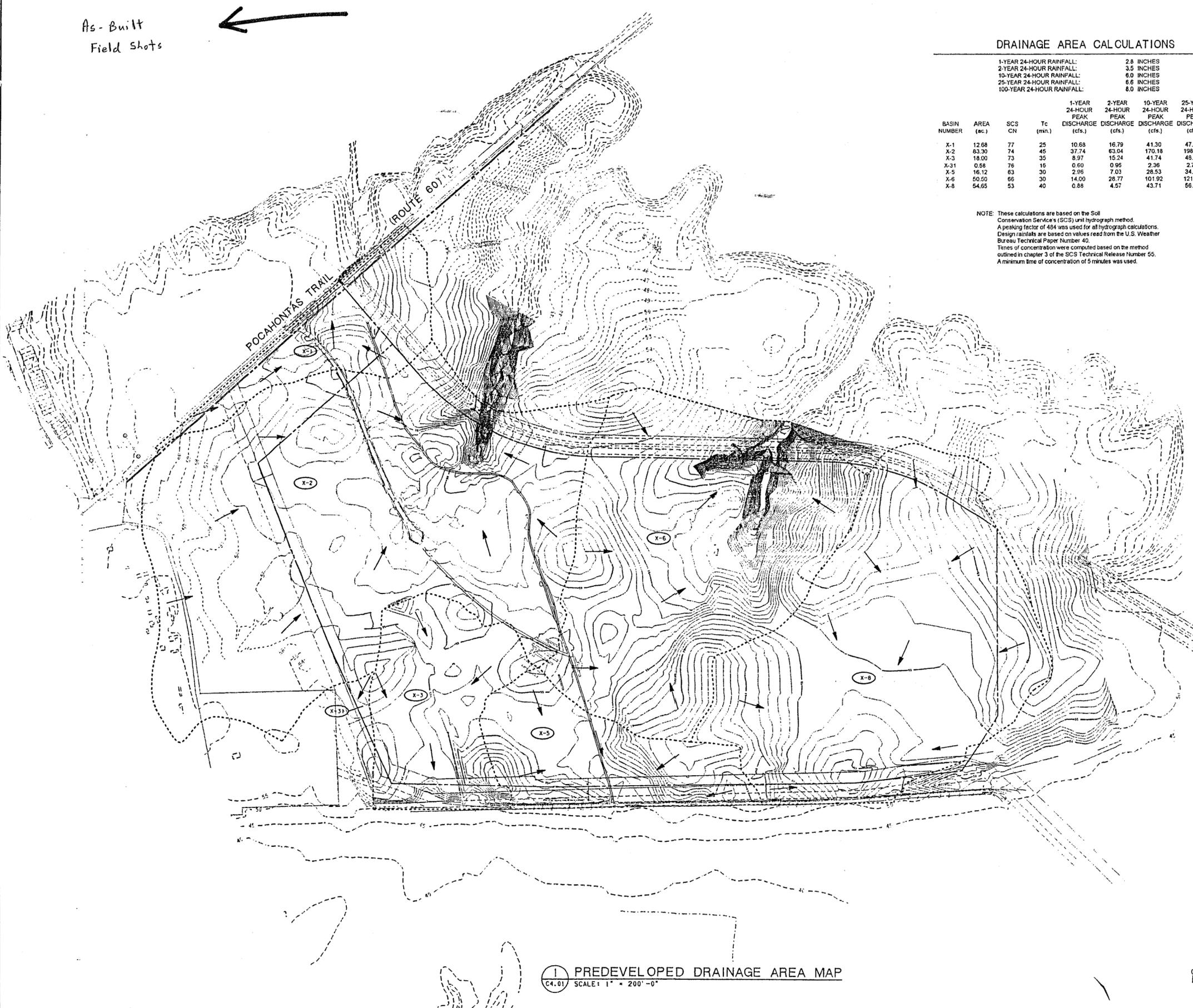
As-Built
Field Shots



DRAINAGE AREA CALCULATIONS

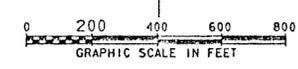
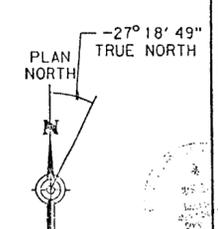
BASIN NUMBER	AREA (ac.)	SCS CN	Tc (min.)	1-YEAR 24-HOUR RAINFALL:				
				24-HOUR PEAK DISCHARGE (cfs.)	2-YEAR 24-HOUR PEAK DISCHARGE (cfs.)	10-YEAR 24-HOUR PEAK DISCHARGE (cfs.)	25-YEAR 24-HOUR PEAK DISCHARGE (cfs.)	100-YEAR 24-HOUR PEAK DISCHARGE (cfs.)
X-1	12.68	77	25	10.68	16.79	41.30	47.47	62.01
X-2	83.30	74	45	37.74	63.04	170.18	198.22	265.12
X-3	18.00	73	35	8.97	15.24	41.74	48.74	65.48
X-31	0.58	76	15	0.60	0.95	2.36	2.72	3.56
X-5	16.12	83	30	2.96	7.03	28.53	34.60	48.53
X-6	50.50	66	30	14.00	28.77	101.92	121.89	170.51
X-8	54.65	53	40	0.88	4.57	43.71	56.92	90.96

NOTE: These calculations are based on the Soil Conservation Service's (SCS) unit hydrograph method. A peaking factor of 484 was used for all hydrograph calculations. Design rainfalls are based on values read from the U.S. Weather Bureau Technical Paper Number 40. Times of concentration were computed based on the method outlined in chapter 3 of the SCS Technical Release Number 55. A minimum time of concentration of 5 minutes was used.



PROJECT RECORD

Date: NOV 11 2000
 Wal-Mart BSF #88, James City County, VA
 Miller Building Corporation
 2501 Blue Ridge Rd. G-100, Raleigh, NC 27607
 Tel: (919) 782-1004
 This Plan, with the as-built notations, accurately reflects the work performed.
 Signature: *[Signature]*



1 PREDEVELOPED DRAINAGE AREA MAP
 C4.01 SCALE: 1" = 200'-0"

WALMART
PH I + II
SC009-SC013

MASTER SET - "RED LINE" COPY WITH
ASBUILT FIELD ELEV. BY CONTRACTOR
(ONLY FULL SIZE COPY)



RECEIVED
DEC 22 2005
ENVIRONMENTAL
DIVISION

10 YEAR STORM DRAIN HYDRAULIC CALCULATIONS

ACTUAL PIPE SLOPE FOR PARTIAL FLOW (FT/FT)	MANHOLE OR INLET DESIGN POINT		DISTANCE BETWEEN POINTS (FEET)	DRAINAGE AREA		RUNOFF COEFF. C	INCRE-MENTAL CA	TOTAL CA	TIME OF CONCENTRATION			DESIGN FREQ- UENCY (YR)	INTEN- SITY (IN/HR)	PEAK FLOW IN PIPE (CFS)	PIPE SIZE (IN)	FRICTION SLOPE S _f (FT/FT)	HYDRAULIC GRADIENT ELEVATIONS		HEAD LOSS AT CHANGE IN SECTION						ELEV. OF HYD. GRADE (FT)	ELEV. OF INVERT AT DESIGN POINT		REMARKS		
				INCREMENTAL AREA NO.	TOTAL AREA (ACRE)				INLET TIME (MIN)	FLOW TIME IN SEWER (MIN)	TOTAL TIME (MIN)						UP- STREAM (FT MSL)	DOWN- STREAM (FT MSL)	V1 FLOW IN (FPS)	V2 FLOW OUT (FPS)	V2**2 2g (FT)	V1**2 2g (FT)	K _f (CONST)	KV1**2 2g (FT)		HEAD LOSS H _j (FT)	PIPE IN (FT MSL)		PIPE OUT (FT MSL)	
																														FROM
0.0204	4+17.50	1+17.50	300.00	B-40	2.65	2.65	1.00	2.65	2.65	5.0	---	5.0	10	7.2	19.1	24	0.0071	55.59	49.47	0.0	6.1	---	---	1.00	---	P.F.	55.59	53.59	47.47	LINE B-6
0.0125	1+17.50	0+00.00	117.50	NONE	0.00	2.65	1.00	0.00	2.65	5.0	0.8	5.8	10	7.1	18.8	24	0.0069	49.47	47.94	6.1	6.0	---	---	0.25	---	P.F.	49.47	47.47	46.00	LINE B-6
0.0158	5+53.46	1+99.21	354.25	C-50	3.11	3.11	1.00	3.11	3.11	5.0	---	5.0	10	7.2	22.4	24	0.0098	55.59	49.99	---	7.1	---	---	---	---	P.F.	55.59	53.59	47.99	LINE C-1
0.0075	1+99.21	0+00.00	199.21	C-40	2.32	5.43	1.00	2.32	5.43	5.0	0.8	5.8	10	7.1	38.6	30	0.0088	49.99	47.78	7.1	7.9	---	---	0.25	---	FULL	49.99	47.49	46.00	LINE C-1
0.0224	2+49.75	0+00.00	249.75	C-40	2.32	2.32	1.00	2.32	2.32	5.0	---	5.0	10	7.2	16.7	24	0.0055	55.58	49.99	0.0	5.3	---	---	1.00	---	P.F.	55.58	53.58	47.99	LINE C-2
0.0269	3+44.30	1+26.80	217.50	C-70	1.79	1.79	1.00	1.79	1.79	5.0	---	5.0	10	7.2	12.9	24	0.0032	55.75	49.90	0.0	4.1	---	---	1.00	---	P.F.	55.75	53.75	47.90	LINE C-4
0.0150	1+26.80	0+00.00	126.80	C-60	1.79	3.58	1.00	1.79	3.58	6.0	0.9	5.9	10	7.1	25.4	24	0.0126	49.90	47.78	4.1	8.1	---	---	0.25	---	P.F.	49.90	47.90	46.00	LINE C-4
0.0301	1+94.67	0+00.00	194.67	C-60	1.79	1.79	1.00	1.79	1.79	5.0	---	5.0	10	7.2	12.9	24	0.0032	55.76	49.90	0.0	4.1	---	---	1.00	---	P.F.	55.76	53.76	47.90	LINE C-5

10 YEAR CULVERT HYDRAULIC CALCULATIONS

CULVERT NAME	PIPE SIZE (in.)	PIPE MATERIAL	MANNING'S n	PIPE LENGTH (ft.)	UP STREAM FLOWLINE (ft.)	DOWN STREAM FLOWLINE (ft.)	MAXIMUM 10-YEAR DISCHARGE (cfs.)	MAXIMUM HEADWATER ELEVATION (ft.)	MAXIMUM TAILWATER ELEVATION (ft.)	MAXIMUM TOP OF BERM ELEVATION (ft.)	ROADWAY SLOPE (ft./ft.)	PIPE SLOPE (ft./ft.)	PIPE CAPACITY (cfs)	VELOCITY (fps)
LINE A-1	24	R.C.P.	0.013	86.66	46.50	46.00	9.86	48.29	48.25	52.73	.0058	17.23	5.68	
LINE B-1	36	R.C.P.	0.013	77.09	47.75	46.00	48.31	51.58	48.25	52.73	.0227	100.50	14.09	
LINE B-2	36	R.C.P.	0.013	107.15	48.00	46.00	51.01	52.05	47.94	53.85	.0187	91.21	13.28	
LINE B-3	24	R.C.P.	0.013	97.10	48.00	46.00	26.04	52.05	47.94	52.53	.0206	32.47	11.50	
LINE B-4	18	R.C.P.	0.013	93.70	46.50	45.40	10.13	47.94	46.90	52.00	.0117	11.36	7.27	
LINE B-5	24	R.C.P.	0.013	95.11	46.00	46.00	11.65	48.25	47.94	52.00	.0000	EQUALIZER	3.71	
LINE C-3	18	R.C.P.	0.013	42.12	46.50	45.29	5.03	47.78	46.79	51.00	.0287	17.80	8.70	
LINE D-1	30	R.C.P.	0.013	60.32	43.50	42.64	42.96	48.76	45.64	51.00	.0143	49.05	11.27	

10 YEAR FLUME CALCULATIONS

CAPACITY FOR CURB OPENING:
 $O = C * L * H^{3/2} = 1.1 \text{ CFS/FOOT OF OPENING (WEIR FORMULA)}$
 MAXIMUM 010 TO 10' FLUME OPENING = 7.3 CFS < 11 (AREA C-20)
 MAXIMUM 010 TO 10' FLUME OPENING = 7.8 CFS < 11 (AREA C-30)
 MAXIMUM 010 TO 10' FLUME OPENING = 8.2 CFS < 11 (AREA B-20)
 MAXIMUM 010 TO 10' FLUME OPENING = 8.1 CFS < 11 (AREA B-30)
 MAXIMUM 010 TO 10' FLUME OPENING = 10.9 CFS < 11 (AREA A-20)
 MAXIMUM 010 TO 30' FLUME OPENING = 30.4 CFS < 33 (AREAS A-20, D-20 TO D-60)

FOR WEIR FORMULA:
 O = DISCHARGE, CFS
 C = WEIR COEFFICIENT, USE C = 3.1
 L = LENGTH OF OPENING, FT.
 H = HEIGHT OF CURB, FT.

2 YEAR OPEN CHANNEL HYDRAULIC CALCULATIONS

COMPUTATIONS OF RECTANGULAR, "V" OR TRAPEZOIDAL CHANNEL PROPERTIES

CHANNEL NAME	DEPTH	SIDE #1	SIDE #2	BOTTOM WIDTH	MANNING'S "n"	CHANNEL SLOPE (FT/FT)	Q REQ'D (CFS)	AREA (FT.)	CRITICAL SLOPE (FT/FT)	HYDRAULIC RADIUS (FT.)	TOP WIDTH (FT.)	VELOCITY (FPS)	Q PROV'D (CFS)	FLOW REGIME	CHANNEL LINING
CH-B50	0.52	3:1	3:1	5.00	0.035	0.005	5.63	3.41	0.0518	0.412	8.12	1.67	5.68	SUBCRITICAL	GRASS
CH-B70	0.33	3:1	3:1	5.00	0.035	0.005	2.49	1.98	0.0706	0.279	6.98	1.29	2.54	SUBCRITICAL	GRASS
CH-C80	0.34	3:1	3:1	5.00	0.035	0.0334	6.79	2.05	0.0481	0.286	7.04	3.38	6.92	SUBCRITICAL	GRASS
CH-D70	0.34	3:1	3:1	5.00	0.035	0.0334	6.79	2.05	0.0481	0.286	7.04	3.38	6.92	SUBCRITICAL	GRASS
CH-D80	0.32	3:1	3:1	5.00	0.035	0.005	2.37	1.91	0.0639	0.272	6.92	1.26	2.41	SUBCRITICAL	GRASS
CH-OF 25	0.53	3:1	3:1	5.00	0.035	0.0068	6.83	3.49	0.0486	0.418	8.18	1.96	6.86	SUBCRITICAL	GRASS
CH-OF 26	0.18	3:1	3:1	5.00	0.035	0.006	0.92	1.00	0.0957	0.162	6.08	0.98	0.98	SUBCRITICAL	GRASS
CH-OF 11	0.42	2.5:1	2.5:1	5.00	0.035	0.0357	10.07	2.54	0.0372	0.350	7.35	3.99	10.15	UNSTABLE	GRASS

PROJECT RECORD

Date: NOV 11 2000
 Wal-Mart BSF #88, James City County, VA
 Miller Building Corporation
 2501 Blue Ridge Rd., G-100, Raleigh, NC 27607
 Tel: (919) 782-1004
 This Plan, with the as-built notations, accurately reflects the construction work.
 Signature: _____

Carter & Burgess
 Consulting, Engineering, Architecture,
 Construction Management, Planning Services
 CARTER & BURGESS, INC.
 300 MACHAM BOULEVARD, SUITE 200
 FORT WORTH, TX 76107 - 3887

SHEET
 C4.11

Gr:\JOB\95E103\CV\B00xch.dgn

PROJECT NO. 15/1788
 DATE 12/27/00
 ISSUE FOR CONSTRUCTION
 DATE 12/27/00
 ISSUE

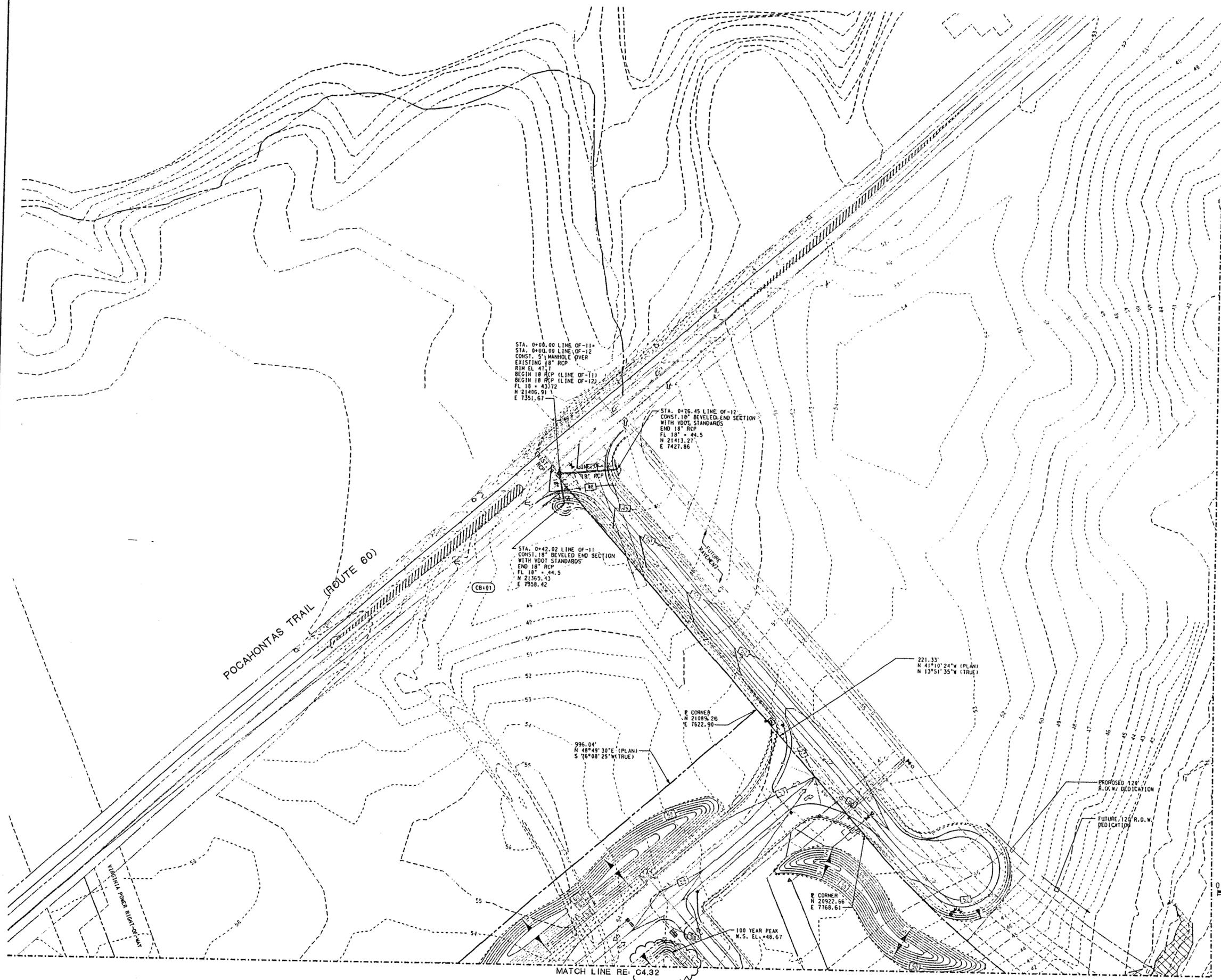
WAL-MART
 STORE, INC.
 BULK STORAGE NO. 88
 JAMES CITY COUNTY, VA

HYDRAULIC CALCULATIONS

PROJECT RECORD

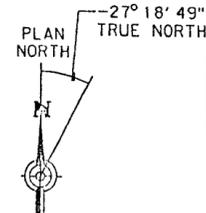
SHEET C4.11

User: abmamd1, Amer1co
 Date: 11/15/16, 20:23
 Plot: 17
 Scale: 1" = 50'-0"
 Project: 161515162023
 Job: 161515162023
 User: abmamd1, Amer1co
 Date: 11/15/16, 20:23
 Plot: 17
 Scale: 1" = 50'-0"
 Project: 161515162023
 Job: 161515162023



PROJECT RECORD

Date: NOV 11 2000
 Wal-Mart BSF #88, James City County, VA
 Miller Building Corporation
 2501 Blue Ridge Rd., G-100, Raleigh, NC 27607
 Tel: (919) 782-1004
 This Plan, with the as-built notations, accurately reflects the construction.
 Signature: *[Signature]*



1 AREA 1 - STORM DRAIN PLAN
 C4.31 SCALE: 1" = 50'-0"

PROJECT NO.	161515162023
DISTRICT	161515162023
DESIGNER	D. ANDERSON
CHECKER	D. ANDERSON
DATE	11/27/2000
NO.	1
DATE	11/27/2000
ISSUE	ISSUE FOR CONSTRUCTION

WAL-MART
 STORES, INC.
 BULK STORAGE NO. 88
 JAMES CITY COUNTY, VA

AREA 1 - STORM DRAIN PLAN

Carter & Burgess
 Consultants in Planning, Engineering, Architecture, and Real Estate Services
 CARTER & BURGESS, INC.
 3001 MARKET BOURNE DRIVE, SUITE 200
 FORT WORTH, TX 76137 - 2222

SHEET
C4.31

NOV 2000
 Received
 Miller Building Corporation



PROJECT NO.	REV. 1/17/00 CHANGE IN SCOPE NO. 1	DATE	ISSUE
DESIGN BY	D. AMERSON	NO.	
DRAWN BY	S. FERTITA	DATE	
CHECKED BY	S. FERTITA	DATE	
DATE	03/27/00	NO.	
DATE	03/27/00	NO.	

WAL-MART
STORE, INC.
BULK STORAGE NO. 88
JAMES CITY COUNTY, VA

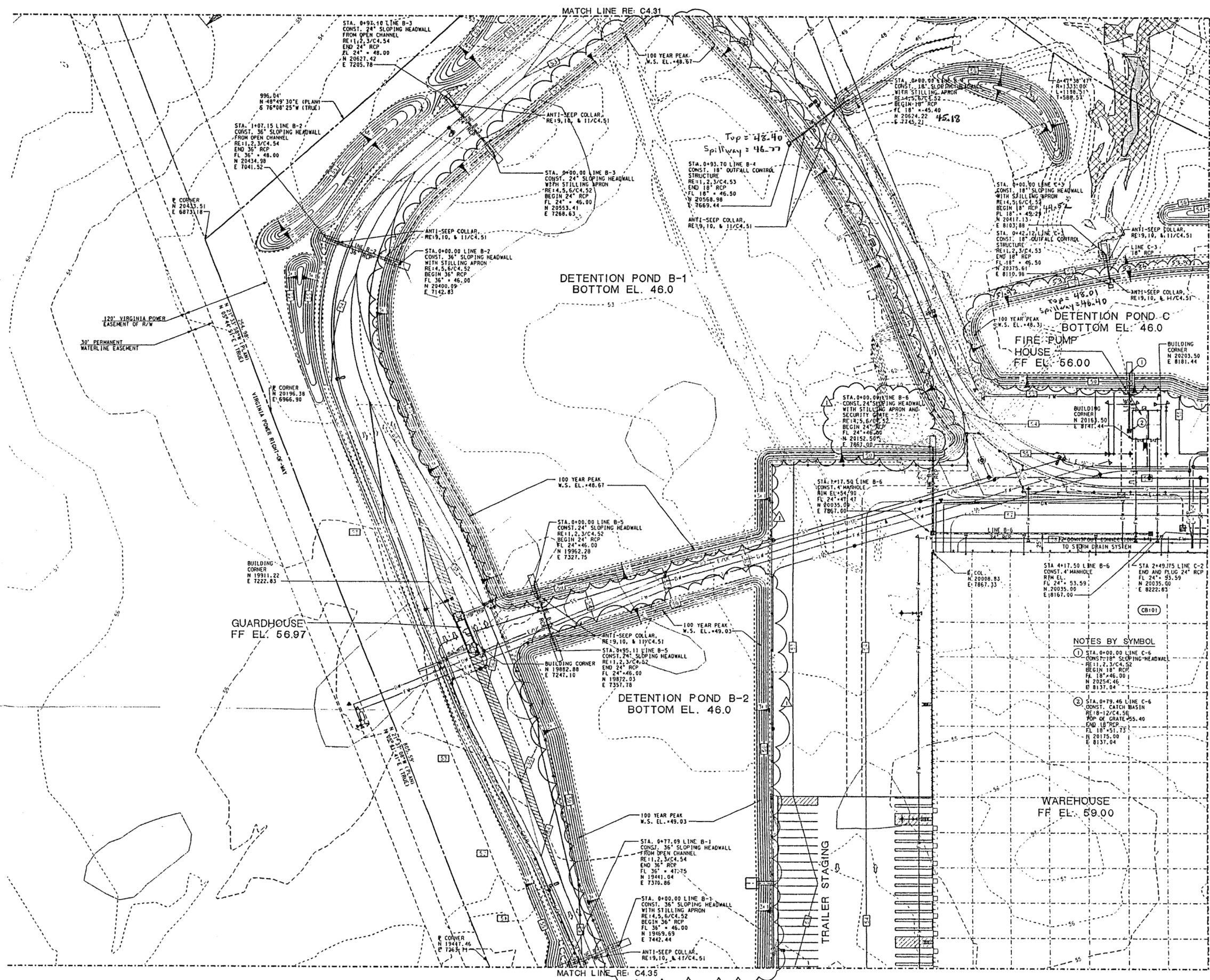
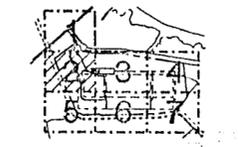
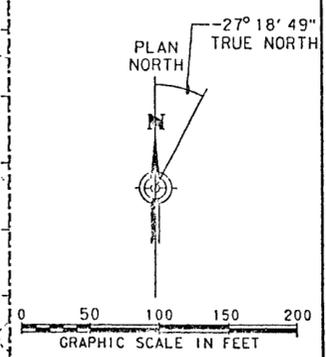
AREA 2 -
STORM DRAIN PLAN

Carter & Burgess
Consultants in Planning, Engineering, Architecture,
Construction Management and Related Services
CARTER & BURGESS, INC.
3001 MEADOW BOULEVARD, SUITE 200
FORSYTH, VA 24028

SHEET
C4.32

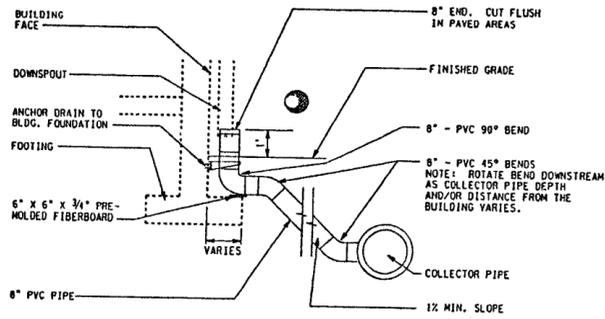
PROJECT RECORD

Date: NOV 11 2000
Wal-Mart #88, James City County, VA
Miller Building Corporation
2501 Blue Ridge Rd., G-100, Raleigh, NC 27607
Tel: (919) 782-1004
This Plan, with the as-built notations, accurately reflects the construction.
Signature: _____



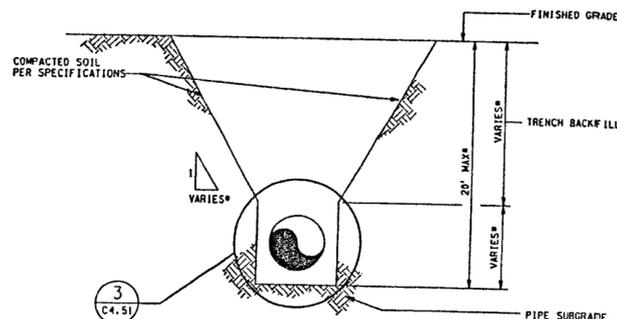
1 AREA 2 - STORM DRAIN PLAN
C4.32 SCALE: 1" = 50'-0"

C:\JOB\99E103\CIV\B04C25D.SHT



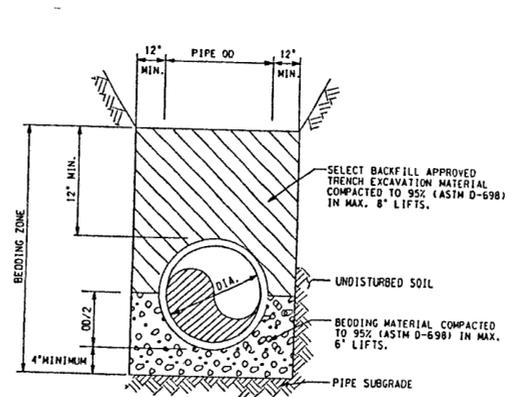
- DETAIL NOTES:**
1. THERE ARE 54 DOWNSPOUT CONNECTIONS TO BE MADE ON THIS PROJECT. SEE METAL BUILDING PACKAGE FOR DOWNSPOUT LOCATIONS.
 2. IN PAVED AREAS, GC TO EXTEND PIPE ABOVE FINISH GRADE FOR BC TO CUT FLUSH AND CAP. REFER TO SHEET A11-32.
 3. CONTRACTOR TO COORDINATE WITH FIRE PROTECTION LINE INSTALLATION TO ENSURE GRAVITY FLOW IN DOWNSPOUT COLLECTOR.

1 DOWNSPOUT COLLECTOR
C4.51 NOT TO SCALE

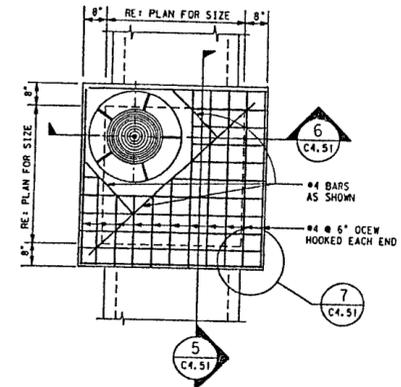


- DETAIL NOTES:**
1. ALL CONSTRUCTION, INSPECTION AND MONITORING SHALL COMPLY WITH ALL OSHA, STATE AND LOCAL ORDINANCES, LAWS AND PROCEDURES. THIS SHALL INCLUDE ALL CONSTRUCTION METHODS, MATERIALS AND SAFETY PROCEDURES. ADDITIONAL TRENCH SAFETY, INSPECTION AND MONITORING SHALL BE DESIGNED AND FURNISHED BY THE CONTRACTOR AS REQUIRED BY OSHA, STATE AND LOCAL ORDINANCES, LAWS AND PROCEDURES.

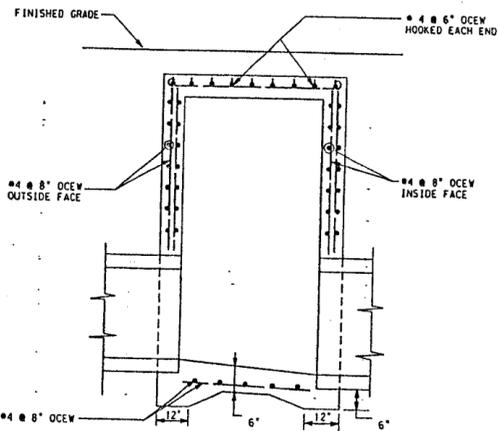
2 TRENCHING DETAIL
C4.51 NOT TO SCALE



3 BEDDING ZONE
C4.51 NOT TO SCALE

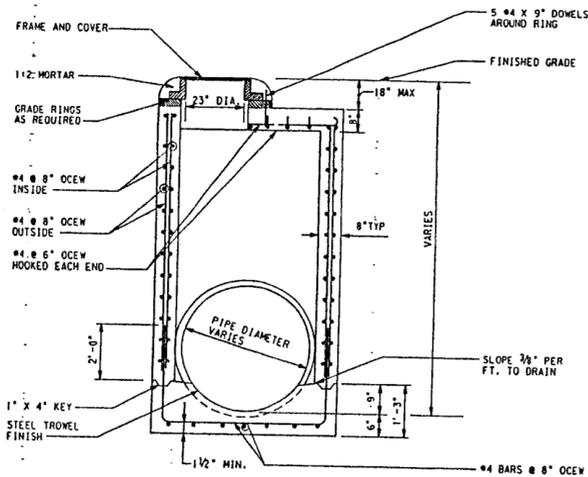


4 STORM DRAIN MANHOLE
C4.51 NOT TO SCALE

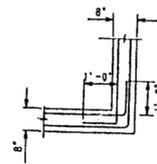


- DETAIL NOTES:**
1. SLOPE INVERT OF MANHOLE AS INDICATED ON PROFILE SHEET.
 2. PROVIDE 1 1/2\"/>

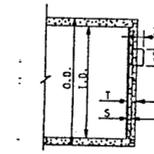
5 SECTION
C4.51 NOT TO SCALE



6 SECTION
C4.51 NOT TO SCALE



7 CORNER DETAIL
C4.51 NOT TO SCALE



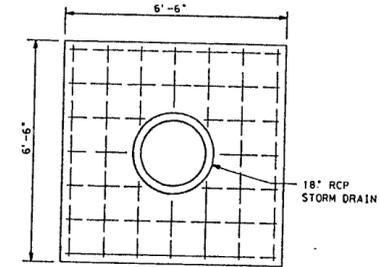
T = LENGTH OF PIPE GROOVE

DETAIL NOTES:

1. STEEL HANDLE FOR REINF. CONC. PIPE PLUG SHALL BE LOCATED 1/4\"/>

8 REINFORCED CONCRETE PIPE PLUG DETAIL
NOT TO SCALE

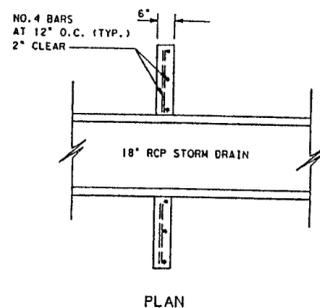
PIPE SIZE	REINF. BAR	SPACING	S
12\"/>			



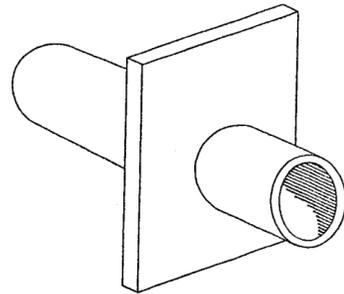
DETAIL NOTES:

1. CONCRETE COLLARS TO BE CAST-IN-PLACE USING 3000 PSI CONCRETE

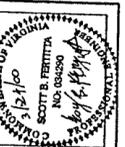
9 ANTI-SEEP COLLAR ELEVATION
C4.51 NOT TO SCALE



10 ANTI-SEEP COLLAR SECTION
C4.51 NOT TO SCALE



11 ANTI-SEEP COLLAR PERSPECTIVE
C4.51 NOT TO SCALE



PROJECT NO. 032717000
DESIGNED BY: P. HASSELL
DRAWN BY: J. HARRIS
APPROVED BY: S. FERTITTA
DATE: 03/27/00

WAL-MART STORES, INC.
BULK STORAGE NO. 88
JAMES CITY COUNTY, VA

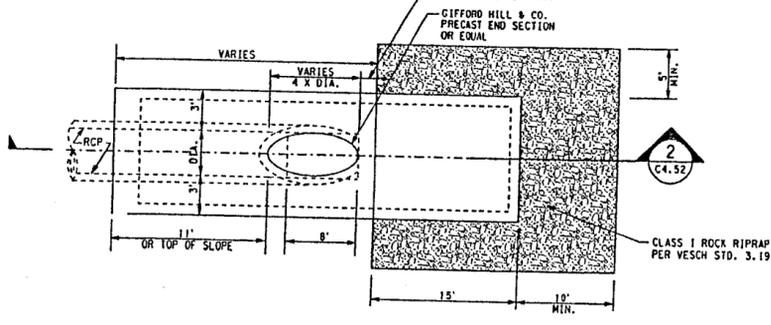
STORM DRAIN DETAILS
SHEET 1 OF 5

Carter & Burgess
Consultants in Planning, Engineering, Architecture,
Construction Management, and Related Services
CARTER & BURGESS, INC.
2001 MAGNOLIA BOWEN ROAD, SUITE 200
FORT WORTH, TX 76117 - 7122

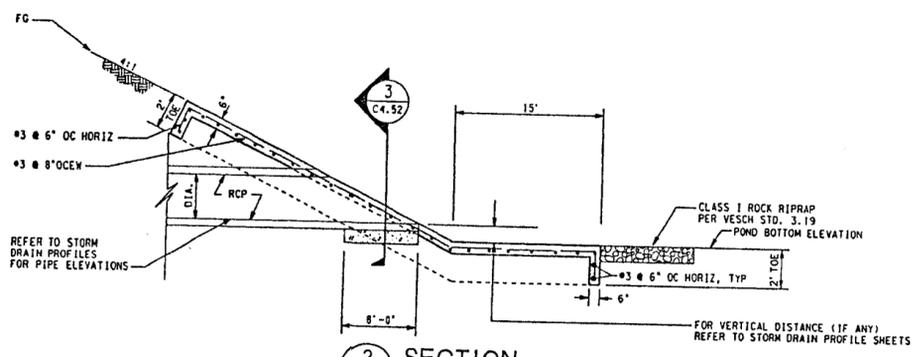
PROJECT RECORD

Date: NOV 11 2000
Wal-Mart BSF #88, James City County, VA
Miller Building Corporation
2501 Blue Ridge Rd., G-100, Raleigh, NC 27607
Tel: (919) 782-1004
This Plan, with the as-built notations, accurately reflects the completed work.
Signature: *[Signature]*

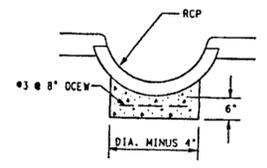
SHEET
C4.51



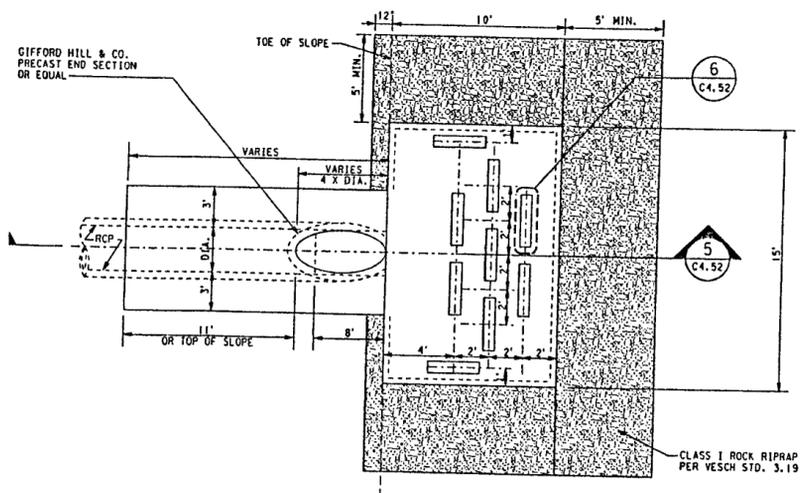
1 SLOPING HEADWALL DETAIL
NOT TO SCALE



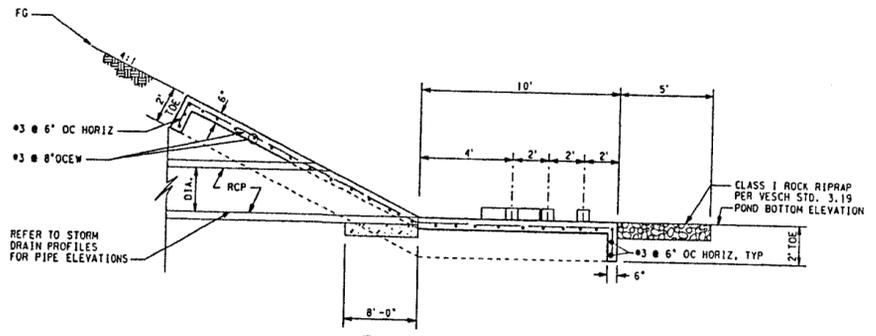
2 SECTION
NOT TO SCALE



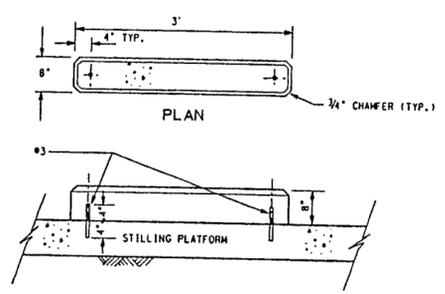
3 SECTION
NOT TO SCALE



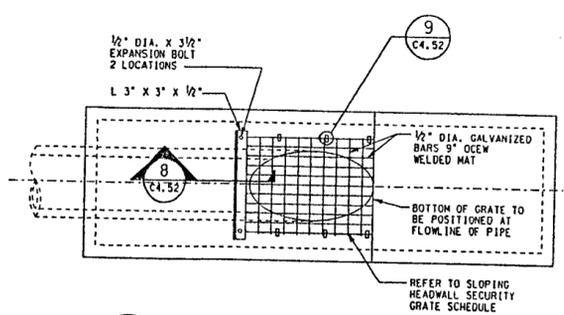
4 SLOPING HEADWALL WITH STILLING APRON
NOT TO SCALE



