ARLINGTON COUNTY, VIRGINIA OFFICE OF THE PURCHASING AGENT 2100 CLARENDON BOULEVARD, SUITE 500 ARLINGTON, VIRGINIA 22201

NOTICE OF CONTRACT AWARD

Sagres Construction Corporation DATE ISSUED: October 2, 2019

3680 Wheeler Avenue CURRENT REFERENCE NO: 19-279-ITB

Suite 300 On-Call Construction of

Alexandria, VA 22304 CONTRACT TITLE: Wet Utilities

THIS IS A NOTICE OF AWARD OF CONTRACT AND NOT AN ORDER. NO WORK IS AUTHORIZED UNTIL THE VENDOR RECEIVES A VALID COUNTY PURCHASE ORDER ENCUMBERING CONTRACT FUNDS.

The contract documents consist of the terms and conditions of AGREEMENT No. 19-279-ITB including any attachments or amendments thereto.

EFFECTIVE DATE: September 30, 2019

EXPIRES: September 29, 2021

RENEWALS: (3) additional 12-month periods from September 30, 2021 to September 30, 2024

COMMODITY CODE(S): 91319, 91339, 91345, 91360

LIVING WAGE: N

PROFFESSIONAL SERVICES: N

ATTACHMENTS:

AGREEMENT No. 19-279-ITB

EMPLOYEES NOT TO BENEFIT:

NO COUNTY EMPLOYEE SHALL RECEIVE ANY SHARE OR BENEFIT OF THIS CONTRACT NOT AVAILABLE TO THE GENERAL PUBLIC.

<u>VENDOR CONTACT:</u> DEJAN DRAGACEVAC <u>VENDOR TEL. NO.:</u> (703) 924-7220

EMAIL ADDRESS: DAN@SAGRESCONSTRUCTION.COM

COUNTY CONTACT: KAMAL TAKTAK COUNTY TEL. NO.: (703) 228-7527

COUNTY CONTACT EMAIL: KTAKTAK@ARLINGTONVA.US

ARLINGTON COUNTY, VIRGINIA OFFICE OF THE PURCHASING AGENT SUITE 500, 2100 CLARENDON BOULEVARD ARLINGTON, VA 22201

AGREEMENT NO. 19-279-ITB On-Call Construction of Wet Utilities

THIS AGREEMENT is made, on the date of execution by the County, between <u>Sagres Construction</u> <u>Corporation</u> ("Contractor"), a Virginia Corporation with a place of business at 3680 Wheeler Ave, Suite 300, Alexandria, VA 22304, authorized to do business in the Commonwealth of Virginia, and the County Board of Arlington County, Virginia. The County and the Contractor, for the consideration hereinafter specified, agree as follows:

1. CONTRACT DOCUMENTS

The Contract Documents consist of:

- Agreement No. <u>19-279-ITB</u>, and all modifications properly incorporated into the Agreement
- Attachment A Price Schedule
- Attachment B Master Transportation Plan
- Attachment C Lane Closures in Nova District
- Attachment D State and Federal Roads in Arlington County, Virginia
- Attachment E Arlington County, Virginia Materials Testing Specification Reference Guide
- Attachment F N-12 HP Storm Trench Installation Detail
- Attachment G Biodegradable tree shelter
- Attachment H Polypropylene tree shelter
- Attachment I Live Stakes
- Attachment J Sample plans
- Attachment K Revised Arlington County Standard Detail M-6.0
- Attachment L Contractor's Bid Form

Where the terms and provisions of this Agreement vary from the terms and provisions of the other Contract Documents, the order of precedence of the Contract Documents shall be as follows:

Attachments A, B, C, D, E, F, G, H, I, J and K are considered complementary documents, what is in one shall be considered as in all; where the terms of these Contract Documents vary the most stringent shall apply.

The Contract Documents set forth the entire agreement between the County and the Contractor. The County and the Contractor agree that no representative or agent of either party has made any representation or promise with respect to the parties' agreement that is not contained in the Contract Documents. The Contract Documents may be referred to below as the "Contract" or the "Agreement".

2. PROJECT OFFICER

The performance of the Contractor is subject to the review and approval of the County Project Officer who will be appointed by the Director of the Arlington County department or agency requesting the Work under the Contract.

The County has authorized the consultant identified below to act as the County representative for specific purposes to perform specified duties and responsibilities, and to have the rights and authorities as assigned in connection with completion of the Work in accordance with the Contract Documents until such time as the County may notify the Contractor otherwise:

The County will notify the Contractor after contract award of the specific roles and responsibilities of the Consultant(s).

3. SCOPE OF WORK

The Contractor will furnish all labor, materials, and equipment for the construction of <u>Wet Utilities</u> (<u>Storm/Sanitary/Water mains</u>) and associated outfall and stream channel improvements (the "Project") and all other Work shown, described, and required by the Contract Documents (hereinafter "the Work").

The Work shall be performed according to the standards established by the Contract Documents read together as a single specification. It shall be the Contractor's responsibility, at solely the Contractor's cost, to provide sufficient services to fulfill the purposes of the Work. Nothing in the Contract Documents shall be construed to limit the Contractor's responsibility to manage the details and execution of its Work.

4. CONTRACT TERM

The term of this Agreement will commence on the date of execution by the County, and shall be completed no later than 24 consecutive calendar months from the day of the execution of the contract by the County ("Initial Contract Term"), subject to any written modifications as provided for in the Contract Documents. Upon completion of the Initial term, County and Contractor may agree, through bilateral execution of a Contract Amendment, continued operations of the Contractor for not more than three (3) additional twelve (12) month periods.

5. TIME FOR COMPLETION

The County will assign Work, under this contract through the issuance of Task Orders. Prior to each Task Order being issues, there will be discussions by the County with the Contractor of the Scope of Work, timeframe mutually agreed upon for the Final Completion date for each issued Task Order.

The Project Officer will issue the Notice to Proceed that will include the mutually agreed upon Task Order Final Completion date. The Work will not reach Final Completion status until it meets the requirements set forth in the General Conditions. Final Completion will be determined by the inspection and acceptance of the Work by the Project Officer.

6. CONTRACT AMOUNT

The County will pay the Contractor in accordance with the terms of the Progress Payments and Retainage and Payment Terms sections below and at the prices shown in the Price Schedule (Attachment A) for the Contractor's completion of the Work as required by the Contract Documents provided the Work is performed to the satisfaction of and is accepted by the Project Officer.

The Contractor will complete the Work for the total amount specified in this section ("Contract Amount") unless such amount is modified as provided in this Agreement. The Contract Amount includes all of the Contractor's costs and fees (profit) and is inclusive of all anticipated or known site conditions, anticipated or known materials, labor, and equipment costs, or any other costs which should reasonably have been expected by the Contract Documents. Projects for this Agreement shall not exceed 1.5 Million dollars per Contract term.

7. PROGRESS PAYMENTS AND RETAINAGE

The County will make monthly progress payments to the Contractor upon written application by the Contractor, on the basis of a written estimate of the Work performed during the preceding calendar month as approved by the Project Officer.

Five Percent (5%) of each progress payment will be retained by the County until Final Completion and acceptance of all Work covered by the Agreement.

All material and Work covered by partial payments will become the property solely of the County at the time the partial payment is made. The Contractor will have the sole responsibility, care and custody for all materials and Work upon which payments have been made until Substantial Completion.

When calculating payment for materials on-site, the County shall not pay for materials which are not scheduled for incorporation into the Work within Sixty (60) days from the date of application for payment.

8. PAYMENT TERMS

The Contractor must submit invoices to the County's Project Officer, who will either approve the invoice or require corrections. The County will pay the Contractor within Thirty (30) days after approval of an invoice for completed Work which is reasonable and allocable to the Contract.

The number of the County Purchase Order pursuant to Work has been performed must appear on all invoices. Unless otherwise specified herein, payment shall not be made prior to delivery and acceptance of the entire Work by the County.

9. PAYMENT OF SUB-CONTRACTORS

The Contractor is obligated to take one of the two following actions within seven days after receipt of payment by the County for Work performed by any subcontractor under this Contract:

- a. Pay the sub-contractor for the proportionate share of the total payment received from the County attributable to the Work performed by the subcontractor under this Contract; or
- b. Notify the County and the sub-contractor, in writing, of the Contractor's intention to withhold all or a part of the subcontractor's payment with the reason for nonpayment.

The Contractor is obligated to pay interest to the subcontractor on all amounts owed by the Contractor to the subcontractor that remain unpaid after seven days following receipt by the Contractor of payment from the County for Work performed by the subcontractor under this Contract, except for amounts withheld as allowed in subsection b., above. Unless otherwise provided under the terms of this Contract, interest will accrue at the rate of 1% per month.

The Contractor must include in each of its subcontracts, if any are permitted, a provision requiring each subcontractor to include or otherwise be subject to the same payment and interest requirements with respect to each lower-tier subcontractor.

The Contractor's obligation to pay an interest charge to a subcontractor pursuant to this section may not be construed to be an obligation of the County. A Contract modification may not be made for the purpose of providing reimbursement for such interest charge. A cost reimbursement claim may not include any amount for reimbursement for such interest charge.

10. RELEASE AND REQUEST FOR FINAL PAYMENT

In order to receive final payment upon Final Completion of the Project and before Final Acceptance, the Contractor must submit to the Project Officer a signed original notarized copy of the Arlington County Release and Request for Final Payment form per the General Conditions.

11. LIQUIDATED DAMAGES

Time is of the essence under this Contract. The Work must be completed within the Time for Completion. The County and the Contractor agree that damages for failure to complete the Work within the Time for Completion are not susceptible to exact determination but that \$1,428.00 per calendar day is in proportion to the actual loss that the County would suffer from such delay.

Therefore, the Contractor will pay the County as liquidated damages \$1,428.00 per day for each and every calendar day beyond the Time for Completion that the County determines the Contractor has not reached Final Completion.

The County will be entitled to deduct liquidated damages against any sums owed by the County to the Contractor under this Contract. The Contractor hereby waives any defense as to the validity of any liquidated damages on grounds that such liquidated damages are void as penalties or are not reasonably related to actual damages.

12. PERFORMANCE OF WORK BY THE CONTRACTOR

The Contractor shall perform on site, and with its own organization, at least Fifty Percent (50%) of the total direct labor and at least Fifty Percent (50%) of the total Work in place to be performed under the Contract. Prior to award, the Contractor must demonstrate to the Project Officer's satisfaction that both of these standards will be met during contract performance.

Labor and Work to be counted when determining whether the Contractor has met the self-performance requirement shall not include any Work that the Contractor performs under the supervision of a subcontractor.

The self-performance percentage may be reduced by an Amendment to the Contract, if during performance of the Work, the Contractor requests a reduction and the Project Officer determines that the reduction would be to the advantage of the County.

13. NON-APPROPRIATION

All payments by the County to the Contractor pursuant to this Contract are subject to the availability of an annual appropriation for this purpose by the County Board of Arlington County, Virginia ("Board"). In the event that the Board does not appropriate funds for the goods or services provided under this Contract, the County will terminate the Contract, without termination charge or other liability to the County, on the last day of the fiscal year or when the previous appropriation has been spent, whichever occurs first.

14. ESTIMATED QUANTITIES/NON-EXCLUSIVITY OF CONTRACTOR

This Contract does not obligate the County to purchase a specific quantity of items or services during Contract Term. Any quantities that are included in the Contract Documents are the present expectations of the County for the period of the Contract; and the County is under no obligation to buy that or any amount as a result of having provided this estimate or of having had any normal or otherwise measurable

requirement in the past. The County may require more goods and/or services than the estimated annual quantities, and any such additional quantities will not give rise to any claim for compensation other than at the unit prices and/or rates in the Contract.

The County does not guarantee that the Contractor will be the exclusive provider of the goods or services covered by this Contract. The items or services covered by this Contract may be or become available under other County contract(s), and the County may determine that it is in its best interest to procure the items or services through those contract(s).

15. COUNTY PURCHASE ORDER REQUIREMENT

County purchases are authorized only if the County issues a Purchase Order in advance of the transaction, indicating that the ordering County agency has sufficient funds available to pay for the purchase. If the Contractor provides goods or services without a signed County Purchase Order, it does so at its own risk and expense. The County will not be liable for payment for any purchases made by its employees that are not authorized by the County Purchasing Agent.

16. LIEN

It is expressly agreed that after any payment has been made by the County either to the Contractor for Work done, or labor or material supplied under the Contract, the County will have a lien upon all material delivered to the site either by the Contractor, or for the Contractor, which is to be used in the performance of the Contract.

17. EMPLOYMENT DISCRIMINATION BY CONTRACTOR PROHIBITED

During the performance of its Work pursuant to this Contract:

- A. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age or disability or on any other basis prohibited by state law. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
- B. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation will be deemed sufficient for meeting the requirements of this section.
- C. The Contractor will state in all solicitations or advertisements for employees that it places or causes to be placed that such Contractor is an Equal Opportunity Employer.
- D. The Contractor will comply with the provisions of the Americans with Disabilities Act of 1990 ("ADA"), which prohibits discrimination against individuals with disabilities in employment and mandates that disabled individuals be provided access to publicly and privately provided services and activities.
- E. The Contractor must include the provisions of the foregoing paragraphs in every subcontract or purchase order of more than \$10,000.00 relating to this Contract so that the provisions will be binding upon each subcontractor or vendor.

18. EMPLOYMENT OF UNAUTHORIZED ALIENS PROHIBITED

In accordance with §2.2-4311.1 of the Code of Virginia, as amended, the Contractor must not during the performance of this Contract knowingly employ an unauthorized alien, as that term is defined in the federal Immigration Reform and Control Act of 1986.

19. DRUG-FREE WORKPLACE TO BE MAINTAINED BY CONTRACTOR

During the performance of this Contract, the Contractor must:

- (i) Provide a drug-free workplace for its employees;
- (ii) Post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violating such prohibition;
- (iii) State in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and
- (iv) Include the provisions of the foregoing clauses in every sub-contract or purchase order of more than \$10,000.00 relating to this Contract so that the provisions will be binding upon each sub-contractor or vendor.

For the purposes of this section, "workplace" means the site(s) for the performance of the Work required by this Contract.

20. PROJECT STAFF

The County has the right to reasonably reject staff or subcontractors whom the Contractor assigns to the Project. The Contractor must then provide replacement staff or subcontractors satisfactory to the County in a timely manner and at no additional cost to the County. The day-to-day supervision and control of the Contractor's employees and its subcontractors is the sole responsibility of the Contractor.

21. FAILURE TO DELIVER

If the Contractor fails to deliver goods or services in accordance with the Contract terms and conditions, the County, after notice to the Contractor, may procure the goods or services from other sources and hold the Contractor responsible for any resulting additional purchase and administrative costs. The County shall be entitled to offset such costs against any sums owed by the County to the Contractor. However, if public necessity requires the use of nonconforming materials or supplies, they may be accepted at a reduction in price to be determined solely by the County.

22. UNSATISFACTORY WORK

If any of the Work done, or material, goods, or equipment provided by the Contractor, is unsatisfactory to the County the Contractor must, upon notice from the County, immediately remove at the Contractor's expense such unsatisfactory work, material, goods, or equipment and replace the same with work, material, goods, or equipment satisfactory to the County. If the Contractor fails to do so after fifteen (15) days the County shall have the right to remove or replace the rejected work, material, goods, or equipment at the expense of the Contractor and offset the expense and administrative costs against any sums owed to the Contractor. This provision applies during the Contract Term and during any warranty or guarantee period. At the Project Officer's discretion, rather than correction or replacement of the work, an appropriate adjustment to the Contract Amount may be made.

23. TERMINATION

The County may terminate this Contract at any time as follows: (1) for cause, if, as determined by the County, the Contractor is in breach or default or has failed to perform the Work satisfactorily; or (2) for the convenience of the County.

Upon receipt of a notice of termination, the Contractor must not place any further orders or subcontracts for materials, services or facilities; must terminate all vendors and subcontracts, except as are necessary for the completion of any portion of the Work that the County did not terminate; and must immediately deliver all documents related to the terminated Work to the County.

Any purchases that the Contractor makes after the notice of termination will be the sole responsibility of the Contractor, unless the County has approved the purchases in writing as necessary for completion of any portion of the Work that the County did not terminate.

If any court of competent jurisdiction finds a termination for cause by the County to be improper, then the termination will be deemed a termination for convenience.

A. TERMINATION FOR CAUSE, INCLUDING BREACH AND DEFAULT; CURE

1. Termination for Unsatisfactory Performance. If the County determines that the Contractor has failed to perform satisfactorily, then the County will give the Contractor written notice of such failure(s) and the opportunity to cure them within 15 days or any other period specified by the County ("Cure Period"). If the Contractor fails to cure within the Cure Period, the County may terminate the Contract for failure to provide satisfactory performance by providing written notice with a termination date. Upon such termination, the Contractor may apply for compensation for Contract services that the County previously accepted ("Termination Costs"), unless payment is otherwise barred by the Contract. The Contractor must submit any request for Termination Costs, with all supporting documentation, to the County Project Officer within 30 days after the expiration of the Cure Period. The County may accept or reject the request for Termination Costs, in whole or in part, and may notify the Contractor of its decision within a reasonable time.

In the event of termination by the County for failure to perform satisfactorily, the Contractor must continue to provide its services as previously scheduled through the termination date, and the County must continue to pay all fees and charges incurred through the termination date.

2. <u>Termination for Breach or Default</u>. If the County terminates the Contract for default or breach of any Contract provision or condition, then the termination will be immediate after notice of termination to the Contractor (unless the County provides for an opportunity to cure), and the Contractor will not be permitted to seek Termination Costs.

Upon any termination pursuant to this section, the Contractor will be liable to the County for costs that the County must expend to complete the Work, including costs resulting from any related delays and from unsatisfactory or non-compliant Work performed by the Contractor or its subcontractors. The County will deduct such costs from any amount due to the Contractor; or if the County does not owe the Contractor, the Contractor must promptly pay

the costs within 15 days of a demand by the County. This section does not limit the County's recovery of any other damages to which it is entitled by law.

Except as otherwise directed by the County, the Contractor must stop Work on the date of receipt the notice of the termination.

B. TERMINATION FOR THE CONVENIENCE OF THE COUNTY

The County may terminate this Contract in whole or in part whenever the Purchasing Agent determines that termination is in the County's best interest. The County will give the Contractor at least 15 days' notice in writing. The notice must specify the extent to which the Contract is terminated and the effective termination date. The Contractor will be entitled to Termination Costs, as defined above, plus any other reasonable amounts that the parties might negotiate; but no amount will be allowed for anticipatory profits.

Except as otherwise directed by the County, the Contractor must stop Work on the date of receipt of the notice of the termination.

24. INDEMNIFICATION

The Contractor covenants for itself, its employees and its subcontractors to save, defend, hold harmless and indemnify the County and all of its elected and appointed officials, officers, current and former employees, agents, departments, agencies, boards and commissions (collectively the "County Indemnitees") from and against any and all claims made by third parties for any and all losses, damages, injuries, fines, penalties, costs (including court costs and attorneys' fees), charges, liability, demands or exposure resulting from, arising out of or in any way connected with the Contractor's acts or omissions, including the acts or omissions of its employees, vendors, delivery drivers and/or subcontractors, in performance or nonperformance of the Contract. This duty to save, defend, hold harmless and indemnify will survive the termination of this Contract. If the Contractor fails or refuses to fulfill its obligations contained in this section, the Contractor must reimburse the County for any and all resulting payments and expenses, including reasonable attorneys' fees. The Contractor must pay such expenses upon demand by the County, and failure to do so may result in the County withholding such amounts from any payments to the Contractor under this Contract.

25. INTELLECTUAL PROPERTY INDEMNIFICATION

The Contractor warrants and guarantees that in providing services under this Contract neither the Contractor nor any subcontractor is infringing on the intellectual property rights (including, but not limited to, copyright, patent, mask and trademark) of third parties.

If the Contractor or any of its employees or subcontractors uses any design, device, Work or material that is covered by patent or copyright, it is understood that the Contract Amount includes all royalties, licensing fees, and any other costs arising from such use in connection with the Work under this Contract.

The Contractor covenants for itself, its employees and its subcontractors to save, defend, hold harmless, and indemnify the County Indemnitees, as defined above, from and against any and all claims, losses, damages, injuries, fines, penalties, costs (including court costs and attorneys' fees), charges, liability or exposure for infringement of or on account of any trademark, copyright, patented or unpatented invention, process or article manufactured or used in the performance of this Contract. This duty to save, defend, hold harmless and indemnify will survive the termination of this Contract. If the Contractor fails or refuses to fulfill its obligations contained in this section, the Contractor must reimburse the County for

any and all resulting payments and expenses, including reasonable attorneys' fees. The Contractor must pay such expenses upon demand by the County, and failure to do so may result in the County withholding such amounts from any payments to the Contractor under this Contract.

26. COPYRIGHT

By this Contract, the Contractor irrevocably transfers, assigns, sets over and conveys to the County all rights, title and interest, including the sole exclusive and complete copyright interest, in any and all copyrightable works created pursuant to this Contract. The Contractor will execute any documents that the County requests to formalize such transfer or assignment.

The rights granted to the County by this section are irrevocable and may not be rescinded or modified, including in connection with or as a result of the termination of or a dispute concerning this Contract.

The Contractor may not use subcontractors or third parties to develop or provide input into any copyrightable materials produced pursuant to this Contract without the County's advance written approval and unless the Contractor includes this Copyright provision in any contract or agreement with such subcontractors or third parties related to this Contract.

27. OWNERSHIP AND RETURN OF RECORDS

This Contract does not confer on the Contractor any ownership rights or rights to use or disclose the County's data or inputs.

All drawings, specifications, blueprints, data, information, findings, memoranda, correspondence, documents or records of any type, whether written, oral or electronic, and all documents generated by the Contractor or its subcontractors as a result of this Contract (collectively "Records") are the exclusive property of the County and must be provided or returned to the County upon completion, termination, or cancellation of this Contract. The Contractor will not use or willingly cause or allow such materials to be used for any purpose other than performance of this Contract without the written consent of the County.

The Records are confidential, and the Contractor will neither release the Records nor share their contents. The Contractor will refer all inquiries regarding the status of any Record to the Project Officer or to his or her designee. At the County's request, the Contractor will deliver all Records, including hard copies of electronic records, to the Project Officer and will destroy all electronic Records.

The Contractor agrees to include the provisions of this section as part of any contract or agreement related to this Contract into which it enters with subcontractors or other third parties.

The provisions of this section will survive any termination or cancellation of this Contract.

28. CONFIDENTIAL INFORMATION

The Contractor and its employees, agents and subcontractors will hold as confidential all County information obtained under this Contract. Confidential information includes, but is not limited to, nonpublic personal information; personal health information (PHI); social security numbers; addresses; dates of birth; other contact information or medical information about a person; and information pertaining to products, operations, systems, customers, prospective customers, techniques, intentions, processes, plans and expertise. The Contractor must take reasonable measures to ensure that all of its employees, agents and subcontractors are informed of and abide by this requirement.

29. ETHICS IN PUBLIC CONTRACTING

This Contract incorporates by reference Article 9 of the Arlington County Purchasing Resolution, as well as all state and federal laws related to ethics, conflicts of interest or bribery, including the State and Local Government Conflict of Interests Act (Code of Virginia § 2.2-3100 et seq.), the Virginia Governmental Frauds Act (Code of Virginia § 18.2-498.1 et seq.) and Articles 2 and 3 of Chapter 10 of Title 18.2 of the Code of Virginia, as amended (§ 18.2-438 et seq.). The Contractor certifies that its bid was made without collusion or fraud; that it has not offered or received any kickbacks or inducements from any other offeror, supplier, manufacturer or subcontractor; and that it has not conferred on any public employee having official responsibility for this procurement any payment, loan, subscription, advance, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.

30. COUNTY EMPLOYEES

No Arlington County employee may share in any part of this Contract or receive any benefit from the Contract that is not available to the general public.

31. FORCE MAJEURE

Neither party will be held responsible for failure to perform the duties and responsibilities imposed by this Contract if such failure is due to a fire, riot, rebellion, natural disaster, war, act of terrorism or act of God that is beyond the control of the party and that makes performance impossible or illegal, unless otherwise specified in the Contract.

32. AUTHORITY TO TRANSACT BUSINESS

The Contractor must, pursuant to Code of Virginia § 2.2-4311.2, be and remain authorized to transact business in the Commonwealth of Virginia during the entire term of this Contract. Otherwise, the Contract is voidable at the sole option of and with no expense to the County.

33. RELATION TO THE COUNTY

The Contractor is an independent contractor, and neither the Contractor nor its employees or subcontractors will be considered employees, servants or agents of the County. The County will not be responsible for any negligence or other wrongdoing by the Contractor or its employees, servants or agents. The County will not withhold payments to the Contractor for any federal or state unemployment taxes, federal or state income taxes or Social Security tax or for any other benefits. The County will not provide to the Contractor any insurance coverage or other benefits, including workers' compensation.

