GENERAL NOTES

1. This site has been addressed by the Prince William County Mapping Office as: N/A ____________ (addresses for subdivision lots shall appear on the approved plat for recordation).
2. Addresses assigned are for the layout of individual businesses or dwelling units and are for exterior doors as shown on this plan only. Any deviation in design or layout will require that a revised plan be submitted to the Office of Mapping for re-addressing. It is the responsibility of the developer to inform the County Office of Mapping before a change in layout occurs and to submit complete and accurate information for re-addressing. Prince William County does not assume any responsibility where re-addressing is required even though tenants have already occupied a portion of the building.
3. Methods and materials used in the construction of the improvements herein shall conform to the current County construction standards and specifications and/or current VDOT standards and specifications.
4. The contractor or developer is required to notify the Prince William County Department of Public Works in writing three (3) days prior to the beginning of the construction and specifically request inspection before beginning -- 792-7070.
   - A. Installation of approved erosion control devices.
   - B. Clearing and Grading
   - C. Subgrade excavation.
   - D. Installing storm sewers or culverts.
   - E. Setting curb and gutter forms.
   - F. Placing curb and gutter.
   - G. Placing other concrete.
   - H. Placing gravel base.
   - I. Placing any bituminous surfacing.
   - *J. Installing water mains outside the Service Authority's boundaries.
   - *K. Installing sanitary sewer outside the Service Authority's boundaries.
5. Measures to control erosion and siltation, including detention ponds serving as silt basins during construction, must be provided prior to issuance of the site development permit. The approval of these plans in no way relieves the developer or his agent of the responsibilities contained in the Virginia Erosion and Sediment Control Handbook.
6. A permit must be obtained from the Office of the Resident Engineer, Virginia Department of Transportation (VDOT) Prince William County, prior to construction in existing State right-of-way, 366-1900.
7. Approval of this plan does not guarantee issuance of an entrance permit by VDOT when such permit is required under State law.
8. The exact location of all guard rails will be determined by VDOT personnel. "A joint inspection will be held with the Developer, County Representatives, and Representatives, of the Virginia Department of Transportation (VDOT) to determine if and where guard rail and/or paved ditches will be needed. The developer will be responsible for providing guardrail and paved ditches as determined by this joint inspection." Refer to Virginia Department of Transportation (VDOT) Guard Rail and Paved Ditch Specifications.
9. An approved set of plans and all applicable permits must be available at the construction site. Also, a representative of the developer must be available at all times.
10. Warning signs, markers, barricades or flagmen should be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).
11. All unsuitable material shall be removed from the construction limits of the roadway before placing embankment.
12. All pavement sections on the approved plans are based on a minimum CBR value of 10. CBR tests are to be performed by the engineer and submitted to the Prince William County Planning Office for review prior to placement of base material. CBR values less than 10 will require submittal of revised pavement section.
13. All roadside ditches at grades of more than 5% shall be paved with cement concrete to the limits indicated on the plans and as required at the field inspection.
14. All springs shall be capped and piped to the nearest storm sewer manholes or curb inlet. The pipe shall be minimum six inches (6") (150 mm) diameter and conform to VDOT standard SB-1.
15. All standard street name signs, traffic control devices, and street lights shall be installed by the developer when the first building unit is occupied.
16. Construction debris shall be containerized in accordance with the Virginia Litter Control Act; no less than one litter receptacle shall be provided at the construction site
17. The contractor shall provide adequate means of cleaning mud from trucks and/or other equipment prior to entering public streets, and it is the contractors responsibility to clean streets, allay dust, and to take whatever measures are necessary to insure that the streets are maintained in a clean, mud and dust free condition at all times.
18. * Notification shall be given to the appropriate utility Company (Service Authority, Virginia-American Water Company, or Dale Service Corporation) prior to construction of water and/or sanitary sewer lines. Information should also be obtained from the appropriate authority concerning permits, cut sheets, and connections to existing lines.
19. All sanitary sewers and water mains and appurtenances shall be constructed in accordance with the current standards and specifications of Prince William County and/or the Service Authority.
20. The developer and/or contractor shall be responsible to supply all utility companies with copies of plans that have been approved by Prince William County and advising them that all grading shall conform to the approved plans, and further that the utility companies shall be responsible for honoring these plans and the finished grades in the installation of their utility lines.
21. Contractors shall notify operators who maintain underground utility lines in the area of proposed excavating or blasting at least two (2) working days, but not more than ten (10) working days, prior to commencement of excavation or demolition. Names and telephone numbers of the operators underground utility lines in Prince William County appear below. These numbers shall also be used to serve in an emergency condition.

* Washington Gas Light Co.
Virginia Power Co.
Northern Virginia Electric Co-op
Columbia Gas of Virginia
Continental Telephone of VA
Colonial Pipeline Co.
Transcontinental Gas Pipe Line Corp.

MISS UTILITY 1-800-257-7777

Service Authority 335-7900
(After hours-Emergency 335-7990)
Virginia-American Water 491-2136
Dale Service Corporation 494-4161

22. The Service Authority requires that a clean-out be placed within one foot (0.3 meters) of the property line.
23. The location of existing utilities shown in these plans are taken from existing records. It shall be the contractors responsibility to verify the exact horizontal and vertical location of all existing utilities as needed prior to construction. The contractor shall inform the engineer of any conflicts arising from his existing utility verification and the proposed construction.
24. The developer will be responsible for any damage to the existing streets and utilities which occurs as a result of his construction project within or contiguous to the existing right-of-way.
25. All utilities placed under existing streets shall be bored or jacked.
26. When grading is proposed within easements of utilities, letters of permission from all involved companies must be provided to Prince William County Planning Office prior to issuance of grading and/or site development permits.
27. The developer will be responsible for the relocation of any utilities which is required as a result of his project. **The relocation should be done prior to construction.**
28. Before burning, blasting, transportation or storage of explosives in Prince William County, a permit shall be obtained from the Fire Marshal's Office, 792-6360.
29. Fire and Rescue Services must be notified immediately (792-6810) in the event that unusual items such as tanks, cylinders, unidentified containers, etc. which could contain potentially hazardous materials are discovered or observed. All activities must cease and not be resumed until authorization to proceed is given by the Fire Marshal's Office.
30. Sidewalk underdrains shall be installed per Section 650 of the Design and Construction Standards Manual.
31. All walkways outside of the right-of-way limits will be maintained by the homeowners association.
32. Maintenance of the Storm Drainage or Storm Water Management facilities located therein shall be pursuant to Section 700 of the Prince William County Design and Construction Standards Manual.
33. If units shown on this plan will be occupied in phases, a phasing plan must be approved by the engineering inspection branch prior to the issuance of any occupancy permits. (Detached single family subdivision exempt.)
34. These plans identify the location of all known gravesites. Gravesites shown on this plan will be protected in accordance with state law. In the event gravesites are discovered during construction, the County's Planning Office must be notified immediately (792-6830). All activities must cease and not be resumed until authorization to proceed is given by the County Planning Office.
35. Roof top mechanical equipment, if any, must be enclosed within a wall or similar screening barrier, designed in harmony with the building.
36. Individual sign permits will be required from the Zoning Office for all free standing and facade signs prior to erecting the signs.
37. All buffer areas shall be screened according to the Design and Construction Standards Manual.
38. For proffers statement and proffers analysis, see sheet(s) N/A of ______.
39. For waivers see sheet(s) N/A of ______.
40. Anticipated sewage flows: N/A
41. Anticipated fire flows: N/A
42. Distance to nearest existing school or proposed school site: ~3 MILES (GRAHAM PARK MIDDLE SCHOOL)

LEGEND

- EXISTING INTERMEDIATE CONTOUR — 33
- EXISTING INDEX CONTOUR — 32.5
- PROPOSED CONTOUR — 20
- EXISTING EDGE OF PAVEMENT — EX. E/P
- PROPOSED EDGE OF PAVEMENT — PROP. E/P
- EXISTING CURB AND GUTTER — EX. C & G
- PROPOSED CURB AND GUTTER — CG-6
- TRANSITION FROM CG-6 TO CG-6R — CG-6 CG-6R
- EXISTING TELEPHONE LINE — T
- PROPOSED TELEPHONE LINE — T
- EXISTING STORM SEWER — EX. 375 mm (15") RCP
- PROPOSED STORM SEWER — PROP. 375 mm (15") RCP
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING ELECTRIC SERVICE — E
- PROPOSED ELECTRIC SERVICE — E
- EXISTING GAS LINE — G
- PROPOSED GAS LINE — G
- PROPERTY LINE
- EASEMENT LINE
- CENTERLINE
- LIMITS OF CLEARING AND GRADING
- EXISTING SPOT ELEVATION — 12.0
- PROPOSED SPOT ELEVATION — 0 00
- EXISTING TREE DRIP LINE
- EXISTING TREE — 375 mm (15") OAK
- PROPOSED TREE — OAK
- FLOW LINE
- FENCELINE — X
- EXISTING UTILITY POLE
- PROPOSED UTILITY POLE
- EXISTING WATERLINE W/ TEE — W
- PROPOSED WATERLINE W/ TEE — W
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- EXISTING WATER VALVE — W
- PROPOSED WATER VALVE — W
- PROPOSED WATER METER
- EXISTING REDUCER — W
- PROPOSED REDUCER — W
- STOP SIGN
- HANDICAP RAMP (CG-12) — DENOTES LOCATION OF STD VDOT CG-12 AND/OR JURISDICTIONAL STANDARD RAMP CONSTRUCTION
- PARKING INDICATOR — INDICATES THE NUMBER OF TYPICAL PARKING SPACES — 12
- TEST PIT LOCATION
- CRITICAL SLOPE — SLOPES TO BE STABILIZED PURSUANT TO VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK
- VEHICLES PER DAY COUNT — VPD
- PROPOSED BUILDING ENTRANCE
- EXISTING STREET LIGHT
- PROPOSED STREET LIGHT
- PROPOSED STREET NAME SIGN
- PROPOSED SANITARY LATERAL CLEANOUT
- SANITARY MANHOLE INDENTIFIER — S
- STORM DRAIN STRUCTURE IDENTIFIER — D

THIS PLAN COMPLIES WITH THE NEW PRINCE WILLIAM COUNTY SERVICE AUTHORITY UTILITY STANDARDS MANUAL, WHICH WENT INTO EFFECT ON JANUARY 1, 1997. ALL UTILITY PERMITS ISSUED AFTER THIS DATE MUST COMPLY WITH THE CONSTRUCTION CRITERIA IN THE NEW MANUAL, INCLUDING ANY REVISIONS WHICH HAVE BEEN ISSUED.

DESIGNATED PLANS EXAMINER CERTIFICATE

1ST SUBMISSION REVIEWED AND RECOMMENDED FOR SUBMISSION

DESIGNATED PLANS EXAMINER ______ REG. NUMBER ______ DATE ______

2ND SUBMISSION REVIEWED AND RECOMMENDED FOR SUBMISSION

DESIGNATED PLANS EXAMINER ______ REG. NUMBER ______ DATE ______

PWCSA WATER & SEWER MAIN INSPECTION FEES

WATER MAIN ________ L.F. (L.M.) x $________ = ________
SEWER MAIN ________ L.F. (L.M.) x $________ = ________
TV SEWER MAIN ________ L.F. (L.M.) x $________ = ________

TOTAL = ________

BOND ESTIMATE

ITEM	COUNTY BOND	VDOT BOND
TOTAL CONSTRUCTION COST	N/A	N/A
ADMINISTRATIVE COST	N/A	N/A
INFLATION COST	N/A	N/A
TOTAL PERFORMANCE BOND AMOUNT	N/A	N/A
SILTATION AND EROSION CONTROL ESCROW AMOUNT (SEE DRAWING PWC-02)	$131,521.50	N/A

SURVEY AND TOPOGRAPHIC INFORMATION

1. Horizontal and vertical control surveys were performed by See Note 3 ______ (Year)
2. All elevations must be referenced to the North American Vertical Datum of 1988 (NAVD 88).
3. Source of topographic mapping is AXIS GEOSPATIAL, LLC dated APRIL 5, 2014
4. Boundary survey was performed by N/A , ______ dated ______.
5. The application of the professional's seal and signature as required by Section 1.14 of the STATE BOARD OF ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS AND CERTIFIED LANDSCAPE ARCHITECTS RULES AND REGULATIONS shall be evidence that: the boundary data is correct to the best of the land surveyor's knowledge, and complies with the minimum standards and procedures of the said Board; the topograhic information is accurate to within one-half of the contour interval, as shown. Application of the seal and signature indicates acceptance of responsibility for the work shown hereon.

APPROVED BY: ______________

REVIEWED BY:
This plan has been reviewed and has been found to be in general conformance with the requirements of Prince William County. The developer is hereby authorized to obtain all necessary land development permits, subject to all designs, procedures, materials and workmanship being in compliance with lawful requirements. If not bonded or permitted (if applicable) within five (5) years of the authorized date or lawfully extended, this authorization will expire. A valid agreement and bond with Prince William County must be maintained to assure plan and permit validity.

SOILS MAP

SCALE 1: 4,800

VICINITY MAP

SCALE 1: 4,800

SOILS DATA

ACCORDING TO THE USDA SOILS DATA FOR PRINCE WILLIAM COUNTY, THE TYPES OF SOILS FOUND AT THE SITE ARE DUMFRIES (MAP UNIT NO. 18), NEABSCO (MAP UNIT NO. 41), URBAN LAND (MAP UNIT NO. 54), QUANTICO (MAP UNIT NO. 47), AND MARUMSCO (MAP UNIT NO. 37). HOWEVER, THE MAJORITY OF THESE SOILS HAVE BEEN COVERED BY EARTH FILL MATERIALS USED TO CONSTRUCT THE ASH PONDS.
THE DUMFRIES AND QUANTICO SOILS ARE CONSIDERED WELL DRAINED. THE TEXTURE OF THESE SOILS VARIES, BUT THEY ARE TYPICALLY CLASSIFIED AS SANDY LOAMS. THE ACIDIC REACTION OF THESE SOILS RANGES FROM EXTREMELY ACIDIC TO SLIGHTLY ACIDIC.
THE NEABSCO AND MARUMSCO SOILS ARE CONSIDERED MODERATELY WELL DRAINED. THE TEXTURE OF THESE SOILS VARIES, BUT THEY ARE TYPICALLY CLASSIFIED AS CLAYEY SOILS. THE ACIDIC REACTION OF THESE SOILS RANGES FROM EXTREMELY ACIDIC TO SLIGHTLY ACIDIC.
THE URBANLAND SOILS ARE WELL DRAINED AND MODERATELY WELL DRAINED SOILS. THE TEXTURE OF THESE SOILS WIDELY VARIES. THE ACIDIC REATION OF THESE SOILS IS UNKNOWN, BUT LIKELY VARIES.
THE EARTH FILL MATERIALS AT THE SITE ARE GENERALLY CONSIDERED MODERATELY WELL DRAINED. THE TEXTURE OF THESE SOILS ALSO VARIES, BUT THEY ARE TYPICALLY CLASSIFIED AS EITHER SANDY LOAM OR SANDY CLAY LOAM. THE ACIDIC REACTION OF THESE SOILS IS UNKNOWN, BUT IT LIKELY VARIES.

SHEET INDEX

Drawing Number	Sheet Title
PWC-01	PWC COVER SHEET
G-01	SCHNABEL COVER SHEET
C-01	EXISTING CONDITIONS PLAN
C-02	EROSION & SEDIMENT CONTROL NARRATIVE AND CHECKLISTS
C-03	OVERALL SITE IMPROVEMENTS PLAN
C-04	EMBANKMENT CLEARING AND GRADING PLAN - SHEET 1
C-05	EMBANKMENT CLEARING AND GRADING PLAN - SHEET 2
C-06	EMBANKMENT SLOPE REPAIR SECTIONS - AREAS A AND C
C-07	EMBANKMENT CREST RE-GRADING SECTIONS
C-08	OVERALL STORMWATER DIVERSION SYSTEM PLAN
C-09	STORMWATER DIVERSION SYSTEM - RIPRAP-LINED CHANNEL DETAILS
C-10	STORMWATER DIVERSION SYSTEM - STORMWATER PIPE DETAILS
C-11	STORMWATER DIVERSION SYSTEM DETAILS
C-12	EROSION & SEDIMENT CONTROL DETAILS
C-13	STORMWATER DIVERSION SYSTEM CALCULATIONS
PWC-02	PWC UNIT PRICE CHECKLIST

REVISIONS

DATE	DESIGNER	NO.	DESCRIPTION

COMMONWEALTH OF VIRGINIA
JONATHAN M. PITTMAN
Lic. No. 041420
PROFESSIONAL ENGINEER

PROFESSIONAL SEAL & SIGNATURE

THESE PLANS ARE IN CONFORMANCE WITH PRINCE WILLIAM COUNTY STANDARDS AND ORDINANCES. ANY DEVIATION OR CHANGE IN THESE PLANS SHALL BE APPROVED BY THE DIRECTOR OF PLANNING PRIOR TO CONSTRUCTION.

