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March 15, 2024

IFB SA 2409 Wellington Road Operations Center Expansion

**Addendum #3**

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THIS SOLICITATION IS HEREBY AMENDED AS FOLLOWS:

1. Reference Information to Bidders Section Page 4 of 4, Contractor’s License, first sentence: Change to read “Code of Virginia, §§ 54.1-1103 and 54.1-1115” from “Chapter 7, Title 54, Code of Virginia.
2. The Bid Due Date is extended until 2:00 p.m. EST on March 26, 2024. The bid opening will immediately follow at 2:05 p.m.
3. Questions and responses.

All other solicitation terms, conditions and provisions remain unchanged and in full force and effect.

**Acknowledgement:** Bidders submitting a bid response for the above-named solicitation shall take note of the following changes, additions, deletions, clarification, etc., in the Contract Documents, which shall become a part of and have precedence over anything shown or described in the Contract Documents, and as such shall be taken into consideration and be included in the Bidders’s response. All other terms and conditions of the Invitation for Bid shall remain unchanged.

Bidders must acknowledge receipt of this amendment by signing and returning this addendum with the proposal response or prior to the bid due date and time.

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**Authorized Signature**

**Date**

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**Name Printed**

**Title**

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**Company Name**

Direct all inquiries to [SProcurement@pwcsa.org](mailto:SProcurement@pwcsa.org)

## **IFB SA 2409 Wellington Road Operations Center Expansion Addendum #3**

### **Questions and Responses**

1. **Question:** What is the expected start date for the above referenced project?

**Response:** The project is anticipated to start in June/July.

2. **Question:** What is the budget allocated to the project?

**Response:** The budget is not available to the public at this point.

3. **Question:** What's the status on the permits on the project?

**Response:** See Appendix B. Plans are approved.

4. **Question:** Is there a list of the 2A contractors?

**Response:** No, there is not an available list of the 2A contractors.

5. **Question:** What is the projected duration of the project?

**Response:** The Work shall be substantially complete in 670 days and in accordance with Article 4.02 of the Agreement.

6. **Question:** Please clarify the evaluation criteria that will be utilized to score bidding contractors and make an award on the project. There are an considerable amount of submissions on this project independent of the pricing, and we want to know how those are being evaluated from one contractor to the next. The Information to Bidders does state that “lowest responsive and responsible Bidder based on the Lump Sum total base bid” will be awarded the project. Please confirm this is the case, and that all supplemental paperwork required for the submission is not scored, but more or less utilized as a box check.

**Response:** The award will be made to the lowest responsive and responsible bidder. Items listed in the Bid Submission Checklist will be used to determine responsiveness and responsibility.

7. **Question:** Please consider receipt of crew foreman resumes after the bid. It is seldom that this information is readily available at bid time; admittedly trade contractor proposals are received up to the bid deadline, and in the interest of providing the most competitive cost for the work it is not beneficial to request these resumes now and not be able to consider competitive proposals that come through in the final couple hours, being that this is a hand-delivered bid.

**Response:** Foreman resumes must be submitted with your bid.

- 8. Question:** On behalf of Miller Brothers, I wanted to reach out to you and seek a clarification on the additional payments/fees and sureties outlined in Appendix B of the Bid Documents. Specifically, I wanted to inquire about the Site Plan Bond, Erosion & Sediment Control Bond, Landscape Escrow and VDOT Bond...is it the intent of Prince William County to require that the General Contractor be responsible for posting all of these?

**Response:** See Appendix B for the approval letters with the fees listed. On the Plan Approval Letter dated November 16, 2023 for Site Plan (SPR2023-00185), the surety fee of \$663.03, the Performance Bond (120), the Siltation/Erosion Control Escrow (080), and the Landscape Escrow (070) are waived.

- 9. Question:** Is the Telecom portion included in this opportunity or is that being addressed by a pre-existing contract?

**Response:** Yes, it is included. It is not addressed by a pre-existing contract. There are telecom specs and Sheet E2.1.3 is a Communications Plan.

- 10. Question:** Per Addendum #1, to be considered responsible and eligible the Bidder must provide 3 sample projects pertaining to the construction of pre-engineered metal buildings. Can this requirement be waived?

**Response:** Yes, you can count on your Sub-experience, but you must show successful collaboration for past project/projects.

- 11. Question:** Per 7.08 of the General Conditions, the contractor is responsible for paying for all construction permits. Based on the RFP the drawings have been submitted for permit. Can you provide the fees for all of the permits that the Contractor is responsible for paying?

**Response:** See Question #8's response.

- 12. Question:** I just want to check with you if the Owner will be responsible for carrying out 3rd Party Testing & Inspection services for this subject project.

**Response:**

1. Per the Field Quality Control Sections in Specifications 033000, 042000, 052100, 053100, and 054000 the Owner will supply the 3rd Party Testing and SI inspection services.
2. Specification 316300 Aggregate Pier Soil Reinforcement Section 3.5 A. The installer is to supply a full time Quality Control representative and Section 3.9 The owner to provide an independent testing firm to provide Quality Assurance.
3. See specification changes herein.

- 13. Question:** Please consider receipt of subcontractors' resumes after the bid. It is seldom that this information is readily available at bid time; admittedly trade contractor proposals are received

up to the bid deadline, and in the interest of providing the most competitive cost for the work it is not beneficial to request these resumes now and not be able to consider competitive proposals that come through in the final couple hours, being that this is a hand-delivered bid.

**Response:** Subcontractors' resumes must be submitted with your bid.

**14. Question:** Ref. Bid Form Exhibit J-1 Project References. Can a project that is currently in the construction phase be listed as one of the project references? Based on the percent complete item that is to be included in the project references it appears so, but we would like to confirm.

**Response:** Yes, the Current project can be used for reference.

**15. Question:** Exhibit O/Instructions/ Section C States: "If you are not a certified SWaM business and do not have a plan to use certified SWaM subcontractors, please provide your subcontractors' information by completing Exhibit H."

If we are not a Certified SWaM business but we plan to use certified SWaM subcontractors, we have to submit Section B in Exhibit O. Do we still need to submit Exhibit H? Please clarify.

**Response:** Yes.

**16. Question:** Drawing A4.1.1 refers to Wall type W3. No W3 was found in plans/sections. Please clarify.

**Response:** W3 is shown on Building Section 5/A2.1.4.

**17. Question:** Drawing C36, Section 4.1 Paragraph 2 states "The RAP shall be used for the wall and column elements of the Operations/Maintenance Facility. For the slabs, we recommend the upper 2 ft of in-situ soil to be removed. If the excavated soil is free of trash and meets structural fill requirements, the excavated soils can be replaced and compacted."

A) Note the highlighted word above (replaced). Should it be reused and compacted?

B) Please confirm that:

1. The RAP expected to be used in the columns and walls of the Storage Building can be omitted if the structural fill material excavated from the upper layer (2 ft) is replaced with controlled engineered fill.
2. If the RAP is used, the 2ft upper layer might be reused for the slab if the excavated material is free of trash and meets structural fill requirements, on the contrary it shall be replaced with controlled engineered fill.

**Response:** A. Yes, it should say "reused and compacted."

B1. No, the RAPs are supposed to go through the undocumented fill depth, not just upper 2 feet.

B2. If the excavated material is suitable according to the Geotechnical Engineer of Record, it can be reworked as used as controlled engineered fill and not hauled offsite.

**18. Question:** Is the freestanding crane to be supplied and installed by the General Contractor?

**Response:** Yes, the freestanding crane is to be supplied and installed by the General Contractor.

**19. Question:** Rooms 1 to 9 in Storage Building First Floor have ceiling finishes (GB paint/ACT). Where are those GB and ACT installed? i.e., what is the roof of those rooms made of?

**Response:** Sheet A9.1 indicates the ceiling finish types and their heights are also indicated. The roof plan sheet A10.1 indicates the roof above this area as RFA1.

**20. Question:** Is the General Contractor responsible for the supply and installation of the fuel storage tank? If so, please provide specifications.

**Response:** Yes, the General Contractor is responsible for the supply and installation of the fuel storage tank. The intent is for split tank bulk storage and double wall containment, either FireGuard or Convault are acceptable. Any associated accessory changes or modifications needed to complete/finalize will need to be coordinated and identified as part of the substitution and submitted.

**21. Question:** Please provide specifications for floor finish CONC-SLR shown on Finishes Schedule, Drawing. A2.1.1

**Response:** CONC-SLR as shown on sheet A0.1 is CONCRETE WITH CURE & SEAL. Refer to section 033000 CAST-IN-PLACE CONCRETE for specification information.

**22. Question:** Please refer to Drawing Number C.03, Sanitary Sewer Plan for Occoquan Pump Station 37 Force Main. We understand this is not in the scope of work of the Wellington Road Operations Center Expansion. Please confirm.

**Response:** Correct. Drawing Number C.03 Sanitary Sewer Plan for Occoquan Pump Station 37 Force Main is not part of the scope of work.

**23. Question:** I am working on the Wellington road Operation Center and noticed the civil plan PDF contains no vector data is it possible to obtain a PDF file with vector data? The current civil plans are stamped permit set and to make copies of the set they have to be scanned which erases the vector data. The original PDF that was reviewed for permit should have the vector data (all though it will not have a stamp it is the same plan) is it possible to have that plan available?

**Response:** The signature submission PDF's shall be provided. [Wellington Site Plan - Addendum #3](#)

**24. Question:** (Fuel tanks): A UL 2085 Fireguard is bulletproof and double walled with a 2 hour fire rating. Can it be used as an alternative to Convault? They are warranted for 30 years. (see attached)

**Response:** The intent is for split tank bulk storage and double wall containment, either FireGuard or Convault are acceptable. Any associated accessory changes or modifications needed to complete/finalize will need to be coordinated and identified as part of the substitution and submitted.

**25. Question:** (Fuel tanks): Regarding The Fuelmaster :

Does the end user like a client based/server software that is in hour or a cloud based system?

If Client based cat5 cabling would be run to the fuel island from the computer source?

If not we can do wireless cloud based which is cellular?

**Response:** SA is using fuel master software through PC and CAT 5 cable is used for connection.

**26. Question:** (Fuel tanks): Is there an electronic automatic tank gauge called for?

**Response:** Yes, both electronic and manual tank gauge. Electronic for read out and manual for sight verification.

**27. Question:** Please confirm that the Nucor Loc Seam 360 24-gauge Metal Roof Panel is acceptable for all buildings?

**Response:** The PEMB specifies an insulated roof panel Nucor SR2. The Outbuildings require a non-insulated standing seam, MBCI Superlock is Basis of Design. A list of 14 Acceptable Manufacturers is given in 074113, sect 2.01.

**28. Question:** Please advise on the following:

- 10 pier footings and 10 associated columns - no details, i.e. sizing
- FDN note 7 - calls out interior wall footing to be wf2.0 (no interior footings noted on plan) and exterior wall footings to be wf2.5 Footing chart on pg S3.0.1 does not have wf2.5 but instead wf4.75 - which is correct?
- Laundry trench detail is unclear. This would be installed after plumbing ground works and pre-slab prep. Why not similar to TD-1 by Plumber?
- Confirm stair treads to be serrated steel and not infilled concrete.

**Response:** The ten (10) crane foundation footing tags shall be 4.0 footings at (-0'-8") elevation and detailed per "Spread Footing Schedule" on drawing S3.0.1. There are no piers associated with these crane columns. Foundation note #7 has a typo. All foundations shall be WF2.0. There are no interior wall foundations within this metal building. Laundry trench drain is indicated on sheet P5.2 and a corresponding "Trench Drain Detail" on drawing S3.0.2. Means and methods for installing this drain are by the General Contractor. The stair treads are indicated to be serrated steel.

**29. Question:** What is the intended finish color for the ground face CMU veneer?

**Response:** This will be determined in the field from CMU manufacturers' color options.

**30. Question:** What is the intended finish color for the ground face CMU mortar?

**Response:** This will be determined in the field from CMU mortar manufacturers' color options.

**31. Question:** On page 5 of spec 018317, it make references to spec sections 072726 and 072727, but these spec sections are not included in the specs. Please provide the missing spec sections, if they are included in this project.

**Response:** Eliminate Reference to 072726 & 072727. Add the following Spec Sections to the list to be reviewed: 072100 Thermal Insulation, 074113 Metal Roof Panels & 074213 Metal Wall Panels.

**32. Question:** On drawing C.04, it looks like a portion of the existing fence is labeled as, "T.B.L." (relocated). Is this note correct or is this pointing to something else? If a portion of the existing fence is to be relocated, where is it being relocated to?

**Response:** The fence is to be removed and replaced to the location shown on revised Sheet C.05.

**33. Question:** Reference drawings C.04 and C.13. On C.04, part of the existing parking lot looks like it should be replaced with heavy duty asphalt per drawing C.13. This portion of the existing parking lot is not shown as being removed/replaced on C.04. Please clarify.

**Response:** The southwest portion of the parking lot near the existing entrance is to be mill and overlay only as shown on sheet C.13. The rest of the parking lot pavement shall be removed, regraded, and replaced.

**34. Question:** The (1) bike rack shown on C.05 references the bike rack detail on C.02. There is no manufacturer for the bike rack shown on the detail. Please provide a manufacturer for the bike rack.

**Response:** The bike rack detail is Madrax UX238-LB-IG-P or approved equivalent.

**35. Question:** Please confirm that the existing perimeter fence gets black privacy slats per the notes on C.05. I didn't see a detail for this scope of work. What is the height of the existing fence? Please provide a detail and spec for the new black privacy slats on the existing fence.

**Response:** The existing fence is 6' high. The entire existing perimeter fence and all new fencing will have black privacy slats. See Specification Section 32 31 13 Section 2.5.

**36. Question:** What is the extent of the new fencing with barbed wires? Is it only the extent shown within the arrows?

**Response:** See revisions to Sheet C.04 and C.05.

**37. Question:** There is a drop box shown on drawing C.05 located across from the bike rack. Is the drop box included in our scope of work? If yes, please provide a detail and spec.

**Response:** The existing drop box located in front of the existing building shall be relocated. Yes, it is included in the scope of work. See attached photograph.

**38. Question:** For the mill and overlay in the road, are we to see the detail on C.06 or on C.13?

**Response:** Any mill and overlay for Virginia Meadows Drive shall be done using the detail shown on C.06.

**39. Question:** Are any concrete mow strips required around the new portions of fencing? If yes, please provide details.

**Response:** No, a concrete mow strip is not required.

**40. Question:** Plastic cover protectors are shown on drawing A2.1.1 per note #10. I didn't see any details or a spec for the plastic cover protectors. Please provide a detail and spec for the plastic cover protectors.

**Response:** Specification 055000 has been updated.

**41. Question:** Part 1.5.A. of spec section 051200 says that the fabricator must be in the AISC Quality Certification Program and also be a designated AISC-Certified Plant. Can these two requirements be waived? Can meeting the requirement in lieu of being AISC certified be acceptable? The AISC certification will limit how many Structural Steel companies will be able to bid the project. Please consider waiving this requirement.

**Response:** As per the continuation of spec section 1.5.A, the AISC Quality Certification Program and Designated AISC Certified Plant requirements can be waived if the steel fabricator employs an independent inspector or quality control agency to conduct periodic, in plant inspections at a frequency assuring the fabricator's conformance to the requirements of the inspection agency's approved quality control program, as required by the VUSBC.

**42. Question:** Keynote #1 on A2.1.1 is for a 7.5 ton freestanding crane. Is the 7.5 ton crane by others or is it to be furnished and installed by the general contractor? Please clarify.

**Response:** Yes, the crane is to be furnished and installed by the contractor.



**43. Question:** Reference drawing A2.1.3. Are the shower curtains to be furnished and installed by the owner or the general contractor? They are not listed in the Toilet Accessories Schedule, but they are shown on 3/A2.1.3. Please clarify.

**Response:** Yes, by the GC as indicated in Note 7 of the Toilet Accessory Schedule.

**44. Question:** Detail 5 on A2.1.5, note #6 is for dampproofing. I didn't see a spec for the dampproofing. Please provide a spec for the dampproofing.

**Response:** Refer to Spec. Section 04200, section 2.03.

**45. Question:** There are no specifications for the sanitary sewer work. Please provide specifications for the sanitary sewer work.

**Response:** All sanitary sewer work shall be performed in accordance with the PWCSA's Utility Standards Manual, latest edition.

**46. Question:** There is a 2<sup>nd</sup> drawing labeled C.03 that is not for this project. It is for project called, "Occoquan Pump Station 37." Please delete this drawing.

**Response:** Drawing Number C.03 Sanitary Sewer Plan for Occoquan Pump Station 37 Force Main is not part of the scope of work.

**47. Question:** On drawing C.05, there is a label on the drawing for CG-2. It is outside of the Operations Center by the FDC. What is this for? Is it a type of curb & gutter? I only saw CG-6 and CG-6R for the curb & gutter types.

**Response:** CG-2 is a type of curb. See VDOT Road and Bridge Standards, latest edition. A detail has been added to the plan. See Sheet C.13.

**48. Question:** Please provide a separate utility plan. All of the utilities are shown on the site plan and it is very difficult to see everything on the site plan.

**Response:** A separate utility plan will not be provided.

**49. Question:** Reference drawing SE.1. Please confirm that the pole mounted cameras and poles are to be included in the scope of work or are to be by others. Please confirm that there are only the (2), #9 and #10 pole mounted cameras in the parking lot. Please provide a detail for the concrete base.

**Response:** Yes, they are included. Provide concrete base according to "Protective Pole Base Detail" on drawing E0.2.

**50. Question:** Notes on S1.2 to provide circular blackout at crane columns. There are no cranes shown going in those areas. Please clarify.

**Response:** There are ten (10) total crane columns. Eight (8) receive diamond or modified rectangular blockouts as indicated. Two (2) receive circular blockouts because they do not fall on control joint gridlines. The crane continues over/through the second floor at the last two columns.

**51. Question:** Please confirm that all Earthwork/Excavation is strictly Classified and that unit prices should be provided for Removal of Unsuitables/Haul Off, Import/Placement of Offsite Structural Fill, Removal of Rock/Haul Off, Lime Drying to 4%, etc.?

**Response:** No. All Earthwork/Excavation is unclassified without qualification. There is no unit pricing on this project. See revised Specification 31 23 00 Section 3.02A.

**52. Question:** Please advise on the following:

- Spec section 316300: Please confirm that specialty installers using the approved vibrated pier method per section 3.2 will not be required to comply with spec requirements that are not industry standard for that technique. Examples of items not applicable to the vibrated pier method are: telltales in modulus tests piers (3.6.A.1), bottom stabilization verification testing (3.7), dynamic cone penetration testing (3.8).
- Spec section 316613: please confirm that uplift testing on aggregate piers is not required and that the weight of the footings resist any uplift loads.

**Response:** It is understood that all spec testing requirements are not applicable to the vibrated pier method installation. The aggregate pier contractor shall conduct appropriate QC tests to verify the installations satisfy spec section 316300 paragraph 1.8 “Performance Requirements” and requirements established by the engineer for the aggregate pier contractor and Geotechnical Engineering Report. QC verification tests shall be monitored and confirmed by the Special Inspector. Footing and pier weights resist uplift loading and uplift testing shall not be required.

**53. Question:** Drawing P6.1 – Keynote 4 – Where is the Veeder Root TLS-450 tank monitoring panel installed? The panel is not NEMA rated so it will need to be installed indoors.

**Response:** Tank monitoring panel located on Janitor’s Closet 2 indicated on enlarged plan 1 on P2.2.

**54. Question:** Drawing P6.1 – Keynote 6 – Where are the motor starters for the (2) submersible pumps installed? They are note NEMA rated and need to be installed indoors.

**Response:** Motor starters are to be located in Janitor’s Closet 2 adjacent to the other fuel system control equipment. Janitor’s Closet 2 room was enlarged for this purposes.

**55. Question:** Drawing P6.1 – Keynote 2 – Are the Gasboy 9850KX dispensers’ single hose or dual hose dispensers?

**Response:** GasBoy 9850KX units are ultra-hi flow, single hose, single product, 50gpm, dispensers.

**56. Question:** Drawing P6.1 – Keynote 1 – Is the overflow alarm part of the Clock Gauge or the Veeder Root TLS-450 tank monitoring system?

**Response:** Overflow alarm would be linked to Veeder-Root tank monitoring system.

**57. Question:** Partition Type P8 is shown on A0.2, but I didn't see partition type P8 anywhere on the floor plans. Where is partition type P8 located at on the floor plans?

**Response:** P8 is the wall between Women 4 and Laundry 3. It is mislabeled as P5 in the set on sheet A2.1.3. The wall plan south of the toilets should still be P5 as shown on revised sheet.

**58. Question:** I didn't see a detail in the Structural plans for the masonry foundation wall that goes above grade. Please provide a detail.

**Response:** Exterior foundation walls are indicated in sections 1/3/ & 5/S3.1.

**59. Question:** What is the size of the existing fuel storage tanks and what fuel is in each one?

**Response:** Total 3 tanks. 2 Diesel tanks- one with 1000 Gallons and One with 500 gallons. 1 Gasoline -2000 Gallons.

**60. Question:** Please confirm that this project is not Wage Scale.

**Response:** This is not Wage scale project.

**61. Question:** Please provide a detail for the mezzanine beams connecting to the PEMB.

**Response:** Contractor's steel fabricator shall coordinate beam connection with PEMB manufacturer's requirements for loads on their frame/wind posts as indicated on drawing S2.1.

**62. Question:** Are headed shear studs on tops of beams at mezzanine required?

**Response:** No. Beams are not designed as composite beams at the second floor.

**63. Question:** Please reference earthwork specs, Geotech report and C.05. Is the project unclassified to subgrade and we are to include undercut/ replacement per the notes on C.05? Any additional undercut beyond these notes would require unit pricing?

**Response:** No. All Earthwork/Excavation is unclassified without qualification. There is no unit pricing on this project. See revised Specification 31 23 00 Section 3.02A.

**64. Question:** In the specs for the pre-engineered metal building Varco Pruden is not one of the approved manufacturers but Butler is. Butler and Varco Pruden are both made by the same manufacturer. Since Butler is approved, can Varco Pruden be approved as well?

**Response:** This would need to be submitted and must meet all project specifications and should be qualified in the bid as this would be a substitute for the approved manufacturers listed. The ultimate decision to allow another manufacturer will lie with the Owner provided the product meets all specifications of the project.

**65. Question:** Reference detail 5 on C.11. The note for the tree protection fence says to see detail 3. I didn't see a detail 3 on the plans for the tree protection fencing. Please provide a detail for the tree protection fencing.

**Response:** A detail for tree protection fencing has been added to sheet C.17.

**66. Question:** Reference detail 2 on A2.1.3. Per part 2.02 of spec 105113, the lockers are to have a concrete base. I didn't see a detail for the concrete locker base. Please provide a detail.

**Response:** A detail has been added on Sheet A2.1.3.

**67. Question:** Who is the controls manufacturer or is there a controls company that the service authority uses? Please confirm who the controls are by and provide contact information.

**Response:** All mechanical controls for mechanical equipment shall be stand-alone controls as indicated on contract documents. Contractor to coordinate installation of all thermostats and accessories as indicated on contract documents.

**68. Question:** Are the skylights to be furnished and installed by the Metal Building Manufacturer? A note on S2.2 – Roof Framing Plan says, "Skylight per Metal Bldg. MR (Typ of 10)." I didn't see this note anywhere else on the plans. Please clarify.

**Response:** Yes and they are to meet specification section 086200. These are to be coordinated with the metal building manufacturer and must meet all requirements.

**69. Question:** There are roof vents shown on drawing M2.3 that are not shown on the drawing A10.1 Roof Plan. Please clarify.

**Response:** On sheet A10.1, Roof Plan General Notes A. ROOF PLAN DOES NOT INDICATE ALL EQUIPMENT AND PENETRATIONS. REFER TO OTHER DISCIPLINE'S DRAWINGS FOR QUANTITIES AND LOCATIONS OF ROOFTOP EQUIPMENT AND ASSOCIATED PENETRATIONS. This includes drawing M2.3.

**70. Question:** What is the make and model of the existing fire alarm system?

**Response:** The current building does not have a fire alarm system.

**71. Question:** Does the owner has their own low voltage vendor for voice/data/security or is part of our scope? Please clarify the scope of voice/data/security.

**Response:** Refer to spec sections in Div 27. Refer to drawings E2.1.3, E2.2.3, E4.2.

**72. Question:** REF C.05, note 1. Is the owner or GC responsible for hiring the Geotech Engineer of Record and are is the Owner responsible for this test or is the GC?

**Response:** The Contractor is required to provide geotechnical testing services; however, the Owner also will hire a geotechnical firm to provide construction observation and testing services for Quality Assurance purposes and will also provide the Geotechnical Engineer of Record.

**73. Question:** REF C.05, note 2. Is the engineer of record or land surveyor to perform the certification of gradient? Is this by the Owner or the GC?

**Response:** According to Specification 01 30 00 1.03, “The Contractor shall be responsible for closing out all permits at the completion of construction, including field survey of as-built conditions and submitting all required documentation to permitting agencies.”

**End of Addendum Number Three**

## **ADDENDUM 3 – SPECIFICATION REVISIONS**

### **1. Replace Specification 015000 Section 1.20 Field Offices and Sheds with the following:**

#### 1.20 FIELD OFFICES AND SHEDS

- A. Office: A field office is required for this project. The Contractor shall furnish and install one  
(1) 10 feet x 36 feet rental mobile office, associated plumbing and electrical work for use as a temporary field office and restroom.
- B. At the minimum, the field office shall include two (2) offices for the use by the Owner and Project Representatives, and a common room for meetings. The Contractor shall be responsible for all costs, permits, coordination, and requirements to establish the field office.
- C. The Contractor shall be responsible for all utility connections to the field office and to maintaining electric and secure wireless high speed internet service.
- D. The Contractor shall provide weekly custodial service to ensure a clean work environment in the office, septic service if required, potable water;
- E. The Contractor shall maintain a copy of the contract for project, a current Progress Schedule, Contract Documents (plans and specifications), any record Drawings being maintained by the Contractor, all approved Shop Drawings and samples, and other pertinent documents in a neat and orderly fashion, accessible to the field personnel at all times.
- F. Storage Sheds for Tools, Materials, and Equipment: Weather-tight with heat and ventilation for products requiring controlled conditions, with adequate space for organized storage and access, and lighting for inspection of stored materials.
- G. Locate in area acceptable to Project Representative.

### **2. Revise Specification 055000 Metal Fabrications ADD –**

#### 2.04 ACCESSORY PRODUCTS

- A. Column Protection Kit: Assembly of polyethylene foam interlocking corner blocks and two reflective adjustable straps to protect columns from vehicular collisions.
  - 1. Basis-of-Design Product: Provide Line Dividers; Column Protector Fit Medium or approved equal.
  - 2. Color: Safety yellow.

### **3. Revise Specification 312300 3.02 Excavation:**

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**ADD** – A. Unclassified excavation also includes removal of unsuitable or unstable materials below the bottom of the compacted subgrade as deemed necessary by the Geotechnical Engineer of Record.

**4. Revise Specification 312333 3.08 Compaction and Testing:**

**DELETE** – F. The contractor shall obtain...

**ADD** – F. a. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections. F. b. Allow the testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

**5. Revise – Specification 321215 3.11 Testing**

**ADD** – (to the first sentence after requirements) - for the work to be performed in/on Virginia Meadows Drive.

**6. ADD Section numbers to Specification 321216 Asphalt Paving**

**7. Revise Specification 321216 Asphalt Paving – Section Named: Execution**

**ADD** – On Site Paving: Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.

2. Proof roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.

3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Owner's Testing Agency, and replace with compacted backfill or fill as directed.

**8. Revise Specification 321216 Asphalt Paving – Section Named: Field Quality Control**

**DELETE** – All requirements as listed.

**ADD** – VDOT Testing Agency: The Contractor shall obtain the services of a qualified independent testing laboratory, acceptable to the Engineer, to perform all required testing per VDOT and this specification for the work to be performed in/on Virginia Meadows Drive. The contractor shall furnish all samples of materials or existing pavement as required by VDOT.

**ADD** – On Site Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

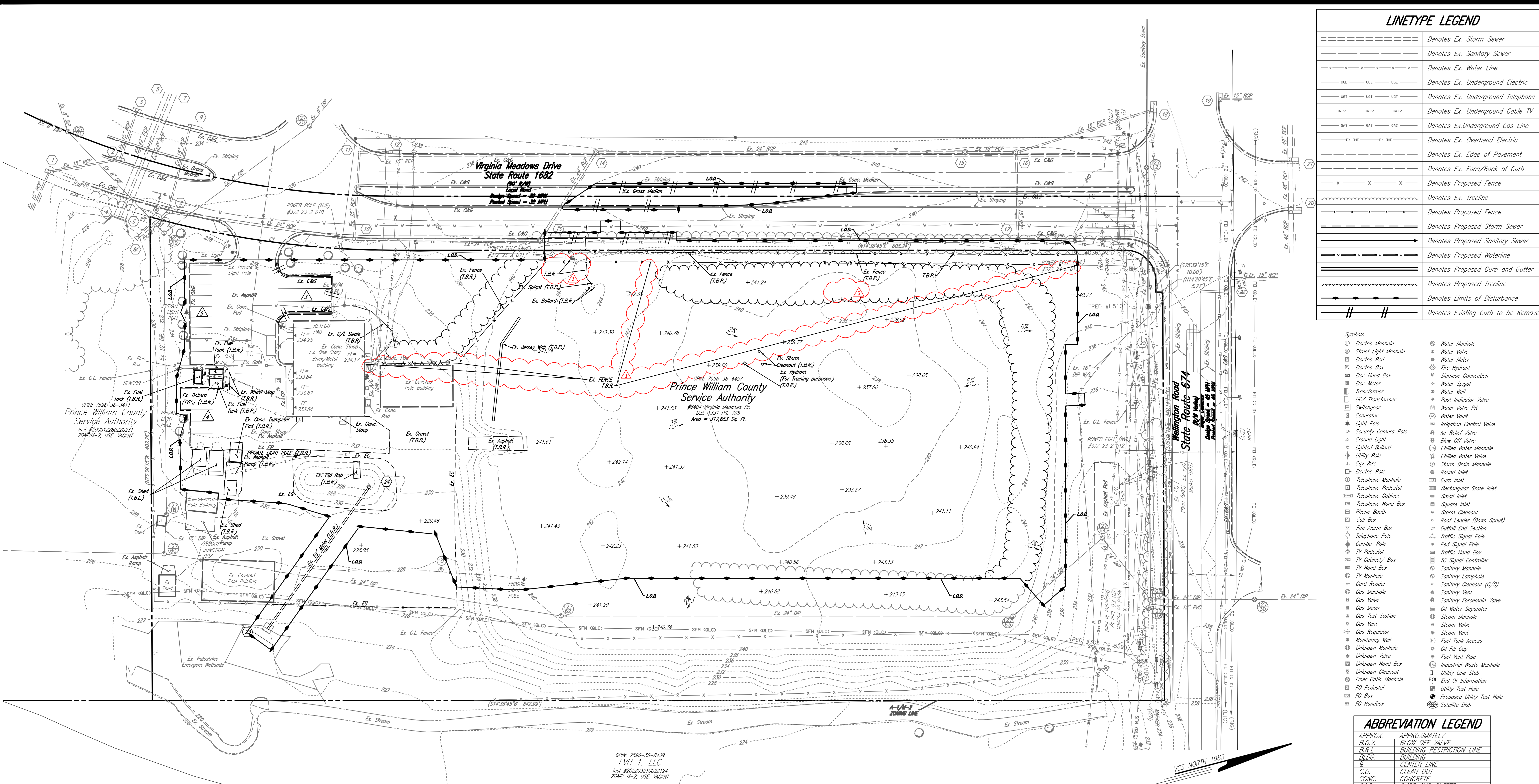
The Owner's Testing Service will test in-place asphalt concrete courses for compliance with requirements for thickness, compacted density, and surface smoothness by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726/D 2726M.

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### LINETYPE LEGEND

---	Denotes Ex. Storm Sewer
---	Denotes Ex. Sanitary Sewer
---	Denotes Ex. Water Line
---	Denotes Ex. Underground Electric
---	Denotes Ex. Underground Telephone
---	Denotes Ex. Underground Cable TV
---	Denotes Ex. Underground Gas Line
---	Denotes Ex. Overhead Electric
---	Denotes Ex. Edge of Pavement
---	Denotes Ex. Face/Back of Curb
---	Denotes Proposed Fence
---	Denotes Ex. Treeline
---	Denotes Proposed Fence
---	Denotes Proposed Storm Sewer
---	Denotes Proposed Sanitary Sewer
---	Denotes Proposed Waterline
---	Denotes Proposed Curb and Gutter
---	Denotes Proposed Treeline
---	Denotes Limits of Disturbance
---	Denotes Existing Curb to be Removed

### SYMBOLS

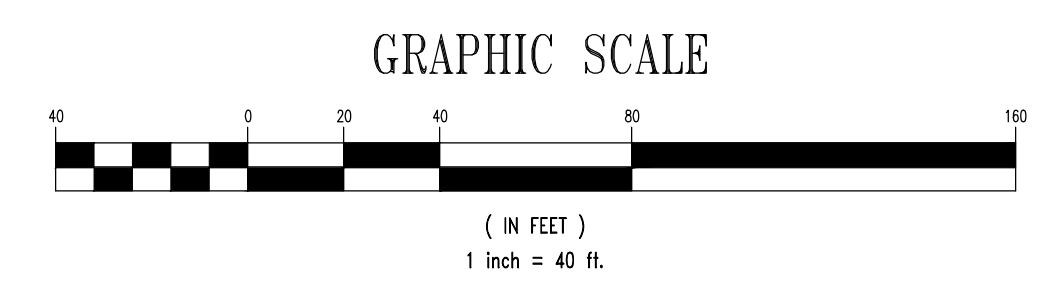
⊙	Electric Manhole	⊙	Water Manhole
⊙	Street Light Manhole	⊙	Water Valve
⊙	Electric Pad	⊙	Water Meter
⊙	Electric Box	⊙	Fire Hydrant
⊙	Elec Hand Box	⊙	Siamese Connection
⊙	Elec Meter	⊙	Water Spigot
⊙	Transformer	⊙	Water Well
⊙	UG/Transformer	⊙	Post Indicator Valve
⊙	Switchgear	⊙	Water Valve P/T
⊙	Generator	⊙	Water Inlet
⊙	Light Pole	⊙	Irrigation Control Valve
⊙	Security Camera Pole	⊙	Air Relief Valve
⊙	Ground Light	⊙	Blow Off Valve
⊙	Lighted Bollard	⊙	Chilled Water Manhole
⊙	Utility Pole	⊙	Chilled Water Valve
⊙	Guy Wire	⊙	Storm Drain Manhole
⊙	Electric Pole	⊙	Round Inlet
⊙	Telephone Manhole	⊙	Curb Inlet
⊙	Telephone Pedestal	⊙	Rectangular Grate Inlet
⊙	Telephone Cabinet	⊙	Small Inlet
⊙	Telephone Hand Box	⊙	Square Inlet
⊙	Phone Booth	⊙	Storm Cleanout
⊙	Call Box	⊙	Roof Leader (Down Spout)
⊙	Fire Alarm Box	⊙	Outfall End Section
⊙	Telephone Pole	⊙	Traffic Signal Pole
⊙	Combo. Pole	⊙	Ped Signal Pole
⊙	TV Pedestal	⊙	Traffic Hand Box
⊙	TV Cabinet/Box	⊙	IC Signal Controller
⊙	TV Hand Box	⊙	Sanitary Manhole
⊙	TV Manhole	⊙	Sanitary Lamphole
⊙	Card Reader	⊙	Sanitary Cleanout (C/O)
⊙	Gas Manhole	⊙	Sanitary Vent
⊙	Gas Valve	⊙	Sanitary Foremain Valve
⊙	Gas Meter	⊙	Oil Water Separator
⊙	Gas Station	⊙	Steam Manhole
⊙	Gas Vent	⊙	Steam Valve
⊙	Gas Regulator	⊙	Steam Vent
⊙	Monitoring Well	⊙	Fuel Tank Access
⊙	Unknown Manhole	⊙	Oil Fill Cap
⊙	Unknown Valve	⊙	Fuel Vent Pipe
⊙	Unknown Hand Box	⊙	Industrial Waste Manhole
⊙	Unknown Cleanout	⊙	Utility Line Stub
⊙	Fiber Optic Manhole	⊙	End of Information
⊙	FD Pedestal	⊙	Utility Test Hole
⊙	FD Box	⊙	Proposed Utility Test Hole
⊙	FD Handbox	⊙	Satellite Dish

### ABBREVIATION LEGEND

APPROX.	APPROXIMATELY
B.O.V.	BLOW OFF VALVE
B.R.L.	BUILDING RESTRICTION LINE
BUILD.	BUILDING
C.L.	CENTER LINE
C.O.	CLEAN OUT
CONC.	CONCRETE
C&G	CURB AND GUTTER
D.B.	DEED BOOK
D.I.P.	DUCTILE IRON PIPE
ENT.	ENTRANCE
E.P.	EDGE OF PAVEMENT
E.SMT.	EASEMENT
EX.	EXISTING
F.H.	FIRE HYDRANT
H.C.	HANDICAPPED
INV.	INVERT
INSTR. #	INSTRUMENT NUMBER
L.A.	LIMITED ACCESS
LAT.	LATERAL
L.O.D.	LIMITS OF DISTURBANCE
L.S.	LOADING SPACE
M.H.	MANHOLE
MIN.	MINIMUM
P.C.	PAGE
P.L.	PROPERTY LINE
PVC	POLYVINYL CHLORIDE
R.	RADIUS
RCP	REINFORCED CONCRETE PIPE
RET. WALL	RETAINING WALL
RPA	RESOURCE PROTECTION AREA
R.O.W.	RIGHT OF WAY
SAW	SANITARY
SEW	SEWER
S.W.	SIDEWALK
SF	SQUARE FEET
SP	SPACE
STM	STORM
TEMP.	TEMPORARY
T.B.R.	TO BE REMOVED
T.B.L.	TO BE RELOCATED
T.B.V.	TO BE VACATED
(TRP)	TYPICAL
V.A.	VEHICLE ACCESSIBLE
VPD	VEHICLES PER DAY
W/L	WITH
W.S.E.	WATER SURFACE ELEVATION

### DEMOLITION NOTES:

- PRIOR TO THE ONSET OF DEMOLITION THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AS REQUIRED BY PRINCE WILLIAM COUNTY AND ANY APPLICABLE FEDERAL AND STATE AGENCIES. ALL DEMOLITION ACTIVITIES ARE TO BE PERFORMED IN STRICT ADHERENCE TO ALL FEDERAL, STATE AND LOCAL REGULATIONS. BUILDINGS CONSTRUCTED PRIOR TO 1985 REQUIRE AN ASBESTOS SURVEY.
- MARK POSITIONS OF ALL UTILITY, DRAINAGE AND SANITARY LINES AND PROTECT ALL ACTIVE LINES. CLEARLY IDENTIFY, BEFORE THE COMMENCEMENT OF DEMOLITION, SERVICES THAT REQUIRE INTERRUPTION OF AN ACTIVE SYSTEM THAT MAY AFFECT OTHER PARTIES, AND NOTIFY ALL APPLICABLE UTILITY COMPANIES TO ENSURE THE CONTINUATION OF SERVICE.
- THE DEMOLITION AND REMOVAL OF ASPHALT SHALL BE DONE IN SMALL SECTIONS.
- CONDUCT DEMOLITION SERVICES IN SUCH A MANNER TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS AND OTHER ADJACENT FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS AND OTHER OCCUPIED FACILITIES WITHOUT PRIOR WRITTEN PERMISSION OF THE CLIENT AND ANY APPLICABLE GOVERNMENTAL AUTHORITIES. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS, IF REQUIRED BY APPLICABLE GOVERNMENTAL REGULATION.
- USE WATERING, TEMPORARY ENCLOSURES AND OTHER SUITABLE METHODS AS NECESSARY TO LIMIT THE AMOUNT OF DUST AND DIRT RISING AND SCATTERING IN THE AIR. CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. RETURN ALL ADJACENT AREAS TO THE CONDITIONS EXISTING PRIOR TO THE START OF WORK.
- DEMOLITION TO BE PERFORMED IN SUCH A MANNER AS TO PREVENT THE UNAUTHORIZED ENTRY OF PERSONS AT ANY TIME.
- THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH OCCUR BY THEIR FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE ENGINEER AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE FACILITY AND ENSURE CONTINUANCE OF SERVICE.
- ANY UTILITY POLES & BOXES, GUY WIRES, OR OTHER ABOVE OR BELOW GROUND UTILITIES THAT CONFLICT WITH THE PROPOSED CONSTRUCTION MAY HAVE TO BE ADJUSTED OR RELOCATED. THE CONTRACTOR IS TO COORDINATE THESE REQUIRED CHANGES WITH THE UTILITY COMPANIES PRIOR TO CONSTRUCTION.
- EXISTING SERVICES CONNECTED TO UTILITIES TO BE REMOVED OR ABANDONED MUST BE COORDINATED IN ORDER TO MINIMIZE THE DISRUPTION OF SERVICE.



### SURVEY CONTROL

Point	Northing	Easting	Elevation	Description
1	6966309.173	11753158.016	236.91	GPSM TRV
2	6966580.377	11753202.930	240.58	GPSM TRV
3	6966792.294	11753256.126	241.58	TRV
4	6967042.557	11753363.786	240.58	TRV
5	6966871.711	11753652.831	242.30	TRV
6	6966556.642	11753600.403	242.25	TRV
7	6966505.061	11753559.888	239.69	TRV
8	6966290.256	11753339.734	231.87	TRV

CURVE	RADIUS	ARC LENGTH	DELTA ANGLE	TANGENT	CHORD BEARING	CHORD LENGTH
C1	765.00'	206.73'	15°29'00"	104.00'	N 22°21'15" E	206.10'
C2	25.00'	39.15'	89°44'00"	24.88'	N 59°28'45" E	35.27'

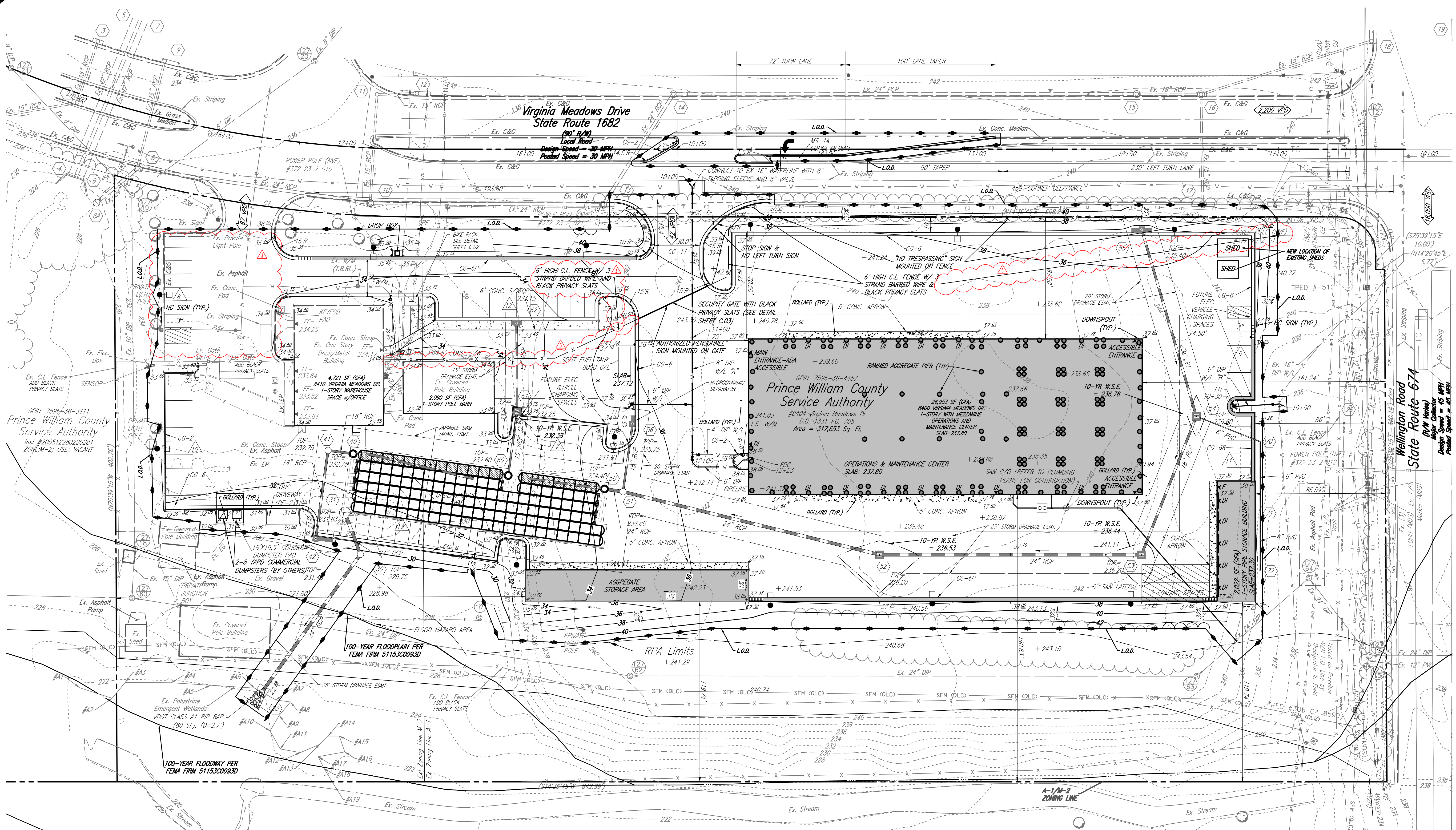
**Rinker Design Associates, P.C.**  
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COMMONWEALTH OF VIRGINIA  
 SHARON D. DUSZA  
 Lic. No. 013855  
 3/19/24  
 PROFESSIONAL ENGINEER

EXISTING CONDITIONS/DEMOLITION PLAN  
**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
 BREWSTERVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS: 03/13/2024  
 BID ADDENDUM 3-UPDATE NOTE  
 TBR, DELETED NOTE, ADDED NEW ARROWS.

PLAN DATE: OCTOBER 7, 2022  
 DESIGN BY: AG/SAW  
 CHECKED BY: SSD  
 ARCHITECT/MOSELEY ARCH  
 JURISDICTIONAL PLAN NO. SPR2023-00185  
 RDA PLAN #: 19001-008  
 SHEET NUMBER: C.04



GPIN: 7596-36-8439  
 LVB 1, LLC  
 Inst #202203210022124  
 ZONE: M-2, USE: VACANT

THIS SITE IS ENTIRELY WITHIN THE DAM BREAK  
 INUNDATION ZONE (LAKE MANASSAS DAM, VA DAM  
 #153002)

DESIGNATES SOIL UNDERCUT AND REPLACEMENT (SEE NOTES BELOW)

**OPERATION & MAINTENANCE BUILDING**  
 PER THE GEOTECHNICAL RECOMMENDATIONS, RAMMED AGGREGATE PIERS SHOULD BE USED FOR THE WALL AND COLUMN ELEMENTS OF THE OPERATION/MAINTENANCE FACILITY. FOR THE SLAB, THE UPPER 2 FEET OF IN-SITU SOIL SHALL BE REMOVED AND REPLACED WITH CONTROLLED ENGINEERED FILL.

**AGGREGATE STORAGE AREA**  
 PER THE GEOTECHNICAL RECOMMENDATIONS FOR THE SLAB, THE UPPER 2 FEET OF IN-SITU SOIL SHALL BE REMOVED AND REPLACED WITH CONTROLLED ENGINEERED FILL.

**PIPE STORAGE BUILDING**  
 PER THE GEOTECHNICAL RECOMMENDATIONS FOR THE SLAB, THE UPPER 5 FEET OF IN-SITU SOIL SHALL BE REMOVED AND REPLACED WITH CONTROLLED ENGINEERED FILL.

IF THE EXCAVATED SOIL IS FREE OF TRASH AND MEETS STRUCTURAL FILL REQUIREMENTS, THE EXCAVATED SOIL CAN BE REUSED AND COMPACTED.

DESIGNATES APPROX. RAMMED AGGREGATE PIER (RAP) LOCATIONS

STRUCTURAL DESIGNS OF THE RAP SYSTEM (INCLUDING FINAL PIER LOCATIONS, PIER LENGTH, PIER DIAMETERS AND SPACING) SHALL BE SUBMITTED FOR APPROVAL AND APPROPRIATE PERMIT TO PRINCE WILLIAM COUNTY BUILDING DIVISION PRIOR TO INSTALLATION. THE RAP SYSTEM SHALL BE DESIGNED BY A DESIGN-BUILD CONTRACTOR AND REVIEWED BY THE GEOTECHNICAL ENGINEER RECORD.

**NOTE 1** After the construction is complete, geotechnical engineer of record shall provide a written certification that the slopes have been constructed (including but not limited to the type of material, degree of compaction, depth and spacing of piles/piers; location, length, spacing, strength and type of geo-grid, and ground cover to protect the slope) in accordance with the approved plans and specifications.

**NOTE 2** After the construction is complete, the project civil engineer of record or land surveyor duly licensed in the Commonwealth of Virginia shall provide a written certification on the gradient of the constructed slope as directed by the County staff.

**NOTE 3** The structural design of proposed rammed aggregate piers (RAP) must be approved and appropriate permit shall be obtained from PWC-Building Division prior to site implementation.

**NOTES**

- NO USE SHALL BE MADE OF, NOR SHALL ANY IMPROVEMENTS OR MODIFICATIONS BE MADE IN THE RESOURCE PROTECTION AREA WITHOUT SPECIFIC WRITTEN AUTHORIZATION FROM THE DIRECTOR OF PUBLIC WORKS.
- NO USE SHALL BE MADE OF, NOR SHALL ANY IMPROVEMENTS BE MADE IN THE FLOOD HAZARD AREA WITHOUT SPECIFIC AUTHORIZATION FROM THE DEPARTMENT OF PUBLIC WORKS. IN ADDITION, A FLOOD HAZARD USE PERMIT SHALL BE REQUIRED FOR ANY WORK WITHIN THE FLOOD HAZARD AREA.
- THE OWNER OF FEE TITLE TO ANY PROPERTY ON WHICH PLANT MATERIAL HAS BEEN ESTABLISHED IN ACCORDANCE WITH AN APPROVED LANDSCAPE/PLANTING PLAN, SHALL BE RESPONSIBLE FOR THE MAINTENANCE, REPAIR AND REPLACEMENT OF THE APPROVED PLANT MATERIAL, AS REQUIRED BY THE ORDINANCE.

**Rinker Design Associates, P.C.**  
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COMMONWEALTH OF VIRGINIA  
 SHARON D. DUSZA  
 Lic. No. 013355  
 3/19/24  
 PROFESSIONAL ENGINEER

SITING PLAN  
**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
 BRENTSVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS: 03/13/2024  
 BID ADDENDUM 3 - UPDATE NOTE  
 MODIFY FENCE, REMOVE CG-2  
 LABEL AND PROPOSED CONTOUR  
 IN PARKING LOT.

PLAN DATE: OCTOBER 7, 2022  
 DESIGN BY: AG/SAW  
 CHECKED BY: SSD  
 ARCHITECT/MOSELEY ARCH  
 JURISDICTIONAL PLAN NO. SPR2023-00185  
 RDA PLAN #: 19001-008  
 SHEET NUMBER: C.05

Planting Notes:

- Quality Assurance:
  - Landscape planting and related work shall be performed by a firm with a minimum of five years experience specializing in this type and scale of work.
  - Applicable Specifications and Standards:
    - Landscape County Zoning Ordinance, American Joint Committee on Horticultural Nomenclature,
    - American Standard for Nursery Stock, Latest Edition,
    - American Association of Nurserymen
    - Landscape Specification Guidelines for Baltimore Washington Metropolitan Areas, latest edition,
    - Landscape Contractors Association.
- Submittals: Submit the following to the Owner's Representative prior to beginning work:
  - Copies of manufacturer's data for all materials required.
  - Samples of required mulch material.
  - Chemical and mechanical analysis and samples of all existing soil, topsoil, and soil mix to be used.
  - Planting schedule showing the dates (earliest and latest) proposed for each type of plant specified, schedule each type of planting within the normal planting seasons for such work.
  - Include requests for any proposed changes in the approved planting season and a list of proposed sources for all plant materials.
  - List of proposed sources for all plant material.

clay) and climatic conditions similar to those in the locality of the project. Plant material grown in sandy, well-drained soil will not be approved for this project.

- Plants shall be true to species and variety and unless specifically noted otherwise, all plants shall be of specimen quality, exceptionally heavy, symmetrical, tightly-kim plants, so trained or laced in their development and appearance as to be unquestionably and outstandingly superior in form, number of branches, compactness and symmetry.
- Plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf, free of disease, insect pests, eggs or larvae and shall have health, well-developed root systems. They shall be free from physical damage or any conditions that would prevent thriving health and the desired appearance.
- Trees, which have a damaged or crooked leader, or multiple leaders, unless specified in the plant list, will be rejected. Trees with abrasion of the bark, sub scald, disfiguring knots, or pruning cuts more than 1 1/4 inch diameter which have not completely callused, will be rejected.
- Plants shall conform to measurements specified in the plant schedules except that plants larger than specified may be used if acceptable to the Landscape Architect. Use of such plants shall not increase the contract price. If larger plants are accepted, the root ball shall be sized for the larger plant.
- Caliper Measurements: Shall be taken at a point on the trunk 6 inches above natural ground line for trees up to 4 inches diameter, and at a point 12 inches above the natural ground line for trees over 4 inches.
- Plants shall be measured when branches are in the normal position. Height and spread dimensions specified refer to the main body of the plant and not from branch tip to tip.
- Preparation of Areas for Planting:
  - Stake out all plant material beds and tree locations for approval of Landscape Architect prior to any bed preparation.
  - Shrubs, Shrub Beds and Hedges on slopes of 1:3 or less: Loosen soil in the area of entire plant bed or hedgerow to a depth of 6 inches minimum with a rototiller. Add soil amendments and rototill again to a depth of 6 inches. Excavate plant pit and hedge trenches a minimum of 12 inches wider than the root ball or bare root on all sides. The depth shall be sufficient to allow shrub to sit 2 inches above finished grade.
  - Shrub Beds of Slope of Greater than 3:1: Amend soil as above. Spread coir mesh across entire area of shrub bed in steep slope area per manufacturer's specifications. Excavate plant pit through coir mesh a minimum of 12 inches wider than the root ball or bare root on all sides. The depth shall be sufficient to allow shrub to sit 2 inches above finished grade.
  - Ground Covers and Seasonal Plantings: Loosen soil to a depth of 6 inches minimum with a rototiller. Add amendments to the soil and/or specified planting soil mix and rototill again to a depth of 6". Install plants directly into prepared bed, and firm the soil mix around them.
  - Groundcover on Slopes of Greater than 3:1: Amend soil as above or by hand as required. Spread leaf compost to 2 inches in depth immediately prior to placing coir mesh. Spread coir mesh across entire area of groundcover bed in steep slope area per manufacturer's specifications. Each ground cover shall be placed in an individual planting pit planted through the biodegradable netting.
  - Trees: Excavate plant pit walls vertical and scarify sides. Plant pit depth shall be sufficient to allow 2 inch maximum of root ball to be above finished grade. Tree pit shall be 12 inches wider than the ball on all sides.
- Erosion Control Material and Planting on Steep Slopes
  - Material meeting the requirements of the specification shall be installed and maintained on the designated areas as shown and specified. The areas to be covered shall be prepared and fertilized as specified before the erosion material is placed. Immediately prior to the planting operations, the material shall be laid evenly, smoothly and in contact with the soil throughout.
  - Lay erosion control materials with one inch nominal openings in accordance with manufacturer's instructions. Unroll in direction of water flow. Overlap sheets by at least 6 inches. Where strips are to be spliced lengthwise, overlap strips by 8 inches. Upgrade section shall be on top of all splices.
  - The Contractor shall maintain and protect the erosion control material until the final inspection. Maintenance shall consist of repairs made necessary by erosion, wind or any other cause. Following the restoration of damaged areas under plant and turf guarantee and establishment requirements for applicable underlying items: the erosion control material shall be repaired or replaced to meet the original requirements and maintained until the final inspection.
- General Plant Installation:
  - Excavation: Excavate all tree pits and planting areas to the width and depth shown in the planting details.
  - Center plant in pit and orient for the best visual effect. Set plants plumb and hold rigidly in position until soil has been tamped firmly around root ball.
  - Mix soil amendments and fertilizers with existing soil in accordance with soil recommendations for plant type, based upon soil test results as approved by Owner. Delay mixing of fertilizer if planting will not occur within a few days.
  - Backfill pit with planting soil mix and fertilizer, until two-thirds full. Tamp and water each layer thoroughly to settle soil. After soil settles, fill pit with remaining planting soil mix, water and shape surface so that it slopes to drain from trunk and matches ground at edge of planting pit.
  - Mulch within 48 hours after planting and after applying the pre-emergent herbicide, except ground over areas (which shall have organic material placed before planting) with a 2" layer of mulch immediately after planting. All bed lines shall be cut with a smooth consistent edge to a minimum depth of 3 inches. Keep mulch out of the crowns of shrubs and off buildings, sidewalks, light standards, and other structures.
  - All planting areas to conform to specified grades after full settlement has occurred and mulch has been applied. Provide saucers around tree pits as shown on planting details. Remove all tags, labels, strings, etc. from all plants.
- Permanent Seeding or Sodding for Grass Areas:
  - Lawn Seed or Sod varieties shall be improved variety turf-type tall fescue blend. The landscape contractor shall select from varieties approved by the Maryland or Virginia Department of Agriculture.
  - Refer to the Virginia Department of Transportation Erosion and Sediment Control Guidelines, for guidelines, specifications and installation techniques of seed and sod.
  - Maintenance shall begin immediately after each plant and lawn area is installed and shall continue until 90 days after final acceptance of the last section.

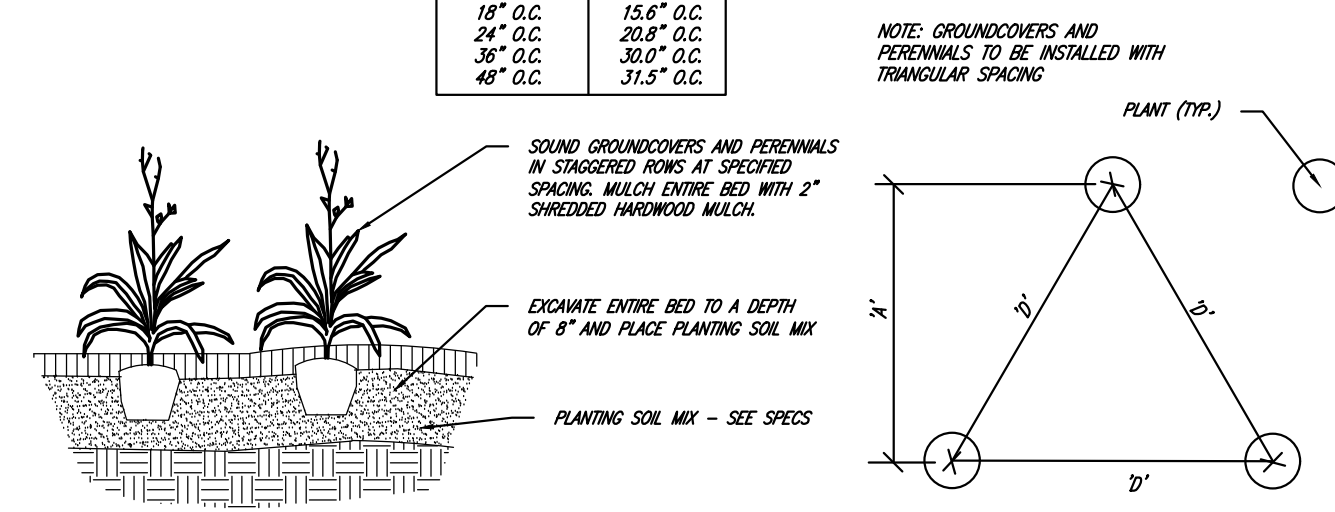
SCHEDULE B NONRESIDENTIAL LANDSCAPED STRIP ALONG RIGHT-OF-WAY (VIRGINIA MEADOWS DRIVE)	
1) Linear feet of street frontage, not including driveway entrances:	628 (NOT INCLUDING ENTRANCES)
2) Total number of plants units required: (80 P.U. PER 100')	502
Number of large deciduous trees provided: $\frac{9}{7} \times 10 \text{ p.u.} = \frac{90}{70} \text{ p.u.}$	
Number of large evergreen trees provided: $\frac{18}{9} \times 5 \text{ p.u.} = \frac{90}{45} \text{ p.u.}$	
Number of deciduous understorey trees (medium, small, or compact): $\frac{9}{117} \times 5 \text{ p.u.} = \frac{45}{234} \text{ p.u.}$	
Number of shrubs: $\frac{117}{1} \times 2 \text{ p.u.} = 234 \text{ p.u.}$	
Number of Ornamental Grasses: $\frac{1}{1} \times 1 \text{ p.u.} = 1 \text{ p.u.}$	
Number of Perennials: $\frac{1}{1} \times 0.25 \text{ p.u.} = .25 \text{ p.u.}$	
4) Total number of plant units provided:	529

SCHEDULE C PARKING LOT INTERIOR PLANTING	
1) Area of parking:	41,164 SQ. FT.
2) Interior landscaped area required (% and sq. ft.):	$\frac{58}{5.38} = 2058 \text{ SQ. FT.}$ $\frac{5.38}{5.38} = 2200 \text{ SQ. FT.}$
3) Number of large/medium trees required:	11 LARGE/MED. (1/200 S.F.)
Number of large/medium trees provided:	11 LARGE/MED. PROVIDED

SCHEDULE D TREE COVER CALCULATIONS	
Tree cover required:	TOTAL SITE AREA 7.29 ACRES or 317,553 SQ. FT. R-O-W DEDICATION 0 ACRE or 0 SQ. FT. REMAINING SITE AREA 7.29 ACRES or 317,553 SQ. FT.
1) Gross site area:	317,553 SQ. FT. (7.29 ACRE)
2) Percent of tree cover required:	10%
3) Total area of tree cover required:	31,756 SQ. FT. (0.73 ACRE)
Tree cover provided:	
4) Tree cover from landscaping:	9,100 SQ. FT. (0.21 ACRE)
5) Tree cover from preservation:	49,145 SQ. FT. (1.13 ACRE)
6) Total tree cover provided:	58,245 SQ. FT. (1.34 ACRE) OR 18.3%

- NOTES:
- REFER TO THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK FOR GUIDELINES, SPECIFICATIONS, AND INSTALLATION TECHNIQUES OF TREES AND GROUND COVER.
  - MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER EACH PLANT AND LAWN AREA IS INSTALLED AND SHALL CONTINUE UNTIL 90 DAYS AFTER FINAL ACCEPTANCE OF THE LAST SECTION.
  - THE LANDSCAPE CONTRACTOR SHALL HAVE THE OPTION TO SUBSTITUTE PLANTS DURING CONSTRUCTION WITH APPROVAL OF THE SITE INSPECTOR AS LONG AS THE PLANTINGS BEING REPLACED ARE ALLOWED PER THE FWC DCSM AND REPLACE PLANTINGS OF THE SAME SIZE AND 10-YEAR CANOPY COVER IN KIND.

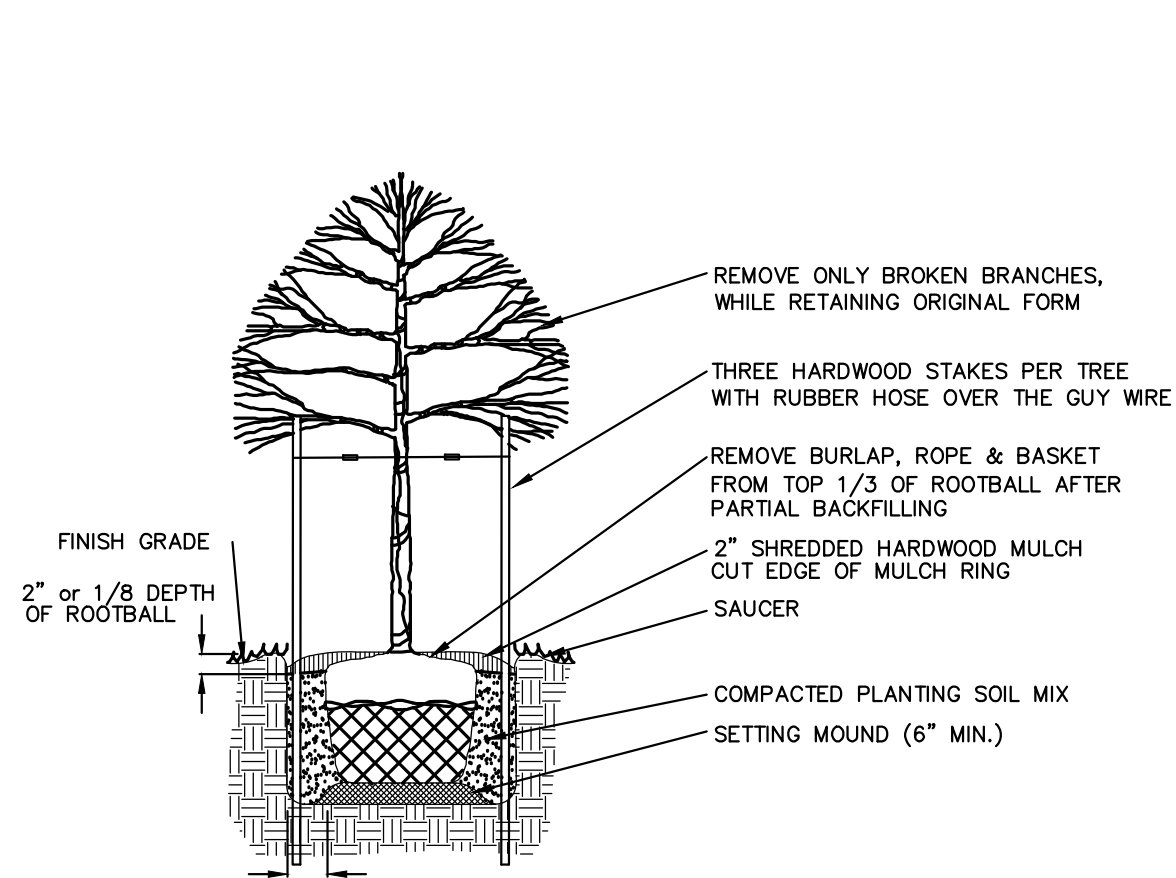
PLANT SPACING 'D'	ROW 'A'
8" O.C.	6.87' O.C.
10" O.C.	8.66' O.C.
12" O.C.	10.4' O.C.
14" O.C.	12.16' O.C.
16" O.C.	13.92' O.C.
18" O.C.	15.68' O.C.
20" O.C.	17.44' O.C.
24" O.C.	20.8' O.C.
30" O.C.	25.2' O.C.
36" O.C.	30.6' O.C.



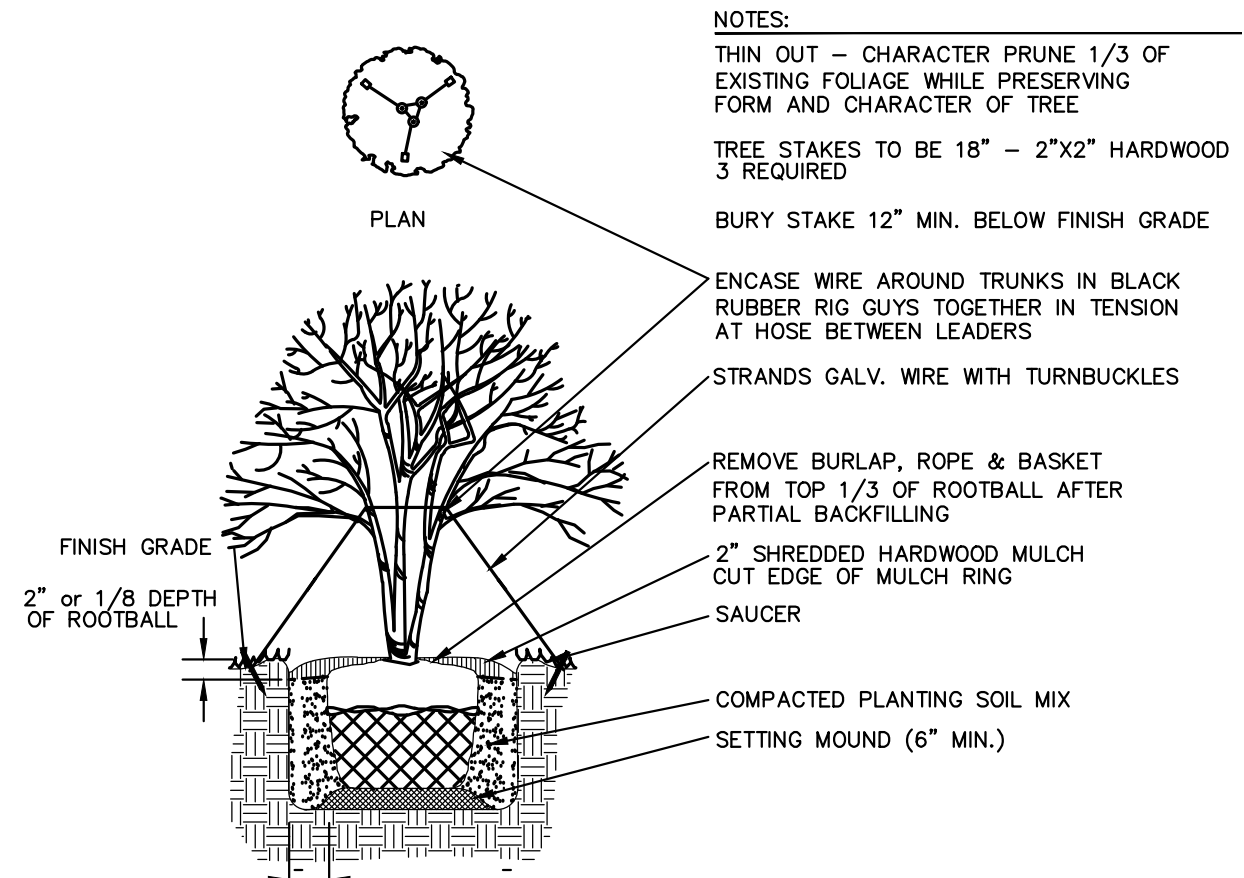
6 GROUNDCOVER PLANTING  
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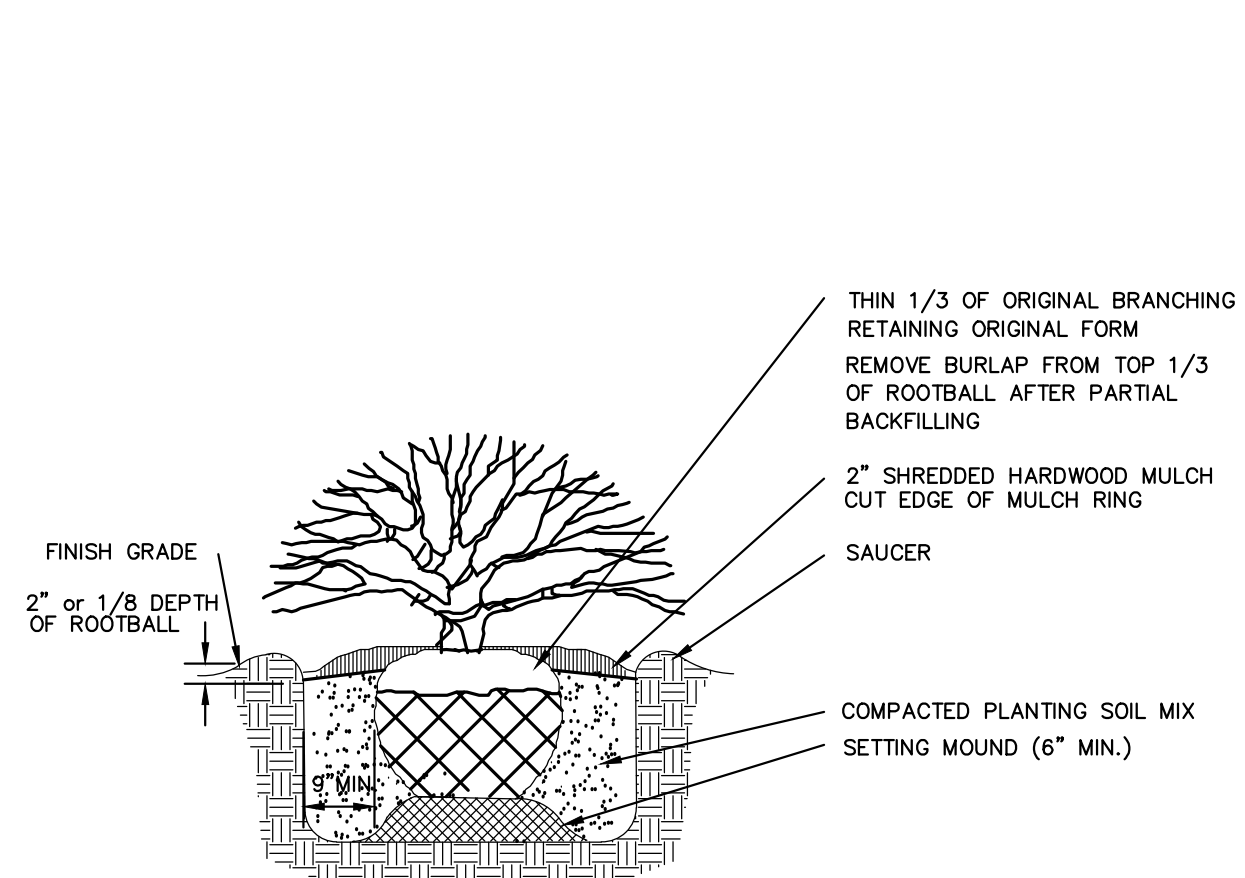
2 TREE PROTECTION DEVICES  
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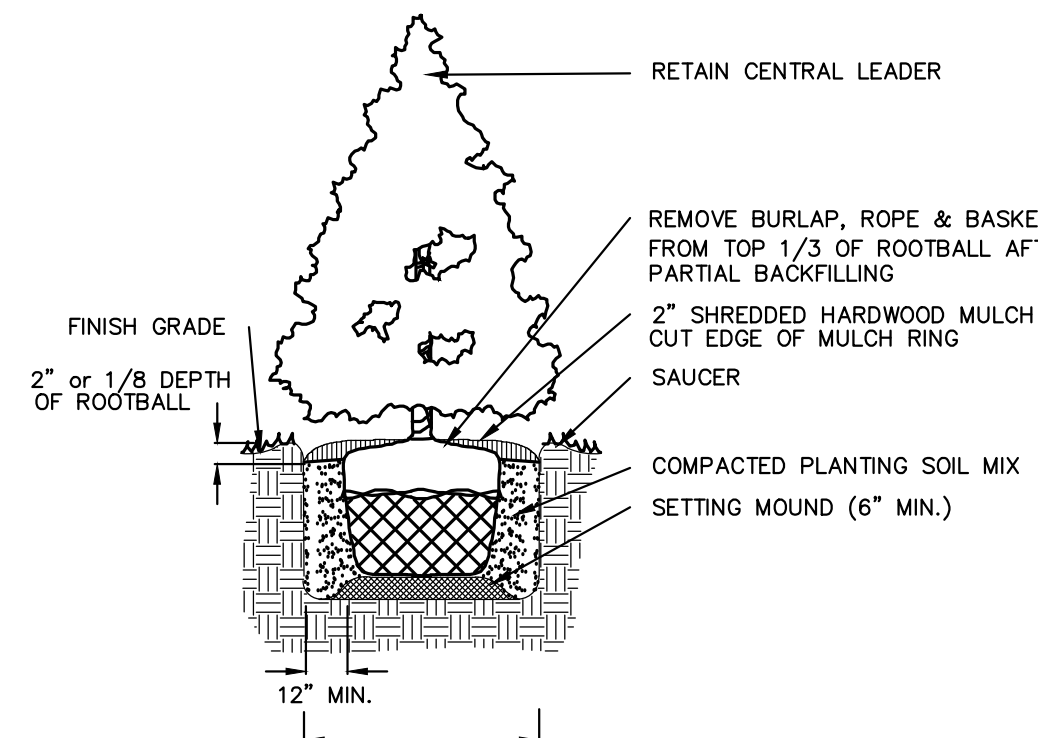
1 TYP. DECID. TREE PLANTING  
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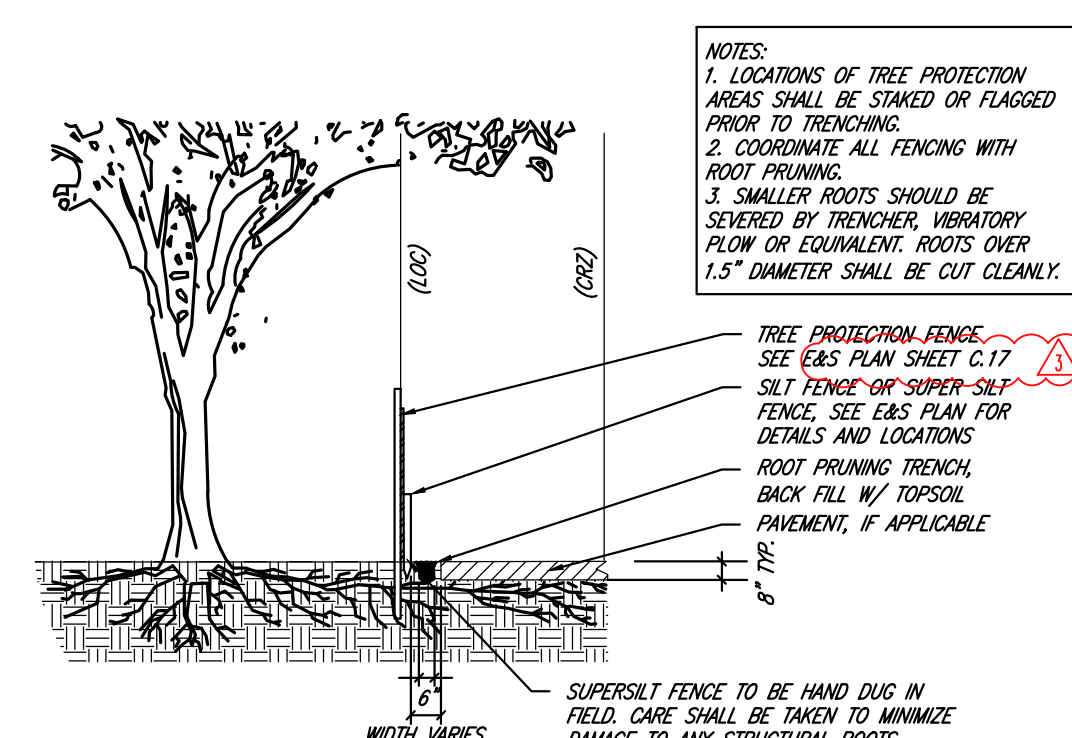
2 TYP. ORNAM. TREE PLANTING  
N.T.S.



3 TYP. SHRUB PLANTING  
N.T.S.



4 TYP. CONIF. TREE PLANTING  
N.T.S.



5 ROOT PRUNING  
N.T.S.

- NOTE: GROUNDCOVERS AND PERENNIALS TO BE INSTALLED WITH TRIANGULAR SPACING
- NOTE: LOCATIONS OF TREE PROTECTION AREAS SHALL BE STAKED OR FLAGGED PRIOR TO TREENCHING. COORDINATE ALL FENCING WITH ROOT PRUNING. SMALLER ROOTS SHOULD BE SEVERED BY TREENCHER VIBRATORY BLOW OR EQUIVALENT. ROOTS OVER 1.5" DIAMETER SHALL BE CUT CLEANLY.
- NOTE: TREE PROTECTION FENCE - SEE EAS PLAN SHEET C.17. SET FENCE-OF-SUPER-SILT FENCE. SEE EAS PLAN FOR DETAILS AND LOCATIONS. ROOT PRUNING TRENCH BACK FILL W/ TOPSOIL. PAVEMENT, IF APPLICABLE.
- NOTE: SUPER-SILT FENCE TO BE HAND DUG IN FIELD. CARE SHALL BE TAKEN TO MINIMIZE DAMAGE TO ANY STRUCTURAL ROOTS.

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PROFESSIONAL ENGINEER  
3/19/24

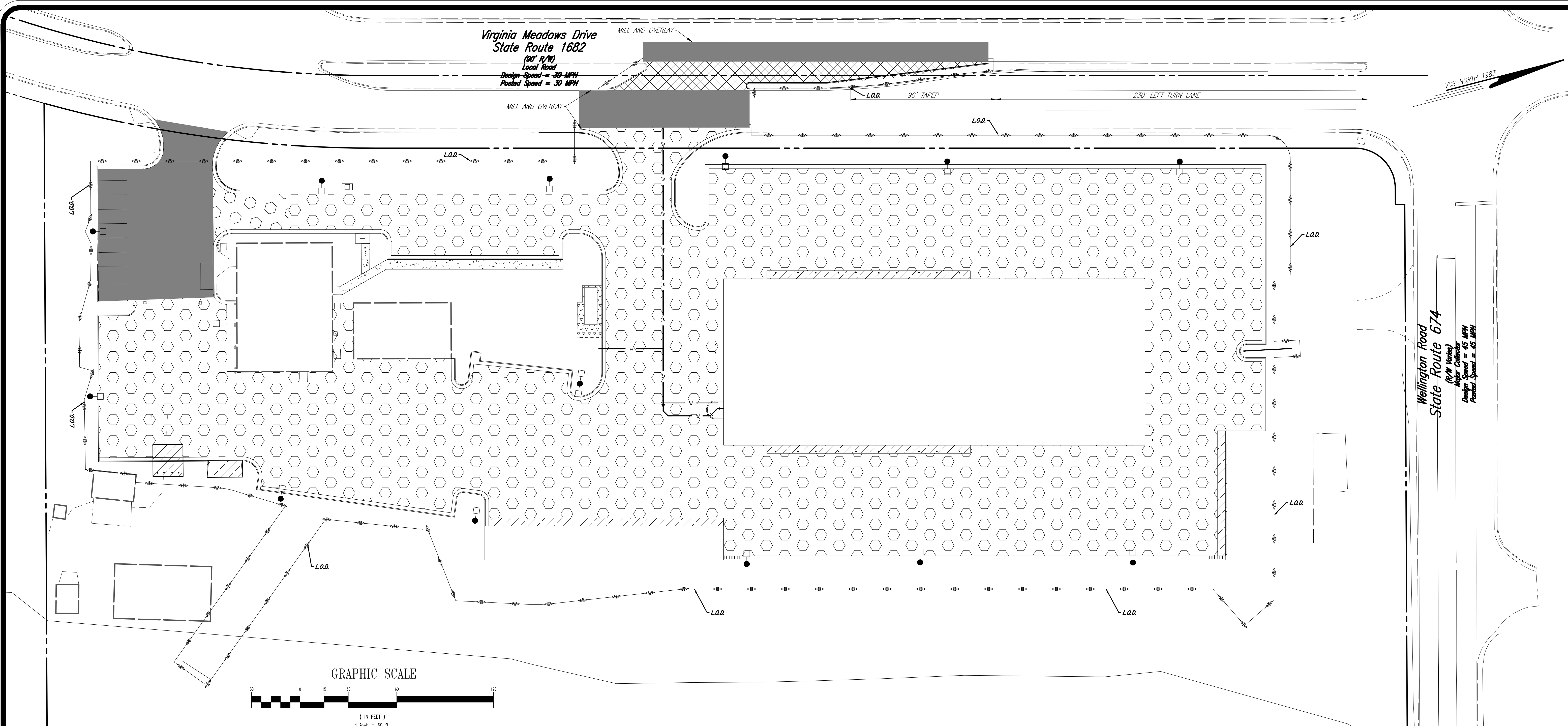
LANDSCAPE NOTES & DETAILS  
WELLINGTON ROAD OPERATIONS  
CENTER EXPANSION  
BRENTSWILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS: 03/13/2024  
BID ADDENDUM 3- UPDATE NOTE

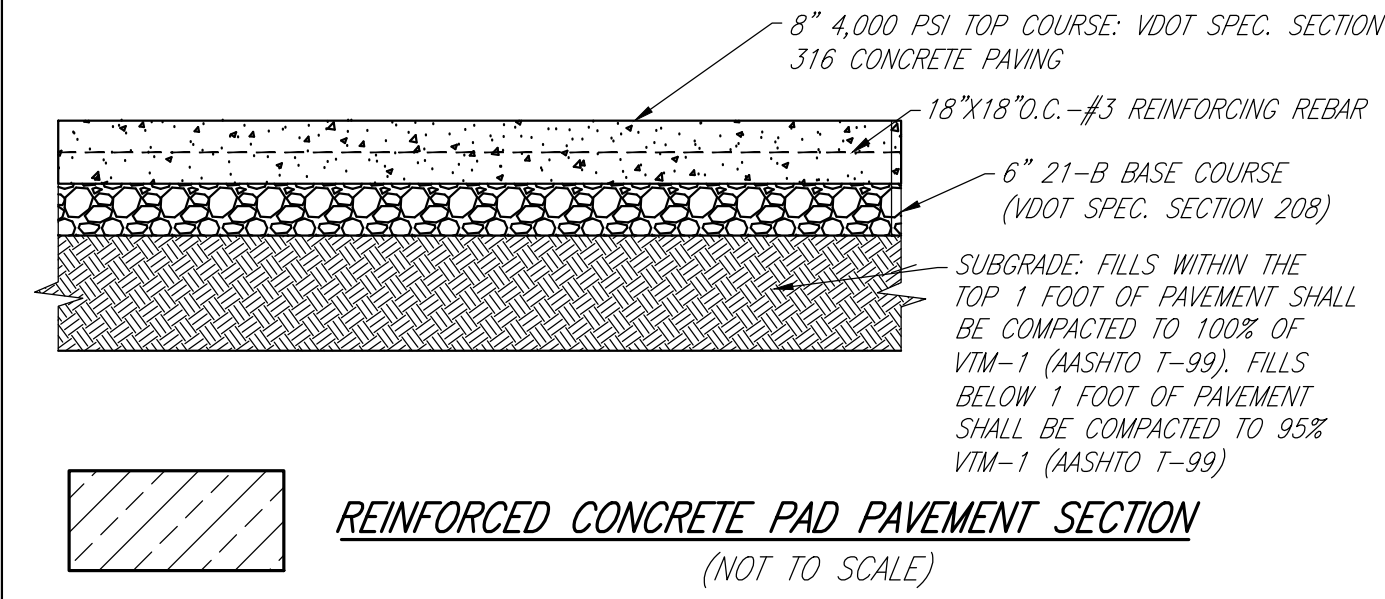
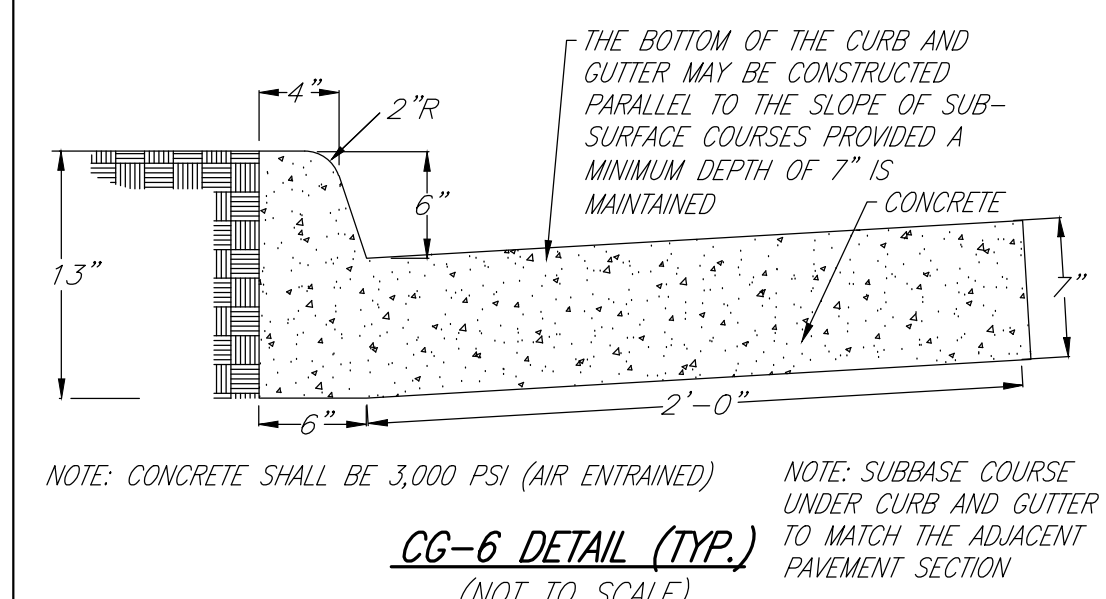
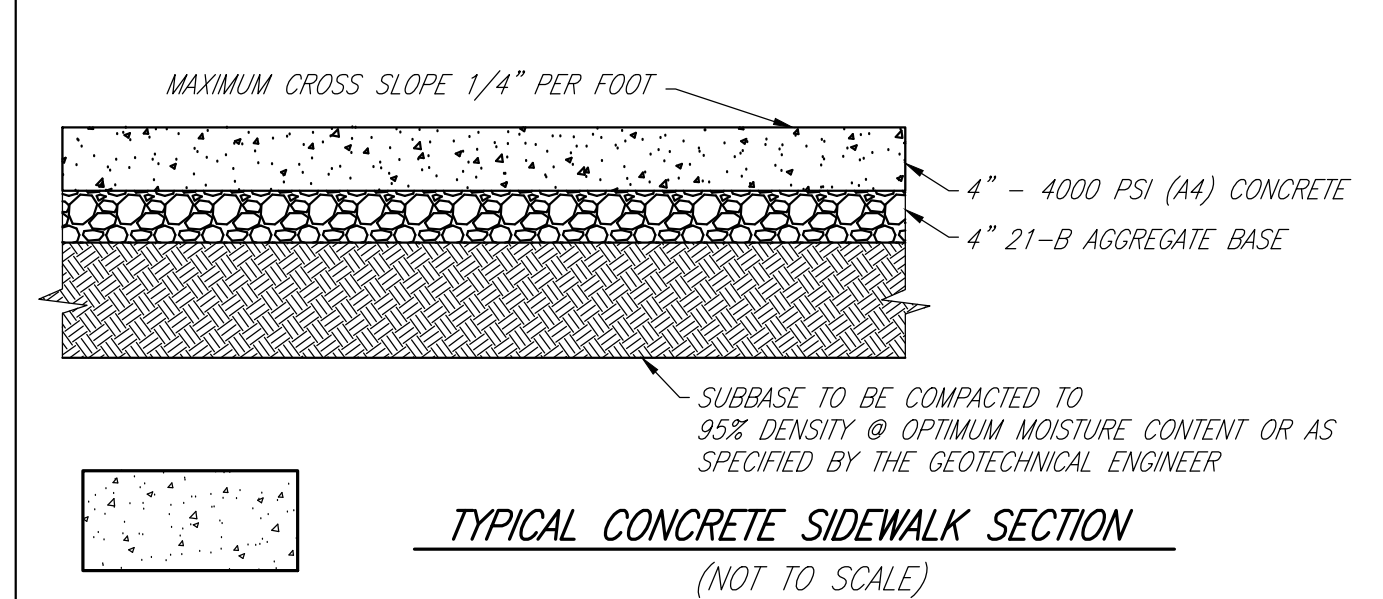
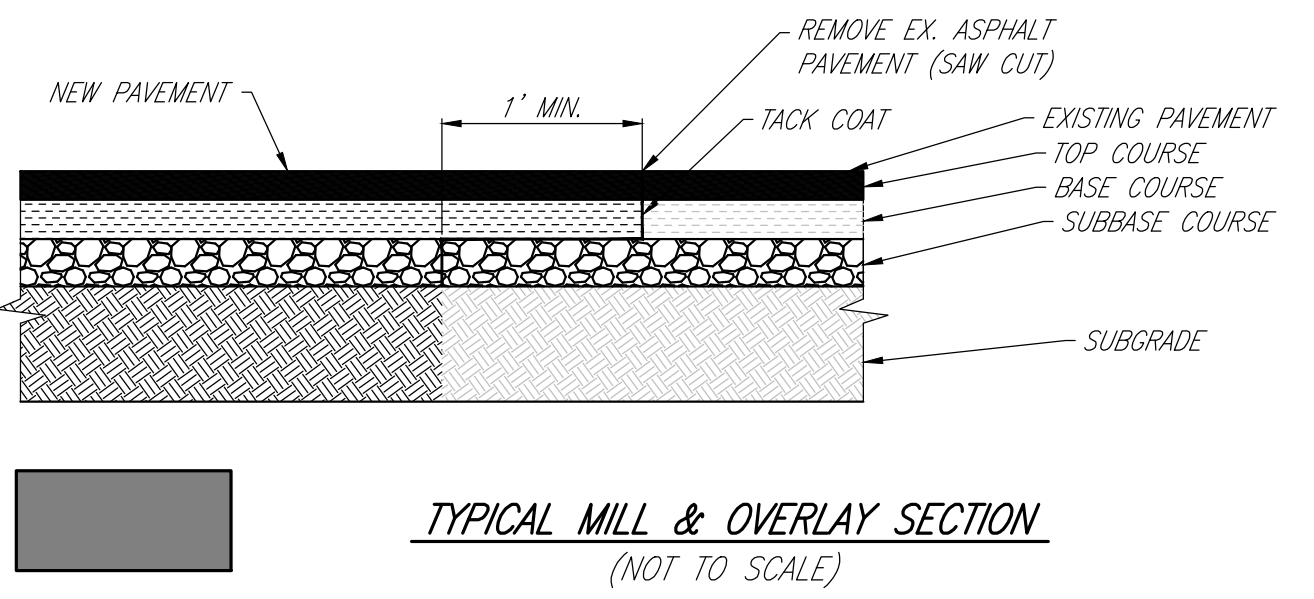
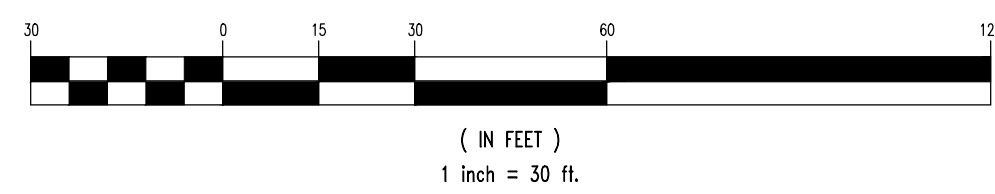
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DESIGN BY: AG/SAW  
CHECKED BY: SSD  
ARCHITECT/MOSELEY ARCH  
JURISDICTIONAL PLAN NO. SPR2023-00185  
RDA PLAN #: 19001-008  
SHEET NUMBER: C.11

Virginia Meadows Drive  
State Route 1682  
(90' R/W)  
Local Road  
Design Speed = 30 MPH  
Posted Speed = 30 MPH

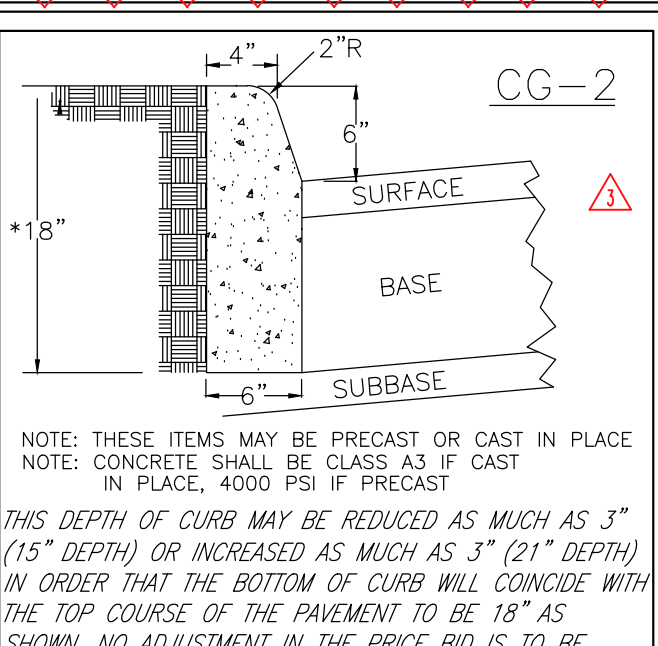
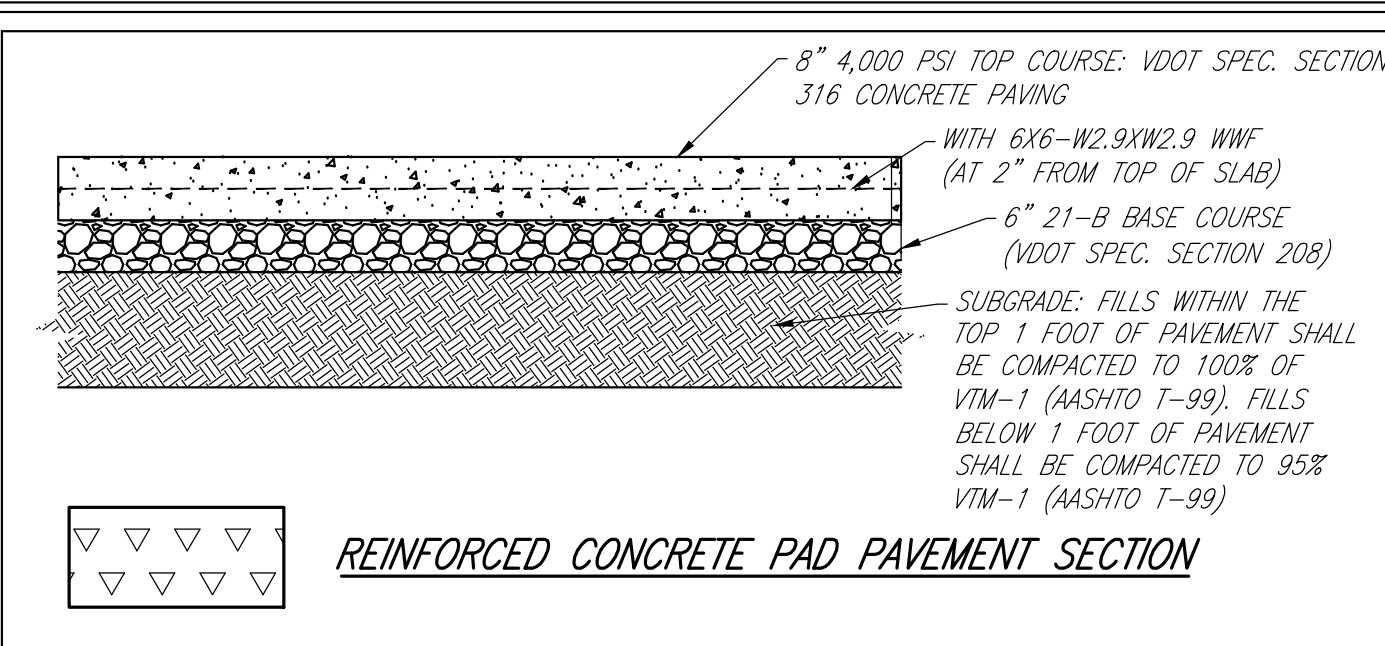
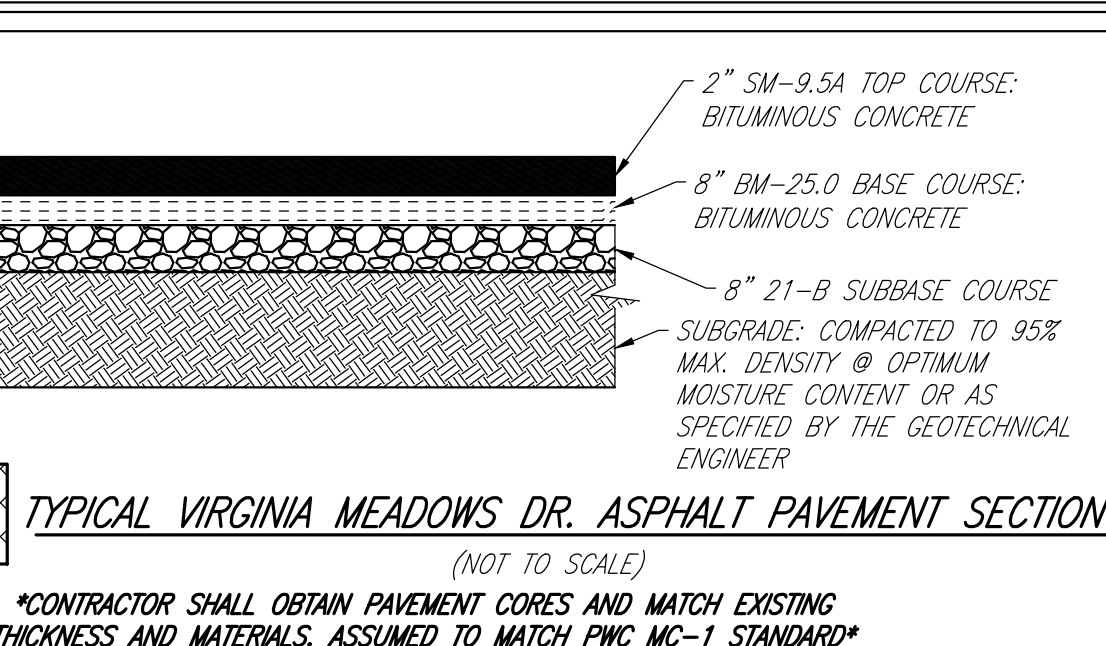
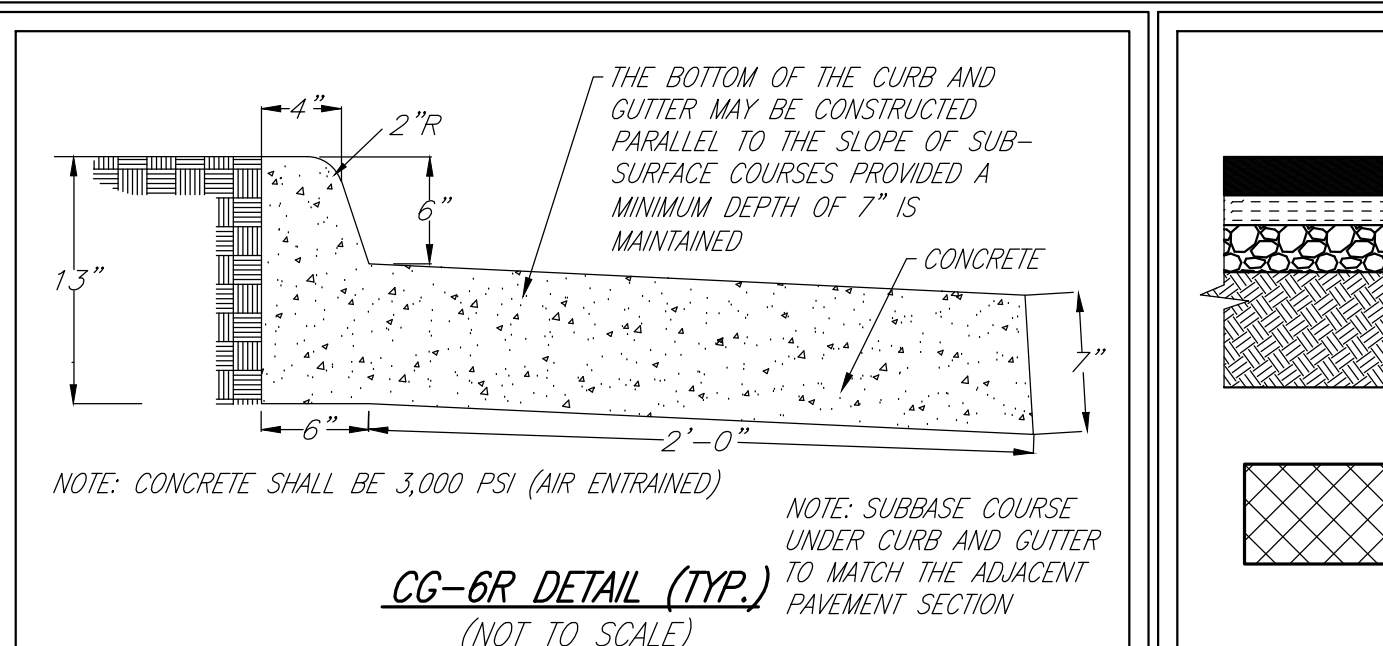
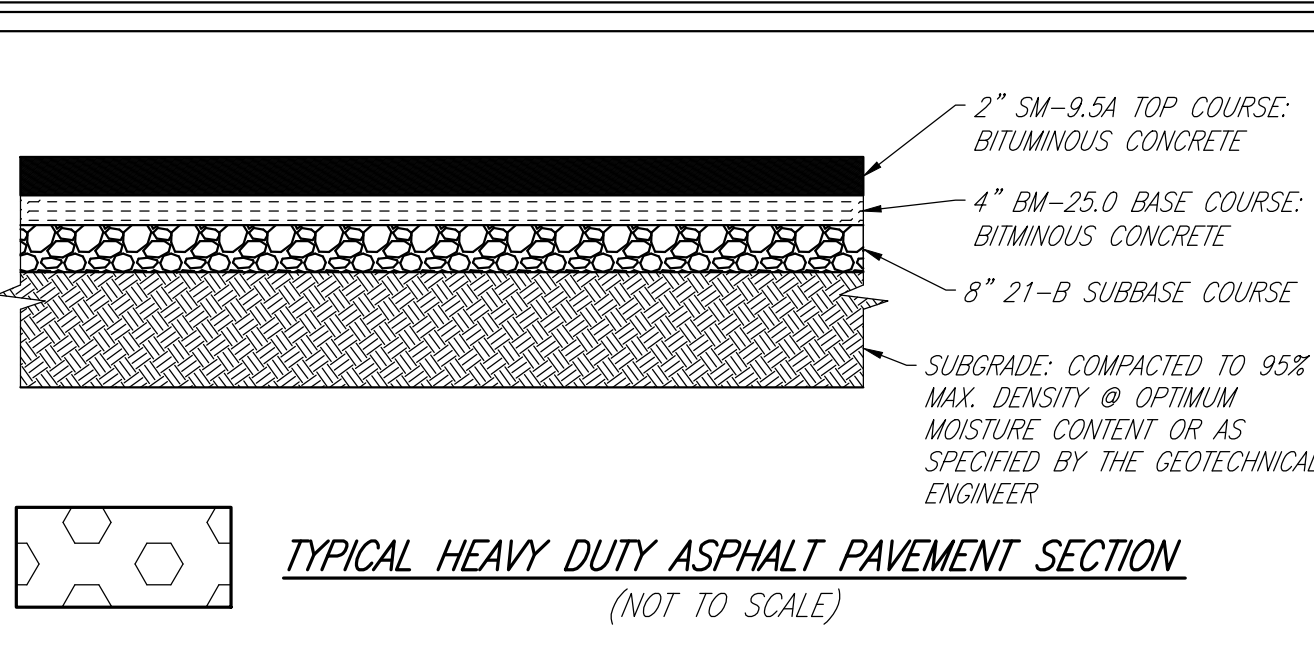
VCS NORTH 1983



GRAPHIC SCALE



*NOTE: GEOTECHNICAL ENGINEER TO CONFIRM THESE SECTIONS OR SUGGEST ALTERNATIVE IN WRITING AFTER REVIEWING SUBRGRADE CONDITIONS IN THE FIELD PRIOR TO INSTALLATION.*



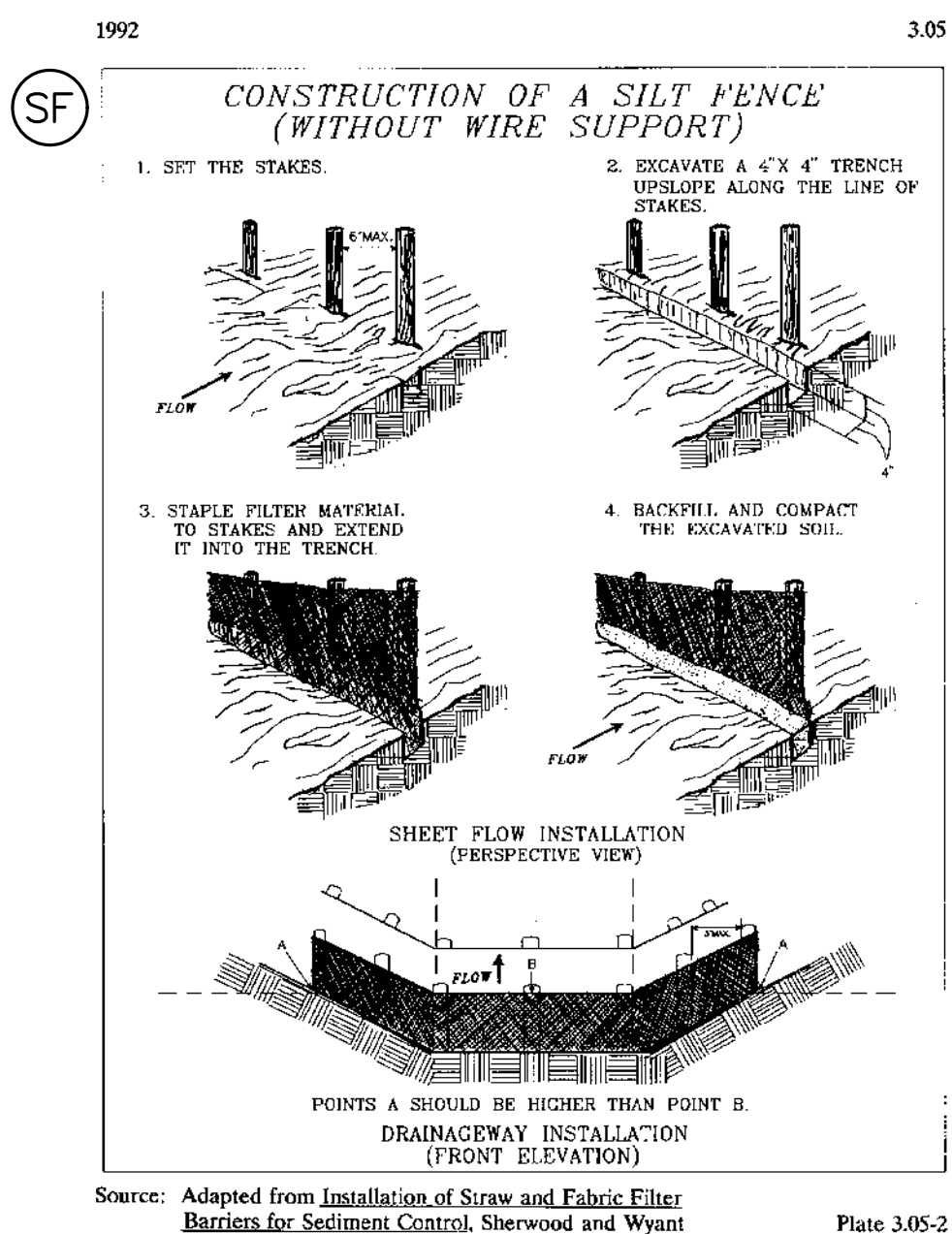
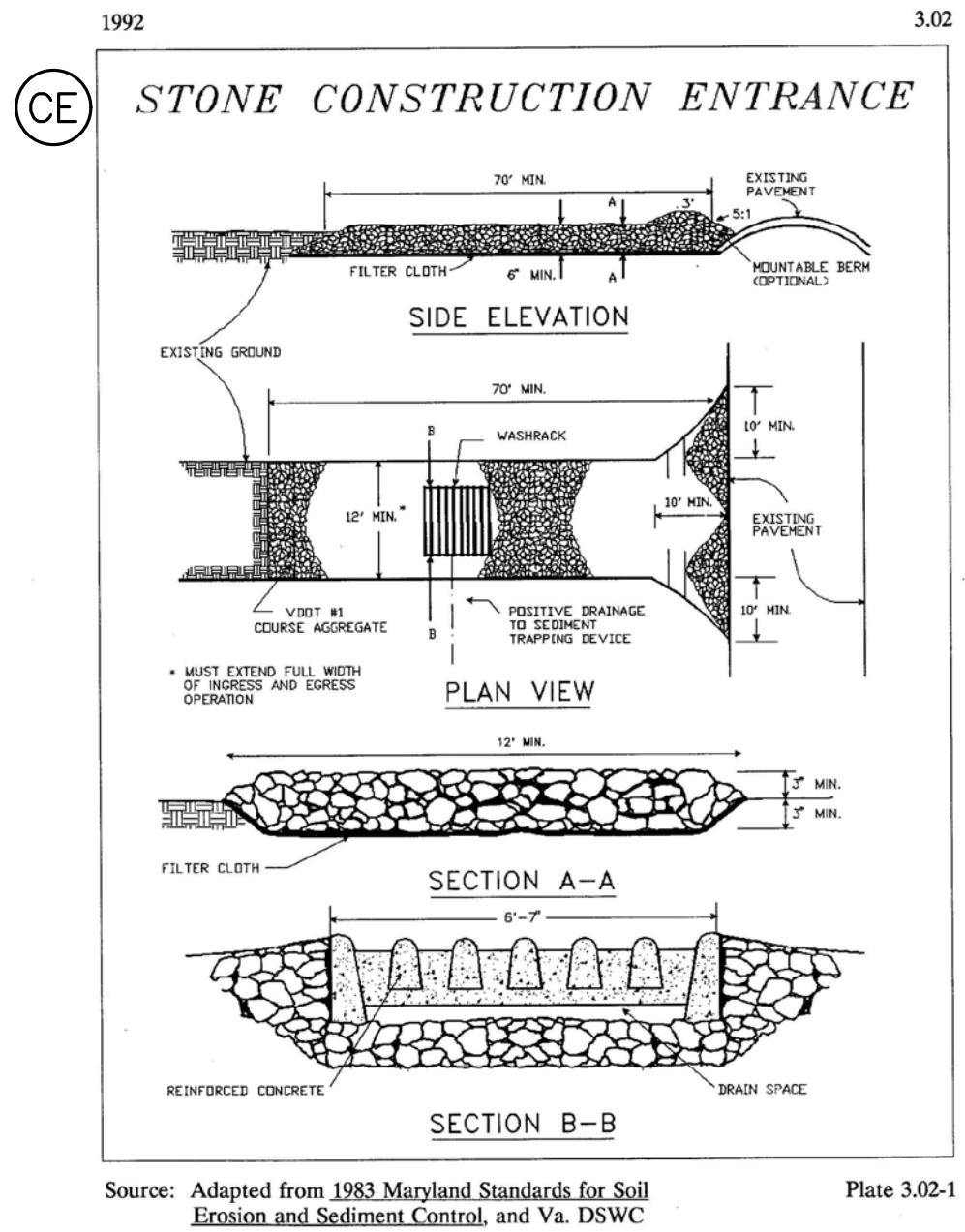
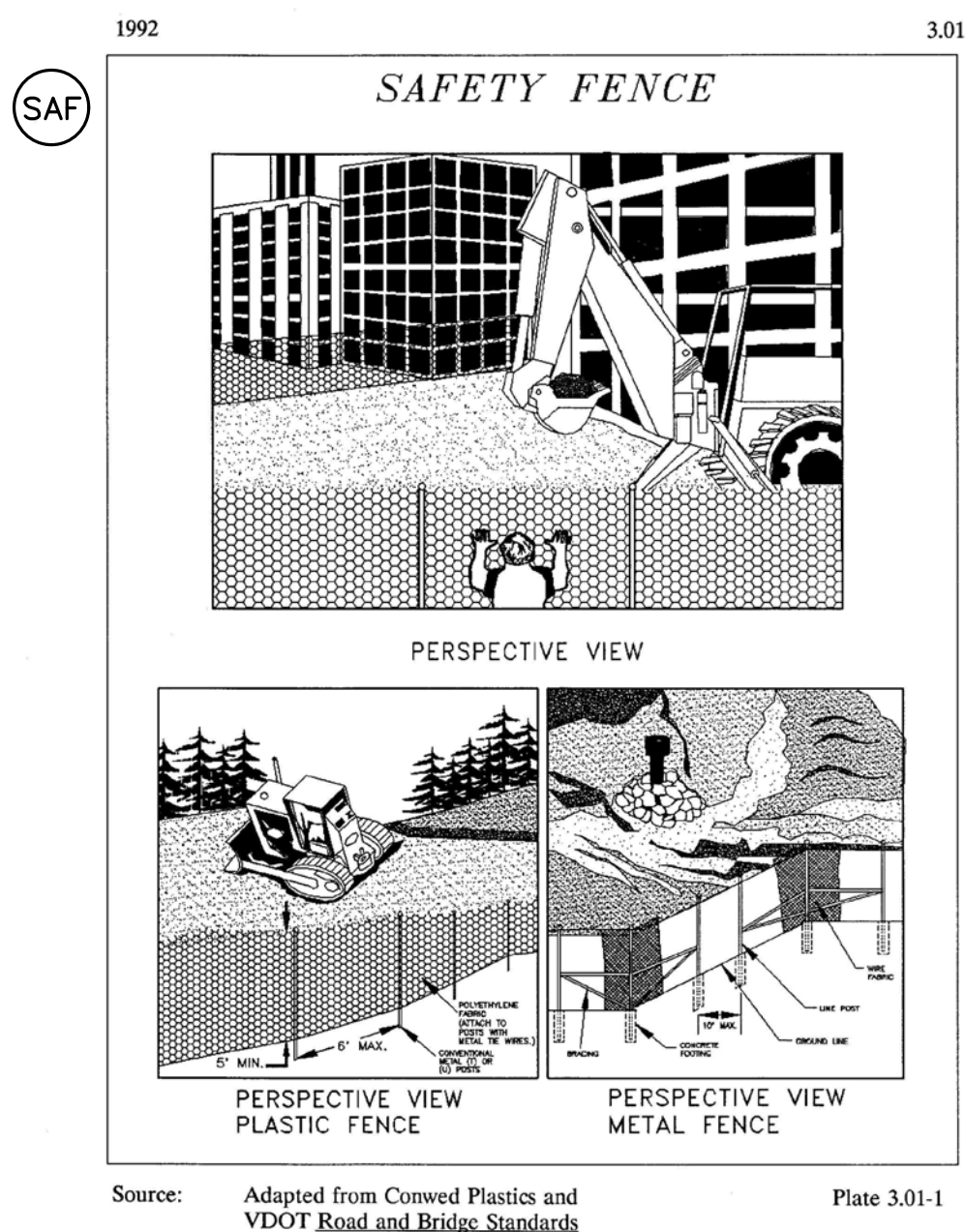
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3/19/24

PAVEMENT PLAN  
**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
BRENTSVILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS: 03/13/2024  
BID ADDENDUM 3- ADD CG-2  
DETAIL

PLAN DATE: OCTOBER 7, 2022  
DESIGN BY: AG/SAW  
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ARCHITECT/MOSELEY ARCH  
JURISDICTIONAL PLAN NO. SPR2023-00185  
RDA PLAN #: 19001-008  
SHEET NUMBER: C.13



- 9VAC25-840-40 MINIMUM STANDARDS**  
 AN EROSION AND SEDIMENT CONTROL PROGRAM ADOPTED BY A DISTRICT OR LOCALITY MUST BE CONSISTENT WITH THE FOLLOWING CRITERIA, TECHNIQUES AND METHODS:
- PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
  - DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOILS STOCKPILES ON-SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
  - A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.
  - SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.
  - STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
  - SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.
    - THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 1.34 CUBIC YARDS PER ACRE OF DRAINAGE AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.
    - SURFACE RUNOFF FROM DISTURBED AREAS THAT IS UNPROTECTED BY FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 1.34 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A TWENTY-FIVE YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.
  - CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.
  - CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
  - WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
  - ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
  - BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
  - WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.
  - WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
  - ALL APPLICABLE FEDERAL, STATE, AND LOCAL CHAPTERS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.
  - THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IS COMPLETED.
  - UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
    - NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
    - EXCAVATED MATERIAL SHALL BE PLACED ON UPHILL SIDE OF TRENCHES.
    - EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
    - MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
    - RESTALLATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
    - APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.
  - WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.
  - ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY. TRAPPED MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
  - PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA. STREAM RESTORATION AND RELOCATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS ARE NOT MAN-MADE CHANNELS AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS:
    - CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.
    - ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
      - THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION;
      - OR
        - NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS;
        - B.2.B. ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND
        - B.2.C. PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.
    - IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
      - IMPROVE THE CHANNELS TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO CHANNEL THE BED OR BANKS; OR
      - IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES;
      - DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PREDEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MANMADE CHANNEL; OR
      - PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE VESCP AUTHORITY TO PREVENT DOWNSTREAM EROSION.
    - THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
    - ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE SUBJECT PROJECT.
    - IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE VESCP OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.
    - OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.
    - ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
    - INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.
    - IN APPLYING THESE STORMWATER MANAGEMENT CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.
    - ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.
    - ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO:
      - RETAIN THE WATER QUANTITY VOLUMES AND TO RELEASE IT OVER 48 HOURS;
      - DETAIN AND RELEASE OVER A 24-HOUR PERIOD THE EXPECTED RAINFALL RESULTING FROM THE ONE YEAR, 24-HOUR STORM; AND
      - REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1.5, 2, AND 10-YEAR, 24-HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM THE SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 10.1-562 OR 10.1-570 OF THE ACT.
    - FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 10.1-561 A OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 10.1-603.2 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND-DISTURBING ACTIVITIES ARE IN ACCORDANCE WITH 4VAC50-60-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT REGULATIONS.
    - COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 4VAC50-60-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF MINIMUM STANDARD 19.