34. <u>ANTITRUST</u>

The Contractor conveys, sells, assigns and transfers to the County all rights, title and interest in and to all causes of action under state or federal antitrust laws that the Contractor may have relating to this Contract.

35. REPORT STANDARDS

The Contractor must submit all written reports required by this Contract for advance review in a format approved by the Project Officer. Reports must be accurate and grammatically correct and should not contain spelling errors. The Contractor will bear the cost of correcting grammatical or spelling errors and inaccurate report data and of other revisions that are required to bring the report(s) into compliance with this section.

Whenever possible, proposals must comply with the following guidelines:

- printed double-sided on at least Thirty Percent (30%) re-cycled-content and/or tree-free paper
- recyclable and/or easily removable covers or binders made from recycled materials (proposals with glued bindings that meet all other requirements are acceptable)
- avoid use of plastic covers or dividers
- avoid unnecessary attachments or documents or superfluous use of paper (e.g. separate title sheets or chapter dividers)

36. AUDIT

The Contractor must retain all books, records and other documents related to this Contract for at least five years, or such period of time required by the County's funding partner(s), if any, whichever is greater, after the final payment and must allow the County or its authorized agents to examine the documents during this period and during the Contract Term.

The Contractor must provide any requested documents to the County for examination within Fifteen (15) days of the request, at the Contractor's expense. Should the County's examination reveal any overcharging by the Contractor, the Contractor must, within Thirty (30) days of County's request, reimburse the County for the overcharges and for the reasonable costs of the County's examination, including, but not limited to, the services of external audit firm and attorney's fees; or the County may deduct the overcharges and examination costs from any amount that the County owes to the Contractor.

If the Contractor wishes to destroy or dispose of any records related to this Contract (including confidential records to which the County does not have ready access) within Five(5) years after the final payment, or such period of time required by the County's funding partner(s), if any, whichever is greater, the Contractor must give the County at least Thirty (30) days' notice and must not dispose of the documents if the County objects.

37. ASSIGNMENT

The Contractor may not assign, transfer, convey or otherwise dispose of any award or any of its rights, obligations or interests under this Contract without the prior written consent of the County.

38. AMENDMENTS

This Contract may not be modified except by written amendment executed by persons duly authorized to bind the Contractor and the County.

39. ARLINGTON COUNTY PURCHASING RESOLUTION AND COUNTY POLICIES

Nothing in this Contract waives any provision of the Arlington County Purchasing Resolution, which is incorporated herein by reference, or any applicable County policy.

40. DISPUTE RESOLUTION

All disputes arising under this Agreement or concerning its interpretation, whether involving law or fact and including but not limited to claims for additional work, compensation or time, and all claims for alleged breach of contract must be submitted in writing to the Project Officer as soon as the basis for the claim arises. In accordance with the Arlington County Purchasing Resolution, claims denied by the Project Officer may be submitted to the County Manager in writing no later than 60 days after the final payment. The time limit for a final written decision by the County Manager is 30 days. Procedures concerning contractual claims, disputes, administrative appeals and protests are contained in the Arlington County

Purchasing Resolution. The Contractor must continue to Work as scheduled pending a decision of the Project Officer, County Manager, County Board or a court of law.

41. APPLICABLE LAW, FORUM, VENUE, AND JURISDICTION

This Contract is governed in all respects by the laws of the Commonwealth of Virginia; and the jurisdiction, forum and venue for any litigation concerning the Contract or the Work is in the Circuit Court for Arlington County, Virginia, and in no other court.

42. ARBITRATION

No claim arising under or related to this Contract may be subject to arbitration.

43. **NONEXCLUSIVITY OF REMEDIES**

All remedies available to the County under this Contract are cumulative, and no remedy will be exclusive of any other at law or in equity.

44. NO WAIVER

The failure to exercise a right provided for in this Contract will not be a subsequent waiver of the same right or of any other right.

45. SEVERABILITY

The sections, paragraphs, clauses, sentences, and phrases of this Contract are severable; and if any section, paragraph, clause, sentence or phrase of this Contract is declared invalid by a court of competent jurisdiction, the rest of the Contract will remain in effect.

46. <u>ATTORNEY'S FEES</u>

In the event the County prevails in any legal action or proceeding brought by the County to enforce any provision of this Contract, the County is entitled to reasonable attorney's fees and costs.

47. SURVIVAL OF TERMS

In addition to any statement that a specific term or paragraph survives the expiration or termination of this Contract, the following sections also survive: INDEMNIFICATION; INTELLECTUAL PROPERTY INDEMNIFICATION; RELATION TO COUNTY; OWNERSHIP AND RETURN OF RECORDS; AUDIT; COPYRIGHT; DISPUTE RESOLUTION; APPLICABLE LAW AND JURISDICTION; ATTORNEY'S FEES, AND CONFIDENTIAL INFORMATION.

48. HEADINGS

The section headings in this Contract are inserted only for convenience and do not affect the substance of the Contract or limit the sections' scope.

49. AMBIGUITIES

The parties and their counsel have participated fully in the drafting of this Agreement; and any rule that ambiguities are to be resolved against the drafting party does not apply. The language in this Agreement is to be interpreted as to its plain meaning and not strictly for or against any party.

50. NOTICES

Unless otherwise provided in writing, all legal notices and other communications required by this Contract are deemed to have been given when either (a) delivered in person; (b) delivered by an agent, such as a

delivery service; or (c) deposited in the United States mail, postage prepaid, certified or registered and addressed as follows:

TO THE CONTRACTOR:

Dejan Dragacevac, Vice President Sagres Construction Corporation 3680 Wheeler Ave, Suite 300, Alexandria, VA 22304

TO THE COUNTY:

Kamal Taktak, Project Officer Engineering Bureau, Dept. Of Environmental Services Arlington County, Virginia 2100 Clarendon Boulevard, Suite 900 Arlington, Virginia 22201

<u>AND</u>

Sharon Lewis, Purchasing Division Chief Arlington County Government Office of the Purchasing Agent 2100 Clarendon Boulevard Suite 500 Arlington, Virginia 22201

51. NON-DISCRIMINATION NOTICE

Arlington County does not discriminate against faith-based organizations.

52. INSURANCE, PAYMENT AND PERFORMANCE BONDS

The Contractor shall maintain the required insurance coverage and payment and performance bonds through completion of the Contract, including all warranty and guarantee periods.

WITNESS these signatures:

THE COUNTY BOARD OF ARLINGTON COUNTY,	SAGRES CONSTRUCTION CORPORATION
VIRGINIA	1. hours
AUTHORIZED	AUTHORIZED
SIGNATURE: NMON	SIGNATURE:
NAME: SHARON LEWIS, M.A., MPS, VCO, CPPB	NAME: Dejan Dragacevac
TITLE: PURCHASING DIVISION CHIEF	TITLE: Vice President
THEE. I GREEN SHOULD STREET	
DATE: 4/30/2019	DATE: 9/16/2019

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ITB19-279-ITB - ATTACHMENT A - PRICING SHEET

CAPITAL IMPROVEMENT PROJECT WORK CATEGORY

Wet utilities improvement and associated outfall and stream channel improvements project work shall consist generally of construction and maintenance of: State and County storm/water/sanitary pipes, structures, appurtenances, stream channel repair, regenerative stormwater conveyances and related site work.

PLEASE PROVIDE PRICES IN ALL CELLS HIGHLIGHTED

All Unit Prices on the Bid Form shall reflect and be inclusive of all costs, including but not limited to: tasks, labor, supplies, tools, equipment, transportation, mobilization, clearing and grubbing, demolition, excavation, saw-cutting, material provisions and installations, disposals, incidentals, and all things necessary to perform the work as set forth in accordance with project plans and specifications and in compliance with all Arlington County and VDOT Standards and Specifications.

ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	The second second second second	UNIT PRICE (UP)		TOTAL EST	MATER	PRICE
				MASE BID WORK	RESTRICTED HOURS WORK		BASE BID WORK (UP) X:1/2 (TBQ)		DOTED HOURS WORK JP) X 1/2 (TBQ)
W	C1. GENERAL EARTH WORK								
C1-1	Over-Excavation	10,000	CY	10	10	\$	50,000.00	\$	50,000.00
C1-2	Rock Excavation, only when not included in other pay items	150	CY	\$125.00	125	\$	9,375.00	\$	9,375.00
C1-3	Grading	3000	SY	\$5.00	5	\$	7,500.00	\$	7,500.00
C1-4	Test: Pits, Up to 6' Deep (with restoration)	30	EA	\$900.00	1000	\$	13,500.00	\$	15,000.00
C1-5	Test Pits, Each VF Over 6' Deep (with restoration)	30	VF	\$175.00	200	\$	2,625.00	\$	3,000.00
C1-6	Test Bores, Up to 6' Deep (with restoration)	15	EA	\$900.00	1000	\$	6,750.00	\$	7,500.00
C1-7	Test Bores, Up to 6' Deep (with restoration)	15	EA	\$900.00	1000	\$	6,750.00	\$	7,500.00
C1-8	Select Borrow (VDOT Section 207 - Select Material, Type 1)	150	CY	\$50.00	50	\$	3,750.00	\$	3,750.00
C1-9	Flowable BackFill (VDOT Special Provision S302G02-0610)	15	CY	\$450.00	450	\$	3,375.00	\$	3,375.00
C1-10	Geotextile Drainage Fabric In Place (VDOT Section 245.03.c)	2500	SY	\$4.50	4.5	\$	5,625.00	\$	5,625.00
C1-11	Geotextile Stabilization Fabric In Place (VDOT Section 245.03.d.2)	2500	SY	\$4.50	4.5	\$	5,625.00	\$	5,625.00
C1-12	Nonwoven Geotextile Filter Fabric In Place with flow Rate greater than 110 gal/min/ft2 as per ASTM D4491	500	SY	\$5.00	5	\$	1,250.00	\$	1,250.00
C1-13	Geotextile for Rip Rap Bedding In Place (VDOT Section 245.03.b)	150	SY	\$5.00	5	\$	375.00	\$	375.00
C1-14	Aggregate, Cement Treated (CTA), also known as "Hydraulic Cement Stabilization" (VDOT Section 307)	15	CY	\$175.00	175	\$	1,312.50	\$	1,312.50
C1-15	Aggregate, VDOT #1 (Compacted in Place per VDOT standards & Specs)	15	CY	\$110.00	110	\$	825.00	\$	825.00
C1-16	Aggregate, VDOT #2 (Compacted in Place per VDOT standards & Specs)	15	CY	\$110.00	110	\$	825.00	\$	825.00
C1-17	Aggregate, VDOT #8 (Compacted in Place per VDOT standards & Specs)	15	CY	\$110.00	110	\$	825.00	\$	825.00
C1-18	Aggregate, VDOT #21-A (Compacted in Place per VDOT standards & Specs)	4200	CY	\$95.00	95	\$	199,500.00	\$	199,500.00
C1-19	Aggregate, VDOT #21-B (Compacted in Place per VDOT standards & Specs)	170	CY	\$120.00	120	\$	10,200.00	\$	10,200.00

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ITEM#	Aggregate, Crusher Run VDOT #25 or approved equal (Compacted in Place per VDOT standards & Specs)	TOTAL ESTEMATED ANNUAL OUANTITY	ESTIMATED ANNUAL	UNIT	Children Committee on the Committee of t	PRICE IP)	TOTAL ESTI	MAT	ED PRICE
				BASE BID WORK	RESTRUCTED HOURS WORK	BASE BID WORK (UP) X 1/2 (TEQ)		RESTRICTED HOURS WORK (UP) X1/2 (TEQ)	
			CY	\$110.00	110	\$ 825.00	\$	825.00	
C1-21	Aggregate, VDOT #57 (Compacted in Place per VDOT standards & Specs)	550	CY	\$110.00	110	\$ 30,250.00	\$	30,250.00	
C1-22	Riprap, Dry Class I	25	SY	\$125.00	125	\$ 1,562.50	\$	1,562.50	
C1-23	Riprap, Dry Class II	15	SY	\$150.00	150	\$ 1,125.00	\$	1,125.00	
C1-24	Riprap, Dry Class III	15	SY	\$195.00	195	\$ 1,462.50	\$	1,462.50	
C1-25	Riprap, Mortared	25	SY	\$90.00	90	\$ 1,125.00	\$	1,125.00	
C1-26	Riprap, Grouted	25	SY	\$90.00	90	\$ 1,125.00	\$	1,125.00	
C1-27	Riprap, Dumped Type (1) Core Riprap	15	TON	\$75.00	75	\$ 562.50	\$	562.50	
C1-28	Riprap, Dumped Type (2) Heavy Riprap	15	TON	\$90.00	90	\$ 675.00	\$	675.00	

C1 SUBTOTAL \$ 418,700.00 \$ 422,075.00

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ITEM#	DESCRIPTION	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	THE RESIDENCE OF CHILDREN STATES OF THE PARTY OF THE PART	PRICE IP)	TOTAL ESTI	MATED	PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	BASE BID WORK (UP) X:1/2 (TEQ)		STRICTED HOURS WORK JP) X:1/2 (TEQ)	
	C2. CONCRETE WORK								
C2-1	Rigid Concrete, Planing or Milling Concrete Curb, Standard Header Curb C-3	50	SY/IN	\$110.00	110	\$ 2,750.00	\$	2,750.00	
C2-2	(Arlington County Detail R-2.0), includes curb for aprons, ramps, etc.	500	LF	\$75.00	75	\$ 18,750.00	\$	18,750.00	
C2-3	Concrete Curb, Mountable Curb at Traffic Circle (Arlington County Detail R-2.7)	150	LF	\$90.00	90	\$ 6,750.00	\$	6,750.00	
C2-4	Concrete Curb, Standard 6" (VDOT CG-2), includes curb for aprons, ramps, etc.	150	LF	\$90.00	90	\$ 6,750.00	\$	6,750.00	
C2-5	Concrete Curb, Standard 4" (VDOT CG-3), includes curb for aprons, ramps, etc.	350	LF	\$90.00	90	\$ 15,750.00	\$	15,750.00	
C2-6	Concrete Curb & Gutter, Standard C-2 and C-2R (Arlington County Detail R-2.0), includes curb & gutter for aprons, ramps, etc.	6,000	LF	\$90.00	90	\$ 270,000.00	\$	270,000.00	
C2-7	Concrete Curb & Gutter, Combination 6" (VDOT CG-6), includes curb & gutter for aprons, ramps, etc.	300	LF	\$90.00	90	\$ 13,500.00	*	13,500.00	
C2-8	Concrete Curb & Gutter, Combination 4" (VDOT CG-7), includes curb & gutter for aprons, ramps, etc.	500	ĻF	\$90.00	90	\$ 22,500.00	\$	22,500.00	
C2-9	Concrete Curb, Standard 3" (VDOT CG-3 Modified), included curb for aprons, ramps, etc.	500	ĿF	\$85.00	85	\$ 21,250.00	\$	21,250.00	
C2-10	Standard Entrance Gutter (VDOT CG-9D).	100	LF	\$125.00	125	\$ 6,250.00	\$	6,250.00	
C2-11	Valley Gutter (Arlington County Detail R-2.9, including all materials as shown in detail)	100	SY	\$125,00	125	\$ 6,250.00	\$	6,250.00	
C2-12	Concrete Sidewalk, 4" Thickness (Arlington County Detail R-2.0)	1,500	SY	\$95.00	95	\$ 71,250.00	\$	71,250.00	
C2-13	Concrete Sidewalk, 4" Thickness with WWF (VDOT Section 223.02.a.3)	150	SY	\$100.00	100	\$ 7,500.00	\$	7,500.00	
C2-14	Concrete Sidewalk, 6" Thickness	150	SY	\$110.00	110	\$ 8,250.00	\$	8,250.00	
C2-15	CG-12 Detectable Warning Surface - Truncated Domes	75	SY	\$225.00	225	\$ 8,437.50	\$	8,437.50	
C2-16	Concrete Sidewalk, 6" Thickness with WWF (Arlington County Standard H-3.1)	150	SY	\$110.00	110	\$ 8,250.00	\$	8,250.00	
C2-17	Concrete Pavers (Arlington County Detail R- 2.1)	10	SY	\$250.00	250	\$ 1,250.00	\$	1,250.00	
C2-18	Concrete Pavers, Remove and Reset (Arlington County Detail R-2.1)	10	SY	\$275.00	275	\$ 1,375.00	\$	1,375.00	
C2-19	Concrete Paver Crosswalk (Arlington County Detail R-2.6, including all materials as shown in detail)	10	SY	\$425.00	425	\$ 2,125.00	\$	2,125.00	
C2-20	Concrete Paver Crosswalk, Remove and Reset (Arlington County Detail R-2.6, including all materials as shown in detail)	10	SY	\$475.00	475	\$ 2,375.00	\$	2,375.00	
C2-21	Concrete Driveway Entrance, 6" Thick Residential (Arlington County Details R-2.4A, R-2.4B, R-2.4C, R-2.4D)	1,000	SY	\$110.00	110	\$ 55,000.00	\$	55,000.00	
C2-22	Concrete Driveway Entrance, 9" Thick Commercial (Arlington County Details R- 2.4A, R-2.4B, R-2.4C, R-2.4D)	300	SY	\$120.00	120	\$ 18,000.00	\$	18,000.00	

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ITEM#	Concrete Steps Each (Arlington County Detail R-3.0, including all reinforcing bars as shown in detail)	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	The Control of the Co	PRICE IP)	1000	TOTAL ESTA	MATE	PRICE
				BASE BID WORK	RESTRUCTED HOURS WORK		BASE BID WORK (UP) X 1/2 (TEQ)	1	STRICTED (HOURS WORK UP) X:1/2 (TEQ)
			LF-W	\$275.00	275	\$	3,437.50	\$	3,437.50
C2-24	Concrete Pier, Cradle, or Encasement (Arlington County Detail M-3.0)	15	CY	\$650.00	650	\$	4,875.00	\$	4,875.00
C2-25	Concrete Pier, Cradie, or Encasement (Arlington County Detail M-7.0)	15	СҮ	\$650.00	650	\$	4,875.00	\$	4,875.00
C2-26	Concrete and Formwork (VDOT Class A3), only when not included in other pay items	15	СҮ	\$1,200.00	1,200	\$	9,000.00	\$	9,000.00
C2-27	Concrete and Formwork (VDOT Class A4), only when not included in other pay items	8	CY	\$1,250.00	1,250	\$	5,000.00	\$	5,000.00
C2-28	Steel Reinforcement, Welded Wire Fabric (VDOT Section 406), only when not included in other pay items	100	LB	\$10.00	10	\$	500.00	\$	500.00
C2-29	Steel Reinforcement, Reinforcing Steel Bars #6 and smaller (VDOT Section 406), only when not included in other pay items	200	LB	\$10.00	10	\$	1,000.00	\$	1,000.00
C2-30	Steel Reinforcement, Reinforcing Steel Bars #7 up to #10 (VDOT Section 406), only when not included in other pay items	200	LB	\$10.00	10	\$	1,000.00	\$	1,000.00
100	NAMES OF THE PROPERTY OF THE P		September 1	SUBTOTAL	T. T. N. 16.7 (1978)	\$	604,000.00	\$	604,000.00

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1TEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL OUANTITY	UNIT		PRICE P)		TOTAL EST	MA	TED PRICE
				BASE BID WORK	RESTRICTED HOURS WORK		BASE BID WORK (UP) X 1/2 (TEQ)	STATE OF THE PARTY.	RESTRICTED HOURS WORK (UP) X 1/2 (TEQ)
	C3. ASPHALT WORK								
C3-1	Asphalt Concrete, Planing or Milling (1/2" to 3" Depth)	500	SY	\$25.00	25	\$	6,250.00	\$	6,250.00
C3-2	Asphalt Concrete, Planing or Milling (In Excess of 3" Depth)	100	SY/IN	\$7.50	8	\$	375.00	\$	375.00
C3-3	Asphalt Concrete, Base Course (VDOT BM- 25.0A)	2,500	TON	\$185.00	185	\$	231,250.00	\$	231,250.00
C3-4	Asphalt Concrete, Base Course (VDOT BM- 25.D)	500	TON	\$190.00	190	\$	47,500.00	\$	47,500.00
C3-5	Asphalt Concrete, Intermediate Course (VDOT IM-19.0A)	50	TON	\$230.00	230	\$	5,750.00	\$	5,750.00
C3-6	Asphalt Concrete, Intermediate Course (VDOT IM-19.0D)	50	TON	\$230.00	230	\$	5,750.00	\$	5,750.00
C3-7	Asphalt Concrete, Surface Course (VDOT SM- 9.5A)	500	TON	\$195.00	195	\$	48,750.00	\$	48,750.00
C3-8	Asphalt Concrete, Surface Course (VDOT SM- 9.5D)	500	TON	\$195.00	195	\$	48,750.00	\$	48,750.00
C3-9	Asphalt Concrete, Stamped - Imprinting Hot Mix Asphalt Concrete (per Supplemental Specification 02600)	100	SF	\$10.00	10	\$	500.00	\$	500.00
C3-10	Asphalt Concrete, Stamped - Heating Asphalt (per Supplemental Specification 02600)	100	SF	\$10.00	10	\$	500.00	\$	500.00
C3-11	Asphalt Concrete, Stamped - Provide and Install Streetbond Coating (per Supplemental Specification 02600)	1,000	SF	\$12.50	13	\$	6,250.00	\$	6,250.00
C3-12	Asphalt Concrete, Stamped - Imprinted Asphalt Patching (per Supplemental Specification 02600)	100	SF	\$30.00	30	\$	1,500.00	\$	1,500.00
C3-13	Asphalt Header Curb, 6"-8" (VDOT SM-9.5A)	50	ĻF	\$95.00	95	\$	2,375.00	\$	2,375.00
C3-14	Cold-Mix Asphalt (latest VDOT Standards for Cold Mix Asphalt Type P-1, P-2, and P-3).	10	TON	\$250.00	300	\$	1,250.00	\$	1,500.00
C3-15	8" to 10" Reinforced Concrete Paving (VDOT Standards PR-3, PR-4, PR-5 and PR-6)	75	SY	\$250.00	250	\$	9,375.00	\$	9,375.00
C3-16			1.12	A Toronto (C. K.)	Service .	1		22	

C3 SUBTOTAL \$ 416,125.00 \$ 416,375.00

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ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	The state of the s	NIT PRICE (UP)		TOTAL ESTI	MATE	ATED PRICE	
				BASE BID WORK	RESTRICTED HOURS WORK		BASE BID WORK (UP) X 1/2 (TEQ)	Hell	STRICTED HOURS WORK UP) X1/2 (TEQ)	
	C4. STORM SEWER UTILITY WORK			00000		309335	1000			
C4-1	Storm Manhole MH-1 (Arlington County Detail D-3.0), In Place, DEPTH < 8'	150	EA	\$8,500.00	8,500	\$	637,500.00	\$	637,500.00	
C4-2	Storm Manhole MH-1 (Arlington County Detail D-3.0), In Place, PER ADDITIONAL VF OVER 8'	20	VF	\$1,250.00	1,250	\$	12,500.00	\$	12,500.00	
C4-3	Storm Manhole MH-2 (Arlington County Detail D-3.3), In Place, DEPTH < 8'	15	EA	\$10,500.00	10,500	\$	78,750.00	\$	78,750.00	
C4-4	Storm Manhole MH-2 (Arlington County Detail D-3.3), In Place, PER ADDITIONAL VF OVER 8'	20	VF	\$1,450.00	1,450	\$	14,500.00	\$	14,500.00	
C4-5	Storm Manhole MH-3 (Arlington County Detail D-3.4), In Place, DEPTH < 8'	15	EA	\$12,500.00	12,500	\$	93,750.00	\$	93,750.00	
C4-6	Storm Manhole MH-3 (Arlington County Detail D-3.4), In Place, PER ADDITIONAL VF OVER 8'	20	VF	\$1,750.00	1,750	\$	17,500.00	\$	17,500.00	
C4-7	Storm Manhole MH-4 (Arlington County Detail D-3.5), In Place, DEPTH < 8'	15	EA	\$10,500.00	10,500	\$	78,750.00	\$	78,750.00	
C4-8	Storm Manhole MH-4 (Arlington County Detail D-3.5), In Place, PER ADDITIONAL VF OVER 8'	20	VF	\$1,450.00	1,450	\$	14,500.00	\$	14,500.00	
C4-9	Storm Manhole (VDOT MH-1, MH1-A), In Place, DEPTH < 8'	15	EA	\$9,500.00	9,500	\$	71,250.00	\$	71,250.00	
C4-10	Storm Manhole (VDOT MH-1, MH1-A), In Place, PER ADDITIONAL VF OVER 8'	20	VF	\$1,350.00	1,350	\$	13,500.00	\$	13,500.00	
C4-11	Storm Manhole PH-1 (Arlington County Detail D-3.1), In Place, DEPTH < 8'	15	EA	\$7,500.00	7,500	\$	56,250.00	\$	56,250.00	
	Storm Manhole PH-1 (Arlington County Detail D-3.1), In Place, PER ADDITIONAL VF OVER 8'	20	VF	\$1,250.00	1,250	\$	12,500.00	\$	12,500.00	
C4-13	Storm Manhole (VDOT MH-2), In Place, DEPTH < 8'	15	EA	\$9,500.00	9,500	\$	71,250.00	\$	71,250.00	
C4-14	Storm Manhole (VDOT MH-2), In Place, PER ADDITIONAL VF OVER 8'	20	VF	\$1,350.00	1,350	\$	13,500.00	\$	13,500.00	
C4-15	CB-2 (Arlington County Standards), In Place Up to 6' Deep	45	EA	\$8,250.00	8,250	\$	185,625.00	\$	185,625.00	
C4-16	CB-2 (Arlington County Standards), Each VF Over 6' Deep	15	VF	\$1,000.00	1,000	\$	7,500.00	\$	7,500.00	
C4-17	CB-2A or CB-2B (throat lengths from 8'-6" up to 16'-0"), In Place Up to 6' Deep, Arlington County Standards.	60	EA	\$9,500.00	9,500	\$	285,000.00	\$	285,000.00	
	CB-2A or CB-2B (throat lengths from 8'-6" up to 16'-0"), Each VF Over 6' Deep, Arlington County Standards.	25	VF	\$1,250.00	1,250	\$	15,625.00	\$	15,625.00	
C4-19	CB-4, In Place Up to 6' Deep, Arlington County Standards	8	EA	\$9,500.00	9,500	\$	38,000.00	\$	38,000.00	
C4-20	CB-4, Each VF Over 6' Deep, Arlington County Standards	8	VF	\$1,450.00	1,450	\$	5,800.00	\$	5,800.00	
C4-21	PCB-2, In Place Up to 6' Deep, Arlington County Standards	8	EA	\$7,950.00	7,950	\$	31,800.00	\$	31,800.00	
C4-22	PCB-2, Each VF Over 6' Deep, Arlington County Standards	8	VF	\$1,250.00	1,250	\$	5,000.00	\$	5,000.00	
C4-23	Curb Drop Inlet, Standard VDOT DI-1 (12" to 24" Pipe), In Place Up to 10' Deep	8	EA	\$9,000.00	9,000	\$	36,000.00	\$	36,000.00	

Bidders Name SAGNES CONSTRUCTION CORP.