PRINCE WILLIAM COUNTY

COVER SHEET

Project Name: POSSUM POINT POWER STATION ASH POND 'ABC' IMPROVEMENTS
Project Number: TO BE ASSIGNED BY PWC
Subdivision or Site Plan Name: N/A
Market Name: N/A
Plan Number:
Plan Type: EC SP
Revision Number: A
Magisterial District: Potomac
Present Zoning & Use:
Date of Plan: (Month, Day, Year) October 15, 2014
Owner: Virginia Electric & Power Company
Address, Including Zip Code & Telephone No. 5000 Dominion Boulevard, Glen Allen VA, 23060 804.273.2697 Contact Oula Shehab-Dandan
Developer: N/A
Address, Including Zip Code & Telephone No. N/A
Name, Address & Telephone No. of Engineer Architect or Surveyor certifying Plan: Schnabel Engineering, LLC, 336.274.9456 11A Oak Branch Drive, Greensboro NC, 27407
Parcel Identification Number: 8288-96-2368
BMP Storage/hectare: cm/ha
Total Area: 714 ac Project Area: 27.7 ac Disturbed Area: 2.3 ac Impervious Area: N/A BMP Storage/Acre: N/A cf/ac.
Related Plans Tracking Numbers (Including Rez. & S.U.P.): N/A

DRAWING PWC-01

Revised: June 1997

PWC File Number: TO BE ASSIGNED BY PWC   Subdivision/Site Plan Name: POSSUM POINT POWER STATION ASH POND 'ABC' IMPROVEMENTS PLAN NO. ______

00011246

POSSUM POINT POWER STATION
IMPROVEMENTS TO ASH PONDS ~~'A', 'B', & 'C'~~

ABC

PREPARED FOR

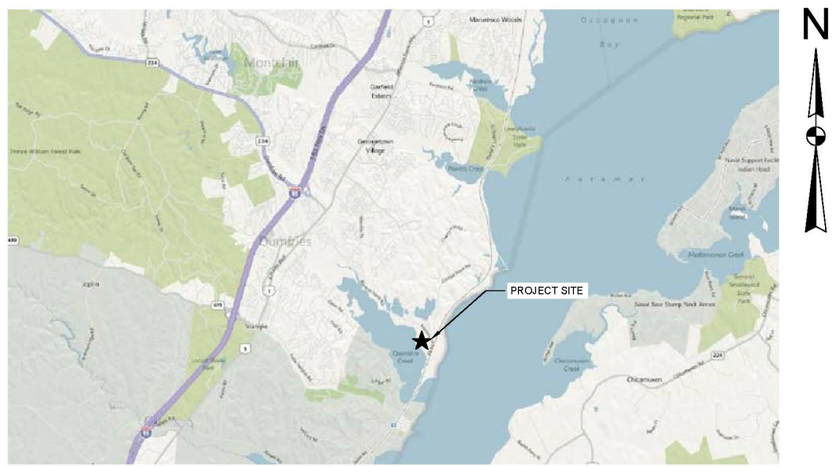
DOMINION RESOURCES SERVICES, INC.
dba VIRGINIA ELECTRIC & POWER COMPANY

PRINCE WILLIAM COUNTY, VIRGINIA

PREPARED BY

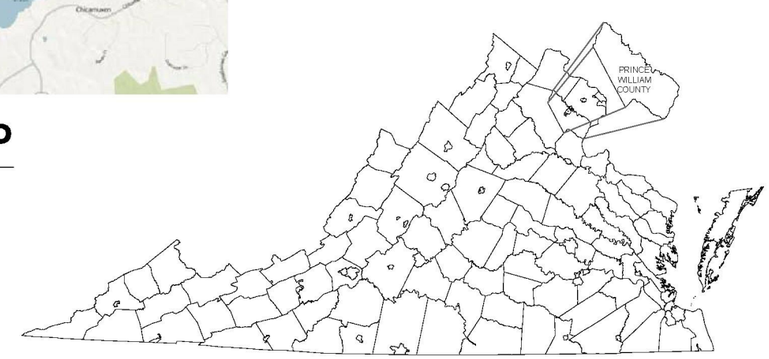
SCHNABEL ENGINEERING, LLC

PROJECT NO. 14221002.00



LOCATION MAP

VICINITY MAP



KEY MAP

REV	DESCRIPTION	DATE

DESIGNED BY: SEP
DRAWN BY: SEP
CHECKED BY: JMP

JONATHAN M. PITTMAN, P.E.

DATE: _____

VIRGINIA PROFESSIONAL ENGINEER 041420

Schnabel ENGINEERING
114 Oak Branch Drive / Greensboro, NC / 27407
T / 336-274-9456 F / 336-274-9489 / schnabel-eng.com

DOMINION POSSUM POINT ASH POND ABC
DOMINION RESOURCES SERVICES, INC
PRINCE WILLIAM COUNTY, VIRGINIA

SCHNABEL COVER SHEET

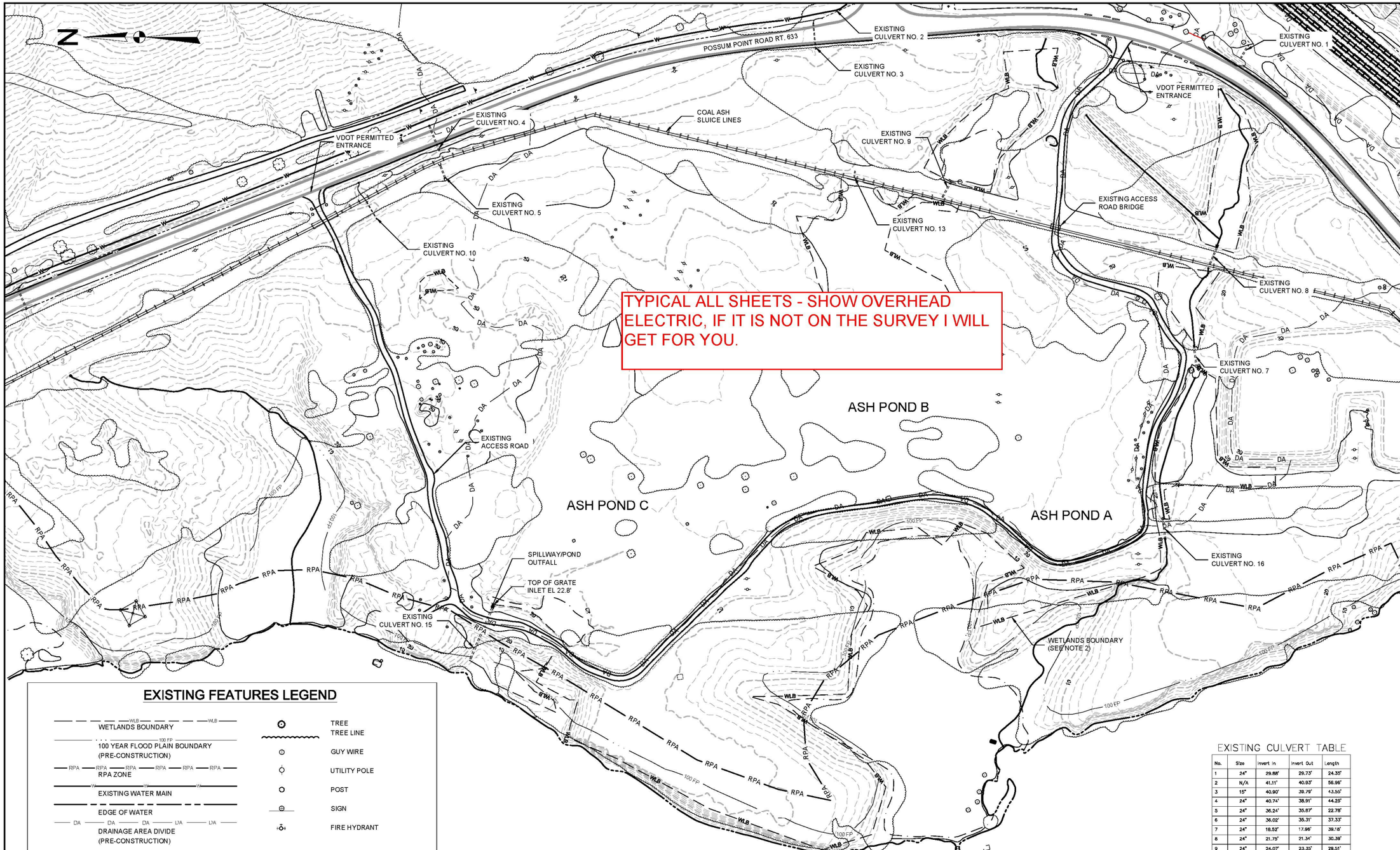
Dominion

DOMINION RESOURCE SERVICES, INC.
GLEN ALLEN, VIRGINIA

PROJECT: 14221002.00
DATE: OCTOBER 2014
DRAWING NO. G-01
SHEET 2 OF 16

© Schnabel Engineering, 2014. All Rights Reserved

00011247



TYPICAL ALL SHEETS - SHOW OVERHEAD ELECTRIC, IF IT IS NOT ON THE SURVEY I WILL GET FOR YOU.

EXISTING FEATURES LEGEND

- WETLANDS BOUNDARY
- 100 YEAR FLOOD PLAIN BOUNDARY (PRE-CONSTRUCTION)
- RPA ZONE
- EXISTING WATER MAIN
- EDGE OF WATER
- DRAINAGE AREA DIVIDE (PRE-CONSTRUCTION)
- BRUSH LINE
- MARSH LINE
- TREE
- TREE LINE
- GUY WIRE
- UTILITY POLE
- POST
- SIGN
- FIRE HYDRANT

NOTES

1. SURVEY OF TOPOGRAPHY AND SITE FEATURES PERFORMED BY AXIS GEOSPATIAL, LLC ON APRIL 5, 2014. HORIZONTAL CONTROL IS NAD 83 - VIRGINIA STATE PLANE NORTH, AND VERTICAL CONTROL IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAD 88).
2. SEE GENERAL NOTE 3 ON DWG C-03 FOR INFORMATION ON THE WETLANDS BOUNDARY SHOWN.

1 EXISTING CONDITIONS PLAN

SCALE 1"=80'

0 80' 160'

EXISTING CULVERT TABLE

No.	Size	Invert In	Invert Out	Length
1	24"	29.88'	29.73'	24.35'
2	N/A	41.11'	40.93'	56.96'
3	15"	40.90'	39.79'	43.55'
4	24"	40.74'	38.91'	44.25'
5	24"	36.24'	35.87'	22.78'
6	24"	36.02'	35.31'	37.33'
7	24"	18.52'	17.96'	39.18'
8	24"	21.75'	21.34'	30.39'
9	24"	24.07'	23.35'	29.51'
10	12"	35.75'	34.91'	33.11'
11	18"	53.89'	53.10'	55.54'
12	15"	91.12'	84.50'	86.03'
13	18"	29.31'	24.53'	11.14'
14	15"	26.48'	8.10'	106.53'
15	30"	5.83'	1.53'	94.37'
16	24"	16.94'	N/A	N/A

NOTE: EXISTING CULVERTS ARE CONCRETE UNLESS NOTED OTHERWISE

REV	DESCRIPTION	DATE

DESIGNED BY: SEP
DRAWN BY: SEP
CHECKED BY: JMP

JONATHAN M. PITTMAN, P.E.
VIRGINIA PROFESSIONAL ENGINEER 041420
DATE:

Schnabel ENGINEERING
114 Oak Branch Drive | Greensboro, NC | 27407
T/ 336-274-9456 F/ 336-274-9489 | schnabel-eng.com

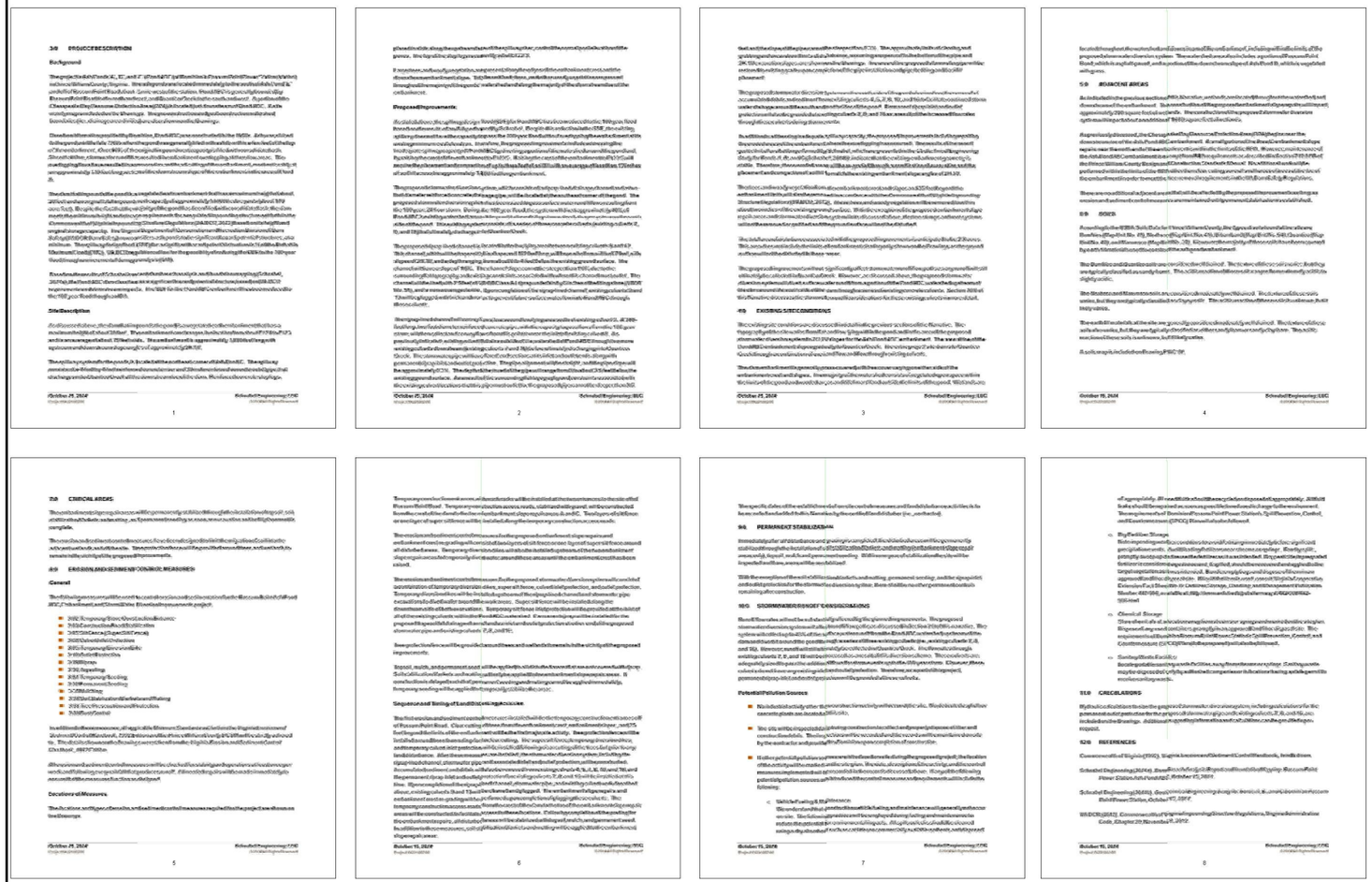
DOMINION POSSUM POINT ASH POND ABC
DOMINION RESOURCES SERVICES, INC
PRINCE WILLIAM COUNTY, VIRGINIA

EXISTING CONDITIONS PLAN

Dominion
DOMINION RESOURCE SERVICES, INC.
GLEN ALLEN, VIRGINIA

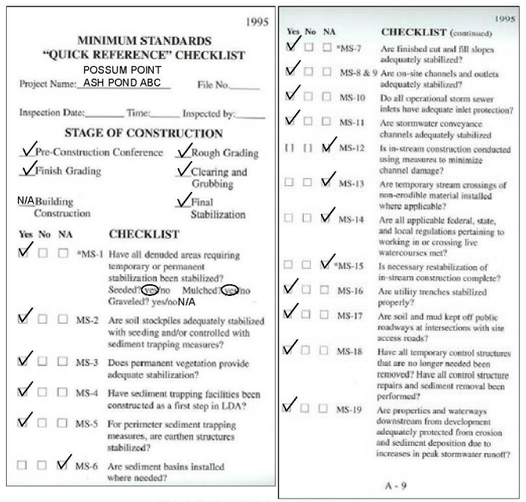
PROJECT: 14221002.00
DATE: OCTOBER 2014
DRAWING NO. C-01
SHEET 3 OF 16

© Schnabel Engineering | 2014 All Rights Reserved



1 EROSION AND SEDIMENT CONTROL NARRATIVE

2 VESCH CHECKLIST



1995

MINIMUM STANDARDS
"QUICK REFERENCE" CHECKLIST

POSSUM POINT

Project Name: ASH POND ABC File No._____

Inspection Date:_____ Time:_____ Inspected by:_____

STAGE OF CONSTRUCTION

✓ Pre-Construction Conference
✓ Rough Grading
✓ Finish Grading
✓ Clearing and Grubbing
N/A Building Construction
✓ Final Stabilization

Yes	No	NA		CHECKLIST
✓	☐	☐	*MS-1	Have all denuded areas requiring temporary or permanent stabilization been stabilized? Seeded? Yes/no Mulched: Yes/no Graveled? yes/no N/A
✓	☐	☐	MS-2	Are soil stockpiles adequately stabilized with seeding and/or controlled with sediment trapping measures?
✓	☐	☐	MS-3	Does permanent vegetation provide adequate stabilization?
✓	☐	☐	MS-4	Have sediment trapping facilities been constructed as a first step in LDA?
✓	☐	☐	MS-5	For perimeter sediment trapping measures, are earthen structures stabilized?
☐	☐	✓	MS-6	Are sediment basins installed where needed?

1995

Yes	No	NA		CHECKLIST (continued)
✓	☐	☐	*MS-7	Are finished cut and fill slopes adequately stabilized?
✓	☐	☐	MS-8 & 9	Are on-site channels and outlets adequately stabilized?
✓	☐	☐	MS-10	Do all operational storm sewer inlets have adequate inlet protection?
✓	☐	☐	MS-11	Are stormwater conveyance channels adequately stabilized
☐	☐	✓	MS-12	Is in-stream construction conducted using measures to minimize channel damage?
☐	☐	✓	MS-13	Are temporary stream crossings of non-erodible material installed where applicable?
☐	☐	✓	MS-14	Are all applicable federal, state, and local regulations pertaining to working in or crossing live watercourses met?
☐	☐	✓	*MS-15	Is necessary restabilization of in-stream construction complete?
✓	☐	☐	MS-16	Are utility trenches stabilized properly?
✓	☐	☐	MS-17	Are soil and mud kept off public roadways at intersections with site access roads?
✓	☐	☐	MS-18	Have all temporary control structures that are no longer needed been removed? Have all control structure repairs and sediment removal been performed?
✓	☐	☐	MS-19	Are properties and waterways downstream from development adequately protected from erosion and sediment deposition due to increases in peak stormwater runoff?

