RECEIVED ON
FEB 15 '13
Stormwater Division

James City County Engineering and Resource Protection Division
Stormwater Management/BMP Record Drawing and Construction Certification Review Tracking Form

Project Name: GOODYEAR TIRE CENTER
County Plan No. (List any amendments): SP-112-11
Stormwater Management Facility Type: STORM PIPE
BMP Phase #: ☐ I ☐ II ☐ III

- ☒ Information Package Submittal Date: 2/4/2013
- ☒ Completeness Check:
  - ☒ Record Drawing Date/By: 2/1/13 JASON GRIMES
  - ☒ Construction Certification Date/By: 2/1/13 B. SCOTT GRESHAM
  - ☒ RD/CC Standard Forms (Ensure that all forms for the BMP type are included)
  - ☒ Insp/Maint Agreement # / Date: 120007374
  - ☐ BMP Maintenance Plan Location: NA
  - ☒ Special Considerations: NA
- ☒ Standard E&SC Notes on Approved Plan Requiring RD/CC or County comment in plan review
  Location (sheet #): 4.3 Item 21
- ☒ **County BMP ID Code #:** NA - STORM PIPE ONLY
- ☒ Log into Division's "As-Built Tracking Log"
- ☐ Obtain basic site information (GPIN, Owner, Address, etc.)
- ☐ Log into Access Database (BMP ID #, Plan No., GPIN, Project Name, etc.)
- ☒ Copy from Active Project File (correspondence, H&H, design computations, etc.).
- ☒ Create As-Built File using Project File information (File label, folder, copy plan/details/design information, etc.).
- ☒ Inspector Review of RD/CC (consult with Chief Engineer prior to completion of comments).
- ☒ Record Drawing Review against Approved Plan prior to Field Inspection.
- ☒ Final Site Inspection (FI) Performed Date: 2/9/2013
- ☒ Record Drawing (RD) Review Date: 2/7/2013
- ☒ Construction Certification (CC) Review Date: 2/7/2013
- ☒ Actions:
  - ☒ No comments.
  - ☐ Comments. Letter Forwarded. Date:
  - ☐ Record Drawing (RD)
  - ☐ Construction Certification (CC)
  - ☐ Construction-Related (CR)
  - ☐ Site Issues (SI)
  - ☐ Other :
- ☒ Resubmittal (# and date): NA
- ☒ Re-inspection (if necessary): NA
- ☒ Drainage System Information Acceptable (RD/CC/System Info). Ok for bond release.
- ☒ Complete "Surety Request Form".
- ☐ Final Inspection of active file copying any relevant information to "As-Built" file.
- ☐ On County BMP Inventory (Phase I, II or III).
- ☐ Copy Final Inspection Report into County BMP Inspection Program file.
- ☐ Provide Digital Photographs of BMP and save into County BMP Inventory.
- ☐ Request mylar/reproducible from As-Built plan preparer.
- ☒ Complete "As-built Tracking Log".
- ☐ Last check of BMP Access Database (County BMP Inventory).
- ☐ Add BMP to JCC Hydrology & Hydraulic database (optional).
- ☐ Add BMP to Municipal BMP list (if a County-owned facility)
- ☐ Add BMP to PRIDE BMP ratings database.

Final Sign-Off

Inspector: [signature] Date: 2/8/2013

Chief Engineer: _____ Date: _____

*** See separate checklist, if needed.

Environmental Division

FEB 04 2013

RECEIVED

James City County, Virginia
Stormwater Division

Stormwater Facilities - BMP and Conveyance Systems
Record Drawing and Construction Certification Forms

Note: In accordance with the requirements of the Chesapeake Bay Preservation Ordinance, Chapter 23, Section 23-10(4), BMPs shall be designed and constructed in accordance with the manual entitled* James City County Guidelines for Design and Construction of Stormwater Management BMPs. *The Subdivision Ordinance, Chapter 19-62, the Zoning Ordinance, Chapter 24-159, and approved construction plans generally require that at the completion of the project and prior to release of surety, an "as-built" plan prepared by a registered Professional Engineer or Certified Land Surveyor must be provided for the drainage system for the project including any Best Management Practice (BMP) facilities. In addition, for BMP facilities, written construction certification is required by a Professional Engineer who inspected the structure during its construction. Currently there are over 20 water quality type BMPs accepted by the County.

Section 1 - Site Information:

Project Name: Goodyear Tire Center

Structure/BMP Name: N/A

Project Location: 4830 Monticello Avenue, Williamsburg, VA. 23188

BMP Location: N/A

County Plan No.: SP - 112 - 2011

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

Tax Map/Parcel No.: 3831800003C

BMP ID Code (if known): N/A

Zoning District: _____

Land Use: MU-Mixed

Site Area (sf or acres): 1.04+/- acres

Brief Description of Stormwater Management/BMP Facility:
Approximately 309 linear feet or 15-inch RCP and 156 linear feet of 8-inch RCP

Nearest Visible Landmark to SWM/BMP Facility: N/A

Nearest Vertical Ground Control (if known):

☒ JCC Geodetic Ground Control ☐ USGS ☐ Temporary ☐ Arbitrary ☐ Other

Station Number or Name: Monument 325

Datum or Reference Elevation: NGVD 29

Control Description: _____

Control Location from Subject Facility: _____

Section 2 - Stormwater Management / BMP Facility Construction Information:

Preconstruction Meeting Held for Construction of SWM/BMP Facility: ☐ Yes ☐ No ☑ Unknown

Approx. Construction Start Date for SWM/BMP Facility: 7/12/12

Facility Monitored by County Representative during Construction: ☐ Yes ☐ No ☑ Unknown

Name of Site Work Contractor Who Constructed Facility: C.A. Barrs Contractor

Name of Professional Firm Who Routinely Monitored Construction: ECS Mid-Atlantic, LLC

Date of Completion for SWM/BMP Facility: _____

Date of Record Drawing/Construction Certification Submittal: _____

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

Section 3 - Owner / Designer / Contractor Information:

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

Name: S.L.N. Casey Associates, LLC

Mailing Address: 9211 Forest Hill Avenue, Suite 110, Richmond VA 23235

Business Phone: _____ Fax: 804-330-8924

Contact Person: Jason Gresock Title: _____

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

Firm Name: AES Consulting Engineers

Mailing Address: 5248 Olde Towne Road, Suite 1, Williamsburg, VA 23188

Business Phone: _____ Fax: 757-220-8994

Responsible Plan Preparer: Jason Grimes, P.E.

Title: _____

Plan Name: GY-Goodyear Virginia

Firm's Project No. 9069-11 Plan Date: 9/23/11

Sheet No. Applicable to SWM/BMP Facility: SD-2 / SD-3 / ____ / ____ / ____

Stormwater Facility Contractor: *(Note: Site Work Contractor directly responsible for construction of the Stormwater facilities.)*

Name: C.A. Barrs Contractor

Mailing Address: P.O. Box 1489, Grafton, VA 23692

Business Phone: _____ Fax: 757-898-1282

Contact Person: Scott St. Clair

Site Foreman/Supervisor: _____

Specialty Subcontractors & Purpose (for BMP Construction Only): _____

Section 4 - Professional Certifications:

Certifying Professionals: *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 stormwater facilities for the project including all BMP and conveyance systems. A Registered Professional Engineer is responsible for the inspection, monitoring and certification of all stormwater facilities – BMP and conveyance systems during their construction.*

Record Drawing and Construction Certifications for Stormwater Facilities - BMP and Conveyance Systems

Record Drawing Certification

Firm Name: AES Consulting Engineers
Mailing Address: 5248 Olde Towne Rd, Suite 1
Williamsburg, VA 23188
Business Phone: 757-253-0040
Fax: 757-220-8994

Name: Jason Grimes, P.E.
Title:
Signature:
Date: 2/1/13

I hereby certify to the best of my knowledge and belief that this record drawing represents the actual condition of the Stormwater Facilities. The facilities appear to conform to the provisions of the approved construction plans and specifications except as specifically noted.

COMMONWEALTH OF VIRGINIA
JASON A. GRIMES
Lic. No. 40170
2/1/13
PROFESSIONAL ENGINEER

(Seal)
Virginia Registered Professional Engineer
or Certified Land Surveyor

Construction Certification

Firm Name: ECS Mid-Atlantic, LLC
Mailing Address: 108 Ingram Road, Suite 1
Williamsburg, VA 23188
Business Phone: 757-229-6677
Fax: 757-229-9978

Name: Scott Gresham, P.E.
Title: Construction Services Manager
Signature:
Date: 2/1/13

I hereby certify to the best of my knowledge and belief that these Stormwater Facilities were monitored and constructed in accordance with the provisions of the approved construction plans and specifications except as specifically noted.

COMMONWEALTH OF VIRGINIA
2/1/13
B. SCOTT GRESHAM
Lic. No. 037785
PROFESSIONAL ENGINEER

(Seal)
Virginia Registered
Professional Engineer

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

☑ Preconstruction Meeting - Provides an opportunity to review stormwater facilities construction, maintenance and operation plans, and address any questions regarding construction and/or monitoring of the structure. The certifying professionals, geotechnical engineer, Owner/Applicant, Contractor and County representative(s) are required to attend the preconstruction meeting. Advance notice to the Stormwater Division is required. Usually, this requirement can be met simultaneously with Erosion and Sediment Control preconstruction meeting held for the project.

☑ A fully completed ***Stormwater Facilities – BMP and Conveyance Systems, RECORD DRAWING and CONSTRUCTION CERTIFICATION FORM*** and ***RECORD DRAWING CHECKLIST***. All applicable sections shall be completed in their entirety and certification statements signed and sealed by the registered professional responsible for individual record drawing and/or construction certification.

☑ The Record Drawing shall be prepared by a Registered Professional Engineer or Certified Land Surveyor for the stormwater facilities including all BMPs and conveyance systems.

☑ Construction Certification. Construction of Stormwater BMP facilities which contain impoundments, embankments and related engineered appurtenances including subgrade preparation, compacted soils, structural fills, liners, geosynthetics, filters, seepage controls, cutoffs, toe drains, hydraulic flow control structures, etc. shall be visually observed and monitored by a Registered Professional Engineer or his/her authorized representative. The Engineer must certify that the structure, embankment and associated appurtenances were built in accordance with the approved construction plans and specifications, and standard accepted construction practice and shall submit a written certification and/or drawings to the Stormwater Division as required. Soil and compaction test reports, concrete test reports, inspection reports, logs and other required construction material or installation documentation shall be required by the Stormwater Division to substantiate the certification. The Engineer shall have the authority and responsibility to make minor changes to the approved plan, in coordination with the assigned County inspector, in order to compensate for unsafe or unusual conditions encountered during construction such as those related to bedrock, soils, groundwater, topography, etc. as long as changes do not adversely affect the integrity of the structure(s). Major changes to the approved design plan or structure must be reviewed and approved by the original design professional and the James City County Environmental Division with notification to the Stormwater Division.

☑ Record Drawing and Construction Certifications are required within **thirty (30) days** of the completion of any Stormwater Facility - BMP or conveyance system. Submittals must be reviewed and accepted by James City County Stormwater Division prior to final inspection, acceptance, surety release or issuance of a Certificate of Occupancy.

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

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

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

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

☑ Record Drawings shall provide, at a minimum, all information as shown within these requirements and the attached **RECORD DRAWING CHECKLIST** specific to the type of SWM/BMP facility being constructed. Other additional record data may be formally requested by the James City County Stormwater Division. *(Note: Refer to the current edition of the James City County Guidelines for Design and Construction of Stormwater Management BMP's manual for a complete list of acceptable BMP's. Currently there are over 20 acceptable water quality type BMP's accepted by the County.)*

☑ Record Drawings shall consist of blue/black line prints and a reproducible (mylar, sepia, diazo, etc.) set of the approved stormwater facilities construction plan including applicable plan views, profiles, sections, details, maintenance plans, etc. as related to the subject Stormwater Facility. The set shall indicate "**RECORD DRAWING**" in large text in the lower right hand corner of each sheet with record elevations, dimensions and data drawn in a clearly annotated format and/or boxed beside design values. Approved design plan values, dimensions and data shall not be removed or erased. Drawing sheet revision blocks shall be modified as required to indicate record drawing status. Elevations to the nearest 0.1' are sufficiently accurate except where higher accuracy is needed to show positive drainage. Certification statements as shown in Section 4 of the Record Drawing and Construction Certification Form, ***or similar forms thereof***, and professional signatures and seals, with dates matching that of the record drawing status in the revision or title block, are also required on all associated record drawing plans, prints or reproducibles.

☑ Submission Requirements. Initial and subsequent submissions for review shall consist of a minimum of one (1) blue/black line set for record drawings and one copy of the construction certification documents with appropriate transmittal. Under certain circumstances, it is understood that the record drawing and construction certification submissions may be performed by different professional firms. Therefore, record drawing submission may be in advance of construction certification or vice versa. Upon approval and prior to release of surety or a Certificate of Occupancy, final submission shall include one (1) reproducible set of the record drawings, one (1) blue/black line set of the record drawings and one (1) copy of the construction certification. Also for current and/or future incorporation into the County BMP database and GIS system, it is requested that the record drawings also be submitted to the Stormwater Division on a diskette or CD-ROM in an acceptable electronic file format such as *.dxf, *.dwg, etc. or in a standard scanned and readable format. The electronic file requirement can be discussed and coordinated with Stormwater Division staff at the time of final submission.

Environmental Division

FEB 04 2013

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James City County, Virginia
Stormwater Division

Stormwater Facilities - BMP and Conveyance Systems
Record Drawing and Construction Certification Forms

Note: In accordance with the requirements of the Chesapeake Bay Preservation Ordinance, Chapter 23, Section 23-10(4), BMPs shall be designed and constructed in accordance with the manual entitled* James City County Guidelines for Design and Construction of Stormwater Management BMPs. *The Subdivision Ordinance, Chapter 19-62, the Zoning Ordinance, Chapter 24-159, and approved construction plans generally require that at the completion of the project and prior to release of surety, an "as-built" plan prepared by a registered Professional Engineer or Certified Land Surveyor must be provided for the drainage system for the project including any Best Management Practice (BMP) facilities. In addition, for BMP facilities, written construction certification is required by a Professional Engineer who inspected the structure during its construction. Currently there are over 20 water quality type BMPs accepted by the County.

Section 1 - Site Information:

Project Name: Goodyear Tire Center

Structure/BMP Name: N/A

Project Location: 4830 Monticello Avenue, Williamsburg, VA. 23188

BMP Location: N/A

County Plan No.: SP - 112 - 2011

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

Tax Map/Parcel No.: 3831800003C

BMP ID Code (if known): N/A

Zoning District:

Land Use: MU-Mixed

Site Area (sf or acres): 1.04+/- acres

Brief Description of Stormwater Management/BMP Facility:
Approximately 309 linear feet or 15-inch RCP and 156 linear feet of 8-inch RCP

Nearest Visible Landmark to SWM/BMP Facility: N/A

Nearest Vertical Ground Control (if known):

☒ JCC Geodetic Ground Control ☐ USGS ☐ Temporary ☐ Arbitrary ☐ Other

Station Number or Name: Monument 325

Datum or Reference Elevation: NGVD 29

Control Description:

Control Location from Subject Facility:

Section 2 - Stormwater Management / BMP Facility Construction Information:

Preconstruction Meeting Held for Construction of SWM/BMP Facility: ☐ Yes ☐ No ☑ Unknown

Approx. Construction Start Date for SWM/BMP Facility: 7/12/12

Facility Monitored by County Representative during Construction: ☐ Yes ☐ No ☑ Unknown

Name of Site Work Contractor Who Constructed Facility: C.A. Barrs Contractor

Name of Professional Firm Who Routinely Monitored Construction: ECS Mid-Atlantic, LLC

Date of Completion for SWM/BMP Facility: _____

Date of Record Drawing/Construction Certification Submittal: _____

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Section 3 - Owner / Designer / Contractor Information:

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

Name: S.L.N. Casey Associates, LLC

Mailing Address: 9211 Forest Hill Avenue, Suite 110, Richmond VA 23235

Business Phone: _____ Fax: 804-330-8924

Contact Person: Jason Gresock Title: _____

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

Firm Name: AES Consulting Engineers

Mailing Address: 5248 Olde Towne Road, Suite 1, Williamsburg, VA 23188

Business Phone: _____ Fax: 757-220-8994

Responsible Plan Preparer: Jason Grimes, P.E.