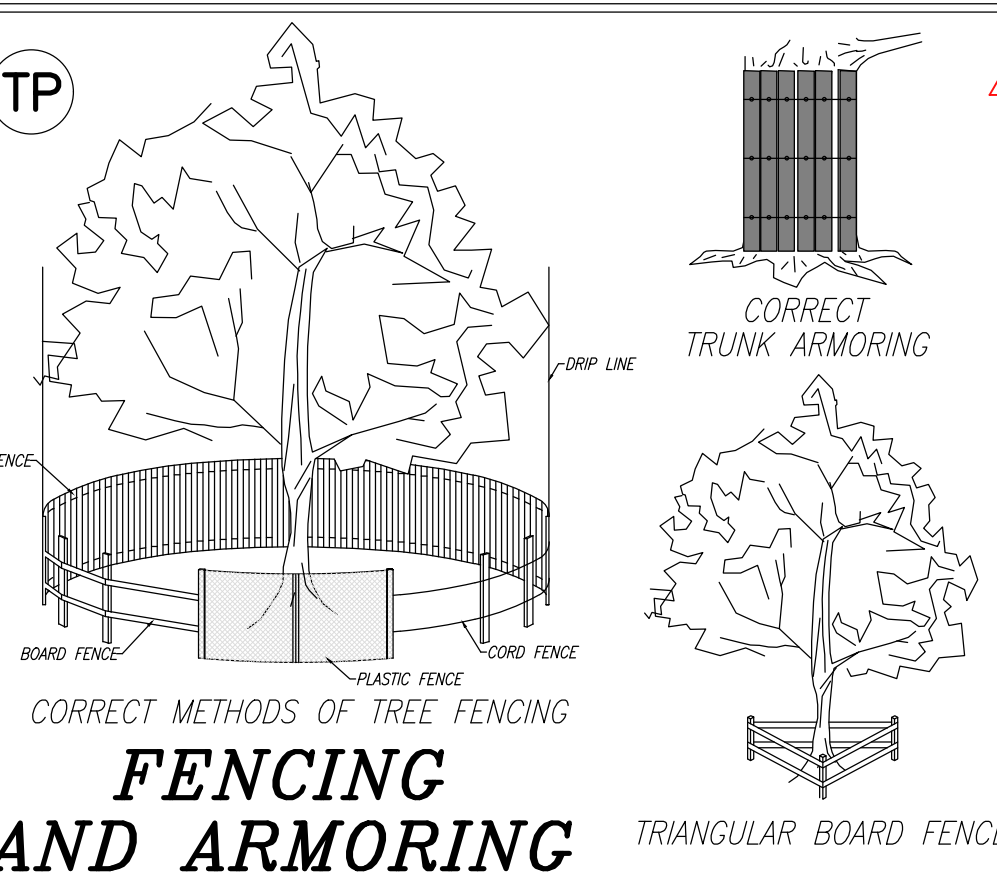
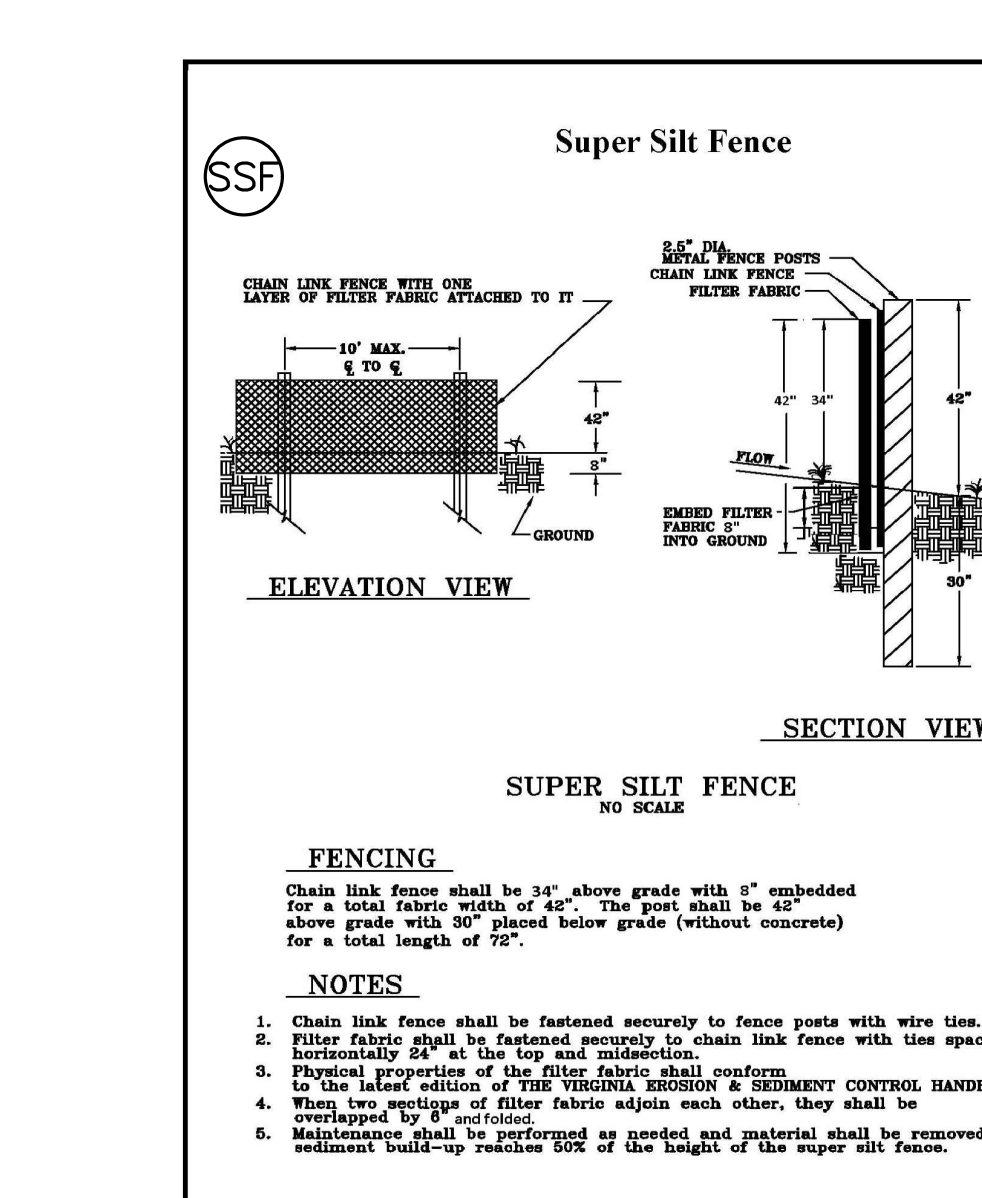
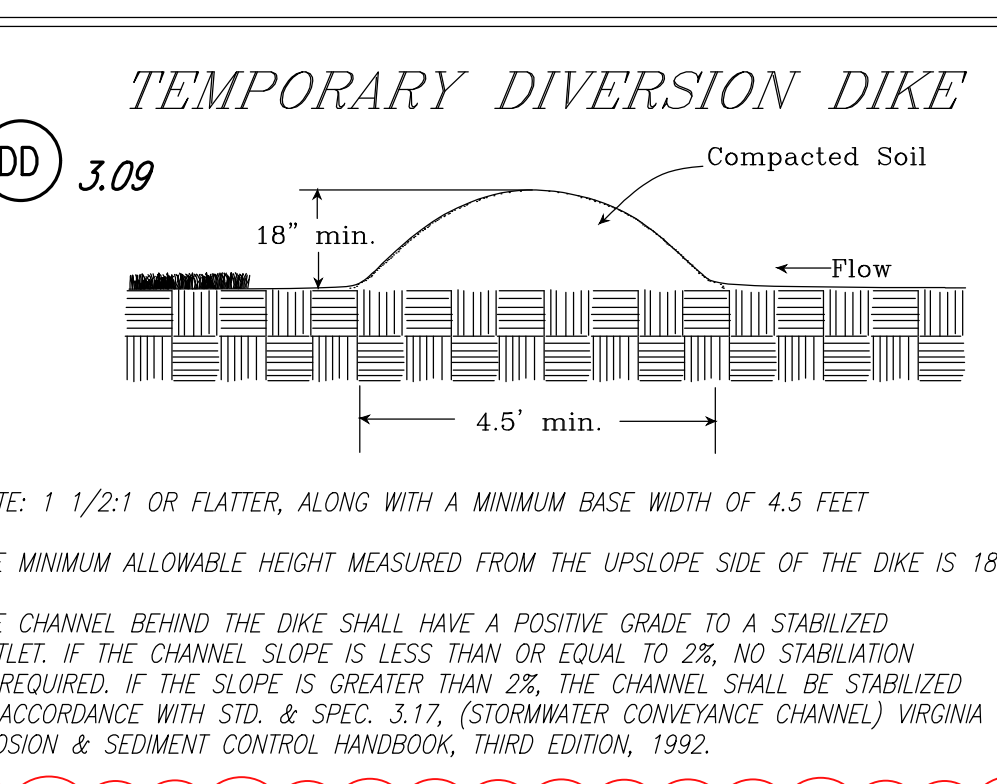
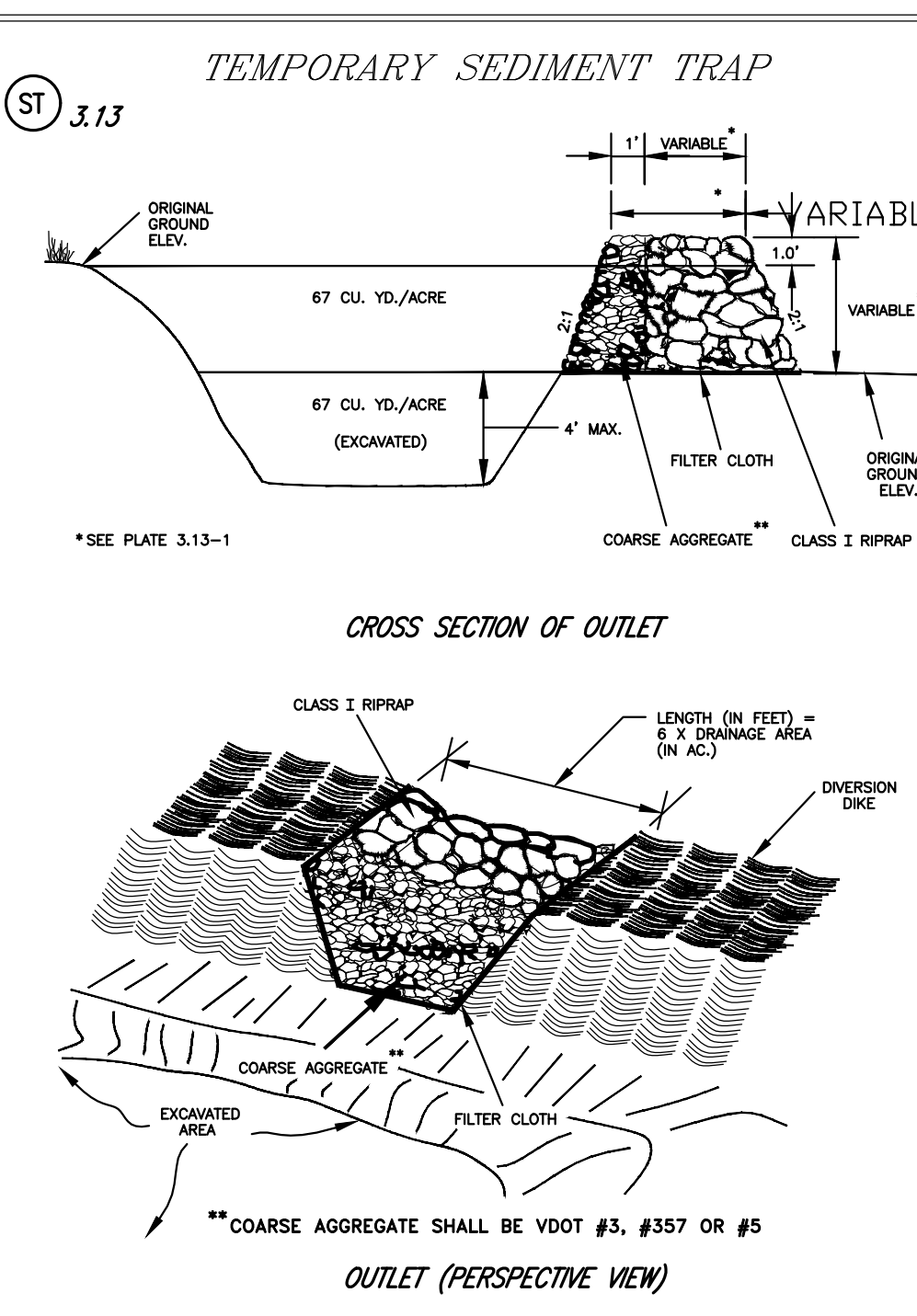
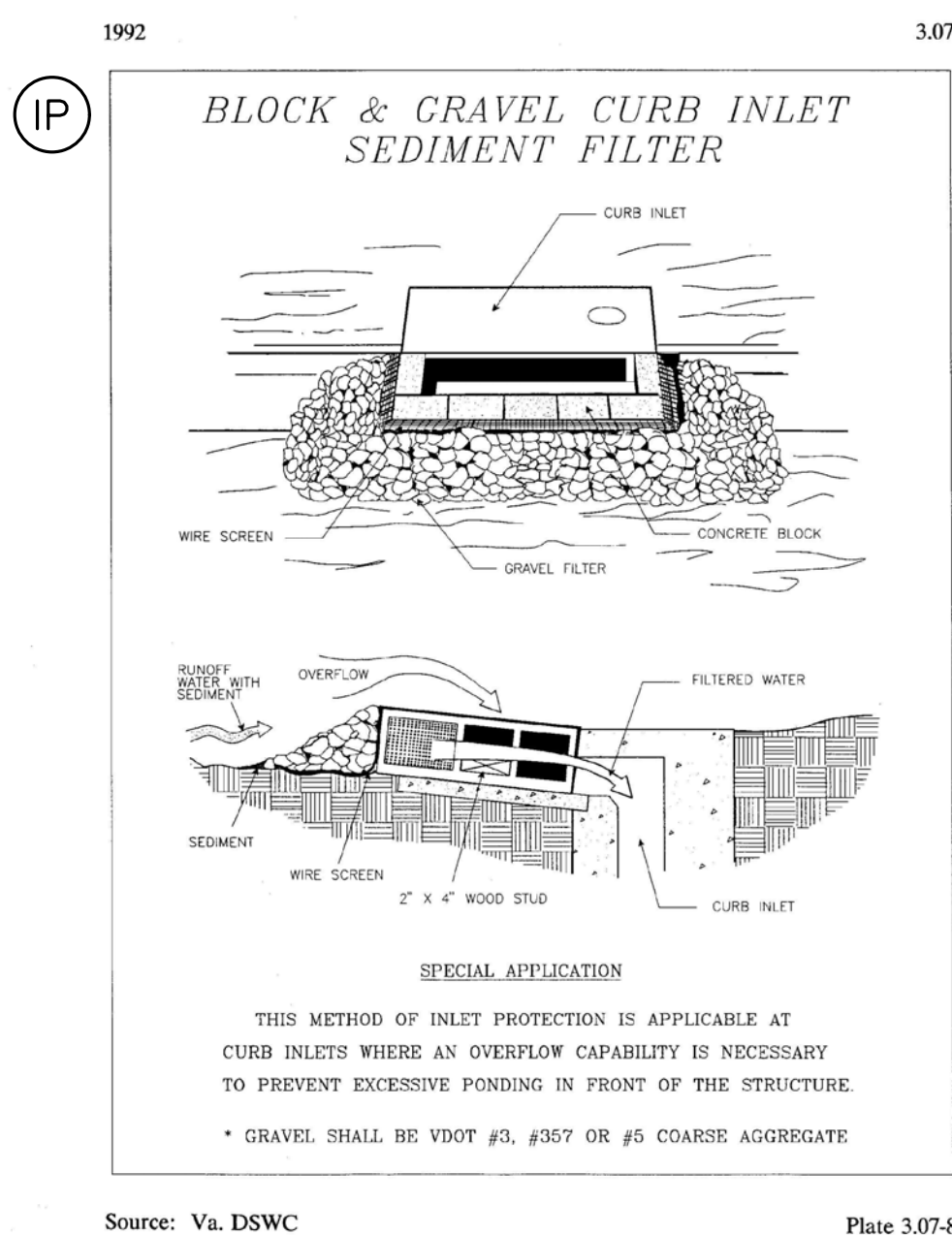
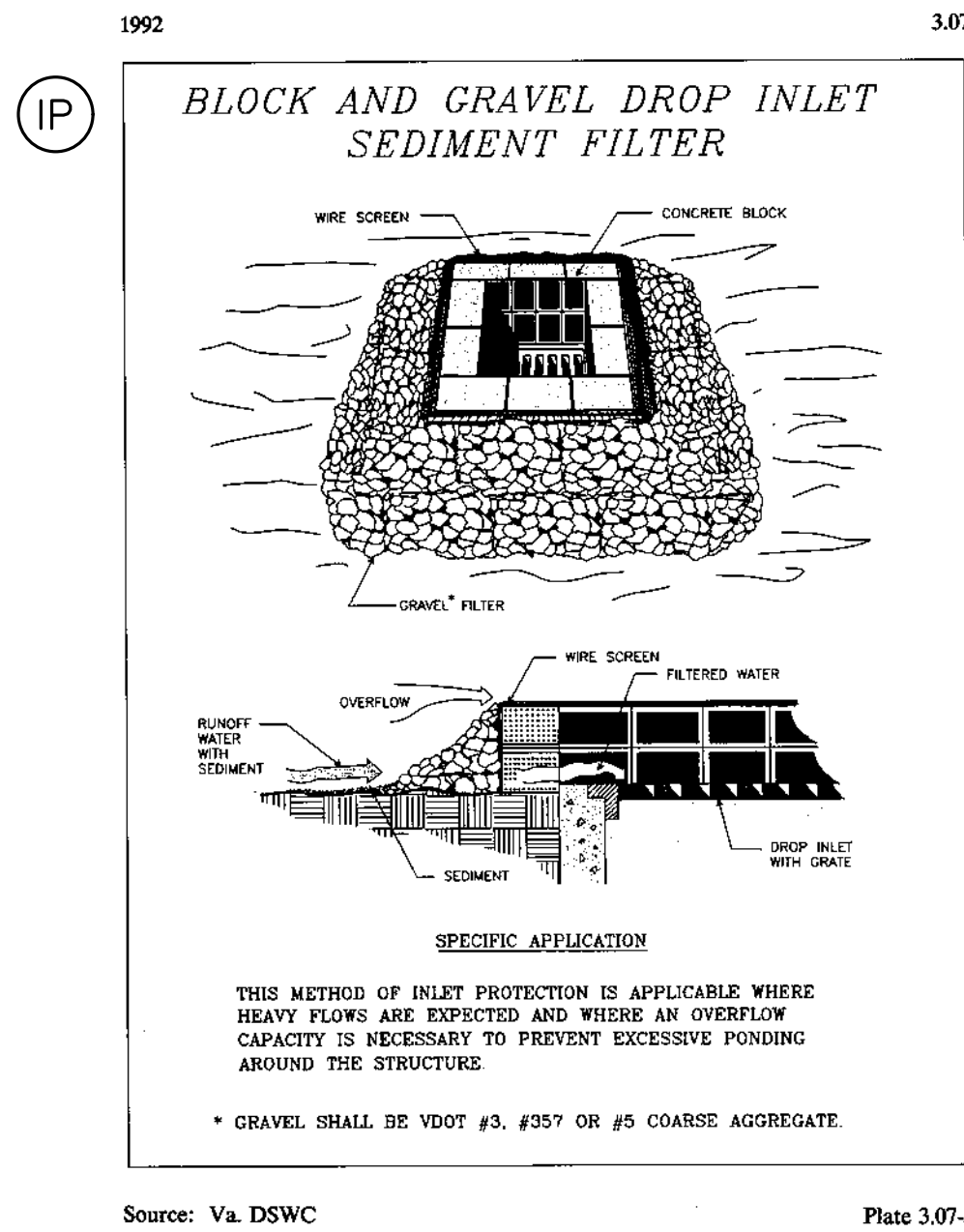
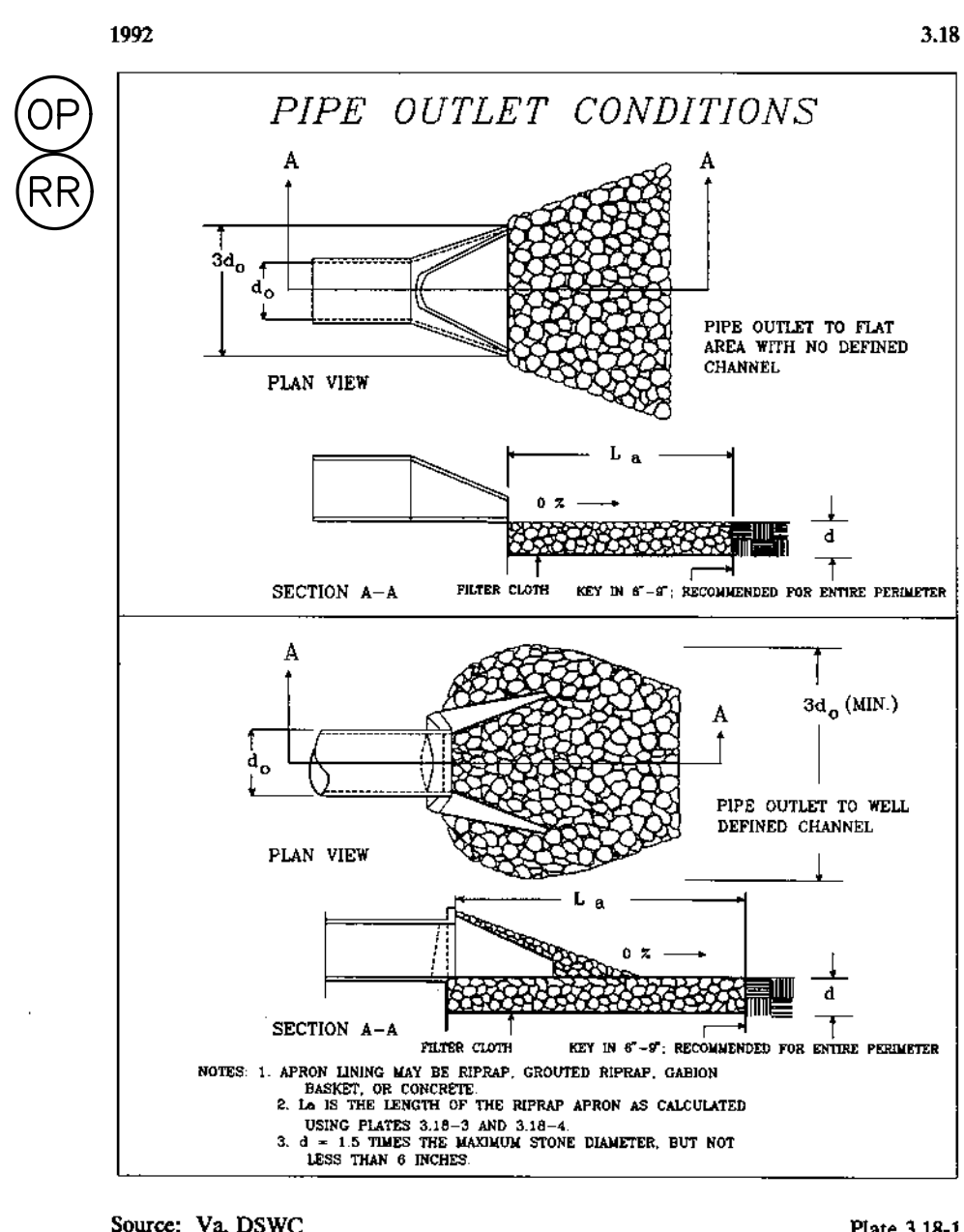


FIGURE 3 Section 7.600

SEDIMENT TRAP No.	DRAINAGE AREA (acres)	STORAGE REQUIRED (cu ft)	STORAGE PROVIDED (cu ft)	WET STORAGE (cu ft)	DRY STORAGE (cu ft)	WET DEPTH (ft)	H HEIGHT OF BERM (ft)	Ho WEIR OUTLET HEIGHT (ft)	W TOP WIDTH (ft)	L WEIR LENGTH (ft)	BOTTOM STORAGE (cu ft)	BOTTOM OF DRY STORAGE (cu ft)	WEIR INVERT (ft)	ELEV. @ TOP OF BERM (ft)	AREA @ TOP OF BERM (sq ft)	ELEV. @ TOP OF WEIR DRY STORAGE (ft)	ELEV. AT GROUND (ft)		
1	2.00	3618	3618	4832	32527	4.0	60	30	2.0	1.0	2.0	12	236.50	240.50	241.50	242.50	63254	241.50	240.50

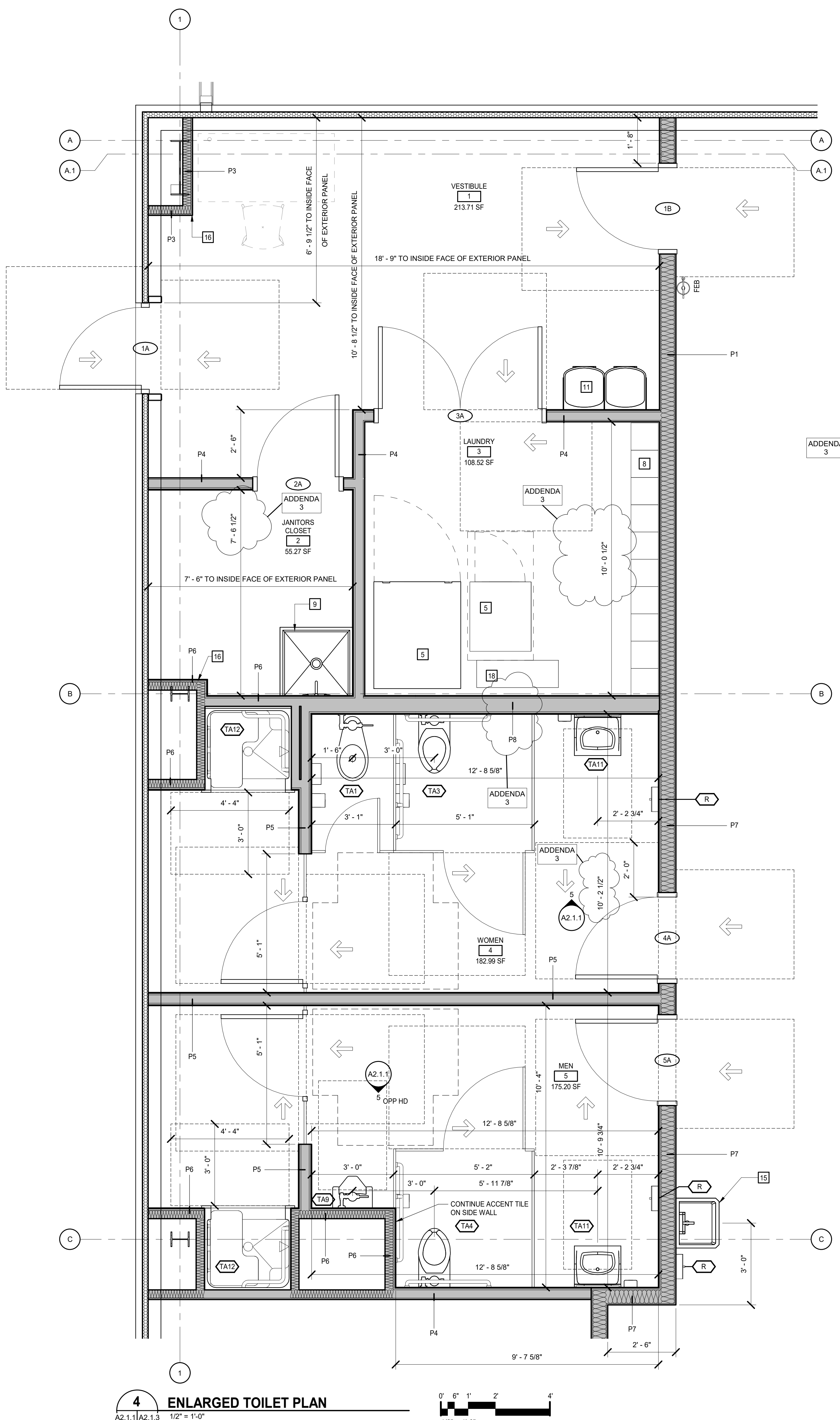
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EROSION & SEDIMENT CONTROL NOTES & DETAILS  
 WELLINGTON ROAD OPERATIONS CENTER EXPANSION  
 BREWSTERVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS: 03/13/2024  
 BID ADDENDUM 3- ADD TP DETAIL

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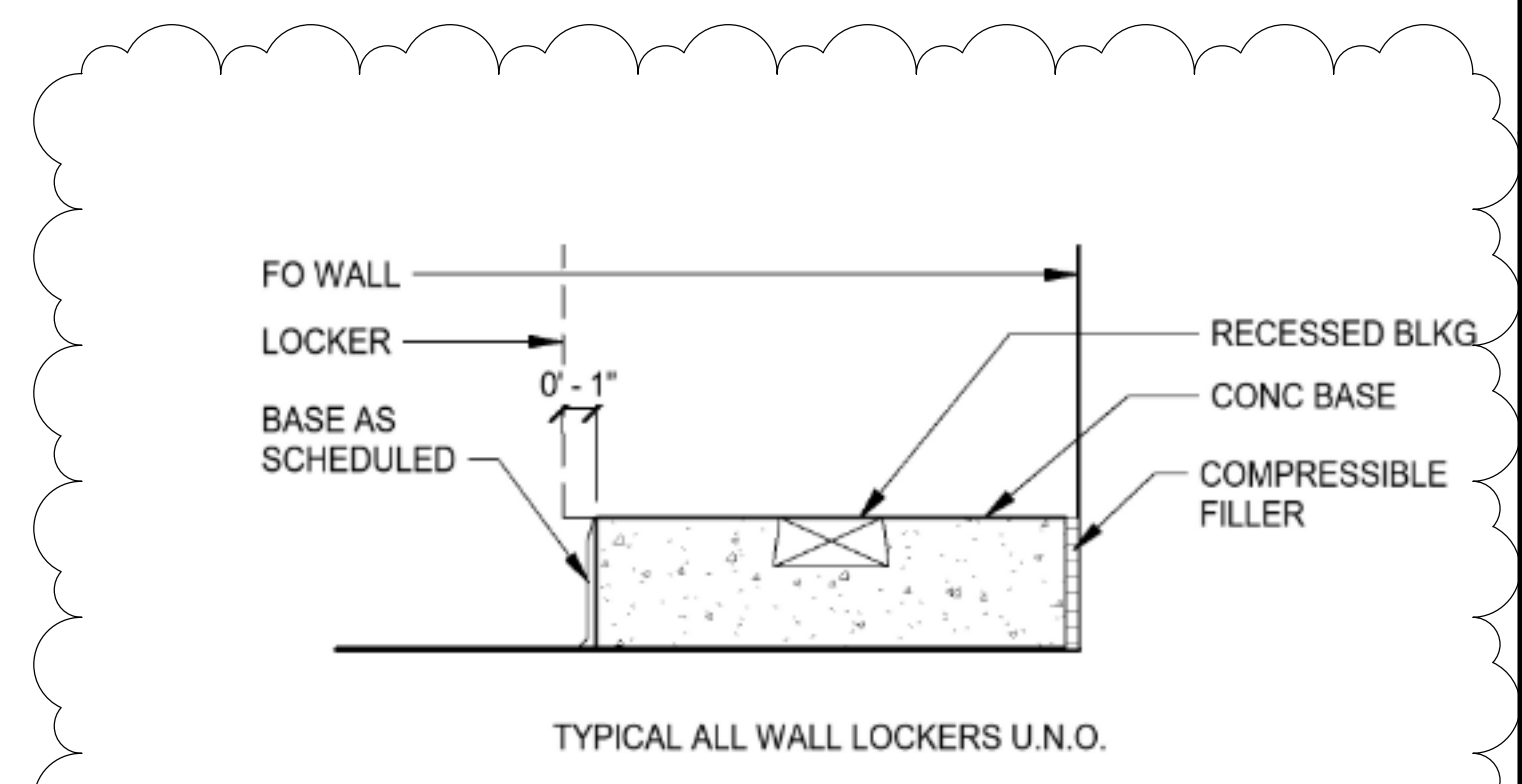


KEYNOTES
1 7.5 TON FREESTANDING CRANE.
2 IMPERMEABLE PAINT FINISH AT EXTERIOR FACE OF CMU. TYPICAL AT PIPE STORAGE BUILDING.
3 EMERGENCY EYE WASH AND SHOWER COMBINATION.
4 PARKING SPACE. DO NOT PROVIDE STRIPING OR WHEEL STOPS AT THESE INTERIOR PARKING SPACES.
5 APPLIANCE IS NOT IN CONTRACT - PROVIDED BY THE OWNER.
6 PERMANENT ROOF SHIPSLADDER.
7 CONCRETE FILLED 1" DIAMETER STEEL PIPE BOLLARD PAINTED HIGH-VISIBILITY YELLOW. TYPICAL.
8 METAL LOCKER. TYPICAL OF 10.
9 MOP SINK.
10 PLASTIC COLUMN PROTECTOR.

KEYNOTES
11 8-LEVEL WATER COOLER WITH BOTTLE FILLER.
13 GUARDRAIL.
14 SLIDING METAL GUARDRAIL.
15 UTILITY SINK.
16 HOLD CHASE TIGHT TO STRUCTURE/DUCT.
17 DOWNSPOUT. DISCHARGE TO CAST IRON BOOTS CONNECTED TO UNDERGROUND STORM SYSTEM. TYPICAL PIPE STORAGE BUILDING.
18 TRENCH DRAIN. REFER TO PLUMBING DOCUMENTS.
20 INSULATED DOOR PANEL WITH GASKETED BASE.
21 STEEL ANGLE SET INTO SLAB. DEPRESS SLAB AT OVERHEAD DOORS.
23 3/8" CFSF-S.

KEYNOTES
24 1/2" SHEATHING.
25 BREAK METAL TRIM.
27 PROVIDE DRIP FLASHING AT PANEL TERMINATION. TYPICAL.
28 LAP ROOFING UNDERLAYMENT OVER GUTTER LEG.
29 CONTINUOUS CLEAT AT BOX RAKE TRIM.
30 BREAK METAL CLAD SOFFIT.
31 BOX GUTTER. SLOPE TOWARD DOWNSPOUT.
32 TRANSITION TO 6"x6" DOWNSPOUT ALONG BACKSIDE OF AGGREGATE STORAGE.
33 TRANSITION TO 6"x6" DOWNSPOUT AT SIDES OF AGGREGATE STORAGE. SLOPE TO DISCHARGE #7 ABOVE FINISHED GRADE ONTO CONCRETE SPLASHBLOCK.
34 BULLNOSE @ INTERIOR SIDE OF MAN DOOR OPENINGS.

KEYNOTES
35 COORDINATE SLAB DEPRESSION WITH OVERHEAD DOOR MANUFACTURER.
36 PROVIDE BATT INSULATION BETWEEN CFSF CONTINUOUS FROM TOP OF SLAB TO MINIMUM 4" ABOVE THE ADJACENT CEILING. MINIMUM R-15 AT 3/8" CFSF AND R-19 AT 6" CFSF.
37 RETURN SOLID BLOCK CMU TO STEEL JAMB FRAMING.
38 RUBBERIZED OVERHEAD DOOR AT SALT STORAGE.
39 TURN DOWNSPOUT TERMINATION SUCH THAT WATER IS DISCHARGED ONTO THE PAVED AREA BOUNDED BY THE CONCRETE CURB. DO NOT DISCHARGE ONTO GRASS.
40 DAMPROOFING BELOW GRADE.
41 UNDERSLAB VAPOR BARRIER.
42 TOEBORD NOT REQUIRED AT THIS LENGTH OF RAILING.
43 PROVIDE TOEBORD AT THIS LENGTH OF RAILING.



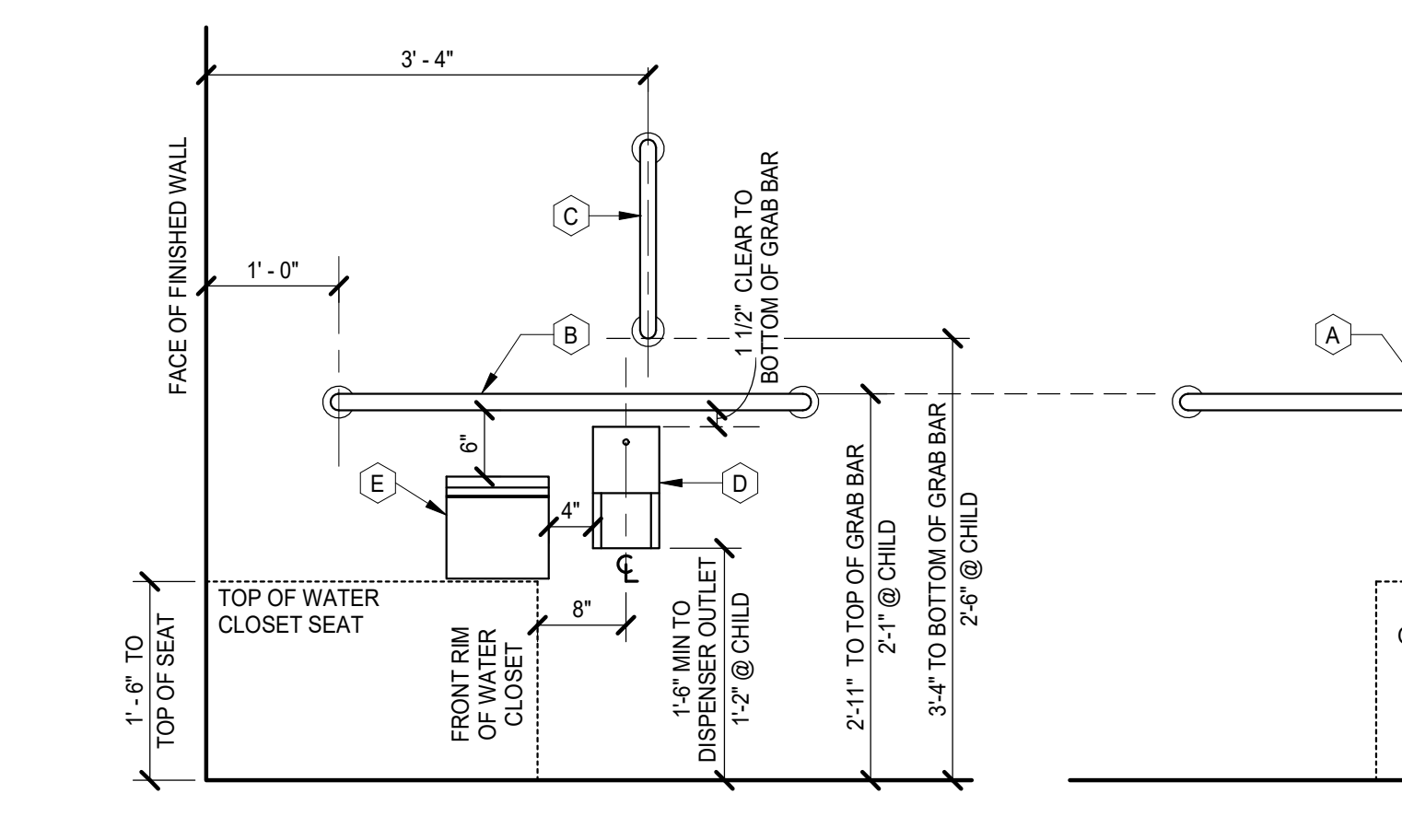
TOILET ASSEMBLIES					
APPLIES TO ARCHITECTURAL SERIES OF DRAWINGS					
REPRESENTED BY (TAL)					
MARK	REMARKS	PLAN	MARK	REMARKS	PLAN
TA1			TA9		
TA3			TA11		
TA4			TA12		

LEGEND NOTES:  
 A. HANDING/ORIENTATION MAY VARY. REFER TO PLANS FOR PROPER ORIENTATION.  
 B. PLUMBING FIXTURE GRAPHICS IN THIS LEGEND ARE REPRESENTATIVE ONLY. ACTUAL PLUMBING FIXTURES MAY VARY.  
 C. COATROBE HOOKS INDICATED ON THE BACK OF TOILET COMPARTMENT DOORS ARE PART OF THE TOILET COMPARTMENT ASSEMBLY AND ARE NOT CONSIDERED A TOILET ACCESSORY.

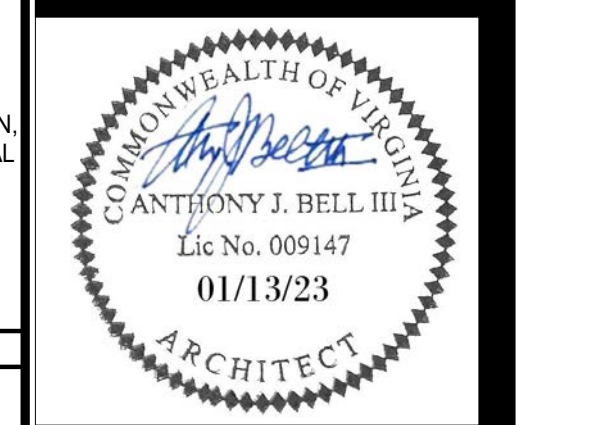
TOILET ACCESSORIES SCHEDULE			
MARK	DESCRIPTION	MOUNTING HEIGHT	REMARKS
A	36" HORIZONTAL GRAB BAR	REFER TO WATER CLOSET ELEVATIONS	
B	42" HORIZONTAL GRAB BAR	REFER TO WATER CLOSET ELEVATIONS	
C	18" VERTICAL GRAB BAR	REFER TO WATER CLOSET ELEVATIONS	
D	TOILET TISSUE DISPENSER	REFER TO WATER CLOSET ELEVATIONS	
E	SANITARY NAPKIN DISPOSAL	REFER TO WATER CLOSET ELEVATIONS	
F	SOAP DISPENSER	3'-4" AFF TO DISPENSING OUTLET	
G	MIRROR (18" x 36"), OVER LAV AND CONTERTOP	3'-4" AFF TO BOTTOM OF REFLECTIVE SURFACE	
J	L-SHAPED FOLDING SHOWER SEAT	1'-4" TO SEAT SURFACE	
R	C-FOLD PAPER TOWEL DISPENSER	PER MANUFACTURER'S RECOMMENDATIONS	

1. ACCESSORY ITEMS ARE IDENTIFIED BY ( ) ON PLANS. LETTERS CORRESPOND TO SCHEDULE ABOVE.  
 2. ACTUAL DIMENSIONS OF ACCESSORIES MAY VARY. COORDINATE DIFFERENCES, IF ANY.  
 3. REFER TO ALL CASEWORK ELEVATIONS FOR ADDITIONAL TOILET ACCESSORY LOCATIONS.  
 4. PROVIDE MOP AND BROOM HOLDER W/ SHELF AT ALL CUSTODIAL/ANTIRIAL SINKS. MOUNT AT 5'-0" AFF TO CENTERLINE AND LOCATE ON SIDE WALL OF SINK (NOT ON WALL ABOVE FAUCET).  
 5. PROVIDE ROBE HOOK ON INTERIOR FACE OF ALL TOILET COMPARTMENT DOORS. PROVIDE TWO ROBE HOOKS WITHIN EACH SHOWER COMPARTMENT MOUNTED ON AN INTERIOR PARTITION WALL. MOUNT HOOKS AT 5'-11" AFF TO TOP.  
 6. PROVIDE (H) SIDE AND CONTROL WALL GRAB BARS WITHIN SHOWER STALLS.  
 7. PROVIDE (TAL) METAL SHOWER-CURTAIN ROD AND PLASTIC CURTAIN WITHIN SHOWER STALLS.

**TOILET ASSEMBLIES, SCHEDULE AND ENLARGED PLAN GENERAL NOTES**  
 A. PLAN DIMENSIONS ARE TO FACE OF WALL OR PARTITION. WHERE APPLIED FINISHES OCCUR SUCH AS CERAMIC TILE, DIMENSIONS ARE TO FACE OF APPLIED FINISH. FOR WANDCOTS, FLOOR PLAN DIMENSIONS ARE TO FACE OF WANDCOT MATERIAL. APPLIED FINISHES ARE NOT ALLOWED TO REDUCE CLEAR DIMENSIONS. "APPLIED FINISHES" IN THIS CASE DO NOT INCLUDE TRIM, BASE, AND ACOUSTIC WALL PANELS.  
 B. CLEAR DIMENSIONS ARE TO FACE OF APPLIED WALL AND PARTITION FINISHES.



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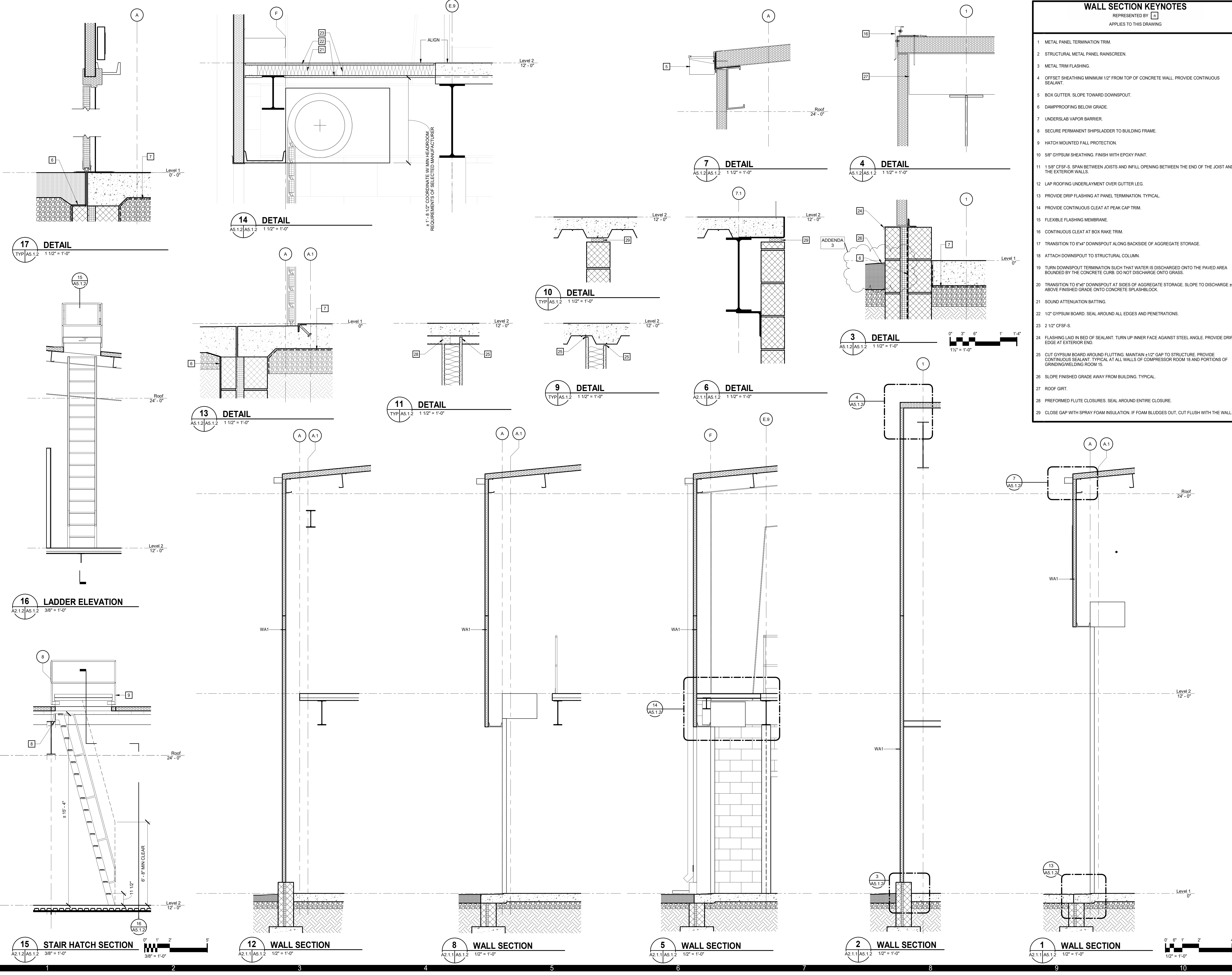
PROJECT NO.	DATE	REVISIONS
615401	NOVEMBER 1, 2023	
5/25/23	PERMIT REV	
5/15/24	ADDENDA 3	

ENLARGED PLAN

A2.1.3

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**WALL SECTION KEYNOTES**  
 REPRESENTED BY [Symbol]  
 APPLIES TO THIS DRAWING

- METAL PANEL TERMINATION TRIM.
- STRUCTURAL METAL PANEL RAINSCREEN.
- METAL TRIM FLASHING.
- OFFSET SHEATHING MINIMUM 1/2" FROM TOP OF CONCRETE WALL. PROVIDE CONTINUOUS SEALANT.
- BOX GUTTER. SLOPE TOWARD DOWNSPOUT.
- DAMP-PROOFING BELOW GRADE.
- UNDERSLAB VAPOR BARRIER.
- SECURE PERMANENT SHIPSLADDER TO BUILDING FRAME.
- HATCH MOUNTED FALL PROTECTION.
- 5/8" GYPSUM SHEATHING. FINISH WITH EPOXY PAINT.
- 1 1/2" CFS-S. SPAN BETWEEN JOISTS AND INFILL OPENING BETWEEN THE END OF THE JOIST AND THE EXTERIOR WALLS.
- LAP ROOFING UNDERLAYMENT OVER GUTTER LEG.
- PROVIDE DRIP FLASHING AT PANEL TERMINATION. TYPICAL.
- PROVIDE CONTINUOUS CLEAT AT PEAK CAP TRIM.
- FLEXIBLE FLASHING MEMBRANE.
- CONTINUOUS CLEAT AT BOX RAKE TRIM.
- TRANSITION TO 6"x4" DOWNSPOUT ALONG BACKSIDE OF AGGREGATE STORAGE.
- ATTACH DOWNSPOUT TO STRUCTURAL COLUMN.
- TURN DOWNSPOUT TERMINATION SUCH THAT WATER IS DISCHARGED ONTO THE PAVED AREA BOUNDED BY THE CONCRETE CURB. DO NOT DISCHARGE ONTO GRASS.
- TRANSITION TO 6"x4" DOWNSPOUT AT SIDES OF AGGREGATE STORAGE. SLOPE TO DISCHARGE 4" ABOVE FINISHED GRADE ONTO CONCRETE SPLASHBLOCK.
- SOUND ATTENUATION BATTING.
- 1/2" GYPSUM BOARD. SEAL AROUND ALL EDGES AND PENETRATIONS.
- 2 1/2" CFS-S.
- FLASHING LAID IN BED OF SEALANT. TURN UP INNER FACE AGAINST STEEL ANGLE. PROVIDE DRIP EDGE AT EXTERIOR END.
- CUT GYPSUM BOARD AROUND FLUTTING. MAINTAIN ±1/2" GAP TO STRUCTURE. PROVIDE CONTINUOUS SEALANT. TYPICAL AT ALL WALLS OF COMPRESSOR ROOM 18 AND PORTIONS OF GRINDING/WELDING ROOM 15.
- SLOPE FINISHED GRADE AWAY FROM BUILDING. TYPICAL.
- ROOF GIRT.
- PERFORMED FLUTE CLOSURES. SEAL AROUND ENTIRE CLOSURE.
- CLOSE GAP WITH SPRAY FOAM INSULATION. IF FOAM BLUDGES OUT, CUT FLUSH WITH THE WALL.

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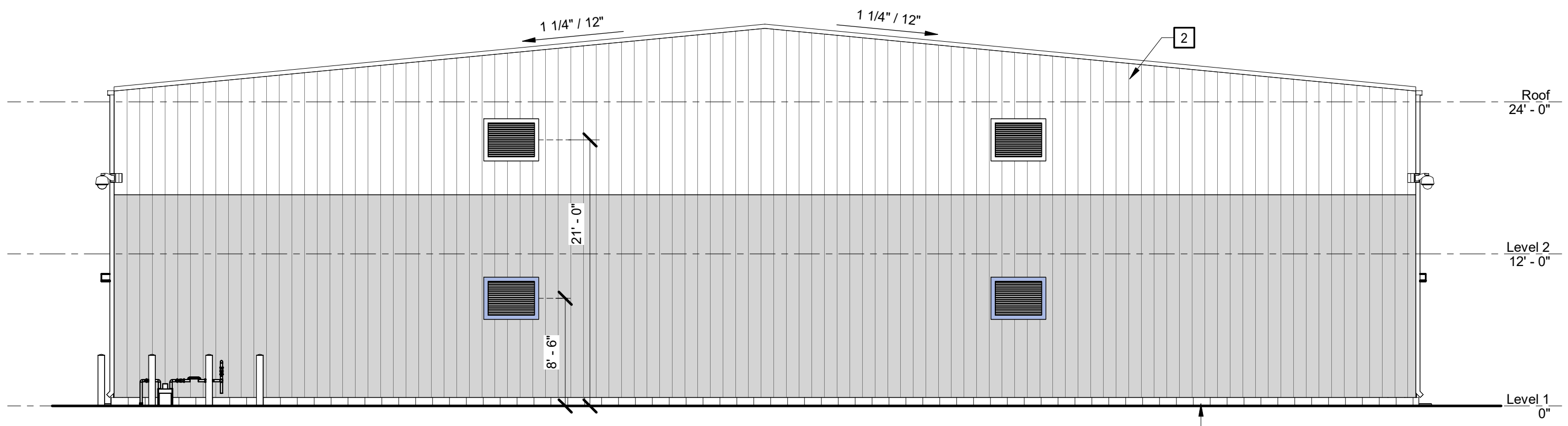


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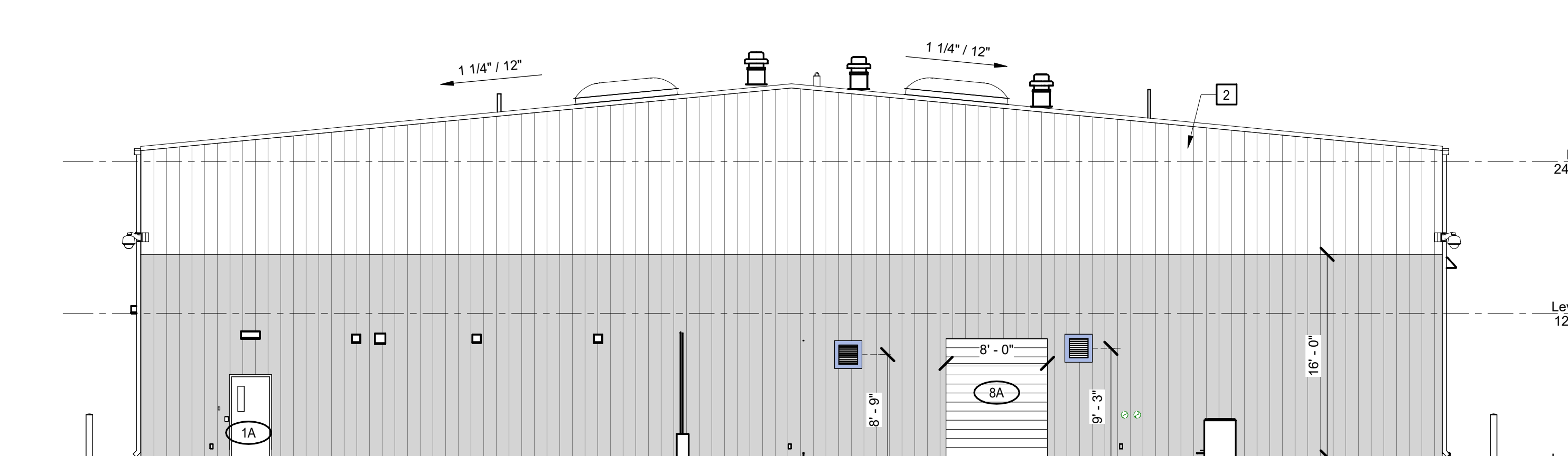
DATE	REVISIONS
NOVEMBER 1, 2023	
3/13/24	ADDENDA 3

WALL SECTIONS

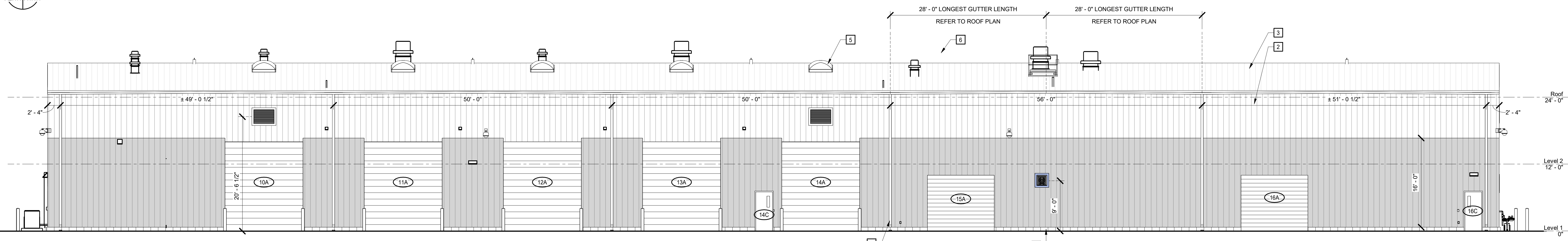
A5.1.2



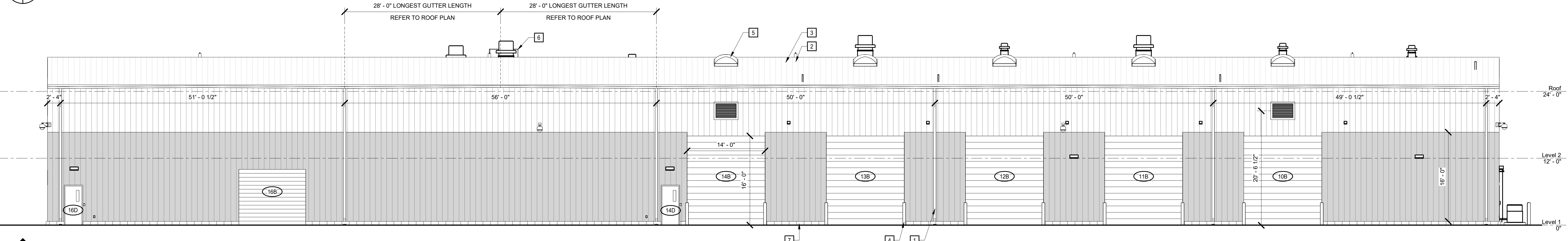
**4 NORTH ELEVATION**  
 A2.1.1/A4.1.1 1/8" = 1'-0"



**3 SOUTH ELEVATION**  
 A2.1.1/A4.1.1 1/8" = 1'-0"



**2 EAST ELEVATION**  
 A2.1.1/A4.1.1 1/8" = 1'-0"



**1 WEST ELEVATION**  
 A2.1.1/A4.1.1 1/8" = 1'-0"

EXTERIOR WALL ASSEMBLIES			
APPLIES TO ARCHITECTURAL SERIES OF DRAWINGS REPRESENTED BY (WA).			
MARK	FIRE RATING (REFER TO LS 1.1 FOR LEGEND)	REMARKS	INFORMATION
WA1			
WA2		PROVIDE AT EXTERIOR WALLS BETWEEN THE TOP OF FOOTING AND 8' ABOVE THE FINISHED FLOOR ELEVATION.	
WA3		REFER TO AGGREGATE STORAGE BUILDING DRAWINGS	
WA4		REFER TO AGGREGATE STORAGE BUILDING DRAWINGS	

**GENERAL NOTES**

- EXTERIOR METAL WALL PANELS SHALL INCLUDE TWO COLORS: BLUE AND WHITE.
- EXTERIOR SIDE OF ROOF PANEL SHALL BE WHITE.
- PAIN ALL EXPOSED STEEL. TYPICAL ALL BUILDINGS.

**BUILDING ELEVATION KEYNOTES**  
 REPRESENTED BY [A]  
 APPLIES TO THIS DRAWING

- BOX GUTTERS SLOPED TO DOWNSPOUTS. DISCHARGE ONTO CONCRETE SPLASHBLOCKS AT GRADE.
- METAL WALL PANEL.
- METAL ROOF PANEL.
- CONCRETE FILLED 6" DIAMETER STEEL PIPE BOLLARD PAINTED HIGH-VISIBILITY YELLOW.
- SKYLIGHT, TYPICAL.
- FALL PROTECTION AT ROOF HATCH.
- GROUND FACE CMU VENEER.

**EXTERIOR LOUVER SCHEDULE**

SIZE	QUANTITY	FREE AREA	MOUNTING HEIGHT TO CL
3'-6" x 2'-8"	4	58% MIN	VARIABLE: ±8'-6"; ±21'-0"
3'-8" x 2'-6"	4	56% MIN	±20'-6 1/2"
1'-10" x 1'-10"	1	38% MIN	±9'-0"
1'-6" x 1'-6"	2	35% MIN	VARIABLE: ±8'-9"; ±9'-3"

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PROJECT NO: 615401  
 DATE: NOVEMBER 1, 2023

REVISIONS	
DATE	DESCRIPTION
3/13/24	ADDENDA 3

BUILDING ELEVATIONS



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GENERAL NOTES

- This site has been addressed by the Prince William County Mapping Office as: **8404 VIRGINIA MEADOWS DR, MANASSAS VA** (addresses for subdivision lots shall appear on the approved plat for recordation).
- 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.
- 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.
- 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.
  - Installation of approved erosion control devices.
  - Clearing and Grading
  - Subgrade excavation
  - Installing storm sewers or culverts.
  - Setting curb and gutter forms.
  - Placing curb and gutter.
  - Placing other concrete.
  - Placing gravel base.
  - Placing any bituminous surfacing.
  - Installing water mains outside the Service Authority's boundaries.
  - Installing sanitary sewer outside the Service Authority's boundaries.
- 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.
- 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.
- Approval of this plan does not guarantee issuance of an entrance permit by VDOT when such permit is required under State law.
- 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.
- 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.
- Warning signs, markers, barricades or flagmen should be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).
- All unsuitable material shall be removed from the construction limits of the roadway before placing embankment.
- All pavement sections on the approved plans are based on a minimum CBR value of 10. CBR tests for pavement in the VDOT ROW 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.
- 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.
- All springs shall be capped and piped to the nearest storm sewer manholes or curb inlet. The pipe shall be minimum 150 mm (6") diameter and conform to VDOT standard SB-1.
- All standard street name signs, traffic control devices, and street lights shall be installed by the developer when the first building unit is occupied.
- 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.
- 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, alley 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.
- \* 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.
- 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.
- 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.
- 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
--	-----------------------------	---
- 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.
- 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.
- All utilities placed under existing streets shall be bored or jacked.
- 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.
- The developer will be responsible for the relocation of any utilities which is required as a result of his project prior to construction.
- 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.
- 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.
- Sidewalk underdrains shall be installed per Section 650 of the Design and Construction Standards Manual.
- All walkways outside of the right-of-way limits will be maintained by the homeowners association.
- 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.
- 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.)
- These plans identify the location of all known gravestones. Gravestones shown on this plan will be protected in accordance with state law. In the event gravestones 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.
- Roof top mechanical equipment, if any, must be enclosed within a wall or similar screening barrier, designed in harmony with the building.
- Individual sign permits will be required from the Zoning Office for all free standing and facade signs prior to erecting the signs.
- All buffer areas shall be screened according to the Design and Construction Standards Manual.
- For proffers statement and proffers analysis, see sheet(s) N/A
- For waivers see sheet(s) N/A
- Anticipated sewage flows: 7.29 AC. \* 1,500 GPD = 10,935 GPD PEAK = 10,935 \* 4 = 43,740 GPD
- Anticipated fire flows: 2,500 GPM @ >20 PSI
- Distance to nearest existing school or proposed school site: 2.4 MI TO CHRIS YUNG ELEMENTARY SCHOOL

LEGEND

EXISTING INTERMEDIATE CONTOUR		FLOW LINE	
EXISTING INDEX CONTOUR		FENCE LINE	
PROPOSED CONTOUR		EXISTING UTILITY POLE	
EXISTING EDGE OF PAVEMENT		PROPOSED UTILITY POLE	
PROPOSED EDGE OF PAVEMENT		EXISTING WATERLINE W/ TEE	
EXISTING CURB AND GUTTER		PROPOSED WATERLINE W/ TEE	
PROPOSED CURB AND GUTTER		EXISTING FIRE HYDRANT	
TRANSITION FROM CG-6 TO CG-6R		PROPOSED FIRE HYDRANT	
EXISTING TELEPHONE LINE		EXISTING WATER VALVE	
PROPOSED TELEPHONE LINE		PROPOSED WATER VALVE	
EXISTING STORM SEWER		PROPOSED WATER METER	
PROPOSED STORM SEWER		EXISTING REDUCER	
EXISTING SANITARY SEWER		PROPOSED REDUCER	
PROPOSED SANITARY SEWER		STOP SIGN	
EXISTING ELECTRIC SERVICE		HANDICAP RAMP (CG-12A)	
PROPOSED ELECTRIC SERVICE		BENEFITS LOCATION OF STD VDOT REFER AND/OR ABSOLUTE STANDARD RAMP CONSTRUCTION	
EXISTING GAS LINE		PARKING INDICATOR INDICATES THE NUMBER OF TYPICAL PARKING SPACES	
PROPOSED GAS LINE		TEST PIT LOCATION	
PROPERTY LINE		CRITICAL SLOPE	
EASEMENT LINE		SLOPES TO BE STABILIZED PURSUANT TO VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK	
CENTERLINE		VEHICLES PER DAY COUNT	
LIMITS OF CLEARING AND GRADING		PROPOSED BUILDING ENTRANCE	
EXISTING SPOT ELEVATION		EXISTING STREET LIGHT	
PROPOSED SPOT ELEVATION		PROPOSED STREET LIGHT	
EXISTING TREE DRIP LINE		PROPOSED STREET NAME SIGN	
EXISTING TREE		PROPOSED SANITARY LATERAL CLEANDOUT	
PROPOSED TREE		SANITARY MANHOLE IDENTIFIER	
		STORM DRAIN STRUCTURE IDENTIFIER	

RESPONSIBLE LAND DISTURBER INFORMATION:

THIS PLAN COMPLIES WITH THE NEW PRINCE WILLIAM COUNTY SERVICE AUTHORITY UTILITY STANDARDS MANUAL, WHICH WENT INTO EFFECT APRIL 1, 2021. 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

BOND ESTIMATE

ITEM	COUNTY BOND
TOTAL CONSTRUCTION COST	\$427,723.50
ADMINISTRATIVE COST	\$42,772.35
INFLATION COST	\$12,831.71
TOTAL PERFORMANCE BOND AMOUNT	\$483,317.56
TOTAL E&S CONTROL ESCROW AMOUNT	\$80,206.50
TOTAL LANDSCAPE ESCROW AMOUNT	\$48,399.00

SURVEY AND TOPOGRAPHIC INFORMATION

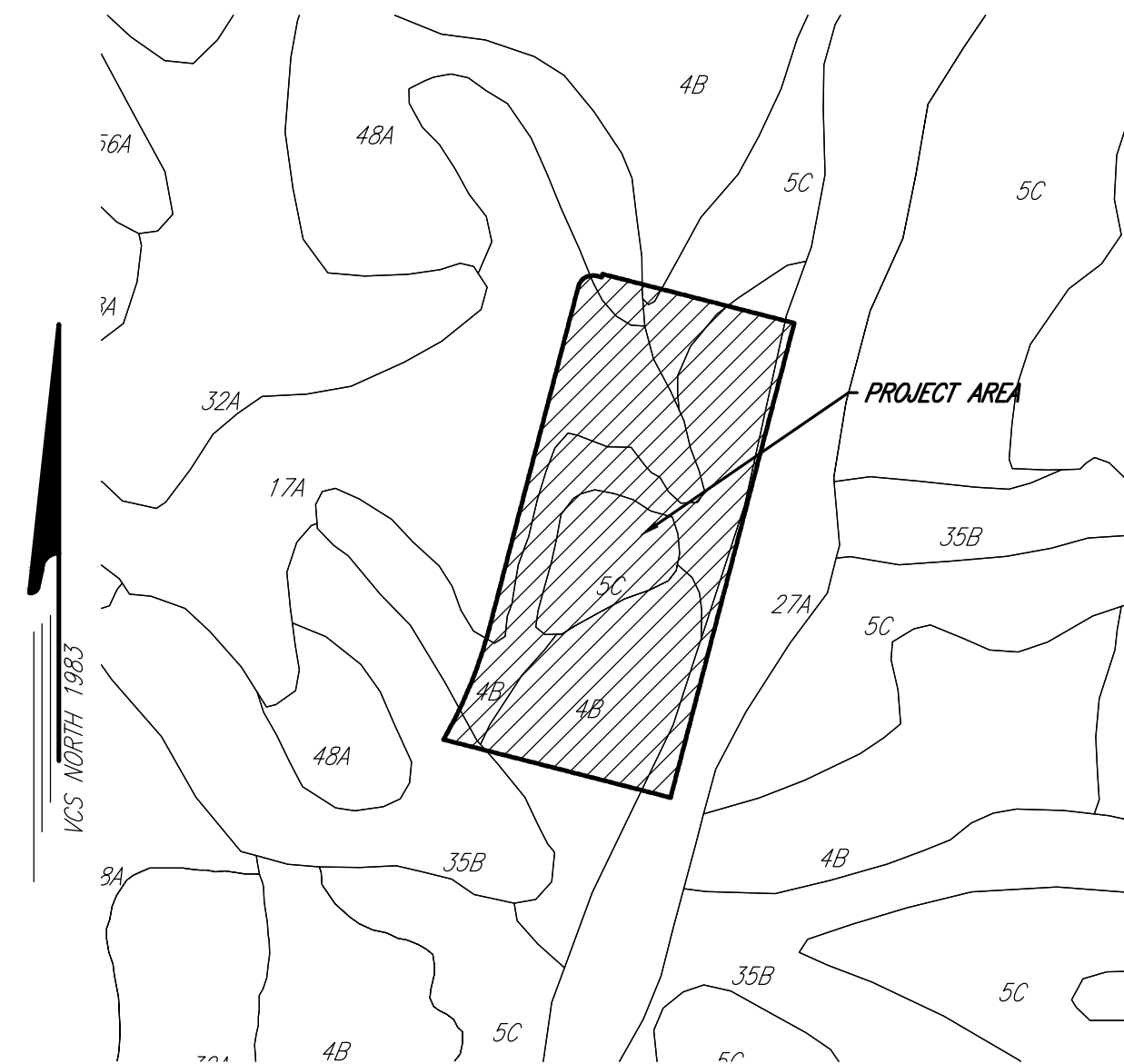
- Horizontal and vertical control surveys were performed by RINKER DESIGN ASSOCIATES in 2022 (Year).
- All elevations are based on the 1988 adjustment.
- Source of topographic mapping is RINKER DESIGN ASSOCIATES, dated MAY 2022.
- Boundary survey was performed by RINKER DESIGN ASSOCIATES, dated MAY 2022.
- The application of the professional's seal and signature as required by Section 114 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 topographic 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.

REVIEWED BY: \_\_\_\_\_ APPROVED 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.

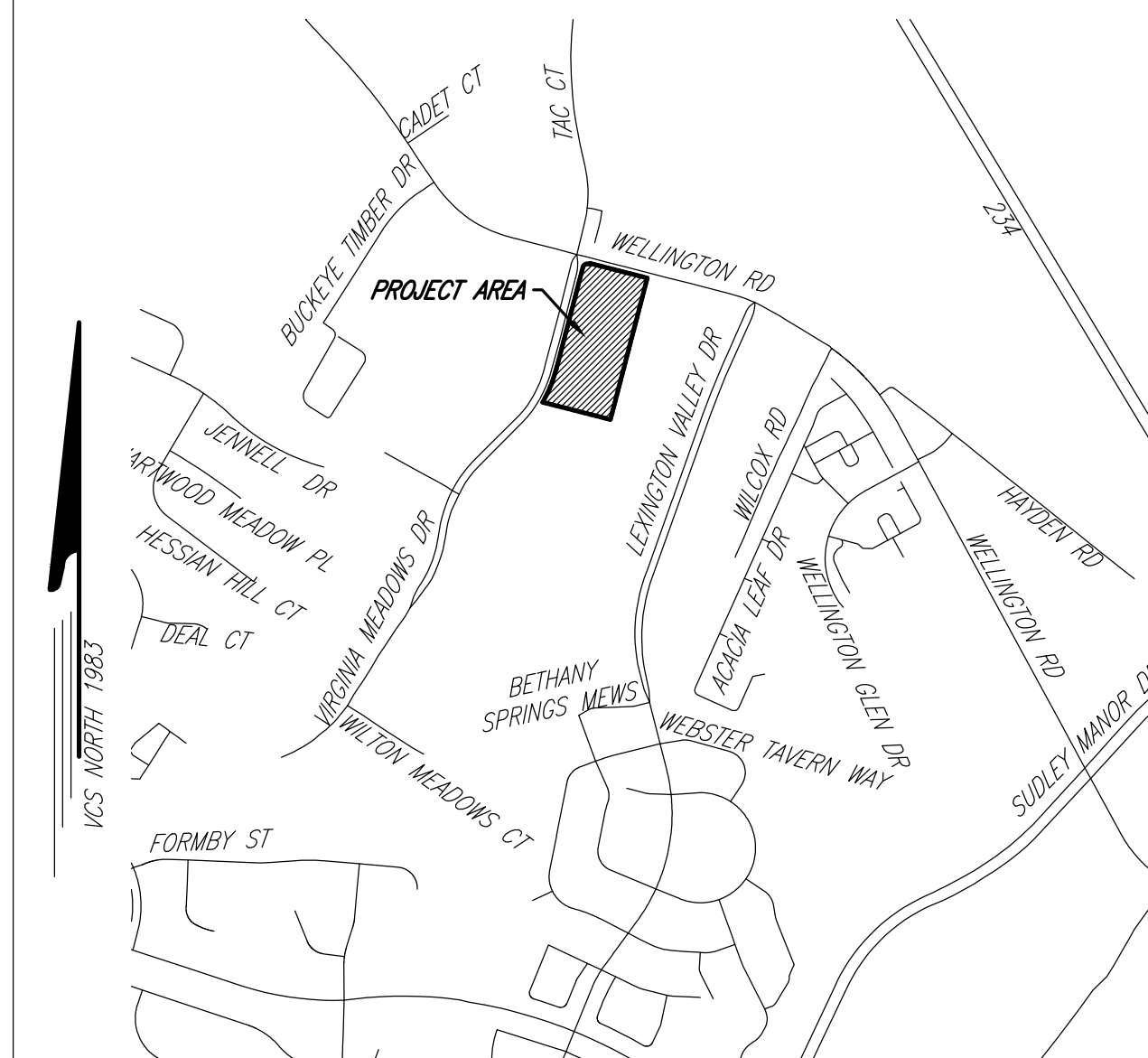
SOILS MAP

SCALE 1: (1"=) 1"=300'



VICINITY MAP

SCALE 1: (1"=) 1"=1,000'



SOILS DATA

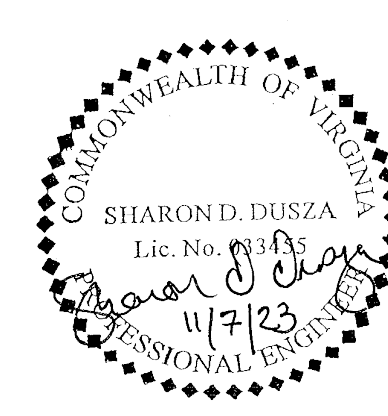
SOIL #	SOIL NAME	SOIL CAT.	SURFACE RUNOFF	EROSION HAZARD	DEPTH TO BEDROCK	SWELL	FLOODING	SLOPES
4B	ARCOLA SILT LOAM	C	MEDIUM	SEVERE	20-40 INCHES	LOW	NONE	2%-7%
5C	ARCOLA SILT LOAM	D	RAPID	SEVERE	20-40 INCHES	LOW	NONE	7%-15%
17A	GARLET-SILOSAKE SAND	C	RAPID	MODERATE	10-20 INCHES	LOW	NONE	2%-7%
17A	DULLLES SILT LOAM	D	SLOW	MODERATE	40-60 INCHES	HIGH	NONE	0%-4%
35B	MANASSAS SILT LOAM	B	SLOW-MED	MODERATE	MORE THAN 60 INCHES	LOW	RARE	2%-7%
48A	REAVILLE SILT LOAM	D	SLOW	SLIGHT	20-40 INCHES	LOW	NONE	0%-4%
56A	WAXPOOL SILT LOAM	D	SLOW	SLIGHT	MORE THAN 60 INCHES	HIGH	NONE	0%-2%

SHEET INDEX

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C.02-C.03 NOTES & DETAILS	C.41A CORRESPONDENCE AND PROFFERS
C.04 EXISTING CONDITIONS & DEMOLITION PLAN	C.41B CORRESPONDENCE AND PROFFERS
C.05 SITE PLAN	C.42 PWC UPL
C.06 VIRGINIA MEADOWS DRIVE ROAD PROFILE	C.43 VDOT UPL
C.06A VIRGINIA MEADOWS DRIVE ROAD CROSS SECTIONS	
C.06B TURNING MOVEMENT ANALYSIS	
C.07 STORM SEWER DESIGN & PROFILES	
C.08 WATERLINE & SANITARY SEWER PROFILES	
C.09-C.10 PWCS INFORMATION SHEETS	
C.11-C.12 LANDSCAPE PLAN	
C.13 PAVEMENT PLAN	
C.14 FIRELANE PLAN	
C.15 SIGHT DISTANCE PROFILES	
C.16-C.17 EROSION & SEDIMENT CONTROL NOTES & DETAILS	
C.18 EROSION & SEDIMENT CONTROL PLAN - PHASE 1	
C.19 EROSION & SEDIMENT CONTROL PLAN - PHASE 2	
C.20 BMP LAND COVER MAP	
C.21 BMP COMPUTATIONS	
C.22 SWM & BMP NARRATIVE	
C.23 DRAINAGE MAP - PRE-DEVELOPMENT	
C.24 DRAINAGE MAP - POST-DEVELOPMENT	
C.25-C.29 STORMTECH FACILITY DETAILS	
C.30 SWM DETAILS	
C.31 HYDRODYNAMIC SEPARATOR DETAIL	
C.32-C.35 SWM COMPUTATIONS	
C.35A-C.35C SWM & BMP CHECKLISTS	
C.36-C.37A GEOTECHNICAL SPECIFICATIONS	
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C.40 POLLUTION PREVENTION PLAN	

REVISIONS

DATE	DESIGNER	NO.	DESCRIPTION



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: <b>WELLINGTON ROAD OPERATIONS CENTER EXPANSION</b>	PWCSA Project Number: <b>SA2022-0461</b>
Subdivision or Site Plan Name: <b>WELLINGTON ROAD OPERATIONS CENTER EXPANSION</b>	Market Name: N/A
Magisterial District: <b>BRENTSVILLE MACISTERIAL DISTRICT</b>	Date of Plan (Month, Day, Year): <b>OCTOBER 25, 2022</b>
Present Zoning & Use: <b>ZONE: A-1, M-2; INDUSTRIAL</b>	Plan Type: N/A
Owner: <b>PWC SERVICE AUTHORITY</b>	Revision Number: N/A
Developer: <b>SAME AS OWNER</b>	CONTACT: <b>JAY VAGHANI</b> <b>PHONE: 202-910-5197</b>
Name, Address & Telephone No. of Engineer: <b>RINKER DESIGN ASSOCIATES, P.C.</b> 11100 ENDEAVOR COURT, SUITE 200, MANASSAS, VA 20109	CONTACT: <b>SHARON DUSZA</b> <b>PHONE: 703-368-7373</b>
Parcel Identification Number: <b>7596-36-4457</b>	
Total Area: <b>7.29 Ac.</b>	Disturbed Area: <b>4.60 Ac.</b>
Related Plans Tracking Numbers (Including Rez. & S.U.P.): <b>RE21986-0004, 13-00005 (PPD), 13-00058 (PASA)</b>	Site Impervious Area: <b>3.65 Ac.</b>
	BMP Storage/Acre: <b>3,515cf/ac.</b>

**SITE TABULATIONS**  
(FOR THIS PLAN ONLY)

G.P.I.N.	7596-36-4457
ZONE	A-1 & M-2
TOTAL SITE AREA	7.29 ACRES

PROJECT AREA 4.60 ACRES (DISTURBED)  
MINIMUM LOT SIZE NONE (Z.O. SEC. 32-403.24)

BUILDING SETBACKS (PER Z.O. SEC. 32-403.15.)

- FRONT: .....20'
- SIDE/REAR: IF ABUTTING COMMERCIAL/OFFICE DISTRICT.....20'
- IF ABUTTING AGRICULTURAL/RESIDENTIAL DISTRICT.....50'

OPEN SPACE (MINIMUM REQUIREMENTS)  
REQUIRED: N/A IN ZONE A-1  
15% IN ZONE M-2 (Z.O. SEC. 32-403.14)

BUILDING AREA  
NEW MAINTENANCE BUILDING: 26,619 G.S.F. (FIRST FLOOR) + 10,932 G.S.F. (MEZZANINE) = 37,551 G.S.F.

- PIPE STORAGE BUILDING: 2,027 G.S.F.
- AGGREGATE STORAGE: 3,108 G.S.F.
- EX. BUILDING, SHEDS & POLE BARN: 9,947 G.S.F.
- TOTAL = 52,633 G.S.F.

LANDSCAPING COMPUTATIONS: SEE LANDSCAPING PLAN AND COMPUTATIONS (SHEETS C.11-C.12).

BUILDING HEIGHT  
THE MAXIMUM HEIGHT FOR ALL STRUCTURES SHALL BE 60 FEET, EXCEPT AS PERMITTED PURSUANT TO SECTION 32-400.03. (M-2 Z.O. SEC. 32-403/24)

TOTAL PARKING:  
NET FLOOR AREA = 52,633 G.F.A. x 75% = 39,475 NET SQ. FT.  
WAREHOUSE: 1 PER EMPLOYEE PLUS 5 SPACES, WHERE 1 EMPLOYEE PER 1,500 NET SQ. FT. HAS BEEN ASSUMED  
ADDITIONAL 1 LOADING SPACE PER 40,000 NET. SQ. FT. PLUS 1 IS REQUIRED

EMPLOYEES = 30

PARKING REQUIRED  
1 SPACE/EMPLOYEE X 30 EMPLOYEES + 5 = 35 SPACES

PROVIDED  
48 REGULAR SPACES INCLUDING 2 HANDICAP SPACES  
13 FLEET PARKING SPACES  
61 TOTAL PARKING SPACES

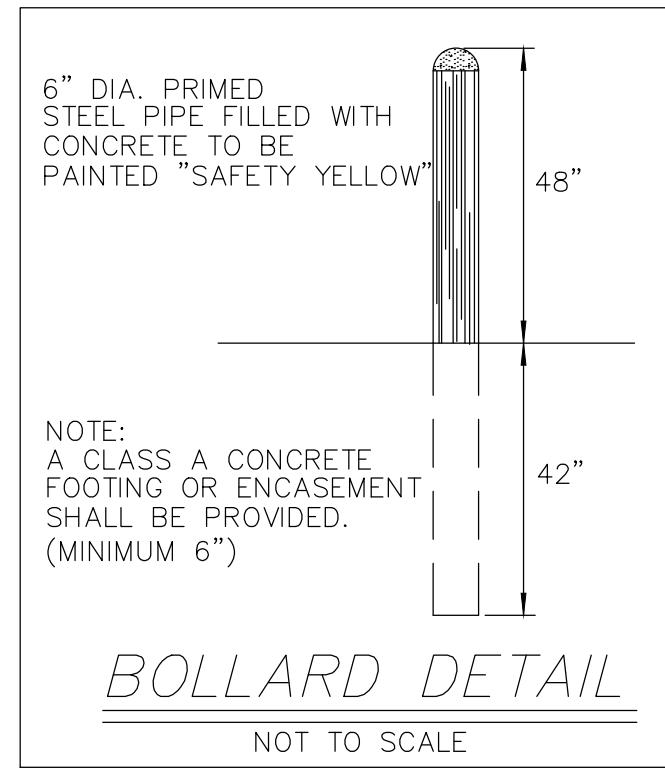
LOADING SPACES REQUIRED:  
LOADING SPACES = 1 + 1 PER 40,000 NET. SQ. FT. = 2

LOADING SPACES REQUIRED: 2 SPACES  
LOADING SPACES PROVIDED: 2 SPACES

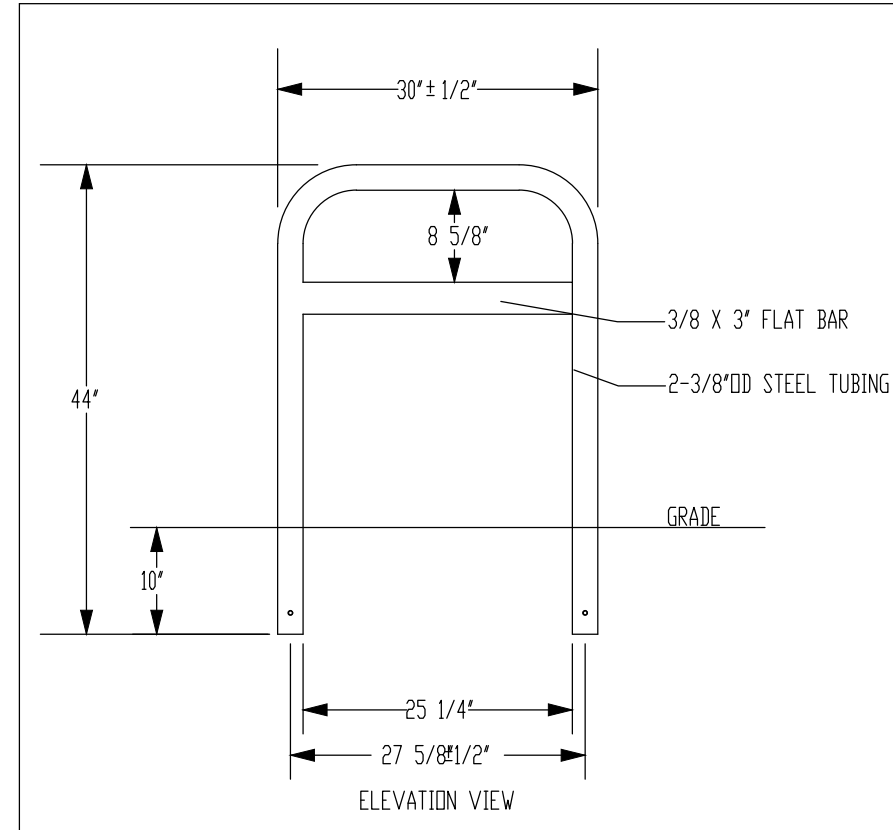
BICYCLE PARKING  
INDUSTRIAL: 1 EMPLOYEE SPACE /25,000 SQ. FT. OF FLOOR AREA  
52,663 SQ. FT. /25,000 SQ FT=2.1 SPACES 2 BICYCLE PARKING SPACES PROVIDED.

ESTIMATED TRAFFIC VOLUME:  
129 VPD = TRIP GENERATION WAS DETERMINED BASED ON LAND USE 150 - WAREHOUSING. THIS LAND USE WAS SELECTED AS IT IS PRIMARILY DEVOTED TO STORAGE OF MATERIALS, BUT ALSO INCLUDES OFFICE AND MAINTENANCE AREAS.

$T = 1.58(X) + 45.54$   
 $129 VPD = 1.58(52.6) + 45.54$



**BIKE RACK DETAIL**



**GENERAL NOTES**

1. THE PROPERTY SHOWN HEREON IS NOW IN THE NAME OF PRINCE WILLIAM COUNTY SERVICE AUTHORITY AS RECORDED IN DEED BOOK 1331 PAGE 0705 AMONG THE LAND RECORDS OF PRINCE WILLIAM COUNTY, VIRGINIA.
2. THE BOUNDARY INFORMATION SHOWN HEREON IS COMPILED FROM EXISTING LAND RECORDS BY RINKER DESIGN ASSOCIATES IN MAY 2022.
3. CONTOUR INTERVAL = 2 FEET TAKEN FROM SURVEY BY THIS OFFICE ON NAVD88 DATUM. HORIZONTAL DATUM = VCS 1983 NORTH ZONE
4. THERE IS ONE PERENNIAL STREAM ON SITE.
5. ACCORDING TO FEMA'S FLOOD INSURANCE RATE MAP FOR PRINCE WILLIAM COUNTY, VIRGINIA AND INCORPORATED AREAS DATED JANUARY 5, 1995 ON COMMUNITY PANEL NO. 51153C 00930, PORTIONS OF THE PROPERTY SHOWN HEREON LIES IN A FLOOD ZONE "AE" WHICH IS AN AREA DETERMINED TO BE INSIDE THE 100-YEAR FLOODPLAIN.
6. THERE IS RPA LOCATED ON SITE.
7. A SOILS REPORT SHALL BE PREPARED FOR THIS PROJECT BY ECS.
8. THERE ARE NO KNOWN GRAVE SITES, CULTURAL OR HISTORICAL RESOURCES WITHIN THE LIMITS OF THE PROJECT.
9. STORM WATER MANAGEMENT AND BEST MANAGEMENT PRACTICES FOR THIS SITE ARE PROVIDED AND MEET THE COUNTY'S REQUIREMENTS VIA AN ONSITE SWM/BMP FACILITY. SEE COMPUTATIONS ON SHEETS C.21-C.25.
10. BUILDING PADS / FOUNDATIONS SHALL NOT BE BUILT INSIDE ANY EASEMENT.
11. "INLET SHAPING" TO BE PERFORMED ON ALL ROADSIDE CURB INLETS PRIOR TO FINAL PAVING. NO GUTTER PAN IS TO BE BUILT ADJACENT TO THE INLETS PRIOR TO FINAL PAVING IN ORDER TO ALLOW FOR PROPER WATER FLOW INTO INLETS. PLACE SILT FENCE ONLY AS NECESSARY ALONG OUTSIDE OF CURB TO PREVENT SILTATION AND CONCENTRATED FLOWS ON STREETS.
12. THE ENGINEER SHALL NOT HAVE CONTROL OVER OR CHARGE OF AND SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK SHOWN ON THESE PLANS. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S SCHEDULES OR FAILURES TO CARRY OUT THE WORK. THE ENGINEER IS NOT RESPONSIBLE FOR ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTOR, OR THEIR AGENTS OR EMPLOYEES, OR ANY OTHER PERSONS PERFORMING PORTIONS OF THE WORK.
13. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL. IN THE CASE OF A CONFLICT, DISAGREEMENT, OR AMBIGUITY, PROVIDE THE BETTER QUALITY. IN THE CASE OF A CONFLICT, DISAGREEMENT, OR AMBIGUITY, PROVIDE THE GREATER QUANTITY OF WORK.

**SWM FACILITY AS-BUILT NOTES**

1. CONSTRUCTION INSPECTION AND AS-BUILT CERTIFICATION REQUIREMENTS SHALL BE INCORPORATED ON TO THE SITE AND SUBDIVISION PLANS.
2. INSPECTIONS ARE NEEDED DURING CONSTRUCTION TO ENSURE THAT THE FACILITIES ARE BUILT IN ACCORDANCE WITH THE APPROVED PLANS AND DESIGN SPECIFICATIONS. THE CONTRACTOR SHALL PROVIDE FOR PERIODIC INSPECTIONS OF THE FACILITY DURING CONSTRUCTION. DETAILED INSPECTION CHECKLISTS SHALL BE USED THAT INCLUDE SIGN-OFFS BY A LICENSED LAND SURVEYOR OR PROFESSIONAL ENGINEER REGISTERED IN VIRGINIA AT CRITICAL STAGES OF CONSTRUCTION, TO ENSURE THAT THE CONTRACTOR'S INTERPRETATION OF THE PLAN IS CONSISTENT WITH THE DESIGNER'S INTENT. THE ACTUAL INSPECTIONS MAY BE PERFORMED BY AN INDIVIDUAL UNDER THE DIRECT SUPERVISION OF THE LICENSED PROFESSIONAL.
3. AFTER THE FACILITY HAS BEEN CONSTRUCTED, THE CONTRACTOR SHALL HAVE AN AS-BUILT CERTIFICATION CONDUCTED BY A LICENSED LAND SURVEYOR OR PROFESSIONAL ENGINEER REGISTERED IN VIRGINIA AND SUBMITTED TO THE COUNTY ALONG WITH THE AS-BUILT CHECKLIST AND AS-BUILT PLAN. THE AS-BUILT CERTIFICATION VERIFIES THAT THE FACILITY WAS INSTALLED AS DESIGNED AND APPROVED. THE FOLLOWING COMPONENTS SHALL BE ADDRESSED IN THE AS-BUILT CERTIFICATION:
  - a. THE FILTER MEDIA IS IN CONFORMANCE WITH THE SPECIFICATION AND IS INSTALLED TO THE CORRECT DEPTH (IF APPLICABLE).
  - b. ELEVATIONS (E.G., THE INVERT OF THE UNDERDRAIN, INVERTS FOR THE INFLOW AND OUTFLOW POINTS, ETC.) AND THE SURFACE SLOPE ARE PER THE PLAN (IF APPLICABLE).
  - c. PRETREATMENT STRUCTURES (IF APPLICABLE) ARE PROPERLY INSTALLED AND WORKING EFFECTIVELY.
  - d. OBSERVATION WELLS ARE INSTALLED AND WORKING EFFECTIVELY (IF APPLICABLE).
  - e. ANY MATERIAL DELIVERY TICKETS AND CERTIFICATIONS FROM THE MATERIAL SUPPLIERS AND RESULTS OF THE TESTS AND INSPECTIONS (IF APPLICABLE).
  - f. INFILTRATION BASED FACILITIES SHALL BE INSPECTED AT THE OBSERVATION WELL 24 HOURS FOLLOWING A STORM EVENT IN EXCESS OF 0.5 INCHES OF RAINFALL OR ARTIFICIAL FLOODING TO DETERMINE THAT THE FACILITY IS DRAINING PROPERLY. REPORT OF FIELD PERFORMANCE TEST RESULTS SHALL BE INCLUDED ALONG WITH THE ASBUILT SUBMISSION PACKAGE. (IF APPLICABLE)
  - g. PLANTING IS INSTALLED PER THE PLAN (IF APPLICABLE)
  - h. BASED ON THE TYPE OF THE FACILITY, DIGITAL PHOTOGRAPHS DOCUMENTING CONSTRUCTION AND SHOWING THE SITE BEFORE BEGINNING CONSTRUCTION, THE EXCAVATION'S WALLS AND BOTTOM BEFORE ANY BACKFILL, PLACEMENT OF EACH MATERIAL LAYER SHOWING THE FINAL TOP SURFACE OF EACH LAYER, PLACEMENT OF THE UNDERDRAIN SYSTEM, OBSERVATION WELLS, AND, OUTLET WORKS (IF APPLICABLE).
  - i. GPS COORDINATES FOR EACH FACILITY.
4. CONSTRUCTION METHODS, AND MATERIALS SHALL CONFORM TO THE CURRENT PRINCE WILLIAM COUNTY, PRINCE WILLIAM COUNTY SERVICE AUTHORITY, AND VIRGINIA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS EXCEPT AS MODIFIED BY NOTES OR DETAILS HEREON. IN CASE OF A DISCREPANCY OR CONFLICT BETWEEN THE STANDARDS OR SPECIFICATIONS AND REGULATIONS, THE MOST STRINGENT SHALL GOVERN.
5. GENERAL DIMENSIONS: ALL RADII AND DIMENSION LINES ARE TO BE FROM THE FACE OF CURB, UNLESS OTHERWISE NOTED. ALL SPOT ELEVATIONS ARE TO THE TOP OF CURB UNLESS OTHERWISE NOTED. ALL RADII SHALL BE 4.5' UNLESS OTHERWISE NOTED. REFER TO ARCHITECTURAL DRAWINGS FOR MORE ACCURATE BUILDING DIMENSIONS. ALL STANDARD PARKING SPACES SHALL BE 9 FEET WIDE BY 18 FEET DEEP UNLESS OTHERWISE NOTED.
6. ALL ACCESSIBLE SPACES SHALL CONFORM WITH THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT. HC SPACES SHALL BE A MINIMUM OF 8' WIDE. HC ACCESS AISLE SHALL BE A MINIMUM 8' WIDE FOR VAN ACCESSIBLE SPACES AND 5' WIDE FOR ALL OTHER ACCESS AISLES.
7. THE CURB & GUTTER SHALL HAVE UNIFORM SECTIONS, APPROXIMATELY TEN (10) FEET IN LENGTH, AND NO SECTION SHALL BE LESS THAN SIX (6) FEET IN LENGTH.
8. ALL SIGNS SHALL BE IN ACCORDANCE WITH PRINCE WILLIAM COUNTY DCSM & ZONING ORDINANCE REQUIREMENTS AND REQUIRE A SEPARATE REVIEW & PERMIT.
9. ALL EROSION CONTROL DEVICES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE "VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK".
10. SUBGRADE DEPTH AND PAVEMENT CROSS-SECTION WILL BE REVISED ONCE THE SUBGRADE SOIL TESTS ARE COMPLETED.
11. VISIT THE SITE AND VERIFY EXISTING CONDITIONS PRIOR TO STARTING CONSTRUCTION. NOTIFY THE ENGINEER OF ANY CHANGES TO THE EXISTING SITE CONDITIONS THAT VARIES FROM THE EXISTING CONDITION INFORMATION SHOWN ON THE PLAN.
12. AT LEAST ONE (1) COPY OF THE APPROVED PLANS, WITH REVISIONS AND ALL APPLICABLE PERMITS, MUST BE KEPT ON SITE AT ALL TIMES. ALSO, A REPRESENTATIVE OF THE DEVELOPER MUST BE AVAILABLE AT ALL TIMES.
13. ADJUST AND/OR RECONSTRUCT ALL UTILITY COVERS (SUCH AS MANHOLE FRAMES AND COVERS, VALVE BOX COVERS, ETC.) TO MATCH THE FINISHED GRADES OF THE AREAS EFFECTED BY THE CONSTRUCTION.
14. NOTIFY THE OWNER AND THE ENGINEER OF ANY CHANGES OR CONDITIONS ATTACHED TO PERMITS OBTAINED FROM THE VIRGINIA DEPARTMENT OF TRANSPORTATION, PRINCE WILLIAM COUNTY, OR ANY OTHER AUTHORITY ISSUING PERMITS.
15. THE APPROVAL OF THESE PLANS SHALL IN NO WAY RELIEVE THE OWNER OF COMPLYING WITH OTHER APPLICABLE LOCAL, STATE AND FEDERAL REQUIREMENTS.
16. ALL ELEVATIONS AS SHOWN HEREIN ARE FINISHED GRADE UNLESS OTHERWISE NOTED.
17. APPROVAL OF THIS PLAN DOES NOT GUARANTEE ISSUANCE OF AN ENTRANCE PERMIT BY VDOT WHEN SUCH PERMIT IS REQUIRED UNDER STATE LAW.
18. CONSTRUCTION DEBRIS SHALL BE CONTAINED IN ACCORDANCE WITH THE VIRGINIA LITTER CONTROL ACT. NO LESS THAN ONE LITTER RECEPTACLE SHALL BE PROVIDED AT THE CONSTRUCTION SITE.
19. WARNING SIGNS, MARKERS, BARRICADES OR FLAGMEN SHOULD BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
20. ALL UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE CONSTRUCTION LIMITS OF ROADWAY, DRIVES, BUILDINGS, OR OTHER STRUCTURAL AREAS BEFORE PLACING EMBANKMENT.
21. ALL STANDARD STREET NAME SIGNS, TRAFFIC CONTROL DEVICES, AND STREET LIGHTS SHALL BE PROVIDED BY THE CONTRACTOR.
22. PROVIDE ADEQUATE MEANS OF CLEANING MUD FROM TRUCKS AND/OR OTHER EQUIPMENT PRIOR TO ENTERING PUBLIC STREETS. CLEAN STREETS, ALLY 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.
23. THE CONTRACTOR SHALL PROTECT THE PUBLIC FROM ONGOING CONSTRUCTION OPERATIONS AND PROVIDE A SAFE WORK ENVIRONMENT IN ACCORDANCE WITH OSHA AND OTHER FEDERAL, STATE, AND LOCAL ORDINANCES.
24. A GRADING PERMIT IS TO BE OBTAINED FROM PRINCE WILLIAM COUNTY PRIOR TO THE START OF ANY GRADING ACTIVITIES.
25. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL REQUIRED PERMITS AND ENSURING THAT ALL APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS APPROVED BY ALL THE PERMITTING AUTHORITIES AND CONDUCTED A SITE VISIT TO VERIFY THAT EXISTING CONDITIONS HAVE NOT CHANGED.
26. UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN CONSTRUCTION STAKING.
27. ALL TOPSOIL SHALL BE REMOVED AND STOCKPILED IN AN AREA APPROVED BY THE OWNER. UPON COMPLETION OF CONSTRUCTION, TOPSOIL, A MINIMUM OF FOUR (4) INCHES IN DEPTH, SHALL BE SPREAD OVER AREAS DISTURBED BY CONSTRUCTION.
28. ALL DEBRIS FROM REMOVAL OPERATIONS SHALL BE REMOVED FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPILING OF DEBRIS WILL NOT BE PERMITTED. STOCKPILING OF SOIL WILL BE ALLOWED IN APPLICABLE LOCATIONS.
29. DURING CONSTRUCTION AND UNTIL SUCH A TIME VEGETATION IS REESTABLISHED, THE CONTRACTOR SHALL KEEP EXPOSED SOIL AREAS WITHIN THE LIMITS OF CONSTRUCTION AND STOCKPILE AREAS, DAMPED TO PREVENT BLOWING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE EROSION AND SEDIMENT CONTROL MEASURE DURING CONSTRUCTION AND FOLLOWING CONSTRUCTION, UNTIL SUCH TIME AS PROPER VEGETATION IS REESTABLISHED.
30. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER AND/OR ENGINEER IF ANY DISCREPANCIES EXIST, PRIOR TO PROCEEDING WITH CONSTRUCTION, FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSION OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH A NOTIFICATION HAS NOT BEEN GIVEN.
31. A SEPARATE REVIEW AND PERMIT IS REQUIRED FOR RETAINING WALLS ABOVE 2 FEET PRIOR TO CONSTRUCTION.
32. IF CONSTRUCTION IS PHASED THE CONSTRUCTION ENTRANCE WILL REMAIN FUNCTIONAL OR BE RELOCATED WITHIN THE SITE AT THE DIRECTION OF THE INSPECTOR TO MAINTAIN ADEQUATE E&S MEASURES TO PREVENT SEDIMENT FROM ENTERING ANY PUBLIC ROADS.