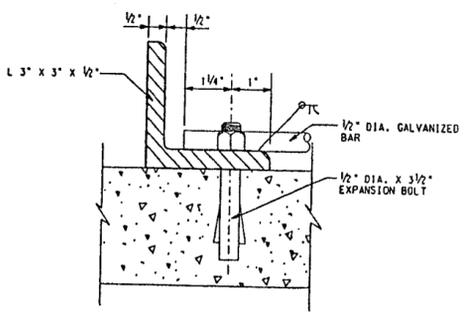
5 SECTION
NOT TO SCALE



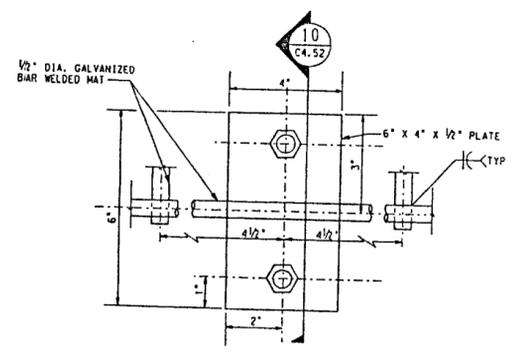
6 CONCRETE BAFFLE
NOT TO SCALE



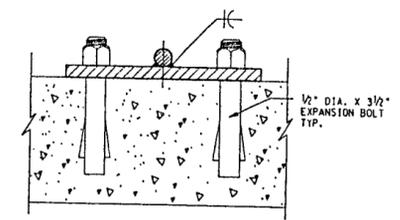
7 SLOPING HEADWALL SECURITY GRATE DETAIL
NOT TO SCALE



8 SECTION
NOT TO SCALE



9 SECURITY GRATE FASTENER
NOT TO SCALE



10 SECTION
NOT TO SCALE

PIPE SIZE (INCHES)	SLOPING HEADWALL SECURITY GRATE SCHEDULE					
	1/2" DIA. GALVANIZED BARS				L 3 X 3 X 1/2	
	LONGITUDINAL		LATERAL		NO.	LENGTH (INCHES)
NO.	LENGTH (IN.)	NO.	LENGTH (IN.)			
18	6	81	9	46	1	52
21	6	90	10	46	1	52
24	7	108	12	55	1	61
36	8	153	17	64	1	70
42	9	180	20	73	1	79
48	9	207	23	73	1	79

PROJECT RECORD
NOV 11 2000

Date: NOV 11 2000
Wal-Mart BSF #88, James City County, VA
Miller Building Corporation
2501 Blue Ridge Rd., G-100, Raleigh, NC 27607
Tel: (919) 782-1004
This Plan, with the as-built notations, accurately reflects the construction.
Signature: *[Signature]*



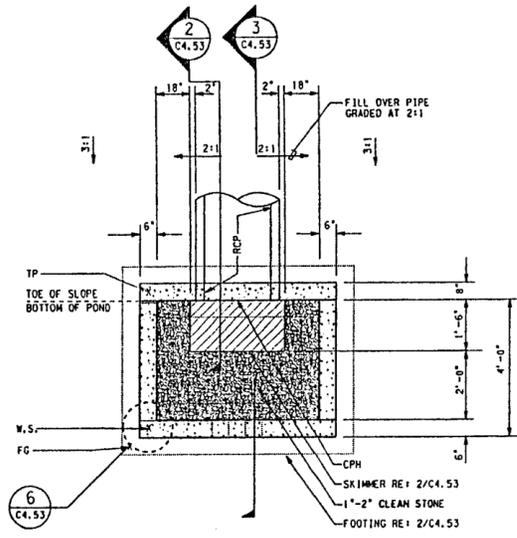
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
DATE: 11/11/00
PROJECT NO. 031717/00
SHEET NO. 1
ISSUE FOR CONSTRUCTION
DATE: 03/27/00
ISSUE FOR CONSTRUCTION
DATE: 07/27/00

WAL-MART
STORES, INC.
BULK STORAGE NO. 88
JAMES CITY COUNTY, VA

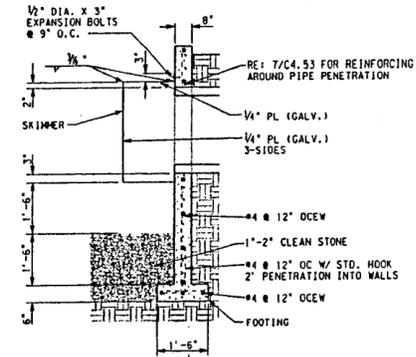
STORM DRAIN DETAILS
SHEET 2 OF 5

Carter & Burgess, Inc.
Consultants in Planning, Engineering, Architecture,
Construction Management, and Related Services
CARTER & BURGESS, INC.
1000 BOWEN BOULEVARD, SUITE 200
ROCKY MOUNT, VA 22857-1122

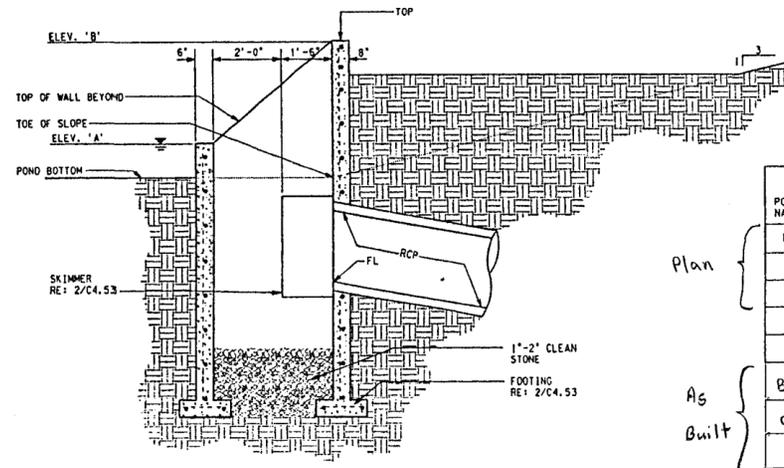
SHEET
C4.52



1 OUTFALL CONTROL STRUCTURE
NOT TO SCALE



2 TYPICAL SKIMMER AND FOOTING SECTION
NOT TO SCALE



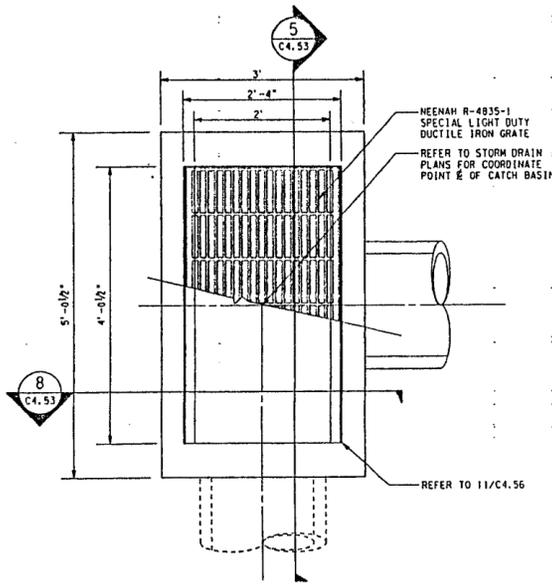
DETAIL NOTES:
1. SKIMMER PLATES AND FOOTINGS ARE INTENDED TO BE PERMANENT INSTALLATIONS AT THE OUTFALL STRUCTURES.

3 SECTIONS
NOT TO SCALE

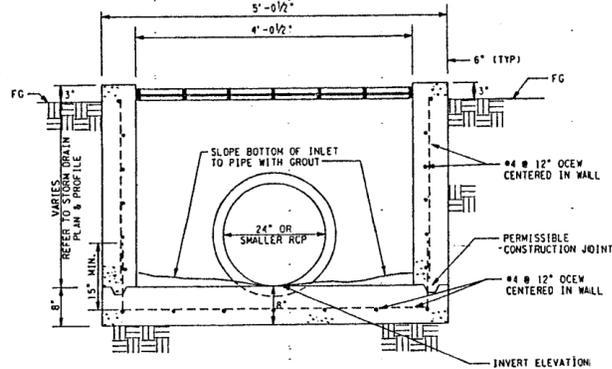
POND NAME	POND BOTTOM ELEV. (FT.)	ELEV. 'A' (FT.)	ELEV. 'B' (FT.)	FLOW LINE (FT.)	COMMENTS	Actual		Plan	
						Inv. Out	Inv. In	Inv. Out	Inv. In
B1	46.0	46.5	48.25	46.5	LINE B-4	45.18	45.40	Plan	
C	46.0	46.5	48.25	46.5	LINE C-3	44.52	45.29	Plan	
D	46.0	47.0	48.75	43.5	LINE D-1	39.89	40.00	Plan	

Spillway Top Inv. In.
Spillway Top Inv. In.
Actual Inv. Out
Plan Inv. Out

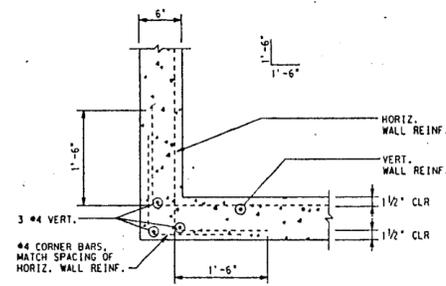
<Inside of Skimmer Plate>



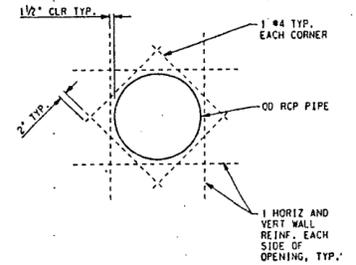
4 CATCH BASIN
NOT TO SCALE



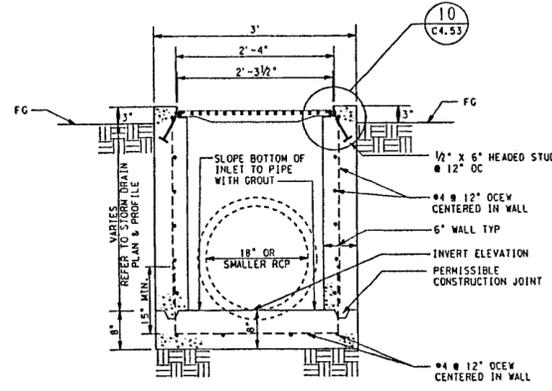
5 SECTION
NOT TO SCALE



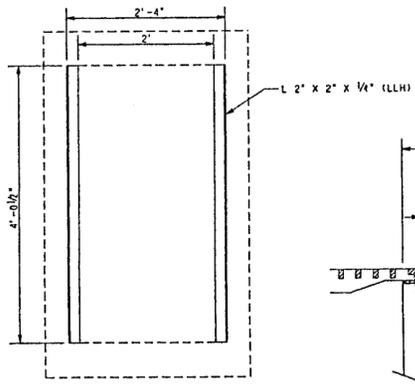
6 CORNER BAR DETAIL
NOT TO SCALE



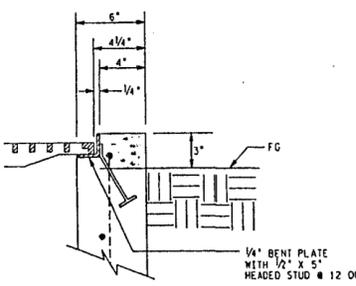
7 WALL OPENING REINFORCING DETAIL
NOT TO SCALE



8 SECTION
NOT TO SCALE



9 FRAME
NOT TO SCALE



10 ANCHOR DETAIL
NOT TO SCALE



PROJECT NO.	DATE	ISSUE
10377901	10/27/01	ISSUE FOR CONSTRUCTION

WAL-MART
STORES, INC.
BULK STORAGE NO. 88
JAMES CITY COUNTY, VA

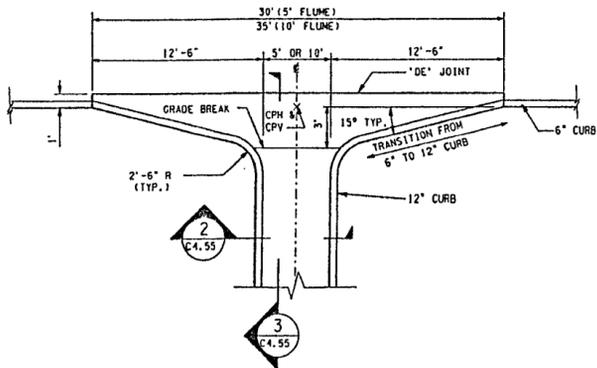
STORM DRAIN DETAILS
SHEET 3 OF 5

Carter Burgess
Consultants in Planning, Engineering and Professional Services
CARTER & BURGESS, INC.
2001 MACHAM BOULEVARD, SUITE 200
FORT WORTH, TX 76177-1111

PROJECT RECORD

Date: NOV 11 2000
Wal-Mart BSF #88 James City County VA
Miller Building Corporation
2501 Blue Ridge Rd., G-100 Raleigh NC 27607
Tel: (919) 782-1004
This Plan, with the as-built annotations, accurately reflects the construction.
Signature: *Scott Burgess*

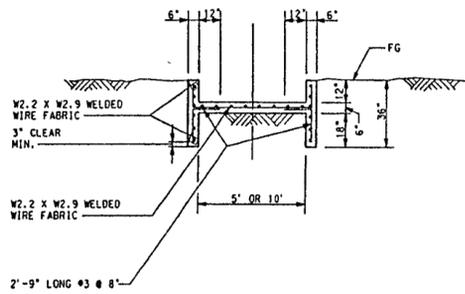
SHEET
C4.53



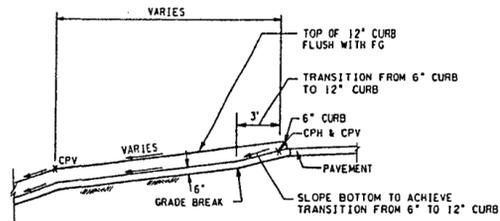
DETAIL NOTES:

1. FLUME LENGTH AND SLOPE VARIES. REFER TO LAYOUT AND DIMENSION PLANS, AND GRADING PLANS.
2. REFER TO LAYOUT AND DIMENSION PLANS FOR COORDINATE OF CONTROL POINT HORIZONTAL (CPH).
3. REFER TO GRADING PLANS FOR ELEVATION OF CONTROL POINT VERTICAL (CPV).
4. REFER TO LAYOUT AND DIMENSION PLANS TO DETERMINE FLUME WIDTH (5' OR 10')

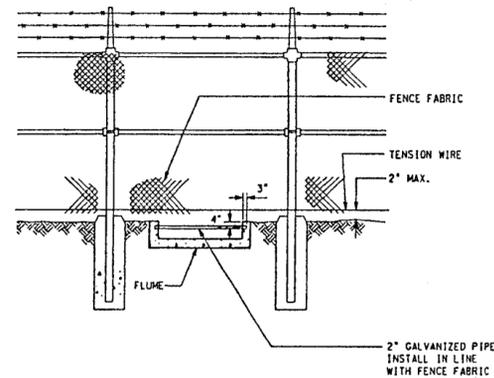
1 FLUME DETAIL
NOT TO SCALE



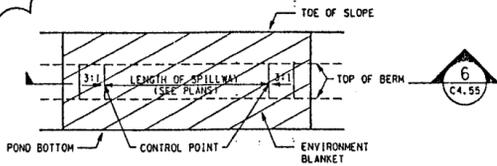
2 SECTION
C4.55 NOT TO SCALE



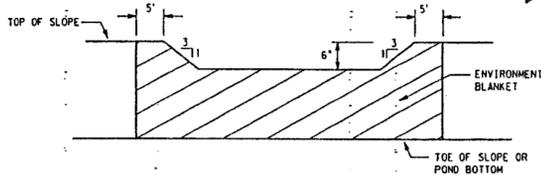
3 SECTION
C4.55 NOT TO SCALE



4 SECURITY PIPE FOR FLUMES UNDER SECURITY FENCE
NOT TO SCALE



5 EMERGENCY SPILLWAY
C4.55 NOT TO SCALE



6 SECTION
C4.55 NOT TO SCALE



PROJECT NO.	DATE	ISSUE
1	09/27/00	ISSUE FOR CONSTRUCTION
2		
3		
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8		
9		
10		

WAL-MART
STORE, INC.
BULK STORAGE NO. 88
JAMES CITY COUNTY, VA

STORM DRAIN DETAILS
SHEET 5 OF 5

PROJECT RECORD

Date: NOV 11 2000
Wal-Mart BSF # 83, James City County, VA
Miller Building Corporation
2501 Blue Ridge Rd., G-100, Raleigh, NC 27607
Tel: (919) 782-1004
This Plan, with the as-built notations accurately reflects the completed work.
Signature: *Steve Burgess*

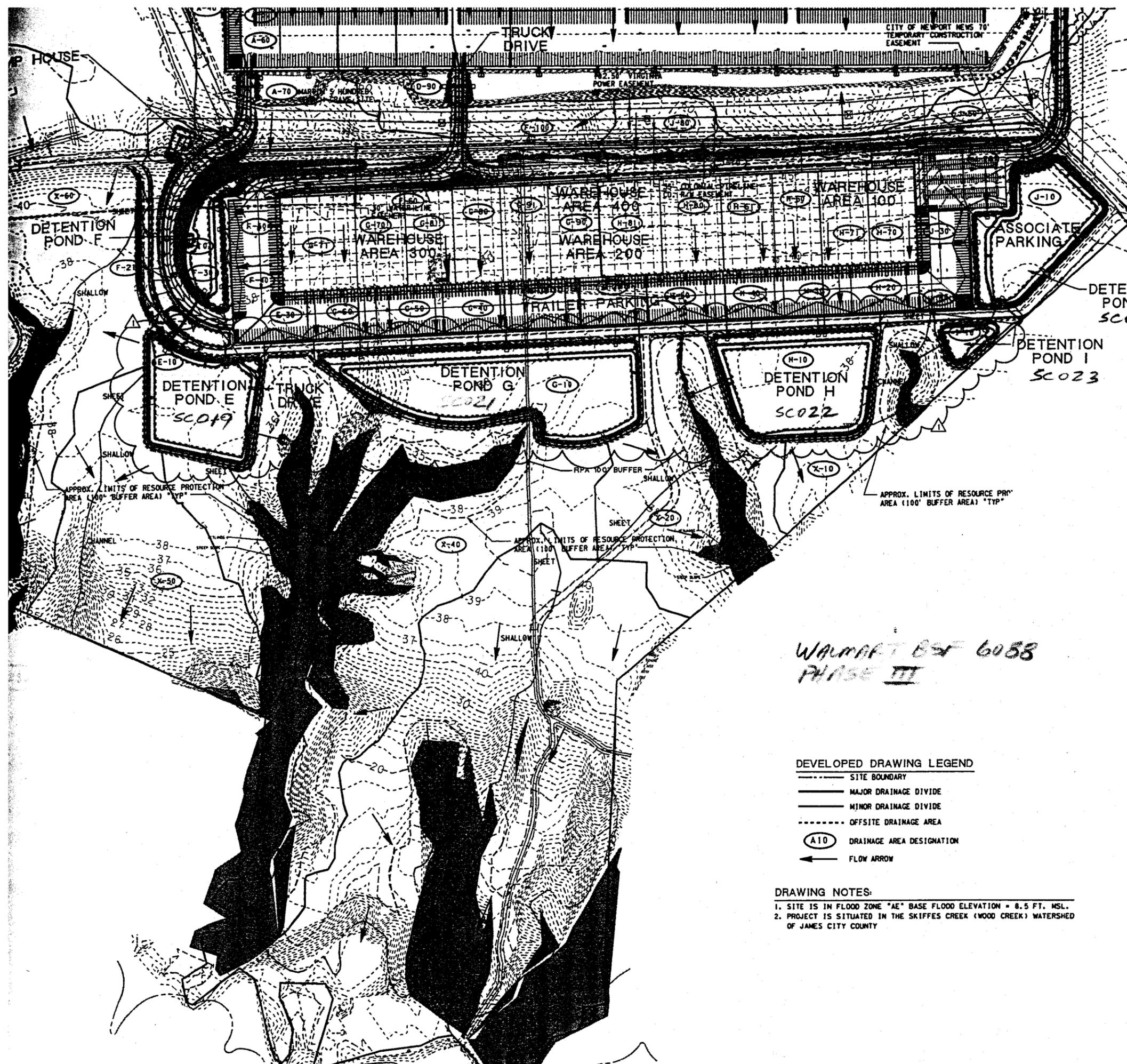


Carter & Burgess
Consultants in Planning, Engineering, Architecture, Construction Management and Related Services
CARTER & BURGESS, INC.
300 MEACHAM BOULEVARD, SUITE 200
FORT WORTH, TX 76107 - 1331

SHEET
C4.55

User: jchevener, James
 Date: 11/11/00 10:58:01 AM
 Path: \\jchevener\cadd\proj\00\000000\000000.dwg
 Plot: 11/11/00 10:58:01 AM
 Plot Device: HPGL
 Plot Scale: 1:1
 Plot Range: Extents
 Plot Orientation: Landscape
 Plot Color: Black
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 Plot Font: Arial, 10
 Plot Title: PROJECT RECORD
 Plot Sheet: SHEET 5 OF 5
 Plot User: jchevener

G:\JOB\99E103\CV\B0Xcd5d.dwg



WALMART #6088
PHASE III

DEVELOPED DRAWING LEGEND

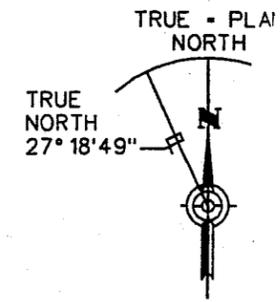
- SITE BOUNDARY
- MAJOR DRAINAGE DIVIDE
- MINOR DRAINAGE DIVIDE
- OFFSITE DRAINAGE AREA
- (A10) DRAINAGE AREA DESIGNATION
- ← FLOW ARROW

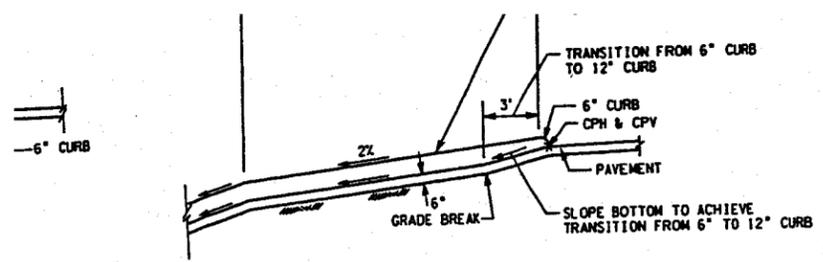
DRAWING NOTES:

1. SITE IS IN FLOOD ZONE "AE" BASE FLOOD ELEVATION = 8.5 FT. MSL.
2. PROJECT IS SITUATED IN THE SKIFFES CREEK (WOOD CREEK) WATERSHED OF JAMES CITY COUNTY

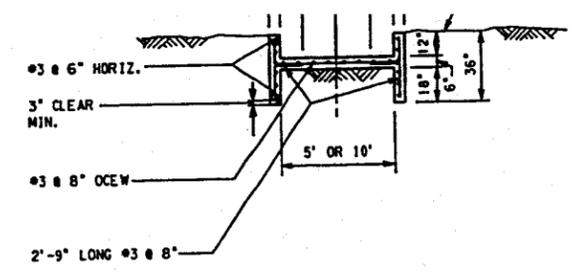
D-90	2.43	98	5	7.78	9.76	16.83	18.52
D-100	60.74	98	5	194.38	244.05	420.68	462.99
D-110	4.25	98	5	13.6	17.08	29.44	32.4
D-120	4.63	98	5	14.82	18.6	32.67	35.29
D-130	3.90	98	5	12.48	15.67	27.01	29.73
D-140	0.34	98	5	1.09	1.37	2.36	2.59
D-150	0.32	98	5	1.02	1.29	2.22	2.44
D-160	0.49	98	5	1.57	1.97	3.39	3.74
D-200	8.95	98	5	28.64	35.96	61.99	68.22
D-210	0.41	98	5	1.31	1.65	2.84	3.13
D-220	0.13	98	5	0.42	0.52	0.9	0.99
D-230	0.14	98	5	0.45	0.56	0.97	1.07
D-240	0.53	98	5	1.7	2.13	3.67	4.04
D-250	0.10	98	5	0.32	0.4	0.69	0.76
D-260	0.10	98	5	0.32	0.4	0.69	0.76
D-270	1.20	98	5	3.84	4.82	8.31	9.15
D-280	8.48	98	5	27.14	34.07	58.73	64.64
E-10	5.22	98	5	16.71	20.97	36.15	39.79
E-20	2.73	98	5	8.74	10.97	18.91	20.81
E-30	0.87	98	5	2.78	3.50	6.03	6.63
F-10	8.15	98	5	26.08	32.75	56.45	62.12
F-20	0.22	98	5	0.70	0.88	1.52	1.68
F-21	0.19	98	5	0.61	0.76	1.32	1.45
F-30	0.18	98	5	0.58	0.72	1.25	1.37
F-31	0.19	98	5	0.61	0.76	1.32	1.45
F-40	1.26	98	5	4.03	5.06	8.73	9.60
F-50	1.86	98	5	5.95	7.47	12.88	14.18
F-60	0.70	98	5	2.24	2.81	4.85	5.34
F-90	0.36	98	5	1.15	1.45	2.49	2.74
F-100	4.36	98	5	13.95	17.52	30.2	33.23
G-10	11.18	98	5	35.78	44.92	77.43	85.22
G-20	1.24	98	5	3.97	4.98	8.59	9.45
G-30	1.25	98	5	4.00	5.02	8.66	9.53
G-40	1.25	98	5	4.00	5.02	8.66	9.53
G-50	1.25	98	5	4.00	5.02	8.66	9.53
G-60	1.25	98	5	4.00	5.02	8.66	9.53
G-70	1.82	98	5	5.82	7.31	12.61	13.87
G-71	2.66	98	5	8.51	10.69	18.42	20.28
G-80	1.73	98	5	5.54	6.95	11.98	13.19
G-81	1.78	98	5	5.70	7.15	12.33	13.57
G-90	1.78	98	5	5.70	7.15	12.33	13.57
G-91	1.74	98	5	5.57	7.00	12.05	13.26
H-10	7.18	98	5	22.37	28.09	49.73	54.73
H-20	1.25	98	5	4.00	5.02	8.66	9.53
H-30	1.25	98	5	4.00	5.02	8.66	9.53
H-40	1.25	98	5	4.00	5.02	8.66	9.53
H-50	1.25	98	5	4.00	5.02	8.66	9.53
H-60	1.74	98	5	5.57	6.99	12.05	13.26
H-61	1.83	98	5	5.86	7.35	12.68	13.95
H-70	1.74	98	5	5.57	6.99	12.05	13.26
H-71	1.74	98	5	5.57	6.99	12.05	13.26
H-80	2.22	98	5	7.11	8.92	15.38	16.92
H-81	2.26	98	5	7.23	9.08	15.65	17.23
I-10	1.24	98	5	3.97	4.98	8.59	9.45
J-10	6.60	98	5	21.12	26.52	45.71	50.31
J-20	1.40	98	5	4.48	5.63	9.70	10.67
J-30	2.60	98	5	8.32	10.45	18.01	19.82
J-40	0.66	98	5	2.11	2.65	4.57	5.03
J-50	3.87	98	5	12.39	15.55	26.80	29.50
J-60	1.18	98	5	3.78	4.74	8.17	9.00
J-70	1.43	98	5	4.58	5.75	9.90	10.90
J-80	3.12	98	5	9.99	12.54	21.61	23.78
X-10	5.17	69	5	4.51	7.77	21.57	25.15
X-20	13.56	71	79	3.16	5.64	16.57	19.51
X-30	52.01	75	65	19.32	32.00	84.87	98.46
X-40	40.48	74	37	20.98	35.13	95.23	110.75
X-50	15.71	70	67	3.76	6.91	21.02	24.77
X-60	22.64	69	109	3.46	6.39	20.36	24.13

NOTE: These calculations are based on the Soil Conservation Service's (SCS) unit hydrograph method. An SCS Type II distribution with a peaking factor of 484 was used for all hydrograph calculations. Times of concentration are based on methods outlined in SCS TR-55 Second Edition, June 1986. A minimum time of concentration of 5.0 minutes was used.

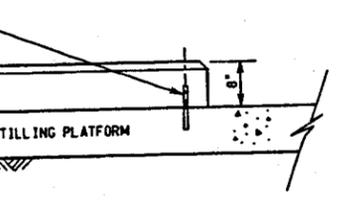
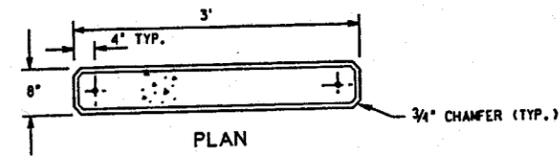




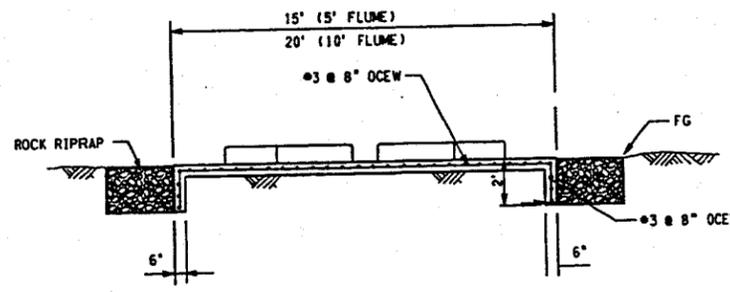
2 SECTION
C4.52 NOT TO SCALE



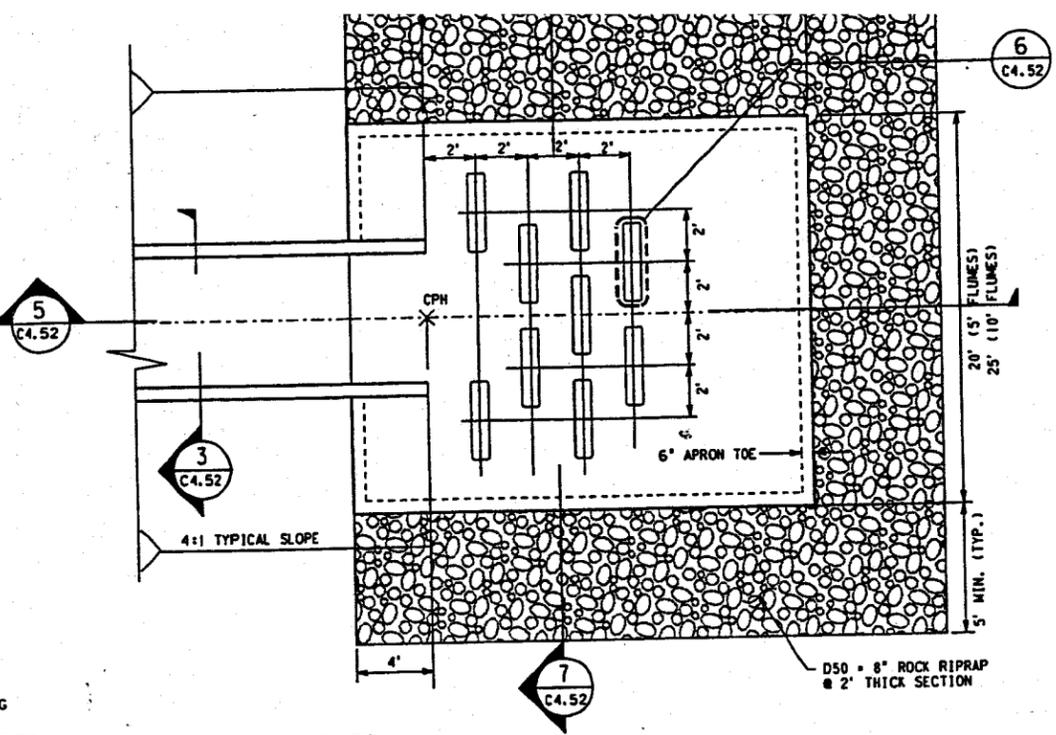
3 SECTION
C4.52 NOT TO SCALE



6 CONCRETE BAFFLE
C4.52 NOT TO SCALE



7 SECTION
C4.52 NOT TO SCALE

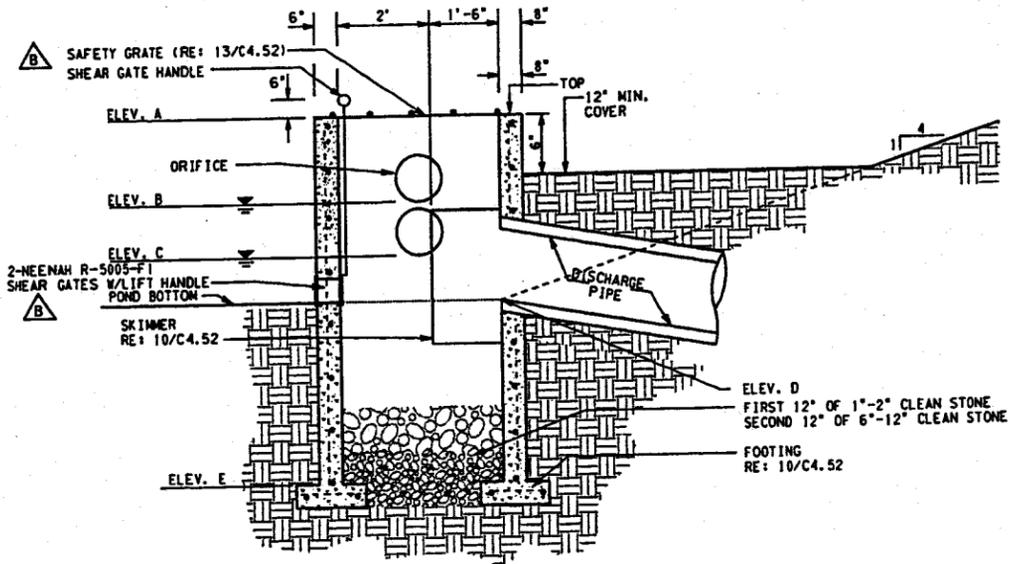


DETAIL NOTES:
1. REFER TO LAYOUT AND DIMENSION PLANS FOR COORDINATE OF CONTROL POINT HORIZONTAL (CPH).

4 FLUME RIPRAP APRON DETAIL
NOT TO SCALE

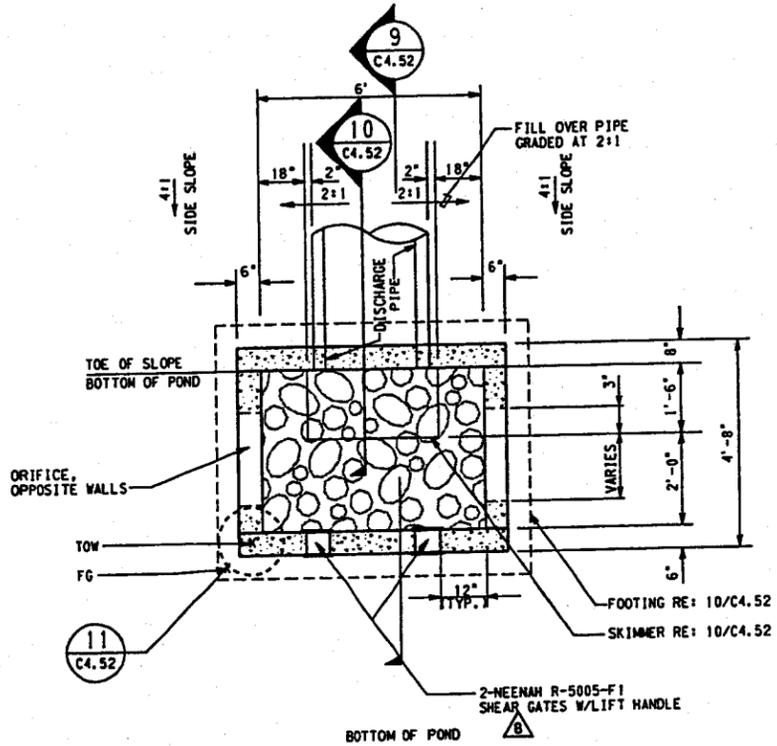
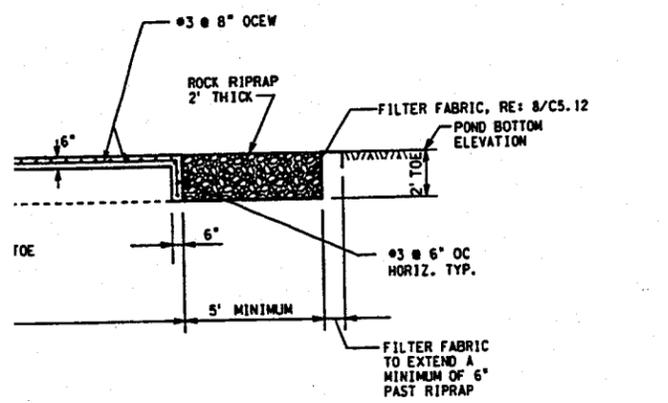
RISER

PHASE III TYPICAL RISER

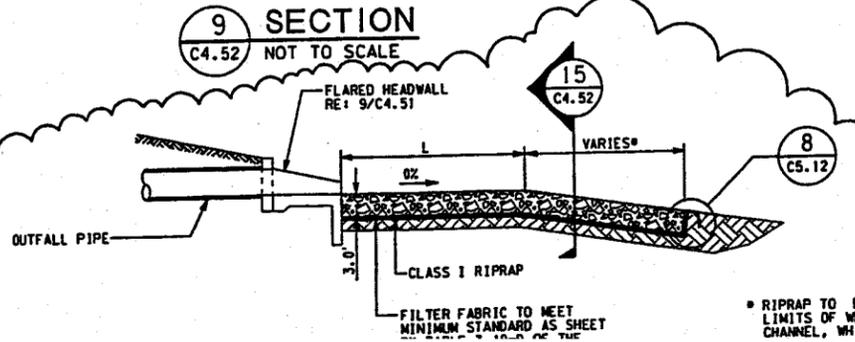
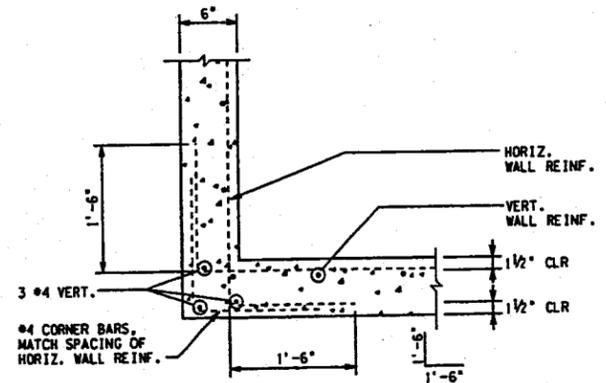


DETAIL NOTES:
1. FOOTINGS ARE INTENDED TO BE PERMANENT INSTALLATIONS AT THE OUTFALL STRUCTURES.

9 SECTION
C4.52 NOT TO SCALE



8 OUTFALL CONTROL STRUCTURE
C4.37 NOT TO SCALE
C4.39

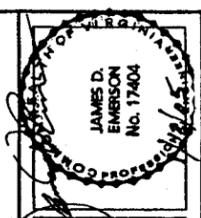


* RIPRAP TO BE EXTENDED TO THE LIMITS OF WETLANDS OR DEFINED CHANNEL, WHICHEVER COME FIRST.

WAL-MART
BULK STORAGE NO. 6088
PHASE III
JAMES CITY COUNTY, VA

PROJECT NO. 992245.030	REVISION BY S. BALTON	DATE 09/30/04	REVISION RE ISSUE FOR LD PERMIT
DRAWN BY S. BALTON	APPROVED BY T. DALPENS	DATE 08/16/04	NO. DATE ISSUE

STORM DRAIN DETAILS -
SHEET 2 OF 6



PROJECT NO. 192245.030	ISSUE FOR LO PERMIT	09/30/04	ISSUE
DESIGN BY P. HASSELL	ADDITION C	09/09/04	ISSUE
DRAWN BY S. KING	ISSUE FOR BID	08/16/04	ISSUE
APPROVED BY T. DALFERES	ISSUE FOR PRELIM. APPROV.	07/14/04	ISSUE
DATE 07/14/04			

WAL-MART
STORES, INC.
BULK STORAGE NO. 6088
PHASE III
JAMES CITY COUNTY, VA

**EROSION & SEDIMENTATION
CONTROL PLAN NOTES**

Carter Burgess
Consultants in Planning, Architecture, Engineering,
Construction Management, and Related Services
Carter & Burgess, Inc.
Head & Distribution - Floor 29
777 Main Street, Fort Worth, Texas 76102
(817) 252-8500 Fax (817) 252-8790

SHEET
C5.01

J:\R:\Wal-Mart\BSF\VA-James City-292245\Civil\Sheets\JCC501.SHT

MAINTENANCE NOTES

CEMENT OF CONSTRUCTION AND UNTIL FINAL SITE COMPLETED, ALL DISTURBED AREAS AND POLLUTANT CONTROLS AT LEAST ONCE EVERY FOURTEEN CALENDAR DAYS AND FOLLOWING A RAINFALL OF 0.5 INCHES OR GREATER. THE INSPECTIONS IS TO ASSESS PERFORMANCE OF POLLUTANT CONTROLS SHOULD BE CONDUCTED BY THE WAL-MART ENGINEER (WMCM) AND/OR THE CONTRACTOR. BASED ON THE WMCM WILL DECIDE WHETHER IT IS NECESSARY TO INSTALL POLLUTANT CONTROL DEVICES, OR WHATEVER ELSE MAY BE REQUIRED TO PREVENT POLLUTANTS FROM LEAVING THE SITE VIA STORM DRAINAGE. WMCM HAS AUTHORITY TO CAUSE POLLUTANT CONTROL MEASURES TO BE ADOPTED, MODIFIED, MAINTAINED, SUPPLEMENTED, OR REPLACED NECESSARY IN ORDER TO ACHIEVE EFFECTIVE POLLUTANT CONTROL.

ADDITIONAL ITEMS TO EVALUATE DURING SITE INSPECTIONS ARE LISTED IN THE ATTACHED LIST. THIS LIST IS NOT INTENDED TO BE COMPREHENSIVE. DURING EACH INSPECTION THE INSPECTOR MUST EVALUATE OVERALL POLLUTANT CONTROL MEASURES AS WELL AS PARTICULAR DETAILS OF INDIVIDUAL SYSTEMS. ADDITIONAL FACTORS SHOULD BE CONSIDERED AS APPROPRIATE TO THE SITE.

BEFORE VEHICLES ENTER AND EXIT THE SITE MUST BE INSPECTED FOR OFF-SITE SEDIMENT TRACKING. A STABILIZED CONSTRUCTION ENTRANCE SHOULD BE CONSTRUCTED WHERE VEHICLES ENTER AND EXIT, AND THIS ENTRANCE SHOULD BE MAINTAINED OR SUPPLEMENTED AS NECESSARY TO PREVENT TRACKING OF SEDIMENT ONTO ADJACENT AREAS.