A - 9

* Refers to the minimum standards of the Virginia Erosion and Sediment Control Regulations (VR 625-02-00).

3 MINIMUM STANDARDS CHECKLIST

NOTE: COMPLETE APPLICABLE SECTIONS OF CHECKLIST AT EACH STAGE OF CONSTRUCTION SHOWN IN ACCORDANCE WITH THE REQUIREMENTS OF THE VESCH AND PWC DCSM.

REV	DESCRIPTION	DATE

DESIGNED BY: SEP
DRAWN BY: SEP
CHECKED BY: JMP

JONATHAN M. PITTMAN, P.E.
DATE: _____
VIRGINIA PROFESSIONAL ENGINEER 041420

Schnabel ENGINEERING
114 Oak Branch Drive | Greensboro, NC | 27407
T/ 336.274.9456 F/ 336.274.9480 | schnabel-eng.com

DOMINION POSSUM POINT ASH POND ABC
DOMINION RESOURCES SERVICES, INC
PRINCE WILLIAM COUNTY, VIRGINIA

EROSION & SEDIMENT CONTROL NARRATIVE AND CHECKLISTS

Dominion
DOMINION RESOURCE SERVICES, INC.
GLEN ALLEN, VIRGINIA

PROJECT: 14221002.00
DATE: OCTOBER 2014
DRAWING NO. C-02
SHEET 4 OF 16

© Schnabel Engineering 2014 All Rights Reserved

00011249

EROSION AND SEDIMENT CONTROL STANDARD NOTES:

1. THE OWNER/DEVELOPER MUST NOTIFY THE DEPARTMENT OF PUBLIC WORKS AT 703-792-7070 AT LEAST 24 HOURS PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH APPLICABLE COUNTY ORDINANCES AND POLICES.

2. THE OWNER/DEVELOPER GRANTS THE RIGHT-OF-ENTRY ON TO THIS PROPERTY TO THE DESIGNATED PRINCE WILLIAM COUNTY PERSONNEL FOR THE PURPOSE OF INSPECTING AND MONITORING FOR COMPLIANCE WITH TITLE 10.01, CHAPTER 5, ARTICLE 4 OF THE CODE OF VIRGINIA, EROSION AND SEDIMENT CONTROL LAW AND THE DESIGN AND CONSTRUCTION STANDARDS MANUAL SECTION 750.04 (C).

3. ALL EROSION CONTROL MEASURES SHOWN ON THE APPROVED PLAN MUST BE IN PLACE AND INSPECTED AND APPROVED BY THE DEPARTMENT OF PUBLIC WORKS PRIOR TO CLEARING, STRIPPING OF TOPSOIL OR GRADING.

4. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN AND PERMIT SHALL BE KEPT ON THE SITE AT ALL TIMES.

5. THE OWNER/DEVELOPER'S REPRESENTATIVE IS RESPONSIBLE FOR THE INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY PRINCE WILLIAM COUNTY.

6. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL COMPLETE AND ADEQUATE STABILIZATION IS ACHIEVED.

7. WATER MUST BE PUMPED INTO AN APPROVED FILTERING DEVICE DURING DEWATERING OPERATIONS.

8. ALL EROSION AND SEDIMENT CONTROL PRACTICES MUST BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND THE VIRGINIA REGULATIONS VR 625-02-00 EROSION AND SEDIMENT CONTROL REGULATIONS AND TO THE PRINCE WILLIAM COUNTY DESIGN AND CONSTRUCTION STANDARDS MANUAL.

THE OWNER/DEVELOPER'S REPRESENTATIVE WILL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICE AT ALL TIMES.

9. THE OWNER/DEVELOPER'S REPRESENTATIVE SHALL INSPECT ALL EROSION AND SEDIMENT CONTROL MEASURES DAILY AND AFTER EACH SIGNIFICANT RAINFALL. THE FOLLOWING ITEMS WILL BE CHECKED IN PARTICULAR:

   a. GRAVEL OUTLETS WILL BE CHECKED REGULARLY FOR SEDIMENT BUILDUP WHICH WILL PREVENT DRAINAGE. IF THE GRAVEL IS CLOGGED BY SEDIMENT, IT SHALL BE REMOVED AND CLEANED OR REPLACED.

   b. SILT FENCE BARRIERS WILL BE CHECKED REGULARLY FOR UNDERMINING OR DETERIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF SEDIMENT DEPOSITION REACHES HALF WAY TO THE TOP OF THE BARRIER.

   c. SEEDED AREAS WILL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED AND RESEEDED AS NEEDED.

   d. STREAM DIVERSION AND STORM CONVEYANCE, CHANNELS SHALL BE INSPECTED DAILY AND AFTER EACH RAIN TO ENSURE THEY'RE FUNCTIONING PROPERLY AND THAT THE INTEGRITY OF THE LININGS ARE NOT IMPAIRED.

   ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVISES MUST BE MADE **IMMEDIATELY** AFTER THE INSPECTION.

10. PERMANENT SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE.

    TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN UNDISTURBED FOR LONGER THAN FOURTEEN (14) DAYS.

    SEEDING AND SELECTION OF THE SEED MIXTURE SHALL BE IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK STANDARD AND SPECIFICATION 3.32.

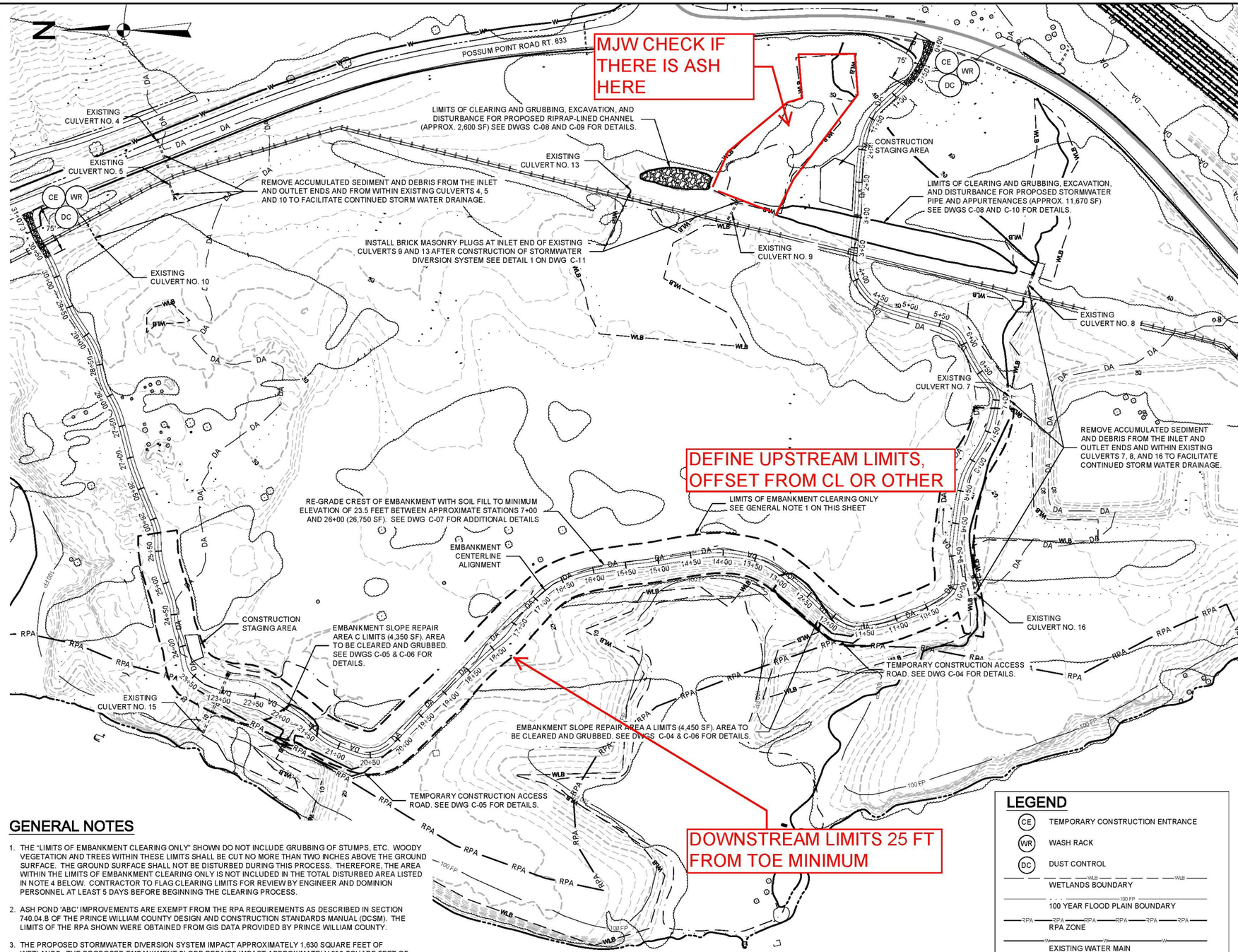
11. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES WILL BE REMOVED WITHIN 30 DAYS AFTER ADEQUATE SITE STABILIZATION AND AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, AS AUTHORIZED BY THE PRINCE WILLIAM COUNTY INSPECTORS. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES WILL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.

12. WHEN SEDIMENT IS TRANSPORTED ONTO A PAVED ROAD SURFACE, THE ROAD WILL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT WILL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING WILL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.

13. AREAS WHICH ARE NOT TO BE DISTURBED WILL BE CLEARLY MARKED BY FLAGS, SIGNS, ETC.

14. RPA AND FLOOD PLAIN LIMITS SHALL BE CLEARLY MARKED IN THE FIELD BY FLAGS, SIGNS, ETC.

15. TREE SAVE AREAS SHALL BE CLEARLY MARKED IN THE FIELD BY ORANGE SAFETY FENCE. APPROPRIATE TREE PRESERVATION SIGNS (WATERPROOF) TO IDENTIFY TREE PRESERVATION AREAS SHALL BE LOCATED ON TREE PROTECTIONS FENCING (INCLUDES SUPER SILT FENCING) AND SHOULD ALTERNATE BETWEEN ENGLISH AND SPANISH EVERY 30 FEET.



GENERAL NOTES

1. THE "LIMITS OF EMBANKMENT CLEARING ONLY" SHOWN DO NOT INCLUDE GRUBBING OF STUMPS, ETC. WOODY VEGETATION AND TREES WITHIN THESE LIMITS SHALL BE CUT NO MORE THAN TWO INCHES ABOVE THE GROUND SURFACE. THE GROUND SURFACE SHALL NOT BE DISTURBED DURING THIS PROCESS. THEREFORE, THE AREA WITHIN THE LIMITS OF EMBANKMENT CLEARING ONLY IS NOT INCLUDED IN THE TOTAL DISTURBED AREA LISTED IN NOTE 4 BELOW. CONTRACTOR TO FLAG CLEARING LIMITS FOR REVIEW BY ENGINEER AND DOMINION PERSONNEL AT LEAST 5 DAYS BEFORE BEGINNING THE CLEARING PROCESS.

2. ASH POND 'ABC' IMPROVEMENTS ARE EXEMPT FROM THE RPA REQUIREMENTS AS DESCRIBED IN SECTION 740.04.B OF THE PRINCE WILLIAM COUNTY DESIGN AND CONSTRUCTION STANDARDS MANUAL (DCSM). THE LIMITS OF THE RPA SHOWN WERE OBTAINED FROM GIS DATA PROVIDED BY PRINCE WILLIAM COUNTY.

3. THE PROPOSED STORMWATER DIVERSION SYSTEM IMPACT APPROXIMATELY 1,630 SQUARE FEET OF WETLANDS. THE PROPOSED EMBANKMENT SLOPE REPAIRS IMPACT APPROXIMATELY 230 SQUARE FEET OF WETLANDS. THE WETLANDS BOUNDARY SHOWN WAS DELINEATED BY GAI CONSULTANTS, INC. ON MAY 22, 2014. A PRELIMINARY JURISDICTIONAL DETERMINATION FOR THIS WETLANDS BOUNDARY WAS ISSUED BY THE USACE NORFOLK DISTRICT ON _____.

4. THE PLANNED IMPROVEMENTS WILL OCCUR ON DOMINION'S PROPERTY. THE PROJECT PARCEL GPIN IS 8288-96-2368. THE TOTAL PROJECT SITE AREA IS 27.7 ACRES. THE TOTAL DISTURBED AREA WILL NOT EXCEED 2.3 ACRES.

5. ASH POND 'ABC' IS ZONED AS M-1 HEAVY INDUSTRIAL.

6. THE PROJECT SITE AREA IS LOCATED IN PRINCE WILLIAM COUNTRY TRAFFIC ANALYSIS ZONE 2808H. THE INFORMATION PUBLISHED BY THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) IN 2013 INDICATES THAT POSSUM POINT ROAD HAS AN ANNUAL AVERAGE DAILY TRAFFIC VOLUME (AADT) OF 400.

1 OVERALL SITE IMPROVEMENTS PLAN

SCALE 1"=80'

0 80' 160'

FLOW

NOTE: EROSION AND SEDIMENT CONTROL MEASURES FOR EMBANKMENT REPAIRS ARE SHOWN ON DWGS C-04 AND C-05. EROSION AND SEDIMENT CONTROL MEASURES FOR STORMWATER DIVERSION SYSTEM ARE SHOWN ON DWGS C-08 THROUGH C-10.

LEGEND

- CE — TEMPORARY CONSTRUCTION ENTRANCE
- WR — WASH RACK
- DC — DUST CONTROL
- WLB — WETLANDS BOUNDARY
- 100 FP — 100 YEAR FLOOD PLAIN BOUNDARY
- RPA — RPA ZONE
- EXISTING WATER MAIN
- LIMITS OF CLEARING ONLY
- DA — DRAINAGE AREA DIVIDE (POST-CONSTRUCTION)
- LIMITS OF CLEARING AND GRUBBING/DISTURBANCE

REV	DESCRIPTION	DATE

DESIGNED BY: SEP
DRAWN BY: SEP
CHECKED BY: JMP

JONATHAN M. PITTMAN, P.E.
VIRGINIA PROFESSIONAL ENGINEER 041420
DATE: _____

Schnabel ENGINEERING
114 Oak Branch Drive | Greensboro, NC | 27407
T/ 336-274-9456 F/ 336-274-9489 | schnabel-eng.com

DOMINION POSSUM POINT ASH POND ABC
DOMINION RESOURCES SERVICES, INC
PRINCE WILLIAM COUNTY, VIRGINIA

OVERALL SITE IMPROVEMENTS PLAN

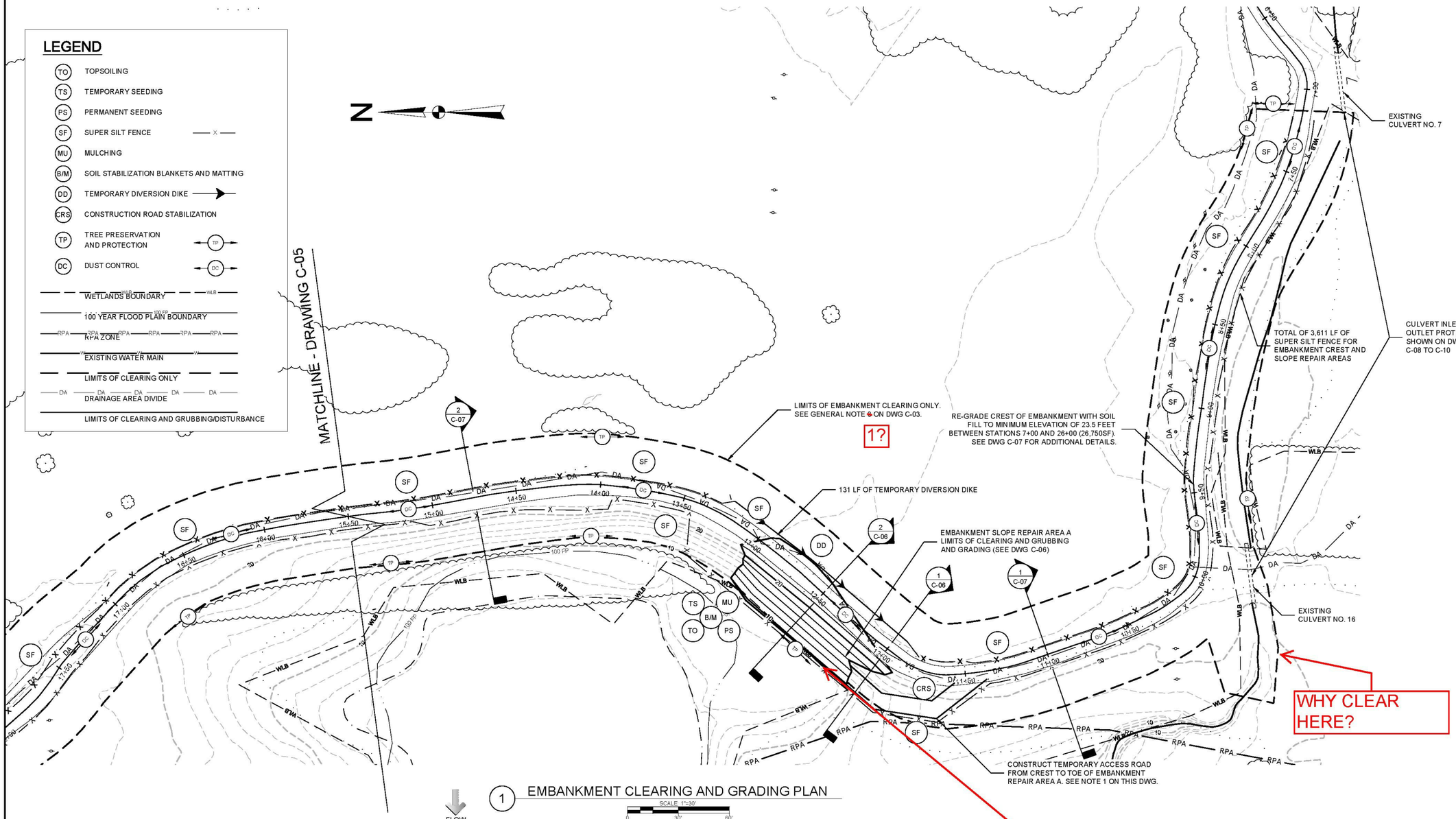
Dominion
DOMINION RESOURCE SERVICES, INC.
GLEN ALLEN, VIRGINIA

PROJECT: 14221002.00
DATE: OCTOBER 2014
DRAWING NO. C-03
SHEET 5 OF 16

©Schnabel Engineering, 2014 | All Rights Reserved

LEGEND

- TO — TOPSOILING
- TS — TEMPORARY SEEDING
- PS — PERMANENT SEEDING
- SF — SUPER SILT FENCE
- MU — MULCHING
- B/M — SOIL STABILIZATION BLANKETS AND MATTING
- DD — TEMPORARY DIVERSION DIKE
- CRS — CONSTRUCTION ROAD STABILIZATION
- TP — TREE PRESERVATION AND PROTECTION
- DC — DUST CONTROL
- WETLANDS BOUNDARY
- 100 YEAR FLOOD PLAIN BOUNDARY
- RPA ZONE
- EXISTING WATER MAIN
- LIMITS OF CLEARING ONLY
- DRAINAGE AREA DIVIDE
- LIMITS OF CLEARING AND GRUBBING/DISTURBANCE



1 EMBANKMENT CLEARING AND GRADING PLAN

SCALE 1"=30'

NOTES:

1. UPON COMPLETION OF CONSTRUCTION, RESTORE AREA FOR TEMPORARY CONSTRUCTION ACCESS ROAD TO MATCH PREVIOUS GRADES. PLACE TOPSOIL, MULCH, AND PERMANENT SEEDING ON ALL DISTURBED AREAS.