**CONTROLLED FILLS**

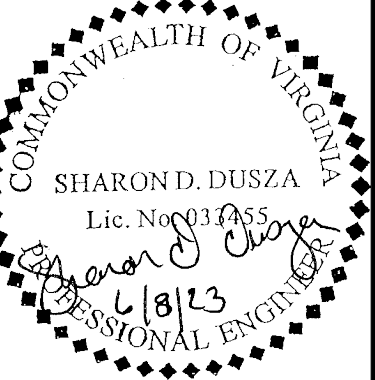
1. CONTROLLED COMPACTION SHALL OCCUR IN ALL FILL SECTIONS FOR PAVEMENT TRENCHES AND FILLS, AND IN ANY AREA OTHERWISE DESIGNATED ON THE DRAWINGS.
2. CONTROLLED FILLS MUST BE COMPACTED AND CONDITIONED AS DETERMINED IN THE GEOTECHNICAL RECOMMENDATIONS AND VERIFIED BY A QUALIFIED SOILS ENGINEER.
3. CONTROLLED FILLS SHALL BE COMPACTED IN HORIZONTAL LOOSE LIFTS NOT EXCEEDING 8 INCHES IN THICKNESS, MOISTURE CONDITIONED TO WITHIN +/-2% OF OPTIMUM MOISTURE CONTENT AND COMPACTED TO NOT LESS THAN 95% RELATIVE COMPACTION OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR (ASTM D-698) TEST.
4. THE SURFACE AREA DIRECTLY BENEATH AREAS TO RECEIVE CONTROLLED FILLS OF LESS THAN 5 FEET IN DEPTH IS TO BE DENuded OF ALL VEGETATION AND SCARIFIED AND COMPACTED TO A DEPTH OF 6 INCHES TO THE SAME DENSITY AS THE CONTROLLED FILL TO BE PLACED THEREON.
5. THE TOP 12 INCHES OF STRUCTURAL FILL BELOW ANY PROPOSED PAVEMENT OR SLAB AREAS SHALL BE COMPACTED TO NOT LESS THAN 100% RELATIVE COMPACTION OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST. DENSITY MUST BE VERIFIED BY A QUALIFIED REGISTERED PROFESSIONAL ENGINEER.
6. UNLESS OTHERWISE STATED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SOIL TESTING. THE RESULTS OF THE TEST SHALL BE FORWARDED TO THE ENGINEER FOR THEIR REVIEW AND APPROVAL. THE SOILS LABORATORY SHALL DETERMINE THE SUITABILITY OF EXISTING ONSITE MATERIAL PRIOR TO BEGINNING ANY FILL OPERATIONS.

**UTILITY NOTES**

1. VERIFY LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE ENGINEER/COUNTY INSPECTOR TO DETERMINE IF THE UTILITY SHOULD REMAIN ACTIVE OR BE REMOVED OR ABANDONED AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE FACILITY AND ASSURE CONTINUANCE OF SERVICE IF IT IS TO REMAIN. ALL UTILITIES, INCLUDING ALL POLES, ARE TO BE RELOCATED AT THE DEVELOPER'S EXPENSE, PRIOR TO CONSTRUCTION, IF REQUIRED.
2. NOTIFY MISS UTILITY NOTIFICATION CENTER OF EXCAVATION, DEMOLITION, OR BLASTING AT LEAST TWO WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION, DEMOLITION, BLASTING, CONSTRUCTION IN ACCORDANCE WITH THE VIRGINIA UNDERGROUND UTILITY DAMAGE PREVENTION ACT. CONTACT "MISS UTILITY" AT 1-800-257-7777 OR 811.
3. CONTRACTOR IS RESPONSIBLE FOR COORDINATION AND RELOCATION OF ANY AND ALL UTILITIES IN PREPARATION OF ANY RELOCATION EASEMENT DOCUMENTS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COST INCURRED FOR THE RELOCATION OF OR DAMAGE TO ANY PUBLIC UTILITIES BECAUSE OF CONSTRUCTION.
5. TEST PITS SHALL BE REQUESTED A MINIMUM OF 48 HOURS IN ADVANCE FOR THOSE UTILITIES REQUIRING THEM.
6. THIS SITE WILL BE SERVED BY PUBLIC WATER AND SEWER.
7. ALL SANITARY SEWERS, LATERALS, AND WATER MAINS AND APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE PRINCE WILLIAM COUNTY SERVICE AUTHORITY.
8. NO PRIVATE SIGNS, BUILDINGS, FENCES, TREES, LANDSCAPING OR SIMILAR STRUCTURES WILL BE CONSTRUCTED WITHIN A WATERLINE, SANITARY SEWER OR STORM DRAINAGE EASEMENT UNLESS AN ENCROACHMENT AGREEMENT HAS BEEN EXECUTED BETWEEN THE OWNER AND THE PRINCE WILLIAM COUNTY SERVICE AUTHORITY (WATERLINE/SANITARY SEWER) OR THE DEPARTMENT OF PUBLIC WORKS (STORM DRAINAGE).
9. WATER METERS ARE PROPERTY OF PRINCE WILLIAM COUNTY SERVICE AUTHORITY (PWCSA).
10. CLEAN OUT TOPS IN PAVEMENT TO BE ABLE TO WITHSTAND VEHICULAR TRAFFIC.
11. CLEANOUT TOPS IN ROADWAYS AND SIDEWALKS TO BE FLUSH WITH THE SURFACE.
12. ANY EXISTING WELLS SHALL BE CAPPED IN ACCORDANCE WITH PWC HEALTH DEPARTMENT REGULATIONS ANY DRAINFIELD UNCOVERED SHALL BE REMOVED AS REQUIRED.
13. OTHER UTILITIES (INCLUDING BUT NOT LIMITED TO CABLE, ELECTRIC, GAS, TELEPHONE, COMMUNICATIONS) SHALL BE GRANTED SEPARATE EASEMENTS BY THE OWNER.
14. MAINTAIN A MINIMUM VERTICAL CLEARANCE OF ONE (1) FOOT SIX (6) INCHES BETWEEN CROSSING OF ALL UTILITY LINES UNLESS OTHERWISE NOTED.
15. ALL UTILITIES PLACED UNDER EXISTING STREETS SHALL BE BORED OR JACKED.
16. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
17. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
18. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
19. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
20. RE-STABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH MS-19 STANDARDS.
21. APPLICABLE SAFETY CHAPTERS SHALL BE COMPLIED WITH.
22. PER PRINCE WILLIAM COUNTY ZONING ORDINANCE SECTION 32-250.71: EXCEPT FOR TRANSMISSION POWERLINES OF 34,500 KILOWATTS OR GREATER, WATER TOWERS, OR OTHER INSTALLATIONS APPROVED BY THE DIRECTOR OF PLANNING IN ACCORDANCE WITH THE PROVISIONS OF THE DCSM AND STANDARDS OF UTILITY PRACTICES FOR UNDERGROUND INSTALLATION, ALL ON-SITE UTILITY FACILITIES SERVING NEW USES OR INSTALLED AFTER THE EFFECTIVE DATE OF THIS CHAPTER TO SERVE ANY USE, AND NOT OTHERWISE EXEMPTED BY THIS SUBSECTION, AND TO INCLUDE WATER, SEWER, POWER, NATURAL GAS, TELEPHONE, AND CABLE SHALL BE INSTALLED UNDERGROUND. THIS REQUIREMENT SHALL NOT APPLY IN THE M-1 OR M/1 DISTRICTS, TO RESIDENTIAL SUBDIVISIONS OF TWO ACRES OR LARGER LOTS, OR TO USES ESTABLISHED PRIOR TO THE EFFECTIVE DATE OF THIS CHAPTER. SUCH EXISTING USES MAY EXPAND WITHIN THE LIMITS PROVIDED BY SECTION 32-601.33 WITHOUT MEETING THE REQUIREMENTS OF THIS SECTION.
23. ALL FIRELINES ARE 6" OR LARGER, PER DCSM 302.06. A SEPARATE FIRELINE PERMIT IS REQUIRED PRIOR TO FIRELINE INSTALLATION.



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NOTES & DETAILS

**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
BREWSTERVILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:


PLAN DATE: OCTOBER 7, 2022

DESIGN BY: AG/SAW

CHECKED BY: SSD

ARCHITECT: MOSELEY ARCH

JURISDICTION PLAN NO. SPR2023-00185

RDA PLAN #: 19001-008

SHEET NUMBER: C.02

**Storm As-built**

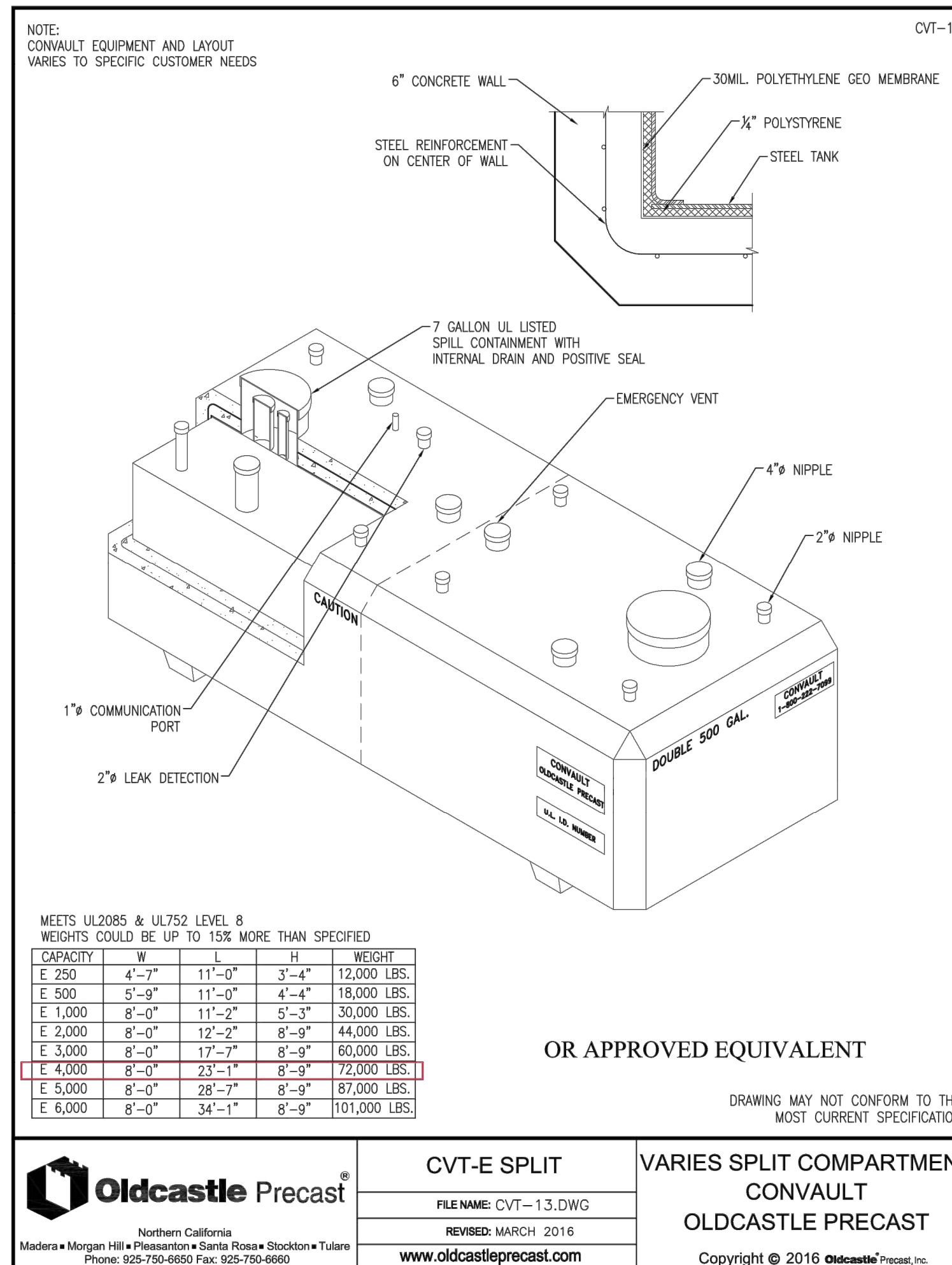
Str. # 1	Ex. Curb Inlet	Ex. Top= 236.05	Ex. Inv. In= 228.80 (15" RCP from 2)	Ex. Inv. Out= 228.77 (15" RCP to Southeast)
Str. # 2	Ex. Curb Inlet	Ex. Top= 235.54	Ex. Inv. In= 229.36 (15" RCP from 3)	Ex. Inv. Out= 229.24 (15" RCP to 1)
Str. # 3	Ex. Curb Inlet	Ex. Top= 233.77	Ex. Inv. Out= 229.64 (15" RCP to 2)	
Str. # 4	Ex. End Wall	Ex. Top= 231.65	Ex. Inv. Out= 226.53 (42" RCP from 5)	
Str. # 5	Ex. Inv. In=	227.76	(42" RCP to 4)	
Str. # 6	Ex. End Wall	Ex. Top= 231.74	Ex. Inv. Out= 226.64 (42" RCP from 7)	
Str. # 7	Ex. Inv. In=	227.76	(42" RCP to 6)	
Str. # 8	Ex. Curb Inlet	Ex. Top= 236.58	Ex. Inv. In= 228.41 (15" RCP from 9)	Ex. Inv. In= 227.69 (24" RCP from 10)
			Ex. Inv. Out= 227.54 (24" RCP to 8A)	
Str. # 8A	Ex. End Section	Ex. Inv. Out= 227.17	(24" RCP from 8)	
Str. # 9	Ex. Curb Inlet	Ex. Top= 233.97	Ex. Inv. Out= 229.24 (15" RCP to 8)	
Str. # 10	Ex. Curb Inlet	Ex. Top= 237.82	Ex. Inv. In= 229.27 (24" RCP from 13)	Ex. Inv. In= 230.09 (15" RCP from 11)
			Ex. Inv. Out= 229.18 (24" RCP to 8)	
Str. # 11	Ex. Manhole	Ex. Top= 236.13	Ex. Inv. In= 232.40 (15" RCP from 12)	Ex. Inv. Out= 232.10 (15" RCP to 10)
Str. # 12	Ex. Curb Inlet	Ex. Top= 237.05	Ex. Inv. Out= 233.75 (15" RCP to 11)	
Str. # 13	Ex. Curb Inlet	Ex. Top= 239.21	Ex. Inv. In= 231.11 (24" RCP from 14)	Ex. Inv. Out= 230.91 (24" RCP to 10)
Str. # 14	Ex. Curb Inlet	Ex. Top= 239.74	Ex. Inv. In= 231.74 (24" RCP from 15)	Ex. Inv. Out= 231.54 (24" RCP to 13)
Str. # 15	Ex. Curb Inlet	Ex. Top= 239.69	Ex. Inv. In= 233.79 (18" RCP from 16)	Ex. Inv. Out= 233.39 (24" RCP to 14)
Str. # 16	Ex. Curb Inlet	Ex. Top= 239.55	Ex. Inv. In= 234.35 (15" RCP from 18)	Ex. Inv. In= 234.55 (15" RCP from 17)
			Ex. Inv. Out= 234.20 (18" RCP to 15)	
Str. # 17	Ex. Curb Inlet	Ex. Top= 239.52	Ex. Inv. Out= 235.12 (15" RCP to 16)	
Str. # 18	Ex. Curb Inlet	Ex. Top= 241.92	Ex. Inv. Out= 235.62 (15" RCP to 16)	
Str. # 19	Ex. Curb Inlet	Ex. Top= 243.43	Ex. Inv. Out= 238.53 (15" RCP to North)	
Str. # 20	Ex. Curb Inlet	Ex. Top= 242.44	Ex. Inv. In= 233.64 (48" RCP from 21)	Ex. Inv. Out= 233.44 (48" RCP to East)

Str. # 21	Ex. Curb Inlet	Ex. Top= 242.42	Ex. Inv. In= 234.62 (48" RCP from West)	Ex. Inv. Out= 234.42 (48" RCP to 20)
Str. # 22	Ex. Curb Inlet	Ex. Top= 240.63	Ex. Inv. Out= 236.73 (15" RCP to North)	
Str. # 23	Ex. Inv. Out=	221.74	(18" Metal from 24)	
Str. # 24	Ex. Storm Structure w/ trash rack	Ex. Top/Overflow= 228.63	Ex. Inv. Out= 224.01 (18" Metal to 23)	Ex. Bottom Weir Inv.= 226.87 (Weir opening 0.53' x 1.30') Steel maintenance plate (1.0' x 1.3')
Str. # 25	Ex. Inv. Out=	234.59	(12" CMP from 26)	
Str. # 26	Ex. Inv. In=	234.73	(12" CMP to 25)	

**Storm As-built**

From	To	Pipe Information	Invert Out	Invert In
2	1	60.1' - 15" RCP @ 0.73%	229.24	228.80
3	2	43.0' - 15" RCP @ 0.65%	229.64	229.36
5	4	112.9' - 42" RCP @ 1.09%	227.76	226.53
7	6	113.4' - 42" RCP @ 0.99%	227.76	226.64
8	8A	35.3' - 24" RCP @ 1.05%	227.54	227.17
9	8	75.6' - 15" RCP @ 1.10%	229.24	228.41
10	8	156.3' - 24" RCP @ 0.95%	229.18	227.69
11	10	72.4' - 15" RCP @ 2.78%	232.10	230.09
12	11	26.4' - 15" RCP @ 5.11%	233.75	232.40
13	10	154.6' - 24" RCP @ 1.06%	230.91	229.27
14	13	87.0' - 24" RCP @ 0.49%	231.54	231.11
15	14	307.6' - 24" RCP @ 0.54%	233.39	231.74
16	15	42.6' - 18" RCP @ 0.96%	234.20	233.79
17	16	73.0' - 15" RCP @ 0.78%	235.12	234.55
18	16	118.4' - 15" RCP @ 1.07%	235.62	234.35
21	20	43.6' - 48" RCP @ 1.79%	234.42	233.64
24	23	144.6' - 18" Metal @ 1.57%	224.01	221.74
26	25	34.8' - 12" CMP @ 0.40%	234.73	234.59

**FUEL TANK**



OR APPROVED EQUIVALENT

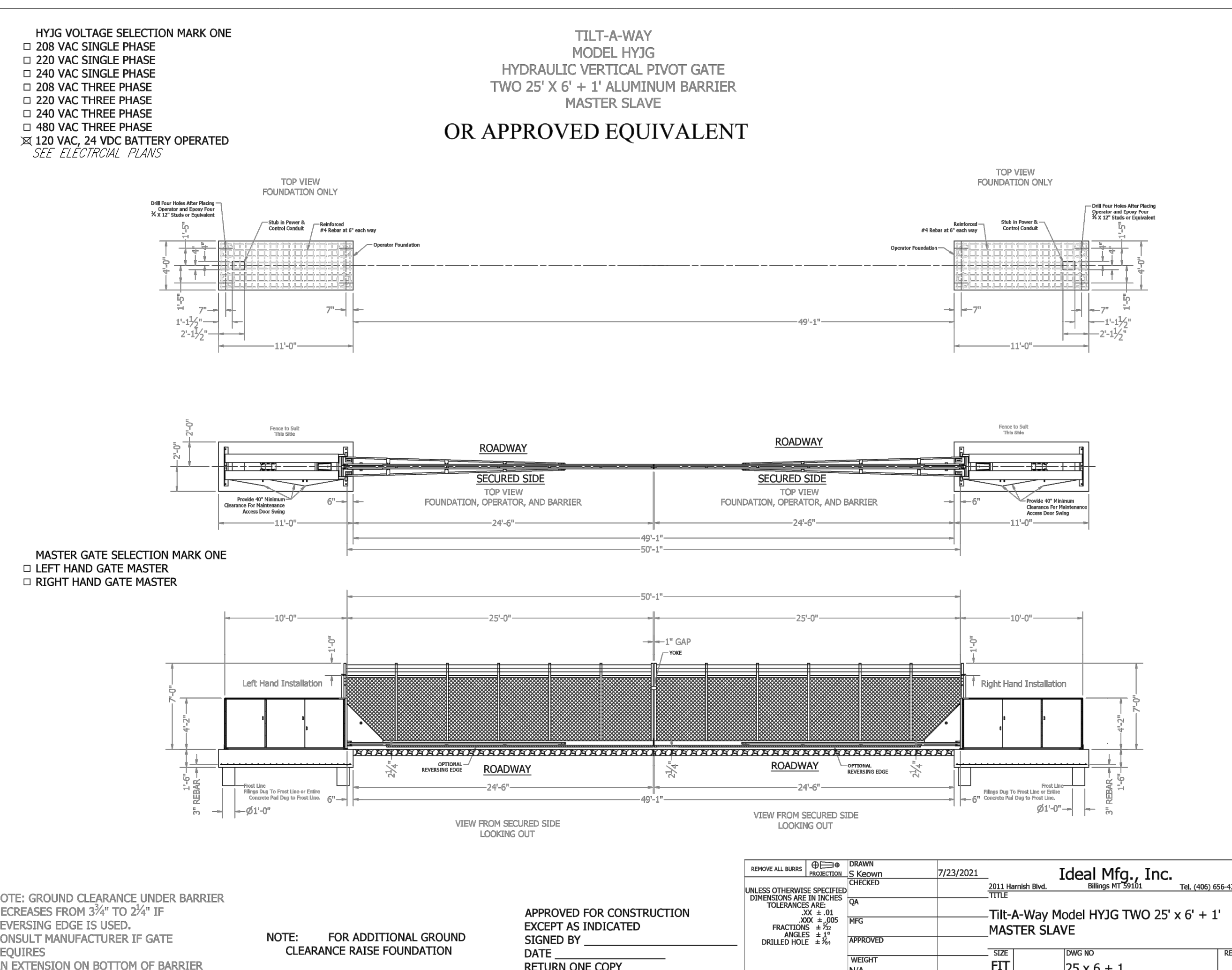
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**CVT-E SPLIT**  
FILE NAME: CVT-13.DWG  
REVISED: MARCH 2016  
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**Sanitary As-built**

Str. # 127-59	Ex. Manhole	Ex. Top= 223.65	Ex. Inv. In= 217.05 (24" DIP from 127-60)	Ex. Inv. Out= 217.04 (24" DIP to South)
Str. # 127-60	Ex. Manhole	Ex. Top= 227.24	Ex. Inv. In= 215.97 (24" DIP from 127-62)	Ex. Inv. In= 216.00 (15" DIP from 127-11)
			Ex. Inv. Out= 215.86 (24" DIP to 127-59)	
Str. # 127-62	Ex. Manhole	Ex. Top= 248.81	Ex. Inv. In @ C/L= 217.58 (24" DIP from 127-63)	Ex. Inv. Out @ C/L= 217.58 (24" DIP to 127-60)
Str. # 127-63	Ex. Manhole	Ex. Top= 243.16	Ex. Inv. In= 218.68 (24" DIP from 127-64)	Ex. Inv. Out= 218.58 (24" DIP to 127-62)
Str. # 127-64	Ex. Manhole	Ex. Top= 231.86	Ex. Inv. In= 218.96 (24" DIP from 127-13)	Ex. Inv. Out= 218.82 (24" DIP to 127-63)
Str. # 127-13	Ex. Manhole	Ex. Top= 232.84	Ex. Inv. In= 219.50 (24" DIP from 127-30)	Ex. Inv. In= 220.96 (12" DIP from 127-12)
			Ex. Inv. In= 219.67 (12" PVC from 127-15)	Ex. Inv. Out= 219.32 (24" DIP to 127-64)
Str. # 127-30	Ex. Manhole	Ex. Top= 235.60	Ex. Inv. In= 220.28 (24" DIP from North)	Ex. Inv. Out= 220.10 (24" DIP to 127-13)
Str. # 127-15	Ex. Manhole	Ex. Top= **	Ex. Inv. Out= 220.35 (12" PVC to 127-13)	** Possibly abandoned, no evidence of flow.



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**COMMONWEALTH OF VIRGINIA**  
SHARON D. DUSZA  
Lic. No. 010337  
Professional Engineer  
12/13

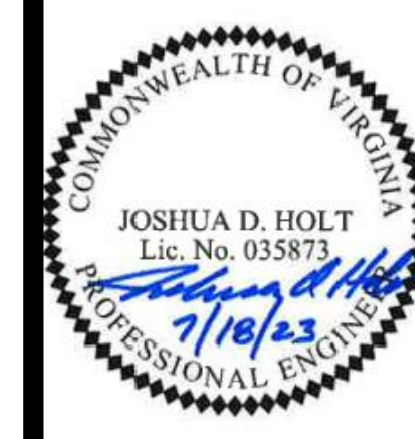
**NOTES & DETAILS**  
**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
BRENTSVILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

**REVISIONS:**

PLAN DATE: OCTOBER 7, 2022  
DESIGN BY: AG/S/AW  
CHECKED BY: SSD  
ARCHITECT/MOSELEY ARCH  
JURISDICTIONAL PLAN NO. SPR2023-00185  
RDA PLAN #: 19001-008  
SHEET NUMBER: C.03



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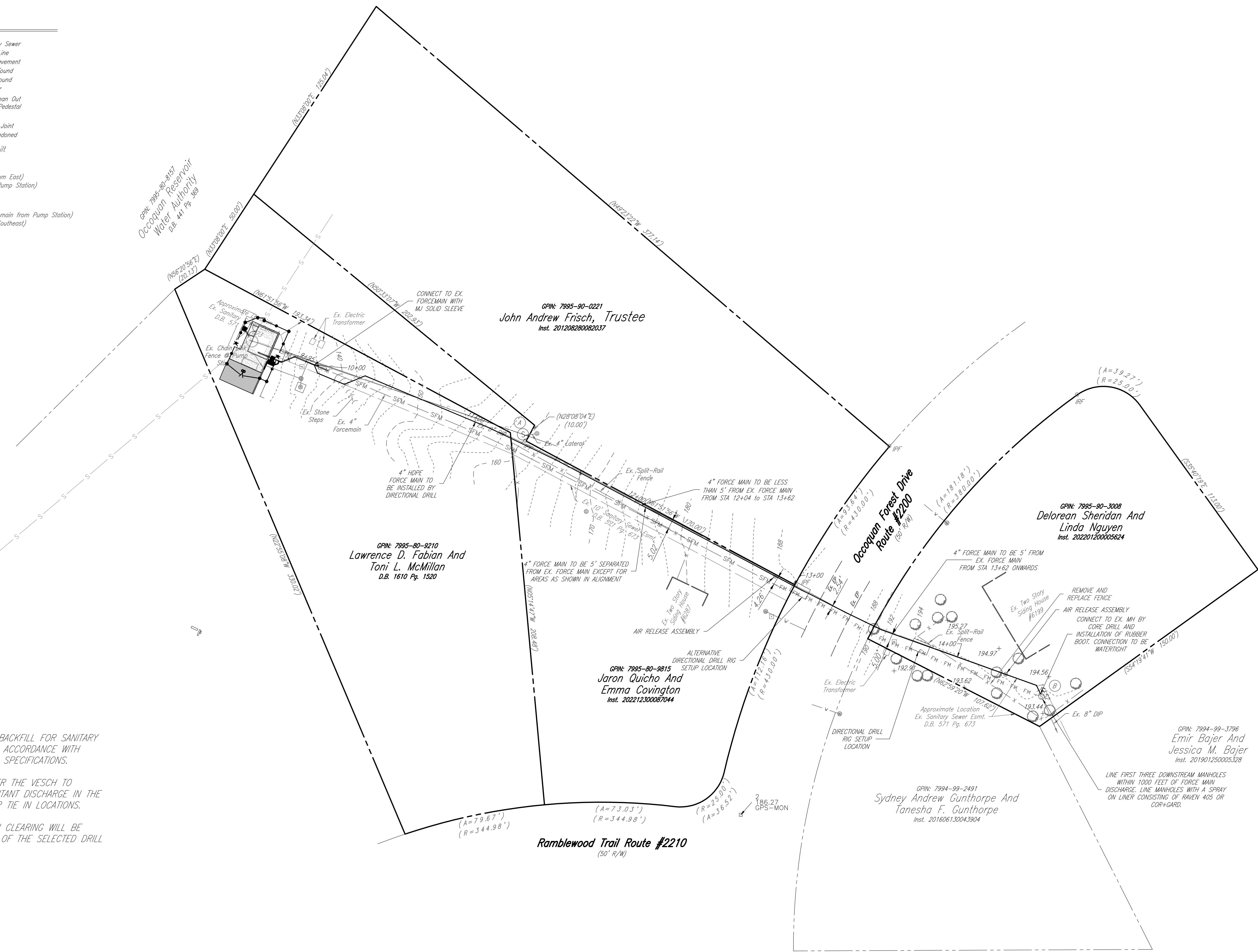
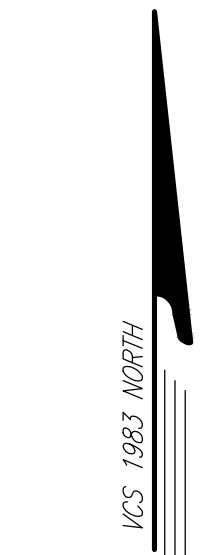


**SANITARY SEWER PLAN**  
**OCCOQUAN PUMP STATION 37**  
**FORCE MAIN**  
 PRINCE WILLIAM COUNTY, VIRGINIA

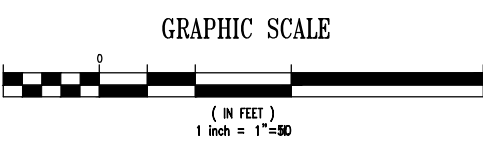
REVISIONS:

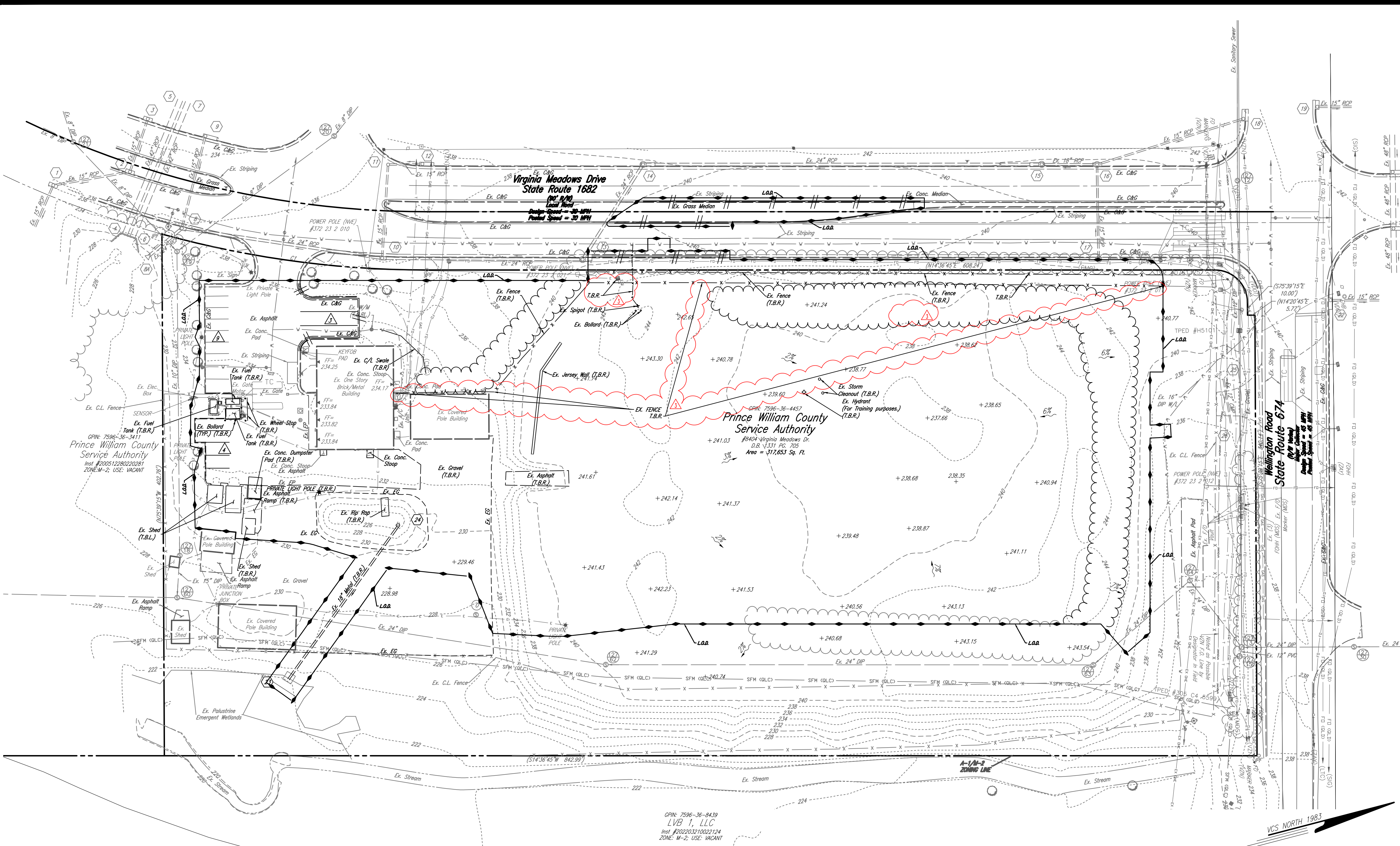

PLAN DATE:	7/11/23
DESIGN BY:	JH/MC
CHECKED BY:	SDD
ARCHITECT:	
JURISDICTIONAL PLAN NO.	
RDA PLAN NO.19001-016	
SHEET NUMBER:	C.03

- LEGEND**
- Ex. Sanitary Sewer
  - v— Ex. Water Line
  - EP— Edge Of Pavement
  - IPF— Iron Pipe Found
  - IRF— Iron Rod Found
  - ⊙— Water Meter
  - ⊕— Sanitary Clean Out
  - Telephone Pedestal
  - FM— Forcemain
  - MJ— Mechanical Joint
  - TBA— To Be Abandoned
- Ex. Sanitary Sewer As-Built
- (A) Ex. Sanitary Manhole  
 Ex. Top=160.07  
 Ex. Inv. In=155.45 (4" Lateral from East)  
 Ex. Inv. Out=154.77 (8" DIP to Pump Station)
  - (B) Ex. Sanitary Manhole  
 Ex. Top=193.97  
 Ex. Inv. In=188.00 (4" PVC Forcemain from Pump Station)  
 Ex. Inv. Out=187.77 (8" DIP to Southeast)



- NOTES:**
- TRENCHING, BEDDING AND BACKFILL FOR SANITARY SEWER SHALL BE DONE IN ACCORDANCE WITH P.W.C.S.A. STANDARDS AND SPECIFICATIONS.
  - INSTALL SILT FENCE AS PER THE VESCH TO ELIMINATE POSSIBLE POLLUTANT DISCHARGE IN THE AREAS OF EXCAVATION FOR THE IN LOCATIONS.
  - SMALLER TREE AND BRUSH CLEARING WILL BE NECESSARY IN THE AREAS OF THE SELECTED DRILL RIG SET UP LOCATIONS.





### LINETYPE LEGEND

---	Denotes Ex. Storm Sewer
- - - -	Denotes Ex. Sanitary Sewer
---	Denotes Ex. Water Line
---	Denotes Ex. Underground Electric
---	Denotes Ex. Underground Telephone
---	Denotes Ex. Underground Cable TV
---	Denotes Ex. Underground Gas Line
---	Denotes Ex. Overhead Electric
---	Denotes Ex. Edge of Pavement
---	Denotes Ex. Face/Back of Curb
---	Denotes Proposed Fence
---	Denotes Proposed Treeline
---	Denotes Proposed Storm Sewer
---	Denotes Proposed Sanitary Sewer
---	Denotes Proposed Waterline
---	Denotes Proposed Curb and Gutter
---	Denotes Proposed Treeline
---	Denotes Limits of Disturbance
---	Denotes Existing Curb to be Removed

### SYMBOLS

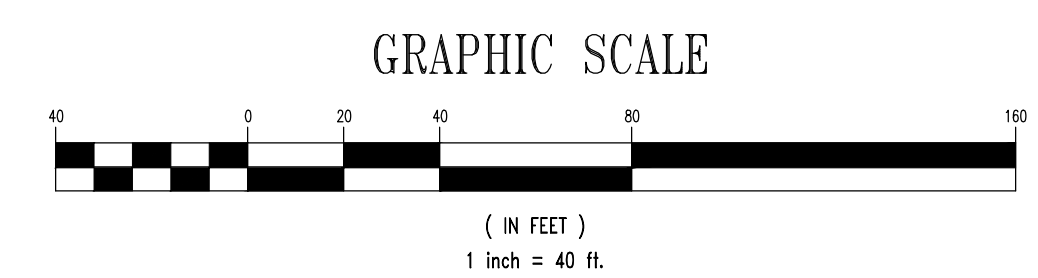
⊙	Electric Manhole	⊙	Water Manhole
⊙	Street Light Manhole	⊙	Water Valve
⊙	Electric Pad	⊙	Water Meter
⊙	Electric Box	⊙	Fire Hydrant
⊙	Elec Hand Box	⊙	Siamese Connection
⊙	Elec Meter	+	Water Spigot
⊙	Transformer	+	Water Wall
⊙	UG/Transformer	+	Post Indicator Valve
⊙	Switchgear	+	Water Valve P/T
⊙	Generator	+	Water Inlet
⊙	Light Pole	+	Irrigation Control Valve
⊙	Security Camera Pole	+	Air Relief Valve
⊙	Ground Light	+	Blow Off Valve
⊙	Lighted Bollard	+	Chilled Water Manhole
⊙	Utility Pole	+	Chilled Water Valve
⊙	Guy Wire	+	Storm Drain Manhole
⊙	Electric Pole	+	Round Inlet
⊙	Telephone Manhole	+	Curb Inlet
⊙	Telephone Pedestal	+	Rectangular Grate Inlet
⊙	Telephone Cabinet	+	Small Inlet
⊙	Telephone Hand Box	+	Square Inlet
⊙	Phone Booth	+	Storm Cleanout
⊙	Call Box	+	Roof Leader (Down Spout)
⊙	Fire Alarm Box	+	Outfall End Section
⊙	Telephone Pole	+	Traffic Signal Pole
⊙	Combo. Pole	+	Pad Signal Pole
⊙	TV Pedestal	+	Traffic Hand Box
⊙	TV Cabinet/Box	+	IC Signal Controller
⊙	TV Hand Box	+	Sanitary Manhole
⊙	TV Manhole	+	Sanitary Lamphole
⊙	Card Reader	+	Sanitary Cleanout (C/O)
⊙	Gas Manhole	+	Sanitary Vent
⊙	Gas Valve	+	Sanitary Foremain Valve
⊙	Gas Meter	+	Oil Water Separator
⊙	Gas Station	+	Steam Manhole
⊙	Gas Vent	+	Steam Valve
⊙	Gas Regulator	+	Steam Vent
⊙	Monitoring Well	+	Fuel Tank Access
⊙	Unknown Manhole	+	Oil Fill Cap
⊙	Unknown Valve	+	Fuel Vent Pipe
⊙	Unknown Hand Box	+	Industrial Waste Manhole
⊙	Unknown Cleanout	+	Utility Line Stub
⊙	Fiber Optic Manhole	+	End of Information
⊙	FD Pedestal	+	Utility Test Hole
⊙	FD Box	+	Proposed Utility Test Hole
⊙	FD Handbox	+	Satellite Dish

### ABBREVIATION LEGEND

APPROX.	APPROXIMATELY
B.O.V.	BLOW OFF VALVE
B.R.L.	BUILDING RESTRICTION LINE
BUILD.	BUILDING
C.L.	CENTER LINE
C.O.	CLEAN OUT
CONC.	CONCRETE
C&G	CURB AND GUTTER
D&B	DEED BOOK
D.I.P.	DUCTILE IRON PIPE
ENT.	ENTRANCE
E.P.	EDGE OF PAVEMENT
E.SMT.	EASEMENT
EX.	EXISTING
F.H.	FIRE HYDRANT
H.C.	HANDICAPPED
INV.	INVERT
INSTR. #	INSTRUMENT NUMBER
L.A.	LIMITED ACCESS
LAT.	LATERAL
L.O.D.	LIMITS OF DISTURBANCE
L.S.	LOADING SPACE
M.H.	MANHOLE
MIN.	MINIMUM
P.C.	PAGE
P.L.	PROPERTY LINE
PVC	POLYVINYL CHLORIDE
R.	RADIUS
RCP	REINFORCED CONCRETE PIPE
RET. WALL	RETAINING WALL
RPA	RESOURCE PROTECTION AREA
R.O.W.	RIGHT OF WAY
SAW	SANITARY
SEW.	SEWER
S.W.	SIDEWALK
SF	SQUARE FEET
SP.	SPACE
STM	STORM
TEMP.	TEMPORARY
T.B.R.	TO BE REMOVED
T.B.L.	TO BE RELOCATED
T.B.V.	TO BE VACATED
(TRP)	TYPICAL
V.A.	VEHICLE ACCESSIBLE
VPD	VEHICLES PER DAY
W/L	WITH
W.S.E.	WATER SURFACE ELEVATION

### DEMOLITION NOTES:

- PRIOR TO THE ONSET OF DEMOLITION THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AS REQUIRED BY PRINCE WILLIAM COUNTY AND ANY APPLICABLE FEDERAL AND STATE AGENCIES. ALL DEMOLITION ACTIVITIES ARE TO BE PERFORMED IN STRICT ADHERENCE TO ALL FEDERAL, STATE AND LOCAL REGULATIONS. BUILDINGS CONSTRUCTED PRIOR TO 1985 REQUIRE AN ASBESTOS SURVEY.
- MARK POSITIONS OF ALL UTILITY, DRAINAGE AND SANITARY LINES AND PROTECT ALL ACTIVE LINES. CLEARLY IDENTIFY, BEFORE THE COMMENCEMENT OF DEMOLITION, SERVICES THAT REQUIRE INTERRUPTION OF AN ACTIVE SYSTEM THAT MAY AFFECT OTHER PARTIES, AND NOTIFY ALL APPLICABLE UTILITY COMPANIES TO ENSURE THE CONTINUATION OF SERVICE.
- THE DEMOLITION AND REMOVAL OF ASPHALT SHALL BE DONE IN SMALL SECTIONS.
- CONDUCT DEMOLITION SERVICES IN SUCH A MANNER TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS AND OTHER ADJACENT FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS AND OTHER OCCUPIED FACILITIES WITHOUT PRIOR WRITTEN PERMISSION OF THE CLIENT AND ANY APPLICABLE GOVERNMENTAL AUTHORITIES. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS, IF REQUIRED BY APPLICABLE GOVERNMENTAL REGULATION.
- USE WATERING, TEMPORARY ENCLOSURES AND OTHER SUITABLE METHODS AS NECESSARY TO LIMIT THE AMOUNT OF DUST AND DIRT RISING AND SCATTERING IN THE AIR. CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. RETURN ALL ADJACENT AREAS TO THE CONDITIONS EXISTING PRIOR TO THE START OF WORK.
- DEMOLITION TO BE PERFORMED IN SUCH A MANNER AS TO PREVENT THE UNAUTHORIZED ENTRY OF PERSONS AT ANY TIME.
- THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH OCCUR BY THEIR FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE ENGINEER AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE FACILITY AND ENSURE CONTINUANCE OF SERVICE.
- ANY UTILITY POLES & BOXES, GUY WIRES, OR OTHER ABOVE OR BELOW GROUND UTILITIES THAT CONFLICT WITH THE PROPOSED CONSTRUCTION MAY HAVE TO BE ADJUSTED OR RELOCATED. THE CONTRACTOR IS TO COORDINATE THESE REQUIRED CHANGES WITH THE UTILITY COMPANIES PRIOR TO CONSTRUCTION.
- EXISTING SERVICES CONNECTED TO UTILITIES TO BE REMOVED OR ABANDONED MUST BE COORDINATED IN ORDER TO MINIMIZE THE DISRUPTION OF SERVICE.



### SURVEY CONTROL

Point	Northing	Easting	Elevation	Description
1	6966309.173	11753158.016	236.91	GPSM TRV
2	6966580.377	11753202.930	240.58	GPSM TRV
3	6966792.294	11753256.126	241.58	TRV
4	6967042.557	11753363.786	240.58	TRV
5	6966871.711	11753652.831	242.30	TRV
6	6966556.642	11753600.403	242.25	TRV
7	6966505.061	11753559.888	239.69	TRV
8	6966290.256	11753339.734	231.87	TRV

CURVE	RADIUS	ARC LENGTH	DELTA ANGLE	TANGENT	CHORD BEARING	CHORD LENGTH
C1	765.00'	206.73'	15°29'00"	104.00'	N 22°21'15" E	206.10'
C2	25.00'	39.15'	89°44'00"	24.88'	N 59°28'45" E	35.27'

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COMMONWEALTH OF VIRGINIA  
 SHARON D. DUSZA  
 Lic. No. 013855  
 3/19/24  
 PROFESSIONAL ENGINEER

EXISTING CONDITIONS/DEMOLITION PLAN

WELLINGTON ROAD OPERATIONS CENTER EXPANSION

BRENTSVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS: 03/13/2024  
 BID ADDENDUM 3-UPDATE NOTE  
 TBR, DELETED NOTE, ADDED NEW ARROWS.

PLAN DATE: OCTOBER 7, 2022

DESIGN BY: AG/SAW

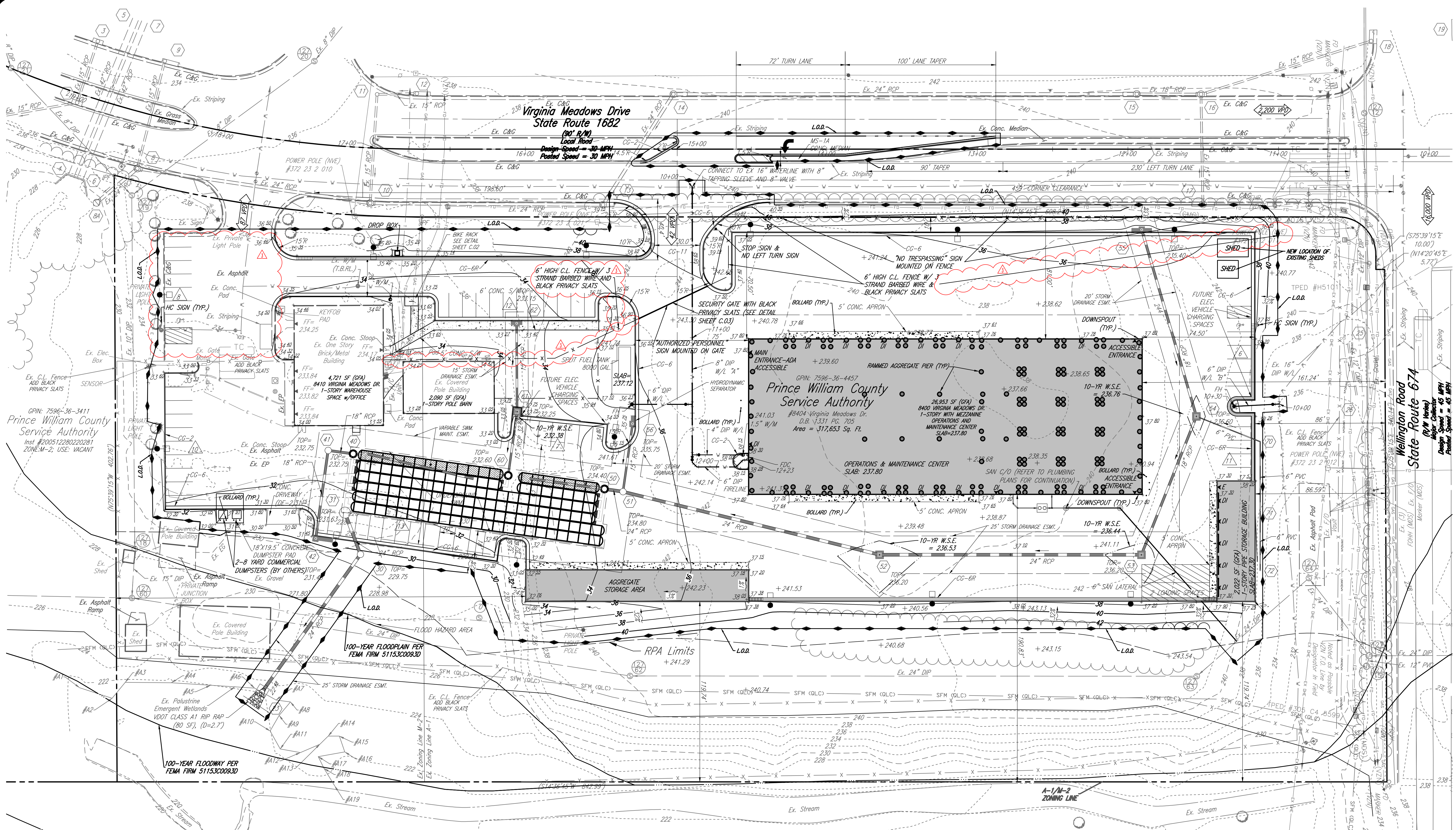
CHECKED BY: SSD

ARCHITECT/MOSELEY ARCH

JURISDICTIONAL PLAN NO. SPR2023-00185

RDA PLAN #: 19001-008

SHEET NUMBER: C.04



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**SITE PLAN**  
**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
 BRENTSVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

**REVISIONS:** 03/13/2024  
 BID ADDENDUM 3 - UPDATE NOTE  
 MODIFY FENCE, REMOVE CG-2  
 LABEL AND PROPOSED CONTOUR  
 IN PARKING LOT.

PLAN DATE: OCTOBER 7, 2022  
 DESIGN BY: AG/SAW  
 CHECKED BY: SSD  
 ARCHITECT/MOSELEY ARCH  
 JURISDICTIONAL PLAN NO. SPR2023-00185  
 RDA PLAN #: 19001-008  
 SHEET NUMBER: C.05

GPIN: 7596-36-8439  
 LVB 1, LLC  
 Inst #202203210022124  
 ZONE: M-2, USE: VACANT

THIS SITE IS ENTIRELY WITHIN THE DAM BREAK INUNDATION ZONE (LAKE MANASSAS DAM, VA DAM #153002)

DESIGNATES SOIL UNDERCUT AND REPLACEMENT (SEE NOTES BELOW)

**OPERATION & MAINTENANCE BUILDING**  
 PER THE GEOTECHNICAL RECOMMENDATIONS, RAMMED AGGREGATE PIERS SHOULD BE USED FOR THE WALL AND COLUMN ELEMENTS OF THE OPERATION/MAINTENANCE FACILITY. FOR THE SLAB, THE UPPER 2 FEET OF IN-SITU SOIL SHALL BE REMOVED AND REPLACED WITH CONTROLLED ENGINEERED FILL.

**AGGREGATE STORAGE AREA**  
 PER THE GEOTECHNICAL RECOMMENDATIONS FOR THE SLAB, THE UPPER 2 FEET OF IN-SITU SOIL SHALL BE REMOVED AND REPLACED WITH CONTROLLED ENGINEERED FILL.

**PIPE STORAGE BUILDING**  
 PER THE GEOTECHNICAL RECOMMENDATIONS FOR THE SLAB, THE UPPER 5 FEET OF IN-SITU SOIL SHALL BE REMOVED AND REPLACED WITH CONTROLLED ENGINEERED FILL.

IF THE EXCAVATED SOIL IS FREE OF TRASH AND MEETS STRUCTURAL FILL REQUIREMENTS, THE EXCAVATED SOIL CAN BE REUSED AND COMPACTED.

STRUCTURAL DESIGNS OF THE RAP SYSTEM (INCLUDING FINAL PIER LOCATIONS, PIER LENGTH, PIER DIAMETERS AND SPACING) SHALL BE SUBMITTED FOR APPROVAL AND APPROPRIATE PERMIT TO PRINCE WILLIAM COUNTY BUILDING DIVISION PRIOR TO INSTALLATION. THE RAP SYSTEM SHALL BE DESIGNED BY A DESIGN-BUILD CONTRACTOR AND REVIEWED BY THE GEOTECHNICAL ENGINEER RECORD.

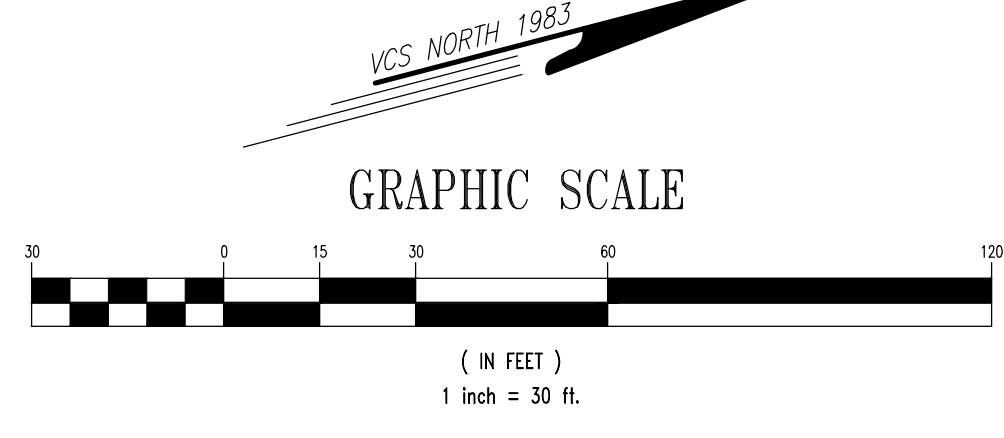
**NOTE 1** After the construction is complete, geotechnical engineer of record shall provide a written certification that the slopes have been constructed (including but not limited to the type of material, degree of compaction, depth and spacing of piles/piers; location, length, spacing, strength and type of geo-grid, and ground cover to protect the slope) in accordance with the approved plans and specifications.

**NOTE 2** After the construction is complete, the project civil engineer of record or land surveyor duly licensed in the Commonwealth of Virginia shall provide a written certification on the gradient of the constructed slope as directed by the County staff.

**NOTE 3** The structural design of proposed rammed aggregate piers (RAP) must be approved and appropriate permit shall be obtained from PWC-Building Division prior to site implementation.

**NOTES**

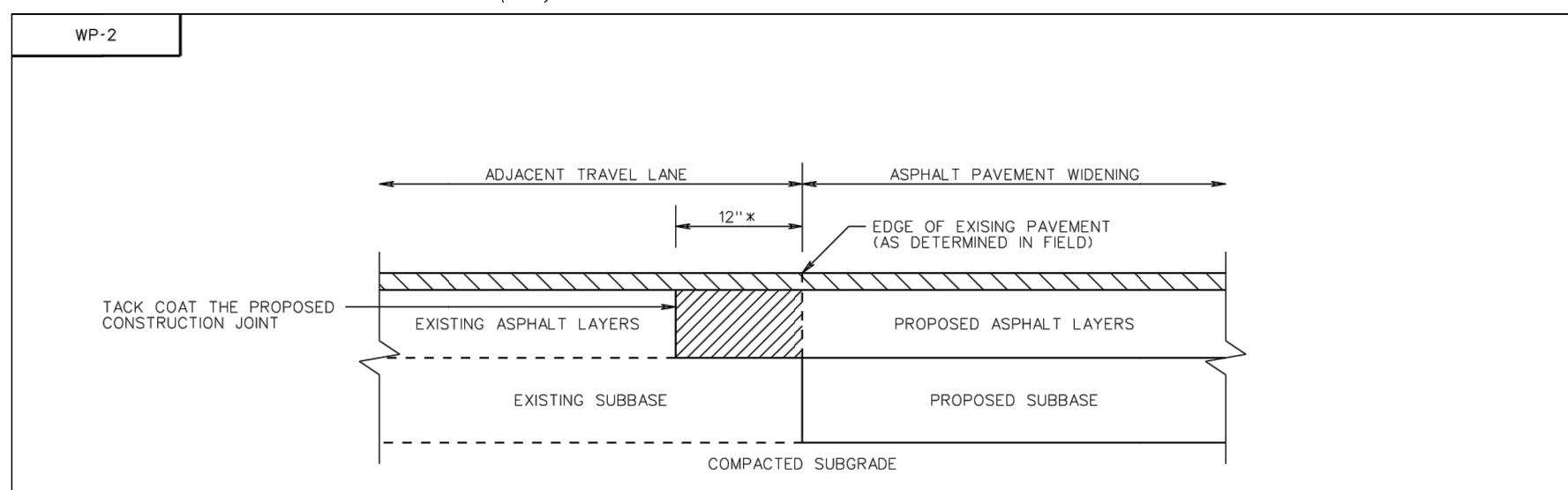
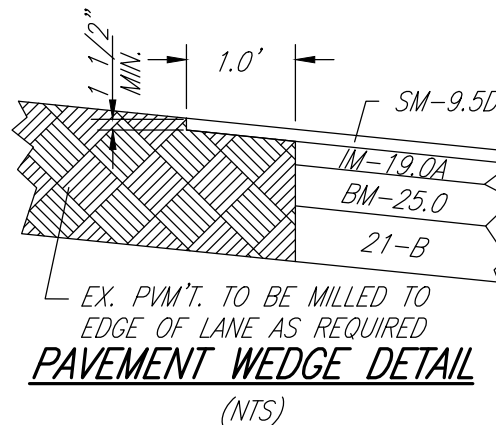
- NO USE SHALL BE MADE OF, NOR SHALL ANY IMPROVEMENTS OR MODIFICATIONS BE MADE IN THE RESOURCE PROTECTION AREA WITHOUT SPECIFIC WRITTEN AUTHORIZATION FROM THE DIRECTOR OF PUBLIC WORKS.
- NO USE SHALL BE MADE OF, NOR SHALL ANY IMPROVEMENTS BE MADE IN THE FLOOD HAZARD AREA WITHOUT SPECIFIC AUTHORIZATION FROM THE DEPARTMENT OF PUBLIC WORKS. IN ADDITION, A FLOOD HAZARD USE PERMIT SHALL BE REQUIRED FOR ANY WORK WITHIN THE FLOOD HAZARD AREA.
- THE OWNER OF FEE TITLE TO ANY PROPERTY ON WHICH PLANT MATERIAL HAS BEEN ESTABLISHED IN ACCORDANCE WITH AN APPROVED LANDSCAPE/PLANTING PLAN, SHALL BE RESPONSIBLE FOR THE MAINTENANCE, REPAIR AND REPLACEMENT OF THE APPROVED PLANT MATERIAL, AS REQUIRED BY THE ORDINANCE.





**VDOT GENERAL NOTES** Revised: 1/11/2023

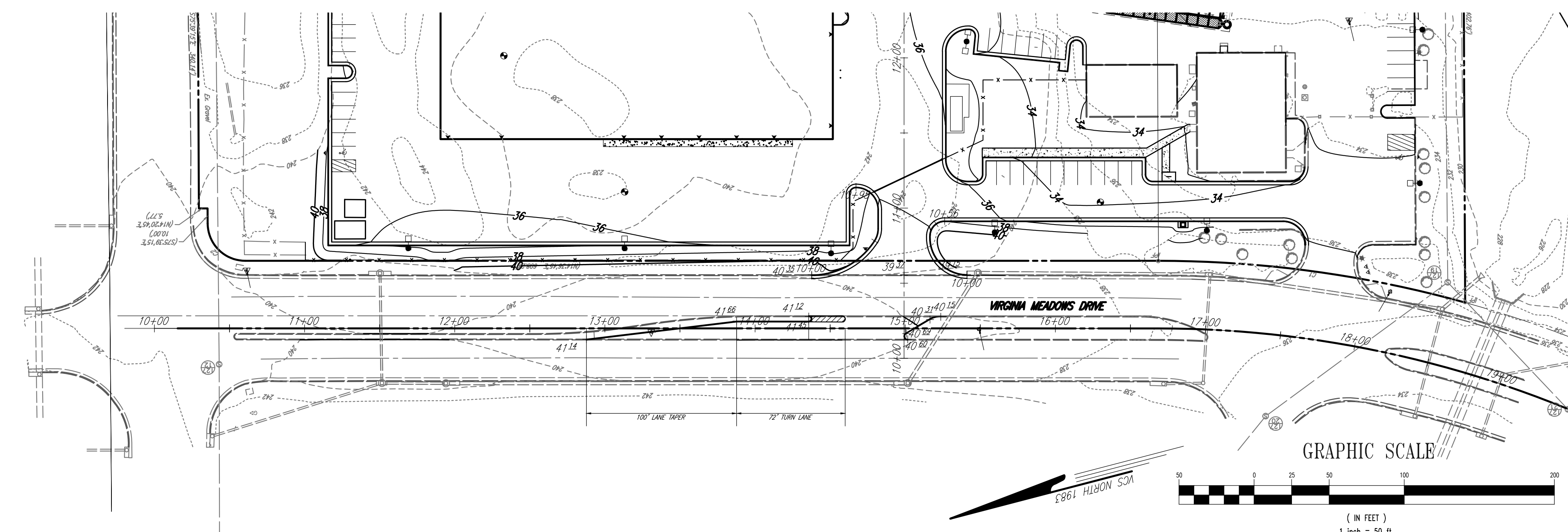
- These plans were prepared in accordance with the requirements of (select one):
  - VDOT Secondary Street Acceptance Requirements (SSAR 24VAC-30-92 effective February 1, 2012 and VDOT Road Design Manual Appendix B1).
  - VDOT Secondary Street Acceptance Requirements (SSAR 24VAC-30-92 effective February 1, 2012 and VDOT Road Design Manual Appendix B2 as approved for use in designated high density development areas).
  - VDOT Road Design Manual Appendix C, Rural and Urban Geometric Design Standards effective at the time of VDOT recommended plan approval. List Standard Used: GS-\_\_\_\_\_.
- VDOT Approved Exceptions/Waivers (must be incorporated in the plan):
  - Access Management - Date of Approval: \_\_\_\_\_
  - SSAR - Date of Approval: N/A
  - Design Waiver - Date of Approval: N/A
  - Other: \_\_\_\_\_ Date of Approval: \_\_\_\_\_
- SSAR Connectivity Summary (provide a check mark  where applicable or write N/A):
  - Connections in multiple directions (first connection must be to a VDOT maintained road, the second connection may either be to a VDOT road or to a stub out) N/A
  - Stub out connection (the prop. right of way terminates at parcel abutting the development and consists of a short segment that is intended to serve current and future development; the applicant must verify that connection with a future street is feasible) N/A
  - Network additions providing direct access to (i) more than 200 dwelling units or (ii) lots whose trip generation is expected to be over 2,000 VPD may be accepted into the secondary system of state highways if the network addition provides an additional external connection beyond that referenced above. N/A
- All work on this project shall conform to the current editions of and latest revisions to the Virginia Department of Transportation (VDOT) Road and Bridge Specifications and Standards, the Virginia Erosion and Sediment Control Regulations, and any other applicable state, federal or local regulations. In case of a discrepancy or conflict between the Standards or Specifications and Regulations, the most stringent shall govern.
- All right of way dedicated to public use shall be clear and unencumbered.
- All utilities, including all poles, are to be relocated at the developer's expense, prior to construction.
- The developer is responsible for any damage to existing roads and utilities which occur as a result of project construction within or contiguous to existing right of way.
- Open cutting of paved or surface treated roads is not permitted. All utilities which will be placed under existing streets are to be bored or jacked. Any exceptions, due to extenuating circumstances, are to be addressed at the permit stage.
- The pavement design is based on an assumed CBR value of 10 (use a CBR value of 6 in Loudoun Co.). Soil tests of subgrade must be submitted for the actual determination of the required thickness of the pavement including layers of asphalt and subbase prior to subbase placement.
- Pavement design shall be provided in accordance with the Pavement Design Guide for Subdivision and Secondary Roads in Virginia. For primary roads and interstate highways where truck traffic exceeds 5% pavement design shall be provided in accordance with AASHTO guidelines. Typical pavement sections shall depict the top 6" of the subgrade immediately under the pavement structure compacted to 100% of the theoretical maximum dry density.
- All untreated aggregate used in base or subbase courses shall be 21B, except on roads with an ADT of 1000 vpd or less, where 21A aggregate may be used. When 21B aggregate is used, UD-4 underdrains must be provided.
- A 4" (min.) layer of stone is required beneath curb and gutter (may be shown on typical section in lieu of a note).
- The entire surface of the roadway (old and new portions) shall be overlaid and re-stripped as required by VDOT personnel. Overlay of existing pavement shall be a minimum of 1.25" depth; any costs associated with pavement overlay, or the milling of existing pavement to obtain required depth, shall be assumed by the developer.
- A smooth grade shall be maintained from the centerline of the existing road to the proposed edge of pavement to preclude the forming of false gutters and/or the ponding of any water in the roadway.
- Asphalt pavement widening shall conform to VDOT Standard WP-2.
- Any type of reverse curb (spill curb, CG-6R, etc.) and transition to these curbs shall not be used within the public right of way.
- The county/town shall obtain a permit for all sidewalks/crosswalks within the right of way that do not qualify for VDOT maintenance.
- Additional ditch linings or siltation and erosion control measures shall be provided, at the developer's expense, as determined necessary by VDOT and/or the county/town during field review. All costs shall be assumed by the developer.
- Standard guardrails and/or handrails shall be installed at hazardous locations as designated during field review by the county/town inspector or VDOT.
- A landscaping and irrigation systems plan shall be submitted for VDOT approval prior to installing any landscaping and irrigation systems within the public right of way.
- Flowers, shrubs, trees, and irrigation shall not be placed within State maintained right of way limits without an approved set of plans and an approved planting agreement. No irrigation (sprinkler) systems, brick columns, and walls, and/or brick mailboxes will be constructed or installed within State maintained right of way limits without a permit. Any of the above items found in the right of way without a permit will be removed, and all costs of the removal will be borne by the owner and/or developer.
- Traffic control devices or advisory signs, such as multiway stops, speed limits, Watch for Children, Pedestrian Traffic, etc., shall not be installed unless specifically approved by VDOT Traffic Engineering Section. Should unapproved signs be noted at the time of VDOT inspection, the road acceptance process shall be terminated immediately and not recommenced until a determination is made regarding the approval of any additional signs. Immediate removal of such signs shall not negate the need for the submission of a revision.
- A speed study certified by a professional engineer shall be submitted for VDOT approval prior to the street acceptance for any road to be posted other than the statutory speed limit.
- The developer is responsible for all traffic control. The developer shall submit a signing, striping and/or signalization plan to the VDOT Land Development Section prior to permit application. The developer shall not commence construction of any pavement course without an approved striping plan.
- The developer is responsible for the design and construction of any traffic signal installation or modification which will be necessary as a result of the development of this site.
- During construction, the maintenance of traffic shall conform to the requirements in the most recent version of the Virginia Work Area Protection Manual and the MUTCD.
- The engineer of record, whose professional seal is affixed to this plan, is responsible to ensure all VDOT standards are met. VDOT review and signature of this plan shall not be interpreted as a guarantee the plan is without error. That is solely the responsibility of the engineer of record.
- Any fixtures or features being placed within the VDOT right of way that do not serve the general public will require a separate Land Use Permit (LUP-A) and Covenant of Perpetual Maintenance (CPM).



- NOTES:**
- ASPHALT PAVEMENT WIDENING SHALL HAVE A PAVEMENT DESIGN IN ACCORDANCE WITH CURRENT VDOT PROCEDURES AND BE APPROVED BY THE ENGINEER.
  - THE PAVEMENT DESIGN FOR ASPHALT PAVEMENT WIDENING SHALL MEET OR EXCEED THE DEPTHS AND TYPES OF THE LAYERS OF EXISTING PAVEMENT. SUBSURFACE DRAINAGE OF THE EXISTING AND PROPOSED PAVEMENT SHALL BE ADDRESSED IN THE PAVEMENT DESIGN.
  - A MINIMUM OF THREE CORES SHALL BE TAKEN ALONG THE CENTER OF THE ADJACENT TRAVEL LANE TO DETERMINE THE TYPE AND THICKNESS OF EXISTING PAVEMENT LAYERS. THESE CORES SHALL BE SPACED NO MORE THAN 500 FEET APART.
  - THE ADJACENT TRAVEL LANE SHALL BE MILLED A MINIMUM DEPTH OF 1 1/2" INCHES AND REPLACED WITH AN ASPHALT SURFACE COURSE TO MATCH THE PROPOSED PAVEMENT WIDENING SURFACE COURSE, UNLESS WAIVED BY THE ENGINEER.
  - THE ENGINEER MAY REQUIRE THE MILLING DEPTH OF THE EXISTING PAVEMENT TO BE ADJUSTED TO ACHIEVE AN ACCEPTABLE PAVEMENT CROSS-SLOPE AND EFFECTIVE SURFACE DRAINAGE.
  - EXISTING PAVEMENT MARKINGS AND MARKERS WITHIN THE PROJECT LIMITS SHALL BE RESTORED SUBJECT TO THE APPROVAL OF THE ENGINEER.
  - FINAL TRANSVERSE PAVEMENT TIE-IN SHALL CONFORM TO THE REQUIREMENTS OF SECTION 315 OF THE SPECIFICATIONS EXCEPT THAT ALL JOINTS AT TIE-IN LOCATIONS SHALL BE TESTED USING A 10 FOOT STRAIGHTEDGE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 315 OF THE SPECIFICATIONS.

PROF. GRADE AT C/L	EX. GRADE AT C/L
241.81	241.81
240.71	240.71
240.05	240.05
239.92	239.92
240.03	240.03
240.30	240.30
240.64	240.62
240.73	240.73
241.40	241.40
240.92	241.39
240.71	241.16
241.76	241.76
240.70	241.15
240.51	241.47
241.55	241.55
240.52	240.52
240.08	240.51
240.09	240.50
240.52	240.52
240.37	240.37
240.40	240.40
240.32	240.32
240.43	240.43
239.11	239.11
238.32	238.32
236.90	236.90
236.17	236.17
235.88	235.88
235.40	235.40
235.40	235.40

ALL POINTS ARE AT THE FACE OF CURB LOCATIONS.



VIRGINIA MEADOWS DRIVE ROAD PROFILE

SEE SHEET C.15 FOR ENTRANCE PROFILE AND SIGHT DISTANCE PROFILE.

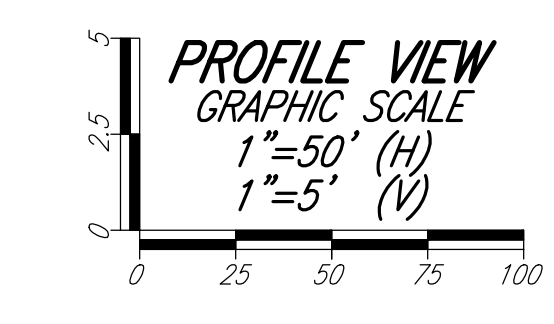
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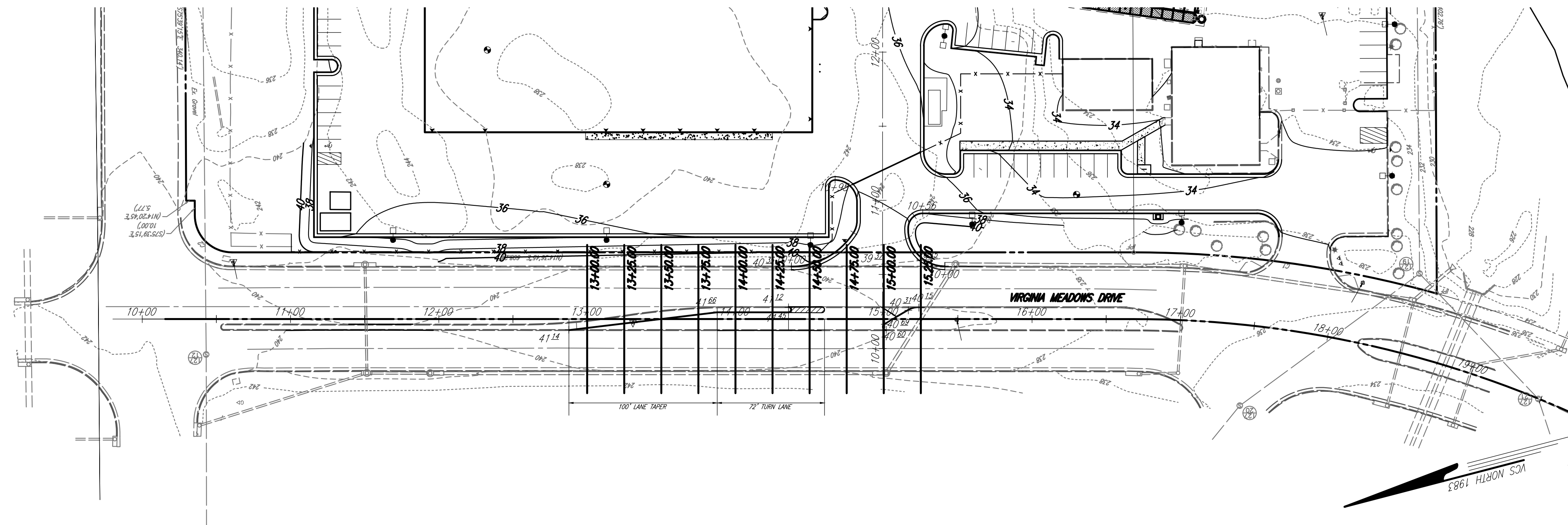
COMMONWEALTH OF VIRGINIA  
 SHARON D. DUSZA  
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 PROFESSIONAL ENGINEER

VIRGINIA MEADOWS DRIVE ROAD PROFILE  
 WELLINGTON ROAD OPERATIONS CENTER EXPANSION  
 BREWSTERVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:


PLAN DATE: OCTOBER 7, 2022  
 DESIGN BY: AG/SAW  
 CHECKED BY: SSD  
 ARCHITECT/MOSELEY ARCH  
 JURISDICTIONAL PLAN NO. SPR2023-00185  
 RDA PLAN #: 19001-008  
 SHEET NUMBER: C.06

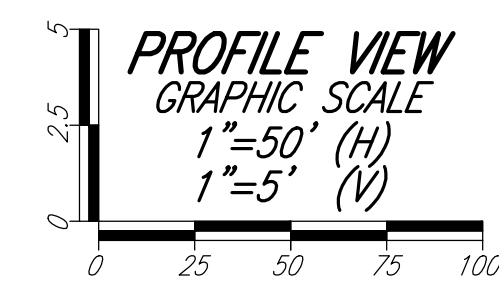
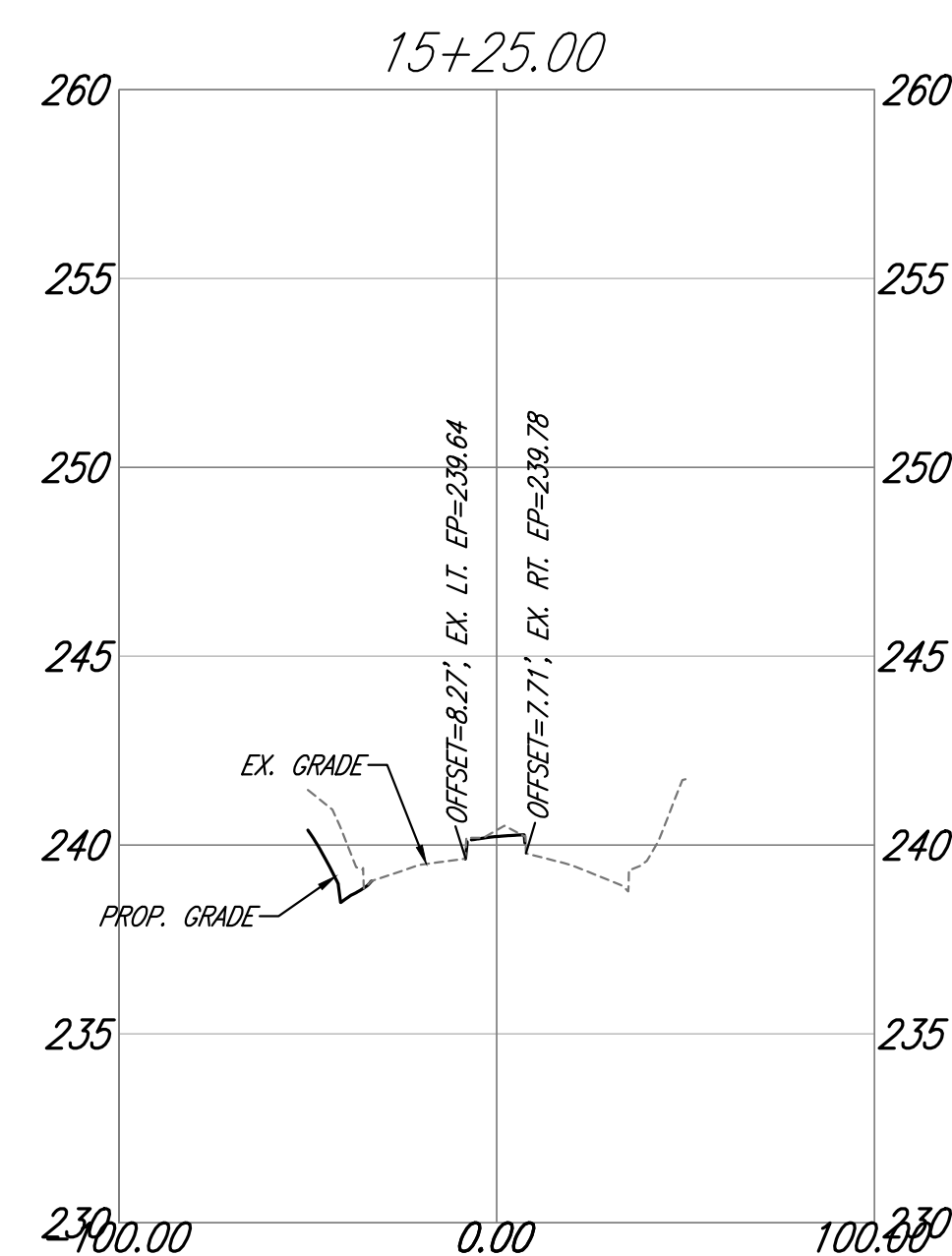
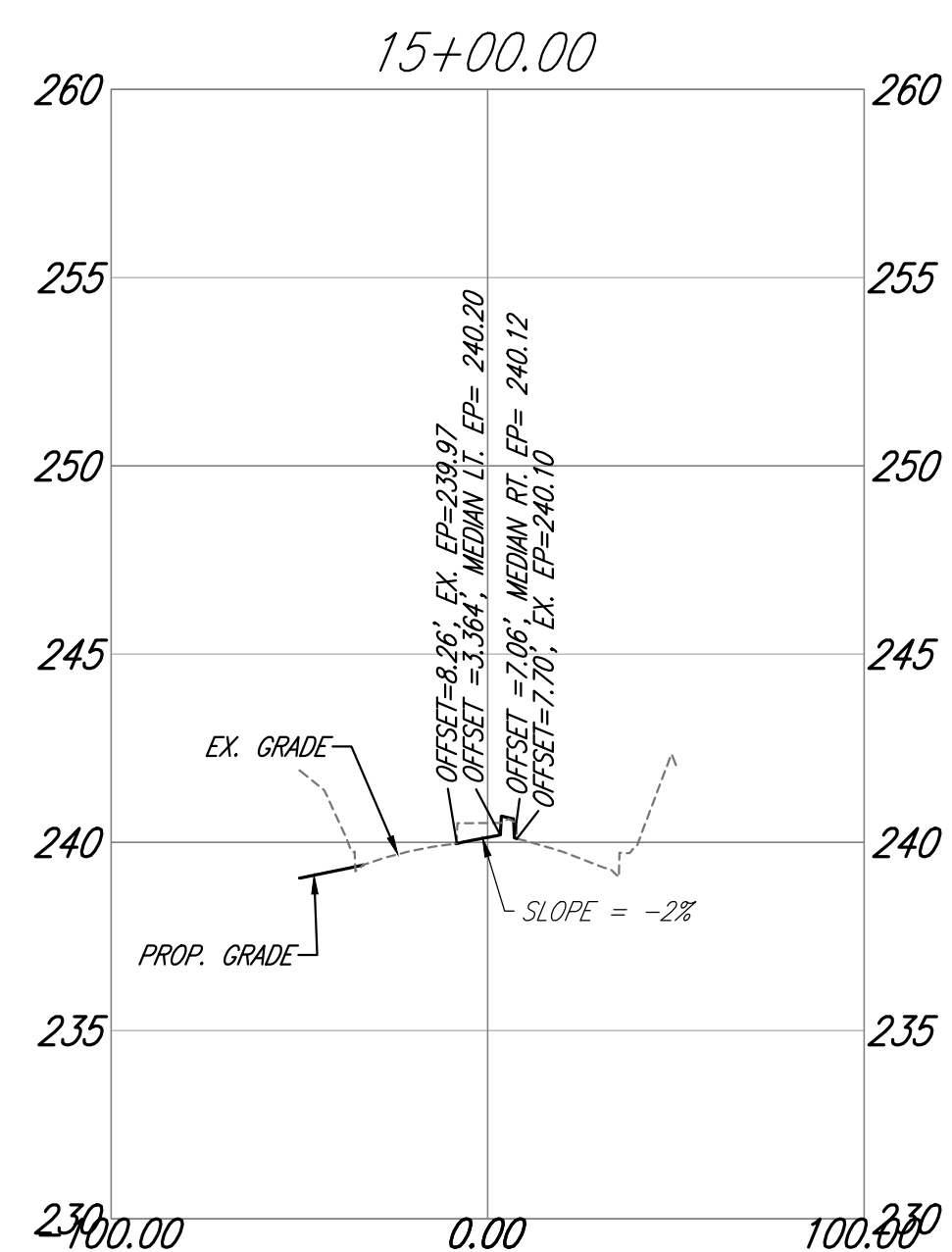
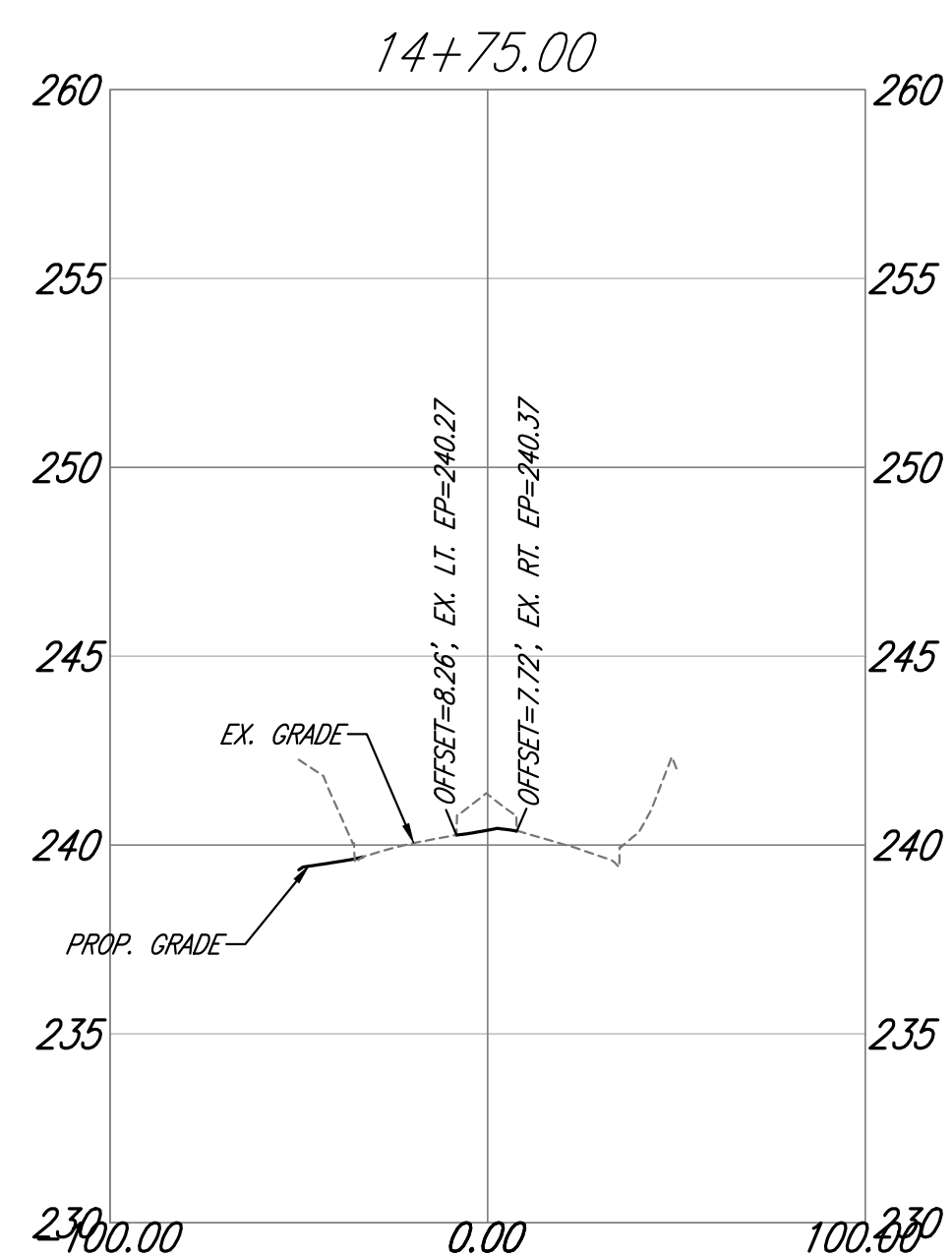
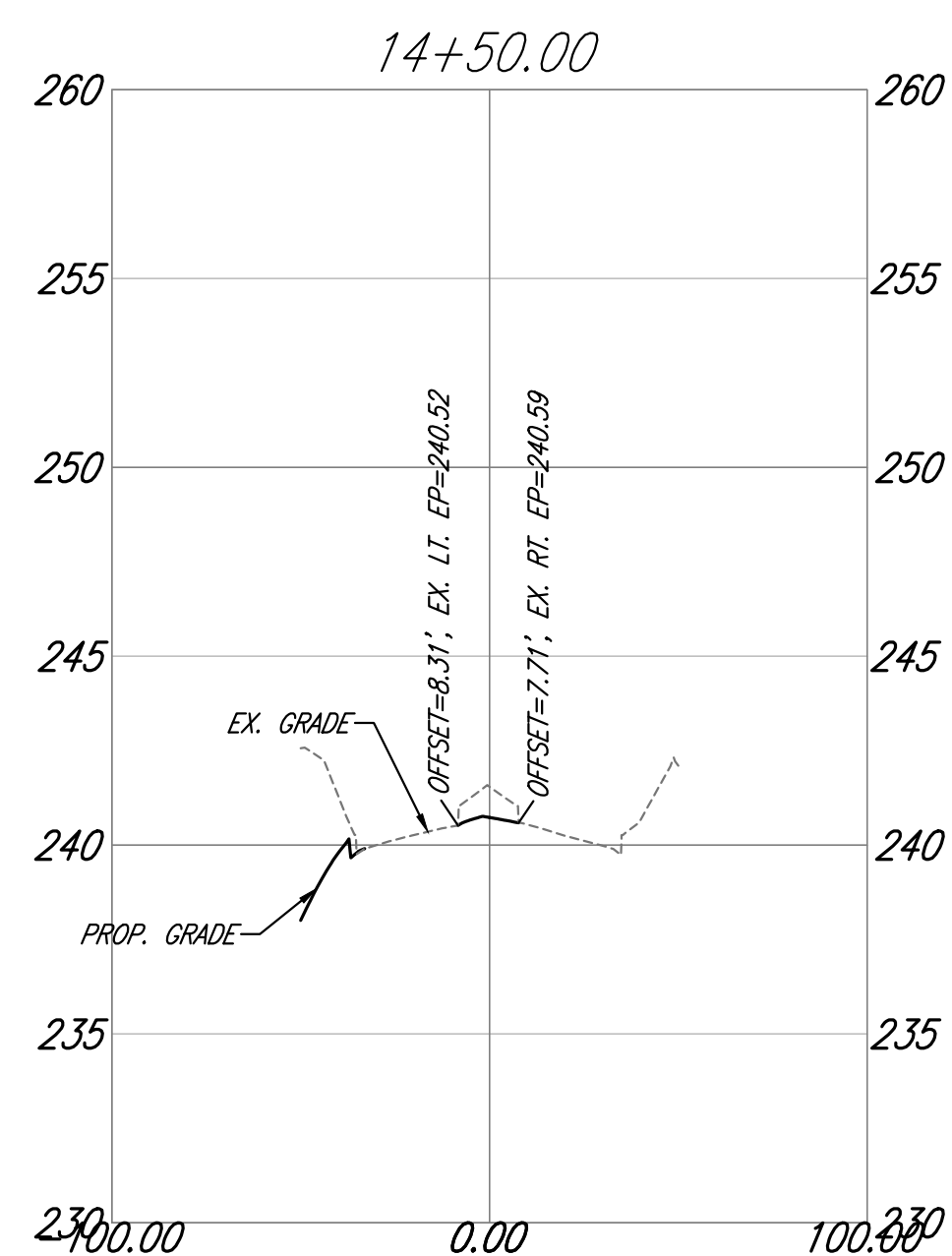
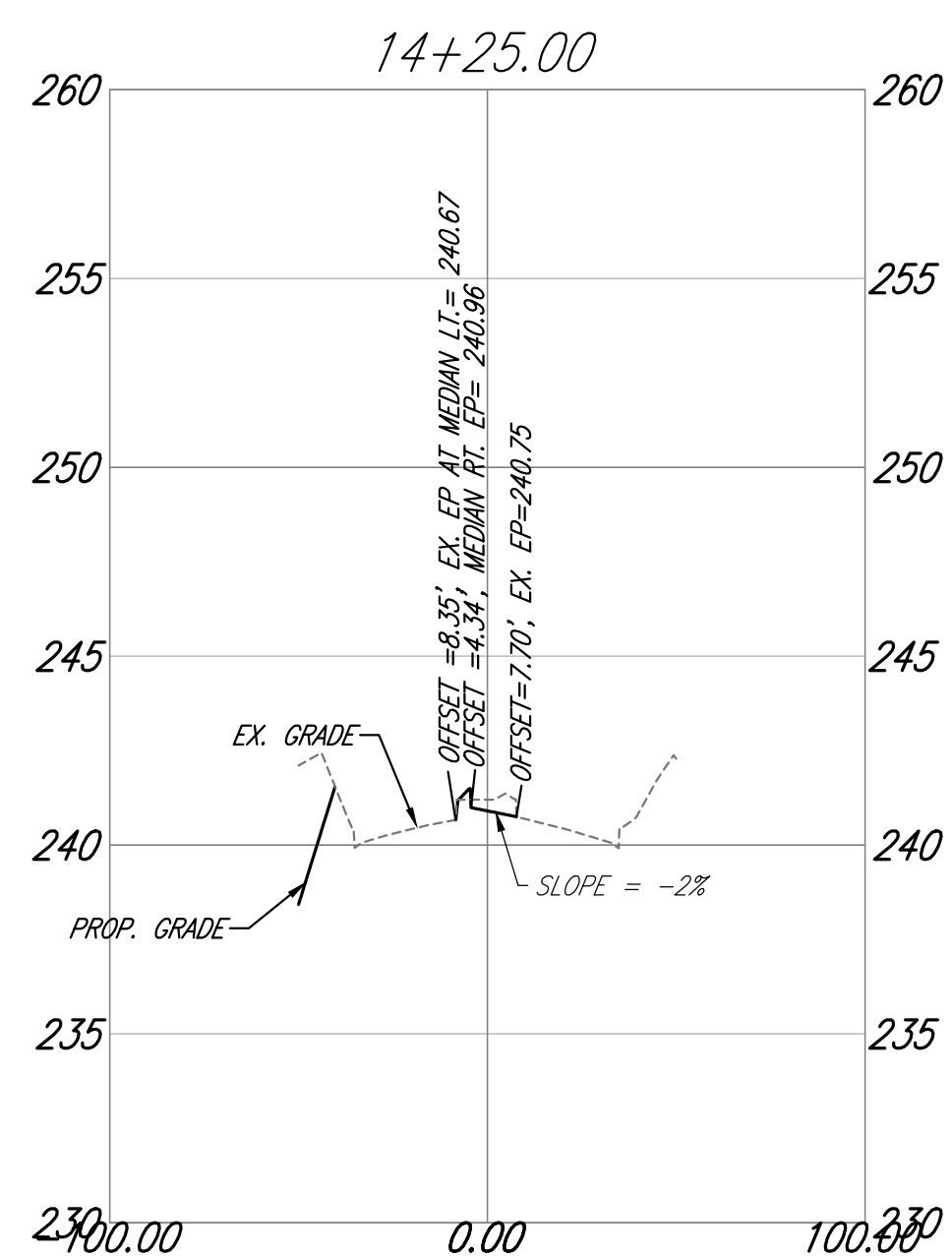
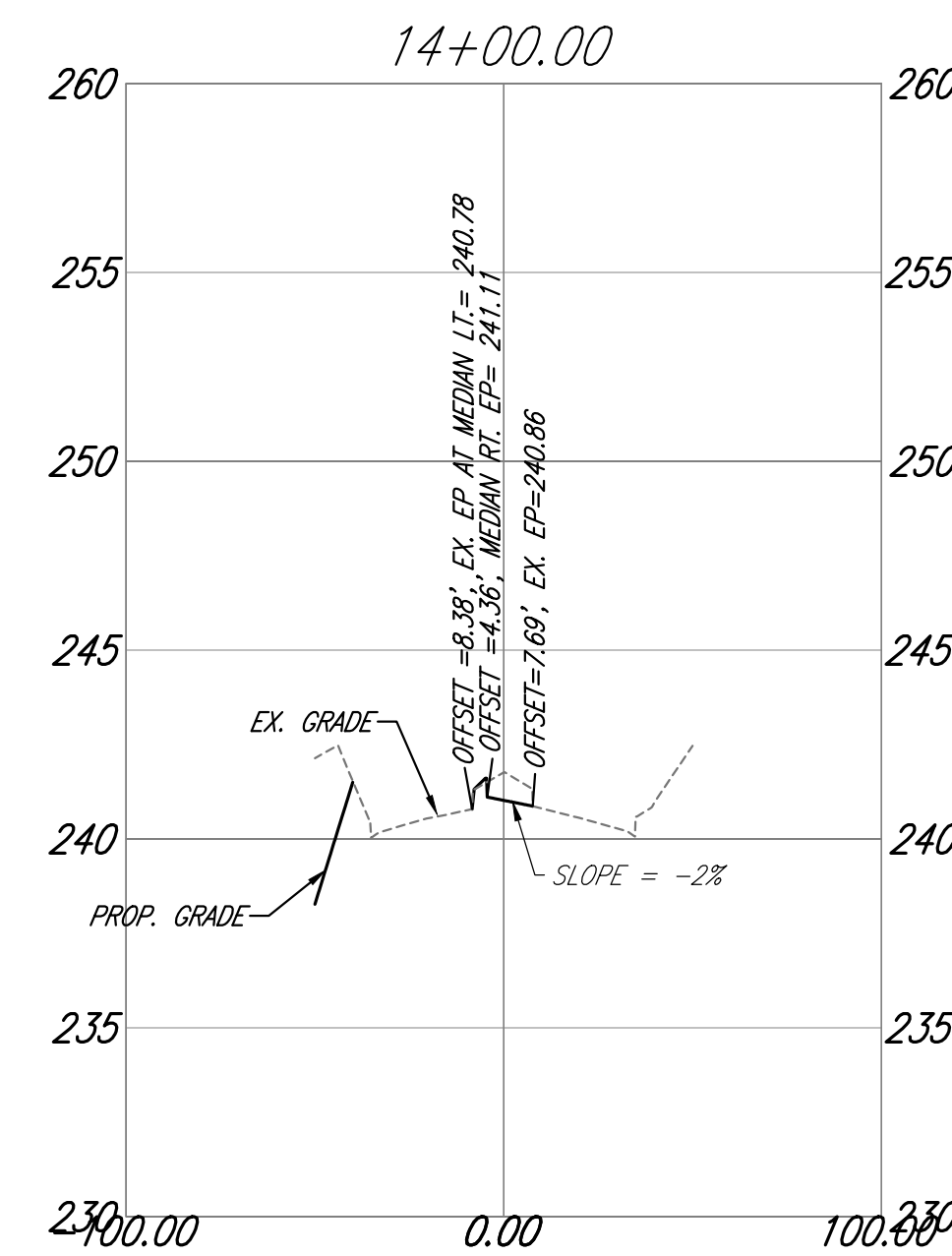
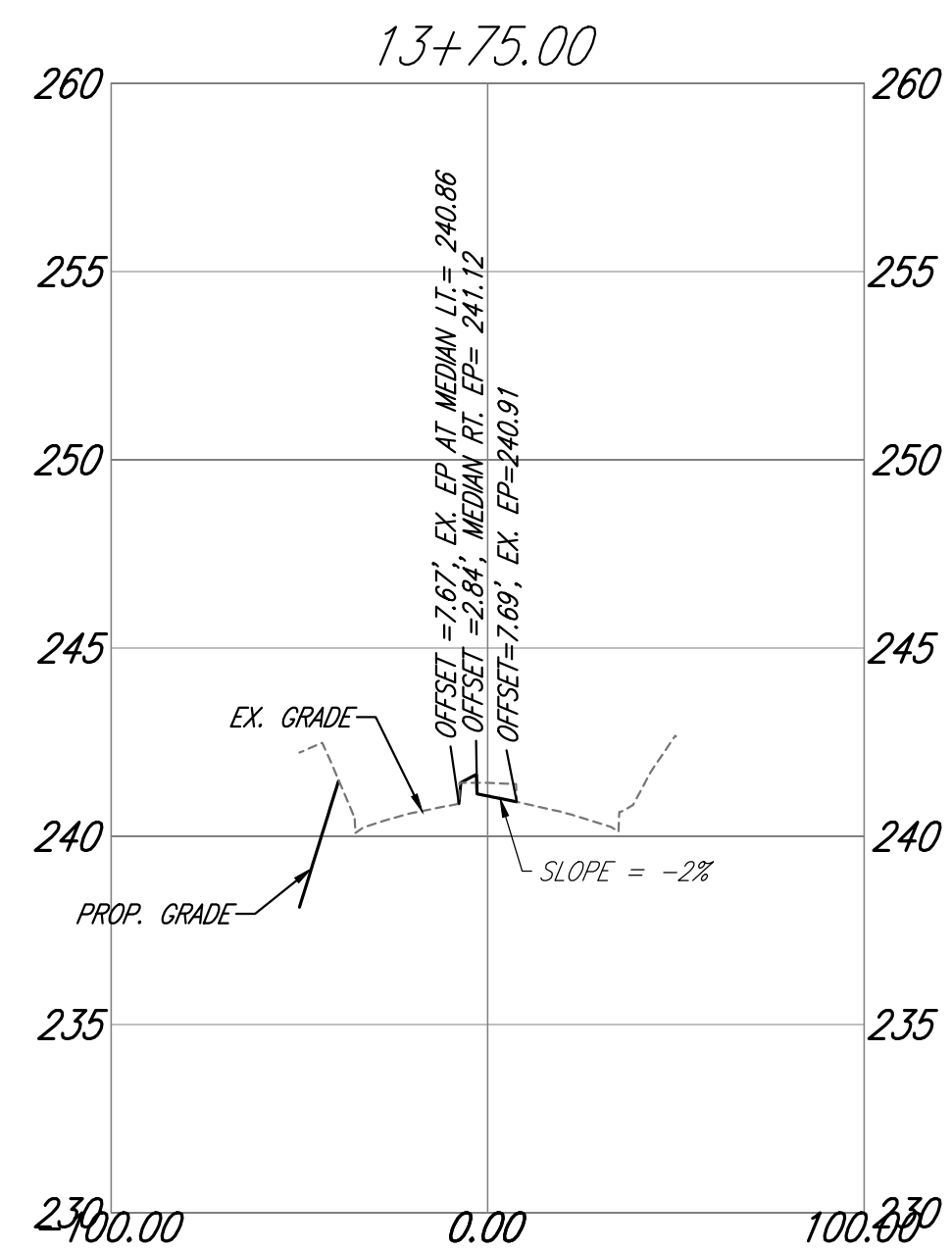
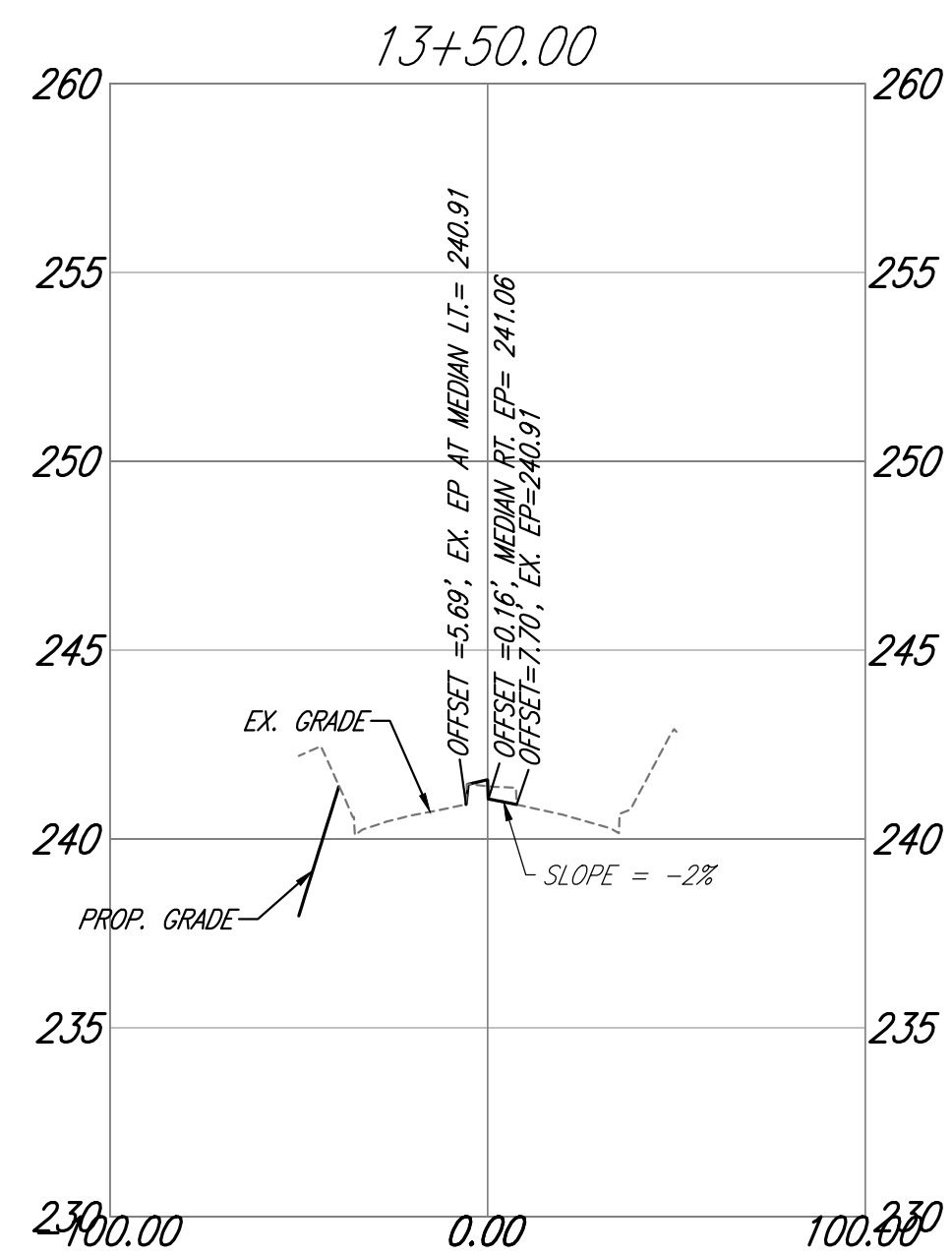
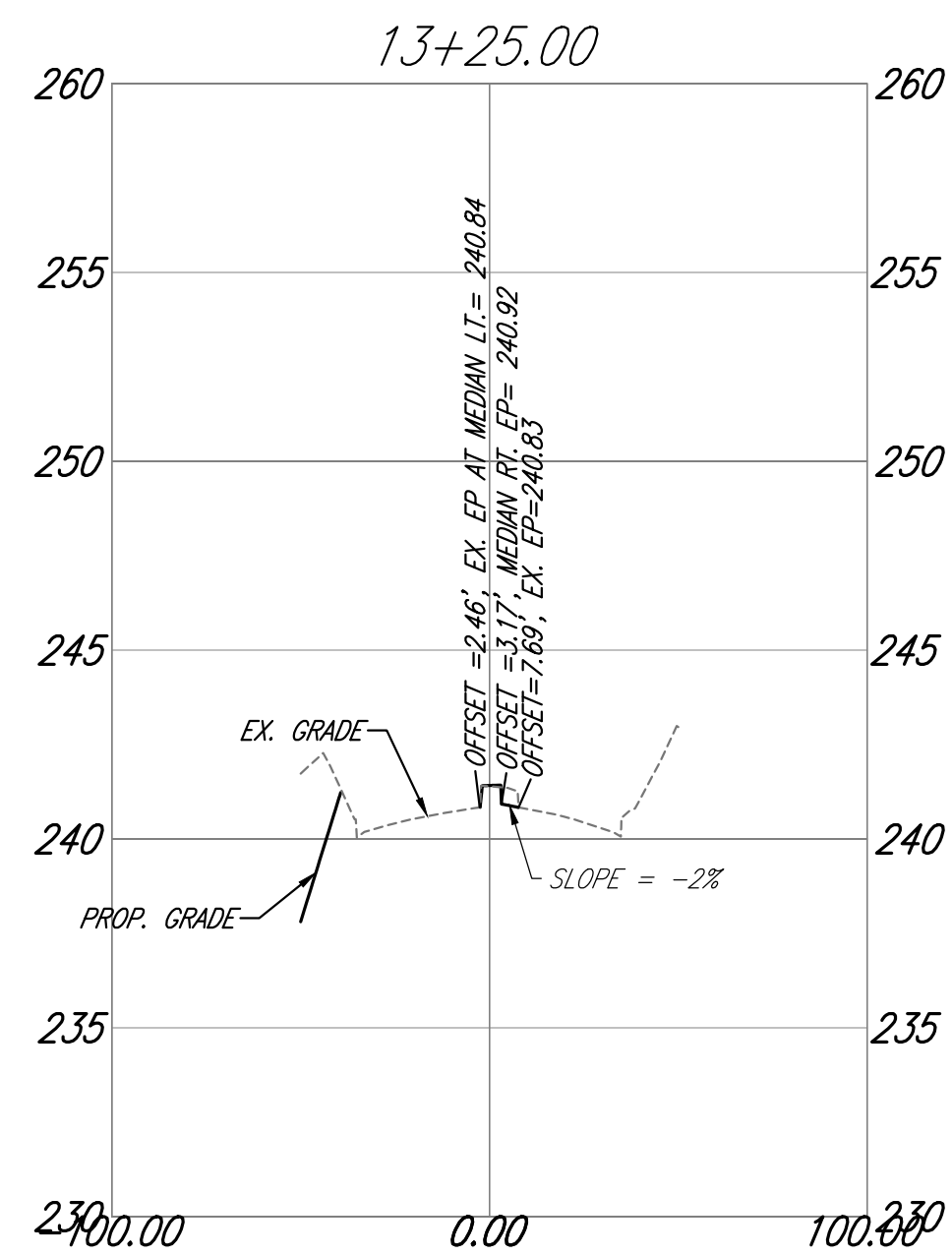
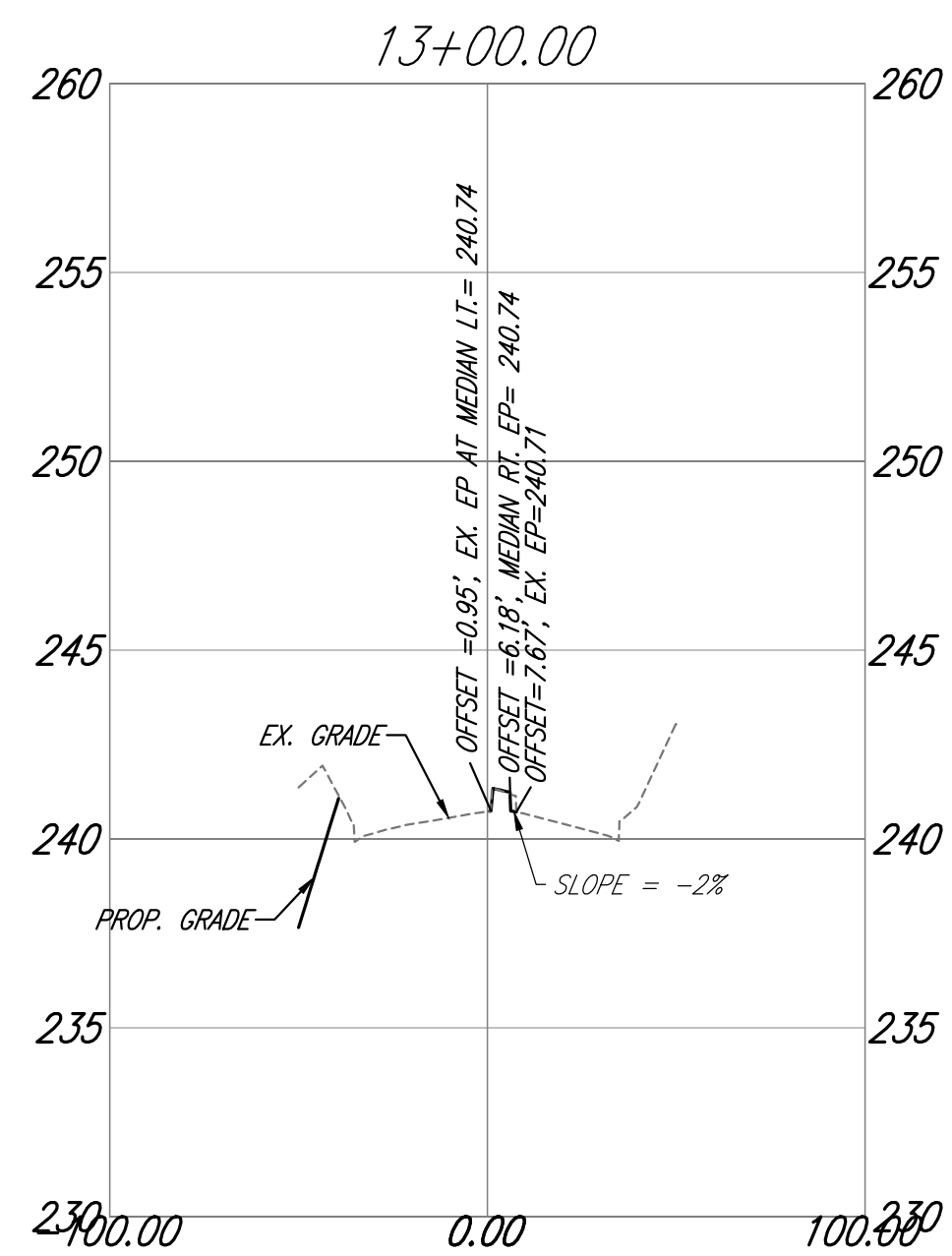




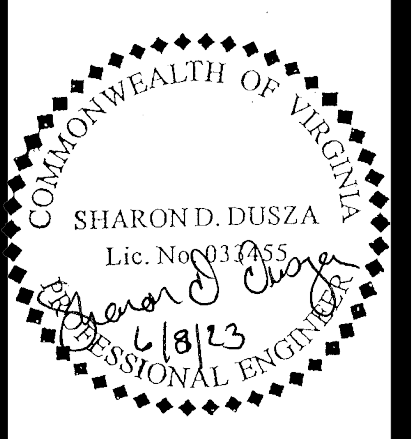
GRAPHIC SCALE

( IN FEET )  
1 inch = 50 ft.