VEHICLES MUST BE INSPECTED AND, IF NECESSARY, THEY MUST BE CLEANED IN ORDER TO PROVIDE ADDITIONAL CAPACITY. ALL VEHICLES MUST BE WASHED FROM BEHIND SEDIMENT BARRIERS WILL BE STOCKPILED ON THE WEST SIDE. ADDITIONAL SEDIMENT BARRIERS MUST BE CONSTRUCTED AS NECESSARY.

ADDITIONAL ITEMS TO EVALUATE DISTURBED AREAS AND AREAS USED FOR STORING MATERIALS ARE LISTED IN THE ATTACHED LIST. THESE AREAS SHOULD BE EXPOSED TO RAINFALL FOR EVIDENCE OF, OR THE PRESENCE OF POLLUTANTS ENTERING THE DRAINAGE SYSTEM. IF NECESSARY, POLLUTANT CONTROL MEASURES MUST BE REPAIRED OR REPLACED. ALSO, PROTECTIVE BERMS CONFORMING TO DETAIL 4 ON SHEET 05.01 SHOULD BE CONSTRUCTED, IF NEEDED, IN ORDER TO CONTAIN RUNOFF FROM THESE AREAS.

VEHICLES MUST BE INSPECTED TO CONFIRM THAT A HEALTHY STAND OF GRASS HAS BEEN MAINTAINED ON THE SITE. THE SITE HAS ACHIEVED FINAL STABILIZATION ONCE ALL AREAS WITH BUILDING FOUNDATION OR PAVEMENT, OR HAVE A STAND OF GRASS AT LEAST 70 PERCENT DENSITY. THE DENSITY OF 70 PERCENT OR GREATER MUST BE MAINTAINED TO BE CONSIDERED AS STABILIZED. AREAS MUST BE RESEEDING, AND RESEEDING AS NEEDED TO ACHIEVE THIS GOAL.

POINTS MUST BE INSPECTED TO DETERMINE WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATERS.

BASED ON INSPECTION RESULTS, ANY MODIFICATION NECESSARY TO INCREASE THE EROSION CONTROL MEASURES MUST BE MADE WITHIN SEVEN CALENDAR DAYS. IN ACCORDANCE WITH THE REQUIREMENTS OF THE VPDES GENERAL PERMITS FOR STORM WATER FROM CONSTRUCTION ACTIVITIES, AN INSPECTION REPORT MUST BE DOCUMENTED EACH INSPECTION. A FORM FOR RECORDING THESE INSPECTIONS MUST BE KEPT ON FILE WITH THE SWPPP FOR AT LEAST THREE YEARS. ADDITIONAL STABILIZATION OF THE SITE.

CONSTRUCTION ACCESS PLAN

TO MINIMIZE CONSTRUCTION TRAFFIC ON BLOW FLATS ROAD, ALL CONSTRUCTION TRAFFIC SHALL BE THROUGH THE EXISTING DRIVEWAY. THIS SHALL BE COORDINATED WITH WAL-MART GENERAL MANAGER. DELIVERIES OF EARTHMOVING (I.E. TRUCKS) PASSENGER VEHICLES OF CONSTRUCTION WORKERS AND EQUIPMENT CAN UTILIZE BLOW FLATS ROAD. ANY VEHICLES ON BLOW FLATS ROAD WILL NEED TO CLEAR FROM THE ROAD AND ENTER THE DRIVEWAY IMMEDIATELY TO DESIGNATED AREAS. ALL NECESSARY PERMITS WILL NEED TO BE SECURED FROM THE VIRGINIA DEPARTMENT OF TRANSPORTATION.



THE INDIVIDUAL IS IDENTIFIED AS THE STURBER FOR SITE PLAN APPROVAL ONLY.

TOPOGRAPHIC IMPACT ANALYSIS

SOURCE	IMPACTS
LANGLEY AND McDONALD; OCTOBER 22, 2003 CONFIRMED BY US ARMY CORPS OF ENGINEERS	NO IMPACTS
FIRM MAP PANEL 510201 0060B, DATED 2/6/1991	NO IMPACTS
FIELD SURVEY BY MALCOLM PIRNIE, SEPTEMBER 24, 2004*	NO IMPACTS
FIELD SURVEY BY MALCOLM PIRNIE, SEPTEMBER 24, 2004*	NO IMPACT
ANALYSIS OF TOPOGRAPHIC MAPPING 1) WITHIN RPA 2) UNDEVELOPED AREA** 3) DEVELOPED AREA**	375 SQ. FEET OF IMPACT 13,860 SQ. FEET OF IMPACT 37,765 SQ. FEET OF IMPACT
COMPUTATION OF SETBACKS FROM RESOURCE PROTECTION FEATURES	4,125 SQ. FEET OF IMPACT

THE SEPTEMBER 24, 2004 REPORT INCLUDES THE FORMER STOCKPILE AREA. DEVELOPED AREA INCLUDES AREAS THAT WERE STeeper FROM THE PREVIOUS CONSTRUCTION.

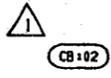
LONG TERM MAINTENANCE PLAN

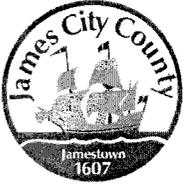
A MAINTENANCE PROGRAM IS REQUIRED TO ENSURE THE STORMWATER MANAGEMENT (SWM)/BEST MANAGEMENT PRACTICE (BMP) FACILITY FUNCTIONS AS DESIGNED AND TO PROVIDE FOR REASONABLE AESTHETIC CONDITIONS. PROPER MAINTENANCE IS ENCOURAGED TO PREVENT THE INTRODUCTION OF DEBRIS AND SEDIMENT AT INFLOW LOCATIONS, PRETREATMENT AREAS, THE BMP ITSELF, ITS PRINCIPAL CONTROL STRUCTURES AND DOWNSTREAM WATERWAYS. FOLLOWING INSTALLATION AND ESTABLISHMENT OF VEGETATION IN DISTURBED SITE AREAS, INSPECTIONS FOR SEDIMENT BUILDUPS WILL BE PERFORMED AT LEAST QUARTERLY. IT IS ANTICIPATED THAT UNDER NORMAL CONDITIONS, SEDIMENT REMOVAL WILL BE REQUIRED ONCE EVERY 5 TO 10 YEARS. IF OTHER CONSTRUCTION OR RELATED LAND-DISTURBING ACTIVITIES ARE PERFORMED UPSLOPE OF THE BMP, ADEQUATE PROTECTION MEASURES SHOULD BE IMPLEMENTED WITH INSPECTIONS PERFORMED AT LEAST ONCE WEEKLY.

THE OWNER OR ITS DESIGNATED REPRESENTATIVE WILL INSPECT THE SWM/BMP STRUCTURE AFTER EACH SIGNIFICANT RAINFALL EVENT OR THE FOLLOWING WORKING DAY IF A WEEKEND OR HOLIDAY OCCURS. A SIGNIFICANT RAINFALL FOR THIS STRUCTURE IS DEFINED AS ONE (1) INCH OR MORE OF GAUGED RAINFALL WITHIN A 24 HOUR PERIOD. ONCE PER YEAR (MORE OR LESS) A REPRESENTATIVE OF THE COUNTY MAY JOINTLY INSPECT THE STRUCTURE. APPROPRIATE ACTION, PERFORMED AT THE COST OF THE OWNER WILL BE TAKEN TO ENSURE APPROPRIATE MAINTENANCE. WHERE STRUCTURES ARE TO BE MAINTAINED JOINTLY, ALLOCATION OF MAINTENANCE COSTS WILL BE IN ACCORDANCE WITH TERMS ESTABLISHED IN MAINTENANCE AGREEMENTS. KEYS TO LOCKED ACCESS POINTS OR STRUCTURE SHALL BE MADE AVAILABLE TO THE COUNTY UPON REQUEST.

INSPECTION AND MAINTENANCE OF THE FACILITY WILL CONSIST OF THE FOLLOWING ADDITIONAL MEASURES:

- PERFORM MAINTENANCE MOWING OF POND GRASSES, TO THE EXTENT POSSIBLE, AT LEAST TWICE EACH YEAR. GRASSES SUCH AS TALL FESCUE SHOULD BE MOWED IN EARLY SUMMER AFTER EMERGENCE OF THE HEADS ON COOL SEASON GRASSES AND IN LATE FALL TO PREVENT SEEDS OF ANNUAL WEEDS FROM MATURING. MOWING OF LEGUMES CAN BE LESS FREQUENT. TREES, SHRUBS AND WOODY VEGETATION ARE NOT TO BE PERMITTED TO GROW ALONG OR ON ANY PART OF THE POND EMBANKMENTS.
- PERFORM SOIL SAMPLING ON STABILIZED POND SOIL AREAS AT LEAST ONCE EVERY 4 YEARS. SOIL SAMPLING AND TESTING SHOULD BE PERFORMED BY QUALIFIED INDEPENDENT SOIL TESTING LABORATORY SUCH AS VIP & SU. APPLY ADDITIONAL LIME AND FERTILIZER IN ACCORDANCE TEST RECOMMENDATIONS.
- IN STABILIZED POND AREAS, IF VEGETATION COVERS LESS THAN 40% OF SOIL SURFACES, LIME, FERTILIZE AND SEED IN ACCORDANCE WITH RECOMMENDATIONS FOR NEW SEEDLINGS. IF VEGETATION COVERS MORE THAN 40% BUT LESS THAN 70% OF SOIL SURFACES, LIME, FERTILIZE AND OVER SEED IN ACCORDANCE WITH CURRENT SEEDING RECOMMENDATIONS OR REQUIREMENTS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH).
- PERFORM QUARTERLY INSPECTIONS OF THE OUTFALL CONTROL STRUCTURES FOR THE OBSERVANCE OF COLLECTED TRASH AND DEBRIS. IMMEDIATELY REMOVE ANY TRASH OR DEBRIS THAT PREVENTS THE MOVEMENT OF WATER. REMOVE ANY TRASH AND LITTER DOWNSTREAM AND AT STORM DRAIN OR CHANNEL INFLOW LOCATIONS TO MAINTAIN THE INTEGRITY OF THE STRUCTURE AND PROVIDE AN ATTRACTIVE APPEARANCE.
- PERFORM YEARLY STRUCTURAL INSPECTIONS OF THE FACILITY FOR DAMAGE. STRUCTURAL INSPECTION SHALL BE PERFORMED ON THE OUTFALL CONTROL STRUCTURES AND POND EMBANKMENT. EXPOSED METAL SURFACES SHALL BE RE-PAINTED OR RE-GALVANIZED TO MINIMIZE RUST DAMAGE OR REPLACED IF RUST DAMAGE IS IRREVERSIBLE. IF DAMAGE IS EVIDENT, FURTHER INVESTIGATION BY A PROFESSIONAL ENGINEER MAY BE REQUIRED TO ASSESS THE INTEGRITY OF THE STRUCTURE.
- PERFORM QUARTERLY INSPECTIONS OF THE GRADED SIDE SLOPES OF THE FACILITY FOR SIGNS OF ANIMAL/RODENT BORROWS OR SLOPE EROSION. IMMEDIATELY PERFORM NECESSARY REPAIRS, REFILLING OR RESEEDING.
- PERFORM YEARLY OBSERVATIONS OF PERIMETER AREAS SURROUNDING THE FACILITY TO ENSURE CHANGES IN LAND USE, TOPOGRAPHY OR ACCESS HAVE NOT OCCURRED AND DO NOT AFFECT THE OPERATION, MAINTENANCE, ACCESS OR SAFETY FEATURES AS PROVIDED. APPROPRIATE ACTION IS REQUIRED TO ENSURE ADEQUACY AND TO PROVIDE A CLEAR, SAFE PASSAGE FOR MAINTENANCE VEHICLES TO THE ENGINEERED EMBANKMENT AND PRINCIPAL FLOW CONTROL STRUCTURES.
- POND MAINTENANCE
FOREBAY - REMOVE SEDIMENT WHEN THE DEPOSITION HAS ACCUMULATED TO 0.5 FEET ABOVE THE FOREBAY BOTTOM ELEVATION OF 34.0.
WET POND - AN ANNUAL SURVEY SHALL BE PERFORMED ON THE WET POND BOTTOM AND SIDE SLOPES. WHEN SEDIMENT DEPOSITION HAS ACCUMULATED TO 0.75 FEET ABOVE THE POND BOTTOM ELEVATION OF 31.0, THE SEDIMENT SHALL BE REMOVED TO THE ORIGINAL DESIGN AND PROPERLY DISPOSED.
- RECORD KEEPING. THE OWNER OR DESIGNATED REPRESENTATIVE SHALL KEEP REASONABLE, ACCURATE WRITTEN RECORDS OF INSPECTIONS PERFORMED FOR THE STRUCTURE. RECORDS SHALL DOCUMENT ROUTINE MAINTENANCE AND/OR REPAIRS PERFORMED. COPIES SHALL BE PROVIDED TO COUNTY UPON REQUEST.
- THE FACILITY SHALL NOT ACCEPT ADDITIONAL DRAINAGE OR BE MODIFIED IN ANY WAY WITHOUT PRIOR CONSENT OR APPROVAL BY THE ENVIRONMENTAL DIVISION OF JAMES CITY COUNTY.





TRANSMITTAL SHEET
ENVIRONMENTAL → STORMWATER

Project: WAL-MART DISTRIBUTION CENTER PHASE I & II

County Plan No. SP-45-00

Assigned BMP No.: SC 009 through SC 013

BMP Type: A-3 Wet ponds

Information Enclosed:

- Record Drawings (Asbuilts)
- Construction Certification
- Computations
- Other :

Note: Ponds in PH 2 did not meet minimum depth 6'-8' requirements. Wetland plantings were required to make up for this missing component.

<u>Pond A</u>	<u>SC 011</u>
<u>Pond B1</u>	<u>SC 009</u>
<u>Pond B2</u>	<u>SC 010</u>
<u>Pond C</u>	<u>SC 012</u>
<u>Pond D</u>	<u>SC 013</u>

Name: Scott J. Thompson

Date: 7/22/09

Signature: [Signature]

STORM WATER MANAGEMENT REPORT

for

Wal-Mart Bulk Storage Facility Expansion

in

James City County, Virginia

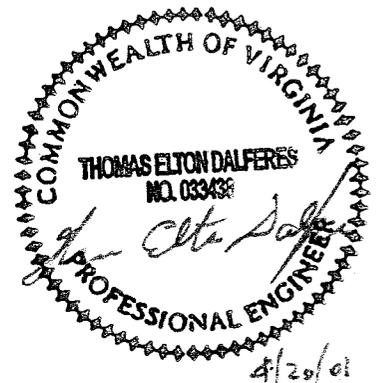
Prepared by:

Carter Burgess

*3001 Meacham Blvd., Suite 200
Fort Worth, Texas 76137-4608
(817) 222-8500*

C&B No. 290464

April 2001



FULL COPY OF
FINAL DESIGN REPORT
(BINDER) RETAINED
AT ENV DIV OFFICE

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I. INTRODUCTION

Proposed for construction is the expansion of Wal-Mart Stores, Inc. Bulk Storage Facility, No. 6088 located on an approximately 161-acre site in James City County, Virginia. The project site lies approximately 2000 feet west of Skiffes Creek Reservoir along the south side of State Route 60. The main distribution building consists of approximately one million square feet. The expansion of the site will consist of an addition of approximately one million square feet of warehouse space, 19 acres of trailer parking and 0.5 acres of associate parking. The proposed expansion will require revisions to the existing storm water management system at the facility. Included will be additional subsurface piping to collect storm water from roof drains and revisions to the existing detention ponds to accommodate the expansion area. This report will serve as documentation for the storm water management plan proposed for this development. Included with this report are the Drainage Area Maps and Hydraulic Calculations. Refer to them for detailed information on the proposed storm water management system.

II. METHODOLOGY

Standard SCS methodologies were used to estimate pre-development and post-development peak flow rates from the site as modeled with the computer software "AdICPR" by Streamline Technologies, Inc. The post-development peak discharge rates from the site will be limited to pre-development rates or less for the 1-year, 2-year, 10-year, 25-year, and 100-year, 24-hour storm events. In addition, 24-hour extended detention will be provided in each of the ponds for the 1-year, 24-hour storm event. A hydrograph shape factor of 484 was used with an SCS Type II 24-hour rainfall distribution. The 24-hour rainfall values were obtained from the City of Richmond, Virginia Rainfall Intensity Chart, which is derived from the National Weather Service Technical Paper 40. The time of concentration and runoff curve number calculations were based on procedures outlined in the SCS publication TR-55, and are included in the Appendix of this report. To accomplish the requirement of not increasing peak discharge rates from the site for each of the modeled storm events, a series of five detention ponds were constructed. These detention ponds were also designed using "AdICPR". "AdICPR" uses a conservation of mass concept to route flows through the detention ponds and tail water effects are accounted for. In the program, runoff hydrographs are calculated at critical points, which are called "nodes". Flows are then routed between nodes using "links". Storm water runoff will reach the detention ponds by a combination of sheet flow directly to the ponds, collection of runoff in concrete flumes, or via a subsurface drainage system. The subsurface system was designed for a 10-year Rational Method event, with positive overflow to the ponds for the less frequent storms.

III. PRE-DEVELOPMENT CONDITIONS

Refer to Appendix A for the site Pre-Development Drainage Area Map. This map identifies seven drainage basins and associated points of concentration for pre-development conditions. Off-site contributing areas were derived from the USGS topographic quadrangle map covering this area. Area X-1, consisting of 12.68 acres, drains off the site to the northwest to an existing 18" pipe culvert under highway 60. Area X-2, consisting of 83.30 acres, drains to the mouth of a tributary to Skiffes Creek Reservoir located along the projects northern property line. Area X-3, consisting of 18.00 acres, drains off the site to the south. Area X-5, consisting of 16.12 acres, drains off the site to the south. Area X-6, consisting of 50.50 acres, drains in a northeasterly direction to the mouth of another tributary to Skiffes Creek Reservoir. Area X-8, consisting of 54.65 acres, drains off the site to the south. Time of concentration calculations for the pre-developed areas are included in Appendix B. The majority of the site soil is classified as Slagle fine sandy loam, which has a hydrologic soil group classification of "C".

Also, presented in smaller amounts is Craven-Uchee, which has a hydrologic soil group classification of "A." Appendix C contains pre-development runoff curve number calculations. In the AdICPR model, each of these drainage basins concentrates at a node of the same name for which all hydrologic and hydraulic calculations are made. Appendix D contains the Input Data for "AdICPR" for pre-developed conditions. Appendix E contains the pre-developed "AdICPR" Node Maximum Conditions for each of the modeled storms. The maximum inflow to each node represents the peak discharge rate at each point of concentration. For area X-1, which concentrates at the existing 18" pipe culvert under Route 60, the peak discharge rate represents the peak flow rate through the culvert, which is shown as the maximum outflow from node "N-X1" on the Node Maximum Conditions Report. The pre-development peak discharge rates at each point of concentration are summarized in Table 1.

Table 1: Pre-Development Peak Discharge Rates (cfs)

Point of Concentration	1-Year 24-Hour	2-Year 24-Hour	10-Year 24-Hour	25-Year 24-Hour	100-Year 24-Hour
X-1 (N-X1)	8.67	10.30	12.70	19.76	41.75
X-2 (N-X2)	37.35	62.22	169.55	197.45	263.57
X-3 (N-X3)	8.76	15.03	41.63	48.61	65.10
X-4 (N-X4)	6.59	11.96	23.30	26.94	37.46
X-5 (N-X5)	2.91	6.98	27.77	33.57	48.17
X-6 (N-X6)	13.82	23.67	93.80	113.35	166.28
X-8 (N-X8)	0.88	4.57	43.22	56.50	90.67

IV. PHASE 1: POST-DEVELOPMENT CONDITIONS

Refer to Appendix F for the Developed Drainage Area Map for this site. This map identifies points of concentration for developed drainage areas, such as culverts, channels, roof drain collectors, detention ponds, or off-site. Construction Plan C4.11 in Appendix F shows the hydraulic calculations for the subsurface system. Included are 10-year Rational Method calculations for the subsurface system, flume capacity calculations using the Weir Formula, culvert calculations and channel calculations that are labeled according to the contributing drainage area. The detention ponds were modeled using AdICPR with a minimum time of concentration of five minutes and runoff curve number of 98 for all developed areas. Off-site areas draining through the detention pond system were assigned a runoff curve number consistent with a developed industrial site, which is the present zoning for these areas. Appendix G contains revised time of concentration calculations for areas undisturbed by this development. Appendix H contains the curve numbers for the post-development conditions. Elevation Storage curves for each detention pond are provided in Appendix K. Appendix L contains Elevation-Discharge calculations and curves for Detention Ponds B-1, C and D, which discharge flows leaving the site. The elevation-discharge calculations determine whether weir flow over the outer wall of the outfall control structure or culvert flow through the pipe culvert entrance controls for a given elevation. Appendix M contains curves showing the drawdown for the 1-year, 24-hour storm event. The volume of runoff for a 1-year, 24-hour event was added to the permanent pool volume and then the drawdown was carried out for 30 hours. As shown by the curves, the elevation in each pond is still decreasing at the 24-hour mark, thus showing that the required extended detention time has been met. Appendix I contains the Input Data for "AdICPR" for post-developed conditions. Appendix J contains the post-developed "AdICPR" Node Maximum Conditions report for each of the modeled storms. This report shows the maximum conditions at each node for each modeled storm event. Table 2 shows the peak stage elevations in the detention ponds for each of the modeled storms. The detention ponds are designed to hold a 100-year,

24-hour storm with one foot of freeboard to the top of berm elevation. An emergency spillway is provided for Ponds C and D, which will pass the 100-year, 24-hour peak flow into the pond. For Ponds B1 and B2, the entrance roads act as emergency spillways and a minimum of two feet of freeboard is provided between the maximum stage elevation in these ponds for the 100-year, 24-hour storm event and the lowest point along the entrance road. Detention Pond A would spill back through Pond D via a channel connecting these two ponds. Therefore, the emergency spillway for Pond D also serves Pond A.

Table 2: Phase 1 Detention Pond/Peak Stage Elevations

Detention Pond/Culvert	1-Year 24-Hour	2-Year 24-Hour	10-Year 24-Hour	25-Year 24-Hour	100-Year 24-Hour	Top of Berm
Pond A	47.04	47.31	48.29	48.56	49.19	51
Pond B 11	47.01	47.26	47.94	48.17	48.67	52
Pond B 12	47.04	47.31	48.25	48.48	49.03	52
Pond C	46.94	47.12	47.78	47.92	48.31	51
Pond D	47.45	47.13	48.76	49.01	49.62	51

Table 3 shows a comparison of the peak discharge rate from the site at each of the points of concentration identified in Table 1. The nodes identified on the post-development Node Maximum Conditions Report are related to the corresponding pre-development conditions nodes, which are shown in parentheses

Table 3: Phase 1 Peak Discharge Rates

Point of Concentration	1-Year 24-Hour	2-Year 24-Hour	10-Year 24-Hour	25-Year 24-Hour	100-Year 24-Hour
N-OF11 (N-X1)	5.33	6.73	10.13	10.43	21.73
N-OF28 (N-X2)	8.56	14.65	42.05	49.39	67.05
N-OF30 (N-X3)	2.43	4.15	11.40	13.27	17.74
N-OF31 (N-X3a)	0.44	0.69	1.71	1.96	2.56
N-OF50 (N-X5)	1.21	2.91	11.73	14.18	20.22
N-OF60 (N-X6)	8.50	13.93	74.41	87.02	107.53
N-OF82 (N-X8)	0.08	0.58	5.74	7.41	11.90

For each point of concentration, the peak discharge rate from the site has been reduced for all modeled storm events and the storm water management design criterion has been met. Appendix N contains a completed James City County Storm Water Detention Basic Design Checklist.

V. PHASE 2: POST-EXPANSION CONDITIONS

Refer to Appendix O for the Post-Expansion Drainage Area Map for this site. This map identifies points of concentration for developed drainage areas, such as culverts, channels, roof drain collectors, detention ponds, or off-site. Appendix P shows the hydraulic calculations for the subsurface system, which will collect roof drain downspouts on the north side of the expanded warehouse. Included are the 10-year Rational Method calculations for the subsurface system and flume capacity calculations using the Weir Formula. The detention ponds were modeled using AdICPR with a minimum time of concentration of five minutes and runoff curve number of 98 for all developed areas. Off-site areas draining through the detention pond system were assigned a runoff curve number consistent with a developed industrial site, which is the present zoning for these areas. Pond D has been regraded to accommodate the expansion areas. Revised Elevation-Storage curves for detention pond D are provided in Appendix K. Appendix Q contains the Input Data for “AdICPR” for post- expansion conditions. Appendix R contains the post- expansion “AdICPR” Basin Summaries. Appendix S contains the post-expansion “AdICPR” Node Maximum Conditions report for each of the modeled storms.

Table 4 shows the peak stage elevations reached in the detention ponds for each of the modeled storm events under post-expansion (Phase 2) conditions. Table 5 show the peak discharge rates at each point of concentration after Phase 2 construction is complete.

Table 4: Phase 2 Detention Pond/Peak Stage Elevations

Detention Pond/Culvert	1-Year 24-Hour	2-Year 24-Hour	10-Year 24-Hour	25-Year 24-Hour	100-Year 24-Hour	Top of Berm
Pond A	47.04	47.31	48.29	48.56	49.33	51
Pond B	47.01	47.26	47.94	48.17	48.71	52
Pond B 12	47.04	47.31	48.25	48.48	49.12	52
Pond C	47.09	47.31	48.13	48.32	48.78	51
Pond D	47.60	47.92	49.08	49.37	50.01	51

Table 5: Phase 2 Peak Discharge Rates

Point of Concentration	1-Year 24-Hour	2-Year 24-Hour	10-Year 24-Hour	25-Year 24-Hour	100-Year 24-Hour
N-OF11 (N-X1)	5.33	6.73	10.07	10.37	21.73
N-OF24 (N-X2)	8.89	15.32	43.89	51.45	69.25
N-OF30 (N-X3)	2.43	4.15	11.38	13.27	17.74
N-OF41 (N-X4)	0.44	0.69	1.71	1.96	2.59
N-OF50 (N-X5)	1.21	2.91	11.73	14.18	20.23
N-OF60 (N-X6)	11.36	25.14	82.75	90.87	110.58
N-OF82 (N-X8)	0.08	0.56	5.60	7.23	11.61

By comparing Table 4 to Table 2, it can be seen that the peak stage elevations reached in Ponds C and D is slightly higher under Phase 2 conditions than under Phase 1 conditions for each of the modeled storms, while allowing at least one foot of freeboard. Similarly, by comparing Table 5 to Table 3, it is shown that the peak discharge rates at N-OF60 are greater in Phase 2 than in Phase 1. However, the peak discharge rates under post-expansion conditions are still lower than under pre-development conditions at all points of concentration. Therefore, the established design criteria for this expansion has been met.

JSAT

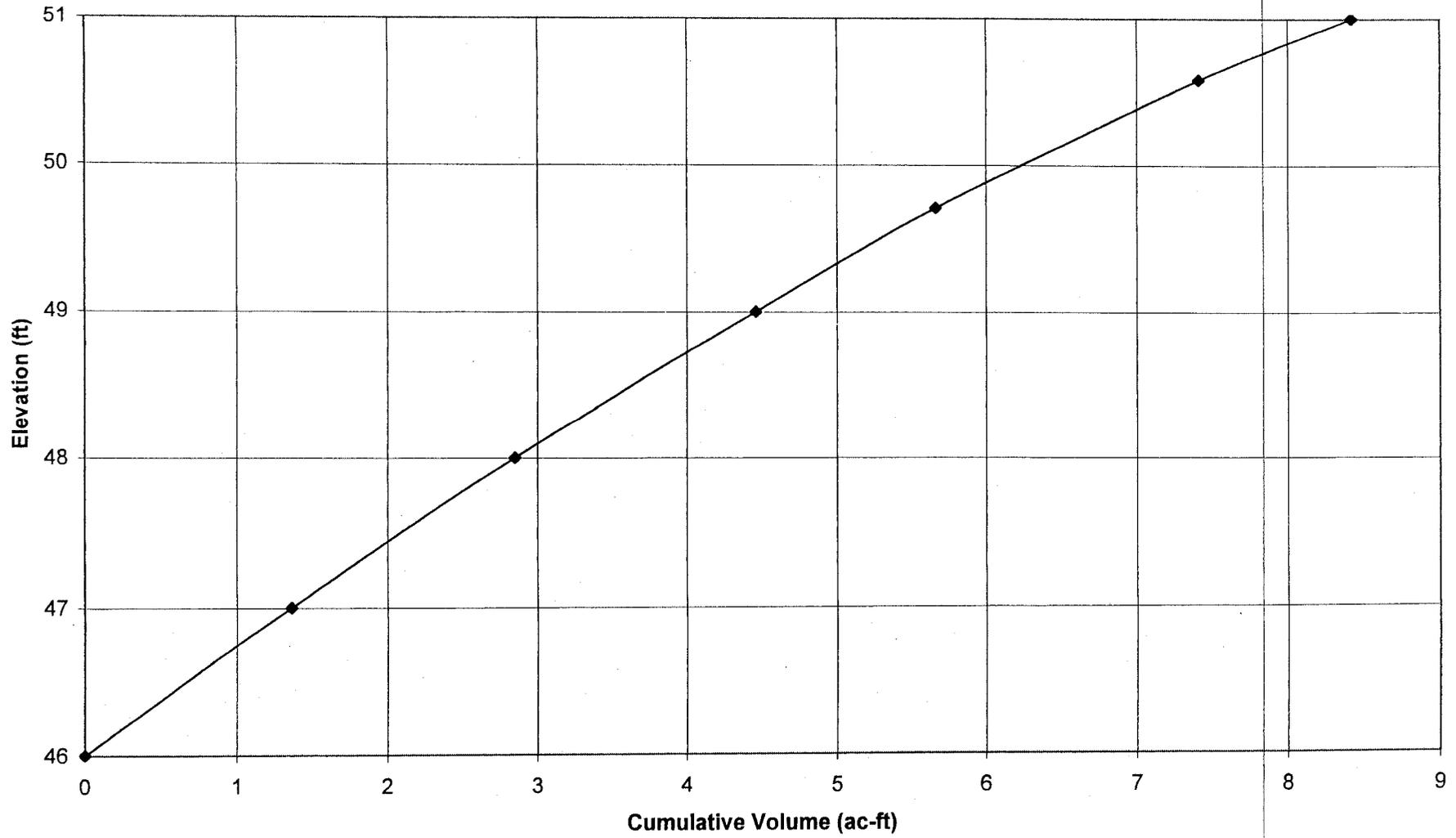
Appendix A

Pre-Developed Drainage Area Map

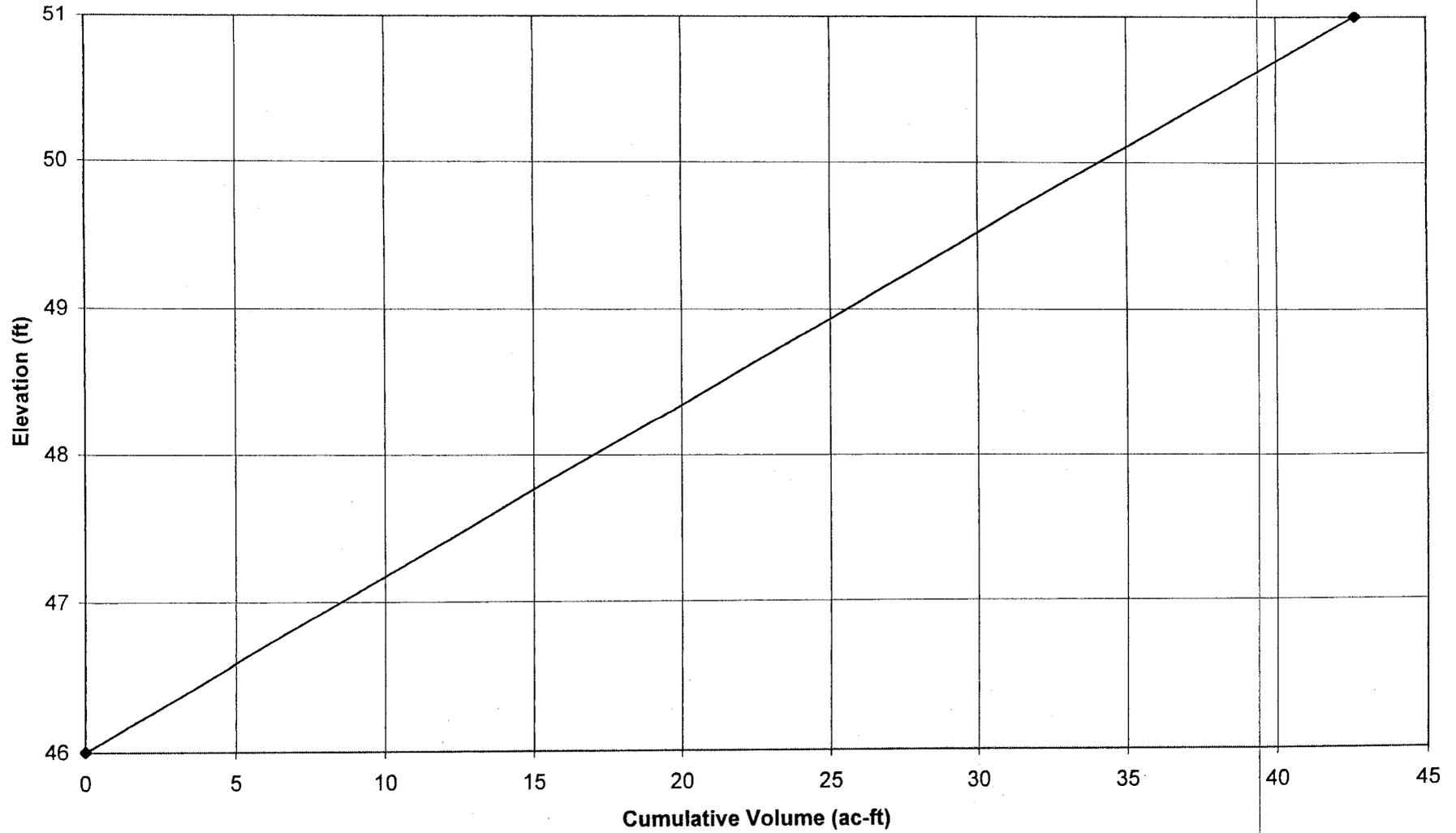
Appendix K

Detention Pond Elevation-Storage Curves

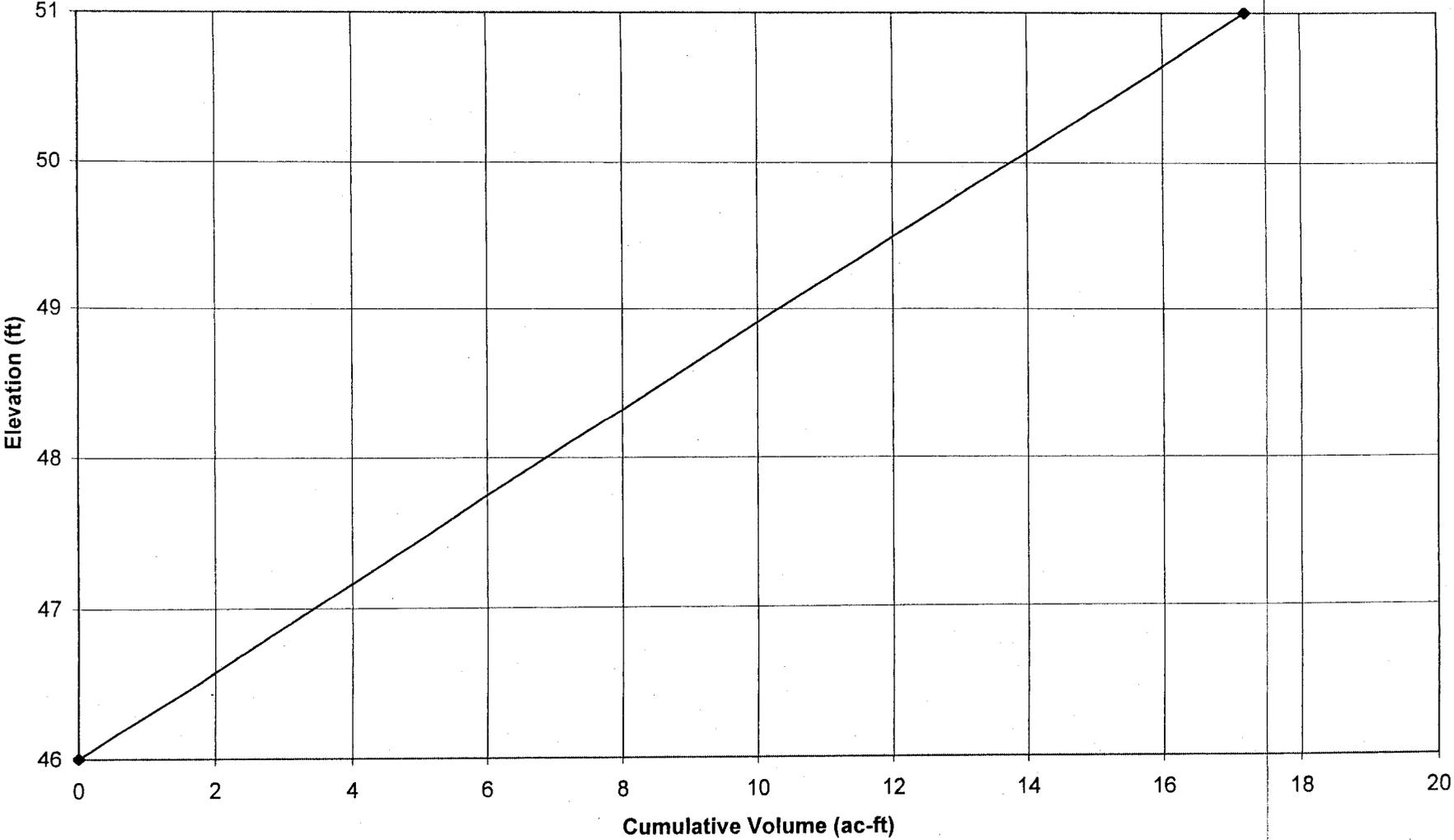
**Detention Pond A
Elevation-Storage Curve**



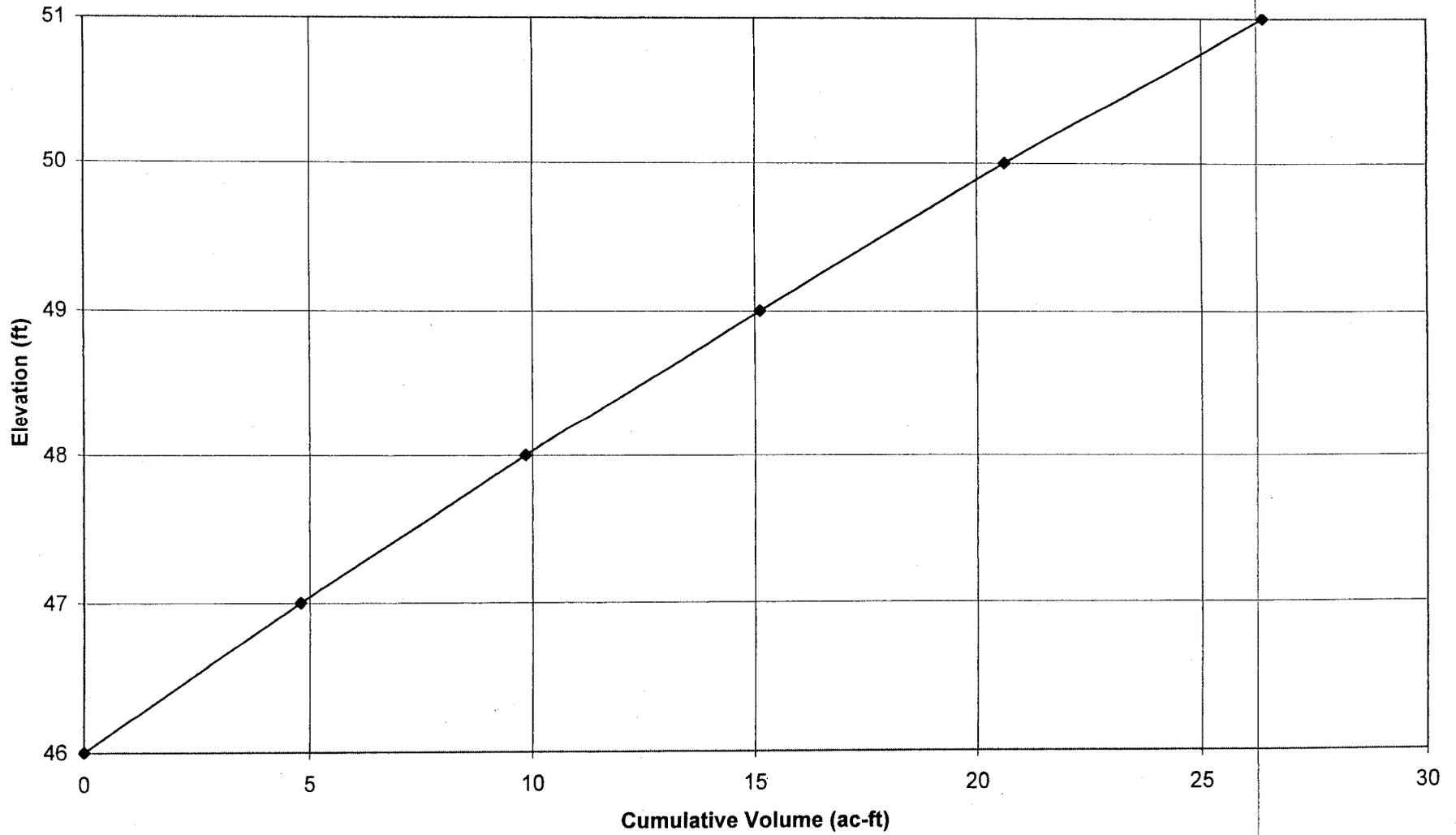
**Detention Pond B1
Elevation-Storage Curve**