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ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	THE RESERVE OF THE PERSON OF THE	PRICE IP)	TOTAL EST	MATED	PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	ASE BID WORK IP) X:1/2 (TEQ)	1000	TREGTED HOURS WORK P) X4/2 (TBQ)
C4-24	Curb Drop Inlet, Standard VDOT DI-2A (12" to 24" Pipe), In Place Up to 9' Deep	8	EA	\$8,500.00	8,500	\$ 34,000.00	\$	34,000.00
C4-25	Curb Drop Inlet, Standard VDOT DI-2B (12" to 24" Pipe), In Place Up to 9' Deep, Inlet Throat Length 4' to 20'	8	EA	\$11,000.00	11,000	\$ 44,000.00	\$	44,000.00
C4-26	Curb Drop Inlet, Standard VDOT DI-2C (12" to 24" Pipe), In Place Up to 9' Deep, Inlet Throat Length 6' to 20'	8	EA	\$11,000.00	11,000	\$ 44,000.00	\$	44,000.00
C4-27	Curb Drop Inlet, Standard VDOT DI-2D (30" to 48" Pipe), In Place Up to 9' Deep	8	EA	\$12,000.00	12,000	\$ 48,000.00	\$	48,000.00
	Curb Drop Inlet, Standard VDOT DI-2E (30" to 48" Pipe), In Place Up to 9' Deep, Inlet Throat Length 6' to 20'	8	EA	\$15,000.00	15,000	\$ 60,000.00	\$	60,000.00
C4-29	Curb Drop Inlet, Standard VDOT DI-2F (30" to 48" Pipe), In Place Up to 9' Deep, Inlet Throat Length 6' to 20'	8	EA	\$15,000.00	15,000	\$ 60,000.00	\$	60,000.00
C4-30	Curb Drop Inlet, Standard VDOT DI-3A (12" to 30" Pipe), In Place Up to 8' Deep	8	EA	\$9,000.00	9,000	\$ 36,000.00	\$	36,000.00
C4-31	Curb Drop Inlet, Standard VDOT DI-3AA (12" to 30" Pipe), Each VF Over 8' Deep	8	VF	\$1,450.00	1,450	\$ 5,800.00	\$	5,800.00
C4-32	Curb Drop Inlet, Standard VDOT DI-3B (12" to 30" Pipe), In Place Up to 8' Deep, Inlet Throat Length 4' to 20'	8	EA	\$11,000.00	11,000	\$ 44,000.00	\$	44,000.00
C4-33	Curb Drop Inlet, Standard VDOT DI-3BB (12" to 30" Pipe), Each VF Over 8' Deep, Inlet Throat Length 4' to 20'	8	VF	\$1,450.00	1,450	\$ 5,800.00	\$	5,800.00
C4-34	Curb Drop Inlet, Standard VDOT DI-3C (12" to 30" Pipe), In Place Up to 8' Deep, Inlet Throat Length 6' to 20'	8	EA	\$11,250.00	11,250	\$ 45,000.00	\$	45,000.00
C4-35	Curb Drop Inlet, Standard VDOT DI-3CC (12" to 30" Pipe), Each VF Over 8' Deep, Inlet Throat Length 6' to 20'	8	VF	\$1,450.00	1,450	\$ 5,800.00	\$	5,800.00
C4-36	Curb Drop Inlet, Standard (with Utility Space) VDOT DI-3D (12" to 30" Pipe), In Place Up to 8' Deep	8	EA	\$9,750.00	9,750	\$ 39,000.00	\$	39,000.00
C4-37	Curb Drop Inlet, Standard (with Utility Space) VDOT DI-3E (12" to 30" Pipe), In Place Up to 8' Deep, Inlet Throat Length 4" to 20'	8	EA	\$12,000.00	12,000	\$ 48,000.00	\$	48,000.00
C4-38	Curb Drop Inlet, Standard (with Utility Space) VDOT DI-3F (12" to 30" Pipe), In Place Up to 8' Deep, Inlet Throat Length 6' to 20'	8	EA	\$12,000.00	12,000	\$ 48,000.00	\$	48,000.00
C4-39	Curb Drop Inlet, Standard VDOT DI-4A (36" to 48" Pipe), In Place Up to 8' Deep	8	EA	\$9,750.00	9,750	\$ 39,000.00	\$	39,000.00
C1-40	Curb Drop Inlet, Standard VDOT DI-4B (36" to 48" Pipe), In Place Up to 8' Deep, Inlet Throat Length 6' to 20'	8	EA	\$11,500.00	11,500	\$ 46,000.00	\$	46,000.00
C4-41	Curb Drop Inlet, Standard VDOT DI-4C (36" to 48" Pipe), In Place Up to 8' Deep, Inlet Throat Length 8' to 20'	8	EA	\$11,500.00	11,500	\$ 46,000.00	\$	46,000.00
C4-42	Curb Drop Inlet, Standard (with Utility Space) VDOT DI-4D (36" to 48" Pipe), In Place Up to 8' Deep	8	EA	\$14,000.00	14,000	\$ 56,000.00	\$	56,000.00

Bidders Name Styros Construcção Cons.

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ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	Cop 101, 200 (1)	PRICE IP)		TOTAL ESTI	MATE	D PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	11000	BASE BID WORK (UP) X:1/2 (TEQ)	6500	ESTRICTED HOURS WORK (UP) X1/2 (TEQ)
C4-43	Curb Drop Inlet, Standard (with Utility Space) VDOT DI-4E (36" to 48" Pipe), In Place Up to 8' Deep, Inlet Throat Length 6' to 20'	8	EA	\$15,500.00	15,500	\$	62,000.00	\$	62,000.00
C4-44	Curb Drop Inlet, Standard (with Utility Space) VDOT DI-4F (36" to 48" Pipe), In Place Up to 8' Deep, Inlet Throat Length 8' to 20'	8	EA	\$16,000.00	16,000	\$	64,000.00	\$	64,000.00
C4-45	Standard Ditch Drop Inlet, VDOT DI-5 (12" to 42" Pipe), All Depths	8	EA	\$10,000.00	10,000	\$	40,000.00	\$	40,000.00
C4-46	Grate Inlet, Standard VDOT DI-7 (12" to 42" Pipe), All Depths	8	EA	\$9,750.00	9,750	\$	39,000.00	\$	39,000.00
C4-47	Yard Inlet (Arlington County Detail D-1.10), In Place Up to 6' Deep	8	EA	\$7,500.00	7,500	\$	30,000.00	\$	30,000.00
C4-48	Yard Inlet (Arlington County Detail D-1.10), Each VF Over 6' Deep	8	VF	\$1,250.00	1,250	\$	5,000.00	\$	5,000.00
C4-49	Yard Inlet Pre-Cast (Arlington County Detail D-1.11), In Place Up to 6' Deep	8	EA	\$7,500.00	7,500	\$	30,000.00	\$	30,000.00
C4-50	Yard Inlet Pre-Cast (Arlington County Detail D-1.11), Each VF Over 6' Deep	8	VF	\$1,250.00	1,250	\$	5,000.00	\$	5,000.00
C4-51	Grate Inlet Non-roadway Shallow (Arlington County Detail D-1.9), In Place Up to 6' Deep	8	EA	\$7,000.00	7,000	\$	28,000.00	\$	28,000.00
C4-52	Grate Inlet Non-roadway Shallow (Arlington County Detail D-1.9), Each VF Over 6' Deep	8	VF	\$1,200.00	1,200	\$	4,800.00	\$	4,800.00
C4-53	Grate Inlet Driveway (Arlington County Detail D-1.12)	8	LF	\$450.00	450	\$	1,800.00	\$	1,800.00
C4-54	Storm Manhole Frame and Cover, Remove & Replace	8	EA	\$500.00	500	\$	2,000.00	\$	2,000.00
C4-55	Catch Basin Structure Top, Remove & Replace	8	EA	\$3,900.00	3,900	\$	15,600.00	\$	15,600.00
C4-56	Drop Inlet Structure Top, Remove & Replace	8	EA	\$4,250.00	4,250	\$	17,000.00	\$	17,000.00
C4-57	Adjust Storm Manhole to New Grade (Arlington County Detail S-2.5), Type A	60	EA	\$1,250.00	1,250	\$	37,500.00	\$	37,500.00
C4-58	Adjust Storm Manhole to New Grade (Arlington County Detail S-2.5), Type B	8	EA	\$2,950.00	2,950	\$	11,800.00	\$	11,800.00
C4-59	Adjust Storm Manhole to New Grade (Arlington County Detail S-2.5), Type C	8	EA	\$2,250.00	F-02-9	\$	9,000.00	\$	9,000.00
C4-60	Convert Catch Basin to Manhole	15	EA	\$2,500.00	2,500	\$	18,750.00	\$	18,750.00
C4-61	Convert Grate Inlet to Catch Basin	8	EA	\$2,950.00		\$	11,800.00	\$	11,800.00
C4-62	Partial Wall Repair of Storm Manhole, Catch Basin, Drop Inlet, Yard Inlet, or Grate Inlet	150	SF	\$150.00	150	\$	11,250.00	\$	11,250.00
C4-63	Core Drill and Connect 15" to 24" Dia Concrete Pipe to Existing Storm Manhole, Catch Basin, Drop Inlet, Yard Inlet, or Grate Inlet	15	EA	\$2,500.00	2,500	\$	18,750.00	\$	18,750.00
C4-64	Core Drill and Connect 27" to 42" Dia Concrete Pipe to Existing Storm Manhole, Catch Basin, Drop Inlet, Yard Inlet, or Grate Inlet	15	EA	\$2,750.00	2,750	\$	20,625.00	\$	20,625.00

Bidders Name SAGRES CONSTRUCTION CORP.

Bidders Initials 19-11-

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ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	The second secon	PRICE JP)	TOTAL EST:	MATED	PRICE
				BASE BED WORK	RESTRICTED HOURS WORK	ASE BID WORK P) X 1/2 (TBQ)	10 25	TRICTED HOURS WORK P) X 1/2 (TRQ)
C4-65	Core Drill and Connect 8" to 14" Dia Ductile Iron Pipe to Existing Storm Manhole, Catch Basin, Drop Inlet, Yard Inlet, or Grate Inlet	15	EA	\$1,500.00	1,500	\$ 11,250.00	\$	11,250.00
C4-66	Core Drill and Connect 16" to 24" Dia Ductile Iron Pipe to Existing Storm Manhole, Catch Basin, Drop Inlet, Yard Inlet, or Grate Inlet	15	EA	\$2,500.00	2,500	\$ 18,750.00	\$	18,750.00
C4-67	Core Drill and Connect PVC or HDPE Pipe (up to 6" diameter) to Existing Storm Manhole, Catch Basin, Drop Inlet, Yard Inlet, or Grate Inlet	15	EA	\$1,000.00	1,000	\$ 7,500.00	\$	7,500.00
C4-68	Core Drill and Connect PVC or HDPE Pipe (8" to 15" diameter) to Existing Storm Manhole, Catch Basin, Drop Inlet, Yard Inlet, or Grate Inlet	15	EA	\$1,500.00	1,500	\$ 11,250.00	\$	11,250.00
C4-69	Core Drill and Connect PVC or HDPE Pipe (up 6" diameter) to Existing Storm Pipe	15	EA	\$1,000.00	1,000	\$ 7,500.00	\$	7,500.00
C4-70	Core Drill and Connect PVC or HDPE Pipe (up 8" to 15" diameter) to Existing Storm Pipe	15	EA	\$1,500.00	1,500	\$ 11,250.00	\$	11,250.00
C4-71	Storm Manhole, Catch Basin, Drop Inlet, Yard Inlet, or Grate Inlet, Remove	15	EA	\$1,500.00	1,500	\$ 11,250.00	\$	11,250.00
C4-72	Storm Manhole, Catch Basin, Drop Inlet, Yard Inlet, or Grate Inlet, Abandon.	15	EA	\$1,000.00	1,000	\$ 7,500.00	\$	7,500.00
C4-73	15" Pipe, RCP Class III, In Place Up to 6' Deep	750	LF	\$175.00	175	\$ 65,625.00	\$	65,625.00
C4-74	15" Pipe, RCP Class III, In Place 6' to 8' Deep	150	UF	\$225.00	225	\$ 16,875.00	\$	16,875.00
C4-75	18" Pipe, RCP Class III, In Place Up to 6' Deep	450	LF	\$195.00	195	\$ 43,875.00	\$	43,875.00
C4-76	18" Pipe, RCP Class III, In Place 6' to 9' Deep	75	Ŀ	\$245.00	245	\$ 9,187.50	\$	9,187.50
C4-77	21" Pipe, RCP Class III, In Place Up to 6' Deep	300	LF	\$200.00	200	\$ 30,000.00	\$	30,000.00
C4-78	21" Pipe, RCP Class III, In Place 6' to 10'	75	LF	\$250.00	250	\$ 9,375.00	\$	9,375.00
C4-79	24" Pipe, RCP Class III, In Place Up to 6' Deep	150	LF	\$225.00	225	\$ 16,875.00	\$	16,875.00
C4-80	24" Pipe, RCP Class III, In Place 6' to 11' Deep	40	ĿF	\$275.00	275	\$ 5,500.00	\$	5,500.00
C4-81	27" Pipe, RCP Class III, In Place Up to 6' Deep	150	LF	\$230.00	230	\$ 17,250.00	\$	17,250.00
C4-82	27" Pipe, RCP Class III, In Place 6' to 11' Deep	40	LF	\$280.00	280	\$ 5,600.00	\$	5,600.00
C4-83	30" Pipe, RCP Class III, In Place Up to 6' Deep	150	LF	\$240.00	240	\$ 18,000.00	\$	18,000.00
C4-84	30" Pipe, RCP Class III, In Place 6' to 12' Deep	40	LF	\$290.00	290	\$ 5,800.00	\$	5,800.00
C4-85	33" Pipe, RCP Class III, In Place Up to 6' Deep	75	LF	\$195.00	195	\$ 7,312.50	\$	7,312.50
C4-86	33" Pipe, RCP Class III, In Place 6' to 12' Deep	15	LF	\$225.00	225	\$ 1,687.50	\$	1,687.50

Bidders Name SAGRES CONSTRUCTION CORP.

Bidders Initials 10.

ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT		PRICE IP)	TOTAL ESTI	MATED	PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	ASE BID WORK P) X 1/2 (TEQ)	1000	TRICTED HOURS WORK P) X 1/2 (TBQ)
C4-87	36" Pipe, RCP Class III, In Place Up to 6' Deep	75	LF	\$265.00	265	\$ 9,937.50	\$	9,937.50
C4-88	36" Pipe, RCP Class III, In Place 6' to 13' Deep	15	LF	\$315.00	315	\$ 2,362.50	\$	2,362.50
C4-89	42" Pipe, RCP Class III, In Place Up to 6' Deep	75	LF	\$350.00	350	\$ 13,125.00	\$	13,125.00
C4-90	42" Pipe, RCP Class III, In Place 6' to 13' Deep	15	LF	\$400.00	400	\$ 3,000.00	\$	3,000.00
C4-91	48" Pipe, RCP Class III, In Place Up to 6' Deep	75	LF	\$420.00	420	\$ 15,750.00	\$	15,750.00
C4-92	48" Pipe, RCP Class III, In Place 6' to 13' Deep	15	LF	\$470.00	470	\$ 3,525.00	\$	3,525.00
C4-93	54" Pipe, RCP Class III, In Place Up to 6' Deep	75	LF	\$500.00	500	\$ 18,750.00	\$	18,750.00
C4-94	54" Pipe, RCP Class III, In Place 6' to 13' Deep	15	LF	\$550.00	550	\$ 4,125.00	\$	4,125.00
C4-95	60" Pipe, RCP Class III, In Place Up to 6'	75	LF	\$600.00	600	\$ 22,500.00	\$	22,500.00
C4-96	60" Pipe, RCP Class III, In Place 6' to 13' Deep	15	LF	\$650.00	650	\$ 4,875.00	\$	4,875.00
C4-97	66" Pipe, RCP Class III, In Place Up to 6'	75	LF	\$700.00	700	\$ 26,250.00	\$	26,250.00
C4-98	66" Pipe, RCP Class III, In Place 6' to 13'	15	LF	\$750.00	750	\$ 5,625.00	\$	5,625.00
C4-99	72" Pipe, RCP Class III, In Place Up to 6'	75	ĻF	\$750.00	750	\$ 28,125.00	\$	28,125.00
C4-100	72" Pipe, RCP Class III, In Place 6' to 13'	15	LF	\$800.00	800	\$ 6,000.00	\$	6,000.00
C4-101	15" Pipe, RCP Class IV, In Place Up to 6'	150	LF	\$180.00	180	\$ 13,500.00	\$	13,500.00
C4-102	15" Pipe, RCP Class IV, In Place 6' to 10'	40	LF	\$230.00	230	\$ 4,600.00	\$	4,600.00
C4-103	15" Pipe, RCP Class IV, In Place >10' Deep	40	LF	\$275.00	275	\$ 5,500.00	\$	5,500.00
C4-104	18" Pipe, RCP Class IV, In Place Up to 6'	150	LF	\$200.00	200	\$ 15,000.00	\$	15,000.00
C4-105	18" Pipe, RCP Class IV, In Place 6' to 10' Deep	40	LF	\$250.00	250	\$ 5,000.00	\$	5,000.00
C4-106	18" Pipe, RCP Class IV, In Place > 10' Deep	40	UF	\$295.00	295	\$ 5,900.00	\$	5,900.00
C4-107	21" Pipe, RCP Class IV, In Place Up to 6' Deep	75	LF	\$205.00	205	\$ 7,687.50	\$	7,687.50
C4-108	21" Pipe, RCP Class IV, In Place 6' to 10' Deep	15	LF	\$260.00	260	\$ 1,950.00	\$	1,950.00
C4-109	21" Pipe, RCP Class IV, In Place > 10' Deep	15	LF	\$300.00	300	\$ 2,250.00	\$	2,250.00
C4-110	24" Pipe, RCP Class IV, In Place Up to 6'	150	LF	\$230.00	230	\$ 17,250.00	\$	17,250.00
C4-111	24" Pipe, RCP Class IV, In Place 6' to 10' Deep	40	LF	\$280.00	280	\$ 5,600.00	\$	5,600.00
C4-112	24" Pipe, RCP Class IV, In Place > 10' Deep	40	LF	\$325.00	325	\$ 6,500.00	\$	6,500.00
C4-113	30" Pipe, RCP Class IV, In Place Up to 6' Deep	150	LF	\$245.00	245	\$ 18,375.00	\$	18,375.00

Bidders Name SHERES CONSTANCTION CORD,

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ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	The second secon	PRICE JP)		TOTAL ESTI	MATED	PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	The second second	ASE SID WORK IP) X 1/2 (TEQ)	TO THE	TRICIED HOURS WORK P) X:1/2 (TBQ)
C4-114	30" Pipe, RCP Class IV, In Place 6' to 10' Deep	40	LF	\$295.00	295	\$	5,900.00	\$	5,900.00
C4-115	30" Pipe, RCP Class IV, In Place > 10' Deep	40	LF	\$330.00	330	\$	6,600.00	\$	6,600.00
C4-116	33" Pipe, RCP Class IV, In Place Up to 6' Deep	150	LF	\$200.00	200	\$	15,000.00	\$	15,000.00
C4-117	33" Pipe, RCP Class IV, In Place 6' to 10' Deep	40	LF	\$245.00	245	\$	4,900.00	\$	4,900.00
C4-118	33" Pipe, RCP Class IV, In Place > 10' Deep	40	LF	\$275.00	275	\$	5,500.00	\$	5,500.00
C4-119	36" Pipe, RCP Class IV, In Place Up to 6'	150	LF	\$270.00	270	\$	20,250.00	\$	20,250.00
C4-120	36" Pipe, RCP Class IV, In Place 6' to 10' Deep	40	LF	\$320.00	320	\$	6,400.00	\$	6,400.00
C4-121	36" Pipe, RCP Class IV, In Place > 10' Deep	40	LF	\$375.00	375	\$	7,500.00	\$	7,500.00
C4-122	42" Pipe, RCP Class IV, In Place Up to 6' Deep	75	LF	\$360.00	360	\$	13,500.00	\$	13,500.00
C4-123	42" Pipe, RCP Class IV, In Place 6' to 10' Deep	15	LF	\$400.00	400	\$	3,000.00	\$	3,000.00
C4-124	42" Pipe, RCP Class IV, In Place > 10' Deep	15	LF	\$440.00	440	\$	3,300.00	\$	3,300.00
C4-125	48" Pipe, RCP Class IV, In Place Up to 6' Deep	75	LF	\$425.00	425	\$	15,937.50	\$	15,937.50
C4-126	48" Pipe, RCP Class IV, In Place 6' to 10' Deep	15	LF	\$475.00	475	\$	3,562.50	\$	3,562.50
C4-127	48" Pipe, RCP Class IV, In Place > 10' Deep	15	LF	\$525.00	525	\$	3,937.50	\$	3,937.50
C4-128	54" Pipe, RCP Class IV, In Place Up to 6' Deep	75	ᄕ	\$510.00	510	\$	19,125.00	\$	19,125.00
C4-129	54" Pipe, RCP Class IV, In Place 6' to 10' Deep	15	LF	\$540.00	540	\$	4,050.00	\$	4,050.00
C4-130	54" Pipe, RCP Class IV, In Place > 10' Deep	15	LF	\$580.00	580	\$	4,350.00	\$	4,350.00
C4-131	60" Pipe, RCP Class IV, In Place Up to 6' Deep	75	LF	\$610.00	610	\$	22,875.00	\$	22,875.00
C4-132	60" Pipe, RCP Class IV, In Place 6' to 10' Deep	15	LF	\$640.00	640	\$	4,800.00	\$	4,800.00
C4-133	60" Pipe, RCP Class IV, In Place > 10' Deep	15	LF	\$680.00	680	\$	5,100.00	\$	5,100.00
C4-134	66" Pipe, RCP Class IV, In Place Up to 6' Deep	75	LF	\$710.00	710	\$	26,625.00	\$	26,625.00
C4-135	66" Pipe, RCP Class IV, In Place 6' to 10' Deep	15	LF	\$750.00	750	\$	5,625.00	\$	5,625.00
C4-136	66" Pipe, RCP Class IV, In Place > 10' Deep	15	LF	\$800.00	800	\$	6,000.00	\$	6,000.00
C4-137	72" Pipe, RCP Class IV, In Place Up to 6' Deep	75	LF	\$760.00	760	\$	28,500.00	\$	28,500.00
C4-138	72" Pipe, RCP Class IV, In Place 6' to 10' Deep	15	LF	\$795.00	795	\$	5,962.50	\$	5,962.50
C4-139	72" Pipe, RCP Class IV, In Place > 10' Deep	15	LF	\$825.00	825	\$	6,187.50	\$	6,187.50
C4-140	18" x 11" ARCH Pipe (15" Equivalent), RCP Class III, In Place Up to 6' Deep	75	LF	\$200.00	200	\$	7,500.00	\$	7,500.00