SEE SHEET C.15 FOR ENTRANCE  
PROFILE AND SIGHT DISTANCE  
PROFILE.



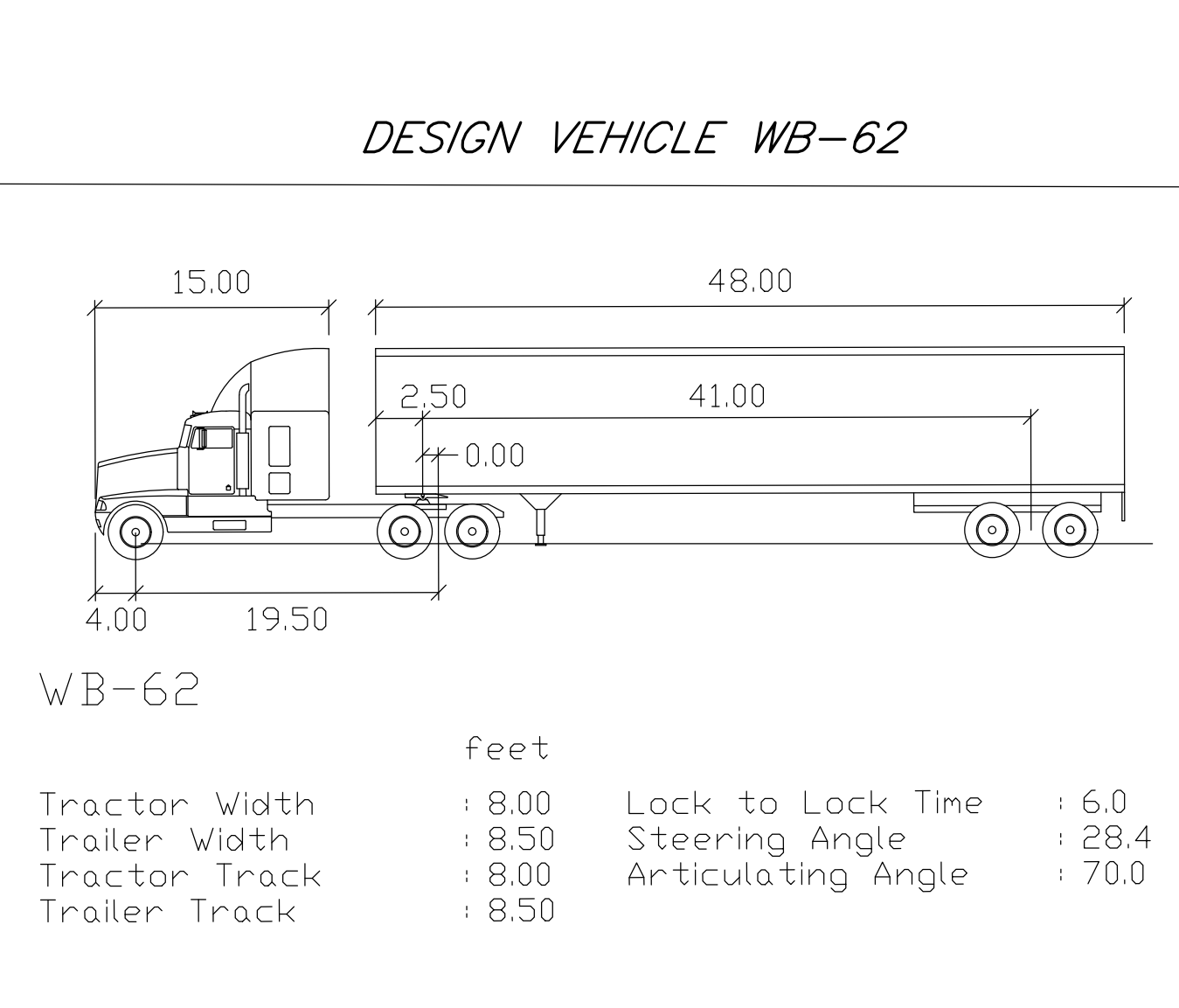
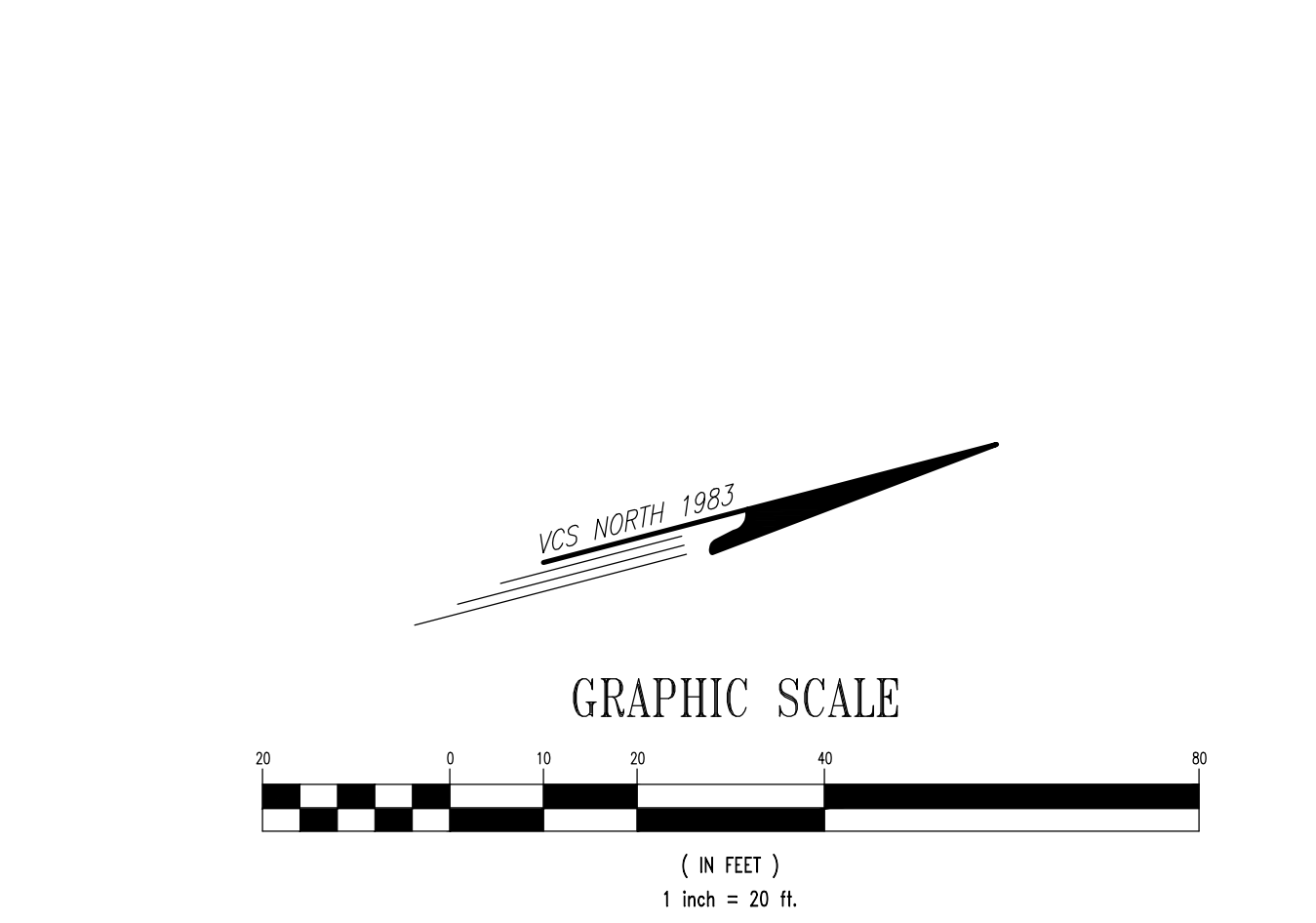
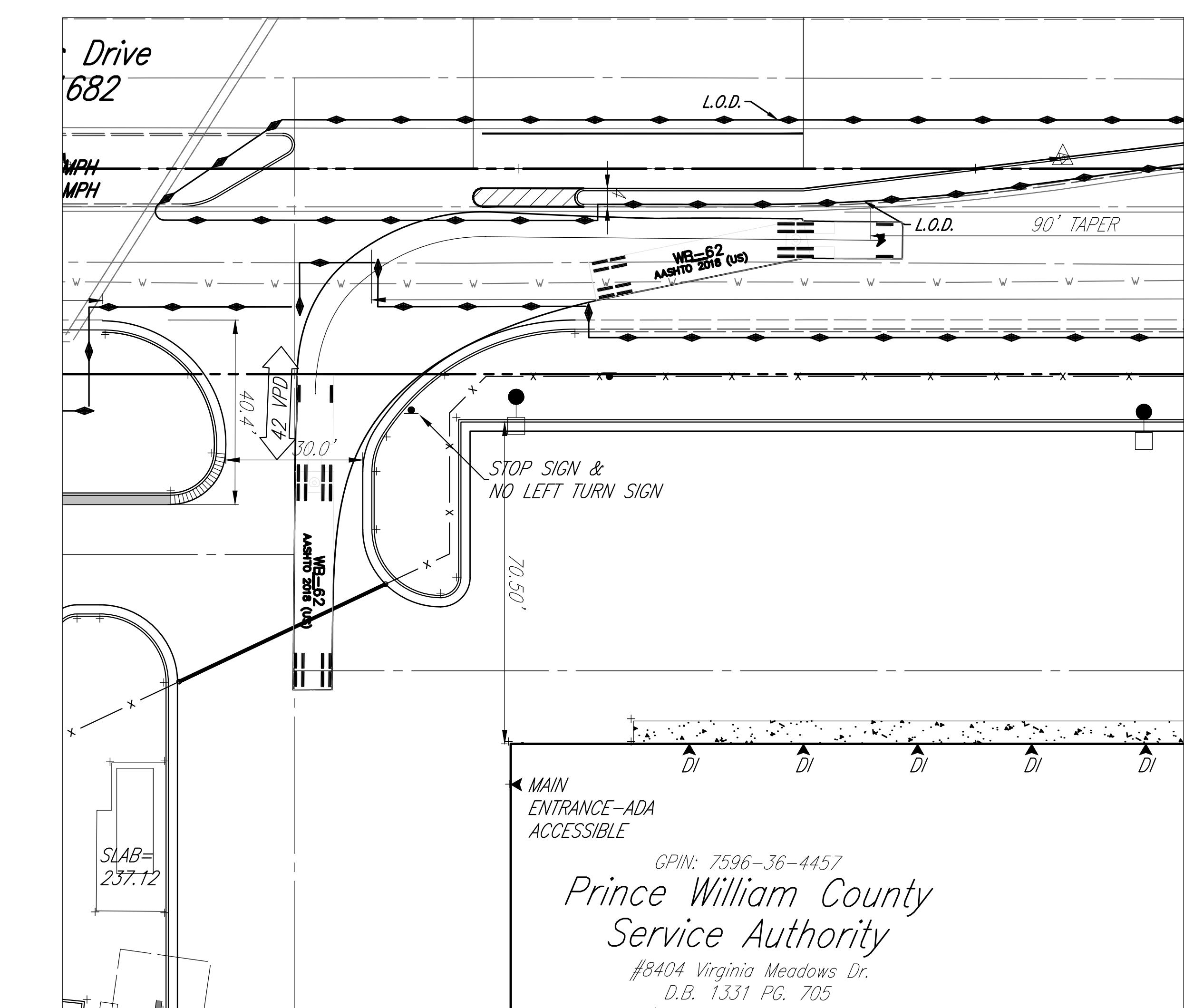
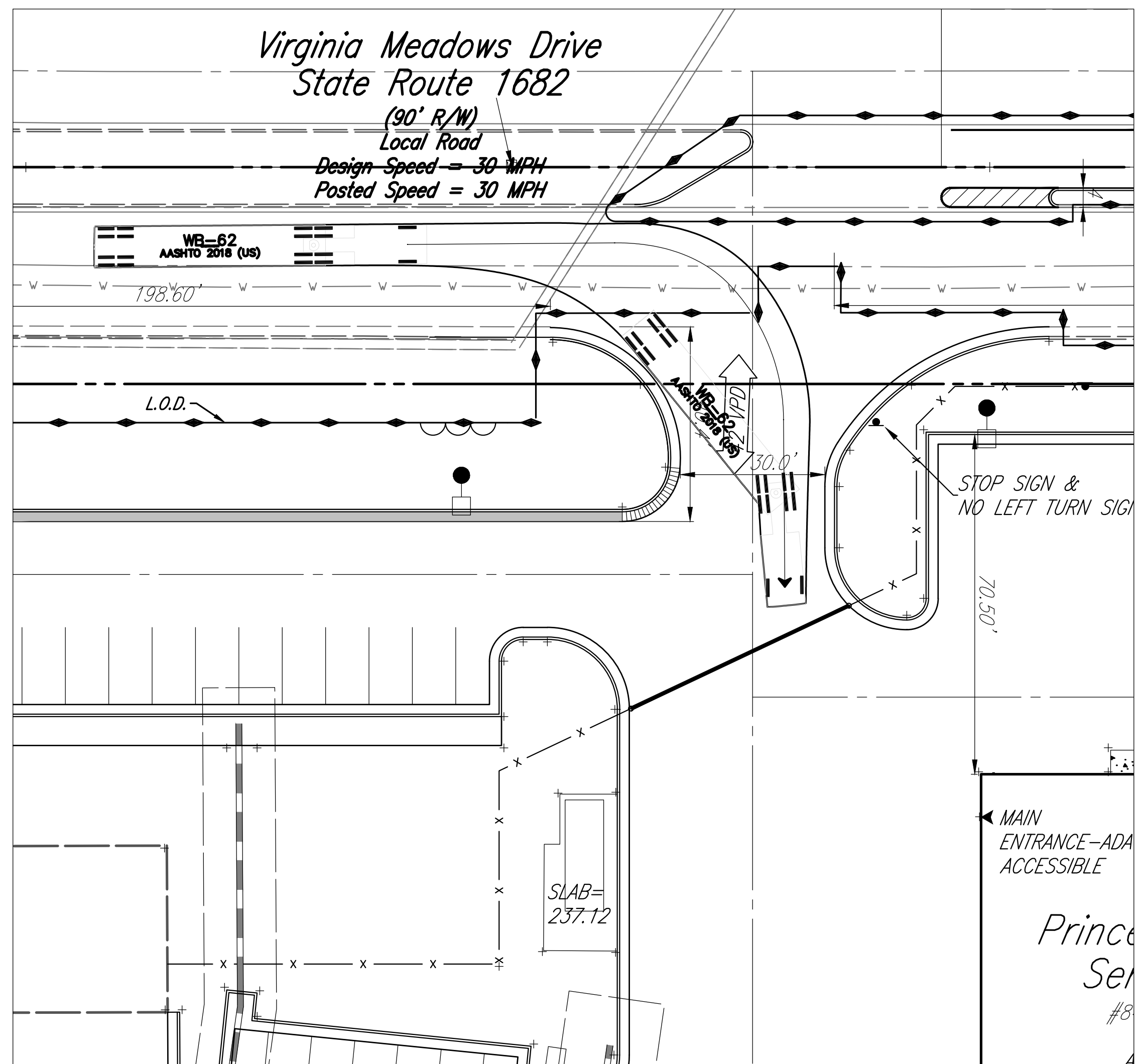
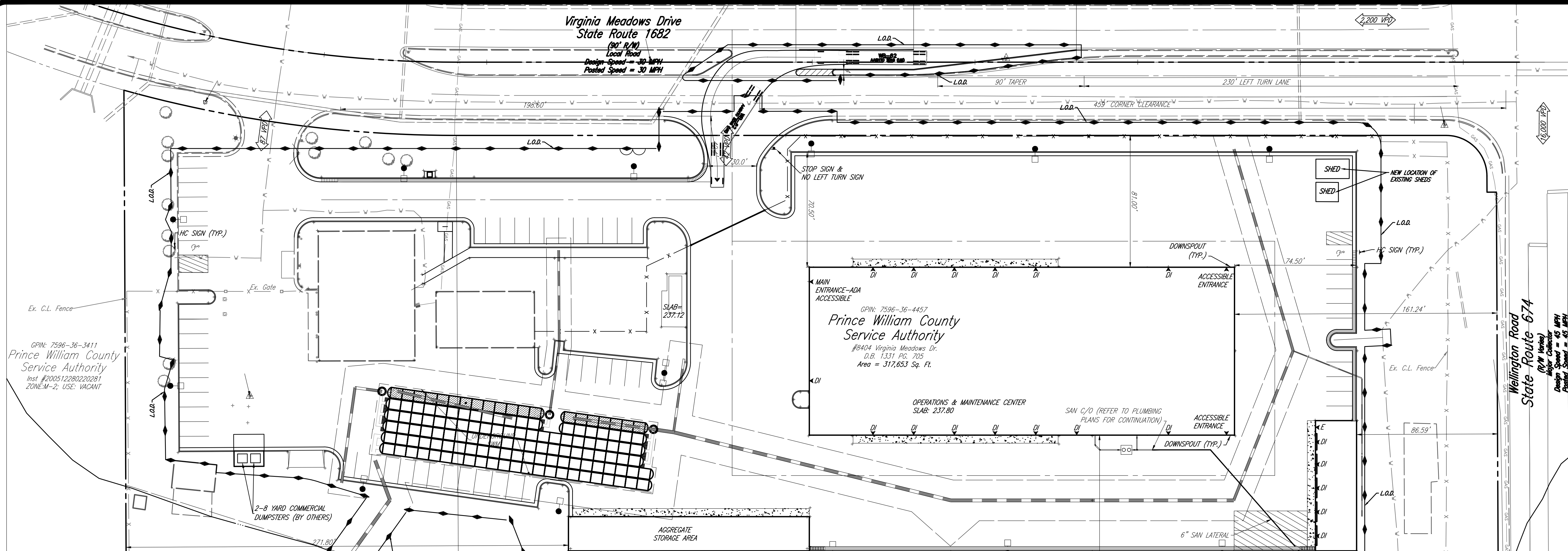
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VIRGINIA MEADOWS DRIVE ROAD  
CROSS SECTIONS  
WELLINGTON ROAD OPERATIONS  
CENTER EXPANSION  
BRENTSVILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:


PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.06A



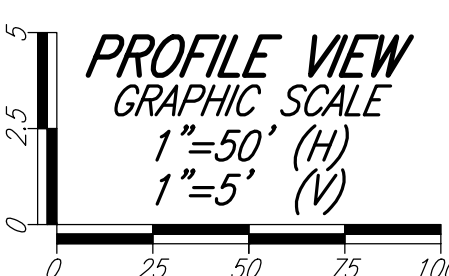
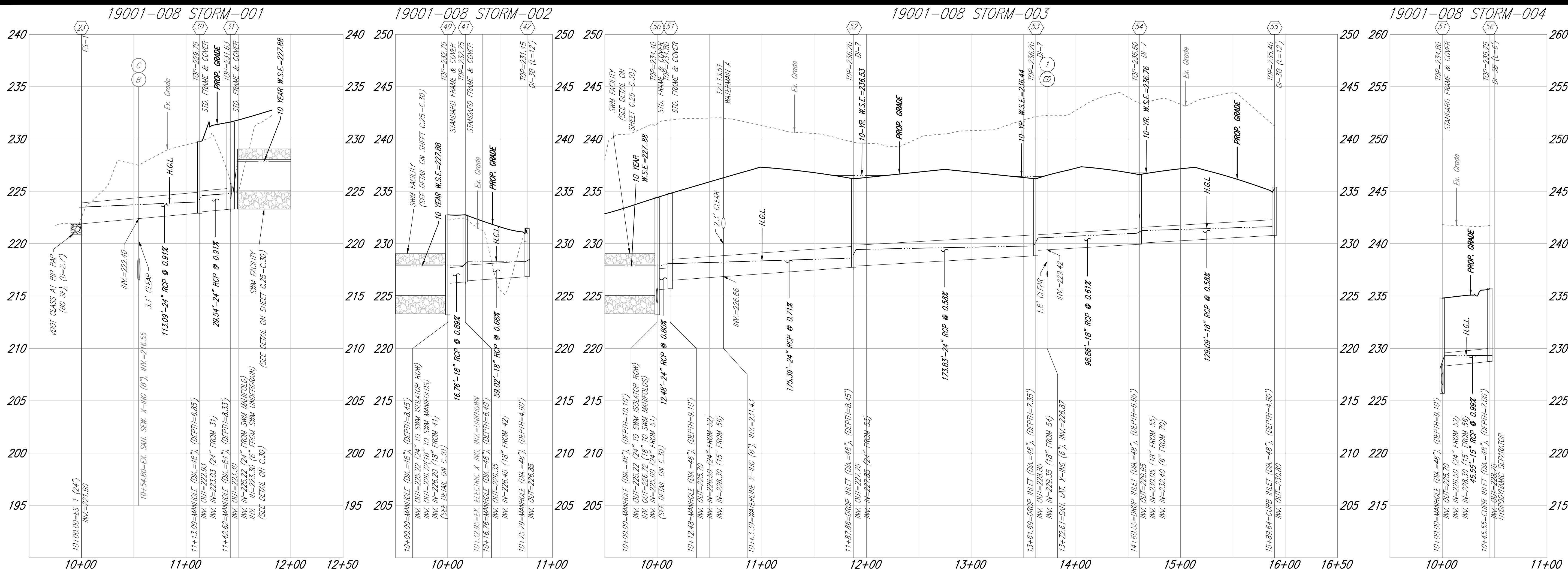
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COMMONWEALTH OF VIRGINIA  
 SHARON D. DUSZA  
 Lic. No. 011455  
 PROFESSIONAL ENGINEER

TURNING MOVEMENT ANALYSIS  
**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
 BRENTSVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:

PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.:	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.06B

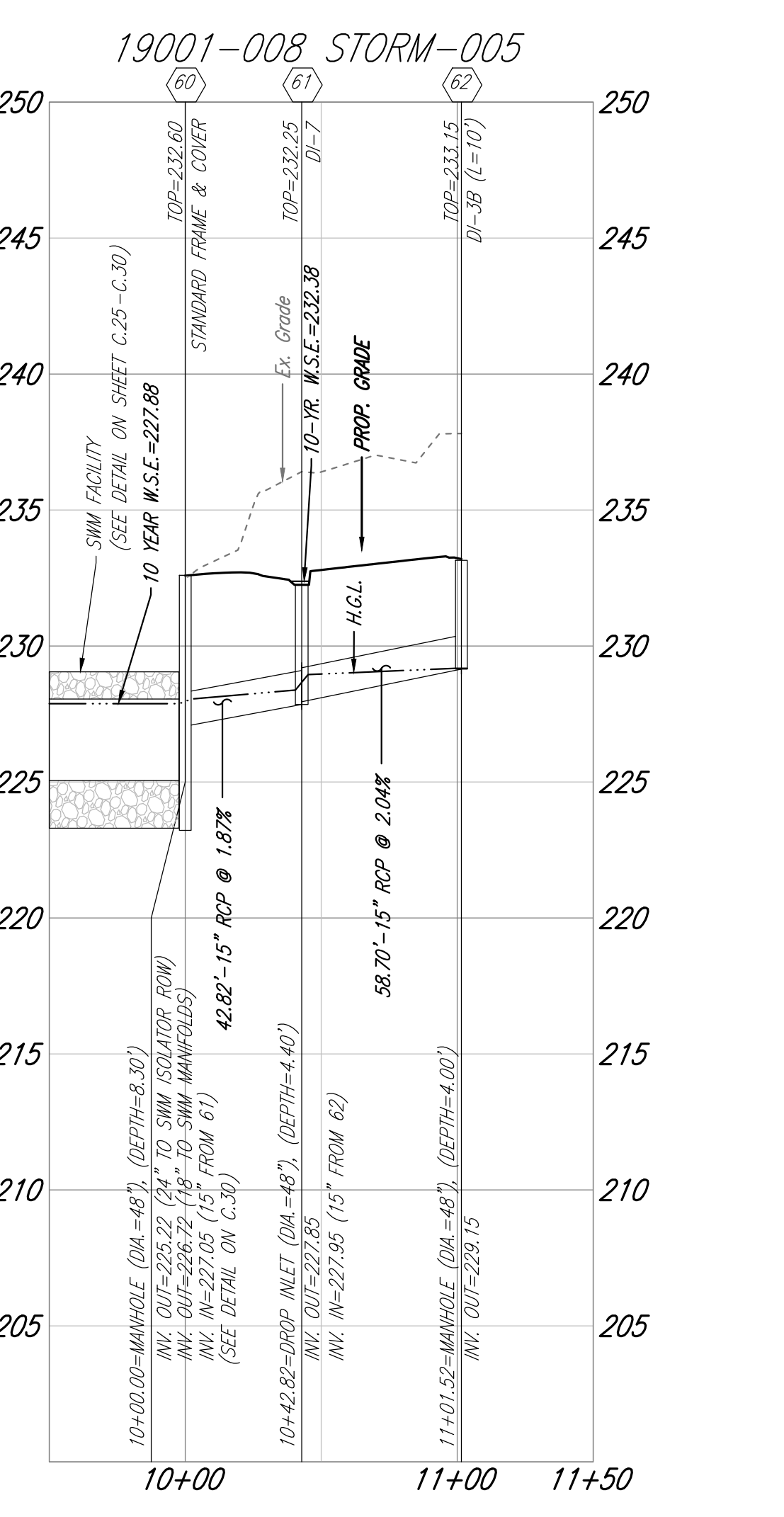
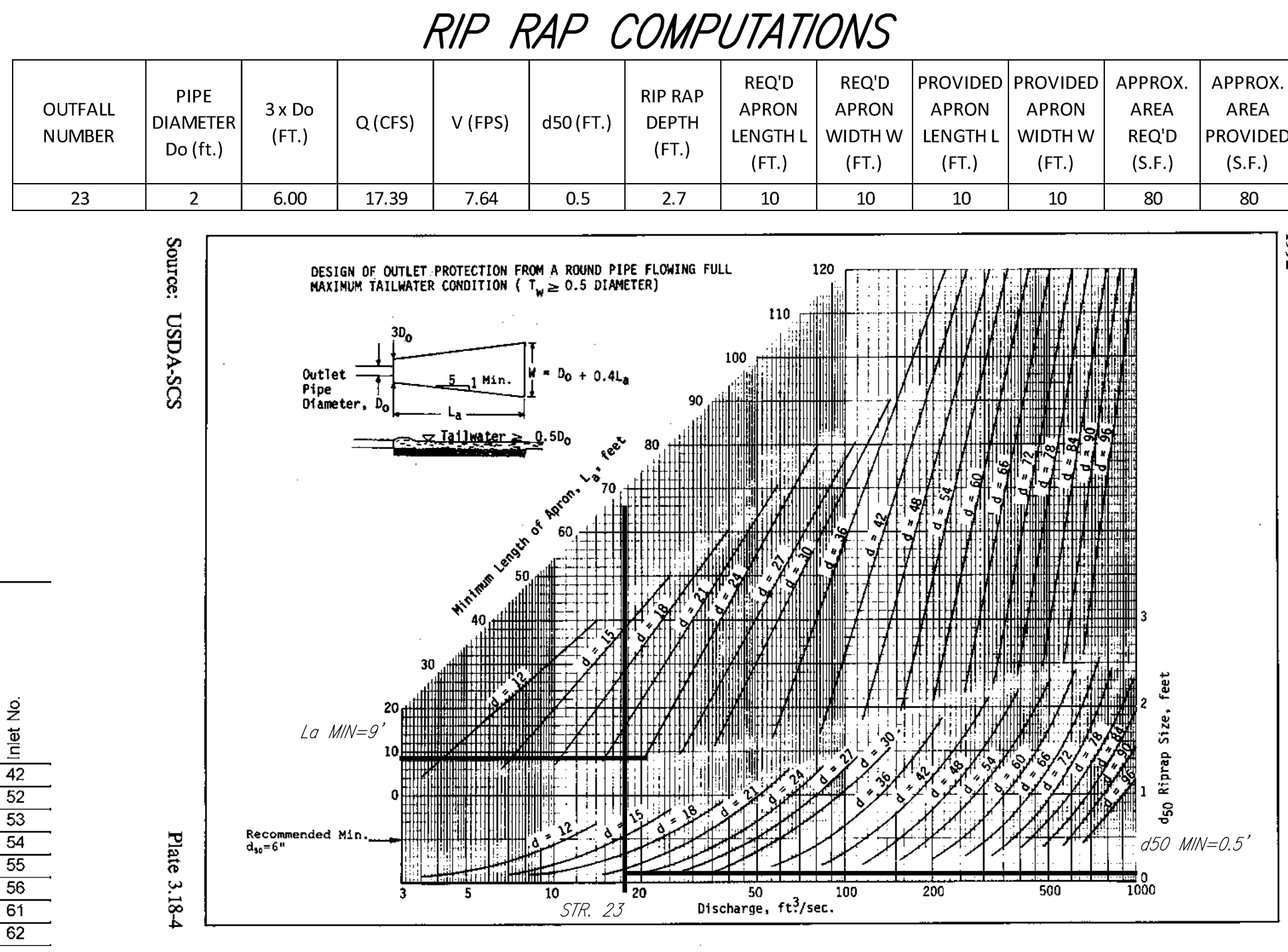


- NOTES:
- STORM SEWER DESIGN COMPUTATIONS SHOWN HEREON ARE THE RESULTS OF BENTLEY'S STORMCAD COMPUTER PROGRAM.
  - STORMCAD COMPUTES RUNOFF "Q" AS Q-CDF, WHERE R=1.008 AC-IN./HR. PER C.F.S.
  - INLET TIME FOR ALL STRUCTURES IS 5 MINUTES UNLESS NOTED OTHERWISE.
  - INLET COMPUTATIONS SHOWN HEREON ARE THE RESULTS OF INLETSOFT COMPUTER PROGRAM.
  - DI-7 INLETS WERE MODELED AS HALF-CLOGGED.
  - ALL RCP STORM SEWER SHALL BE CLASS III UNLESS OTHERWISE NOTED.
  - PIPE BEDDING AND TRENCHING SHALL BE IN ACCORDANCE WITH PRINCE WILLIAM COUNTY AND VDOT STANDARDS FOR STORM SEWER.
  - ALL CONSTRUCTION METHODS, AND MATERIALS SHALL CONFORM TO CURRENT PRINCE WILLIAM COUNTY AND VDOT STANDARDS AND SPECIFICATIONS.
  - INVERT SHAPING (VDOT IS-1) SHALL BE PERFORMED AT ALL STRUCTURES.
  - ALL STORM SEWER MANHOLES SHALL HAVE A HEAVY DUTY FRAME AND COVER.
  - FINAL MANHOLE SIZES TO BE DETERMINED BY CONTRACTOR/PRECASTER.
  - FOR STRUCTURES WITH DEPTH GREATER THAN 12', INSTALL CONCRETE SAFETY SLABS PER VDOT STANDARDS.

String Label	Upstream Node	Downstream Node	Area (Acres)	Inlet C	Inlet CA (Acres)	Accumulative CA (Acres)	System Intensity (in/hr)	Total System Flow (cfs)	Up Invert (ft)	Down Invert (ft)	Length (ft)	Constructed Slope (ft/ft)	Section Size (in)	Capacity (cfs)	Average Velocity (ft/s)	System Flow Time (min)	Up Ground Elevation (ft)	Notes
62-61	62	61	0.70	0.70	0.49	0.490	7.25	3.58	229.15	227.95	58.70	0.0204	15	9.24	7.05	5.00	233.15	
61-60	61	60	0.20	0.60	0.12	0.610	7.21	4.44	227.85	227.05	42.82	0.0187	15	8.83	7.21	5.14	232.25	
56-51	56	51	0.10	0.90	0.09	0.090	7.25	0.66	228.75	228.30	45.55	0.0099	15	6.42	3.37	5.00	235.75	
55-54	55	54	1.15	0.80	0.92	0.920	7.25	6.72	230.80	230.05	129.09	0.0058	18	8.01	5.08	5.00	235.40	
72-71	72	71	0.02	0.90	0.02	0.022	7.25	0.16	233.80	233.40	38.00	0.0105	6	0.75	3.02	5.00	237.30	Roof Drain
71-70	71	70	0.02	0.90	0.04	0.043	7.19	0.31	233.40	233.90	47.27	0.0106	6	0.75	3.65	5.21	237.85	Roof Drain
70-54	70	54	0.00	0.00	0.04	0.043	7.14	0.31	232.90	232.40	45.53	0.0110	6	0.76	3.69	5.43	238.63	Roof Drain
54-53	54	53	0.20	0.85	0.17	1.133	7.08	8.09	229.95	229.35	98.86	0.0061	18	8.18	5.28	5.63	236.60	
53-52	53	52	0.40	0.80	0.32	1.453	7.00	10.25	228.85	227.85	173.83	0.0058	24	17.16	5.70	5.94	236.20	
52-51	52	51	0.70	0.70	0.49	1.943	6.86	13.44	227.75	226.50	175.39	0.0071	24	19.10	6.58	6.45	236.20	
51-50	51	50	0.00	0.00	0.00	2.033	6.75	13.83	225.70	225.60	12.48	0.0080	24	20.25	6.94	6.90	234.80	
42-41	42	41	1.10	0.85	0.94	0.935	7.25	6.83	228.85	226.45	59.02	0.0068	18	8.65	5.42	5.00	231.45	
41-40	41	40	0.00	0.00	0.00	0.935	7.20	6.79	226.35	226.20	16.76	0.0089	18	9.94	6.05	5.18	232.75	
31-30	31	30	0.00	0.00	0.00	0.000	7.25	17.39	223.30	223.03	29.54	0.0092	24	21.64	7.66	0.00	231.75	
30-23	30	23	0.00	0.00	0.00	0.000	8.56	17.39	222.93	221.90	113.09	0.0091	24	21.59	7.64	0.06	230.50	

Inlet #	Outlet water surface elev	0.8xDo	Do	Qo	Lo	Sf	Hf	Vo	Ho	Qi	Vi	Qv	Vp	Hd	Ht	1.3H	0.5H	Final H	Inlet water surface elev	Rim elev		
41	227.88	NO	1.50	6.79	16.76	0.0025	0.04	6.05	0.14	6.83	5.42	37.02	0.46	0.07	90	0.32	0.53	0.69	0.34	0.39	232.75	
42	228.27	NO	1.50	6.83	59.02	0.0025	0.15	5.42	0.11	0.00	0.00	0.00	0.00	0.00	0.11	0.15	0.07	0.22	228.49	231.45		
61	228.05	YES	1.25	4.44	42.82	0.0028	0.12	7.21	0.20	3.58	7.05	25.24	0.77	0.12	10	0.00	0.32	0.41	0.21	0.33	232.25	
62	228.95	YES	1.25	3.58	58.70	0.0018	0.11	7.05	0.19	0.00	0.00	0.00	0.00	0.00	0.19	0.25	0.13	0.23	229.18	234.15		
51	227.88	NO	2.00	13.83	12.48	0.0022	0.03	6.94	0.19	13.44	6.58	88.44	0.67	0.10	5	0.00	0.29	0.37	0.19	0.21	228.09	234.80
52	228.10	YES	2.00	13.44	175.39	0.0021	0.37	6.58	0.17	10.25	5.70	58.43	0.50	0.08	15	0.00	0.24	0.32	0.16	0.52	228.62	236.20
53	229.45	YES	2.00	10.25	173.83	0.0012	0.21	5.70	0.13	8.09	5.28	42.72	0.43	0.06	70	0.00	0.19	0.25	0.12	0.34	229.79	236.20
54	230.55	YES	1.50	8.09	98.86	0.0035	0.35	5.28	0.11	6.72	5.08	34.14	0.40	0.06	40	0.00	0.17	0.22	0.11	0.46	231.01	236.60
55	231.25	YES	1.50	6.72	129.09	0.0024	0.31	5.08	0.10	0.00	0.00	0.00	0.00	0.00	0.10	0.13	0.07	0.38	231.63	235.40		
56	229.30	YES	1.25	0.66	45.55	0.0001	0.00	3.37	0.04	0.00	0.00	0.00	0.00	0.00	0.04	0.06	0.03	0.03	229.33	235.75		

Inlet No.	Inlet Type	Length (ft) or Type	Station	Drainage Area (Ac)	C	CA	Weighted CA	Q (cfs)	Q Carrying Capacity (cfs)	Q/Cover (cfs)	Q/Gutter Flow	S gutter Slope (ft/ft)	Sx Cross Slope (ft/ft)	T (spread)	W (ft)	WT	Sw (ft/ft)	SwSx	Bo Appendix 9C-8	a	Swm am(12M)	Seff(ft)=Sx*Sx*Eo	L1 (ft) 1/8 OR P affect length ft	L2 OR d (ft)	E(#15) OR (#12)	Q intercept cfs OR cfs/dph	Qo Carry-over cfs OR 1/8 spread @60gph	Remarks (Two inches of local depression assumed at all inlets)	Inlet No.
42	DI-3B	12	1+10	0.85	0.935	0.805	4.00	3.74	0.00	0.00	0.74	0.0113	0.0183	7.14	2.00	0.30	0.22	0.46	0.46	38.00	12.10	0.33	0.22	0.46	0.82	6.22	SUMP	42	
52	DI-7 (TYP 3)	0.70	0.70	0.480	0.480	0.320	7.27	3.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.24	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*** W.S.E. = 236.53	52	
53	DI-7 (TYP 3)	0.40	0.80	0.320	0.320	7.27	2.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*** W.S.E. = 236.44	53	
54	DI-7 (TYP 3)	0.20	0.85	0.170	0.170	7.27	1.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.16	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*** W.S.E. = 236.76	54	
55	D-3C	12	1+10	0.80	0.920	0.920	4.00	3.98	0.00	0.00	0.68	0.0061	0.0352	6.91	2.00	0.29	0.22	0.46	0.82	6.22	0.00	0.00	0.00	0.00	0.00	0.00	SUMP	55	
56	DI-3B	6	1+10	0.90	0.080	0.080	4.00	0.36	0.00	0.36	0.0241	0.0249	1.58	2.00	1.26	0.08	0.35	1.00	3.40	0.142	0.17	5.07	1.18	1.00	0.36	0.00	CONTINUOUS GRADE	56	
61	DI-7 (TYP 3)	0.20	0.60	0.120	0.120	7.27	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.13	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*** W.S.E. = 232.38	61	
62	DI-3C	6	1+10	0.70	0.480	0.480	4.00	1.96	0.00	1.96	0.0080	0.0400	4.97	2.00	0.55	0.00	0.46	0.70	3.66	0.20	0.20	9.60	0.20	0.46	0.70	3.66	SUMP	62	



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Engineering • Surveying • Transportation • Environmental Services

COMMONWEALTH OF VIRGINIA  
SHARON D. DUSZA  
Lic. No. 000010633  
PROFESSIONAL ENGINEER

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STORM SEWER DESIGN & PROFILES

WELLINGTON ROAD OPERATIONS  
CENTER EXPANSION

BRENTSVILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:

NO.	DESCRIPTION
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PLAN DATE: OCTOBER 7, 2022

DESIGN BY: AG/SAW

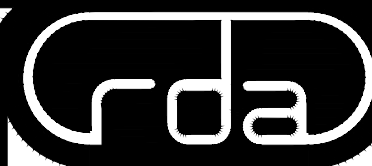
CHECKED BY: SSD

ARCHITECT: MOSELEY ARCH

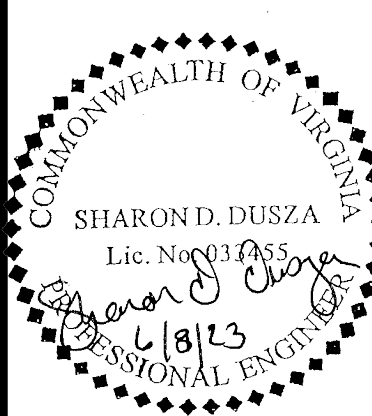
JURISDICTIONAL PLAN NO.: SPR2023-00185

RDA PLAN #: 19001-008

SHEET NUMBER: C.07



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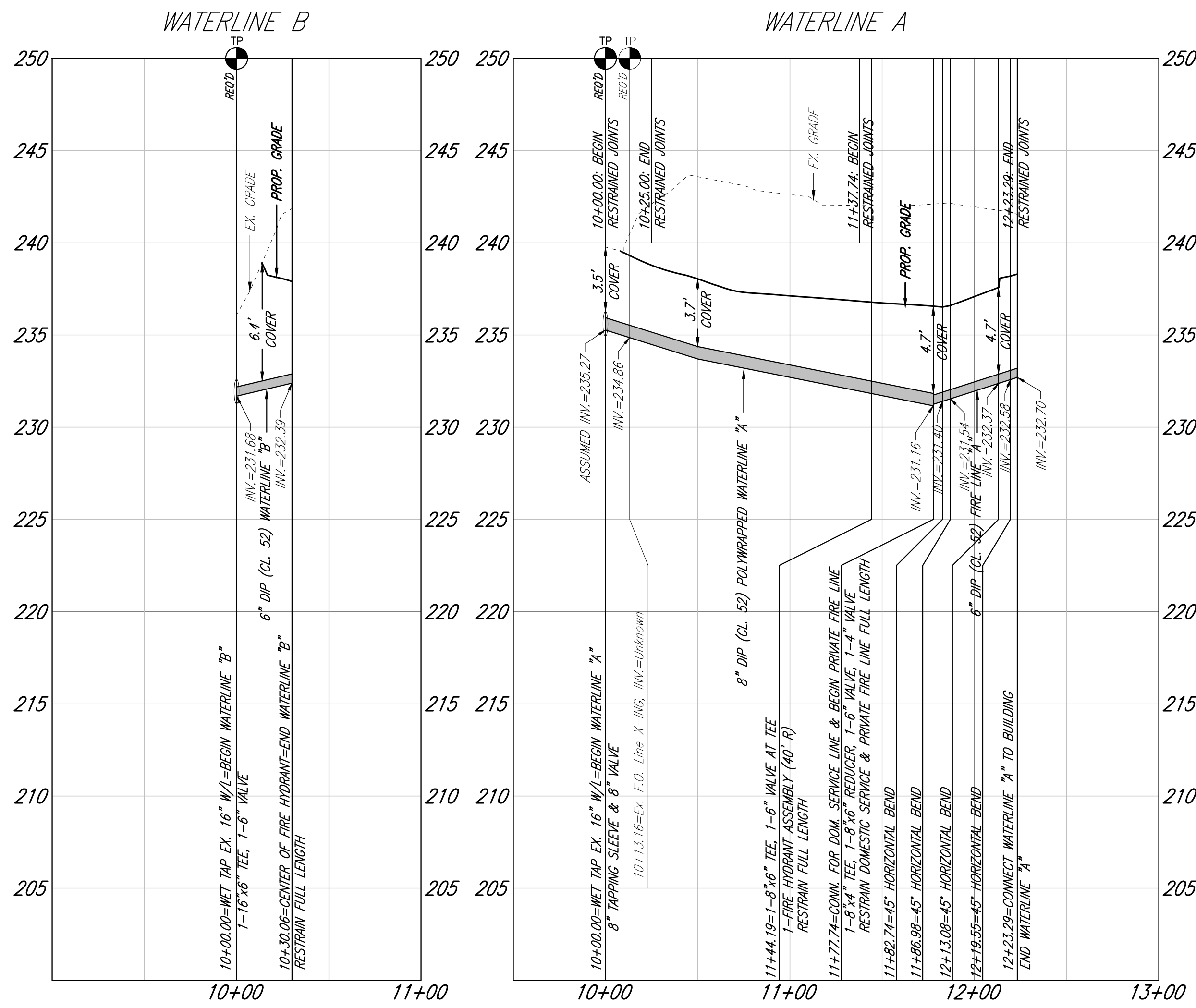
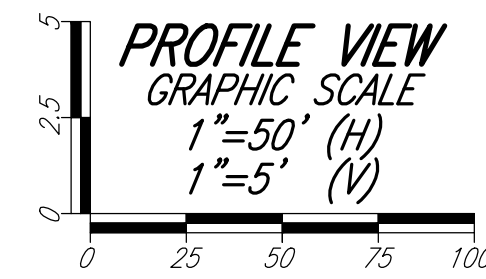


**WATERLINE & SANITARY SEWER PROFILES**  
**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
 BRENTSVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

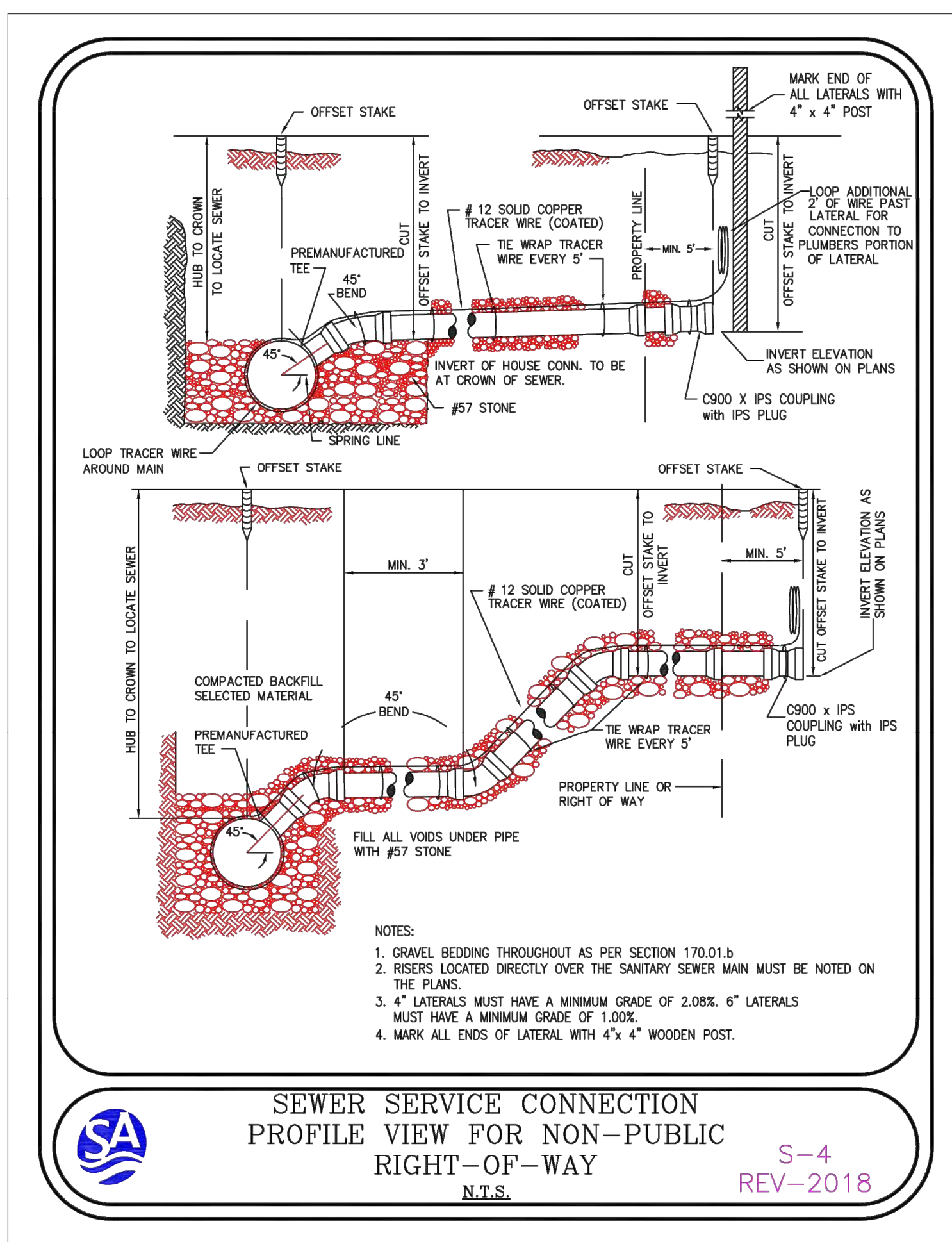
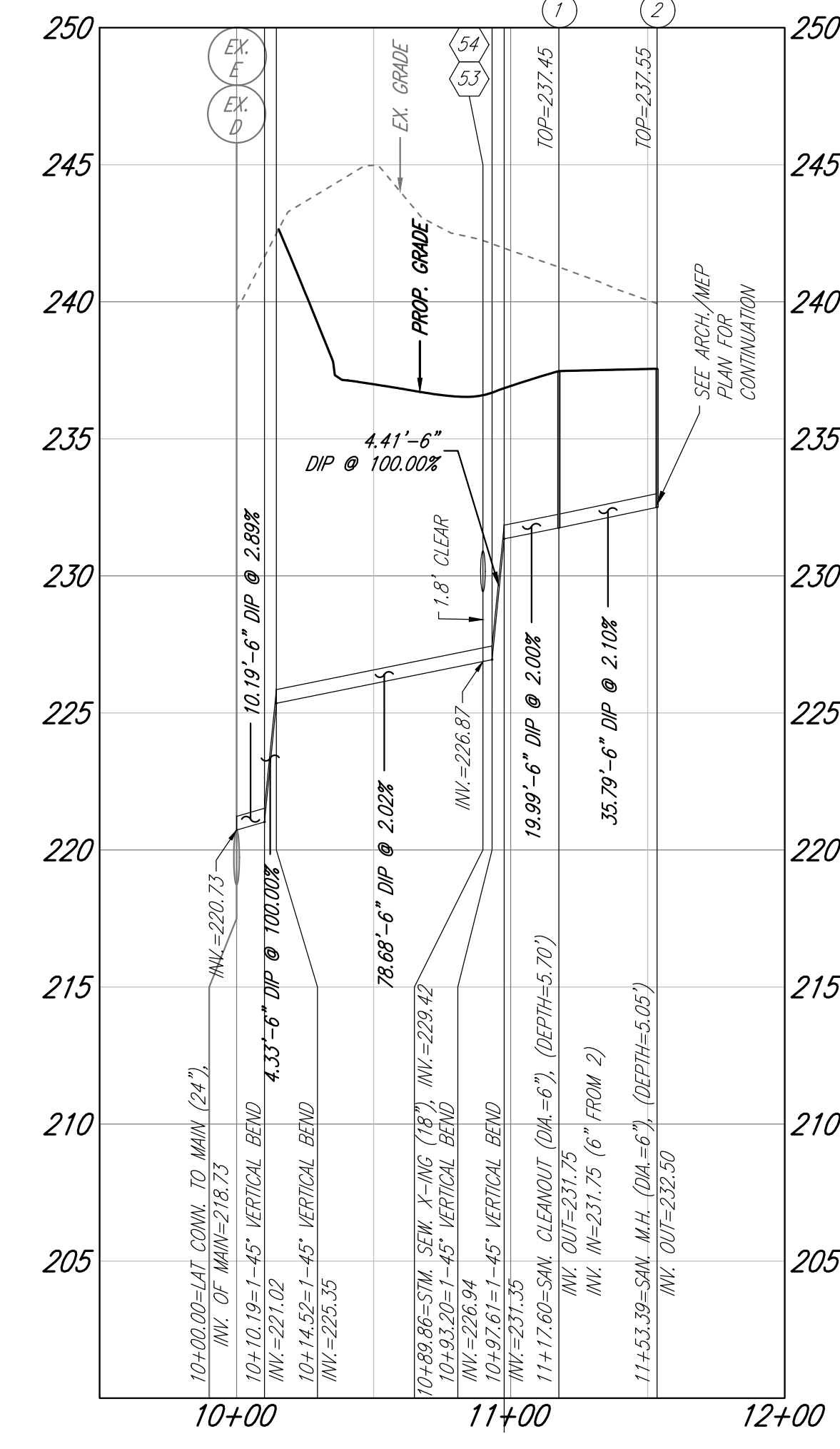
REVISIONS:


PLAN DATE: OCTOBER 7, 2022  
 DESIGN BY: AG/SAW  
 CHECKED BY: SSD  
 ARCHITECT/MOSELEY ARCH  
 JURISDICTIONAL PLAN NO. SPR2023-00185  
 RDA PLAN #: 19001-008  
 SHEET NUMBER: C.08

- NOTES:
- ALL WATERLINE SHALL BE CLASS 52 DUCTILE IRON UNLESS OTHERWISE NOTED.
  - TRENCHING, BEDDING AND BACKFILL FOR SANITARY SEWER AND WATERLINE SHALL BE DONE IN ACCORDANCE WITH P.W.C.S.A. STANDARDS AND SPECIFICATIONS.
  - ALL WATERLINES NEED TO BE RESTRAINED (REST.) TO A MINIMUM OF THE FIRST JOINT ALONG THE RUN WHEN A TEE IS PROPOSED, THE BRANCH RESTRAINED JOINT LENGTH WILL BE SHOWN ON THE PROFILES HEREON.
  - ALL WATERLINE RESTRAINT SYSTEMS SHALL BE IN THE FORM OF MECHANICAL RESTRAINT.
  - THE FIRE PROTECTION LINES SHALL HAVE A VALVE AT THEIR CONNECTIONS TO THE MAIN, SHALL MAINTAIN 42" OF COMPACTED SOIL COVER DEPTH AND SHALL MAINTAIN A PERIMETER CLEAR OF OTHER UTILITIES AND OTHER NON-COMPACTED SOIL FOR A MINIMUM OF 36" AROUND THE PIPES AND AVOID EXPOSURE TO TEMPERATURES BELOW 40°F.
  - \*CONTROLLED FILL - THE SOIL SHALL BE PLACED IN LIFTS NOT EXCEEDING 8 INCHES IN LOOSE THICKNESS, MOISTURE CONDITIONED TO WITHIN ±2% OF THE OPTIMUM MOISTURE CONTENT, AND COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DENSITY OBTAINED IN ACCORDANCE WITH ASTM SPECIFICATION D-698, STANDARD PROCTOR METHOD.



19001-008 SANITARY-002



- NOTES:
- TRENCHING, BEDDING AND BACKFILL FOR SANITARY SEWER AND WATERLINE SHALL BE DONE IN ACCORDANCE WITH P.W.C.S.A. STANDARDS AND SPECIFICATIONS.
  - ALL SANITARY SEWER MANHOLE TOPS & CLEANOUT COVERS SHALL BE HEAVY DUTY AND TRAFFIC RATED IF LOCATED IN THE PAVEMENT.
  - ALL PROPOSED SANITARY SEWERS & LATERALS ARE PVC (C-900 DR-25) UNLESS OTHERWISE SPECIFIED.
  - ALL PROPOSED SANITARY SEWERS LATERALS ARE PRIVATELY OWNED AND MAINTAINED.

SA  
**SEWER SERVICE CONNECTION PROFILE VIEW FOR NON-PUBLIC RIGHT-OF-WAY**  
 N.T.S.  
 S-4  
 REV-2018

Project Plan Name: Wellington Road Operations Center Expansion
Prince William County Plan Number: SPR2023-00185 S04
Engineering Firm: Rinker Design Associates, P.C.
Project Location: The project area is located southeast of the Wellington Road and Virginia Meadows Drive intersection.

Table with columns for Water Main and Gravity Sanitary Sewer Main, including Size, Length, and Material.

Table with columns for Low Pressure Force Main and Pump Station Force Main, including Size, Length, and Material.

Total Number of 4-inch or 6-inch proposed valves: 4 Each
Total Number of 8-inch or 12-inch proposed valves: 1 Each
Total Number of 16-inch or 24-inch proposed valves: 0 Each

Pipe Quantity Summary table with columns: Pipe Quantity, Total Project Quantities Proposed By This Plan, Quantities Previously Approved & Permitted by Plan #, Net Increase.

The profile shall call out the station restraint to start and the station restraint is end for each fitting, reducer, and dead end.
Pipe Material: DIP - POLYWRAP
Soil Type: CL (granular) - CL native soil backfilled with granular material
Safety Factor: 1.5 to 1 typical
Trench Type: Type 4 is typical for the Service Authority backfill requirements
Test Pressure: 100 psi plus them max static pressure, but no less than 200 psi

The undersigned engineer and/or firm, on behalf of itself and its successors, does hereby assume full liability and responsibility for the accuracy of the calculations, selections made, or information presented in this information sheet and agrees to hold harmless the Service Authority from any claim.
Signature: Sharon D. Dusza 10/25/22
(Your or Print)

Maximum static water pressure in the proposed water system: psi
Minimum static water pressure in the proposed water system: psi
Information above is provided from the hydraulic model with applied maximum day water demands.
Available Fire Flow: gpm
Lowest Residual Pressure during a fire flow scenario: psi
Information above is provided from the hydraulic model with applied maximum day and fire flow water demands.
Are residential fire sprinkler systems proposed? No

High Hydraulic Grade Line: 457 feet
Lowest Finished Floor Elevation proposed within the development: feet
Estimated highest static pressure at the finished floor elevation: psi
Low Hydraulic Grade Line: 437 feet
Highest Finished Floor Elevation proposed within the development: feet
Estimated lowest static pressure at the finished floor elevation: psi

Estimates are made with an assumed high and low hydraulic grade line and do not take into account the effects of friction loss or water booster pumps in the water system. Actual pressures may vary and delivery pressure are not guaranteed.
International Residential Code P2903.3 Minimum static pressure (as determined by the local water authority) at the building entrance for either public or private water service shall be 40 psi (2.76 kPa).
International Residential Code P2903.3.1 Maximum pressure. Maximum static pressure shall be 80 psi (551 kPa). When main pressure exceeds 80 psi (551 kPa), an approved pressure-reducing valve conforming to ASSE 1003 shall be installed on the domestic water branch main or riser at the connection to the water-service pipe.
The hydraulic design and all finished floor elevations comply with the applicable plumbing code for pressure without a water booster pump or pressure reducing device.
The use of private water booster pumps and/or pressure reducing devices are required for the following lots to comply with applicable plumbing code for pressure.

Table with columns: Lot/Bldg ID, Elev. @ Finished Floor, High Hydraulic Grade Line, Low Hydraulic Grade Line, Estimated High Pres. (psi), Estimated Low Pres. (psi), Private Water Booster P. Needed, Pres. Red. Device Needed.

MULTI-DWELLING METER SCHEDULE table with columns: Building Identifier, Building Address, Meter Use, Account Type, Number of Dwelling Units, Peak Demand (GPM), ERU Purchase, Meter Size, Meter Type, (Reserved for Future Use), (Reserved for Future Use), Non-Binding Estimated Availability Fee.

NON-RESIDENTIAL METER SCHEDULE table with columns: Building Identifier, Building Address, Meter Use, Account Type, Est. Max Month Consumption (Gallons), Peak Demand (GPM), ERU Purchase, Meter Size, Meter Type, (Reserved for Future Use), (Reserved for Future Use), Non-Binding Estimated Availability Fee.

DATA CENTER METER SCHEDULE table with columns: Building Identifier, Building Address, Meter Use, Account Type, Est. Max Month Consumption (GPD), Peak Demand (GPM), ERU Purchase, Meter Size, Meter Type, Meter Manufacturer, Flow Rate (gpm) Minimum Maximum, Non-Binding Estimated Availability Fee.

(Based on AWWA M22 Manual, Second Edition)
Building Identifier: Operations Center
Multi-Dwelling Residential or Non-Residential: High Demand (e.g. Non-Residential)
Maximum static water pressure at the meter location: 100 psi
Table with columns: Fixture or Appliance, Fixture Value (at 60 psi), Number of Fixtures, Subtotal Fixture Value.
Hose Connections (with 50 ft of hose): 1/2 in., 5/8 in., 3/4 in.
Miscellaneous: Bedpan washers, Drinking fountains, Dental units.
Combined Fixture Value Demand (gpm) from AWWA Curve: 260 gpm
Pressure Adjustment Factor: 66.3 gpm
Adjusted demand (gpm): 89 gpm
Irrigation Demand (gpm) that will occur simultaneously with normal water use: 0 gpm
Water demand for equipment will occur simultaneously with normal water use: 10 gpm
Total estimated peak flow: 99 gpm
Required AWWA Meter Size: 1.5-Inch Positive Displacement Meter

1 Methods and materials used in the construction of water mains, sanitary sewer mains, force mains and appurtenances shall be in conformance with the current Prince William County Service Authority (Service Authority) Utility Standards Manual (USM) and the Virginia Department of Health Regulations.
2 Acceptance of these plans by the Service Authority will in no way relieve the owner from complying with the methods, policies or requirements stated in the Service Authority's USM.
3 Service Authority has Local Review Authority for water mains up to and including 18-inch and sanitary sewer mains up to and including 24-inch. Utilities outside the Service Authority's Local Review Authority, including low pressure force mains systems, are subject to the review, approval and permitting process of either the Virginia Department of Health Office of Drinking Water or Department of Environmental Quality. It is the Professional Engineer's responsibility to submit all necessary applications and plans and to secure all applicable plan approvals and permits from the different governing authorities.
4 Trees, fences, monuments, signs, entrance features, sheds, decks, overhanging canopies, or permanent structures shall not be placed in easements dedicated to the Service Authority without written permission from the Service Authority.
5 The contractor shall notify the Service Authority Inspection Manager at least two (2) business days, but not more than ten (10) business days, prior to the commencement of demolition, excavation or blasting in areas with underground water mains, sanitary sewer mains, and/or force mains.
6 All subdivision will require an address listing approved by the Prince William County Mapping Office. The address listing must be presented to the Service Authority at the time the utility permit is issued. Forms are available at the Service Authority. (Fax copies are not acceptable.)
7 Low pressure sewer force main systems are subject to the review and requirements of the Virginia Department of Environmental Quality.
8 The developer is responsible for all costs associated with damages to or relocation of water mains, sanitary sewer mains, force mains or service lines caused by the construction of this project.
9 The contractor shall coordinate all relocation of water mains, sanitary sewer mains and/or force mains with the Service Authority's Field Inspector. Water or sanitary sewer system shutdowns will not be executed without the prior approval of the Service Authority Field Inspector. The Field Inspector shall require the contractor to submit a relocation work plan for Service Authority acceptance prior to the commencement of the relocation work. The work plan will detail how the work will be done and the manpower, materials, and equipment that will be at the site to perform the work.
10 The Service Authority does not guarantee the availability or construction of utilities that are proposed by another entity even if those utilities are shown as existing in this plan set. If needed utilities shown as existing are not available or do not exist, it is the developer's responsibility to acquiring the necessary rights and permits to install on-site and off-site water and sanitary sewer utilities to provide the desired service.
11 Existing unused water service lines shall be exposed at the connection point on the water main and shall be cut and terminated (e.g. crimped) as directed by the Service Authority Field Inspector.
12 Existing unused laterals or sanitary service lines shall be cut and capped at the connection point to the sanitary sewer main or force main as directed by the Service Authority Field Inspector.
13 When an existing water service line, lateral, of sanitary service line will be reused as part of a new development, the Service Authority shall inspect the existing service line to insure that it is acceptable and meets current Service Authority material specifications. Any defects or out-of-date materials shall be repaired or replaced to the satisfaction of the Service Authority to ensure the service line is water tight before the existing service line is placed back in service.

Service Authority Prince William County
Water & Sanitary Sewer Information Sheet
Sheet effective as of September 1, 2019
SHEET OF

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COMMONWEALTH OF VIRGINIA
SHARON D. DUSZA
Lic. No. 011435
Professional Engineer
PWCSA INFORMATION SHEETS
WELLINGTON ROAD OPERATIONS CENTER EXPANSION
BRENTSVILLE, VIRGINIA
PRINCE WILLIAM COUNTY, VIRGINIA
PLAN DATE: OCTOBER 7, 2022
DESIGN BY: AG/SAW
CHECKED BY: SSD
ARCHITECT/MOSELEY ARCH
JURISDICTIONAL PLAN NO. SPR2023-00185
RDA PLAN #: 19001-008
SHEET NUMBER: C.09

**SANITARY SEWER DESIGN & TEST TABLE**

"n" factor = 0.013															PWCSA Use Only							
From MH	To MH	Units or Area	Flow / Unit	Avg. Flow Increment	Avg. Flow Total	Peak Factor	Q Total GPD	Pipe Size (in.)	Slope (%)	Length (ft)	Actual Vel. (fps)	Full Flow Vel. (fps)	Capacity (GPD)	q/Q (%)	d/D (%)	Invert Upper	Invert Lower	Date Line Installed	Date Line Passed Test	MH ID	Date MH passed Vac. Test	


Notes:

**SANITARY LATERAL TABLE**

Slope (% to %): 0.14%												PWCSA Use Only				
From MH E	To MH D	Ejector Pump Required	Lot Number	Station	Invert at Main	Crown at Main	Length of Lateral	Slope of Lateral (%)	Riser Height	Lateral Elev. At End	Ground Ele. At End	Basement Floor Elev. at End	Difference Basement Floor Elev. To Crown at Main	Lateral Material	Date Installed	Stub Installed % of Grade
			1	00+35.15	218.73	220.73	153.39	*	*	232.5	237.3	237.5	16.77	DIP		

Notes: \*See profile.

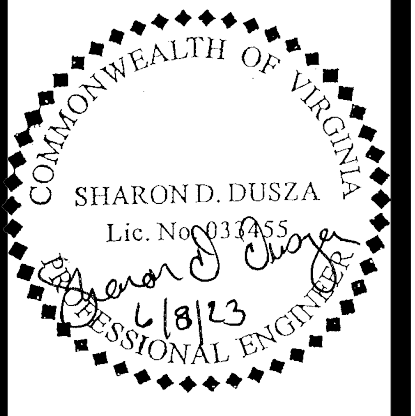
Engineer's Seal & Signature


**Service Authority**  
 Prince William County  
 Water & Sanitary Sewer Information Sheet  
 Sheet effective as of September 1, 2019  

SHEET \_\_\_\_ OF \_\_\_\_



**Rinker Design Associates, P.C.**  
 11100 Endeavor Court, Suite 200, Manassas, VA 20109  
 Telephone: (703) 368-7373 www.rdacivil.com  
 Engineering \* Surveying \* Transportation \* Environmental Services



PWCSA INFORMATION SHEETS  
**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
 BRENTSVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:


PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AAG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.10

Planting Notes:

- Quality Assurance:
  - Landscape planting and related work shall be performed by a firm with a minimum of five years experience specializing in this type and scale of work.
  - Applicable Specifications and Standards:
    - Landscape County Zoning Ordinance, American Joint Committee on Horticultural Nomenclature,
    - American Standard for Nursery Stock, Latest Edition,
    - American Association of Nurserymen
    - Landscape Specification Guidelines for Baltimore Washington Metropolitan Areas, latest edition,
    - Landscape Contractors Association.
- Submittals: Submit the following to the Owner's Representative prior to beginning work:
  - Copies of manufacturer's data for all materials required.
  - Samples of required mulch material.
  - Chemical and mechanical analysis and samples of all existing soil, topsoil, and soil mix to be used.
  - Planting schedule showing the dates (earliest and latest) proposed for each type of plant specified, schedule each type of planting within the normal planting seasons for such work.
  - Include requests for any proposed changes in the approved planting season and a list of proposed sources for all plant materials.
  - List of proposed sources for all plant material.

clay) and climatic conditions similar to those in the locality of the project. Plant material grown in sandy, well-drained soil will not be approved for this project.

- Plants shall be true to species and variety and unless specifically noted otherwise, all plants shall be of specimen quality, exceptionally heavy, symmetrical, tightly-kim plants, so trained or laced in their development and appearance as to be unquestionably and outstandingly superior in form, number of branches, compactness and symmetry.
- Plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf, free of disease, insect pests, eggs or larvae and shall have health, well-developed root systems. They shall be free from physical damage or any conditions that would prevent thriving health and the desired appearance.
- Trees, which have a damaged or crooked leader, or multiple leaders, unless specified in the plant list, will be rejected. Trees with abrasion of the bark, sub scald, disfiguring knots, or pruning cuts more than 1 1/4 inch diameter which have not completely callused, will be rejected.
- Plants shall conform to measurements specified in the plant schedules except that plants larger than specified may be used if acceptable to the Landscape Architect. Use of such plants shall not increase the contract price. If larger plants are accepted, the root ball shall be sized for the larger plant.
- Caliper Measurements: Shall be taken at a point on the trunk 6 inches above natural ground line for trees up to 4 inches diameter, and at a point 12 inches above the natural ground line for trees over 4 inches.
- Plants shall be measured when branches are in the normal position. Height and spread dimensions specified refer to the main body of the plant and not from branch tip to tip.
- Preparation of Areas for Planting:
  - Stake out all plant material beds and tree locations for approval of Landscape Architect prior to any bed preparation.
  - Shrubs, Shrub Beds and Hedges on slopes of 1:3 or less: Loosen soil in the area of entire plant bed or hedgerow to a depth of 6 inches minimum with a rototiller. Add soil amendments and rototill again to a depth of 6 inches. Excavate plant pit and hedge trenches a minimum of 12 inches wider than the root ball or bare root on all sides. The depth shall be sufficient to allow shrub to sit 2 inches above finished grade.
  - Shrub Beds of Slope of Greater than 3:1: Amend soil as above. Spread coir mesh across entire area of shrub bed in steep slope area per manufacturer's specifications. Excavate plant pit through coir mesh a minimum of 12 inches wider than the root ball or bare root on all sides. The depth shall be sufficient to allow shrub to sit 2 inches above finished grade.
  - Ground Covers and Seasonal Plantings: Loosen soil to a depth of 6 inches minimum with a rototiller. Add amendments to the soil and/or specified planting soil mix and rototill again to a depth of 6". Install plants directly into prepared bed, and firm the soil mix around them.
  - Groundcover on Slopes of Greater than 3:1: Amend soil as above or by hand as required. Spread leaf compost to 2 inches in depth immediately prior to placing coir mesh. Spread coir mesh across entire area of groundcover bed in steep slope area per manufacturer's specifications. Each ground cover shall be placed in an individual planting pit planted through the biodegradable netting.
  - Trees: Excavate plant pit walls vertical and scarify sides. Plant pit depth shall be sufficient to allow 2 inch maximum of root ball to be above finished grade. Tree pit shall be 12 inches wider than the ball on all sides.
- Erosion Control Material and Planting on Steep Slopes
  - Material meeting the requirements of the specification shall be installed and maintained on the designated areas as shown and specified. The areas to be covered shall be prepared and fertilized as specified before the erosion material is placed. Immediately prior to the planting operations, the material shall be laid evenly, smoothly and in contact with the soil throughout.
  - Lay erosion control materials with one inch nominal openings in accordance with manufacturer's instructions. Unroll in direction of water flow. Overlap sheets by at least 6 inches. Where strips are to be spliced lengthwise, overlap strips by 8 inches. Upgrade section shall be on top of all splices.
  - The Contractor shall maintain and protect the erosion control material until the final inspection. Maintenance shall consist of repairs made necessary by erosion, wind or any other cause. Following the restoration of damaged areas under plant and turf guarantee and establishment requirements for applicable underlying items: the erosion control material shall be repaired or replaced to meet the original requirements and maintained until the final inspection.
- General Plant Installation:
  - Excavation: Excavate all tree pits and planting areas to the width and depth shown in the planting details.
  - Center plant in pit and orient for the best visual effect. Set plants plumb and hold rigidly in position until soil has been tamped firmly around root ball.
  - Mix soil amendments and fertilizers with existing soil in accordance with soil recommendations for plant type, based upon soil test results as approved by Owner. Delay mixing of fertilizer if planting will not occur within a few days.
  - Backfill pit with planting soil mix and fertilizer, until two-thirds full. Tamp and water each layer thoroughly to settle soil. After soil settles, fill pit with remaining planting soil mix, water and shape surface so that it slopes to drain from trunk and matches ground at edge of planting pit.
  - Mulch within 48 hours after planting and after applying the pre-emergent herbicide, except ground over areas (which shall have organic material placed before planting) with a 2" layer of mulch immediately after planting. All bed lines shall be cut with a smooth consistent edge to a minimum depth of 3 inches. Keep mulch out of the crowns of shrubs and off buildings, sidewalks, light standards, and other structures.
  - All planting areas to conform to specified grades after full settlement has occurred and mulch has been applied. Provide saucers around tree pits as shown on planting details. Remove all tags, labels, strings, etc. from all plants.
- Permanent Seeding or Sodding for Grass Areas:
  - Lawn Seed or Sod varieties shall be improved variety turf-type tall fescue blend. The landscape contractor shall select from varieties approved by the Maryland or Virginia Department of Agriculture.
  - Refer to the Virginia Department of Transportation Erosion and Sediment Control Guidelines, for guidelines, specifications and installation techniques of seed and sod.
  - Maintenance shall begin immediately after each plant and lawn area is installed and shall continue until 90 days after final acceptance of the last section.

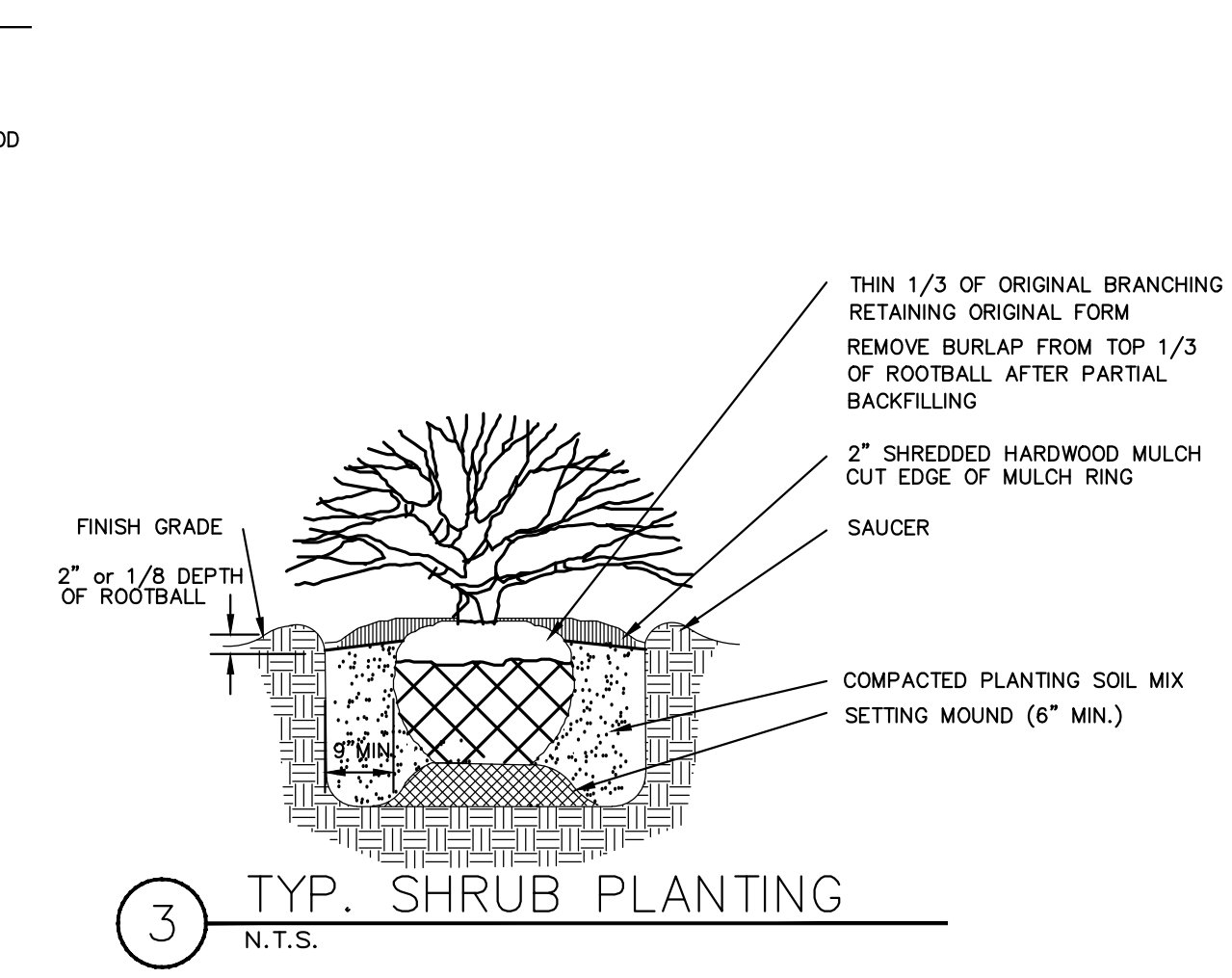
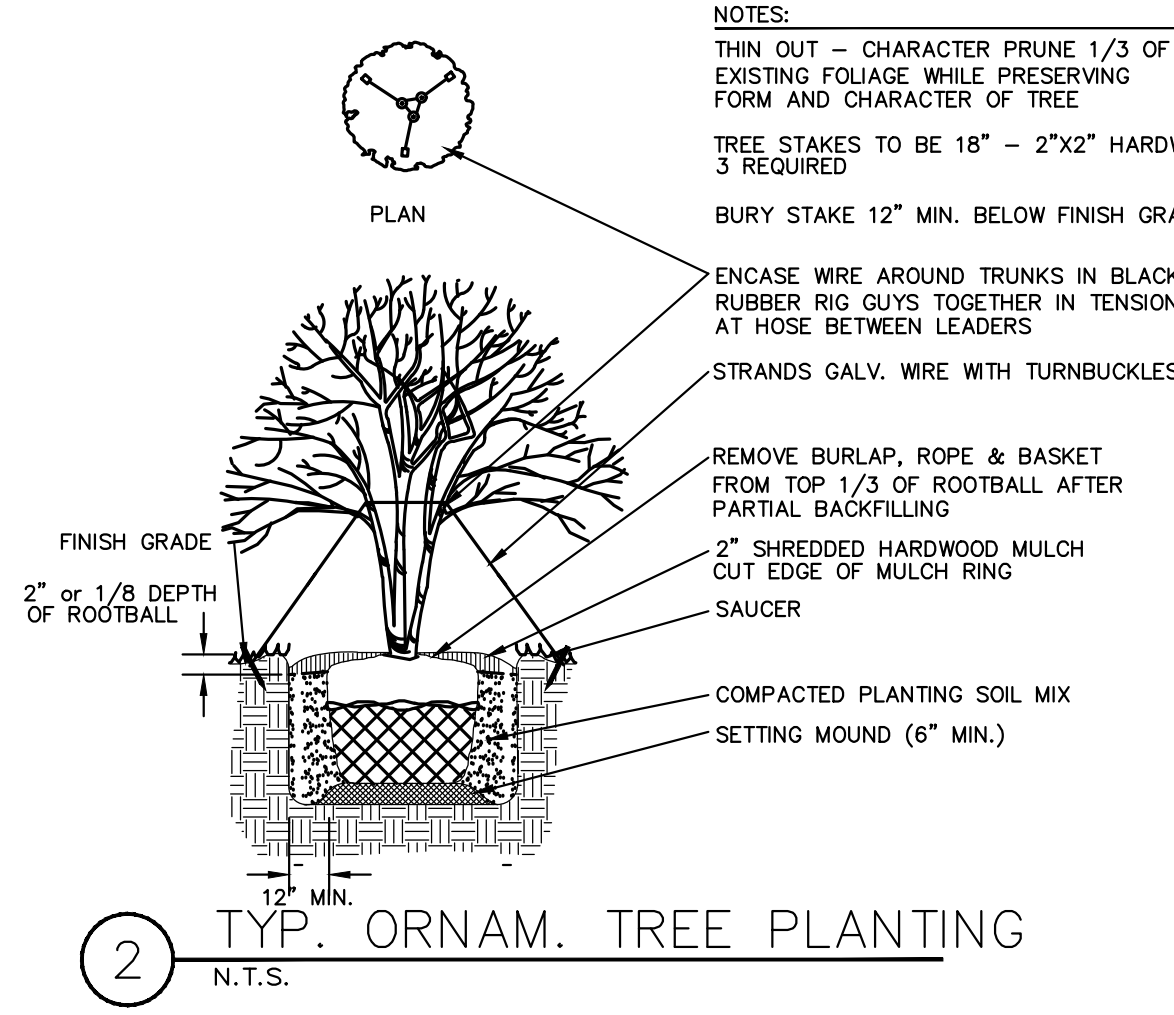
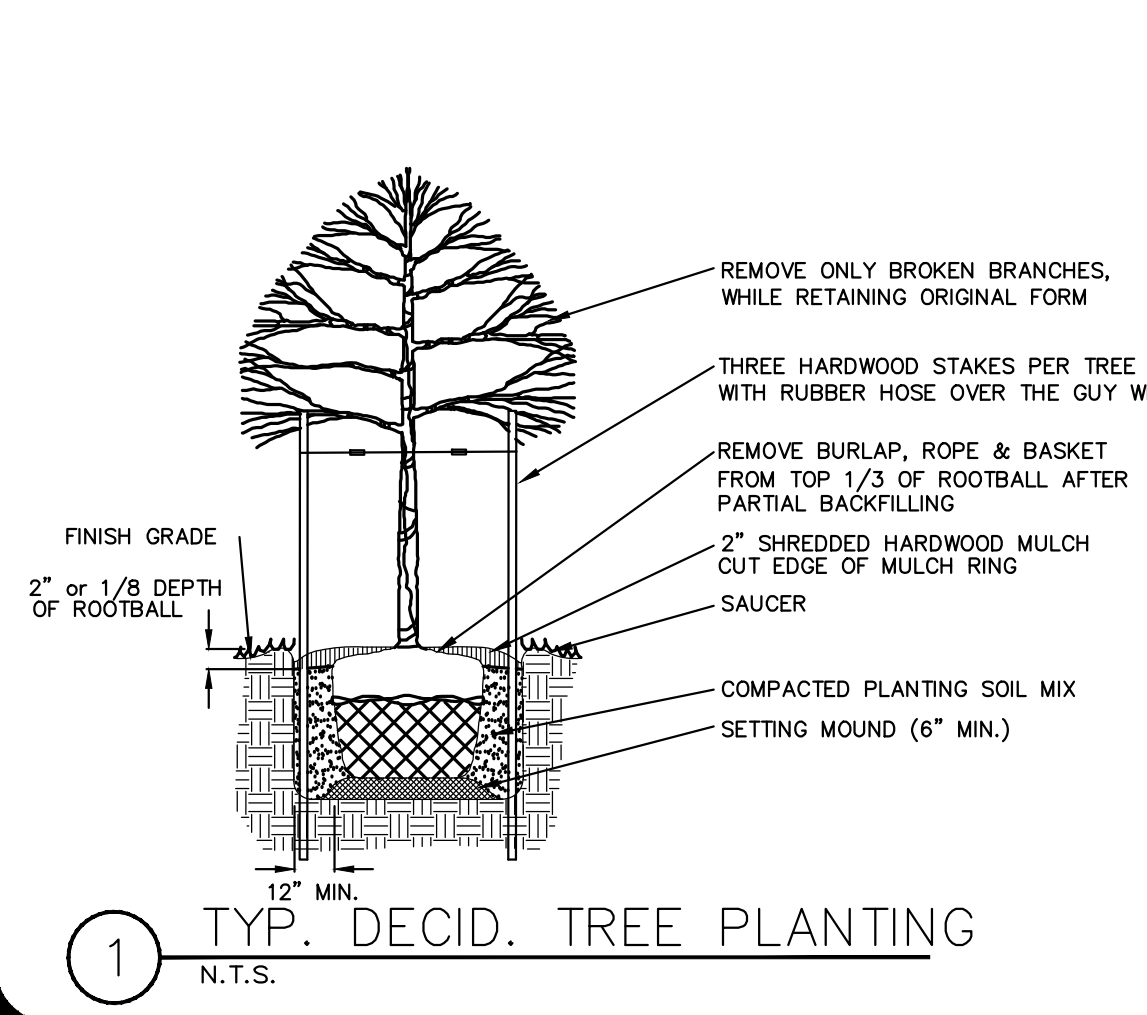
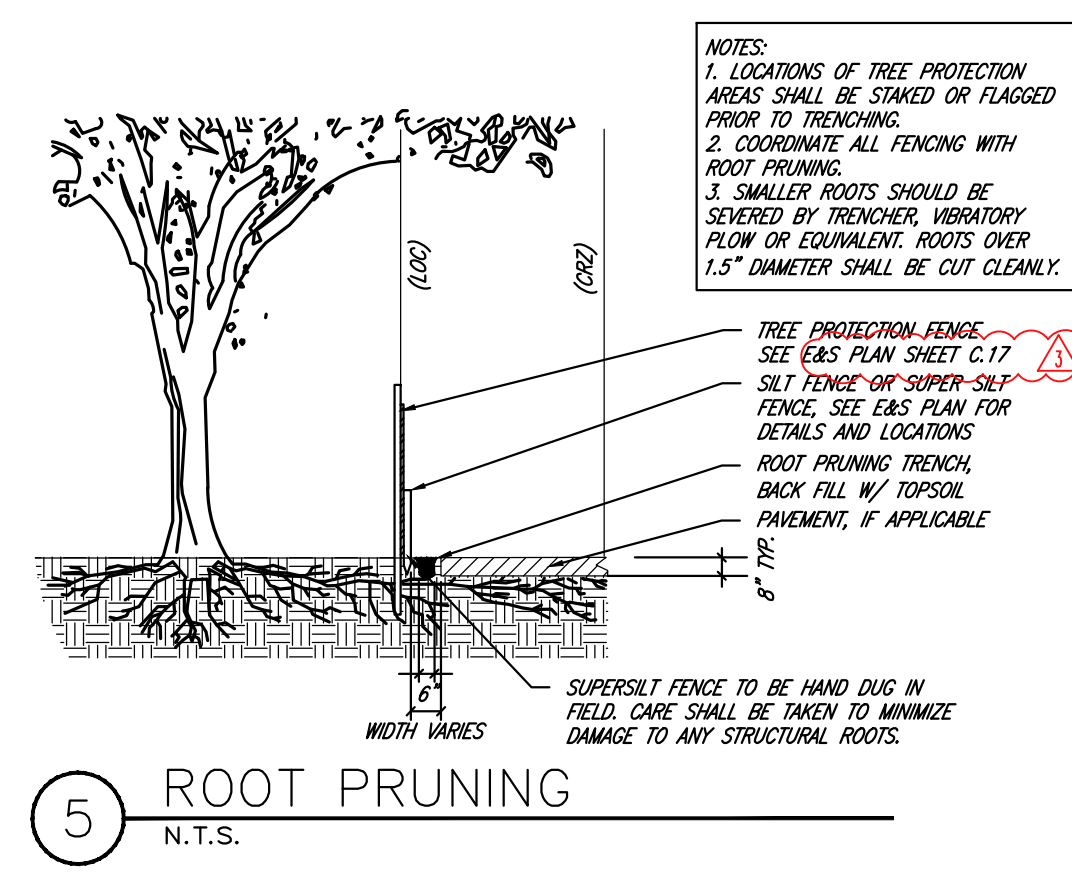
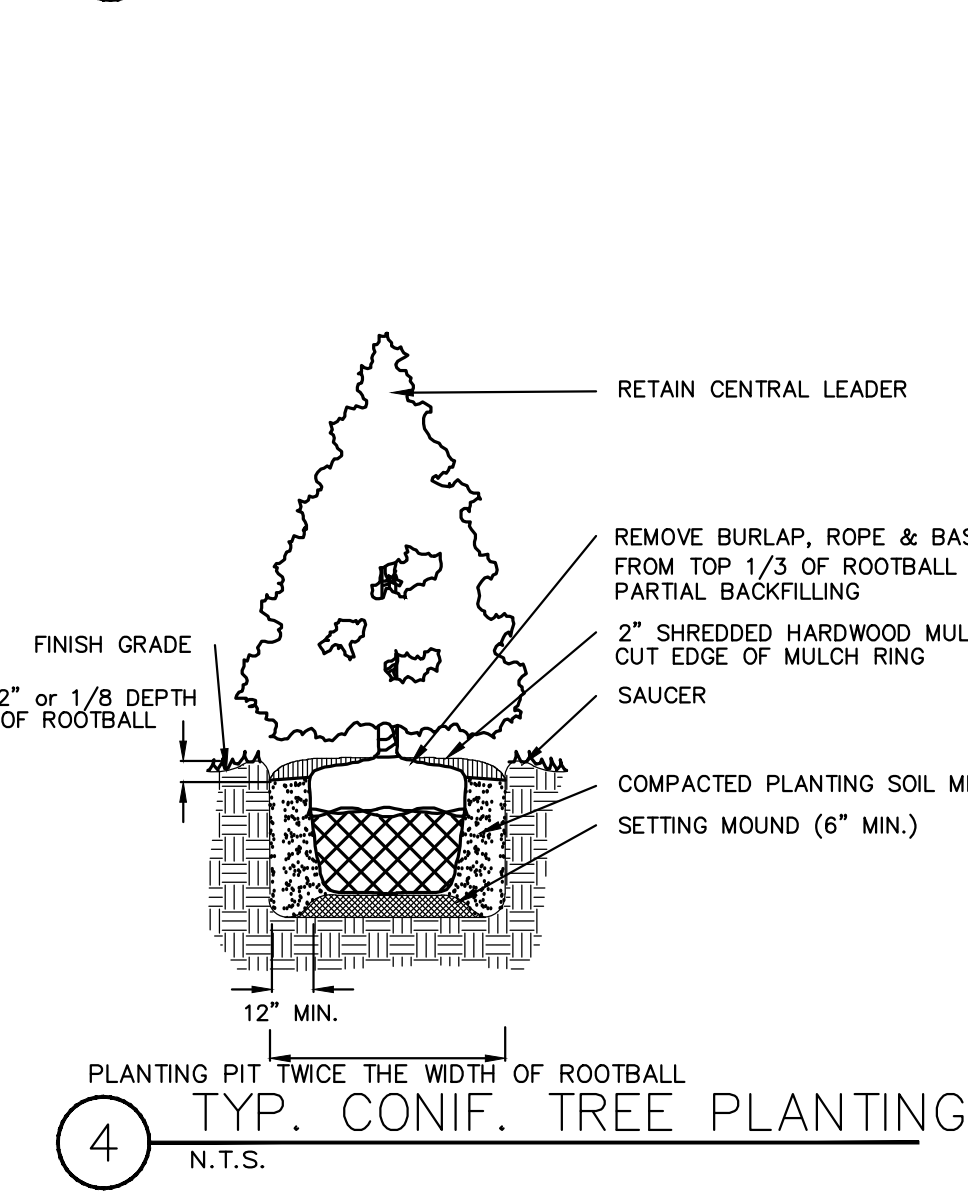
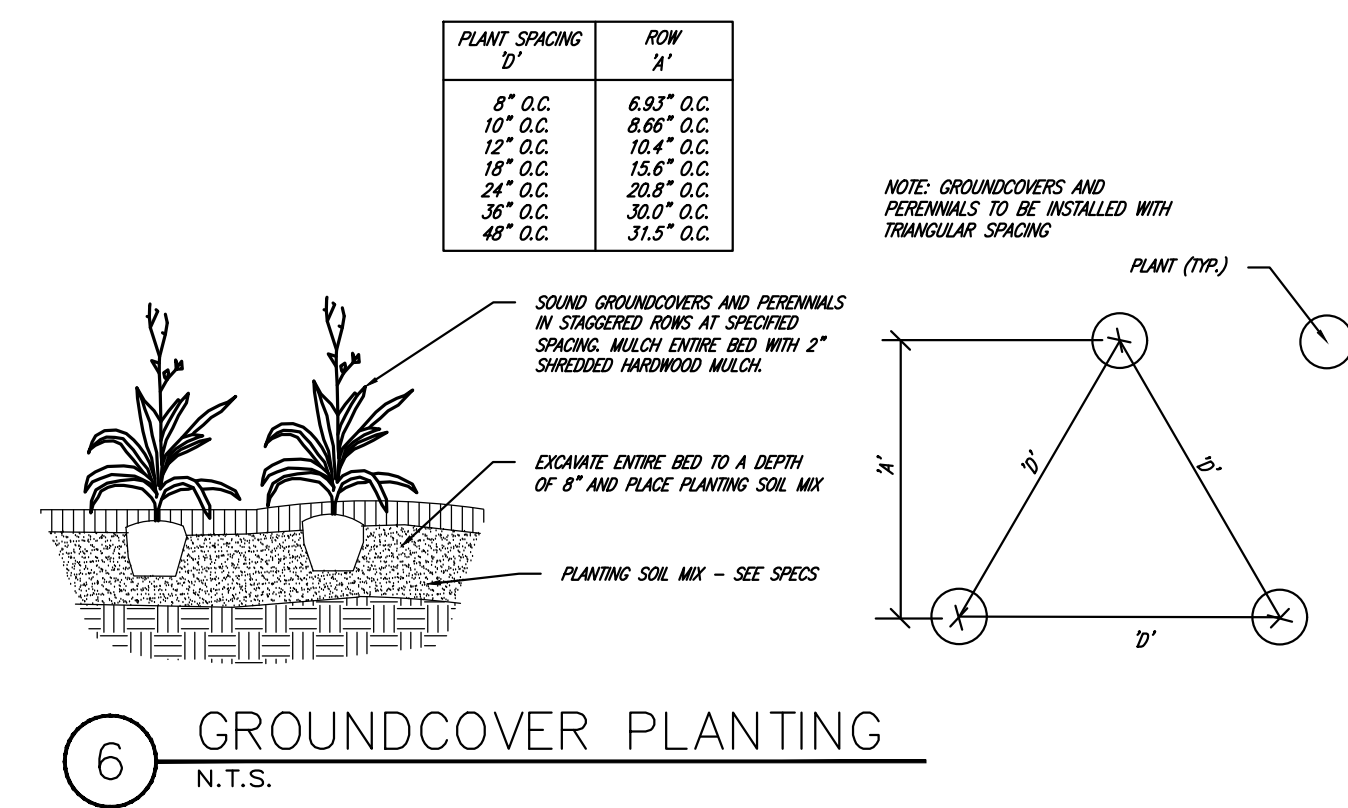
SCHEDULE B NONRESIDENTIAL LANDSCAPED STRIP ALONG RIGHT-OF-WAY (VIRGINIA MEADOWS DRIVE)	
1) Linear feet of street frontage, not including driveway entrances:	628 (NOT INCLUDING ENTRANCES)
2) Total number of plants units required: (80 P.U. PER 100')	502
Number of large deciduous trees provided: 9 x 10 p.u. = 90 p.u.	
Number of large evergreen trees provided: 7 x 10 p.u. = 70 p.u.	
Number of evergreen understory trees (medium, small, or compact): 18 x 5 p.u. = 90 p.u.	
Number of deciduous understory trees (medium, small, or compact): 9 x 5 p.u. = 45 p.u.	
Number of shrubs: 117 x 2 p.u. = 234 p.u.	
Number of Ornamental Grasses: 1 x 1 p.u. = 1 p.u.	
Number of Perennials: 1 x 0.25 p.u. = 0.25 p.u.	
4) Total number of plant units provided:	529

SCHEDULE C PARKING LOT INTERIOR PLANTING	
1) Area of parking:	41,164 SQ. FT.
2) Interior landscaped area required (% and sq. ft.):	5% - 2058 SQ. FT.
Interior landscaped area provided (% and sq. ft.):	5.3% - 2200 SQ. FT.
3) Number of large/medium trees required:	11 LARGE/MED. (1/200 S.F.)
Number of large/medium trees provided:	11 LARGE/MED. PROVIDED

SCHEDULE D TREE COVER CALCULATIONS	
Tree cover required:	TOTAL SITE AREA 7.29 ACRES or 317,553 SQ. FT.
R-O-W DEDICATION:	0 ACRE or 0 SQ. FT.
REMAINING SITE AREA:	7.29 ACRES or 317,553 SQ. FT.
1) Gross site area:	317,553 SQ. FT. (7.29 ACRE)
2) Percent of tree cover required:	10%
3) Total area of tree cover required:	31,756 SQ. FT. (0.73 ACRE)
Tree cover provided:	
4) Tree cover from landscaping:	9,100 SQ. FT. (0.21 ACRE)
5) Tree cover from preservation:	49,145 SQ. FT. (1.13 ACRE)
6) Total tree cover provided:	58,245 SQ. FT. (1.34 ACRE) OR 18.3%

- NOTES:
- REFER TO THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK FOR GUIDELINES, SPECIFICATIONS, AND INSTALLATION TECHNIQUES OF TREES AND GROUND COVER.
  - MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER EACH PLANT AND LAWN AREA IS INSTALLED AND SHALL CONTINUE UNTIL 90 DAYS AFTER FINAL ACCEPTANCE OF THE LAST SECTION.
  - THE LANDSCAPE CONTRACTOR SHALL HAVE THE OPTION TO SUBSTITUTE PLANTS DURING CONSTRUCTION WITH APPROVAL OF THE SITE INSPECTOR AS LONG AS THE PLANTINGS BEING REPLACED ARE ALLOWED PER THE FWC DCSM AND REPLACE PLANTINGS OF THE SAME SIZE AND 10-YEAR CANOPY COVER IN KIND.

PLANT SPACING D'	ROW X'
8" O.C.	6.87' O.C.
10" O.C.	8.66' O.C.
12" O.C.	10.4' O.C.
14" O.C.	12.16' O.C.
16" O.C.	13.92' O.C.
18" O.C.	15.68' O.C.
20" O.C.	17.44' O.C.
24" O.C.	20.8' O.C.
30" O.C.	25.2' O.C.
36" O.C.	30.6' O.C.