Title: _____

Plan Name: GY-Goodyear Virginia

Firm's Project No. 9069-11 Plan Date: 9/23/11

Sheet No. Applicable to SWM/BMP Facility: SD-2 / SD-3 / ____ / ____ / ____

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Record Drawing and Construction Certifications for Stormwater Facilities - BMP and Conveyance Systems

Record Drawing Certification

Firm Name: AES Consulting Engineers
Mailing Address: 5248 Olde Towne Rd, Suite 1
Williamsburg, VA 23188
Business Phone: 757-253-0040
Fax: 757-220-8994

Name: Jason Grimes, P.E.
Title:
Signature:
Date: 2/1/13

I hereby certify to the best of my knowledge and belief that this record drawing represents the actual condition of the Stormwater Facilities. The facilities appear to conform to the provisions of the approved construction plans and specifications except as specifically noted.

COMMONWEALTH OF VIRGINIA
JASON A. GRIMES
Lic. No. 40170
2/1/13
PROFESSIONAL ENGINEER

(Seal)
Virginia Registered Professional Engineer
or Certified Land Surveyor

Construction Certification

Firm Name: ECS Mid-Atlantic, LLC
Mailing Address: 108 Ingram Road, Suite 1
Williamsburg, VA 23188
Business Phone: 757-229-6677
Fax: 757-229-9978

Name: Scott Gresham, P.E.
Title: Construction Services Manager
Signature:
Date: 2/1/13

I hereby certify to the best of my knowledge and belief that these Stormwater Facilities were monitored and constructed in accordance with the provisions of the approved construction plans and specifications except as specifically noted.

COMMONWEALTH OF VIRGINIA
2/1/13
B. SCOTT GRESHAM
Lic. No. 037785
PROFESSIONAL ENGINEER

(Seal)
Virginia Registered
Professional Engineer

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

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☑ Submission Requirements. Initial and subsequent submissions for review shall consist of a minimum of one (1) blue/black line set for record drawings and one copy of the construction certification documents with appropriate transmittal. Under certain circumstances, it is understood that the record drawing and construction certification submissions may be performed by different professional firms. Therefore, record drawing submission may be in advance of construction certification or vice versa. Upon approval and prior to release of surety or a Certificate of Occupancy, final submission shall include one (1) reproducible set of the record drawings, one (1) blue/black line set of the record drawings and one (1) copy of the construction certification. Also for current and/or future incorporation into the County BMP database and GIS system, it is requested that the record drawings also be submitted to the Stormwater Division on a diskette or CD-ROM in an acceptable electronic file format such as *.dxf, *.dwg, etc. or in a standard scanned and readable format. The electronic file requirement can be discussed and coordinated with Stormwater Division staff at the time of final submission.

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

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

X 1. All constructed facilities meet approved design plans, unless otherwise shown. Record information or deviations from approved design plan shown in clearly annotated format and/or boxed beside design values.

X 2. Elevations to the nearest 0.1' unless higher accuracy is needed to show positive drainage.

X 3. All plan sheets labeled with "RECORD DRAWING" in large text in lower right hand corner. Include approved County Plan Number and BMP ID Code if known.

X 4. All plan sheet revision blocks modified to indicate date and record drawing status.

X 5. All plan sheets have certification statements and certifying professional's signature and seal.

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

X 1. All requirements of Section I (Methods and Presentation) apply to this section.

X 2. Plan Views: Show general location, arrangement and dimensions. Location and alignment shall generally match approved design plans.

N/A 3. Profile or elevations along top or berm of the facility. At a minimum, elevations are required at each end, at intervals not to exceed 50 feet and where low spots may be present. Top of embankment or berm elevations must be no less than design elevation plus any settlement allowances.

N/A 4. Top widths, berm widths and embankment side slopes.

N/A 5. Show length, width and depth of facility or grading, contours or spot elevations as required to verify permanent pool and design storage volumes were met or were reasonably close to the approved design. Evaluation of as-built grading, contours, spot elevations, or cross-sections, may be necessary by the professional to ensure approved design configurations, depths and volumes were closely maintained. If grading or elevations are significantly different from the approved plan, the Stormwater Division shall be contacted immediately to determine whether the variation is acceptable or whether further evidence will be required. Facilities which do not closely resemble approved plan grades, elevations or configurations may require regrading by the Contractor; check volumetric computations; and/or a check hydraulic routing to ensure approved design water surface elevations, discharges or freeboard were closely maintained.

N/A 6. Cross-section of the embankment through the principal spillway or outlet barrel. Must extend at least 100 ft. downstream of the pipe outlet or to recorded site property line, whichever is closer. Proper correlation is required between principal spillway (control structure) crest, emergency spillway crest, orifice and weirs and the top of the dam or facility. All elevations and dimensions must reasonably match the design plan or be sequentially relative to each other and the facility must reflect the required design storage

volume(s) and/or design depth.

N/A 7. Profile or elevations along the entire centerline of the emergency spillway. Emergency spillway may be steeper, but no flatter or narrower than design.

_____ 8. Elevation of the principal spillway crest or outlet crest of the structure.

_____ 9. Primary control structure (riser) diameter or dimensions, height, type of material and base size. Indicate provisions for access that are present such as steps, ladders, etc.

_____ 10. Dimensions, locations and elevations of outlet orifices, weirs, slots and drains.

_____ 11. Type and size of anti-vortex and trash rack device. Height, diameter, dimensions, bar spacings (if applicable) and elevations relative to the principal spillway crest. Indicate if lockable hatch is present or not.

_____ 12. Type, location, size and number of anti-seep collars or documentation of other methods utilized for seepage control. **May need to obtain this information during construction.**

_____ 13. Top of impervious core embankment, core trench limits and elevation of cut-off trench bottom. **May need to obtain this information during construction.**

_____ 14. Elevation of the principal spillway barrel (outlet pipe) inlet and outlet invert.

_____ 15. Outlet barrel diameter, length, slope, type and thickness class of material and type of flared end sections, headwall or endwall.

_____ 16. Outfall protection dimension, type and depth of rock and if underlain filter fabric is present.

_____ 17. BMP interior and periphery landscaping zones conform with arrangements and requirements of the approved design plan.

_____ 18. Maintenance plan taken from approved design plan transposed onto record drawing set.

_____ 19. Fencing location and type, if applicable to facility.

_____ 20. BMP vicinity properly cleaned of stockpiles and construction debris.

_____ 21. No visual signs of erosion or channel degradation immediately downstream of facility.

_____ 22. Any other information formally requested by the Stormwater Division specific to the constructed Stormwater BMP facility.

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

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

_____ A1. All requirements of Section II, Minimum Standards, apply to Group A facilities.

_____ A2. Principal spillway consists of reinforced concrete pipe with O-Ring gaskets for watertight joint construction.

_____ A3. Sediment forebays or pretreatment devices provided at inlets to pond. Generally 4 to 6 ft. deep.

_____ A4. Access for maintenance and equipment is provided to the forebay(s). Access corridors are at least 12 ft. wide, have a maximum slope of 15 percent and are adequately stabilized to withstand heavy equipment or vehicle use.

_____ A5. Adequate fixed vertical sediment depth markers installed in the forebay(s) for future sediment monitoring purposes.

_____ A6. Pond liner (if required) provided. Either clay liners, polyliners, bentonite liners or use of chemical soil additives based on requirements of the approved plan.

_____ A7. Minimum 6 percent slope safety bench extending a minimum of 15 feet outward from normal pool edge and/or an aquatic bench extending a minimum of 10 feet inward from the normal shoreline with a maximum depth of 12 inches below the normal pool elevation, if applicable, per the approved design plans. (Note: Safety benches may be waived if pond side slopes are no steeper than 4H:1V).

_____ A8. No trees are present within a zone 15 feet around the embankment toe and 25 feet from the principal spillway structure.

_____ A9. Wet permanent pool, typically 3 to 6 feet deep, is provided and maintains level within facility.

_____ A10. Low flow orifice has a non-clogging mechanism.

_____ A11. A pond drain pipe with valve was provided.

_____ A12. Pond side slopes are not steeper than 3H:1V, unless approved plan allowed for steeper slope.

_____ A13. End walls above barrels (outlet pipe) greater than 48 inch in diameter are fenced to prevent a fall hazard.

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

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

_____ B1. Same requirements as Group A Wet Ponds.

_____ B2. Minimum 2:1 length to width flow path provided across the facility.

_____ B3. Micropool provided at or around outlet from BMP (generally 3 to 6 ft. deep).

_____ B4. Wetland type landscaping provided in accordance with approved plan. Includes correct pondscaping zones, plant species, planting arrangements, wetland beds, etc. Wetland plants include 5 to 7 emergent wetland species. Individual plants at 18 inches on center in clumps.

_____ B5. Adequate wetland buffer provided (Typically 25 ft. outward from maximum design water surface elevation and 15 ft. setback to structures).

_____ B6. No more than one-half (½) of the wetland surface area is planted.

_____ B7. Topsoil or wetland mulch provided to support vigorous growth of wetland plants.

_____ B8. Planting zones staked or flagged in field and locations subsequently established by appropriate field surveying methods for record drawing presentation.

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

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

N/A C1. All requirements of Section II, Minimum Standards, apply to Group C facilities as applicable.

_____ C2. Facility is not located on fill slopes or on natural ground in excess of six (6) percent.

_____ C3. Pretreatment devices provided prior to entry into the infiltration facility. Acceptable pretreatment devices include sediment forebays, sediment basins, sediment traps, sump pits or inlets, grass channels, plunge pools or other acceptable measures.

_____ C4. Three (3) or more of the following pretreatment devices provided to protect long term integrity of structure: grass channel; grass filter strip; bottom sand layer; upper filter fabric layer; use of washed bank run gravel aggregate.

_____ C5. Sides of infiltration practice lined with filter fabric.

_____ C6. Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction.

_____ C7. Stabilization and acceptable vegetative cover established over contributing drainage area prior to conveyance of stormwater to the facility.

_____ C8. Minimum one hundred (100) foot separation horizontally from any known water supply well and minimum one hundred (100) foot separation upslope from any building.

_____ C9. Minimum twenty-five (25) foot separation down gradient from any structure.

_____ C10. Stormwater outfalls provided for overflow associated with larger design storms.

_____ C11. No visual signs of erosion or channel degradation immediately downstream of facility.

_____ C12. Facility does not currently cause any apparent surface or subsurface water problems to downgrade properties.

_____ C13. Observation well provided.

_____ C14. Adequate, direct access provided to the facility for future maintenance, operation and inspection.

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

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

N/A D1. All requirements of Section II, Minimum Standards, apply to Group D facilities.

_____ D2. Sediment pretreatment devices provided.

_____ D3. For D-1 BMPs (Bioretention Cells), pretreatment consisting of a grass filter strip below level spreader (deflector); a gravel diaphragm; and mulch and planting soil layers were provided.

_____ D4. For D-1 BMPs (Bioretention Cells), plantings consist of native plant species; vegetation provided was based on zones of hydric tolerances; trees and understory of shrubs and herbaceous materials were provided; woody vegetation is absent from inflow locations; and trees are located around facility perimeter.

_____ D5. Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction.

_____ D6. No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed .

_____ D7. Filtering system is off-line from storm drainage conveyance system.

_____ D8. Overflow outlet has adequate erosion protection.

_____ D9. Deflector, diversion, flow splitter or regulator structure provided to divert the water quality volume to the filtering structure.

_____ D10. Minimum four (4) inch perforated underdrain provided in a clean aggregate envelope layer beneath the facility.

_____ D11. Minimum fifty (50) foot separation from any slope fifteen (15) percent or greater. Minimum one hundred (100) foot separation horizontally from any known water supply well. Minimum one hundred (100) foot separation upslope and twenty-five (25) foot separation downslope from any building.

_____ D12. Stabilization and acceptable vegetative cover established over contributing drainage area prior to conveyance of stormwater to the facility.

_____ D13. No visual signs of erosion or channel degradation immediately downstream of facility.

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

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
AS-BUILT PLAN CHECKLIST

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

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

N/A E1. All requirements of Section II, Minimum Standards, apply to Group E facilities as applicable.

_____E2. Open channel system has constructed longitudinal slope of less than four (4) percent.

✓ E3. No visual signs of erosion in the open channel system's soil and/or vegetative cover.

_____E4. Open channel side slopes are no steeper than 2H:1V at any location. Preferred channel sideslope is 3H:1V or flatter.

_____E5. No visual signs of ponding are present at any location in the open channel system, except at rock check dam locations for E-1 systems (Wet Swales).

_____E6. For E-2 BMPs (Dry Swales), an underdrain system was provided.

_____E7. Treated timber or rock check dams provided as pretreatment devices for the open channel system.

_____E8. Gravel diaphragm provided in areas where lateral sheet flow from impervious surfaces are directly connected to the open channel system.

_____E9. Grass cover/stabilization in the open channel system appears adaptable to the specific soils and hydric conditions for the site and along the channel system.

_____E10. Open channel system areas with grass covers higher than four (4) to six (6) inches were properly mowed.

_____E11. Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction.

_____E12. No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed and no adverse affects to the function of the facility are anticipated.

_____E13. For E-3 BMPs (Biofilters), the bottom width is six (6) feet maximum at any location.

_____E14. For E-3 BMPs (Biofilters), sideslopes are 3H:1V maximum at any location.

_____E15. For E-3 BMPs (Biofilters), the constructed channel slope is less than or equal to three (3) percent at any location.

_____E16. For E-3 BMPs (Biofilters), the constructed grass channel is approximately equivalent to the constructed roadway length.

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

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

N/A F1. All requirements of Section II, Minimum Standards, apply to Group F facilities.

____F2. Basin bottom has positive slope and drainage from all basin inflow points to the riser (or outflow) location.

____F3. Timber wall BMP used in intermittent stream only. (ie. Prohibited in perennial streams.)

____F4. Forebay provided approximately 20 ft. upstream of the facility. Forebays generally 4 to 6 feet in depth.

____F5. A reverse slope pipe, vertical stand pipe or mini-barrel and riser was provided to prevent clogging.

____F6. Principal spillway and outlet barrel provided consisting of reinforced concrete pipe with O-Ring gaskets for watertight joint construction.

____F7. Mini-barrel and riser, if used, contains a removable trash rack to reduce clogging.

____F8. Low flow orifice, if used, has a minimum diameter of three (3) inches or two (2) inches if internal orifice control was utilized and a small, cage type external trash rack.

____F9. Timbers properly reinforced or concrete footing provided if soil conditions were prohibitive.

____F10. Timber wall cross members extended to a minimum depth of two (2) feet below ground elevation.

____F11. Protection against erosion and scour from the low flow orifice and weir-flow trajectory provided.

____F12. Stilling basin or standard outlet protection provided at principal spillway outlet.

____F13. Adequate, direct access provided to the facility. Access corridor to facility is at least ten (10) feet wide, slope is less than twenty (20) percent and appropriate stabilization provided for equipment and vehicle use. Access extends to forebay, standpipe and timber wall, as applicable.

____F14. No visual signs of undercutting of timber walls or clogging of the low orifice were present.

____F15. No visual signs of erosion or channel degradation immediately downstream of facility.

____F16. No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed and no adverse affects to the function of the facility are anticipated.