REV	DESCRIPTION	DATE

DESIGNED BY: SEP
DRAWN BY: SEP
CHECKED BY: JMP

JONATHAN M. PITTMAN, P.E.
DATE: _____
VIRGINIA PROFESSIONAL ENGINEER 041420

Schnabel ENGINEERING
114 Oak Branch Drive | Greensboro, NC | 27407
T/ 336-274-9456 F/ 336-274-9489 | schnabel-eng.com

DOMINION POSSUM POINT ASH POND ABC
DOMINION RESOURCES SERVICES, INC
PRINCE WILLIAM COUNTY, VIRGINIA

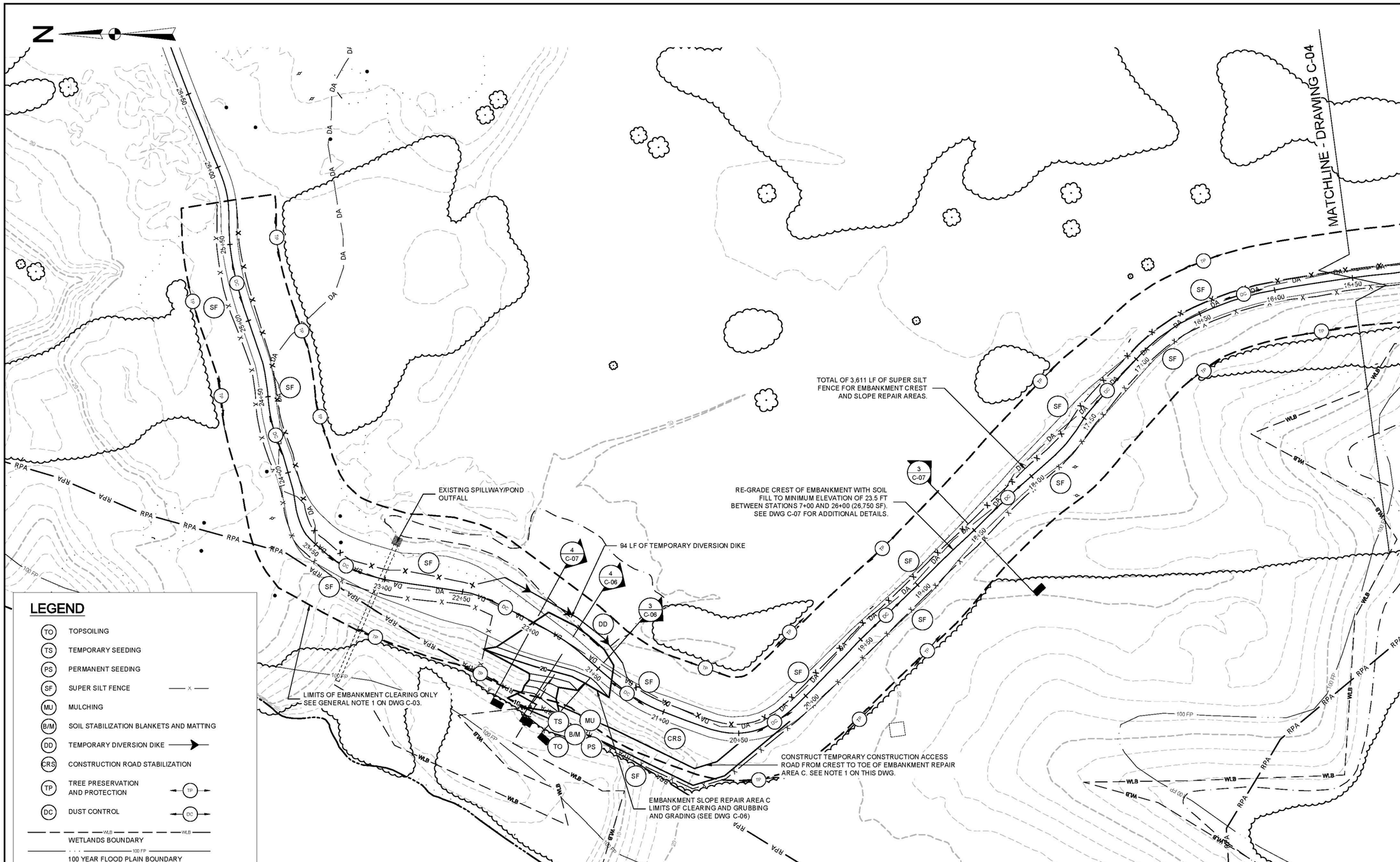
EMBANKMENT CLEARING AND GRADING PLAN - SHEET 1

Dominion
DOMINION RESOURCE SERVICES, INC.
GLEN ALLEN, VIRGINIA

PROJECT: 14221002.00
DATE: OCTOBER 2014
DRAWING NO. C-04
SHEET 6 OF 16

© Schnabel Engineering 2014 All Rights Reserved

00011251



1 EMBANKMENT CLEARING AND GRADING PLAN

SCALE 1"=30'

0 30' 60'

NOTES:

1. UPON COMPLETION OF CONSTRUCTION, RESTORE AREA FOR TEMPORARY CONSTRUCTION ACCESS ROAD TO MATCH PREVIOUS GRADES. PLACE TOPSOIL, MULCH, AND PERMANENT SEEDING ON ALL DISTURBED AREAS.

REV	DESCRIPTION	DATE

DESIGNED BY: SEP
DRAWN BY: SEP
CHECKED BY: JMP

JONATHAN M. PITTMAN, P.E.
DATE: _____
VIRGINIA PROFESSIONAL ENGINEER 041420

Schnabel ENGINEERING
114 Oak Branch Drive | Greensboro, NC | 27407
T | 336-274-5456 F | 336-274-5489 | schnabel-eng.com

DOMINION POSSUM POINT ASH POND ABC
DOMINION RESOURCES SERVICES, INC
PRINCE WILLIAM COUNTY, VIRGINIA

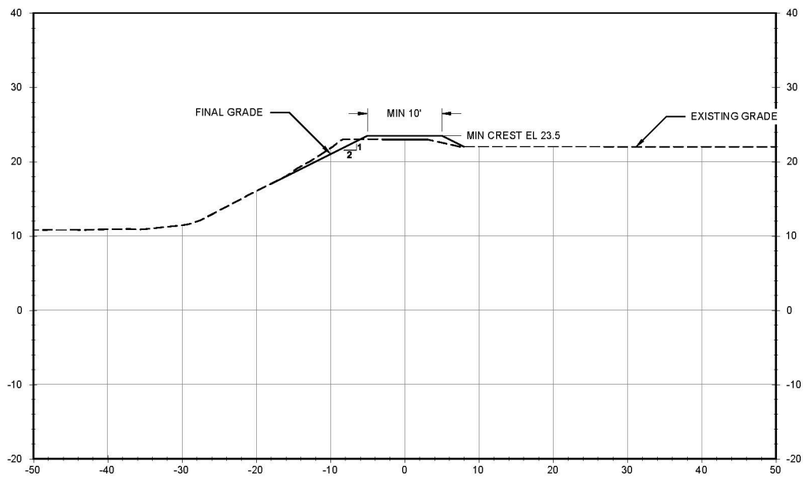
EMBANKMENT CLEARING AND GRADING PLAN - SHEET 2

Dominion
DOMINION RESOURCE SERVICES, INC.
GLEN ALLEN, VIRGINIA

PROJECT: 14221002.00
DATE: OCTOBER 2014
DRAWING NO. C-05
SHEET 7 OF 16

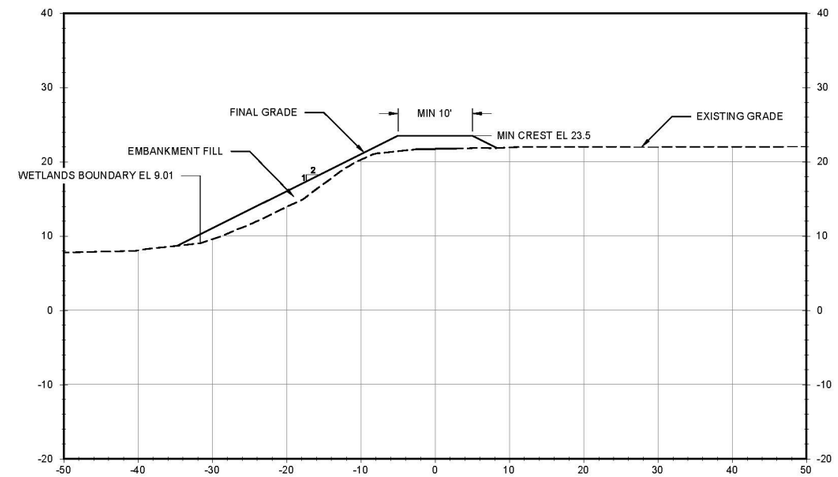
© Schnabel Engineering, 2014 | All rights Reserved

00011252



1 C-04 EMBANKMENT SLOPE REPAIR AREA A - STA - 12+00

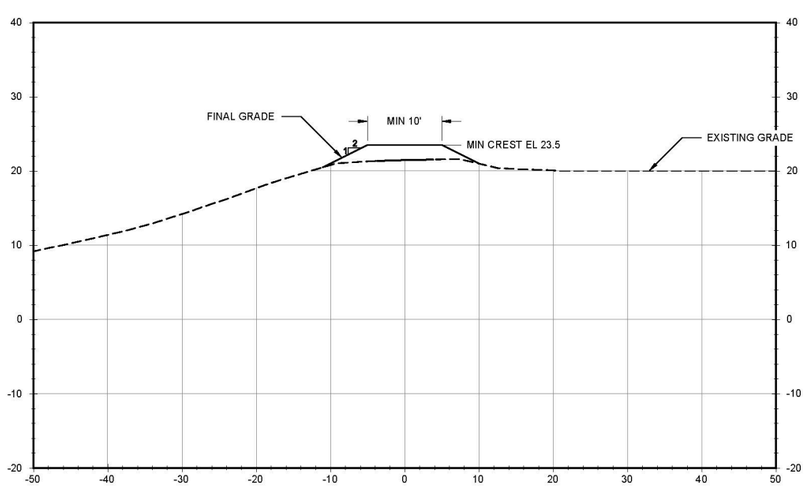
SCALE: 1"=10'



2 C-04 EMBANKMENT SLOPE REPAIR AREA A - STA 12+50

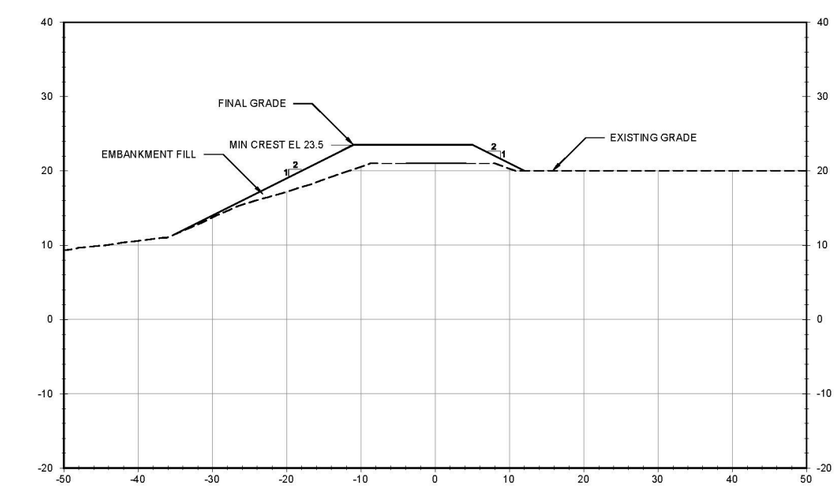
SCALE: 1"=10'

SHOW A SECTION AT ABOUT 12+25 TO SHOW MAX EROSION



3 C-05 EMBANKMENT SLOPE REPAIR AREA C - STA 21+50

SCALE: 1"=10'



4 C-05 EMBANKMENT SLOPE REPAIR AREA C - STA 21+75

SCALE: 1"=10'

REV	DESCRIPTION	DATE

DESIGNED BY: SEP
DRAWN BY: SEP
CHECKED BY: JMP

JONATHAN M. PITTMAN, P.E.
DATE:
VIRGINIA PROFESSIONAL ENGINEER 041420

Schnabel ENGINEERING
114 Oak Branch Drive | Greensboro, NC | 27407
T | 336-274-5456 F | 336-274-5498 | schnabel-eng.com

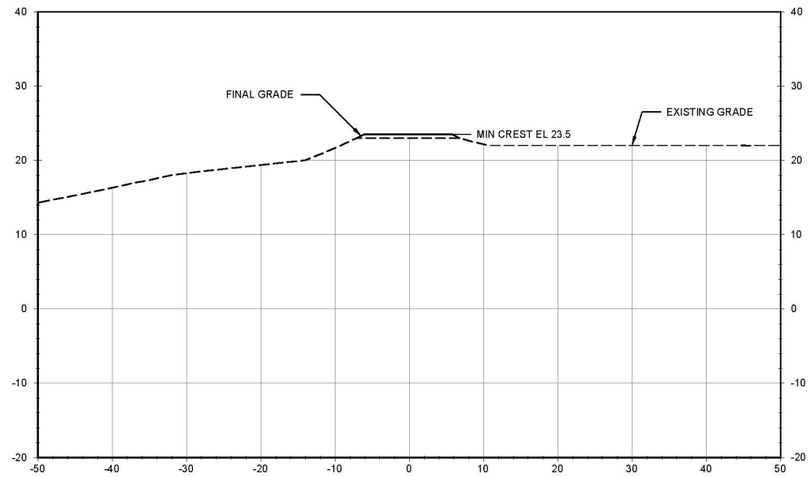
DOMINION POSSUM POINT ASH POND ABC
DOMINION RESOURCES SERVICES, INC.
PRINCE WILLIAM COUNTY, VIRGINIA

EMBANKMENT SLOPE REPAIR SECTIONS - AREAS A AND C

Dominion
DOMINION RESOURCE SERVICES, INC.
GLEN ALLEN, VIRGINIA

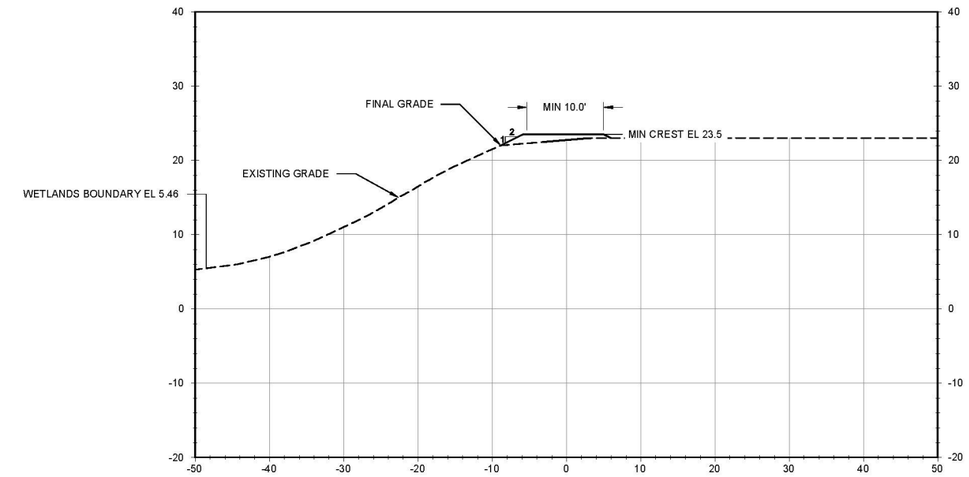
PROJECT: 14221002.00
DATE: OCTOBER 2014
DRAWING NO. C-06
SHEET 8 OF 16