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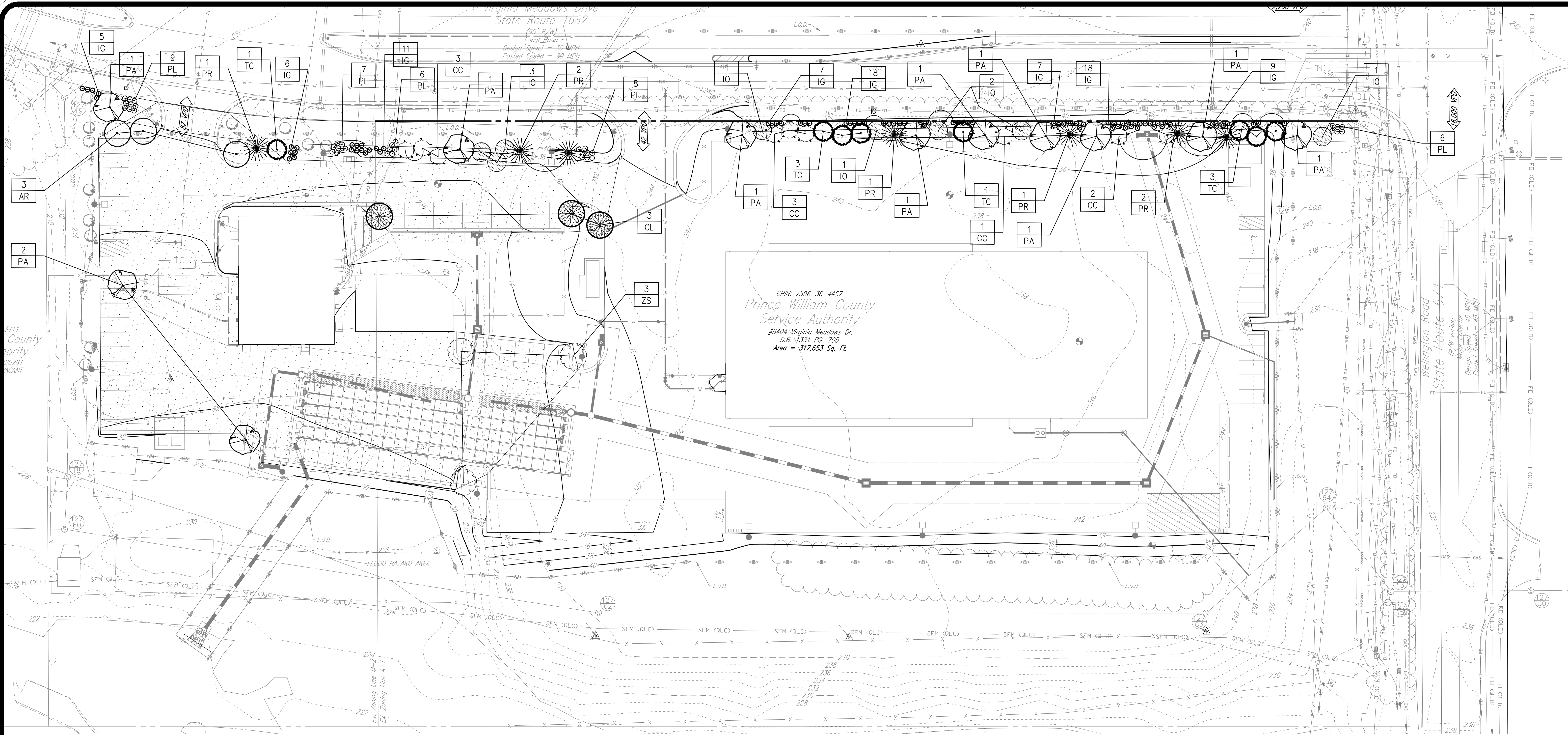
COMMONWEALTH OF VIRGINIA  
 SHARON D. DUSZA  
 Lic. No. 013335  
 PROFESSIONAL ENGINEER

LANDSCAPE NOTES & DETAILS  
 WELLINGTON ROAD OPERATIONS  
 CENTER EXPANSION  
 BREWSTERVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS: 03/13/2024  
 BID ADDENDUM 3- UPDATE NOTE

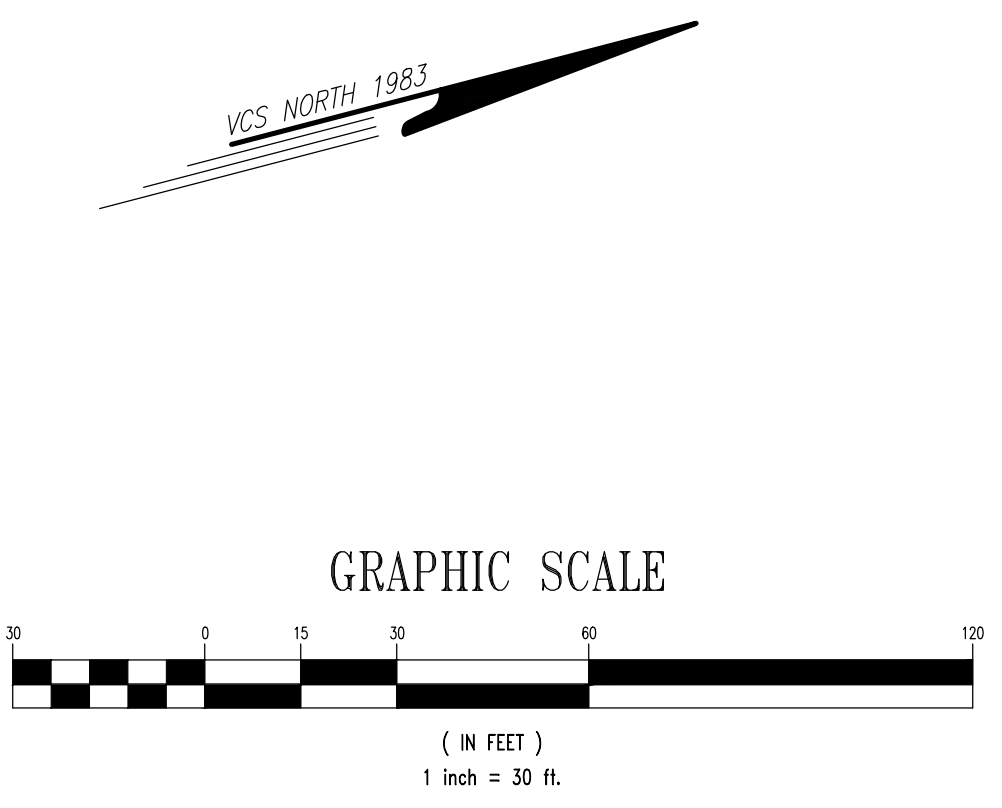
PLAN DATE: OCTOBER 7, 2022  
 DESIGN BY: AG/SAW  
 CHECKED BY: SSD  
 ARCHITECT/MOSELEY ARCH  
 JURISDICTIONAL PLAN NO. SPR2023-00185  
 RDA PLAN #: 19001-008  
 SHEET NUMBER: C.11






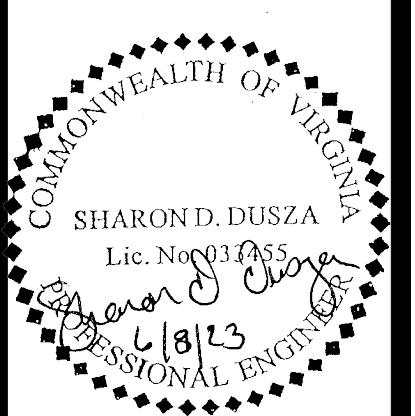
LEGEND

LARGE DECIDUOUS	AR	RED MAPLE 'SUNSET'	EVERGREEN TREES SMALL	IO	AMERICAN HOLLY
	PA	LONDON PLANTREE		TC	CAROLINA HEMLOCK
	GT	THORNLESS HONEYLOCUST 'SKYLINE'		PR	PITCH PINE
	CL	SUGAR HACKBERRY		IG	SHAMROCK INKBERRY
SMALL AND MEDIUM DECIDUOUS	ZS	JAPANESE ZELKOVA	PL	SCHIPKA CHERRY LAUREL	
	CC	REDBUD	<p>SCHEDULE "C" INTERIOR PARKING LOT AREA</p>		





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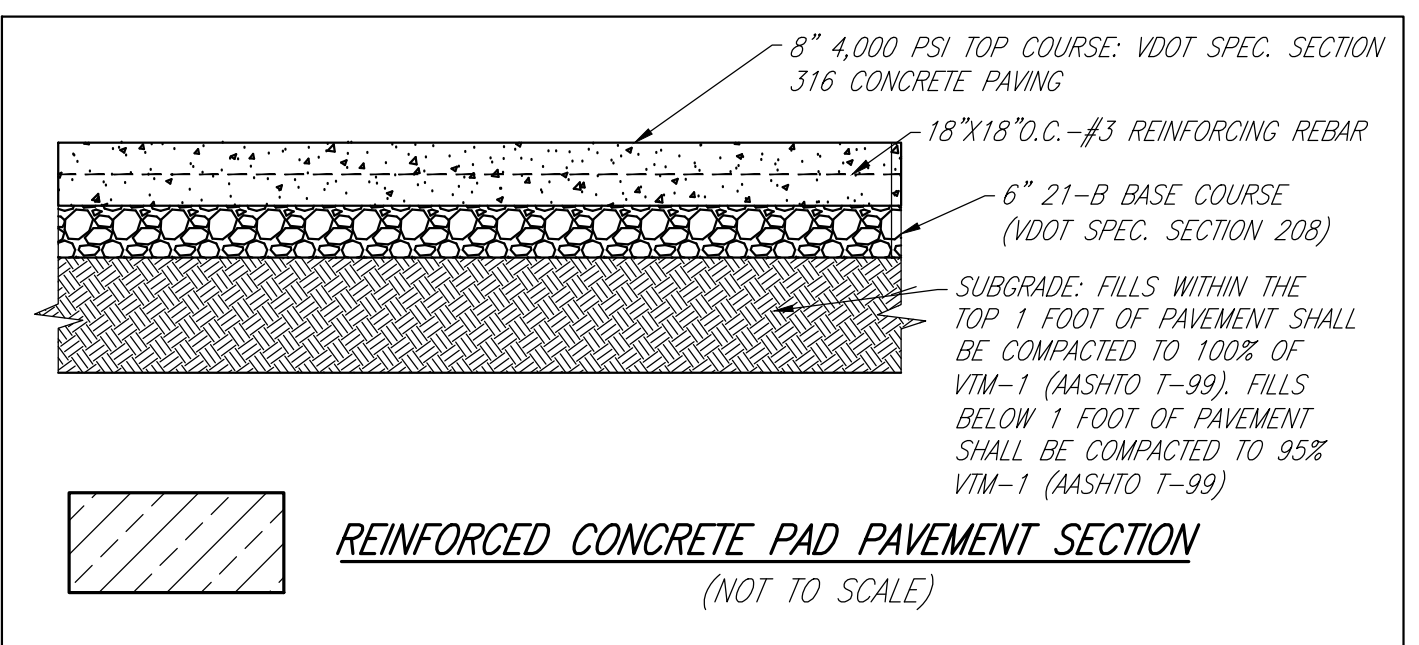
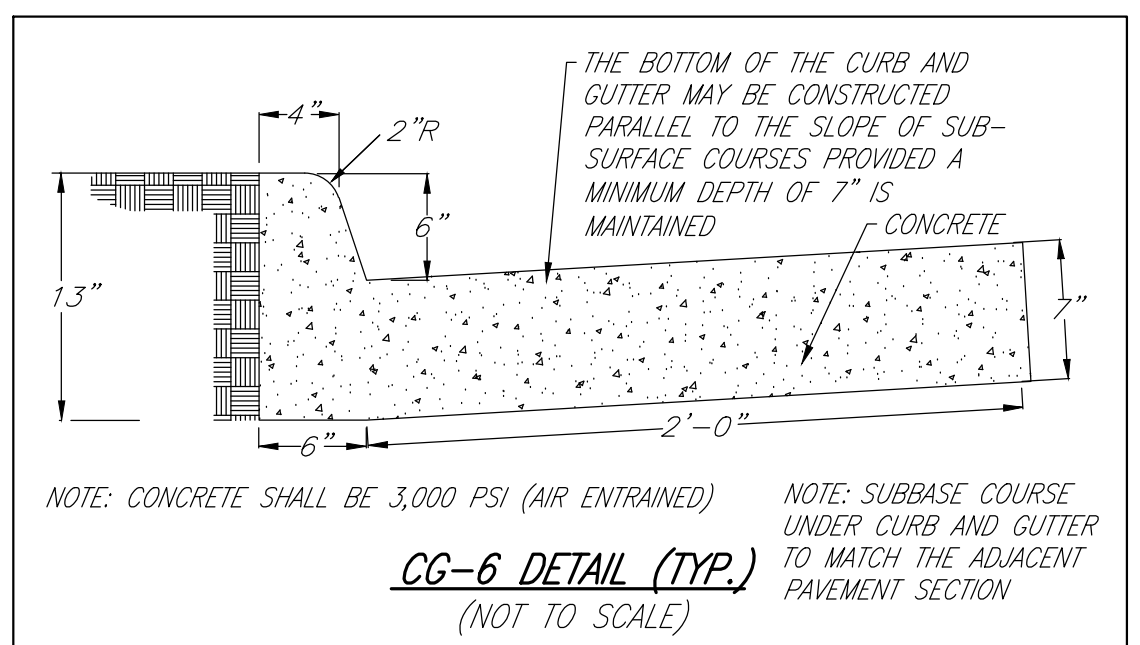
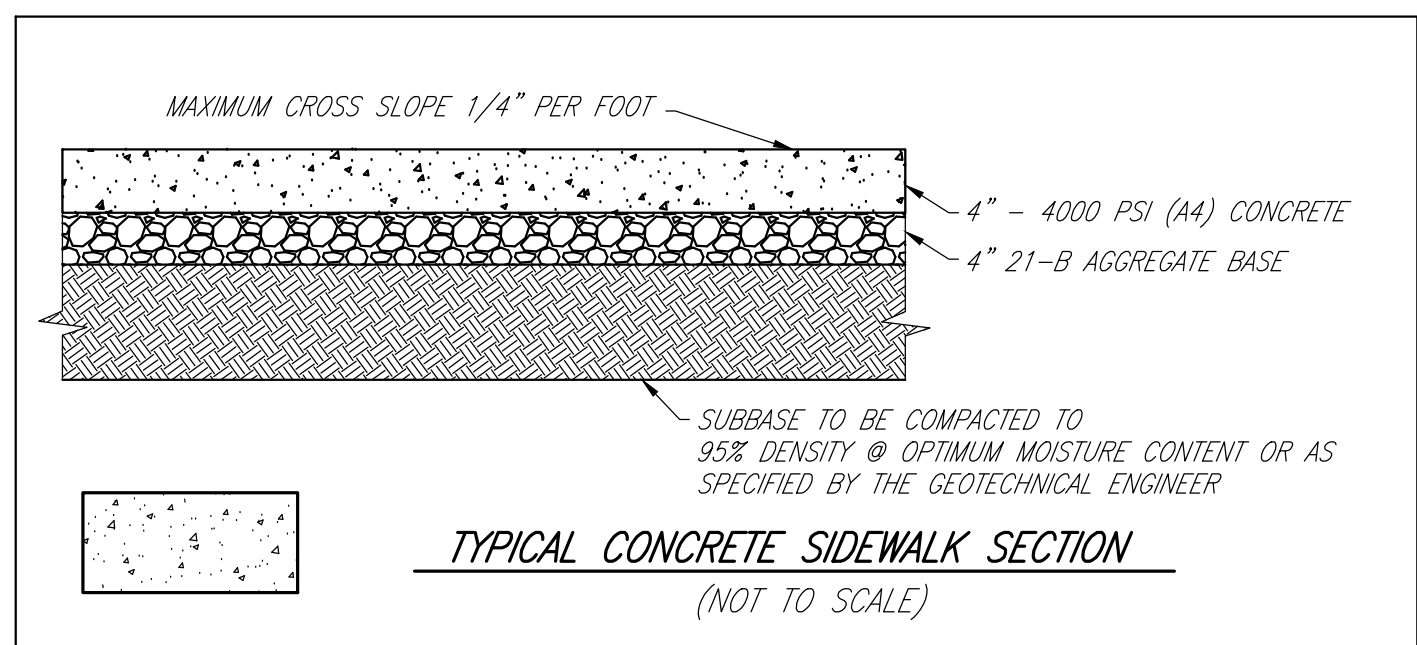
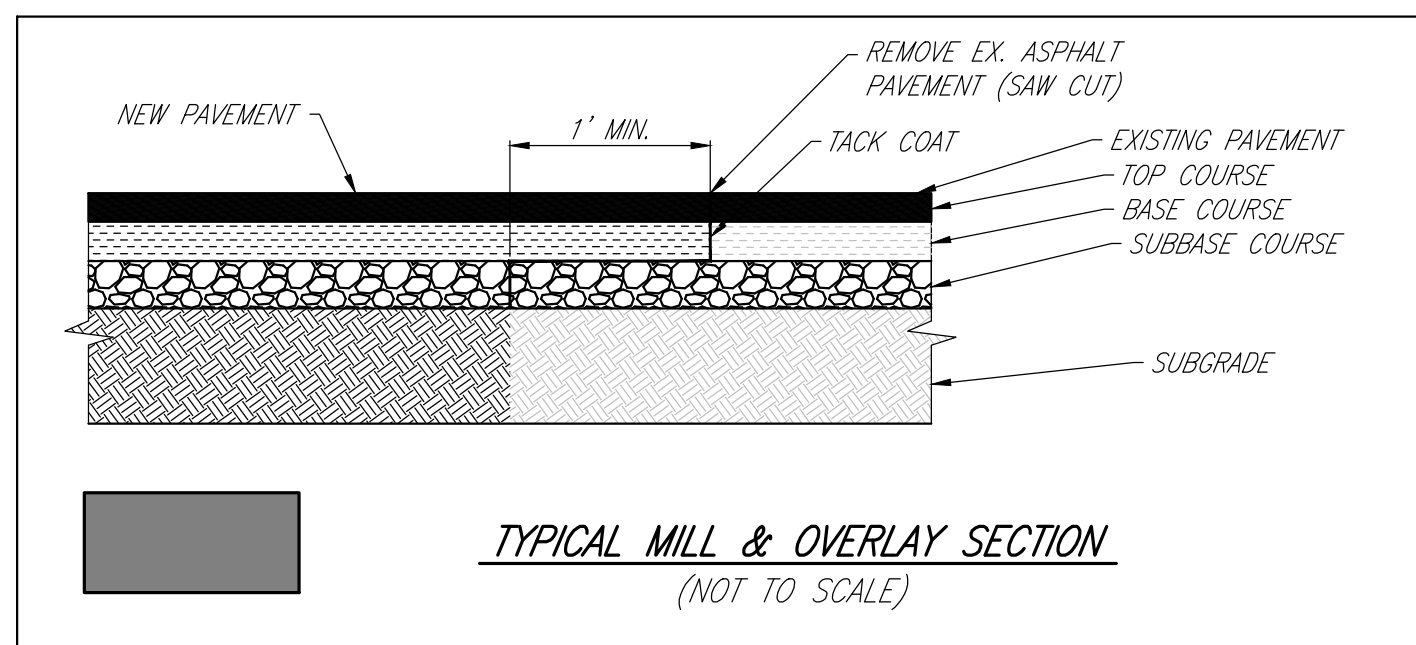
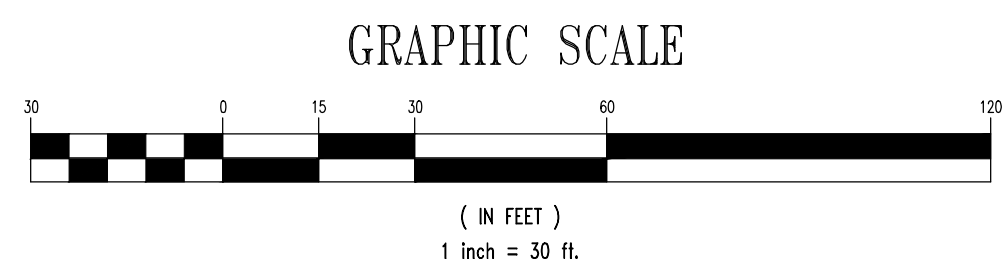
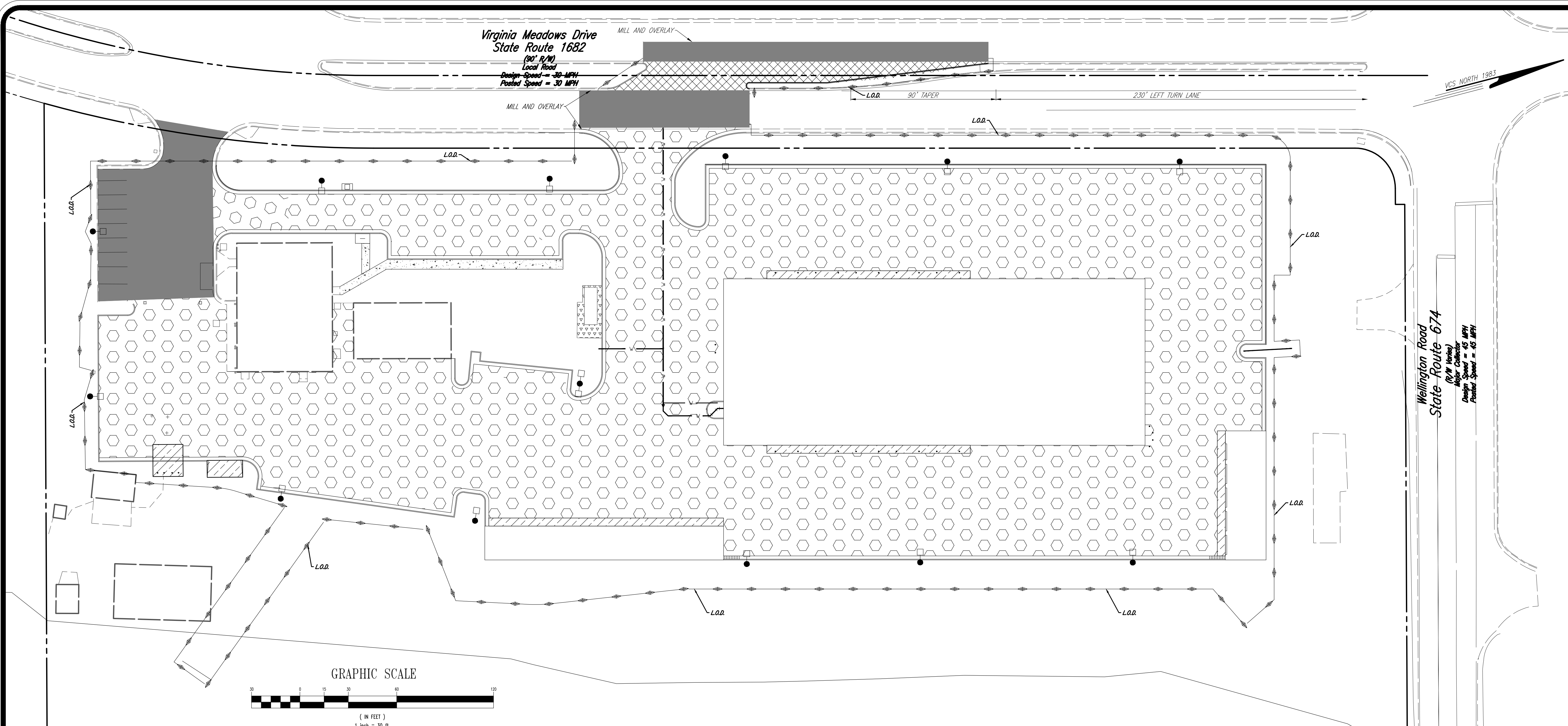


SHARON D. DUSZA  
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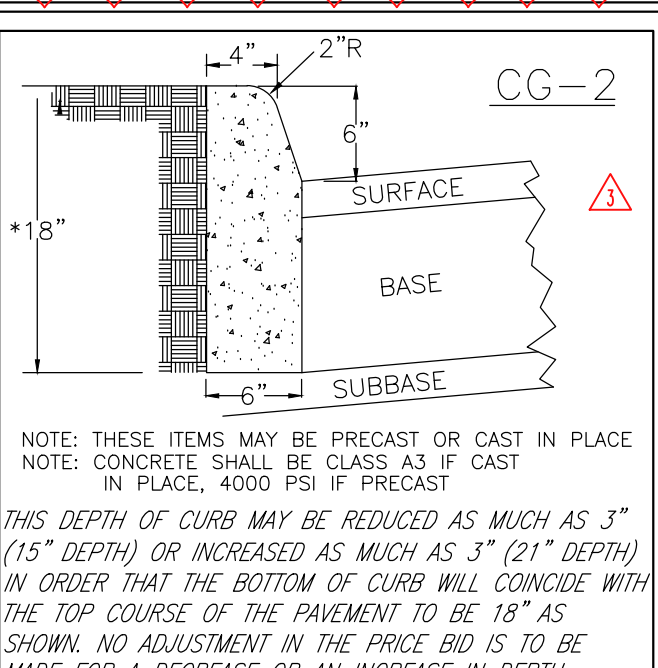
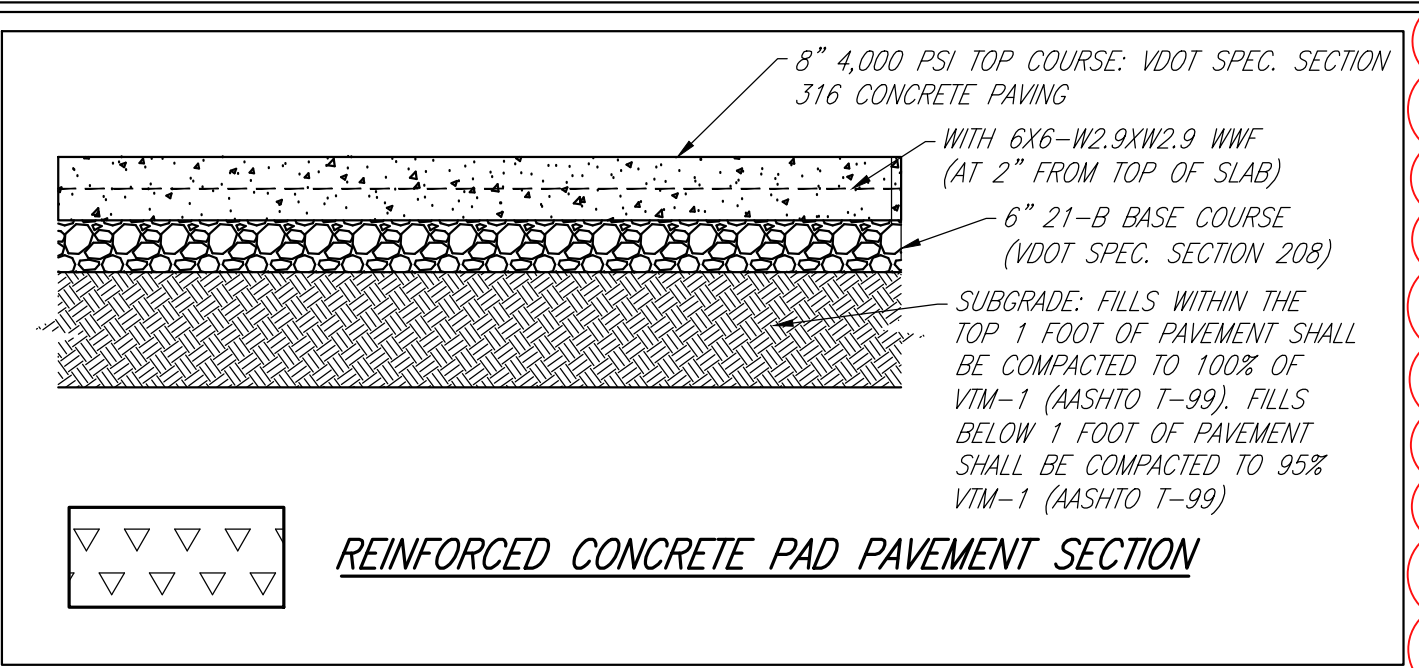
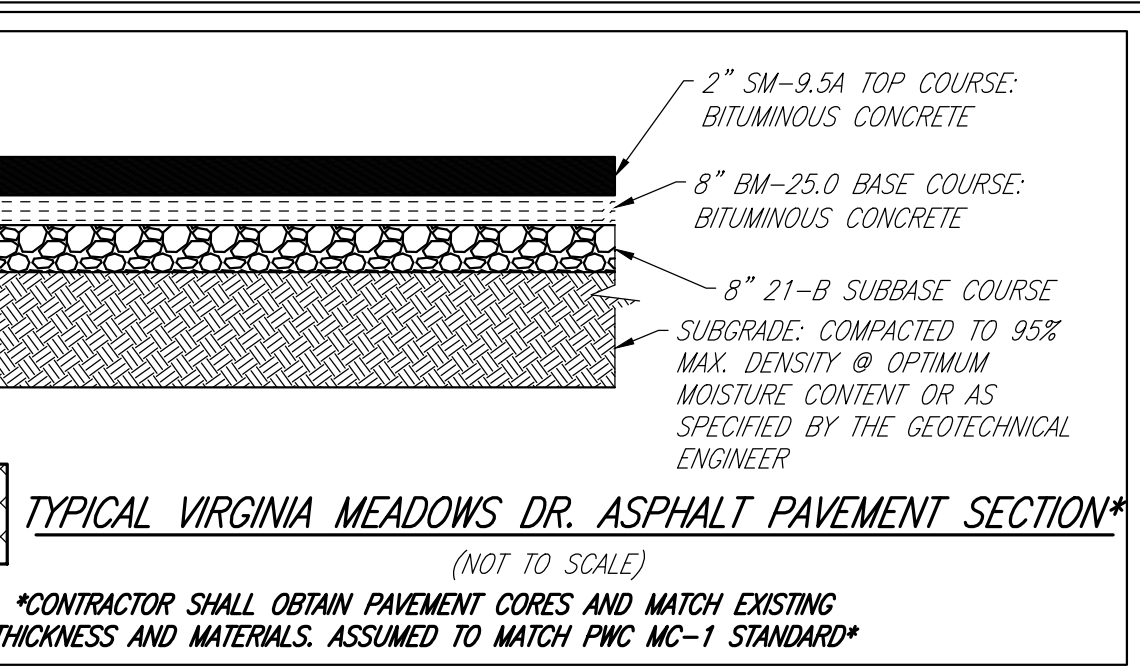
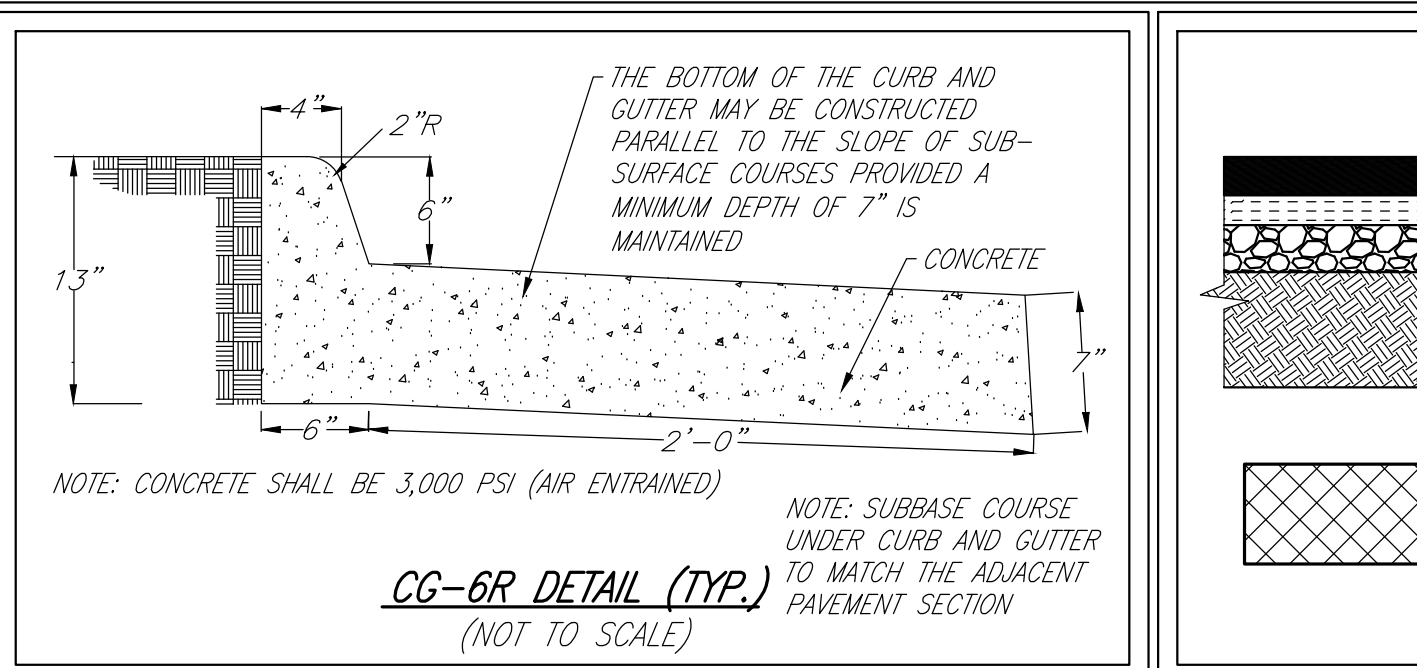
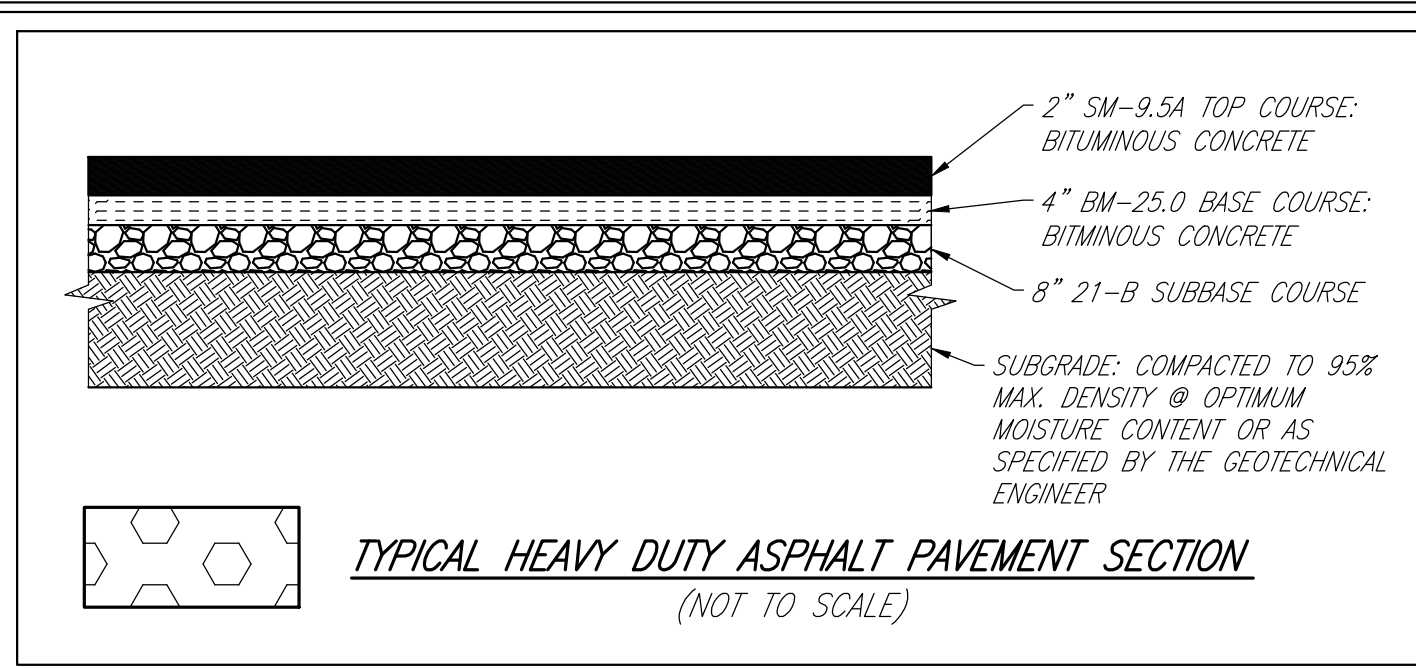
LANDSCAPE PLAN  
**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
 BRENTSVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:

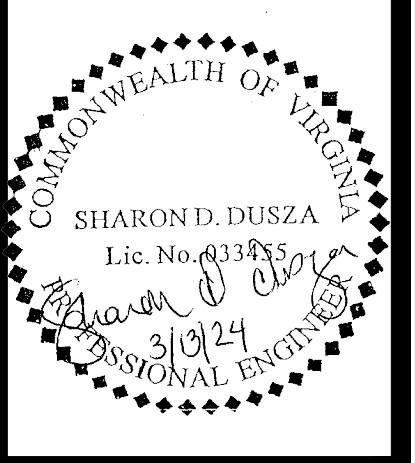

PLAN DATE: OCTOBER 7, 2022  
 DESIGN BY: AAG/SAW  
 CHECKED BY: SSD  
 ARCHITECT/MOSELEY ARCH  
 JURISDICTIONAL PLAN NO. SPR2023-00185  
 RDA PLAN #: 19001-008  
 SHEET NUMBER: C.12



NOTE: GEOTECHNICAL ENGINEER TO CONFIRM THESE SECTIONS OR SUGGEST ALTERNATIVE IN WRITING AFTER REVIEWING SUBRGRADE CONDITIONS IN THE FIELD PRIOR TO INSTALLATION.



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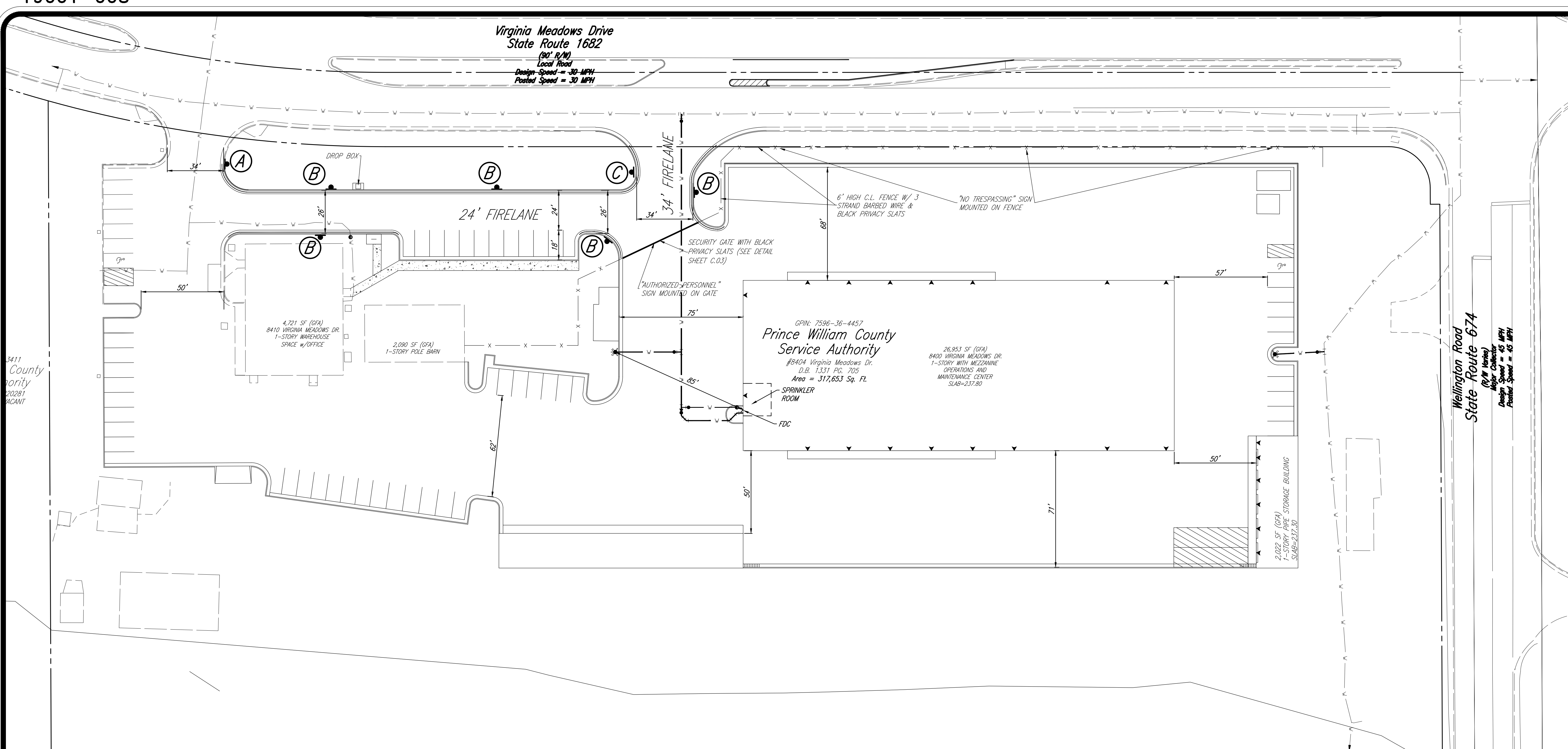


PAVEMENT PLAN  
**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
 BRENTSVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS: 03/13/2024  
 BID ADDENDUM 3- ADD CG-2  
 DETAIL

PLAN DATE: OCTOBER 7, 2022  
 DESIGN BY: AG/SAW  
 CHECKED BY: SSD  
 ARCHITECT/MOSELEY ARCH  
 JURISDICTIONAL PLAN NO. SPR2023-00185  
 RDA PLAN #: 19001-008  
 SHEET NUMBER: C.13

Virginia Meadows Drive  
State Route 1682  
(90' R/W)  
Local Road  
Design Speed = 30 MPH  
Posted Speed = 30 MPH



**LEGEND**

==== DENOTES PROP. FIRE LANE (PAINTED CURB OR PAVEMENT)

(A) (B) (C) DENOTES PROP. FIRE LANE SIGN LOCATIONS

SIGN TYPE "A" SIGN TYPE "B" SIGN TYPE "C"



STANDARD WORDING WITH AN ARROW AT BOTTOM POINTING TO THE RIGHT. ONE SIGN MOUNTED PARALLEL TO THE LINE OF CURBING OR PAVEMENT EDGE AT END OF PAINTED AREA.

STANDARD WORDING WITH AN ARROW AT BOTTOM POINTING TO THE LEFT AND RIGHT. ONE SIGN MOUNTED PARALLEL TO THE LINE OF CURBING OR PAVEMENT EDGE AT END OF PAINTED AREA.

STANDARD WORDING WITH AN ARROW AT BOTTOM POINTING TO THE LEFT. ONE SIGN MOUNTED PARALLEL TO THE LINE OF CURBING OR PAVEMENT EDGE AT END OF PAINTED AREA.

(A) (B) (C)

**FIRE LANE AND SIGN REQUIREMENTS**

**GENERAL**

- A FIRE DEPARTMENT CONNECTION SHALL BE PROVIDED AS SHOWN ON THIS SHEET AND ON THE ASSOCIATED ARCHITECTURAL PLANS.
- A KNOX BOX SHALL BE LOCATED ON THE UTILITY ROOM ACCESS DOOR TO ALLOW FIRE DEPARTMENT ACCESS.
- ACCESS CONTROL GATES, BARRIERS, AND STORAGE AREAS, WHEN PROVIDED ON PRIVATE STREETS, SHALL BE DESIGNED, INSTALLED AND LOCATED IN A MANNER APPROVED BY THE FIRE MARSHAL'S OFFICE. ACCESS CONTROL GATES AND ALL ACCESSORY FACILITIES AND EQUIPMENT SHALL NOT BE PERMITTED TO BE IN THE PUBLIC RIGHT-OF-WAY.

**SIGN SPECIFICATIONS**

- METAL CONSTRUCTION, 12"x18"
- RED LETTERS ON REFLECTIVE WHITE BACKGROUND WITH 3/8" RED TRIM STRIP AROUND ENTIRE OUTER EDGE OF SIGN.
- LETTERING ON SIGN TO BE: "NO PARKING OR STANDING FIRE LANE".
- LETTERING SIZE TO BE AS FOLLOWS:  
2.5" - "FIRE LANE"  
2" - "NO PARKING" & "STANDING"  
1" - "OR"  
1 1/2" - ARROW SHAFT  
1/2" WIDE x 2" DEEP - ARROW HEAD
- SIGNS ARE TO BE MOUNTED 7' FROM THE GROUND TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE OFFICE OF THE FIRE MARSHAL.
- POSTS FOR SIGNS, WHEN REQUIRED, SHALL BE METAL AND SECURELY MOUNTED, UNLESS WRITTEN PERMISSION FOR ALTERNATIVES IS OBTAINED PRIOR TO INSTALLATION FROM THE OFFICE OF THE FIRE MARSHAL. SIGNS SHOULD BE SPACED AS SHOWN ON APPROVED PLANS WITH A MAXIMUM SPACING DISTANCE OF 100' BETWEEN SIGNS.
- OTHER SPECIAL SIGNS MAY BE APPROVED BY THE OFFICE OF THE FIRE MARSHAL.

**CURB DESIGNATIONS**

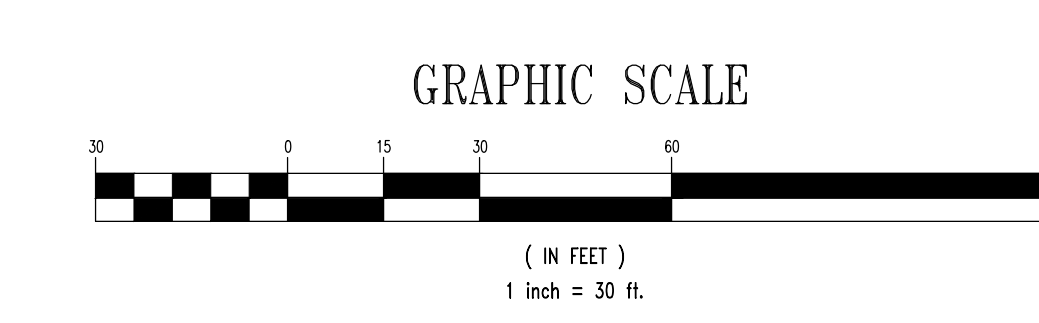
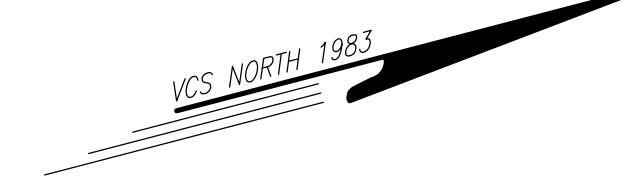
- ALL CURBS OR PAVED SPACES DESIGNATED AS FIRE LANES SHALL BE INDICATED BY YELLOW PAINT AS APPROVED BY THE OFFICE OF THE FIRE MARSHAL. IN AREAS WITHOUT CURBING, TWO PARALLEL, 6" WIDE YELLOW STRIPES SHALL BE APPLIED TO THE EDGE OF THE PAVEMENT WITH DIAGONAL INTERSECTING LINES PAINTED AT 3" INTERVALS. PAINT SHALL BE HIGHWAY TRAFFIC GRADE.

**WATER SUPPLY SYSTEMS**

- FIRE HYDRANTS SHALL BE COLOR CODED IN ACCORDANCE WITH THE OFFICE OF THE FIRE MARSHAL SPECIFICATIONS.
- FIRE LINE SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS IN NOTES ON WATERLINE PROFILES, SHEET C.08.

**GATES**

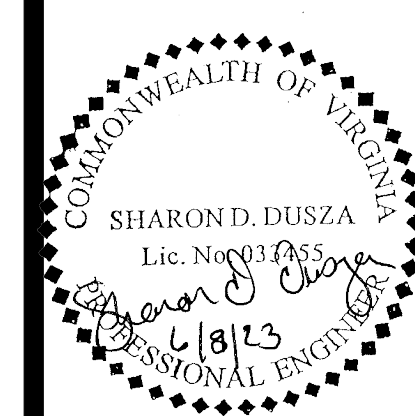
- ALL ELECTRONICALLY OPERATED ACCESS CONTROL GATES SHALL BE OPERABLE FOR ENTRY AND EXIT BY A MANNER APPROVED BY THE FIRE MARSHAL'S OFFICE.
  - ALL ELECTRICALLY OPERATED GATES SHALL BE UL 325 COMPLIANT.
  - THERE SHALL BE AN APPROVED KEY OVERRIDE SWITCH AND APPROVED RADIO OPERATED CONTROLLER FOR EACH GATE.
  - ALL ELECTRICALLY OPERATED GATES SHALL HAVE CLICK TO ENTER (C2E) INSTALLED AND MAINTAINED FOR EMERGENCY ACCESS.
  - GATES REQUIRING RADIO-CONTROLLED EXIT ACTIVATION SHALL BE PROVIDED WITH AN APPROVED 2"x2" BLUE, REFLECTIVE MARKING VISIBLE TO THE EXISTING VEHICLE. IT SHALL ALSO BE LOCATED IN THE CENTER OF THE GATE.
  - ELECTRICALLY OPERATED GATES SHALL FAIL TO THE OPEN POSITION WHEN THE POWER IS OFF AND REMAIN OPEN UNTIL THE POWER IS RESTORED.
  - ACCESS CONTROL GATES SHALL HAVE A CLEAR WIDTH OF NOT LESS THAN 20'.
  - GATES SHALL BE OF A SWINGING OR HORIZONTAL SLIDING TYPE.
- THE ACCESS CONTROL GATE IS TO INCLUDE A DUAL LOCKING MECHANISM AND A SERVICE AUTHORITY PAD LOCK FOR PWCSA ACCESS.



**"THIS SHEET IS FOR  
FIRE LANE DESIGNATION & SIGNAGE  
INFORMATION PURPOSES ONLY!!!"**



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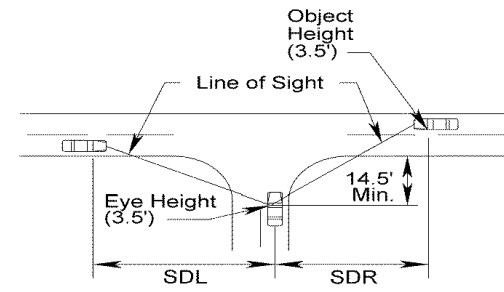
**FIRELANE PLAN**  
**WELLINGTON ROAD OPERATIONS  
CENTER EXPANSION**  
BRENTSVILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:


PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.14

**Intersection Sight Distance**

The following table shows intersection sight distance requirements for various speeds along major roads:



SDR = Sight Distance Right (For a vehicle making a left turn)  
 SDL = Sight Distance Left (For a vehicle making a right or left turn)

Design Speed (mph)**	Height of Object 3.5'										
	20	25	30	35	40	45	50	55	60	65	70
<b>SDL=SDR: 2 Lane Major Road</b>	<b>225</b>	<b>280</b>	<b>335</b>	390	445	500	555	610	665	720	775
SDR: 4 Lane Major Road (Undivided) or 3 Lane	250	315	375	440	500	565	625	690	750	815	875
SDL: 4 Lane Major Road (Undivided) or 3 Lane	240	295	355	415	475	530	590	650	710	765	825
SDR: 4 Lane Major Road (Divided - 18' Median)	275	340	410	480	545	615	680	750	820	885	955
SDL: 4 Lane Major Road (Divided - 18' Median)	240	295	355	415	475	530	590	650	710	765	825
SDR: 5 Lane Major Road (continuous two-way turn-lane)	265	335	400	465	530	600	665	730	800	860	930
SDL: 5 Lane Major Road (continuous two-way turn-lane)	250	315	375	440	500	565	625	690	750	815	875
SDR: 6 Lane Major Road (Divided - 18' Median)	290	360	430	505	575	645	720	790	860	935	1005
SDL: 6 Lane Major Road (Divided - 18' Median)	250	315	375	440	500	565	625	690	750	815	875
SDL: (Where left turns are physically restricted)	210	260	310	365	415	465	515	566	620	670	725

TABLE 2-5 INTERSECTION SIGHT DISTANCE

Source: AASHTO Green Book, Chapter 9, Section 9.5.3

\*\*For all tables, use design speed if available, if not use legal speed.

**Intersection:** An at-grade crossing of two or more highways in a "T" three leg design or four leg design, a median crossover, or full access entrances directly across from each other on an undivided highway.

**Intersection Sight Distance:** The sight distance required at entrances and intersections to allow the driver of a stopped vehicle a sufficient view of the intersecting highway to decide when to enter, or cross, the intersecting highway.

**Legal Speed Limit:** The speed limit set forth on signs lawfully posted on a highway or in the absence of such signs the speed limit established by Title 46.2, Chapter 8, Article 8 of the Code of Virginia

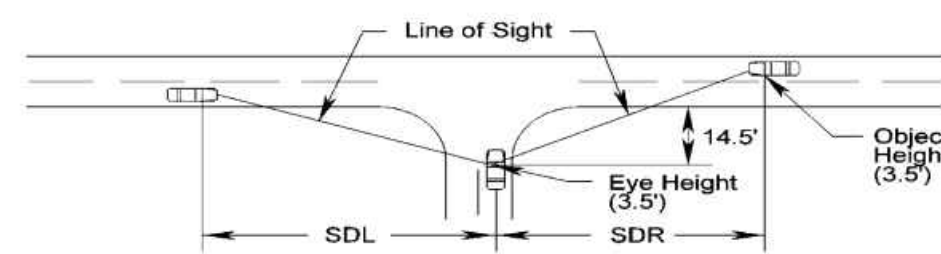


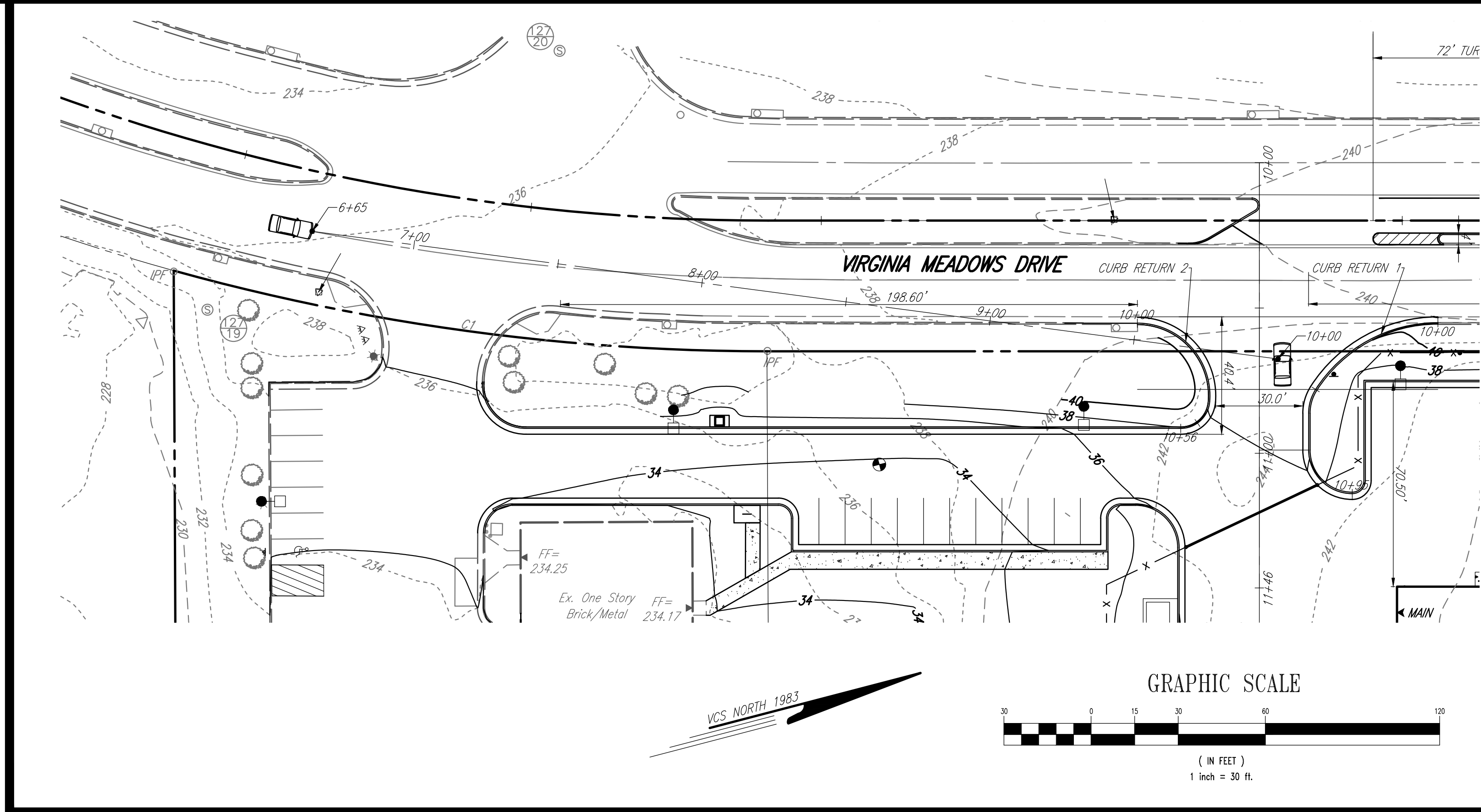
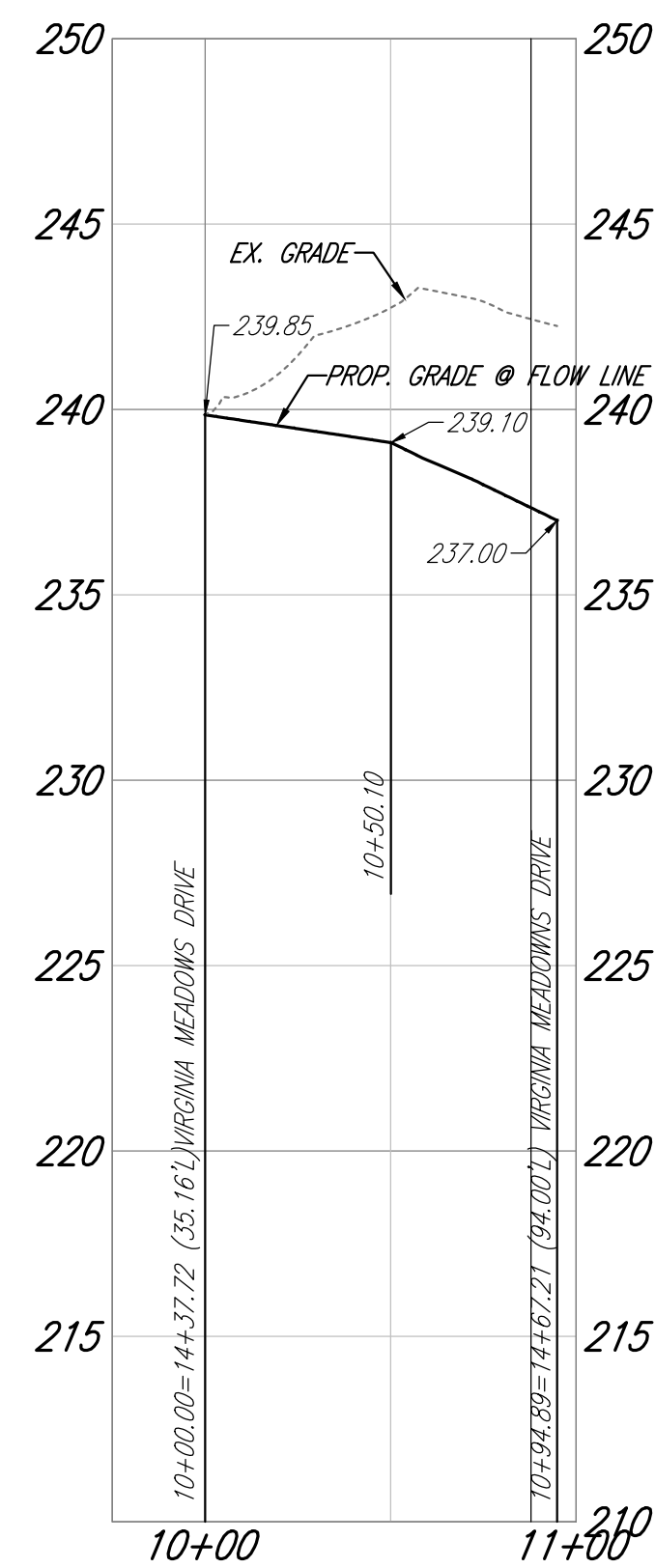
FIGURE 4-1B COMMERCIAL ENTRANCE SIGHT DISTANCE\*

SDR = Sight Distance Right (For a vehicle making a left turn)  
 SDL = Sight Distance Left (For a vehicle making a right or left turn)

All site plans for proposed developments shall show the location of all proposed and existing entrances within the area of the proposed development. The location of all proposed commercial entrances shall be reviewed to determine if proper spacing will be maintained.

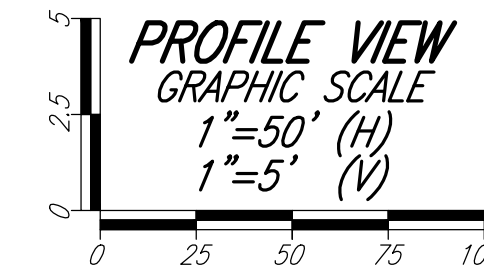
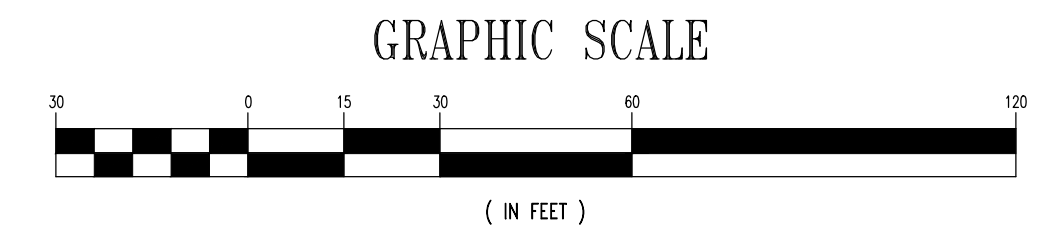
VIRGINIA MEADOWS DRIVE ENTRANCE

CURB RETURN 1



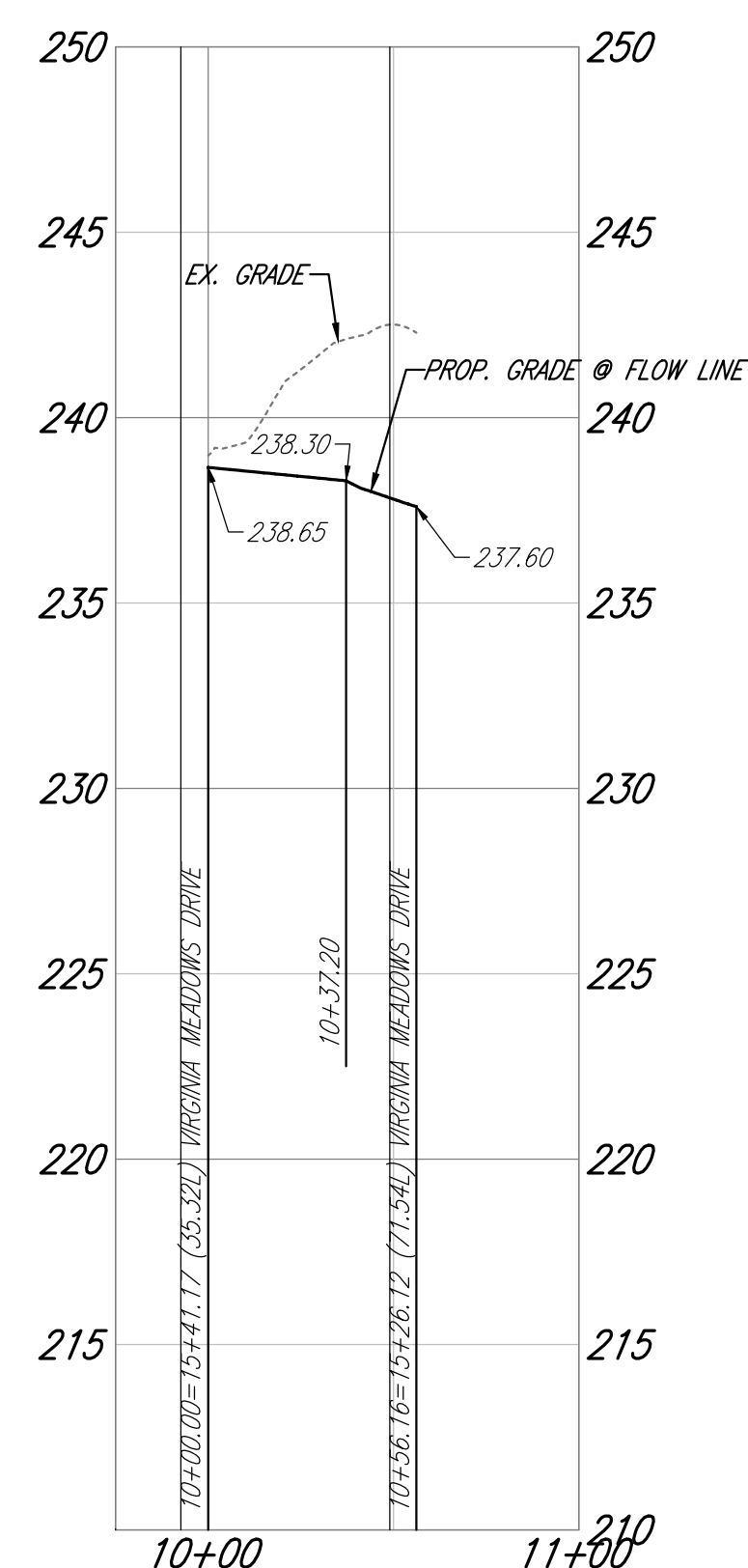
VIRGINIA MEADOWS DRIVE  
 2 LANE LOCAL ROAD  
 DESIGN SPEED: 30 MPH  
 POSTED SPEED: 30 MPH

SIGHT DISTANCE = 335' (SDL)  
 MEASURED ALONG CENTERLINE  
 HEIGHT OF EYE = 3.5'  
 HEIGHT OF OBJECT = 3.5'

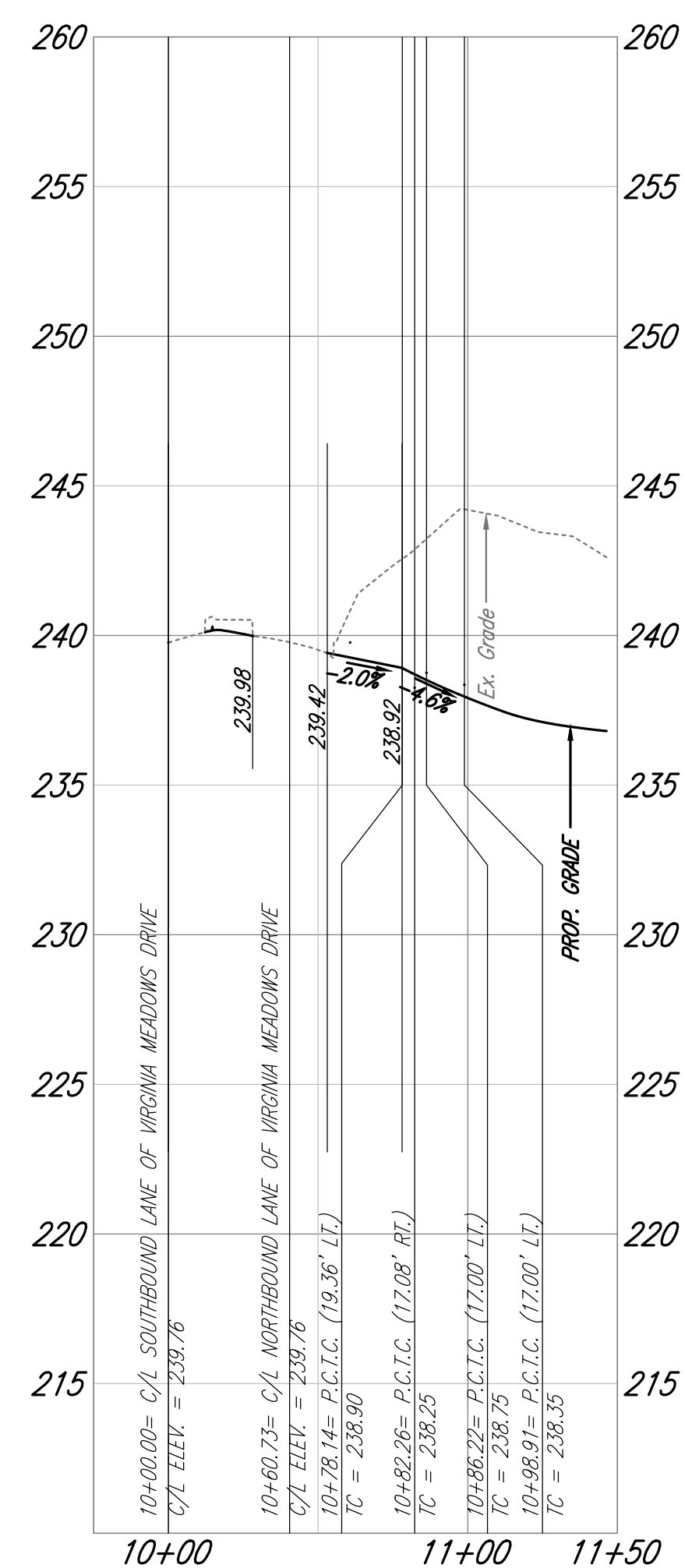


VIRGINIA MEADOWS DRIVE ENTRANCE

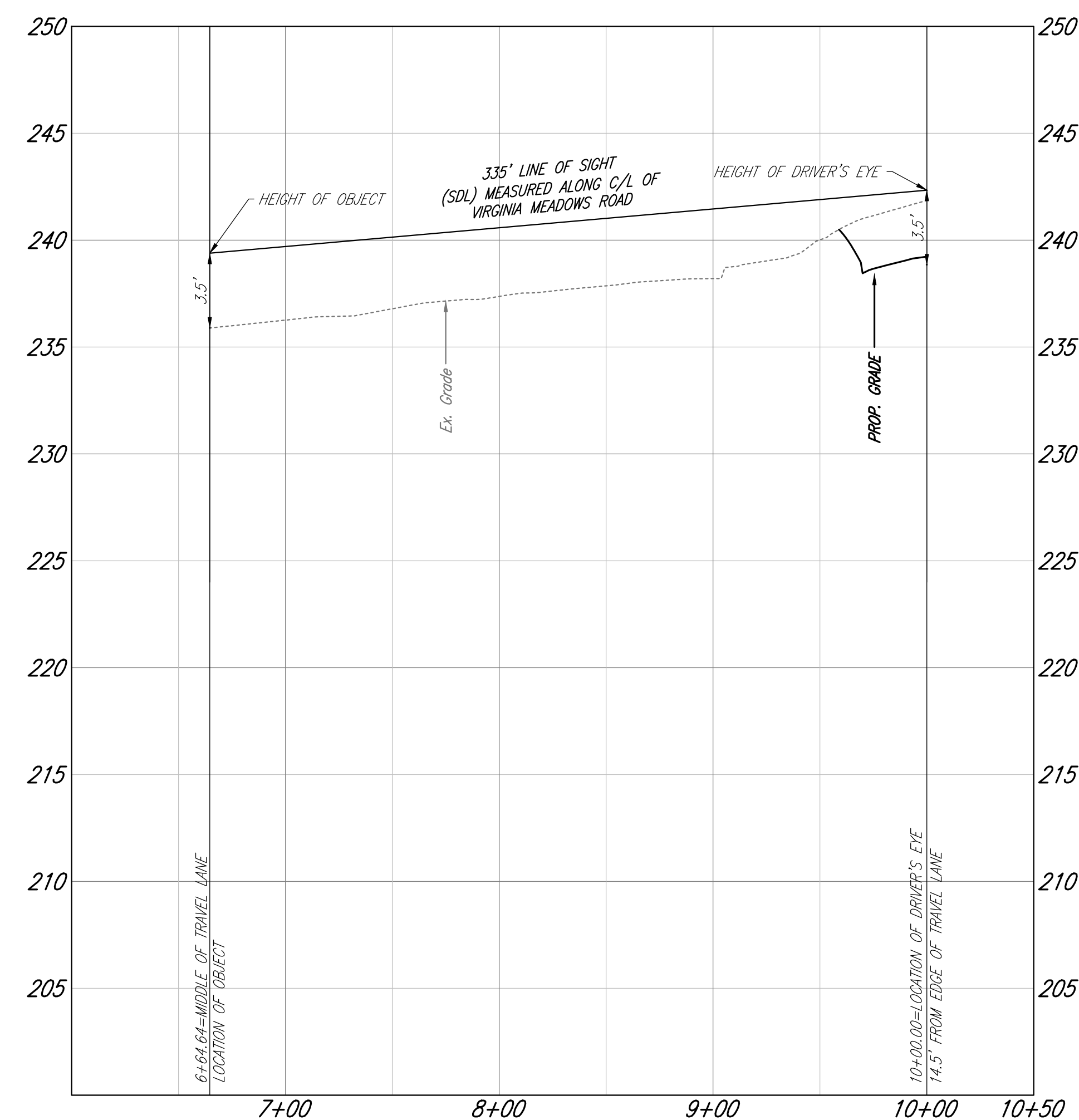
CURB RETURN 2



ENTRANCE PROFILE  
 VIRGINIA MEADOWS DRIVE ENTRANCE



SIGHT DISTANCE  
 VIRGINIA MEADOWS DRIVE ENTRANCE



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COMMONWEALTH OF VIRGINIA  
 SHARON D. DUSZA  
 Lic. No. 011363  
 PROFESSIONAL ENGINEER

SIGHT DISTANCE PROFILES  
 WELLINGTON ROAD OPERATIONS  
 CENTER EXPANSION  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:

PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AAG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.15

CHECKLIST

7A-2

FOR EROSION AND SEDIMENT CONTROL PLANS

Minimum Standards - All applicable Minimum Standards must be addressed.

NARRATIVE

C.16 Project description - Briefly describes the nature and purpose of the land-disturbing activity, and the area (acres) to be disturbed.

C.16 Existing site conditions - A description of the existing topography, vegetation and drainage.

C.16 Adjacent areas - A description of neighboring areas such as streams, lakes, residential areas, roads, etc., which might be affected by the land disturbance.

C.16 Off-site areas - Describe any off-site land-disturbing activities that will occur (including borrow sites, waste or surplus areas, etc.). Will any other areas be disturbed?

C.01 Soils - A brief description of the soils on the site giving such information as soil name, mapping unit, erodibility, permeability, depth, texture and soil structure.

C.16 Critical areas - A description of areas on the site which have potentially serious erosion problems (e.g., steep slopes, channels, wet weather underground springs, etc.).

C.16 Erosion and sediment control measures - A description of the methods which will be used to control erosion and sedimentation on the site. (Controls should satisfy minimum standards in Chapter 3.)

C.16 Permanent stabilization - A brief description, including specifications, of how the site will be stabilized after construction is completed.

C.23-C.24 Stormwater runoff considerations - Will the development site cause an increase in peak runoff rates? Will the increase in runoff cause flooding or channel degradation downstream? Describe the strategy to control stormwater runoff.

C.20-C.25 Calculations - Detailed calculations for the design of temporary sediment basins, permanent stormwater detention basins, diversions, channels, etc. Include calculations for pre- and post-development runoff.

SITE PLAN

7A-2 (continued)

C.01 Vicinity map - A small map locating the site in relation to the surrounding area. Include any landmarks which might assist in locating the site.

C.02 Indicate north - The direction of north in relation to the site.

C.02 Limits of clearing and grading - Areas which to be cleared and graded.

C.04 Existing contours - The existing contours of the site.

C.02 Final contours - Changes to the existing contours, including final drainage patterns.

C.04 Existing vegetation - The existing tree lines, grassed areas, or unique vegetation.

C.01 Soils - The boundaries of different soil types.

C.18 Existing drainage patterns - The dividing lines and the direction of flow for the different drainage areas. Include the size (acreage) of each drainage area.

C.02 Critical erosion areas - Areas with potentially serious erosion problems. (See Chapter 6 for criteria.)

C.02 Site Development - Show all improvements such as buildings, parking lots, access roads, utility construction, etc.

C.18-C.19 Location of practices - The locations of erosion and sediment control and stormwater management practices used on the site. Use the standard symbols and abbreviations in Chapter 3 of the E&S Handbook.

V.21 Off-site areas - Identify any off-site land-disturbing activities (e.g., borrow sites, waste areas, etc.). Show location of erosion controls. (Is there sufficient information to assure adequate protection and stabilization?)

C.17 Detail drawings - Any structural practices used that are not referenced to the E&S Handbook or local handbooks should be explained and illustrated with detail drawings.

C.16 Maintenance - A schedule of regular inspections and repair of erosion and sediment control structures should be set forth.

TEMPORARY SEEDING REQUIREMENTS -

1. LIMING: AN EVALUATION SHALL BE CONDUCTED TO DETERMINE IF LIME IS NECESSARY FOR TEMPORARY SEEDING. IN MOST SOILS, IT TAKES UP TO 6 MONTHS FOR A PH ADJUSTMENT TO OCCUR FOLLOWING THE APPLICATION OF LIME. THEREFORE, IT MAY BE DIFFICULT TO JUSTIFY THE COST OF LIMING A TEMPORARY SITE, ESPECIALLY WHEN THE SOIL WILL LATER BE MOVED AND REGRADED. TABLE 3.31A (THIS SHEET) MAY BE USED TO DETERMINE THAT ACTUAL NEED ALONG WITH SUGGESTED APPLICATION RATES.

2. FERTILIZER: SHALL BE APPLIED AT 600 LBS./AC. OF 10-20-10 OR EQUIVALENT NUTRIENTS. LIME AND FERTILIZER SHALL BE INCORPORATED INTO THE TOP 2 TO 4 INCHES OF THE SOIL. SEEDING: SEEDING SHALL BE APPLIED WITH A BROADCAST SEEDER, DRILL, CULTIPACKER SEEDER OR HYDROSEEDER. SMALL GRAINS SHALL BE PLANTED NO MORE THAN ONE INCH DEEP. GRASSES AND LEGUMES SHALL BE PLANTED WITH NO LESS THAN 1/4" SOIL COVER. FOR SEED SELECTION AND RATES SEE TABLE 3.31-B (THIS SHEET).

4. MULCHING: SEEDINGS MADE IN FALL FOR WINTER COVER AND DURING HOT AND DRY SUMMER MONTHS SHALL BE MULCHED ACCORDING TO MULCHING, STD. & SPEC. 3.35 (TABLE 3.35-A PROVIDED THIS SHEET), EXCEPT THAT HYDROMULCHES (FIBER MULCH) WILL NOT BE CONSIDERED ADEQUATE. STRAW MULCH SHALL BE USED DURING THESE PERIODS. TEMPORARY SEEDINGS MADE UNDER FAVORABLE SOIL AND SITE CONDITIONS DURING OPTIMUM SPRING AND FALL SEEDING DATES MAY NOT REQUIRE MULCH.

PERMANENT SEEDING REQUIREMENTS -

1. LIMING & FERTILIZING: LIME AND FERTILIZER NEEDS SHALL BE DETERMINED BY SOILS TESTS. SOIL TESTS MAY BE PERFORMED BY THE COOPERATIVE EXTENSION SERVICE SOIL TESTING LABORATORY AT WPI&SU, OR BY A REPUTABLE COMMERCIAL LABORATORY. INFORMATION CONCERNING THE STATE SOIL TESTING LABORATORY IS AVAILABLE FROM COUNTY EXTENSION AGENTS. IF SOIL TESTS ARE NOT POSSIBLE, DUE TO UNUSUAL CONDITIONS, SEE THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK SECTION 3.32 FOR LIMING AND FERTILIZER NEEDS. SEEDING: SEEDING SHALL BE APPLIED WITH A BROADCAST SEEDER, DRILL, CULTI-PACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRABLE SEEDBED. SEEDING DEPTH SHALL BE 1/4" TO 3/8" INCH. FOR SEED SELECTION AND RATES SEE TABLE 3.32-D (THIS SHEET).

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Table 3.35-A: ORGANIC MULCH MATERIALS AND APPLICATION RATES. Columns: MULCHES, RATES (Per Acre, Per 1000 sq. ft.), NOTES.

TABLE 3.31-A: LIMING REQUIREMENTS FOR TEMPORARY SITES. Columns: pH Test, Recommended Application of Agricultural Limestone.

Table 3.31-A: Liming Requirements. pH Test ranges and corresponding limestone application rates (tons per acre).

Source: Va. DSWC

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Table 3.32-D: SITE SPECIFIC SEEDING MIXTURES FOR PIEDMONT AREA. Columns: Minimum Care Lawn, High-Maintenance Lawn, General Slope (3:1 or less), Low-Maintenance Slope (Steeper than 3:1).

\* Use seasonal nurse crop in accordance with seeding dates as stated below: February 16th through April Annual Ryegrass, May 1st through August 15th Foxtail Millet, August 16th through October Annual Rye, November through February 15th Winter Rye

\*\* Substitute Sericea lespedeza for Crownvetch east of Farmville, Va. (May through September use hulled Sericea, all other periods, use unhulled Sericea). If Platpea is used in lieu of Crownvetch, increase rate to 30 lbs./acre. All legume seed must be properly inoculated. Weeping Lovegrass may be added to any slope or low-maintenance mix during warmer seeding periods; add 10-20 lbs./acre in mixes.

3.35

TABLE 3.31-B: ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS. 'QUICK REFERENCE FOR ALL REGIONS'

Table 3.31-B: Seeding Plant Materials. Columns: Planting Dates, Species, Rate (lb./acre).

TABLE 3.31-B: LIMING REQUIREMENTS FOR TEMPORARY SITES. Columns: pH Test, Recommended Application of Agricultural Limestone.

Table 3.31-B: Liming Requirements. pH Test ranges and corresponding limestone application rates (tons per acre).

Source: Va. DSWC

3.32

EROSION/SEDIMENT CONTROL NARRATIVE:

PROJECT DESCRIPTION - THIS PROJECT IS 7.29 ACRE SITE LOCATED OFF VIRGINIA MEADOWS DRIVE AND WELLINGTON ROAD. THE PROJECT WILL INCLUDE A NEW STORAGE AND VEHICLE MAINTENANCE FACILITY, ONE BUILDING FOR PUMP STORAGE, AND ONE STRUCTURE FOR AGGREGATE MATERIALS ALONG WITH ADJACENT PARKING AND LOADING AREAS.

EXISTING SITE CONDITIONS - THIS SITE IS LOCATED SOUTH OF WELLINGTON ROAD AND EAST OF VIRGINIA MEADOWS DRIVE. A MAJORITY OF THE SITE IS A RELATIVELY FLAT CLEARED GRAVEL AREA USED FOR A STORAGE YARD FOR THE PWCSA.

ADJACENT PROPERTY - THE SITE IS BORDERED TO THE NORTH, WEST, AND SOUTH BY EXISTING WAREHOUSE BUILDINGS AND BORDERED TO THE EAST BY A VACANT LAND WITH DENSE TREES AND A STREAM.

OFF-SITE AREAS - ANY OFF-SITE BORROW AREAS WILL HAVE EROSION & SEDIMENT MEASURES AS REQUIRED.

SOILS - REFER TO SOILS MAP ON SHEET C.01 FOR SOILS INFORMATION.

CRITICAL EROSION AREAS - WETLANDS, RPA, AND 100 YEAR FLOODPLAIN EXIST ON SITE.

EROSION/SEDIMENT CONTROL MEASURES - UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, COMMONWEALTH OF VIRGINIA E&S CONTROL REGULATIONS, AND TO THE PWC DCSM.

STRUCTURAL PRACTICES - SAFETY FENCE SHALL BE INSTALLED AROUND THE LIMITS OF DISTURBANCE. THE LOCATION OF THE SAFETY FENCE MAY BE ADJUSTED AND/OR REMOVED IN SOME LOCATIONS TO ALLOW FOR CONSTRUCTION ACTIVITIES TO TAKE PLACE.

- 1. SAFETY FENCE-3.01
2. CONSTRUCTION ENTRANCE-3.02
3. SILT-FENCE BARRIER-3.05/SUPER SILT FENCE
4. STORM DRAIN INLET PROTECTION-3.07
5. TEMPORARY DIVERSION DIKES-3.09
6. TEMPORARY SEDIMENT TRAP - 3.13

- 7. TEMPORARY SEEDING-3.31
8. PERMANENT SEEDING-3.32
9. DUST CONTROL-3.39
10. PERMANENT SOIL STABILIZATION SHALL BE APPLIED ON ROUGH-GRADED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A YEAR OR MORE OR WHERE PERMANENT, LONG-LIVED VEGETATIVE COVER IS NEEDED ON FINAL-GRADED AREAS.

- MANAGEMENT STRATEGIES -
1. CONSTRUCTION SHOULD BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.
2. SEDIMENT TRAPPING MEASURES SHALL BE INSTALLED AS A FIRST STEP IN GRADING AND WILL BE SEEDDED AND MULCHED IMMEDIATELY FOLLOWING INSTALLATION.

PERMANENT STABILIZATION - ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING WITHIN 7 DAYS OF FINISHED GRADING. SEEDING WILL BE DONE IN ACCORDANCE WITH SEED MIXTURES SPECIFIED IN THE STD. AND SPEC. 3.32 OF THE VA. E&S CONTROL HANDBOOK.

STORMWATER MANAGEMENT - CALCULATION OF RUNOFF BEFORE AND AFTER DEVELOPMENT INDICATES THAT THERE WILL BE A NET INCREASE IN PEAK RUNOFF AS A RESULT OF PROJECT DEVELOPMENT.

PHASE 1 SEDIMENT AND EROSION CONTROL PROGRAM - THE FIRST PHASE OF THE PROGRAM IS DEVELOPED TO INSTALL ALL PERIMETER CONTROLS AND TEMPORARY SEDIMENT BASIN.

- 1. THE CONTRACTOR SHALL SCHEDULE AND HOLD A PRE-CONSTRUCTION MEETING WITH THE COUNTY INSPECTOR PRIOR TO ANY WORK OR PLACING ANY CONTROLS.
2. INSTALL CONSTRUCTION ENTRANCE IN THE LOCATIONS SHOWN ON THE PLANS.

PHASE 2 SEDIMENT AND EROSION CONTROL PROGRAM - AFTER ROUGH GRADING IS ACHIEVED AND SUBSURFACE UTILITIES HAVE BEEN INSTALLED THE CONTRACTOR SHALL TRANSITION THE PROJECT INTO THE PHASE TWO SEDIMENT AND EROSION CONTROL PROGRAM.

- 1. THE REMAINING AREAS OF THE SITE SHOULD BE CLEARED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO STOCKPILE ANY NECESSARY TOPSOIL NEEDED FOR FINAL GRADING PURPOSES.
2. ONCE ENTIRE SITE IS CLEARED, MASS GRADING CAN COMMENCE. ANY BLASTING THAT MAY BE REQUIRED MUST BE APPROVED BY THE COUNTY.

- MAINTENANCE - IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES MUST BE MADE IMMEDIATELY AFTER THE INSPECTION.
1. RIP RAP OUTFALLS SHALL BE CHECKED REGULARLY FOR SEDIMENT BUILDUP WHICH WILL PREVENT DRAINAGE.

GENERAL EROSION AND SEDIMENT CONTROL NOTES -

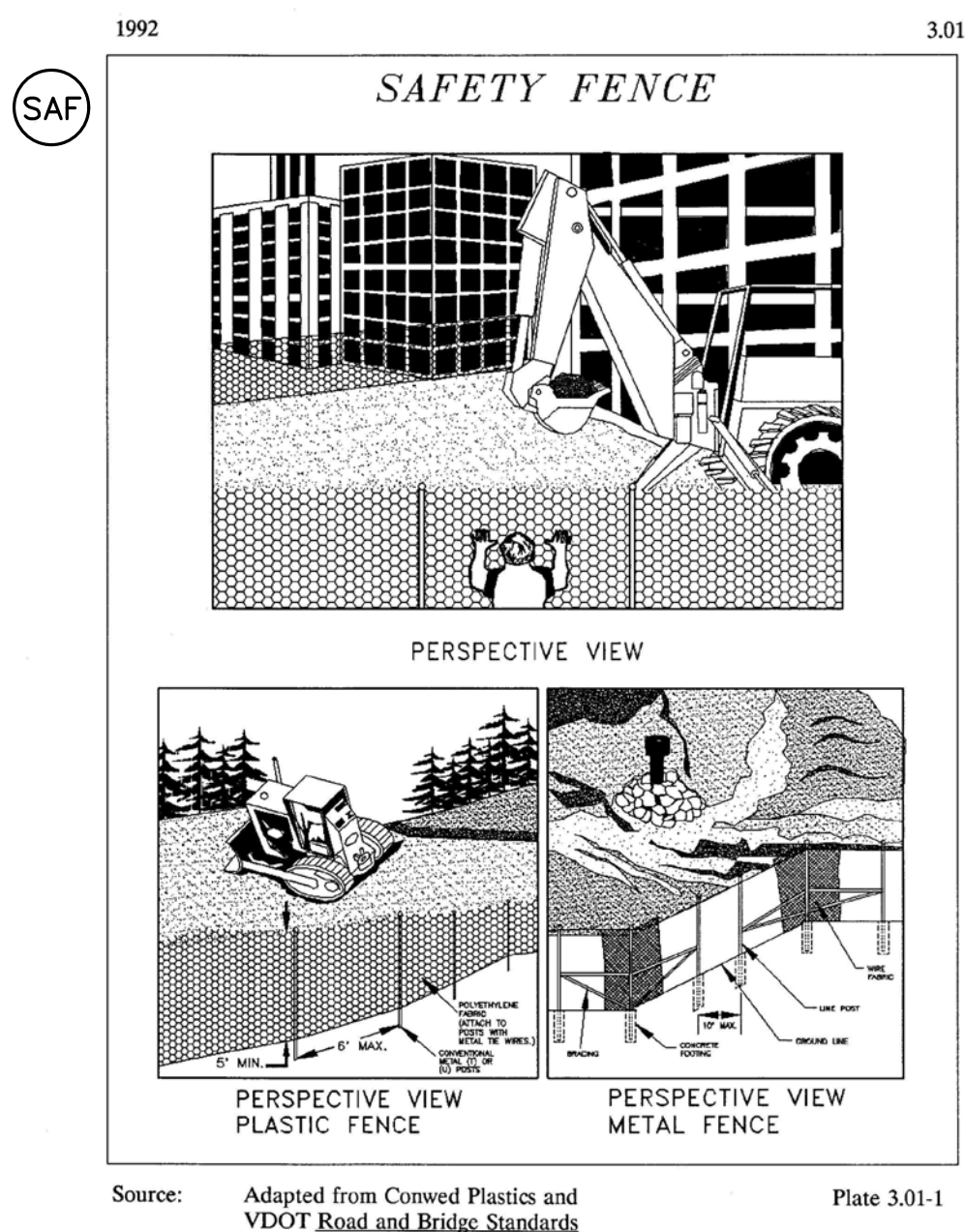
- 1. THE OWNER/DEVELOPER MUST NOTIFY THE DEPARTMENT OF PUBLIC WORKS AT 792-7070 AT LEAST 24 HOURS PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH APPLICABLE COUNTY ORDINANCES AND POLICIES.
2. THE OWNER/DEVELOPER GRANTS THE RIGHT-OF-ENTRY ON TO THIS PROPERTY TO THE DESIGNATED PRINCE WILLIAM COUNTY 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.

Rinker Design Associates, P.C. 11100 Endeavor Court, Suite 200, Manassas, VA 20109 Telephone: (703) 368-7373 www.rdcivil.com Engineering \* Surveying \* Transportation \* Environmental Services

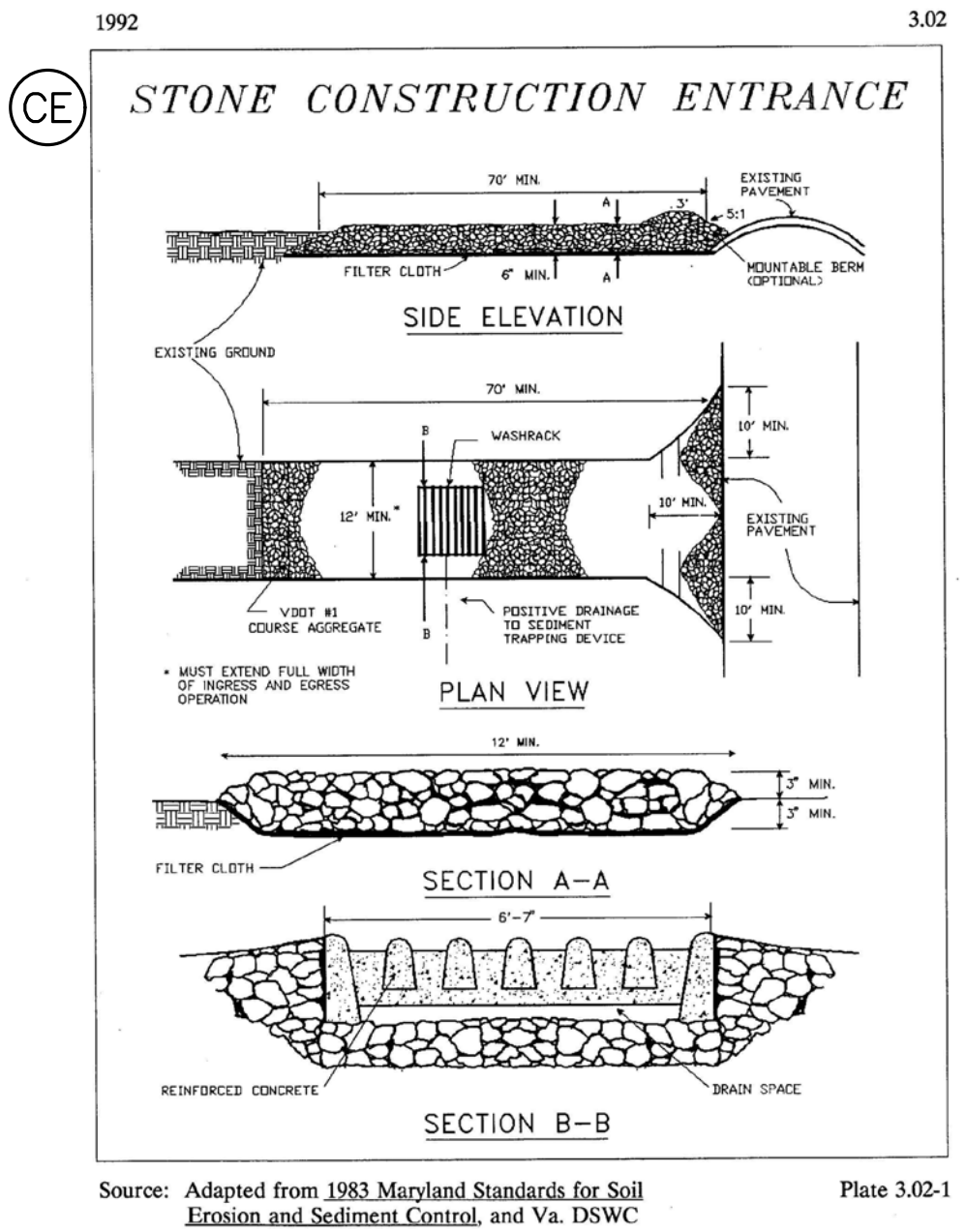
REVISIONS:

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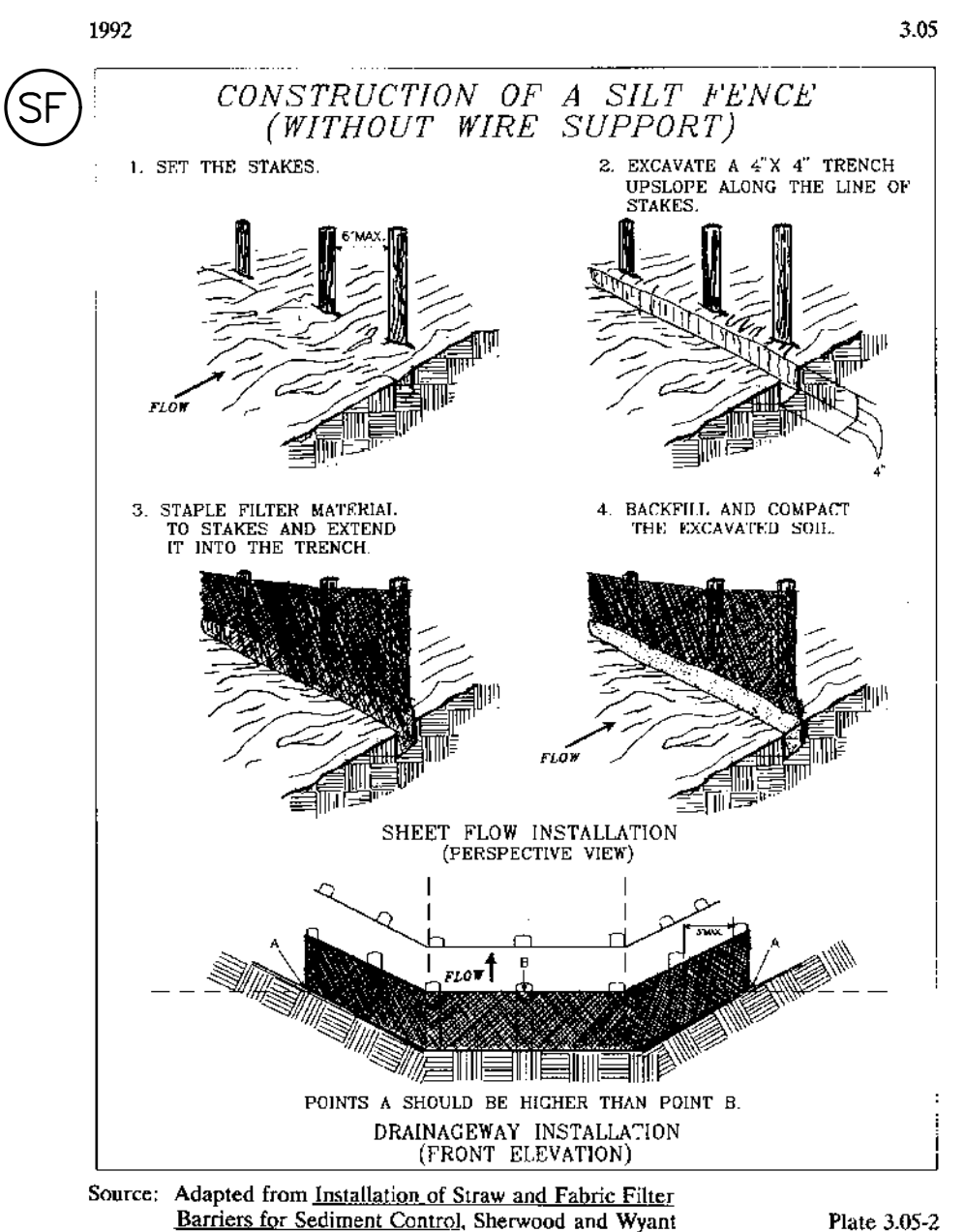
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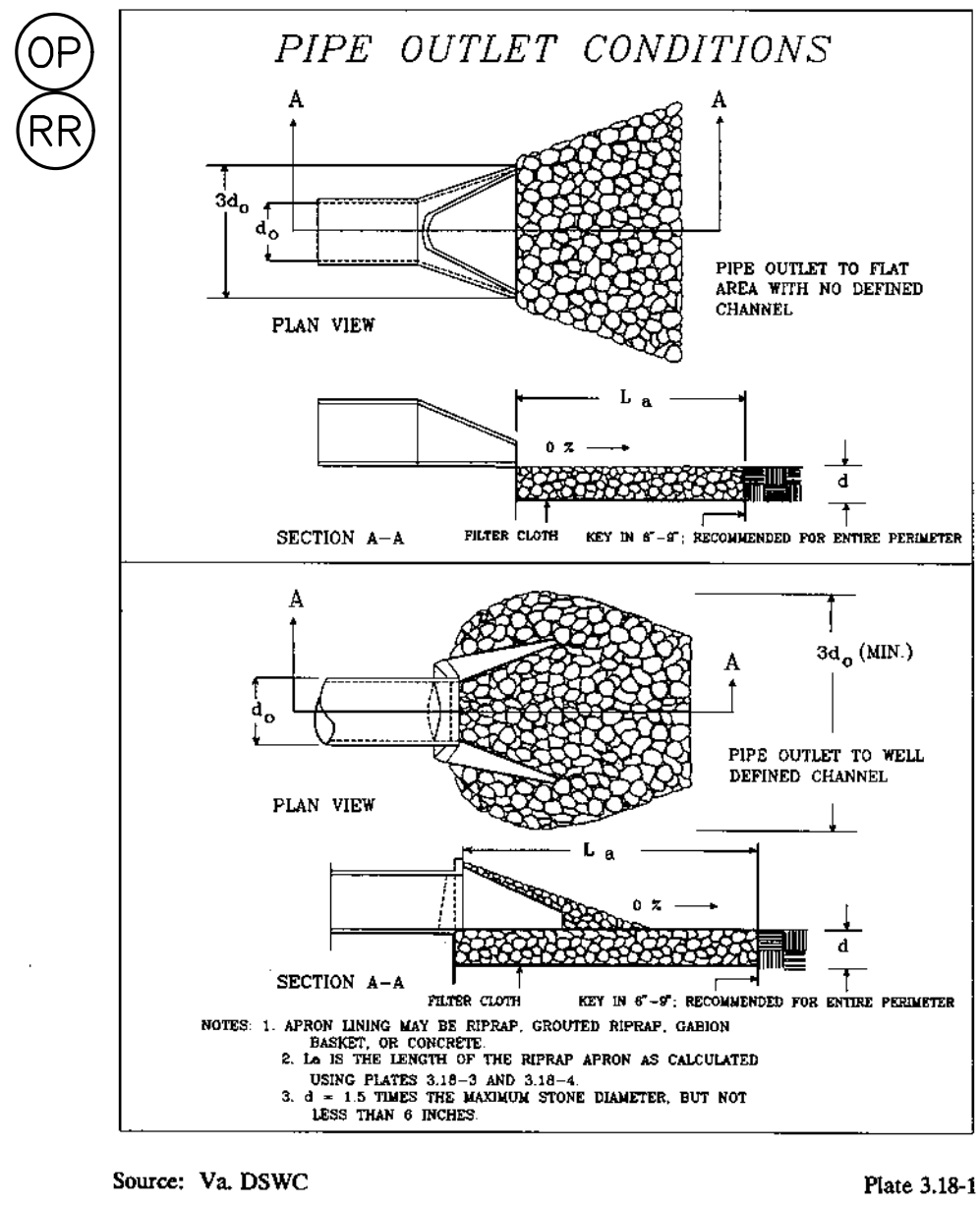
Source: Adapted from Covered Plastics and VDOT Road and Bridge Standards Plate 3.01-1



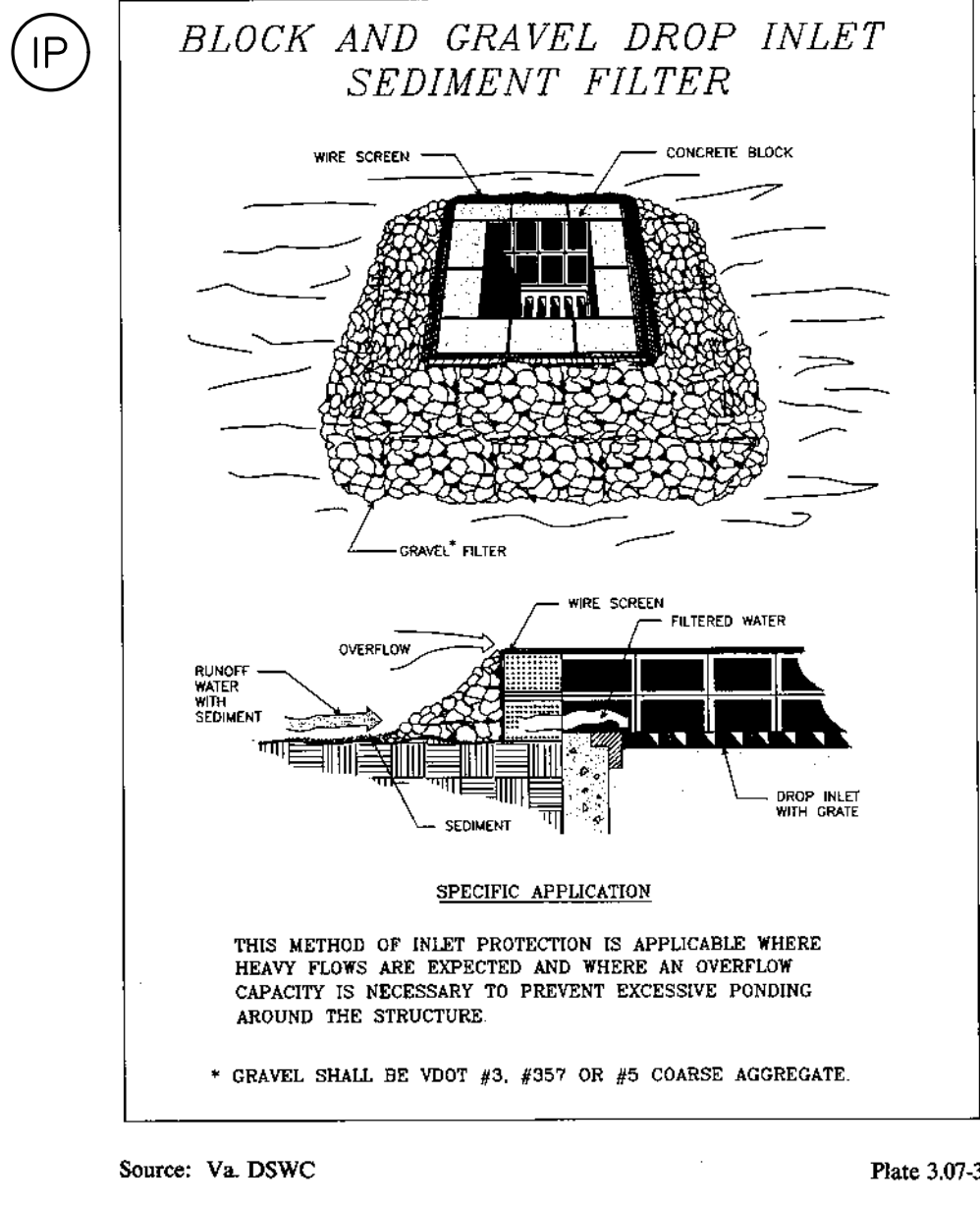
Source: Adapted from 1983 Maryland Standards for Soil Erosion and Sediment Control, and Va. DSWC Plate 3.02-1



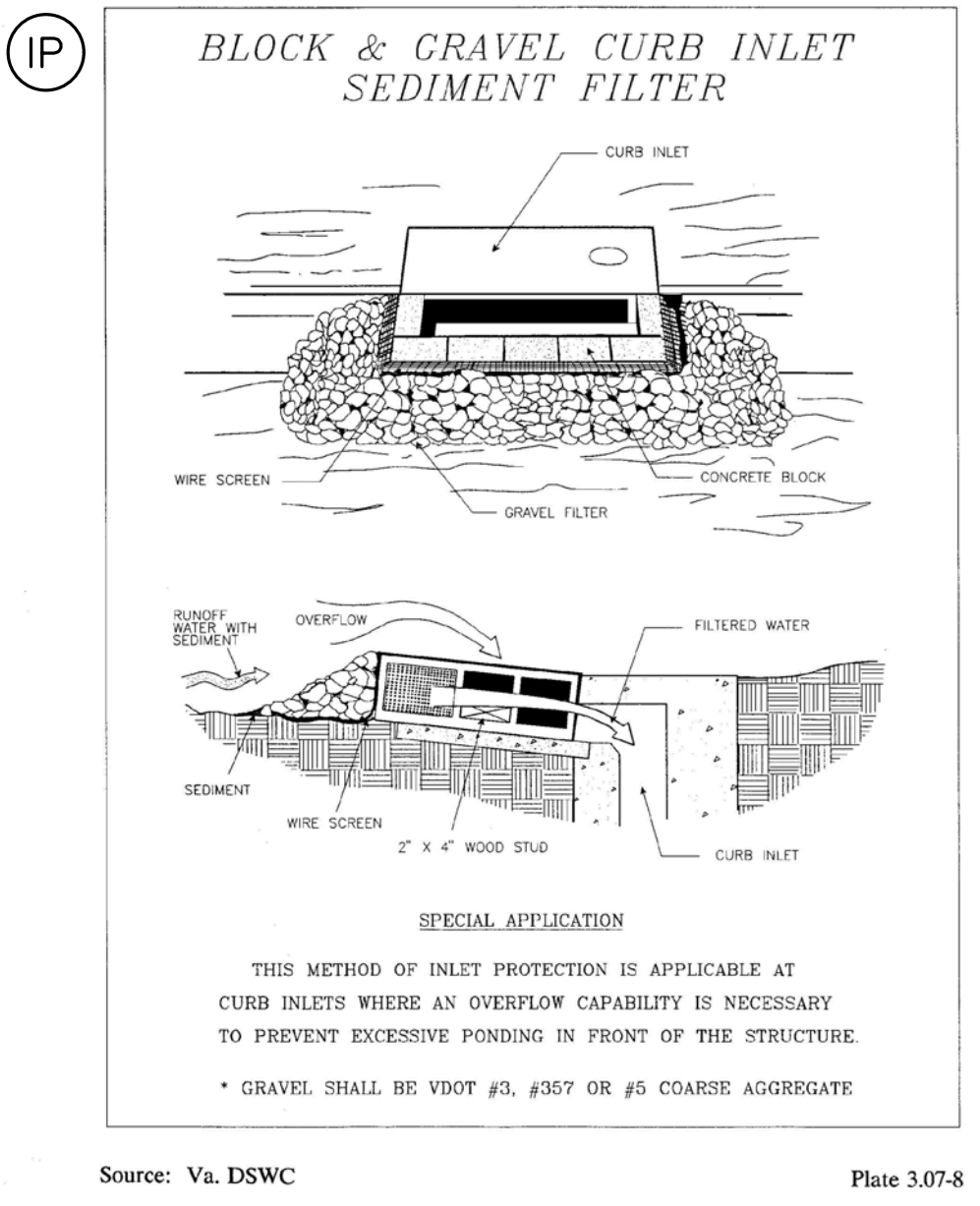
Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant Plate 3.05-2



Source: Va. DSWC Plate 3.18-1



Source: Va. DSWC Plate 3.07-3



Source: Va. DSWC Plate 3.07-8

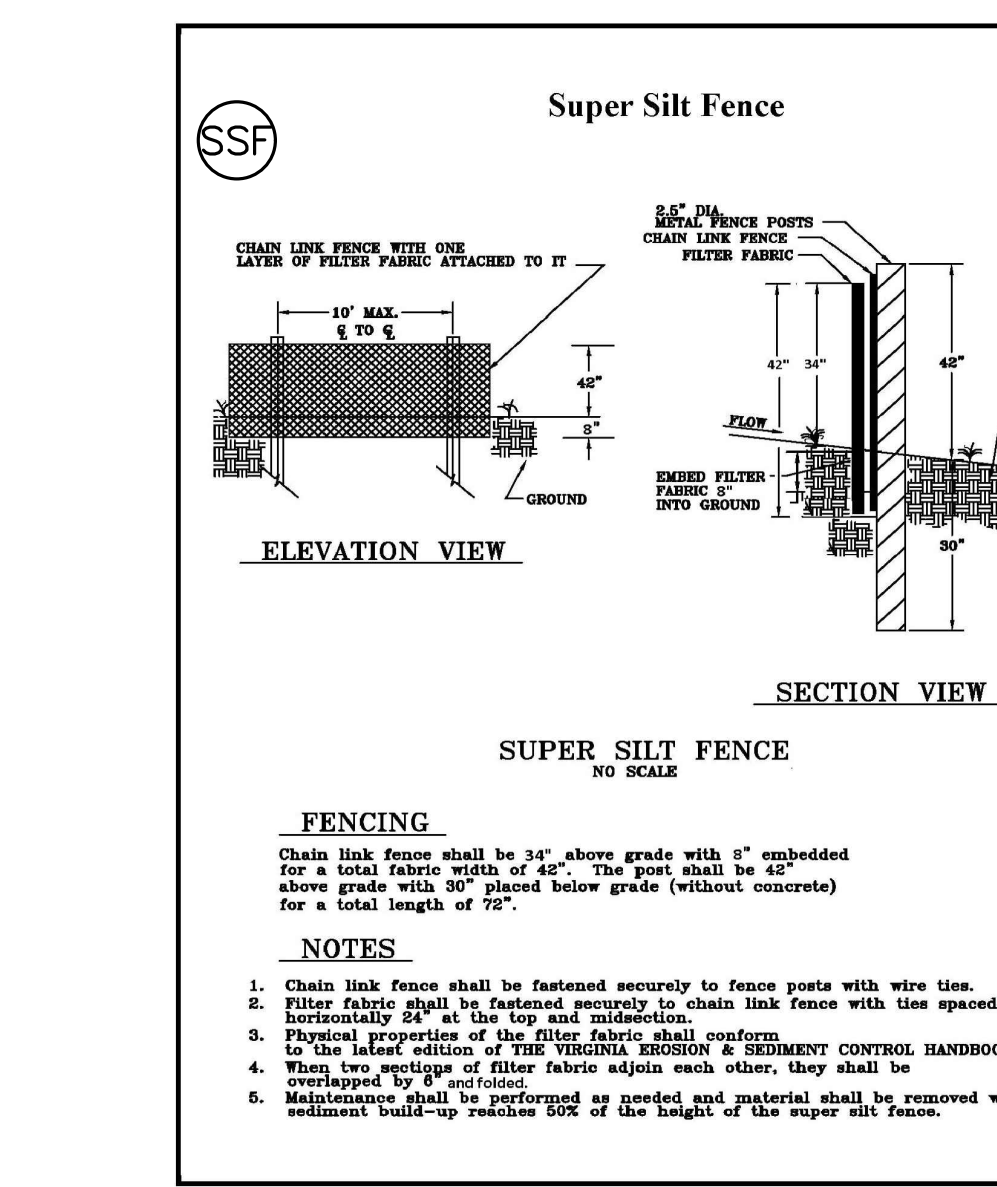
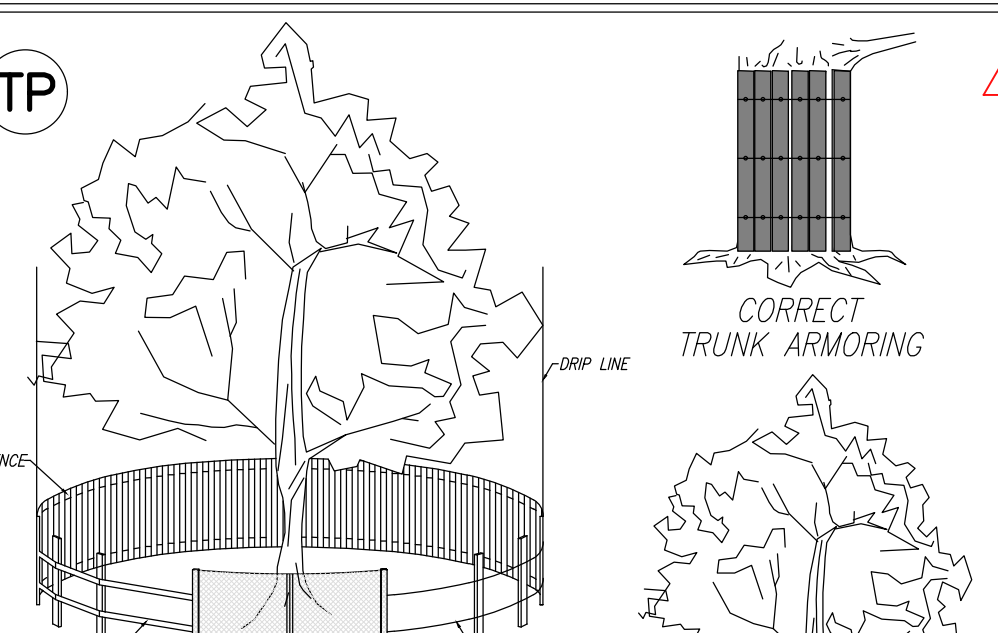
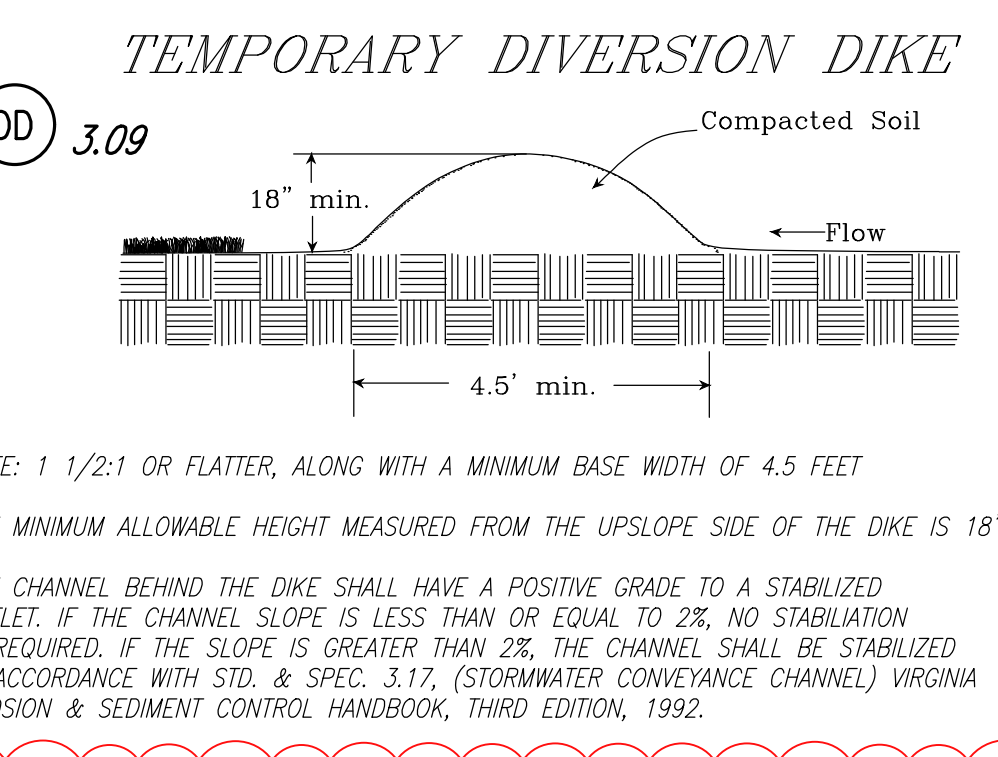
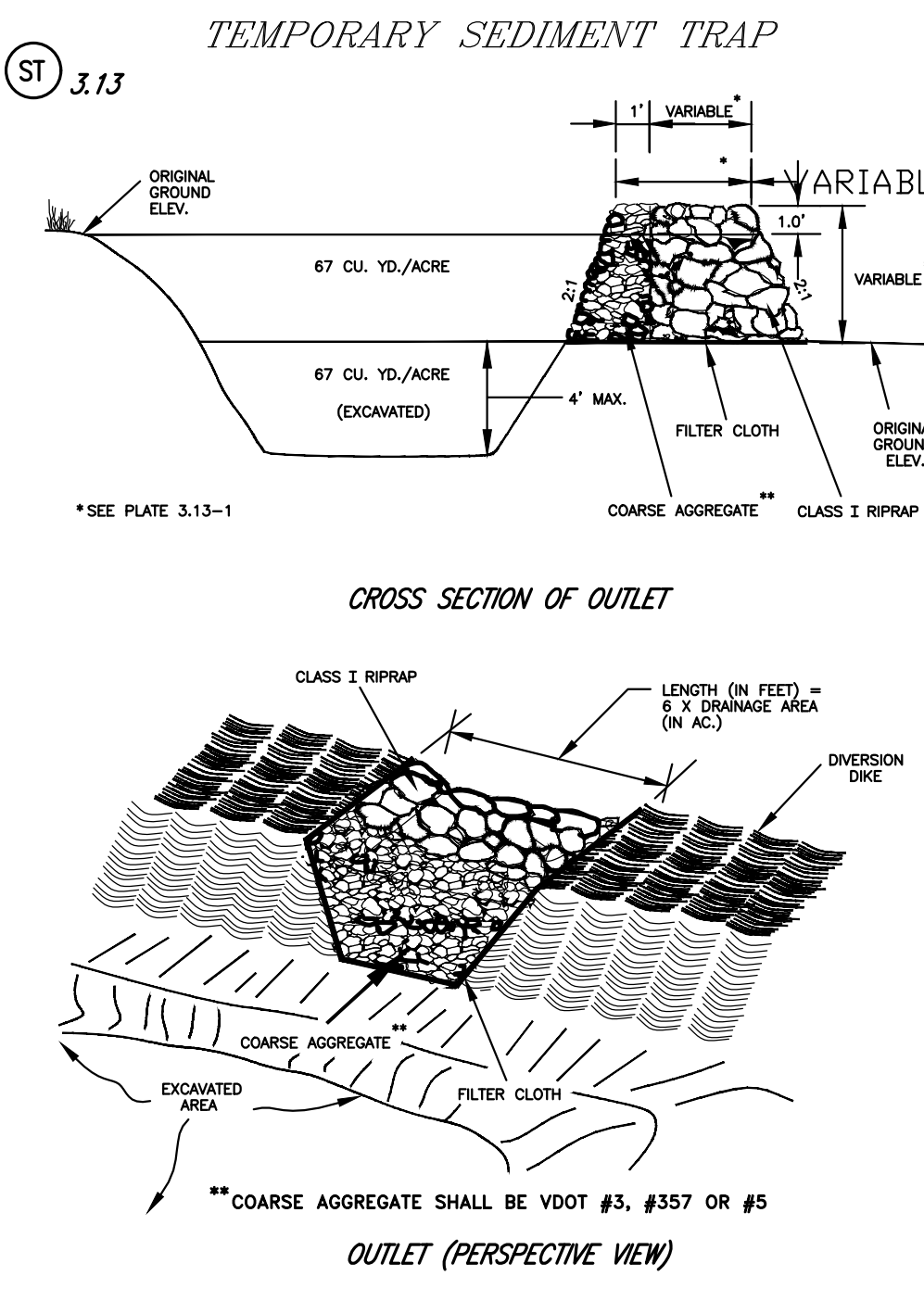


FIGURE 3 Section 7.600

- 4VAC25-840-40 MINIMUM STANDARDS**  
 AN EROSION AND SEDIMENT CONTROL PROGRAM ADOPTED BY A DISTRICT OR LOCALITY MUST BE CONSISTENT WITH THE FOLLOWING CRITERIA, TECHNIQUES AND METHODS:
- PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
  - DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOILS STOCKPILES ON-SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
  - A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.
  - SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.
  - STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
  - SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.
    - THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 1.34 CUBIC YARDS PER ACRE OF DRAINAGE AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.
    - SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPREHENSIVE OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 1.34 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A TWENTY-FIVE YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.
  - CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.
  - CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
  - WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
  - ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
  - BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
  - WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.
  - WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
  - ALL APPLICABLE FEDERAL, STATE, AND LOCAL CHAPTERS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.
  - THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IS COMPLETED.
  - UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
    - NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
    - EXCAVATED MATERIAL SHALL BE PLACED ON UPHILL SIDE OF TRENCHES.
    - EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
    - MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
    - RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
    - APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.
  - WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.
  - ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY. TRAPPED MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
  - PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA. STREAM RESTORATION AND RELOCATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS ARE NOT MAN-MADE CHANNELS AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS:
    - CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.
    - ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
      - THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION;
      - OR
        - NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS.
        - B.2.B. ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND
        - B.2.C. PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.
    - IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
      - IMPROVE THE CHANNELS TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO CHANNEL THE BED OR BANKS; OR
      - IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES;
      - DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PREDEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MANMADE CHANNEL, OR
      - PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE VESCP AUTHORITY TO PREVENT DOWNSTREAM EROSION.
    - THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
    - ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE SUBJECT PROJECT.
    - IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE VESCP OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.
    - OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.
    - ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
    - INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.
    - IN APPLYING THESE STORMWATER MANAGEMENT CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.
    - ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.
    - ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO:
      - RETAIN THE WATER QUANTITY VOLUMES AND TO RELEASE IT OVER 48 HOURS;
      - DETAIN AND RELEASE OVER A 24-HOUR PERIOD THE EXPECTED RAINFALL RESULTING FROM THE ONE YEAR, 24-HOUR STORM; AND
      - REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1.5, 2, AND 10-YEAR, 24-HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM THE SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 10.1-562 OR 10.1-570 OF THE ACT.
    - FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 10.1-561 A OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 10.1-603.2 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND-DISTURBING ACTIVITIES ARE IN ACCORDANCE WITH 4VAC50-60-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSWMP) PERMIT REGULATIONS.
    - COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 4VAC50-60-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSWMP) PERMIT REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF MINIMUM STANDARD 19.