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

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

N/A G1. All requirements of Section II, Minimum Standards, apply to Group G facilities as applicable.

____ G2. Constructed impervious areas appear to conform with locations indicated on the approved plan and appear less than sixty (60) percent impervious in accordance with the requirements of the James City County Chesapeake Bay Preservation Ordinance.

____ G3. Dedicated open space areas are in undisturbed common areas, conservation easements or are protected by other enforceable instruments that ensures perpetual protection.

____ G4. Provisions included to clearly specify how the natural vegetated areas utilized as dedicated open space will be managed and field identified (marked).

____ G5. Adequate protection measures were implemented during construction to protect the defined dedicated open space areas.

____ G6. Dedicated open space areas were not disturbed during construction (ie. cleared, grubbed or graded).

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

X. Storm Drainage Systems, closed and open

(Includes all stormwater drainage conveyance systems such as onsite or offsite storm drains, open channels, inlets, manholes, junctions, outlet protections, deflectors, etc. The intent of this portion of the certification is toensure the drainage conveyance facilities are constructed in accordance with the construction plans and specifications so that they convey the desing flow levels and don not require excessive maintenance.)

X SD1. All requirements of Section II, Minimum Standards, apply to Storm Conveyance systems.

X SD2. Horizontal location of all pipes, structures and channels relative to the approved plan.

X SD3. Type, top elevation and invert elevation of all closed system access structures (inlets, manholes, etc.).

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

N/A SD5. Channel cross-section and invert elevations at 100 foot intervals. Channel liners as specified on the construction plans.

N/A SD6. Class, length, width and depth of riprap and outlet protections or dimensions of special energy dissipation structures.

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

N/A O1. All requirements of Section II, Minimum Standards, apply to this section.

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

STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING CHECKLIST

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

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

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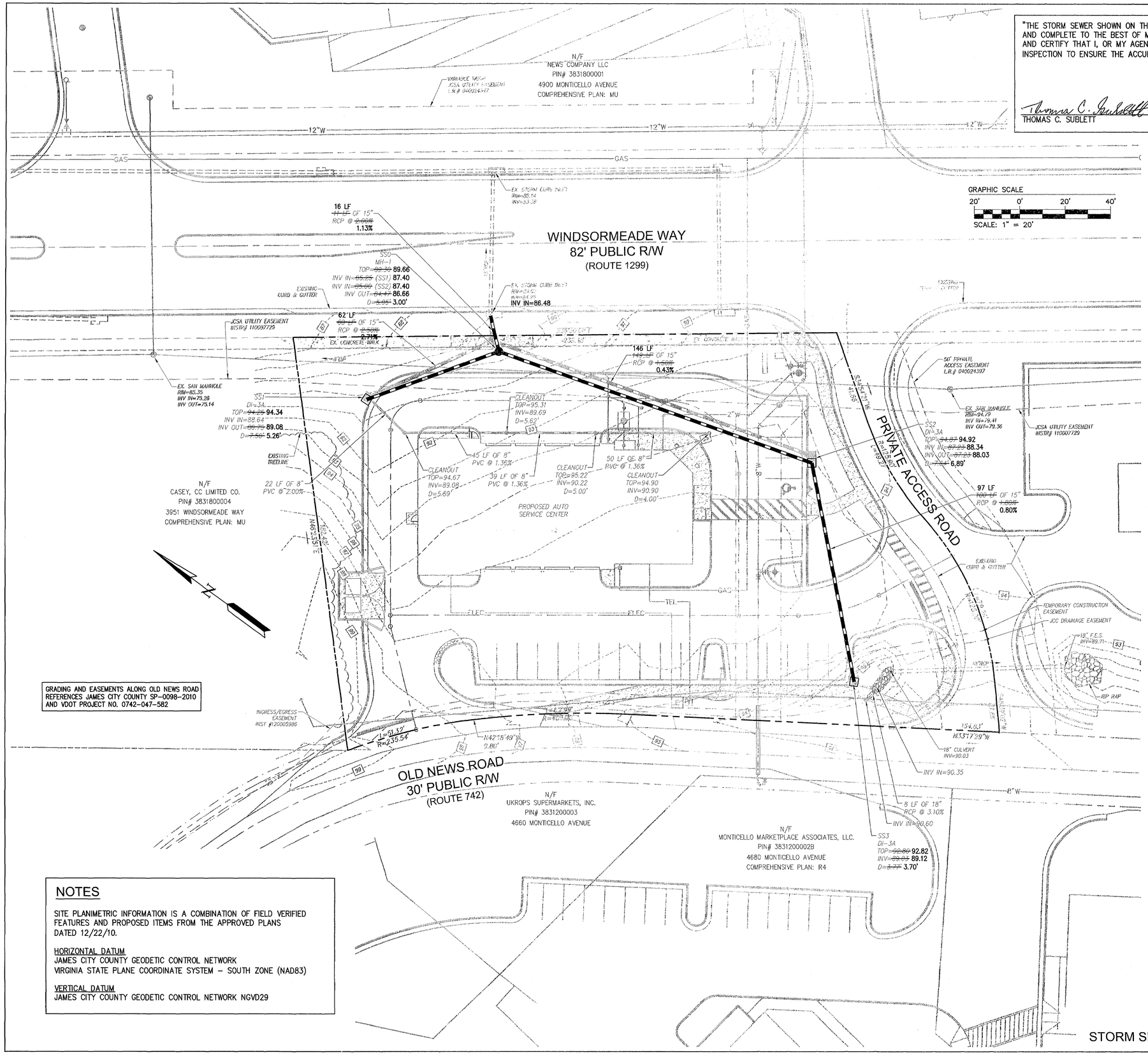
"THE STORM SEWER SHOWN ON THESE DRAWINGS, IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF AND CERTIFY THAT I, OR MY AGENT, HAVE MADE SUFFICIENT INSPECTION TO ENSURE THE ACCURACY OF THIS STATEMENT."

COMMONWEALTH OF VIRGINIA
THOMAS C. SUBLETT
LIC. No. 1886
2/4/13
LAND SURVEYOR

Thomas C. Sublett 2/4/13
THOMAS C. SUBLETT DATE



NOTES

SITE PLANIMETRIC INFORMATION IS A COMBINATION OF FIELD VERIFIED FEATURES AND PROPOSED ITEMS FROM THE APPROVED PLANS DATED 12/22/10.

HORIZONTAL DATUM
JAMES CITY COUNTY GEODETIC CONTROL NETWORK
VIRGINIA STATE PLANE COORDINATE SYSTEM – SOUTH ZONE (NAD83)

VERTICAL DATUM
JAMES CITY COUNTY GEODETIC CONTROL NETWORK NGVD29

STORM SEWER RECORD DRAWING 2/4/13

GOODYEAR

PROJECT TITLE & ADDRESS

GY-GOODYEAR VIRGINIA
4830 MONTICELLO AVE
WILLIAMSBURG
VIRGINIA, 23188

GOODYEAR REAL ESTATE NUMBER	GOODYEAR JOB NUMBER
JC-01-10	B - 0086

GOODYEAR DRAWING REVIEW

	FORWARD TO DEPTS.	NO EXCEPTIONS TAKEN	NOTE MARKINGS	REVISE AND RESUBMIT	DEPTS.
ARCH.					
INTER					
CIVIL					
STRUCT.					
MECH.					
ELEC.					

The review of shop drawings is for general conformance with the design concept and contract documents. Markings or comments shall not be construed as relieving the Contractor from compliance with the project plans and specifications, nor departures therefrom. The Architect remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes, for techniques of assembly and for performing his work in a safe manner.

NO EXCEPTION TAKEN
NOTE MARKINGS
REVISE & RESUBMIT
APPROVED AS NOTED

DATE: _____ BY: _____

ISSUED BLOCK

NO.	DATE	DESCRIPTION

CONSULTANT STAMPS

CONSULTANT'S LOGO

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
Phone: (757) 253-0040
Fax: (757) 220-8994
www.aesva.com
Hampton Roads | Central Virginia | Middle Peninsula

CONSULTANT'S JOB NUMBER
PROJECT #: 9069-11

DRAWN BY	CHECKED BY
AMR	JAG

DRAWING TITLE
STORM AS-BUILT

ISSUE DATE	DRAWING NUMBER
2/4/2013	1 OF 1

GOODYEAR AUTHORIZATION NUMBER

Environmental Division
FEB 04 2013
RECEIVED

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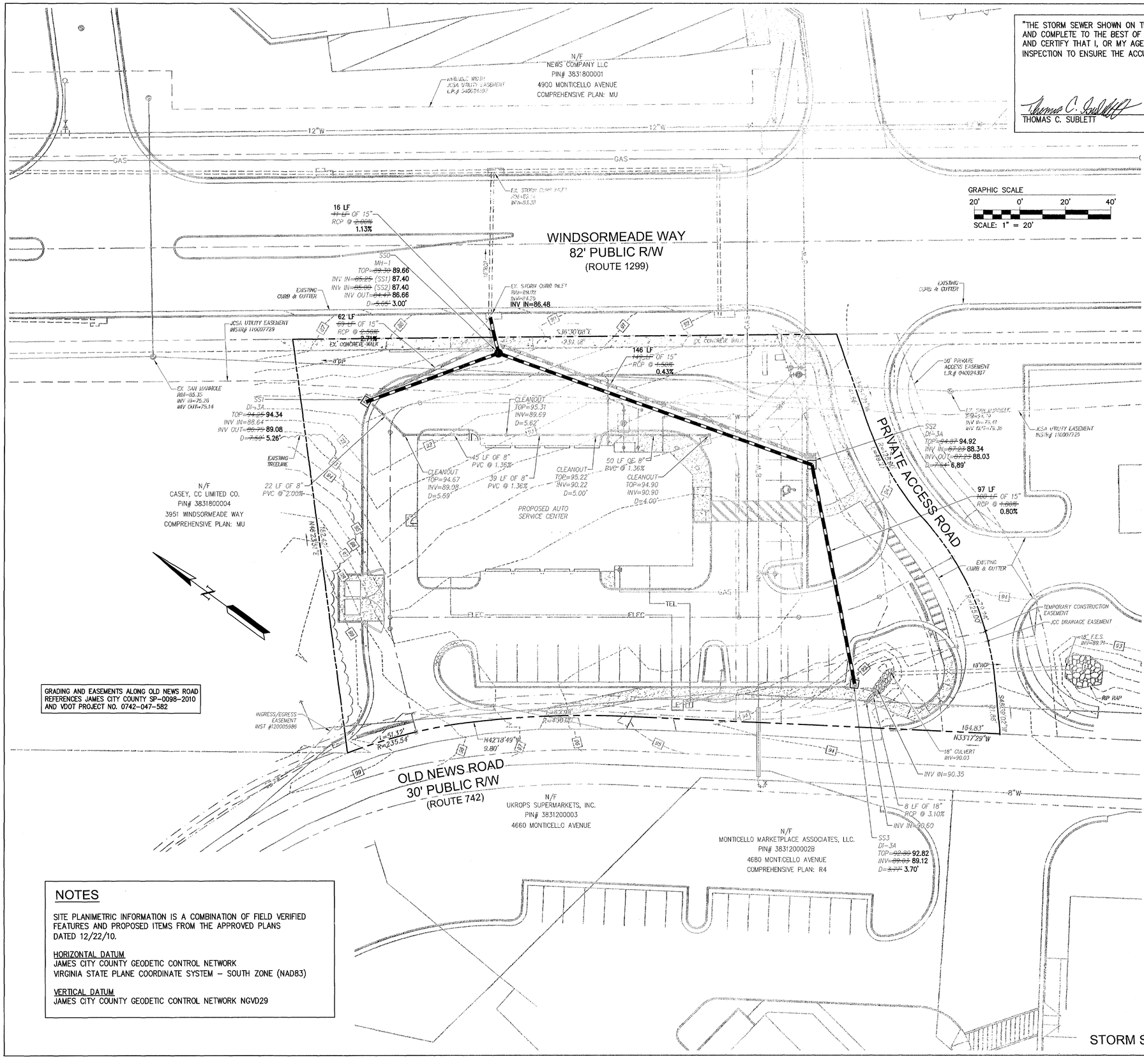
COMMONWEALTH OF VIRGINIA — THOMAS C. SUBLETT — Lic. No. 1886 — 2/4/13 — LAND SURVEYOR

Thomas C. Sublett 2/4/13
THOMAS C. SUBLETT DATE



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VIRGINIA STATE PLANE COORDINATE SYSTEM – SOUTH ZONE (NAD83)

VERTICAL DATUM
JAMES CITY COUNTY GEODETIC CONTROL NETWORK NGVD29

STORM SEWER RECORD DRAWING 2/4/13

GOODYEAR

PROJECT TITLE & ADDRESS

GY-GOODYEAR VIRGINIA
4830 MONTICELLO AVE
WILLIAMSBURG
VIRGINIA, 23188

GOODYEAR REAL ESTATE NUMBER	GOODYEAR JOB NUMBER
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NO EXCEPTION TAKEN
NOTE MARKINGS
REVISE & RESUBMIT
APPROVED AS NOTED

DATE: _____ BY: _____

ISSUED BLOCK

NO.	DATE	DESCRIPTION

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DRAWING TITLE
STORM AS-BUILT

ISSUE DATE	DRAWING NUMBER
2/4/2013	1 OF 1

GOODYEAR AUTHORIZATION NUMBER

Environmental Division
FEB 04 2013
RECEIVED

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

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

X 1. All constructed facilities meet approved design plans, unless otherwise shown. Record information or deviations from approved design plan shown in clearly annotated format and/or boxed beside design values.

X 2. Elevations to the nearest 0.1' unless higher accuracy is needed to show positive drainage.

X 3. All plan sheets labeled with "RECORD DRAWING" in large text in lower right hand corner. Include approved County Plan Number and BMP ID Code if known.

X 4. All plan sheet revision blocks modified to indicate date and record drawing status.

X 5. All plan sheets have certification statements and certifying professional's signature and seal.

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

X 1. All requirements of Section I (Methods and Presentation) apply to this section.

X 2. Plan Views: Show general location, arrangement and dimensions. Location and alignment shall generally match approved design plans.

N/A 3. Profile or elevations along top or berm of the facility. At a minimum, elevations are required at each end, at intervals not to exceed 50 feet and where low spots may be present. Top of embankment or berm elevations must be no less than design elevation plus any settlement allowances.

N/A 4. Top widths, berm widths and embankment side slopes.

N/A 5. Show length, width and depth of facility or grading, contours or spot elevations as required to verify permanent pool and design storage volumes were met or were reasonably close to the approved design. Evaluation of as-built grading, contours, spot elevations, or cross-sections, may be necessary by the professional to ensure approved design configurations, depths and volumes were closely maintained. If grading or elevations are significantly different from the approved plan, the Stormwater Division shall be contacted immediately to determine whether the variation is acceptable or whether further evidence will be required. Facilities which do not closely resemble approved plan grades, elevations or configurations may require regrading by the Contractor; check volumetric computations; and/or a check hydraulic routing to ensure approved design water surface elevations, discharges or freeboard were closely maintained.

N/A 6. Cross-section of the embankment through the principal spillway or outlet barrel. Must extend at least 100 ft. downstream of the pipe outlet or to recorded site property line, whichever is closer. Proper correlation is required between principal spillway (control structure) crest, emergency spillway crest, orifice and weirs and the top of the dam or facility. All elevations and dimensions must reasonably match the design plan or be sequentially relative to each other and the facility must reflect the required design storage

volume(s) and/or design depth.

N/A 7. Profile or elevations along the entire centerline of the emergency spillway. Emergency spillway may be steeper, but no flatter or narrower than design.

_____ 8. Elevation of the principal spillway crest or outlet crest of the structure.

_____ 9. Primary control structure (riser) diameter or dimensions, height, type of material and base size. Indicate provisions for access that are present such as steps, ladders, etc.