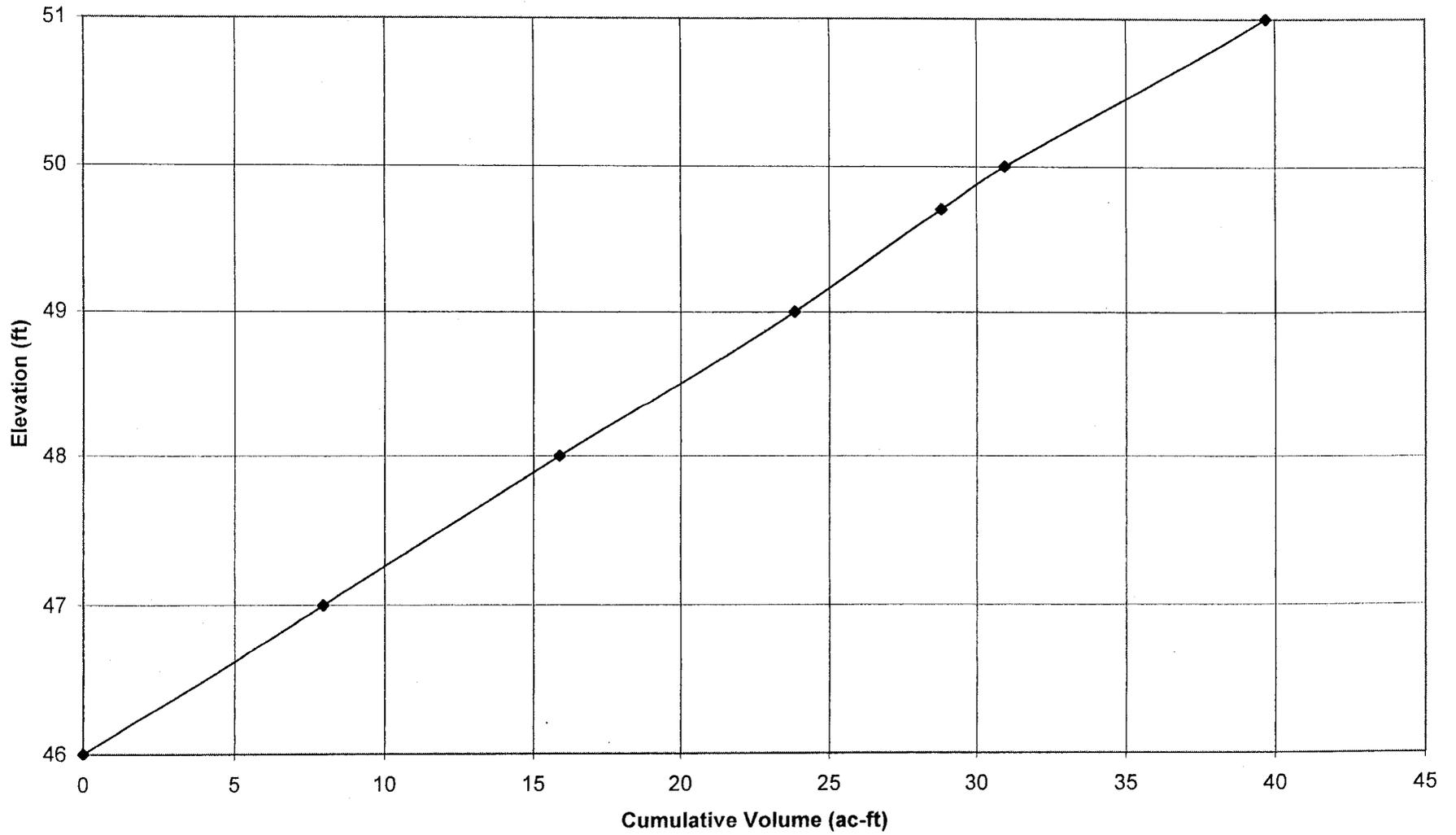
**Detention Pond B2
Elevation-Storage Curve**



**Detention Pond C
Elevation-Storage Curve**



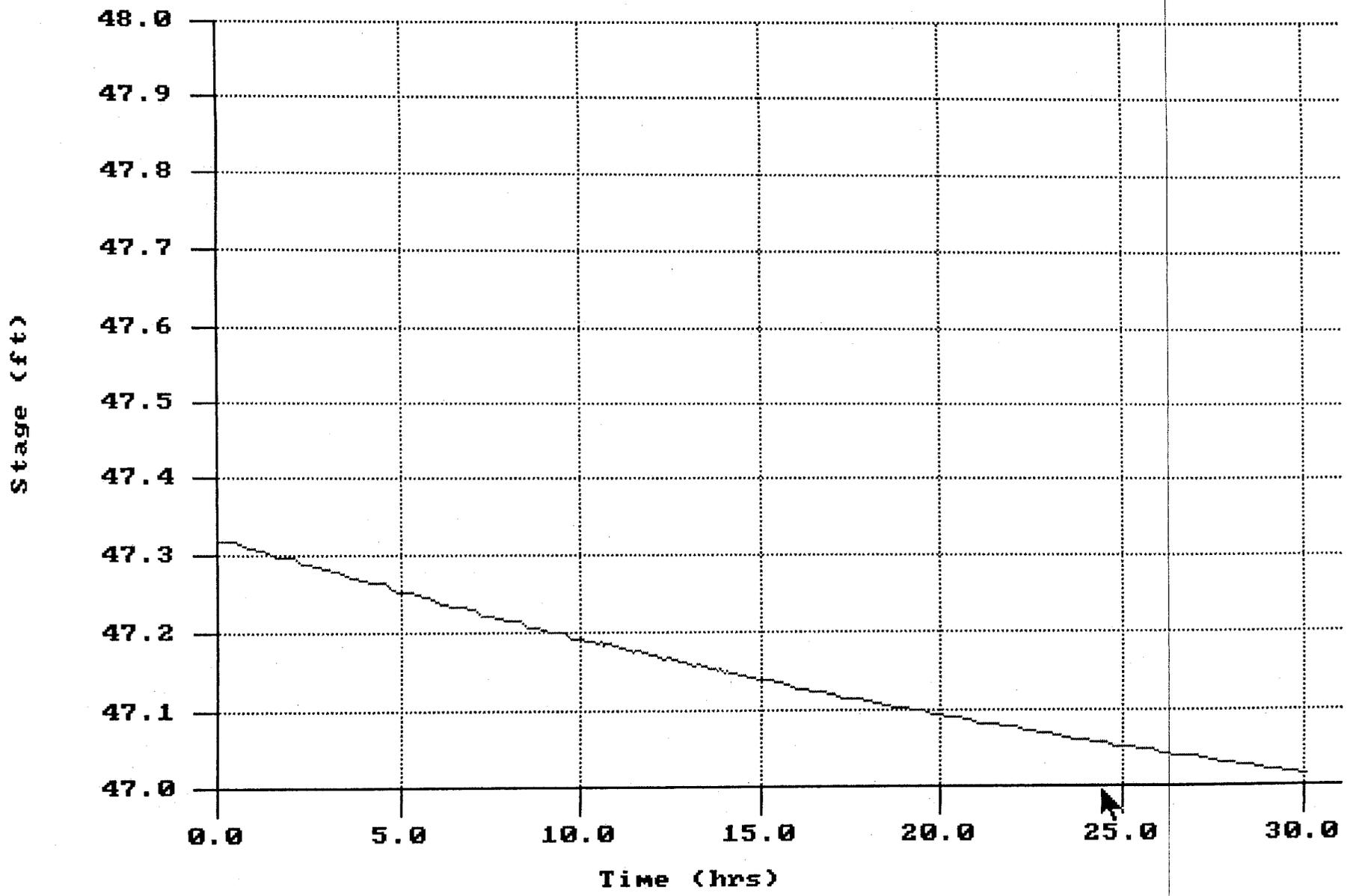
**Detention Pond D
Elevation Storage Curve**



Appendix M

1-Year, 24-Hour Storm Drawdown Curves

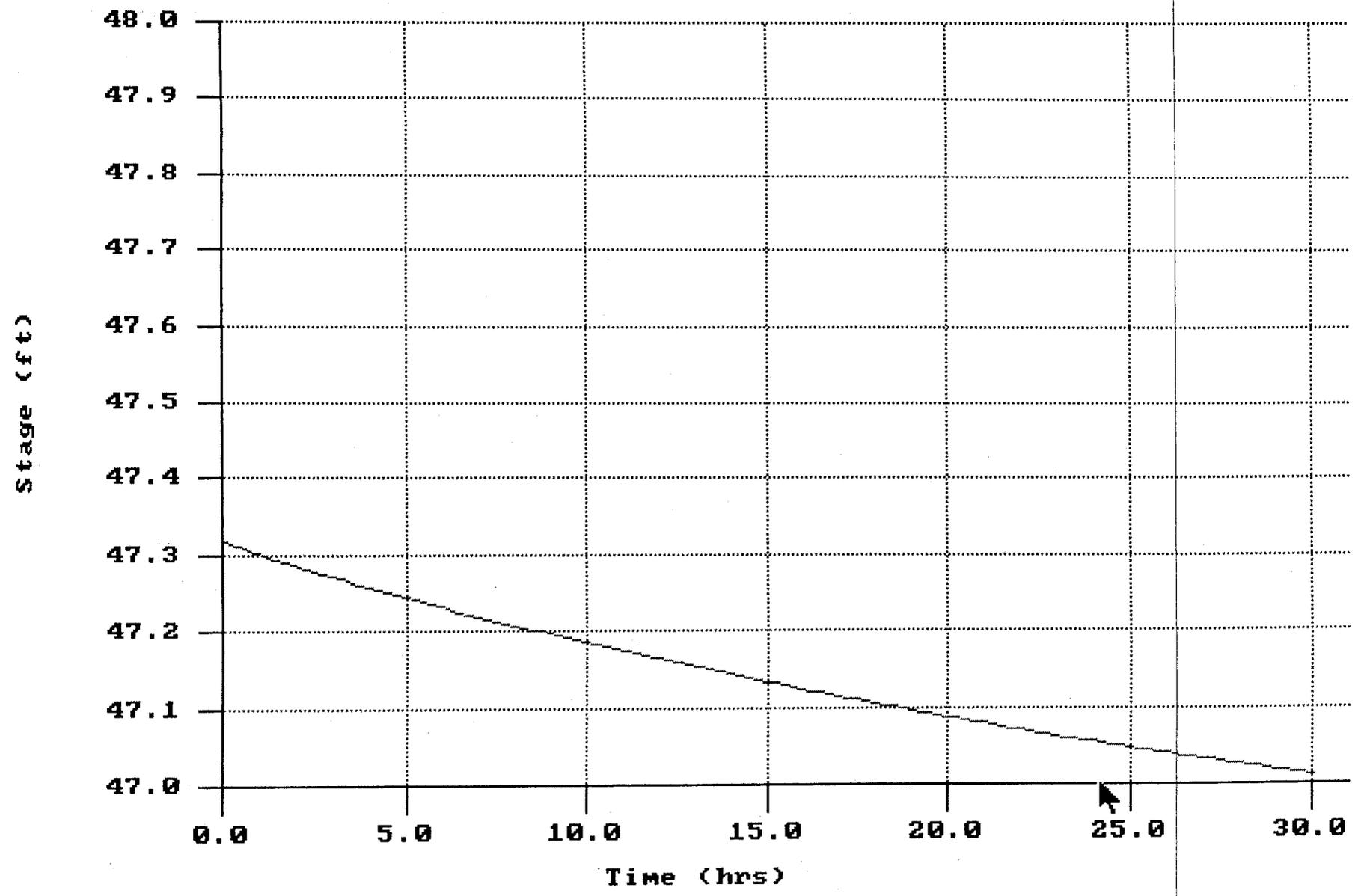
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PONDA

Warning Stage: 51.00

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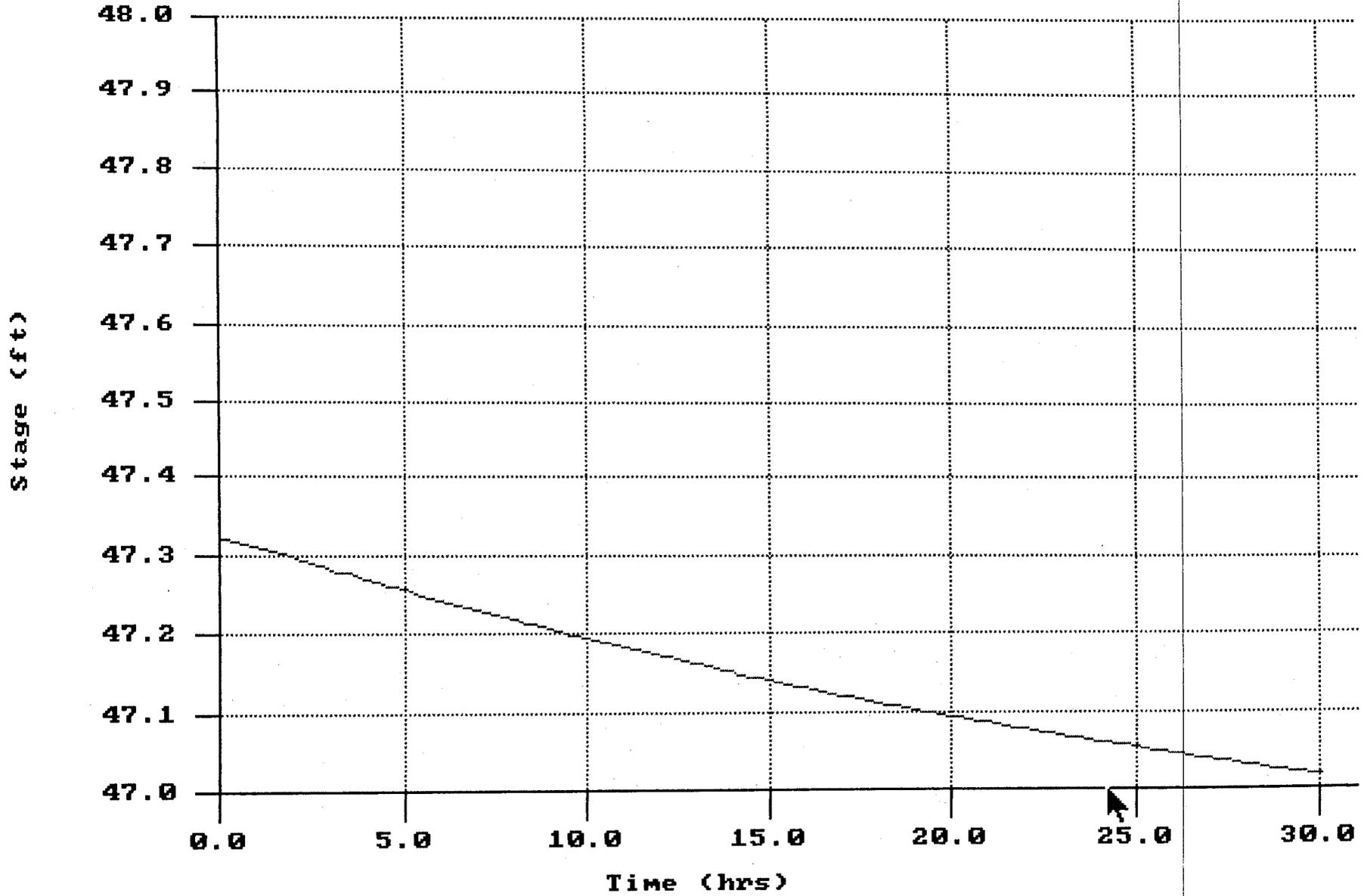
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51.00



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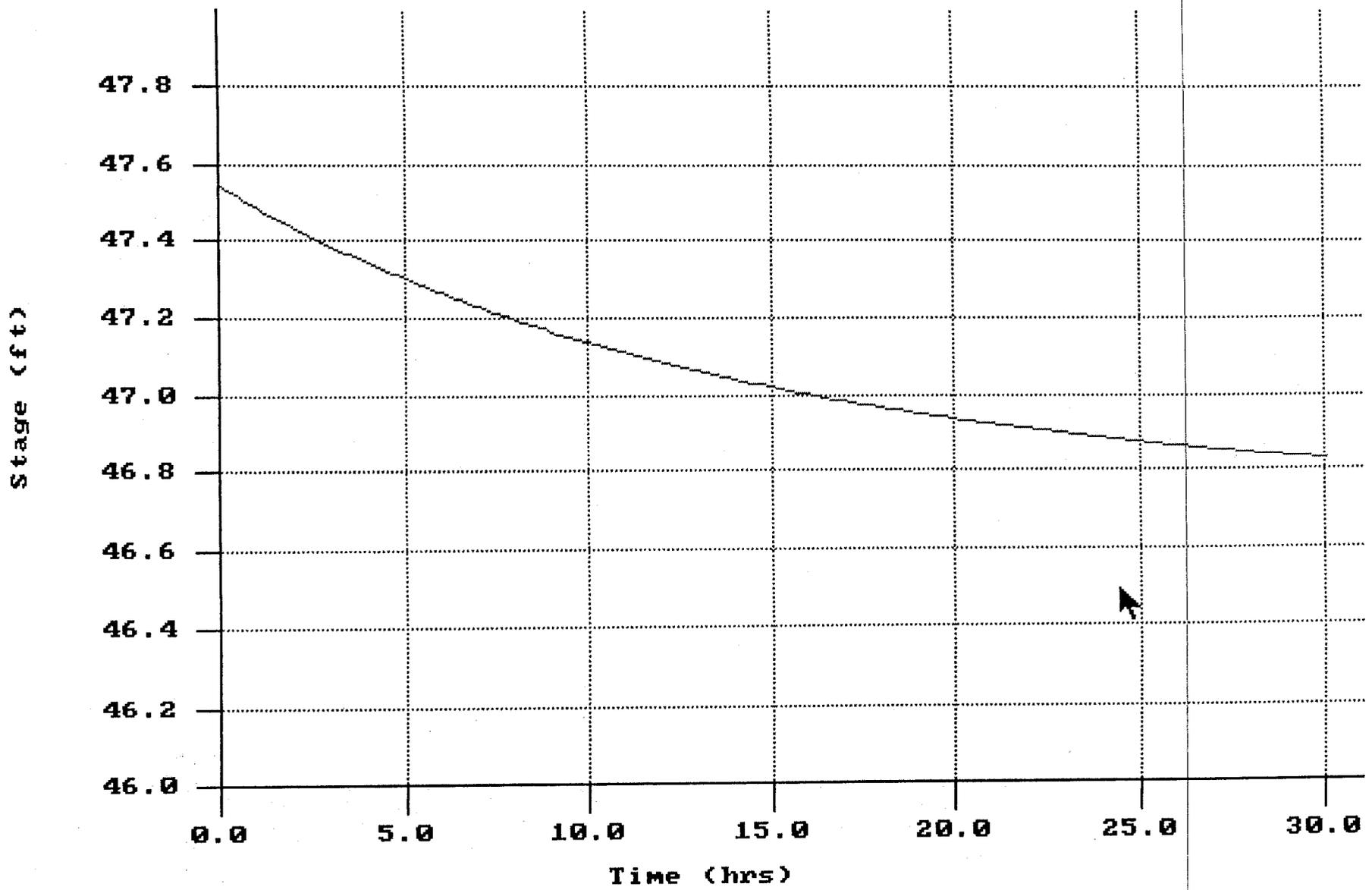
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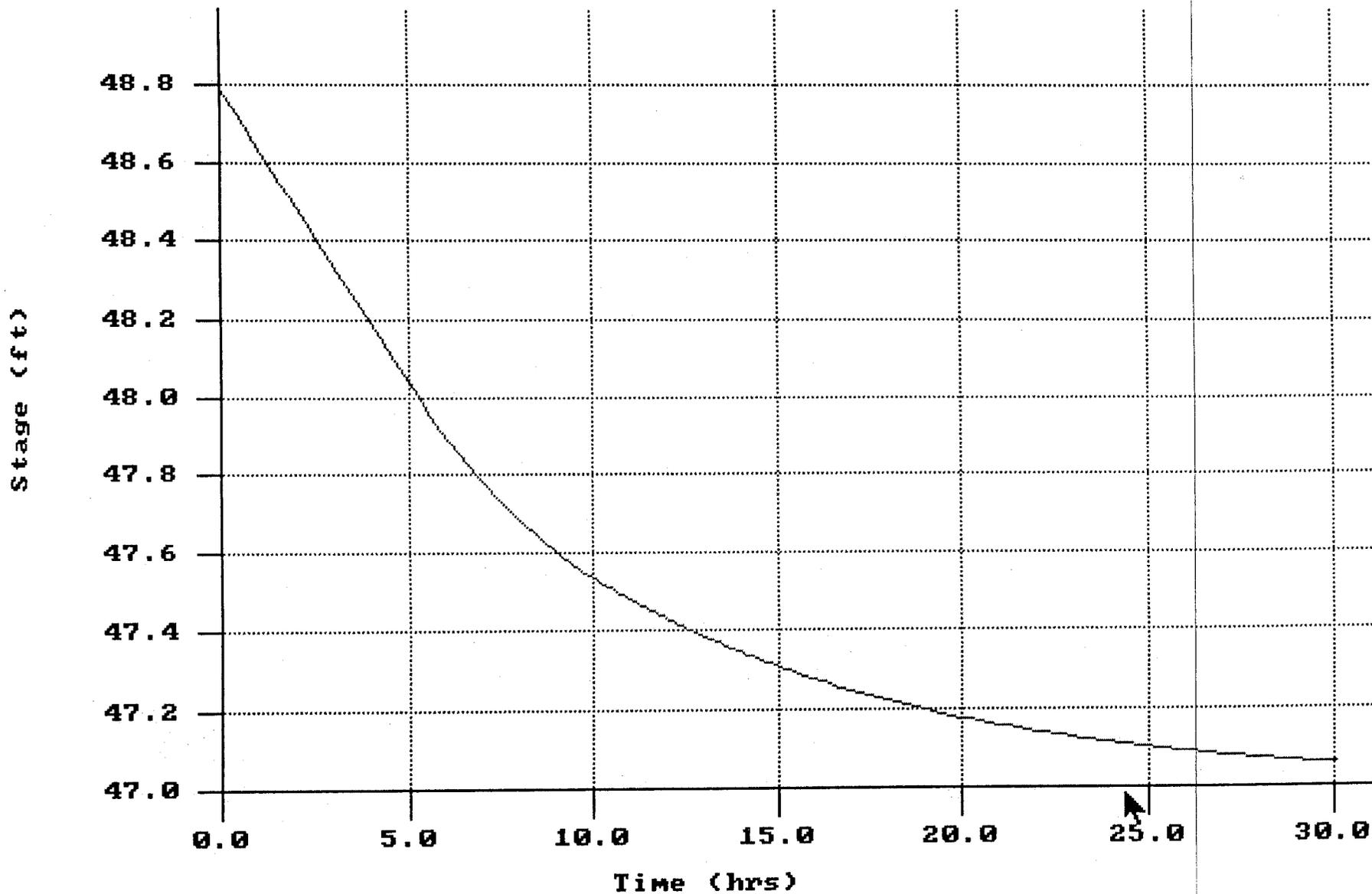
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PONDC

Warning Stage: 51.00

Graph Single super Print Options Zoom Quit



PONDD

Warning Stage:

51.00

STORM WATER MANAGEMENT REPORT

for

Wal-Mart Bulk Storage Facility

in

James City County, Virginia

Prepared by:

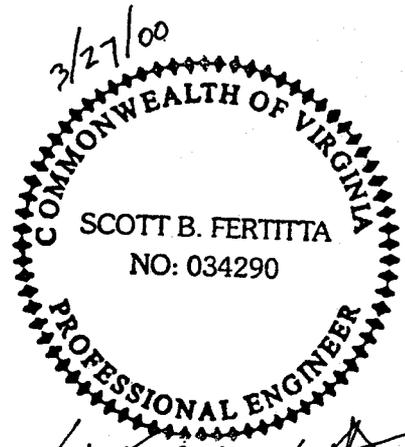


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C&B No. 99E103

March 2000

A-3
1.0 PP
1.0 EXT DET.



Scott B. Fertitta

EXT DET ✓
CPV ✓

I. INTRODUCTION

Proposed for construction is a Wal-Mart Stores, Inc. Bulk Storage Facility, which is to be located on an approximately 161-acre site in James City County, Virginia. The project site lies approximately 2000 feet west of Skiffes Creek Reservoir along the south side of State Route 60. The main distribution building will consist of approximately one million square feet. Other site construction will include a guardhouse, a fire pump house, paved entrance roads and parking areas, and utility construction required to facilitate the site. This report will serve as documentation for the storm water management plan proposed for this development. Included with this report are the project Construction Plans. Refer to them for detailed information on the proposed storm water management system.

II. METHODOLOGY

Standard SCS methodologies were used to estimate pre-development and post-development peak flow rates from the site as modeled with the computer software "adICPR" by Streamline Technologies, Inc. The post-development peak discharge rates from the site will be limited to pre-development rates or less for the 1-year, 2-year, 10-year, 25-year, and 100-year, 24-hour storm events. In addition, 24-hour extended detention will be provided in each of the ponds for the 1-year, 24-hour storm event. A hydrograph shape factor of 484 was used with an SCS Type II 24-hour rainfall distribution. The 24-hour rainfall values were obtained from the City of Richmond, Virginia Rainfall Intensity Chart which is derived from the National Weather Service Technical Paper 40. The time of concentration and runoff curve number calculations were based on procedures outlined in the SCS publication TR-55, and are included in the Appendix of this report. To accomplish the requirement of not increasing peak discharge rates from the site for each of the modeled storm events, a series of five detention ponds will be constructed. These detention ponds were also designed using "adICPR". "adICPR" uses a conservation of mass concept to route flows through the detention ponds and tailwater effects are accounted for. In the program runoff hydrographs are calculated at critical points which are called "nodes". Flows are then routed between nodes using "links". Storm water runoff will reach the detention ponds by a combination of sheet flow directly to the ponds, collection of runoff in concrete flumes, or via a subsurface drainage system. The subsurface system was designed for a 10-year Rational Method event, with positive overflow to the ponds for the less frequent storms.

FOUND 24-hr. EXT
DET. COMPS FOR
WQU. NO CPU.

III. PRE-DEVELOPMENT CONDITIONS

Refer to Construction Plan C4.01 for the site Pre-Development Drainage Area Map. This map identifies seven drainage basins and associated points of concentration for pre-development conditions. Off-site contributing areas were derived from the USGS topographic quadrangle map covering this area. Area X-1, consisting of 12.68 acres, drains off the site to the northwest to an existing 18" pipe culvert under highway 60. Area X-2, consisting of 83.30 acres, drains to the mouth of a tributary to Skiffes Creek Reservoir located along the project's northern property line. Area X-3, consisting of 18.00 acres, drains off the site to the south. Area X-5, consisting of 16.12 acres, drains off the site to the south. Area X-6, consisting of 50.50 acres, drains in a northeasterly direction to the mouth of another tributary to Skiffes Creek Reservoir. Area X-8, consisting of 54.65 acres, drains off the site to the south. Time of concentration calculations for the pre-developed areas are included in Appendix A. The majority of the site soil is classified as Slagle fine sandy loam, which has a hydrologic soil group classification of "C". Also, presented in smaller amounts is Craven-Uchee which has a hydrologic soil group classification of "A". Appendix B contains pre-development runoff curve number calculations. In the "adICPR" model, each of these drainage basins concentrate at a "node" of the same name for which all hydrologic and hydraulic calculations are made. Appendix C contains the "adICPR" Node Maximum Conditions Reports for each of the modeled storms. The maximum inflow to each node represents the peak discharge rate

at each point of concentration. For area X-1, which concentrates at the existing 18" pipe culvert under route 60, the peak discharge rate represents the peak flow rate through the culvert, which is shown as the maximum outflow from node "N-X1" on the Node Maximum Conditions Report. The pre-development peak discharge rates at each point of concentration are summarized in Table 1.

Table 1: Pre-Development Peak Discharge Rates (cfs)

<u>Point of Concentration</u>	<u>1-Year 24-Hour</u>	<u>2-Year 24-Hour</u>	<u>10-Year 24-Hour</u>	<u>25-year 24-Hour</u>	<u>100-Year 24-Hour</u>
X-1 (N-X1)	8.67	10.30 ✓	12.70 ✓	14.76	41.75
X-2 (N-X2)	37.35	62.32 ✓	169.55 ✓	197.43	263.57
X-3 (N-X3)	8.76	15.03 ✓	41.63 ✓	48.61	65.10
X-31 (N-X301)	0.59	0.93 ✓	2.30 ✓	2.64	3.46
X-5 (N-X5)	2.91	6.98 ✓	27.77 ✓	33.57	48.17
X-6 (N-X6)	13.82	28.67 ✓	98.80 ✓	118.35	166.28
X-8 (N-X8)	0.88	4.57 ✓	43.22 ✓	56.50	90.67

1. POST-DEVELOPMENT CONDITIONS

Refer to Construction Plan C4.02 for the Developed Drainage Area Map for this site. This map identifies points of concentration for developed drainage areas, such as culverts, channels, roof drain collectors, detention ponds, or off-site. Construction Plan C4.11 shows the hydraulic calculations for the subsurface system. Included are 10-year Rational Method calculations for the subsurface system, flume capacity calculations using the Weir Formula, culvert calculations and channel calculations which are labeled according to the contributing drainage area. The detention ponds were modeled using "adICPR" with a minimum time of concentration of five minutes and runoff curve number of 98 for all developed areas. Off-site areas draining through the detention pond system were assigned a runoff curve number consistent with a developed industrial site which is the present zoning for these areas. Appendix D contains revised time of concentration calculations for areas undisturbed by this development. Elevation-storage curves for each detention pond are provided in Appendix E. Appendix F contains Elevation-discharge calculations and curves for Detention Ponds B-1, C and D, which discharge flows leaving the site. The elevation-discharge calculations determine whether weir flow over the outer wall of the outfall control structure or culvert flow through the pipe culvert entrance controls for a given elevation. Appendix G contains curves showing the drawdown for the 1-year, 24-hour storm event. The volume of runoff for a 10-year, 24-hour event was added to the permanent pool volume and then the drawdown was carried out for 30 hours. As shown by the curves, the elevation in each pond is still decreasing at the 24-hour mark, thus showing that the required extended detention time has been met. Appendix H contains the "adICPR" Node Maximum Conditions report for each of the modeled storms. This report shows the maximum conditions at each node for each modeled storm event. Table 2 shows the peak stage elevations in the detention ponds for each of the modeled storms. The detention ponds are designed to hold a 100-year, 24-hour storm with one foot of freeboard to the top of berm elevation. An emergency spillway is provided for Ponds C and D which will pass the 100-year, 24-hour peak flow into the pond. For Ponds B1 and B2, the entrance roads act as emergency spillways and a minimum of two feet of freeboard is provided between the maximum stage elevation in these ponds for the 100-year, 24-hour storm event and the lowest point along the entrance road. Detention Pond A would spill back through Pond D via a channel connecting these two ponds. Therefore, the emergency spillway for Pond D also serves Pond A.

Table 2 Detention Pond/Peak Stage Elevations

Detention Pond/Culvert	1-Year 24-Hour	2-Year 24-Hour	10-Year 24-Hour	25-year 24-Hour	100-Year 24-Hour	Top of Berm
Pond A	47.04	47.31	48.29	48.56	49.19 ✓	51
Pond B 11	47.01	47.26	47.94	48.17	48.67 ✓	52
Pond B 12	47.04	47.31	48.25	48.48	49.03 ✓	52
Pond C	46.94	47.12	47.78	47.94	48.31 ✓	51
Pond D	47.45	47.13	48.76	49.01	49.62 ✓	51

FB

1.81 ✓

3.33 ✓

2.97 ✓

2.69 ✓

1.38 ✓

Table 3 shows a comparison of the peak discharge rate from the site at each of the points of concentration identified in Table 1. The nodes identified on the post-development Node Maximum Conditions Report are related to the corresponding pre-development conditions nodes, which are shown in parentheses

Table 3: Post-Development Peak Discharge Rates

Point of Concentration	1-Year 24-Hour	2-Year 24-Hour	10-Year 24-Hour	25-year 24-Hour	100-Year 24-Hour
F11 (N-X1)	5.33	10.07	12.88	13.26	33.31
F23 (N-X2)	8.56	14.63	42.05	49.39	67.03
F30 (N-X3)	2.43	4.15	11.40	13.27	17.74
F31 (N-X31)	0.44	0.69	1.71	1.96	2.56
F50 (N-X5)	1.21	2.91	11.73	14.18	20.22
F60 (N-X6)	8.50	18.98	74.41	87.02	107.83
F82 (N-X8)	0.08	0.58	5.74	7.41	11.90

At each point of concentration, the peak discharge rate from the site has been reduced for all modeled storm events and the storm water management design criteria has been met. Appendix I contains a completed James City County Storm Water Detention Basic Design Checklist

No. Pond Outlet Structs.

Date Page

Location	+	H.I.	-	Actual Elev.	Theory Elev.
T.B.M.	5.97	62.11			56.14
0+60.32			13.90	48.21	48.75
✓			15.71	46.40	47.00
0+00			22.22	39.89	40.00
T.B.M.	3.27	59.27			56.00
			12.87	46.40	46.50
			11.26	48.01	48.25
			14.75	44.52	45.29
C	5.58	57.53	7.32	51.95	
			10.76	46.77	46.50
			9.13	48.40	48.25
			12.35	45.18	45.40
C	7.08	60.08	4.53	53.00	
			4.08	56.00	56.00
			15.49	44.59	45.29

No. S.C.C. wal-wat Phase 1 & 2 Pond

Date Wed. 11-30-05 Page 5

Reuban + Ed #2

Diff.		Notes			
Assumed		Flume	Flowline		
- .54	Pond "D"	Outlet	ctrl.	Struct. B	Top
- .60	✓	✓	✓	✓	A Spillway
- .11	✓	✓	Sloping	H/W	Flow
		F.F.	Firehouse		
- .10	Pond "C"			A	Spillway
- .24	✓	✓		B	Top
- .77	✓	✓	Sloping	H/W	Flow
+ .27	Pond "B"			A	Spillway
+ .15	✓	✓		B	Top
- .22	✓	✓			Flow
		S.P.L. d	A	Light #4	
Flat					
- .70	reok	"C"	Outlet		

No. Pond "D" Dam

Date Page

No. 5 c.c. Phase I & II Dam behind Pond "D"

Date Thurs. 12-8-05 Page 6

Harold + Ed #2

Location	+	H.I.	-	Actual Elev.	Theory Elev.
Flume spillway	6.03	62.17			56.14
Dam			10.71	51.46	51.00
100'			11.37	50.80	51.00
200'			10.81	51.36	51.00
300' 250'			9.17	53.00	51.00
✓-in			6.09	56.08	56.14
			6.04	56.13	✓

Diff.	Notes
	Assumed T.B.M. @ "D" Outlet End
+1.46	@ Pond "D" Outlet Street.
-1.20	Going East
	↓
+1.36	
+2.00	tie to O.G.
-1.06 ✓ OK	Flume Next Spillway headed east
-1.01 ✓	↓
	Down .05 Due to Angle

Harold + Ed #2

Location	+	H.I	-	Actual Elev.	Theory Elev.	Diff	Notes
T.A.M.	4.91	57.91			53.00		S.B. Lid @ #4 Light Pole
West End			5.99	51.92	51.00	+ .92	
100'			4.65	53.26	↓	+ 2.26	
C 200'	7.02	59.88	5.05	52.86		+ 1.86	
↓ 300'			5.91	53.97		+ 2.97	
400'			5.04	54.84		+ 3.84	
500'			6.52	53.36		+ 2.36	
C 600'	4.53	56.99	7.42	52.46		+ 1.46	
700'			5.22	51.77		+ .77	
800'			5.44	51.55		+ .55	
900'			4.93	52.06		+ 1.06	
C 1000'	4.72	56.78	4.93	52.06		+ 1.06	
1100'			5.29	51.49		+ 1.49	
1200'			5.89	50.89		- .11	
C 1300'	6.63	57.88	5.53	51.25		+ .25	
1400'			6.86	51.02		+ .02	
1500'			6.74	51.14	↑	+ .14	
1530'			6.75	51.13	51.00	+ .13	tie back @ parking lot
Flume Spill			1.60	56.28	56.14	+ .14	✓-ok for tie

7.

Geotechnical reports

**Final Geotechnical Engineering Study
BSF-East, Green Mount Site
Blow Flats Road
James City County, Virginia**

Project 993777

February 22, 2000

Prepared for:

Mr. Scott Fertitta, P.E., Project Manager
Carter & Burgess, Inc.
3001 Meacham Boulevard, Suite 200
Fort Worth, Texas 76137-4608

Prepared by:

Schnabel Engineering Associates, Inc.
609 Industry Drive
Hampton, Virginia 23321

Phone: (757) 827-7207

Fax: (757) 838-0995

Gilbert T. Seese

Gilbert T. Seese, P.E. ^{ED}

Senior Associate

Michael J. Galli

Michael J. Galli, P.E. ^{ED}

Project Engineer

Edward G. Drahos

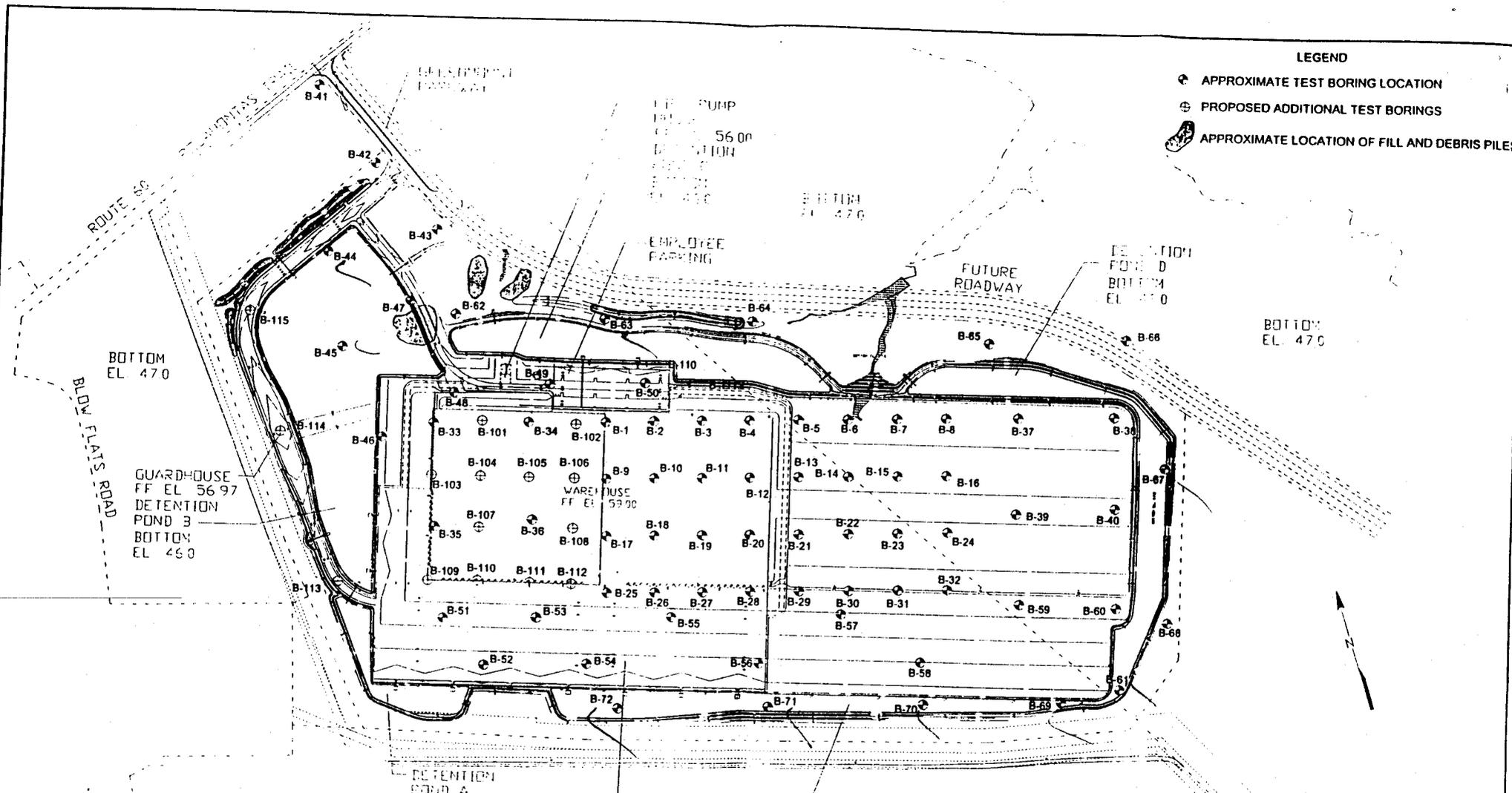
Edward G. Drahos, P.E.

Principal



LEGEND

- ⊕ APPROXIMATE TEST BORING LOCATION
- ⊕ PROPOSED ADDITIONAL TEST BORINGS
- ⊕ APPROXIMATE LOCATION OF FILL AND DEBRIS PILES



Schnabel Engineering

BSF - EAST, GREEN MOUNT SITE, BLOW FLATS ROAD, JAMES CITY COUNTY, VIRGINIA

LOCATION PLAN

SCALE	DATE
1"=400'	FEBRUARY 2001
CDT	MG
993777	A1

Topsoil: Approximately 0.4 to 1.7 ft of topsoil, cultivated topsoil, and rootmat were encountered at the ground surface in all of the test borings.

Stratum A: Test borings B-41 and B-62 revealed generally loose to firm density clayey sand FILL and soft consistency sandy lean clay FILL. This layer was encountered at these two boring locations from the ground surface to depths of 2 to 3 ft. The fill soils may be associated with previous Route 60 construction and grading of the existing farm lanes on the site, respectively.

Stratum B: Stratum B consists of the Pleistocene age Windsor Formation. Stratum B1 represents the coarse-grained portion of this formation. Stratum B1 consists of generally loose to firm density SILTY SAND (SM), CLAYEY SAND (SC), and POORLY GRADED SAND WITH SILT (SP-SM). Stratum B1 was encountered below the topsoil and interbedded with Stratum B2 to depths of 6 to 20 ft.

Stratum B2 consists of generally medium stiff to stiff consistency LEAN CLAY (CL) and FAT CLAY (CH) with varying amounts of sand. Stratum B2 was encountered below and interbedded with Stratum B1 to depths of 2 to 12 ft.