SEDIMENT TRAP No.	DRAINAGE AREA (acres)	STORAGE REQUIRED WET (cu ft)	STORAGE PROVIDED WET (cu ft)	STORAGE REQUIRED DRY (cu ft)	STORAGE PROVIDED DRY (cu ft)	WET STORAGE DEPTH L (ft)	H HEIGHT OF BERM (ft)	Ho WEIR OUTLET HEIGHT (ft)	W TOP WIDTH (ft)	L WEIR LENGTH (ft)	BOTTOM STORAGE (cu ft)	BOTTOM OF DRY STORAGE (cu ft)	WEIR INVERT (ft)	ELEV. @ TOP OF BERM (ft)	AREA @ TOP OF BERM (sq ft)	ELEV. @ TOP OF WEIR DRY STORAGE (ft)	ELEV. AT GROUND (ft)		
1	2.00	3618	3618	4832	32527	4.0	60	30	2.0	1.0	2.0	12	236.50	240.50	241.50	242.50	63254	241.50	240.50

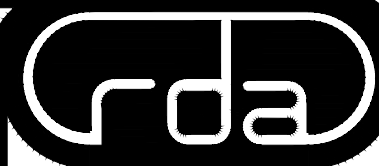
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COMMONWEALTH OF VIRGINIA  
 SHARON D. DUSZA  
 Lic. No. 013385  
 3/13/24  
 PROFESSIONAL ENGINEER

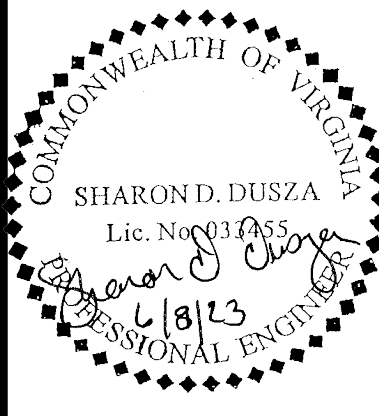
EROSION & SEDIMENT CONTROL NOTES & DETAILS  
 WELLINGTON ROAD OPERATIONS CENTER EXPANSION  
 BREWSTERVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS: 03/13/2024  
 BID ADDENDUM 3- ADD TP DETAIL

PLAN DATE: OCTOBER 7, 2022  
 DESIGN BY: AG/SAW  
 CHECKED BY: SSD  
 ARCHITECT/MOSELEY ARCH  
 JURISDICTIONAL PLAN NO. SPR2023-00185  
 RDA PLAN #: 19001-008  
 SHEET NUMBER: C.17



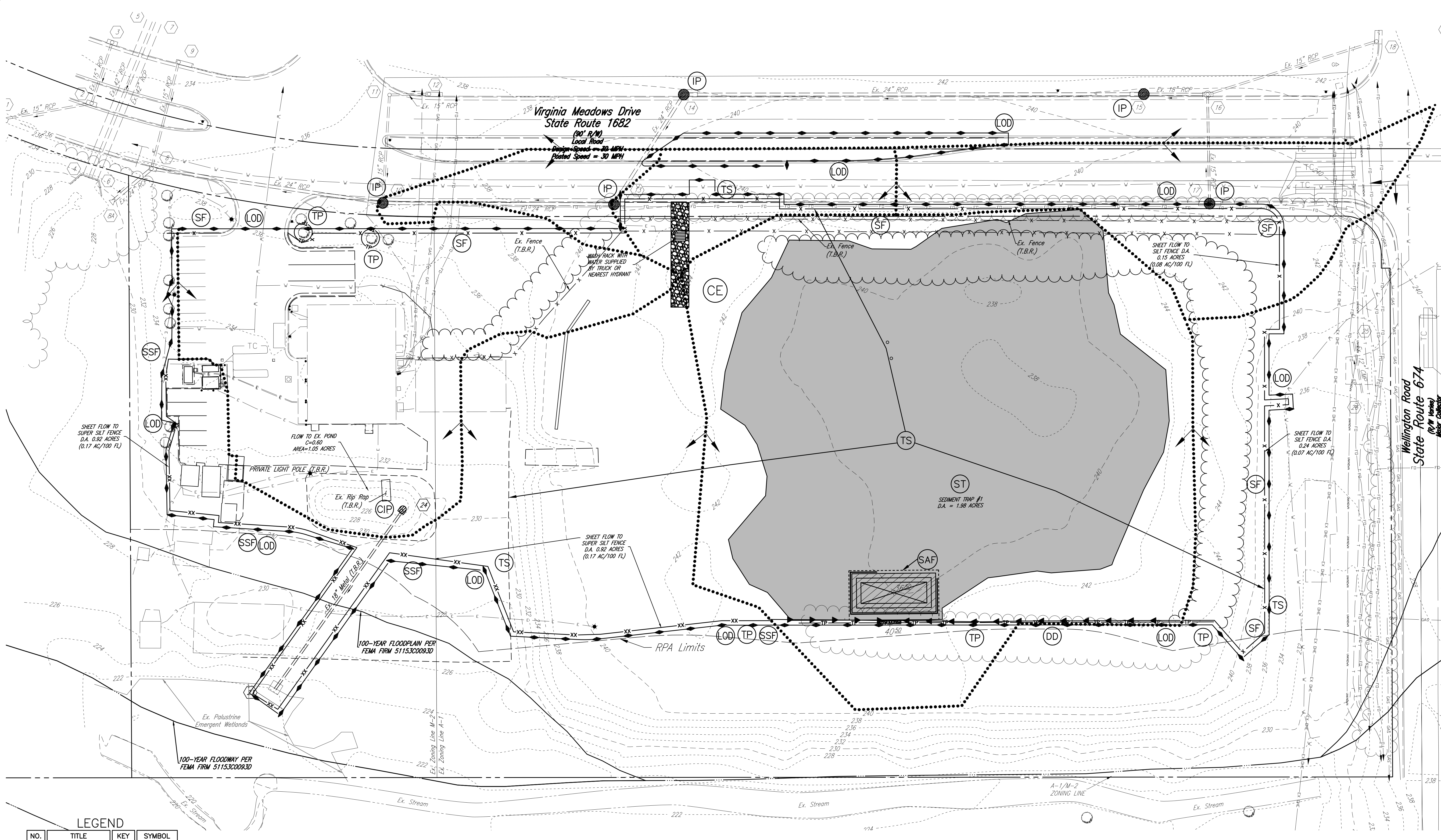
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**EROSION & SEDIMENT CONTROL  
 PLAN - PHASE 1**  
**WELLINGTON ROAD OPERATIONS  
 CENTER EXPANSION**  
 BRENTSVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:

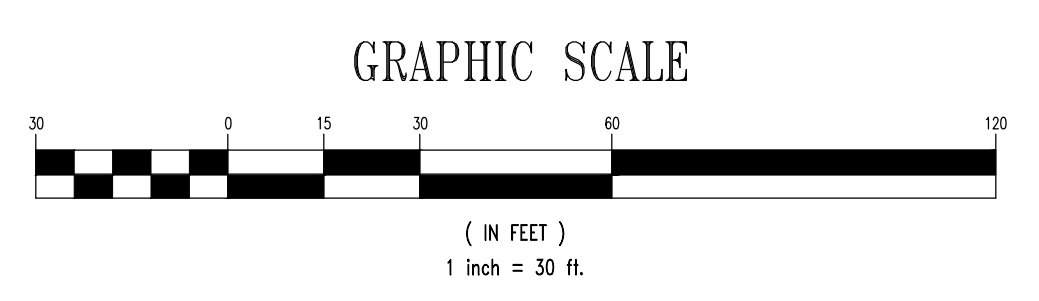
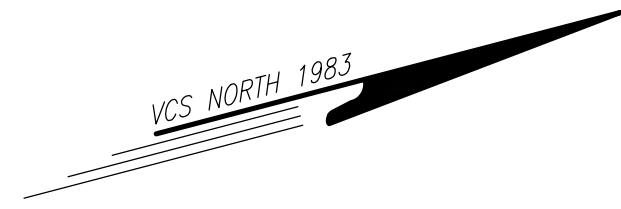
PLAN DATE: OCTOBER 7, 2022  
 DESIGN BY: AAG/SAW  
 CHECKED BY: SSD  
 ARCHITECT: MOSELEY ARCH  
 JURISDICTIONAL PLAN NO: SPR2023-00185  
 RDA PLAN #: 19001-008  
 SHEET NUMBER: C.18



**LEGEND**

NO.	TITLE	KEY	SYMBOL
3.01	SAFETY FENCE	SAF	
3.05	SILT FENCE	SF	
3.07	STORM DRAIN INLET PROTECTION	IP	
3.08	CULVERT INLET PROTECTION	CIP	
3.19	RIPRAP	RR	
3.38	TREE PRESERVATION AND PROTECTION	TP	
	SUPER SILT FENCE	SSF	

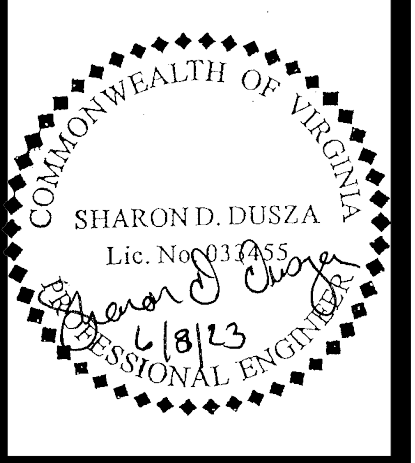
DENOTES LIMITS OF DISTURBANCE (LOD)  
 DENOTES DRAINAGE DIVIDES



**"THIS SHEET IS FOR  
 PHASE 1 EROSION & SEDIMENT  
 CONTROL AND DRAINAGE DIVIDE  
 INFORMATION PURPOSES ONLY!!!"**



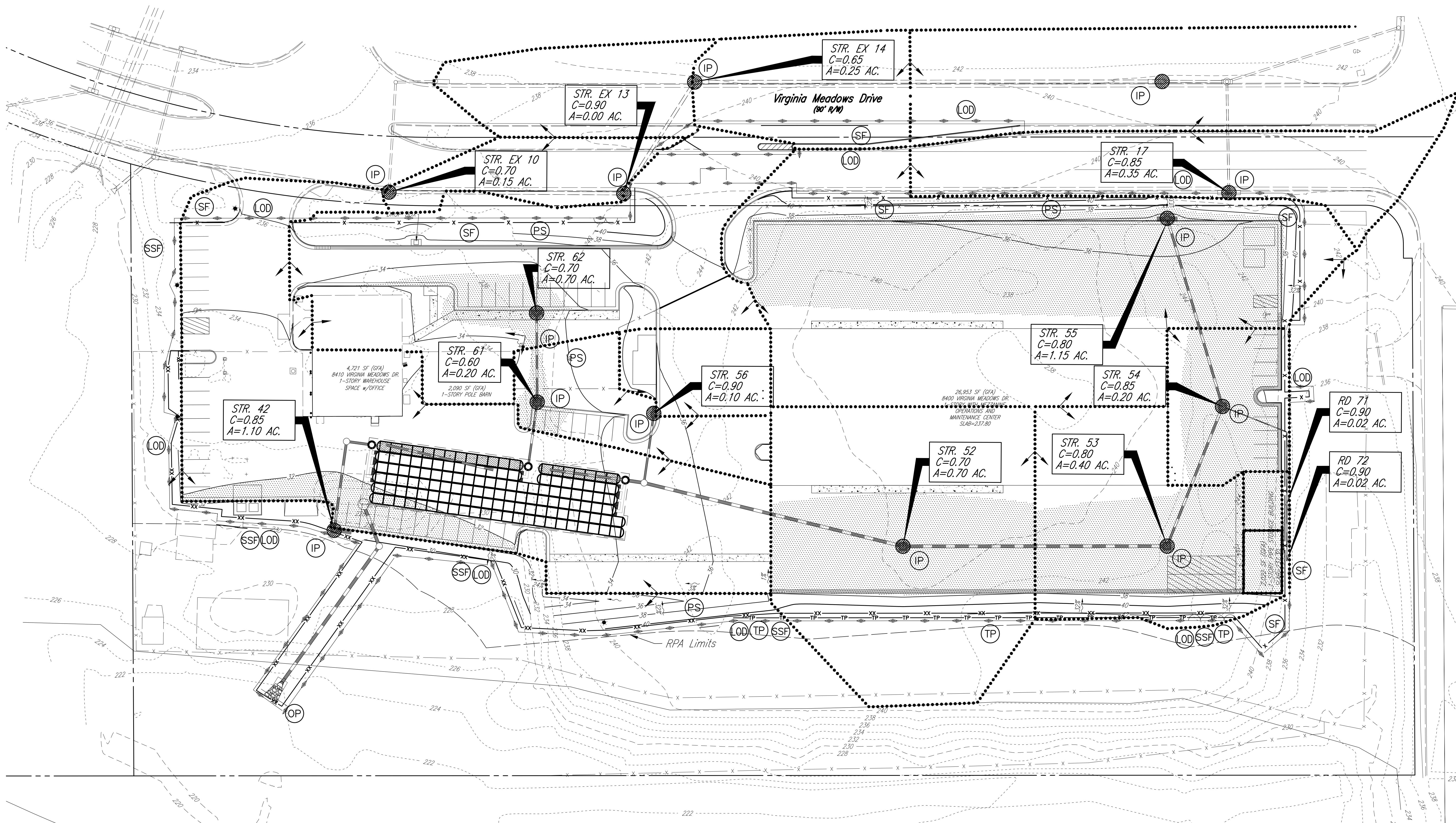
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EROSION AND SEDIMENT CONTROL  
 PLAN - PHASE 2  
**WELLINGTON ROAD OPERATIONS  
 CENTER EXPANSION**  
 BRENTSVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:


PLAN DATE: OCTOBER 7, 2022  
 DESIGN BY: AG/SAW  
 CHECKED BY: SSD  
 ARCHITECT/MOSELEY ARCH  
 JURISDICTIONAL PLAN NO. SPR2023-00185  
 RDA PLAN #: 19001-008  
 SHEET NUMBER: C.19



**LEGEND**

NO.	TITLE	KEY	SYMBOL
3.01	SAFETY FENCE	SAF	[Symbol]
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	[Symbol]
3.05	SILT FENCE	SF	[Symbol]
3.07	STORM DRAIN INLET PROTECTION	IP	[Symbol]
3.18	OUTLET PROTECTION	OP	[Symbol]

3.38 TREE PRESERVATION AND PROTECTION [Symbol]

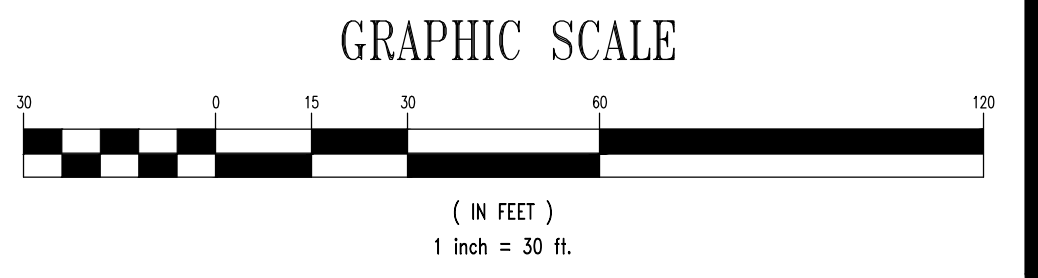
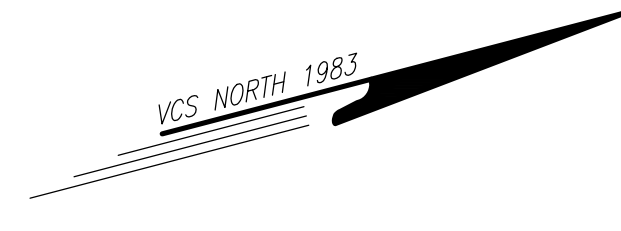
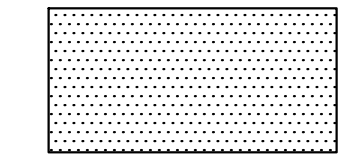
SUPER SILT FENCE [Symbol]

--- DENOTES LIMITS OF DISTURBANCE (LOD)

--- DENOTES DRAINAGE DIVIDES

Structure	Drainage Area	Structure C-Value	Structure Intensity	Structure Intensity (1.25 Modification Factor)	Structure Flow	Weir Elevation (min.)	Ponding Depth	Ponding Elevation	Notes
55	1.50	0.81	9.84	12.30	14.95	237.15	0.36	237.51	Includes 17
54	1.70	0.82	9.84	12.30	17.15	237.15	0.39	237.54	Includes 17 & 55
53	2.10	0.81	9.84	12.30	20.93	237.10	0.40	237.50	Includes 17 & 54-55
52	2.80	0.78	9.84	12.30	26.87	237.10	0.49	237.59	Includes 17 & 53-55
62	0.70	0.70	9.84	12.30	6.03	233.25	0.44	233.69	
61	1.00	0.70	9.84	12.30	8.61	232.55	0.57	233.12	Includes 17, 52-56, & 62
42	4.90	0.78	9.84	12.30	47.02	231.15	0.84	231.99	Includes 17, 52-56, & 61-62

NOTES:  
 1. THE OVERLAND RELIEF COMPUTATIONS WERE COMPLETED USING AN IRREGULAR WEIR THAT MATCHES THE LENGTHS AND ELEVATIONS OF THE SPILL POINTS.  
 2. THE BELOW HATCH REPRESENTS THE APPROXIMATE 100-YEAR OVERLAND RELIEF PONDING LIMITS.


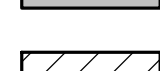
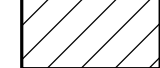
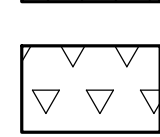




### PRE-DEVELOPMENT BMP LAND COVER MAP

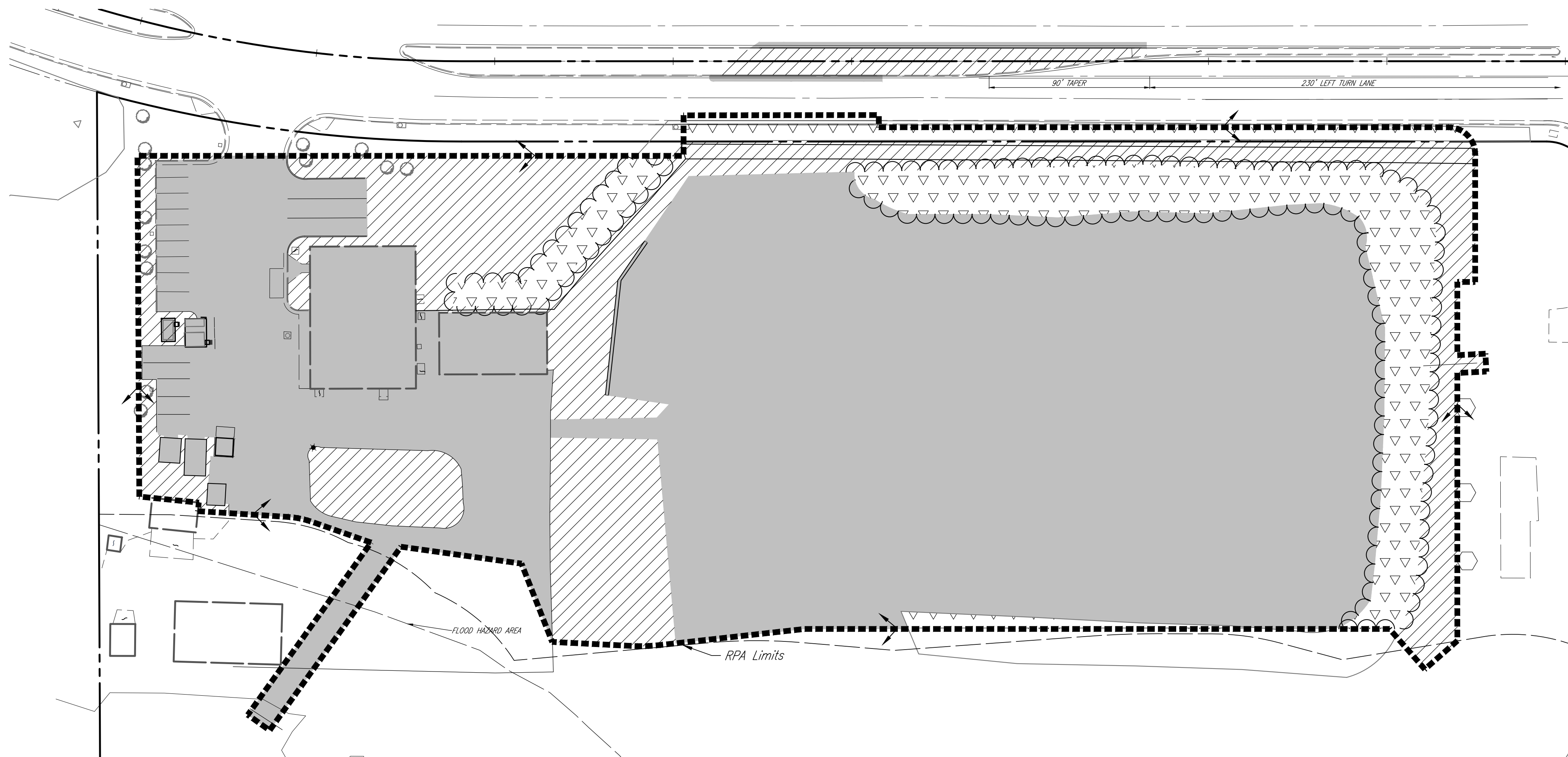
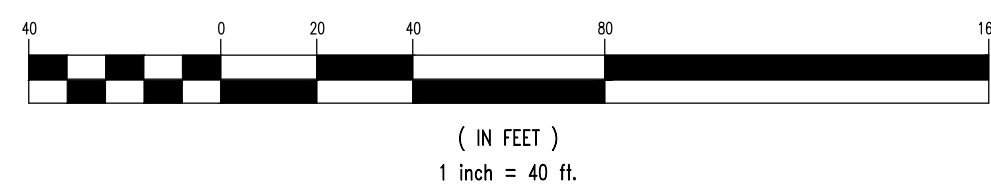
**LEGEND:**

TOTAL AREAS WITHIN L.O.D. = 4.60 ACRES  
 MANAGED TURF = 1.00 ACRES  
 IMPERVIOUS = 3.10 ACRES  
 FORESTED = 0.50 ACRES

-  TOTAL AREAS WITHIN L.O.D.
-  IMPERVIOUS AREA WITHIN LOD
-  MANAGED TURF WITHIN LOD
-  FORESTED AREA WITHIN LOD

VCS NORTH 1983

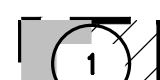

GRAPHIC SCALE




### DETAILED POST-DEVELOPMENT BMP LAND COVER MAP

**LEGEND:**

TOTAL AREAS WITHIN L.O.D. = 4.60 ACRES  
 MANAGED TURF = 0.95 ACRES  
 IMPERVIOUS = 3.65 ACRES

-  HYDRODYNAMIC SEPARATOR #1 DRAINAGE AREA = 0.10 ACRES  
 MANAGED TURF = 0.00 ACRES  
 IMPERVIOUS = 0.10 ACRES
-  ISOLATOR ROW PLUS FILTERING DRAINAGE AREA = 4.10 ACRES  
 MANAGED TURF = 0.65 ACRES  
 IMPERVIOUS = 3.45 ACRES

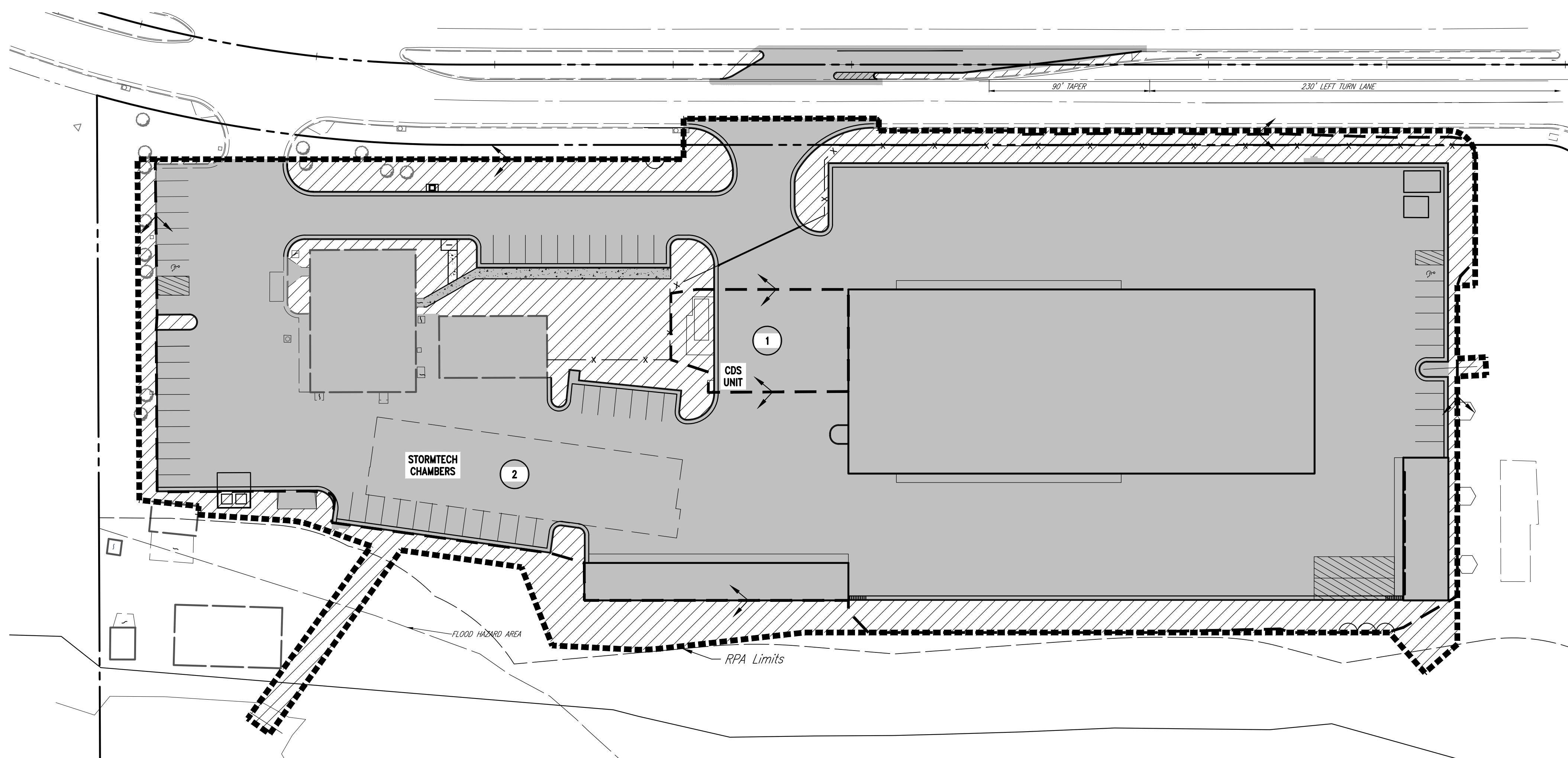
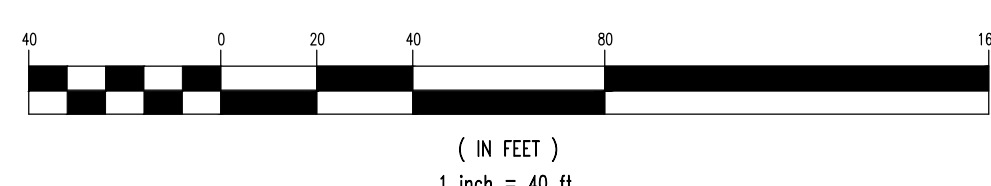
BMP UNCONTROLLED AREA = 0.40 ACRES  
 MANAGED TURF = 0.30 ACRES  
 IMPERVIOUS = 0.10 ACRES

-  IMPERVIOUS AREA WITHIN LOD
-  MANAGED TURF WITHIN LOD

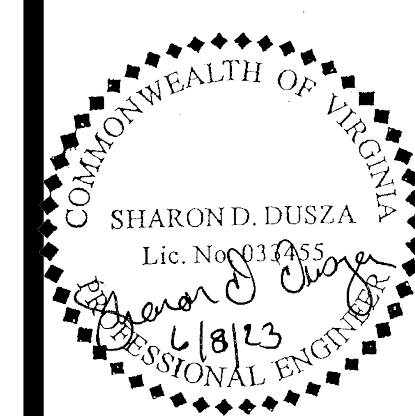
NOTE: THE TOTAL TREATMENT AREAS FOR EACH PRACTICE ACCUMULATE FROM 1-2. FOR EXAMPLE, THE TOTAL TREATMENT AREA FOR THE ISOLATOR ROW PLUS IS 3.55 ACRES (0.10+3.45).

VCS NORTH 1983

GRAPHIC SCALE



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BMP LAND COVER MAP  
**WELLINGTON ROAD OPERATIONS  
 CENTER EXPANSION**  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:


PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AAG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.20

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final)		Land Cover Summary-Post		Land Cover Summary-Post	
Post ReDev. & New Impervious		Post-ReDevelopment		Post-Development New Impervious	
Forest/Open Space Cover (acres)	0.00	Forest/Open Space Cover (acres)	0.00		
Weighted Rv(forest)	0.00	Weighted Rv(forest)	0.00		
% Forest	0%	% Forest	0%		
Managed Turf Cover (acres)	0.95	Managed Turf Cover (acres)	0.95		
Weighted Rv (turf)	0.25	Weighted Rv (turf)	0.25		
% Managed Turf	21%	% Managed Turf	23%		
Impervious Cover (acres)	3.65	ReDev. Impervious Cover (acres)	3.10	New Impervious Cover (acres)	0.55
Rv(impervius)	0.95	Rv(impervius)	0.95	Rv(impervius)	0.95
% Impervious	79%	% Impervious	77%		
Final Site Area (acres)	4.60	Total ReDev. Site Area (acres)	4.05		
Final Post Dev Site Rv	0.81	ReDev Site Rv	0.79		

Treatment Volume and Nutrient Load

Final Post-Development Treatment Volume (acre-ft)	0.3088	Post-ReDevelopment Treatment Volume (acre-ft)	0.2652	Post-Development Treatment Volume (acre-ft)	0.0435
Final Post-Development Treatment Volume (cubic feet)	13,449	Post-ReDevelopment Treatment Volume (cubic feet)	11,552	Post-Development Treatment Volume (cubic feet)	1,897
Final Post-Development TP Load (lb/yr)	8.45	Post-ReDevelopment Load (TP) (lb/yr)*	7.26	Post-Development TP Load (lb/yr)	1.19
Final Post-Development TP Load per acre (lb/acre/yr)	1.84	Post-ReDevelopment TP Load per acre (lb/acre/yr)	1.79		
		Max. Reduction Required (Below Pre-Development Load)	20%		
		TP Load Reduction Required for Redeveloped Area (lb/yr)	1.45	TP Load Reduction Required for New Impervious Area (lb/yr)	0.97

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

2011 BMP Standards and Specifications  2013 Draft BMP Standards and Specifications

Project Name: Wellington Road Operations Center Expansion  
 Date: 9/30/2022  
 Linear Development Project? No

(Ctrl+Shift+R)

final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area (acres) → 4.60

Check:  
 BMP Design Specifications List: 2013 Draft Stds & Specs  
 Linear project? No  
 Land cover areas entered correctly? ✓  
 Total disturbed area entered? ✓

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed forest/open space	0.00	0.00	0.00	0.50	0.50
Managed Turf (acres) -- disturbed, graded for yards or other turf to be	0.00	0.00	0.00	1.00	1.00
Impervious Cover (acres)	0.00	0.00	0.00	3.10	3.10
					4.60

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be	0.00	0.00	0.00	0.95	0.95
Impervious Cover (acres)	0.00	0.00	0.00	3.65	3.65
Area Check	OK.	OK.	OK.	OK.	4.60

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

TP Load Reduction Required (lb/yr)	2.42
Linear Project TP Load Reduction Required (lb/yr)	N/A

Site Compliance Summary

Maximum % Reduction Required Below Pre-Development Load	20%
---	-----

Total Runoff Volume Reduction (ft <sup>3</sup> )	0
Total TP Load Reduction Achieved (lb/yr)	3.25
Total TN Load Reduction Achieved (lb/yr)	0.00
Remaining Post Development TP Load (lb/yr)	5.20
Remaining TP Load Reduction (lb/yr) Required	0.00

\*\* TARGET TP REDUCTION EXCEEDED BY 0.83 LB/YEAR \*\*

TOTAL IMPERVIOUS COVER TREATED (ac) 3.55 AREA CHECK: OK.  
 TOTAL MANAGED TURF AREA TREATED (ac) 0.65 AREA CHECK: OK.

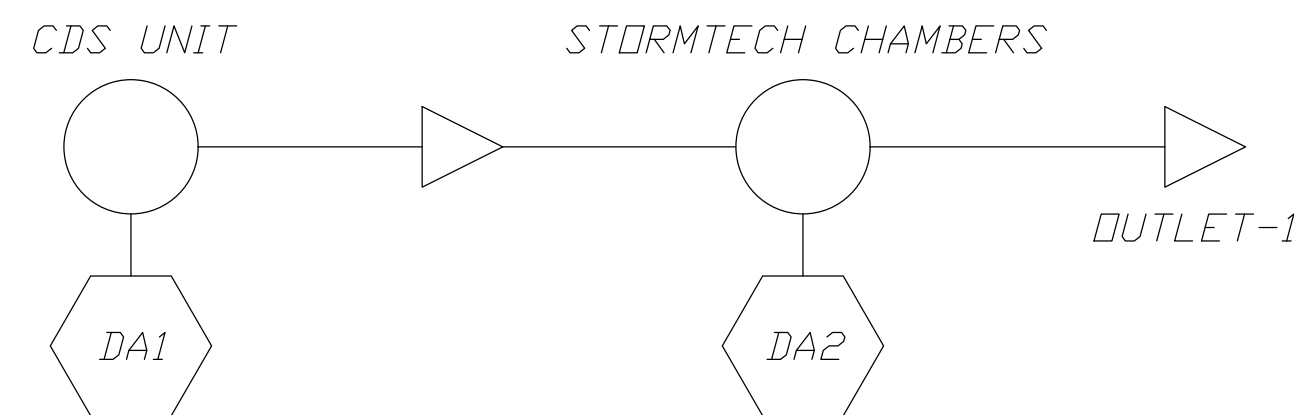
TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr) 2.42

TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. A (lb/yr) 8.06  
 TOTAL PHOSPHORUS REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 3.25  
 TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00  
 TOTAL PHOSPHORUS LOAD REDUCTION ACHIEVED IN D.A. A (lb/yr) 3.25  
 TOTAL PHOSPHORUS REMAINING AFTER APPLYING BMP LOAD REDUCTIONS IN D.A. A (lb/yr) 4.82

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00  
 NITROGEN REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00  
 TOTAL NITROGEN REMOVED IN D.A. A (lb/yr) 0.00

BMP FLOW CHART



DA1 = CDS UNIT (HYDRODYNAMIC SEPARATOR) DRAINAGE AREA = 0.10 ACRES  
 MANAGED TURF = 0.00 ACRES  
 IMPERVIOUS = 0.10 ACRES

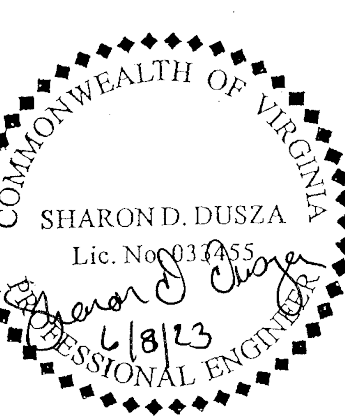
DA2 = STORMTECH CHAMBERS (ISOLATOR ROW PLUS FILTERING) DRAINAGE AREA = 4.10 ACRES  
 MANAGED TURF = 0.65 ACRES  
 IMPERVIOUS = 3.45 ACRES

DRAINAGE AREA A CALCULATIONS

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft <sup>3</sup> )	Runoff Reduction (ft <sup>3</sup> )	Remaining Runoff Volume (ft <sup>3</sup> )	Total BMP Treatment Volume (ft <sup>3</sup> )	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
14.a. Manufactured Treatment Device-Hydrodynamic	0	0.00	0.10	0	0	345	345	20	0.00	0.22	0.04	0.17	14.b. MTD - Filtering
14.b. Manufactured Treatment Device-Filtering	0	0.65	3.45	345	0	12,832	12,832	40	0.17	7.84	3.20	4.81	



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 Engineering \* Surveying \* Transportation \* Environmental Services



BMP COMPUTATIONS  
 WELLINGTON ROAD OPERATIONS CENTER EXPANSION  
 BREWSTERVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:

NO.	DATE	DESCRIPTION

PLAN DATE: OCTOBER 7, 2022  
 DESIGN BY: AG/SAW  
 CHECKED BY: SSD  
 ARCHITECT/MOSELEY ARCH  
 JURISDICTIONAL PLAN NO. SPR2023-00185  
 RDA PLAN #: 19001-008  
 SHEET NUMBER: C.21

OUTFALL/SWM/BMP NARRATIVE:

PROJECT DESCRIPTION: THIS PROJECT IS 7.29 ACRE SITE LOCATED OFF VIRGINIA MEADOWS DRIVE AND WELLINGTON ROAD. THE PROJECT WILL INCLUDE A NEW STORAGE AND VEHICLE MAINTENANCE FACILITY, ONE BUILDING FOR PIPE STORAGE, AND ONE STRUCTURE FOR AGGREGATE MATERIALS ALONG WITH ADJACENT PARKING AND LOADING AREAS. THE EXISTING VEHICLE MAINTENANCE AND ADMINISTRATION BUILDING WILL REMAIN. THE TOTAL DISTURBED AREA IS 4.60 ACRES.

EXISTING SITE CONDITIONS: HIS SITE IS LOCATED SOUTH OF WELLINGTON ROAD AND EAST OF VIRGINIA MEADOWS DRIVE. A MAJORITY OF THE SITE IS A RELATIVELY FLAT CLEARED GRAVEL AREA USED FOR A STORAGE YARD FOR THE PWCS. OPEN FIELDS. MOST OF THE SITE DRAINS TO AN EXISTING STREAM RUNNING EAST OF THE SITE.

ADJACENT PROPERTY: THE SITE IS BORDERED TO THE NORTH, WEST, AND SOUTH BY EXISTING WAREHOUSE BUILDINGS AND BORDERED TO THE EAST BY A VACANT LAND WITH DENSE TREES AND A STREAM.

STORMWATER MANAGEMENT NARRATIVE & METHODOLOGY: THE PROJECT INCLUDES 1 UNDERGROUND FACILITY TO MANAGE THE POST DEVELOPMENT FLOWS GENERATED BY THE PROPOSED DEVELOPMENT. THE UNDERGROUND FACILITY CONSISTS OF A STORMTECH MC-3500 SYSTEM MANUFACTURED BY ADVANCED DRAINAGE SOLUTIONS (ADS). THE FACILITY HAS 4 MODIFIED MV-1 OUTFALL STRUCTURES (STRUCTURE 31) THAT CONTROLS THE FLOWS FROM THE 1, 2, AND 10 YEAR STORM EVENTS TO ENSURE THAT LESS RUNOFF IS RELEASED FROM THE SITE FOR ALL 3 EVENTS THAN IN PRE-DEVELOPMENT CONDITIONS, WHILE ALSO MEETING ENERGY BALANCE REQUIREMENTS FOR THE SITE.

THE COMPUTATIONS FOR THE SWM FACILITY WERE COMPLETED PER USDA TR-55 GUIDANCE (FOR DRAINAGE AREA CN VALUES, SEE SHEETS C.23-C.24) AND SCS TYPE II RAINFALL DISTRIBUTION (FOR FLOW RATES) USING BENTLEY'S PONDPACK TO COMPUTE THE FINAL ROUTING RESULTS.

SITE WATERSHEDS:

THERE ARE TWO WATERSHEDS FOR THIS SITE, WHICH ARE DESCRIBED IN MORE DETAIL BELOW. BOTH DRAIN TO DAWKINS BRANCH.

WATERSHED #1/OUTFALL #1:

WATERSHED #1 CONSISTS PRIMARILY OF CONTROLLED RUNOFF, WITH SMALL AREAS OF UN-CONTROLLED RUNOFF. THE RUNOFF IS DIRECTED TO OUTFALL #1 (A POINT OF ANALYSIS AND POINT OF DISCHARGE) WHICH IS AN EXISTING STORM SEWER PIPE END ON THE SOUTHEASTERN CORNER OF THE SITE. THE EXISTING STORM SEWER PIPE WILL BE REPLACED WITH A NEW PIPE AND END SECTION WITH RIP-RAP. THE RUNOFF PAST THE OUTFALL POINT ENTERS A WETLAND AREA AND MAPPED FLOODPLAIN, REACHING DAWKINS BRANCH. A SWM FACILITY IS PROPOSED FOR THIS OUTFALL TO REDUCE THE AMOUNT OF RUNOFF RELEASED DUE TO THE DEVELOPMENT. PER ENERGY BALANCE COMPUTATIONS SHOWN ON THIS SHEET, THIS OUTFALL MEETS CHANNEL PROTECTION REQUIREMENTS AS REQUIRED BY 9VAC25-870-66.B.1.d. THE OUTFALL POINT IS CONSIDERED TO CURRENTLY EXPERIENCE LOCALIZED FLOODING DUE TO THE OUTFALL POINT BEING LOCATED WITHIN THE FLOODPLAIN. THEREFORE, THE DESIGN HAS BEEN COMPLETED SUCH THAT THE POST DEVELOPMENT PEAK FLOW RATE DURING THE 10-15-MIN, 24-HOUR STORM IS LESS THAN THE PRE-DEVELOPMENT FLOW RATE. THEREFORE, FLOOD PROTECTION CRITERIA IS MET FOR THIS OUTFALL AS REQUIRED BY 9VAC25-870-66.C.2.b. SINCE THIS OUTFALL MEETS CHANNEL AND FLOOD PROTECTION REQUIREMENTS AS DESCRIBED ABOVE, IT IS THE PROFESSIONAL OPINION OF THIS FIRM THAT OUTFALL #1 IS CONSIDERED TO BE AN ADEQUATE OUTFALL TO HANDLE THE DEVELOPMENT PROPOSED WITH THIS PLAN.

WATERSHED #2:

WATERSHED #2 CONSISTS OF UN-CONTROLLED SHEET FLOW FROM WITHIN THE LIMITS OF DISTURBANCE. THE SHEET FLOW IS DIRECTED TO STORM SEWER INLETS OUTSIDE OF THE PROJECT LIMITS, WHICH EVENTUALLY OUTFALL TO DAWKINS BRANCH JUST PAST OUTFALL #1. SINCE THE SITE ONLY RELEASES SHEET FLOW TO THIS WATERSHED, IT HAS BEEN ANALYZED PER THE REQUIREMENTS OF 9VAC25-870-66.D. THE CALCULATION SHOWN ON THIS SHEET DEMONSTRATES THAT LESS RUNOFF IS RELEASED WITHIN THIS WATERSHED IN THE POST-DEVELOPMENT CONDITIONS. SINCE ALL RUNOFF IS SHEET FLOW AND THE CONDITIONS OF 9VAC25-870-66.D ARE MET (SITES MUST RELEASE A SMALLER VOLUME OF SHEET FLOW OR PROVE THAT NEGATIVE IMPACTS DON'T EXIST DOWNSTREAM), WATER QUANTITY CONTROLS ARE SATISFIED FOR THIS WATERSHED.

SWM SUMMARY:

THIS PROPOSED DEVELOPMENT WILL CONTINUE TO HONOR NATURAL DRAINAGE DIVIDES AND THE PROPOSED FLOWS TO EACH OF THE OUTFALLS IS LESS THAN THE EXISTING FLOWS. BOTH CHANNEL AND FLOOD PROTECTION REQUIREMENTS ARE MET FOR BOTH OUTFALLS.

BMP NARRATIVE:

THE BMP ANALYSIS WAS PERFORMED IN ACCORDANCE WITH CURRENT VA DEQ REQUIREMENTS. ONCE FULLY DEVELOPED, THE SITE REQUIRES A PHOSPHORUS REMOVAL RATE OF 0.43 LBS/YR. THIS WILL BE ACCOMPLISHED BY PROVIDING ON-SITE TREATMENT MEASURES IN THE FORM OF A CONTECH HYDRODYNAMIC SEPARATOR WITHIN ONE OF THE CURB INLETS AND AN ISOLATER ROW PLUS WITHIN THE ON-SITE SWM FACILITY. COMBINED, THOSE TWO MEASURES EXCEED THE TREATMENT REQUIREMENTS FOR THE SITE. SEE SHEETS C.25-C.35 FOR THE OVERALL SITE BMP, ISOLATER ROW PLUS, AND HYDRODYNAMIC SEPARATOR COMPUTATIONS.

SWM FACILITY CONSTRUCTION PHASING:

THE CONSTRUCTION OF THE UGDF SHALL BE PHASED IN SUCH A MANNER AS TO PREVENT ANY SEDIMENT-LADEN RUNOFF FROM ENTERING THE FACILITY PRIOR TO ITS ENTIRE CONTRIBUTING DRAINAGE AREA BECOMING PERMANENTLY STABILIZED IN ACCORDANCE WITH THE VESCH.

- 1. ENSURE ACCESS TO THE EXISTING BUILDING IS MAINTAINED AT ALL TIMES.
2. ALTHOUGH THE EXACT PHASING IS TO BE COORDINATED BY THE CONTRACTOR WITH THE SITE INSPECTOR, THE ENGINEER'S PROPOSED PHASING IS TO CONSTRUCT AS MANY UPSTREAM IMPROVEMENTS AS POSSIBLE, INCLUDING THE UPSTREAM STORM SEWER, PRIOR TO INSTALLING THE SWM FACILITY.
3. PROTECT THE LIMITS OF THE SWM FACILITY WITH SET FENCE AND SAFETY FENCE, AS APPROPRIATE. INSTALL THE STORMTECH SYSTEM, INCLUDING THE CHAMBERS AND STONE PER THE MANUFACTURER'S STANDARDS.
4. CONNECT THE SWM FACILITY TO THE INFLOW AND OUTFLOW STRUCTURES, WHILE CONTINUING TO PREVENT SEDIMENT FROM ENTERING THE FACILITY WITH INLET PROTECTION AND SILT FENCE.
5. AFTER THE ENTIRE UPSTREAM DRAINAGE AREA OF THE UGDF HAS BEEN PERMANENTLY STABILIZED, THE FACILITY MAY BE BROUGHT ONLINE.

SWM/BMP FACILITY MAINTENANCE:

MANUFACTURED SWM & BMP SYSTEMS REQUIRE REGULAR INSPECTION AND MAINTENANCE TO MAXIMIZE THEIR EFFECTIVENESS. THE SPECIFIC MAINTENANCE REQUIREMENTS AND SCHEDULE SHOULD BE PREPARED BY THE MANUFACTURER AND SIGNED BY THE OWNER/OPERATOR.

A MAINTENANCE LOG IS REQUIRED TO KEEP TRACK OF ROUTINE INSPECTIONS AND MAINTENANCE. FAILURE TO MAINTAIN ANY SWM & BMP FACILITY MAY RESULT IN REDUCED PERFORMANCE OR THE SYSTEM CLOGGING AND CAUSING UPSTREAM FLOODING. LACK OF MAINTENANCE IS WIDELY ACKNOWLEDGED TO BE THE MOST PREVALENT CAUSE OF FAILURE OF STRUCTURAL SWM & BMP FACILITIES. INSPECTIONS AND DEBRIS, LITTER, AND SEDIMENT REMOVAL SHALL BE DONE IN ACCORDANCE WITH THE RECOMMENDATIONS AND REQUIREMENTS OF CONTECH ENGINEERED SOLUTIONS.

CDS UNIT:

SEMI-ANNUAL INSPECTIONS WILL HELP ENSURE THAT THE SYSTEM IS CLEANED OUT AT THE APPROPRIATE TIME. INSPECTIONS SHOULD BE PERFORMED MORE FREQUENTLY WHERE SITE CONDITIONS MAY CAUSE RAPID ACCUMULATIONS OF POLLUTANTS. THE RECOMMENDED CLEANOUT OF SOLIDS WITHIN THE CDS UNIT'S SUMP SHOULD OCCUR AT 75% OF THE SUMP CAPACITY. ACCESS TO THE CDS UNIT IS TYPICALLY ACHIEVED THROUGH TWO ACCESS COVERS - ONE ALLOWS INSPECTION AND CLEANOUT OF THE SEPARATION CHAMBER AND SUMP, AND ANOTHER ALLOWS INSPECTION AND CLEANOUT OF SEDIMENT CAPTURED AND RETAINED BEHIND THE SCREEN. A VACUUM TRUCK IS RECOMMENDED FOR CLEANOUT OF THE CDS UNIT.

VIRGINIA PERMITTING:

IN ACCORDANCE WITH 9VAC25-151-70, A GENERAL VPDES PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES MUST BE APPLIED FOR AND ISSUED FROM DEQ PRIOR TO COMMENCING LAND-DISTURBING ACTIVITIES.

OUTFALL 1: ADEQUATE OUTFALL NOTES & COMPUTATIONS

Table with columns: RAINFALL DEPTH, (1YR) = 2.51 IN., (2YR) = 3.04 IN., (10YR) = 4.67 IN.

PRE-DEVELOPMENT WATERSHED COMPUTATIONS

Table with columns: W-1A: TOTAL PRE-DEVELOPMENT DRAINAGE AREA, A = 1.05 AC, CN = 89

Table with columns: TOTAL PRE-DEVELOPMENT RUNOFF, Q(1YR) = 2.48 CFS, Q(2YR) = 3.25 CFS, Q(10YR) = 5.68 CFS

Table with columns: W-1B: TOTAL PRE-DEVELOPMENT DRAINAGE AREA, A = 3.25 AC, CN = 88

Table with columns: TOTAL PRE-DEVELOPMENT RUNOFF, Q(1YR) = 7.29 CFS, Q(2YR) = 9.67 CFS, Q(10YR) = 17.18 CFS

POST-DEVELOPMENT WATERSHED COMPUTATIONS

Table with columns: W-1A (STORMTECH FACILITY): TOTAL POST-DEVELOPMENT DRAINAGE AREA, A = 4.60 AC, CN = 95

Table with columns: TOTAL POST-DEVELOPMENT RUNOFF, Q(1YR) = 14.00 CFS, Q(2YR) = 17.39 CFS, Q(10YR) = 27.80 CFS

Table with columns: W-1B: TOTAL POST-DEVELOPMENT DRAINAGE AREA, A = 0.30 AC, CN = 82

Table with columns: TOTAL POST-DEVELOPMENT RUNOFF, Q(1YR) = 0.49 CFS, Q(2YR) = 0.68 CFS, Q(10YR) = 1.34 CFS

OUTFALL #1 POST-DEVELOPMENT RUNOFF RELEASE RATES

Table with columns: ALLOWABLE POST-DEVELOPMENT RUNOFF, Q(1YR) = (2.48+7.29) = 9.77 CFS, (ENERGY BALANCE) = 5.45 CFS, Q(2YR) = (3.25+9.67) = 12.92 CFS, Q(10YR) = (5.68+17.18) = 22.86 CFS

DESIGN POST-DEVELOPMENT RUNOFF

Table with columns: Q(1YR) = 4.80 CFS, Q(2YR) = 6.15 CFS, Q(10YR) = 18.18 CFS

NOTES:

- 1. OUTFALL 1 PRE AND POST-DEVELOPMENT FLOWS ARE PER PONDPACK ROUTING, SEE SHEETS C.32-C.35.
2. SEE SHEETS C.23-C.24 FOR TOTAL PRE AND POST-DEVELOPMENT DRAINAGE AREA MAPS.

Table with columns: 1-yr 24 Hour Storm (inches) = 2.51, Improvement Factor = 0.80

Rv Pre table with columns: Landcover, CN, Area (ac). Rows: IMPERVIOUS, GRASS, FORESTED, GRAVEL. Totals: Total Area = 4.30, RCN = 88, S = 1.32, Q = 1.42, Rv pre = 22,118, q1-yr-pre = 9.77

Rv Dev table with columns: Landcover, CN, Area (ac). Rows: IMPERVIOUS, GRASS, FORESTED, GRAVEL. Totals: Total Area = 4.90, RCN = 94, S = 0.64, Q = 1.88, Rv dev = 33,354, q1-yr-dev = 4.80, Rv dev reduced = 33,354, q1-yr-dev <= 5.18

"RUN-ON" ENERGY BALANCE EQUATION:

01(POST) <= [01(PRE,onsite) x [RV(PRE) / RV(POST)] x IF] WHERE IF = 0.80
01(POST) <= [9.77 x [22,118 / 33,354] x 0.80]
01(POST) <= 5.18 CFS
4.80 CFS < 5.18 CFS

WATERSHED 2: NOTES & COMPUTATIONS

PRE-DEVELOPMENT WATERSHED COMPUTATIONS

Table with columns: W-2A: TOTAL PRE-DEVELOPMENT DRAINAGE AREA, A = 0.40 AC, CN = 79

Table with columns: TOTAL PRE-DEVELOPMENT VOLUME, V(1YR) = 1,217

POST-DEVELOPMENT WATERSHED COMPUTATIONS

Table with columns: W-2A: TOTAL POST-DEVELOPMENT DRAINAGE AREA, A = 0.05 AC, CN = 98

Table with columns: TOTAL POST-DEVELOPMENT VOLUME, V(1YR) = 414

NOTES:

- 1. SEE SHEETS C.23-C.24 FOR TOTAL PRE AND POST-DEVELOPMENT DRAINAGE AREA MAPS.
2. RUNOFF FROM THE SITE LIMITS IS SHEET FLOW, MEETING THE REQUIREMENTS OF 9VAC25-870-66.D.

Table with columns: 1-yr 24 Hour Storm (inches) = 2.51, Improvement Factor = 0.80

Rv Pre table with columns: Landcover, CN, Area (ac). Rows: IMPERVIOUS, GRASS, FORESTED, GRAVEL. Totals: Total Area = 0.40, RCN = 79, S = 2.68, Q = 0.84, Rv pre = 1,217

Rv Dev table with columns: Landcover, CN, Area (ac). Rows: IMPERVIOUS, GRASS, FORESTED, GRAVEL. Totals: Total Area = 0.05, RCN = 98, S = 0.20, Q = 2.28, Rv dev = 414

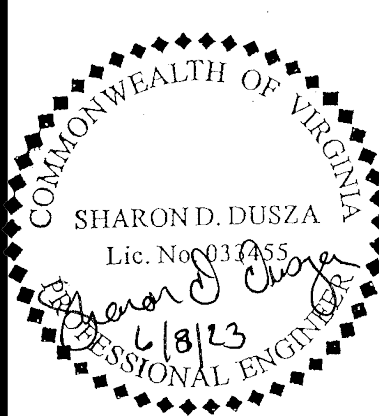
"RUN-ON" ENERGY BALANCE EQUATION:

01(POST) <= [01(PRE,onsite) x [RV(PRE,onsite) / RV(POST,onsite)] x IF] + 01(PRE,offsite)
WHERE IF = 0.80
01(POST) <= [1.14 x [3,927 / 5,324] x 0.80] + 1.71
01(POST) <= 2.38 CFS
2.38 CFS < 2.38 CFS

PRINCE WILLIAM COUNTY STORMWATER MANAGEMENT FACT SHEET - UGDF. Table with columns: SWM FACILITY INFORMATION, DESIGN INFORMATION (\*), MISCELLANEOUS. Includes fields for Basin Name, Subbasin #, Stream Name, Drainage Area, Avg. Basin Slope, Type of Facility, PWC File #, Development Name, GPIN, Magisterial District, Was a Floodplain Study Prepared, If Yes, File #, Facility Designed by.



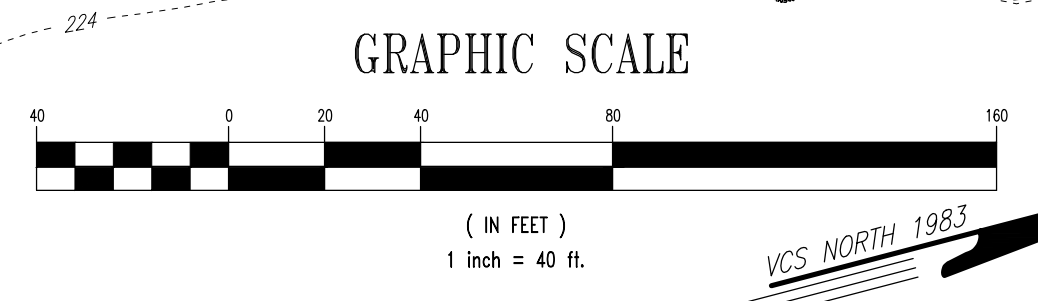
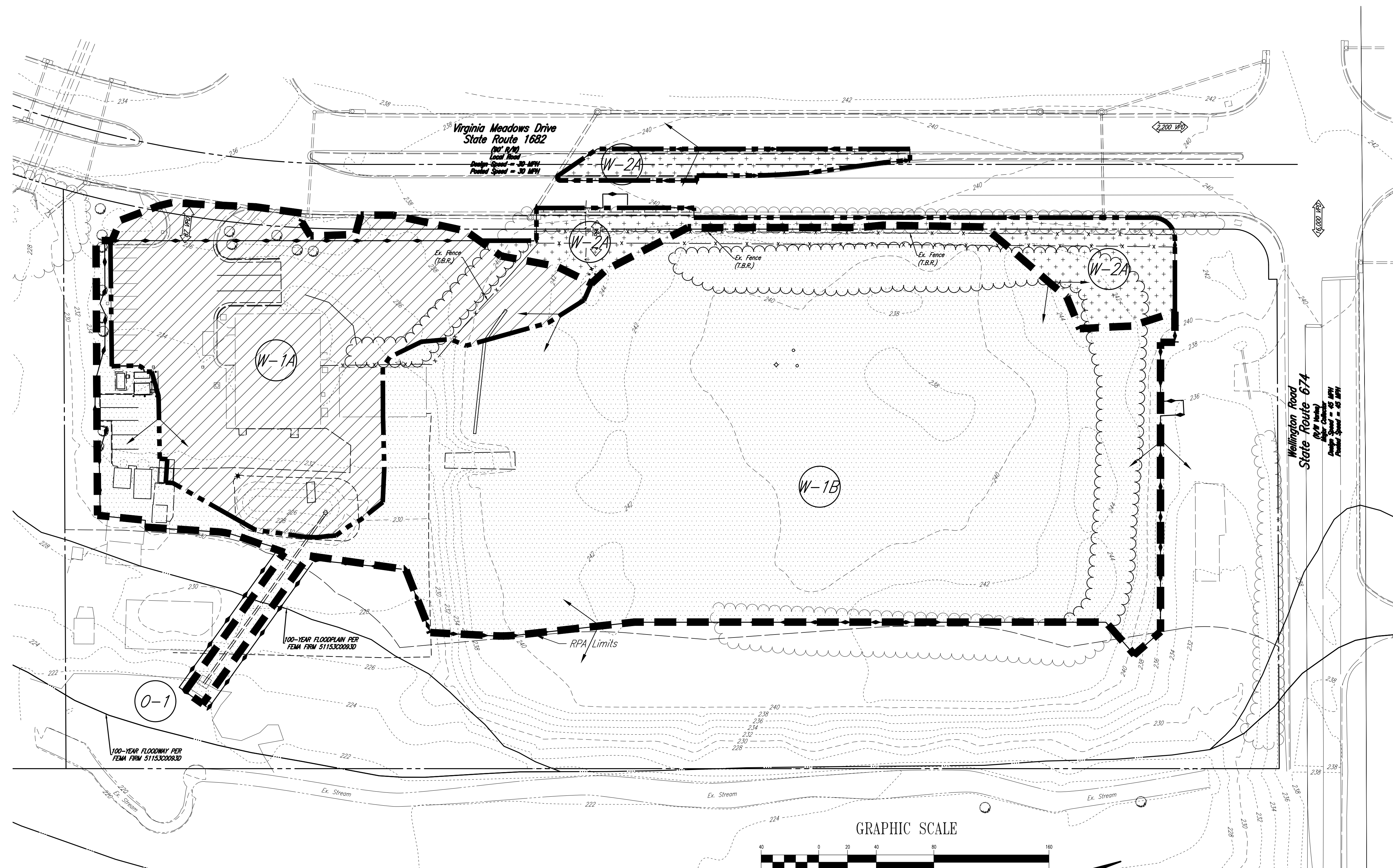
Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdcivil.com
Engineering \* Surveying \* Transportation \* Environmental Services



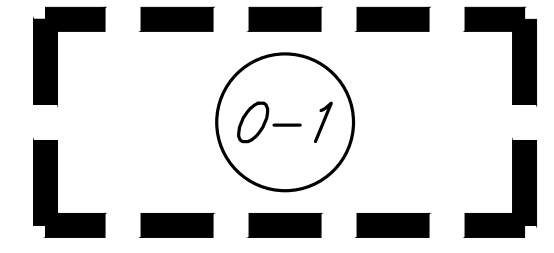
SWM & BMP NARRATIVE
WELLINGTON ROAD OPERATIONS CENTER EXPANSION
BRENTSVILLE, VIRGINIA
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS table with columns for revision number, description, and date.

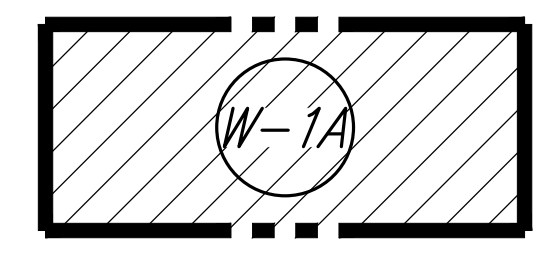
Project metadata table including: PLAN DATE: OCTOBER 7, 2022; DESIGN BY: AG/SAW; CHECKED BY: SSD; ARCHITECT/MOSELEY ARCH; JURISDICTIONAL PLAN NO. SPR2023-00185; RDA PLAN #: 19001-008; SHEET NUMBER: C.22



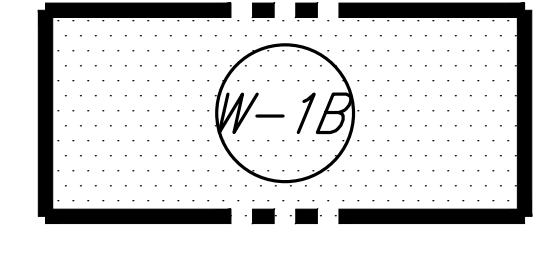
WATERSHED #1/OUTFALL #1



OUTFALL 1 AREA = 4.30 ACRES  
 CN = 88  
 C = 0.55

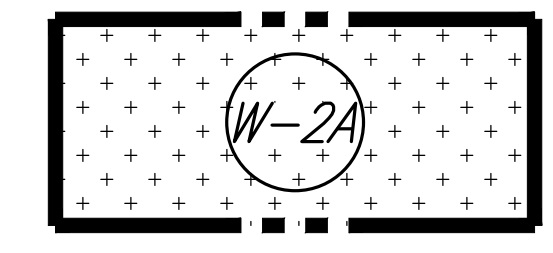


CONTROLLED AREA  
 AREA = 1.05 ACRES  
 IMPERVIOUS AREA = 0.50 ACRES  
 GRASS AREA = 0.45 ACRES  
 GRAVEL AREA = 0.05 ACRES  
 FORESTED AREA = 0.05 ACRES  
 CN = 89  
 C = 0.60



DISTURBED UN-CONTROLLED AREA  
 AREA = 3.25 ACRES  
 IMPERVIOUS AREA = 0.10 ACRES  
 GRASS AREA = 0.45 ACRES  
 GRAVEL AREA = 2.35 ACRES  
 FORESTED AREA = 0.35 ACRES  
 CN = 88  
 C = 0.55

WATERSHED #2



DISTURBED UN-CONTROLLED AREA  
 AREA = 0.40 ACRES  
 IMPERVIOUS AREA = 0.00 ACRES  
 GRASS AREA = 0.25 ACRES  
 GRAVEL AREA = 0.00 ACRES  
 FORESTED AREA = 0.15 ACRES  
 CN = 79  
 C = 0.30

**"THIS SHEET IS FOR  
 PRE DEVELOPMENT DRAINAGE  
 DIVIDE AND WATERSHED  
 INFORMATION PURPOSES ONLY!!!"**



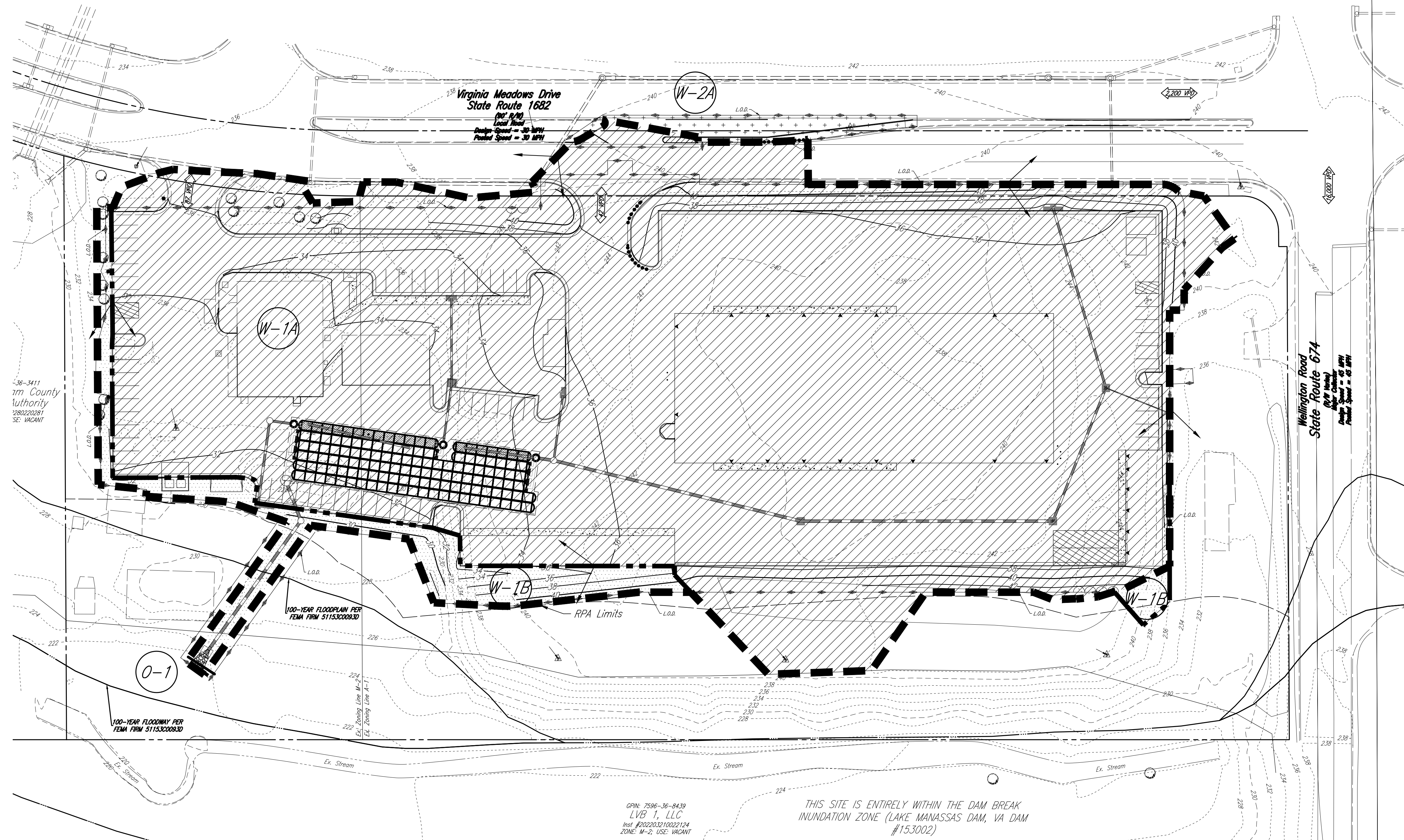
**Rinker Design Associates, P.C.**  
 11100 Endeavor Court, Suite 200, Manassas, VA 20109  
 Telephone: (703) 368-7373 www.rdacivil.com  
 Engineering \* Surveying \* Transportation \* Environmental Services



DRAINAGE MAP -  
 PRE-DEVELOPMENT  
**WELLINGTON ROAD OPERATIONS  
 CENTER EXPANSION**  
 BRENTSVILLE,  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:


PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.23



36-3411  
m County  
Authority  
290220281  
SE- VACANT

Virginia Meadows Drive  
State Route 1682  
Local Road  
Design Speed = 30 MPH  
Posted Speed = 30 MPH

Wellington Road  
State Route 674  
Local Road  
Design Speed = 30 MPH  
Posted Speed = 30 MPH

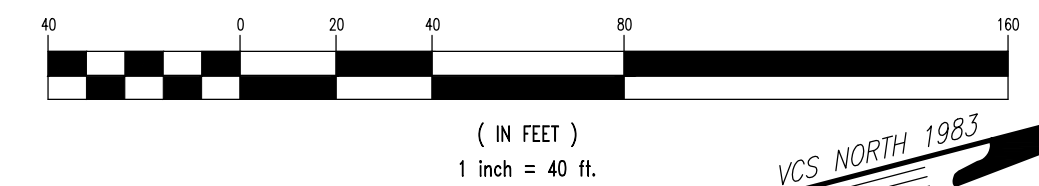
100-YEAR FLOODPLAIN PER  
FEMA FIRM 511530003D

0-1  
100-YEAR FLOODPLAIN PER  
FEMA FIRM 511530003D

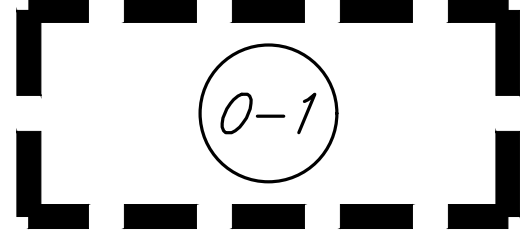
OPIN: 7596-36-8439  
LVB T, LLC  
Incl #R2020310002124  
ZONE: W-2, USE: VACANT

THIS SITE IS ENTIRELY WITHIN THE DAM BREAK  
INUNDATION ZONE (LAKE MANASSAS DAM, VA DAM  
#153002)

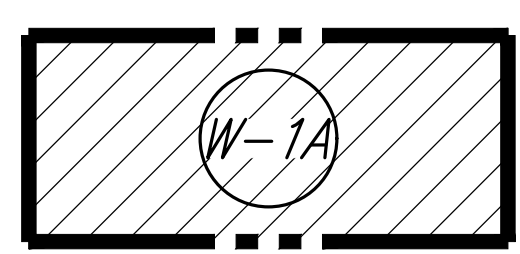
GRAPHIC SCALE



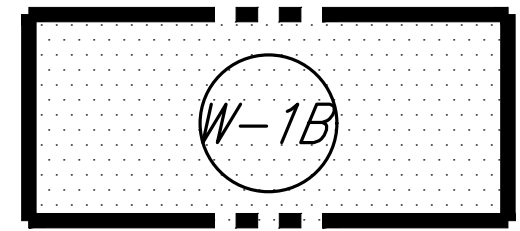
WATERSHED #1/OUTFALL #1



OUTFALL 1 AREA = 4.90 ACRES  
CN = 94  
C = 0.80

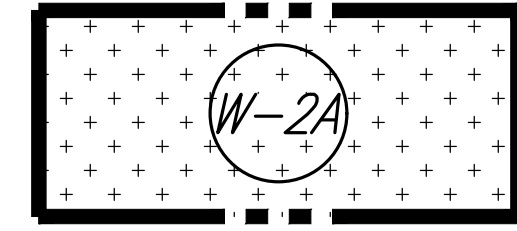


CONTROLLED AREA  
AREA = 4.60 ACRES  
IMPERVIOUS AREA = 3.75 ACRES  
GRASS AREA = 0.85 ACRES  
GRAVEL AREA = 0.00 ACRES  
FORESTED AREA = 0.00 ACRES  
CN = 95  
C = 0.80



DISTURBED UN-CONTROLLED AREA  
AREA = 0.30 ACRES  
IMPERVIOUS AREA = 0.05 ACRES  
GRASS AREA = 0.25 ACRES  
GRAVEL AREA = 0.00 ACRES  
FORESTED AREA = 0.00 ACRES  
CN = 92  
C = 0.55

WATERSHED #2

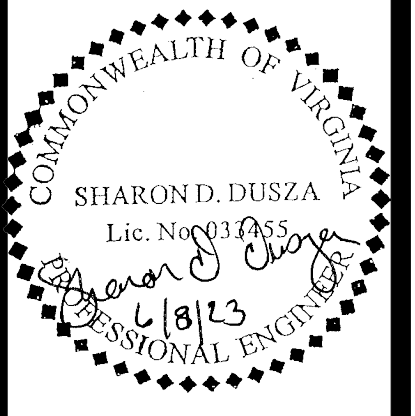


DISTURBED UN-CONTROLLED AREA  
AREA = 0.05 ACRES  
IMPERVIOUS AREA = 0.05 ACRES  
GRASS AREA = 0.00 ACRES  
GRAVEL AREA = 0.00 ACRES  
FORESTED AREA = 0.00 ACRES  
CN = 98  
C = 0.90

**"THIS SHEET IS FOR  
POST DEVELOPMENT DRAINAGE  
DIVIDE AND WATERSHED  
INFORMATION PURPOSES ONLY!!!"**



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DRAINAGE MAP -  
POST-DEVELOPMENT  
**WELLINGTON ROAD OPERATIONS  
CENTER EXPANSION**  
BRENTSVILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:

PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.24

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER:	JIM CLARK 240-463-0124 JAMES.CLARK@ADSPIPE.COM
ADS SALES REP:	TIM GIMPLE 540-235-4519 TIM.GIMPLE@ADSPIPE.COM
PROJECT NO:	S319653



# WELLINGTON ROAD OPERATIONS CENTER EXPANSION

## MANASSAS, VA

### MC-3500 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH MC-3500.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
  - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
  - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
  - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

### IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

- STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
  - STONESHOOTER LOCATED OFF THE CHAMBER BED.
  - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
  - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
- INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
- STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

### NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
  - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
  - NO RUBBER Tired LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
  - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

**USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.**

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



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STORMTECH FACILITY DETAILS  
 WELLINGTON ROAD OPERATIONS CENTER EXPANSION  
 BREWSTERVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:


PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AG/S/AW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.25

**PROPOSED LAYOUT**

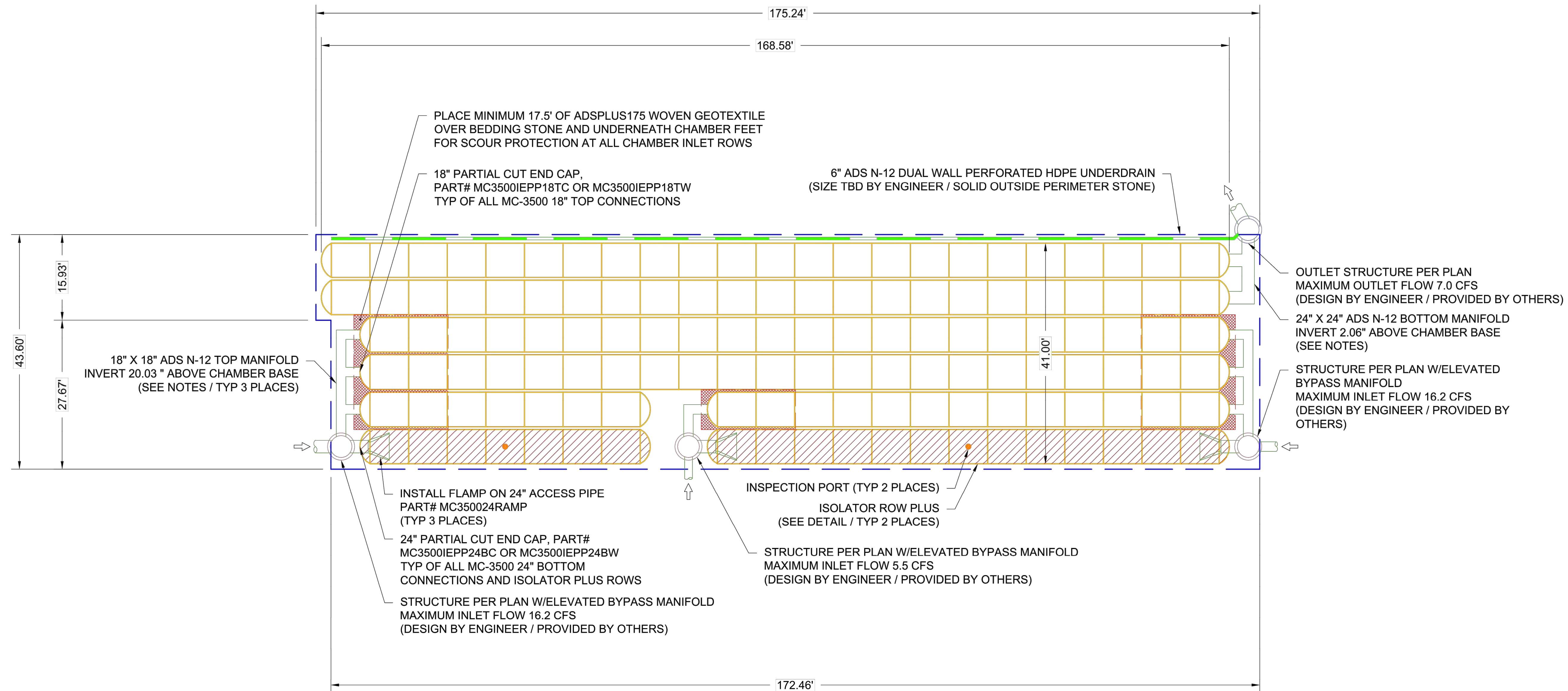
130	STORMTECH MC-3500 CHAMBERS
16	STORMTECH MC-3500 END CAPS
12	STONE ABOVE (in)
21	STONE BELOW (in)
40	% STONE VOID
7564	SYSTEM AREA (ft <sup>2</sup> )
438	SYSTEM PERIMETER (ft)

**PROPOSED ELEVATIONS**

236.80	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
230.80	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
230.30	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
230.30	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
230.30	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
229.80	TOP OF STONE
228.80	TOP OF MC-3500 CHAMBER
226.72	18" TOP MANIFOLD INVERT
225.22	24" ISOLATOR ROW PLUS CONNECTION INVERT
225.22	24" BOTTOM MANIFOLD INVERT
225.05	BOTTOM OF MC-3500 CHAMBER
223.30	UNDERDRAIN INVERT
223.30	BOTTOM OF STONE

**NOTES**

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECHNICAL NOTE 6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.



WELLINGTON ROAD OPERATIONS CENTER EXPANSION	
DATE:	10/06/22
DRAWN:	DDW
PROJECT #:	S319653
CHECKED:	XXX

10-12-22	DHC	N/A	ADJUSTED ELEVATIONS	DESCRIPTION
	DRWN	CHKD		

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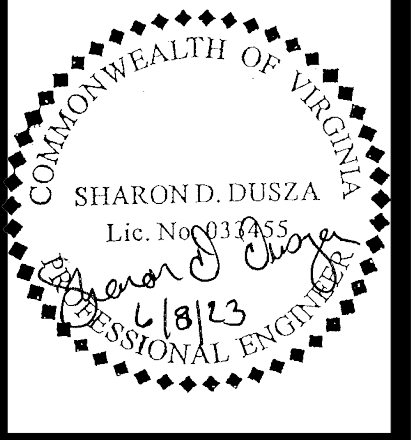
4640 TRUEEMAN BLVD  
HILLIARD, OH 43026

0 20' 40'

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STORMTECH FACILITY DETAILS  
WELLINGTON ROAD OPERATIONS CENTER EXPANSION  
BRENTSVILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:

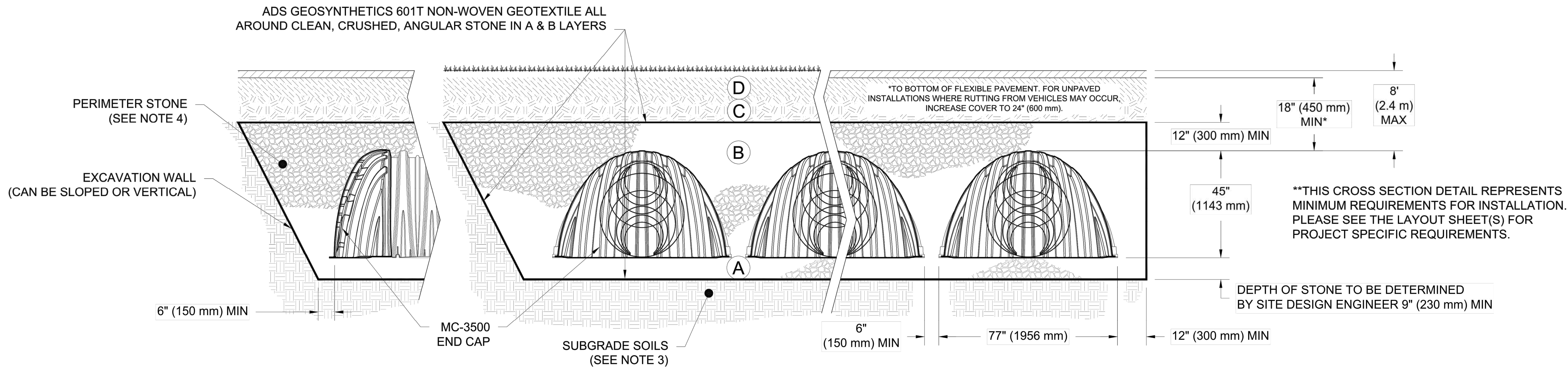

PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.26

### ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	<b>FINAL FILL:</b> FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	<b>INITIAL FILL:</b> FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145 <sup>1</sup> A-1, A-2-4, A-3  OR AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	<b>EMBEDMENT STONE:</b> FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE  AASHTO M43 <sup>1</sup> 3, 4	NO COMPACTION REQUIRED.
A	<b>FOUNDATION STONE:</b> FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE  AASHTO M43 <sup>1</sup> 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. <sup>2,3</sup>

**PLEASE NOTE:**

- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
- WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



**NOTES:**

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
- MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

WELLINGTON ROAD OPERATIONS CENTER EXPANSION  
MANASSAS, VA

DATE: 10/06/22 DRAWN: DDW  
PROJECT #: S319653 CHECKED: XXX

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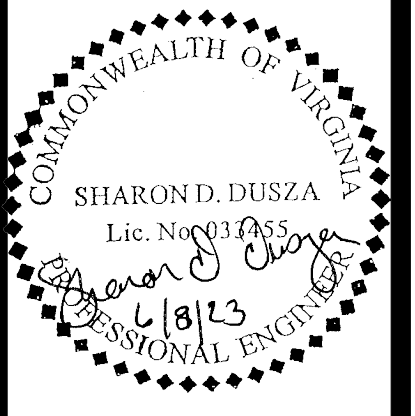
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3 SHEET OF 5

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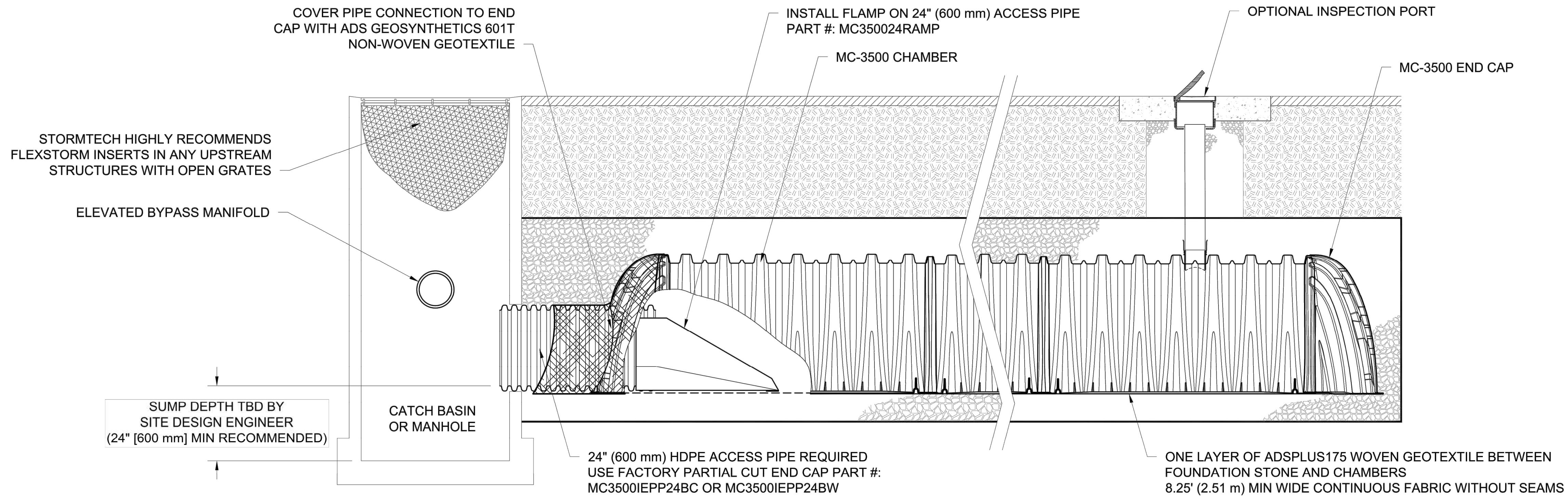


STORMTECH FACILITY DETAILS  
WELLINGTON ROAD OPERATIONS CENTER EXPANSION  
BRENTSVILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:

PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.27





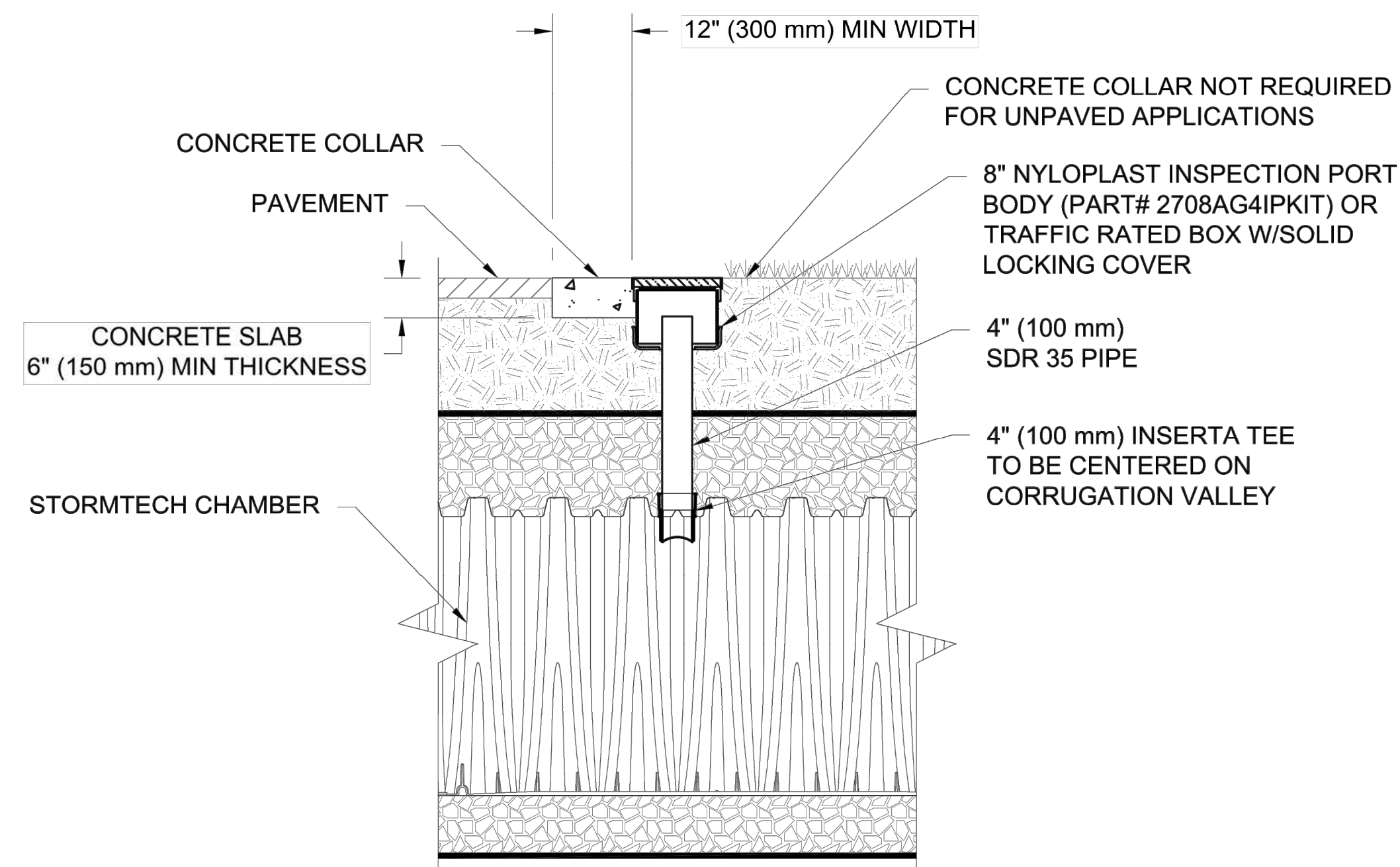
**MC-3500 ISOLATOR ROW PLUS DETAIL**  
NTS

**INSPECTION & MAINTENANCE**

- STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
    - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
    - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
    - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
    - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
    - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
  - B. ALL ISOLATOR PLUS ROWS
    - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
    - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
      - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
      - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
    - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
  - B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
  - C. VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

**NOTES**

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



NOTE:  
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

**4" PVC INSPECTION PORT DETAIL**  
**(MC SERIES CHAMBER)**  
NTS

WELLINGTON ROAD OPERATIONS CENTER EXPANSION		MANASSAS, VA	
DATE:	10/06/22	DRAWN:	DDW
PROJECT #:	S319653	CHECKED:	XXX
DHC	N/A	ADJUSTED ELEVATIONS	DESCRIPTION
10-12-22	DRWN	CHKD	
StormTech® Chamber System		888-892-2894   WWW.STORMTECH.COM	
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4		SHEET OF 5	

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SHAROND DUSZKA  
Lic. No. 011435  
PROFESSIONAL ENGINEER

STORMTECH FACILITY DETAILS

**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**

BRENSVILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:


PLAN DATE: OCTOBER 7, 2022

DESIGN BY: AG/SAW

CHECKED BY: SSD

ARCHITECT: MOSELEY ARCH

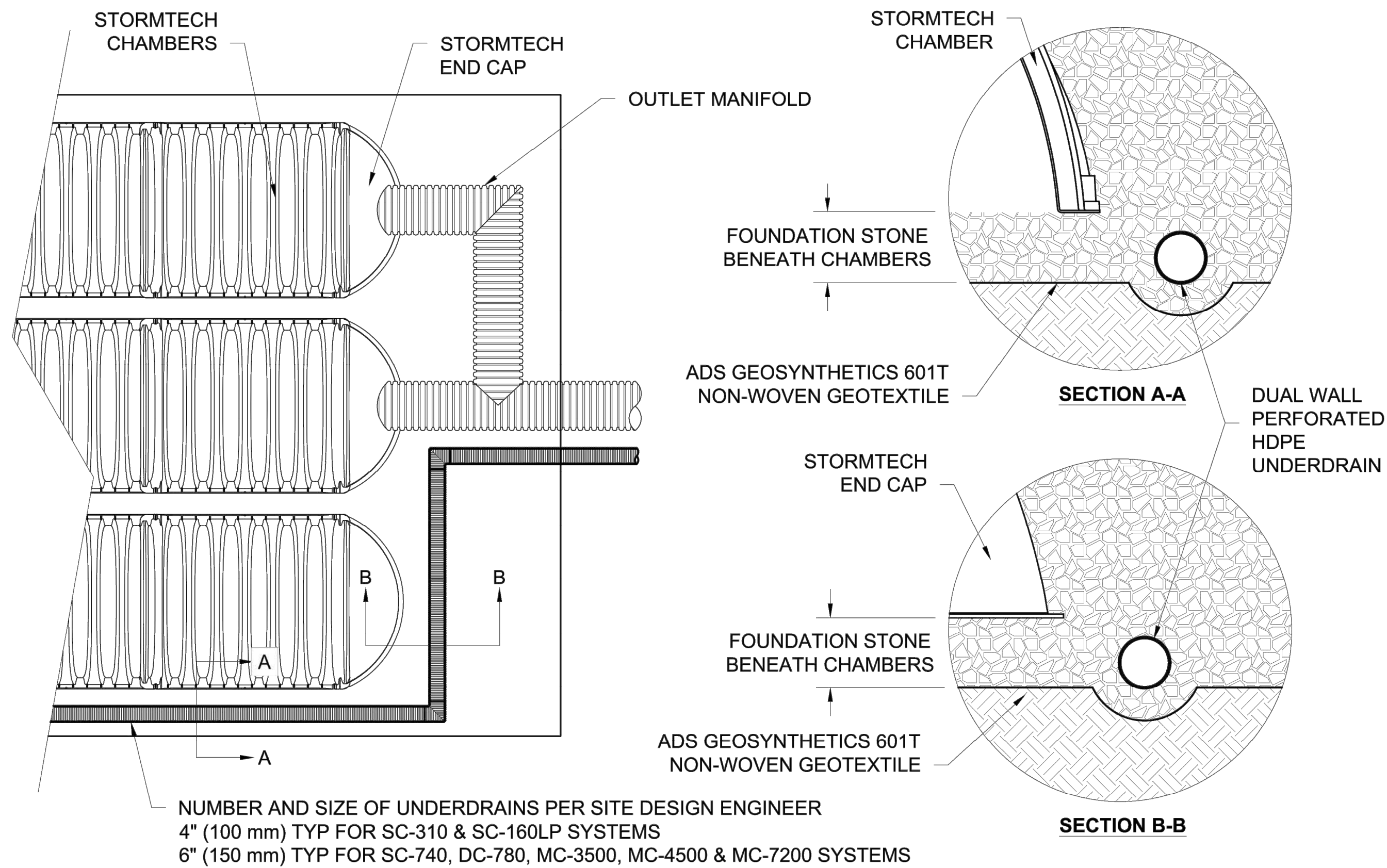
JURISDICTIONAL PLAN NO. SPR2023-00185

RDA PLAN #: 19001-008

SHEET NUMBER: C.28

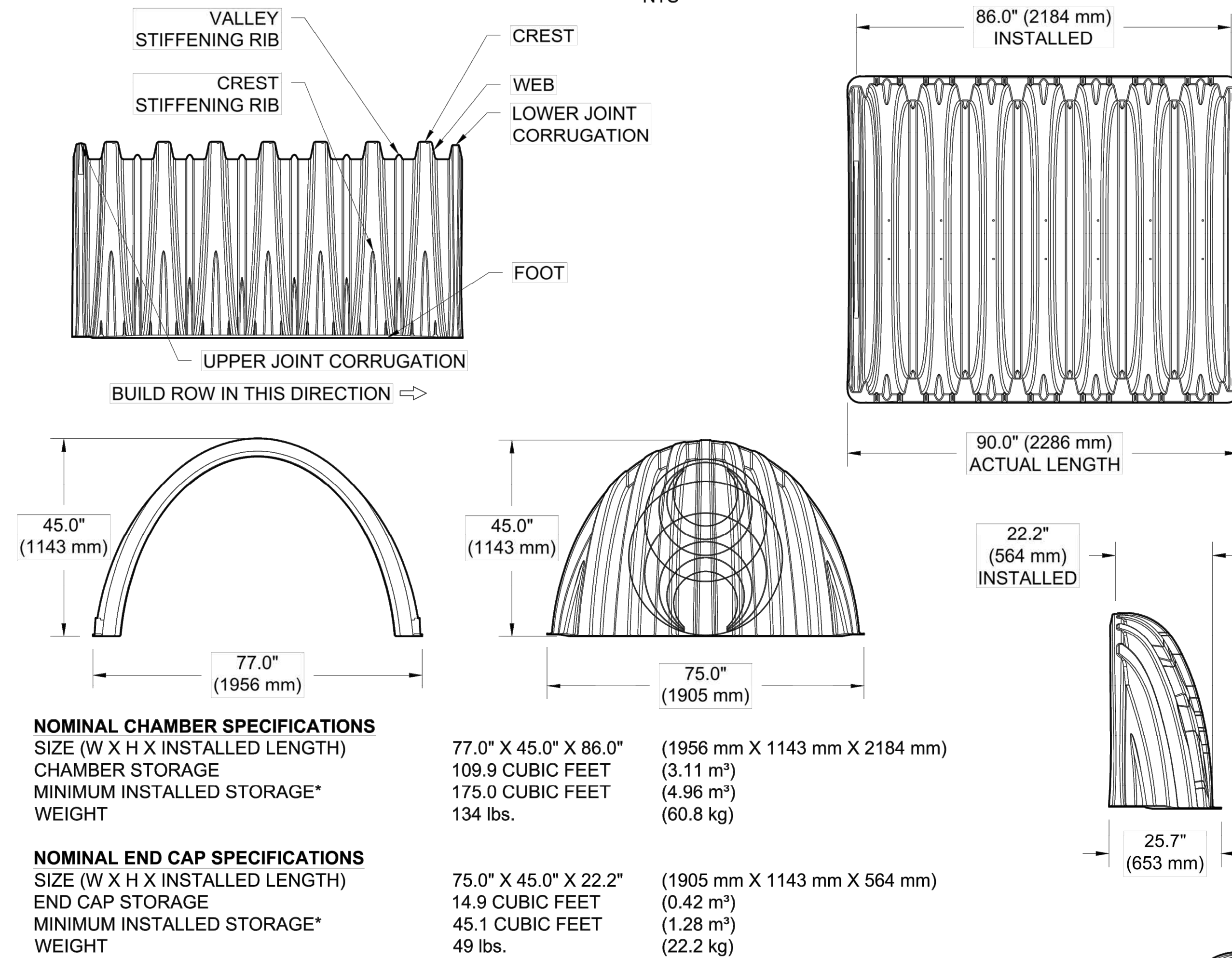
**UNDERDRAIN DETAIL**

NTS



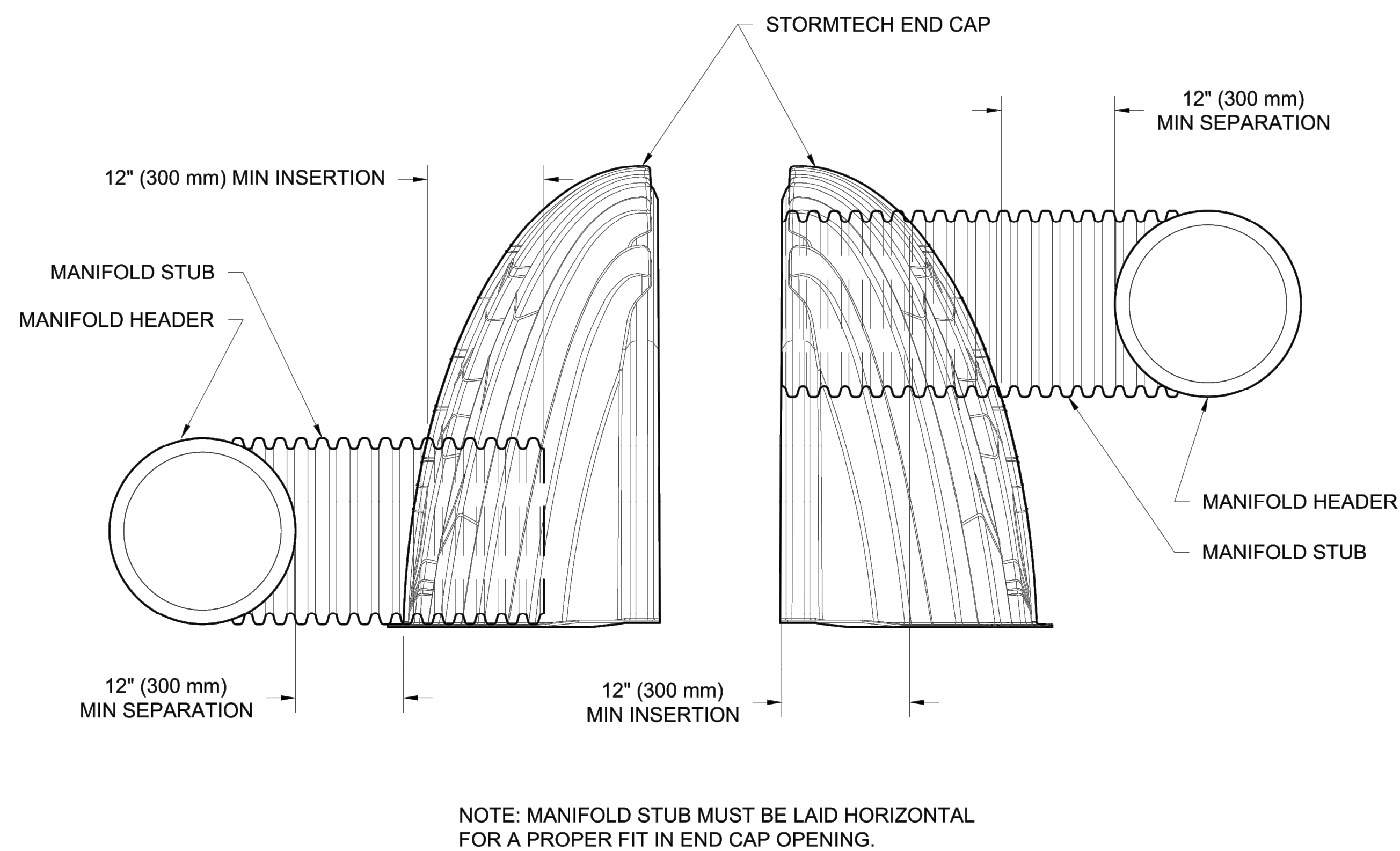
**MC-3500 TECHNICAL SPECIFICATION**

NTS



**MC-SERIES END CAP INSERTION DETAIL**

NTS



\*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" (152 mm) STONE BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"  
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"  
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"  
END CAPS WITH A WELDED CROWN PLATE END WITH "C"

PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B	---	---	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B	---	---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B	---	---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B	---	---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B	---	---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW	---	---	1.77" (45 mm)
MC3500IEPP18BC	---	---	---
MC3500IEPP18BW	---	---	---
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW	---	---	2.06" (52 mm)
MC3500IEPP24BC	---	---	---
MC3500IEPP24BW	---	---	---
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

WELLINGTON ROAD OPERATIONS CENTER EXPANSION  
MANASSAS, VA

DATE: 10/06/22 DRAWN: DDW  
PROJECT #: S319653 CHECKED: XXX

StormTech® Chamber System  
888-892-2894 | WWW.STORMTECH.COM

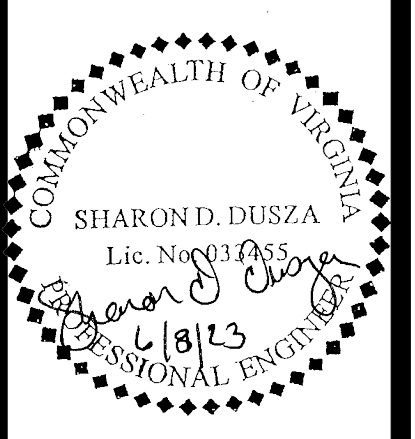
4640 TRUEMAN BLVD  
HILLIARD, OH 43026

ADS

5 SHEET OF 5



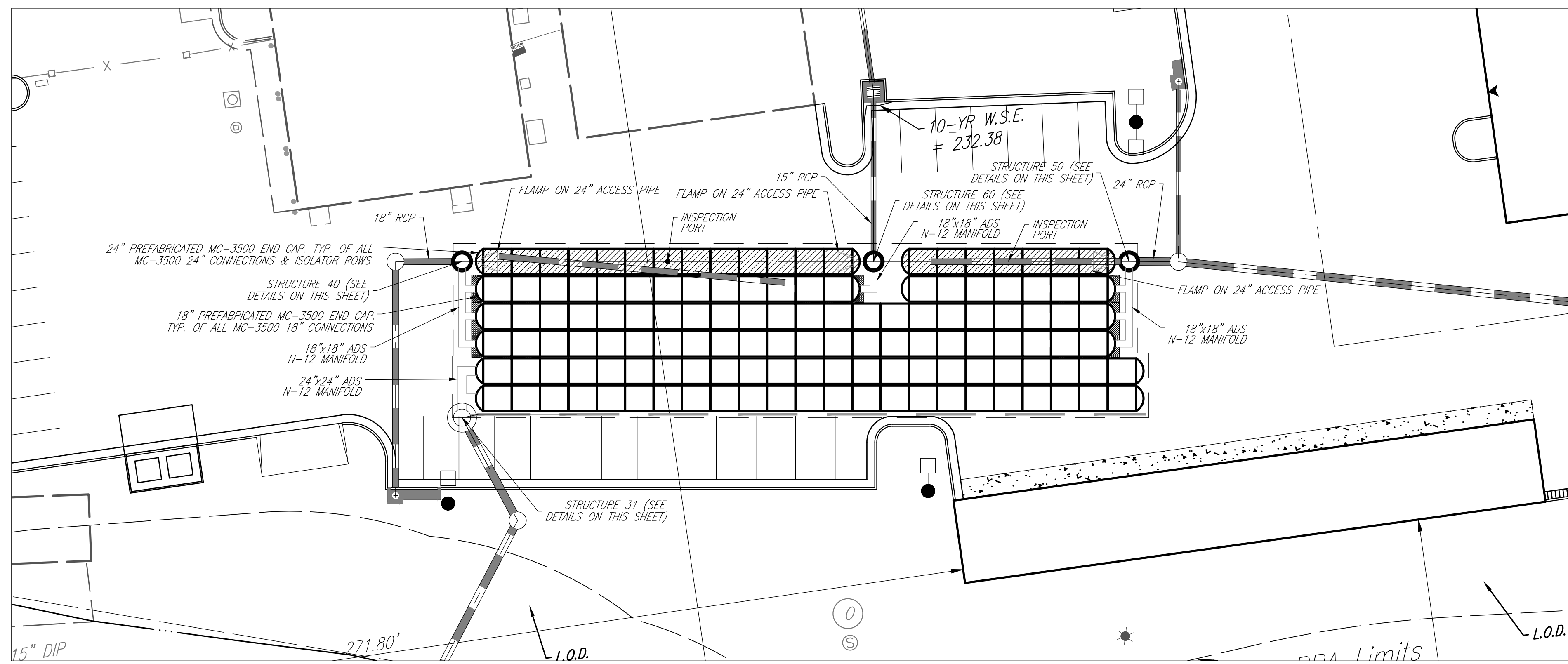
**Rinker Design Associates, P.C.**  
11100 Endeavor Court, Suite 200, Manassas, VA 20109  
Telephone: (703) 368-7373 www.rdacivil.com  
Engineering \* Surveying \* Transportation \* Environmental Services



STORMTECH FACILITY DETAILS  
WELLINGTON ROAD OPERATIONS CENTER EXPANSION  
BRENTSVILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:

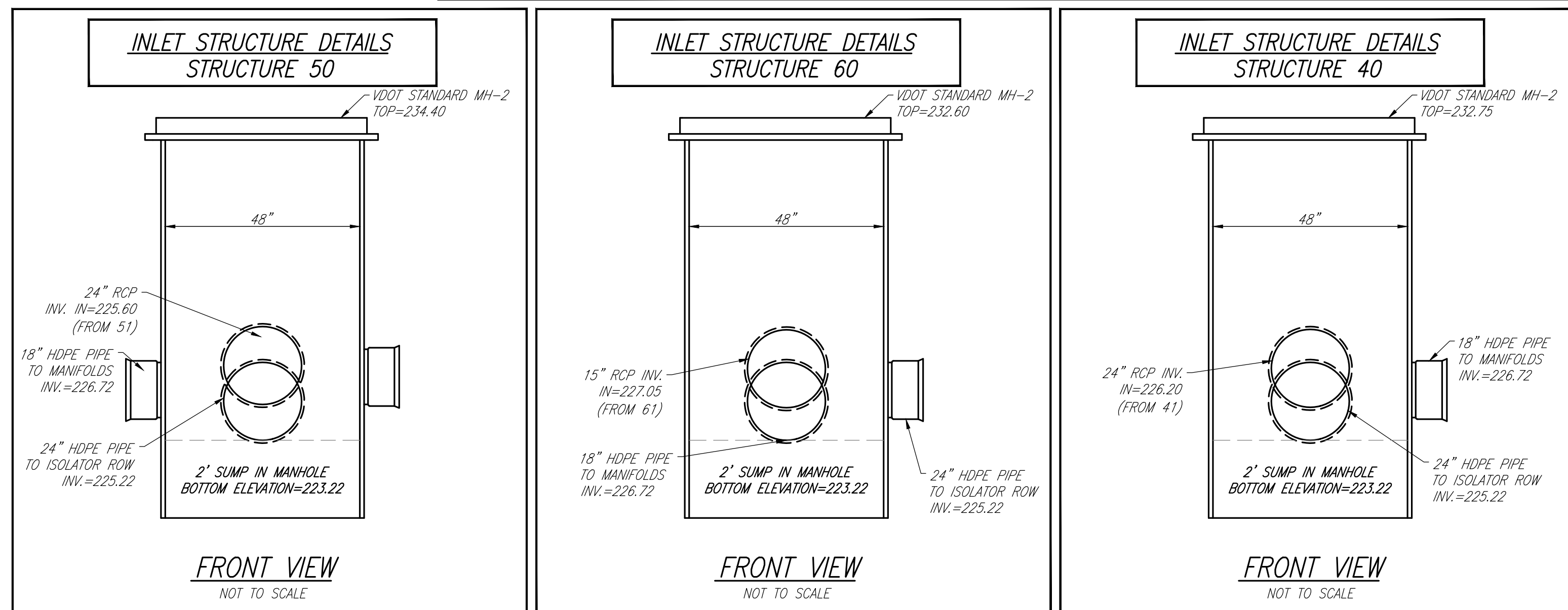
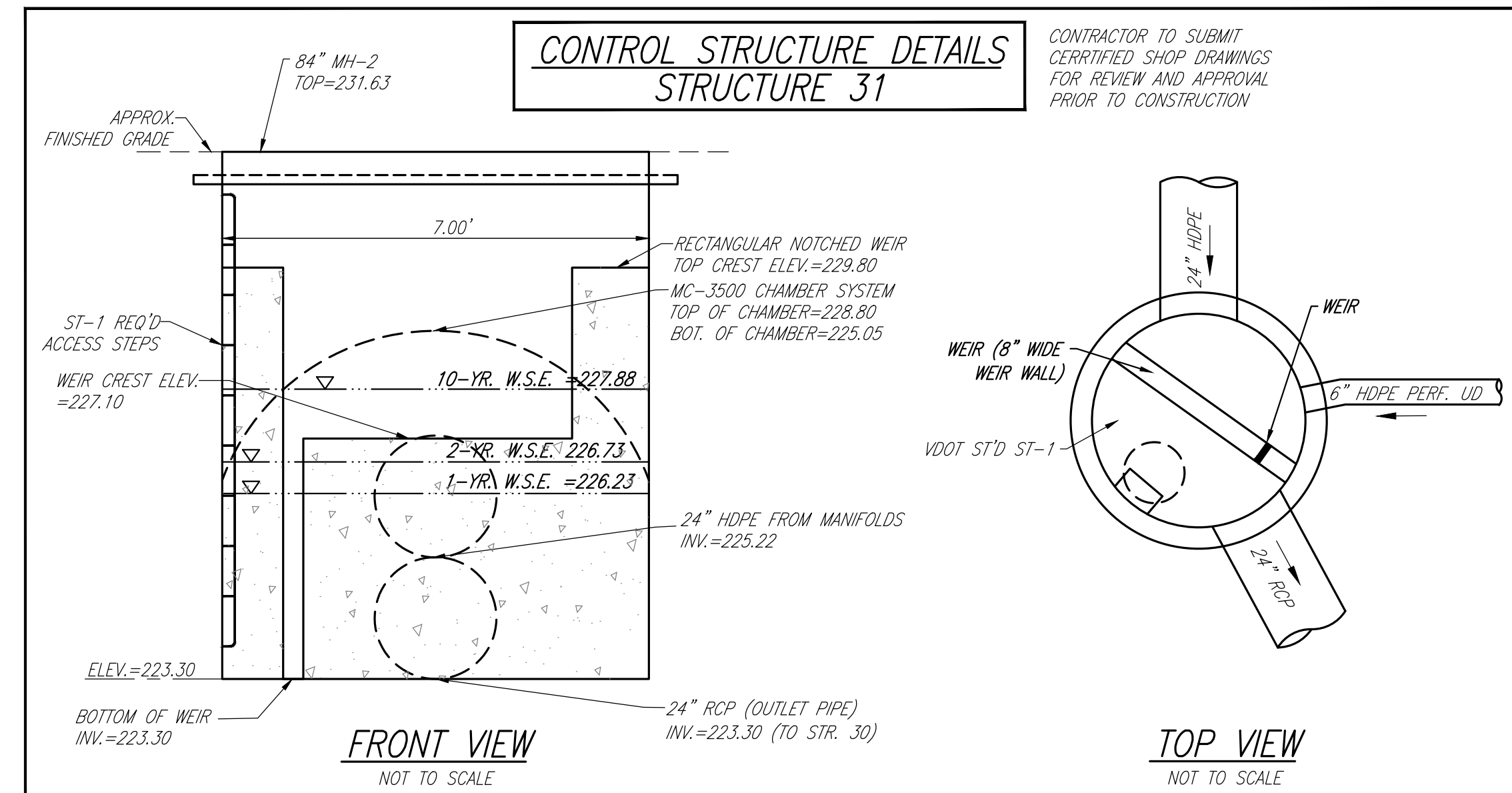
PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.29



**SWM FACILITY 1**  
(SCALE: 1"=10')

NOTE: CONTRACTOR TO CLEAN OUT ADS STORMTECH SYSTEM PRIOR TO CONSTRUCTION CLOSEOUT.