_____ 10. Dimensions, locations and elevations of outlet orifices, weirs, slots and drains.

_____ 11. Type and size of anti-vortex and trash rack device. Height, diameter, dimensions, bar spacings (if applicable) and elevations relative to the principal spillway crest. Indicate if lockable hatch is present or not.

_____ 12. Type, location, size and number of anti-seep collars or documentation of other methods utilized for seepage control. **May need to obtain this information during construction.**

_____ 13. Top of impervious core embankment, core trench limits and elevation of cut-off trench bottom. **May need to obtain this information during construction.**

_____ 14. Elevation of the principal spillway barrel (outlet pipe) inlet and outlet invert.

_____ 15. Outlet barrel diameter, length, slope, type and thickness class of material and type of flared end sections, headwall or endwall.

_____ 16. Outfall protection dimension, type and depth of rock and if underlain filter fabric is present.

_____ 17. BMP interior and periphery landscaping zones conform with arrangements and requirements of the approved design plan.

_____ 18. Maintenance plan taken from approved design plan transposed onto record drawing set.

_____ 19. Fencing location and type, if applicable to facility.

_____ 20. BMP vicinity properly cleaned of stockpiles and construction debris.

_____ 21. No visual signs of erosion or channel degradation immediately downstream of facility.

_____ 22. Any other information formally requested by the Stormwater Division specific to the constructed Stormwater BMP facility.

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

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

_____ A1. All requirements of Section II, Minimum Standards, apply to Group A facilities.

_____ A2. Principal spillway consists of reinforced concrete pipe with O-Ring gaskets for watertight joint construction.

_____ A3. Sediment forebays or pretreatment devices provided at inlets to pond. Generally 4 to 6 ft. deep.

_____ A4. Access for maintenance and equipment is provided to the forebay(s). Access corridors are at least 12 ft. wide, have a maximum slope of 15 percent and are adequately stabilized to withstand heavy equipment or vehicle use.

_____ A5. Adequate fixed vertical sediment depth markers installed in the forebay(s) for future sediment monitoring purposes.

_____ A6. Pond liner (if required) provided. Either clay liners, polyliners, bentonite liners or use of chemical soil additives based on requirements of the approved plan.

_____ A7. Minimum 6 percent slope safety bench extending a minimum of 15 feet outward from normal pool edge and/or an aquatic bench extending a minimum of 10 feet inward from the normal shoreline with a maximum depth of 12 inches below the normal pool elevation, if applicable, per the approved design plans. (Note: Safety benches may be waived if pond side slopes are no steeper than 4H:1V).

_____ A8. No trees are present within a zone 15 feet around the embankment toe and 25 feet from the principal spillway structure.

_____ A9. Wet permanent pool, typically 3 to 6 feet deep, is provided and maintains level within facility.

_____ A10. Low flow orifice has a non-clogging mechanism.

_____ A11. A pond drain pipe with valve was provided.

_____ A12. Pond side slopes are not steeper than 3H:1V, unless approved plan allowed for steeper slope.

_____ A13. End walls above barrels (outlet pipe) greater than 48 inch in diameter are fenced to prevent a fall hazard.

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

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

_____ B1. Same requirements as Group A Wet Ponds.

_____ B2. Minimum 2:1 length to width flow path provided across the facility.

_____ B3. Micropool provided at or around outlet from BMP (generally 3 to 6 ft. deep).

_____ B4. Wetland type landscaping provided in accordance with approved plan. Includes correct pondscaping zones, plant species, planting arrangements, wetland beds, etc. Wetland plants include 5 to 7 emergent wetland species. Individual plants at 18 inches on center in clumps.

_____ B5. Adequate wetland buffer provided (Typically 25 ft. outward from maximum design water surface elevation and 15 ft. setback to structures).

_____ B6. No more than one-half (½) of the wetland surface area is planted.

_____ B7. Topsoil or wetland mulch provided to support vigorous growth of wetland plants.

_____ B8. Planting zones staked or flagged in field and locations subsequently established by appropriate field surveying methods for record drawing presentation.

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

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

N/A C1. All requirements of Section II, Minimum Standards, apply to Group C facilities as applicable.

_____ C2. Facility is not located on fill slopes or on natural ground in excess of six (6) percent.

_____ C3. Pretreatment devices provided prior to entry into the infiltration facility. Acceptable pretreatment devices include sediment forebays, sediment basins, sediment traps, sump pits or inlets, grass channels, plunge pools or other acceptable measures.

_____ C4. Three (3) or more of the following pretreatment devices provided to protect long term integrity of structure: grass channel; grass filter strip; bottom sand layer; upper filter fabric layer; use of washed bank run gravel aggregate.

_____ C5. Sides of infiltration practice lined with filter fabric.

_____ C6. Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction.

_____ C7. Stabilization and acceptable vegetative cover established over contributing drainage area prior to conveyance of stormwater to the facility.

_____ C8. Minimum one hundred (100) foot separation horizontally from any known water supply well and minimum one hundred (100) foot separation upslope from any building.

_____ C9. Minimum twenty-five (25) foot separation down gradient from any structure.

_____ C10. Stormwater outfalls provided for overflow associated with larger design storms.

_____ C11. No visual signs of erosion or channel degradation immediately downstream of facility.

_____ C12. Facility does not currently cause any apparent surface or subsurface water problems to downgrade properties.

_____ C13. Observation well provided.

_____ C14. Adequate, direct access provided to the facility for future maintenance, operation and inspection.

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

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

N/A D1. All requirements of Section II, Minimum Standards, apply to Group D facilities.

_____ D2. Sediment pretreatment devices provided.

_____ D3. For D-1 BMPs (Bioretention Cells), pretreatment consisting of a grass filter strip below level spreader (deflector); a gravel diaphragm; and mulch and planting soil layers were provided.

_____ D4. For D-1 BMPs (Bioretention Cells), plantings consist of native plant species; vegetation provided was based on zones of hydric tolerances; trees and understory of shrubs and herbaceous materials were provided; woody vegetation is absent from inflow locations; and trees are located around facility perimeter.

_____ D5. Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction.

_____ D6. No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed .

_____ D7. Filtering system is off-line from storm drainage conveyance system.

_____ D8. Overflow outlet has adequate erosion protection.

_____ D9. Deflector, diversion, flow splitter or regulator structure provided to divert the water quality volume to the filtering structure.

_____ D10. Minimum four (4) inch perforated underdrain provided in a clean aggregate envelope layer beneath the facility.

_____ D11. Minimum fifty (50) foot separation from any slope fifteen (15) percent or greater. Minimum one hundred (100) foot separation horizontally from any known water supply well. Minimum one hundred (100) foot separation upslope and twenty-five (25) foot separation downslope from any building.

_____ D12. Stabilization and acceptable vegetative cover established over contributing drainage area prior to conveyance of stormwater to the facility.

_____ D13. No visual signs of erosion or channel degradation immediately downstream of facility.

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

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
AS-BUILT PLAN CHECKLIST

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

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

N/A E1. All requirements of Section II, Minimum Standards, apply to Group E facilities as applicable.

_____E2. Open channel system has constructed longitudinal slope of less than four (4) percent.

✓ E3. No visual signs of erosion in the open channel system's soil and/or vegetative cover.

_____E4. Open channel side slopes are no steeper than 2H:1V at any location. Preferred channel sideslope is 3H:1V or flatter.

_____E5. No visual signs of ponding are present at any location in the open channel system, except at rock check dam locations for E-1 systems (Wet Swales).

_____E6. For E-2 BMPs (Dry Swales), an underdrain system was provided.

_____E7. Treated timber or rock check dams provided as pretreatment devices for the open channel system.

_____E8. Gravel diaphragm provided in areas where lateral sheet flow from impervious surfaces are directly connected to the open channel system.

_____E9. Grass cover/stabilization in the open channel system appears adaptable to the specific soils and hydric conditions for the site and along the channel system.

_____E10. Open channel system areas with grass covers higher than four (4) to six (6) inches were properly mowed.

_____E11. Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction.

_____E12. No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed and no adverse affects to the function of the facility are anticipated.

_____E13. For E-3 BMPs (Biofilters), the bottom width is six (6) feet maximum at any location.

_____E14. For E-3 BMPs (Biofilters), sideslopes are 3H:1V maximum at any location.

_____E15. For E-3 BMPs (Biofilters), the constructed channel slope is less than or equal to three (3) percent at any location.

_____E16. For E-3 BMPs (Biofilters), the constructed grass channel is approximately equivalent to the constructed roadway length.

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

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

N/A F1. All requirements of Section II, Minimum Standards, apply to Group F facilities.

_____F2. Basin bottom has positive slope and drainage from all basin inflow points to the riser (or outflow) location.

_____F3. Timber wall BMP used in intermittent stream only. (ie. Prohibited in perennial streams.)

_____F4. Forebay provided approximately 20 ft. upstream of the facility. Forebays generally 4 to 6 feet in depth.

_____F5. A reverse slope pipe, vertical stand pipe or mini-barrel and riser was provided to prevent clogging.

_____F6. Principal spillway and outlet barrel provided consisting of reinforced concrete pipe with O-Ring gaskets for watertight joint construction.

_____F7. Mini-barrel and riser, if used, contains a removable trash rack to reduce clogging.

_____F8. Low flow orifice, if used, has a minimum diameter of three (3) inches or two (2) inches if internal orifice control was utilized and a small, cage type external trash rack.

_____F9. Timbers properly reinforced or concrete footing provided if soil conditions were prohibitive.

_____F10. Timber wall cross members extended to a minimum depth of two (2) feet below ground elevation.

_____F11. Protection against erosion and scour from the low flow orifice and weir-flow trajectory provided.

_____F12. Stilling basin or standard outlet protection provided at principal spillway outlet.

_____F13. Adequate, direct access provided to the facility. Access corridor to facility is at least ten (10) feet wide, slope is less than twenty (20) percent and appropriate stabilization provided for equipment and vehicle use. Access extends to forebay, standpipe and timber wall, as applicable.

_____F14. No visual signs of undercutting of timber walls or clogging of the low orifice were present.

_____F15. No visual signs of erosion or channel degradation immediately downstream of facility.

_____F16. No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed and no adverse affects to the function of the facility are anticipated.

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

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

N/A G1. All requirements of Section II, Minimum Standards, apply to Group G facilities as applicable.

____ G2. Constructed impervious areas appear to conform with locations indicated on the approved plan and appear less than sixty (60) percent impervious in accordance with the requirements of the James City County Chesapeake Bay Preservation Ordinance.

____ G3. Dedicated open space areas are in undisturbed common areas, conservation easements or are protected by other enforceable instruments that ensures perpetual protection.

____ G4. Provisions included to clearly specify how the natural vegetated areas utilized as dedicated open space will be managed and field identified (marked).

____ G5. Adequate protection measures were implemented during construction to protect the defined dedicated open space areas.

____ G6. Dedicated open space areas were not disturbed during construction (ie. cleared, grubbed or graded).

STORMWATER FACILITY - BMP AND CONVEYANCE SYSTEM
RECORD DRAWING CHECKLIST

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

X. Storm Drainage Systems, closed and open

(Includes all stormwater drainage conveyance systems such as onsite or offsite storm drains, open channels, inlets, manholes, junctions, outlet protections, deflectors, etc. The intent of this portion of the certification is toensure the drainage conveyance facilities are constructed in accordance with the construction plans and specifications so that they convey the desing flow levels and don not require excessive maintenance.)

X SD1. All requirements of Section II, Minimum Standards, apply to Storm Conveyance systems.

X SD2. Horizontal location of all pipes, structures and channels relative to the approved plan.

X SD3. Type, top elevation and invert elevation of all closed system access structures (inlets, manholes, etc.).

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

N/A SD5. Channel cross-section and invert elevations at 100 foot intervals. Channel liners as specified on the construction plans.

N/A SD6. Class, length, width and depth of riprap and outlet protections or dimensions of special energy dissipation structures.

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

N/A O1. All requirements of Section II, Minimum Standards, apply to this section.

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

STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING CHECKLIST

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

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

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

Goodyear Tire

SP-112-11

EXHIBIT B

120005986

Prepared by Robert L. Dewey
Willcox & Savage, P.C.
440 Monticello Avenue, Suite 2200
Norfolk, VA 23510

Portion of Map Parcel No. (38-3) (18-4); and
Map Parcel No. (38-3) (2-34)
Consideration: $10
Title Insurance: Unknown

DEED OF EASEMENT
(C. C. Casey Property - Access Easement)

THIS DEED OF EASEMENT is made as of the 1st day of March, 2012, by and between C. C. CASEY LIMITED COMPANY, a Virginia limited liability company ("Grantor"); and SLN CASEY ASSOCIATES, L.L.C., a Virginia limited liability company ("Grantee").

RECITALS

A. Grantor is the fee simple owner of two adjoining parcels of land (collectively the "Casey Land") located in James City County, Virginia, and more particularly described as follows:

1. 3951 WindsorMeade Way; Tax Map Parcel No. (38-3) (18-4) (the "WindsorMeade Way Parcel").

2. 4690 Old News Road; Tax Map Parcel No. (38-3) (2-34) (the "Old News Road Parcel").

B. Grantee is the fee simple owner of Parcel 3C as more particularly described on Exhibit A to this Deed of Easement, which is located immediately to the south of the WindsorMeade Way Parcel.

C. Grantee is in the process of developing Parcel 3C. In order to obtain certain governmental approvals, Grantee requires an easement for ingress and egress over portions of the WindsorMeade Way Parcel and the Old News Road Parcel as more particularly shown on that certain plat entitled "Plat of Ingress/Egress Easement Being the Property of C. C. Casey Limited Company" prepared by AES Consulting Engineers dated January 27, 2012 and attached as Exhibit B to this Deed of Easement (the "Easement Plat").

D. Grantor has agreed to grant such easement on the terms and conditions set forth below.

AGREEMENT

For and in consideration of the sum of Ten Dollars ($10) cash in hand paid and other good and valuable consideration, the receipt and sufficiency of which are acknowledged by Grantor, Grantor agrees as follows:

Return to:
AES Consulting Engineers
5248 Olde Towne Rd.
Suite 1
Williamsburg, VA 23188

✓ BS. 1 B6

1-1087430.2
03/19/2012

1. Grantor does hereby grant and convey, with special warranty, unto Grantee, as the owner of Parcel 3C, for the use and benefit of Grantee and its tenants, employees, customers, licensees, invitees, guests and visitors, free of any charge, an unobstructed, perpetual easement and right of use and passage (the "Access Easement") over and across (a) a portion of the WindsorMeade Way Parcel identified on the Easement Plat as "Proposed Ingress/Egress Easement 130.20 SQ. FT."; and (b) a portion of the Old News Road Parcel identified on the Easement Plat as "Proposed Ingress/Egress Easement 32.64 SQ. FT." (these two areas of the Casey Land are collectively referred to as the "Access Easement Area").

2. Grantor shall have the right to use portions of the Access Easement Area that are not improved with driveways, curbs and other road improvements so long as such use is not inconsistent with (a) the rights granted in this Deed of Easement or (b) any laws, ordinances or codes related to the construction, operation, use or maintenance of the Access Easement Area, including any requirements of James City County related thereto.

3. (a) Grantee shall be solely responsible for the construction of all improvements within the Access Easement Area as part of the development of Parcel 3C at no cost or expense to Grantor.

(b) Grantee shall be responsible for insuring that all costs of construction of improvements within the Access Easement Area are promptly paid for, and Grantee shall promptly release any mechanic's liens filed against the Casey Land in connection therewith.

(c) Grantee shall indemnify, defend and hold Grantor harmless from and against any claims, losses, damages, costs and expenses related to the filing of any such mechanic's liens.