Bidders Name States Construction CORI-

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ICEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT		PRICE IP)	TOTAL ESTIMATED PRICE				
				BASE BID WORK	RESTRECTED HOURS WORK	100 Tel 100 Te	BASE BID WORK UP) X.1/2 (TBQ)		TRIGTED HOURS WORK P) X:1/2 (TEQ)	
C4-141	18" x 11" ARCH Pipe (15" Equivalent), RCP Class IV, In Place Up to 6' Deep	75	LF	\$225.00	225	\$	8,437.50	\$	8,437.50	
C4-142	23" x 14" Elliptical Pipe (18" Equivalent), RCP Class III, In Place Up to 6' Deep	75	LF	\$220.00	220	\$	8,250.00	\$	8,250.00	
C4-143	23" x 14" Elliptical Pipe (18" Equivalent), RCP Class III, In Place 6' to 10' Deep	15	LF	\$245.00	245	\$	1,837.50	\$	1,837.50	
C4-144	30" x 19" Elliptical Pipe (24" Equivalent), RCP Class III, In Place Up to 6' Deep	75	L.	\$245.00	245	\$	9,187.50	\$	9,187.50	
C4-145	30" x 19" Elliptical Pipe (24" Equivalent), RCP Class III, In Place 6' to 10' Deep	15	LF	\$270.00	270	\$	2,025.00	\$	2,025.00	
C4-146	38" x 24" Elilotical Pipe (30" Equivalent), RCP Class III, In Place Up to 6' Deep	75	LF	\$300.00	300	\$	11,250.00	\$	11,250.00	
C4-147	38" x 24" Elliptical Pipe (30" Equivalent), RCP Class III, In Place 6' to 10' Deep	15	LF	\$325.00	325	\$	2,437.50	\$	2,437.50	
C4-148	45" x 29" Elliptical Pipe (36" Equivalent), RCP Class III, In Place Up to 6' Deep	75	LF	\$400.00	400	\$	15,000.00	\$	15,000.00	
C4-149	45" x 29" Elliptical Pipe (36" Equivalent), RCP Class III, In Place 6' to 10' Deep	15	LF	\$425.00	425	\$	3,187.50	\$	3,187.50	
C4-150	53" x 34" Elliptical Pipe (42" Equivalent), RCP Class III, In Place Up to 6' Deep	75	LF	\$500.00	500	\$	18,750.00	\$	18,750.00	
C4-151	53" x 34" Elliptical Pipe (42" Equivalent), RCP Class III, In Place > 6' Deep	15	LF	\$525.00	525	\$	3,937.50	\$	3,937.50	
G4-152	60" x 38" Elliptical Pipe (48" Equivalent), RCP Class III, In Place Up to 6' Deep	75	LF	\$600.00	600	\$	22,500.00	\$	22,500.00	
C4-153	60" x 38" Elliptical Pipe (48" Equivalent), RCP Class III, In Place > 6' Deep	15	LF	\$625.00	625	\$	4,687.50	\$	4,687.50	
C4-154	68" x 43" Elliptical Pipe (54" Equivalent), RCP Class III, In Place Up to 6' Deep	75	LF	\$695.00	695	\$	26,062.50	\$	26,062.50	
C4-155	68" x 43" Elliptical Pipe (54" Equivalent), RCP Class III, In Place > 6' Deep	15	LF	\$720.00	720	\$	5,400.00	\$	5,400.00	
C4-156	76" x 48" Elliptical Pipe (60" Equivalent), RCP Class III, In Place Up to 6' Deep	75	LF	\$800.00	800	\$	30,000.00	\$	30,000.00	
C4-157	76" x 48" Elliptical Pipe (60" Equivalent), RCP Class III, In Place > 6' Deep	15	LF	\$825.00	825	\$	6,187.50	\$	6,187.50	
C4-158	12" Pipe, HDPE, In Place Up to 6' Deep	75	LF	\$120.00	\$120.00	\$	4,500.00	s	4,500.00	
	12" Pipe, HDPE, In Place > 6' Deep	75	LF	\$145.00			5,437.50		5,437.50	
	15" Pipe, HDPE, In Place Up to 6' Deep	75	LF	\$130.00		_	4,875.00		4,875.00	
	15" Pipe, HDPE, In Place > 6' Deep	75	LF	\$155.00		_	5,812.50		5,812.50	
and the same of the same of	18" Pipe, HDPE, In Place Up to 6' Deep	75	LF	\$150.00		_	5,625.00		5,625.00	
	18" Pipe, HDPE, In Place > 6' Deep	75	LF	\$175.00			6,562.50		6,562.50	
	20" Pipe, HDPE, In Place Up to 6' Deep	75	LF	\$160.00		_	6,000.00		6,000.00	
	20" Pipe, HDPE, In Place > 6' Deep	75	LF	\$185.00		_	6,937.50		6,937.50	
	24" Pipe, HDPE, In Place Up to 6' Deep	75	LE	\$170.00		_	6,375.00		6,375.00	
	24" Pipe, HDPE, In Place > 6' Deep	75	LF	\$195.00		_	7,312.50		7,312.50	
	30" Pipe, HDPE, In Place Up to 6' Deep	75	LF	\$190.00		_	7,125.00		7,125.00	
	30" Pipe, HDPE, In Place > 6' Deep	75	LF	\$215.00	\$215.00	_	8,062.50		8,062.50	
	36" Pipe, HDPE, In Place Up to 6' Deep	75	LF	\$210.00	\$210.00		7,875.00		7,875.00	
	36" Pipe, HDPE, In Place > 6' Deep	75	LF	\$235.00		_	8,812.50	_	8,812.50	
	42" Pipe, HDPE, In Place Up to 6' Deep	75	LF	\$275.00		_	10,312.50		10,312.50	
	42" Pipe, HDPE, In Place > 6' Deep	75	LF	\$300.00	\$300.00	-	11,250.00	_	11,250.00	
	48" Pipe, HDPE, In Place Up to 6' Deep	75	LF	\$300.00		_	11,250.00		11,250.00	
			-						12,187.50	
L4-1/5	48" Pipe, HDPE, In Place > 6' Deep	75	LF	\$325.00	\$325.00	1 >	12,187.50	1 >	12,18	

Bidders Name SAGRES CONSTRUCTION COSP.

Bidders Initials

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ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	THE RESERVE OF THE PARTY OF THE	PRICE IP)	TOTAL ESTI	MATED	PRICE
		COMMITTE		BASE BID WORK	RESTRICTED HOURS WORK	BASE BID WORK UP) X 1/2 (TBQ)	1	TRICTED HOURS WORK P) X-1/2 (TEQ)
	60" Pipe, HDPE, In Place Up to 6' Deep	75	LF	\$425.00	\$425.00	15,937.50	\$	15,937.50
C4-177	60" Pipe, HDPE, In Place > 6' Deep	75	LF	\$450.00	\$450.00	\$ 16,875.00	\$	16,875.00
C4-178	4" Pipe, DIP (Class 52), In Place Up to 6' Deep	50	LF	\$135.00	\$135.00	\$ 3,375.00	\$	3,375.00
C4-179	4" Pipe, DIP (Class 52), In Place > 6' Deep	50	LF	\$185.00	\$185.00	\$ 4,625.00	\$	4,625.00
C4-180	6" Pipe, DIP (Class 52), In Place Up to 6' Deep	50	LF	\$140.00	\$140.00	\$ 3,500.00	\$	3,500.00
C4-181	6" Pipe, DIP (Class 52), In Place > 6' Deep	50	LF	\$190.00	\$190.00	\$ 4,750.00	\$	4,750.00
C4-182	8" Pipe, DIP (Class 52), In Place Up to 6' Deep	50	LF	\$145.00	\$145.00	\$ 3,625.00	\$	3,625.00
C4-183	8" Pipe, DIP (Class 52), In Place > 6' Deep	50	LF	\$195.00	\$195.00	\$ 4,875.00	\$	4,875.00
C4-184	12" Pipe, DIP (Class 52), In Place Up to 6' Deep	50	LF	\$165.00	\$165.00	\$ 4,125.00	\$	4,125.00
C4-185	12" Pipe, DIP (Class 52), In Place > 6' Deep	50	LF	\$210.00	\$210.00	\$ 5,250.00	\$	5,250.00
C4-186	16" Pipe, DIP (Class 52), In Place Up to 6' Deep	75	LF.	\$185.00	\$185.00	\$ 6,937.50	\$	6,937.50
C4-187	16" Pipe, DIP (Class 52), In Place > 6' Deep	75	LF	\$235.00	\$235.00	\$ 8,812.50	\$	8,812.50
C4-188	18" Pipe, DIP (Class 52), In Place Up to 6' Deep	75	LF	\$210.00	\$210.00	\$ 7,875.00	\$	7,875.00
C4-189	18" Pipe, DIP (Class 52), In Place > 6' Deep	75	LF	\$260.00	\$260.00	\$ 9,750.00	\$	9,750.00
C4-190	20" Pipe, DIP (Class 52), In Place Up to 6' Deep	75	LF	\$235.00	\$235.00	\$ 8,812.50	\$	8,812.50
C4-191	20" Pipe, DIP (Class 52), In Place > 6' Deep	75	LF	\$285.00	\$285.00	\$ 10,687.50	\$	10,687.50
C4-192	24" Pipe, DIP (Class 52), In Place Upto 6' Deep	75	LF	\$275.00	\$275.00	\$ 10,312.50	\$	10,312.50
C4-193	24" Pipe, DIP (Class 52), In Place > 6' Deep	75	LF	\$320.00	\$320.00	\$ 12,000.00	\$	12,000.00
C4-194	30" Pipe, DIP (Class 52), In Place Up to 6' Deep	75	LF	\$310.00	\$310.00	\$ 11,625.00	\$	11,625.00
C4-195	30" Pipe, DIP (Class 52), In Place > 6' Deep	75	LF	\$360.00	\$360.00	\$ 13,500.00	\$	13,500.00
C4-196	8" Pipe, DIP (CLASS 56), In Place Up to 6'	75	ĿF	\$150.00	\$150,00	\$ 5,625.00	\$	5,625.00
C4-197	8" Pipe, DIP (CLASS 56), In Place > 6' Deep	75	ĻF	\$200.00	\$200.00	\$ 7,500.00	\$	7,500.00
C4-198	10" Pipe, DIP (CLASS 56), In Place Up to 6' Deep	75	ᄩ	\$160.00	\$160.00	\$ 6,000.00	\$	6,000.00
C4-199	10" Pipe, DIP (CLASS 56), In Place > 6' Deep	75	LF	\$210.00	\$210.00	\$ 7,875.00	\$	7,875.00
C4-200	12" Pipe, DIP (CLASS 56), In Place Up to 6' Deep	75	LF	\$180.00	\$180.00	\$ 6,750.00	\$	6,750.00
C4-201	12" Pipe, DIP (CLASS 56), In Place > 6' Deep	75	ĻF	\$230.00	\$230.00	\$ 8,625.00	\$	8,625.00
C4-202	14" Pipe, DIP (CLASS 56), In Place Up to 6' Deep	75	LF	\$190.00	\$190.00	\$ 7,125.00	\$	7,125.00
C4-203	14" Pipe, DIP (CLASS 56), In Place > 6' Deep	75	LF	\$240.00	\$240.00	\$ 9,000.00	\$	9,000.00

Bidders Name SAGRES CONSTAN CORD.

Bidders Initials

ITEM#	16" Pipe, DIP (CLASS 56), In Place Up to 6'	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	A STATE OF THE PARTY AND ADDRESS OF THE	PRICE IP)	TOTAL EST	MATED	PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	BASE BID WORK (UP) X 1/2 (TEQ)	100000	TRICTED HOURS WORK P) X1/2 (TEQ)
C4-204		75	LF	\$210.00	\$210.00	\$ 7,875.00	\$	7,875.00
C4-205	16" Pipe, DIP (CLASS 56), In Place > 6' Deep	75	LF	\$260.00	\$260.00	\$ 9,750.00	\$	9,750.00
C4-206	18" Pipe, DIP (CLASS 56), In Place Up to 6' Deep	75	LF	\$235.00	\$235.00	\$ 8,812.50	\$	8,812.50
C4-207	18" Pipe, DIP (CLASS 56), In Place > 6' Deep	75	LF	\$285.00	\$285.00	\$ 10,687.50	\$	10,687.50
C4-208	20" Pipe, DIP (CLASS 56), In Place Up to 6' Deep	75	LF	\$260.00	\$260.00	\$ 9,750.00	\$	9,750.00
C4-209	20" Pipe, DIP (CLASS 56), In Place > 6' Deep	75	LF	\$310.00	\$310.00	\$ 11,625.00	\$	11,625.00
C4-210	24" Pipe, DIP (CLASS 56), In Place Up to 6'	75	LF	\$295.00	\$295.00	\$ 11,062.50	\$	11,062.50
C4-211	24" Pipe, DIP (CLASS 56), In Place > 6' Deep	75	LF	\$345.00	\$345.00	\$ 12,937.50	\$	12,937.50
C4-212	4" Pipe, PVC (Schedule 40 or SDR 35) in Place up to 6' Deep	50	LF .	\$85.00	\$85.00	\$ 2,125.00	\$	2,125.00
C4-213	6" Pipe, PVC (Schedule 40 or SDR 35) in Place up to 6' Deep	50	LF	\$95.00	\$95.00	\$ 2,375.00	\$	2,375.00
C4-214	8" Pipe, PVC (Schedüle 40 or SDR 35), In Place up to 6' Deep	50	LF	\$100.00	\$100.00	\$ 2,500.00	\$	2,500.00
C4-215	15" Polypropylene Pipe,In Place Up to 6' Deep	100	LF	\$130.00	\$130.00	\$ 6,500.00	\$	6,500.00
C4-216	15" Polypropylene Pipe,In Place 6' to 10' Deep	20	LF	\$155.00	\$155.00	\$ 1,550.00	\$	1,550.00
C4-217	15" Polypropylene Pipe,In Place >10' Deep	20	LF	\$180,00	\$180.00	\$ 1,800.00	\$	1,800.00
C4-218	18" Polypropylene Pipe,In Place Up to 6' Deep	100	LF.	\$150.00	\$150.00	\$ 7,500.00	\$	7,500.00
C4-219	18" Polypropylene Pipe,In Place 6' to 10' Deep	20	LF	\$175.00	\$175.00	\$ 1,750.00	\$	1,750.00
C4-220	18* Polypropylene Pipe,In Place >10! Deep	20	LF	\$200.00	\$200.00	\$ 2,000.00	\$	2,000.00
C4-221	24" Polypropylene Pipe,In Place Up to 6' Deep	100	LF	\$170.00	\$170.00	\$ 8,500.00	\$	8,500.00
C4-222	24" Polypropylene Pipe,In Place 6' to 10' Deep	20	LF.	\$195.00	\$195.00	\$ 1,950.00	\$	1,950.00
C4-223	24" Polypropylene Pipe,In Place >10' Deep	20	LF	\$220.00	\$220.00	\$ 2,200.00	\$	2,200.00
C4-224	30" Polypropylene Pipe,In Place Up to 6' Deep	100	LF	\$190.00	\$190.00	\$ 9,500.00	\$	9,500.00
C4-225	30" Polypropylene Pipe,In Place 6' to 10' Deep	20	LF	\$215.00	\$215.00	\$ 2,150.00	\$	2,150.00
C4-226	30" Polypropylene Pipe,In Place >10' Deep	20	LF	\$240.00	\$240.00	\$ 2,400.00	\$	2,400.00
C4-227	36" Polypropylene Pipe,In Place Up to 6' Deep	100	LF	\$210.00	\$210.00	\$ 10,500.00	\$	10,500.00
C4-228	36" Polypropylene Pipe,In Place 6' to 10'	20	LF	\$235.00	\$235.00	\$ 2,350.00	\$	2,350.00
C4-229	36" Polypropylene Pipe,In Place >10' Deep	20	LF	\$270.00	\$270.00	\$ 2,700.00	\$	2,700.00
	42" Polypropylene Pipe, In Place Up to 6' Deep	100	LF	\$275.00	\$275.00	\$ 13,750.00	\$	13,750.00

Bidders Name SAGRES CONSTRUCTION CORP.

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ПЕМ#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	Control of the Contro	PRICE IP)		TOTAL EST	MATED	PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	16/37 P0000-	SASE BID WORK UP) X 1/2 (TEQ)		TRIGTED HOURS WORK P) X1/2 (TBQ)
C4-231	42" Polypropylene Pipe,In Place 6' to 10' Deep	20	LF	\$300.00	\$300.00	\$	3,000.00	\$	3,000.00
C4-232	42" Polypropylene Pipe,In Place >10' Deep	20	LF	\$325.00	\$325.00	\$	3,250.00	\$	3,250.00
C4-233	48" Polypropylene Pipe, In Place Up to 6' Deep	100	LF	\$300.00	\$300.00	\$	15,000.00	\$	15,000.00
C4-234	48" Polypropylene Pipe,In Place 6' to 10' Deep	20	LF	\$325.00	\$325.00	\$	3,250.00	\$	3,250.00
C4-235	48" Polypropylene Pipe,In Place >10' Deep	20	LF	\$350.00	\$350.00	\$	3,500.00	\$	3,500.00
C4-236	60" Polypropylene Pipe, In Place Up to 6' Deep	100	LF	\$425.00	\$425.00	\$	21,250.00	\$	21,250.00
C4-237	60" Polypropylene Pipe,In Place 6' to 10' Deep	20	LF	\$450.00	\$450.00	\$	4,500.00	\$	4,500.00
C4-238	60" Polypropylene Pipe,In Place >10' Deep	20	LF	\$475.00	\$475.00	\$	4,750.00	\$	4,750.00
C4-239	4'x4' single box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	20	LF	\$890.00	\$890.00	\$	8,900.00	\$	8,900.00
C4-240	5'x5' single box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	20	LF	\$1,100.00	\$1,100.00	\$	11,000.00	\$	11,000.00
C4-241	6'x6' single box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	18	LF	\$1,350.00	\$1,350.00	\$	12,150.00	\$	12,150.00
C4-242	8'x8' single box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	16	LF	\$1,500.00	\$1,500.00	\$	12,000.00	\$	12,000.00
C4-243	10'x10' single box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	10	LF	\$2,000.00	\$2,000.00	\$	10,000.00	\$	10,000.00
C4-244	12'x6' single box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	12	LF	\$2,250.00	\$2,250.00	\$	13,500.00	\$	13,500.00
C4-245	12'x8' single box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	12	LF	\$2,500.00	\$2,500.00	\$	15,000.00	\$	15,000.00
C4-246	12'x10' single box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	12	LF	\$2,900.00	\$2,900.00	\$	17,400.00	\$	17,400.00
C4-247	12'x12' single box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	12	LF	\$3,750.00	\$3,750.00	\$	22,500.00	\$	22,500.00
C4-248	4'x4' double box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	12	ĿF	\$1,550.00	\$1,550.00	\$	9,300.00	\$	9,300.00
C4-249	5'x5' double box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	15	LF	\$2,100.00	\$2,100.00	\$	15,750.00	\$	15,750.00
C4-250	6'x6' double box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	18	LF	\$2,600.00	\$2,600.00	\$	23,400.00	\$	23,400.00

SAGRES CONSTRUCTION COLD.

Bidders Initials________

ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	THE RESERVE OF THE PARTY OF THE	PRICE IP)	TOTAL ESTI	MATE	PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	BASE BID WORK (UP) X:1/2 (TEQ)	27.55	STRICTED HOURS WORK UP) X 1/2 (TEQ)
C4-251	8'x8' double box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	16	LF	\$3,250.00	\$3,250.00	\$ 26,000.00	\$	26,000.00
C4-252	10'x10' double box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	10	LF	\$4,000.00	\$4,000.00	\$ 20,000.00	\$	20,000.00
C4-253	4'x4' triple box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	12	LF	\$2,450.00	\$2,450.00	\$ 14,700.00	\$	14,700.00
C4-254	5'x5' triple box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	15	JF	\$3,100.00	\$3,100.00	\$ 23,250.00	\$	23,250.00
C4-255	6'x6' triple box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	18	LF	\$3,800.00	\$3,800.00	\$ 34,200.00	\$	34,200.00
C4-256	8'x8' triple box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	16	LF	\$4,400.00	\$4,400.00	\$ 35,200.00	\$	35,200.00
C4-257	10'x10" triple box culvert (Fills to 25')- VDOT Road and Bridge Standards - Section 1000	10	LF	\$5,900.00	\$5,900.00	\$ 29,500.00	\$	29,500.00
C4-258	Standard wing for 4' high box culvert (1 side only)- VDOT Road and Bridge Standards - Section 1000	5	EA	\$1,750.00	\$1,750.00	\$ 4,375.00	\$	4,375.00
C4-259	Standard wing for 5' high box culvert (1 side only)- VDOT Road and Bridge Standards - Section 1000	5	EA	\$1,950.00	\$1,950.00	\$ 4,875.00	\$	4,875.00
C4-260	Standard wing for 6' high box culvert (1 side only)- VDOT Road and Bridge Standards - Section 1000	5	EA	\$2,250.00	\$2,250.00	\$ 5,625.00	\$	5,625.00
C4-261	Standard wing for 8' high box culvert (1 side only)- VDOT Road and Bridge Standards - Section 1000	5	EA	\$3,500.00	\$3,500.00	\$ 8,750.00	\$	8,750.00
C4-262	Standard wing for 10' high box culvert (1 side only)- VDOT Road and Bridge Standards - Section 1000	5	EA	\$4,500.00	\$4,500.00	\$ 11,250.00	\$	11,250.00
C4-263	Standard wing for 12'x6' box culvert - VDOT Road and Bridge Standards - Section 1000	5	EA	\$5,000.00	\$5,000.00	\$ 12,500.00	\$	12,500.00
C4-264	Standard wing for 12'x8' box culvert - VDOT Road and Bridge Standards - Section 1000	5	EA	\$5,000.00	\$5,000.00	\$ 12,500.00	\$	12,500.00
C4-265	Standard wing for 12'x10' box culvert - VDOT Road and Bridge Standards - Section 1000	5	EA	\$5,000.00	\$5,000.00	\$ 12,500.00	\$	12,500.00
C4-266	Standard wing for 12'x12' box culvert - VDOT Road and Bridge Standards - Section 1000	5	EA	\$5,500.00	\$5,500.00	\$ 13,750.00	\$	13,750.00
C4-267	Standard Endwall for pipe culverts 15" circular (VDOT standard EW-1)	5	EA	\$1,250.00	\$1,250.00	\$ 3,125.00	\$	3,125.00
C4-268	Standard Endwall for pipe culverts 18" circular (VDOT standard EW-1)	5	EA	\$1,400.00	\$1,400.00	\$ 3,500.00	\$	3,500.00
C4-269	Standard Endwall for pipe culverts 24" circular (VDOT standard EW-1)	5	EA	\$2,000.00	\$2,000.00	\$ 5,000.00	\$	5,000.00

Bidders Name SAGRES CONSTAN COTON CORP.