SWM FACILITY #1							
BMP ISOLATOR ROW SIZING COMPUTATIONS (MC3500)							
REQUIRED: 1 CHAMBER PER 0.24 CFS							
INFLOW STRUCTURES	SUB-WATERSHEDS	DA (AC.)	IMPERVIOUS (AC.)	CN	1" BMP FLOW CFS	CHAMBERS REQUIRED	CHAMBERS PROVIDED
50	SW1A	2.55	2.05	94	6.26	26.1	48
60	SW1B	0.95	0.60	91	0.54	2.3	9
40	SW1C	1.10	1.05	97	X.XX	#VALUE!	



NOTE: THE PROPOSED SWM/BMP FACILITIES WILL BE PRIVATELY MAINTAINED BY PWCSA

**NOTES**

- INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
- CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

**INSPECTION & MAINTENANCE**

- STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- INSPECTION PORTS
    - REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
    - REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
    - USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
    - LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS
    - IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
  - ALL ISOLATOR ROWS
    - REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
    - USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
      - MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
      - FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
    - IF SEDIMENT IS AT, OR ABOVE 3" (80 mm) PROCEED TO STEP 2, IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
  - APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAR
  - VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS, RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.



January 16, 2023

Sharon Dusza  
Director of Utilities/Principal  
Rinker Design Associates  
11400 Commerce Park Drive, Suite 400  
Reston, VA

Re: Wellington Ops Center - StormTech Review Letter

Ms. Dusza:

Advanced Drainage Systems has reviewed the plans for this project dated 11.8.22. We have reviewed the design and found it meets the fill height min/max requirements for the MC3500 Chambers in accordance with AASHTO LFRD 12.12 and required by Prince William County. The Chambers have also been designed in accordance with ASTM F2787, "Standard Practice for Structural Design of Thermoplastic Corrugated Wall Stormwater Collection Chambers"

The Chambers supplied for this project shall meet ASTM F2418-16 "Standard Specification for Polypropylene Corrugated Wall Stormwater Collection Chambers", with Designation SS.

The Isolator Row Plus for this system have been designed for maintenance but also in accordance with DEQ requirements for phosphorus removal.

Advanced Drainage Systems will hold a preconstruction meeting in accordance with Prince William County requirements once delivery of material to the project is made and provide periodic site visits during construction.

Thank you for using ADS.

Sincerely,

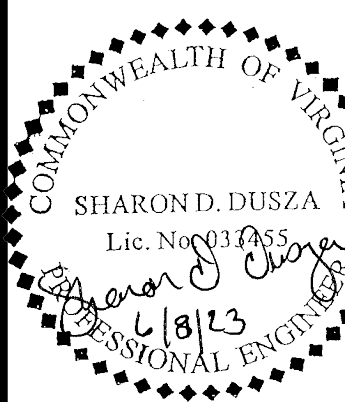
James M. Clark, P.E.  
Sales Engineer

Our reason is water.™

Advanced Drainage Systems, Inc. • 6840 Truman Boulevard, Hilliard, OH 43026 • Tel (614) 898-0050 • <http://www.ads.com>



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Telephone: (703) 368-7373 [www.rdacivil.com](http://www.rdacivil.com)  
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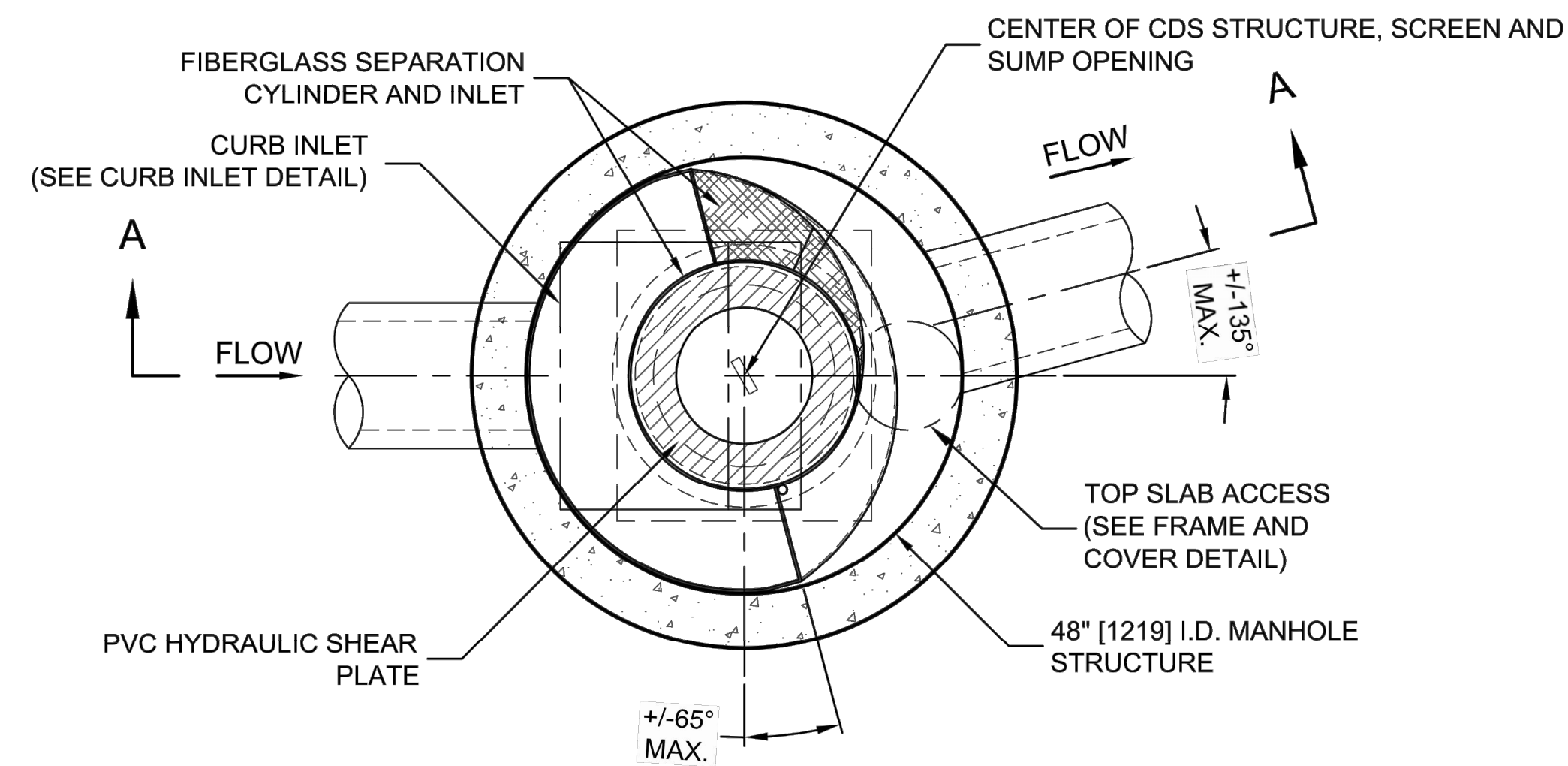
**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
SWM DETAILS  
BRENTSVILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

**REVISIONS:**

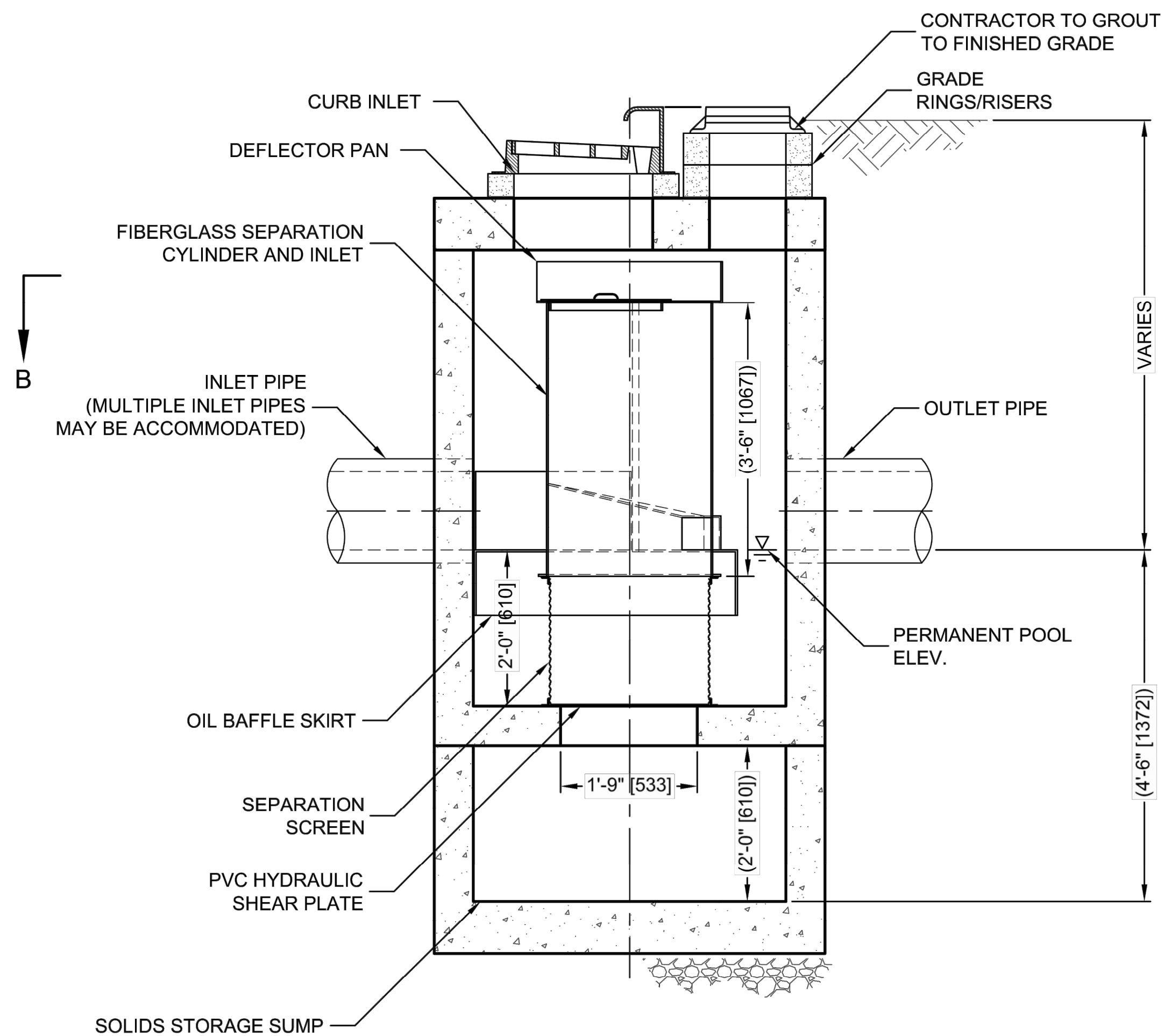
NO.	DESCRIPTION

PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.30

# STORM STRUCTURE 56



**PLAN VIEW B-B**  
N.T.S.

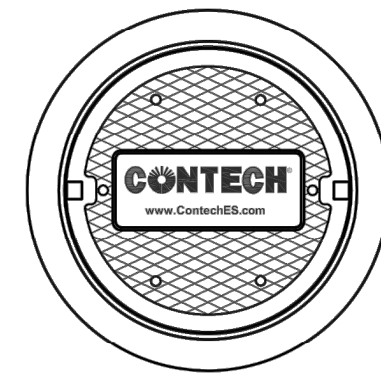


**ELEVATION A-A**  
N.T.S.

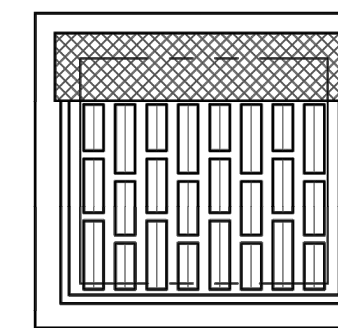


THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,788,848; 5,841,411; 5,981,782. RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

CDS2015-4-C DESIGN NOTES	
CDS2015-4-C RATED TREATMENT CAPACITY IS 0.7 CFS [19.8 L/s], OR PER LOCAL REGULATIONS. MAXIMUM HYDRAULIC INTERNAL BYPASS CAPACITY IS 10.0 CFS [283 L/s]. IF THE SITE CONDITIONS EXCEED 10.0 [283 L/s] CFS, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.	
THE STANDARD CDS2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.	
CONFIGURATION DESCRIPTION	
GRATED INLET ONLY (NO INLET PIPE)	
GRATED INLET WITH INLET PIPE OR PIPES	
CURB INLET ONLY (NO INLET PIPE)	
CURB INLET WITH INLET PIPE OR PIPES	
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)	
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS	



**FRAME AND COVER**  
(DIAMETER VARIES)  
N.T.S.



**FRAME AND GRATE**  
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS			
STRUCTURE ID	56		
WATER QUALITY FLOW RATE (CFS OR L/s)	*		
PEAK FLOW RATE (CFS OR L/s)	*		
RETURN PERIOD OF PEAK FLOW (YRS)	*		
SCREEN APERTURE (2400 OR 4700)	*		
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	228.75	RCP	15"
RIM ELEVATION	235.75		
ANTI-FLOTATION BALLAST	WIDTH	HEIGHT	
	*	*	
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

**GENERAL NOTES**

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. [www.ContechES.com](http://www.ContechES.com)
- CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
- PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

**INSTALLATION NOTES**

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
- CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

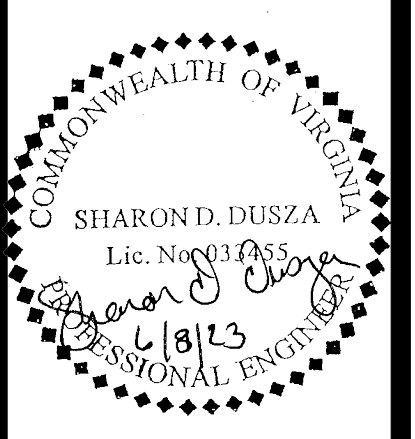
**CONTECH**  
ENGINEERED SOLUTIONS LLC  
www.ContechES.com  
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069  
800-338-1122 513-645-7000 513-645-7993 FAX

CDS2015-4-C WITH CURB INLET  
INLINE CDS  
STANDARD DETAIL

OR APPROVED EQUAL



**Rinker Design Associates, P.C.**  
11100 Endeavor Court, Suite 200, Manassas, VA 20109  
Telephone: (703) 368-7373 [www.rdacivil.com](http://www.rdacivil.com)  
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HYDRODYNAMIC SEPARATOR DETAIL  
**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
BRENTSVILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:


PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.31

SWM COMPUTATIONS - INPUT DATA

Type... Outlet Input Data Page 163
Name... Weir and Culvert
File... C:\Users\draimage\1\AppData\Local\Temp\Bentley\PondPack\tmp.ppk

REQUESTED POND WS ELEVATIONS:

Min. Elev. = 223.30 ft
Increment = .50 ft
Max. Elev. = 229.80 ft

OUTLET CONNECTIVITY

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Table with columns: Structure, No., Outfall, E1, ft, E2, ft. Lists Irregular Weir, Culvert-Circular, and Tailwater Settings.

OUTLET STRUCTURE INPUT DATA

Structure ID = Weir - 1
Structure Type = Irregular Weir

# of Openings = 1
WEIR X-Y GROUND POINTS

Table with columns: X, ft, Elev, ft. Lists ground points for the weir structure.

Lowest Elev. = 223.30 ft

Weir Coeff. = 3.000000

Weir TW effects (Use adjustment equation)

OUTLET STRUCTURE INPUT DATA

Structure ID = Culvert - 1
Structure Type = Culvert-Circular

No. Barrels = 1
Barrel Diameter = 2.0000 Ft
Upstream Invert = 223.30 ft
Dnstream Invert = 221.90 ft
Horiz. Length = 146.98 ft
Barrel Length = 146.99 ft
Barrel Slope = .00953 Ft/Ft

OUTLET CONTROL DATA

Manning's n = .0120
Ke = .2000 (Forward entrance loss)
Kb = .010575 (per ft of Full Flow)
Kr = .2000 (reverse entrance loss)
HW Convergence = .001 +/- ft

INLET CONTROL DATA

Equation Form = 1
Inlet Control K = .0045
Inlet Control M = 2.0000
Inlet Control N = .03170
Inlet Control Y = .6900
T1 ratio (HW/D) = .000
T2 ratio (HW/D) = 1.192
Slope Factor = -.500

Use unsubmerged inlet control Form I equ. below T1 elev.
Use submerged inlet control Form I equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...
At T1 Elev = 223.30 ft --> Flow = 15.55 cfs
At T2 Elev = 225.68 ft --> Flow = 17.77 cfs

INDIVIDUAL OUTLET RATING TABLES

Type... Individual Outlet Curves Page 167
Name... Weir and Culvert
File... C:\Users\draimage\1\AppData\Local\Temp\Bentley\PondPack\tmp.ppk

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = Weir - 1 (Irregular Weir)
Upstream ID = (Pond Water Surface)
Dnstream ID = Culvert - 1 (Culvert-Circular)

Main rating table with columns: Pond WS, Elev, Device, (into), Converge, Next, DS HGL, Q SUM, DS Chan, TW, Error. Lists various flow conditions and ratings.

INDIVIDUAL OUTLET RATING TABLES CONT'D

Type... Individual Outlet Curves Page 168
Name... Weir and Culvert
File... C:\Users\draimage\1\AppData\Local\Temp\Bentley\PondPack\tmp.ppk

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = Culvert - 1 (Culvert-Circular)

Manning's open channel maximum capacity: 25.73 cfs
UPstream ID = Weir - 1 (Irregular Weir)
DNstream ID = TW (Pond Outfall)

Continuation of rating table with columns: Pond WS, Elev, Device, (into), Converge, Next, DS HGL, Q SUM, DS Chan, TW, Error. Lists various flow conditions and ratings.

VOLUME RATING TABLE

Type... Elevation vs. Volume Curve Page 160
Name... SWM-3500
File... C:\Users\draimage\1\AppData\Local\Temp\Bentley\PondPack\tmp.ppk

USER DEFINED VOLUME RATING TABLE

Table with columns: Elevation (ft), Volume (ac-ft). Shows cumulative volume for various elevations.

COMPOSITE RATING CURVE

Type... Composite Rating Curve Page 166
Name... Weir and Culvert
File... C:\Users\draimage\1\AppData\Local\Temp\Bentley\PondPack\tmp.ppk

\*\*\*\*\* COMPOSITE OUTFLOW SUMMARY \*\*\*\*\*

CUMULATIVE HGL CONVERGENCE ERROR: .002 (+/- ft)
FLOW PATH: Elev=223.8; Branch: Weir - 1-Culvert - 1-TW

\* Max. convergence errors shown may also occur for flow paths other than the ones listed above.

Table with columns: WS Elev, Total Q, Notes. Lists contributing structures and their flow rates.

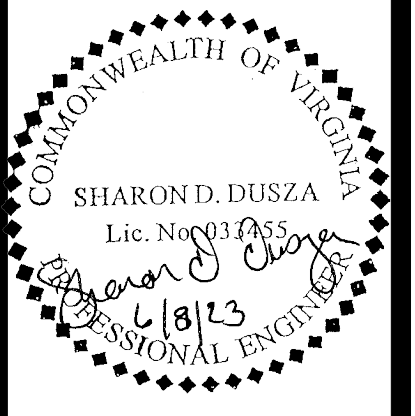
Prince William County Department of Public Works
Storm Water Management Facility Fact Sheet

Facility Fact Sheet form with fields for Project Name, Number, GPIN, Watershed Name, Sub-basin Number, Type of Facility, Description, Drainage Area, Riser Diameter, Area of Easement, Fence, Estimated Bond Amount, Date Cost Estimate Prepared, Address of Property.

PRINCE WILLIAM COUNTY STORMWATER MANAGEMENT FACT SHEET - SWM FACILITY #2. Large form with multiple sections: SWM FACILITY INFORMATION, DESIGN INFORMATION, MISCELLANEOUS, and PLAN DATE.



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11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
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SWM COMPUTATIONS
WELLINGTON ROAD OPERATIONS CENTER EXPANSION
BRENTSVILLE, VIRGINIA
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS table with columns for revision number, description, and date.

PLAN DATE: OCTOBER 7, 2022
DESIGN BY: AG/SAW
CHECKED BY: SSD
ARCHITECT/MOSELEY ARCH
JURISDICTIONAL PLAN NO.: SPR2023-00185
RDA PLAN #: 19001-008
SHEET NUMBER: C.32



# 2 YEAR STORM CALCULATIONS

## 2 YEAR POST DEVELOPMENT INFLOW HYDROGRAPH

Type... Pond Inflow Summary Page 170  
 Name... SWM-3500 IN Event: 2 yr  
 File... C:\Users\draimage1\AppData\Local\Temp\Bentley\PondPack\tmp.ppk  
 Storm... 2-Year Storm Tag: 2

TOTAL NODE INFLOW...  
 HYG File =  
 HYG ID = SWM-3500 IN  
 HYG Tag = 2  
 Peak Discharge = 17.39 cfs  
 Time to Peak = 11.9000 hrs  
 HYG Volume = 1.001 ac-ft

HYDROGRAPH ORDINATES (cfs)  
 Output Time increment = .0500 hrs  
 Time on left represents time for first value in each row.

Time hrs	0.00	0.50	1.00	1.50	2.00
0.0000	0.00	0.00	0.00	0.00	0.00
0.2500	0.00	0.00	0.00	0.00	0.00
0.5000	0.00	0.00	0.00	0.00	0.00
0.7500	0.00	0.00	0.00	0.00	0.00
1.0000	0.00	0.00	0.00	0.00	0.00
1.2500	0.00	0.00	0.00	0.00	0.00
1.5000	0.00	0.00	0.00	0.00	0.00
1.7500	0.00	0.00	0.00	0.00	0.00
2.0000	0.00	0.00	0.00	0.00	0.00
2.2500	0.00	0.00	0.00	0.00	0.00
2.5000	0.00	0.00	0.00	0.00	0.00
2.7500	0.00	0.00	0.00	0.00	0.00
3.0000	0.00	0.00	0.00	0.01	0.01
3.2500	0.01	0.01	0.01	0.01	0.01
3.5000	0.02	0.02	0.02	0.02	0.02
3.7500	0.02	0.02	0.03	0.03	0.03
4.0000	0.03	0.03	0.03	0.03	0.04
4.2500	0.04	0.04	0.04	0.04	0.04
4.5000	0.05	0.05	0.05	0.05	0.05
4.7500	0.05	0.06	0.06	0.06	0.06
5.0000	0.06	0.07	0.07	0.07	0.07
5.2500	0.07	0.07	0.08	0.08	0.08
5.5000	0.08	0.08	0.09	0.09	0.09
5.7500	0.09	0.09	0.10	0.10	0.10
6.0000	0.10	0.10	0.11	0.11	0.11
6.2500	0.11	0.11	0.12	0.12	0.12
6.5000	0.12	0.12	0.13	0.13	0.13
6.7500	0.13	0.13	0.14	0.14	0.14
7.0000	0.14	0.14	0.15	0.15	0.15
7.2500	0.15	0.15	0.16	0.16	0.16
7.5000	0.16	0.16	0.17	0.17	0.17
7.7500	0.17	0.17	0.18	0.18	0.18
8.0000	0.18	0.18	0.19	0.19	0.20
8.2500	0.20	0.21	0.22	0.23	0.23
8.5000	0.23	0.24	0.25	0.26	0.26
8.7500	0.26	0.28	0.29	0.29	0.29
9.0000	0.30	0.31	0.31	0.31	0.31
9.2500	0.31	0.31	0.32	0.32	0.32
9.5000	0.32	0.32	0.33	0.34	0.35
9.7500	0.36	0.37	0.38	0.39	0.40
10.0000	0.41	0.42	0.43	0.45	0.46
10.2500	0.48	0.49	0.51	0.53	0.54
10.5000	0.56	0.58	0.60	0.62	0.65
10.7500	0.67	0.70	0.73	0.75	0.78
11.0000	0.81	0.85	0.89	0.95	1.01
11.2500	1.07	1.13	1.20	1.26	1.33
11.5000	1.39	1.47	1.55	1.63	1.71
11.7500	1.74	1.84	1.94	2.04	2.14
12.0000	14.07	9.51	4.32	2.92	2.47
12.2500	2.25	2.08	1.92	1.76	1.60
12.5000	1.44	1.33	1.23	1.17	1.13
12.7500	1.10	1.06	1.02	0.99	0.95
13.0000	0.91	0.88	0.86	0.83	0.81
13.2500	0.77	0.77	0.75	0.73	0.71
13.5000	0.69	0.68	0.66	0.65	0.63
13.7500	0.62	0.60	0.59	0.57	0.56
14.0000	0.55	0.54	0.53	0.52	0.51
14.2500	0.51	0.50	0.50	0.49	0.49
14.5000	0.48	0.48	0.47	0.47	0.47
14.7500	0.46	0.45	0.45	0.45	0.44
15.0000	0.43	0.43	0.43	0.42	0.41
15.2500	0.41	0.41	0.40	0.39	0.39
15.5000	0.39	0.38	0.37	0.37	0.37
15.7500	0.36	0.35	0.35	0.35	0.34
16.0000	0.33	0.33	0.33	0.33	0.32
16.2500	0.32	0.32	0.32	0.32	0.32
16.5000	0.31	0.31	0.31	0.31	0.31
16.7500	0.30	0.30	0.30	0.30	0.30
17.0000	0.30	0.29	0.29	0.29	0.29
17.2500	0.29	0.29	0.28	0.28	0.28
17.5000	0.28	0.28	0.27	0.27	0.27
17.7500	0.27	0.27	0.26	0.26	0.26
18.0000	0.26	0.26	0.25	0.25	0.25
18.2500	0.25	0.25	0.25	0.24	0.24
18.5000	0.24	0.24	0.24	0.24	0.24
18.7500	0.23	0.23	0.23	0.23	0.23
19.0000	0.22	0.22	0.22	0.22	0.22
19.2500	0.22	0.21	0.21	0.21	0.21
19.5000	0.21	0.21	0.20	0.20	0.20
19.7500	0.20	0.20	0.19	0.19	0.19
20.0000	0.19	0.19	0.19	0.19	0.19
20.2500	0.19	0.19	0.18	0.18	0.18
20.5000	0.18	0.18	0.18	0.18	0.18
20.7500	0.18	0.18	0.18	0.18	0.18
21.0000	0.18	0.18	0.18	0.18	0.18
21.2500	0.18	0.18	0.18	0.18	0.18
21.5000	0.18	0.18	0.18	0.18	0.18
21.7500	0.17	0.17	0.17	0.17	0.17
22.0000	0.17	0.17	0.17	0.17	0.17
22.2500	0.17	0.17	0.17	0.17	0.17
22.5000	0.17	0.17	0.17	0.17	0.17
22.7500	0.17	0.17	0.17	0.17	0.17
23.0000	0.17	0.17	0.17	0.17	0.17
23.2500	0.16	0.16	0.16	0.16	0.16
23.5000	0.16	0.16	0.16	0.16	0.16
23.7500	0.16	0.16	0.16	0.16	0.16
24.0000	0.16	0.16	0.16	0.16	0.16

## 2 YEAR POST DEVELOPMENT OUTFLOW HYDROGRAPH

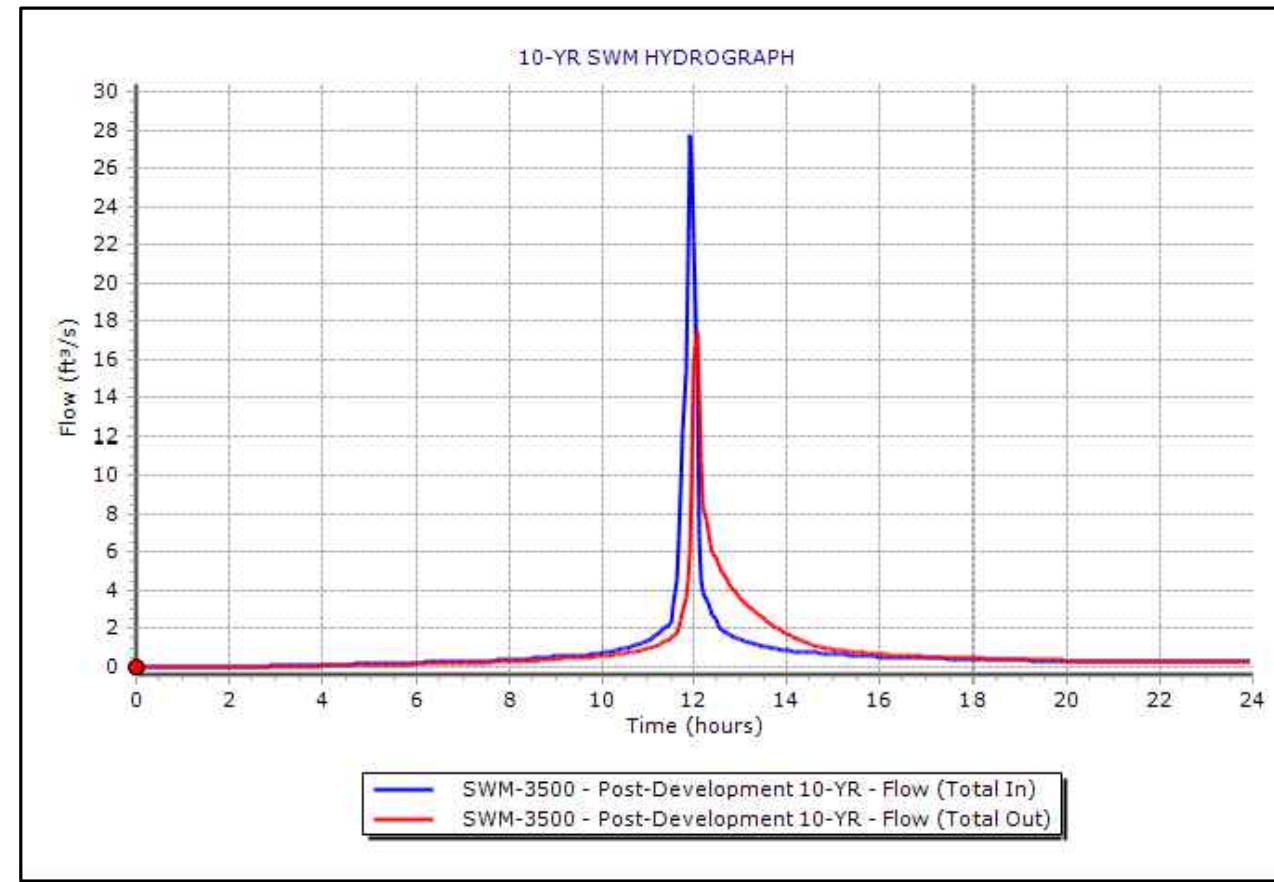
Type... Pond Routed Hydrograph (total out) Page 186  
 Name... SWM-3500 OUT  
 Tag: 2 Event: 2 yr  
 File... C:\Users\draimage1\AppData\Local\Temp\Bentley\PondPack\tmp.ppk  
 Storm... 2-Year Storm Tag: 2

POND ROUTED TOTAL OUTFLOW HYG...  
 HYG File =  
 HYG ID = SWM-3500 OUT  
 HYG Tag = 2  
 Peak Discharge = 5.81 cfs  
 Time to Peak = 12.1000 hrs  
 HYG Volume = .980 ac-ft

HYDROGRAPH ORDINATES (cfs)  
 Output Time increment = .0500 hrs  
 Time on left represents time for first value in each row.

Time hrs	0.00	0.50	1.00	1.50	2.00
0.0000	0.00	0.00	0.00	0.00	0.00
0.2500	0.00	0.00	0.00	0.00	0.00
0.5000	0.00	0.00	0.00	0.00	0.00
0.7500	0.00	0.00	0.00	0.00	0.00
1.0000	0.00	0.00	0.00	0.00	0.00
1.2500	0.00	0.00	0.00	0.00	0.00
1.5000	0.00	0.00	0.00	0.00	0.00
1.7500	0.00	0.00	0.00	0.00	0.00
2.0000	0.00	0.00	0.00	0.00	0.00
2.2500	0.00	0.00	0.00	0.00	0.00
2.5000	0.00	0.00	0.00	0.00	0.00
2.7500	0.00	0.00	0.00	0.00	0.00
3.0000	0.00	0.00	0.00	0.00	0.00
3.2500	0.00	0.00	0.00	0.00	0.00
3.5000	0.00	0.00	0.00	0.00	0.00
3.7500	0.01	0.01	0.01	0.01	0.01
4.0000	0.01	0.01	0.01	0.01	0.01
4.2500	0.01	0.01	0.01	0.01	0.02
4.5000	0.02	0.02	0.02	0.02	0.02
4.7500	0.02	0.02	0.02	0.02	0.03
5.0000	0.03	0.03	0.03	0.03	0.03
5.2500	0.03	0.04	0.04	0.04	0.04
5.5000	0.04	0.04	0.04	0.04	0.04
5.7500	0.05	0.05	0.05	0.05	0.05
6.0000	0.05	0.05	0.05	0.05	0.05
6.2500	0.06	0.06	0.06	0.06	0.06
6.5000	0.07	0.07	0.07	0.07	0.07
6.7500	0.08	0.08	0.08	0.08	0.08
7.0000	0.09	0.09	0.09	0.09	0.09
7.2500	0.10	0.10	0.10	0.10	0.11
7.5000	0.11	0.11	0.11	0.11	0.11
7.7500	0.12	0.12	0.12	0.12	0.12
8.0000	0.13	0.13	0.13	0.13	0.13
8.2500	0.14	0.14	0.14	0.14	0.15
8.5000	0.15	0.15	0.15	0.15	0.16
8.7500	0.17	0.17	0.17	0.18	0.18
9.0000	0.18	0.19	0.19	0.20	0.20
9.2500	0.20	0.21	0.21	0.21	0.22
9.5000	0.22	0.22	0.23	0.23	0.23
9.7500	0.24	0.24	0.25	0.25	0.26
10.0000	0.26	0.27	0.28	0.28	0.28
10.2500	0.29	0.30	0.31	0.31	0.31
10.5000	0.36	0.37	0.38	0.40	0.41
10.7500	0.43	0.45	0.46	0.48	0.50
11.0000	0.52	0.54	0.56	0.58	0.61
11.2500	0.64	0.67	0.70	0.74	0.77
11.5000	0.81	0.87	1.00	1.20	1.51
11.7500	1.87	2.31	2.86	3.58	4.46
12.0000	5.23	5.72	5.81	5.65	5.43
12.2500	5.20	4.97	4.75	4.56	4.37
12.5000	4.18	4.00	3.82	3.64	3.49
12.7500	3.35	3.22	3.10	2.97	2.86
13.0000	2.75	2.64	2.54	2.42	2.32
13.2500	2.22	2.12	2.03	1.94	1.86
13.5000	1.78	1.71	1.64	1.56	1.48
13.7500	1.41	1.34	1.28	1.22	1.16
14.0000	1.11	1.06	1.02	0.97	0.94
14.2500	0.90	0.87	0.84	0.82	0.80
14.5000	0.78	0.76	0.74	0.72	0.71
14.7500	0.69	0.67	0.65	0.63	0.63
15.0000	0.62	0.61	0.60	0.58	0.57
15.2500	0.56	0.55	0.54	0.53	0.52
15.5000	0.52	0.51	0.50	0.49	0.48
15.7500	0.47	0.47	0.46	0.45	0.44
16.0000	0.44	0.43	0.42	0.42	0.41
16.2500	0.41	0.40	0.40	0.39	0.39
16.5000	0.38	0.38	0.37	0.37	0.36
16.7500	0.36	0.36	0.35	0.35	0.35
17.0000	0.34	0.34	0.34	0.33	0.33
17.2500	0.33	0.33	0.32	0.32	0.32
17.5000	0.31	0.31	0.31	0.31	0.31
17.7500	0.30	0.30	0.30	0.30	0.30
18.0000	0.29	0.29	0.29	0.29	0.29
18.2500	0.29	0.29	0.28	0.28	0.28
18.5000	0.28	0.28	0.28	0.28	0.27
18.7500	0.27	0.27	0.27	0.27	0.27
19.0000	0.27	0.26	0.26	0.26	0.26
19.2500	0.26	0.26	0.26	0.26	0.25
19.5000	0.25	0.25	0.25	0.25	0.25
19.7500	0.24	0.24	0.24	0.24	0.24
20.0000	0.24	0.23	0.23	0.23	0.23
20.2500	0.23	0.23	0.23	0.22	0.22
20.5000	0.22	0.22	0.22	0.22	0.22
20.7500	0.21	0.21	0.21	0.21	0.21
21.0000	0.21	0.21	0.21	0.21	0.21
21.2500	0.20	0.20	0.20	0.20	0.20
21.5000	0.20	0.20	0.20	0.20	0.20
21.7500	0.20	0.20	0.19	0.19	0.19</

# 10 YEAR STORM CALCULATIONS



## 10 YEAR POST DEVELOPMENT INFLOW HYDROGRAPH

Type... Pond Inflow Summary Page 170  
 Name... SWM-3500 IN Event: 10 yr  
 File... C:\Users\dra\image1\AppData\Local\Temp\Bentley\PondPack\tmp.ppk  
 Storm... 10-Year Storm Tag: 10

TOTAL NODE INFLOW...  
 HYG File = SWM-3500 IN  
 HYG Tag = 10  
 Peak Discharge = 27.80 cfs  
 Time to Peak = 11.9000 hrs  
 HYG Volume = 1.643 ac-ft

HYDROGRAPH ORDINATES (cfs)					
Time hrs	Output	Time increment = .0500 hrs			
hrs	Time on left represents time for first value in each row				
.0000	.00	.00	.00	.00	.00
.2500	.00	.00	.00	.00	.00
.5000	.00	.00	.00	.00	.00
.7500	.00	.00	.00	.00	.00
1.0000	.00	.00	.00	.00	.00
1.2500	.00	.00	.00	.00	.00
1.5000	.00	.00	.00	.00	.00
1.7500	.00	.00	.00	.00	.00
2.0000	.00	.00	.00	.01	.01
2.2500	.01	.02	.02	.02	.02
2.5000	.03	.03	.03	.04	.04
2.7500	.04	.04	.05	.05	.05
3.0000	.06	.06	.06	.07	.07
3.2500	.07	.07	.08	.08	.08
3.5000	.08	.09	.09	.09	.09
3.7500	.10	.10	.10	.11	.11
4.0000	.11	.11	.11	.12	.12
4.2500	.12	.13	.13	.13	.13
4.5000	.14	.14	.14	.15	.15
4.7500	.15	.16	.16	.16	.17
5.0000	.17	.17	.18	.18	.18
5.2500	.18	.19	.19	.20	.20
5.5000	.20	.20	.21	.21	.21
5.7500	.22	.22	.22	.23	.23
6.0000	.23	.24	.24	.24	.24
6.2500	.25	.25	.26	.26	.26
6.5000	.26	.27	.27	.28	.28
6.7500	.28	.28	.29	.29	.29
7.0000	.29	.30	.30	.31	.31
7.2500	.31	.31	.32	.32	.32
7.5000	.33	.33	.33	.34	.34
7.7500	.34	.34	.35	.35	.35
8.0000	.36	.36	.37	.37	.37
8.2500	.40	.41	.42	.43	.44
8.5000	.45	.46	.47	.48	.49
8.7500	.50	.51	.52	.53	.54
9.0000	.55	.56	.57	.57	.57
9.2500	.58	.58	.58	.58	.58
9.5000	.58	.59	.60	.62	.63
9.7500	.65	.67	.68	.70	.72
10.0000	.73	.75	.77	.80	.82
10.2500	.85	.87	.90	.93	.95
10.5000	.98	1.01	1.04	1.08	1.13
10.7500	1.17	1.21	1.25	1.30	1.34
11.0000	1.38	1.45	1.52	1.61	1.71
11.2500	1.82	1.92	2.02	2.13	2.23
11.5000	2.34	3.33	4.56	6.75	9.22
11.7500	12.21	15.38	21.19	27.80	26.12
12.0000	22.25	15.00	6.80	4.59	3.89
12.2500	3.53	3.27	3.02	2.77	2.52
12.5000	2.26	2.09	1.92	1.84	1.78
12.7500	1.72	1.66	1.60	1.55	1.49
13.0000	1.43	1.38	1.34	1.30	1.27
13.2500	1.24	1.21	1.18	1.15	1.12
13.5000	1.09	1.06	1.03	1.01	.99
13.7500	.96	.94	.92	.90	.88
14.0000	.85	.84	.82	.81	.80
14.2500	.80	.79	.78	.77	.76
14.5000	.76	.75	.74	.73	.73
14.7500	.72	.71	.70	.70	.69
15.0000	.68	.67	.66	.65	.65
15.2500	.64	.63	.62	.61	.61
15.5000	.60	.59	.58	.57	.57
15.7500	.56	.55	.54	.53	.53
16.0000	.52	.52	.51	.51	.51
16.2500	.50	.50	.49	.49	.49
16.5000	.49	.49	.48	.48	.48
16.7500	.48	.47	.47	.46	.46
17.0000	.46	.46	.46	.45	.45
17.2500	.45	.44	.44	.44	.44
17.5000	.43	.43	.43	.42	.42
17.7500	.42	.42	.41	.41	.41
18.0000	.41	.40	.40	.39	.39
18.2500	.39	.39	.39	.38	.38
18.5000	.38	.38	.37	.37	.37
18.7500	.36	.36	.36	.35	.35
19.0000	.35	.35	.34	.34	.34
19.2500	.34	.33	.33	.33	.33
19.5000	.32	.32	.32	.31	.31
19.7500	.31	.30	.30	.30	.30
20.0000	.29	.29	.29	.29	.29
20.2500	.29	.29	.29	.29	.29
20.5000	.29	.29	.28	.28	.28
20.7500	.28	.28	.28	.28	.28
21.0000	.28	.28	.28	.28	.28
21.2500	.27	.27	.27	.27	.27
21.5000	.27	.27	.27	.27	.27
21.7500	.27	.27	.27	.27	.27
22.0000	.27	.27	.27	.27	.27
22.2500	.27	.27	.26	.26	.26
22.5000	.26	.26	.26	.26	.26
22.7500	.26	.26	.26	.26	.26
23.0000	.26	.26	.26	.26	.26
23.2500	.25	.25	.25	.25	.25
23.5000	.25	.25	.25	.25	.25
23.7500	.25	.25	.25	.25	.25
24.0000	.25	.25	.25	.25	.25

## 10 YEAR POST DEVELOPMENT OUTFLOW HYDROGRAPH

Type... Pond Routed Hydrograph (total out) Page 186  
 Name... SWM-3500 OUT  
 Tag: 10 Event: 10 yr  
 File... C:\Users\dra\image1\AppData\Local\Temp\Bentley\PondPack\tmp.ppk  
 Storm... 10-Year Storm Tag: 10

POND ROUTED TOTAL OUTFLOW HYG...  
 HYG File = SWM-3500 OUT  
 HYG ID = SWM-3500 OUT  
 HYG Tag = 10  
 Peak Discharge = 17.39 cfs  
 Time to Peak = 12.0500 hrs  
 HYG Volume = 1.612 ac-ft

HYDROGRAPH ORDINATES (cfs)					
Time hrs	Output	Time increment = .0500 hrs			
hrs	Time on left represents time for first value in each row				
.0000	.00	.00	.00	.00	.00
.2500	.00	.00	.00	.00	.00
.5000	.00	.00	.00	.00	.00
.7500	.00	.00	.00	.00	.00
1.0000	.00	.00	.00	.00	.00
1.2500	.00	.00	.00	.00	.00
1.5000	.00	.00	.00	.00	.00
1.7500	.00	.00	.00	.00	.00
2.0000	.00	.00	.00	.00	.00
2.2500	.00	.00	.00	.00	.00
2.5000	.00	.00	.00	.01	.01
2.7500	.01	.01	.01	.01	.01
3.0000	.02	.02	.02	.02	.02
3.2500	.02	.02	.03	.03	.03
3.5000	.03	.03	.03	.03	.03
3.7500	.04	.04	.04	.04	.04
4.0000	.05	.05	.05	.05	.05
4.2500	.06	.06	.06	.06	.06
4.5000	.07	.07	.07	.08	.08
4.7500	.08	.09	.09	.09	.09
5.0000	.10	.10	.10	.10	.10
5.2500	.11	.11	.11	.12	.12
5.5000	.12	.12	.12	.13	.13
5.7500	.14	.14	.14	.14	.14
6.0000	.15	.15	.15	.15	.15
6.2500	.16	.16	.17	.17	.17
6.5000	.18	.18	.18	.18	.18
6.7500	.19	.19	.20	.20	.20
7.0000	.21	.21	.21	.22	.22
7.2500	.22	.23	.23	.23	.23
7.5000	.24	.24	.24	.25	.25
7.7500	.25	.26	.26	.26	.26
8.0000	.27	.27	.27	.28	.28
8.2500	.28	.29	.29	.29	.29
8.5000	.32	.33	.34	.35	.35
8.7500	.36	.37	.38	.39	.40
9.0000	.41	.42	.43	.44	.45
9.2500	.46	.46	.47	.48	.49
9.5000	.49	.50	.50	.51	.52
9.7500	.53	.53	.54	.55	.56
10.0000	.57	.59	.60	.61	.62
10.2500	.64	.65	.67	.68	.70
10.5000	.72	.73	.75	.77	.80
10.7500	.82	.84	.87	.90	.94
11.0000	.98	1.01	1.05	1.10	1.15
11.2500	1.20	1.26	1.32	1.38	1.45
11.5000	1.52	1.63	1.79	2.04	2.44
11.7500	2.93	3.56	4.53	6.00	10.14
12.0000	15.90	17.39	14.36	10.81	8.34
12.2500	7.66	7.04	6.47	5.97	5.72
12.5000	5.47	5.23	4.99	4.76	4.56
12.7500	4.37	4.20	4.03	3.87	3.71
13.0000	3.56	3.44	3.32	3.20	3.09
13.2500	2.99	2.88	2.79	2.69	2.60
13.5000	2.51	2.42	2.32	2.24	2.15
13.7500	2.07	2.00	1.93	1.86	1.79
14.0000	1.73	1.67	1.61	1.55	1.48
14.2500	1.43	1.37	1.32	1.27	1.23
14.5000	1.19	1.15	1.12	1.09	1.06
14.7500	1.03	.98	.95	.93	.91
15.0000	.91	.89	.87	.86	.84
15.2500	.83	.82	.80	.79	.78
15.5000	.77	.76	.75	.74	.73
15.7500	.71	.70	.69	.68	.67
16.0000	.67	.66	.65	.64	.63
16.2500	.62	.61	.61	.60	.59
16.5000	.58	.58	.57	.57	.56
16.7500	.56	.55	.54	.54	.53
17.0000	.53	.53	.52	.52	.51
17.2500	.51	.50	.50	.50	.49
17.5000	.49	.49	.48	.48	.47
17.7500	.47	.47	.46	.46	.46
18.0000	.45	.45	.45	.44	.44
18.2500	.44	.43	.43	.43	.43
18.5000	.42	.42	.42	.41	.41
18.7500	.41	.40	.40	.40	.40
19.0000	.39	.39	.39	.38	.38
19.2500	.38	.38	.38	.37	.37
19.5000	.36	.36	.36	.36	.35
19.7500	.35	.35	.34	.34	.34
20.0000	.34	.33	.33	.33	.33
20.2500	.32	.32	.32	.32	.31
20.5000	.31	.31	.31	.31	.31
20.7500	.30	.30	.30	.30	.30
21.0000	.30	.30	.30	.29	.29
21.2500	.29	.29	.29	.29	.29
21.5000	.29	.29	.29	.29	.29
21.7500	.29	.29	.29	.29	.28
22.0000	.28	.28	.28	.28	.28
22.2500	.28	.28	.28	.28	.28
22.5000	.28	.28	.28	.28	.28
22.7500	.28	.28	.28	.27	.27
23.0000	.27	.27	.27	.27	.27
23.2500	.27	.27	.27	.27	.27
23.5000	.27	.27	.27	.27	.27
23.7500	.27	.26	.26	.26	.26
24.0000	.26	.26	.26	.26	.26

## 10 YEAR POND ROUTING SUMMARY

Type... Level Pool Pond Routing Summary Page 189  
 Name... SWM-3500 Event: 10 yr  
 File... C:\Users\dra\image1\AppData\Local\Temp\Bentley\PondPack\tmp.ppk  
 Storm... 10-Year Storm Tag: 10

### LEVEL POOL ROUTING SUMMARY

HYG Dir = C:\Users\dra\image1\AppData\Local\Temp\Bentley\PondPack\  
 Inflow HYG File = NONE STORED - SWM-3500 IN 10  
 Outflow HYG File = NONE STORED - SWM-3500 OUT 10

Pond Node Data = SWM-3500  
 Pond Volume Data = SWM-3500  
 Pond Outlet Data = Weir and Culvert

No Infiltration

### INITIAL CONDITIONS

Starting WS Elev = 223.30 Ft  
 Starting Volume = .000 ac-ft  
 Starting Infiltration = .00 cfs  
 Starting Total Qout = .00 cfs  
 Time Increment = .0500 hrs

### INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = 27.80 cfs at 11.9000 hrs  
 Peak Outflow = 17.39 cfs at 12.0500 hrs  
 Peak Elevation = 227.88 Ft  
 Peak Storage = .502 ac-ft

### MASS BALANCE (ac-ft)

Initial Vol = .000  
 HYG Vol IN = 1.643  
 Infiltration = .000  
 HYG Vol OUT = 1.612  
 Retained Vol = .030  
 Unrouted Vol = -.001 ac-ft (.077% of Inflow Volume)



3-F.3.0. EXAMPLE CHECKLIST FOR A FINAL STORMWATER MANAGEMENT SITE PLAN PREPARATION AND REVIEW

1. Applicant Information

Final Plan Submission Date OCTOBER 25, 2022
Project Name WELLINGTON ROAD OPERATIONS CENTER EXPANSION
Site Plan/Permit Number SPR2023-00185 SO3
Site Address 8404 VIRGINIA MEADOWS DR, MANASSAS VA
Applicant PRINCE WILLIAM COUNTY SERVICE AUTHORITY Phone Number 202-910-5197
Applicant Legal Address 4 COUNTY COMPLEX CT, WOODBRIDGE, VA 22192
Owner PRINCE WILLIAM COUNTY SERVICE AUTHORITY Phone Number 202-910-5197
Principal Designer SHARON DUSZA, P.E. (RINKER DESIGN ASSOCIATES, P.C.) Phone Number 703-334-9285
General Contractor UNKNOWN Phone Number N/A

2. C.01 Signature and stamp of licensed professional consultant and owner certification

3. Plan Status

Approved
[X] Not Approved

Legend:
[ ] - Complete
[Inc.] - Incomplete/Incorrect
[N/A] - Not Applicable

4. C.01 Common address and legal description of the site, including the tax reference number(s) and parcel number(s) of the property or properties affected.

5. C.22, C.30 A narrative that includes a description of current site conditions and proposed development and final site conditions, including proposed use of environmental site design techniques and practices, stormwater control measures, relevant information pertaining to long-term maintenance of these measures (see item #12 below), and a construction schedule.

6. Existing and proposed mapping and plans (recommended scale of 1" = 50', or greater detail), which illustrates the following at a minimum:

- C.05 North arrow
C.04 Legend
C.01 Vicinity map
C.05 Existing and proposed topography (minimum of 2-foot contours recommended)
C.05 Property lines
C.04 Perennial and intermittent streams
C.04 Mapping of predominant soils from USDA soils surveys as well as the location of any site-specific test bore hole investigations that may have been conducted and information identifying the hydrologic characteristics and structural properties of soils used in the installation of stormwater management facilities
C.04 Boundaries of existing predominant vegetation and proposed limits of clearing and grading

- C.05 Location and boundaries of natural feature protection and conservation areas (e.g., wetlands, lakes, ponds, aquifers, public drinking water supplies, etc.) and applicable setbacks (e.g., stream buffers, drinking water well setbacks, septic drainfield setbacks, building setbacks, etc.)
N/A Identification of any on-site or adjacent water bodies included on the Virginia 303(d) list of impaired waters
C.05 Current land use and location of existing and proposed roads, buildings, parking lots and other impervious areas
C.04 Location and description of any planned demolition of existing structures, roads, etc.
C.05 Proposed land use(s) with a tabulation of the percentage of surface area to be adapted to various uses, including but not limited to planned locations of utilities, roads, parking lots, stormwater management facilities, and easements
C.05 Location of existing and proposed utilities [e.g., water (including wells), sewer (including septic systems), gas, electric, telecommunications, cable TV, etc.] and easements
C.36-C.37 Earthwork specifications
C.05, C.22, C.30 Selection, location and design of both structural and non-structural stormwater control measures, including maintenance access and limits of disturbance
C.05 Storm drainage plans for site areas not draining to any BMP(s)
C.05 Location of existing and proposed conveyance systems, such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow, including grades, dimensions, and direction of flow
C.19, C.23-C.24 Final drainage patterns and flow paths
C.05 Location of floodplain/floodway limits and relationship of site to upstream and downstream properties and drainage systems
C.18-C.19 Location of all contributing drainage areas and points of stormwater discharge, receiving surface waters or karst features into which stormwater discharges, the pre-development and post-development conditions for drainage areas, and the potential impacts of site stormwater on adjoining parcels
N/A Location and dimensions of proposed channel modifications, such as bridge or culvert crossings
C.19, C.11-C.12 Final stabilization and landscaping plans

7. Hydrologic and hydraulic analysis, including the following:

- C.23-C.24 Site map with locations of design points and drainage areas (size in acres) for runoff calculations
C.21 Identification and calculation of stormwater site design credits, if any apply
C.07 Estimates of unified stormwater sizing criteria requirements
N/A Time of concentration (and associated flow paths)
C.20 Imperviousness of the entire site and each drainage area
C.19 NRCS runoff curve numbers or volumetric runoff coefficients
C.07, C.23 A hydrologic analysis for the existing (pre-development) conditions, including runoff rates, volumes, and velocities, showing the methodologies used and supporting calculations
C.07, C.24 A hydrologic analysis for the proposed (post-development) conditions, including runoff rates, volumes, and velocities, showing the methodologies used and supporting calculations
C.32-C.35 Hydrologic and hydraulic analysis of the stormwater management system for all applicable design storms
C.20-C.21 Pollution load and load reduction requirements and calculations

- C.07, C.20-C.21 Final good engineering and sizing calculations for stormwater control measures, including contributing drainage areas, storage, and outlet configurations, verifying compliance with the water quality and water quantity requirements of the regulations
C.32-C.35 Stage-discharge or outlet rating curves and inflow and outflow hydrographs for storage facilities
C.22 Final analysis of the potential downstream impacts/effects of the project, where necessary
C.22 Downstream analysis, where detention is proposed
N/A Dam safety and breach analysis, where necessary

8. Representative cross-section and profile drawings and details of stormwater control measures and conveyances which include the following:

- C.07, C.30 Existing and proposed structural elevations (e.g., inverts of pipes, manholes, etc.)
C.30 Design water surface elevations
C.30 Structural details of BMP designs, outlet structures, embankments, spillways, grade control structures, conveyance channels, etc.

9. C.16-C.17 Applicable construction and material specifications, including references to applicable material and construction standards (ASTM, etc.)

10. C.18-C.19 Erosion and sediment control plan that, at a minimum, meets the requirements outlined in the Virginia Erosion and Sediment Control Regulations and Handbook

11. C.11-C.12 Landscaping plans for stormwater control measures and any site reforestation or revegetation

12. Operations and maintenance plan/agreement that includes the following:

- C.01 Name, legal address and phone number of the party or parties responsible for long-term maintenance activities
C.22 Description and schedule of maintenance tasks
C.22 Identification/description of the source of funding to support maintenance activities
C.22 Description of access and safety issues
C.22 Procedures for testing and disposal of sediments, if required
C.22 Right-of-entry authorization for local government inspections/repairs, as needed

13. C.41 Evidence of acquisition of all applicable local and non-local permits

14. N/A Waiver/exception requests

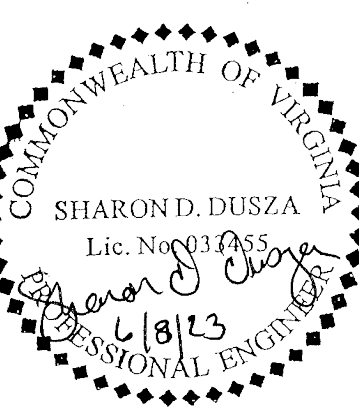
15. C.41 Evidence of acquisition of all necessary legal agreements (e.g., easements, covenants, land trusts, etc.)

16. C.36-C.37 Applicable supporting documents and studies (e.g., infiltration tests, geotechnical investigations, TMDLs, flood studies, etc.)

17. N/A Other required permits



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Engineering \* Surveying \* Transportation \* Environmental Services



SWM & BMP CHECKLISTS

WELLINGTON ROAD OPERATIONS CENTER EXPANSION

PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:

PLAN DATE: OCTOBER 7, 2022

DESIGN BY: AAG/SAW

CHECKED BY: SSD

ARCHITECT/MOSELEY ARCH

JURISDICTIONAL PLAN NO. SPR2023-00185

RDA PLAN #: 19001-008

SHEET NUMBER: C.35A

8-A.13.0. FILTERING PRACTICES: DESIGN CHECKLIST

Plan Submission Date OCTOBER 25, 2022
Project Name WELLINGTON ROAD OPERATIONS CENTER EXPANSION
Site Plan/Permit Number SPR2023-00185 S03
Practice No./Location on Site Storm Structure 36
Owner EMC Services Authority
BMP Designer Contech Engineered Solutions
General Contractor N/A

C.01 Signature and stamp of licensed professional design consultant and owner certification

Plan Status: Approved, Not Approved
Legend: Complete, Incomplete/Incorrect, Not Applicable

Facility Type: Level 1, Level 2

Facility Type: Non-Structural Sand Filter, Surface Sand Filter, Organic Media Filter, Undergrround Sand Filter, Proprietary Filter, Other
Pre-Treatment: Wet or Dry Sedimentation Chamber, spreaders and sized to accommodate 25% of the treatment volume, Forebay, Compost-amended grass filter path, Gravel Diaphragm, Check Dam, Engineered Level Spreader, Proprietary device, Other

Hydraulic Configuration: On-line facility, Off-line facility
FILTER TREATS HOSPTOT RUNOFF: Proprietary device, Other

I. SUPPORTING INFORMATION

- C.22 Provide a concise narrative describing the stormwater management strategy, describing how this practice fits into the overall plan, and stating all assumptions made in the design.
C.05 Show the location of this BMP on the site map, including the following:
C.05 Filter facility area
C.19 Contributing drainage area (CDA) boundaries, acreage and land cover
C.05 Delineation of FEMA 100-year floodplain
C.20-C.21 Areas of site compensated for in water quality calculations
C.05 Provide topography of the site area.
C.01 Provide a soil map for site and area of facility, including the CDA
N/A Provide the soil boring locations and the soil boring logs with Unified Soils Classifications and soil descriptions (at least one boring must be taken to confirm the underlying soil properties).
N/A At least one soil boring must be taken at a low point within the footprint of the proposed filtering practice to establish the depth to groundwater/bedrock and to evaluate the soil suitability.
N/A Confirm that there is a minimum of 2 feet separation distance between the seasonally high groundwater table and/or bedrock and the bottom invert of the filtering practice.
N/A If karst is present, a detailed geotechnical investigation is recommended to ensure the installation does not aggravate potential karst impacts (e.g., sinkholes, etc.)

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N/A Identify potential conflicts with other (existing?) structural components (pipes, underground utilities, etc.).
Special conditions:
N/A Filters work well in karst areas, assuming that they are water tight and that excavation does not extend into a karst layer.
N/A In coastal plain settings, the Perimeter Sand Filter and the Non-Structural Sand Filter work best, subject to the following criteria:
N/A The combined depth of the underdrain and sand filter bed can be reduced to from 24 to 30 inches
N/A Consider maximizing the length of the filter or provide treatment in multiple connected cells.
N/A The minimum depth to seasonally high groundwater may be relaxed to 1 foot, as long as the filter is equipped with a large diameter underdrain (e.g., 6 inches) that is only partially efficient at dewatering the filter bed.
N/A Maintain an underdrain slope of at least 0.5% to ensure positive drainage and to tie it into the receiving ditch or conveyance system.
N/A In steep terrain:
N/A Slope gradient contributing runoff to sand filters can be increased to 15%, as long as a two-cell, terraced design is used to dissipate erosive energy prior to the filter.
N/A The drop in elevation between cells should be limited to 1 foot and the slope should be armored with river stone or a suitable equivalent.
N/A In cold climate of for winter performance (problem is ice forming over the filter bed):
N/A Place a weir between the pre-treatment chamber and filter bed to reduce ice formation.
N/A Extend the filter bed below the frost line to prevent freezing within the filter bed.
N/A Oversize the underdrain to encourage more rapid drainage and to minimize freezing of the filter bed.
N/A Expand the sediment chamber to account for road sand. Pre-treatment chambers should be sized to accommodate up to 40% of the treatment volume.

II. COMPUTATIONS

- A. Hydrology
C.23-C.24 Determine the runoff curve number (pre- and post-developed conditions), providing the worksheets.
N/A Determine the time of concentration (pre- and post-developed conditions), providing the worksheets.
N/A Generate hydrographs (pre- and post-developed conditions) for appropriate design and safety storms (USDA-NRCS methods or modified rational-critical storm duration method)
B. Hydraulics
N/A The hydraulic head required for filters varies from 2 to 10 feet, depending on the design variant; sufficient hydraulic head is critical to the proper function of filtering systems.
N/A Confirm that the design will result in the facility dewatering within 40 hours after a storm event.
C.31 Specify the assumptions and coefficients used.
N/A Provide a stage-storage table and curve.
N/A Provide for large storm overflow or bypass
C.07&C.19 Provide storm drainage and hydraulic grade line calculations.

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- C.20 Provide a tabulation of land cover areas (impervious cover, managed turf, forest cover) in the CDA. For Level 1 designs, the contributing drainage area may contain some pervious area; for Level 2 designs, the CDA must be nearly 100% impervious (preferred condition).
C.21 Determine the pollutant load, pollutant load removal, and treatment volume requirements, generated by using the Virginia Runoff Reduction Method spreadsheet (provide spreadsheet).
UNK Keep in mind that Level 2 designs are sized for a treatment volume that is 25% greater than for Level 1 practices.
UNK Also, keep in mind that for Level 2 designs, the runoff reduction value (normally 0) may be increased if a second cell is used for infiltration or bioinfiltration (Bioretention Level 2). The RR credit should be proportional to the fraction of the treatment volume designed to be infiltrated.
C.31 Determine specific sizing/dimensions from criteria in Stormwater Design Specification No. 12.

III. PLAN REQUIREMENTS

- A. BMP Plan View Information
C.02 Show the limits of clearing and grading, noting that they should be identified and protected by acceptable signage, silt fence, snow fence, or other comparable barrier.
C.05&C.31 Show the layout and dimensions of the filtering facilities (one cell for Level 1 design; two cells for Level 2)
N/A Sand and organic surface filters typically consume approximately 2% to 3% of the CDA, while perimeter sand filters typically consume less than 1% of the CDA. Underground filters generally consume no surface area except for their manholes.
N/A NOTE: Surface area and storage volume of the filter media relates to the treatment volume (Equations 12.1 and 12.2 in Stormwater Design Specification No. 12)
C.05 Ensure proper orientation to avoid short-circuiting
C.22 Ensure adequate maintenance access to the facility
N/A Show the observation well location
B. BMP Section Views & Related Details
C.31 Details will vary depending upon the type of filter employed:
1. Non-Structural Sand Filter - applied to sites less than 2 acres in size and essentially the same as a Bioretention Basin (Stormwater Design Specification No. 9), with the following exceptions:
N/A The bottom is lined with an impermeable filter fabric and always has an underdrain.
N/A The surface cover is sand, turf or pea gravel (not trees, shrubs, or herbaceous material).
N/A The filter media is 100% sand.
N/A The filter has two cells, with a dry or wet sedimentation chamber preceding the sand filter bed.
2. Surface Sand Filter (more economical)
N/A Designed with both the filter bed and sediment chamber located at ground level
N/A Normally constructed of pre-cast or cast-in-place concrete
N/A Usually designed to be off-line facilities, so that only the treatment volume is directed to the filter. Can be installed in the bottom of a dry Extended Detention Basin (see Stormwater Design Specification No. 15).
3. Organic Media Filter
N/A Essentially the same as surface sand filters, except the sand is replaced with an organic filtering medium (e.g., peat/sand filter, leaf compost filter, etc.) that is better at removing metals and hydrocarbons. However, organic media can actually leach soluble nitrate and phosphorus back into the discharge water.
4. Underground Sand Filter (more expensive, but they consume very little surface area)
N/A Filtering components are installed underground

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- 5. Perimeter Sand Filter (more economical)
N/A Incorporates a sediment chamber and filter bed, but flow enters through grates, usually at the edge of a parking lot.
N/A Usually designed as an on-line practice (i.e., all flows enter the system), where larger flows bypass by entering an overflow chamber
N/A Requires only about 2 feet of hydraulic head, so can be used on sites with little topographic relief
6. Proprietary Filters
C.31 Follow the design criteria provided by the manufacturer
C.25-C.30 Conveyance and Overflow:
N/A For off-line filter systems, show the internal flow splitter or overflow device that bypasses runoff from larger storm events around the filter.
C.07 For on-line filter systems, show how the device will safely pass the local design storm(s) (1-year and/or 10-year storms) without re-suspending or flushing previously trapped material.
N/A Ensure that the facility will dewater within 40 hours after a storm event.
N/A Filtering practices typically have an impermeable liner meeting the following criteria:
N/A Needed, non-woven polypropylene geotextile (do not use heat-set or heat-calendered fabrics)
N/A Grab Tensile Strength (ASTM D4632) = >= 120 lbs.
N/A Mullen Burst Strength (ASTM D3786) = >= 225 lbs./sq. in.
N/A Flow Rate (ASTM D4491) = >= 125 gpm/sq. ft.
N/A Apparent Opening Size (ASTM D4751) = US #70 or #80 sieve.
N/A Underdrain:
N/A Pipes comply with AASHTO M252 and ASTM F405
N/A If the underdrain must meet ASTM F758, it must be perforated with slots that have a maximum width of 3/8-inch and provide a minimum inlet area of 1.76 sq. in. per linear foot of pipe.
N/A If underdrain meets ASTM F949, it must be perforated with slots that have a maximum width of 3/8-inch and provide a minimum inlet area of 1.5 sq. in. per linear foot of pipe.
N/A Underdrain pipe with precision-machined slots is preferred to pipe with standard round-hole perforations.
N/A The stone jacket for the underdrain must meet VDOT #57 stone specifications or the ASTM equivalent (1-inch maximum diameter).
N/A Filter Media:
N/A Normal filter media consists of clean, washed medium aggregate concrete sand with individual grains between 0.2 and 0.04 inches in diameter (AASHTO M-6/ASTM C-33)
N/A Organic media can be used, such as a peat/sand mixture or a leaf compost mixture, but this is not recommended unless metals and hydrocarbons are a particular issue in site runoff.
N/A Surface Cover:
N/A For surface sand filters, surface cover should consist of a 3-inch layer of topsoil on top of a non-woven filter fabric laid above the sand layer (pea gravel inlets in the topsoil layer where sheet flow enters, at margins around the filter bed, or at locations in the middle of the bed, to promote infiltration).
N/A For underground sand filters, surface cover should have a pea gravel layer on top of a coarse non-woven filter fabric laid over the sand layer.
N/A Media depth can range from 12 to 18 inches.

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- C.22 Maintenance Reduction Design Features:
N/A Observation wells and cleanouts (facilitates inspection and maintenance)
N/A Surface sand filters should include an observation well, consisting of a 6-inch diameter non-perforated PVC pipe fitted with a lockable cap.
N/A Install the observation well flush with the ground surface.
N/A Typically, a cleanout pipe will be tied into the end of each underdrain pipe run.
N/A The portion of the cleanout pipe/observation well in the underdrain layer should be perforated.
N/A Provide at least one cleanout pipe for every 2,000 sq. ft. of filter surface area.
C.05 Good maintenance access must be provided, such that a vacuum truck or similar equipment can get close enough to the sedimentation chamber and filter to perform cleanouts.
N/A Installing media depths deeper than 18 inches can facilitate the removal of 1 to 3 inches of sand during maintenance without having to necessarily replace it.
N/A Access to the headbox and cleanout of underground sand filters must be provided by manholes at least 30 inches in diameter, along with steps to the areas where maintenance will occur.
C.31 Install stormwater filters at the site so that inspection and maintenance personnel can easily see them. Provide adequate signs or markings at manhole access points for underground filters.
N/A For underground filters, note that special OSHA rules and training apply to protect workers that must access them.

- C. Landscape Plan
C.11-C.12 Consider the importance of aesthetics and visual characteristics (foliage form, texture, color, etc.)
C.11-C.12 Consider visibility, traffic considerations and other safety issues
C.12 Provide a planting schedule and specifications (transport / storage / installation / maintenance)
C.11-C.12 Plant selection appropriate for the site's vegetation climatic zone (4-8 in Virginia), emphasizing native species.
C.11-C.12 Specify preservation measures for existing vegetation
C.11-C.12 Where applicable, ensure that topsoil / planting soil is included in final grading

- D. Construction Notes
N/A The future location of filtering practices may be used as the site of a temporary sediment trap or basin during site construction, as long as the design elevations are set with final cleanout and conversion in mind.
N/A The bottom elevation of the filtering practice should be lower than the bottom elevation of the temporary sediment basin.
N/A Appropriate procedures must be implemented to prevent discharge of turbid waters when the temporary basin is converted to the filtering practice.
N/A Then the sediment basin must be dewatered, dredged and regraded to the design dimensions for the post-construction stormwater filter.
C.16 Construction sequence for filtering practices and E&S controls
C.16 Stabilize the drainage area.
C.31 Construct filtering practices only after the CDA to the facility is completely stabilized.
C.19 Install E&S controls for the filtering practice.
N/A It is extremely important that stormwater is diverted around the filtering practice as it is being constructed, in order to prevent sediment from clogging the filter bed during construction.
N/A Install silt fence around the perimeter of the sand filter.
N/A Install erosion control fabric on exposed side-slopes with gradients exceeding 4H:1V.
N/A Rapidly stabilize exposed soils around the filter by hydro-seed, sod, mulch or other locally-approved method of soil stabilization.
C.31 Assemble construction materials, make sure they meet design specifications, and prepare staging areas

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- C.13 Clear and strip the project area to the desired subgrade.
N/A Excavate/grade until the appropriate elevation and desired contours are achieved for the bottom and side slopes of the filtering practice.
C.31 Install the filter structure.
C.31 Check all design elevations (concrete vaults for surface, underground and perimeter sand filters).
C.31 Upon completion of the filter structure shell, plug inlets and outlets temporarily and fill the structure with water to the brim to check for water-tightness (maximum allowable leakage is 5% of the water volume in a 24-hour period).
N/A If the structure fails the test, perform repairs to make the structure watertight before any sand is place into it.
N/A Install the gravel, underdrains, and choker layer of the filter.
N/A Place the filter media:
N/A Spread sand across the filter bed in 1 foot lifts up to the design elevation.
N/A Manually rake the sand.
N/A Add clean water until the sedimentation chamber and filter bed are completely full.
N/A Allow the facility to drain, hydraulically compacting the sand layers.
N/A After 48 hours of draining and drying, refill the structure to the final top elevation of the sand filter bed.
N/A Filter fabric installation:
N/A Install the permeable filter fabric over the sand.
N/A Add a 3-inch topsoil layer and pea gravel inlets.
N/A Immediately stabilize with permanent grass species.
N/A Water the grass as needed to develop a vigorous grass cover (do not activate the filter system until vigorous cover is present)

- E. Maintenance Items (can include BMP Operation & Maintenance Inspection Checklists from Chapter 9, Appendix 9-C of this Handbook)
C.01 Provide a Maintenance Agreement, indicating the person or organization responsible for maintenance, authorizing access for inspections and maintenance, and including a maintenance inspection checklist.
C.22 Include a Maintenance Narrative which describes the long-term maintenance requirements of the facility and all components, including removal and disposal of trash, debris and sediment accumulations, periodic replacement of soil media, care of the vegetation, and mowing.
SEE PLANS Record a deed restriction, drainage easement, and/or other enforceable mechanism, including GPS coordinates of the area, to ensure the bioretention areas are not disturbed or converted to other uses.
C.05 Provide sufficient facility access from the public ROW or roadway to both the filtration facility and any pre-treatment practices.
N/A To prevent freezing in cold climates and winter weather, require or clearly recommend that filters be inspected before the onset of winter (prior to the first freeze) to dewater wet chambers and scarify the filter surface.

IV. COMMENTS

Blank lines for comments.

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January 18, 2023
Sharon Dusza, P.E.
Rinker Design Associates, P.C.
11100 Endeavor Ct.
Manassas, VA 20109

RE: Review of CDS2015-4 for Wellington Road Operations Center Expansion

The purpose of this letter is to document for Prince William County our review of the plans and the proposed application of the CDS unit as stated above at this site. Contech has reviewed the CDS designs for the Wellington Road Operations Center Expansion project. We believe the flow-based CDS configuration is an appropriate water quality solution for this site. The CDS system is approved for use in Virginia for standalone water quality treatment.

STM 56
The engineer of record reports a treatment area of 0.10 acres of impervious area to be treated by the CDS unit. The flow-based CDS unit was designed per the VADEQ regulations of the volume from a 1" rainfall by converting to flow using the modified TR-55 method. To adequately treat the calculated water quality flow of 0.15 cfs we (Contech) recommend a CDS 2015-4 in a 4' MH.

The engineer of record reports a 10 year peak storm event of 0.66 cfs; the CDS unit is adequately sized and configured to pass this event.

The CDS unit has an oil baffle wall to provide capture of hydrocarbons under the designed flow rate and normal loading conditions. This unit is not meant for emergency relief from large oil spills.

In summary, this system is expected to operate in accordance with Contech Engineered Solutions' design intent. Please feel free to contact me if you have any questions or concerns.

Sincerely,
John Wright

John Wright
Contech Engineered Solutions LLC
(443) 457-1531
wright@conteches.com

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Engineering \* Surveying \* Transportation \* Environmental Services



SWM & BMP CHECKLISTS
WELLINGTON ROAD OPERATIONS CENTER EXPANSION
BRENTSWILLE, VIRGINIA
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:
Blank lines for revision tracking.

PLAN DATE: OCTOBER 7, 2022
DESIGN BY: AG/SAW
CHECKED BY: SSD
ARCHITECT/MOSELEY ARCH
JURISDICTIONAL PLAN NO. SPR2023-00185
RDA PLAN #: 19001-008
SHEET NUMBER: C.35B

8-A.13.0. FILTERING PRACTICES: DESIGN CHECKLIST

Plan Submission Date: OCTOBER 25, 2022
Project Name: WELLINGTON ROAD OPERATIONS CENTER EXPANSION
Site Plan/Permit Number: SPR2023-00185 303
Practice No./Location on Site: SWM Facility 1
Owner: EMC Services Authority
BMP Designer: Advance Drainage Systems, INC.
General Contractor: N/A

C.01 Signature and stamp of licensed professional design consultant and owner certification

Plan Status: Approved (X), Not Approved ( )
Legend: Complete ( ), Incomplete/Incorrect (Inc.), Not Applicable (N/A)

Facility Type: Level 1, Level 2

Facility Type: Non-Structural Sand Filter, Surface Sand Filter, Organic Media Filter, Underground Sand Filter, Proprietary Filter, Other
Pre-Treatment: Wet or Dry Sedimentation Chamber, Spreaders and sized to accommodate 25% of the treatment volume, Forebay, Compost-amended grass filter path, Gravel Diaphragm, Check Dam, Engineered Level Spreader, Proprietary device, Other

Hydraulic Configuration: On-line facility (X), Off-line facility ( )
FILTER TREATS HOSPOSPOT RUNOFF ( )

I. SUPPORTING INFORMATION

C.22 Provide a concise narrative describing the stormwater management strategy, describing how this practice fits into the overall plan, and stating all assumptions made in the design.
C.05 Show the location of this BMP on the site map, including the following:
C.05 Filter facility area
C.19 Contributing drainage area (CDA) boundaries, acreage and land cover
C.05 Delineation of FEMA 100-year floodplain
C.20-C.21 Areas of site compensated for in water quality calculations
C.05 Provide topography of the site area
C.01 Provide a soil map for site and area of facility, including the CDA
UNK Provide the soil boring locations and the soil boring logs with Unified Soils Classifications and soil descriptions (at least one boring must be taken to confirm the underlying soil properties).
UNK At least one soil boring must be taken at a low point within the footprint of the proposed filtering practice to establish the depth to groundwater/bedrock and to evaluate the soil suitability
UNK Confirm that there is a minimum of 2 feet separation distance between the seasonally high groundwater table and/or bedrock and the bottom invert of the filtering practice.
UNK If karst is present, a detailed geotechnical investigation is recommended to ensure the installation does not aggravate potential karst impacts (e.g., sinkholes, etc.)

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N/A Identify potential conflicts with other (existing?) structural components (pipes, underground utilities, etc.).
UNK Special conditions:

N/A Filters work well in karst areas, assuming that they are water tight and that excavation does not extend into a karst layer.
N/A In coastal plain settings, the Perimeter Sand Filter and the Non-Structural Sand Filter work best, subject to the following criteria:
N/A The combined depth of the underdrain and sand filter bed can be reduced to from 24 to 30 inches
UNK Consider maximizing the length of the filter or provide treatment in multiple connected cells.
N/A The minimum depth to seasonally high groundwater may be relaxed to 1 foot, as long as the filter is equipped with a large diameter underdrain (e.g., 6 inches) that is only partially efficient at dewatering the filter bed.
N/A Maintain an underdrain slope of at least 0.5% to ensure positive drainage and to tie it into the receiving ditch or conveyance system.
N/A In steep terrain:
N/A Slope gradient contributing runoff to sand filters can be increased to 15%, as long as a two-cell, terraced design is used to dissipate erosive energy prior to the filter.
N/A The drop in elevation between cells should be limited to 1 foot and the slope should be armored with river stone or a suitable equivalent.
N/A In cold climate of for winter performance (problem is ice forming over the filter bed):
N/A Place a weir between the pre-treatment chamber and filter bed to reduce ice formation.
N/A Extend the filter bed below the frost line to prevent freezing within the filter bed.
N/A Oversize the underdrain to encourage more rapid drainage and to minimize freezing of the filter bed.
N/A Expand the sediment chamber to account for road sand. Pre-treatment chambers should be sized to accommodate up to 40% of the treatment volume.

II. COMPUTATIONS

A. Hydrology
C.23-C.24 Determine the runoff curve number (pre- and post-developed conditions), providing the worksheets.
N/A Determine the time of concentration (pre- and post-developed conditions), providing the worksheets.
C.32-C.35 Generate hydrographs (pre- and post-developed conditions) for appropriate design and safety storms (USDA-NRCS methods or modified rational-critical storm duration method)
B. Hydraulics
N/A The hydraulic head required for filters varies from 2 to 10 feet, depending on the design variant; sufficient hydraulic head is critical to the proper function of filtering systems.
N/A Confirm that the design will result in the facility dewatering within 40 hours after a storm event.
C.25-C.30 Specify the assumptions and coefficients used.
C.32-C.35 Provide a stage-storage table and curve.
C.32-C.35 Provide for large storm overflow or bypass
C.32-C.35 Provide storm drainage and hydraulic grade line calculations.

C. Water Quality
UNK A maximum contributing drainage area (CDA) of 5 acres is recommended for surface sand filters, and a maximum CDA of 2 acres is recommended for perimeter or underground filters, to minimize clogging.

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C.20 Provide a tabulation of land cover areas (impervious cover, managed turf, forest cover) in the CDA. For Level 1 designs, the contributing drainage area may contain some pervious area; for Level 2 designs, the CDA must be nearly 100% impervious (preferred condition).
C.21 Determine the pollutant load, pollutant load removal, and treatment volume requirements, generated by using the Virginia Runoff Reduction Method spreadsheet (provide spreadsheet). Keep in mind that Level 2 designs are sized for a treatment volume that is 25% greater than for Level 1 practices.
UNK Also, keep in mind that for Level 2 designs, the runoff reduction value (normally 0) may be increased if a second cell is used for infiltration or bioinfiltration (Bioretention Level 2). The RR credit should be proportional to the fraction of the treatment volume designed to be infiltrated.
C.30 Determine specific sizing/dimensions from criteria in Stormwater Design Specification No. 12.

III. PLAN REQUIREMENTS

A. BMP Plan View Information
C.02 Show the limits of clearing and grading, noting that they should be identified and protected by acceptable signage, silt fence, snow fence, or other comparable barrier.
C.25-C.30 Show the layout and dimensions of the filtering facilities (one cell for Level 1 design; two cells for Level 2)
N/A Sand and organic surface filters typically consume approximately 2% to 3% of the CDA, while perimeter sand filters typically consume less than 1% of the CDA. Underground filters generally consume no surface area except for their manholes.
N/A NOTE: Surface area and storage volume of the filter media relates to the treatment volume (Equations 12.1 and 12.2 in Stormwater Design Specification No. 12)
C.05 Ensure proper orientation to avoid short-circuiting
C.30 Ensure adequate maintenance access to the facility
C.30 Show the observation well location

B. BMP Section Views & Related Details
C.25-C.30 Details will vary depending upon the type of filter employed:

- 1. Non-Structural Sand Filter - applied to sites less than 2 acres in size and essentially the same as a Bioretention Basin (Stormwater Design Specification No. 9), with the following exceptions:
N/A The bottom is lined with an impermeable filter fabric and always has an underdrain.
N/A The surface cover is sand, turf or pea gravel (not trees, shrubs, or herbaceous material).
N/A The filter media is 100% sand.
N/A The filter has two cells, with a dry or wet sedimentation chamber preceding the sand filter bed.
2. Surface Sand Filter (more economical)
N/A Designed with both the filter bed and sediment chamber located at ground level
N/A Normally constructed of pre-cast or cast-in-place concrete
N/A Usually designed to be off-line facilities, so that only the treatment volume is directed to the filter. Can be installed in the bottom of a dry Extended Detention Basin (see Stormwater Design Specification No. 15).
3. Organic Media Filter
N/A Essentially the same as surface sand filters, except the sand is replaced with an organic filtering medium (e.g., peat/sand filter, leaf compost filter, etc.) that is better at removing metals and hydrocarbons. However, organic media can actually leach soluble nitrate and phosphorus back into the discharge water.
4. Underground Sand Filter (more expensive, but they consume very little surface area)
N/A Filtering components are installed underground

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Blank lined area for plan view information and section views.

By: \_\_\_\_\_ Date: \_\_\_\_\_

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5. Perimeter Sand Filter (more economical)
N/A Incorporates a sediment chamber and filter bed, but flow enters through grates, usually at the edge of a parking lot.
N/A Usually designed as an on-line practice (i.e., all flows enter the system), where larger flows generated by entering a karst chamber bypass by entering an overflow chamber
N/A Requires only about 2 feet of hydraulic head, so can be used on sites with little topographic relief

6. Proprietary Filters
C.25-C.30 Follow the design criteria provided by the manufacturer
C.25-C.30 Conveyance and Overflow:
N/A For off-line filter systems, show the internal flow splitter or overflow device that bypasses runoff from larger storm events around the filter.
C.25-C.30 For on-line filter systems, show how the device will safely pass the local design storm(s) (1-year and/or 10-year storms) without re-suspending or flushing previously trapped material.

N/A Ensure that the facility will dewater within 40 hours after a storm event.
N/A Filtering practices typically have an impermeable liner meeting the following criteria:
N/A Needed, non-woven polypropylene geotextile (do not use heat-set or heat-calendered fabrics)
N/A Grab Tensile Strength (ASTM D4632) = 3 120 lbs.
N/A Mullen Burst Strength (ASTM D3786) = 3 225 lbs./sq. in.
N/A Flow Rate (ASTM D4491) = 3 125 gpm/sq. ft.
N/A Apparent Opening Size (ASTM D4751) = US #70 or #80 sieve.

C.25-C.30 Underdrain:
N/A Pipes comply with AASHTO M252 and ASTM F405
N/A If the underdrain must meet ASTM F758, it must be perforated with slots that have a maximum width of 3/8-inch and provide a minimum inlet area of 1.76 sq. in. per linear foot of pipe.
N/A If underdrain meets ASTM F949, it must be perforated with slots that have a maximum width of 3/8-inch and provide a minimum inlet area of 1.5 sq. in. per linear foot of pipe. Underdrain pipe with precision-machined slots is preferred to pipe with standard round-hole perforations.
N/A The stone jacket for the underdrain must meet VDOT #57 stone specifications or the ASTM equivalent (1-inch maximum diameter).
N/A Filter Media:
N/A Normal filter media consists of clean, washed medium aggregate concrete sand with individual grains between 0.2 and 0.04 inches in diameter (AASHTO M-6/ASTM C-33)
N/A Organic media can be used, such as a peat/sand mixture or a leaf compost mixture, but this is not recommended unless metals and hydrocarbons are a particular issue in site runoff.
N/A Surface Cover:
N/A For surface sand filters, surface cover should consist of a 3-inch layer of topsoil on top of a non-woven filter fabric laid above the sand layer (pea gravel inlets in the topsoil layer where sheet flow enters, at margins around the filter bed, or at locations in the middle of the bed, to promote infiltration).
N/A For underground sand filters, surface cover should have a pea gravel layer on top of a coarse non-woven filter fabric laid over the sand layer.
N/A Media depth can range from 12 to 18 inches.

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C.28 Maintenance Reduction Design Features:
C.30 Observation wells and cleanouts (facilitates inspection and maintenance)
N/A Surface sand filters should include an observation well, consisting of a 6-inch diameter non-perforated PVC pipe fitted with a lockable cap.
C.30 Install the observation well flush with the ground surface.
N/A Typically, a cleanout pipe will be tied into the end of each underdrain pipe run.
N/A The portion of the cleanout pipe/observation well in the underdrain layer should be perforated.
N/A Provide at least one cleanout pipe for every 2,000 sq. ft. of filter surface area.
C.30 Good maintenance access must be provided, such that a vacuum truck or similar equipment can get close enough to the sedimentation chamber and filter to perform cleanouts.
N/A Installing media depths deeper than 18 inches can facilitate the removal of 1 to 3 inches of sand during maintenance without having to necessarily replace it.
N/A Access to the headbox and cleanwell of underground sand filters must be provided by manholes at least 30 inches in diameter, along with steps to the areas where maintenance will occur.
C.30 Install stormwater filters at the site so that inspection and maintenance personnel can easily see them. Provide adequate signs or markings at manhole access points for underground filters.
C.28 For underground filters, note that special OSHA rules and training apply to protect workers that must access them.

C. Landscape Plan
C.11-C.12 Consider the importance of aesthetics and visual characteristics (foliage form, texture, color, etc.)
C.11-C.12 Consider visibility, traffic considerations and other safety issues
C.12 Provide a planting schedule and specifications (transport / storage / installation / maintenance)
C.11-C.12 Plant selection appropriate for the site's vegetation climatic zone (4-8 in Virginia), emphasizing native species.
C.11-C.12 Specify preservation measures for existing vegetation
C.11-C.12 Where applicable, ensure that topsoil / planting soil is included in final grading

D. Construction Notes
N/A The future location of filtering practices may be used as the site of a temporary sediment trap or basin during site construction, as long as the design elevations are set with final cleanout and conversion in mind.
N/A The bottom elevation of the filtering practice should be lower than the bottom elevation of the temporary sediment basin.
N/A Appropriate procedures must be implemented to prevent discharge of turbid waters when the temporary basin is converted to the filtering practice.
N/A Then the sediment basin must be dewatered, dredged and regraded to the design dimensions for the post-construction stormwater filter.
C.16 Construction sequence for filtering practices and E&S controls
C.16 Stabilize the drainage area.
C.25 Construct filtering practices only after the CDA to the facility is completely stabilized.
C.19 Install E&S controls for the filtering practice.
N/A It is extremely important that stormwater is diverted around the filtering practice as it is being constructed, in order to prevent sediment from clogging the filter bed during construction.
N/A Install silt fence around the perimeter of the sand filter.
N/A Install erosion control fabric on exposed side-slopes with gradients exceeding 4H:1V.
N/A Rapidly stabilize exposed soils around the filter by hydro-seed, sod, mulch or other locally-approved method of soil stabilization.
C.25 Assemble construction materials, make sure they meet design specifications, and prepare staging areas

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C.13 Clear and strip the project area to the desired subgrade.
N/A Excavate/grade until the appropriate elevation and desired contours are achieved for the bottom and side slopes of the filtering practice.
C.25-C.30 Install the filter structure.
C.25-C.30 Check all design elevations (concrete vaults for surface, underground and perimeter sand filters).
C.25-C.30 Upon completion of the filter structure shell, plug inlets and outlets temporarily and fill the structure with water to the brim to check for water-tightness (maximum allowable leakage is 5% of the water volume in a 24-hour period).
C.25-C.30 If the structure fails the test, perform repairs to make the structure watertight before any sand is placed into it.
N/A Install the gravel, underdrains, and choker layer of the filter.
N/A Place the filter media:
N/A Spread sand across the filter bed in 1 foot lifts up to the design elevation.
N/A Manually rake the sand.
N/A Add clean water until the sedimentation chamber and filter bed are completely full.
N/A Allow the facility to drain, hydraulically compacting the sand layers.
N/A After 48 hours of draining and drying, refill the structure to the final top elevation of the sand filter bed.
N/A Filter fabric installation:
N/A Install the permeable filter fabric over the sand.
N/A Add a 3-inch topsoil layer and pea gravel inlets.
N/A Immediately stabilize with permanent grass species.
N/A Water the grass as needed to develop a vigorous grass cover (do not activate the filter system until vigorous cover is present)

E. Maintenance Items (can include BMP Operation & Maintenance Inspection Checklists from Chapter 9, Appendix 9-C of this Handbook)
C.01 Provide a Maintenance Agreement, indicating the person or organization responsible for maintenance, authorizing access for inspections and maintenance, and including a maintenance inspection checklist.
C.28 Include a Maintenance Narrative which describes the long-term maintenance requirements of the facility and all components, including removal and disposal of trash, debris and sediment accumulations, periodic replacement of soil media, care of the vegetation, and mowing.
SEE PLANS: Record a deed restriction, drainage easement, and/or other enforceable mechanism, including GPS coordinates of the area, to ensure the bioretention areas are not disturbed or converted to other uses.
C.30 Provide sufficient facility access from the public ROW or roadway to both the filtration facility and any pre-treatment practices.
N/A To prevent freezing in cold climates and winter weather, require or clearly recommend that filters be inspected before the onset of winter (prior to the first freeze) to dewater wet chambers and scarify the filter surface.

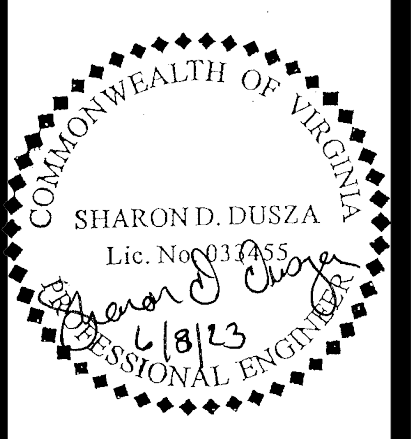
IV. COMMENTS

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Engineering \* Surveying \* Transportation \* Environmental Services



SWM & BMP CHECKLISTS
WELLINGTON ROAD OPERATIONS CENTER EXPANSION
BRENTSVILLE, VIRGINIA
PRINCE WILLIAM COUNTY, VIRGINIA

Table with 2 columns: REVISIONS, Description of revision.

PLAN DATE: OCTOBER 7, 2022
DESIGN BY: AG/SAW
CHECKED BY: SSD
ARCHITECT/MOSELEY ARCH
JURISDICTIONAL PLAN NO. SPR2023-00185
RDA PLAN #: 19001-008
SHEET NUMBER: C.35C

GEOTECHNICAL SPECIFICATIONS

Wellington Road Operations Center Expansion
8410 Virginia Meadows Drive
Manassas, Virginia 20109

ECS Project: 01-31622
March 23, 2023

The following geotechnical specifications have been developed from ECS Report of Subsurface Explorations No. 01:31622 dated on March 23, 2023 (Revised). Information regarding subsurface exploration procedures, soil conditions observed, and discussions of recommendations may be found in this referenced report.

4.0 DESIGN RECOMMENDATIONS

4.1 BUILDING FOUNDATIONS

The following sections provide recommendations for foundation design, soil supported slabs, pavements, and seismic design parameters for the proposed construction. Discussion of the factors affecting the building foundations for the proposed construction as well as additional recommendations regarding design and construction at the project site are included below.

The primary concern from a geotechnical perspective at this site is the presence of uncontrolled man-placed fill materials below the proposed building. As a result of the variability with respect to density and material constituents (i.e., construction debris), the magnitudes of consolidation can vary dramatically, and a foundation system or slab bearing above the fill material would likely undergo differential settlement issues that manifest themselves over the life of the building. The RAP shall be used for the wall and column elements of the Operations/Maintenance Facility. For the slabs, we recommend the upper 2 ft of in-situ soil to be removed. If the excavated soil is free of trash and meets structural fill requirements, the excavated soils can be replaced and compacted. If RAP is not used for the wall and column elements of the operations/maintenance building, the existing fill material needs to be completely removed and replaced with controlled engineered fill, prior to the construction of shallow foundations.

Provided subgrades and structural fills are prepared as recommended in this report, the proposed structures can be supported by shallow foundations including column footings and continuous wall footings. We recommend the foundation design use the following parameters.

Table 4.1.1: Summary of Design Recommendations

Table with 3 columns: Design Parameter, Column Footing, Wall Footing. Rows include Soil - Net Allowable Bearing Pressure, Suitable Subgrade Bearing Materials, Minimum Width, Minimum Footing Embedment Depth, and Minimum Exterior Frost Depth.

time. We would be pleased to be of further assistance to you in the design of the project pavements by providing additional recommendations during construction of the project.

- d. For preliminary design purposes, we recommend using a design California Bearing Ratio (CBR) value of 5 for the native site soils; however, we suggest that additional laboratory testing (i.e., CBR and Atterberg Limits tests) be performed in the proposed pavement areas on actual subgrade materials to permit proper design of these pavements.
e. Rutting of pavement and ultimately pavement failure is typically experienced due to front loading garbage trucks imposing concentrated wheel loads on pavements.
f. We recommend that sidewalks be underlain by a minimum of 4 inches of granular material having a maximum aggregate size of 1.5 inches and no more than 2% passing the #200 sieve or in accordance with the local requirements.

4.5 UNDERGROUND STORMWATER MANAGEMENT FACILITY

- a. The site plan indicates that an underground SWM facility is proposed. This is likely a proprietary system and shall be designed and constructed in accordance with the manufacturer's design manual, specifications and details as shown on the civil site plan.
b. Based on the course-grained soil and the presence of shallow weathered rock at this site, infiltration practices of stormwater management are not feasible for this site and the facilities shall be designed so that infiltration is not required.
c. The foundations for the systems shall bear on suitable natural soil and be designed for a net allowable bearing capacity of 3,000 psf.
d. Due to the presence of the weathered rock on site, perched water shall be expected over the dense encountered materials.

Table 4.1.2: Summary of Design Recommendations
Aggregate and Pipe Storage Buildings

Table with 3 columns: Design Parameter, Column Footing, Wall Footing. Rows include Soil - Net Allowable Bearing Pressure, Suitable Subgrade Bearing Materials, Minimum Width, Minimum Footing Embedment Depth, and Minimum Exterior Frost Depth.

Notes: (1) Net allowable bearing pressure is the applied pressure in excess of the surrounding overburden soils above the base of the foundation. (2) For bearing considerations, frost penetration requirements or expansive soil concerns.

During construction, the bearing capacity at the final footing excavation should be documented in the field by an experienced soil engineer to ensure that the in-situ bearing capacity at the bottom of each footing excavation is adequate for the design loads. For the Aggregate Storage Building, we recommend the upper 2 ft of in-situ soil to be removed and replaced with controlled engineered fill and for the Pipe Storage Building we recommend the upper 5 ft of in-situ soil to be removed and replaced with controlled engineered fill. If the excavated soil is free of trash and meets structural fill requirements, the excavated soils can be re-used as engineered fill.

4.1.2 New Maintenance Building Foundations - RAMMED AGGREGATE PIERS (RAP)

- a. If the process of removal and replacement of the fill is not feasible from an economic standpoint, it may be possible to utilize aggregate piers to improve foundation bearing capacity while leaving the existing subgrade materials in place.
b. Rammed Aggregate Piers (RAP) are a ground improvement system constructed by excavating a hole and replacement of the excavated material with rammed aggregate.
c. A preliminary bearing analysis of a rammed aggregate pier supported spread footing foundation system was conducted using information obtained during the field exploration.

we recommend that all installation operations be observed full-time by the GER or his qualified authorized representative to determine if the installation requirements are being met, prior to pavement installation above the facility.

4.6 TEMPORARY AND PERMANENT SLOPES

- a. Because of the erodibility of the natural soil at the site, special care shall be taken to prevent erosion.
b. The Prince William County DCSM requires slopes steeper than 3H:1V to be analyzed and certified by the (GER). Additionally, for slopes steeper than 3H:1V a DCSM waiver must be submitted to and approved by Prince William County prior to site plan approval.

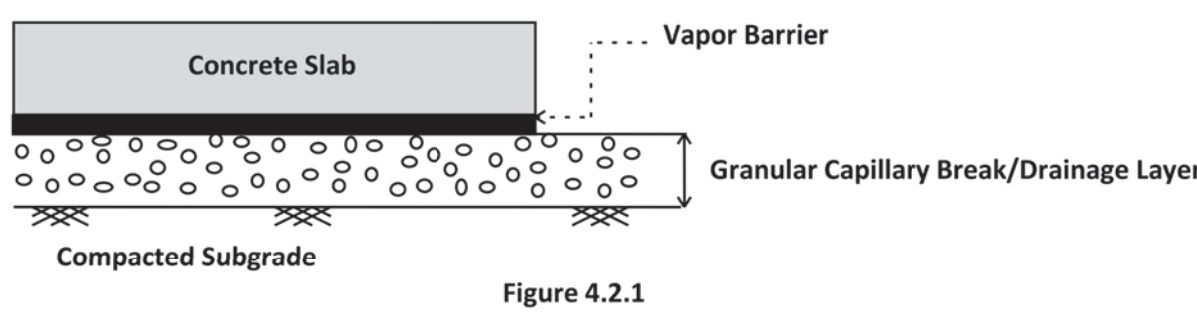
d. Structural designs of the RAPs system (including final pier locations, pier length, pier diameters and spacing) shall be submitted for approval and appropriate permit to Prince William County Building Division prior to installation. The RAP system may be designed by others and reviewed by the Geotechnical Engineer of Record.

- e. The allowable soil bearing pressure refers to that pressure which may be transmitted to the foundation bearing soils in excess of the final minimum surrounding overburden pressure.
f. For foundations designed with RAP ground improvement, this observation typically consists of verification that the correct number of RAP elements are present within the foundation footprint.
g. For foundations constructed on newly placed fill materials, virgin soils and/or weathered rock, if soft or unsuitable soils are observed at the footing bearing elevations, the unsuitable soils shall be undercut and removed.
h. Exposure to the environment may weaken the material at the footing bearing level if the foundation excavations remain open for too long a time.

4.2 SLABS ON GRADE

In slab areas where extensive existing fill is encountered, we recommend selective undercutting of the existing fill material to a maximum depth of 2 feet and either re-compacting the same material (if found to meet the requirements of engineered fill) or replacing with new structural fill material.

The following graphic depicts our soil-supported slab recommendations:



5.0 SITE CONSTRUCTION RECOMMENDATIONS

5.1 SUBGRADE PREPARATION

5.1.1 Stripping and Grubbing

- a. The subgrade preparation shall consist of stripping all vegetation, rootmat, topsoil, existing fill, and any soft or unsuitable materials from the 10-foot expanded building and 5-foot expanded pavement limits, and 5 feet beyond the toe of structural fills.

5.1.2 Proofrolling

- b. After removing all unsuitable surface materials, cutting to the proposed grade, and prior to the placement of any structural fill or other construction materials, the exposed subgrade shall be examined by the Geotechnical Engineer of Record (GER) or their authorized representative.
c. Methods of repair of unstable subgrade, such as undercutting or moisture conditioning, shall be discussed with the Geotechnical Engineer to determine the appropriate procedure with regard to the existing conditions causing the instability.

5.1.3 Subgrade Stabilization

- a. In some non-structural areas, undercutting of excessively soft materials may be considered inefficient. In such areas, the use of a reinforcing geotextile or geogrid might be employed, under the advisement of ECS.

5.2 EARTHWORK OPERATIONS

5.2.1 Existing Man-Placed Fill

- a. Undocumented existing fill which will not be improved by Rammed Aggregate Piers (RAP) should be removed entirely and replaced with controlled engineered fill material.
b. Satisfactory Structural Fill Materials: Fill material underneath the proposed structures and pavements shall consist of an approved material (CL, ML, SC, SM or more granular), free of debris, organics, and cobbles greater than 4 inches.

- 1. Drainage Layer Thickness: 6 inches
2. Drainage Layer Material: 6 inches of VDOT #57 Stone or similar material

Subgrade Modulus: Provided the structural fill and granular drainage layer are constructed in accordance with our recommendations, the slab may be designed assuming a modulus of subgrade reaction, k1, of 90 pci (lbs./cu. inch).

Vapor Barrier: Before the placement of concrete, a vapor barrier may be placed on top of the granular drainage layer to provide additional protection against moisture penetration through the floor slab. When a vapor barrier is used, special attention shall be given to surface curing of the slab to reduce the potential for uneven drying, curling and/or cracking of the slab.

Slab Isolation: Soil-supported slabs shall be isolated from the foundations and foundation-supported elements of the structure so that differential movement between the foundations and slab will not induce excessive shear and bending stresses in the floor slab. Where the structural configuration prevents the use of a free-floating slab such as in a drop-down footing/monolithic slab configuration, the slab shall be designed with suitable reinforcement and load transfer devices to preclude overstressing of the slab.

4.3 SEISMIC DESIGN CONSIDERATIONS

- a. The subsurface exploration completed at this site included borings to depths as deep as 22.0± feet below the existing ground surface.
b. Of the three methods typically utilized in classifying sites, namely: the shear wave velocity (vs) method, the unconfined compressive strength (su) method, and the Standard Penetration Test (N-value) method, the latter provides a more conservative classification for seismic design.

4.4 PAVEMENTS

- a. The site pavement designs shall conform to the latest VDOT Road and Bridge Standards and Specifications. The subgrade preparation for pavements shall consist of stripping all soft or unsuitable material from the parking lot areas.
b. Proofrolling using a loaded dump truck, having an axle weight of at least 10 tons, shall be used to aid in identifying localized soft or unsuitable material which shall be removed and replaced with an approved backfill compacted to the criteria presented in the Structural Fill section of this report.
c. An important consideration with the design and construction of pavements is surface and subsurface drainage.

hornfels materials at the site will be considered nondurable. Durability is the term used to describe the ability of a rock or rock-like material to withstand long term chemical or mechanical weathering without size degradation. Any siltstone and hornfels excavated from the site and used as engineered fill shall have a well-graded grain size distribution with rock and soil particles ranging from clay or silt size particles to a maximum size of 4 inches in diameter.

5.2.2 Structural Fill

- a. Product Submittals: Prior to placement of structural fill, representative bulk samples (about 50 pounds) of on-site and/or off-site borrow shall be submitted to ECS for laboratory testing, which will typically include Atterberg limits, natural moisture content, grain-size distribution, and moisture-density relationships (i.e., proctors) for compaction.
b. Satisfactory Structural Fill Materials: Materials satisfactory for use as Structural Fill shall consist of inorganic soils with the following engineering properties and compaction requirements.

Table 5.2.2.1: Structural Fill Index Properties

Table with 2 columns: Subject, Property. Rows include Building Areas, upper 4 feet; Building Areas, below upper 4 feet; Pavement Areas, upper 2 feet; Max. Particle Size.

Materials satisfactory for use as Structural Fill shall consist of inorganic soils with the following engineering properties and compaction requirements.

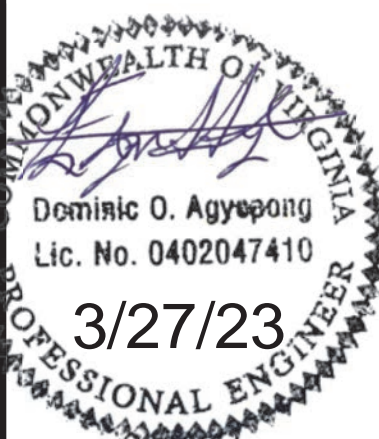
Table 5.2.2.2: Structural Fill Compaction Requirements

Table with 2 columns: Subject, Requirement. Rows include Compaction Standard, Required Compaction, Moisture Content, Loose Thickness.

- c. On-Site Borrow Suitability: The on-site soils excavated on-site during construction operations which meet the above criteria are considered suitable for reuse as backfill; however, moisture content adjustments may be necessary.
d. Fill Placement: Fill materials shall not be placed on frozen soils, on frost-heaved soils, and/or on excessively wet soils. Borrow fill materials shall not contain frozen materials at the time of placement, and all frozen or frost-heaved soils shall be removed prior to placement of Structural Fill or other fill soils and aggregates.