4. Grantee shall maintain all improvements constructed in the Access Easement Area in good repair and condition.

5. Grantee shall indemnify, defend and hold Grantor harmless from and against all personal injury, loss, claim or damage to any person or property occurring within the Access Easement Area unless occasioned solely by the negligence or willful misconduct of Grantor, its agents or employees.

6. Grantee agrees Grantor shall be named as an additional insured on any liability insurance policy that Grantee (or any tenant of Grantee) maintains with respect to Parcel 3C.

7. This Deed of Easement shall be binding upon Grantor, its successors and assigns, and shall inure to the benefit of Grantee, its successors and assigns, as the owner of Parcel 3C, as well as Grantee's tenants, contractors, customers and invitees.

8. Grantee joins in the execution of this Deed of Easement to evidence its acknowledgement and agreement to the terms and conditions set forth above.

9. This Deed of Easement is made, executed and delivered under seal. The designation "(SEAL)" next to the signature on behalf of any entity shall be as fully effective as the affixing of such entity's seal hereto.

WITNESS the following signatures and seals:

GRANTOR

C. C. CASEY LIMITED COMPANY
a Virginia limited liability company

By: Robert T. Casey (SEAL)
Robert T. Casey, Secretary

COMMONWEALTH OF VIRGINIA

CITY/COUNTY OF James City, to-wit:

The foregoing instrument was acknowledged before me this 20 day of March, 2012 by Robert T. Casey, Secretary of C. C. Casey Limited Company, a Virginia limited liability company, on behalf of the company.

Richard A. Reynolds
Notary Public

My Commission Expires: 10/31/2012

Notary Registration #: 7199697

[AFFIX SEAL]

RICHARD A. REYNOLDS
COMMONWEALTH OF VIRGINIA
NOTARY PUBLIC

1-1087430.2
03/19/2012

GRANTEE: SLN CASEY ASSOCIATES, L.L.C.
a Virginia limited liability company

By: SLN Williamsburg Associates, L.L.C.

By: S. L. Nusbaum Realty Co.

By: James M. Gresock (SEAL)
Name: JAMES M. GRESOCK
Senior Vice President

COMMONWEALTH OF VIRGINIA

CITY/~~COUNTY~~ OF Richmond, to wit:

The foregoing Deed of Easement was acknowledged before me this 19th day of March, 2012 by James M. Gresock, as Senior Vice President of S. L. Nusbaum Realty Co., a Virginia corporation, Manager of SLN Williamsburg Associates, L.L.C., a Virginia limited liability company, which in turn is Manager of SLN Casey Associates, L.L.C., a Virginia limited liability company, on behalf of the company.

Donna M. James
Notary Public

DONNA M. JAMES
COMMONWEALTH OF VIRGINIA
REGISTRATION NO. 146836
MY COMM. EXPIRES 07/31/2014
NOTARY PUBLIC

My commission expires: 7/31/14

[AFFIX SEAL]

Notary Registration # 146836

I-1087430.2
03/19/2012

EXHIBIT A

Legal Description of Parcel 3C

ALL that certain lot, piece or parcel of land lying and being in Berkeley District, James City County, Virginia, as shown as Parcel 3C as shown on a plat of subdivision prepared by AES Consulting Engineers dated 1/15/04, last revised 7/27/04 entitled "Plat of Subdivision and Lot Line Extinguishment Parcels 1 through 5, Being the Property of C.C. Casey Limited Company, Berkeley District, James City County, Virginia" recorded in the Clerk's Office of the Circuit Court of James City County, Virginia, as Instrument No. 040024397 (the "Subdivision Plat").

VIRGINIA: CITY OF WILLIAMSBURG & COUNTY OF JAMES CITY
This document was admitted to record on 21 Mar. 2012
at 16:37 AM/PM. The taxes imposed by Virginia Code Section 58.1-801, 58.1-802 & 58.1-814 have been paid.

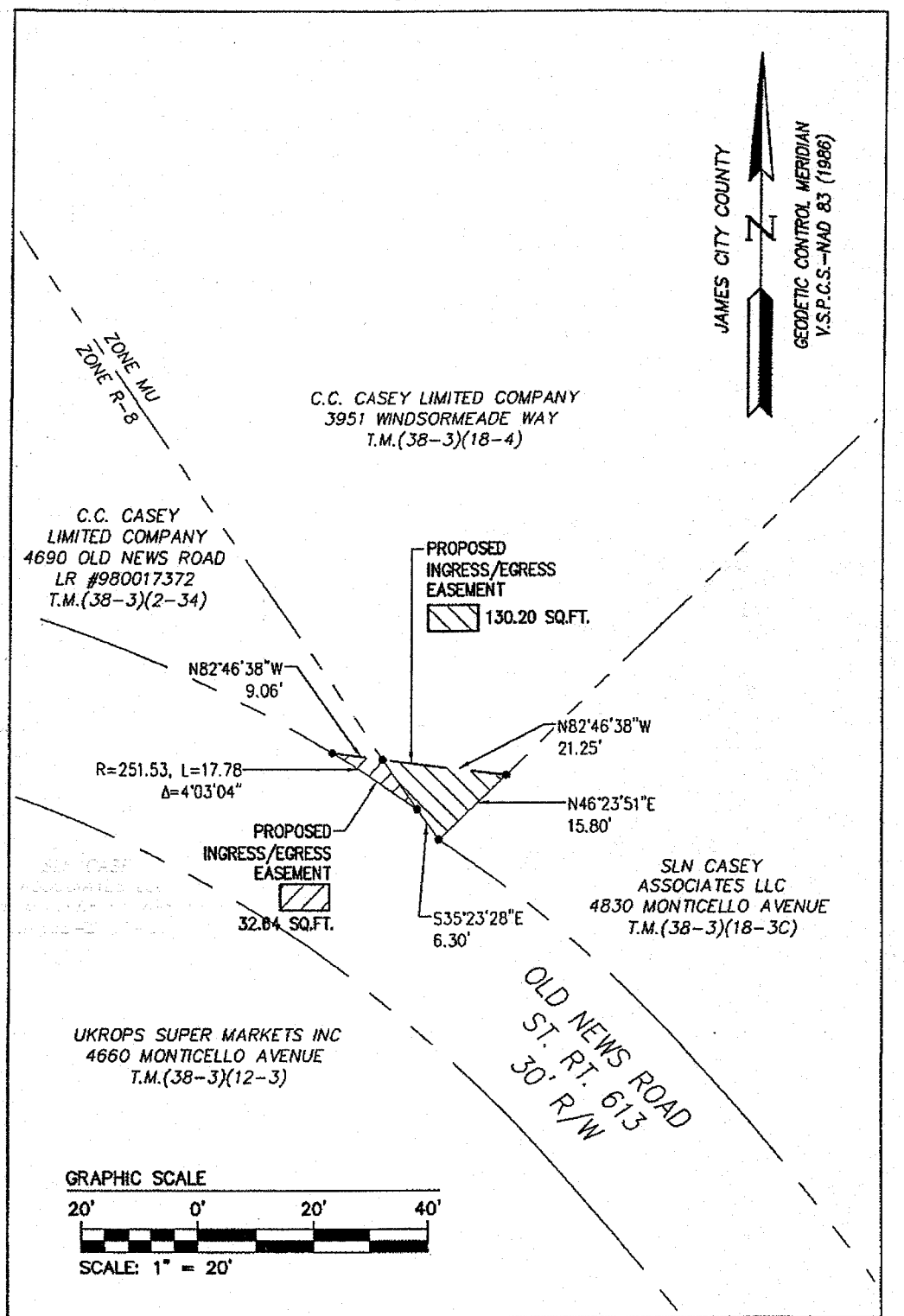
STATE TAX	LOCAL TAX	ADDITIONAL TAX
$ —	$ —	$ —

TESTE: BETSY B. WOOLRIDGE, CLERK
BY: Betsy B. Woolridge Clerk

PLAT ATTACHED

I-1087430.2
03/19/2012

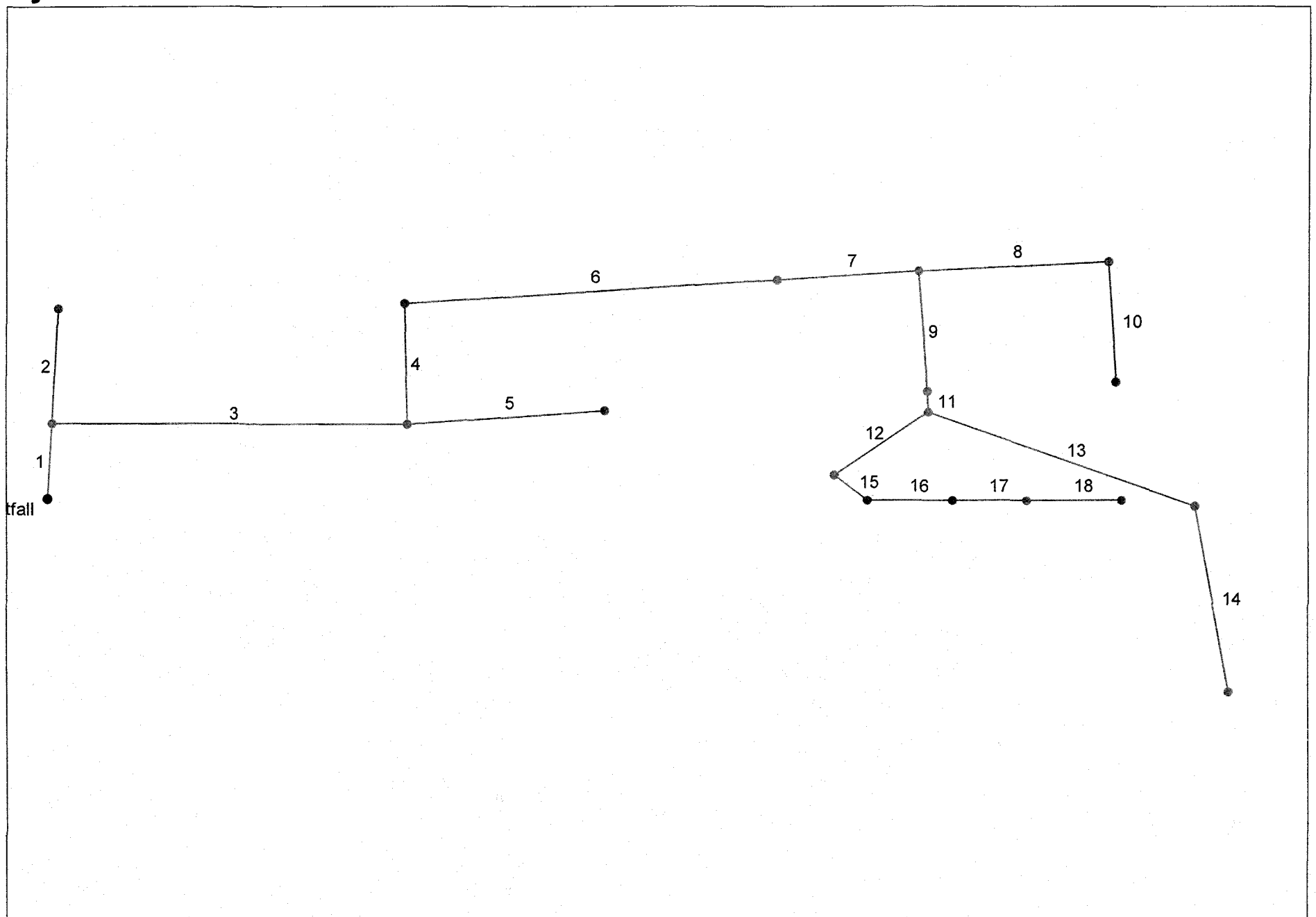
EXHIBIT B



PLAT OF INGRESS/EGRESS EASEMENT BEING THE PROPERTY OF C.C. CASEY LIMITED COMPANY	Project Contacts: JAG, TCS	Scale: 1"=20'	
	Project Number: 9069-11	Date: 1/27/12	
BERKELEY DISTRICT JAMES CITY COUNTY	AES CONSULTING ENGINEERS Hampton Roads | Central Virginia | Middle Peninsula	5248 Olde Towne Road, Suite 1 Williamsburg, Virginia 23188 Phone: (757) 253-0040 Fax: (757) 220-8994 www.aesva.com	

08-6026

Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® 2009 Plan



Project File: Proposed Storm System (Windsormeade Way).stm	Number of lines: 18	Date: 02-09-2012