Bidders Initials

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ITEM#	Standard Endwall for pipe culverts 30" circular (VDOT standard EW-1)	TOTAL ESTIMATED ANNUAL QUANTITY	UNET	A STATE OF THE PARTY OF THE PAR	PRICE IP)	1000	TOTAL ESTI	MATEC	PRICE
				BASE BID WORK	RESTRICTED HOURS WORK		BAGE BID WORK (UP) X:1/2 (TEQ)	0 300	STRICTED HOURS WORK UP) X:1/2 (TEQ)
C4-270		5	EA	\$2,450.00	\$2,450.00	\$	6,125.00	\$	6,125.00
C4-271	Standard Endwall for pipe culverts 36" circular (VDOT standard EW-1)	5	EA	\$3,750.00	\$3,750.00	\$	9,375.00	\$	9,375.00
C4-272	Standard Endwall for pipe culverts 42" circular (VDOT standard EW-2)	5	EA	\$6,500.00	\$6,500.00	\$	16,250.00	\$	16,250.00
C4-273	Standard Endwall for pipe culverts 48" circular (VDOT standard EW-2)	5	EA	\$8,000.00	\$8,000.00	\$	20,000.00	\$	20,000.00
C4-274	Standard Endwall for pipe culverts 54" circular (VDOT standard EW-2)	S	EA	\$9,500.00	\$9,500.00	\$	23,750.00	\$	23,750.00
C4-275	Standard Endwall for pipe culverts 60" circular (VDOT standard EW-2)	5	EA	\$11,000.00	\$11,000.00	\$	27,500.00	\$	27,500.00
C4-276	Standard Endwall for pipe culverts 72" circular (VDOT standard EW-2)	5	EA	\$12,500.00	\$12,500.00	\$	31,250.00	\$	31,250.00
C4-277	Standard Endwall for pipe culverts 84" circular (VDOT standard EW-2)	5	EA	\$14,500.00	\$14,500.00	\$	36,250.00	\$	36,250.00
C4-278	Precast Endwall for pipe culverts 15" circular (VDOT standard EW-1PC)	5 /	EA	\$1,250.00	\$1,250.00	\$	3,125.00	\$	3,125.00
C4-279	Precast Endwall for pipe culverts 18" circular (VDOT standard EW-1PC)	5	EA	\$1,400.00	\$1,400.00	\$	3,500.00	\$	3,500.00
C4-280	Precast Endwall for pipe cuiverts 24" circular (VDOT standard EW-1PC)	5	EA	\$2,000.00	\$2,000.00	\$	5,000.00	\$	5,000.00
C4-281	Precast Endwall for pipe culverts 30" circular (VDOT standard EW-1PC)	5	EA	\$2,450.00	\$2,450.00	\$	6,125.00	\$	6,125.00
C4-282	Precast Endwall for pipe culverts 36" circular (VDOT standard EW-1PC)	5	EA	\$3,750.00	\$3,750.00	\$	9,375.00	\$	9,375.00
C4-283	Precast Endwall for pipe culverts 42" circular (VDOT standard EW-2PC)	5	EA	\$6,500.00	\$6,500.00	\$	16,250.00	\$	16,250.00
C4-284	Precast Endwall for pipe culverts 48" circular (VDOT standard EW-2PC)	5	EA	\$8,000.00	\$8,000.00	\$	20,000.00	\$	20,000.00
C4-285	Precast Endwall for pipe culverts 54" circular (VDOT standard EW-2PC)	5	EA	\$9,500.00	\$9,500.00	\$	23,750.00	\$	23,750.00
C4-286	Precast Endwall for pipe culverts 60" circular (VDOT standard EW-2PC)	5	EA	\$11,000.00	\$11,000.00	\$	27,500.00	\$	27,500.00
C4-287	Precast Endwall for pipe culverts 72" circular (VDOT standard EW-2PC)	5	EA	\$12,500.00	\$12,500.00	\$	31,250.00	\$	31,250.00
C4-288	Precast Endwall for pipe culverts 84" circular (VDOT standard EW-2PC)	5	EA	\$14,500.00	\$14,500.00	\$	36,250.00	\$	36,250.00
C4-289	Standard Endwall for pipe culverts 23"x14" (18" circular equivalent) elliptical pipe (VDOT standard EW-2A)	5	EA	\$4,000.00	\$4,000.00	\$	10,000.00	\$	10,000.00
C4-290	Standard Endwall for pipe culverts 30"x19" (24" circular equivalent) elliptical pipe (VDOT standard EW-2A)	5	EA	\$4,950.00	\$4,950.00	\$	12,375.00	\$	12,375.00
C4-291	Standard Endwall for pipe culverts 38"x24" (30" circular equivalent) elliptical pipe (VDOT standard EW-2A)	5	EA	\$5,750.00	\$5,750.00	\$	14,375.00	\$	14,375.00
C4-292	Standard Endwall for pipe culverts 45"x29" (36" circular equivalent) elliptical pipe (VDOT standard EW-2A)	5	EA	\$6,500.00	\$6,500.00	\$	16,250.00	\$	16,250.00

Bidders Name SAGRES CONSTRUCTION CORP.

ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	- P 105,650011	PRICE IP)	TOTAL ESTI	MATED	PRICE
		Committee		BASE BID WORK	RESTRICTED HOURS WORK	BASE BID WORK (UP) X 1/2 (TBQ)	1	NTRIGTED HOURS WORK IP) X:1/2 (TEQ)
C4-293	Standard Endwall for pipe culverts 53"x34" (42" circular equivalent) elliptical pipe (VDOT standard EW-2A) Standard Endwall for pipe culverts 53"x34" (42" circular equivalent) elliptical pipe (VDOT standard EW-2A)	5	EA	\$7,900.00	\$7,900.00	\$ 19,750.00	\$	19,750.00
C4-294	Standard Endwall for pipe culverts 60"x38" (48" circular equivalent) elliptical pipe (VDOT standard EW-2A)	5	EA	\$9,000.00	\$9,000.00	\$ 22,500.00	\$	22,500.00
C4-295	Precast Endwall for pipe culverts 23"x14" (18" circular equivalent) elliptical pipe (VDOT standard EW-2APC)	5	EA	\$4,000.00	\$4,000.00	\$ 10,000.00	\$	10,000.00
C4-296	Precast Endwall for pipe culverts 30"x19" (24" circular equivalent) elliptical pipe (VDOT standard EW-2APC)	5	EA	\$4,950.00	\$4,950.00	\$ 12,375.00	\$	12,375.00
C4-297	Precast Endwall for pipe culverts 38"x24" (30" circular equivalent) elliptical pipe (VDOT standard EW-2APC)	5	EA	\$5,750.00	\$5,750.00	\$ 14,375.00	\$	14,375.00
	Precast Endwall for pipe culverts 45"x29" (36" circular equivalent) elliptical pipe (VDOT standard EW-ZAPC)	5	EA	\$6,500.00	\$6,500.00	\$ 16,250.00	\$	16,250.00
C4-299	Precast Endwall for pipe culverts 53"x34" (42" circular equivalent) elliptical pipe (VDOT standard EW-2APC)	5	EA	\$7,900.00	\$7,900.00	\$ 19,750.00	\$	19,750.00
C4-300	Precast Endwall for pipe culverts 60"x38" (48" circular equivalent) elliptical pipe (VDOT standard EW-2APC)	5	EA	\$9,000.00	\$9,000.00	\$ 22,500.00	\$	22,500.00
C4-301	Flared end-section for 12" concrete pipe culvert (VDOT standard ES-1)	5	EA	\$750.00	\$750.00	\$ 1,875.00	\$	1,875.00
C4-302	Flared end-section for 15" concrete pipe culvert (VDOT:standard ES-1)	5	EA	\$950.00	\$950.00	\$ 2,375.00	\$	2,375.00
C4-303	Flared end-section for 18" concrete pipe culvert (VDOT standard ES-1)	5	EA	\$1,200.00	\$1,200.00	\$ 3,000.00	\$	3,000.00
C4-304	Flared end-section for 21" concrete pipe culvert (VDOT standard ES-1)	5	EA	\$1,400.00	\$1,400.00	\$ 3,500.00	\$	3,500.00
C4-305	Flared end-section for 24" concrete pipe culvert (VDOT standard ES-1)	5	EA	\$1,550.00	\$1,550.00	\$ 3,875.00	\$	3,875.00
C4-306	Flared end-section for 27" concrete pipe culvert (VDOT standard ES-1)	5	EA	\$1,750.00	\$1,750.00	\$ 4,375.00	\$	4,375.00
C4-307	Flared end-section for 30" concrete pipe culvert (VDOT standard ES-1)	5	EA	\$1,950.00	\$1,950.00	\$ 4,875.00	\$	4,875.00
C4-308	Flared end-section for 36" concrete pipe cuivert (VDOT standard ES-1)	5	EA	\$2,450.00	\$2,450.00	\$ 6,125.00	\$	6,125.00
C4-309	Flared end-section for 42" concrete pipe culvert (VDOT standard ES-1)	5	EA	\$2,900.00	\$2,900.00	\$ 7,250.00	\$	7,250.00
C4-310	Flared end-section for 48" concrete pipe culvert (VDOT standard ES-1)	5	EA	\$3,500.00	\$3,500.00	\$ 8,750.00	\$	8,750.00
C4-311	Flared end-section for 54" concrete pipe culvert (VDOT standard ES-1)	5	EA	\$4,100.00	\$4,100.00	\$ 10,250.00	\$	10,250.00
C4-312	Flared end-section for 60" concrete pipe culvert (VDOT standard ES-1)	5	EA	\$4,900.00	\$4,900.00	\$ 12,250.00	\$	12,250.00
C4-313	Flared end-section for 23"×14" elliptical concrete pipe culvert (VDOT standard ES-1A)	3	EA	\$2,500.00	2,500	\$ 3,750.00	\$	3,750.00

Bidders Name SAGRES CONSTRUCTION CORP.

ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	No. of the Control of	PRICE JP)	TOTAL ESTI	MATED	TED PRICE	
				BASE BID WORK	RESTRICTED HOURS WORK	ASE BID WORK IP) X 1/2 (TEQ)		TRICTED HOURS WORK P) X 1/2 (TEQ)	
C4-314	Flared end-section for 30"x19" elliptical concrete pipe culvert (VDOT standard ES-1A)	3	EA	\$3,250.00	\$3,250.00	\$ 4,875.00	\$	4,875.00	
C4-315	Flared end-section for 38"x24" elliptical concrete pipe culvert (VDOT standard ES-1A)	3	EA	\$4,500.00	\$4,500.00	\$ 6,750.00	\$	6,750.00	
C4-316	Flared end-section for 45"x29" elliptical concrete pipe culvert (VDOT standard ES-1A)	3	EA	\$5,500.00	\$5,500.00	\$ 8,250.00	\$	8,250.00	
C4-317	Flared end-section for 53"x34" elliptical concrete pipe culvert (VDOT standard ES-1A)	3	EA	\$6,000.00	\$6,000.00	\$ 9,000.00	\$	9,000.00	
C4-318	Flared end-section for 60"x38" elliptical concrete pipe culvert (VDOT standard ES-1A)	3	EA	\$6,500.00	\$6,500.00	\$ 9,750.00	\$	9,750.00	
C4-319	Junction Box, Pre-Cast for 12" to 36" Dia pipe culvert(VDOT standard JB-1), In Place	15	VF	\$1,300.00	\$1,300.00	\$ 9,750.00	\$	9,750.00	
C4-320	Junction Box, Pre-Cast for 48" pipe culvert(VDOT standard J8-1), In Place	15	VF	\$1,500.00	\$1,500.00	\$ 11,250.00	\$	11,250.00	
C4-321	Junction Box, Pre-Cast for 54" pipe culvert(VDOT standard JB-1), In Place	15	VF	\$1,850.00	\$1,850.00	\$ 13,875.00	\$	13,875.00	
C4-322	Junction Box, Pre-Cast for 60" pipe culvert(VDOT standard JB-1), In Place	15	VF	\$2,000.00	\$2,000.00	\$ 15,000.00	\$	15,000.00	
C4-323	Junction Box, Pre-Cast for 66" pipe culvert(VDOT standard JB-1), In Place	15	VF	\$2,100.00	\$2,100.00	\$ 15,750.00	\$	15,750.00	
C4-324	Junction Box, Pre-Cast for 72" pipe culvert(VDOT standard JB-1), In Place	15	VF	\$2,200.00	\$2,200.00	\$ 16,500.00	\$	16,500.00	
C4-325	Junction Box, Cast in place for 12" to 36" Dia pipe culvert(VDOT standard JB-1), In Place	15	VF	\$1,500.00	\$1,500.00	\$ 11,250.00	\$	11,250.00	
C4-326	Junction Box, Cast in place, for 48" pipe culvert(VDOT standard JB-1), In Place	15	VF	\$1,750.00	\$1,750.00	\$ 13,125.00	\$	13,125.00	
C4-327	Junction Box, Cast in place, for 54" pipe culvert(VDOT standard JB-1), In Place	15	VF	\$1,900.00	\$1,900.00	\$ 14,250.00	\$	14,250.00	
C4-328	Junction Box, Cast in place, for 60" pipe culvert(VDOT standard JB-1), In Place	15	VF	\$2,000.00	\$2,000.00	\$ 15,000.00	\$	15,000.00	
C4-329	Junction Box, Cast in place, for 66" pipe culvert(VDOT standard JB-1), In Place	15	VF	\$2,100.00	\$2,100.00	\$ 15,750.00	\$	15,750.00	
C4-330	Tunction Day Cast in place for 728 pine	15	VF	\$2,250.00	\$2,250.00	\$ 16,875.00	\$	16,875.00	
C4-331	Standard paved flume for 12" pipe (VDOT standard PG-4)	10	SY	\$130.00	\$130.00	\$ 650.00	\$	650.00	
C4-332	Standard paved flume for 15" pipe (VDOT standard PG-4)	10	SY	\$130.00	\$130.00	\$ 650.00	\$	650.00	
C4-333	Standard paved flume for 18" pipe (VDOT standard PG-4)	10	SY	\$130.00	\$130.00	\$ 650.00	\$	650.00	
C4-334	Standard paved flume for 21" pipe (VDOT standard PG-4)	10	SY	\$130.00	\$130.00	\$ 650.00	\$	650,00	
C4-335	Standard payed flume for 24" pine (VDOT	10	SY	\$130.00	\$130.00	\$ 650.00	\$	650.00	
C4-336	Standard Frency dissinator for use with	50	CY	\$1,500.00	\$1,500.00	\$ 37,500.00	\$	37,500.00	

Bidders Name SAGRES CONSTRUCTION CORP.

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ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	CY	UNIT PRICE (UP)		TOTAL ESTI	IMATED PRICE		
				BASE BID WORK	RESTRICTED HOURS WORK	BASE BID WORK (UP) X 1/2 (TEQ)		RESTRICTED HOURS WORK (UP) X1/2 (TBQ)	
C4-337	Precast energy dissipator (VDOT standard EG- 1, 1A PC)	50		\$1,500.00	\$1,500.00	\$ 37,500.00	\$	37,500.00	
C4-338	Cast in place stormwater management drainage structure (VDOT standard SWM-1)	5	EA	\$15,500.00	\$15,500.00	\$ 38,750.00	\$	38,750.00	
C4-339	Precast stormwater management drainage structure (VDOT standard SWM-1)	5	EA	\$13,500.00	\$13,500.00	\$ 33,750.00	\$	33,750.00	
C4-340	Underdrain, Standard VDOT UD-1	50	LF	\$45.00	\$45.00	\$ 1,125.00	\$	1,125.00	
C4-341	Underdrain, Standard VDOT UD-2	50	LF	\$45.00	\$45.00	\$ 1,125.00	\$	1,125.00	
C4-342	Underdrain, Standard VDOT UD-4	50	III LE	\$45.00	\$45.00	\$ 1,125.00	\$	1,125.00	
C4-343	Endwall for Pipe Underdrain (VDOT Standard EW-12)	5	EΑ	\$650.00	\$650.00	\$ 1,625.00	\$	1,625.00	
C4-344	Combined Underdrain CD-1	50	LF	\$45.00	\$45.00	\$ 1,125.00	\$	1,125.00	
C4-345	Combined Underdrain CD-2	50	LF	\$45.00	\$45.00	\$ 1,125.00	\$	1,125.00	
C4-346	Paved ditch (VDOT standard PG-2A)	50	SY	\$95.00	\$95.00	\$ 2,375.00	\$	2,375.00	
C4-347	Paved ditch (VDOT standard PG-5)	50	SY	\$95.00	\$95.00	\$ 2,375.00	\$	2,375.00	
C4-348	Cleaning with Video Inspection, 4* to 24* Existing Storm/Sanitary, Pipes and Manholes	1,500	LF	\$10.00	\$10.00	\$ 7,500.00	\$	7,500.00	
C4-349	Cleaning with Video inspection, 24" to 48" Existing Storm/Sanitary, Pipes and Manholes	1,500	LF	\$15.00	15	\$ 11,250.00	\$	11,250.00	
C4-350	Abandon sewer (storm/sanitary) pipe in place Including capping all open ends and completely filling sewer with flowable fill (All material types, sizes and depths)	450	LF	\$45.00	45	\$ 10,125.00	\$	10,125.00	

C4 SUBTOTAL \$ 6,140,487.50 \$ 6,140,487.50

Bidders Name SAGRES CONSTRUCTION CORP.

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ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	The state of the s	PRICE UP)		TOTAL ESTIMATED PRICE				
				BASE BID WORK	RESTRICTED HOURS WORK		BASE BID WORK (UP) X:1/2 (TEQ)		RESTRICTED HOURS WORK (UP)XL/2 (TEQ)		
	25. GUARDRAIL										
C5·1	Guardrail VDOT GR-2	25	LF	\$55.00	\$55.00	\$	687.50	\$	687.50		
C5-2	Guardrail VDOT GR-2A	25	LF	\$60.00	\$60.00	\$	750.00	\$	750.00		
C5-3	Guardrail VDOT GR-2, 7' post	25	LF	\$65.00	\$65.00	\$	812.50	\$	812.50		
C5-4	Guardrail VDOT GR-2, 8' post	25	LF	\$65.00	\$65.00	\$	812.50	\$	812.50		
C5-5	Guardrail Terminal Treatment, VDOT GR-6	25	LF	\$75.00	\$75.00	\$	937.50	\$	937.50		
C5-6	Guardrail Terminal Installation Site Preparation, VDOT GR-7	5	EA	\$1,550.00	\$1,550.00	\$	3,875.00	\$	3,875.00		
C5-7	Guardrail End Terminal Treatment, VDOT GR- 11	5	EA	\$1,350.00	\$1,350.00	\$	3,375.00	\$	3,375.00		
C5-8	Fixed Object Attachment , VDOT GR-FOA-1	5	EA	\$3,950.00	\$3,950.00	\$	9,875.00	\$	9,875.00		
C5-9	Fixed Object Attachment , VDOT GR-FOA-2	5	EA	\$3,950.00	\$3,950.00	\$	9,875.00	\$	9,875.00		
C5-10	Remove existing Guardrall (All types)	100	LF	\$10.00	\$10,00	\$	500.00	\$	500.00		
	Reset existing Guardrail (All types)	100	LF	\$45.00	\$45.00	_	2,250.00	\$	2,250.00		
e Appareir		hadi na lee jala	C5	SUBTOTAL		\$	33,750.00	\$	33,750.00		

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ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	The second secon	PRICE JP)		TOTAL ESTI	IMATED PRICE		
				BASE BID WORK	RESTRICTED HOURS WORK		BASE BID WORK (UP) X:1/2 (TEQ)	X	ESTRECTED HOURS WORK (UP) X:1/2 (TEQ)	
	C6. WATERMAIN WORK		a Leville Saletter	Apriliona per commune promi	at at oxida					
C6-1	36-Inch Water Main, DIP CL-52, Upto 6' Deep	250	LF	\$425.00	\$425.00	\$	53,125.00	\$	53,125.00	
C6-2	36-Inch Water Main, DIP CL-52, > 6' Deep	100	LF	\$475.00	\$475.00	\$	23,750.00	\$	23,750.00	
C6-3	30-Inch Water Main, DIP CL-52, Upto 6' Deep	250	LF	\$375.00	\$375.00	\$	46,875.00	\$	46,875.00	
O5-4	30-Inch Water Main, DIP CL-52, > 6' Deep	50	LF	\$425.00	\$425.00	\$	10,625.00	\$	10,625.00	
C6-5	24-Inch Water Main, DIP CL-52, Upto 6' Deep	500	LF	\$345.00	\$345.00	\$	86,250.00	\$	86,250.00	
C6-6	24-Inch Water Main, DIP CL-52, > 6' Deep	50	LF	\$375.00	\$375.00	\$	9,375.00	\$	9,375.00	
C6-7	20-Inch Water Main, DIP CL-52, Upto 6' Deep	500	LF	\$320.00	\$320.00	\$	80,000.00	\$	80,000.00	
C6-8	20-Inch Water Main, DIP CL-52, > 6' Deep	50	LF	\$345.00	\$345.00	\$	8,625.00	\$	8,625.00	
C6-9	18-Inch Water Main, DIP CL-52, Upto 6' Deep	500	LF	\$290.00	\$290.00	\$	72,500.00	\$	72,500.00	
C6-10	18-Inch Water Main, DIP CL-52, > 6' Deep	50	LF	\$315.00	\$315.00	\$	7,875.00	\$	7,875.00	
C6-11	16-Inch Water Main, DIP CL-52, Upto 6' Deep	500	LF	\$260.00	\$260.00	\$	65,000.00	\$	65,000.00	
05-12	16-Inch Water Main, DIP CL-52, > 6' Deep	50	LF	\$285.00	\$285.00	\$	7,125.00	\$	7,125.00	
C6-13	12-Inch Water Main, DIP CL-52, Upto 6' Deep	750	LF	\$220.00	\$220.00	\$	82,500.00	\$	82,500.00	
C6-14	12-Inch Water Main, DIP CL-52, > 6' Deep	50	LF	\$245.00	\$245.00	\$	6,125.00	\$	6,125.00	
C6-15	8-Inch Water Main, DIP CL-52, Upto 6' Deep	1,000	LF	\$185.00	\$185.00	\$	92,500.00	\$	92,500.00	
C6-16	8-Inch Water Main, DIP CL-52, > 6' Deep	150	LF	\$220.00	\$220.00	\$	16,500.00	\$	16,500.00	
C6-17	6-Inch Water Main, DIP CL-53, Upto 6' Deep	1,000	LF	\$165.00	\$165.00	\$	82,500.00	\$	82,500.00	
C6-18	6-Inch Water Main, DIP CL-52, > 6' Deep	150	LE	\$195.00	\$195.00	¢	14,625.00	Te and	14,625.00	
	4-Inch Water Main, DIP CL-53, Upto 6' Deep	250	LF	\$160.00			20,000.00	\$	20,000.00	
	4-Inch Water Main, DIP CL-52, > 6' Deep	50	LF	\$190.00			4,750.00		4,750.00	
	3-Inch Water Main, DIP CL-52, Upto 6' Deep	50	LF	\$160.00			4,000.00		4,000.00	
	3-Inch Water Main, DIP CL-52, > 6' Deep	50	LF	\$190.00		-	4,750.00		4,750.00	
	36-Inch Butterfly Valve & Valve Box	5	EA	\$18,500.00		_	46,250.00		46,250.00	
	30-Inch Butterfly Valve & Valve Box	5	EA	\$16,000.00			40,000.00		40,000.00	
	24-Inch Butterfly Valve & Valve Box	5	EA	\$10,000.00			25,000.00	\$	25,000.00	
	20-Inch Bütterfly Valve & Valve Box	5	EA	\$8,500.00			21,250.00		21,250.00	
	18-Inch Butterfly Valve & Valve Box	5	EA	\$7,500.00		_	18,750.00	\$	18,750.00	
	16-Inch Butterfly Valve & Valve Box	8	EA	\$6,000.00			24,000.00	•	24,000.00	
C6-29	16-Inch Gate Valve & Valve Box	8	EA	\$13,500.00		_	54,000.00		54,000.00	
C6-30	14-Inch Gate Valve & Valve Box	8	EA	\$11,000.00	\$11,000.00	\$	44,000.00	\$	44,000.00	
C6-31	12-Inch Gate Valve & Valve Box	10	EA	\$5,000.00		_	25,000.00	\$	25,000.00	
	8-Inch Gate Valve & Valve Box	10	EA	\$2,750.00			13,750.00	_	13,750.00	
C6-33	6-Inch Gate Valve & Valve Box	10	EA	\$1,950.00	\$1,950.00	\$	9,750.00	\$	9,750.00	

SAGRES CONSTRUCTION CORP.