Laboratory tests were conducted on samples representing Strata B1 and B2. The test results from Stratum B1 indicate these soils generally exhibit a low to medium potential for moisture-related volume change (shrink/swell behavior). Laboratory tests from Stratum B2 soils indicated these soils exhibit a medium potential for shrink/swell behavior.

A consolidation test performed on a sample which represented Stratum B indicated this soil is preconsolidated to about 3.5 tsf, or about 3.1 tsf above the existing overburden pressure. Compression and Recompression Indices of 0.13 and 0.02 were also obtained from this test.

California Bearing Ratio (CBR) tests were conducted on bulk samples of the coarse-grained soils from this stratum classifying (SC)(A-2-4), (SC)(A-2-6), and (SC)(A-6). Laboratory CBR values obtained ranged from 3.2 to 13.5, with swell values ranging from 0 to 0.6 percent. Natural moisture content values of Stratum B1 soils tested in our laboratory varied from 7.4 to 17.9 percent. The optimum moisture content for compaction of these soils ranges from about 10 to 14 percent.

California Bearing Ratio (CBR) tests were also conducted on bulk samples of the fine-grained soils from this stratum classifying (CL)(A-6) and (CL)(A-7-6). Laboratory CBR

values obtained ranged from about 6.3 to 15.5, with swell values of about 0.2 percent. Natural moisture content values of Stratum B2 soils tested in our laboratory varied from 15.2 to 18.4 percent. The optimum moisture content for compaction of these soils ranges from about 13 to 15.6 percent.

Stratum C: Stratum C represents the Sedley Formation soils and was encountered in most of the test borings across the site. Stratum C1 represents the coarse-grained portion of this formation. Stratum C1 consists of generally loose to firm density CLAYEY SAND (SC) and SILTY SAND (SM). Stratum C1 was encountered below Stratum B and interlayered with the soils of Stratum C2 between depths of 4 to 27 ft.

Stratum C2 consists of generally soft to medium stiff consistency LEAN CLAY (CL) and FAT CLAY (CH), with varying amounts of sand. Stratum C2 was encountered below Stratum B and interlayered with Stratum C1 between depths of 8 and 29.5 ft.

A consolidation test performed on a sample which represented Stratum C indicated this soil is preconsolidated to about 2.4 tsf, or about 1.5 tsf above the existing overburden pressure. Compression and Recompression Indices of 0.35 and 0.03 were also obtained from this test.

Stratum D: Stratum D represents the Yorktown Formation soils. Stratum D1 consists of generally loose to firm density, fine to coarse CLAYEY SAND (SC) and SILTY SAND (SM) containing shell fragments. Stratum D1 was encountered below Stratum C soils in most of the borings to the maximum depth of penetration, 30 ft.

Stratum D2 consists of generally of medium stiff to stiff consistency SANDY LEAN CLAY (CL) containing shell fragments. Stratum D2 was encountered below Stratum C soils and interbedded with Stratum D1 soils in most of the borings to the maximum depth of penetration, 30 ft.

2.4 Ground Water

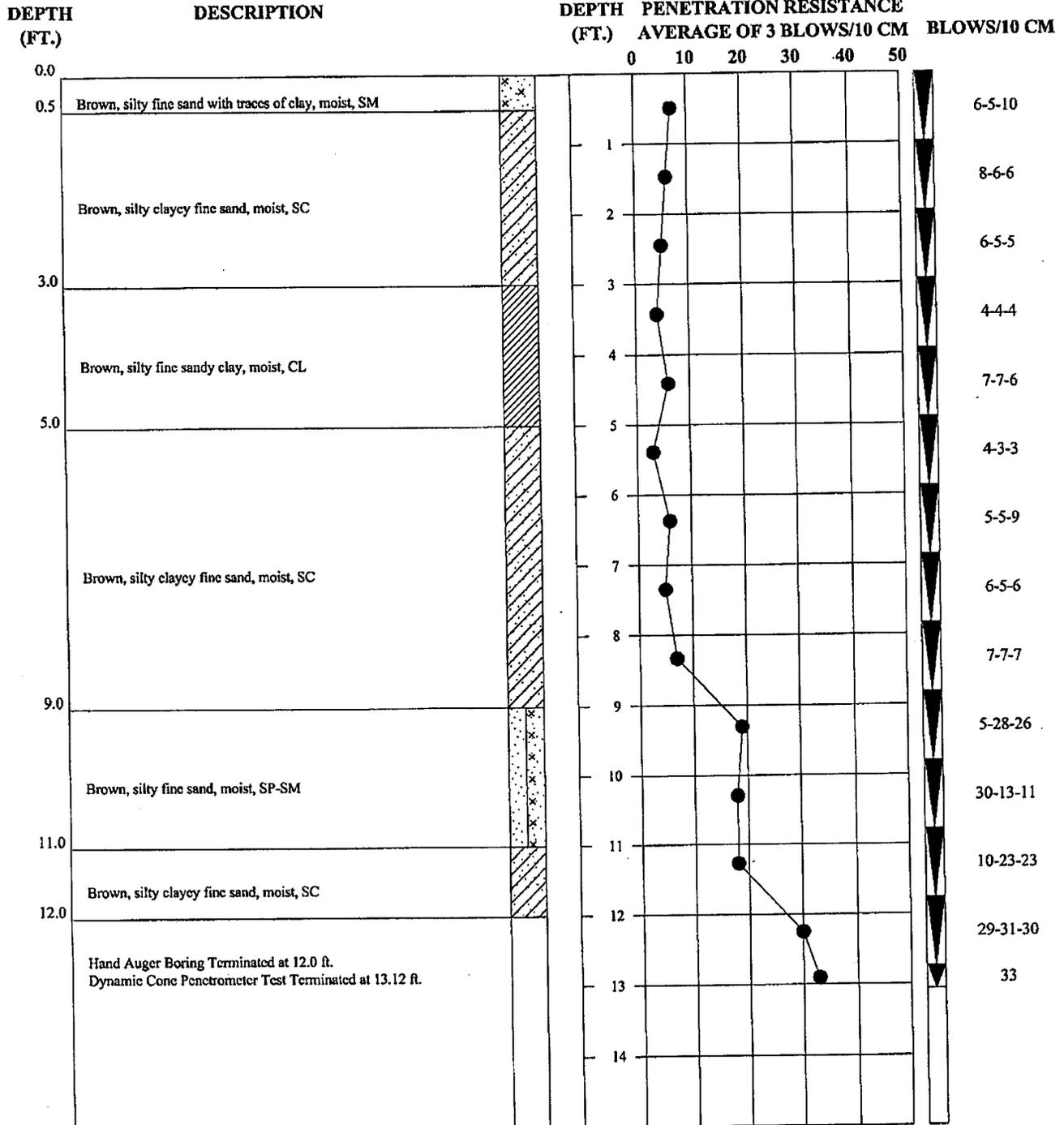
Water level readings obtained in the borings during and after completion are noted in the logs. We observed ground water during drilling in most of the borings at depths of 6 to 23 ft. Following removal of the augers, test borings caved at depths of 1.5 to 27.8 ft.

Water observation wells were installed in Borings B-38, B-45, B-63, and B-68. We recorded ground water levels in the wells at depths of 0.5 to 16.5 ft, El 39 to El 52, about 14 days after completion of the drilling.

Some of the higher water levels recorded on the logs may represent a perched ground water condition. Perched ground water can occur when infiltration of surface water is retarded by a lower permeability layer, such as the fine-grained soils of Strata B2 or C2. Perched ground water could occur at other locations on site and at higher elevations than those recorded on the logs.

The ground water levels on the logs show our estimate of the hydrostatic water table at the time the borings were drilled. Fluctuations in the hydrostatic water table should be anticipated depending on variations in precipitation, surface runoff, evaporation, leaking utilities and similar factors.

**DYNAMIC CONE
PENETROMETER TEST**

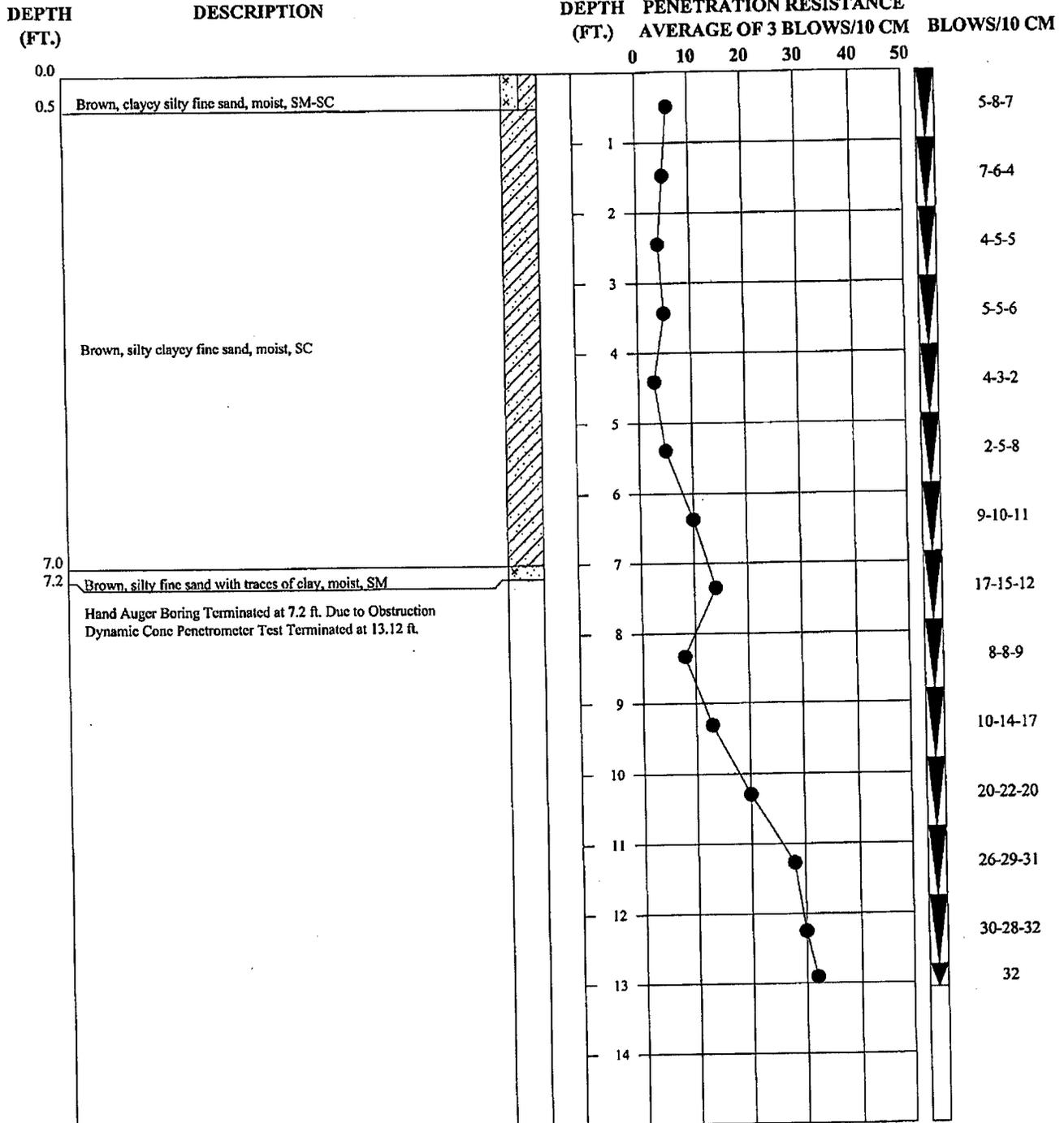


NOTES: Groundwater Not Encountered within Depth of Boring.

- - Stratum Change
- ▼ - Groundwater Level at Time of Drilling
- - Cone Penetration Resistance
Average of 3 Blows/10 cm Increment
- ▼ - Dynamic Cone Penetrometer Test
Blows per 10 cm Increment

HAND AUGER BORING RECORD	
BORING NUMBER	HA-1
DATE DRILLED	January 24, 2006
PROJECT NUMBER	06-7515
PROJECT	Wal-Mart Distribution Center - Phase I & II
LOCATION	James City County, Virginia
McCALLUM TESTING LABORATORIES, INC.	

**DYNAMIC CONE
PENETROMETER TEST**

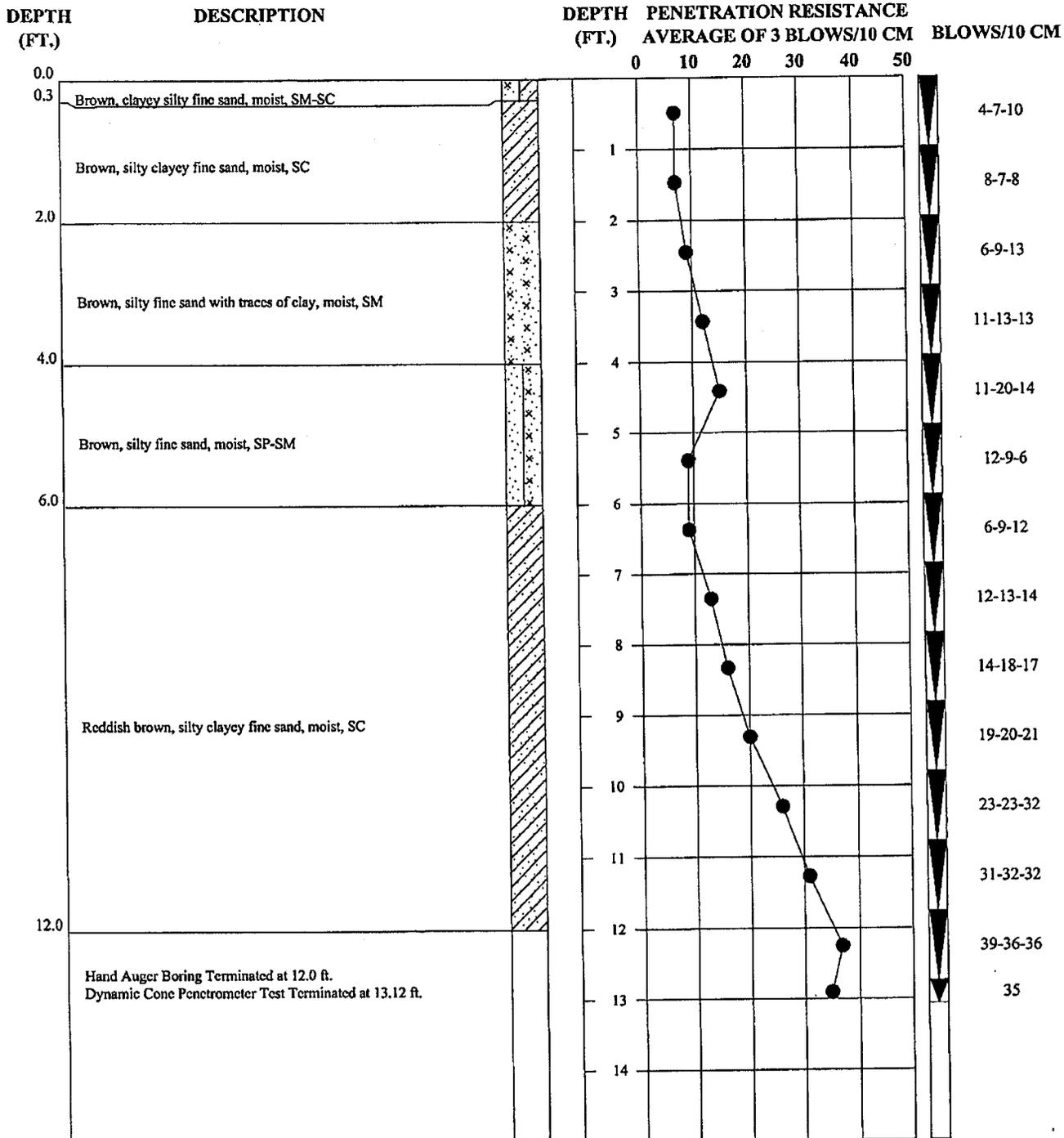


NOTES: Groundwater Not Encountered within Depth of Boring.

- - Stratum Change
- ▼ - Groundwater Level at Time of Drilling
- - Cone Penetration Resistance
Average of 3 Blows/10 cm Increment
- ▼ - Dynamic Cone Penetrometer Test
Blows per 10 cm Increment

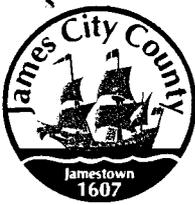
HAND AUGER BORING RECORD	
BORING NUMBER	HA-2
DATE DRILLED	January 24, 2006
PROJECT NUMBER	06-7515
PROJECT	Wal-Mart Distribution Center - Phase I & II
LOCATION	James City County, Virginia
McCALLUM TESTING LABORATORIES, INC.	

**DYNAMIC CONE
PENETROMETER TEST**



NOTES: Groundwater Not Encountered within Depth of Boring.

HAND AUGER BORING RECORD	
BORING NUMBER	HA-3
DATE DRILLED	January 24, 2006
PROJECT NUMBER	06-7515
PROJECT	Wal-Mart Distribution Center - Phase I & II
LOCATION	James City County, Virginia
McCALLUM TESTING LABORATORIES, INC.	



DEVELOPMENT MANAGEMENT

101-E MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6671 Fax: (757) 259-4032 E-MAIL: devtman@james-city.va.us

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

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

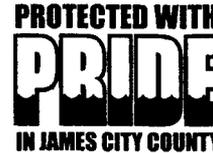
COUNTY ENGINEER
(757) 253-6678

MOSQUITO CONTROL
(757) 259-4116

June 5, 2006

Ms. Cynthia Pelli
Wal-Mart Construction

Re: Wal-Mart Bulk Storage Facility No. 88
Stormwater Management/BMP Facilities



Dear Ms. Pelli:

At your request, I have prepared some general and specific information relative to maintenance of stormwater management/BMP facilities associated with the Wal-Mart Bulk Storage Facility No. 88 in the GreenMount Industrial Park of James City County. Phase 1 of the Wal-Mart facility was approved under County Plan No. SP-45-00, Phase 2 was approved under SP-81-01 and SP-24-01 as amended and most recently Phase 3 was under SP-88-04. There are a total of eleven (11) stormwater management/BMP facilities situated around all phases of the site. All the BMPs are considered County type A-3 wet pond BMPs. The table below shows important information relative to the BMPs at the Wal-Mart site. Assigned County BMP Code numbers as provided should be used for all future correspondence with the County.

<i>County BMP ID Code</i>	<i>Phase</i>	<i>Approved County Plan No.</i>	<i>Pond Name</i>
SC 009	Wal-Mart Phase I	SP-45-00	Pond B-1
SC 010	Wal-Mart Phase I	SP-45-00	Pond B-2
SC 011	Wal-Mart Phase I	SP-45-00	Pond A
SC 012	Wal-Mart Phase I	SP-45-00	Pond C
SC 013	Wal-Mart Phase I/II	SP-24-01, amended SP-81-01	Pond D
SC 019	Wal-Mart Phase III	SP-88-04	Pond E
SC 020	Wal-Mart Phase III	SP-88-04	Pond F
SC 021	Wal-Mart Phase III	SP-88-04	Pond G
SC 022	Wal-Mart Phase III	SP-88-04	Pond H
SC 023	Wal-Mart Phase III	SP-88-04	Pond I
SC 024	Wal-Mart Phase III	SP-88-04	Pond J

General Information:

Information as attached includes: a watershed education brochure from our PRIDE program (www.protectedwithpride.org); landscaping tips for stormwater management BMP's, watershed awareness tips, a sample maintenance plan for a wet pond stormwater management facility; and three brochures related to liability and maintenance. One of these brochures is a good informational handout entitled *A Guide for Maintaining and Operating BMP's*. This publication is distributed through our office in response to a cooperative effort from the Hampton Roads Regional Stormwater Management Committee and HR STORM, a regional stormwater education program offered by the Hampton Roads Planning District Commission.

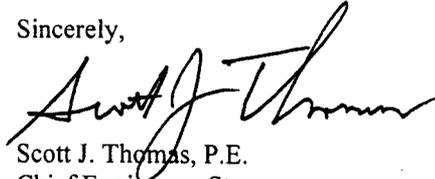
Specific Information:

I have also attached a packet of specific information relative to the Wal-Mart site. The packet includes copies of an overall County GIS map which shows the assigned County BMP ID Code numbers and copies of the inspection/maintenance agreements for Phase I, II and III of the project. There are also maintenance plans specific to the BMPs for all phases of the project. Refer to the following maps in the following approved plan sets:

- For **Phase I** (County Plan No. SP-45-00), refer to the "Long Term Maintenance Plan" as outlined on Sheet C5.02 of the approved plan set. This covers Ponds A, B-1, B-2, C and D respectively.
- For **Phase II** (County Plan No. SP-24-01), the maintenance plan from the approved Phase I plan would still apply as Pond D was only upgraded for the Phase II building.
- For **Phase III** (County Plan No. SP-88-04), refer to the "Long Term Maintenance Plan" as outlined on Sheet C5.01 of the approved plan set. This covers Ponds E, F, G, H, I and J respectively.

I have already talked with Mr. Dale Stone and provided him with some of the general information and copies of the inspection/maintenance agreements. Our Division is always readily available to assist owners and HOA representatives with guidance related to stormwater management facilities and drainage and we sincerely look forward working with you in the future. In the meantime, we strongly encourage you to visit our PRIDE website at www.protectedwithpride.org to access useful information pertaining to watershed protection, restoration and BMP maintenance. If you have any additional questions or comments, call me at 757-253-6639.

Sincerely,



Scott J. Thomas, P.E.
Chief Engineer – Stormwater
Environmental Division

Attachments
SJT/sjt

SWMProg\Education\Private\WalmartBSF088.fc

Glover Construction Co., Inc.

P. O. Box 40 • Highway 301 N.
Pleasant Hill, North Carolina 27866
(252) 536-2660 • Fax (252) 536-4600

June 18, 2004

Mr. Scott J. Thomas, P.E.

PO Box 8784

Williamsburg, Virginia 23187-8784

Re: Wal-Mart Bulk Storage Facility #88
Green Mount Industrial Park, US route 60
Phase I (County Plan No. SP-45-00)
Phase II (County Plan No. SP-24-01, amended SP-81-01)

Dear Mr. Thomas

Enclosed are the AS-Built Drawings of the BMP facilities at the referenced site. As you know we have had a hard time getting the required information from Wal-Mart. We are still trying to get the certification from the parties responsible for inspection of the site on behalf of Wal-Mart. I know this isn't your concern as to how our subcontract was written, but the problem we have is that inspection and as-built drawings were excluded from our subcontract. Therefore we are depending on others whom we have no control over to provide the required information to release these bonds. To further complicate matters, the general contractor for whom we worked is no longer in business, but all the documentation should have been turned over to Wal-Mart if we can just motivate them to find it. However the problem lies in the fact that they have no motivation to cooperate and search their records for this information, since they have no financial exposure as we do. They have told us that they will continue to search the project records for the inspection reports so they can certify the facilities, but so far nothing has been given to us except the as-built drawings. In the mean time is there a possibility of lowering the bond amounts since this is a completed and active facility with little actual exposure. We would be glad to meet with you to further discuss how to resolve this matter.

If you have any questions, please call me.

Very truly yours,



GLOVER CONSTRUCTION CO., INC
Ed Martin, Chief Engineer





WAL★MART
realty

Distribution Center Construction Program

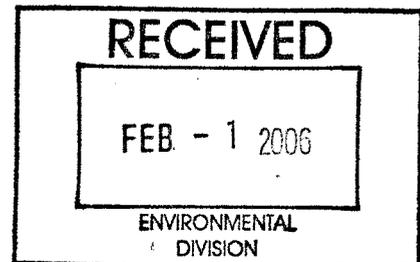
WAL-MART STORES, INC. ★ 2001 SE 10TH STREET, Dept 9562 ★ BENTONVILLE, AR 72716-0550 ★
Phone 479-273-4000 ★ Fax 479-273-1964

January 31, 2006

Attn: Scott Thomas
James City County Environmental Division
101 Mounts Bay Road
Williamsburg, VA 23185

Subj: Professional Certification

Ref: Wal-Mart BSF # 6088-03



Dear Scott,

Please find attached the original stamped Professional Certification for the Stormwater Management / BMP Facilities. I think that this is the last thing we were waiting on to satisfy the requires for release of the bond for the Phase III project.

Please let me know if we have any other outstanding issues. We still have Cindi Pelli on site and in the area, representing Wal-Mart Construction. You may contact her or me at anytime. I am at (479) 903-2468 and Cindi is at (479) 644-9504.

Thanks for all you help and consideration through out the project.

Sincerely,

Bobbie Brown
Wal-Mart Construction Manager

Scott Thomas

From: Scott Thomas
Sent: Tuesday, December 20, 2005 4:57 PM
To: 'Wojnicz, Andy'
Subject: RE: ~~Wal-Mart Ph III~~ Change to BMP Planting Scheme

1. Punch List Complete

Glover has informed me that this is complete. Do you agree?

YES. I believe field items on the punch-list are done.

2. "As-Built" Drawings complete

Glover has stated that they need to change a few items and will get this in your hands next week.

Have not gotten revised asbuilts yet. There were only a few small corrections needed.

3. Pg. # 4 of packet signed off.

Jim Emerson needs to sign-off and do you also require that the surveyor do the same or are the as-built drawings sufficient?

For the asbuilt drawings, the surveyor must stamp and seal the left side of the form; or alternatively, provide a statement on the asbuilts and stamp and seal it. Once done I need one blue/blackline set for each BMP (total of 6, I think) and as all the BMPs are on one drawing set, I need one reproducible mylar. As far as the construction certification, I have not gotten anything from Emerson yet.

Scott J. Thomas, P.E.

James City County

Environmental Division

Visit:

http://www.james-city.va.us/resources/devmgmt/div_devmgmt_environ.html

and

www.protectedwithpride.org

-----Original Message-----

From: Wojnicz, Andy [mailto:aewojnicz@bucon.com]

Sent: Saturday, December 17, 2005 4:06 PM

To: Scott Thomas

Subject: RE: Wal-Mart Ph III - Change to BMP Planting Scheme

Scott,

I have been in contact with Glover Construction in regards to remaining items for the JCC Wal*Mart BSF phase III project. I would like to get a status report from you if possible.

My understanding is that you basically need 3 items based on our brief conversation on December 2, 2005.

1. Punch List Complete

Glover has informed me that this is complete. Do you agree?

2. "As-Built" Drawings complete

Glover has stated that they need to change a few items and will get this in your hands next week.

3. Pg. # 4 of packet signed off.

Jim Emerson needs to sign-off and do you also require that the surveyor do the same or are the as-built drawings sufficient?

12/20/2005

If there is anything else that needs to be completed or the information above is not accurate and you feel I need to know, I encourage you to contact me. I feel at this point that Glover is providing you with what you require, but if this is not the case and I can help, I will devote whatever resources to the cause.

Thanks for the hands on effort and assistance. Have a good holiday.

Andrew Wojnicz
Project Manager - Butler Construction
(c) 1-816-590-2557
(p) 1-816-245-6582
(f) 1-816-245-6099

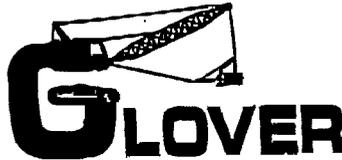
From: Scott Thomas [mailto:SCOTT@james-city.va.us]
Sent: Monday, December 05, 2005 9:25 AM
To: aewojnicz@bucon.com; Emerson, Jim D.
Subject: ~~Wal-Mart Ph III~~ Change to BMP Planting Scheme

Wal-Mart BSF # 6088
County Plan No. SP-88-04
RE: Change to BMP Planting/Landscape Plan

Can you please both email me your fax number? I've reviewed the request by Emerald Forest dated August 31, 2005 as it pertains to proposed changes in the BMP planting plan. I would like to forward a copy of that letter back to you (including Emerald Forest) stamped as approved. I feel it is important to keep record of this change and was not able to fully process it until I did inspections of the BMPs in the field. I did a final inspection of Ponds F, E, G, H, I and J in the field on Friday December 2, 2005. I have copies of inspection reports available for each of the BMPs and also gave Glover a summary of punch-list items that remain for each pond.

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

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



Glover Construction Company, Inc.
P. O. Box 40 / Highway 301 North
Pleasant Hill, NC 27866
(252) 536-2660
(252) 536-4600 Fax

****E-MAIL ADDRESSES****

Engineering Dept
Matt Glover
Ed Martin
Armon Pfeifer

engineering@gloverconstruction.com
mglover@gloverconstruction.com
emartin@gloverconstruction.com
apeifer@gloverconstruction.com

FAX

To: James City County Environmental ^{Division} From: Ed. Marks
Fax No: 1-757-259-4032 Pages: 2
Attn: Scott J. Thomas, P.E. Date: Mon. 12-5-05
Phone No: 1-757-2536639 Re: Wal-Mart BMP Final Inspections
Phase III

▪ **Comments**

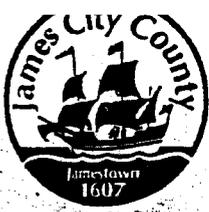
Attached is a copy of your punch list from Friday. I have forwarded required as-built corrections to our surveyor, so he can furnish us certified copies and mylars.

Thanks for your help,

Ed Marks

P.S. Our Geo-Tech guy, Scott Deese, may contact you with some questions on Phases I & II.

Thanks,
Ed



JAMES CITY COUNTY - ENVIRONMENTAL DIVISION

Office Phone: 757-253-6670

Fax Number: 757-259-4032

DATE SENT: ¹² ~~12~~-05

Name: see below
Firm or Company: _____
Facsimile Number: _____
Number of pages including this transmittal: 4
From: Scott J. Thomas

James City County
P O Box 8784
Williamsburg VA 23187-8784

Comments: WALMART BSF 6088
Imp Planting MODIFICATION REQUEST

If you do not receive all pages, call 757-253-6670 as soon as possible

1. Peter McCLINTOCK ✓
EMERALD FOREST INC.
757-421-0929 FAX
2. Jim Emerson ✓
Carter-Burgess
817-222-8780 FAX
3. Andy Wojnicz ✓
Butler Construction
1-816-245-6099
4. Ed Marks / Ed Martin ✓
Glover Construction
(252) 536-4600 FAX

FAXED
12-12-05

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SCOTT J. THOMAS, P.E.
SENIOR ENGINEER

ENVIRONMENTAL DIVISION

101 MOUNTS BAY ROAD, P.O. Box 8784
WILLIAMSBURG, VIRGINIA 23187-8784

(757) 253-6639

FAX: (757) 259-4032

E-MAIL: scottt@james-city.va.us

FROM : Swampeat

FAX NO. : 757 421 0929

Aug. 31 2005 12:36PM P2



EMERALD FOREST INCORPORATED

Wetland Mitigation Specialists
4651 Backwoods Road
Chesapeake, Virginia 23322-2456

Phone/fax: 757.421.0929
Mobile: 757.636.8977
E-mail: mdd4st@earthlink.net

APPROVED
James City County
Environmental Division

August 31, 2005

By: *[Signature]*
Date: 8/22/05

Butler Construction, Inc.
Attn: Mr. Gregg Gerlich
1540 Genessee Street
Kansas City, MO 64102

BMP PLANTING PLAN MODIFICATION
FOR WALMART 6088 PHASE III SP88-04
(BMP F, E, G, H, I AND J)

RE: WalMart Warehouse Expansion, James City County, Virginia. BMP Pond Wetland seeding

Dear Mr. Gerlich,

This correspondence is in response to our recent onsite meeting regarding the seeding of the BMP Ponds at the above referenced project site. This inspection took place on Monday August 29, 2005.

As we discussed, the seeding of the pond bottoms has been deleted as stated in the response to your RFI regarding this issue. The two remaining zones; the Aquatic Shelf and the Forebays, are to be planted and/or seeded as specified. Based on our experience in the field of wetland restoration and BMP planting, the species identified for the forebays will not survive under the current site conditions. The species selected including; Elodea canadensis, Potamogeton pectinatus, and Nuphar luteum all require permanent water pools to survive. The construction plans indicate that the forebays are designed to temporarily hold water only after a significant storm event. It is our recommendation that the forebays be treated the same as the aquatic shelf and seeded with Panicum virgatum, Carex spp. and Leersia oryzoides as indicated in the plans. These wetland species will survive occasional flooding as well as dry periods once they are established. While on site we noted that the aquatic shelf and forebay zones in the majority of the ponds were already vegetated with Carex, sedge species as well as a number of other hydrophytic grasses. We would not recommend disturbing this existing vegetation in order to hydroseed with the specified seed mix. As an alternative we would recommend mowing the existing vegetation to a maximum of 6" in height and overseeding with the desired species. Overseeding should be performed by broadcast method rather than hydroseeding to increase seed/soil contact. Bare areas on the aquatic shelf and forebay areas should be scarified, broadcast seeded and mulched with straw.

This method will have several advantages; the existing stand of vegetation will minimize any potential erosion and sedimentation; the existing vegetation will help protect the new seed from drying out as well as from consumption by the existing waterfowl population and; the overseed species sown in the late summer / early fall will more closely mimic natural seed production and dispersal, allowing strong seed germination in the spring.

FROM : Swampcat

FAX NO. : 757 421 0929

Aug. 31 2005 12:37PM P3

Butler Construction, Inc.
August 31, 2005
Page two

We have attached a copy of our quotation for the overseeding and reseeding (scarify/seed/mulch) of the bare areas. If you would like us to proceed with scheduling this work please provide a purchase order at your earliest convenience so that we may order the necessary seed and materials.

Should you have any questions or require any additional information please feel free to contact me at the numbers listed.

Sincerely,



Peter D. McClintock
President

RFI Site # 79 Rest

REQUEST FOR INFORMATION**Project Name:** BSF 6088 - Phase III - James City County, Virginia **Project No.:** 292245**C&B RFI No.:** CE-77 **RFI Date:** 09/02/05 **Reply Date:** 09/13/05**To:** Wal-Mart Stores East, LP Jessica Erwin Jessica.Erwin@wal-mart.comWal-Mart Construction Mgmt. Larry Brown Larry.Brown@wal-mart.comButler Construction Ken Kraft kkraft@bucon.comC&B Const. Admin Margie Beauchamp cameacham@c-b.com**Information Requested (Summary)****Topic:** Pond Zone Seeding

The A/E will review formal requests from the General Contractor for information regarding the Work. Each Request for Information will be reviewed according to the contract requirements and a notification in writing will be made or progress underway will be reported.

Drawing/Specification C9.11 through C9.21

Existing Condition/Statement of Concern: The areas called out in the plan as fore bays and aquatic shelves are above the required elevation to receive proper moisture for growth. After heavy or moderate rains, the water level at these locations collects for several hours before passing through riprap into the basin. The majority of the time these areas are dry.

WM/Contractor Proposed Solution: The contractor is requesting that the seeding of Zone 3 in the retention basins be changed to match Zone 2. Thorough explanations of species and the procedure for placing are covered in a letter attached from our wetland mitigation specialist, Emerald Forest Inc.. Please review the attachment.

WMCM: Bobbie Brown**WMCM Ref. No.:** 079**Attachments:****RFI Response**

Proposed Solution: Based on conversations with the Landscape Architect, Carter & Burgess takes no exception to the Contractor's request to seed Zone 3 with the Zone 2 mix.

Action Item: N/A**Response
By:**

Mitchell G. Farnham

Approval By:**Attachments:**

N/A

cc: Correspondence
Jim Emerson
Randy Ofill
Ed Hess
Ted Dalferes
Kenny Houghton
David Nortman
Chris Christian

Scott Thomas

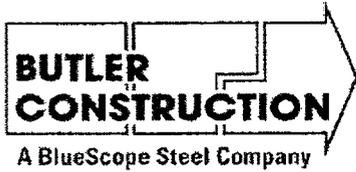
From: Scott Thomas
Sent: Monday, December 05, 2005 10:25 AM
To: 'aewojnicz@bucon.com'; 'Emerson, Jim D.'
Subject: Wal-Mart Ph III - Change to BMP Planting Scheme

Wal-Mart BSF # 6088
County Plan No. SP-88-04
RE: Change to BMP Planting/Landscape Plan

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

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



Butler Construction
Wal*Mart BSF #6088
180 Blow Flats Road
Williamsburg, VA 23185
Phone: (757) 888-6450 Fax: (757) 888-6455
Cell Phone: 816-769-7243

Fax:

To: Scott Thomas	From: Lamont Coleman
Fax: 757-259-4032	Pages: 4
Phone: 757-253-6643	Date: 11-17-05
Re:	CC:

Urgent For Review
 Please Comment
 Please Reply
 Please Recycle

• Comments: Hello Scott, this is the information we discussed briefly on Monday regarding the wetland seeding by Emerald Forest. The R.F.I is back up to show proper channels were taken to approve the method and seed type. If you have any other questions please contact me at 816-769-3944

Thank You

Lamont Coleman

*Approved & copy all received
JAC 11/22/05*

TED VALFERES

Carter & Burgess

777 Main Street
Fort Worth, Texas 76102
P.O. Box 901058
Fort Worth, Texas 76101-2058
Phone: 817.222.8500
Fax: 817.222.8550
www.c-b.com

FAX TRANSMITTAL

PROJECT: James City County BSF-Phase III

PROJECT NO: 292245

TO: Scott Thomas, P.E.

FAX: 7572594032

FROM: Mitchell G. Farnham

DATE: Sept 29, 2005

C&B Telephone Number (817) 222-8500

C&B Fax Number: (817) 222-8550

Total number of pages transmitted, including this page 3

REMARKS: For your review.

PREVIOUSLY SCANNED DOCUMENTS:

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SPECIAL INSTRUCTIONS:

T	Copy as indicated below		Copy as attached		Return Originals to Sender		Mail Original to Address
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cc: Correspondence

FROM : Swampcat

FAX NO. : 757 421 0929

Aug. 31 2005 12:35PM P2



EMERALD FOREST INCORPORATED

Wetland Mitigation Specialist
4651 Backwoods Road
Chesapeake, Virginia 23322-2456

Phone/fax: 757.421.0929
Mobile: 757.636.8977
E-mail: mrd@emeraldinc.net

August 31, 2005

Butler Construction, Inc.
Attn: Mr. Gregg Gerlich
1540 Genessee Street
Kansas City, MO 64102

RE: WalMart Warehouse Expansion, James City County, Virginia. BMP Pond Wetland seeding

Dear Mr. Gerlich,

This correspondence is in response to our recent onsite meeting regarding the seeding of the BMP Ponds at the above referenced project site. This inspection took place on Monday August 29, 2005.

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FROM : Swampcat

FAX NO. : 757 421 0929

Aug. 31 2005 12:37PM P3

Butler Construction, Inc.
August 31, 2005
Page two

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Should you have any questions or require any additional information please feel free to contact me at the numbers listed.

Sincerely,



Peter D. McClintock
President

Scott Thomas

From: Scott Thomas
Sent: Wednesday, September 21, 2005 11:03 AM
To: 'Paul.Holt@phra.com'
Cc: Michael Majdeski
Subject: Wal-Mart Phase III (BMP Asbuilts)

As requested, here is the *James City County Environmental Division, Stormwater Management/BMP Facilities, Record Drawing and Construction Certification, Standard Forms & Instructions* packet. The files are in .pdf format. The first file is the cover, the second is the main body of the information. Pages 1, 2 and 3 need completed and sent in with record drawings for each BMP. The checklists in Parts I, II, III and X outline specific information to be shown on the asbuilts.

As discussed, due to the size and magnitude of the basins, I'll be quite flexible in adherence to the checklist, as long as the basic information is presented (spot elevations on pond bottoms, side slopes and top of dam, contours to show configuration, normal pool elevations, structure and emergency spillway information, etc.)

To make it easier for you, here is information you will need on the packet forms, including County BMP ID code numbers. Although the plans label the basins as Detention Basins, all the ponds on the Phase III site are County type A-3 Wet Extended Detention Basins.

BMP ID #	Plan No.	Basin Name	Location-Description
SC 019	SP-88-04	Detention Pond E	Larger pond situated at the southwest corner of site.
SC 020	SP-88-04	Detention Pond F	Smaller pond situated to the west of main warehouse near access road.
SC 021	SP-88-04	Detention Pond G	Larger pond centrally located to the south of main trailer parking area.
SC 022	SP-88-04	Detention Pond H	Larger pond situated on the east side and south of main trailer parking area.
SC 023	SP-88-04	Detention Pond I	Smaller pond situated at the southeast corner of site.
SC 024	SP-88-04	Detention Pond J	Smaller pond situated to the east of the associate parking area.

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

LETTER OF TRANSMITTAL

GLOVER CONSTRUCTION COMPANY, INC.
 P.O. Box 40 - Hwy. 301 North & NC 48 East
 PLEASANT HILL, NORTH CAROLINA 27866

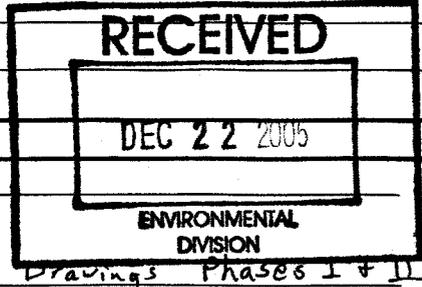
Phone (252) 536-2660

Fax (252) 536-4600

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

T
 O 101 Mounts Bay Road; P.O. Box 8784
 Williamsburg, VA 23187-8784

JOB NO. S.C.C. Wal-Mart	DATE Tues. 12-20-05
ATTENTION Scott Thomas	
RE: Pond As-Builts	



WE ARE SENDING YOU

the following:

- | | | | |
|--|---|---|---|
| <input type="checkbox"/> Attached | <input type="checkbox"/> Under separate cover via _____ | | |
| <input type="checkbox"/> Shop Drawings | <input type="checkbox"/> Specifications | <input type="checkbox"/> Copy of letter | <input type="checkbox"/> Change order |
| <input checked="" type="checkbox"/> Prints | <input type="checkbox"/> Plans | <input type="checkbox"/> Samples | <input checked="" type="checkbox"/> As-Built Drawings Phases I + II |

COPIES	DATE	NUMBER	DESCRIPTION

THESE TRANSMISSIONS ARE:

- | | | |
|---|---|--|
| <input type="checkbox"/> For your approval | <input type="checkbox"/> Approved as submitted | <input type="checkbox"/> Resubmit with _____ copies for approval |
| <input type="checkbox"/> For your use | <input type="checkbox"/> Approved as noted | <input type="checkbox"/> Submit _____ copies for distribution |
| <input checked="" type="checkbox"/> As per your request | <input type="checkbox"/> Corrections noted | <input type="checkbox"/> Return _____ corrected prints |
| <input type="checkbox"/> For your review and comment(s) | <input type="checkbox"/> _____ | |
| <input type="checkbox"/> FOR BIDS DUE _____ 19 _____ | <input type="checkbox"/> PRINTS RETURNED AFTER LOAN TO US | |

REMARKS:

Enclosed are the as-built pond drawings for Phases I + II with actual field shots, shown in red, which were taken after dams and structures were cleaned up per your request. I have spoken with Scott Deese of McCallum and have been informed that you are trying to obtain some test results (compaction, etc.) from Wal-Mart for tests taken on the dams, etc. Unfortunately, I do not have any other information to share with you. I hope Wal-Mart will cooperate.