Hydraflow Storm Sewers Extension v6.066

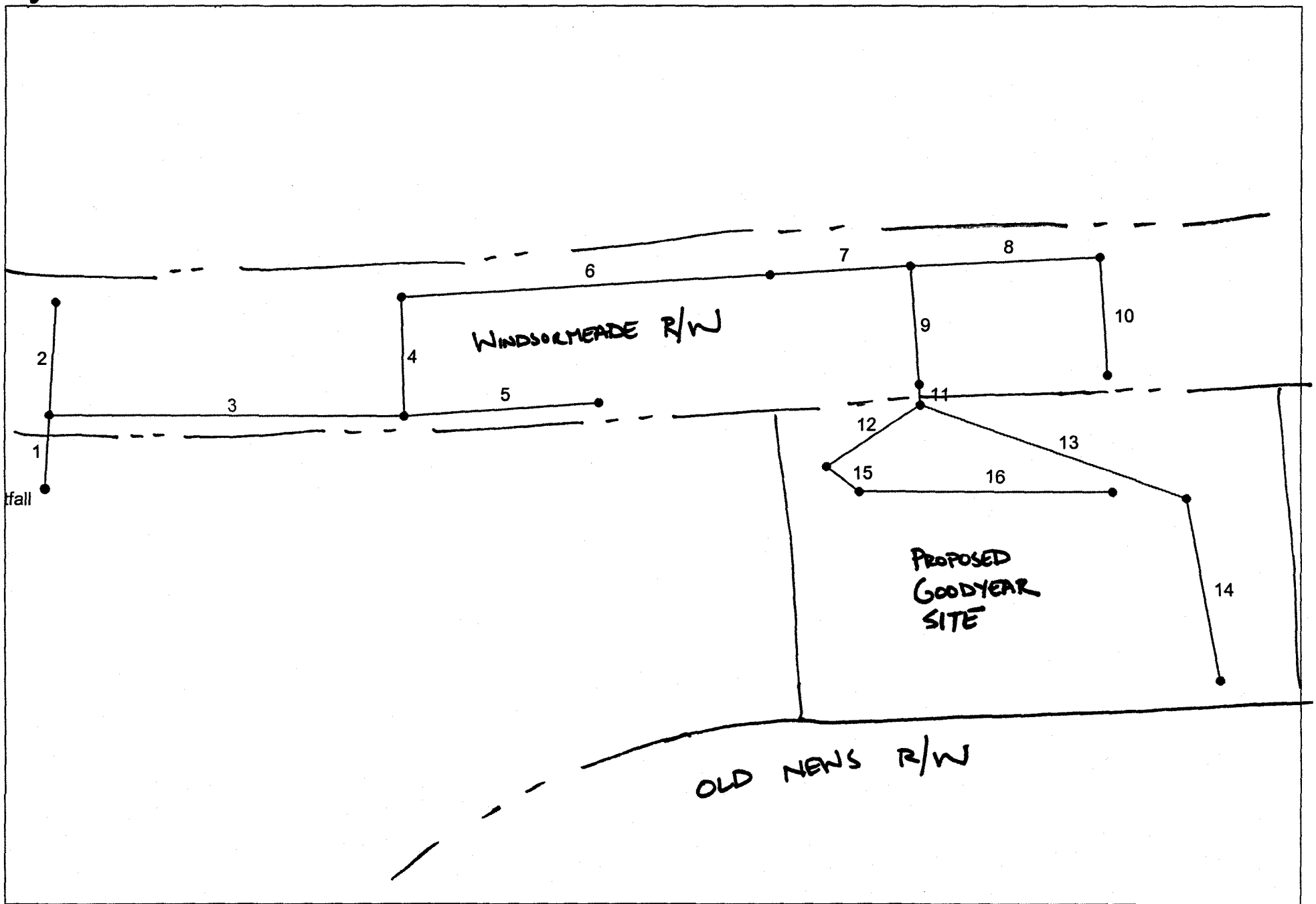
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	40.000	0.54	5.18	0.50	0.27	3.68	12.0	15.6	5.1	18.61	29.00	6.21	30	0.50	74.00	74.20	75.49	75.65	76.00	79.46	EX.
2	1	61.000	0.35	0.35	0.85	0.30	0.30	5.0	5.0	7.1	2.12	7.21	2.06	15	1.25	74.70	75.46	76.27	76.31	79.46	79.46	EX.
3	1	189.000	0.79	4.29	0.50	0.40	3.11	12.0	14.6	5.2	16.17	42.29	4.87	30	1.06	74.20	76.21	76.27	77.55	79.46	82.02	EX.
4	3	64.000	0.22	3.06	0.85	0.19	2.43	5.0	14.2	5.3	12.78	41.01	5.13	30	1.00	76.21	76.85	77.55	78.04	82.02	82.02	EX.
5	3	104.000	0.44	0.44	0.65	0.29	0.29	10.0	10.0	6.0	1.71	9.89	3.51	15	2.35	77.46	79.90	77.98	80.42	82.02	83.90	EX. (REVISED)
6	4	197.000	0.19	2.84	0.85	0.16	2.24	5.0	13.3	5.4	12.09	26.23	5.96	24	1.35	77.35	80.00	78.58	81.23	82.02	84.79	EX.
7	6	75.000	0.11	2.65	0.85	0.09	2.08	5.0	13.0	5.4	11.33	42.75	5.69	24	3.57	80.00	82.68	81.23	83.87	84.79	89.14	EX.
8	7	100.000	0.33	1.62	0.85	0.28	1.25	5.0	12.2	5.6	6.95	39.82	4.19	24	3.10	82.68	85.78	83.87	86.71	89.14	91.78	EX.
9	7	64.000	0.12	0.92	0.75	0.09	0.74	8.0	8.0	6.4	4.72	7.53	5.18	15	1.36	83.38	84.25	84.25	85.12	89.14	89.02	EX. (REVISED)
10	8	64.000	1.29	1.29	0.75	0.97	0.97	12.0	12.0	5.6	5.43	9.02	5.53	15	1.95	86.53	87.78	87.46	88.71	91.78	91.78	EX. (REVISED)
11	9	11.000	0.00	0.80	0.00	0.00	0.65	5.0	7.8	6.4	4.18	9.13	4.75	15	2.00	84.25	84.47	85.12	85.29	89.02	89.30	SS0
12	11	60.000	0.26	0.37	0.81	0.21	0.31	5.0	7.2	6.6	2.03	10.21	3.73	15	2.50	85.25	86.75	85.82	87.32	89.30	94.25	SS1
13	11	149.000	0.04	0.43	0.90	0.04	0.34	5.0	5.9	6.9	2.34	7.90	3.91	15	1.50	85.00	87.23	85.61	87.84	89.30	94.87	SS2
14	13	100.000	0.39	0.39	0.78	0.30	0.30	5.0	5.0	7.1	2.17	8.66	3.72	15	1.80	87.23	89.03	87.84	89.62	94.87	92.80	SS3
15	12	22.000	0.00	0.11	0.00	0.00	0.10	5.0	7.0	6.6	0.65	1.71	3.17	8	2.00	88.64	89.08	89.02	89.46	94.25	94.67	CO
16	15	45.000	0.06	0.11	0.90	0.05	0.10	5.0	6.6	6.7	0.66	1.41	3.19	8	1.36	89.08	89.69	89.46	90.07	94.67	95.31	CO
17	16	39.000	0.00	0.05	0.00	0.00	0.05	5.0	5.9	6.9	0.31	1.41	1.96	8	1.36	89.69	90.22	90.07	90.48	95.31	95.22	CO
18	17	50.000	0.05	0.05	0.90	0.05	0.05	5.0	5.0	7.1	0.32	1.41	2.46	8	1.36	90.22	90.90	90.49	91.17	95.22	94.90	CO

Project File: Proposed Storm System (Windsormeade Way).stm | Number of lines: 18 | Run Date: 02-09-2012

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs. ; c = cir e = ellip b = box

Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® 2008 Plan



Project File: Proposed Storm System (Windsormeade Way).stm	Number of lines: 16	Date: 11-29-2011

Hydraflow Storm Sewers Extension v6.052

Storm Sewer Tabulation

ORIGINAL APPROVED

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	40.000	0.54	5.24	0.50	0.27	3.65	12.0	14.2	5.3	19.20	29.00	3.91	30	0.50	74.00	74.20	76.61	76.70	76.00	79.46	SS3-2 TO SS3-1
2	1	61.000	0.35	0.35	0.85	0.30	0.30	5.0	5.0	7.1	2.12	7.21	1.73	15	1.25	74.70	75.46	77.05	77.11	79.46	79.46	SS3-3 TO SS3-2
3	1	189.000	0.79	4.35	0.50	0.40	3.08	12.0	13.5	5.4	16.52	42.29	4.71	30	1.06	74.20	76.21	77.05	77.57	79.46	82.02	SS3-4 TO SS3-3
4	3	64.000	0.22	2.89	0.85	0.19	2.25	5.0	13.3	5.4	12.15	41.01	4.94	30	1.00	76.21	76.85	77.57	78.01	82.02	82.02	SS3-5 TO SS3-4
5	3	104.000	0.67	0.67	0.65	0.44	0.44	10.0	10.0	6.0	2.60	9.89	4.07	15	2.35	77.46	79.90	78.11	80.55	82.02	83.90	SS3-6 TO SS3-4
6	4	197.000	0.19	2.67	0.85	0.16	2.07	5.0	12.8	5.5	11.33	26.23	5.80	24	1.35	77.35	80.00	78.54	81.19	82.02	84.79	SS3-7 TO SS3-5
7	6	75.000	0.11	2.48	0.85	0.09	1.90	5.0	12.5	5.5	10.51	42.75	5.51	24	3.57	80.00	82.68	81.19	83.83	84.79	88.68	SS3-8 TO SS3-7
8	7	100.000	0.33	1.91	0.85	0.28	1.47	5.0	12.2	5.6	8.18	39.82	4.75	24	3.10	82.68	85.78	83.83	86.79	88.68	91.78	SS3-9 TO SS3-8
9	7	64.000	0.46	0.46	0.75	0.35	0.35	8.0	8.0	6.4	2.20	6.46	3.83	15	1.00	83.43	84.07	84.02	84.66	88.68	88.68	SS3-10 TO SS3-
10	8	64.000	1.58	1.58	0.75	1.19	1.19	12.0	12.0	5.6	6.65	9.02	6.13	15	1.95	86.53	87.78	87.56	88.81	91.78	91.78	SS3-11 TO SS3-

Project File: Existing Storm System (Windsormeade Way).stm | Number of lines: 10 | Run Date: 12-05-2011

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs. ; c = cir e = ellip b = box

Storm Sewer Tabulation

PROPOSED

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	40.000	0.54	5.16	0.50	0.27	3.66	12.0	14.2	5.3	19.24	29.00	6.32	30	0.50	74.00	74.20	75.49	75.68	76.00	79.46	EX.
2	1	61.000	0.35	0.35	0.85	0.30	0.30	5.0	5.0	7.1	2.12	7.21	1.99	15	1.25	74.70	75.46	76.31	76.35	79.46	79.46	EX.
3	1	189.000	0.79	4.27	0.50	0.40	3.09	12.0	13.6	5.4	16.56	42.29	4.91	30	1.06	74.20	76.21	76.31	77.57	79.46	82.02	EX.
4	3	64.000	0.22	3.04	0.85	0.19	2.41	5.0	13.4	5.4	12.99	41.01	5.15	30	1.00	76.21	76.85	77.57	78.05	82.02	82.02	EX.
5	3	104.000	0.44	0.44	0.65	0.29	0.29	10.0	10.0	6.0	1.71	9.89	3.51	15	2.35	77.46	79.90	77.98	80.42	82.02	83.90	EX. (REVISED)
6	4	197.000	0.19	2.82	0.85	0.16	2.22	5.0	12.8	5.5	12.18	26.23	5.97	24	1.35	77.35	80.00	78.59	81.24	82.02	84.79	EX.
7	6	75.000	0.11	2.63	0.85	0.09	2.06	5.0	12.6	5.5	11.36	42.75	5.69	24	3.57	80.00	82.68	81.24	83.87	84.79	89.14	EX.
8	7	100.000	0.33	1.62	0.85	0.28	1.25	5.0	12.2	5.6	6.96	39.82	4.20	24	3.10	82.68	85.78	83.87	86.71	89.14	91.78	EX.
9	7	64.000	0.12	0.90	0.75	0.09	0.72	8.0	8.0	6.4	4.60	7.53	5.12	15	1.36	83.38	84.25	84.24	85.11	89.14	89.02	EX. (REVISED)
10	8	64.000	1.29	1.29	0.75	0.97	0.97	12.0	12.0	5.6	5.43	9.02	5.53	15	1.95	86.53	87.78	87.46	88.71	91.78	91.78	EX. (REVISED)
11	9	11.000	0.00	0.78	0.00	0.00	0.63	5.0	6.5	6.7	4.25	9.13	4.84	15	2.00	84.25	84.47	85.11	85.29	89.02	0.00	SS0
12	11	60.000	0.24	0.35	0.80	0.19	0.29	5.0	6.2	6.8	1.98	10.21	3.69	15	2.50	85.25	86.75	85.81	87.31	0.00	94.25	SS1
13	11	149.000	0.04	0.43	0.90	0.04	0.34	5.0	5.5	7.0	2.38	7.90	3.94	15	1.50	85.00	87.23	85.62	87.85	0.00	94.87	SS2
14	13	100.000	0.39	0.39	0.78	0.30	0.30	5.0	5.0	7.1	2.17	8.66	3.70	15	1.80	87.23	89.03	87.85	89.62	94.87	92.80	SS3
15	12	22.000	0.06	0.11	0.90	0.05	0.10	5.0	6.1	6.8	0.68	1.71	3.21	8	2.00	88.64	89.08	89.03	89.47	94.25	94.67	
16	15	134.000	0.05	0.05	0.90	0.05	0.05	5.0	5.0	7.1	0.32	1.41	1.99	8	1.36	89.08	90.90	89.47	91.17	94.67	94.90	

ADDED

provid RIM elev

Project File: Proposed Storm System (Windsormeade Way).stm | Number of lines: 16 | Run Date: 11-29-2011

NOTES: Intensity = 143.72 / (Inlet time + 19.20) ^ 0.94; Return period = 10 Yrs. ; c = cir e = ellip b = box

AES
CONSULTING ENGINEERS

Project:	Goodyear
Project No.:	9069-11
Subject:	Runoff Coefficients
Date:	August 10, 2011
Calculated By:	AMR

Runoff Coefficients used in the following calculations were taken from Table 4-3 of the Virginia Stormwater Management Handbook.

Subject Area: Drainage Areas

Area Description	Open	Imperv.			Total Area	C x A	Weighted C
	0.30	0.90					
SS1	0.04	0.20			0.24	0.19	0.80
SS2	0.00	0.04			0.04	0.04	0.90
SS3	0.08	0.31			0.39	0.30	0.78
EX. 18"	0.11	0.00			0.11	0.04	0.32
					0.00		
					0.00		
					0.00		
					0.00		
					0.00		
					0.00		

Environmental Division
DEC 06 2011
RECEIVED

RECEIVED
DEC 2011
Planning Department

Goodyear Tire Center

For
Engineering & Resource Protection Division

2.38
+1.98
4.36

Prepared by

AES CONSULTING ENGINEERS
AES Consulting Engineers
5248 Olde Towne Road. Suite 1
Williamsburg, VA 23188
(757) 253-0040 Fax: (757) 220-8994
http://www.aesva.com

James City County, Virginia
Environmental Division

Erosion and Sediment Control and Stormwater Management Design Plan Checklists

Table of Contents

Contents		Page
Erosion and Sediment Control Plan		
I.	General	1
II.	Site Plan	1
III.	Narrative	3
IV.	Calculations	4
Stormwater Management Design Plan		
I.	General	5
II.	Stormwater Conveyance Systems	7
III.	Stormwater Management / BMP Facilities	8
IV.	Outlet Protections	14
V.	Additional Comments and Information	14

GENERAL INFORMATION

Project Name: Goodyear Tire Center
Owner / Applicant: S.L. Nusbaum Realty Co.
Plan Preparer: Jason Grimes Email: jason.grimes@aesva.com
Project Location: 4830 Monticello Avenue, Williamsburg, VA 23188
Tax Map / Parcel: 3831800003C
County Plan No. (if known): _____
County BMP Type: _____ (-)
Other information submitted in addition to this checklist (Check all that apply):

- ☒ Design or Construction Drawings (Plans, Profiles, Details, etc.).
- ☒ Erosion & Sediment Control Plan (Plan, Details, etc.).
- ☐ Erosion & Sediment Control Plan Design Report.
- ☐ Stormwater Management Design Plan (Plans, Profiles, Details, etc.).
- ☐ Stormwater Management Design Report.
- ☐ Other, List: _____

Issue Date
March 1, 2001

JAMES CITY COUNTY, VIRGINIA
ENVIRONMENTAL DIVISION

EROSION AND SEDIMENT CONTROL PLAN CHECKLIST

I. *GENERAL*:

Yes	No	N/A	
☒	☐	☐	*FAMILIARITY* with current versions of Chapter 8, Erosion and Sedimentation Control and Chapter 23, Chesapeake Bay Preservation ordinances of the Code of James City County, Virginia and the Virginia Erosion and Sediment Control Handbook (VESCH).
☒	☐	☐	*LAND DISTURBING PERMIT AND SILTATION AGREEMENT* with surety are required for the project.
☐	☐	☒	*VARIANCE* if necessary, requested in writing, for the plan approving authority to waive or modify any of the minimum standards and specifications of the VESCH deemed inappropriate based on site conditions specific to this review case only. Variances which are approved shall be properly documented in the plan and become part of the approved erosion and sediment control plan for the site.

II. *SITE PLAN*:

Yes	No	N/A	
☒	☐	☐	*VICINITY MAP* locating the site in relation to the surrounding area. Include any major landmarks which might assist in physically locating the site.
☒	☐	☐	*INDICATE NORTH* direction in relation to the site.
☒	☐	☐	*LIMITS OF CLEARING AND GRADING* for the site including that required for implementation of erosion and sediment controls, stockpile areas and utilities.
☒	☐	☐	*DISTURBED AREA ESTIMATES* in acres or square feet for the project.
☒	☐	☐	*EXISTING TOPOGRAPHY* or contours for the site at no more than 5 foot contour interval.
☒	☐	☐	*FINAL TOPOGRAPHY,* contours or proposed site grading in accordance with the design plan which indicates changes to existing topography and drainage patterns at no more than 2 foot contour interval (or 1 foot contours where required).
☒	☐	☐	*EXISTING AND PROPOSED SPOT ELEVATIONS* to supplement existing and proposed contours, topography or site grading information. Spot elevations may replace final contours in some instances, especially if terrain is in a low lying area or relatively flat.
☒	☐	☐	*EXISTING VEGETATION* including existing tree lines, grassed or unique vegetation areas.