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ITEM#	DESCRIPTION	RSTIMATED ANNUAL QUANTITY	UNIT	UNIT PRICE (UP)			TOTAL ESTIMATED PRICE			
				BASE SID WORK	RESTRUCTED HOURS WORK		BASE BID WORK (UP) X1/2 (TEQ)	Com la	WORK WORK M) X1/2 (TBQ)	
C5-34	4-Inch Gate Valve & Valve Box	5	EA	\$1,500.00	\$1,500.00	\$	3,750.00	\$	3,750.00	
C6-35	Connect To Existing 36-Inch Water Main	3	EA	\$17,500.00	\$17,500.00	\$	26,250.00	\$	26,250.00	
C5;36	Connect To Existing 30 Inch Water Main	Oct. 3 1 1 1 1 1 1 1 1 1	EA	\$15,000.00	\$15,000.00	\$	22,500.00	\$	22,500.00	
C6-37	Connect To Existing 24-Inch Water Main	3	EA	\$12,500.00	\$12,500.00	\$	18,750.00	\$	18,750.00	
C6-38	Connect To Existing 20-Inch Water Main	3	EA	\$11,000.00	\$11,000.00	\$	16,500.00	\$	16,500.00	
C6-39	Connect To Existing 18-Inch Water Main	3	EA	\$9,500.00	\$9,500.00	\$	14,250.00	\$	14,250.00	
C6-40	Connect To Existing 16-Inch Water Main	3	EA	\$8,500.00	\$8,500.00	\$	12,750.00	\$	12,750.00	
C6-41	Connect To Existing 12-Inch Water Main	3	EA	\$7,500.00	\$7,500.00	\$	11,250.00	\$	11,250.00	
C6-42	Connect To Existing 8-Inch Water Main	5	EA	\$6,000.00	\$6,000.00	\$	15,000.00	\$	15,000.00	
C6-43	Connect To Existing 6-Inch Water Main	5	EA	\$4,900.00	\$4,900.00	\$	12,250.00	\$	12,250.00	
C6-44	Connect To Existing 4-Inch Water Main	5	EA	\$4,500.00	\$4,500.00	\$	11,250.00	\$	11,250.00	
C6-45	2-Inch Air Release Or Vacuum Valve In Concrete Manhole For All Diameter Of Water Mains	5	EA	\$8,500.00	\$8,500.00	\$	21,250.00	\$	21,250.00	
C5-45	2-Inch Blowoff Valve Assembly & Box	3 5 Tes	EA	\$5,500.00	\$5,500.00	\$	13,750.00	\$	13,750.00	
C6-47	Abandon/Remove Existing Fire Hydrant	15	EA	\$3,500.00		_	26,250.00	\$	26,250.00	
C5-48	Remove And Reset Existing Fire Hydrant	5	EA	\$5,900.00		_	14,750.00		14,750.00	
C 60 N	Install New Fire Hydrant (includes Fire Hydrant, Gate Valve with Valve Box and up to 20 LF 6-inch DIP CL-52)	15	EA	\$11,500.00	\$11,500.00	SSX.	86,250.00	\$	86,250.00	
C6-50	Fire Hydrant Vertical Extension	5	EA	\$2,750.00	\$2,750.00	\$	6,875.00	\$	6,875.00	
C6-51	Cut & Cap 24-Inch Water Main	3	EA	\$3,500.00	\$3,500.00	\$	5,250.00	\$	5,250.00	
C6-52	Cut*& Cap 20-Inch Water Main	3	EA	\$3,250.00	\$3,250.00	\$	4,875.00	\$	4,875.00	
C6-53	Cut & Cap 18-Inch Water Main	3	EA	\$3,000.00	\$3,000.00	\$	4,500.00	\$	4,500.00	
C6-54	Cut & Cap 16-Inch Water Main	3	EA	\$2,500.00	\$2,500.00	\$	3,750.00	\$	3,750.00	
C6-55	Cut & Cap 12-Inch Water Main	3	EA	\$2,250.00	\$2,250.00	\$	3,375.00	\$	3,375.00	
C6-56	Cut & Cap 10-Inch Water Main	3	EA	\$2,000.00	\$2,000.00	\$	3,000.00	\$	3,000.00	
C6-57	Cut & Cap 8-Inch Water Main	5	EA	\$1,900.00		_	4,750.00	\$	4,750.00	
C6-58	Cut & Cap 6-Inch Water Main	5	EA	\$1,750.00		_	4,375.00	\$	4,375.00	
	Cut & Cap 4-Inch Water Main	5	EA	\$1,500.00		_	3,750.00	\$	3,750.00	
	4-Inch TEAM Insertion Valve And Box	5	EA		\$10,500.00		26,250.00		26,250,00	
	6-Inch TEAM Insertion Valve And Box	5	EA	\$11,600.00		_	29,000.00		29,000.00	
******	8-Inch TEAM Insertion Valve And Box	5	EA	\$12,300.00		_	30,750.00	\$	30,750.00	
C6-63	12-Inch TEAM Insertion Valve And Box	5	EA	\$2,000.00			5,000.00	-	5,000.00	
	4-Inch EZ Valve Insertion Valve And Box	5	EA	\$9,400.00		_	23,500.00		23,500.00	
	6-Inch EZ Valve Insertion Valve And Box	5	EA	\$10,500.00		_	26,250.00		26,250.00	
	8-Inch EZ Valve Insertion Valve And Box	5 124	EA	\$12,150.00		_	30,375.00	\$	30,375.00	
C6-67	12-Inch EZ Valve Insertion Valve And Box	5	EA	\$15,500.00	The second second second second	_	38,750.00	\$	38,750.00	
C6-68	16-Inch EZ Valve Insertion Valve And Box	5	EA	\$41,000.00		_	102,500.00	\$	102,500.00	
C6-69	24" x 24" Tap/Sleeve on Iron Pipe, Valve & Valve Box	5	EA	\$50,000.00			125,000.00	\$	125,000.00	
C6-70	24" x 20" Tap/Sleeve on Iron Pipe, Valve & Valve Box	5	EA	\$45,000.00	\$45,000.00	\$	112,500.00	\$	112,500.00	
C6-71	24" x 18" Tap/Sleeve on Iron Pipe, Valve & Valve Box	5	EA	\$42,500.00	\$42,500.00	\$	106,250.00	\$	106,250.00	
C6-72	24" x 16" Tap/Skeeve on Iron Pipe, Valve & Valve Box	5	EA	\$35,000.00	\$35,000.00	\$	87,500.00	\$	87,500.00	
C6-73	24" x 12" Tap/Sleeve on Iron Pipe, Valve & Valve Box	5	EA	\$27,500.00	\$27,500.00	\$	68,750.00	\$	68,750.00	
C6-74	24" x 8" Tap/Sleeve on Iron Pipe, Valve & Valve Box	5	EA	\$24,500.00	\$24,500.00	\$	61,250.00	\$	61,250.00	

Bidders Name SHERES CONSTRUCTIONS CORP.

Bidders Initials 1991

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ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL OUANTITY	UNIT		PRICE IP)	TOTAL ESTI	MATED	PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	BASE BID WORK UP) X 1/2 (TEQ)		TRUCTED HOURS WORK P) X:1/2 (TEQ)
C6-75	20" x 16" Tap/Sleeve on Iron Pipe, Valve & Valve Box	5	EA	\$29,500.00	\$29,500.00	\$ 73,750.00	\$	73,750.00
C6-76	20" x 12" Tap/Sleeve On Iron Pipe, Valve & Valve Box	5	EA	\$20,000.00	\$20,000.00	\$ 50,000.00	\$	50,000.00
C6-77	20" x 8" Tap/Sleeve On Iron Pipe, Valve & Valve Box	5	EA	\$16,500.00	\$16,500.00	\$ 41,250.00	\$	41,250.00
C6-78	16" x 16" Tap/Sieeve On Iron Pipe, Valve & Valve Box	5	EA	\$22,500.00	\$22,500.00	\$ 56,250.00	\$	56,250.00
C6-79	16" x 12" Tap/Sleeve On Iron Pipe, Valve & Valve Box	5	EA	\$18,000.00	\$18,000.00	\$ 45,000.00	\$	45,000.00
C6-80	16" x 8" Tap/Sieeve On Iron Pipe, Valve & Valve Box	5	EA	\$15,500.00	\$15,500.00	\$ 38,750.00	\$	38,750.00
C6-81	12" x 12" Tap/Sleeve On Iron Pipe, Valve & Valve Box	5	EA	\$12,500.00	\$12,500.00	\$ 31,250.00	\$	31,250.00
C6-82	12" x 8" Tap/Sleeve On Iron Pipe, Valve & Valve Box	5	EA	\$11,500.00	\$11,500.00	\$ 28,750.00	\$	28,750.00
C6-83	12" x 6" Tap/Sleeve On Iron Pipe, Valve & Valve Box	5	EA	\$9,000.00	\$9,000.00	\$ 22,500.00	\$	22,500.00
C6-84	8" x 8" Tap/Sieeve On Iron Pipe, Valve & Valve Box	5	EA	\$8,500.00	\$8,500.00	\$ 21,250.00	\$	21,250.00
C6-85	8" x 6" Tap/Sleeve On Iron Pipe, Valve & Valve Box	5	EA	\$7,900.00	\$7,900.00	\$ 19,750.00	\$	19,750.00
C6-86	6" x 6" Tap/Sieeve On Iron Pipe, Valve & Valve Box	5	EA	\$7,500.00	\$7,500.00	\$ 18,750.00	\$	18,750.00
C6-87	Casing pipe, Bore and Jack (3/8" wall T) - 16" NPS	50	LF	\$1,450.00	\$1,450.00	\$ 36,250.00	\$	36,250.00
C6-88	Casing pipe, Bore and Jack (3/8" wall T) - 18" NPS	50	LF	\$1,450.00	\$1,450.00	\$ 36,250.00	\$	36,250.00
C6-89	Casing pipe, Bore and Jack (3/8" wall T) - 20" NPS	50	LF	\$1,500.00	\$1,500.00	\$ 37,500.00	\$	37,500.00
C6-90	Casing pipe, Bore and Jack (3/8" wall T) - 24" NPS	50	LF	\$1,500.00	\$1,500.00	\$ 37,500.00	\$	37,500.00
C6-91	Casing pipe, Bore and Jack (3/8" wall T) - 30" NPS	50	LF	\$1,750.00	\$1,750.00	\$ 43,750.00	\$	43,750.00
C6-92	PVC Pipe (4"or 6"), SDR 35 (less than 14' of cover), only when not included in other pay litems	250	LF	\$100.00	100	\$ 12,500.00	\$	12,500.00
C6-93	PVC Pipe (4" or 6"), SDR 26 or stronger (14' to 20' of cover), only when not included in other pay items	250	LF	\$150.00	150	\$ 18,750.00	\$	18,750.00
C6-94	Abandon Existing Corporation Stop (TO BE PERFORMED AS DIRECTED BY THE COUNTY PROJECT OFFICER)	2	EA	\$1,750.00	\$1,750.00	\$ 1,750.00	\$	1,750.00
C6-95	Service Taps - 3/4-inch and 1-inch (TAP MAIN, INSTALL COPPER TUBING, INSTALL ANGLE VALVES, CORPORATION COCK, METER BOX AND METER YOKE/METER, CONNECT TO EXISTING PRIVATE SERVICE LINE, BACKFILL AND EXCAVATION)UP TO 10 FT.	10	EA	\$2,950.00	\$2,950.00	\$ 14,750.00	\$	14,750.00
C6-96	Service Taps - 3/4-inch and 1-inch PER ADDITIONAL LINEAR FOOT OVER 10 FT.	100	LF	\$100.00	\$100.00	\$ 5,000.00	\$	5,000.00

Bidders Name Starts Construction Cosp.

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ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	ELECTRICAL STREET, COMMON P.	PRICE IP)	TOTAL ESTI	MATE	PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	BASE BID WORK (UP) X 1/2 (TEQ)	33 37	STRIGTED HOURS WORK UP) X 1/2 (TEQ)
C6-97	Service Re-Taps - 3/4-inch and 1-inch (TAP MAIN, INSTALL COPPER TUBING, CONNECT TO EXISTING SERVICE LINE, ABANDON CORPORATION COCK FROM EXISTING SERVICE LINE, BACKFILL AND EXCAVATION)-UP TO 10 FT.	10	EA	\$2,500.00	\$2,500.00	\$ 12,500.00	\$	12,500.00
C6-98	Service Re-Taps - 3/4-inch and 1-inch PER ADDITIONAL LINEAR FT. OVER 10 FT.	50	LF	\$100.00	\$100.00	\$ 2,500.00	\$	2,500.00
C6-99	Water Meter Relocations - 3/4-inch and 1- inch (INSTALL COPPER TUBING, CONNECT TO EXISTING COUNTY AND PRIVATE SERVICE LINES, PROVIDE NEW ANGLE VALVES, RELOCATE METER HOUSING AND METER YOKE, BACKFILL AND EXCAVATION)— UP TO 10 FT.	10	EA	\$2,750.00	\$2,750.00	\$ 13,750.00	\$	13,750.00
C6=100	Service Relocations - 3/4-inch and 1-inch PER ADDITIONAL LINEAR FOOT OVER 10 FT.	50	ᄩ	\$100.00	\$100.00	\$ 2,500.00	\$	2,500.00
C6-101	Service Taps - 1 1/2-inch and 2-inch (TAP MAIN, INSTALL COPPER TUBING, INSTALL GATE VALVES, CORPORATION COCK, METER BOX AND METER, CONNECT TO EXISTING PRIVATE SERVICE LINE, BACKFILL AND EXCAVATION)UP TO 10 FT.	10	EA	\$4,500.00	\$4,500.00	\$ 22,500.00	\$	22,500.00
C6-102	Service Taps - 1 1/2-inch and 2-inch PER ADDITIONAL LINEAR FOOT OVER 10 FT.	100	LF	\$135.00	\$135.00	\$ 6,750.00	\$	6,750.00
C6-103	Service Re-Taps - 1 1/2-inch and 2-inch (TAP MAIN, INSTALL COPPER TUBING, CONNECT TO EXISTING SERVICE LINE, ABANDON CORPORATION COCK FROM EXISTING SERVICE LINE, BACKFILL AND EXCAVATION)UP TO 10 FT.	10	EA	\$3,750.00	\$3,750.00	\$ 18,750.00	\$	18,750.00
C6-104	Service Re-Taps - 1 1/2-inch and 2-inchPER ADDITIONAL LINEAR FOOT OVER 10 FT.	100	Ŀ	\$135.00	\$135.00	\$ 6,750.00	\$	6,750.00
C6-105	Water Meter Relocations - 1 1/2-inch and 2-inch (INSTALL COPPER TUBING, CONNECT TO EXISTING COUNTY AND PRIVATE SERVICE LINES, PROVIDE NEW GATE VALVES, RELOCATE METER HOUSING AND METER, BACKFILL AND EXCAVATION)UP TO 10 FT.	10	EA	\$4,250.00	\$4,250.00	\$ 21,250.00	\$	21,250.00
C6-106	Service Relocations - 1 1/2-inch and 2-inch PER ADDITIONAL LINEAR FOOT OVER 10 FT.	50	LF	\$135.00	\$135.00	\$ 3,375.00	\$	3,375.00
C6-107	Abandon Concrete Watermain Manhole	5	EA	\$1,250.00	\$1,250.00	\$ 3,125.00	\$	3,125.00
C6-108	Abandon existing water main in place Including capping all open ends and completely filling pipe with flowable fill (All sizes and depths)	250	LF	\$35.00	\$35.00	\$ 4,375.00	\$	4,375.00
C6-109	Water Meter Frame & Cover, Replace	20	EA	\$750.00	\$750.00	\$ 7,500.00	\$	7,500.00

Bidders Name SAGRES CONSTRUCTION CORP.

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ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	MATED UNIT	UNIT PRICE (UP)			TOTAL ESTIMATED PRICE					
				BASE BED WORK	RESTRICTED HOURS WORK		BASE BID WORK (UP) X·1/2·(TBQ)		RESTRICTED HOURS WORK (UP) X4/2 (TBQ)			
C6-110	Water Meter Box vertical Adjustment to New Grade	100	EA	\$900.00	\$900.00	\$	45,000.00	\$	45,000.00			
C6-111	Water Valve Box vertical Adjustment to New Grade	50	EA	\$250.00	\$250.00	\$	6,250.00	\$	6,250.00			
C6-112	Gas Valve Box vertical Adjustment to New Grade	10	EA	\$750.00	\$750.00	\$	3,750.00	\$	3,750.00			
C6-113	Non-Freeze Boxed Ground Hydrant (with Locking Cover and Key), Jay R. Smith or County approved equal (Excavation, Install Copper Tubing, Connect to County Water Meter, Install Ground Hydrant w/Compacted Pea Gravel, Backfill, and Surface Grade Restoration	5	EA	\$3,750.00	\$3,750.00	\$	9,375.00	\$	9,375.00			
C5-114	Remove Existing Valve Boxes	5	EA	\$750.00	\$750.00	\$	1,875.00	\$	1,875.00			
			Sec.			100		83	urus ir vilkiris.			

C6 SUBTOTAL

\$ 3,249,125.00 \$ 3,249,125.00

Bidders Name SAGRES CONSTRUCTION COLD.

ITEM#	DESCRIPTION ESTIMAT ANNUA QUANTI		UNIT		PRICE JP)	TOTAL ESTI	MATE	PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	BASE BID WORK (UP) X 1/2 (TEQ)	- 1	STRIGTED HOURS WORK UP) X1/2 (TEQ)
	C7. SANITARY SEWER WORK		0)_(115/6)					market transfer
C7-1	Sanitary Sewer - 8" PVC, SDR 35, DEPTH< 8'	100	LF	\$325.00	\$325.00	\$ 16,250.00	\$	16,250.00
C7-2	Sanitary Sewer - 8 th PVC, SDR 35, 8 th ≤ DEPTH < 14 th	50	LF	\$350.00	\$350.00	\$ 8,750.00	\$	8,750.00
C7-3	Sanitary Sewer - 8" PVC, SDR 26, DEPTH ≥ 14'	20	LF	\$400.00	\$400.00	\$ 4,000.00	\$	4,000.00
C7-4	Sanitary Sewer - 10" PVC, SDR 35, DEPTH< 8'	100	LF	\$330.00	\$330.00	\$ 16,500.00	\$	16,500.00
C7-5	Sanitary Sewer - 10" PVC, SDR 35, 8' ≤ DEPTH < 14'	50	LF	\$355.00	\$355.00	\$ 8,875.00	\$	8,875.00
C7-6	Sanitary Sewer - 10" PVC, SDR 26, DEPTH ≥ 14'	20	LF	\$395.00	\$395.00	\$ 3,950.00	\$	3,950.00
C7-7	Sanitary Sewer - 12" PVC, SDR 35, DEPTH< 8'	100	LF	\$335.00	\$335.00	\$ 16,750.00	\$	16,750.00
C7-8	Sanitary Sewer - 12" PVC, SDR 35, 8' ≤ DEPTH < 14'	50	LF	\$360.00	\$360.00	\$ 9,000.00	\$	9,000.00
C7-9	Sanitary Sewer - 12" PVC, SDR 26, DEPTH ≥ 14'	20	LF	\$410.00	\$410.00	\$ 4,100.00	\$	4,100.00
C7-10	Sanitary Sewer - 15" PVC, SDR 35, DEPTH<	100	LF	\$350.00	\$350.00	\$ 17,500.00	\$	17,500.00
C7-11	Sanitary Sewer - 15" PVC, SDR 35, 8' ≤ DEPTH < 14'	50	LF	\$375.00	\$375.00	\$ 9,375.00	\$	9,375.00
C7-12	Sanitary Sewer - 15" PVC, SDR 26, DEPTH ≥ 14'	20	LF	\$425.00	\$425.00	\$ 4,250.00	\$	4,250.00
C7-13	Sanitary Sewer - 18" PVC, SDR 35, DEPTH< 8'	100	LF	\$375.00	\$375.00	\$ 18,750.00	\$	18,750.00
C7-14	Sanitzry Sewer - 18" PVC, SDR 35, 8' ≤ DEPTH < 14'	50	LF	\$400.00	\$400,00	\$ 10,000.00	\$	10,000.00
C7-15	Sanitary Sewer - 18" PVC, SDR 26, DEPTH ≥ 14'	20	LF	\$450.00	\$450.00	\$ 4,500.00	\$	4,500.00
C7-16	Sanitary Sewer - 21" PVC, SDR 35, DEPTH<	100	LF	\$400.00	\$400.00	\$ 20,000.00	\$	20,000.00
C7-17	Sanitary Sewer - 21" PVC, SDR 35, 8' ≤ DEPTH < 14'	50	LF	\$425.00	\$425.00	\$ 10,625.00	\$	10,625.00
C7-18	Sankary Sewer - 21 th PVC, SDR 26, DEPTH ≥ 14 th	20	LF	\$475.00	\$475.00	\$ 4,750.00	\$	4,750.00
C7-19	Sanitary Sewer - 24" PVC, SDR 35, DEPTH < 8'	100	LF	\$425.00	\$425.00	\$ 21,250.00	\$	21,250.00
C7-20	Sanitary Sewer - 24" PVC, SDR 35, 8' ≤ DEPTH < 14'	50	LF	\$450.00	\$450.00	\$ 11,250.00	\$	11,250.00
C7-21	Sanitary Sewer - 24" PVC, SDR 26, DEPTH ≥ 14'	20	LF	\$500.00	\$500.00	\$ 5,000.00	\$	5,000.00
C7-22	Sanitary Sewer- 8"DIP CLASS 52, DEPTH < 8"	200	LF	\$340.00	\$340.00	\$ 34,000.00	\$	34,000.00
C7-23	Sanitary Sewer- 8"DIP CLASS 52, 8'≤ DEPTH <15'	100	LF	\$365.00	\$365.00	\$ 18,250.00	\$	18,250.00
C7-24	Sankary Sewer- 8"DIP CLASS 52, DEPTH >15'	50	LF	\$415.00	\$415.00	\$ 10,375.00	\$	10,375.00
C7-25	Sanitary Sewer- 10"DIP CLASS 52, DEPTH < 8'	200	LF	\$350.00	\$350.00	\$ 35,000.00	\$	35,000.00
C7-26	Sankary Sewer- 10"DIP CLASS 52, 8'≤ DEPTH <15'	100	LF	\$375.00	\$375.00	\$ 18,750.00	\$	18,750.00

Bidders Name SAGRES CONSTRUCTION CORP.

Bidders Initials ////

item#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UAL UNIT		PRICE IP)		TOTAL ESTI	MATED	PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	PS CONTRACTOR OF THE PARTY OF T	ASE BID WORK JP) X 1/2 (TEQ)	2	TRIGTED HOURS WORK P) X 1/2 (TEQ)
C7-27	Sanitary Sewer- 10"DIP CLASS 52, DEPTH >15'	50	LF	\$425.00	\$425.00	\$	10,625.00	\$	10,625.00
C7:28	Sanitary Sewer- 12"DIP CLASS 52, DEPTH < 8"	200	LF	\$360.00	\$360.00	\$	36,000.00	\$	36,000.00
C7-29	Sanitary Sewer- 12"DIP CLASS 52, 8'≤ DEPTH <15'	100	LF	\$385.00	\$385.00	\$	19,250.00	\$	19,250.00
C7-30	Sanitary Sewer- 12"DIP CLASS 52, DEPTH >15'	50	LF	\$440.00	\$440.00	\$	11,000.00	\$	11,000.00
C7-31	Sanitary Sewer- 16"DIP CLASS 52, DEPTH < 8'	200	LF	\$380.00	\$380.00	\$	38,000.00	\$	38,000.00
C7-32	Sanitary Sewer- 16"DIP CLASS 52, 8'≤ DEPTH <15'	100	LF	\$405.00	\$405.00	\$	20,250.00	\$	20,250.00
C7-33	Sanitary Sewer- 16"DIP CLASS 52, DEPTH >15'	50	LF	\$455.00	\$455.00	\$	11,375.00	\$	11,375.00
C7-34	Sănitary Sewer- 18"DIP CLASS 52, DEPTH < 8"	200	LF	\$400.00	\$400,00	\$	40,000.00	\$	40,000.00
C7-35	Sanitary Sewer- 18"DIP CLASS 52, 8'≤ DEPTH <15'	100	ĻF	\$425.00	\$425.00	\$	21,250.00	\$	21,250.00
C7-36	Sanitary Sewer- 18"DIP CLASS 52, DEPTH >15"	50	LF	\$475.00	\$475.00	\$	11,875.00	\$	11,875.00
C7-37	Sanitary Sewer- 20"DIP CLASS 52, DEPTH < 8'	100	LF	\$435.00	\$435.00	\$	21,750.00	\$	21,750.00
C7-38	Sanitary Sewer- 20"DIP CLASS 52, 8'≤ DEPTH <15'	50	LF	\$460.00	\$460.00	\$	11,500.00	\$	11,500.00
C7-39	Sanitary Sewer- 20"DIP CLASS 52, DEPTH >15'	20	LF	\$510.00	\$510.00	\$	5,100.00	\$	5,100.00
C7-40	Sanitary Sewer- 24*DIP CLASS 52, DEPTH < 8'	100	LF	\$470.00	\$470.00	\$	23,500.00	\$	23,500.00
C7-41	Sanitary Sewer- 24"DIP CLASS 52, 8'≤ DEPTH <15'	50	LF	\$495.00	\$495.00	\$	12,375.00	\$	12,375.00
C7-42	Sanitary Sewer- 24"DIP CLASS 52, DEPTH >15'	20	LF	\$545.00	\$545.00	\$	5,450.00	\$	5,450.00
C7-43	Sanitary Sewer- 30"DIP CLASS 52, DEPTH < 8'	100	LF	\$520.00	\$520.00	\$	26,000.00	\$	26,000.00
C7-44	Sanitary Sewer- 30"DIP CLASS 52, 8'≤ DEPTH <15'	50	LF	\$545.00	\$545.00	\$	13,625.00	\$	13,625.00
C7-45	Sanitary Sewer- 30"DIP CLASS 52, DEPTH > 15'	20	LF	\$595.00	\$595.00	\$	5,950.00	\$	5,950.00
C7-46	Boring And Jacking 18" TO 24" Casing Pipe With 8" TO 12" Carrier Pipe PER Arlington County SPECIFICATION SECTION 02951 AND DETAIL M-4.0	100	LF.	\$1,550.00	\$1,550.00	\$	77,500.00	\$	77,500.00
C7-47	Manhole - Precast Concrete, 4' ID, DEPTH < 8'	50	EA	\$1,450.00	\$1,450.00	\$	36,250.00	\$	36,250.00
C7-48	Manhole:Precast Concrete 4' LD. DEPTH > 8', PER ADDITIONAL VF OVER 8'	20	VF	\$1,450.00	\$1,450.00	\$	14,500.00	\$	14,500.00
C7-49	Manhole-Precast Concrete 5' I.D. DEPTH < 8'	50	EA	\$1,500.00	\$1,500.00	\$	37,500.00	\$	37,500.00
C7-50	Manhole-Precast Concrete 5' I.D. DEPTH > 8', PER ADDITIONAL VF OVER 8'	20	VF	\$1,500.00	\$1,500.00	\$	15,000.00	\$	15,000.00

Bidders Name SHYRES CONSTRUCTION COM.