Also, the Phase III certified drawings and mylars should be here any day.

Thanks for all your help.

COPY TO: Scott Deese of McCallum

SIGNATURE: Ed Make

File: Wal-Mart PH 3
SP-88-04

Scott Thomas

From: Scott Thomas
Sent: Tuesday, October 12, 2004 10:45 AM
To: 'Hassell, Perry N.'; Emerson, Jim D.; 'Joseph.Loethen@wal-mart.com'
Cc: Matthew Arcieri; Joe Buchite; William A. Cain
Subject: RE: James City County,VA

Perry

I've received your email and fax with the geotechnical information as previously requested for the ponds on the Wal-Mart Phase III site. This letter is Addendum No. 2 as forwarded by Schnabel and dated October 8th 2004 (Project # 04131087). I also talked in brief with James this morning at the Wal-Mart Phase III preconstruction meeting.

The letter satisfies what we were looking for to address the previous comment. The geotechnical addendum No. by Schnabel seems to indicate that there is no concern with the ponds ability to hold water in accordance with County type A-3 requirements.

However, I am a bit concerned with paragraphs 4 and 5 of the report which indicate the possibility of encountering poorly graded sand (SP) and poorly graded sand with silt (SP-SM) material. The geotechnical letter indicates the presence of these soils on the site, well away from the basins, but the consultant is reserving the possibility that they may be encountered in basin excavations and give specific recommendations as to what to do if these highly permeable soils are encountered in basin construction (ie. undercutting and liner placement).

My concern is that this information/recommendation is not reflected on the plans and would be just hidden in this geotechnical addendum. It is unclear what mechanism is in place to ensure the contractor perform the recommendations of this addendum, should the poorly graded sands be encountered during basin construction.

I believe the final plan should have a note on the basin construction/detail sheet which refers to the geotechnical investigation (and Addendum No. 2) as prepared by Schnabel. At least then there is a link between the construction plan and this report/addendum.

Therefore, this will also be a comment for final site plan approval from our Division, in addition to the others as outlined in my email dated October 7, 2004.

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

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

-----Original Message-----

From: Hassell, Perry N. [mailto:HassellPN@c-b.com]
Sent: Monday, October 11, 2004 9:55 AM
To: Scott Thomas
Cc: Dalferes, Thomas E.; Emerson, Jim D.
Subject: FW: James City County,VA

Scott,

Attached is a letter from the geotechnical engineer outlining the ability of the ponds to sustain a permanent pool, consistent with the requirements of James City County Type A-3 Wet Extended Detention Ponds. I will also fax you a copy of the letter. Please call me at (817)222-8619, or respond to the e-mail, if you have any questions or require further information regarding this issue. Thank you.

-----Original Message-----

From: Ed Drahos [mailto:EDRAHOS@schnabel-eng.com]
Sent: Friday, October 08, 2004 2:38 PM
To: Hassell, Perry N.
Subject: James City County, VA

Perry,
Here's the letter we discussed. Call me if you have any questions. Thanks Ed

Edward G. Drahos, P.E.
Schnabel Engineering South, LLC
One West Cary Street
Richmond, VA 23220
Phone: 804-649-7035
Fax: 804-783-8023
Email: edrahos@schnabel-eng.com

<<04131087 Report Addendum No. 2.pdf>>

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October 8, 2004

Mr. Bryant Huckabay
Carter & Burgess, Inc.
777 Main Street, 29th Floor
Fort Worth, Texas 76102

Subject: Project 04131087, Report Addendum No. 2, Geotechnical
Engineering Study, Storm Water Management Ponds, Warehouse
and Support Facilities, Blow Flats Road, James City County,
Virginia

Dear Mr. Huckabay:

We are pleased to submit two copies of Addendum No. 2 for this project. This addendum has been prepared at the request of Mr. Perry Hassell of your firm as a follow up to our final geotechnical report for this project dated August 4, 2004. We understand the storm water management ponds will have bottom grades at El 31 and that the water depth will be 3 ft. Mr. Hassell has asked our opinion as to whether the ponds will retain water.

We have reviewed the logs of Borings B-62, B-63, B-64 and B-68 that are located in potential pond areas. The borings indicate soils in the bottom and along the sides of the ponds will mostly be fat clay (CH) or lean clay (CL) with layers of clayey sand (SC) and silty sand (SM) per ASTM D-2487. Our soil laboratory tests for these materials indicate between 26.9% and 84.7% silt and clay fines. With this amount of fines in the soils, we would anticipate that the ponds would be able to hold water.

We also performed infiltration tests in four borings drilled in the pond areas for our geotechnical feasibility (preliminary) report dated November 26, 2003. These tests indicated infiltration rates between 0.125 and 0.250 inches per hour, and that these area were not suitable for development as infiltration basins because infiltration rates were too low. This is another indication that the ponds would be able to retain water.

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Geotechnical • Construction Monitoring • Dam Engineering • Geoscience • Environmental

Please note that Borings B-65 and B-67 in our final geotechnical report indicated high permeability soils classified as poorly graded sand (SP) or poorly graded sand with silt (SP-SM) below about El 31 to 32. The area of these borings is located about 500 to 1000 ft south of the proposed ponds and these poorly graded soils are believed to represent a different geologic deposit. These poorly graded sands would not be expected to retain water. However, based on the data in the remaining 66 borings drilled on this site, we believe the chances are low that the poorly graded sands will be encountered in the pond areas.

If the poorly graded sands are encountered in the pond excavations, we recommend creating a low permeability liner by undercutting these materials at least 18 inches and backfilling the undercut areas with soils classifying CH or CL per ASTM D-2487. The backfill should be placed and compacted according to the project specifications for compacted structural fill below buildings and pavements. The liner would only be needed where the poorly graded sands are encountered.

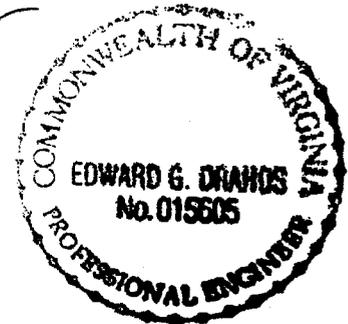
We have endeavored to complete the services identified herein in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions as this project. No other representation, express or implied, is included or intended, and no warranty or guarantee is included or intended in this report, or any other instrument of service.

We appreciate the opportunity to be of service for this project. Please call us if you have any questions regarding this report.

Very truly yours,
SCHNABEL ENGINEERING SOUTH, LLC

Edward G. Drahos

Edward G. Drahos, P.E.
Principal



EGD:vw



One West Cary Street
Richmond, VA 23220

Phone (804) 649-7035
Fax (804) 783-8023
www.schnabel-eng.com

October 8, 2004

Mr. Bryant Huckabay
Carter & Burgess, Inc.
777 Main Street, 29th Floor
Fort Worth, Texas 76102

Subject: Project 04131087, Report Addendum No. 2, Geotechnical
Engineering Study, Storm Water Management Ponds, Warehouse
and Support Facilities, Blow Flats Road, James City County,
Virginia

Dear Mr. Huckabay:

We are pleased to submit two copies of Addendum No. 2 for this project. This addendum has been prepared at the request of Mr. Perry Hassell of your firm as a follow up to our final geotechnical report for this project dated August 4, 2004. We understand the storm water management ponds will have bottom grades at El 31 and that the water depth will be 3 ft. Mr. Hassell has asked our opinion as to whether the ponds will retain water.

We have reviewed the logs of Borings B-62, B-63, B-64 and B-68 that are located in potential pond areas. The borings indicate soils in the bottom and along the sides of the ponds will mostly be fat clay (CH) or lean clay (CL) with layers of clayey sand (SC) and silty sand (SM) per ASTM D-2487. Our soil laboratory tests for these materials indicate between 26.9% and 84.7% silt and clay fines. With this amount of fines in the soils, we would anticipate that the ponds would be able to hold water.

We also performed infiltration tests in four borings drilled in the pond areas for our geotechnical feasibility (preliminary) report dated November 26, 2003. These tests indicated infiltration rates between 0.125 and 0.250 inches per hour, and that these area were not suitable for development as infiltration basins because infiltration rates were too low. This is another indication that the ponds would be able to retain water.

"We are committed to serving our clients by exceeding their expectations."

Geotechnical • Construction Monitoring • Dam Engineering • Geoscience • Environmental

Please note that Borings B-65 and B-67 in our final geotechnical report indicated high permeability soils classified as poorly graded sand (SP) or poorly graded sand with silt (SP-SM) below about El 31 to 32. The area of these borings is located about 500 to 1000 ft south of the proposed ponds and these poorly graded soils are believed to represent a different geologic deposit. These poorly graded sands would not be expected to retain water. However, based on the data in the remaining 66 borings drilled on this site, we believe the chances are low that the poorly graded sands will be encountered in the pond areas.

If the poorly graded sands are encountered in the pond excavations, we recommend creating a low permeability liner by undercutting these materials at least 18 inches and backfilling the undercut areas with soils classifying CH or CL per ASTM D-2487. The backfill should be placed and compacted according to the project specifications for compacted structural fill below buildings and pavements. The liner would only be needed where the poorly graded sands are encountered.

PLANS?

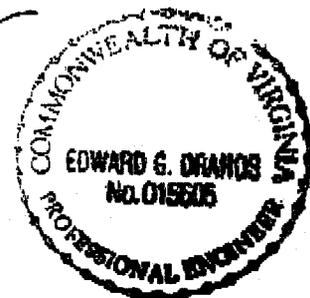
We have endeavored to complete the services identified herein in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions as this project. No other representation, express or implied, is included or intended, and no warranty or guarantee is included or intended in this report, or any other instrument of service.

We appreciate the opportunity to be of service for this project. Please call us if you have any questions regarding this report.

Very truly yours,
SCHNABEL ENGINEERING SOUTH, LLC

Edward G. Drahos

Edward G. Drahos, P.E.
Principal



EGD:vw

Carter & Burgess

777 Main Street
Fort Worth, Texas 76102
P.O. Box 901058
Fort Worth, Texas 76101-2058
Phone: 817.222.8500
Fax: 817.222.8550
www.c-b.com

FAX TRANSMITTAL

PROJECT: Wal-Mart BSF 6088 Phase III

PROJECT NO: 292245.020

TO: Scott Thomas

FAX: (757) 259-4032

FROM: Perry Hassell

DATE: 10/11/04

C&B Telephone Number (817) 222-8500

C&B Fax Number: (817) 222-8550

Total number of pages transmitted, including this page 3

REMARKS: _____

PREVIOUSLY SCANNED DOCUMENTS:

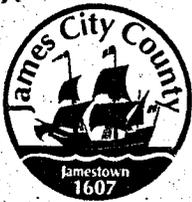
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SPECIAL INSTRUCTIONS:

T	Copy as indicated below		Copy as attached		Return Originals to Sender		Mail Original to Address
---	-------------------------	--	------------------	--	----------------------------	--	--------------------------

cc: Correspondence

Document2



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

May 15, 2002

Mr. Ed Martin
 Glover Construction
 P.O. Box 40
 Pleasant Hill, NC 27866

Re: Wal-Mart Bulk Storage Facility # 88
 Green Mount Industrial Park, US Route 60
 Phase I (County Plan No. SP-45-00)
 Phase II Expansion (County Plan No. SP-24-01, amended SP-81-01)

Dear Mr. Martin:

At your request, the Environmental Division has identified items which pertain to release or reduction of erosion and sediment control bond being held for the above referenced projects.

Record Drawings and Construction Certifications:

Note # 18 of the Erosion and Sediment Control Notes on Sheet C5.01 of the approved plan for Phase I required as-built drawings and construction certification for BMP facilities following completion. The note on the approved plan is as follows:

"As-built drawings must be provided for all detention/BMP facilities. Also upon completion, the construction of all detention/BMP facilities shall be certified by a professional engineer who inspected the structure during construction. The certification shall state that to the best of his/her judgement, knowledge and belief, the structure was constructed in accordance with the approval plans and specifications".

Note # 18 on Sheet C-10 of the Phase II expansion plan also relayed this same information. In Phase II, Pond D was expanded in size to service additional impervious area associated with the building and parking lot expansion. Therefore, record drawings (as-builts) would need to reflect expansion of the Pond D. To date, no record drawings or construction certifications have been received for any of the BMP facilities at the site.

There are five (5) identified pond cells around the perimeter of the Phase I Wal-Mart Bulk Storage Facility # 88 and the Phase II expansion site. The wet extended detention ponds are further identified as Ponds A, B-1, B-2, C and D. Although there are five pond cells, two of the ponds, A and B-2 are interconnected to the larger Pond B-1. Interconnected cells will also require record drawings (as-builts) and construction certification, as necessary.

The following matrix provides useful information relative to the onsite BMP's. This will aid in proper submission, review and approval of certification information.

BMP Facility	Location	Assigned County BMP ID Code
Detention Pond B-1	Large pond, NW corner of site.	SC 009
Detention Pond B-2	West part of site, interconnected to Pond B-1.	SC 010
Detention Pond A	SW corner of site, interconnected to Pond B-2.	SC 011
Detention Pond C	North-central part of site, next to parking lot.	SC 012
Detention Pond D	NE and SE corners of site.	SC 013

To aid in the understanding current requirements for submission of record drawings (as-builts) and construction certifications, I have attached the following information packet entitled *James City County, Environmental Division, Stormwater Management/BMP Facilities, Record Drawing and Construction Certification, Standard Forms and Instructions*. Each facility will require proper information and documentation including fully completed forms from the packet, record drawing(s) and a construction certification using the assigned County BMP ID Code number.

Once information as such is received, our division can proceed with a final (detailed) field inspection of each of the BMP facilities. A final field inspection will determine if any construction-related items are necessary for BMP completion. It is our normal process to not proceed with final inspection of stormwater management facilities until such time as the record drawings are received, reviewed and compared for consistency to approved design plan requirements.

(Note: One issue that will need to be addressed upon final inspection of the onsite BMPs is the condition of wetland plantings and the landscaping plan associated with Detention Pond B-1. This is the largest of the ponds situated in the front of the site closest to Route 60. Sheets C9.01 and C9.02 of approved Phase I plan SP-45-00 called for three zones of wetland plants to be incorporated into this pond. Based on our monitoring efforts since the pond was constructed and our more recent site inspections, wetland plantings at this cell are considerably deficient, mainly due to geese activity and other circumstances. In order to meet the County 10 point system requirements for stormwater management, this facility was intended be a County type A-3 wet extended detention pond facility. Normally, wet extended detention facilities are required to have permanent pools ranging from 3 to 8 feet in depth. As site earthwork and other design constraints prohibited use of a deeper permanent pool, a shallower permanent was allowed by the Environmental Division with the understanding that the facility would be supplemented with wetland plantings for water quality purposes. The current condition of wetland vegetation for this pond would not appear to meet approved stormwater management plan requirements for the site or guidelines of the County BMP manual. Alternatives for replanting based on approved specifications, a modified planting plan which is more adaptable to current conditions or modification of the pond with a deeper pool should be investigated.)

Site - Related Issues:

Phase I (SP-45-00)

1. The eastern shoulder of the paved entrance road between Route 60 and the cul-de-sac requires stabilization. Use of stone is preferred as trucks are heavily utilizing this area for off-road parking.
2. The eastern most temporary slope drain (TSD) on Detention Pond C is still in place. It appears the slope drain is adequately protecting the slope from concentrated runoff; therefore, the pipe can be left in place as a permanent stormwater conveyance. However, if left in place, the outfall end of the slope drain will require riprap outlet protection.
3. Two temporary slope drains along the northern most part of Pond D are still in place. Again, it appears the slope drains are adequately protecting the slope from concentrated runoff; therefore, the pipes can be left in place as permanent stormwater conveyances. However, if left in place the outfall ends of each of the slope drains will require riprap outlet protection.

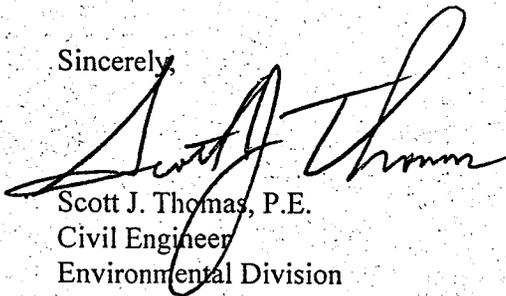
Phase II Expansion Site (SP-24-01)

4. Bare soil areas in regraded portions of the emergency spillway for Detention Pond C requires stabilization with seed and mulch or matting.
5. The location of the construction entrance in the back portion of the expansion project (ie. over the gas pipeline) requires stabilization with seed and mulch.

Certification materials and any construction-related items that may be necessary for the onsite BMP facilities when final inspections are performed will remain associated with bond being held for the Phase I portion of the site. Therefore, it appears that upon completion of the site-related issues for Phase II as outlined above, the Phase II bond can be substantially reduced or released in full.

Please contact me at 757-253-6639 or the assigned Environmental Division inspector, Mike Woolson, at 757-253-6823 if you have any further comments or questions.

Sincerely,



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

From: Ron Harris [reharris@ci.newport-news.va.us]
Sent: Friday, April 21, 2000 2:07 PM
To: scottt@james-city.va.us
Cc: dave m (E-mail); eddie harrah (E-mail); eml (E-mail); brian ramaley (E-mail)
Subject: Wal-Mart site development

Scott Thomas:

I received your fax and appreciate the efforts of JCC to work with us and the Wal-Mart team to find and achieve the appropriate level of stormwater treatment for this drinking water basin.

Your comments dated April 5, 2000 were both fair and appropriate in our view and we would encourage JCC to pursue these as requirements in issuing permits for this site.

As we discussed by phone on Wednesday, I have prepared the following comments. I realize that it may be too late in the design process to expect action on some of our recommendations. Nevertheless, they are points we need to make. My comments/concerns are listed in order of relative importance to Waterworks.

Sequence of Construction

We concur with the County's position that temporary sediment basins and control structures must be in place and functioning prior to removal of topsoil, clearing, and grubbing, etc for warehouse or parking pad areas. Basin X-6 will need special attention, perhaps diversion into basins during construction.

Water Quality BMP's

Protection of a drinking water reservoir and Skiffes Creek estuary should be the primary design goals of the stormwater management plan. We concur with JCC's comments in both the April 5 and March 20 memo from the Environmental Division. We believe the recommendations are appropriate and permits for Land Disturbance should not be issued until the contract drawings contain the recommended changes. In addition to your review we would like to provide these additional comments.

The primary pollutant requiring treatment for a large paving, traffic, and parking site such as this is Oil and Grease (or Total Petroleum Hydrocarbons, TPH). It is unclear why there are no BMP's, materials, or design elements that attenuate or treat these contaminants. Oil water separators and/or use of alternate pond bottom materials are effective techniques to capture or sorb these contaminants. The existing shallow system without an elevation change will collect and concentrate lighter than water liquids, passing them directly to the receiving stream. Other industrial facilities located within the watersheds of our drinking water reservoirs have provided treatment for Oil and Grease.

do not permit bulk fuel storage within the Watersheds. Limiting the amount of fuel stored and maintaining all temporary containment structures on site by contractors is highly recommended.

Although the total storage volume provided by the ponds may meet JCC criteria of 2" per impervious acre, the specific design (volume) of these ponds does not meet typical wet detention or extended wet detention standards. Typical methods (AWWA, Effective Watershed Management and BMP Handbook for Occoquan Watershed) for water quality treatment require the ratio of (Basin normal pool volume / Mean storm runoff volume) to be in the range of 3 to 5 for effective pollutant removal. Using this method approximately 1,870,176 cf of permanent pool is needed. The approximate pool volume shown on the drawings totals only 566,250 cf.

More importantly, the layout and design of the ponds is in direct conflict with most of the design requirements of extended detention ponds. Specific examples as follows:

	recommended	Wal-Mart site
length to width ratio	1:1 to 3:1	40:1
forebay features	yes	none
quiescent conditions	must	none
depth	5' to 8'	0.5' to 1'
stilling berms	yes	none
inlet-outlet location (no short circuiting)	yes	potential
peripheral ledge	yes	none
vegetation	highly varied	not described

Our evaluation of the storm water treatment system would not categorize the proposed system as wet or wet extended based on the above deficiencies.

The outlet areas for ponds D, C, and B-1 do not appear to have any velocity control or water quality features. Keeping these areas as natural as possible is desirable as indicated by the limits of construction, however, some protection (or widening) will be needed at the end of these aprons to protect the natural wetlands present.

Inspection

We would like to offer inspections services of our Watershed inspection group and Watershed superintendent. Please notify me of the date that you expect site work to begin. It is possible that we will install turbidity baffles or curtains at strategic locations in the reservoir to add protection during construction.

Again, thank you for the opportunity to work with you on this important project. I look forward to hearing from you soon regarding our concerns. I will fax you a copy of our Reservoir Protection Ordinance today.

Ronald E. Harris, PG..
Chief of Water Resources
Newport News Waterworks

Scott Thomas

From: Scott Thomas
Sent: Tuesday, April 25, 2000 9:27 AM
To: 'reharris@ci.newport-news.va.us'
Cc: Darryl Cook; Paul Holt
Subject: RE: Wal-Mart site development

Ron

In response to the inspection portion of your email dated April 21st, I agree that it would be sound practice for the Newport News Watershed group to install turbidity baffles or curtains below the two identified critical erosion areas which drain toward the reservoir. These controls would provide for secondary protection in addition to implemented onsite measures. These areas are located on the south side of the Skiffes Creek Reservoir approximately 450 ft. and 2200 ft. southeast of US 60 based on 200 scale plan sheet C4.01.

A preconstruction meeting and issuance of the land disturbance permit for the project was held on Tuesday April 18th at 2:00 pm. Early grading approval was granted since all comments pertaining to the site E&SC plan were adequately addressed. As discussed, some minor issues remain for final site plan approval from our division including final grading and landscaping of the onsite BMPs and minor storm drainage issues. As of yesterday April 24th, perimeter E&S controls were being installed by the site contractor including silt fence, a construction entrance and primary E&S structural controls associated with the site including the northern temporary sediment basins, sediment traps/rock check dams and tree protection measures.

I have made the site contractor aware that your division may be installing protection devices directly on the reservoir (booms, baffles, etc.). If any coordination is needed from your end, here are some of the project contacts:

Gerry Lewis, Environmental Division E&SC Inspector 757-253-6672
Steve Perry, Project Manager Total Facility Solutions and Construction
(General Contractor) 919-782-1004
Matt Glover, Glover Construction Co. Inc. (site work contractor)
252-536-2660

We have already discussed and I am aware your position on most of the items based on our 2 telephone conversations. I am sure that as the project proceeds toward final site plan approval we can further discuss these items and work to ensure they are addressed to the greatest extent possible.

Scott J. Thomas
Environmental Division
757-253-6639

-----Original Message-----

From: Ron Harris [mailto:reharris@ci.newport-news.va.us]
Sent: Friday, April 21, 2000 2:07 PM
To: scottt@james-city.va.us
Cc: dave m (E-mail); eddie harrah (E-mail); eml (E-mail); brian ramaley (E-mail)
Subject: Wal-Mart site development

Scott Thomas:

I received your fax and appreciate the efforts of JCC to work with us

the Wal-Mart team to find and achieve the appropriate level of stormwater treatment for this drinking water basin.

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range of 3 to 5 for effective pollutant removal. Using this method approximately 1,870,176 cf of permanent pool is needed. The approximate pool volume shown on the drawings totals only 566,250 cf.

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Ronald E. Harris, PG..
Chief of Water Resources
Newport News Waterworks
757-926-7178



JAMES CITY COUNTY - ENVIRONMENTAL DIVISION

Office Phone: 757-253-6670

Fax Number: 757-259-4032

DATE SENT: 04/20/00

Name: RON HARRIS
 Firm or Company: Newport News Watershed Protection
 Facsimile Number: 757-926-7179
 Number of pages including this transmittal: 17
 From: Scott J. Thomas

James City County
 P O Box 8784
 Williamsburg VA 23187-8784

Comments:

WAL-MART BULK STORAGE FACILITY @ SKIFFES. FYI
1. SWM Report
2. EXSC Report } Excerpts.
3. GEOTECH Report

If you do not receive all pages, call 757-253-6670 as soon as possible

FAX 1 OF 2



SCOTT J. THOMAS, P.E.
 CIVIL ENGINEER

ENVIRONMENTAL DIVISION

101 MOUNTS BAY ROAD, P.O. BOX 8784 (757) 253-6639
 WILLIAMSBURG, VIRGINIA 23187-8784 FAX: (757) 259-4032
 E-MAIL: scottt@james-city.va.us



JAMES CITY COUNTY - ENVIRONMENTAL DIVISION

Office Phone: 757-253-6670

Fax Number: 757-259-4032

DATE SENT: 04/20/00

Name: RON HARRIS
Firm or Company: Newport News Watershed Protection
Facsimile Number: 757-926-7179
Number of pages including this transmittal: 13
From: Scott J. Thomas

James City County
P O Box 8784
Williamsburg VA 23187-8784

Comments:

WALMART BULK STORAGE FACILITY @ SKIFFES. FYI
1. JCC WET EXT. DET POND SCHEMATIC + POINT SYSTEM.
2. JCC Comment History

If you do not receive all pages, call 757-253-6670 as soon as possible

- A. MARCH 20TH (1ST ROUND).
- B. EMAIL MARCH 20TH, STRESSES PROTECTION OF RESERVOIR.
- C. EMAIL APRIL 04TH.
- D. April 5TH (2ND ROUND.) Most current. # 2, # 3 AND # 6 through # 12 are still outstanding & still allow us flexibility in final BMP configuration.

FAX 2 OF 2



SCOTT J. THOMAS, P.E.
CIVIL ENGINEER

ENVIRONMENTAL DIVISION

101 MOUNTS BAY ROAD, P.O. Box 8784 (757) 253-6639
WILLIAMSBURG, VIRGINIA 23187-8784 FAX: (757) 259-4032
E-MAIL: scottt@james-city.va.us

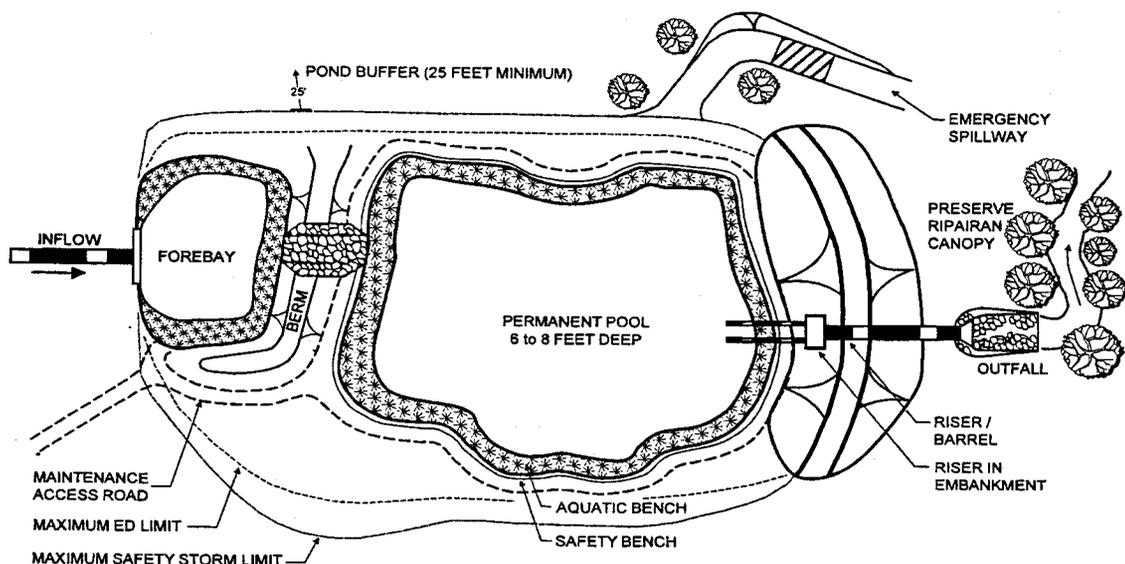
JCC BMP MANUAL

James City County BMP Guidelines

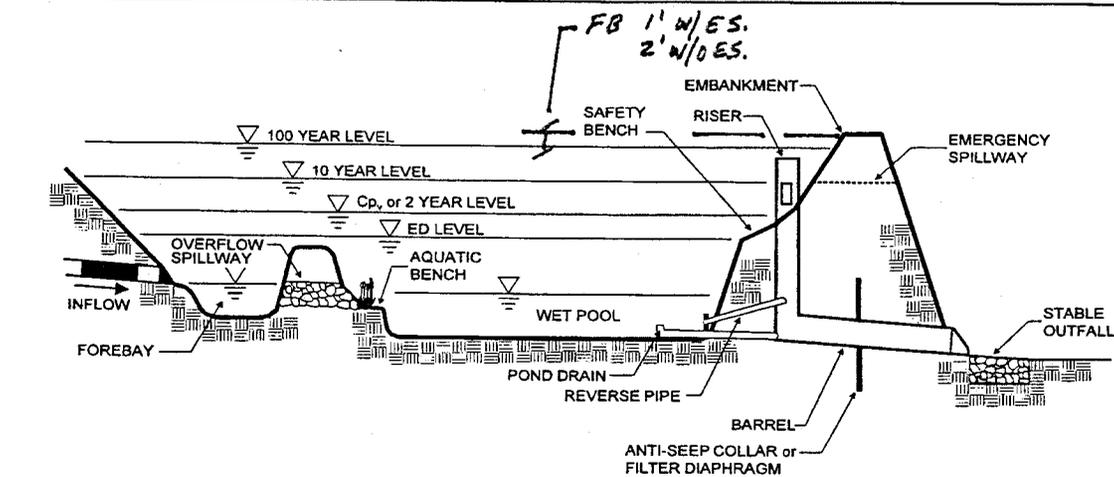
Table 1: BMP Point System for evaluating acceptable water quality BMPs and preservation of open space

BMP	Treatment Volume (WQ _v)	Average Total P Removal Efficiency	Points
A. WET POND			
1. Small Wet Pond	1.5 in / imp acre	40%	6
2. Wet Pond	2.0 in / imp acre	50%	8
3. Wet ED Pond	2.0 in / imp acre	60%	10
B. WETLANDS			
1. Shallow Marsh	1.0 in / imp acre	40%	6
2. ED Shallow Wetland	1.0 in / imp acre	40%	6
3. Pond/Wetland System	1.0 in / imp acre	60%	10
4. Pocket Wetland	1.0 in / imp acre	40%	6
C. INFILTRATION (TRENCH OR BASIN)			
1. Infiltration Trench	0.5 in / imp acre	50%	8
2. Infiltration Trench	1.0 in / imp acre	60%	10
3. Infiltration Basin	0.5 in / imp acre	50%	8
4. Infiltration Basin	1.0 in / imp acre	60%	10
D. FILTERING SYSTEMS			
1. Bioretention	1.0 in / imp acre	50%	8
2. Surface Sand Filter	1.0 in / imp acre	50%	8
3. Underground Sand Filter	1.0 in / imp acre	50%	8
4. Perimeter Sand Filter	1.0 in / imp acre	50%	8
5. Organic Filter	1.0 in / imp acre	50%	8
6. Pocket Sand Filter	1.0 in / imp acre	40%	6
E. OPEN CHANNEL SYSTEMS			
1. Wet Swale (check dams)	1.0 in / imp acre	30%	4
2. Dry Swale	1.0 in / imp acre	60%	10
3. Biofilters	1.0 in / imp acre	30%	4
F. EXTENDED DRY DETENTION			
1. Timber Walls	1.0 in / imp acre	30%	4
2. Dry ED with forebay	1.0 in / imp acre	30%	4
G. OPEN SPACE CONSERVATION EASEMENTS			
1. Accepts and treats stormwater runoff from the development site per design specification	0.15 per 1% of site area		
2. Adjacent to a wetland, mature forest, or RPA	0.15 per 1% of site area		
3. All other open space	0.10 per 1% of site area		

A-3 **Figure 2** Example of a Wet Extended Detention Pond A-3



PLAN VIEW



PROFILE

The wet ED pond provides water quality storage through a combination of permanent pool and extended detention storage.

10 POINTS; 2.0" PER IMPERV. ACRE

Scott Thomas

From: Scott Thomas
Sent: Tuesday, April 04, 2000 10:50 AM
To: 'hassellpn@c-b.com'
Cc: Paul Holt; Darryl Cook; John Horne
Subject: Bulk Storage No. 88

The Environmental Division was in receipt of revised plans and a comment-response letter, reports and correspondence from Carter-Burgess dated March 24th 2000. For Land Disturbance permit issuance, comments 3, 11-19 and 32 - 35 of our March 20th comments (14 of the 43 comments as issued) were required to be addressed for the project. Based on my review, the following 2 items would still remain pertaining to the Land Disturbance permit issue.

1. Previous comment # 3 related to the Wetlands Permit. A copy of a letter dated March 17, 2000 to the U.S. Army Corp. of Engineers, Norfolk District was forwarded requesting coverage under Nationwide Permit No. 26. Evidence that approval has been obtained is required for the project, or alternatively, wetland area avoidance and protection conditions must be attached to an early land disturbance permit issuance if early grading activities are desired prior to issuance of the wetland permit by the USACOE.

2. Previous comment # 14 related to Sequence of Construction (in two parts 2A and 2B).

2a) Refer to placement (installation) of fill diversions and temporary slope drains in the sequence of construction.

2b) The sequence of construction on sheet C5.02 needs revised to clearly show installation (excavation) of temporary sediment basin/Pond C and the northern portion of temporary sediment basin/Pond D in step 5 (rather than just clearing and grubbing). These facilities need installed prior to removal of topsoil and clearing and grubbing for the warehouse pad within predevelopment drainage basin X-6 as shown in steps 6 and 7 of the construction sequence. Currently it is not until step 10 of the sequence that basins C and D are completed and functional. Predeveloped drainage basin X-6 is an extremely large basin (50.5 acres), thus requiring the basins to be installed prior to denuding activities in X-6. The basins need to intercept as much upslope area as possible from existing drainage basin X-6 which will be directly tributary to the identified critical erosion are during clearing and initial grading activities. The rock check dam's function is to handle disturbed area associated with bypass below the basins (approx. 3 acres) once the basins are installed. A rock check dam alone is not capable of handling 50 acres of drainage. Revise the sequence of construction appropriately to clearly show the TSB/Ponds in place early.

Again, these are the 2 remaining issues for the land disturbance permit portion of the project. I am currently preparing the E&SC bond computation for the project as required for performance surety and continuing with the review of all remaining comment-responses pertaining to the stormwater management plan as required for final site plan approval.

I will contact you as soon as possible concerning the adequacy of responses to the rest of the previous comments. Thanks again.

Scott J. Thomas

Scott Thomas

From: Scott Thomas
Sent: Monday, March 20, 2000 3:04 PM
To: 'hassellpn@c-b.com'
Cc: Darryl Cook; Paul Holt
Subject: BMP Selection - Project Ward

Bulk Storage No. 88
James City County, Va.

To: Perry Hassel, Carter-Burgess

In response to our conference call this morning, attached please find the Environmental Division's review comments for the project and further information relative to our discussion about the onsite BMP's.

In reference to our comment relative to BMP/Water Quality Points for the project, the design plan calls for the 5 ponds to have dual 6" x 6" orifices at the pond bottom elevation. Therefore, the facilities appear to function more as dry-type detention facilities rather than shallow marsh or wet extended detention facilities. A dry extended detention facility with a treatment volume of 1.0 inch per impervious acres meets our criteria for an F-2 facility and 4 BMP points instead of 10 BMP points. Providing all the required water quality volume in a uniformly distributed permanent pool (without an extended detention pool) using a treatment volume of 2.0 inch per impervious acre meets our criteria for an A-2 facility which is only 8 BMP points.

In addition, no computations were forwarded for any of the ponds to show required water quality volumes or extended detention storage of the water quality volume for a minimum of 24 hours. Secondly, no computations were forwarded to show 24 hour detention of the the 1-year, 24 hour storm volume to meet our current stream channel protection criteria (THIS IS CURRENTLY REQUIRED FOR ANY POND TYPE BMP SELECTED). In this particular case, stream channel protection is especially important, since subwatersheds from this project drain directly to a managed drinking supply at Skiffes Creek Reservoir (City of Newport News).

In order for the facility as currently presented to meet County criteria for an A-3 facility (wet ext detention), the wet pool and extended detention pools must meet a treatment volume of 2.0 inches per impervious acre. Usually, most designs split the 2.0 inches per acre into 1.0 inch per acre in the permanent pool and 1.0 inch per acre in the extended detention (water quality pool). Typically the permanent pool is 3 to 6 foot deep. An orifice is usually set at or near the permanent pool level and is sized to drawdown the extended detention storage pool over at least 24 hours. For wet pond criteria and other minor design procedure, refer to the JCC BMP Manual page 7, 12 and pages 36 - 41 for an A-3 BMP (wet ED facilities).

As discussed, a feasible BMP selection for the site may be County type B-3 Pond/Wetland BMP's. For these BMPs, a deeper permanent pool is placed before a shallow wetland. This facility is a 10 point BMP and only requires a treatment volume of 1.0 inch per impervious acre within a permanent pool only. No extended detention water quality volume is required, unlike the wet extended A-3 facility which requires 2.0 inch per impervious acres split between the permanent pool and a water quality volume pool. The B-3 system would typically have a wet pool with overflow to a low marsh & high marsh area to a micro permanent pool at the riser structure. The "catch" to get the 10 points as compared to typical wet ponds is the need for wetlands type plants in the lo-high marshes and planting zones and use of micropools. Other design requirements would include submittal of a water balance, micropool grading concept and more detailed landscaping criteria (pondscaping). For wetland category criteria and other minor design procedure, refer to the JCC BMP Manual page 7, 16 and pages 42 - 44 for a B-3 BMP.

In my opinion, a pond/wetland category BMP is a feasible selection to provide for water quality control and pollutant removal capabilities associated with the large amount of impervious area associated with the site and its proximity to the reservoir. However, due to the large surface area associated with the 5 ponds, a BMP system which does not maintain a shallow permanent pool (6 inch) to the greatest extent possible but still achieves the required 10 BMP points is probably a good idea to minimize potential mosquito habitat and its potential impact on the transient nature (waiting, loading and unloading) associated with a regional warehouse operation.

To ensure you get the attached file, I will also forward a hard copy of this transmittal via fax if you could respond to me ASAP with your fax number. Call me or Darryl Cook if you have any additional questions or comments. My direct phone number is 757-253-6639. Darryl's number is 757-253-6673.

(Note: Attachment file ProjWard.0 is in Wordperfect 9.0 format.)

Scott J. Thomas



ProjWard.0.wpd



WAL★MART *realty*

Distribution Center Construction Program

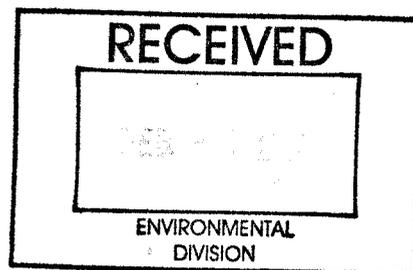
WAL-MART STORES, INC. ★ 2001 SE 10TH STREET, Dept 9562★BENTONVILLE, AR 72716-0550★
Phone 479-273-4000 ★Fax 479-273-1964

January 31, 2006

Attn: Scott Thomas
James City County Environmental Division
101 Mounts Bay Road
Williamsburg, VA 23185

Subj: Professional Certification

Ref: Wal-Mart BSF # 6088-03



Dear Scott,

Please find attached the original stamped Professional Certification for the Stormwater Management / BMP Facilities. I think that this is the last thing we were waiting on to satisfy the requires for release of the bond for the Phase III project.

Please let me know if we have any other outstanding issues. We still have Cindi Pelli on site and in the area, representing Wal-Mart Construction. You may contact her or me at anytime. I am at (479) 903-2468 and Cindi is at (479) 644-9504.

Thanks for all you help and consideration through out the project.

Sincerely,

Bobbie Brown
Wal-Mart Construction Manager

*Wal-Mart
PH 3
SP-88-04
(SC 019-50024)*

Soils Information:
Soil Survey Sheet
28/32

Site: 29B, 1, 11C, 15F, 19B
DA: SAME
BMP: 29B, 1

Hydric: Yes No
HSG: C
Hydric: Yes No

Description of Soils at Site / DA / BMP: Alhambra fine sandy loam, slight fine sandy loam 2-6%. ERIS SLIGHT, POND'S MOD. SEEPAGE, PERM. MOD TO MOD SLOW; AVSEAS HWT, SCALE HIGH PERCH WT. (LIMITS SHWT + SLOW)

BMP Control:
BMP Types:

None Onsite Offsite Previous Approved MOD PERM.
1- Name: 5 WET EXT DET. (JCC BMP Type A - 3), Points 10
2- Name: _____ (JCC BMP Type _____), Points _____

OnSite Drainage Type:

Reinforced Concrete Pipe Corrugated Metal Pipe Aluminum Type Pipe
 Corrugated Polyethylene Pipe PVC Type Pipe Open Channel Type
 Culverts Type: _____
 Other (Specify): SPECIAL INLET FLUMES
1. VDOT Standards & Specifications Referenced for work within R/W: Yes No
2. VDOT Standards & Specifications Referenced for work outside R/W: Yes No

Site Limitations:

RPA RMA Steep Slopes Delineated Wetlands
 Hydric Soils Critical Soils Vegetated Buffers
 Defined Natural Drainage Features onsite Downstream Storm/Culv.
 Evidence of Downstream Channel Erosion (by Field Observation) _____
 Floodplain or Problem Drainage Area Stormwater Hotspot
 Other (Specify): D/S WATER SUPPLY RESERV.