© Schnabel Engineering, 2014 All Rights Reserved



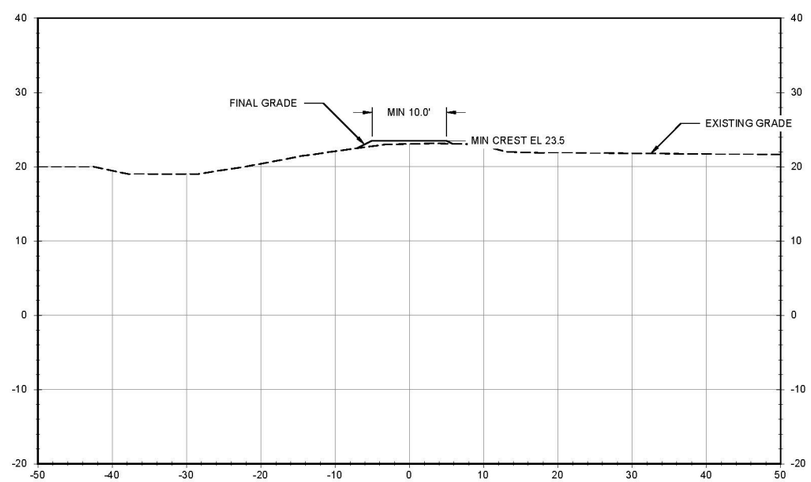
1 C-04 EMBANKMENT CREST RE-GRADING SECTION - STA 11+00

SCALE: 1"=10'



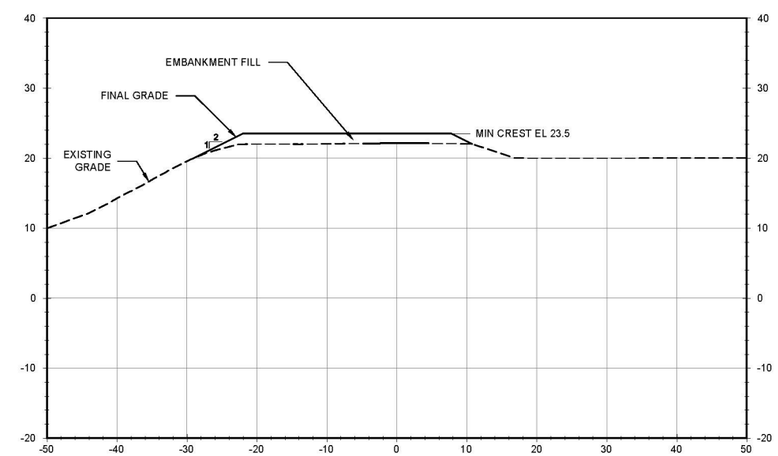
2 C-04 EMBANKMENT CREST RE-GRADING SECTION - STA 14+75

SCALE: 1"=10'



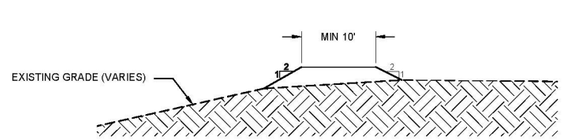
3 C-05 EMBANKMENT CREST RE-GRADING SECTION - 18+50

SCALE: 1"=10'



4 C-05 EMBANKMENT CREST RE-GRADING SECTION - 22+00

SCALE: 1"=10'



5 MINIMUM REQUIREMENTS FOR CREST RE-GRADING

SCALE: 1"=10'

REV	DESCRIPTION	DATE

DESIGNED BY: SEP
DRAWN BY: SEP
CHECKED BY: JMP

JONATHAN M. PITTMAN, P.E.
DATE:
VIRGINIA PROFESSIONAL ENGINEER 041420

Schnabel ENGINEERING
114 Oak Branch Drive | Greensboro, NC | 27407
T/ 336-274-9456 | F/ 336-274-8489 | schnabel-eng.com

DOMINION POSSUM POINT ASH POND ABC
DOMINION RESOURCES SERVICES, INC
PRINCE WILLIAM COUNTY, VIRGINIA

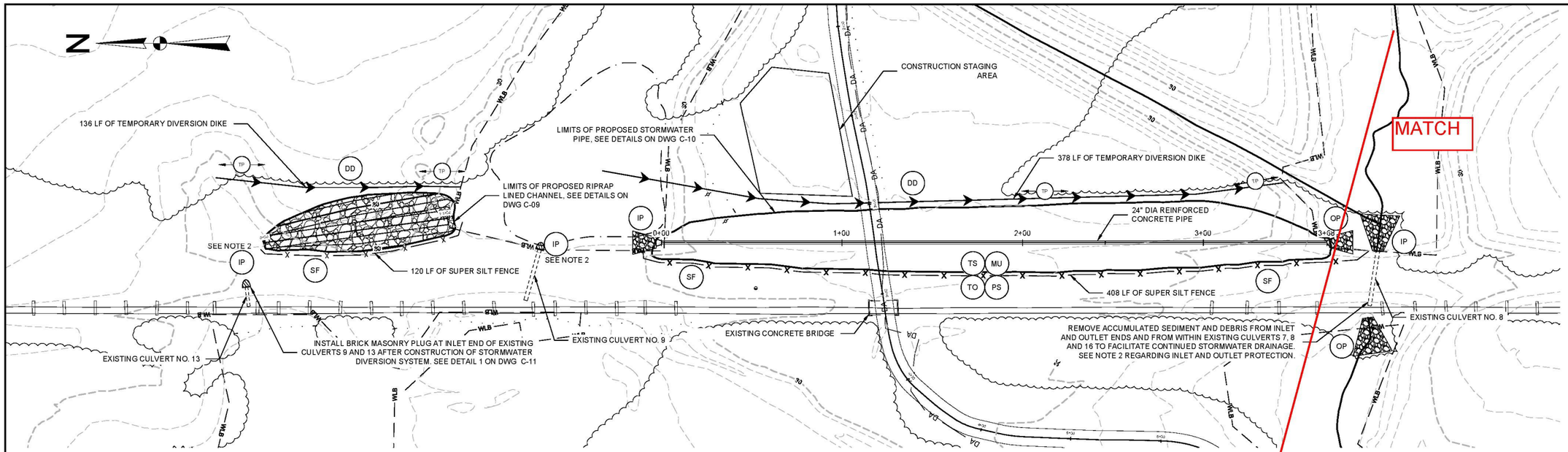
EMBANKMENT CREST RE-GRADING SECTIONS

Dominion
DOMINION RESOURCE SERVICES, INC.
GLEN ALLEN, VIRGINIA

PROJECT: 14221002.00
DATE: OCTOBER 2014
DRAWING NO. C-07
SHEET 9 OF 16

© Schnabel Engineering, 2014 All Rights Reserved

00011254



FLOW

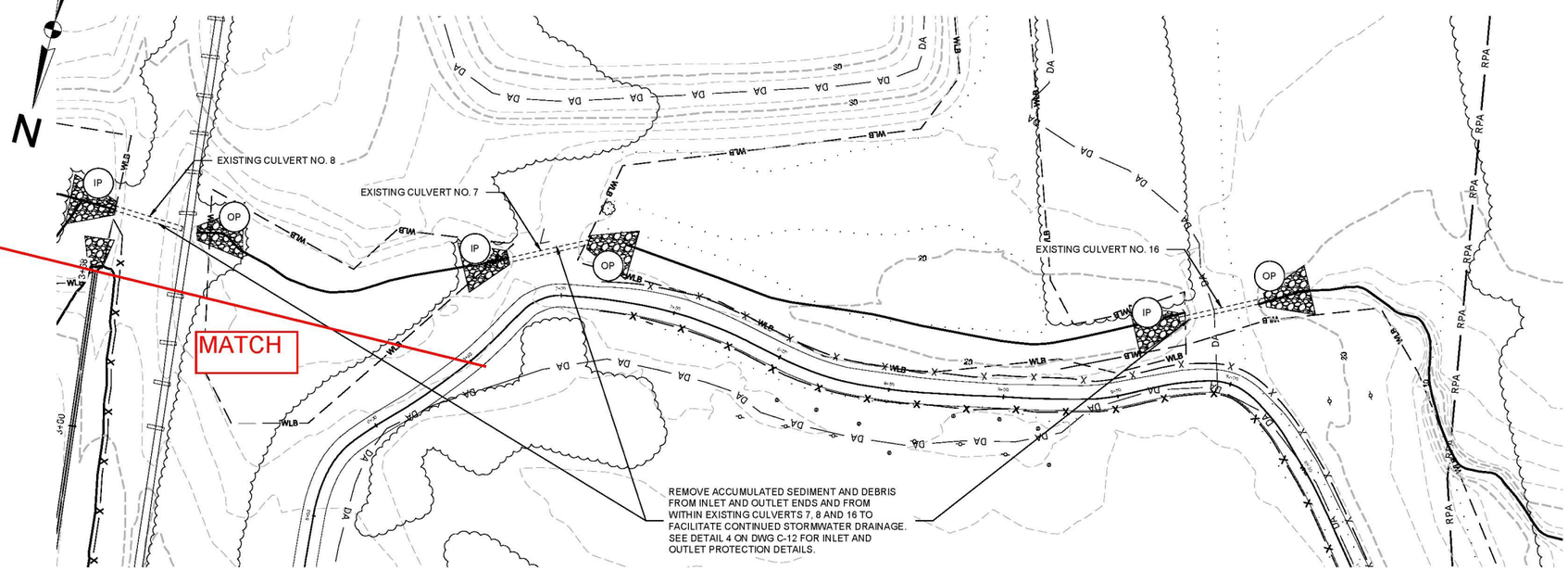
1 STORMWATER DIVERSION PLAN

SCALE: 1"=30'

0 30' 60'

LEGEND

- TO — TOPSOILING
- TS — TEMPORARY SEEDING
- PS — PERMANENT SEEDING
- SF — SUPER SILT FENCE
- MU — MULCHING
- DD — TEMPORARY DIVERSION DIKE
- TP — TREE PRESERVATION AND PROTECTION
- IP — INLET PROTECTION
- OP — OUTLET PROTECTION
- WETLANDS BOUNDARY
- 100 YEAR FLOOD PLAIN BOUNDARY
- RPA ZONE
- EXISTING WATER MAIN
- LIMITS OF CLEARING ONLY
- DRAINAGE AREA DIVIDE (POST-CONSTRUCTION)
- LIMITS OF CLEARING AND GRUBBING/DISTURBANCE



FLOW

2 STORMWATER DIVERSION PLAN

SCALE: 1"=30'

0 30' 60'

NOTES:

1. PLACE TOPSOIL, MULCH, AND PERMANENT SEEDING ON ALL DISTURBED AREAS UPON COMPLETION OF CONSTRUCTION.
2. INSTALL TEMPORARY SILT FENCE INLET PROTECTION AT EXISTING CULVERTS 9 AND 13. INSTALL PERMANENT RIPRAP INLET AND OUTLET PROTECTION AT EXISTING CULVERTS 7, 8, AND 16 IN ACCORDANCE WITH DETAIL 4 ON DWG C-12.
3. AS SHOWN ON DWG C-03, ALSO REMOVE ACCUMULATED SEDIMENT AND DEBRIS FROM INLET AND OUTLET ENDS AND FROM WITHIN EXISTING CULVERTS 4, 5, AND 10 TO FACILITATE CONTINUED STORMWATER DRAINAGE ON NORTH SIDE OF POND.

REV	DESCRIPTION	DATE

DESIGNED BY: SEP
DRAWN BY: SEP
CHECKED BY: JMP

JONATHAN M. PITTMAN, P.E.
DATE:
VIRGINIA PROFESSIONAL ENGINEER 041420

Schnabel ENGINEERING
114 Oak Branch Drive | Greensboro, NC | 27407
T/ 336-274-9456 F/ 336-274-9489 | schnabel-eng.com

DOMINION POSSUM POINT ASH POND ABC
DOMINION RESOURCES SERVICES, INC
PRINCE WILLIAM COUNTY, VIRGINIA

OVERALL STORMWATER DIVERSION SYSTEM PLAN

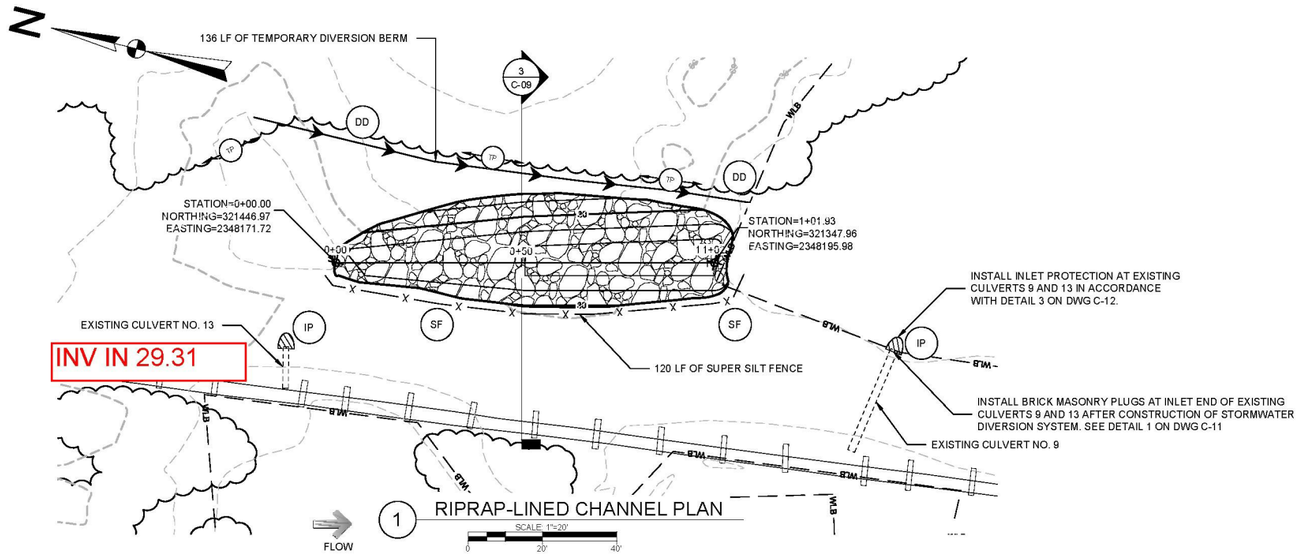
Dominion
DOMINION RESOURCE SERVICES, INC.
GLEN ALLEN, VIRGINIA

PROJECT: 14221002.00
DATE: OCTOBER 2014
DRAWING NO. C-08
SHEET 10 OF 16

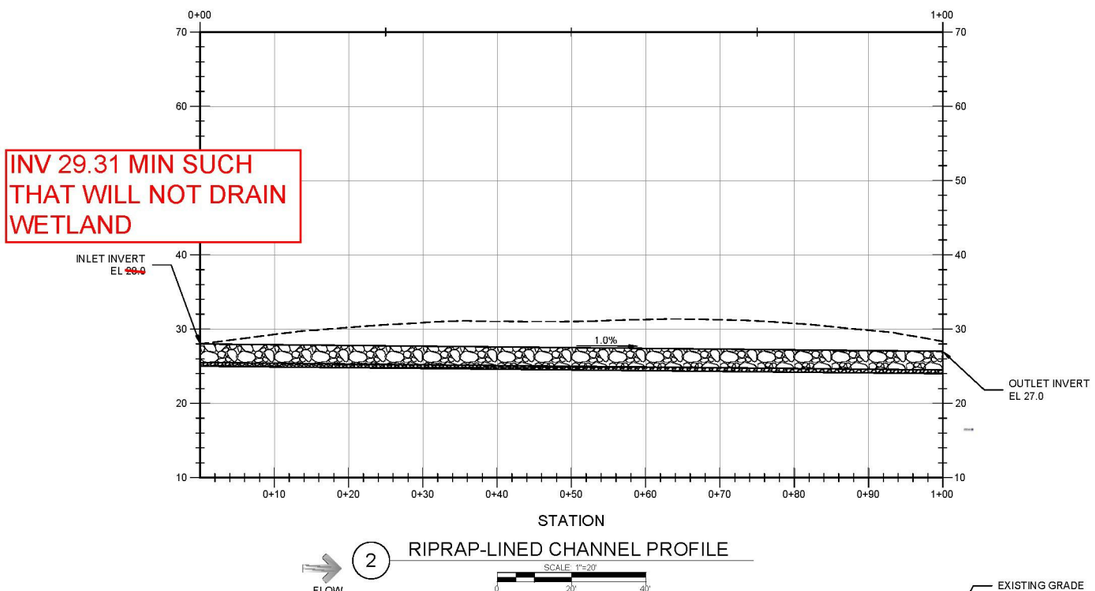
© Schnabel Engineering 2014 All Rights Reserved

LEGEND

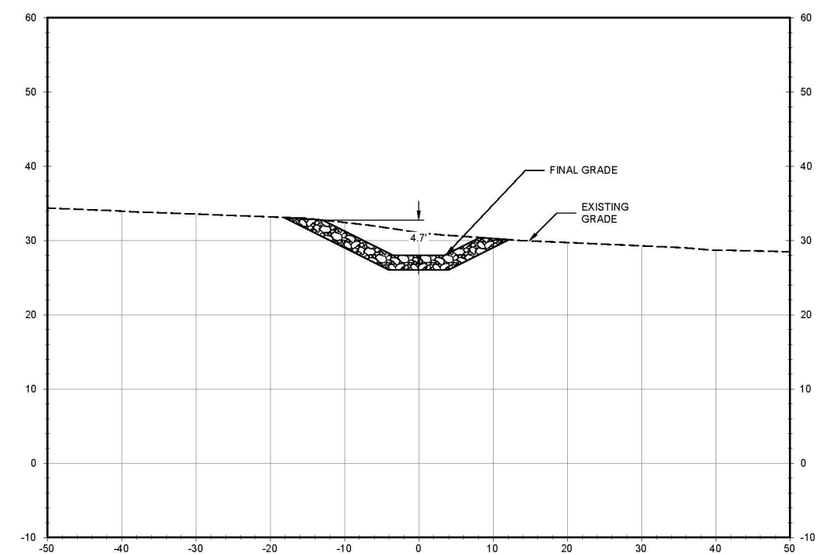
- TO — TOPSOILING
- TS — TEMPORARY SEEDING
- PS — PERMANENT SEEDING
- SF — SUPER SILT FENCE
- MU — MULCHING
- DD — TEMPORARY DIVERSION DIKE
- TP — TREE PRESERVATION AND PROTECTION
- IP — INLET PROTECTION
- OP — OUTLET PROTECTION
- WETLANDS BOUNDARY
- 100 YEAR FLOOD PLAIN BOUNDARY
- RPA ZONE
- EXISTING WATER MAIN
- LIMITS OF CLEARING ONLY
- DRAINAGE AREA DIVIDE (POST-CONSTRUCTION)
- LIMITS OF CLEARING AND GRUBBING/DISTURBANCE