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Engineering \* Surveying \* Transportation \* Environmental Services



GEOTECHNICAL SPECIFICATIONS
WELLINGTON ROAD OPERATIONS CENTER EXPANSION
BRENTSVILLE, VIRGINIA
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS table with columns for revision number, description, and date.

PLAN DATE: OCTOBER 7, 2022
DESIGN BY: AG/SAW
CHECKED BY: SSD
ARCHITECT:
JURISDICTIONAL PLAN NO. SPR2023-00185 S01
RDA PLAN #: 19001-008
SHEET NUMBER: C.36



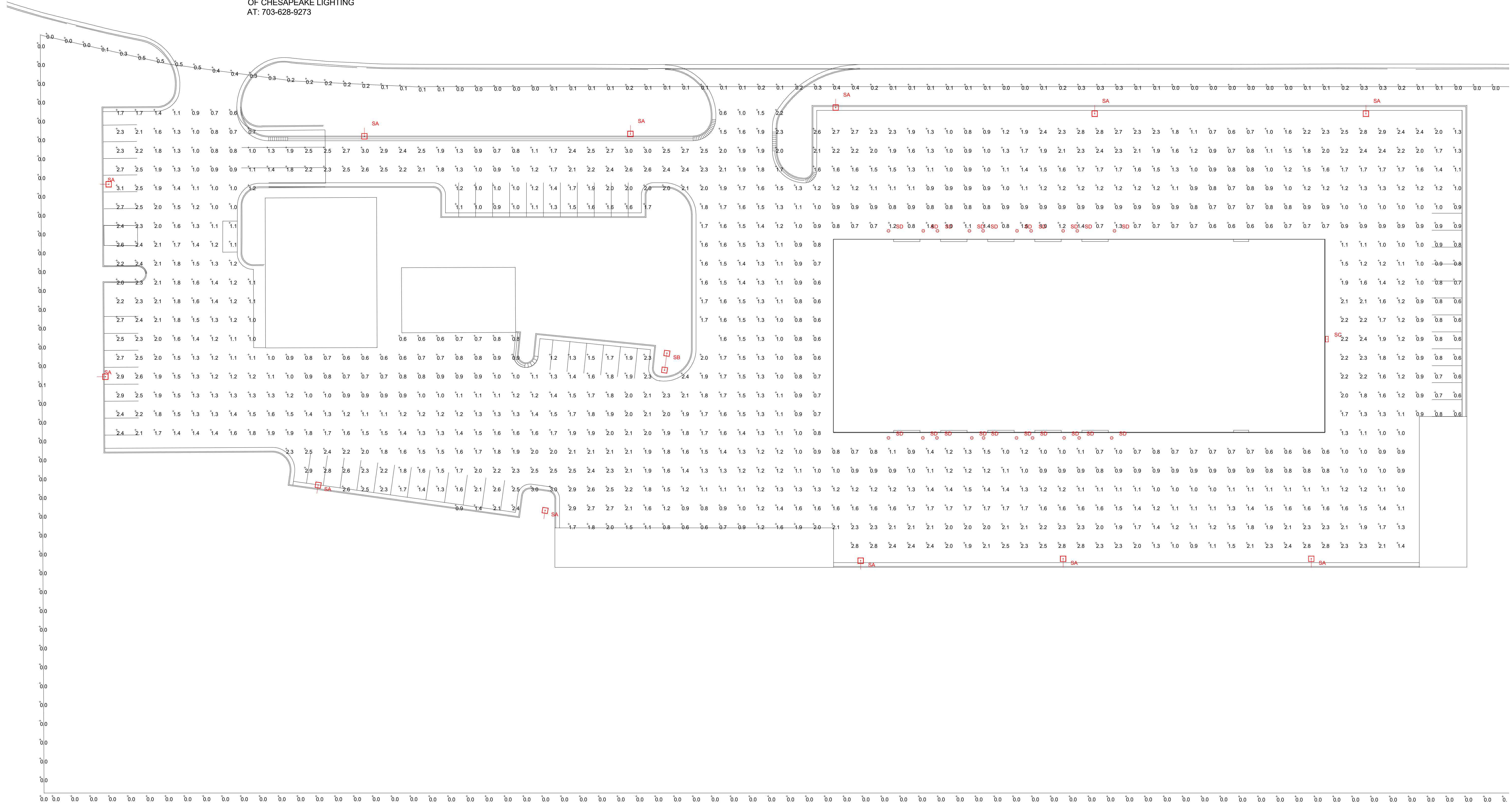


Luminaire Schedule					
Symbol	Qty	Label	Description	LLF	Lum. Lumens
+	12	SA	COOPER #: GALN-SA3C-740-U-SL4-HSS / MTD AT 30' AFG	0.900	17264
+	1	SB	COOPER #: GALN-SA2C-740-U-5WQ / MTD AT 30' AFG	0.900	14797
+	1	SC	COOPER #: GWC-SA2C-740-U-T4FT / WALL MTD AT 20' AFG	0.900	14850
○	20	SD	COOPER #: BRT6-A1-740-U-T5-XX-BK / 3.5' H BOLLARD	0.900	1149

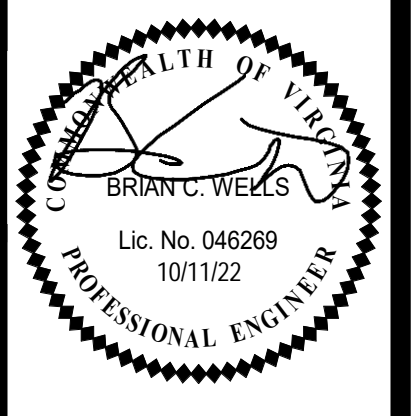
Calculation Summary						
Label	CalcType	Units	Avg	Max	Min	Avg/Min
PROPERTY LINE	Illuminance	Fc	0.05	0.5	0.0	N.A.
SITE AREA	Illuminance	Fc	1.47	3.1	0.6	2.45

Filename: PWCO-2022-09-01.AGI

FOR FIXTURE INFO CONTACT MIKE LARKIN, LC  
OF CHESAPEAKE LIGHTING  
AT: 703-628-9273



**Rinker Design Associates, P.C.**  
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Engineering \* Surveying \* Transportation \* Environmental Services



SITE PLAN - PHOTOMETRIC STUDY  
**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
BRENTSVILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

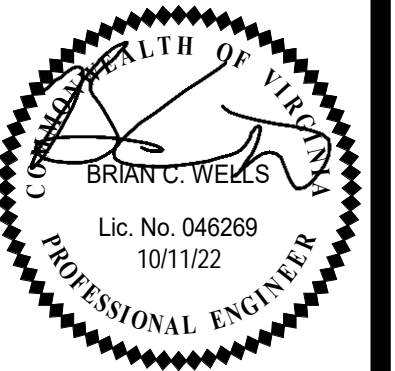
REVISIONS:


PLAN DATE: October 11, 2022
DESIGN BY:
CHECKED BY:
ARCHITECT:
JURISDICTIONAL PLAN NO.:
RDA PLAN NO:19001-008
SHEET NUMBER: C.38

**PWCSA OPERATION CENTER - SITE PHOTOMETRIC STUDY**  
NOT TO SCALE



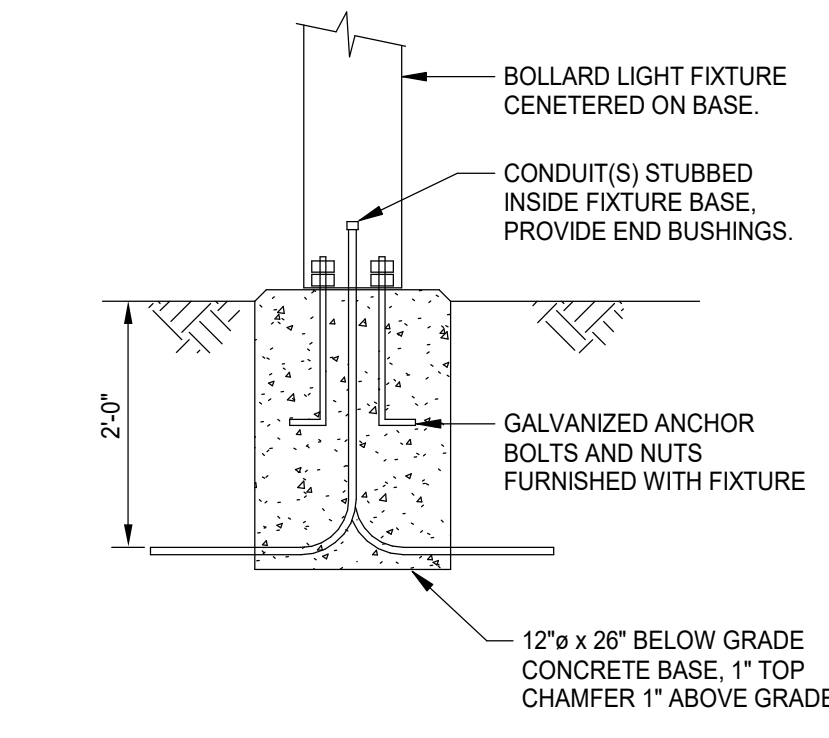
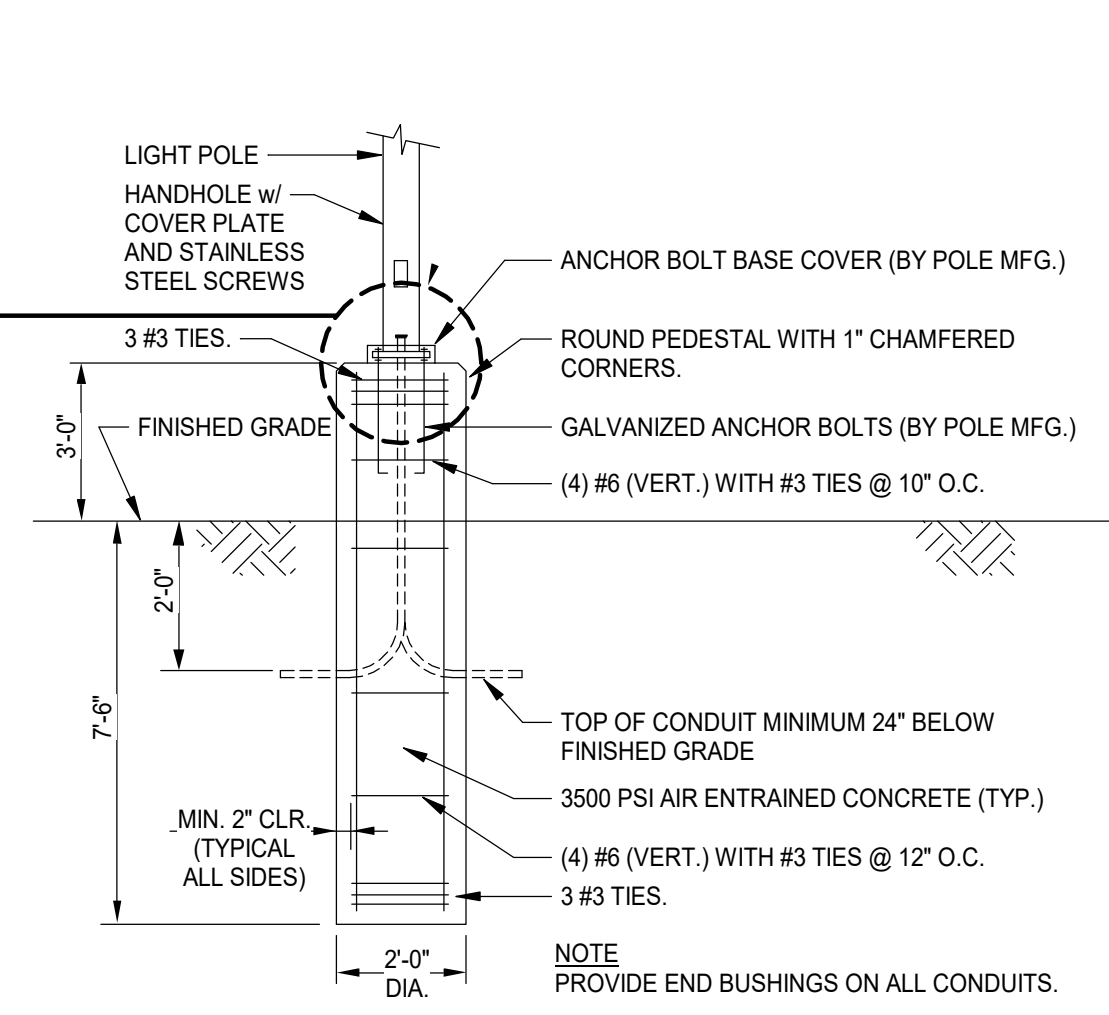
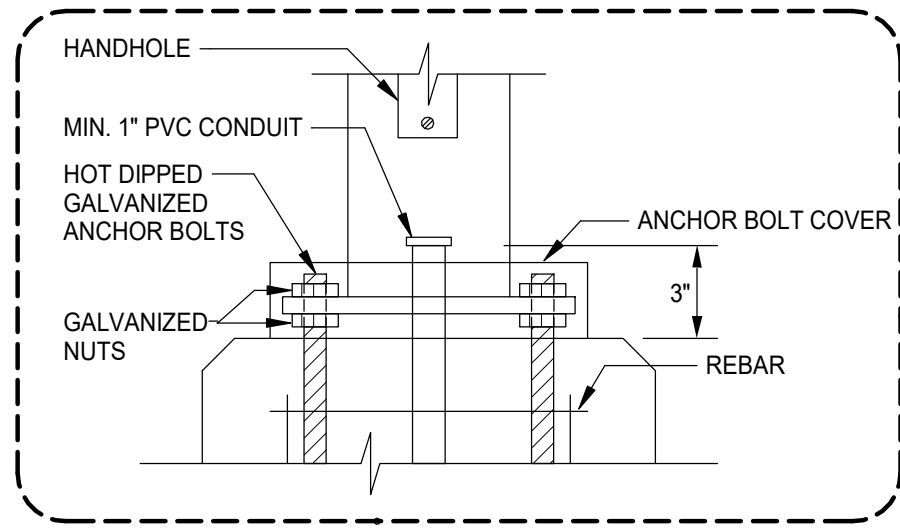
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**DETAILS - PHOTOMETRIC STUDY**  
**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
 BRENTSVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:

PLAN DATE:	October 12, 2022
DESIGN BY:	
CHECKED BY:	
ARCHITECT:	
JURISDICTIONAL PLAN NO.:	
RDA PLAN NO.19001-008	
SHEET NUMBER:	C.39



USE AT TYPE S6 FIXTURES

**BOLLARD BASE DETAIL**  
 12" = 1'-0"

**PROTECTIVE POLE BASE DETAIL**  
 NO SCALE

Project	Catalog #	Type
Prepared by	Notes	Date

**McGraw-Edison**  
**BRT6 Bollard**  
 Round LED Pedestrian Luminaire

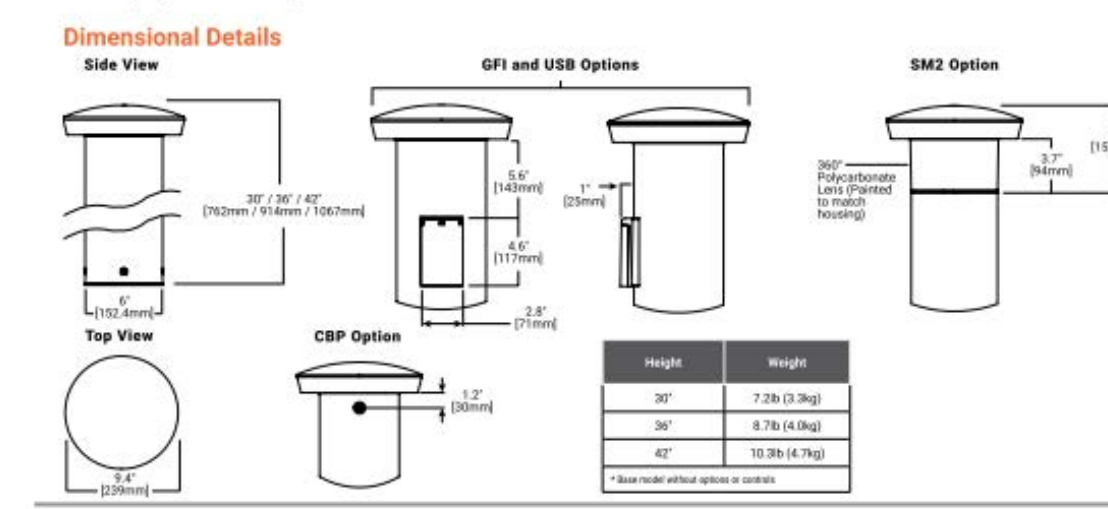
**Interactive Menu**

- Ordering Information page 1
- Product Specifications page 2
- Optical Distributions page 2
- Energy and Performance Data page 3

**Product Certifications**

**Quick Facts**

- 4 Optical Distributions
- Available in 30", 36", and 42"
- Lumen packages range from 560 - 4400 (SW - 49W)
- Efficacy up to 122 lumens per watt
- Zero uplift on all configurations



**COOPER**  
 P500002611 page 1

**McGraw-Edison BRT6 Bollard**

**Ordering Information**  
 SAMPLE NUMBER: BRT6-AS-740-U-74-36-GM

Product Family	Configuration	Color Temperature	Voltage	Distribution	Height	Finish
BRT6-Standard	AS-740-U-74-36-GM	3000K	120V	30° Beam	36"	Black
BRT6-Standard	AS-740-U-74-36-GM	4000K	120V	30° Beam	36"	Black
BRT6-Standard	AS-740-U-74-36-GM	5000K	120V	30° Beam	36"	Black
BRT6-Standard	AS-740-U-74-36-GM	6000K	120V	30° Beam	36"	Black
BRT6-Standard	AS-740-U-74-36-GM	7000K	120V	30° Beam	36"	Black
BRT6-Standard	AS-740-U-74-36-GM	8000K	120V	30° Beam	36"	Black
BRT6-Standard	AS-740-U-74-36-GM	9000K	120V	30° Beam	36"	Black
BRT6-Standard	AS-740-U-74-36-GM	10000K	120V	30° Beam	36"	Black

**Product Specifications**

**Construction**

- Extruded aluminum housing with cast base and top cap
- Standard with 0-10V dimming
- Standard for operation in -40°C to 40°C ambient environments. Optional SDC High Ambient (HA) configuration
- 2000-hour life expectancy
- 100V surge module standard

**Optical**

- High efficiency injection molded AccuLED optics technology
- 4 optical distributions: 2 symmetric and 2 asymmetric
- ISA Certified (200K CCT and warmer only)

**Optical Distributions**

**COOPER**  
 P500002611 page 2  
 October 12, 2022 10:27 AM

Project	Catalog #	Type
Prepared by	Notes	Date

**McGraw-Edison**  
**GWC Galleon Wall**  
 Wall Mount Luminaire

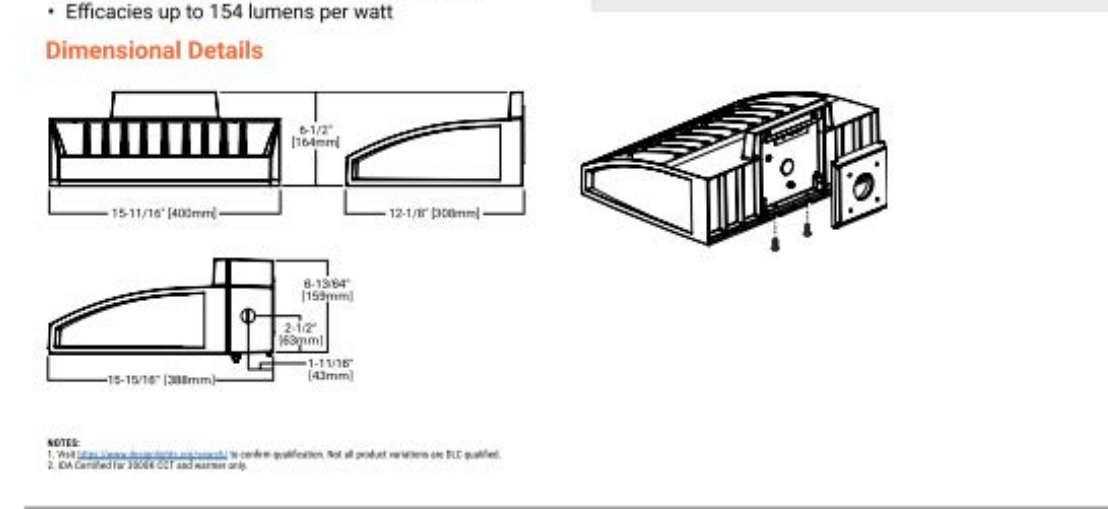
**Interactive Menu**

- Ordering Information page 1
- Product Specifications page 2
- Optical Distributions page 2
- Energy and Performance Data page 3
- Control Options page 6

**Product Certifications**

**Quick Facts**

- Choice of thirteen high-efficiency, patented AccuLED Optics
- Downward and inverted wall mounting configurations
- Eight lumen packages from 3,215 up to 17,056
- Efficacies up to 154 lumens per watt



**COOPER**  
 P500002611 page 3

**McGraw-Edison GWC Galleon Wall**

**Ordering Information**  
 SAMPLE NUMBER: GWC-SAC2-740-U-74T-GM

Product Family	Configuration	Color Temperature	Voltage	Distribution	Finish
GWC-Standard	SAC2-740-U-74T-GM	3000K	120V	30° Beam	Black
GWC-Standard	SAC2-740-U-74T-GM	4000K	120V	30° Beam	Black
GWC-Standard	SAC2-740-U-74T-GM	5000K	120V	30° Beam	Black
GWC-Standard	SAC2-740-U-74T-GM	6000K	120V	30° Beam	Black
GWC-Standard	SAC2-740-U-74T-GM	7000K	120V	30° Beam	Black
GWC-Standard	SAC2-740-U-74T-GM	8000K	120V	30° Beam	Black
GWC-Standard	SAC2-740-U-74T-GM	9000K	120V	30° Beam	Black
GWC-Standard	SAC2-740-U-74T-GM	10000K	120V	30° Beam	Black

**Product Specifications**

**Construction**

- Extruded aluminum housing with cast base and top cap
- Standard with 0-10V dimming
- Optional 100V or 208V surge module
- Suitable for operation in -40°C to 40°C ambient environments. Optional SDC High Ambient (HA) configuration

**Optical**

- Patented, high-efficiency injection molded AccuLED optics technology
- 13 optical distributions
- ISA Certified (200K CCT and warmer only)

**Typical Applications**

- Outdoor, Walkway, Perimeter, Landscaping, Non-Residential
- Five-year warranty

**COOPER**  
 P500002611 page 2  
 October 12, 2022 10:27 AM

Project	Catalog #	Type
Prepared by	Notes	Date

**Streetworks**  
**GLAN Galleon II**  
 Area / Site Luminaire

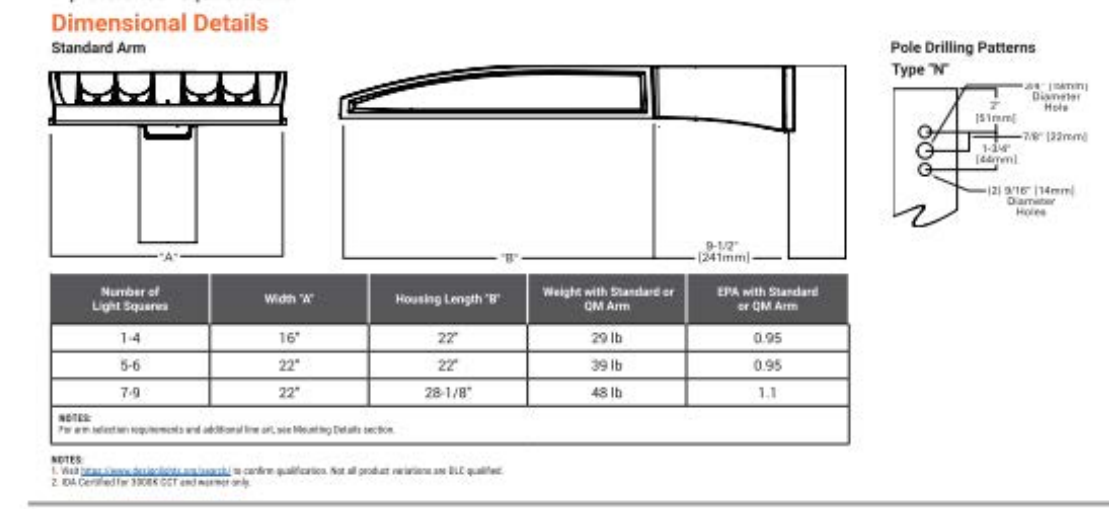
**Interactive Menu**

- Ordering Information page 1
- Mounting Details page 1
- Optical Distributions page 1
- Product Specifications page 1
- Energy and Performance Data page 6
- Control Options page 10

**Product Certifications**

**Quick Facts**

- Lumen packages range from 3,300 - 73,500 (33W - 552W)
- 16 optical distributions
- Efficacy up to 159 lumens per watt
- Options to meet Bay Area and other domestic preference requirements



**COOPER**  
 P500002611 page 1

**Streetworks GLAN Galleon II**

**Ordering Information**  
 SAMPLE NUMBER: GLAN-SAC2-740-U-74T-GM

Product Family	Configuration	Color Temperature	Voltage	Distribution	Mounting	Finish
GLAN-Standard	SAC2-740-U-74T-GM	3000K	120V	30° Beam	Standard	Black
GLAN-Standard	SAC2-740-U-74T-GM	4000K	120V	30° Beam	Standard	Black
GLAN-Standard	SAC2-740-U-74T-GM	5000K	120V	30° Beam	Standard	Black
GLAN-Standard	SAC2-740-U-74T-GM	6000K	120V	30° Beam	Standard	Black
GLAN-Standard	SAC2-740-U-74T-GM	7000K	120V	30° Beam	Standard	Black
GLAN-Standard	SAC2-740-U-74T-GM	8000K	120V	30° Beam	Standard	Black
GLAN-Standard	SAC2-740-U-74T-GM	9000K	120V	30° Beam	Standard	Black
GLAN-Standard	SAC2-740-U-74T-GM	10000K	120V	30° Beam	Standard	Black

**Product Specifications**

**Construction**

- Extruded aluminum housing with cast base and top cap
- Standard with 0-10V dimming
- Optional 100V or 208V surge module
- Suitable for operation in -40°C to 40°C ambient environments. Optional SDC High Ambient (HA) configuration

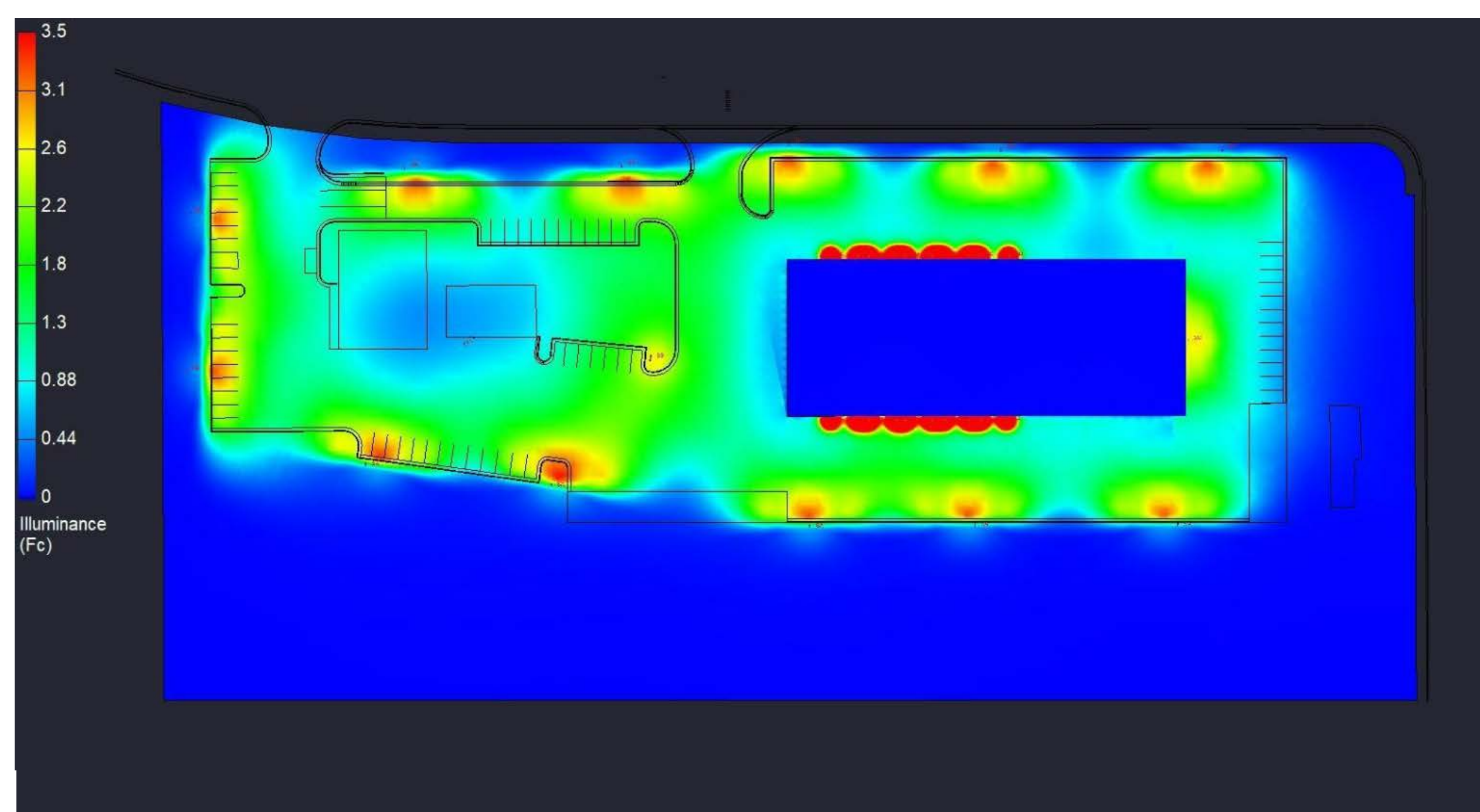
**Optical**

- Patented, high-efficiency injection molded AccuLED optics technology
- 13 optical distributions
- ISA Certified (200K CCT and warmer only)

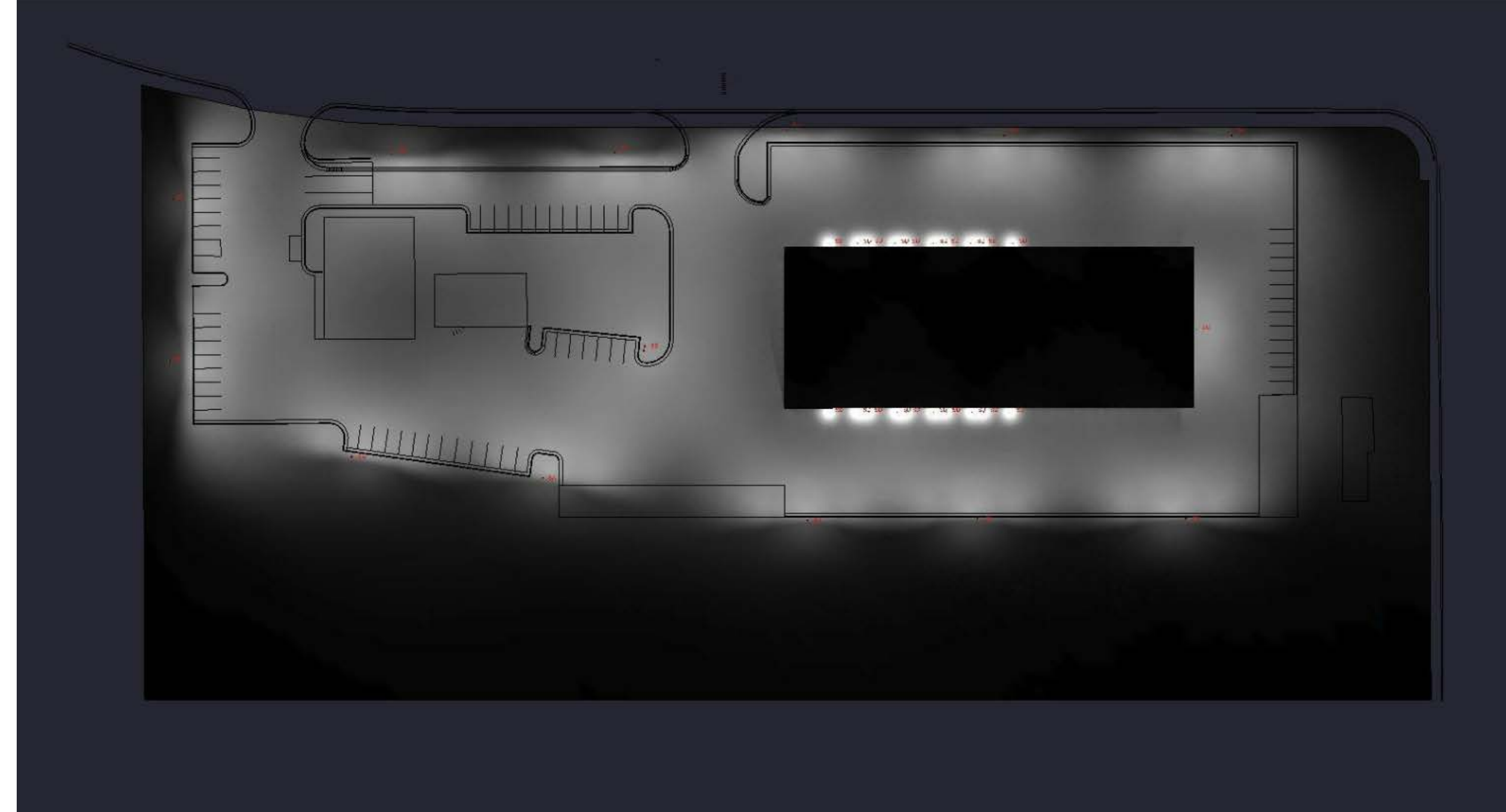
**Typical Applications**

- Outdoor, Walkway, Perimeter, Landscaping, Non-Residential
- Five-year warranty

**COOPER**  
 P500002611 page 2  
 July 11, 2022 10:27 AM



**COLORED SCALE LIGHTING**

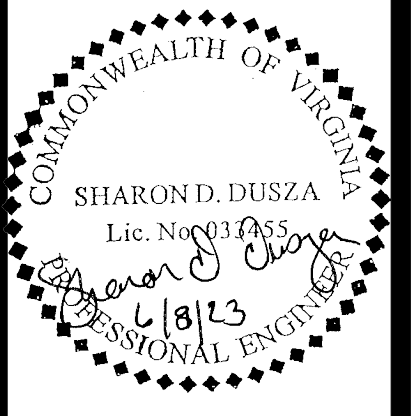


**GREYSCALE LIGHTING**





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POLLUTION PREVENTION PLAN  
 WELLINGTON ROAD OPERATIONS  
 CENTER EXPANSION  
 BRENTSVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:

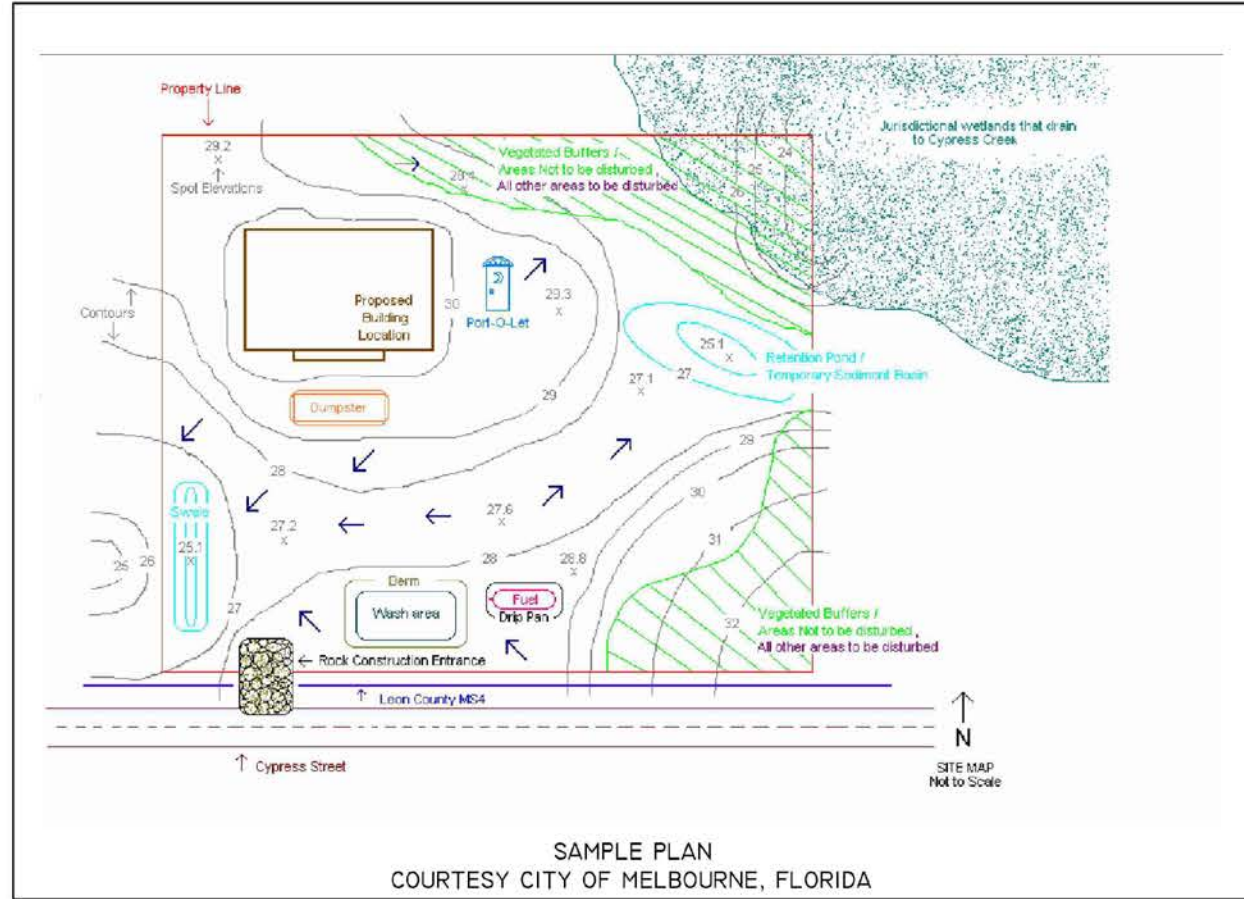

PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.40

**POLLUTION PREVENTION PLAN**

**PRINCE WILLIAM COUNTY  
DEPARTMENT OF PUBLIC WORKS**



**POLLUTION PREVENTION PLAN  
DRAFT TEMPLATE**



**DISCHARGES OF SOAPS, DETERGENTS, SOLVENTS, AND WASH WATER FROM CONSTRUCTION ACTIVITIES SUCH AS CLEANUP OF STUCCO, PAINT, FORM RELEASE OILS, AND CURING COMPOUNDS**

- Washing activities associated with construction activities other than vehicle and equipment washing, such as clean up of stucco, paint, form release oils, and curing compounds are to be conducted in a **dedicated area**.
- The **dedicated area** must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features. Separations of less than 50 feet may be approved by the Public Works Site Inspector.
- The **dedicated areas** must be designed to prevent the discharge of soaps, detergents, solvents, and wash water.

Date	Shown on Plan Sheet # (s)	Location(s) of <b>Dedicated Area(s)</b>	
Approved Plan			
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet # (s)	Location(s) of <b>Dedicated Area(s)</b>	Operator(s) Initials

- The **dedicated area** must be covered (e.g., plastic sheeting, temporary roof, etc.) to prevent contact with stormwater.
- The contaminated wastewater from the **dedicated area** must be collected for disposal by a waste hauler or discharged to the sanitary sewer.

**DISCHARGES OF HAZARDOUS, TOXIC, AND SANITARY WASTE**

- Storage and disposal of hazardous, toxic and sanitary wastes are to be conducted in **dedicated areas**.
- The **dedicated areas** must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features. Separations of less than 50 feet may be approved by the Public Works Site Inspector.
- The **dedicated areas** must be designed to prevent the discharge of hazardous, toxic and sanitary waste by avoiding contact with precipitation.
- Each facility must have appropriate signage to inform users where the **dedicated area(s)** are located.

Date	Shown on Plan Sheet # (s)	Location(s) of <b>Dedicated Area(s)</b> for storage and disposal of hazardous and toxic wastes	
Approved Plan			
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet # (s)	Location(s) of <b>Dedicated Area(s)</b> for storage and disposal of hazardous and toxic wastes	Operator(s) Initials

Date	Shown on Plan Sheet # (s)	Location(s) of <b>Dedicated Area(s)</b> for portable toilets	
Approved Plan			
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet # (s)	Location(s) of <b>Dedicated Area(s)</b> for portable toilets	Operator(s) Initials

- Consult with local waste management authorities or private firms about the requirements for disposing of hazardous materials and/or soils that may be contaminated with hazardous materials.
- Never remove the original product label from the container. Follow the manufacturer's recommended method of disposal.
- Schedule periodic pumping of portable toilets and dispose of waste.
- Dispose of all solid waste at an authorized disposal site.

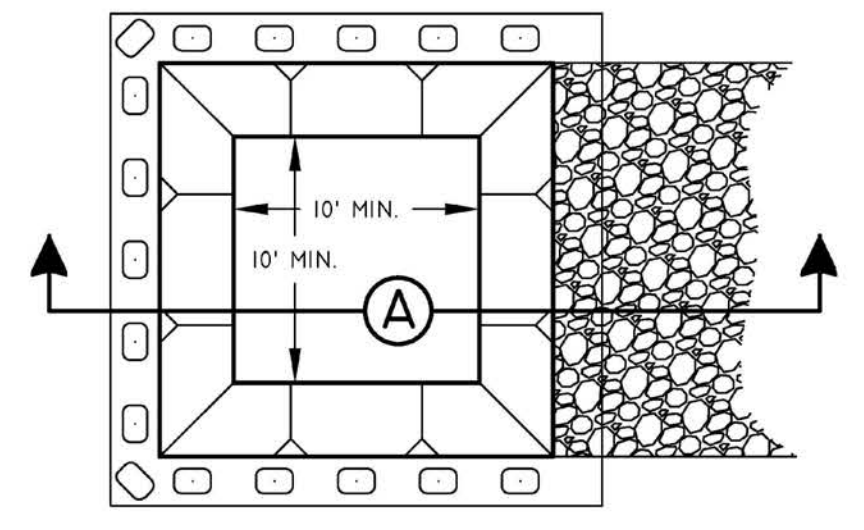
**DISCHARGES FROM CONCRETE RELATED WASH ACTIVITIES**

- Concrete trucks are not allowed to wash out or discharge surplus concrete or drum wash water on site except in a **dedicated area(s)** that is located to prevent discharge to storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- Each facility must have a stabilized access to prevent mud tracking into the street.
- Each facility must have appropriate signage to inform users where the **dedicated area(s)** are located.

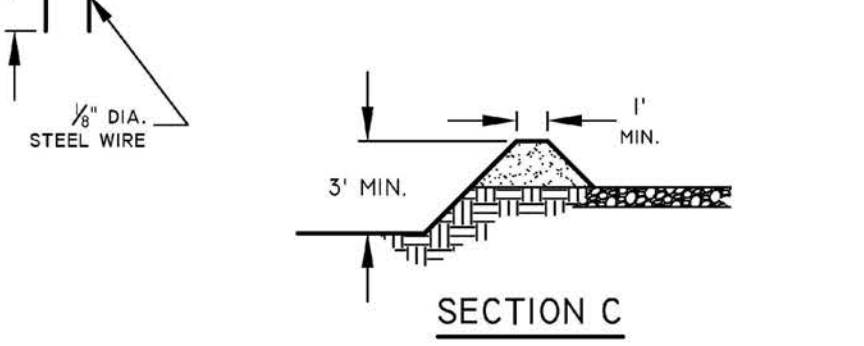
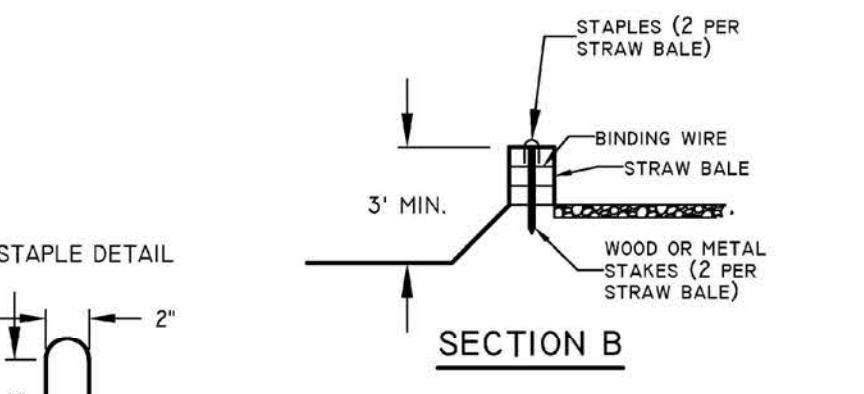
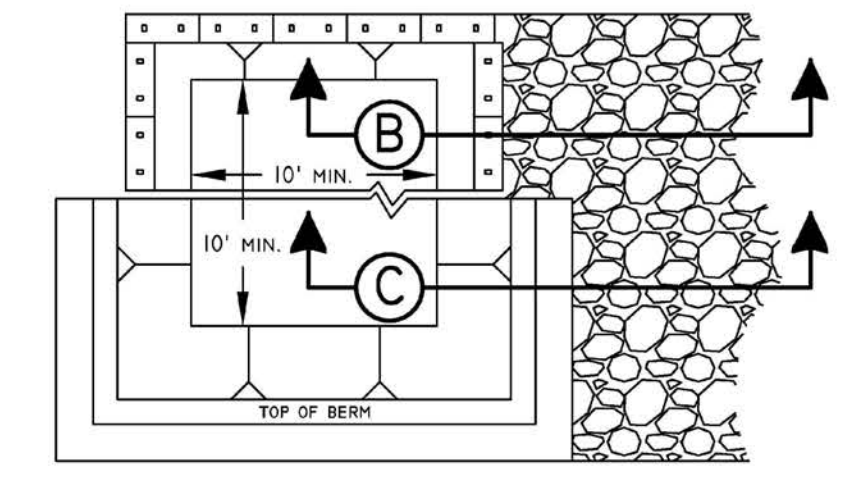
Date	Shown on Plan Sheet # (s)	Location of <b>Dedicated Area(s)</b>	
Approved Plan			
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet # (s)	Location of <b>Dedicated Area(s)</b>	Operator's Initials

- Facilities must be cleaned, or new facilities constructed, once the washout area is two-thirds (2/3) full.

**BELOW GRADE CONCRETE WASHOUT AREA**



**ABOVE GRADE CONCRETE WASHOUT AREA**



**CONCRETE WASHOUT AREA NOTES**

- The facility must be lined with 10 mil plastic lining that is free from holes, tears, or other defects that might compromise the material's impermeability.
- The lining must be anchored with staples (2" spacing) or sandbags.
- Side slopes must be 1:1 (horizontal/vertical) or flatter.
- Stone access must be provided between the street and the concrete washout area.
- A "Concrete Washout" sign must be installed within 30 feet of the washout facility. The sign must be no smaller than 2' tall by 4' wide.

**VEHICLE FUELING AND MAINTENANCE**

- Conduct regular maintenance in a **dedicated area** that is located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- If fueling is conducted at a **dedicated area**, the location must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- The **dedicated areas** must be designed to eliminate the discharge of spilled and leaked fuels and chemicals from vehicle fueling and maintenance activities by providing secondary containment (spill berms, decks, spill containment pallets, providing cover where appropriate, and having spill kits readily available).
- Each facility must have appropriate signage to inform users where the **dedicated area(s)** are located.

Date	Shown on Plan Sheet # (s)	Location of <b>Dedicated Area(s)</b>	
Approved Plan			
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet # (s)	Location of <b>Dedicated Area(s)</b>	Operator's Initials

- If mobile fueling will be used, the fueling must be done in an area that is located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- Spill kits must be readily available at all mobile fueling locations.
- On-site storage tanks must have a means of secondary containment (spill berms, decks, spill containment pallets, etc.) and must be covered where appropriate.
- All vehicles on site must be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.

**DISCHARGE FROM STORAGE, HANDLING, AND DISPOSAL OF CONSTRUCTION PRODUCTS, MATERIALS, AND WASTE**

- Storage of construction products, materials, and waste is to be conducted in **dedicated areas**.
- The **dedicated area** must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features. Separations of less than 50 feet may be approved by the Public Works Site Inspector.
- The **dedicated areas** must be designed to minimize the discharge of pollutants from storage, handling, and disposal of construction products, materials and wastes including (i) building products such as asphalt sealants, copper flashing, roofing materials, adhesives, concrete admixtures, (ii) pesticides, herbicides, insecticides, fertilizers, and landscape materials; and (iii) construction and domestic wastes such as packaging materials, scrap construction materials, masonry products, timber, pipe and electrical cuttings, plastics, Styrofoam, concrete and other trash or building products.
- Each facility must have appropriate signage to inform users where the **dedicated area(s)** are located.

Date	Shown on Plan Sheet # (s)	Location(s) of <b>Dedicated Area(s)</b> for storage of construction products and materials	
Approved Plan			
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet # (s)	Location(s) of <b>Dedicated Area(s)</b> for storage of construction products and materials	Operator(s) Initials

Date	Shown on Plan Sheet # (s)	Location(s) of <b>Dedicated Area(s)</b> for waste from construction products and materials	
Approved Plan			
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet # (s)	Location(s) of <b>Dedicated Area(s)</b> for waste from construction products and materials	Operator(s) Initials

- Follow all federal, state, and local requirements that apply to the use, handling and disposal of pesticides, herbicides, and fertilizers.
- Keep chemicals on-site in small quantities and in closed, well marked containers.
- Clean up solid waste, including building materials, garbage, and debris on a daily basis and deposit into covered dumpsters that are periodically emptied.
- Schedule waste collection to prevent exceeding the capacity of onsite containers. Additional containers may be necessary depending on the phase of construction (e.g., demolition, etc.).
- Dispose of all solid waste at an authorized disposal site.
- Ensure that containers have lids or are otherwise protected from exposure to precipitation.

**DISCHARGES FROM OTHER POTENTIAL POLLUTANT SOURCES**

Other Potential Pollutant Sources	Location(s) of Potential Pollutant Sources

- Above ground oil storage tanks with a storage capacity exceeding 1,320 gallons and have a reasonable expectation of a discharge into or upon Waters of the United States are required to have a Spill Prevention Control and Countermeasure (SPCC) Plan.
- The discharge of contaminated flush water and material removed during flushing operations must be collected and disposed of in accordance with appropriate federal, state, and local requirements.

**PURPOSE**

9VAC25-870-54 of the Virginia Stormwater Management Program (VSMP) Permit Regulations requires that Stormwater Pollution Prevention Plan (SWPPP) be developed for all regulated land disturbing activities. The SWPPP must include, but not be limited to, an approved erosion and sediment control plan, an approved stormwater management plan, and this **Pollution Prevention Plan (PPP)** for regulated land disturbing activities, and a description of any additional control measures necessary to disturb a TMDL as applicable.

The plan for implementing pollution prevention measures during construction activities developed on this sheet must be implemented and updated as necessary. Any PPP requirements not included on this sheet must be incorporated into the SWPPP required by 9VAC25-870-54 that must be developed before land disturbance commences. This PPP identifies potential sources of pollutants that may reasonable be expected to affect the quality stormwater discharges from the construction site (both on- and off-site activities) and describes control measures that will be used to minimize pollutants in stormwater discharges from the construction site.

**OTHER REFERENCED PLANS**

SWPPP requirements may be fulfilled by incorporating, by reference, other plans. All plans incorporated by reference become enforceable under the VSMP Permit Regulations and General Permit VAR10 for Discharges of Stormwater from Construction Activities. If a plan incorporated by reference does not contain all of the required elements of the PPP, the operator must develop the missing elements and include them in the SWPPP.

Independent Plans Incorporated by Reference	Date Approved
Stormwater Management Plans (Regional or Master)	
Erosion and Sediment - Control Plans	
Off-Site Stockpile	
Off-Site Borrow Area	

**POTENTIAL POLLUTANT SOURCES**

The following sources of potential pollutants must be addressed in the Pollution Prevention Plan. Various controls and/or measures designed to prevent and/or minimize pollutants in stormwater discharges from the project site must be applied to the sources found on the site. Additional information concerning the following controls and/or measures may be found in the SWPPP. Deviations from the location criteria may be approved by the Public Works Site Inspector.

**LEAKS, SPILLS, AND OTHER RELEASES**

- The operator(s) shall ensure procedures are in place to prevent and respond to all leaks, spills and other releases of pollutants.
- The operator(s) shall ensure all leaks, spills and other releases of pollutant are contained and cleaned immediately upon discovery. Any contaminated materials are to be disposed in accordance with federal, state, and/or local requirements.
- The operator(s) shall ensure spill containment kits containing appropriate materials (e.g., absorbent material and pads, brooms, gloves, sand, etc.) are available at appropriate locations, including, but not limited to: designated areas for vehicle and equipment maintenance, vehicle and equipment fueling, storage and disposal of construction materials, products, and waste; and storage and disposal of hazardous and toxic materials; and sanitary waste facilities.
- The locations of the spill containment kits are identified as described below.

Date	Shown on Plan Sheet # (s)	Location	
Approved Plan			
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet # (s)	Location	Operator(s) Initials

- The operator(s) shall notify the Department of Environmental Quality (DEQ) of leaks, spills, and other releases that discharge to or have the potential to discharge to surface waters immediately upon discovery of the discharge but in no case later than 24 after the discovery. Written notice of the discharge must be sent to DEQ and Prince William County Department of Public Works within five (5) days of the discovery.

Virginia Department of Environmental Quality Northern Regional Office (703) 583-3800 (voice) (703) 583-3821 (fax) Website: <a href="http://www.deq.virginia.gov/Programs/PollutionResponsePreparedness/MakingaReport.aspx">http://www.deq.virginia.gov/Programs/PollutionResponsePreparedness/MakingaReport.aspx</a> For emergencies 1-800-468-9892 (outside normal working hours)	PW County Department of Public Works 5 County Complex Court Prince William, Virginia 22192 703-792-7070 PW County Department of Fire & Rescue 1 County Complex Court Prince William, Virginia 22192 703-792-8800 703-792-8813 (outside normal working hours)
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**EQUIPMENT / VEHICLE WASHING**

- Washing must be conducted in a **dedicated area** that is located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- All wash water used in vehicle wheel washing must be directed to a sediment basin/trap.
- All vehicle washing activities other than wheel washing must have secondary containment.
- Each facility must have appropriate signage to inform users where the **dedicated area(s)** are located.

Activity	Location of <b>Dedicated Area(s)</b>	Shown on Plan Sheet # (s)	Water Source Location	
Wheel Wash				
Other Wash Areas				
REVISIONS TO LOCATIONS				
Activity	Location of <b>Dedicated Area(s)</b>	Shown on Plan Sheet # (s)	Water Source Location	Operator's Initials

COURTESY OF HENRICO COUNTY DEPARTMENT OF PUBLIC WORKS

From: Bidari, Raj
To: Sharon Dusz; Marquez, Antonio F.
Subject: FW: FW: City of Manassas WTP Review Comments (SPR2022-00127 S01)
Date: Thursday, February 9, 2023 4:31:42 PM
Attachments: image001.png

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Sharon,

Please see the email below from DCR on the Lake Manassas Dam for your Wellington Operations Center Plan.

Thanks
Raj Bidari
Prince William County
(703) 792-7078

From: Bidari, Raj
Sent: Thursday, February 9, 2023 2:49 PM
To: Killgore, Mark <mark.killgore@dcr.virginia.gov>
Cc: Bidari, Raj <rbidari@pwgov.org>
Subject: RE: FW: City of Manassas WTP Review Comments (SPR2022-00127 S01)

Hi Mark,
Thank you for getting back to me. I hope this is about the Wellington Operations Center Plan. I am still waiting to hear back from you on the Swan Point Road project in the Lake Occoquan Dam Break inundation zone.

Thanks
Raj Bidari
Prince William County
(703) 792-7078

From: Killgore, Mark <mark.killgore@dcr.virginia.gov>
Sent: Thursday, February 9, 2023 2:38 PM
To: Bidari, Raj <rbidari@pwgov.org>
Subject: Fwd: FW: City of Manassas WTP Review Comments (SPR2022-00127 S01)



DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

January 20, 2023

Northern Virginia Regulatory Section
NAO-2022-01421 / VMRC#22-V2415 (Dawkins Branch)

Prince William County Service Authority
Attn: Jay Vaghani
8410 Virginia Meadows Drive
Manassas, Virginia 20109

Dear Mr. Vaghani:

This is regarding your Department of the Army permit application number NAO-2022-01421 (VMRC #22-2415) to impact approximately 0.01-acres of palustrine emergent wetlands. You are proposing the installation of a stormwater outfall. The work will occur in Prince William County, Virginia (38.775211, -77.550879). These impacts are detailed on the enclosed drawings entitled "Wetland Impact Map - Wellington Road Operations Center Expansion," prepared and submitted on your behalf by RDA Rinker Design and Associates and dated October 12, 2022 (attached).

A delineation of waters, including wetlands, was included with your permit application. This permit verification letter is not confirmation of the submitted wetland delineation. During our review of the proposed impacts, we only examined the delineation of the waters, including wetlands, within the impact areas.

Your proposed work as outlined above satisfies the criteria contained in the Corps Nationwide Permit (18), attached. Certain Corps Nationwide Permits were published in the December 27, 2021, Federal Register notice (86 FR 73522) and the regulations governing their use can be found in 33 CFR 330 published in Volume 56, Number 226 of the Federal Register dated November 22, 1991.

Provided the Regional Conditions and the Nationwide Permit General Conditions (enclosed) are met, an individual Department of the Army Permit will not be required. To assist in your compliance with NWP General Condition #30, enclosed is a "compliance certification" form, which must be signed and returned within 30 days of completion of the project, including any required compensatory mitigation.

Please be aware that a permit may be required from the Virginia Marine Resources Commission and/or your local wetlands board, and this verification may not be valid until you obtain their approval, if necessary. This authorization does not relieve your responsibility to comply with local requirements pursuant to the Chesapeake Bay Preservation Act (CBPA), nor does it supersede local government authority and

This email is from an EXTERNAL source. Use caution when replying or clicking embedded links.

Looks like we previously concluded no upgrades needed - see attached

thanks for sending the alternate name and number

----- Forwarded message -----

From: Killgore, Mark <mark.killgore@dcr.virginia.gov>
Date: Thu, Dec 29, 2022 at 3:22 PM
Subject: Re: FW: City of Manassas WTP Review Comments (SPR2022-00127 S01)
To: Bidari, Raj <rbidari@pwgov.org>
Cc: Bidari, Raj <rbidari@pwgov.org>, <tdawood@ci.manassas.va.us>

As you can see the dam is already high hazard and the EAP states it can pass the full PMF. That being the case it would appear it meets the state criteria of 0.9 pmp and not expansion of the spillway would be needed. That typically happens when a significant dam has a new development below it where no development was below the dam before.

The one thing I am not seeing is the PMP Comparison which needs to be completed before the dam is eligible for a Regular Certificate. I this is already done, I need the dam manager to upload it

Have a happy New Year

4.1 Dam Facility

The T. Nelson Elliott Dam was constructed on Broad Run between 1968 and 1971 to create a potable water supply reservoir for the City of Manassas, Virginia. Specific details of the dam are located in Table 6 of this section.

Between 1971 and 1987, the dam was regulated by the Virginia State Water Control Board. In 1987, a hydroelectric generation facility was added at the dam to produce electricity. As a result, the dam and its operation was governed by the Federal Energy Regulatory Commission (FERC). In 1997, the City of Manassas discontinued use of the hydroelectric facility and forfeited its FERC exemption to operate. The Virginia State Water Control Board then assumed regulatory oversight of the dam. In February of 1999, a 5-foot-high rubber bladder dam manufactured by Bridgestone was installed on top of the dam's concrete spillway to increase the storage volume of the reservoir. Modifications were completed in 2012 in order for the dam to pass the full (1.0) Probable Maximum Flood (PMF). These modifications included RCC overtopping protection on the earthen embankment, post-tensioned anchoring of the concrete dam, and replacement of the single rubber bladder with an Obermeyer crest gates operated by eleven 20-foot bladder sections. The vertical height of the Obermeyer gates is 5 feet in the raised position.

tdawood@ci.manassas.va.us
Mark W. Killgore, P.E., D.WRE, F.ASCE
Lead Dam Safety Engineer

Division of Dam Safety & Floodplain Management
Virginia Department of Conservation & Recreation
600 East Main Street, 4th Floor

2022-01421

responsibilities pursuant to the Act. You should contact your local government before you begin work to find out how the CBPA applies to your project.

This verification is valid until the Nationwide Permit is modified, reissued, or revoked. This Nationwide Permit 18 is scheduled to be modified, reissued, or revoked prior to March 14, 2026.

It is incumbent upon you to remain informed of changes to the Nationwide Permits. We will issue a public notice when the Nationwide Permits are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have twelve (12) months from the date of the modification or revocation of the Nationwide Permit to complete the activity under the present terms and conditions of this Nationwide Permit unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 CFR 330.4(e) and 33 CFR 330.5 (c) or (d). Project specific conditions listed in this letter continue to remain in effect after the Nationwide Permit verification expires unless the district engineer removes those conditions. Activities completed under the authorization of a Nationwide Permit which was in effect at the time the activity was completed continue to be authorized by that Nationwide Permit.

If you have additional questions or concerns about this permit authorization, please contact the office by telephone at (540) 764-4459 or by email at anna.r.lawston@usace.army.mil.

Sincerely,
Anna Lawston
Environmental Scientist
Northern Virginia Regulatory Section
2023.01.20
11:04:29 -05'00'

Brian Conners

From: Morris, J. Clay <CMorris@pwgov.org>
Sent: Thursday, November 17, 2022 8:51 AM
To: Brian Conners
Subject: Re: Wellington Operations Center Project - Water Quality Impact Assessment Information

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Thank you for the exhibits Brian.

I concur with your findings and am waiving the WQIA requirement.

Thank you,
Clay

From: Brian Conners <bconners@rdacivil.com>
Sent: Thursday, November 10, 2022 2:17 PM
To: Morris, J. Clay <CMorris@pwgov.org>
Subject: Wellington Operations Center Project - Water Quality Impact Assessment Information

This email is from an EXTERNAL source. Use caution when replying or clicking embedded links.

Hey Clay,

As you are aware, the above referenced project will be utilizing PASA #13-00058 via the revaluation (PWR2023-00048) granted on 10/25/22. Regarding a Water Quality Impact Assessment for the site; the impacts associated with outfall structure seen in the attached Wellington Operations Center Project - Wetland Impact Map are minimal and will be supplemental to an existing outfall structure's footprint. Given the heavily vegetated characteristics of the site, planting in accordance with the Virginia Department of Conservation and Recreation's Riparian Buffers Modifications & Mitigation Guidance Manual would likely prove futile and unsuccessful due to the new planting's inability to outcompete existing vegetation. Because this portion of the site has been left undisturbed for so long, there are virtually no unvegetated locations within or adjacent to the effected RPA area where planting would be practicable.

RDA respectfully asks for your concurrence on this matter and that this correspondence may suffice our WQIA due diligence.

Thank you very much,

Brian Conners
Environmental Specialist
Rinker Design Associate, P.C.
927 Maple Grove Drive, Suite 105
Fredericksburg, VA 22407
www.rdacivil.com

PROFFER ANALYSIS

Proffers / Conditions Related To
SPR2023-00185 S01/ (REZ1986-0004)

Table with 8 columns: Proffer / Condition Number, Condition Category, Sub-Category, What, When (Proffer Trigger), Proffer / Condition Status, Comments / Clarifications, County Comment?
Rows include REZ1986-0004/1 through REZ1986-0004/4.



COUNTY OF PRINCE WILLIAM
5 County Complex Court, Suite 210, Prince William, Virginia 22192-9201
(703) 792-7615 FAX (703) 792-4401 www.pwgov.org

PLANNING OFFICE

Rebecca Homer, AICP, CZA
Director of Planning

July 6, 2018

B. Stanley Orndorff
The Engineering Group
13580 Groupe Drive
Suite 301
Woodbridge, VA 22192

RE: PRF2019-00001, PWCSA (Wellington Road)
8410 Virginia Meadows Drive
GPIN: 7596-36-4457

Dear Mr. Orndorff:

This letter is in response to your request for a determination of consistency with the Comprehensive Plan to expand the existing Wellington Road Operations Center. This request is for a 25,000 square foot operations and maintenance building, to expand the pavement area for additional employee parking, and material storage.

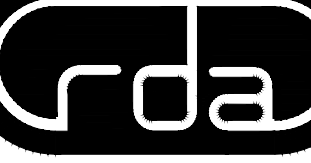
The proposed expansion to the existing Wellington Road Operations Center is a feature shown in the Comprehensive Plan and does not require a public facility review. The location of the proposed improvements to the existing facility is located on a site that is designated as Public Land in the Comprehensive Plan.

Please note that the proposed improvements must also be consistent with the provisions of the Zoning Ordinance and the Design and Construction Standards Manual and a site plan may be required in accordance with Part 800 of the Zoning Ordinance. A finding of exception from public facility review does not provide relief, in any way, from applying for and obtaining building, land disturbance and other relevant permits from Development Services prior to construction.

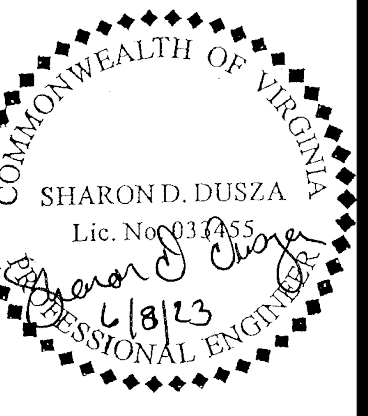
Sincerely,

Connie Dalton, AICP
Planner II

cc: Lisa Fink-Butler, Zoning Administrator
Steve Hall, Land Development Division Chief



Rinker Design Associates, P.C.
11100 Endeavor Court, Suite 200, Manassas, VA 20109
Telephone: (703) 368-7373 www.rdacivil.com
Engineering \* Surveying \* Transportation \* Environmental Services



CORRESPONDENCE AND PROFFERS
WELLINGTON ROAD OPERATIONS CENTER EXPANSION
BRENTSVILLE, VIRGINIA
PRINCE WILLIAM COUNTY, VIRGINIA

Table with 2 columns: REVISIONS: (empty rows)

Table with 2 columns: PLAN DATE: OCTOBER 7, 2022; DESIGN BY: AG/SAW; CHECKED BY: SSD; ARCHITECT/MOSELEY ARCH; JURISDICTIONAL PLAN NO: SPR2023-00185; RDA PLAN #: 19001-008; SHEET NUMBER: C.41



**PRINCE WILLIAM COUNTY  
DEPARTMENT OF TRANSPORTATION  
DCSM WAIVER**

5 County Complex Court, Suite 290, Woodbridge, Virginia 22192-5308  
(703) 792-6825 Fax (703) 792-7159

**SECTION I - GENERAL INFORMATION**

**APPLICANT:** Sharon Dusza **DATE:** May 15, 2023  
**ADDRESS:** Rinker Design associates, P.C.  
11100 Endeavor Court, Suite 200  
Manassas, VA 20109  
**EMAIL:** sdusza@rdavivil.com **WAIVER NUMBER:** WAI2023-00168  
**PROJECT NAME:** 8410 Virginia Meadows Drive **PLAN NUMBER:** SPR2023-00185

**SECTION II - SPECIFICS OF WAIVER REQUEST**

SECTION OF DESIGN AND CONSTRUCTION STANDARDS MANUAL

REQUESTED TO BE WAIVED: 602.07 E

**REQUIREMENT(S):**  
Based on 30 mph design speed the minimum turn lane length of 150 feet with 100 feet taper is required.

**APPLICANT'S JUSTIFICATION FOR WAIVER:**  
The Prince William County Service Authority Operations Center, located on Virginia Meadows Drive, is being modified to include a new maintenance building and storage facilities. Based on the enclosed turn lane warrant analysis the left turn lane is not warranted at the proposed site entrance. The site plan proposes a 72 foot left turn lane with 100 foot taper along southbound Virginia Meadows Drive at the new site entrance. The longer turn lane is not achievable due to the northbound left turn lane at Virginia Meadows Drive and Wellington Road intersection. The entrance cannot be shifted because it will interfere with site operations.

**SECTION III - RECOMMENDATION OF TRANSPORTATION**

**RECOMMENDATION:**  APPROVAL  DENIAL  
**PLAN REVIEWER:** Sarbjit Sidhu Digitally signed by Sarbjit Sidhu Date: 2023.05.09 15:23:56 -0400 **ASSISTANT DIRECTOR OF TRANSPORTATION:** Elizabeth D. Scullin Digitally signed by Elizabeth D. Scullin Date: 2023.05.10 11:17:27 -0400  
**REASON(S) FOR APPROVAL/DENIAL:**  
Based on a turn lane warrant analysis a left turn lane is not warranted at the new site entrance. The proposed left turn lane length of 72 foot with 100 foot taper will be acceptable with the following condition:  
VDOT approval will be required for the proposed median break on Virginia Meadows Drive at new site entrance.

**SECTION IV - ADDITIONAL COMMENTS**

**SIGNATURE:** Ricardo Canizales Digitally signed by Ricardo Canizales Date: 2023.05.15 09:42:25 -0400 **DATE:** May 15, 2023  
**Ricardo Canizales, Director of Transportation**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
LOCATION AND DESIGN/STRUCTURE & BRIDGE  
DESIGN WAIVER REQUEST  
(See IIM-LD-227 for the definition of Design Waiver)  
Design Waiver Number:

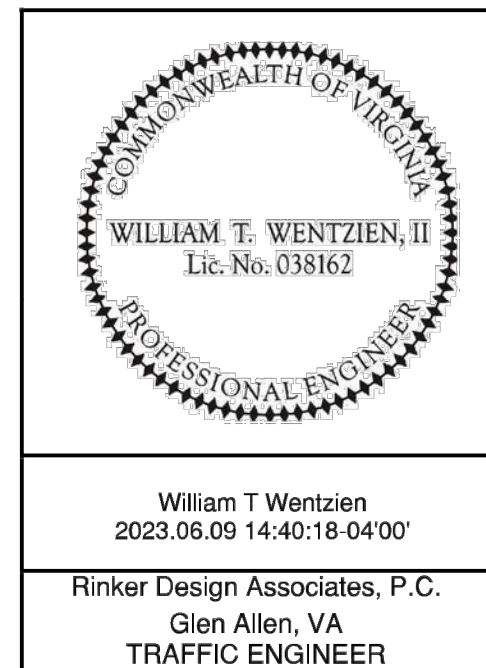
<b>Date:</b> 6/7/2023			
<b>To:</b>	Erik Spencer	Land Use Engineer	
<b>From Project Designer (L&amp;D, S&amp;B or Consultant):</b>	William Wentzien, PE, PTOE		
<b>Project Information</b>			
UPC	N/A	State Project Number	N/A
Federal Project Number	N/A	District	Northern Virginia
City/County	Prince William County	County Proj. Number	SPR2023-00185
Project Description	Wellington Road Operations Center Expansion - Virginia Meadows Drive Turn Lane		
Start Location (From)	Wellington Rd		
End Location (To)	Prince William County Service Authority Existing Entrance		
Funding Source	Prince William County Service Authority		

<b>Design Waiver Request For The Following</b>			
<input type="checkbox"/> Minimum Radius	<input type="checkbox"/> Lane Shift/Tapers	<input type="checkbox"/> Total Shoulder Width	
<input type="checkbox"/> Buffer Strip Width	<input type="checkbox"/> Ditch Width	<input type="checkbox"/> Shared Use Path Width (See RDM, App. A(1))	
<input type="checkbox"/> Paved Shoulder Width	<input type="checkbox"/> Superelevation	<input type="checkbox"/> Guardrail GR-9/GR-2	
<input type="checkbox"/> Sidewalk Width (See IIM-LD-55)	<input type="checkbox"/> Curb and Gutter	<input type="checkbox"/> Intersection Sight Distance	
<input type="checkbox"/> NHS & Interstate System Access Control - 100' Urban Areas and 300' Rural Areas (See RDM, App. F)	<input checked="" type="checkbox"/> Other	Turn lane storage	
<b>Road and Traffic Information</b>			
Functional Classification	GS-8 URBAN LOCAL STREET	Minimum VDOT GS S't'd	GS-8
Min. VDOT Standard	100'	VDOT Reference Location	RDM Appendix F
Design Speed	30	Posted Speed	30
Existing Dimensions	n/a	Requested Dimensions	72'

Design Waiver request must address the following:

- Established design criteria versus proposed and existing criteria (including traffic data, design speed and posted speed)
- Reason the appropriate design criteria cannot be met
- Justification for the proposed criteria
- Any background information which documents, supports or justifies the request
- Any mitigation that will be provided to further support or justify the request
- Cost to meet standard versus project cost

Attach all supporting documentation to this exhibit including crash history (past three years).



Prepared By: William T. Wentzien, II, P.E., PTOE Date: 6/9/2023  
Rinker Design Associates, P.C.

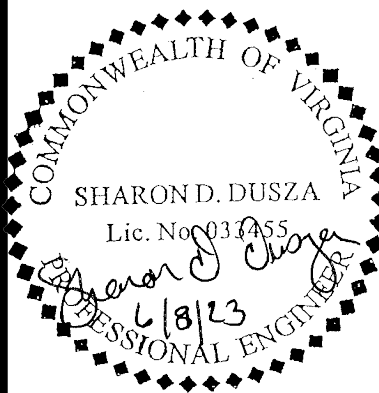
Note: The responsible person that prepares the request shall also electronically seal and digitally sign in the block above. All signatures below shall be digital signatures.

**Erik S Spencer** Digitally signed by Erik S Spencer Reason: I am approving this document Date: 2023.06.29 08:12:35 -0400  
VDOT Approved By: \_\_\_\_\_  
Area Land Use Engineer

CC: Appropriate Assistant State Location and Design Engineer  
Project Manager  
State Geometric Design Engineer  
State Structure and Bridge Engineer  
Assistant State Traffic Engineer - Traffic Control Devices



**Rinker Design Associates, P.C.**  
11100 Endeavor Court, Suite 200, Manassas, VA 20109  
Telephone: (703) 368-7373 www.rdacivil.com  
Engineering \* Surveying \* Transportation \* Environmental Services



CORRESPONDENCE AND PROFFERS  
WELLINGTON ROAD OPERATIONS CENTER EXPANSION  
BRENTSVILLE, VIRGINIA  
PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:


PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.41A



February 2015

**ACCESS MANAGEMENT EXCEPTION REQUEST: AM-E**  
**ACCESS MANAGEMENT REGULATIONS 24 VAC 30-73**  
**SECTION 120**

Submitted by: Sharon Dusza	Date: May 22, 2023
Email Address: sdusza@rdacivil.com	Phone: 703-368-7373x285
Address: 11100 Endeavor Court Suite 200 Manassas, VA 20109	
Project Name: Wellington Road Operations Center	Rte # 1682
Locality: Prince William County	
<b>Description of Project:</b>	
The Prince William County Service Authority Wellington Road Operations Center, located at 8410 Virginia Meadows Drive, is being modified to include a new maintenance building and storage facilities. The site plan proposes a 72 foot left turn lane with 100 foot taper along southbound Virginia Meadows Drive at the new site entrance.	
VDOT District: Northern Virginia	Area Land Use Engineer: Erik Spencer

**NOTES:**  
 (1). Submit this form and any attachments to one of the District's Area Land Use Engineers.  
 (2). See Section 120 of the Regulations for details on the requirements, exceptions, and exception request review process.  
 (3). Attach additional information as necessary to justify the exception request(s).  
 (4). If a traffic engineering study is required, the decision on the request will be based on VDOT engineering judgment.  
 (5). Use the LD-440 Design Exception or the LD-448 Design Waiver forms for design and engineering standards, e.g. radius, grade, sight distance. See [HM-LD-227](#) on VDOT web site for additional instructions.

**Select the Exception(s) Being Requested**

- Exception to the shared commercial entrance requirement.** (Access M. Regulations Section 120 C.2)  
 Reason for exception:  
  - A. An agreement to share the entrance could not be reached with adjoining property owner.**  
 Attached: Written evidence that adjoining property owner will not share the entrance.
  - B. Physical constraints: topography, adjacent hazardous land use, stream, wetland, other.**  
 Specify constraint: \_\_\_\_\_  
 Attached: Documentation of constraint such as aerial photo or topographic map.
- Exception to the vehicular connection to adjoining undeveloped property requirement.** (Section 120 C.4)  
 Reason for exception:  
  - A. Physical constraints: topography, adjacent hazardous land use, stream, wetland, other.**  
 Specify constraint: \_\_\_\_\_  
 Attached: Documentation of constraint such as aerial photo or topographic map.
  - B. Other reason:** \_\_\_\_\_

February 2015

- Exception to the commercial entrance shall not be located within the functional area of an intersection requirement.** (See Regulation Section 120 C. 1; Appendix F, Rd Design Manual)  
 Attached: A traffic engineering study documenting that the operation of the intersection and public safety will not be adversely impacted.
- EXCEPTION TO THE SPACING STANDARDS FOR:**
  - Commercial entrances; intersections/median crossovers (Table 2-2);
  - Commercial entrances/intersections near interchange ramps (Tables 2-3, 2-4); or
  - Corner clearance (Figure 4-4). Appendix F, Road Design Manual

**Information on the Exception Request**

**ON A STATE HIGHWAY**  
 Functional classification: Principal Arterial:  Minor Arterial:  Collector:  Local:   
 Posted speed limit: \_\_\_\_\_ mph

**NEAR AN INTERCHANGE RAMP** (Submittal of a traffic engineering study required)

**CORNER CLEARANCE** (Submittal of a traffic engineering study required)

Type of intersection/entrance: Signalized  Unsignalized  Full Access  Partial Access

Required spacing distance \_\_\_\_\_ ft  
 Proposed spacing distance \_\_\_\_\_ ft  
 Requested exception: Reduction in required spacing \_\_\_\_\_ ft


**REASON FOR EXCEPTION:**

- A. To be located on an older, established business corridor along a highway where existing spacing did not meet the standards prior to 7/1/08 or 10/14/09.** (Regulation Section 120 C.3.c)  
 Attached: Dated aerial photo of corridor identifying proposed entrance/intersection location.
- B. Not enough property frontage to meet spacing standard, but the applicant does not want a partial access right-in/right-out entrance.** (Section 120 C.3.f)  
 Attached: A traffic engineering study documenting that left turn movements at the entrance will not have a negative impact on highway operation or safety.
- C. To be located within a new urbanism mixed use type development.** (Section 120 C.3.d)  
 Attached: The design of the development and compliance with intersection sight distance.
- D. The proposed entrance meets the signal warrants but does not meet the signalized intersection spacing standard. The applicant requests an exception to the spacing standard.**  
 Attached: A traffic engineering study that (i) evaluates the location's suitability for a roundabout and (ii) provides documentation that the proposed signal will not impact safety and traffic flow. (Section 120 C.5)

February 2015

- E. The development's 2<sup>nd</sup> (or additional) entrance does not meet the spacing standards but is necessary for the streets to be accepted into the secondary system.** (Section 120 C.3.e)  
 Attached: Information on the development that identifies the location of entrances.
- F. To be located within the limits of a VDOT and locality approved access management corridor plan.**  
 Attached: Aerial photo of corridor identifying proposed entrance/intersection location. (Sect 120 C.3.b)

**FOR VDOT USE ONLY**

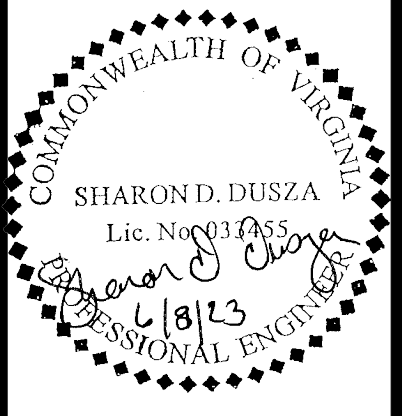
Recommendation on Exception Request: Approved <input checked="" type="checkbox"/> Denied <input type="checkbox"/>	Date: 06-29-2023
Area Land Use Engineer or:	Name Erik Spencer
<b>Remarks:</b>	
The proposed entrance is located on the side local street and barely located in the physical functional area of the adjacent intersection. It would be located in the perception-reaction time of the intersection. Per the submitted Traffic Study, the entrance would be out of the active functional area of the intersection as the existing turn lane is longer than needed.	
 Digitally signed by Erik S Spencer Reason: I am approving this document Date: 2023.06.29 07:56:44-04'00'	

Exception Request Action: Approved <input checked="" type="checkbox"/> Denied <input type="checkbox"/>	Date: 06/29/2023
District Administrator or Designee: Lynch John ihe49923	Digitally signed by Lynch John ihe49923 Date: 2023.06.29 09:11:25 -04'00'
Name (and position if Designee)	
<b>Remarks:</b>	

District Staff: Please email copy to [Bradley.Shelton@VDOT.Virginia.gov](mailto:Bradley.Shelton@VDOT.Virginia.gov)



**Rinker Design Associates, P.C.**  
 11100 Endeavor Court, Suite 200, Manassas, VA 20109  
 Telephone: (703) 368-7373 [www.rdacivil.com](http://www.rdacivil.com)  
 Engineering \* Surveying \* Transportation \* Environmental Services



CORRESPONDENCE AND PROFFERS  
**WELLINGTON ROAD OPERATIONS CENTER EXPANSION**  
 BRENTSVILLE, VIRGINIA  
 PRINCE WILLIAM COUNTY, VIRGINIA

REVISIONS:


PLAN DATE:	OCTOBER 7, 2022
DESIGN BY:	AAG/SAW
CHECKED BY:	SSD
ARCHITECT/MOSELEY ARCH	
JURISDICTIONAL PLAN NO.	SPR2023-00185
RDA PLAN #:	19001-008
SHEET NUMBER:	C.41B

EFFECTIVE DATE: MARCH 1, 2022

PRINCE WILLIAM COUNTY DEPARTMENT OF DEVELOPMENT SERVICES - LAND DEVELOPMENT DIVISION UNIT PRICE LISTS FOR PERFORMANCE BONDS, LANDSCAPING ESCROWS, SILTATION & EROSION CONTROL ESCROWS, AND FLOODPLAIN ITEMS ESCROWS

PROJECT NAME: WELLINGTON ROAD OPERATIONS CENTER EXPANSION

P.W.C. FILE #: SPR2023-00185 S04 DATE PREPARED: 3/23/2023

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

1. MOBILIZATION/DEMOLITION OF CONSTRUCTION EQUIPMENT

Table with 2 columns: Description, Amount. Mobilization/Demolition @ Lump Sum \$15,000.00 (min) = \$15,000.00

2. STORM DRAINAGE

A. STRUCTURES

Table with 2 columns: Description, Cost. Includes items like DI-1 @ \$6,900.00 EA, DI-3 @ \$6,900.00 EA, etc. SUB-TOTAL FOR STRUCTURES \$ 86,300.00

B. CONCRETE PIPE

Table with 4 columns: QUANTITY, COST, QUANTITY, COST. Includes items like 120 @ \$ 852.00 LF, 183 180 @ \$ 82.00 LF, etc. SUB-TOTAL FOR CONCRETE PIPE \$ 92,361.00

C. END WALLS

Table with 4 columns: QUANTITY, COST, QUANTITY, COST. Includes items like 120 @ \$ 1,950.00 EA, 150 @ \$ 1,950.00 EA, etc. SUB-TOTAL FOR END WALLS \$ -

D. END SECTIONS (ES-1)

Table with 4 columns: QUANTITY, COST, QUANTITY, COST. Includes items like 120 @ \$ 1,048.00 EA, 150 @ \$ 1,048.00 EA, etc. SUB-TOTAL FOR END SECTIONS ES-1 \$ 1,048.00

E. CORRUGATED METAL PIPE

Table with 4 columns: QUANTITY, COST, QUANTITY, COST. Includes items like 120 @ \$ 40.00 LF, 150 @ \$ 60.00 LF, etc. SUB-TOTAL FOR CM PIPE \$ -

F. END SECTIONS (ES-2)

Table with 4 columns: QUANTITY, COST, QUANTITY, COST. Includes items like 150 @ \$ 870.00 EA, 180 @ \$ 870.00 EA, etc. SUB-TOTAL FOR END SECTIONS ES-2 \$ -

G. AD-N-12 (HDPE)

Table with 2 columns: Description, Cost. Includes items like 120 @ \$ 45.00 LF, 150 @ \$ 106.00 LF, etc. SUB-TOTAL FOR AD N-12 HDPE \$ -

H. STORMWATER MANAGEMENT/BMP FACILITIES COST ESTIMATE PER IMPERVIOUS ACRE TREATED (SEE NOTE 3)

Table with 2 columns: Description, Cost. Includes items like Underground CMP Detent @ \$ - \$ -, Dry Extended Detention Pond @ \$ - \$ -, etc. SUB-TOTAL FOR ENTRANCE AND PIPE STEMS \$ -

PROPRIETARY/MANUFACTURED BMP MANUFACTURER'S CERTIFIED COST PLUS CONSTRUCTION COST

Table with 2 columns: Description, Cost. Includes items like Aqua-Swift Stormwater Treatment System @ \$ - \$ -, BaySeparator™ @ \$ - \$ -, etc. SUB-TOTAL FOR SWM/BMP FACILITIES COST ESTIMATE PER IMPERVIOUS ACRE TREATED \$ 155,000.00

I. MISCELLANEOUS STORMWATER MANAGEMENT

Table with 2 columns: Description, Cost. Includes items like Seed, Fertilizer & Mulch (5200 Mln.) @ \$ 3.00 SY, Sod @ \$ 8.00 SY, etc. SUB-TOTAL FOR MISCELLANEOUS STORMWATER MANAGEMENT \$ -

J. MISCELLANEOUS DRAINAGE ITEMS

Table with 2 columns: Description, Cost. Includes items like Box Culvert (conc.) @ \$ 840.00 CY, Energy Dissipater @ \$ 2,250.00 EA, etc. SUB-TOTAL FOR MISCELLANEOUS DRAINAGE ITEMS \$ 2,707.50

3. CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY AND/OR PRIVATE INGRESS/EGRESS EASEMENTS

A. SITE WORK

Table with 2 columns: Description, Cost. Includes items like 0.09 Clear & Grub @ \$12,800.00 AC, Excavation @ \$ 35.00 CY, etc. SUB-TOTAL FOR SITE WORK \$ 1,182.00

B. SUBGRADE, SUBBASE AND BASE COURSE ITEMS

Table with 2 columns: Description, Cost. Includes items like Subgrade preparation (Subbase and base course) @ \$ 3.50 SY, Standard Aggregate (21A/21B) Per Inch Depth @ \$ 3.00 SY, etc. SUB-TOTAL FOR SUBGRADE, SUBBASE AND UNDERDRAINS (PUBLIC) \$ -

C. ENTRANCES AND PIPE STEMS

Table with 2 columns: Description, Cost. Includes items like DE-1 @ \$ 1,800.00 EA, DE-2 @ \$ 1,950.00 EA, etc. SUB-TOTAL FOR ENTRANCE AND PIPE STEMS \$ -

E. MISCELLANEOUS CONSTRUCTION ITEMS

Table with 2 columns: Description, Cost. Includes items like Silewak (5' Width) @ \$ 40.00 LF, Header Curb (CG-2/CG-3) @ \$ 25.00 LF, etc. SUB-TOTAL FOR MISCELLANEOUS CONSTRUCTION ITEMS \$ 13,520.00

RETAINING WALLS

Table with 2 columns: Description, Cost. Includes items like Timber @ \$ 34.00 SF, Crb @ \$ 44.00 SF, MSE Geogrid @ \$ 90.00 SF, etc. SUB-TOTAL FOR MISCELLANEOUS CONSTRUCTION ITEMS \$ 13,520.00

4. SANITARY SEWER & WATER LINE CONSTRUCTION

Table with 2 columns: Description, Cost. Includes items like Fire Hydrant Assembly @ \$ 9,200.00 EA, Central Sewer Lift/Pump Station Construction (Lump Sum) @ \$ - \$ -, etc. SUB-TOTAL FOR SANITARY SEWER PIPE LINE (EXCLUSIVE OF MANHOLE STRUCTURES) \$ 49,010.00

B. SANITARY SEWER PIPE LINE (EXCLUSIVE OF MANHOLE STRUCTURES)

Table with 2 columns: Description, Cost. Includes items like 1.5" dia 4" O LPPM (Low Pressure Force Main System) @ \$ 35.00 LF, 8" PVC @ \$ 81.00 LF, etc. SUB-TOTAL FOR SANITARY SEWER PIPE \$ 11,625.00

5. MISCELLANEOUS COST

Table with 2 columns: Description, Cost. Includes items like Administrative Cost - 10% of the total construction cost, not to exceed \$50,000 @ \$ 42,772.35, Inflation Cost - Compounded annually at 3.0% per year of the total Construction Cost @ \$ 12,831.71, etc. TOTAL PERFORMANCE BOND AMOUNT \$ 483,327.56

6. FLOODPLAIN ITEMS ESCROW

Table with 2 columns: Description, Cost. Includes items like LOAR @ \$18,000.00 \$ -, Elevation Certificate @ \$ 1,000.00 \$ -, etc. TOTAL FLOODPLAIN ITEMS ESCROW AMOUNT \$ -

7. LANDSCAPING ESCROW

Table with 2 columns: Description, Cost. Includes items like 5' - 6' @ \$ 300.00 EA, 6' - 7' @ \$ 450.00 EA, etc. TOTAL LANDSCAPE ESCROW AMOUNT \$ 48,399.00

7. SILTATION AND EROSION CONTROL ESCROWS

Table with 2 columns: Description, Cost. Includes items like 275 Diversion Dike @ \$ 7.00 LF, 4000 Cleaning out SWM Facilities, Silt Traps, and Silt Basins @ \$ 600.00 HR, etc. TOTAL SILTATION & EROSION CONTROL ESCROW AMOUNT \$ 80,206.50

CHANNEL DIVERSION

Table with 2 columns: Description, Cost. Includes items like Standard ditches (Seed, fertilizer and mulch) @ \$ 8.00 LF, Temporary Sediment Basin (See Below) @ \$ 1,500.00 EA, etc. TOTAL COST \$ 72,915.00

TOTAL SILTATION & EROSION CONTROL ESCROW AMOUNT

Table with 2 columns: Description, Cost. Includes items like Administrative Cost (10% of Total Cost) @ \$ 7,291.50, Minimum acceptable amount for Siltation and Erosion Control Escrow is \$2,000.00, etc. TOTAL SILTATION & EROSION CONTROL ESCROW AMOUNT \$ 80,206.50

I hereby certify that the above is my best estimate of the quantities and current cost of bondable improvements.

Signature of Sharon D. Duszka, P.E., PREPARED BY SIGNATURE, NAME (print), Rinker Design Associates COMPANY OR FIRM

NOTES:

- 1. For items identified with \*\* the quantity for the embankment material is the net difference of total fill material needed and cut material available at the project site, if excavated or cut material is suitable for embankment.
2. The excavation and embankment costs include necessary grading, spreading and/or compaction of soil in accordance with County and State Standards and Specifications.
3. The unit cost for each of the items in the Unit Price Lists is the installation cost which includes factors such as materials, excavation, bedding, backfilling, compaction, form work, etc.
4. Inflation has been calculated based on Northern Virginia Consumer Price Index of the Washington D.C. area provided by the Bureau of Labor and Statistics.
5. Whoever certifies the site development plans must also certify the total cost of the bonded items, landscaping escrow and siltation and erosion control escrow and must sign of "Preparer's Signature" on the last page of this form.
6. Floodplain Items Escrow not to be part of Bond/Escrow reduction.

Rinker Design Associates, P.C. 11100 Endeavor Court, Suite 200, Manassas, VA 20109 Telephone: (703) 368-7373 www.rdcivil.com Engineering \* Surveying \* Transportation \* Environmental Services
PWC UPL WELLINGTON ROAD OPERATIONS CENTER EXPANSION BRENDSVILLE COUNTY, VIRGINIA
PLAN DATE: OCTOBER 7, 2022 DESIGN BY: AG/SAW CHECKED BY: SSD ARCHITECT/MOSELEY ARCH JURISDICTIONAL PLAN NO. SPR2023-00185 RDA PLAN #: 19001-008 SHEET NUMBER: C.42

EFFECTIVE DATE: MARCH 1, 2022

PRINCE WILLIAM COUNTY  
DEPARTMENT OF DEVELOPMENT SERVICES - LAND DEVELOPMENT  
DIVISION  
EXPERIENCE LEVELS  
FOR  
PERFORMANCE BONDS, LANDSCAPING ESCROWS, SILTATION &  
EROSION CONTROL ESCROWS, AND FLOODPLAIN ITEM ESCROWS

PROJECT NAME: WELLINGTON ROAD OPERATIONS CENTER EXPANSION  
P.W.C. FILE #: SPR2023-00185-001 DATE PREPARED: 3/23/2023

NOTE: This item is to be used to estimate performance bond, landscaping escrow, siltation escrow and floodplain item escrow prices provided 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**

QUANTITY	COST	QUANTITY	COST
Mobilization/Demobilization @ Lump Sum \$15,000.00 (min)			

**2. STORM DRAINAGE**

**A. STRUCTURES**

QUANTITY	COST	QUANTITY	COST
DH-1 @ \$ 6,900.00 EA	\$ 6,900.00		
DH-2 @ \$ 4,500.00 EA	\$ 4,500.00		
DH-3 @ \$ 4,500.00 EA	\$ 4,500.00		
DH-4 @ \$ 6,900.00 EA	\$ 6,900.00		
DH-5 @ \$ 11,775.00 EA	\$ 11,775.00		
DH-6 @ \$ 4,500.00 EA	\$ 4,500.00		
DH-7 @ \$ 6,900.00 EA	\$ 6,900.00		
DH-12 @ \$ 6,900.00 EA	\$ 6,900.00		

**B. CONCRETE PIPE**

QUANTITY	COST	QUANTITY	COST
120 @ \$ 852.00 LF	\$ 102,240.00	360 @ \$ 207.00 LF	\$ 74,520.00
120 @ \$ 82.00 LF	\$ 9,840.00	420 @ \$ 207.00 LF	\$ 86,940.00
180 @ \$ 82.00 LF	\$ 14,760.00	480 @ \$ 207.00 LF	\$ 99,360.00
210 @ \$ 82.00 LF	\$ 17,220.00	540 @ \$ 207.00 LF	\$ 111,780.00
240 @ \$ 103.00 LF	\$ 24,720.00	600 @ \$ 207.00 LF	\$ 124,200.00
270 @ \$ 103.00 LF	\$ 27,810.00	670 @ \$ 207.00 LF	\$ 138,690.00
300 @ \$ 103.00 LF	\$ 30,900.00	720 @ \$ 207.00 LF	\$ 149,040.00
370 @ \$ 207.00 LF	\$ 76,611.00		

**C. END WALLS**

QUANTITY	COST	QUANTITY	COST
120 @ \$ 1,950.00 EA	\$ 234,000.00	360 @ \$ 2,800.00 EA	\$ 1,008,000.00
120 @ \$ 1,950.00 EA	\$ 234,000.00	420 @ \$ 2,800.00 EA	\$ 1,176,000.00
180 @ \$ 1,950.00 EA	\$ 351,000.00	480 @ \$ 2,800.00 EA	\$ 1,344,000.00
210 @ \$ 1,950.00 EA	\$ 409,500.00	540 @ \$ 2,800.00 EA	\$ 1,512,000.00
240 @ \$ 1,950.00 EA	\$ 468,000.00	600 @ \$ 2,800.00 EA	\$ 1,680,000.00
270 @ \$ 1,950.00 EA	\$ 526,500.00	670 @ \$ 2,800.00 EA	\$ 1,876,000.00
300 @ \$ 1,950.00 EA	\$ 585,000.00	720 @ \$ 2,800.00 EA	\$ 2,016,000.00
370 @ \$ 2,800.00 EA	\$ 1,044,000.00		

**D. END SECTIONS (ES-1)**

QUANTITY	COST	QUANTITY	COST
120 @ \$ 1,048.00 EA	\$ 125,760.00	270 @ \$ 1,200.00 EA	\$ 324,000.00
120 @ \$ 1,048.00 EA	\$ 125,760.00	300 @ \$ 1,300.00 EA	\$ 390,000.00
180 @ \$ 1,048.00 EA	\$ 188,640.00	330 @ \$ 1,500.00 EA	\$ 495,000.00
210 @ \$ 1,048.00 EA	\$ 220,080.00	360 @ \$ 1,600.00 EA	\$ 576,000.00
240 @ \$ 1,048.00 EA	\$ 251,520.00	420 @ \$ 1,600.00 EA	\$ 672,000.00
270 @ \$ 1,048.00 EA	\$ 282,960.00	480 @ \$ 1,600.00 EA	\$ 768,000.00
300 @ \$ 1,048.00 EA	\$ 314,400.00	540 @ \$ 1,600.00 EA	\$ 864,000.00

**E. CORRUGATED METAL PIPE**

QUANTITY	COST	QUANTITY	COST
120 @ \$ 40.00 LF	\$ 4,800.00	360 @ \$ 140.00 LF	\$ 50,400.00
120 @ \$ 60.00 LF	\$ 7,200.00	420 @ \$ 140.00 LF	\$ 58,800.00
180 @ \$ 60.00 LF	\$ 10,800.00	480 @ \$ 140.00 LF	\$ 67,200.00
210 @ \$ 80.00 LF	\$ 16,800.00	540 @ \$ 250.00 LF	\$ 135,000.00
300 @ \$ 80.00 LF	\$ 24,000.00	600 @ \$ 250.00 LF	\$ 150,000.00

**F. END SECTIONS (ES-2)**

QUANTITY	COST	QUANTITY	COST
120 @ \$ 870.00 EA	\$ 104,400.00	360 @ \$ 1,100.00 EA	\$ 396,000.00
120 @ \$ 870.00 EA	\$ 104,400.00	420 @ \$ 1,400.00 EA	\$ 588,000.00
240 @ \$ 870.00 EA	\$ 208,800.00	480 @ \$ 1,800.00 EA	\$ 864,000.00
300 @ \$ 870.00 EA	\$ 261,000.00	540 @ \$ 1,800.00 EA	\$ 972,000.00

**G. AD-N-12 (HDPE)**

QUANTITY	COST	QUANTITY	COST
120 @ \$ 45.00 LF	\$ 5,400.00	360 @ \$ 106.00 LF	\$ 38,160.00
120 @ \$ 60.00 LF	\$ 7,200.00	420 @ \$ 106.00 LF	\$ 44,520.00
180 @ \$ 60.00 LF	\$ 10,800.00	480 @ \$ 106.00 LF	\$ 50,880.00
210 @ \$ 80.00 LF	\$ 16,800.00	540 @ \$ 170.00 LF	\$ 91,800.00
300 @ \$ 80.00 LF	\$ 24,000.00	600 @ \$ 170.00 LF	\$ 102,000.00
420 @ \$ 170.00 LF	\$ 71,400.00		

**H. STORMWATER MANAGEMENT/BMP FACILITIES COST ESTIMATE PER IMPERVIOUS ACRE TREATED (SEE NON-PROPRIETARY BMP ENGINEER ESTIMATE FOR ALL SWM)**

QUANTITY	COST	QUANTITY	COST
Underground C&P Detent	\$ -		
Day Retention Detention Pond	\$ -		
Wet Pond/Wetlands	\$ -		
Bioretention	\$ -		
Vegetated Grass Channel	\$ -		
Micro Bio-Retention (Ragstone)	\$ -		
Infiltration Practices without Sand	\$ -		
Infiltration Practices with Sand	\$ -		
Filtration Practices with Sand Below Ground	\$ -		
Filtration Practices with Sand Above Ground	\$ -		
Permeable Pavement Level 2 Design	\$ -		
Vegetated Roof Level 1 Design	\$ -		
Vegetated Roof Level 2 Design	\$ -		
Soil Compaction Alternative	\$ -		
Roofing Impermeous Surface Disconnection	\$ -		
Sheet Pile in a Vegetated Filter Strip	\$ -		

**PROPRIETARY/MANUFACTURED BMP MANUFACTURER'S CERTIFIED COST PLUS CONSTRUCTION COST**

QUANTITY	COST	QUANTITY	COST
Agua-Swift Stormwater Treatment System	\$ -		
BaySeparator™	\$ -		
Continuous Detention Separator® (CDS)	\$ -		
Downstream Detention®	\$ -		
Hydrograte®	\$ -		
Stormceptor® MAX	\$ -		
Stormceptor® OSR	\$ -		
Stormceptor® STC	\$ -		
StormPro	\$ -		
Storm Water Quality Unit	\$ -		
VBI1	\$ -		
The Venetian® System	\$ -		
Agua-Fiber Stormwater Filtration System	\$ -		
Storm Tech® Inletter Box™	\$ -		
12" Fibre Filter with CPF Media	\$ -		
The Stormwater Management StormFilter® with ZPO Media	\$ -		
BayFilter™ Stormwater Catchment System	\$ -		
Fibers Stormwater Systems	\$ -		
SubFilter Filter	\$ -		
Modular Wetland System Linear (MWS-Linear)	\$ -		
Park Filter	\$ -		
The Stormwater Management StormFilter® with Phosphorus Media	\$ -		

**I. MISCELLANEOUS STORMWATER MANAGEMENT**

QUANTITY	COST	QUANTITY	COST
Seed, Fertilizer & Mulch (520 Min)	\$ 3.00 SY		
Hydraulic Cem. Conc. - 4" depth	\$ 8.00 SF		
Reinforcing Concrete - 12" depth	\$ 7.75 SF		
Re-Rap	\$ 7.75 SF		
Gravel Backfill	\$ 10.00 SF		
Concrete Control Stone (EC-1)	\$ 13.00 T		
#77 - Concrete Aggregate	\$ 35.00 T		
# High Chain Link Fence (#9 gauge or better, including braces, end posts and gate)	\$ 45.00 LF		
# High Chain Link Fence (#9 gauge or better, including braces, end posts and gate)	\$ 45.00 LF		
SWM Sign (WATER RUNS RAPIDLY) (Minimum 3 signs per facility)	\$ 390.00 EA		
Access Road	\$ -		

**J. MISCELLANEOUS DRAINAGE ITEMS**

QUANTITY	COST	QUANTITY	COST
Box Culvert (conc.)	\$ 840.00 CY		
Energy Dissipator	\$ 2,250.00 EA		
Wing Walls (conc.)	\$ 990.00 CY		

**DITCHES**

QUANTITY	COST	QUANTITY	COST
Roadside standard ditches (Seed, fertilizer and mulch)	\$ 8.00 LF		
Soil Ditches	\$ 10.50 LF		
Paved Ditches	\$ 8.50 LF		
Fabric Cloth Fabric & Gabion Stone	\$ 22.00 SF		
Planter	\$ 7.75 SF		
Grouted Rip-rap	\$ 9.00 SF		
Paved Flume	\$ 10.50 SF		
Flush the Drainage System (Minimum 8 HR)	\$ 200.00 HR		

**3. CONSTRUCTION WITHIN THE PUBLIC RIGHT OF WAY AND/OR PRIVATE INGRESS/EGRESS EASEMENTS**

**A. SITE WORK**

QUANTITY	COST	QUANTITY	COST
0.20 Clear & Grub	\$12,800.00 AC	\$ 2,560.00	
Excavation	\$ 35.00 CY		
Embankment** (cut and fill)	\$ 25.00 CY		
Embankment (haul off)	\$ 36.00 CY		
Final Grading	\$ 60.00 AC		
Rock Excavation	\$ 75.00 CY		
Slope Stabilization - Hydroseed/Straw (3:1 or flatter) - 51,000 min.	\$ 1.25 SY		
Slope Sub - Jute Mesh, Matting, Blankets, etc. (Between 2:1 to 3:1) - 5200 min.	\$ 6.00 SY		
Slope Sub - Soil (Between 2:1 to 3:1) - 5200 min.	\$ 8.00 SY		
Steep Slopes (Grading and Stabilization with Jute Mesh, Netting, Blankets, etc.)	\$ 20.00 SY		

**B. SUBGRADE, SUBBASE AND BASE COURSE ITEMS**

QUANTITY	COST	QUANTITY	COST
315 Subgrade preparation (Subbase and base course)	\$ 3.50 SY	\$ 1,102.50	
Standard Aggregate (21A/21B) Per Inch Depth	\$ 3.00 SY		
M&E (Overlay Bituminous Coat) Per Inch Depth	\$ 6.25 SY	\$ 2,003.13	
315 Heavy Duty Aggregate Per Inch Depth	\$ 3.00 SY	\$ 7,560.00	
201 Heavy Duty Bituminous Per Inch Depth	\$ 6.25 SY	\$ 18,187.50	
Reinforced Concrete Pavement Per Inch Depth	\$ 18.00 SY	\$ 5,187.50	
Gravel Shoulders (4" Depth)	\$ 12.00 SY		
Soil Cement Stabilization (4%) (6" Depth)	\$ 24.00 SY		
Soil Cement Stabilization (10%) (6" Depth)	\$ 16.00 SY		
Common Treated Aggregate Per Inch Depth	\$ 11.00 SY		
Underdrains:			
UD-1	\$ 21.00 LF		
UD-2	\$ 21.00 LF		
UD-3	\$ 21.00 LF		
UD-4	\$ 21.00 LF		

**C. ENTRANCES AND PIPE STEMS**

QUANTITY	COST	QUANTITY	COST
DR-1	\$ 1,800.00 EA		
DR-2	\$ 1,950.00 EA		
DR-3	\$ 2,000.00 EA		
DR-4	\$ 2,200.00 EA		
PP-1 (1 kva)	\$ 2,200.00 EA		
PP-1-C (5 kva)	\$ 2,300.00 EA		
PP-2 (1 kva)	\$ 1,725.00 EA		
PP-2-C (5 kva)	\$ 1,750.00 EA		
CG-80 or equal - 30' width	\$ 4,775.00 EA		
CG-80 or equal - 40' width	\$ 6,095.00 EA		
CG-10A or equal - 30' width	\$ 4,775.00 EA		
CG-10A or equal - 40' width	\$ 6,095.00 EA		
CG-11 Concrete Entrance	\$ 3,450.00 EA		
Valley Gate	\$ 61.00 SY		
Pipestem Driveaway - 10' (1 kva)	\$ 81.00 LF		

**E. MISCELLANEOUS CONSTRUCTION ITEMS**

QUANTITY	COST	QUANTITY	COST
Sidewalk (5' Width)	\$ 40.00 LF		
Header Cut (CG-2/CG-3)	\$ 25.00 LF		
Curb & Gutter	\$ 26.00 LF		
CG-12 (Truncated Dome)	\$ 2,000.00 EA		
Bioretention Treatment	\$ 11.00 SF		
Raised Concrete Median (MS-1A)	\$ 81.00 SY		
Trail Wood Chip	\$ 19.00 SY		
Trail (Stone Dust)	\$ 19.00 SY		

**RETAINING WALLS**

QUANTITY	COST	QUANTITY	COST
Timber	\$ 34.00 SF		
Curb	\$ 44.00 SF		
M&E/Geogrid	\$ 80.00 SF		
Gravity Wall	\$ 72.00 SF		
Excavation for retaining walls in cut areas	\$ 29.00 CY		
Anti-Geotextile Panel (Concrete Retaining Wall only, treatment=5000/500, 52500)	\$ 18.00 SF		
Geotextile	\$ 45.00 LF		
GR-7 NCHRP 350	\$ 3,640.00 EA		
GR-9	\$ 1,640.00 EA		
Address Sign (Entrance to Pipestem)	\$ 400.00 EA		
Street Name Sign	\$ 525.00 EA		
Traffic Control Sign	\$ 450.00 EA		
Bus Stop Sign	\$ 415.00 EA		
Bus Shelter	\$ 24,000.00 EA		
Traffic Signal (Lump Sum)	\$ 720.00 EA		
HC Parking Space Sign	\$ 75.00 EA		
Blue Rack	\$ 150.00 EA		
Hand Held Sign	\$ 120.00 LF		
Hand Held (HR-1)	\$ 120.00 LF		
Pavement Marking (Paint)	\$ 2.00 SF		
Pavement Marking (Chromalox)	\$ 4.00 SF	\$ 350.00	
Traffic Barricade (7B-1)	\$ 1,725.00 EA		
Street Lighting	\$ 5,500.00 EA		
Utilities Relocation (Min. \$40,000 - Lump Sum or provide an estimate from utility company)	\$ 46,000.00		
VDOT Street Acceptance Package	\$ 7,000.00		
P.E. Certified "At-Home" Plan Lump Sum (Min. \$12,000)	\$ 12,000.00		

**4. SANITARY SEWER & WATER LINE CONSTRUCTION**

QUANTITY	COST	QUANTITY	COST
Fire Hydrant Assembly	\$ 9,200.00 EA		
Central Sewer Lift/Pump Station Construction (Lump Sum)	\$ -		

**A. WATER MAIN (EXCLUSIVE OF FIRE HYDRANTS)**

QUANTITY	COST	QUANTITY	COST
4" DIP	\$ 60.00 LF		
6" DIP	\$ 75.00 LF		
8" DIP	\$ 90.00 LF		
12" DIP	\$ 125.00 LF		
16" DIP	\$ 165.00 LF		
18" DIP	\$ 185.00 LF		
4" or 6" RW Valve (with accessories)	\$ 1,200.00 EA		
8" or 12" RW Valve (with accessories)	\$ 1,800.00 EA		
16" or 24" RW Valve (with accessories)	\$ 3,000.00 EA		
Standard Meter Cocks & Appurtenances (Angle valve, backflow preventer, valve, flange & cover, and service line)	\$ 2,500.00 EA		
Meter Vault & Appurtenances (3" meters & larger)	\$ 40,000.00 EA		
Water Main Blow-off Assembly	\$ 3,000.00 EA		
Air Release Assembly	\$ 6,800.00 EA		
Dead End Anchor System	\$ 310,000.00 EA		

**B. SANITARY SEWER PIPE LINE (EXCLUSIVE OF MANHOLE STRUCTURES)**

QUANTITY	COST	QUANTITY	COST
1.5" dia 4" O LPEM (Low Pressure Force Main System)	\$ 35.00 LF		
8" PVC	\$ 81.00 LF		
8" DIP	\$ 95.00 LF		
10" DIP	\$ 100.00 LF		
10" PVC	\$ 110.00 LF		
12" DIP	\$ 125.00 LF		
12" PVC	\$ 170.00 LF		
16" DIP	\$ 185.00 LF		
18" PVC	\$ 225.00 LF		
4" Dia. Sanitary Sewer Manhole	\$ 111,000.00 EA		
5			



PLACE  
PAYMENTS  
HERE

DO NOT USE CASH

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PWC SERVICE AUTHORITY

THANK YOU

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