Yes	No	N/A	
☒	☐	☐	*EXISTING SITE FEATURES* including roads, buildings, homes, utilities, streams, fences, structures and other important surface features of the site.
☒	☐	☐	*SOILS MAP* with soil symbols, boundaries and legend in accordance with the current Soil Survey of James City and York Counties and the City of Williamsburg, Virginia.
☒	☐	☐	*ENVIRONMENTAL INVENTORY* in accordance with Section 23-10(2) of the Chesapeake Bay Preservation Ordinance of James City County. Inventory generally includes: tidal shores and wetlands, non-tidal wetlands, resource protection area, hydric soils and slopes steeper than 25 percent. For wetlands, provide a copy of issued permits or satisfactory evidence that appropriate permits are being pursued for the entire project.
☐	☐	☒	*100-YEAR FLOODPLAIN LIMITS* or any special flood hazard areas or flood zones based on appropriate Federal Management Agency Flood Insurance Rate Maps (FIRMs) or Flood Hazard Boundary Maps (FHBMs) of James City County, Virginia.
☒	☐	☐	*DRAINAGE AREAS* for offsite and onsite areas, existing or proposed as applicable. Include drainage divides and directional labels for all subareas at points of interest and size (in acres), weighted runoff coefficient or curve number and times of concentration for each subarea.
☐	☐	☒	*CRITICAL EROSION AREAS* which require special consideration or unique erosion and sediment control measures. Refer to the VESCH, Chapter 6 for criteria.
☒	☐	☐	*DEVELOPMENT PLAN* for the site showing all improvements such as buildings, structures, parking areas, access roadways, above and below ground utilities, stormwater management and drainage facilities, trails or sidewalks, proposed vegetation and landscaping, amenities, etc.
☒	☐	☐	*LOCATION OF PRACTICES* proposed for erosion and sediment control, tree protection and temporary stormwater management due to land disturbance activities at the site. Use standard abbreviations, labels and symbols consistent for plan views based on minimum standards and specifications in Chapter 3 of the VESCH.
☒	☐	☐	*TEMPORARY STOCKPILE AREAS* or staging and equipment storage areas as required for onsite or offsite construction activities or indicate that none are anticipated for this project.
☐	☐	☒	*OFFSITE LAND DISTURBING AREAS* including borrow sites, waste areas, utility extensions, etc. and required erosion and sediment controls. If none are anticipated for the project, then indicate on the plans by general or erosion and sediment control notes.
☒	☐	☐	*DETAILS* or alternately, appropriate reference to current minimum standards and specifications of the VESCH for each measure proposed for the project. Non-modified, standard duplicated details (silt fence, diversion dikes, etc.) may be referenced to the current version of the VESCH. Specific dimensional or modified standards (basins, traps, outlet protections, check dams, etc.) require presentation on detail sheets. Schedules or tables may be used for multiple site measures such as sediment traps, basins, channels, slope drains, etc. Any modification to standard details should be clearly defined, explained and illustrated.

Yes	No	N/A	
☐	☐	☒	*MAINTENANCE PLAN* or alternately, appropriate reference to current minimum standards and specifications of the VESCH, outlining the inspection frequency and maintenance requirements for all erosion and sediment control measures proposed for the project.
☐	☐	☒	*TRENCH DEWATERING* methods and erosion and sediment controls, if anticipated for the project.
☒	☐	☐	*CONSTRUCTION SEQUENCE* outlining the anticipated sequence for installation of erosion and sediment controls and site, grading and utility work to be performed for the project by the site contractor.
☐	☐	☒	*PHASING PLAN* if required for larger project sites that are to be developed in stages or phases.
☒	☐	☐	*STANDARD COUNTY NOTES* are required to be placed on the erosion and sediment control plan. Refer to the standard James City County Erosion and Sediment Control Notes dated May 5, 1999.
☒	☐	☐	*PROFESSIONAL SEAL AND SIGNATURE* required on final and complete approved plans, drawings, technical reports and specifications.

III. *NARRATIVE:*

Yes	No	N/A	
☒	☐	☐	*PROJECT DESCRIPTION* briefly describing the nature and purpose of the land disturbing activity and the acreage to be disturbed.
☒	☐	☐	*EXISTING SITE CONDITIONS* description of existing topography, land use, cover and drainage patterns at the site.
☒	☐	☐	*ADJACENT AREA* descriptions of neighboring onsite or offsite areas such as streams, lakes, property, roads, etc. and potential impacts due to concentrated flow or runoff from the land disturbing activity.
☒	☐	☐	*OFFSITE DISTURBED AREA* descriptions of proposed borrow sites, water or surplus areas, utility extensions and erosion and sediment controls to be implemented.
☒	☐	☐	*SOILS DESCRIPTION* briefly summarizing site, disturbed area and drainage basin soils including name, unit, hydrologic soil group (HSG) classification, surface runoff potential, erodibility, permeability, depth, texture, structure, erosion hazards, shrink-swell potential, limitations for use and anticipated depths to bedrock and the seasonal water table, as applicable.
☒	☐	☐	*CRITICAL AREAS* on the site which may have potentially serious erosion and sediment control problems and special considerations required (i.e. steep slopes, hydric soils, channels, springs, sinkholes, water supply reservoirs, groundwater recharge areas, etc.)

Yes	No	N/A	
☒	☐	☐	*PROPOSED EROSION & SEDIMENT CONTROL MEASURES* inclusive to the specific erosion and sediment control plan as proposed for the land disturbing activity. Measures should be consistent with those proposed on the site drawings. Address general use, installation, limitations, sequencing and maintenance requirements for each control measure.
☒	☐	☐	*STABILIZATION MEASURES* required for the site, either temporary or permanent, and during and following construction including temporary and permanent seeding and mulching, paving, stone, soil stabilization blankets and matting, sodding, landscaping or special stabilization techniques to be utilized at the site.
☒	☐	☐	*STORMWATER MANAGEMENT CONSIDERATIONS* for the site, either of temporary or permanent nature, and strategies, sequences and measures required for control. May reference the stormwater management plan for the site, if prepared, for permanent stormwater management facilities and control of drainage once the site is stabilized.

IV. ***CALCULATIONS:***

Yes	No	N/A	
☒	☐	☐	*CALCULATIONS AND COMPUTATIONS* associated with hydrology, hydraulics and design of proposed temporary and permanent erosion and sediment control measures including: sediment traps and basins, diversions, stormwater conveyance channels, culverts, slope drains, outlet protections, etc. Computations are not required on the construction plan and may be attached in a supplemental erosion and sediment control plan design report, if presented in a clear and organized format.
☐	☐	☒	*TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET* submitted for each basin along with schematic or sketch cross-section showing applicable design and construction data, storage volumes (wet-dry), dimensions and elevations. Peak design runoff to be based on the 2- or 25-year design storm event based on maximum disturbed site conditions (existing, interim or proposed conditions) in accordance with Minimum Standard 3.14 of the VESCH.

JAMES CITY COUNTY, VIRGINIA
ENVIRONMENTAL DIVISION

STORMWATER MANAGEMENT DESIGN PLAN CHECKLIST

I. *GENERAL*:

Yes	No	N/A	
☒	☐	☐	*FAMILIARITY* with current versions of the James City County Guidelines for Design and Construction of Stormwater Management BMPs manual; Chapter 8, Erosion and Sediment Control and Chapter 23, Chesapeake Bay Preservation ordinances of the Code of James City County, Virginia; the Virginia Erosion and Sediment Control Handbook (VESCH); and the Virginia Stormwater Management Handbook (VSMH).
☐	☐	☒	*WAIVER OR EXCEPTION* if necessary, requested in writing, for the plan approving authority to waive or except the requirements of Chapter 23, Chesapeake Bay Preservation ordinance in accordance with procedure established in Sections 23-14 through 23-17 of the ordinance. Applies to the review case only.
☐	☐	☒	*VARIANCE REQUEST* if necessary, requested in writing for the plan approving authority to waive or modify any of the minimum standards and specifications of the VESCH deemed inappropriate based on site conditions specific to this review case only. Variances which are approved shall be properly documented in the plan and become part of the approved erosion and sediment control plan for the site.
☒	☐	☐	*PROFESSIONAL SEAL AND SIGNATURE* required on final and complete approved stormwater management plans, drawings, technical reports and specifications.
☐	☐	☒	*WORKSHEET FOR BMP POINT SYSTEM* to ensure the stormwater management plan for the project attains at least 10 BMP points (New Development) or traditional pollutant load reduction computations per the Chesapeake Bay Local Assistance Manual (Redevelopment Only)
☐	☐	☒	*PROPOSED CONSERVATION EASEMENT AREAS* for any natural open space points claimed in the BMP worksheet.
☐	☐	☒	*INSPECTION/MAINTENANCE AGREEMENT* is required to be prepared and executed with the County for the project.
☒	☐	☐	*FEMA FIRM PANEL* reference with designated special flood hazard areas or zone designations associated with the site, as applicable.
☐	☐	☒	*DRAINAGE AREA MAP* at a maximum scale of 1"=200' scale showing drainage area boundaries for pre- and postdevelopment conditions and associated time of concentration flow paths. Labels to include drainage area size, runoff coefficient or curve number and time of concentration for each subarea shown on the map.

Yes	No	N/A	
☒	☐	☐	*SOILS MAP* with soil symbols, boundaries and legend in accordance with the current Soil Survey of James City and York Counties and the City of Williamsburg, Virginia with approximate locations of the project site, BMPs and applicable drainage basins.
☒	☐	☐	*STORMWATER MANAGEMENT NARRATIVE* in a brief and simple format which describes the project; location; site and drainage basin soil characteristics; receiving water or drainage facility; existing site and drainage basin conditions (topography, land use, cover, slopes, etc.); proposed site development; proposed stormwater management and drainage plan including County BMP type selected; summary of hydrology and hydraulics; maintenance program; and any special assumptions utilized for development of the stormwater management and drainage design plan or computations.
☐	☐	☒	*TEMPORARY STORMWATER MANAGEMENT* (if applicable) for control of stormwater runoff encountered during construction activities in addition to measures provided in the erosion and sediment control plan or stormwater management/drainage plan for the site. Adequate protection measures or sequencing provided.
☐	☐	☒	*MODIFICATION PLAN* clearly defined for temporary sediment control structures which will be converted to permanent SWM/BMP structures. Includes appropriate hydrologic and hydraulic computations, conversions, sequencing and cleanout information or details. Normally related to primary control structures associated with dry detention or wet retention ponds. Normally not permitted for Group C or D categories such as bioretention, infiltration and filtering system facilities.
☐	☐	☐	*STORMWATER MANAGEMENT and DRAINAGE DESIGN REPORT* in a bound 8-1/2 x 11 inch size format. Report shall generally include a title sheet, date, project identification, owner and preparer information, table of contents, narrative, summaries and computations as required. Computations may include: backwater, closed conduit, headwater, hydraulic, hydraulic grade line, hydrology, inlet, open channel, storm sewer, water quality, extended detention or stream channel protection and multi-stage storm routing calculations, as applicable, for the project. Computation data may include hand or computer generated computations, maps or schematics. All information should be presented in a clear, easy to follow format and should closely match construction plan information.
☒	☐	☐	*PLAN VIEW* at 1 inch = 50 ft. scale or less (1" = 40', 1" = 30', etc.)
☒	☐	☐	North arrow and plan legend.
☒	☐	☐	Property lines.
☒	☐	☐	Adjacent property information.
☒	☐	☐	Existing site features and existing impervious cover areas.
☒	☐	☐	Impervious cover tabulations.
☒	☐	☐	Existing drainage facilities (natural or manmade)
☒	☐	☐	Existing environmentally sensitive areas (RPA, wetlands, floodplain, steep slopes, critical soils, buffers, etc.)
☒	☐	☐	Existing and proposed contours (1' or 2' contour interval) and spot elevations as necessary to define high and low topography.
☒	☐	☐	Existing and proposed easement locations.

Yes	No	N/A	
☒	☐	☐	Proposed site improvements and proposed impervious cover areas.
☒	☐	☐	Proposed stormwater conveyance, drainage and management facilities with appropriate labeled construction data and information.
☒	☐	☐	Proposed landscaping and seeding plans (disturbed areas, pond interior, etc.)
☐	☐	☒	Proposed slope stabilization areas (riprap, blankets, mattings, walls, etc.)
☐	☐	☒	Delineation of permanent pools and the 1-, 2-, 10- and 100-year Design Water Surface Elevations.
☐	☐	☒	Delineation of ponding, headwater, surcharge or backwater areas which may affect adjacent existing or proposed buildings, structures or upstream adjacent properties.
☐	☐	☒	Test boring locations with reference surface elevations (if known).
☐	☐	☒	Risers, barrels, underdrains, overflows and outlet protections.
☐	☐	☒	Emergency spillway level section and outlet channel.
☐	☐	☒	Existing and proposed site utilities and protection measures.
☒	☐	☐	Erosion and sediment control measures (for site or BMP).
☐	☐	☒	Maintenance or access corridors to permanent stormwater management, BMP or drainage facilities.

II. ***STORMWATER CONVEYANCE SYSTEMS***:

Yes	No	N/A	
☒	☐	☐	*PLAN VIEWS*
☒	☐	☐	Storm drain lengths, sizes, types, classes and slopes for all segments. Label directly on plan or use structure/pipe schedule.
☒	☐	☐	Access structure (inlets, manholes, junctions, etc.) rim elevations, inverts, type and required grate or top unit and lengths labeled.
☒	☐	☐	All structure numbers labeled.
☒	☐	☐	Adequate horizontal clearance from other site utilities or structures.
☐	☐	☒	*PROFILES* generally are not required but are encouraged to expedite review. If not provided, ensure all pipe segments have adequate minimum cover, do not exceed maximum depths of cover for the type/class of pipe specified and do not conflict with other site utilities or excavation areas.
☒	☐	☐	*DETAILS*
☒	☐	☐	Typical storm drain bedding details or reference note.
☒	☐	☐	Standard details or reference note for all proposed access structure types (inlets, manholes, junctions, etc.).
☐	☐	☒	Inlet shaping detail or applicable reference note.
☐	☐	☒	Step detail or applicable reference note (if depth 4 ft. or more).
☐	☐	☒	Typical open channel details with designation, location, shape, type, bottom width, top width, lining, slope, length, side slope, and installation depth required for construction. Channel design data as necessary may also be included.
☐	☐	☒	Outlet protections at all pipe outfalls.

Yes	No	N/A	
☒	☐	☐	*STORMWATER CONVEYANCE SYSTEM COMPUTATIONS*
☒	☐	☐	Storm Sewer Design computations based on 10-year design event.
☒	☐	☐	Hydraulic Grade Line computations based on 10-year design event.
☒	☐	☐	Inlet computations based on current VDOT procedure for spread, ponding depth and grate size required.
☐	☐	☒	Culvert Headwater computations. Design based on 10-year design storm event and check only for 100-year storm event.
☐	☐	☒	Open Channel computations based on 2-year design event for velocity and 10-year design event for capacity.
☐	☐	☒	Standard outlet protection or special energy dissipators.
☐	☐	☒	Pipe thickness design computations, as required, for selected pipe type (live load, minimum cover, maximum height of cover, etc.).
☐	☐	☒	Adequate channel computations for receiving channels (based on field measured channel section data).

III. ***STORMWATER MANAGEMENT/BMP FACILITIES***:

Yes	No	N/A	
☐	☐	☒	*HYDROLOGY* – An SCS based methodology is required for the design of stormwater management/BMP facilities with watersheds exceeding 20 acres. Under 20 acres, other generally accepted methodologies such as the modified rational, critical storm are allowable. Refer to Chapter 5 of the VESCH or Chapter 5 of the VSMH.
☐	☐	☒	Runoff Curve Number or Coefficient determinations: predeveloped and ultimate development land use scenarios.
☐	☐	☒	Time of concentration: predeveloped and ultimate development indicating overland, shallow concentrated, and channel flow components (200 ft. maximum length for overland flow).
☐	☐	☒	Hydrograph generation (tabular or graphical): pre- and postdevelopment conditions for the 1-, 2-, 10- and 100-year design storm events.
☐	☐	☒	*FACILITY CONFIGURATION and MINIMUM SEPARATIONS*
☐	☐	☒	Screening and layout consistent with Section 24-98(d) of the Chapter 24 Zoning ordinance (landscaping, screening, visibility, etc.).
☐	☐	☒	Basic considerations for safety and unauthorized entry.
☐	☐	☒	Proper length to width ratio (Typically 2H:1V).
☐	☐	☒	Facilities with deep pools (4 feet or more in depth) provided with two benches. Fifteen (15) ft. safety bench outward from normal pool at maximum 6 percent slope and aquatic bench inward from normal shoreline below normal pool. Narrower widths may be considered on a case-by-case basis.
☐	☐	☒	Pond buffer minimum 25 feet outward from maximum design WSEL. Additional setbacks may be required to permanent structures.
☐	☐	☒	No trees, shrubs or woody plants within 15 feet of embankment toe or 25 feet from principal spillway structure.
☐	☐	☒	Infiltration and filtering system facilities generally located at least 100 feet horizontally from any water supply well; 100 feet from any downslope building; and 25 feet from any upslope buildings, unless site specific investigation allows for reduced separation.