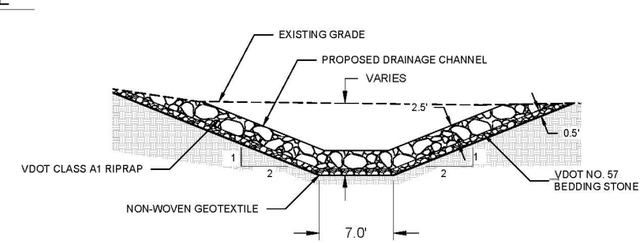
1 RIPRAP-LINED CHANNEL PLAN



2 RIPRAP-LINED CHANNEL PROFILE



3 RIPRAP-LINED CHANNEL SECTION STA 0+50



4 RIPRAP-LINED CHANNEL - TYPICAL SECTION

SCALE: NOT TO SCALE

REV	DESCRIPTION	DATE

DESIGNED BY: SEP
DRAWN BY: SEP
CHECKED BY: JMP

JONATHAN M. PITTMAN, P.E.
DATE:
VIRGINIA PROFESSIONAL ENGINEER 041420

Schnabel ENGINEERING
114 Oak Branch Drive | Greensboro, NC | 27407
T/ 336-274-9456 | F/ 336-274-8489 | schnabel-eng.com

DOMINION POSSUM POINT ASH POND ABC
DOMINION RESOURCES SERVICES, INC
PRINCE WILLIAM COUNTY, VIRGINIA

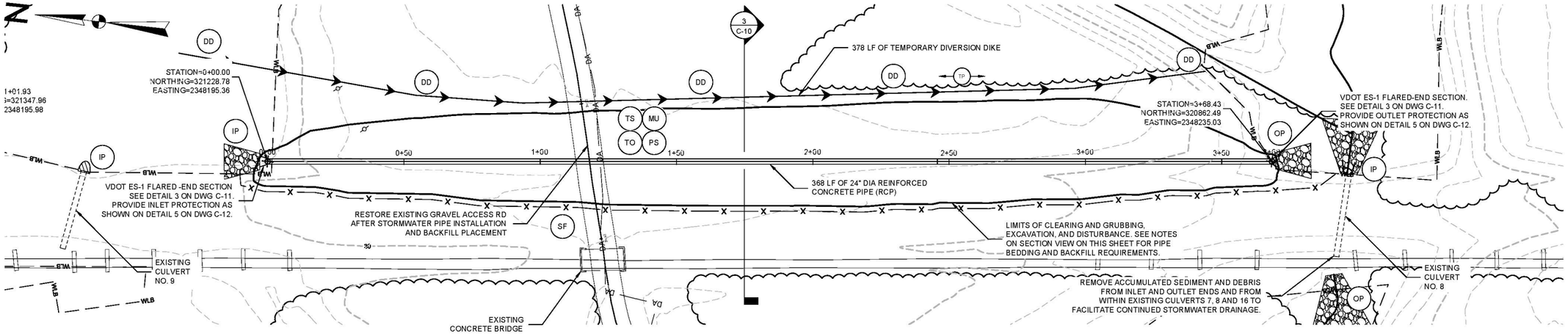
STORMWATER DIVERSION SYSTEM - RIPRAP-LINED CHANNEL DETAILS

Dominion
DOMINION RESOURCE SERVICES, INC.
GLEN ALLEN, VIRGINIA

PROJECT: 14221002.00
DATE: OCTOBER 2014
DRAWING NO. C-09
SHEET 11 OF 16

© Schnabel Engineering, 2014 All Rights Reserved

00011256



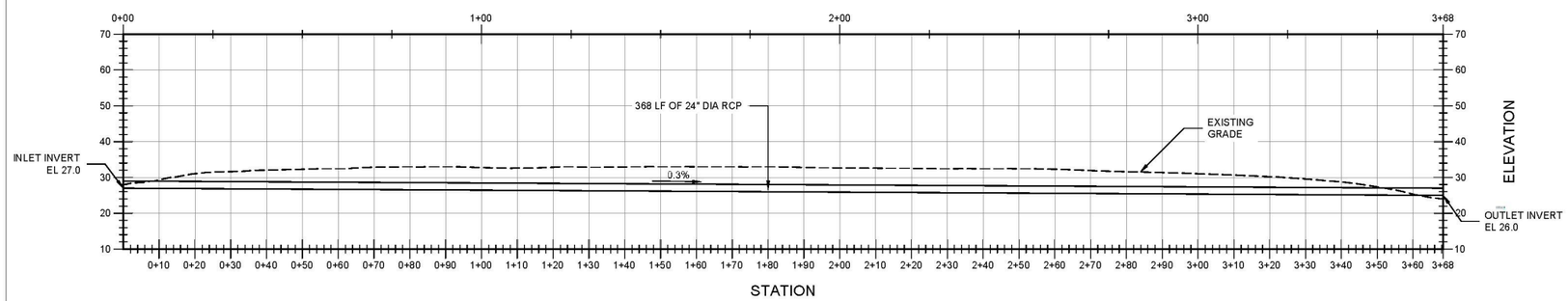
FLOW

1 STORMWATER DRAIN PIPE LAYOUT

SCALE: 1"=20'

LEGEND

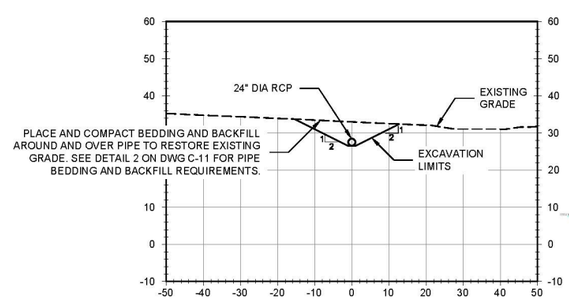
- TO — TOPSOILING
- TS — TEMPORARY SEEDING
- PS — PERMANENT SEEDING
- SF — SUPER SILT FENCE
- MU — MULCHING
- DD — TEMPORARY DIVERSION DIKE
- TP — TREE PRESERVATION AND PROTECTION
- IP — INLET PROTECTION
- OP — OUTLET PROTECTION
- WETLANDS BOUNDARY
- 100 YEAR FLOOD PLAIN BOUNDARY
- RPA ZONE
- EXISTING WATER MAIN
- LIMITS OF CLEARING ONLY
- DRAINAGE AREA DIVIDE (POST-CONSTRUCTION)
- LIMITS OF CLEARING AND GRUBBING/DISTURBANCE



FLOW

2 STORMWATER PIPE PROFILE

SCALE: 1"=20'



3 STORMWATER PIPE SECTION - STA 1+75

SCALE: 1"=20'

DATE	DESCRIPTION	REV

DESIGNED BY: SEP
DRAWN BY: SEP
CHECKED BY: JMP

JONATHAN M. PITTMAN, P.E.
DATE:
VIRGINIA PROFESSIONAL ENGINEER 041420

Schnabel ENGINEERING
114 Oak Branch Drive | Greensboro, NC | 27407
T/ 336-274-9456 | F/ 336-274-9480 | schnabel-eng.com

DOMINION POSSUM POINT ASH POND ABC
DOMINION RESOURCES SERVICES, INC
PRINCE WILLIAM COUNTY, VIRGINIA

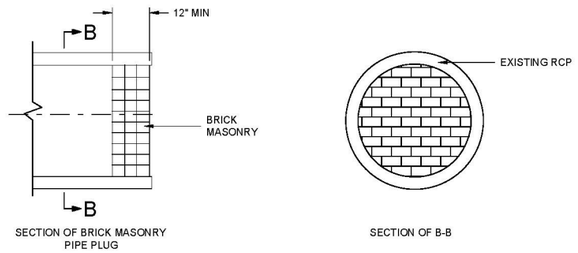
STORMWATER DIVERSION SYSTEM - STORMWATER PIPE DETAILS

Dominion
DOMINION RESOURCE SERVICES, INC.
GLEN ALLEN, VIRGINIA

PROJECT: 14221002.00
DATE: OCTOBER 2014
DRAWING NO. C-10
SHEET 12 OF 16

© Schnabel Engineering 2014 All Rights Reserved

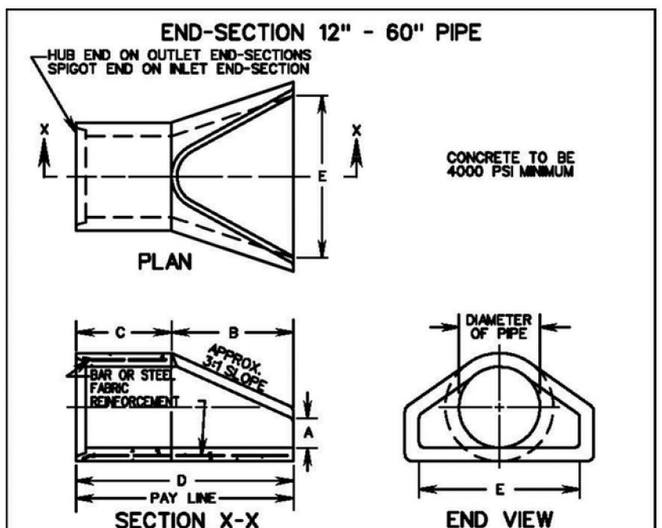
00011257



1 BRICK MASONRY PLUG FOR EXISTING CULVERTS 9 AND 13

NOT TO SCALE

VDOT ROAD AND BRIDGE STANDARDS SPECIFICATION 107.23



END SECTION DIMENSIONS					
PIPE DIAMETER	A	B	C	D	E
12"	4"	2'-0"	2'-0"	4'-0"	2'-0"
15"	6"	2'-3"	1'-9"	4'-0"	2'-6"
18"	9"	2'-3"	1'-9"	4'-0"	3'-0"
21"	9¼"	2'-11"	2'-1"	5'-0"	3'-6"
24"	9½"	3'-7"	2'-6"	6'-1"	4'-0"
27"	10¾"	4'-0"	2'-1"	6'-1"	4'-6"
30"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"
33"	1'-1½"	4'-10½"	2'-3¼"	7'-1¾"	5'-6"
36"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"
42"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"
48"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"
54"	2'-3"	5'-5"	2'-9¼"	8'-2¼"	7'-6"
60"	2'-11"	5'-0"	3'-3"	8'-3"	8'-0"

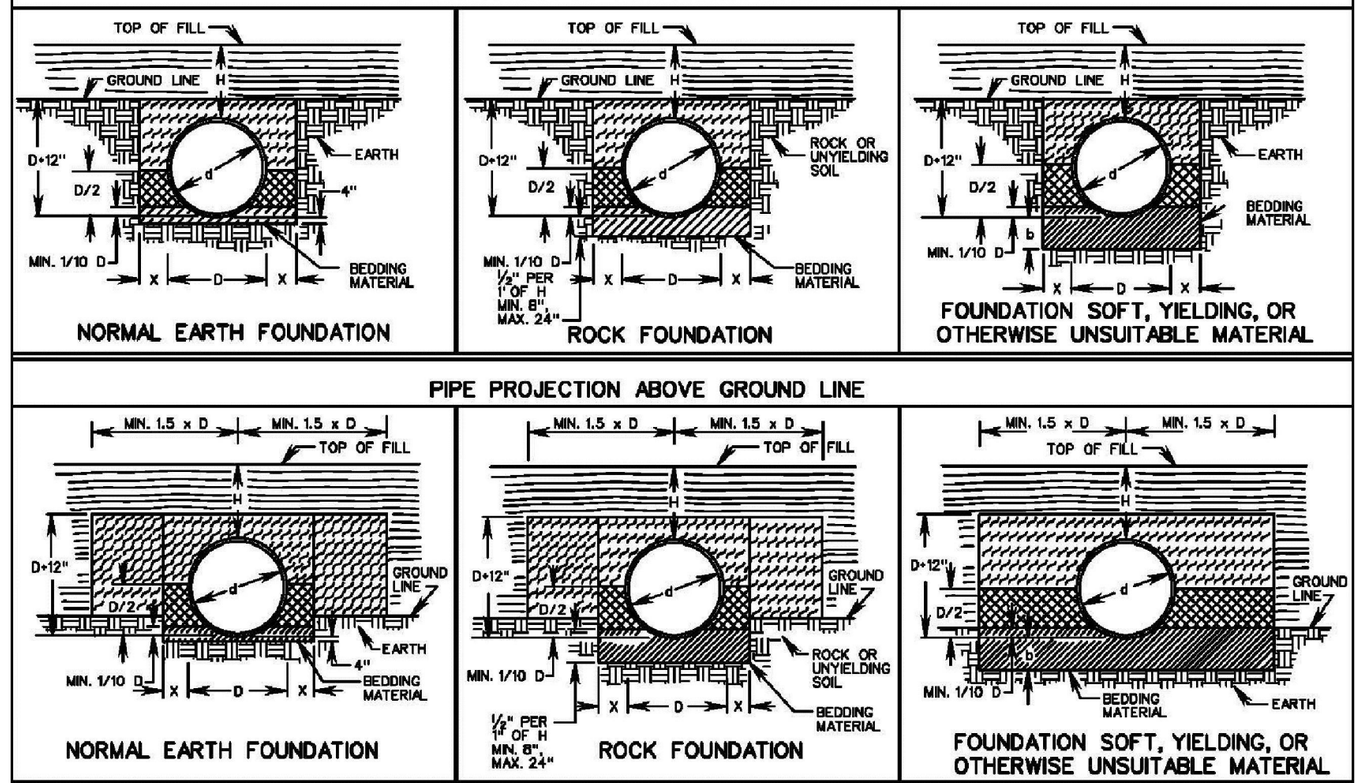
VDOT ROAD AND BRIDGE STANDARDS SPECIFICATION 302-102.01

3 STORMWATER PIPE FLARED END SECTIONS

NOT TO SCALE

PB-1

NO PROJECTION OF PIPE ABOVE GROUND LINE



PIPE PROJECTION ABOVE GROUND LINE

BEDDING MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.

CLASS I BACKFILL MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.

REGULAR BACKFILL MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.

EMBANKMENT

NOTES:

FOR PLASTIC PIPE, THE LIMITS OF THE CLASS I BACKFILL MATERIAL SHALL BE EXTENDED TO 12" ABOVE THE TOP OF THE PIPE.

FOR GENERAL NOTES ON PIPE BEDDING, SEE INSTALLATION OF PIPE CULVERTS AND STORM SEWERS GENERAL NOTES ON SHEET 107.00.

CRUSHED GLASS CONFORMING TO THE SIZE REQUIREMENTS FOR CRUSHER RUN AGGREGATE SIZE 25 AND 26 MAY BE USED IN PLACE OF CLASS I BACKFILL.

SHEET 1 OF 4

SPECIFICATION REFERENCE
302 303

INSTALLATION OF PIPE CULVERTS AND STORM SEWERS CIRCULAR PIPE BEDDING AND BACKFILL - METHOD "A"

VIRGINIA DEPARTMENT OF TRANSPORTATION

REV 8/07

107.01

2 PIPE BEDDING AND BACKFILL REQUIREMENTS FOR STORMWATER PIPE

NOT TO SCALE

REV	DESCRIPTION	DATE

DESIGNED BY: SEP
DRAWN BY: SEP
CHECKED BY: JMP

JONATHAN M. PITTMAN, P.E.