Site Stormwater Management / BMP Control (Add sheets if necessary for multiple facilities):

<input type="checkbox"/> Yes <input type="checkbox"/> No (#1 / #2)	#1	#2
	<u>A</u>	<u>A</u>
Predev (Present)	DA = <u>83.3</u> ac. C/CN = <u>74</u>	Tc = <u>45</u> min / hrs.
2-year		cfs
10-year		cfs
100-year		cfs
PostDev w/o Detention	DA = / ac. C/CN = /	Tc = / min / hrs.
2-year		<u>36.66</u> cfs
10-year		<u>75.30</u> cfs
100-year		<u>107.93</u> cfs
PostDev w/ Detention	DA = / ac. C/CN = /	Tc = / min / hrs.
2-year	<u>47.31</u> cfs at El. <u>47.31</u>	<u>2.91</u> cfs at El. <u>47.31</u>
10-year	cfs at El. <u>48.29</u>	<u>9.86</u> cfs at El. <u>48.29</u>
100-year	cfs at El. <u>49.19</u>	<u>12.28</u> cfs at El. <u>49.19</u>

Downstream Tailwater Assumption for Pond Routing: CRIT. DEPTH, NOT A PROBLEM HERE.
Routed Peak Discharges (Outflows) from BMP - 1 meets Predevelopment Allowables: Yes No
Routed Peak Discharges (Outflows) from BMP - 2 meets Predevelopment Allowables: Yes No
Appears to Meet VESCH / E&SC Ordinance / CBP Ordinance Requirements: Yes No

Soils Information:
Soil Survey Sheet

Site: _____ Hydric: Yes No
 DA: _____ HSG: _____
 BMP: _____ Hydric: Yes No
 Description of Soils at Site / DA / BMP: _____

BMP Control:
BMP Types:

None Onsite Offsite Previous Approved
 1- Name: _____ (JCC BMP Type _____ - _____), Points _____
 2- Name: _____ (JCC BMP Type _____ - _____), Points _____

OnSite Drainage Type:

Reinforced Concrete Pipe Corrugated Metal Pipe Aluminum Type Pipe
 Corrugated Polyethylene Pipe PVC Type Pipe Open Channel Type
 Culverts Type: _____
 Other (Specify): _____

1. VDOT Standards & Specifications Referenced for work within R/W: Yes No
 2. VDOT Standards & Specifications Referenced for work outside R/W: Yes No

Site Limitations:

RPA RMA Steep Slopes Delineated Wetlands
 Hydric Soils Critical Soils Vegetated Buffers
 Defined Natural Drainage Features onsite Downstream Storm/Culv.
 Evidence of Downstream Channel Erosion (by Field Observation) _____
 Floodplain or Problem Drainage Area Stormwater Hotspot
 Other (Specify): _____

Site Stormwater Management / BMP Control (Add sheets if necessary for multiple facilities):

<input type="checkbox"/> Yes <input type="checkbox"/> No (#1 / #2)	#1	#2
Predev (Present)	DA = / ac. C/CN = /	Tc = / min / hrs.
2-year	cfs	cfs
10-year	cfs	cfs
100-year	cfs	cfs
PostDev w/o Detention	DA = / ac. C/CN = /	Tc = / min / hrs.
2-year	100.21 cfs	64.66 cfs
10-year	172.63 cfs	109.89 cfs
100-year	224.12 cfs	142.05 cfs
PostDev w/ Detention	DA = / ac. C/CN = /	Tc = / min / hrs.
2-year	2.11 cfs at El. 47.26	4.43 cfs at El. 47.31 47.31
10-year	10.13 cfs at El. 47.94	11.65 cfs at El. 48.25
100-year	10.58 cfs at El. 48.67	13.09 cfs at El. 49.03

Downstream Tailwater Assumption for Pond Routing: NOT A PROBLEM HERE.

Routed Peak Discharges (Outflows) from BMP - 1 meets Predevelopment Allowables: Yes No
 Routed Peak Discharges (Outflows) from BMP - 2 meets Predevelopment Allowables: Yes No
 Appears to Meet VESCH / E&SC Ordinance / CBP Ordinance Requirements: Yes No

Soils Information:
Soil Survey Sheet

Site: _____
DA: _____
BMP: _____
Description of Soils at Site / DA / BMP: _____

Hydric: Yes No
HSG: _____
Hydric: Yes No

BMP Control:
BMP Types:

None Onsite Offsite Previous Approved
1- Name: _____ (JCC BMP Type _____), Points _____
2- Name: _____ (JCC BMP Type _____), Points _____

OnSite Drainage Type:

Reinforced Concrete Pipe Corrugated Metal Pipe Aluminum Type Pipe
 Corrugated Polyethylene Pipe PVC Type Pipe Open Channel Type
 Culverts Type: _____
 Other (Specify): _____

1. VDOT Standards & Specifications Referenced for work within R/W: Yes No
2. VDOT Standards & Specifications Referenced for work outside R/W: Yes No

Site Limitations:

RPA RMA Steep Slopes Delineated Wetlands
 Hydric Soils Critical Soils Vegetated Buffers
 Defined Natural Drainage Features onsite Downstream Storm/Culv.
 Evidence of Downstream Channel Erosion (by Field Observation) _____
 Floodplain or Problem Drainage Area Stormwater Hotspot
 Other (Specify): _____

Site Stormwater Management / BMP Control (Add sheets if necessary for multiple facilities):

<input type="checkbox"/> Yes <input type="checkbox"/> No (#1 / #2)	#1	#2
	C	D
Predev (Present)	DA = / ac. C/CN = /	Tc = / min / hrs.
2-year		cfs
10-year		cfs
100-year		cfs
PostDev w/o Detention	DA = / ac. C/CN = /	Tc = / min / hrs.
2-year	97.22 cfs	296.45 cfs
10-year	167.59 cfs	523.25 cfs
100-year	223.76 cfs	709.91 cfs
PostDev w/ Detention	DA = / ac. C/CN = /	Tc = / min / hrs.
2-year	1.53 cfs at El. 47.12	12.97 cfs at El. 47.73
10-year	5.03 cfs at El. 47.78	42.96 cfs at El. 48.76
100-year	8.03 cfs at El. 48.31	52.74 cfs at El. 49.62

Downstream Tailwater Assumption for Pond Routing: NOT A PROBLEM HERE.

Routed Peak Discharges (Outflows) from BMP - 1 meets Predevelopment Allowables: Yes No
Routed Peak Discharges (Outflows) from BMP - 2 meets Predevelopment Allowables: Yes No
Appears to Meet VESCH / E&SC Ordinance / CBP Ordinance Requirements: Yes No

Pond / BMP Design Data (Add Sheet If Necessary for Multiple Facilities):

Check if None Provided: BMP # A Type: A-3 WET EXT DET.

Y N

Top of Facility El. 51.0

Design High Water El. 49.19

Emergency Spillway (E.S.) Crest El. 521 ~~521.5~~ BW: ROAD SS: _____

FreeBoard _____ 1 ft. or > with E.S.

Acceptable Not Acceptable. _____ 2 ft. or > w/o E.S.

Principal Spillway (Riser) Crest El. _____ Size/Type: _____

Principal Spillway Crest 1 ft. below crest of emergency spillway. Yes No N/A

Stage-Storage Curve or Data

Outlet Rating Curve or Table (Discharge Structure Rating)

1-year design storm El. 47.04 or Volume _____

1-year, 24 hour detention criteria for stream channel protection. Yes No N/A

Extended Detention Provided (Min. 24 hours) EXSCRAPPO. Yes No N/A

Normal/Permanent Pool El. 46.5

Orifice/Weir #1 (highest El.) El. 46.5 Type: CIRCULAR LINE A-1 ORIF.

Orifice/Weir #2 El. _____ Type: _____

Orifice/Weir #3 El. _____ Type: _____

Orifice/Weir #4 El. _____ Type: _____

Orifice/Weir #5 (lowest El.) El. 46.5 Type: WALL

Low Flow Orifice (ExDet, CPv) El. _____ Type: _____

Pond Drain w/ Valve El. _____ Type: _____

Pond Bottom El. 46.0 Riser Height: _____

Steps or Access Provided (for over 4 ft. depth)

Riser Base Bottom El. _____ Type: _____

Core Trench

Anti-Seep Collars or other acceptable Seepage Control Method. (1)

Principal Spillway Anti-Vortex Device and Trash Rack. Type: _____

Low Flow Orifice Cage-Type Trash Rack. Type: _____

Outlet Barrel: Type/Class: RCP III Size: 24"
 Inv. U/S: 46.5 Inv D/S: 46.0
 Slope: 0.58% Length: 87.33 (ft.)

Flared End Section. Matches Outlet Barrel material type. SLOPING HEADWALL

Outlet Protection.
 Standard riprap outlet protection (OP) Type: _____
 Special Dissipator Structure (SDS) Type: STILLING APRON

Sediment / Cleanout Elevation El. _____ or Depth _____

Adequate Channel Downstream of BMP using MS #19 or 1-year, 24-hour detention criteria.

Sketch and Notes, If Needed: Pretreatment to B11 & B12. TSB.

Sediment Trap & Basins

Temporary Sediment Trap # 1 _____ DA = _____ < 3 acres

Temporary Sediment Trap # 2 _____ DA = _____ < 3 acres

Temporary Sediment Trap # 3 _____ DA = _____ < 3 acres

Temporary Sediment Basin # 1 _____ DA = _____ BMP # _____ convert.

Temporary Sediment Basin # 2 _____ DA = _____ BMP # _____ convert.

Pond / BMP Design Data (Add Sheet If Necessary for Multiple Facilities):

Check if None Provided: BMP # B11 Type: WPT EXT DET A-3

Y N

Top of Facility El. 52.0

Design High Water El. 48.67

Emergency Spillway (E.S.) Crest El. ROAD BW: _____ SS: _____

FreeBoard _____ 1 ft. or > with E.S.

Acceptable Not Acceptable. _____ 2 ft. or > w/o E.S.

Principal Spillway (Riser) Crest El. 46.5 to 48.25 Size/Type: CON BOX

Principal Spillway Crest 1 ft. below crest of emergency spillway. Yes No N/A

Stage-Storage Curve or Data

Outlet Rating Curve or Table (Discharge Structure Rating)

1-year design storm El. 47.01 or Volume _____

1-year, 24 hour detention criteria for stream channel protection. Yes No N/A

Extended Detention Provided (Min. 24 hours) Yes No N/A

Normal/Permanent Pool El. 46.5

Orifice/Weir #1 (highest El.) El. 48.25 Type: OUT. CONTROL STRUCT

Orifice/Weir #2 El. _____ Type: _____

Orifice/Weir #3 El. _____ Type: _____

Orifice/Weir #4 El. _____ Type: _____

Orifice/Weir #5 (lowest El.) El. 46.5 Type: ↓

Low Flow Orifice (ExDet, CPv) El. _____ Type: _____

Pond Drain w/ Valve El. _____ Type: _____

Pond Bottom El. 46.0 Riser Height: 24'

Steps or Access Provided (for over 4 ft. depth)

Riser Base FOOTING Bottom El. _____ Type: _____

Core Trench

Anti-Seep Collars or other acceptable Seepage Control Method.

Principal Spillway Anti-Vortex Device and Trash Rack. Type: SKIMMER ON OUTLET PIPE.

Low Flow Orifice Cage-Type Trash Rack. Type: SKIMMER

Outlet Barrel: Type/Class: KLP CLIII Size: 18"

LINE B-4 Inv. U/S: 46.5 Inv D/S: 45.40

 Slope: 1.17% Length: 93.7 (ft.)

Flared End Section. Matches Outlet Barrel material type.

Outlet Protection.

Standard riprap outlet protection (OP) Type: _____

Special Dissipator Structure (SDS) Type: STILLING APRON

Sediment / Cleanout Elevation El. _____ or Depth _____

Adequate Channel Downstream of BMP using MS #19 or 1-year, 24-hour detention criteria.

Sketch and Notes, If Needed:

OUTFALL CONT. STRUCT. LINE B-4 B1 PON BUT ELEV A ELEV B INV. OUT. PIPE

46 TOP BOTTOM POOL TOP STRUCT

46.5 48.25 46.5 (B-4)

Sediment Trap & Basins

Temporary Sediment Trap # 1 DA = _____ < 3 acres

Temporary Sediment Trap # 2 DA = _____ < 3 acres

Temporary Sediment Trap # 3 DA = _____ < 3 acres

Temporary Sediment Basin # 1 DA = _____ BMP # _____ convert.

Temporary Sediment Basin # 2 DA = _____ BMP # _____ convert.

Plan Review Steps & Components:

- | | | |
|-------------------------------------|--------------------------|---|
| Y | N | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | First "Look-Thru". Quick look through plan for familiarity. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Worksheet for BMP Point System. Check for 10 BMP points. CREDIT FOR OFFSITE AREA. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | FEMA Special Flood Hazard Area check against property, site and development. ZONE A |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Check Tax Parcel Maps for RPA/RMA and parcel location. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Stormwater hotspot, general screening, layout or separation distances (if any) are satisfied. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Environmental Inventory components based on Chesapeake Bay Ordinance requirements. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Highlight environmental sensitive areas (<u>wetlands</u> , <u>RPA</u> , <u>steep slope</u> , etc.). |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Demolition plan (if any) and identification of offsite LD, borrow, waste areas and E&SC. EAST. STRUCT. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review existing topography to determine adequacy of E&SC plan (Phase I). POND C+D |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review grading plan to check for conflicts (offsite grading, cut-fills, slopes,) & Phase II E&SC. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review layout plan to check for conflicts (buildings, parking, buffers, etc.). |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Highlight storm drain system. Check for major utility conflicts and cover situations. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review storm drain system specifications, notes, and details. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review sequence of construction (for E&SC and SWM/BMP plan purposes). |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review plan based on Chapter 19 Subdivision ordinance as it relates to SWM. N/A |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review plan based on Chapter 24 Zoning as it relates to SWM. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review plan based on Chapter 23 Chesapeake Bay ordinance requirements. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review plan based on General Knowledge and Experience for Design/Construction. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review plan based on JCC BMP manual for the BMP type selected for project. A-3 5 TOTAL. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review plan based on JCC Stormwater Conveyance System D/C Guidelines (Future). |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review plan based on Virginia Erosion and Sediment Control Handbook (VESCH). |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review plan based on Virginia Stormwater Management Handbook (VSMH). |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review plan based on Hampton Roads BMP Design Guidance manual (Optional). |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review plan based on MWCOG, Controlling Urban Runoff BMP manual (Optional). MINOR CHECK. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review plan based on standard JCC E&SC and SWM Design Plan Checklists. OLD DET. POND LIST. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review plan based on JCC BMP Construction Specifications (Future). |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review Maintenance Plan for SWM / BMP facility. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review E&SC Plan Design Report and computations (Attachment). |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Review SWM Design Report and computations (Attachment). Hydrology & Hydraulics. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Adequate Channel downstream of both uncontrolled or BMP areas. SITE ENTRANCE V CONTROL. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Adequate function of BMPs used as Temp. Sed. Basins (storage volume, discharge, WSEL). |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Geotechnical. Information per App. E JCC BMP manual or to substantiate use of other BMPs. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Provisions on plan requiring proper As-Built and Certification of facility during construction. C5,01 |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Inclusion of SWM/BMP data into any Departmental databases. APP ONLY. |
| <input type="checkbox"/> | <input type="checkbox"/> | Reserved. |

Prepared Environmental Division comments for the following categories based on above review areas:

- | | | | | | |
|--------------------------|--------------------------|--|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <u>General Comments:</u> | <input type="checkbox"/> | <input type="checkbox"/> | <u>Erosion & Sediment Control Plan:</u> |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>Floodplain:</u> | <input type="checkbox"/> | <input type="checkbox"/> | <u>Chesapeake Bay Preservation:</u> |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>Stormwater Management / Drainage:</u> | | | |

Additional Notes & Comments: ~~DATA COMPS TO SHOW COMPLIANCE WITH 24 HOUR DET. OF 1 YR. 24 HOUR~~
~~stream/channel protection criteria.~~ **Wetlands issue, POND C+D**
SOC; FILL & SLOPE DRAIN SOC; MAINT PLAN FOR BMP;
ADEQUATE CHANNEL @ US 60;

(Note: THIS FORM FOR COUNTY USE ONLY.)

- 1st Rev 2nd Rev 3rd Rev

[Signature] 04-05-00
 Signature Date

[Signature] 06-07-00 ⁻³
[Signature] 06-21-00
[Signature] 07-03-00

WML
BMP FINAL INSPECTIONS

* FIELD-RELATED
ITEM

PH 3

POND E (SC019)

- Need construction certification for pond.
- * Remove silt fence from RPA Buffer Planting Area (between Pond E & G)
- * Remove silt fence from pond barrel outfall area
- Need asbuilt certification

POND G (SC021)

- Need construction certification for pond.
- * Repair slope erosion at slope below Pipe #3. Pipe #3 is the 24" RCP pipe situated the third from the west end of the pond along the gravel access road.
- Need asbuilt certification

POND H (SC022)

- Need construction certification for pond.
- Need sealed asbuilts.
- * Remove silt fence from downstream of 18" barrel pipe thru dam
- * Remove all orange safety fence (tree protection) from west end of dam and barrel outfall.

POND I (SC023)

- Need construction certification for pond.
- Need sealed asbuilts.
- * ~~Construct emergency spillway at southwest corner of dam per approved plan sheets C4.39 and C4.56. CLASS I riprap at elev 37.50. Not needed. Enough Freeboard. AND 100-YR WSEL never gets to riser crest.~~

POND J (SC024)

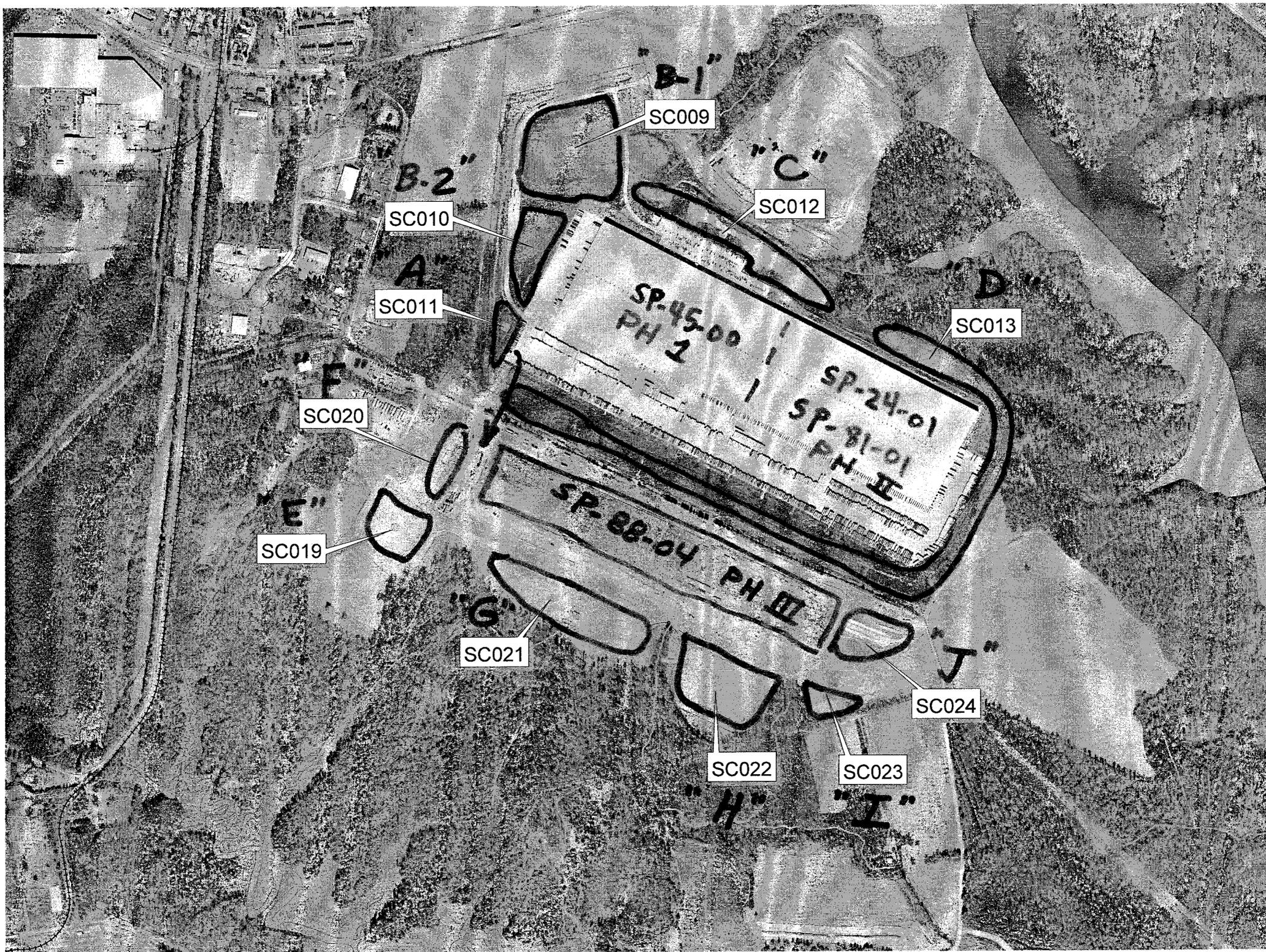
- Need construction cert for pond.
- Need sealed asbuilt. Correct 24" pipe to 42" size on Sheet 5.
- * No field issues to address.

POND F (SC020)

- Need construction cert for pond
- Need sealed asbuilts
- * No field-related items.

This summary serves as a punch-list for BMPs for Walmart PHASE 3.

Anthony Chumma
12-2-05



"B-1"

SC009

"B-2"

SC010

"C"

SC012

"A"

SC011

"D"

SC013

"F"

SC020

SP-45-00
PH I

SP-24-01
SP-81-01
PH II

"E"

SC019

SP-88-04
PH III

"G"

SC021

"J"

SC024

SC022

SC023

"H"

"I"

Construction Experience Of Principal Individuals

Name, Position, Time Employed in Current Position: J. M. Glover, President – 30 Years
Construction Experience, Aggregate Dollar Amount: 47 Years Experience / 400 Million Plus
Classification Of Work: All types of highway construction, landfill construction, airports, water and sewer treatment plants, golf courses, large industrial sites, buildings, dams, bridges, major utility lines. Involved in all phases of construction management, field work, design of alternate construction methods and negotiations.

Name, Position, Time Employed in Current Position: J. Mark Glover, Vice President – 27 Years
Construction Experience, Aggregate Dollar Amount: 32 Years Experience / 300 Million Plus
Classification Of Work: All types of highway construction, landfill construction, airports, water and sewer treatment plants, golf courses, large industrial sites, buildings, dams, bridges, major utility lines. Currently as Vice President, he supervises several projects working closely with all of the superintendents from start to finish on their projects.

Name, Position, Time Employed in Current Position: Matt B. Glover, Vice President – 25 Years
Construction Experience, Aggregate Dollar Amount: 30 Years Experience / 300 Million Plus
Classification Of Work: All types of highway construction, landfill construction, airports, water and sewer treatment plants, golf courses, large industrial sites, buildings, dams, bridges, major utility lines. Has experience in field operations, and served as a field superintendent for three years prior to being placed in charge of office operations. Involved in estimating, project management, contract negotiations, legal matters, company policy, and subcontractor negotiations.

Name Present Position, & Time Employed: Durwood Jeffries, Superintendent-31 Years
Construction Experience, Aggregate Dollar Amount: 40 Years Experience/300 Million Plus
Classification of Work: All phases of highway construction, landfill construction, and mass excavation projects, canal construction, dredging, mining operations, golf courses, large industrial sites, buildings, dams, bridges, major utility lines, has experience in field operations, and served as a field superintendent for the past twenty five years after coming to work as a highly talented equipment operator and drainage expert.

Name Present Position, & Time Employed: Wayne Clements, Superintendent-19 Years
Construction Experience, Aggregate Dollar Amount: 18 Years Construction Experience 5 Years Logging Experience/150 Million Plus
Classification of Work: Several Large highway projects, landfill construction, very large utility relocation projects involving deep lines and pile supported encasement pipes, and airport construction. Superintendent for the past 16 years and has been instrumental in the successful completion of several fast track projects.

Name Present Position & Time Employed: **Jerry Walski, Superintendent-19 Years**
Construction Experience, Aggregate Dollar Amount: **24 years Experience/200 Million Plus**
Classification of Work: **All types of highway construction, landfill construction, airports, water and sewer treatment plants, golf courses, large industrial sites, buildings, dams, bridges, major utility lines. Superintendent for the past 16 years and prior to that he was a self employed concrete contractor.**

Name Present Position & Time Employed: **Ed Martin, Chief Engineer/Estimator-17 Years**
Construction Experience, Aggregate Dollar Amount: **20 Years Experience/500 Million Plus**
Classification of Work: **Highway construction, landfill construction, utility and building construction. Chief estimator, involved in all phases of bidding, contract management, subcontract negotiation, planning, project meetings, and is our DBE Liaison Officer.**

Name Present Position & Time Employed: **Armon Pfeifer, Engineer/Estimator – 13 Years**
Construction Experience, Aggregate Dollar Amount: **23 Years Experience/300 Million Plus**
Classification of Work: **Highway construction, landfill construction, utility and building construction. Involved in estimating, bidding, subcontractor scheduling, and project management.**

Name Present Position, & Time Employed: **Reuben Williams, Superintendent – 8 Years**
Construction Experience, Aggregate Dollar Amount: **18 Years Experience/150 Million Plus**
Classification of Work: **All types of highway construction, landfill construction, airports, water and sewer treatment plants, large industrial sites, buildings, dams, bridges, major utility lines. Superintendent for the past 5 years and prior to that he was an inspector for the NCDOT.**

Name Present Position, & Time Employed: **Harold Powell, Superintendent – 11 Years**
Construction Experience, Aggregate Dollar Amount: **20 Years Experience/125 Million Plus**
Classification of Work: **All types of highway construction, landfill construction, airports, water and sewer treatment plants, large industrial sites, buildings, dams, bridges, major utility lines. Superintendent for the past 10 years, prior to that he worked as a superintendent on similar projects.**

Name Present Position, & Time Employed: **Ed Marks, Engineer/Estimator – 9 Months**
Construction Experience, aggregate Dollar Amount: **19 Years Experience/200 Million Plus**
Classification of Work: **Highway construction, surveying, and utility construction. Involved in estimating, bidding, subcontractor scheduling, and project management.**

Surety by Site Name

SUBDIVISION			SILTATION			NAME
SURETY	RELEASED?	EXPIRATION	SURETY	RELEASED?	EXPIRATION	
\$0	<input type="checkbox"/>		L/C	\$807,553	RA <input type="checkbox"/> SP-88-04	WAL-MART DISTRIBUTION CENTER EXPANSION - PHASE III
\$0	<input type="checkbox"/>		Bond	\$125,000	<input type="checkbox"/> SP-24-01 SP-81-01	WAL-MART STORES - BULK STORAGE FACILITY EXPANSION - PHASE II - GREENMOUNT
Bond	\$207,000	<input type="checkbox"/>	Bond	\$170,000	<input type="checkbox"/> SP-45-00	WAL-MART STORES - BULK STORAGE FACILITY NO 88 - GREENMOUNT PHASE I

Number Listed: 3

Surety Tracking Sheet

Date: 6/20/06

Due Date: _____

Project Name: Wal-Mart Distribution Center Phase 3 SP-88-04

Original Surety - _____ Current Surety at (full) (reduced) amount _____

Requested By: _____ Phone #: _____

Date Notified: _____

Siltation Surety: Original \$ _____ Current \$ 211,000 Needed \$ _____

*maximum reduction of 80% of original bond amount unless project is to be released

Calculate Evaluate/Reduce Release

Work to be completed for SILTATION Surety

- Stabilization of all disturbed areas
- Removal of temporary erosion control measures
- Submission of as-built drawings for stormwater management facility
- Submission of construction certification for the stormwater management facility
- Completion of field-related BMP items

~~Other~~ -

Comments- Project complete and stabilized. Release surety + close out project.

Subdivision Surety: Original \$ _____ Current \$ _____ Needed \$ _____

*maximum reduction of 80% of original bond amount unless project is to be released

Calculate Evaluate/Reduce Release

Work to be completed for SUBDIVISION Surety

- Paving of streets
- Dedication of streets to Virginia Department of Transportation VDOT
Amount Needed \$ _____

- Completion of water and sewer systems JCSA
Amount Needed \$ _____

- Completion of water and sewer punchlist items
- Submission of as-built drawings for water and sewer systems

Installation of street lights and street signs

Other -

Comments-

Pond E (SC019); Pond F (SC020); Pond G (SC021);
Pond H (SC022); Pond I (SC023); Pond J (SC024)

INDICATE YOUR APPROVAL BY INITIALING THE APPROPRIATE BLANK:

INSP. _____
Revised 7/29/2005 JA

SJT 8/1 06-27-06 DEC _____
All asbuilt const. cert +
field-related BMP items
completed. OK to release 100%.

JB
PTM _____

**Water Quality Assessment
JCC Wal-Mart
October 5, 2004**

WALMART
PHASE 3
WQIA-CBE

INTRODUCTION:

Wal-Mart Corporation has proposed to build an expansion to the existing Wal-Mart Distribution facility in James City County, Virginia. The site is located off Route 60 in Eastern James City County in the Green Mount Area. Drainage from the expansion site runs off into several small headwater tributaries to Wood Creek, a major tributary to the James River. Although none of the facilities will encroach upon the RPA buffer area, three stormwater outfall discharge pipes are proposed to be constructed in the buffer area in order to convey the runoff discharge to the stream bottoms thereby reducing any surface erosion from discharging the stormwater further up the banks. As a result, James City County has requested that a Water Quality Assessment be conducted in accordance with Chapter 23-10 of their administrative code and their water quality assessment guidelines.

SITE CHARACTERISTICS

The site (lot 4 and lot 3D) is 249 acres in size and the development will encompass approximately 80 acres of impervious surface for the buildings, roadways, parking lots and detention ponds (See attached Site Plan). The site contains several small tributaries and surrounding wetlands on the Skiffe's Creek side of the property which are the subject of the Resource Protection Areas. The total RPA buffer area on the site is approximately 59 acres.

The stormwater outfalls and conveyance pipes will be contained in a dug trench approximately 15 feet wide. The total encroachment on the RPA is very small, only 4,125 square feet, or 0.16% of the total RPA buffer area. Once constructed, the pipelines will be re-vegetated, however the concrete wing-walls and aprons will remain un-vegetated.

METHODOLOGY AND RESULTS

This water quality study is being conducted under the guidance of James City County's minor water quality impact assessment and provides for an assessment of the impacts from the loss of a small portion of RPA buffer area. This assessment has assumed that the site stormwater impacts from the development outside of the buffer area have been addressed through site design and through the incorporation of detention basin design parameters.

The methodology used to determine the pollutant removal equivalency lost by the buffer encroachment was derived from the Chesapeake Bay Local Assistance Board (CBLAD), which was taken from Schueler (1987). This method requires inputs for the site imperviousness and lot width as well as an estimate of effective removal efficiency of the

remaining buffer based on 40% for the full 100 foot buffer width (See attached Buffer Encroachment Worksheet).

Inputs used were:

- Site Area - 249 acres, determined from site maps
- Site imperviousness, I(site) – estimated to be approximately 33 % or 1/3 of the site from site maps. This area includes buildings, roadways, and detention ponds.
- Lot Width – 4000 feet. Determined to be the widest portion of the lot Southern Boundary along the Skiffes' Creek side of the development, taken from site maps.
- Effective Removal Efficiency – 0.39 used which is conservative based on the small percentage of actual buffer encroachment of the project (0.16%)
- NOTE: there was no input for additional pollutant requirements from site imperviousness since they were assumed to be accounted for in the stormwater pond design parameters required by JCC.

The results of the analysis indicate that **0.6 pounds of pollutant/year** must be removed through BMP's. (See attached Buffer Encroachment Worksheet)

BMP ENHANCEMENT EQUIVALENCY:

The current BMP methodology selected to remove the required 0.6 lbs of pollutant is *buffer enhancement*. This method will work well based on the opportunities in the existing buffer area to re-vegetate the stormwater discharge pipe areas after construction as well as the presence of some existing agricultural areas in the existing RPA. The buffer enhancement will consist of the following measures.

- 1) Re-vegetation of the pipeline areas to grassed conditions
- 2) Conversion of an area on the western portion of the site from existing agricultural area to a natural forested area.

The pipeline restoration will consist of re-vegetating approximately at least 2,500 square feet of those areas with native grass species (see attachment 2 for a list of acceptable species). This will restore the buffer efficiency of these areas, however, there is no credit for pollutant removal efficiency provided from this method.

Additionally, agricultural practices in the existing buffer area and adjacent 200 feet of uplands will be stopped in a 0.26 acre area to reduce pollutant loadings by at least 0.6 pounds/year as follows:

Conventional Agricultural Loadings	2.42 lbs/acre/year*
Wooded	<u>0.12 lbs/acre/year</u>
Difference	2.30 lbs/acre/year

*Chesapeake Bay Local Assistance Manual, Appendix C)

Therefore, it will take approximately 0.3 acres of restored agricultural land to provide the 0.6 pounds of pollutant/year that must be removed ($0.6/2.3 = 0.26$).

The plantings will occur in an area staked out by the applicant and acceptable to the County prior to planting. Additionally, a specific planting plan using recommended species, methods, and procedures as outlined in the CBLAD Riparian Guidance Manual (Appendix A, and D. attached)

APPENDIX A - PLANT LISTS

These lists are suggestions for recommended plants and are not to be construed as exclusive lists. There are many other suitable plants for riparian buffer planting. These lists are a place to start.

MEDIUM TO LARGE DECIDUOUS CANOPY TREES

Red maple - *Acer rubrum*
 Acer saccharum - Silver maple
 Betula lenta - Black birch
 River birch - *Betula nigra*
 Shagbark hickory - *Carya ovata*-
 Mockernut hickory - *Carya tomentosa*
 Hackberry - *Celtis occidentalis*
 Washington hawthorn - *Craetagus phaenopyrum*
 Persimmon - *Diospyros virginiana*
 American Beech - *Fagus grandifolia*
 White ash - *Fraxinus americana*
 Green ash - *Fraxinus pennsylvanica*
 Water locust - *Gleditsia aquatica*-
 Black walnut - *Juglans nigra*
 Sweetgum - *Liquidamber straciflua*
 Tulip poplar - *Liriodendron tulipifera*
 Water tupelo - *Nyssa aquatica*
 Black gum - *Nyssa sylvatica*
 Sourwood - *Oxydendron arboreum*
 Sycamore - *Platanus occidentalis*
 Cottonwood poplar - *Populus deltoids*
 Swamp cottonwood - *Populus heterophylla*
 Black cherry - *Prunus serotina*
 Swamp white oak - *Quercus bicolor*
 Shingle oak - *Quercus imbricata*
 Laurel oak - *Quercus laurifolia*
 Overcup oak - *Quercus lyrata*-
 Swamp chestnut oak - *Quercus michauxii*-
 Water oak - *Quercus nigra*
 Pin oak - *Quercus palustris*
 Willow oak - *Quercus phellos*
 Shumard oak - *Quercus shumardii*
 Swamp willow, Black willow - *Salix nigra*
 Weeping willow - *Salix babylonica*
 American basswood - *Tilia Americana*

SMALL CANOPY/UNDERSTORY TREES

Red buckeye - *Aesculus pavia*
 Smooth alder - *Alnus serrulata*
 Serviceberry - *Amelanchier canadensis*
 Devil's walkingstick - *Aralia spinosa*
 Pawpaw - *Asimia triloba*
 American hombeam- *Carpinus caroliniana*
 Sugar hackberry - *Celtis laevigata*
 Redbud, Judas tree - *Cercis canadensis*
 Fringetree - *Chionanthus virginicus*
 Dogwood - *Cornus florida*
 Cockspur hawthorn - *Crataegus crus-galli*
 Green hawthorn - *Crataegus viridis*
 Parsley hawthorne - *Crataegus marshalli*
 Swamp cyrilla - *Cyrilla racemosa*
 Two-winged Silverbell - *Halesia diptera*
 American holly - *Ilex opaca*
 Possumhaw - *Ilex deciduas*
 Spicebush - *Lindera benzoin*
 Sweetbay Magnolia - *Magnolia virginiana*
 Eastern hophornbeam - *Ostrya virginiana*
 Sourwood - *Oxydendron arboreum*
 Elderberry - *Sambucus canadensis*-
 Sassafras - *Sassafras albidum*
 Sparkleberry - *Vaccinium arboreum*
 Nannyberry - *Viburnum lentago*

EVERGREEN TREES

American holly – *Ilex opaca*
Eastern red cedar – *Juniperus virginiana*
Southern magnolia – *Magnolia grandiflora*
Shortleaf pine – *Pinus echinata*
Pitch pine – *Pinus rigida*
Eastern white pine – *Pinus strobus*
Loblolly pine – *Pinus taeda*
Virginia pine – *Pinus virginiana*
Darlington oak – *Quercus laurifolia*
 Darlingtonia
Live oak – *Quercus virginiana*

EVERGREEN SHRUBS

Inkberry holly - *Ilex glabra*
Common juniper – *Juniperus communis*
Shore juniper - *Juniperus conferta*
Southern wax myrtle – *Myrica cerifera*
Bayberry – *Myrica pennsylvanica*
Swamp azalea – *Rhododendrona viscosum*
Farkleberry – *Vaccinium arboreum*

LARGE SHRUBS

Alder - *Alnus serrulata*
False indigo - *Amorpha fruticosa*
Red chokeberry – *Aronia arbutifolia*
American beautyberry – *Callicarpa americana*
Eastern sweetshrub – *Calycanthus floridus*
Buttonbush – *Cephalanthus occidentalis*
Silky dogwood – *Cornus amonum*
Greystem dogwood – *Cornus racemosa*
Red twig dogwood – *Cornus stolonifera*
Witch hazel – *Hammamelis virginiana*
Wild hydrangea - *Hydrangea arborescens*
Oakleaf hydrangea – *Hydrangea quercifolia*
Winterberry holly – *Ilex verticilata*
Yaupon holly – *Ilex vomitoria*
Virginia sweetspire – *Itea virginica*
Fetterbush/ Sweetbells – *Leucothoe racemosa*
Fetterbush – *Lyonia lucida*
Male-berry – *Lyonia ligustrina*
Southern wax myrtle – *Myrica cerifera*
Bayberry – *Myrica pennsylvanica*
Common ninebark – *Physocarpus opulifolius*
Choke cherry – *Prunus virigniana*
Swamp azalea – *Rhododendrona viscosum*
Smooth sumac – *Rhus glabra*
Allegheny blackberry – *Rubus allegheniensis*
Pussy willow – *Salix discolor*
Silky willow – *Salix sericea*
Elderberry – *Sambucus canadensis*
American snowbell – *Styrax americanus*
Highbush blueberry - *Vaccinium corybosum*
Arrowwood viburnum – *Viburnum dentatum*
Swamphaw Viburnum – *Viburnum nudum*
Blackhaw viburnum – *Viburnum prunifolium*

SMALL SHRUBS

Obovate serviceberry - *Amelanchier obovalis*
 Black chokecherry - *Aronia melanocarpa*
 Sweet pepperbush - *Clethra alnifolia*
 Sweet fern - *Comptonia peregrina*
 Strawberry bush - *Euonymus americanus*
 Fothergilla - *Fothergilla gardenii*
 Black huckleberry - *Gaylussacia baccata*
 Dangleberry - *Gaylussacia frondosa*
 Wild hydrangea - *Hydrangea arborescens*
 Oakleaf hydrangea - *Hydrangea quercifolia*
 Mountain laurel - *Kalmia latifolia*
 Staggerbush - *Lyonia mariana*
 Shrubby cinquefoil - *Potentilla fruticosa*
 Beach plum - *Prunus maritima*
 Sand blackberry - *Rubus cuneifolius*
 Bankers willow - *Salix cottetii*
 White meadowsweet - *Spiraea alba*
 Meadowsweet - *Spiraea latifolia*
 Steeplebush - *Spiraea tomentosa*
 Common snowberry -
 Coralberry - *Symphocarpos orbiculatus*
 Lowbush blueberry - *Vaccinium angustifolium*
 Maple-leaved viburnum - *Vaccinium acerifolium*
 Adam's needle - *Yucca filamentosa*

NATIVE GRASSES

Big Bluestem – *Andropogon gerardi*
 Broomsedge – *Andropogon virginicus*
 Indian woodoats – *Chasmanthium latifolium*
 Coastal panic grass – *Panicum amarum*
 Switch grass – *Panicum virgatum*
 Little bluestem – *Schizachyrium scoparium*
 Indian grass – *Sorghastrum nutans*
 Easternn gama grass – *Tripsacum dactyloides*

HERBACEOUS PLANTS

Black-eyed Susan – *Rudbeckia fulgida*
 Cardinal Flower – *Lobelia cardinalis*
 Coralbells – *Heuchera Americana*
 Creeping Phlox – *Phlox stolonifera*
 Crested Iris – *Iris cristata*
 Foamflower – *Tiarella cordifolia*
 Goldenrod – *Solidago Canadensis*
 Great Blue Lobelia – *Lobelia siphilitica*
 Green and Gold – *Crysozonum virginianum*
 Ironweed – *Vernonia noveboracensis*
 Jack-in-the-Pulpit - *Arisaema triphyllum*
 Joe-Pye Weed – *Eupatorium purpureum*
 Mayapple – *Podophyllum peltatum*
 Mistflower – *Eupatorium coelestinum*
 Mouse-ear Coreopsis – *Coreopsis auriculata*
 New York Aster - *Aster novi-belgii*
 Pink Turtlehead – *Chelone lyonii*
 Purple Coneflower – *Echinacea purpurea*
 Small Solomon's Seal – *Polygonatum biflorum*
 Swamp Milkweed - *Asclepias incarnata*
 Sweet Flag - *Acorus americanus*
 Tall Gayfeather – *Liatris scarios*
 Three-toothed Cinquefoil – *Potentilla tridentata*
 Tickseed – *Coreopsis grandiflora*
 Virginia Bluebells – *Metensia virginica*
 Virginia Blue flag – *Iris virginica*
 Wild Columbine - *Aquilegia Canadensis*
 Woodland Phlox - *Phlox divaricata*

SHADE TOLERANT PLANTS

Trees

Red maple
Sugar maple
Serviceberry, Shadbush
Pawpaw
Yellow birch
Hornbeam
American beech
White ash
Sweetbay magnolia
Hop hornbeam
American basswood
Canada hemlock

Small Trees & Shrubs

Dogwood
Redbud
Fringetree
Sweet pepperbush
Gray dogwood
American hazelnut
Witchhazel
Inkberry
Mountain laurel
Spicebush
Staghorn sumac
Elderberry
Highbush blueberry
Witherod
Southern arrowwood
Highbush cranberry
Virginia sweetspire

PART SUN (semi-shade intolerant)

Trees

Silver maple
Sweet birch
Bitternut hickory
Shagbark hickory
Hackberry
Tulip poplar
Easter white pine
Sycamore
White oak
Swamp white oak
Chestnut oak
Willow oak
Northern red oak
Slippery elm

Small Trees & Shrubs

Red chokeberry
Black choke berry
Black huckleberry
Winterberry
Swamp azalea
Meadowsweet
Nannyberry
Smooth alder
Pinxterbloom azalea

FULL SUN (Shade intolerant)**Trees**

Persimmon
 Black ash
 Red ash
 Honey-locust
 Kentucky coffee-tree
 Black walnut
 Sweet gum
 Black gum
 Eastern cottonwood
 Black cherry
 Pin oak
 Black willow
 Sassafras

Small Trees & Shrubs

Groundsel bush
 Buttonbush
 Silky dogwood
 Red-osier dogwood
 Bayberry
 Wax myrtle
 Ninebark
 Rosebay rhododendron
 Blackhaw viburnum

FLOOD TOLERANT**Trees**

Red maple
 Shadbush
 Yellow birch
 Black Ash
 Red ash
 Sweet gum
 Sweetbay magnolia
 Eastern cottonwood
 Swamp white oak
 Willow oak
 Black willow
 Slippery elm

Small Trees & Shrubs

Smooth alder
 Red chokeberry
 Black chokeberry
 Groundsel bush
 Buttonbush
 Silky Dogwood
 Red-osier dogwood
 Inkberry
 Winterberry
 Bayberry
 Ninebark
 Rosebay rhododendron
 Swamp azalea
 Swamp rose
 Meadowsweet
 Highbush blueberry
 Witherod
 Southern arrowwood
 Northern arrowwood
 Highbush cranberry

SEMI-FLOOD TOLERANT
(good for wet sites)

Trees

Atlantic white cedar
Allegheny serviceberry
Bald cypress
Black gum
Bitternut hickory
Eldeberry
Grey birch
Green ash
Hackberry
Persimmon
White ash
Honey-locust
Kentucky coffee-tree
Black walnut
Tulip poplar
Black gum
Sycamore
Northern red oak
River birch

Shrubs

Serviceberry
Fringe tree
American hazelnut
Black huckleberry
Grey dogwood
Spicebush
Witchhazel
Mountain laurel
Staghorn sumac
Nannyberry viburnum
Blackhaw viburnum

SALT TOLERANT SPECIES

Serviceberry, Shadblow
Groundsel tree
Hackberry
American holly
Eastern red cedar
Sweetbay magnolia
Black gum
Pitch pine
Elderberry

Shrubs

Bearberry
Red cokeberry
Black chokeberry
Buttonbush
Sweet pepperbush
Inkberry
Spicebush
Southern wax myrtle
Bayberry
High tide bush
Beach plum
Winged sumac
Smooth sumac
Staghorn sumac
Rugosa rose
Arrowwood viburnum
Blackhaw viburnum
Highbush blueberry

APPENDIX D - VEGETATIVE REPLACEMENT STANDARDS

The vegetation replacement standards are a compilation of information from many sources. The following list reflects the major sources of information used to develop the replacement and restoration standards:

USDA :

Natural Resources Conservation Service
Forest Service

Virginia Department of Conservation and Recreation

Virginia Department of Forestry

Chesapeake Bay Local Assistance Department

Conversations and emails with members of the Technical Committee.