Yes	No	N/A	
☐	☐	☒	*HYDRAULIC COMPUTATIONS*
☐	☐	☒	Elevation- or Stage-Storage curve and/or tabular data.
☐	☐	☒	Weir / Orifice Control – Extended Detention.
☐	☐	☒	Weir / Orifice Control – riser 1-year control for channel protection.
☐	☐	☒	Weir / Orifice Control – riser 2-year control for quantity (if required).
☐	☐	☒	Weir / Orifice Control – riser 10-year control for quantity (if required).
☐	☐	☒	Inlet / Outlet (barrel) control – (All Storms).
☐	☐	☒	Check for barrel control prior to riser orifice flow to prevent slug flow-water hammer conditions.
☐	☐	☒	Emergency spillway capacity and depth of flow.
☐	☐	☒	Elevation – Discharge (Outlet Rating) curve and/or table. Provide all supporting calculations and/or design assumptions.
☐	☐	☒	Adequate channel computations for receiving channel. May be waived if facility is designed based on current Stream Channel Protection criteria.
☐	☐	☒	*POND or RESERVOIR ROUTING*
☐	☐	☒	Storage-Indication Routing of postdeveloped inflow hydrographs for the 1-, 2-, 10-, and 100-year design storms. Preference is for structure to discharge up to the 10-year storm through the principal spillway and pass the 100-year storm with a minimum 1 foot of freeboard through a combination principal and emergency spillways. If no emergency spillway is provided, riser must be large enough to pass the design high water flow and trash without overtopping the facility, have 3 square feet or more of cross-sectional area, contain a hood type inlet and have a minimum freeboard of 2 feet. Token spillways with minimum 8 ft. width are also recommended at or above the design 100-year storm elevation.
☐	☐	☒	Downstream hydrographs at established study points, if conditions warrant (i.e. facility discharge combined with uncontrolled bypass).
☐	☐	☒	*MISCELLANEOUS COMPUTATIONS*
☐	☐	☒	Water quality volume for permanent pool based on selected BMP treatment volume (WQv).
☐	☐	☒	Water quality volume for extended detention base on selected BMP treatment volume (WQv) with drawdown computations.
☐	☐	☒	Drawdown computations for the 1-year, 24 hour detention for stream channel protection criteria.
☐	☐	☒	Pond drain computations (within 24 hours).
☐	☐	☒	Anti-seep collar design (concrete preferred) or match material type.
☐	☐	☒	Filter diaphragm design (or alternative method of controlling seepage).
☐	☐	☒	Riser / base structure flotation analyses. FS = 1.25 minimum.
☐	☐	☒	Downstream danger reach study and/or emergency action plan (if conditions warrant).
☐	☐	☒	Upstream backwater analyses onto offsite adjacent property (if conditions warrant).
☐	☐	☒	100 year floodplain impacts (if conditions warrant).

Yes	No	N/A	
☐	☐	☒	*GEOTECHNICAL REQUIREMENTS*
☐	☐	☒	Geotechnical Report with recommendations specific to BMP facility type selected. Report prepared by a registered professional engineer. Requires submission, review and approval prior to issuance of Land Disturbance Permit.
☐	☐	☒	Initial Feasibility Testing requirements satisfied as per Appendix E of the James City County Guidelines fro Design and Construction of Stormwater Management BMPs manual. (Infiltration, Bioretention and Filtering System BMP types only).
☐	☐	☒	Concept Design Testing requirements satisfied as per Appendix E of the James City County Guidelines for Design and Construction of Stormwater Management BMPs manual. . (Infiltration, Bioretention and Filtering System BMP types only).
☐	☐	☒	Minimum Boring locations: borrow area, pool area, principal control structure, top of facility near one abutment and emergency spillway if provided.
☐	☐	☒	Boring logs with Unified Soil Classification (ASTM D2487), soils descriptions and depths to bedrock and the seasonal water table indicated.
☐	☐	☒	Standard County Record Drawing/Construction Certification note provided on plan. *Note: It is understood that preparation of record drawings and construction certifications as required for project facilities may not necessarily be performed by the plan preparer. These components may be performed by others.*
☐	☐	☒	*PRINCIPAL SPILLWAY PROFILE AND ASSOCIATED DETAILS*
☐	☐	☒	*EXISTING GROUND AND PROPOSED GRADE*
☐	☐	☒	Embankment or excavation side slopes labeled (3H:1V maximum).
☐	☐	☒	Minimum top width labeled (per VESCH or VSMH requirements).
☐	☐	☒	Removal of unsuitable material under proposed facility (per Geotechnical Report requirements).

Yes	No	N/A	
☐	☐	☒	*CORE TRENCH*
☐	☐	☒	Material (per plan or Geotechnical Report).
☐	☐	☒	Bottom width (4' minimum or greater as dictated by Geotechnial Report recommendations).
☐	☐	☒	Side slopes (1:1 maximum steepness)
☐	☐	☒	Depth (4' minimum or greater as dictated by Geotechnical Report).
☐	☐	☒	*PRINCIPAL CONTROL STRUCTURE. RISER OR SIMILAR STRUCTURE (DETAILS REQUIRED FOR ALL ITEMS)*
☐	☐	☒	Durable, watertight, resistant material (concrete preferred).
☐	☐	☒	Riser diameter is at least 1.25 times larger than barrel diameter.
☐	☐	☒	All pertinent dimensions and elevations shown.
☐	☐	☒	Control orifice or weir dimensions and elevations shown.
☐	☐	☒	Trash rack – removable – for each release.
☐	☐	☒	Anti-vortex device, baffle or plate.
☐	☐	☒	Riser base structure with dimensions and embedment specifications (concrete preferred).
☐	☐	☒	Interior access (steps, ladders, etc.) for maintenance for structures over 4 feet in height. Excessively high risers may need some form of exterior access on top portion.
☐	☐	☒	Low flow orifice with trash rack device.
☐	☐	☒	*PRINCIPAL CONTROL STRUCTURE OUTLET BARREL*
☐	☐	☒	Material (ASTM C-361 reinforced concrete pipe) with watertight joints. Prior approval required for all other pipe material (other RCP types, CMP, CPP, PVC, etc.).
☐	☐	☒	Support and bedding requirements for barrel – concrete cradles, etc. or as recommended by the Geotechnical Report.
☐	☐	☒	Pipe inverts, length, size, class and slope shown.
☐	☐	☒	Flared end section or endwall provided on barrel outlet.
☐	☐	☒	*SEEPAGE CONTROL*
☐	☐	☒	Phreatic line shown (4:1 slope measured from the intersection of the embankment and the principal spillway design high water).
☐	☐	☒	*ANTI-SEEP COLLARS*
☐	☐	☒	Anti-seep collar, concrete preferred.
☐	☐	☒	Size – 15 percent increase in length of saturation using outside pipe diameter.
☐	☐	☒	Spacing and location on barrel (located at least 2 feet from a pipe joint).
☐	☐	☒	*FILTER DIAPHRAGMS*
☐	☐	☒	Design based on latest NRCS design methods and certified by a professional engineer.

Yes	No	N/A	
☐	☐	☒	*ELEVATION AND DIMENSIONAL DESIGN DATA*
☐	☐	☒	Top of facility – construction height and settled height (10 percent settlement).
☐	☐	☒	Crest of principal control structure spillway at least one (1) foot below crest of emergency spillway, if provided.
☐	☐	☒	Minimum freeboard of one (1) foot above the 100-year design high water elevation for facilities <u>with</u> an emergency spillway.
☐	☐	☒	Minimum freeboard of two (2) feet above the 100-year design high water elevation for facilities <u>without</u> an emergency spillway or in accordance with the SCS National Engineering Handbook (prior approval required).
☐	☐	☒	Basin Sediment Clean-Out elevation (permanent mode). Typically 10 to 25 percent of water quality volume.
☐	☐	☒	*CROSS SECTION THROUGH FACILITY*
☐	☐	☒	Existing Ground.
☐	☐	☒	Proposed grade.
☐	☐	☒	Top of facility – constructed and settled.
☐	☐	☒	Location of emergency spillway with side slopes labeled (emergency spillway in cut).
☐	☐	☒	Bottom of core trench (4' minimum).
☐	☐	☒	Location of each soil boring.
☐	☐	☒	Barrel location.
☐	☐	☒	Existing and proposed utility location/protection.
☐	☐	☒	*EMERGENCY SPILLWAY PROFILE*
☐	☐	☒	Existing ground.
☐	☐	☒	Inlet, level (control) and outlet sections per SCS.
☐	☐	☒	Spillway and crest elevations.
☐	☐	☒	*PRETREATMENT DEVICES* of adequate depth and properly designed using required pretreatment volumes for the selected County BMP facility type. Including, but not limited to: sediment forebays, sediment basins, sumps, grass channels, gravel diaphragms, plunge pools, chamber separators, manufactured systems or other acceptable methods.

Yes	No	N/A	
☐	☐	☒	*CONSTRUCTION SPECIFICATIONS and NOTES*
☐	☐	☒	Anticipated sequence of construction for BMP (consistent with erosion and sediment control plan).
☐	☐	☒	Provisions to control base stream or storm flow conditions encountered during construction.
☐	☐	☒	Site and subgrade preparation requirements.
☐	☐	☒	Embankment, fill and backfill material soil and placement (lift) thickness requirements.
☐	☐	☒	Compaction and soil moisture content requirements.
☐	☐	☒	Geosynthetics for drainage, filtration, moisture barrier, separation, and reinforcement purposes.
☐	☐	☒	Clay or synthetic (PVC or HDPE) pond liners.
☐	☐	☒	Storm drain, underdrain and pipe conduit requirements.
☐	☐	☒	Minimum depth of pipe cover for temporary (construction) and final cover conditions.
☐	☐	☒	Permanent shutoff valve and pond drain.
☐	☐	☒	Concrete requirements for structural components.
☐	☐	☒	Riprap and slope protection.
☐	☐	☒	Access or maintenance road surface, base, subbase.
☐	☐	☒	Temporary and permanent stabilization measures.
☐	☐	☒	Temporary or permanent safety fencing.
☐	☐	☒	BMP Landscaping (deep, shallow, fringe, perimeter, etc.)
☐	☐	☒	Dust and traffic control (if warranted).
☐	☐	☒	Construction monitoring and certification by professional.
☐	☐	☒	Other: _____
☐	☐	☒	Other: _____
☐	☐	☒	*MAINTENANCE PROVISIONS*
☐	☐	☒	Entity responsible for maintenance identified.
☐	☐	☒	Maintenance Plan which outlines the long-term schedule for inspection/maintenance of the facility and forebays.
☐	☐	☒	Maintenance access from public right-of-way or publicly traveled road.
☐	☐	☒	Maintenance easement provided encompassing high water pool and buffer, principal and emergency spillways, outlet structures, forebays, embankment area and possible sediment-removal stockpile areas.
☐	☐	☒	Minimum 6 foot wide public safety shelf (landing) or alternative fencing.

IV. *OUTLET PROTECTIONS*:

Yes	No	N/A	
☐	☐	☒	Sized for maximum design release (generally 10-year storm).
☐	☐	☒	Flared end section or endwall.
☐	☐	☒	Dimensions.
☐	☐	☒	Rock or riprap size, quantity and placement thickness.
☐	☐	☒	Slope at 0 percent (Level Grade).
☐	☐	☒	Geotextiles (nonwoven).
☐	☐	☒	Special energy dissipators are required for design discharge velocities that exceed eighteen (18) feet per second; or if use of standard outlet protection would result in velocities exceeding permissible channel velocities; or if space restricts or limits their use.

IV. *ADDITIONAL COMMENTS OR INFORMATION SPECIFIC TO THE PLAN:*

Plan Preparer:
Date: 12/5/11

Copy of JCC: SWMProg/BMP/Checklist/ChkList

COPY

COUNTY OF JAMES CITY, VIRGINIA

DECLARATION OF COVENANTS
INSPECTION/MAINTENANCE OF DRAINAGE SYSTEM

Please type or print legibly in black ink. Covenantor(s) should submit this form to the JCC Engineering and Resource Protection Division, 101-E Mounts Bay Road, Williamsburg, VA 23185.

THIS DECLARATION OF COVENANTS, made this 22nd day of March, 20 12, between SLN Casey Associates, LLC, A Virginia LLC, and all successors in interest, ("COVENANTOR(S)"), owner(s) of the following property:

Parcel Identification Number(s): 3831800003C
Legal Description(s): L-3C CC CASEY LIMITED CO. PARCELS 1-5 (WINDSORMEADE MARKETPLACE)

Project or Subdivision Name: Goodyear at WindsorMeade Marketplace
Document/Instrument No(s): 040024401
or Deed Book _____, Page No. _____,
and the County of James City, Virginia ("COUNTY.")

WITNESSETH:

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

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

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

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

4. The COVENANTOR(S) shall grant the COUNTY, its agent and its contractor a right of entry to the SYSTEM for the purpose of inspecting, monitoring, operating, installing, constructing, reconstructing, maintaining or repairing the SYSTEM.

5. If, after reasonable notice by the COUNTY, the COVENANTOR(S) shall fail to maintain the SYSTEM in accordance with the approved design standards and with the law and applicable executive regulations, the COUNTY may perform all necessary repair or maintenance work, and the COUNTY may assess the COVENANTOR(S) and/or all property served by the SYSTEM for the cost of the work and any applicable penalties.

Prepared by (Name, Address & Phone):
James M. Gresock, Senior Vice President
S.L. Nusbaum Realty Co.
9211 Forest Hill Ave., #110 Richmond, VA 23235
804-320-7600 Ext 1312

Return to:
JCC Attorney's Office
101-C Mount's Bay Road
Williamsburg, VA 23185
(757) 253-6612

Instrument No. 120007374
Recorded On: April 9, 2012

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.

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

COVENANTOR(S)

SLN Casey Associates, LLC,
a Virginia limited liability company
By: SLN Williamsburg Associates LLC,
a Virginia limited liability company, Manager
By: S.L. Nusbaum Realty Co.,
A Virginia corporation, Manager

By: James M Gresock
James M Gresock, Senior Vice President

ACKNOWLEDGMENT

COMMONWEALTH OF VIRGINIA
CITY/~~COUNT~~Y OF Richmond, to wit:

I hereby certify that on this 23rd day of March, 20 12, before the subscribed, a Notary Public for the Commonwealth of Virginia, personally appeared James M. Gresock and did acknowledge the foregoing instrument to be his/her Act.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this 23rd day of March, 2012.

[SEAL]

DONNA M. JAMES
COMMONWEALTH OF VIRGINIA
REGISTRATION NO. 146836
MY COMM. EXPIRES 07/31/2014
NOTARY PUBLIC

Donna M James
Notary Public

Notary Registration Number: 146836

My Commission expires: 7/31/14

Approved as to form:

Klauteusman
County Attorney

Drainage1_pre_doc
(Revised 5-11)