Bidders Initials______

ITEM#	Manhole-Construct Over Existing Sewer, Arlington County DRAWING S-2.2 (PAYMENT SHALL BE FOR DOGHOUSE BASE AND REMAINDER OF MANHOLE SHALL BE PAID UNDER VF PRICES FOR MANHOLES PER ITEM ABOVE)	TOTAL ESTIMATED ANIMUL QUANTITY	MATED NUAL NTITY	UNIT PRICE (UP)		TOTAL ESTI	IMATED PRICE	
				BASE BID WORK	RESTRUCTED HOURS WORK	BASE BID WORK (UP) X 1/2 (TEQ)	2010	RESTRICTED HOURS WORK (UP) X 1/2 (TEQ)
C7-51				\$13,000.00	\$13,000.00	\$ 32,500.00	\$	32,500.00
C7-52	Sanitary Sewer Drop Connection, Ali sizes, (Arlington County Detail S-2.3)	50	VF	\$350.00	\$350.00	\$ 8,750.00	\$	8,750.00
C7-53	Abandon Existing Sanitary Manhole in place, including filling manhole with flowable fill (All sizes and depths)	5	EA	\$1,500.00	\$1,500.00	\$ 3,750.00	\$	3,750.00
C7-54	Connect To Existing Sanitary Manhole	5	EA	\$3,250.00	\$3,250.00	\$ 8,125.00	\$	8,125.00
C7-55	Sanitary Sewer House Laterals(IN ACCORDANCE WITH Arlington County CONSTRUCTION STANDARDS AND SPECIFICATIONS SECTION 02510, PART 3, ITEM 3.5)	150	LF	\$295.00	\$295.00	\$ 22,125.00	\$	22,125.00
C7-56	Adjust Sanitary Manhole to New Grade (Arlington County Detail S-2.5), Type A	10	EA	\$1,500.00	\$1,500.00	\$ 7,500.00	\$	7,500.00
C7-57	Adjust Sanitary Manhole to New Grade (Arlington County Detail S-2.5), Type B	10	ĒΑ	\$3,250.00	\$3,250.00	\$ 16,250.00	\$	16,250.00
C7-58	Adjust Sanitary Manhole to New Grade (Arlington County Detail S-2.5), Type C	10	EA	\$2,950.00	\$2,950.00	\$ 14,750.00	\$	14,750.00

C7 SUBTOTAL \$ 981,175.00 \$ 981,175.00

Bidders Name SAGRES CONSTRUCTIONS CORP.

Bidders Initials ________

ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	The second second second	PRICE IP)		TOTAL EST	TIMATED PRICE					
			4	BASE BID WORK	RESTRICTED HOURS WORK		BASE BID WORK (UP) X 1/2 (TEQ)	1333	ESTRICTED HOURS WORK (UP) X1/2 (TEQ)				
	C10. PAVEMENT MARKING AND SIGNAGE WORK												
C10-1	Four (4) Inch Transverse Markings	100	LF	\$4.00	\$4.00	\$	200.00	\$	200.00				
	Six (6) Inch Transverse Markings	50	MLF	\$5.00	\$5.00		125.00	\$	125.00				
C10-3	Twelve (12) Inch Transverse Markings	50	LF	\$6.00	\$6.00		150.00	\$	150.00				
C10-4	Eighteen (18) Inch Transverse Markings	500	LF	\$9.00	\$9.00		2,250.00	\$	2,250.00				
C10-5	Twenty Four (24) Inch Transverse Markings, Note: Used For Continental (Ladder) Crosswalk	500	LF	\$11.00	\$11.00	\$	2,750.00	\$	2,750.00				
C10-6	Yield Line Markings (Twenty Four (24) Inch Triangle/Twelve (12) Inch Spacing), Note: LF is Width of Lane for Units	50	LF	\$35.00	\$35,00	\$	875.00	\$	875.00				
C10-7	Four (4) Inch Longitudinal Solid Line	5,000	LF	\$1.50	\$1.50	\$	3,750.00	\$	3,750.00				
CiO-8	Four (4) Inch Longitudinal Skip Line (Ten (10) Foot Line/Thirty (30) Foot Spacing), Note: Forty (40) LF Consists of Ten (10) LF of Marking and Thirty (30) LF of Space	250	ĿF	\$2.50	\$2.50	\$	312.50	\$	312,50				
C10-9	Four (4) Inch Longitudinal Skip Line (Ten (10) Foot Line/Twenty (20) Foot Spacing), Note: Thirty (30) LF Consists of Ten (10) LF of Marking and Twenty (20) LF of Space	250	ĿF	\$2.50	\$2.50	\$	312.50	\$	312.50				
C10-10	Four (4) Inch Longitudinal Skip Line (Two (2)) Foot Line/Ten (10) Foot Spacing), Note: Twelve (12) LF Consists of Two (2) LF of Marking and Ten (10) LF of Space, **Turn Lane Skips**	200	F	\$2.50	\$2.50	\$	250.00	\$	250.00				
C10-11	Four (4) Inch Longitudinal Skip Line (Three (3) Foot Line/Nine (9) Foot Spacing), Note: 12 LF Consists of 3 LF of Marking and 9 LF of Space, **Centerline For Bike Trail Only**	50	4	\$2.50	\$2.50	\$	62.50	\$	62.50				
C10-12	Six (6))Inch Longitudinal Solid Line	150	LF	\$4.00	\$4.00	5	300.00	\$	300.00				
C10-13	Six (6) Inch Longitudinal Skip Line (Ten (10) Foot Line/Thirty (30) Foot Spacing), Note: Forty (40) LF Consists of Ten (10) LF of Marking and Thirty (30) LF of Space	75	LF	\$4.00	\$4.00			\$	150.00				
C10-14	Six (6) Inch Longitudinal Skip Lane (Ten (10) Foot Line/Twenty (20) Foot Spacing), Note: Thirty (30) LF Consists of Ten (10) LF of Marking and Twenty (20) LF of Space	75	ĿF	\$4.00	\$4.00	\$	150.00	\$	150.00				
C10-15	Six (6) Inch Longitudinal Skip Line (Two (2) Foot Line/Ten (10) Foot Spacing), Note: Twelve (12) LF Consists of Two (2) LF of Marking and Ten (10) LF of Space	75	LF	\$4.00	\$4.00	\$	150.00	\$	150.00				
C10-16	Six (6) Inch Longitudinal Skip Line (Two (2) Foot Line/ Four (4) Foot Spacing), Note: Twelve (12) LF Consists of Two (2) LF of Marking and Four (4) LF of Space	75	J.F	\$4.00	\$4.00	\$	150.00	\$	150.00				
C10-17	Twelve (12) Inch Yellow Longitudinal Centerline, Two - Four (4) Inch Yellow Lines with Four (4) Inch Separation	1,500	LF	\$3.00	\$3.00	\$	2,250.00	\$	2,250.00				

Bidders Name SAGRES CONSTRUCTION CORP.

Bidders Initials 1/1.

ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	District of the latest own or of	PRICE IP)		TOTAL EST	MAT	ED PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	Special	BASE BID WORK (UP) X 1/2 (TEQ)	7	RESTRICTED HOURS WORK (UP) X:1/2 (TEQ)
C10-18	Twelve (12) Inch Yellow Two-Way Left Turn Lane Marking, (One-Four (4) Inch Solid Yellow Skip Line (10/30) with Four (4) Inch Spacing), Note: Forty (40) LF Consists of Ten (10) LF of Marking and Thirty (30) LF of Space Next To Forty (40) LF of Marking	100	Т.	\$3.00	\$3.00	\$	150.00	\$	150.00
C10-19	Twelve (12) Inch Yellow Longitudinal Reversable Lane Marking, Two - Four (4) Inch Yellow Skip Lines (10/30) with Four (4) Inch Spacing	100	LF	\$3.00	\$3.00	\$	150.00	\$	150.00
	Longitudinal Wide Double Skip Line, Two - Ten (10) Foot Lines/Thirty (30) Foot Spacing, Note: Forty (40) LF Consists of Ten (10) LF of Marking and Thirty (30) LF of Space	50	ᄩ	\$3.00	\$3.00	\$	75.00	\$	75.00
C10-21	Longitudinal Wide Double Skip Line, Two - Ten (10) Foot Lines/Twenty (20) Foot Spacing, Note: Thirty (30) LF Consists of Ten (10) LF of Marking and Twenty (20) LF of Space	50	LF	\$3.00	\$3.00	\$	75.00	\$	75.00
C10-22	Longitudinal Wide Double Skip Line, Two - Two (2) Foot: Lines/Ten (10) Foot Spacing, Note: Twelve (12) LF Consists of Two (2) LF of Marking and Ten (10) LF of Space	50	н	\$3.00	\$3.00	\$	75.00	\$	75.00
C10-23	Eight (8) Foot Letters, Note: 'Turn Only' (for example)	10	EA	\$195.00	\$195.00	\$	975.00	\$	975,00
C10-24	Single Arrows	15	EA	\$195.00	\$195.00	5	1,462.50	\$	1,462.50
C10-25	Combination Arrows	5	EA	\$275.00	\$275.00	-	687.50	\$	687.50
C10-26	Lane Reduction Arrows	5	EA	\$750.00	\$750.00		1,875.00	\$	1,875.00
	Thirteen (13) Foot Yield Ahead Symbol	5	EA	\$325.00	\$325.00	\$	812.50	\$	812.50
	Speed Hump Markings (MUTCD Fig. 3B-29 Option A, or Fig. 3B-30 Option B), Two (2) Each Per Hump, **Each Hump Will Have 2 - 1 In Each Direction**	5	EA	\$750.00	\$750.00	\$	1,875.00	\$	1,875.00
C10-29	Standard Bicycle Symbols (MUTCD, Chapter 9C, Figure 9C-3), "Bike Symbol", "Helmeted Bicyclist Symbol"	5	EA	\$400.00	\$400.00	\$	1,000.00	\$	1,000.00
C10-30	Standard Bicycle Symbols (MUTCD, Chapter 9C, Figure 9C-9), "Shared Lane Marking"	5	EA	\$500.00	\$500.00	\$	1,250.00	\$	1,250.00
C10-31	Standard Bicycle Symbols (MUTCD, Chapter 9C, Figure 9C-7), "Bike Detector Symbol"	5	EA	\$325.00	\$325.00	\$	812.50	\$	812.50
C10-32	Six (6) Foot Bicycle Lane Arrow (Only for Multi-Use or Bikes Opposing Traffic)	5	EA	\$325.00	A STATE OF STREET, ST.	3.6	812.50	\$	812.50
C10-33	Preferential Lane Symbol	5	EA	\$1,350.00	\$1,350.00	_	3,375.00	\$	3,375.00
C10-34	Handicap Symbol (Off-Street)	5	EA	\$350.00	\$350.00	\$	875.00	\$	875.00
C10-35	Colorized Bike Lane Coatings (per Supplemental Specification 02901)	50	SY	\$75.00	\$75.00	\$	1,875.00	\$	1,875.00

Bidders Name SAGRES CONSTRUCTION CORP.

Bidders Initials_______

ITEM#	DESCRIPTION	TOTAL ESTEMATED ANNUAL QUANTITY	UNIT	The second secon	PRICE JP)	Section 2	TOTAL EST	MAT	ED PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	EARS OF	BASE BID WORK (UP) X 1/2 (TEQ)		RESTRICTED HOURS WORK (UP) X 1/2 (TBQ)
C10-36	Removal of Existing Longitudinal Lines (Up To and Including Six (6) Inch Width), Note: Base Unit For Removal		ᄕ	\$3.00	\$3.00	\$	150.00	\$	150.00
C10-37	Removal of Existing Longitudinal Lines (Each Additional Six (6) Inch Increment), Note: Add to Base Unit for Lines Wider Than Six (6) Inches	100	LF	\$3.00	\$3.00	\$	150.00	\$	150.00
C10-38	Removal of Existing Transverse Lines (Up To and Including Six (6) Inch Width), Note: Base Unit For Removal	100	ᄕ	\$3.00	\$3.00	\$	150.00	\$	150.00
C10-39	Removal of Existing Transverse Lines (Each Additional Six (6) Inch Increment), Note: Add To Base Unit For Lines Wider Than Six (6) Inches	100	LF	\$3.00	\$3.00	\$	150.00	\$	150.00
C10-40	Removal of Existing Symbols, Letters, or Arrows	10	EA	\$175.00	\$175.00	\$	875.00	\$	875.00
C10-41	Traffic Control Sign (Typical Stop, Yield, No Parking, Speed Limit, or Similar), Install per Detail SG-1.0	25	EA	\$500.00	\$500.00	\$	6,250.00	\$	6,250.00
C10-42	Traffic Control Sign (Typical Stop, Yield, No Parking, Speed Limit, or Similar), Relocate with Existing Post	25	EA	\$425.00	\$425.00	\$	5,312.50	\$	5,312.50
C10-43	Traffic Control Sign (Typical Stop, Yield, No Parking, Speed Limit, or Similar), Relocate with New Post	20	EA	\$450.00	\$450.00	\$	4,500.00	\$	4,500.00
C10-44	Traffic Control Sign (Typical Stop, Yield, No Parking, Speed Limit, or Similar), Mount Sign to Light or Utility Pole	20	EA	\$400.00	\$400.00	\$	4,000.00	\$	4,000.00
C10-45	Portable Changeable Message Sign	10	DAY	\$750.00	\$750.00	\$	3,750.00	\$	3,750.00
C10-46	Twelve (12) Inch Yellow Gore Markings, Twenty (20) Foot Spacing @ 45 Degree	50	ᄩ	\$7.00	\$7.00	DHE	175.00	\$	175.00
C10-47	Pavement Marking Type D, Temporary Pavement Marking Tape	1,500	LF	\$5.00	\$5.00	\$	3,750.00	\$	3,750.00
C10-48	Remove and Reset Existing signs with New posts	10	EA	\$500.00	\$500.00	\$	2,500.00	\$	2,500.00

C10 SUBTOTAL \$ 64,112.50 \$ 64,112.50

Bidders Name SHARES CONSTRUCTION CORP.

Bidders Initials_______

TIEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	The second secon	PRICE JP)		TOTAL ESTI	MATED	PRICE
				BASE BID WORK	RESTRICTED HOURS WORK		ASE BID WORK M) X 1/2 (TEQ)	PART	TRIGTED HOURS WORK P) X 1/2 (TEQ)
	C11. LANDSCAPE AND HARDSCAPE RESTORATION WORK								
G11-1	Imported Topsoll	500	CY	\$95.00	\$95.00	\$	23,750.00	\$ 700	23,750.00
	Topsoil for Street Trees, Backfill Soil Mixture of 3/4 Existing Soil and 1/4 Organic Material (per Arlington County DPR Specification)	375	СҮ	\$95.00	\$95.00	,	17,812.50	\$	17,812.50
C11-3	Topsoil for Street Trees, Purchased Mixture (per Arlington County DPR Specification)	375	CY	\$95.00	\$95.00	\$	17,812.50	\$	17,812.50
C11-4	Compost	100	CY	\$125.00	\$125.00	\$	6,250.00	\$	6,250.00
C11-5	Shredded hardwood mulch; Aged 6 months minimum - Free of Trash & Debris	150	CY	\$75.00	CWTSCTDSUIL.	file or an	5,625.00	\$	5,625.00
C11-6	Seed, Mixture of 85% Tall Fescue/Bluegrass and 15% Annual Rye	150	SY	\$5.00	\$5.00	\$	375.00	\$	375.00
C11-7	Native seeding - Upland mix	150	SY	\$5.00	\$5.00	\$	375.00	\$	375.00
C11-8	Native seeding - Wetland mix	150	SY	\$5.00	\$5.00	\$	375.00	\$	375.00
C11-9	Native seeding - Riparian mix	150	SY	\$5.00	\$5.00	\$	375.00	\$	375,00
C11-10	Sod, Tall Fescue/Bluegrass Mixture	3,750	SY	\$10.00	\$10.00	\$	18,750.00	\$	18,750.00
C11-11	Sod, Zoysia	3,750	SY	\$15.00	\$15.00	\$	28,125.00	\$	28,125.00
C11-12	Hedge Row - Remove, Reset, and Mulch (Includes All Labor and Materials)	450	LF	\$125.00	\$125.00	\$	28,125.00	\$	28,125.00
C11-13	Tree/Stump Removal - Class A. Remove and Dispose, Up to 6" DBH to 12" DBH (Diameter at Breast Height)	10	EA	\$1,250.00	\$1,250.00	\$	6,250.00	\$	6,250.00
C11-14	Tree/Stump Removal - Class B. Remove and Dispose, over 12" DBH to 18" DBH (Diameter at Breast Height)	10	EA	\$1,750.00	\$1,750.00	\$	8,750.00	\$	8,750.00
C11-15	Tree/Stump Removal - Class C. Remove and Dispose, over 18" DBH to 24" DBH (Diameter at Breast Height)	10	EA	\$2,500.00	\$2,500.00	\$	12,500.00	\$	12,500.00
C11-16	Tree/Stump Removal - Class D. Remove and Dispose, over 24" DBH to 30" DBH (Diameter at Breast Height)	10	EA	\$4,250.00	\$4,250.00	\$	21,250.00	\$	21,250.00
CÌ1-17	Tree/Stump Removal - Class E. Remove and Dispose, over 30" DBH to 36" DBH (Diameter at Breast Height)	10	EA	\$5,000.00	\$5,000.00	\$	25,000.00	\$	25,000.00
C11-18	Tree/Stump Removal - Class F. Remove and Dispose, over 36" DBH to 42" DBH (Diameter at Breast Height)	10	EA	\$5,500.00	\$5,500.00	\$	27,500.00	\$	27,500.00
C11-19	Tree/Stump Removal - Class G. Remove and Dispose, over 42" DBH to 48" DBH (Diameter at Breast Height)	10	EA	\$6,000.00	\$6,000.00	\$	30,000.00	\$	30,000.00
C11-20	Tree/Stump Removal - Class H. Remove and Dispose, over 48" DBH (Diameter at Breast Height)	10	EA	\$6,750.00	\$6,750.00	\$	33,750.00	\$	33,750.00
C11-21	Trees, Deciduous - 0.75 to 1.0" caliper	10	EA	\$200.00	\$200.00	\$	1,000.00	\$	1,000.00
C11-22	Trees, Deciduous - 1.0 to 1.5" caliper	10	EA	\$250.00			1,250.00	\$	1,250.00
C11-23	Trees, Deciduous - 1.5 to 2.0" caliper	10	EA	\$300.00	\$300.00	\$	1,500.00	\$	1,500.00
	Trees, Deciduous - 2.0 to 2.5" caliper	10	EA	\$350.00	\$350.00		1,750.00	\$	1,750.00
C11-25	Trees, Deciduous - 2.5 to 3.0" caliper	10	EA	\$400.00	\$400.00	\$	2,000.00	\$	2,000.00
	Trees, Deciduous - 3.0 to 3.5" caliper	10	EA	\$450.00		_	2,250.00	\$	2,250.00
C11-27	Trees, Deciduous -4'-5' in height	10	EA	\$200.00	\$200.00	\$	1,000.00	\$	1,000.00

Bidders Name SAGINES CONSTRUCTION COM.

Bidders Initials M.A.

ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	Manager J. State Land	PRICE IP)		TOTAL EST	MAT	NATED PRICE		
				BASE BID WORK	RESTRICTED HOURS WORK		BASE BID WORK (UP) X1/2 (TEQ)		RESTRUCTED HOURS WORK (UP) X 1/2 (TEQ)		
C11-28	Trees, Deciduous -5'-6' in height	10	EA	\$225.00	\$225.00	\$	1,125.00	\$	1,125.00		
C11-29	Trees, Deciduous -6'-8' in height	10	EA	\$250.00	\$250.00	\$	1,250.00	\$	1,250.00		
C11-30	Trees, Deciduous -8'-10' in height	10	EA	\$275.00	\$275.00	\$	1,375.00	\$	1,375.00		
C11-31	Trees, Evergreen - 5.0 to 6.0' in height	10	EA	\$250.00	\$250.00	\$	1,250.00	\$	1,250.00		
C11-32	Trees, Evergreen - 6.0 to 7.0' in height	10	EA	\$300.00	\$300.00	\$	1,500.00	\$	1,500.00		
C11-33	Trees, Evergreen - 7.0' to 8.0' in height	10	EA	\$350.00	\$350.00	\$	1,750.00	\$	1,750.00		
C11-34	Trees, Evergreen - 8.0 to 10.0' in height	10	EA	\$400.00	\$400.00	\$	2,000.00	\$	2,000.00		
C11-35	Trees, Evergreen - 10.0 to 12.0 in height	10	EA	\$450.00	\$450.00	\$	2,250.00	\$	2,250.00		
C11-36	Bare root Tree or Shrub Seedling 12"-24"	10	EA	\$15.00	\$15.00	\$	75.00	\$	75.00		
C11-37	Bare root Tree or Shrub Seedling greater than 24"	10	EA	\$20.00	\$20.00	\$	100.00	\$	100.00		
C11-38	Herbaceous plants (3" Deep plug Minimum)	10	EA	\$10.00	\$10.00	\$	50.00	\$	50.00		
	Herbaceous Plant (Quart)	10	EA	\$15.00	\$15.00	_	75.00	\$	75.00		
C11-40	Herbaceous Plant (Bare root)	10	EA	\$25.00	\$25.00	\$	125.00	\$	125.00		
C11-41	Herbaceous Plant (#1 Container)	10	EA	\$25.00	\$25.00	\$	125.00	\$	125,00		
	Shrub (#1 Container)- Container or B&B	10	EA	\$35.00	\$35.00	_	175.00	\$	175.00		
	Shrub (#2 Container)- Container or B&B	10	EA	\$45.00	\$45.00	_	225.00	\$	225.00		
	Shurb (#3 Container)- Container or B&B	10	EA	\$55.00	\$55.00	_	275.00	\$	275.00		
C11-45	Shurb (#5 Container)- Container or B&B	10	EA	\$90.00	\$90.00	\$	450.00	\$	450.00		
C11-46	Tree Staking (Arlington County Park and Recreation, 02930.6 and 02930.7)	50	EA	\$35.00	\$35.00	\$	875.00	\$	875.00		
C11-47	Live Stakes (L=3', Dia=0.5"-1.5"), per Supplemental Specs Section 02802 and Attachment I	50	EA	\$30.00	30	\$	750.00	\$	750.00		
C11-48	Tree Pruning	50	EA	\$500.00	500	\$	12,500.00	\$	12,500.00		
C11 -49	Root Pad (DPR Detall 311100.4)	250	CY	\$95.00	95	\$	11,875.00	\$	11,875.00		
C11-50	Root Protection Matting	150	SF	\$5.00	\$5.00	\$	375.00	\$	375.00		
C11-51	Brick Pavers, Including Concrete Base (Arlington County Detail R-2.1)	50	SY	\$325.00	\$325.00	\$	8,125.00	\$	8,125.00		
C11-52	Brick Pavers, Remove and Reset (Arlington County Detail R-2.1)	50	SY	\$325.00	\$325.00	\$	8,125.00	\$	8,125.00		
C11-53	Flagstone Walkway, Remove & Reset or Replace to Match Existing	10	SY	\$325.00	\$325.00	\$	1,625.00	\$	1,625.00		
C11-54	Bollards (Supplemental Spec 13120)	15	EA	\$1,250.00	\$1,250.00	\$	9,375.00	\$	9,375.00		
C11-55	Handrall (Arlington County Detail R-3.1)	50	LF.	\$175.00	\$175.00	\$	4,375.00	\$	4,375.00		
C11-56	Handrail - Ornamental (Arlington County Detail R-3.2)	50	LF	\$195.00	\$195.00	\$	4,875.00	\$	4,875.00		
C11-57	Handrail - Trail Railing (Arlington County Detail R-3,3)	50	UF	\$150.00	\$150.00	\$	3,750.00	\$	3,750,00		
C11-58	Handrail (Any Type or Material), Remove and Dispose	50	LF	\$25.00	\$25.00	\$	625.00	\$	625.00		
C11-59	Wooden or Vinyl Fence (Typical Privacy, Picket, or Similar), Remove & Replace, Height Up to 6'	150	UF	\$75.00	\$75.00	\$	5,625.00	\$	5,625.00		
C11-60	Wooden or Vinyl Fence (Typical Privacy, Picket, or Similar), Remove & Replace, Height Greater Than 6' Up to 8'	75	LF	\$100.00	\$100.00	\$	3,750.00	\$	3,750.00		
C11-61	Chain Link Fence, Height Less Than or Equal to 6'	225	LF	\$65.00	\$65.00	\$	7,312.50	\$	7,312.50		
C11-62	Chain Link Fence, Height Greater Than 6' Up to 8'	75	LF	\$75.00	\$75.00	\$	2,812.50	\$	2,812.50		

Bidders Name SAGRES CONSTRUCTION CORP.