DATE: _____

VIRGINIA PROFESSIONAL ENGINEER 041420

Schnabel ENGINEERING

114 Oak Branch Drive | Greensboro, NC | 27407
T/ 336.274-9456 | F/ 336-274-9480 | schnabel-eng.com

DOMINION POSSUM POINT ASH POND ABC
DOMINION RESOURCES SERVICES, INC.
PRINCE WILLIAM COUNTY, VIRGINIA

STORMWATER DIVERSION SYSTEM DETAILS

Dominion

DOMINION RESOURCE SERVICES, INC.
GLEN ALLEN, VIRGINIA

PROJECT: 14221002.00

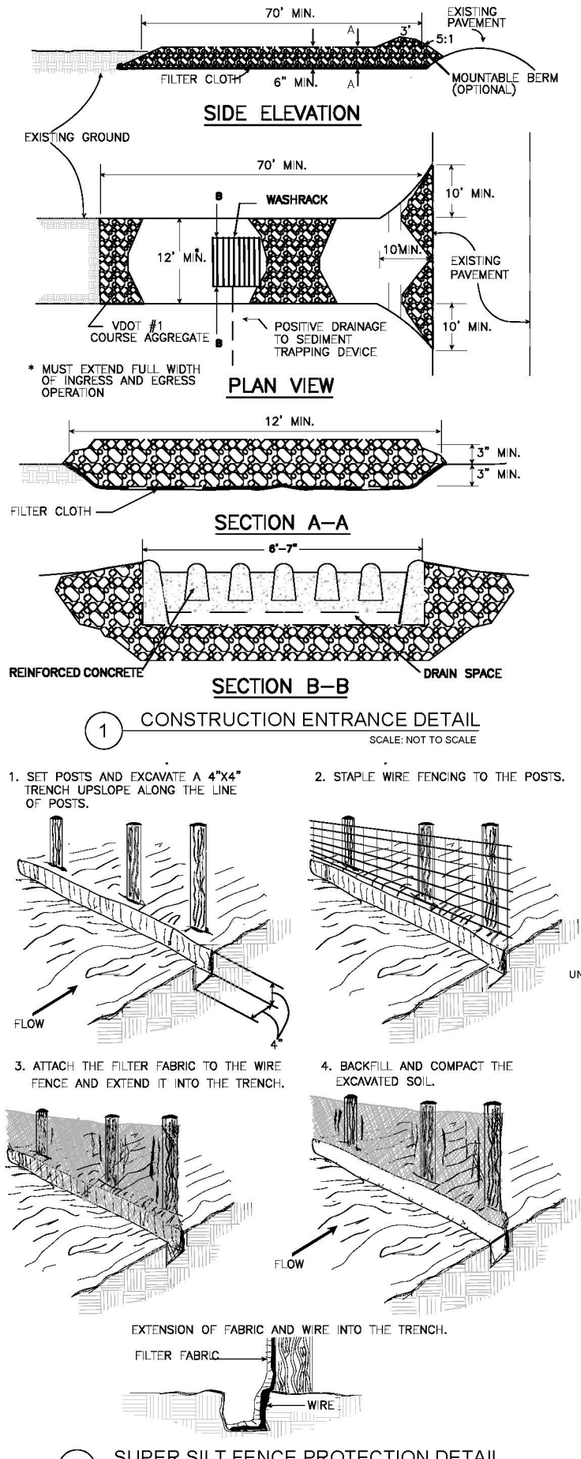
DATE: OCTOBER 2014

DRAWING NO. C-11

SHEET 13 OF 16

© Schnabel Engineering 2014 All Rights Reserved

00011258



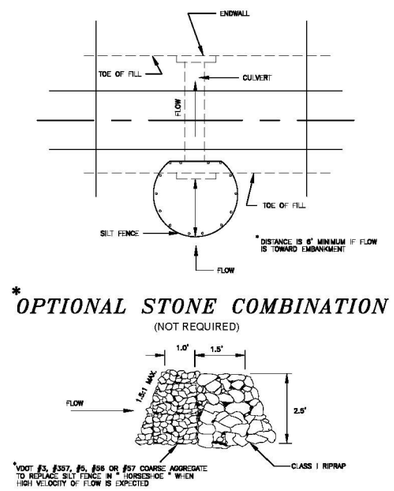
1 CONSTRUCTION ENTRANCE DETAIL

SCALE: NOT TO SCALE

2 SUPER SILT FENCE PROTECTION DETAIL

SCALE: NOT TO SCALE

SILT FENCE CULVERT INLET PROTECTION

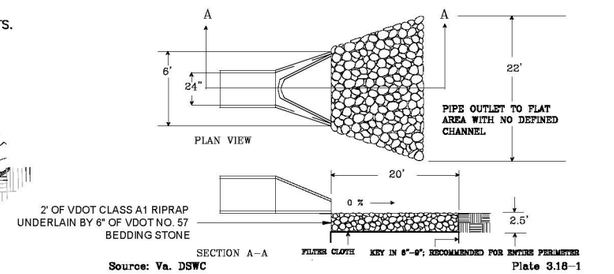


3 CULVERT INLET PROTECTION DETAIL

SCALE: NOT TO SCALE

NOTE: APPLIES TO EXISTING CULVERTS 9 AND 13 ONLY.

PIPE OUTLET CONDITIONS

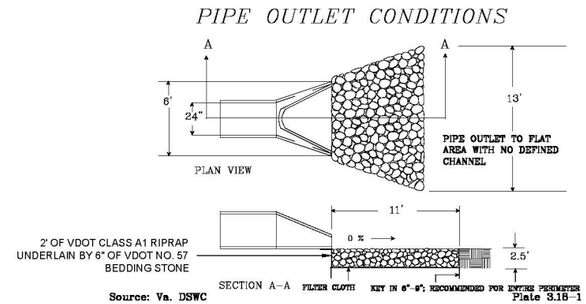


4 CULVERT INLET AND OUTLET PROTECTION DETAIL

SCALE: NOT TO SCALE

NOTE: APPLIES TO EXISTING CULVERTS 7, 8, AND 16.

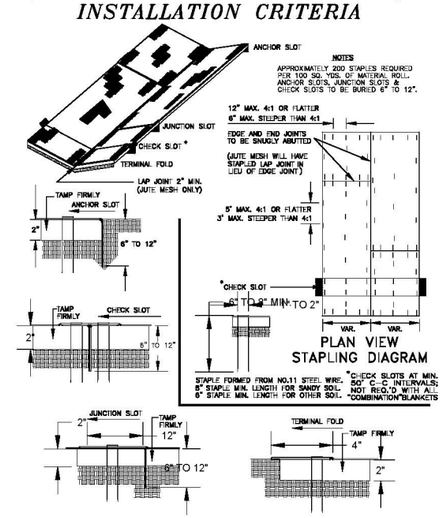
PIPE OUTLET CONDITIONS



5 STORMWATER PIPE INLET AND OUTLET PROTECTION DETAIL

SCALE: NOT TO SCALE

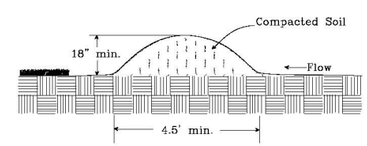
TYPICAL TREATMENT – 1 (SOIL STABILIZATION BLANKET) INSTALLATION CRITERIA



6 SOIL STABILIZATION BLANKET DETAIL

NOT TO SCALE

TEMPORARY DIVERSION DIKE



7 TEMPORARY DIVERSION DIKE DETAIL

SCALE: NOT TO SCALE

ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS

"QUICK REFERENCE FOR ALL REGIONS"

Planting Dates	Species	Rate (lbs./acre)
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (Lolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 - 100
Feb. 16 - Apr. 30	Annual Ryegrass (Lolium multi-florum)	60 - 100
May 1 - Aug 31	German Millet (Setaria italica)	50

8 TEMPORARY SEEDING SPECIFICATIONS

SITE SPECIFIC SEEDING MIXTURES FOR COASTAL PLAIN AREA

	Total Lbs. Per Acre
Minimum Care Lawn	
- Commercial or Residential	
- Kentucky 31 or Turf-Type Tall Fescue	175-200 lbs.
or	
- Common Bermudagrass **	75 lbs.
High-Maintenance Lawn	
- Kentucky 31 or Turf-Type Tall Fescue	200-250 lbs.
or	
- Hybrid Bermudagrass (seed) **	40 lbs. (unhulled)
or	30 lbs. (hulled)
- Hybrid Bermudagrass (by other vegetative establishment method, see Std. & Spec. 3.34)	
General Slope (3:1 or less)	
- Kentucky 31 Fescue	128 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
	150 lbs.
Low Maintenance Slope (Steeper than 3:1)	
- Kentucky 31 Tall Fescue	93-108 lbs.
- Common Bermudagrass **	0-15 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
- Sericea Lespedeza **	20 lbs.
	150 lbs.

* Use seasonal nurse crop in accordance with seeding dates as stated below:

February, March through April ..... Annual Rye
May 1st through August ..... Foxtail Millet
September, October through November 15th ..... Annual Rye
November 16th through January ..... Winter Rye

** May through October, use hulled seed. All other seeding periods, use unhulled seed. Weeping Lovegrass may be added to any slope or low-maintenance mix during warmer seeding periods; add 10-20 lbs./acre in mixes.

9 PERMANENT SEEDING SPECIFICATIONS

REV	DESCRIPTION	DATE

DESIGNED BY: SEP
DRAWN BY: SEP
CHECKED BY: JMP

JONATHAN M. PITTMAN, P.E.
VIRGINIA PROFESSIONAL ENGINEER 041420
DATE

Schnabel ENGINEERING
114 Oak Branch Drive | Greensboro, NC | 27407
T/ 336-274-5456 F/ 336-274-5457 | schnabel-eng.com

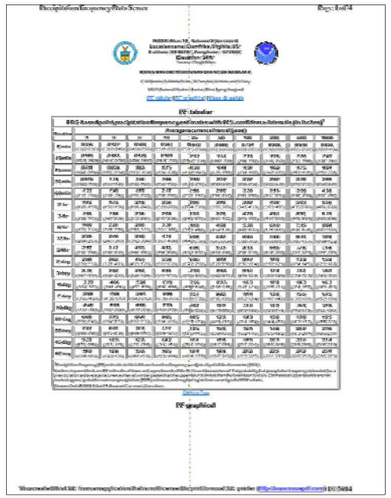
DOMINION POSSUM POINT ASH POND ABC
DOMINION RESOURCES SERVICES, INC.
PRINCE WILLIAM COUNTY, VIRGINIA

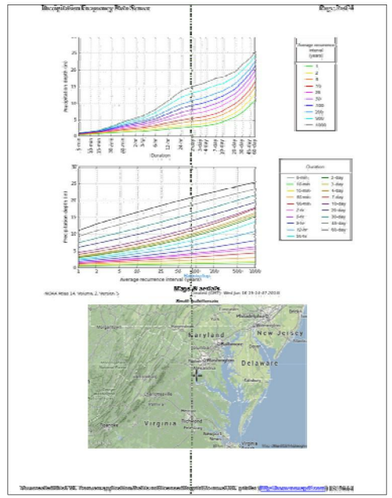
EROSION & SEDIMENT CONTROL DETAILS

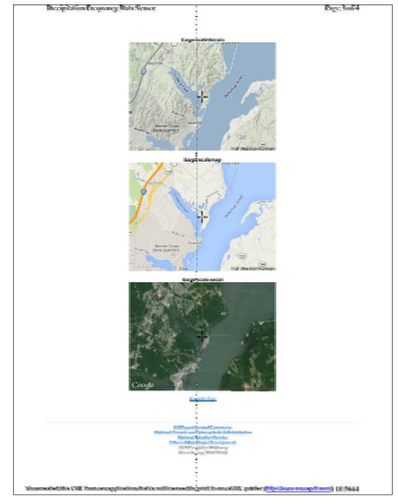
Dominion
DOMINION RESOURCE SERVICES, INC.
GLEN ALLEN, VIRGINIA

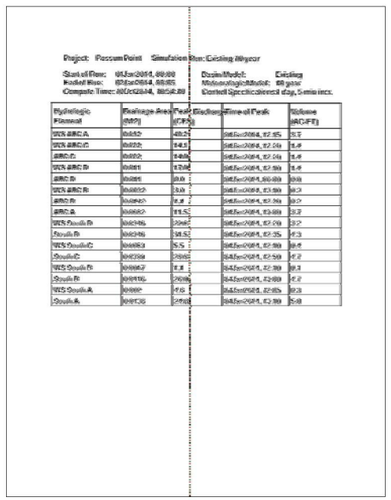
PROJECT: 14221002.00
DATE: OCTOBER 2014
DRAWING NO. C-12
SHEET 14 OF 16

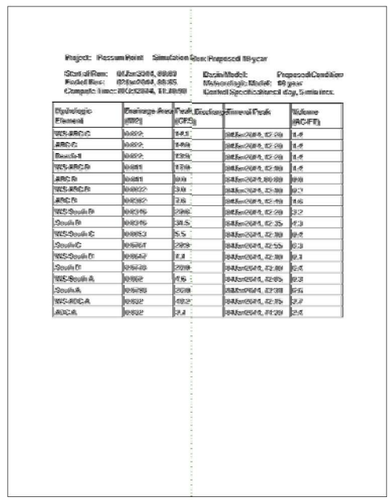
© Schnabel Engineering, 2014 All Rights Reserved

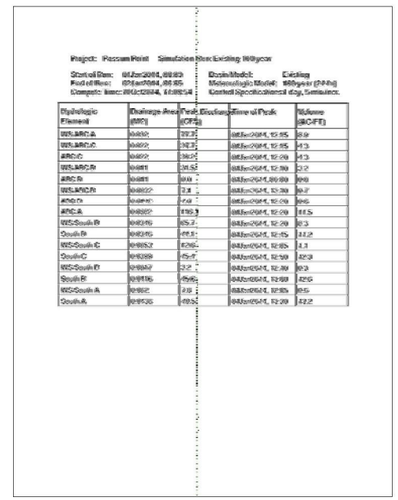


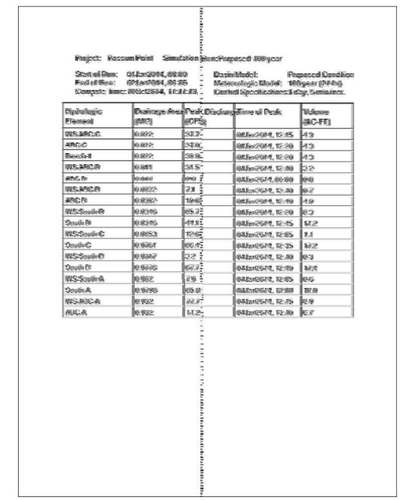








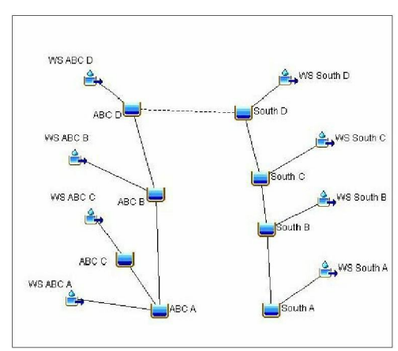




HEC-HMS: Watershed Inputs
Basin Model "Existing"
Description:

Subbasin	Area (mi^2)	Curve Number	Lag Time Method	Lag Time (min)
WS ABC A	0.032	74	SCS	12.6
WS ABC C	0.022	61	SCS	12.3
WS ABC D	0.011	76	SCS	8.7
WS ABC B	0.0032	62	SCS	5.3
WS South D	0.0346	68	SCS	16.4
WS South C	0.0053	64	SCS	4.7
WS South B	0.0017	57	SCS	5.9
WS South A	0.002	80	SCS	3.6

Current as of 10 October 2014 at 13:51:00

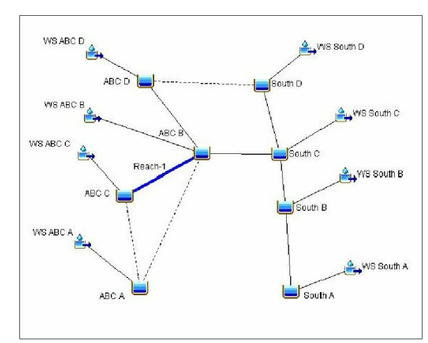


HEC-HMS: Watershed Inputs
Basin Model "Proposed Conditions"
Description: Diversion System Sized to pass 100-year storm

Subbasin	Area (mi^2)	Curve Number	Lag Time Method	Lag Time (min)
WS ABC C	0.022	61	SCS	12.3
WS ABC D	0.011	76	SCS	8.7
WS ABC B	0.0032	62	SCS	5.3
WS South D	0.0346	68	SCS	16.4
WS South C	0.0053	64	SCS	4.7
WS South B	0.0017	57	SCS	5.9
WS South A	0.002	80	SCS	3.6
WS ABC A	0.032	74	SCS	12.6

Reach	Method	Length (ft)	Slope(ft/ft)	Shape	Manning's n	Width (ft)	Side Slope	Invert EL
Reach-1	Kinematic Wave	102	0.02	Trapezoid	0.04	7	2	27

Current as of 10 October 2014 at 14:38:54



1 STORMWATER DIVERSION SYSTEM CALCULATIONS

REV	DESCRIPTION	DATE

DESIGNED BY: SEP
DRAWN BY: SEP
CHECKED BY: JMP

JONATHAN M. PITTMAN, P.E.
DATE: _____
VIRGINIA PROFESSIONAL ENGINEER 041420

Schnabel ENGINEERING
114 Oak Branch Drive | Greensboro, NC | 27407
T/ 336.274.9456 F/ 336.274.9480 | schnabel-eng.com

DOMINION POSSUM POINT ASH POND ABC
DOMINION RESOURCES SERVICES, INC
PRINCE WILLIAM COUNTY, VIRGINIA

STORMWATER DIVERSION SYSTEM CALCULATIONS

Dominion
DOMINION RESOURCE SERVICES, INC.
GLEN ALLEN, VIRGINIA

PROJECT: 14221002.00
DATE: OCTOBER 2014
DRAWING NO. C-13
SHEET 15 OF 16

© Schnabel Engineering 2014 All Rights Reserved

PRINCE WILLIAM COUNTY
Department of Development Services – Land Development Division

UNIT PRICE LIST
(Performance Bonds, Landscaping Escrows, and Siltation & Erosion Control Escrows)

Revised: November 17, 2011
Effective: September 15, 2010

Project Name: Dominion Possum Point Power Station Ash Pond ABC Improvements

PWC File #: ______________________ Date Prepared: October 16, 2014

NOTE: This form is to be used to estimate performance bond, landscaping escrow and soil erosion escrow prices posted with Prince William County. These prices do not include items that are to be bonded separately with the Virginia Department of Transportation.