Maryland Chesapeake Bay Critical Area Commission

Maryland Department of Natural Resources Forest Service

Pennsylvania Releaf

Local governments in Virginia and Maryland

VEGETATION REPLACEMENT RATES		
VEGETATION REMOVED	PREFERRED REPLACEMENT VEGETATION	ACCEPTABLE ALTERNATIVE VEGETATION
1 tree or sapling 1/2"-2 1/2" caliper	1 tree @ equal caliper or greater	Or 2 large shrubs @ 3'-4' Or 10 small shrubs or woody groundcover *@ 15"-18"
1 tree ≥ 2 1/2" caliper	1 tree @ 1 1/2" - 2" caliper, or 1 evergreen tree @ 6' min. ht., per every 4" caliper of tree removed (ex: a 12" cal. tree would require 3 trees to replace it)	Or 75% trees @ 1 1/2" - 2" and 25% large shrubs @ 3'-4' per every 4" caliper of tree removed. (ex: a 16" cal. tree removed would require 3 trees and 1 large shrub) Or 10 small shrubs or woody groundcover @ 15"-18" per 4" caliper of tree removed (ex: a 8" caliper tree removed requires 20 small shrubs .)
1 large shrub	1 large shrub @ 3'-4'	Or 5 small shrubs or woody groundcover @ 15"-18"
* Woody groundcover is considered to be a woody, spreading shrub that remains close to the ground, to 18" high, such as a shore juniper, <i>juniperus conferta</i> . Vines may not be considered "woody groundcover" for the purpose of vegetation replacement.		

RESTORATION / ESTABLISHMENT TABLE A

Definitions:

Canopy tree: a tree that reaches 35 feet in height or larger when mature

Understory tree: a tree that matures to a height of 12 feet to 35'

Large shrub: a shrub that reaches 10 feet of height or greater at maturity

Small shrub: a woody plant that can reach up to 10 feet of height at maturity

¼ acre or less of buffer

Up to 10,890 square feet or less

For every 400 square-foot unit (20'x20') or fraction thereof plant:

one (1) canopy tree @ 1½" - 2" caliper or large evergreen @ 6'

two (2) understory trees @ ¾" - 1 ½" caliper or evergreen @ 4'

or one (1) understory tree and two (2) large shrubs @ 3'-4'

three (3) small shrubs or woody groundcover @ 15" - 18"

Example:

A 100-foot wide lot x 100-foot wide buffer is 10,000 square feet.

Divide by 400 square feet (20'x20' unit) to get:

25 units

<u>Units</u> x	<u>plant/unit</u>	<u>Number of plants</u>
25 units x	1 canopy tree	25 canopy trees
	2 understory trees	50 understory trees
	3 small shrubs	<u>75 small shrubs</u>
		150 plants

RESTORATION / ESTABLISHMENT TABLE B

Greater than ¼ acre of buffer

More than 10,890 square feet

- A. Plant at the same rate as for ¼ acre or less.
- B. The waterside 50% of the buffer (from the waterline inland for the first 50 feet):
For every 400 square-foot unit (20'x20') or fraction thereof plant:

one (1) canopy tree @ 1½" - 2" caliper or large evergreen @ 6'

two (2) understory trees @ ¾" - 1 ½" caliper or evergreen @ 4'

or one (1) understory tree and two (2) large shrubs @ 3'-4'

three (3) small shrubs or woody groundcover @ 15" - 18"

AND

The landward 50% of buffer (from 50 feet inland to 100 feet inland):

either plant

Bare root seedlings or whips at 1,210 stems per acre¹, approximately 6'x6' on center
(Minimum survival required after two growing seasons: 600 plants.)

or

Container grown seedling tubes at 700 per acre approximately 8'x 8' on center (Minimum survival required after two growing seasons: 490 plants)

- C. If the applicant is willing to enter into a five year maintenance and performance guarantee: 100% of buffer planted with:
Bare root seedlings or whips at 1,210 per acre, approximately 6'x 6' on center (Minimum survival required after two growing seasons: 600 plants)
Or
Container grown seedling tubes at 700 per acre approximately 8'x 8' on center (Minimum survival required after two growing seasons: 490 plants).

1 acre or more of buffer

With an evaluation from an arborist or forester or other professional, natural regeneration may be an acceptable method of buffer establishment, however, a forestry management plan must be in place prior to any vegetation being removed. A minimum of 35 feet next to the water must be left in forest and protected prior to any vegetation being removed. If over 20 percent of the vegetation must be removed for the health of the woodlot, within the 35 feet closest to the shoreline, vegetation must be reestablished by seedling plantings at the rates above.

¹ Palone, Roxanne S., and Al Todd, *Chesapeake Bay riparian handbook: A guide for establishing and maintaining riparian forest buffers*. May 1977. p. 7-20.

Table 2

Worksheet for BMP Point System

PONDA?
SITE = 161.4 AC.

A. STRUCTURAL BMP POINT ALLOCATION

BMP	BMP Points		Fraction of Site Served by BMP	=	Weighted BMP Points
Wet ED Pond B1	10	X	45%	=	4.5
Wet ED Pond C	10	X	15%	=	1.5
Wet ED Pond D	10	X	53%	=	5.3
TOTAL WEIGHTED STRUCTURAL BMP POINTS:					11.3

TYPE B-3's

INCLUDES OFFSITE CREDIT.

B. NATURAL OPEN SPACE CREDIT

Fraction of Site		Natural Open Space Credit	=	Points for Natural Open Space
15%	X	(0.1 per 1%)	=	
	X	(0.15 per 1%)	=	
TOTAL NATURAL OPEN SPACE CREDIT:				

NO PRESERVATION CREDIT TAKEN
7.5 AC. EXIST. TREE UNDIST. LAND AREA
16.0 AC.
23.5 AC.
14.5690
x 0.1
1.45 pts.
IF PRESERVED

C. TOTAL WEIGHTED POINTS

11.3	+	0	=	11.3
Structural BMP Points		Natural Open Space Points		Total

EROSION AND SEDIMENT CONTROL PLAN NARRATIVE

for

CONSTRUCTION ACTIVITIES

at

WAL-MART BULK STORAGE FACILITY

in

JAMES CITY COUNTY, VIRGINIA

Prepared by:

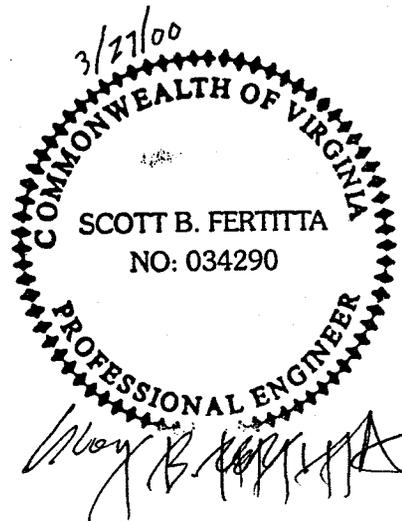


A-3

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C&B No. 99E103020

March 2000



I. INTRODUCTION

Proposed for construction is a Wal-Mart Stores, Inc. Bulk Storage Facility which is to be located on an approximately 161-acre site in James City County, Virginia. The project site lies approximately 2000 feet south of Skiffes Creek Reservoir along the east side of State Route 60. The main distribution building will consist of approximately one million square feet. Other site construction will include a guardhouse, a fire pump house, paved entrance roads, parking areas, and utility construction. This report will serve as the narrative portion of the site erosion and sediment control plan. Refer to the site construction drawings for detailed site information.

II. EXISTING CONDITIONS

The majority of the site is currently used for agricultural purposes. However, the east central portion of the site is moderately wooded. Two small tributaries to Skiffes Creek Reservoir are located in the northern portion of the site. Topographic relief at the site is generally from south to north toward Skiffes Creek Reservoir. The extreme eastern and south-central portions of the site drain off the site to the south toward Wood Creek, however. Construction Drawing C4.01 is the Predeveloped Drainage Area Map for the site. It clearly depicts the existing site drainage patterns. The predominant soils present on the site include Slagle, Craven, Emporia, Uchee, and Suffolk fine sandy loams. These soils are generally moderately well to well drained and considered prime farmland soils. A Hydrologic Soils Map of this property is included in Appendix A.

III. ADJACENT PROPERTY

The site is bounded by State Route 60 (Pocahontas Trail) to the northwest. Skiffes Creek Reservoir borders the site to the north. The remainder of the site is adjacent to wooded areas or farmland. The off-site areas to the south of the site generally drain to the south toward Wood Creek. A portion of off-site area located to the northwest of the site drains through the site to a tributary to Skiffes Creek. Again refer to the site Predeveloped Drainage Area Map for a depiction of the existing drainage patterns on the site. This map identifies eight drainage basins and associated points of concentration for predeveloped conditions. The peak storm water runoff rates at each point of concentration will be limited to predeveloped rates or less under developed conditions for each of the 1-year, 2-year, 10-year, 25-year and 100-year, 24-hour storm events. Refer to the Storm Water Management Report for detailed information on hydraulic and hydrologic calculations performed for this development.

IV. CRITICAL EROSION AREAS

Due to the close proximity of this development to Skiffes Creek Reservoir, erosion control practices at this site, both during and after construction, will be especially critical. Areas which will have a high potential for erosion include the outfalls of subsurface storm drain pipes and concrete flumes, as well as side slopes to detention ponds and earthen channels. The steep slopes existing between Detention Pond C and D will be a critical erosion area, especially early in the construction process. Special attention should be given to these areas during construction. A rock check dam has been added at the base of the slope. In addition, a V-shaped channel has been included, as per detail 9 sheet C4.54, to convey flow from the outfall of Detention Pond D down this slope. Refer to Construction Drawings C5.01 and C5.02 for the project erosion control plans. This will illustrate the areas where erosion control measures are planned for this site.

V. EROSION AND SEDIMENT CONTROL MEASURES

Unless otherwise indicated, all vegetative and structural erosion and sediment control measures shall be constructed and maintained in accordance with the standards and specifications in the Virginia Erosion and Sediment Control Handbook (VESCH).

A. STRUCTURAL PRACTICES

1. Sediment Basin – 3.14

The detention basins, constructed on the site for the purpose of attenuating the peak developed discharge rate from the site, will also serve as sediment basins. All water from disturbed areas will be directed through the detention ponds before leaving the site. To aid in the sedimentation process, each detention pond will be equipped with an outfall control structure as shown in Detail 1 of Construction Drawing C4.53. Elevation "A" on this detail shows the level below which a permanent pool is provided for each pond. The permanent pool volume contained in the bottom of each pond exceeds 67 cubic yards per acre of total contributing drainage area, which is the required permanent pool volume as per the Virginia Erosion and Sediment Control Handbook (VESCH). In addition, the overall volume in the ponds far exceeds the minimum required volume of 134 cubic yards per acre of contributing drainage area. The Table 1 below, more clearly quantifies the volumes available for sedimentation.

WCT

Table 1: Detention Pond Sedimentation Volumes

Basin	Contributing Drainage Area (ac.)	Required Permanent Pool Volume (CY)	Provided Permanent Pool Volume (CY)	Total Volume Required (CY)	Total Volume Provided (CY)
Pond A	9.13	612 ✓	1227 1080 ✓	1223	13,794
Pond B1 & B2	24.42	1636 ✓	3273 9087 ✓	3272	96,316
Pond C	24.21	1622 ✓	3254 3808 ✓	3244	42,479
Pond D	73.69	4937 ✓	9874 6377	9874	79,053

67 CY / AC

Elevation storage and elevation-discharge curves for each pond are provided in Appendix E and F, respectively, of the Storm Water Management Report. The computer model "adICPR" by Streamline Technologies, Inc. was used to model the detention times provided by each pond. The methodology used by this program is more fully described in the Storm Water Management Report. The required water quality volume of one inch of runoff per impervious acre of contributing drainage area was added to the permanent pool volume of each pond. Using the stage-storage data a water quality elevation was then determined for each pond. This elevation was used as the beginning water surface elevation in each pond for the computer model. Again ponds B1, B2 and A are interconnected, therefore, the beginning water surface elevation in each of these ponds is the same. The results of the water quality volume drawdown analysis are summarized in Table 2, below. Elevation time curves produced by "adICPR" are included in Appendix B.

Table 2: Water Quality Volume Drawdown Analysis

Pond	Permanent Pool Elevation	Water Quality Volume Elevation	Elevation After 24-hour Drawdown
A	46.50	46.72	46.69 ✓
B1	46.50	46.72	46.69 ✓
B2	46.50	46.72	46.69 ✓
C	46.50	46.92	46.73 ✓
D	47.00	47.70	47.05 ✓

↳ MEETS 24-HR CRITERIA EXT. DET.

2. Outlet Protection – 3.18

Outlet stabilization will be provided at the downstream end of all pipes and drainage flumes through the construction of a concrete apron surrounded by a section of rock rip rap. The concrete apron will provide erosion protection against the concentrated flow at the point of discharge. The rock rip rap will reduce the potential for erosion around the concrete apron. Details of the outlet protection devices are included in Details 1-6 Construction Drawing C4.52, for pipe outfalls, and Details 5-7 of Construction Drawing C4.54 for concrete flume outfalls.

3. Silt Fence – 3.05

A silt fence will be constructed at the toe of all graded slopes which drain off of the site. The silt fence reduces the velocity of flow, allowing deposition, thus helping to prevent off-site sedimentation. A detail of the silt fence is provided on Detail 6 of Construction Drawing C5.11. In areas which drain directly to designated wetlands or waters of the U.S., the silt fence shall be reinforced with wire mesh. A detail of this is shown on Page III-24 of the VESCH.

4. Temporary Construction Entrance – 3.02

At all points of entrance/exit at the site, a rock stabilized construction entrance will be installed to reduce sediment being carried off the site. The temporary construction entrance/exit is shown on Details 3 and 4 of Construction Drawing C5.11.

5. Rock Check Dams – 3.20

Rock check dams will be installed for channel protection in the locations designated on Construction Drawings C5.01. This will serve to reduce flow velocities in the earthen channels, thereby reducing the risk of channel erosion and aiding in the process of sedimentation. The check dams should be placed so that the toe of the upstream dam is at the same elevation as the top of the downstream dam. A detail of this measure is provided on Detail 8 of Construction Drawing C5.11.

6. Temporary Fill Diversion – 3.10

Along the top of the detention pond slopes a temporary fill diversion shall be constructed. This consists of a mound of dirt approximately three feet high which serves to direct runoff away from the unprotected pond slopes. The runoff will either be directed to the proposed locations of concrete flumes which should be constructed early in the process, or to temporary 30" slope drains, the locations of

which are shown on plan sheets C5.01 and C5.02. Refer to Appendix C and the VESCH for standards and specifications concerning this measure.

7. Temporary Slope Drain – 3.15

Temporary slope drains consisting of a flexible tubing or conduit extending from the top to the bottom of the pond side slopes will be utilized to convey stormwater runoff down the pond side slopes in areas where concrete flumes are not proposed. The temporary slope drains will be 30" in diameter, and spaced to accommodate a maximum of five acres of drainage area. Refer to plan sheets C5.01 and C5.02 for temporary slope drain locations. Refer to Appendix C and the VESCH for standards and specifications concerning this measure.

8. Paved Flume – 3.16

Concrete flumes will be constructed in the locations shown on Construction Drawings C5.01 and C5.02 to convey storm water runoff down the side slopes of the detention ponds. This will lower the potential for erosion along the pond side slopes by reducing the amount of runoff that will come in contact with the slopes.

9. Stormwater Conveyance Channel – 3.17

Earthen channels designed to convey runoff to the detention ponds, will be constructed along the edge of pavement on the south side of the site between ponds A and D, between ponds C and D to the North, and also along the west side of the trucker's entrance. The channels will be lined with grass, which should serve to help filter any oil and grease that might be contained in runoff from the entrance road and other paved areas, before it enters the detention ponds.

10. Culvert Inlet Protection – 3.08

Culvert entrance locations as shown on plan sheets C5.01 and C5.02 should be protected by silt fence or some other measure in accordance with the VESCH standards and specifications included in Appendix C. For the exterior pond outfall locations with a proposed outfall control structure, this protection should be removed once construction of the outfall control structure is complete. Culvert entrance protection should be left in place until final site stabilization is complete in all other areas.

11. Tree Preservation and Protection - 3.38

This measure primarily consists of placing orange safety fence around areas that special attention is required so that these areas remain undisturbed. These areas include the Martin's Hundred Church Graveyard located near the southwest corner of the site and the tree preservation areas along the northern site boundary. The limits of this fence around the graveyard are clearly shown on plan sheet C5.01. Refer to Appendix C and the VESCH for standards and specifications concerning this measure.

B. VEGETATIVE PRACTICES**1. Surface Roughening – 3.29**

All graded slopes which are to be vegetated will be lightly roughened by disking just prior to vegetating. This will aid in the establishment of vegetative cover and help control erosion by reducing runoff velocities and increasing infiltration.

2. Topsoiling – 3.30

Topsoil from the site will be stockpiled and used, whenever practical, for establishing permanent vegetation. The stockpiles should be located upslope from a detention pond at the direction of the site contractor.

3. Temporary and Permanent Seeding – 3.31 and 3.32

Areas which will not be brought to final grade for a period of more than 30 days must be seeded with a fast germinating temporary seed mix in accordance with Table 3.31-B on page III-287 of the VESCH. Areas which are to have a permanent vegetative cover should be seeded with a permanent seed mix as soon as they are brought to final grade. Refer to Construction Drawings C5.01 and C5.02 for temporary and permanent seed mixes appropriate for this site.

4. Mulching – 3.35

Areas which have been permanently seeded should be mulched immediately following seeding. This will help to prevent erosion by protecting the soil surface from raindrop impact and reducing the velocity of overland flow. It will also help to foster the growth of vegetation by increasing available moisture and providing insulation against extreme heat and cold.

VI. BEST MANAGEMENT PRACTICES AND SYSTEM MAINTENANCE

The following are best management practices which should be employed in conjunction with the erosion and sediment controls described above:

1. Sequence construction so that grading operations can begin and end as quickly as possible, and no area remains exposed for unnecessarily long periods.
2. Material resulting from the clearing and grubbing operation that is not used in creating brush barriers should be stockpiled for proper disposal.
3. The Site Construction Manager (SCM) will designate areas for equipment cleaning, maintenance, repair and fueling. Those areas will be protected by a temporary perimeter berm as shown on Detail 7 of Construction Drawing C5.11.
4. Use of detergents for large scale washing is prohibited (i.e., vehicles, buildings, pavement surfaces, etc.)

5. Chemicals, paints, solvents, fertilizers, and toxic material must be stored in waterproof containers. Except during application, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the site, treated, and disposed at an approved solid waste or chemical disposal facility.
6. Install the rock stabilized construction entrance and silt fence prior to commencement of any land disturbing activities.
7. Temporary seeding and mulching operations should be performed immediately following grading activities.
8. Maintain a regular inspection and maintenance schedule for erosion and sediment control practices. At least once every seven calendar days, and within 24 hours following a rainfall of one-half inches or greater is recommended.
9. Designate one individual responsible for implementing the erosion and sediment control plan. Make sure that all workers understand the provisions of the erosion and sediment control plan. Establish reporting procedures for problems identified by workers.
10. After achieving adequate stabilization, the temporary erosion and sediment control measures should be cleaned up and removed, and the detention ponds should be cleaned out and the total volume of the ponds restored. Adequate stabilization has been achieved when the entire disturbed area has been covered by a building footprint, pavement or a stand of grass with at least 70% consistency.

VII. JAMES CITY COUNTY CRITERIA

The Chesapeake Bay Preservation Ordinance contains James City County's requirements for reducing non-point source pollution in storm water runoff from impervious surfaces. Currently in James City County compliance with nonpoint source pollution control requirements is based on the BMP Point System. To achieve compliance, the erosion and sediment control plan must attain at least 10 BMP Points through a combination of structural BMPs and preservation of natural open space.

This project will accommodate the necessary 10 BMP Points with the detention ponds, which will act as temporary sediment basins during construction. The worksheet for the BMP Point System has been completed for this site and is included in Appendix D. Other structural measures will be utilized at this site which were not included in the calculation of BMP Points. These measures include a stabilized construction entrance, entrance road stabilization, sediment barriers, temporary fill diversions, temporary slope drains, riprap outfall channels, paved drainage flumes, outlet protection and culvert inlet protection.

ENVIRONMENTAL DIVISION REVIEW COMMENTS
WAL-MART BULK STORAGE FACILITY NO. 88
SITE PLAN NO. SP - 45 - 00
April 5, 2000

SJT

(Please note, items # 1 , # 4 and # 5 are required to be addressed for issuance of a land disturbance permit for the project. Remaining items # 2, # 3 and # 6 through # 12 would need to be addressed for final site plan approval through the Environmental Division.)

General Comments:

1. Wetlands Permit. A copy of letter dated March 17, 2000 to the U.S. Army Corp. of Engineers, Norfolk District requesting coverage under Nationwide Permit No. 26 was forwarded to our office. Evidence that approval has been obtained is required for the project or the wetland areas must be completely avoided and adequately protected if an land disturbance permit is to be issued for early site work activities, prior to USACOE approval.
2. Site Tabulation. On the site tabulation provided on sheet C2.01, total impervious area due to pavement and building was shown to be 46.73 acres of the 161.40 acre site (28.95 percent). The amount of pervious area (landscaped) was also shown at 91.68 acres (56.80 percent of site). Impervious and pervious areas sum to a total of 138.41 acres, resulting in 22.99 acres unaccounted for in the site tabulation. This value appears to match the sum of "existing tree" and "undisturbed landscape areas" as presented in the landscape summary table on sheet C9.01. If this is the case, be consistent between the site tabulation on sheet C2.01 and the landscape plan sheet C9.01.

Floodplain:

3. FEMA FIRM data. Similar to the language provided for previous comment # 9, add a note to general note sheet C0.01 or environmental inventory sheet C5.02 (ie. per FEMA firm panel 5102010060B the entire site is located in Zone X which is defined as an area outside the 500 year floodplain).

Erosion & Sediment Control Plan:

4. Sequence of Construction. The sequence of construction on sheet C5.02 needs to clearly show complete installation (excavation) of temporary sediment basin/pond C and the northern portion of temporary sediment basin/pond D in step 5 (rather than just clearing and grubbing). These two facilities need installed prior to removal of topsoil and clearing and grubbing for the warehouse pad within predevelopment drainage basin X-6 as indicated in steps 6 and 7. Currently, it is not until step 10 of the construction sequence that basins C and D are completed and functional. Predeveloped drainage basin X-6 is an extremely large size (50.5 acres), thus requiring the basins to be installed prior to denuding activities in X-6. The basins need to intercept as much upslope area as possible from existing drainage basin X-6 which will directly convey drainage to the identified critical erosion area during clearing and initial grading activities. The rock check dam's function is to handle disturbed area and bypass drainage below the basins (approximately 3 acres) once the basins are installed. A rock check dam alone will not be capable of handling 50.5

acres of drainage (typically the allowable is 10 acres max). Revise the sequence of construction appropriately.

5. Sequence of Construction. The erosion and sediment control plan was revised to include slope drains as requested. The sequence of construction needs to reflect installation of the fill diversions and slopes drains in proper relation to structural fill placement.

Stormwater Management / Drainage:

6. BMP/Water Quality Points. The site stormwater management plan achieves a total of 11.3 BMP points using several County type A-3 BMP's (wet extended detention basins). Natural open spaces as planned to remain were not taken as credit toward the BMP point system and no method was currently presented to perpetually protect the designated "existing tree preservation" and "undisturbed landscape areas" either by open space dedication, common areas or by conservation easements. These 2 areas total about 23.5 acres or 14.5 percent of the site. To achieve the 10 points however, the stormwater management plan mitigated untreated onsite areas by BMP treatment of offsite area. Offsite area, located mainly along the west portion of the site adjacent to US Route 60, totals about 35 acres and was considered as being in a developed state with a CN factor of 91. Therefore, it appears the stormwater management plan for the site is in compliance with the 10 point system.

7. Site Entrance. Storm drainage improvements were added near the entrance to US Route 60. Based on the current layout, approximately 500 l.f. of proposed roadway within postdevelopment drainage areas OF-11 and OF-12 will drain in an uncontrolled manner (non-BMP control) to the existing natural channel north of US Route 60. This natural channel has steep slopes and evidence of channel erosion. Provide an adequate channel analyses in accordance with MS # 19 procedure of the VESCH for erosion and capacity based on the 2-year design storm.

8. WSEL's. Show the 100-year design high water surface elevations for each of the BMP's on storm drainage plan view sheets 4.31 through 4.37.

- ★ 9. Pond Bottoms As previously discussed, provide micropools, depth variations or undulations in the pond bottoms to the greatest extent possible and as proposed topography will allow to enhance water quality and vegetation enhancement for the A-3 wet extended detention ponds.

- ★ 10. Pond Landscaping Landscape plan sheets C9.01 and C9.02 are not specific about the stabilization plan for the pond bottoms (shown as cross-hatched areas). In addition, sheet C5.01 and response to previous comment # 37 (pond landscaping) refers to construction specification section 02930 for permanent seeding type and rates associated with the pond bottom areas. No construction specifications were provided. Indicate specific seed mixtures, plantings, vegetation, or stabilization required to support the permanent pool, shallow marsh, buffers or sideslopes, etc. for the wet extended detention ponds.

- A**
11. Maintenance Plan. The maintenance notes provided on sheet C5.02 adequately address maintenance of structural erosion and sediment practices between the start of construction and until final site stabilization. The maintenance plan as requested per previous comment # 38 refers to a long-term BMP maintenance and inspection plan to be followed after completion of the site (postdevelopment). Items to be addressed generally include: sediment removal, mowing, soil amendments, reseeding, structural, sideslopes, record keeping, etc. It is our request to show the maintenance plan on the approved plan so it becomes part of the record drawing following construction and can be utilized by the Owner and County for future maintenance and inspection purposes.

 12. Stormwater Conveyance Channels. On sheet C4.11 add lining required (ie. grassed, EC-2, EC-3, etc.) to the open channel hydraulic table. Channel segments CH-C80 and CH-D70 will require a soil stabilization blanket for erosion control due to design velocities greater than 4 feet per second. Refer to the VESCH, Minimum Standard 3.36 for Treatment-2 (EC-3 Type A) for design velocities ranging from 4 to 10 feet per second. Based on our local experience, EC-3 lining is preferred over EC-2 (jute type) for erosion control and vegetation establishment.

ENVIRONMENTAL DIVISION REVIEW COMMENTS

PROJECT WARD

March 20, 2000

MCE/SJT

Comments 3/17/00 20-35 need to be addressed prior to issuance of permit

General Comments:

1. A Land Disturbing Permit and Siltation Agreement, with surety, are required for this project.
2. A standard Inspection / Maintenance agreement is required to be executed with the County for the BMP's for this project.
3. Provide evidence that any necessary wetlands permits are being pursued or have been obtained for this project.
4. Stormwater management plans require a professional seal and signature.
5. Land disturbance for the project will exceed five (5) acres. Therefore, it is the owner's responsibility to register for a General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Construction Activities, in accordance with current requirements of the Virginia Department of Environmental Quality and 9 VAC 25-180-10 et seq. Contact the Tidewater Regional Office of the DEQ at (757) 518-2000 or the Central Office at (804) 698-4000 for further information.
6. Site Tabulation. Provide a site tabulation which shows the total site area, impervious cover and disturbed area estimates for the project.
7. Existing Structures. Please label and identify existing structures located on the north central portion of the tract and whether they are to remain or be removed.
8. Site Border. Please identify the eastern site border to the project. Based on the overall plan shown on sheet C3.01, tract lines continue away from the project site off the sheet.

Floodplain:

9. Special Flood Hazard Areas. Show and label the FEMA FIRM Special Flood Hazard Area Zone A on all applicable plan sheets. Based on FIRM panel 510201 0060 B (February 6, 1991), it appears a SFHA Zone A is present along the Skiffes Creek Reservoir, north of the project site. It is unclear whether the location of Special Flood Hazard Area is located solely within the resource protection area (RPA) or if the SFHA may impact development.

Chesapeake Bay Preservation:

10. Steep Slope Areas. Section 23-5 of the Chesapeake Bay Preservation Ordinance does not allow land disturbing activities to be performed on slopes of 25 percent or greater without the granting of an exception. Steep slopes are present in the work area between detention ponds C and D. Therefore, a request for a waiver or exception is required, in writing.

Erosion & Sediment Control Plan:

11. Critical Erosion Area. Between detention pond C and D, exposed/denuded steep slopes (>25 percent) adjacent to the wetland and RPA will be critical erosion areas, especially when the site area is first denuded. Even if the detention ponds are in place as a first step measure, a considerable amount of runoff could be expected at the natural channel adjacent to the steep slope areas. The wire reinforced silt fence may be ineffective to adequately protect downstream environmentally sensitive areas including Skiffes reservoir from sedimentation. Additional structural perimeter control such as a temporary rock check dam or sediment trap should be considered for implementation at this area.
12. Site Entrance. Based on grading plan sheet C3.11, the proposed entrance road off of US Route 60 (1 percent grade) is in a fill section across a low topography spot. Based on the grading scheme, the proposed road will divide the low spot and runoff from the roadway (fill) will be impounded on both side of the new roadway with no release. No storm culverts, inlets, drains or cross-culverts across US Route 60 were proposed on the storm drainage plan. Please address.
13. Limits of Work. Show and label a distinct limit for clearing and grading around the site perimeter including work areas associated with installation of erosion and sediment controls and utility connections.
14. Sequence of Construction. Provide a sequence of construction outlining the installation of erosion and sediment control measures for the project and associated site and utility work. Due to the large extent of the project and considerable changes between initial and final site grades, separate phasing for installation of erosion and sediment controls is recommended. (ie. prior to site denuding and following site grading and completion of onsite storm drainage improvements). All or portions of ponds B, C, and D should be constructed as a first step prior to denuding of the site to reduce drainage conveyed in a northern direction toward the reservoir and RPA from predevelopment drainage areas X-2 and X-6.
15. Construction Road Stabilization. Provide construction road stabilization in accordance with the VESCH, Minimum Standard 3.03, for the anticipated major construction vehicle access route to the main warehouse and staging areas.
16. Fill Diversions. Refer to fill diversions placed along the north and south portions of the eastern half of the pad site on sheet C5.02. These fill diversions could experience a considerable amount of runoff from the pad site/topsoil stockpile area, especially the southern pad site diversion. In addition, no defined outlets were shown at the ends of the diversions at Pond D. Intermediate temporary slope drains should be placed at adequate (designed) intervals to outlet runoff along the fill diversions. Intervals should be based on drainage area and velocity/capacity limitations of the fill diversions. Temporary slope drains should remain in place until the pad site is completely stabilized. Provide fill diversion and slope drain details in accordance with VESCH Minimum Standards 3.10 and 3.15 on sheet C5.11.
17. Inlet Protections. Replace all site straw bale barrier (STB) placed at culvert inlets with culvert inlet protections in accordance with VESCH Minimum Standard 3.08.

18. Safety Fence. Experience has shown that use of orange-colored safety fence in accordance with VESCH, Minimum Standard 3.38, can adequately provide protection for cemeteries bordering a construction zone. It is recommended that colored safety fence be installed along the southern limit of clearing and grading for a distance of 100 feet east and west of Martin's Hundred Church Graveyard located on the south portion of the project site. This method would provide an inexpensive visual safeguard against accidental disturbance of, and encroachment on, valued property and would also prevent unauthorized entry into the work zone from the cemetery.
19. Standard E&SC Notes. Replace the Erosion Control Notes on sheet C5.01 with revised James City County Erosion Control Notes dated 5/5/99 (19 notes). Contact the Environmental Division at 757-253-6702 for a current copy.

Stormwater Management / Drainage:

20. Design Checklist. It is strongly suggested that the design engineer obtain and submit a copy of the most current James City County, Stormwater Management Plan or Detention Basin Checklist with the next submission to ensure all stormwater management/BMP design plan requirements are addressed.
21. BMP/Water Quality Points. The standard Worksheet for BMP Point System as provided shows the site stormwater management plan achieves a total of 10.75 points based on use of 5 perimeter wet extended detention ponds (County type A-3 BMP, 10 points) in combination with natural open space. The perimeter facilities appear to more represent dry-type detention ponds based on plan and detail information than wet (permanent pool) extended detention ponds. The detention facilities, do not appear to meet County criteria for wet extended type A-3 facilities based on permanent pool, water quality storage, extended detention, stream channel protection, pretreatment, benching and planting requirements. Therefore, the facilities should be claimed as dry detention facilities (County type F-2 BMP, 4 points) or modified to conform to criteria in the JCC BMP manual for type A-3 wet extended detention ponds. ***Note: This issue was discussed in detail with Mr. Perry Hassel of Carter-Burgess via telephone conversation on March 20th 2000. Discussed BMP selection, water quality and stream channel protection requirements.***
22. Open Space Credit. In order to claim natural open space credit in the standard BMP worksheet, proposed open space areas are required to be placed in perpetually undisturbed common areas or conservation easements. Based on the current Greenmount Parkway alignment presented, it appears that future development of this roadway would have a considerable impact/effect on the "northern" tree preservation area for future grading, cut-fill slope and drainage required. Also, a minimum width of 35 feet is required for any natural open space conservation easements.
23. Extended Detention Computations. No information was provided in the design report to indicate what design treatment volume was utilized design of the BMP's (ie. 2.0 inch per impervious acre for a County A-3 type BMP). No water quality volume computations or extended detention orifice and drawdown time computations were provided for each of the 5 facilities.
24. Stream Channel Protection Computations. No computations were provided to estimate the 1-year, 24-hour storm runoff volume and whether 24 hour detention requirements were met for each of the 5 detention facilities. Include provisions in each of the BMP designs to ensure

compliance with current stream channel protection criteria. Current stream channel protection criteria for James City County requires 24-hour extended detention of the runoff from the 1-year frequency storm instead of reduction of the 2-year peak rate as previously required by MS-19 of the Virginia Erosion and Sediment Control regulations. The SCS Type II, 24-hour storm duration rainfall depth for the 1-year storm event in James City County is 2.8 inches.

25. Predevelopment Hydrology. Please correct subarea X-1 predevelopment peak discharges on sheet C4.01 to reflect values as determined in the drainage report.
26. Predevelopment Hydrology. For most of the predevelopment subareas, a cultivated condition was selected in conjunction with Slagle soils to utilize a CN of 85 for composite runoff curve number computations for each predevelopment subarea. This CN value of 85 defines about 107 acres or 45 percent of the total predevelopment drainage area. This does not appear to correspond to present cover conditions at the site, which would seem better characterized as combination pasture-meadow-wooded (natural range type) cover corresponding to CN value of 70-75 for HSG C soils. Please substantiate use of the higher CN value.
27. BMP Pretreatment. Address BMP pretreatment requirements by use of sediment forebays or other equivalent measure. Sediment forebays are sized to contain 0.1 inch per impervious area and can be counted toward the total water quality volume requirement.
28. Pond Design. No stage-storage data was provided for any of the 5 pond facilities.
29. Pond Design. No elevation-discharge (outlet rating) information was provided for any of the 5 pond facilities.
30. Pond Design. Pond hydraulic routings were performed individually for each facility. It appears that ponds A, B1 and B2 are in an "interconnected" scenario and each individual routing would be highly dependent on the design water surface elevation (as tailwater) of the downstream connected pond. Please substantiate whether tailwater (or downstream water surface elevations) were considered in the pond routings for these BMP's.
31. Emergency Spillways. The design report references use of emergency spillways and a freeboard requirement of 1 foot; however, no embankment-type emergency spillways were found. Please note the Virginia Stormwater Management Handbook recommends 2 feet of freeboard from the maximum 100-year water surface elevation for embankments without emergency spillways.
- * 32. Outlet Pond D. The outlet location for Pond D (Line D-1) should be reconfigured and aligned to not discharge onto an existing natural slope. Outfall discharge onto an existing slope as such may create a rill erosion channel. Use of a riprap lined or paved flume type channel is recommended if the toe between existing ground and the site fill is utilized.
- * 33. Outfall Structure Details. No design data was shown in the outfall control structure schedule (table) on sheet C4.53. No dimension was shown on detail 3 between the pond bottom and top of concrete on the inside face of the structure. Final elevations or dimensions are required for construction purposes for all structural aspects associated with the outfall control structures .

- * 34. Outfall Structure. The erosion and sediment control narrative mentions that the outfall control structures will prevent the bottom six inches of volume in the ponds from discharging; however, detail 1 and 3 on sheet C4.53 shows dual 6" x 6" bleeder orifices at the bottom of pond elevation. Please explain.
- * 35. Outlet Protections. Use of Class I or larger riprap in accordance with the VESCH, Minimum Standards 3.18 and 3.19, is recommended for all standard outlet protections and stilling aprons associated with this project.
36. Structural. Include provisions for trash rack devices on the primary and low flow control orifices for each of the BMP structures. Use ASTM C361 reinforced concrete pipe for all pond outflow structures.
37. Pond Landscaping. Provide a landscaping plan with details as necessary to address landscaping in and around the BMP/pond facility. Indicate any special screening, plantings, vegetation, seeding and mulching or stabilization required to support the permanent pool, shallow marsh, aquatic benches, buffers or design sideslopes, etc. associated with the selected County BMP type.
38. Maintenance Plan. Section 23-10(4) 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.
39. Storm Culverts. Based on hydraulic computations shown on the table on sheet C4.11, road culvert headwater elevations for B-1, B-2 and B-3 exceed the given design centerline roadway or top of berm elevations. On sheet C4.41, show the 10-year WSEL for Line B-3.
40. Storm Drains. No storm hydraulic computations were found for Lines B-5 and C-6.
41. Storm Drains and Culverts. Specify class of reinforced concrete pipe required for storm drains and cross culverts considering live load and burial depth on all applicable plan and profile sheets.
42. Stormwater Conveyance Channels. Provide calculations to support the design of all onsite channels. Include drainage areas, peak design discharges, slopes, lining, sideslopes, etc. Provide typical sections as required for construction of the channels.
43. Geotechnical. Please provide information (soils descriptions, surveys, logs, test results, reports, etc.) as necessary to substantiate that existing soils beneath the 5 facilities are adequate for the final BMP type selected whether dry extended detention, wet extended detention, shallow marsh, etc.