1. MOBILIZATION/DEMOBILIZATION OF CONSTRUCTION EQUIPMENT

Mobilization/Demobilization	1	@ Lump Sum	~~$10,000.00 (min)~~ $20,000

2. STORM DRAINAGE

A. Structures

Quantity	Item	Price	Cost
	DI-3	@ $3,500 EA	
	DI-3	@ $3,500 EA	
	DI-4	@ $3,000 EA	
	MH-1	@ $2,500 EA	
	MH-2	@ $3,000 EA	
	JB-1	@ $5,000 EA	
	DI-7	@ $3,500 EA	
	DI-12	@ $3,500 EA	
		Subtotal:	

B. Concrete Pipe

Quantity	Item	Price	Cost
	12"0	@ $35 LF	
	15"0	@ $40 LF	
	18"0	@ $45 LF	
	21"0	@ $50 LF	
370	24"0	@ $55 LF	$20,350
	27"0	@ $60 LF	
	30"0	@ $65 LF	
	33"0	@ $70 LF	
	36"0	@ $85 LF	
	42"0	@ $110 LF	
	48"0	@ $125 LF	
	54"0	@ $150 LF	
	60"0	@ $175 LF	
	66"0	@ $225 LF	
	72"0	@ $275 LF	
		Subtotal:	$20,350

Subtotal for this page: $40,350

C. End Walls

Quantity	Item	Price	Cost
	12"0	@ $700 EA	
	15"0	@ $850 EA	
	18"0	@ $900 EA	
	21"0	@ $1,100 EA	
	24"0	@ $1,400 EA	
	27"0	@ $1,600 EA	
	30"0	@ $1,750 EA	
	33"0	@ $1,900 EA	
	36"0	@ $2,100 EA	
	42"0	@ $2,500 EA	
	48"0	@ $2,600 EA	
	54"0	@ $3,000 EA	
	60"0	@ $3,600 EA	
	66"0	@ $4,000 EA	
	72"0	@ $4,500 EA	
		Subtotal:	

D. End Sections (ES-1)

Quantity	Item	Price	Cost
	12"0	@ $600 EA	
	15"0	@ $650 EA	
	18"0	@ $700 EA	
	21"0	@ $750 EA	
2	24"0	@ $800 EA	$1,600
	27"0	@ $950 EA	
	30"0	@ $1,050 EA	
	33"0	@ $1,150 EA	
	36"0	@ $1,300 EA	
		Subtotal:	$1,600

E. Corrugated Metal Pipe

Quantity	Item	Price	Cost
	12"0	@ $30 LF	
	15"0	@ $35 LF	
	18"0	@ $45 LF	
	24"0	@ $55 LF	
	30"0	@ $65 LF	
	36"0	@ $80 LF	
	42"0	@ $95 LF	
	48"0	@ $115 LF	
	54"0	@ $130 LF	
	60"0	@ $145 LF	
		Subtotal:	

Subtotal for this page: $1,600

F. End Section (ES-2)

Quantity	Item	Price	Cost
	15"0	@ $500 EA	
	18"0	@ $550 EA	
	24"0	@ $600 EA	
	30"0	@ $650 EA	
	36"0	@ $900 EA	
	42"0	@ $1,100 EA	
	48"0	@ $1,300 EA	
		Subtotal:	

G. AD N-12 (HDPE)

Quantity	Item	Price	Cost
	12"0	@ $30 LF	
	15"0	@ $35 LF	
	18"0	@ $40 LF	
	24"0	@ $50 LF	
	30"0	@ $55 LF	
	36"0	@ $60 LF	
	42"0	@ $65 LF	
	48"0	@ $80 LF	
	60"0	@ $120 LF	
	End Section	@ EA	
		Subtotal:	

H. Stormwater Management/BMP Facilities (See note 5)

Quantity	Item	Price	Cost
3,000	Excavation	@ $25.00 CY	$75,000
1,700	Embankment (Fill Material) **	@ $35.00 CY	$59,500
	Sediment Removal/Regrading for Bond Release	@	
Storm Drainage Pipe (RCP, CMP, PVC, Riser):			
		@ LF	
		@ LF	
Storm Drainage Structures (DI-7, MH-1, MH-2, etc.):			
	Gravel Filter System	@ EA	
	Drainage Blanket	@ EA	
	Cut-off Wall	@ EA	
	Concrete Cradle	@ LF	
	End Wall	@ EA	
	End Section	@ EA	
	Trash Rack ($300 per 12"0 increments)	@ EA	
	Stormceptor	@ EA	
	Monitoring Well	@ EA	
	BMP Debris Protection Device	@ EA	
	Bioretention (itemized cost)	@ EA	
	Infiltration Trench (itemized cost)	@ EA	
	Sand Filter (itemized cost)	@ EA	
		Subtotal:	$134,500

Subtotal for this page: $134,500

Spillway Lining:

Quantity	Item	Price	Cost
	Seed, Fertilizer & Mulch ($200 Min.)	@ $0.70 SY	
	Sod	@ $6.50 SY	
	Hydraulic Cem. Conc. - 4" depth	@ $5.50 SF	
	Bituminous Concrete - 1" depth	@ $5.00 SY	
	Rip Rap	@ $6.50 SF	
	Grouted Rip-Rap	@ $8.50 SF	
	Erosion Control Stone (EC-1)	@ $100.00 TON	
	#57 – Coarse Aggregate	@ $25.00 TON	
	Porous Pavement	@ $20.00 SY	
	4' High Chain Link Fence (#9 gauge or better, including braces, end posts and gate)	@ $15.00 LF	
	6' High Chain Link Fence (#9 gauge or better, including braces, end posts and gate)	@ $20.00 LF	
	SWM Sign (WATER RISES RAPIDLY) (Minimum 3 signs per facility)	@ $250 EA	
	Access Road	@	
		Subtotal:	

I. Miscellaneous Drainage Items

Quantity	Item	Price	Cost
	Box Culvert	@ $900 CY of conc.	
	Energy Dissipater	@ $2,000 EA	
	Wing Walls	@ $800 CY of conc.	
	Anchors	@ EA	
Ditches:			
	Roadside standard ditches (Seed, fertilize and mulch)	@ $6.50 LF	
	Sod Ditches	@ $8.50 LF	
	Paved Ditches	@ $8.00 SF	
	Filter Cloth Fabric & Gabion Stone	@ $5.00 SF	
4,535	Rip rap	@ $6.50 SF	$29,478
	Grouted Rip-rap	@ $8.50 SF	
	Paved Flume	@ $13.00 SF	
16	Flush the Drainage System	@ $200/Hr (Min 8 Hrs)	$3,200
		Subtotal:	$32,678

3. CONSTRUCTION WITHIN THE RIGHT-OF-WAY AND/OR EASEMENTS

A. Site Work

Quantity	Item	Price	Cost
	Clear & Grub	@ $10,000 AC	
	Excavation	@ $25.00 CY	
	Embankment**	@ $35.00 CY	
	Rock Excavation	@ $55.00 CY	
	Slope Stabilization - Hydroseeding (3:1 or flatter) $200 Min.	@ $0.70 SY	
	Slope Stab. - Jute Mesh, Matting, Blankets, etc. (Between 2:1 to 3:1) $200 Min.	@ $6.00 SY	
	Slope Stab. - Sod (Between 2:1 to 3:1) $200 Min.	@ $7.00 SY	
	Steep Slopes (Grading and Stabilization with Jute Mesh, Netting, Blankets, etc.)	@ $15.00 SY	
		Subtotal:	

Subtotal for this page: $32,678

B. Subgrade, Subbase and Base Course Items

Quantity	Item	Price	Cost
For streets dedicated for public use - Identify quantities separately for each street (Use Page 5a).			
	Subgrade preparation	@ $2.50 SY	
	Subbase & Base Course		
	Aggregate (21A/21B)	@ $2.00 SY per Inch Depth	
	Bituminous Concrete	@ $5.00 SY per Inch Depth	
	Reinforced Concrete Pavement	@ $15.00 SY per Inch Depth	
	Gravel Shoulders (4" Depth)	@ $8.00 SY	
Underdrains:			
	UD-1	@ $15.00 LF	
	UD-2	@ $17.00 LF	
	UD-3	@ $16.00 LF	
	UD-4	@ $20.00 LF	
	Soil Cem Stabilization (4%)	@ $20.00 SY (6" Depth)	
	Lime Stabilization (10%)	@ $15.00 SY (6" Depth)	
	Cement Treated Aggregate	@ $4.00 SY per Inch Depth	
		Subtotal:	

C. Subbase and Base Course Items

Quantity	Item	Price	Cost
For private streets, travel lanes, and parking areas			
	Aggregate (21A)	@ $2.00 SY per Inch Depth	
	Bituminous Concrete	@ $5.00 SY per Inch Depth	
	Reinforced Concrete Pavement	@ $15.00 SY per Inch Depth	
	Gravel Shoulders	@ $8.00 SY (4" Depth)	
	Cement Stabilization (4%)	@ $20.00 SY (6" Depth)	
	Lime Stabilization (10%)	@ $15.00 SY (6" Depth)	
		Subtotal:	

D. Entrances and Pipe Stems

Quantity	Item	Price	Cost
	DE-1	@ $2,000 EA	
	DE-2	@ $1,800 EA	
	DE-3	@ $1,800 EA	
	DE-4	@ $1,800 EA	
	PP-1 (1 lot)	@ $1,800 EA	
	PP-1 (2 - 5 lots)	@ $2,000 EA	
	PP-2 (1 lot)	@ $1,200 EA	
	PP-2 (2 - 5 lots)	@ $1,500 EA	
	CG-9D or equal: 30' Width	@ $5,000 EA	
	CG-9D or equal: 40' Width	@ $6,500 EA	
	CG-10A or equal: 30' Width	@ $4,000 EA	
	CG-10A or equal: 40' Width	@ $5,000 EA	
	CG-11: Concrete Entrance	@ $2,500 EA	
	Valley Gutter	@ $55 SY	
	Pipestem Driveway – 10' (1 lot)	@ $55 LF	
	Pipestem Driveway – 18' (2-5 lots)	@ $65 LF	
		Subtotal:	

Subtotal for this page:

E. Misc Construction Items

Quantity	Item	Price	Cost
	Sidewalk (5' Width)	@ $25 LF	
	Header Curb (CG-2/CG-3)	@ $20 LF	
	Curb & Gutter	@ $25 LF	
	CG-12 (Exposed Aggregate)	@ $1,500 EA	
	Bicycle Trail/Walkway	@ $7.00 SF	
	Raised Concrete Median (MS-1A)	@ $60 SY	
	Trail (Wood Chip)	@ $18 SY	
	Trail (Stone Dust)	@ $18 SY	
Retaining Walls:			
	Timber	@ $25 SF	
	Crib	@ $35 SF	
	Reinforced Earth	@ $40 SF	
	Reinforced Concrete	@ $80 SF	
	Excavation for tiebacks in walls in cut areas	@ $25 CY	
	Anti-graffiti treatment/sealant	@ $15 SF (Min. $2,500)	
		Subtotal:	

Quantity	Item	Price	Cost
	Guardrail	@ $35 LF	
	GR-7 NCHRP 350	@ $2,500 EA	
	GR-9	@ $3,500 EA	
	Address Sign (Entrance to Pipestems)	@ $300 EA	
	Street Name Sign	@ $350 EA	
	Traffic Control Sign	@ $300 EA	
	Bus Stop Sign	@ $300 EA	
	Bus Shelter	@ $12,500 EA	
	Traffic Signal	@ (Lump Sum)	
	HC Parking Space Sign	@ $500 EA	
	Bike Rack	@ $300 EA	
	Roadside Delineators (ED-1)	@ $55 EA	
	Hand Rail (HR-1)	@ $60 LF	
	Pavement Marking (Paint)	@ $1.50 SF	
	Pavement Marking (Thermoplastic)	@ $5.00 SF	
	Traffic Barricade (TB-1)	@ $1,500 EA	
	Street Lighting	@ $5,000 EA	
	Utilities Relocation	(Min. $40,000) (Lump Sum or provide an estimate from utility company)	
	P.E. Certified "As-Built" Plans	Lump Sum (Min. $10,000)	
		Subtotal:	

Subtotal for this page:

4. SANITARY SEWER & WATER LINE CONSTRUCTION

Water Main (Exclusive of Fire Hydrants)

Quantity	Item	Price	Cost
	4"0 DIP	@ $48 LF	
	6"0 DIP	@ $60 LF	
	8"0 DIP	@ $72 LF	
	12"0 DIP	@ $96 LF	
	16"0 DIP	@ $120 LF	
	18"0 DIP	@ $126 LF	
	4"0 or 6"0 RW Valve (with accessories)	@ $800 EA	
	8"0 or 12"0 RW Valve (with accessories)	@ $2,000 EA	
	16"0 or 24"0 RW Valve (with accessories)	@ $5,500 EA	
	Fire Hydrant Assembly	@ $3,500 EA	
	Standard Meter Crock & Appurtenances (angle valve, backflow preventer, yoke, frame & cover, and service line)	@ $2,700 EA	
	Meter Vault & Appurtenances (3" meter & larger)	@ $10,500 EA	
	Water Main Blow-off Assembly	@ $2,500 EA	
	Air Release Assembly	@ $3,500 EA	
	Dead End Anchor System	@ $7,500 EA	
		Subtotal:	

Sanitary Sewer Pipe Line (Exclusive of Manhole Structures)

Quantity	Item	Price	Cost
	2.5"0 thru 4"0 LPFM (Low Pressure Force Main System)	@ $...25 LF	
	8"0 PVC	@ $65 LF	
	8"0 DIP	@ $75 LF	
	10"0 PVC	@ $80 LF	
	10"0 DIP	@ $90 LF	
	12"0 PVC	@ $140 LF	
	12"0 DIP	@ $150 LF	
	15"0 PVC	@ $195 LF	
	4' Dia. Sanitary Sewer Manhole	@ $600 VF	
	5' Dia. Sanitary Sewer Manhole	@ $850 VF	
	Street Manhole Frame & Cover Assembly (Including rain bowl & chimney seal)	@ $800 EA	
	Easement Manhole Frame & Cover Assembly (including chimney seal)	@ $1,000 EA	
	Abandonment of Manhole	@ $250 VF	
	4"0 PVC Lateral (including clean-out stack)	@ $35 LF	
	4"0 DIP Lateral (including clean-out stack)	@ $45 LF	
	6"0 PVC Lateral (including clean-out stack)	@ $55 LF	
	6"0 DIP Lateral (including clean-out stack)	@ $65 LF	
	LPFM Flushing Station	@ $2,500 EA	
	Sewerage Air Release/Vacuum Breaker Assembly	@ $3,500 EA	
	Steel Casing	@ $500 LF	
	Grease Trap (300 gal. minimum)	@ $4,500 EA	
		Subtotal:	

For sizes larger than 15"0, add $4.00 per inch increase in diameter.

Subtotal for this page:
TOTAL CONSTRUCTION COST: (Pages 1 through 7) $209,128

5. MISCELLANEOUS COSTS

A. Administrative Cost – 10% of the total construction cost, not to exceed $50,000
B. Inflation Cost – Compounded annually at 3.0% per year of the total Construction Cost
Total Performance Bond Amount:

6. LANDSCAPING ESCROW

A. Deciduous Trees

Quantity	Item	Price	Cost
	4'-5'	@ $80 EA	
	5'-6'	@ $165 EA	
	1"-1½" or 1½-2"	@ $165 EA	
	2"-2½" or 2½-3"	@ $250 EA	
	3"-3½" or 3½-4"	@ $450 EA	

B. Evergreen Trees

Quantity	Item	Price	Cost
	4'-5'	@ $100 EA	
	5'-6'	@ $125 EA	
	6'-7'	@ $175 EA	
	7'-8'	@ $300 EA	
	8'-10'	@ $400 EA	

C. Shrubs

Quantity	Item	Price	Cost
	18"-24"	@ $45 EA	
	24"-30"	@ $55 EA	

D. Reforestation

Quantity	Item	Price	Cost
	# of Acres	@ $31,700 Ac	
		Subtotal:	

Subtotal for this page:

7. SILTATION AND EROSION CONTROL ESCROWS

Quantity	Item	Price	Cost
740	Diversion Dike	@ $6 LF	$4,440
	Cleaning out SWM Facilities, Silt Traps, and Silt Basins	@ $500/Hr. Lump Sum (Min. $20,000 or actual estimate provided by engineer to the satisfaction of the plan reviewer)	
	Silt Fence	@ $7.50 LF	
4,140	Super Silt Fence	@ $20 LF	$82,800
	Sod	@ $7.50 SY	
10,500	Seed, Fertilizer & Mulch	@ $0.70 SY ($200 Min.)	$7,875
710	Steep Slopes (Grading and Stabilization with jute mesh, netting, blankets, etc.)	@ $15.00 SY	$10,650
100	Coarse Aggregates (#3 or #57)	@ $25 Ton	$2,500
2	Inlet Protection	@ $150 EA	$300
	Check Dam	@ $165 EA	
2	Temp. Construction Entrance	@ $1,000 EA	$2,000
2	Wash Rack	@ $2,000 EA	$4,000
	Temp. Sediment Trap	@ $500 EA (Drainage area up to 1 Ac)	
		@ $1,000 EA (Drainage area 1-2 Ac)	
		@ $2,000 EA (Drainage area 2-7 Ac)	
	Temporary Sediment Basin:	By itemized cost	
	Channel Diversion	By itemized cost	
	6' Chain-link Safety Fence	@ $20 LF	
2,000	4' Plastic Orange Safety Fence	@ $2.50 LF	$5,000
	Yard utility refurbishment	@ 750 EA Single Family Lot	
	Stockpile Removal	@	
	Clean Up of Temporary Sediment Basin	@	
		@	
		@	
		@	
		Subtotal:	$119,565

Total Cost:	$119,565.00
Administrative Cost (10% of Total Cost):	$11,956.50
TOTAL SILTATION & EROSION CONTROL ESCROW AMOUNT:	$131,521.50

Minimum acceptable amount for Siltation and Erosion Control Escrow is $1,000.00

I hereby certify that the above is my best estimate of the quantities and current cost of bondable improvements, landscaping items, and Siltation & Erosion Control Escrow in this subdivision or site plan.

[signature] — Requester's Signature
336-274-9456 — Telephone #
Jonathan M. Pittman, PE — Name (Print)
Schnabel Engineering — Company or Firm

(1) PWC UNIT PRICE CHECKLIST
Scale: NTS

COMMONWEALTH OF VIRGINIA
JONATHAN M. PITTMAN
Lic. No. 041420
PROFESSIONAL ENGINEER

DATE	DESIGNER	NO.	DESCRIPTION

PROJECT NAME:
POSSUM POINT POWER STATION
IMPROVEMENTS TO ASH PONDS ABC
PWC FILE NUMBER: TBD

PRINCE WILLIAM COUNTY, VIRGINIA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES DIVISION - WATERSHED BRANCH

DESIGN BY: SEP
CHECKED BY: JMP
DRAWN BY: SEP
DATE: OCTOBER 2014
SCALE: NST
DRAWING NO: PWC-02
SHEET NO: 16 of 16