Bidders Initials 1.1

ПЕМ#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	Total Contraction of the Contrac	PRICE IP)	TOTAL EST.	MATED	PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	BASE BID WORK (UP) X 1/2 (TBQ)		TRICTED HOURS WORK P) X-1/2 (TEQ)
C11-63	Chain Link Fence - Relocate, Height Less Than or Equal to 6'	450	LF	\$45.00	\$45.00	\$ 10,125.00	\$	10,125.00
C11-64	Chain Link Fence - Relocate, Height Greater Than 6' Up to 8'	150	LF	\$55.00	\$55.00	\$ 4,125.00	\$	4,125.00
C11-65	Chain Link Fence - Remove & Dispose, Height Less Than or equal to 6'	225	LF	\$20.00	\$20.00	\$ 2,250.00	\$	2,250.00
C11-66	Chain Link Fence - Remove & Dispose, Height Greater Than 6' Up to 8'	75	LF	\$25.00	\$25.00	\$ 937.50	\$	937.50
	Fence and Posts (Any Size or Material), Remove & Dispose, only when not included in other pay items	150	LF	\$30.00	\$30.00	\$ 2,250.00	\$	2,250.00
C11-68	Landscape/Retaining Wall, Excluding Foundation (Segmental Non-Reinforced Interlocking Concrete Wall), Height Less Than 3' Exposed Face (Versa-Lok, or County Approved Alternate System)	150	SF	\$60.00	\$60.00	\$ 4,500.00	\$	4,500.00
C11-69	Landscape/Retaining Wall (Block, Brick, Segmental, or Similar), Height Less Than or Equal to 3' Exposed Face, Remove and Dispose (Foundation Removal Paid Separately under Rock Excavation)	150	SF	\$20.00	\$20.00	\$ 1,500.00	\$	1,500.00
C11-70	Landscape/Retaining Wall (Block, Brick, Segmental, or Similar), Height Greater Than 3' Exposed Face, Remove and Dispose (Foundation Removal Paid Separately under Rock Excavation)	150	SF	\$20.00	\$20.00	\$ 1,500.00	\$	1,500.00
C11-71	Landscape Wall, Repoint and Repair	150	SY	\$95.00	\$95.00	\$ 7,125.00	\$	7,125.00
	Retaining Wall - Mortar Rubble (Arlington County Detail R-4.0, including all materials as shown in drawing)	200	CF	\$45.00	\$45.00	\$ 4,500.00	\$	4,500.00
Ci 1-73	Retaining Wall - Mortar Rubble (Arlington County Detail R-4.1, including all materials as shown in drawing except Concrete Base)	200	CF	\$45.00	\$45.00	\$ 4,500.00	\$	4,500.00
C11-74	Retaining Wall - Mortar Rubble (Arlington County Detail R-4.2, including all materials as shown in drawing)	200	CF	\$45.00	\$45.00	\$ 4,500.00	\$	4,500.00
C11-75	Retaining Walf - Mortar Rubble (Arlington County Detail R-4.3, including all materials as shown in drawing except Concrete Base)	200	CF	\$45.00	\$45.00	\$ 4,500.00	\$	4,500.00
C11-76	Retaining Wall - Concrete Base (Arlington County Detail R-4.1 or R-4.3 Only)	250	CF	\$35.00	\$35.00	\$ 4,375.00	\$	4,375.00
C11-77	Retaining Wall - Concrete Gravity (VDOT RW-2)	75	CF	\$55.00	\$55.00	\$ 2,062.50	\$	2,062.50
C11-78	Retaining Wall - Concrete Gravity (VDOT RW-3)	75	CF	\$55.00	\$55.00	\$ 2,062.50	\$	2,062.50
C11-79	Retaining Wall - Rustication Treatment, Brick or Vertical Groove (VDOT RW-2, or VDOT RW-3)	50	SY	\$25.00	\$25.00	\$ 625.00	\$	625.00
C11-80	Retaining Wall, Repoint and Repair	50	SY	\$175.00	\$175.00	\$ 4,375.00	\$	4,375.00
C11-8Ì	Biodegradable tree shelter (Per Attachment G)	50	EA	\$45.00	45	\$ 1,125.00	\$	1,125.00

Bidders Name SHERPS CONSTRUCTION CORP.

ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL OUANTITY	UNIT	The Advanced of the Control of the C	PRICE IP)	TOTAL ESTI	MATED PRICE
				RASE BID WORK	RESTRICTED HOURS WORK	BASE BID WORK (UP) XX1/2 (TEQ)	RESTRICTED HOURS WORK (UP) X1/2 (TEQ)
C11-82	Polypropylene tree shelter (Per Attachment H)	50	EA	\$45.00	45	\$ 1,125.00	\$ 1,125.00
				Samuel Samuel	1 F (1)		the state of the state of

C11-SUBTOTAL

\$ 492,487.50 \$

492,487.50

Bidders Name SHERES CONSTRUCTION CORP.

Bidders Initials 12.

ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	Charles and Charles and Charles	PRICE IP)		TOTAL EST	MATE	D PRICE
				BASE BID WORK	RESTRICTED HOURS WORK	1600	BASE BID WORK (UP) X1/2 (TEQ)	100	ESTRECTED HOURS WORK (UP):X1/2 (TEQ)
TV. Units	C13. EROSION AND SEDIMENT CONTROL WORK		Constant and the			4			
C13-1	Mulch/Mat Construction Entrance	5	EA	\$3,500.00	\$3,500.00	\$	8,750.00	\$	8,750.00
	Silt Fence, with Wire Support (Virginia Erosion & Sediment Control Handbook Standard & Specification 3.05)	750	Ŀ	\$5.50	\$5.50	100	2,062.50	\$	2,062.50
C13-3	Silt Fence, without Wire Support (Virginia Erosion & Sediment Control Handbook Standard & Specification 3.05)	750	LF	\$5.50	\$5.50	\$	2,062.50	\$	2,062.50
C13-4	Storm Drain Iñiet Protection, Silt Fence Drop Inlet Application (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.07)	20	EA	\$250.00	\$250.00	\$	2,500.00	\$	2,500.00
C13-5	Storm Drain Inlet Protection, Gravel & Wire Mesh Drop Inlet Application (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.07)	20	EA	\$250.00	\$250.00	\$	2,500.00	\$	2,500.00
C13-6	Storm Drain Inlet Protection, Block & Gravel Drop Inlet Application (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3,07)	20	EA	\$250.00	\$250.00	\$	2,500.00	\$	2,500.00
C13-7	Storm Drain Inlet Protection, Gravel Curb Inlet Application (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.07)	75	EA	\$250.00	\$250.00	\$	9,375.00	\$	9,375.00
C13-8	Storm Drain Inlet Protection, Block & Gravel Curb Inlet Application (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.07)	75	EA	\$250.00	\$250.00	\$	9,375.00	\$	9,375.00
C13-9	Culvert Inlet Protection, Silt Fence Application (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.08)	8	EA	\$225.00	\$225.00	\$	900.00	\$	900.00
C13-10	Culvert Inlet Protection, Stone Combination Application (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.08)	8	EA	\$500.00	\$500.00	\$	2,000.00	\$	2,000.00
C13-11	Install and Remove Temporary Diversion Dike (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.09)	50	LF	\$25.00	\$25.00	\$	625.00	\$	625.00
C13-12	Rock Check Dam (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.20)	75	EA	\$375.00	\$375.00	\$	14,062.50	\$	14,062.50
C13-13	Install and Remove Temporary Fill Diversion (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.10)	50	LF	\$25.00	\$25.00	\$	625.00	\$	625.00
C13-14	Dewatering Structure (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.26)	10	EA	\$2,500.00	\$2,500.00	\$	12,500.00	\$	12,500.00
C13-15	6' Chain Link Tree Protection Fence (per Arlington County DPR Standard 02231.1)	750	LF	\$17.50	\$17.50	\$	6,562.50	\$	6,562.50

Bidders Name SAGNES CONSTRUCTON COM.

Bidders Initials MA

ІТЕМ#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	Charles of the	PRICE IP)	TOTAL ESTI	MATED	PRICE
		QUARTITY		BASE BID WORK	RESTRICTED HOURS WORK	ASE BID WORK IP) X·1/2 (TEQ)	A 250	TRIGTED HOURS WORK P) X-1/2 (TEQ)
C13-16	4' Chain Link Tree Protection Fence (per Arlington County DPR Standard 02231.2)	375	ᄩ	\$15.00	\$15.00	\$ 2,812.50	\$	2,812.50
C13-17	Root Pruning (per Arlington County DPR Standard 02231.5)	750	LF	\$12.50	\$12.50	\$ 4,687.50	\$	4,687.50
C13-18	Tree Protection, Fencing and Amoring Applications (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.38)	750	ĿF	\$15.00	\$15.00	\$ 5,625.00	\$	5,625.00
C13-19	Diversion (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.12)	50	LF	\$25.00	\$25.00	\$ 625.00	\$	625.00
C13-20	Install and Remove Temporary sediment trap (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.13)	40	СҮ	\$150.00	\$150.00	\$ 3,000.00	\$	3,000.00
C13-21	Temporary sediment basin (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.14) and sediment basin removal and fill upon completion	40	CY	\$150.00	\$150.00	\$ 3,000.00	\$	3,000.00
C13-22	Stormwater Channel grass-lined	50	SY	\$50.00	\$50,00	\$ 1,250.00	\$	1,250.00
	Outlet protection concrete 4"(per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.18)	25	SY	\$75.00	\$75.00	937.50	\$	937.50
C13-24	Outlet protection grouted rip rap, 18" (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.18)	25	SY	\$120.00	\$120.00	\$ 1,500.00	\$	1,500.00
C13-25	Outlet protection non-grouted rip rap, 18" (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.18)	25	SY	\$90.00	\$90.00	\$ 1,125.00	\$	1,125.00
C13-26	Biologs with live stakes streambank protection (per DEQ Virginia Stream Restoration & Stabilization Best Management Practices Guide, Chapter 4, Section 2, Practice 2.1, Detail 2.1 and Practice 2.6, Detail 2.6)	50	Ľ	\$35.00	\$35,00	\$ 875.00	\$	875.00
C13-27	Gabions streambank protection (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.23)	50	СҮ	\$550.00	\$550.00	\$ 13,750.00	\$	13,750.00
C13-28	Streambank protection - Grouted rip rap 18" (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.19)	50	SY	\$120.00	\$120.00	\$ 3,000.00	•	3,000.00
C13-29	Streambank protection - Non-Grouted rip rap 18" (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.19)	50	SY	\$90.00	\$90.00	\$ 2,250.00	\$	2,250.00
C13-30	Imbricated Riprap (Per DEQ Virginia Stream restoration and stabilization best management practices guide, Chapter 4, Section 1, Practice 1.3, Detail 1.3)	15	CY/TON	\$595.00	\$595.00	\$ 4,462.50	\$	4,462.50

Bidders Name SAGALES CONSTRUCTION COLD.

ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	ANNUAL	ANNUAL	ESTIMATED	UNIT	Control Statement	PRICE IP)	TOTAL ESTI	HATED PRICE	
				BASE BID WORK	RESTRICTED HOURS WORK	BASE BID WORK (UP) X1/2 (TEQ)	,	RESTRICTED HOURS WORK (UP) X.1/2-(TEQ)			
C13-31	Rock Cross Vanes (Per DEQ Virginia Stream restoration and stabilization best management pracitices guide, Chapter 4, Section 3, Practice 3.1, Detail 3.1a and 3.1b)	150	TONS	\$295.00	\$295.00	\$ 22,125.00	\$	22,125.00			
C13-32	Rock step pool structures (Per Supplemental Specs Section 02218)	150	TONS	\$295.00	\$295.00	\$ 22,125.00	\$	22,125.00			
C13-33	Permanent Soil stabilization mat - slope installation (per VDOT Road and Bridge Standard 113.05)	75	SY	\$12.00	\$12.00	\$ 450.00	\$	450.00			
C13-34	Permanent Soil stabilization mat - cuivert outlet protection installation (per VDOT Road and Bridge Standard 113.04)	75	SY	\$12.00	\$12.00	\$ 450.00	\$	450.00			
C13-35	Permanent Soil stabilization mat - ditch installation (per VDOT Road and Bridge Standard 113.03)	75	SY	\$12.00	\$12.00	\$ 450.00	\$	450.00			
C13-36	Temporary jute mesh protective covering (VDOT standard EC-2)	75	SY	\$10.00	\$10.00	\$ 375.00	\$	375.00			
C13-37	Straw mulch with tack	75	SY	\$5.00	\$5.00	\$ 187.50	\$	187.50			
C13-38	Gravel construction entrance, including wash rack (per Virginia Erosion & Sediment Control Handbook Standard & Specification 3.02)	10	EA	\$4,500.00	\$4,500.00	\$ 22,500.00	\$	22,500.00			

C13 SUBTOTAL

\$ 193,962.50 \$

193,962.50

Bidders Name SAGRES CONSTRUCTION COMS.

Bidders Initials ///

ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT		PRICE IP)	THE REAL PROPERTY.	TOTAL EST	IMAT	FED PRICE
				BASE BID WORK	RESTRIGTED HOURS WORK	TOTAL ST	BASE BID WORK (UP) X 1/2 (TEQ)		RESTRICTED HOURS WORK (UP) X1/2 (TEQ)
77.6	C15. UNLISTED WORK	MONE WAS A SHARE OF SHIP	3,911	3 5		See Marie		900	12 12 12 12
	Foreman With Pick-up Truck	40	Hourty	\$145.00	155	\$		\$	3,100.00
	Backhoe With Operator	40	Hourly	\$165.00	175	\$	3,300.00	\$	3,500.00
	Loader With Operator	40	Hourty	\$165.00	175	\$	3,300.00	\$	3,500.00
C15-4	Tandem/Tri-Axle Dump Truck With Driver	40	Hourly	\$145.00	160	\$	2,900.00	\$	3,200.00
	Single Axle Dump Truck With Driver	40	Hourty	\$95.00	105	\$	1,900.00	\$	2,100.00
C15-6	Labor - Pipe Layer	80	Hourly	\$80.00	85	\$	3,200.00	\$	3,400.00
C15-7	Labor - Concrete Finisher	80	Hourly	\$75.00	80	\$		\$	3,200.00
C15-8	Labor - Manhole Builder	80	Hourly	\$65.00	70	\$	2,600.00	\$	2,800.00
C15-9	Labor - Skilled	80	Hourly	\$65.00	70	\$	2,600.00	\$	2,800.00
C15-10	Labor - Unskilled	120	Hourly	\$60.00	65	\$	3,600.00	\$	3,900.00
	Flagman	120	Hourly	\$60.00	65	\$	3,600.00	\$	3,900.00
	Misc. Equipment Operator	40	Hourly	\$95.00	100	\$	1,900.00	\$	2,000.00
	Rubber Tire Loader With Operator	40	Hourly	\$160.00	165	\$	3,200.00	\$	3,300.00
	Skid Steer Loader With Operator	40	Hourly	\$160.00	165	\$	3,200.00	\$	3,300.00
	Track Excavator With Operator	40	Hourly	\$180.00	190	\$	3,600.00	\$	3,800.00
C15-16	Air Compressor With Tools	40	Hourty	\$35.00	40	\$	700.00	\$	800.00
C15-17	Tool Truck or Trailer with Tools Incidental to work	80	Hourly	\$50.00	55	\$	2,000.00	\$	2,200.00
C15-18	Trench Compactor/Asphalt roller	40	Hourly	\$40.00	45	\$	800.00	\$	900.00
C15-19	Payement Breaker	40	Hourly	\$45.00	50	\$	900.00	\$	1,000.00
C15-20	Welding (Includes All Labor And Equipment)	40	Hourty	\$120.00	125	\$	2,400.00	\$	2,500.00
C15-21	Lighting With Generator	40	Hourly	\$30.00	35	\$	600.00	\$	700.00
C15-22	Roadway Steel Plates - EA	10	DAY	\$100.00	100	\$	500.00	\$	500.00
C15-23	Excavation Trench Box - EA	10	DAY	\$250.00	250	\$	1,250.00	\$	1,250.00
C15-24	Electronic Arrow Board	80	Hourly	\$15.00	15	\$	600.00	\$	600.00
C15-25	Work Zone Set-Up - Includes Signs, Channelizers And Cones	10	DAY	\$2,750.00	3,250	\$	13,750.00	\$	16,250.00
C15-26	Boom Truck with Driver/Operator	40	Hourly	\$225.00	230	\$	4,500.00	\$	4,600.00
C15-27	Tractor Trailer with Driver	40	Hourty	\$150.00	155	\$	3,000.00	\$	3,100.00
C15-28	4" or Greater Dewatering Pump	10	DAY	\$500.00	500	\$	2,500.00	\$	2,500.00
C15-29	Tapping Machine	10	Hourly	\$20.00	20	\$	100.00	\$	100.00
C15-30	Jack Hammer	10	Hourly	\$25.00	25	\$	125.00	\$	125.00
C15-31	Pipe Layer Helper	10	Hourly	\$70.00	75	\$	350.00	\$	375.00
C15-32	1st Class Lineman	10	Hourty	\$50.00	50	\$	250.00	\$	250.00
C15 ⁴ 33	3rd Class Lineman	10	Hourly	\$50.00	50	\$	250.00	\$	250.00
C15-34	Utility Truck w/ Tools	10	Hourty	\$120.00	120	\$	600.00	\$	600.00
C15-35	Pole Truck w/ Operator	10	Hourly	\$225.00	230	\$	1,125.00	\$	1,150.00
C15-36	Aerial Lift Truck w/ Operator	10	Hourty	\$225.00	230	\$	1,125.00	\$	1,150.00
C15-37	Pole Trailer	10	Hourly	\$50.00	50	\$	250.00	\$	250.00
C15-38	Cable Trailer	10	Hourly	\$50.00	50	\$	250.00	\$	250.00
(Subseq	的时间	ALCO COLOR	parties and			Œ			
	C17. STORMWATER WORK	de anie mas	C15	SUBTOTAL	References	\$	82,725.00	\$	89,200.00
C17-1	Aggregate, Double Washed VDOT #57-A (Uncompacted in Place)	550	CY	\$125.00	\$125.00	\$	34,375.00	\$	34,375.00
C17-2	Aggregate, Double Washed VDOT #8 (Uncompacted in Place, Choking Layer)	15	CY	\$150.00	\$150.00	\$	1,125.00	\$	1,125.00

Bidders Name SAGRES CONSTRUCTION COM.

ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	UNIT	The second secon	PRICE IP)	TOTAL ESTI	PHATED PRICE	
				BASE BID WORK	RESTRICTED HOURS WORK	BASE BID WORK (UP) X:1/2 (TEQ)	1000	ESTRICTED HOURS WORK (UP) X 1/2 (TEQ)
C17-3	Round River Rock/Gravel, Unwashed Bankrun, ≤ 4" in diameter	250	CY	\$200.00	\$200.00	\$ 25,000.00	\$	25,000.00
C17-4	Round River Rock/Gravel ≤ 4" in diameter washed per ASTM C-33	250	CY	\$200.00	\$200.00	\$ 25,000.00	\$	25,000.00
C17-5	Round River Rock, Unwashed Bankrun, 4"-8"	250	CY	\$200.00	\$200.00	\$ 25,000.00	\$	25,000.00
C17-6	Round River Rock, Unwashed Bankrun, >8"- 14"	250	CY	\$200.00	\$200.00	\$ 25,000.00	\$	25,000.00
C17-7	Logs (All sizes upto 36") from within 1 mile of site, placed, per Supplemental Specs, Section 02216	150	EA	\$950.00	\$950.00	\$ 71,250.00	\$	71,250.00
C17-8	Logs (All sizes upto 36") from within 1 mile of site, anchored in stream, (Per DEQ Virginia Stream restoration and stabilization best management practices guide, Chapter 4, Section 3, Practice 3.5, Detail 3.5a and 3.5b)	150	EA	\$950.00	\$950.00	\$ 71,250.00	\$	71,250.00
C17-9	Logs (All sizes upto 36") from within 1 mile of site, anchored in stream (Per DEQ Virginia Stream restoration and stabilization best management pracitices guide, Chapter 4, Section 3, Practice 4.4, Detail 4.4)	150	EA	\$950.00	\$950.00	\$ 71,250.00	\$	71,250.00
	Imported stream bed material, placed, per nature and gradation specified in Supplemental Specs Section 02215	500	СҮ	\$195.00	\$195.00	\$ 48,750.00	\$	48,750.00
			C17	SUBTOTAL		\$ 398,000.00	\$	398,000.00

SAGRES CONSTRUCTION COMP.

Bidders Initials _______

ITEM#	DESCRIPTION	TOTAL ESTIMATED ANNUAL QUANTITY	ESTIMATED ANNUAL	ESTIMATED ANNUAL	ESTIMATED	ESTIMATED ANNUAL	ESTIMATED ANNUAL	ESTEMATED UNIT (UP)		IMATED PRICE		
				BASE BID WORK	RESTRICTED HOURS WORK		BASE BID WORK UP) X1/2 (TEQ)		CTED HOURS WORK P) X1/2 (TEQ)			
	PERCENTAGE LINE ITEMS				RESEARCH CONTRACTORS	Para Samuel	SHEARING SHEET SHEET	SHIT GLOSINGS				
C16-1	Maintenance of Traffic (MOT). multiplier, expressed as a percentage, to be added to the total amount of each project assignment cost. (For example, estimating an average project assignment cost of \$150,000 and a 1% multiplier = 0.01 x \$150,000 = \$1,500 would be added to the project assignment cost)	\$ 26,059,400	%	3%	3	\$	390,891.00	\$	390,891.00			
C16-2	Re-Mobilization (For On-Call Contracts Only). Multiplier, expressed as a percentage, to be added to the total amount of each project assignment cost. (For example, estimating an average project assignment cost of \$150,000 and a 1% multiplier = 0.01 x \$150,000 = \$1,500 would be added to the project assignment cost)	\$ 26,059,400	%	0%	o	\$						
C16-3	Mobilization and De-Mobilization	\$ 26,059,400	%	4%	4	\$	521,188.00	\$	521,188.00			

C16 SUBTOTAL

912,079.00 \$

912,079.00

CONTRACT

TOTAL

\$ 13,936,729.00 \$ 13,946,829.00

TOTAL -- # 27,883,558

StarES CONSTRUCTION CORP.



ATTACHMENT C



DEPARTMENT OF TRANSPORTATION

CHARLES A. KILPATRICK, P.E. COMMISSIONER

4975 Alliance Drive Fairfax, VA 22030

September 29, 2016

MEMORANDUM

TO:

NOVA District Staff

FROM:

Hari Sripathi, P.E.

Regional Operations Director

SUBJECT:

Lane Closures in Nova District

As a follow up to the Lane Closures in Nova District memorandum dated April 27, 2012, enclosed are the updated guidelines for lane closures.

These updated guidelines will be effective immediately. All existing and previously approved projects are encouraged to review their respective contract documents and make adjustments if possible.

Lane Closure Guidelines

-For Northern Virginia-



Virginia Department of Transportation Northern Region Operations

September 21, 2016

Instruction

The purpose of this memorandum is to present guidelines for lane closure hours for construction, maintenance, permits, and special events in Northern Virginia.

The first version of the lane closure guidelines was issued in April 2012. In the past four years, there have been completed and on-going roadway construction projects in the NoVA District, such as I-495 and I-95 express lanes and the I-66 spot improvements. As these guidelines are applied and implemented, modifications and updates to these guidelines have become necessary. Same as the previous version, the modifications were made based on traffic volume; roadway characteristics; comments from staff; and considering the public tolerance for the lane closure during certain time periods of the day.

It should be noted that these guidelines must be used as a starting point for discussion at the project level. On large scale projects with robust community outreach and a Traffic Management Plan, these hours could be extended. If project staff would like to modify these hours for interstate or major arterials, they must work with NRO Traffic Operations staff for recommendations and obtain final approval from their functional Assistant District Administrator (ADA).

Please review the existing contracts and discuss the deviations from these hours with your functional ADA.

Restriction of Operations:

In addition to the allowable lane closure hours specified in the tables, the restrictions listed below shall be followed.

1. Peak Hours Lane Closures

Any lane reductions (temporary or permanent) during the peak periods (Monday to Friday, 6:00AM to 9:00AM and 3:30PM to 6:30PM) on roads with an AADT above or equal to 10,000 vehicles requires consultation with the Regional Operations Director (ROD) and Public Affairs Manager.

2. Complete Roadway Closures

If there are complete road closures on any road for construction or maintenance work, the ROD and Public Affairs Manager must be consulted.

Complete Roadway Closures shall be limited to 20 to 30 minutes intermittent stoppage for some specific work activities.

If the closure duration is above 30 minutes, it shall be approved separately with full Maintenance of Traffic and Traffic Management Plans.

3. Construction in Residential Subdivisions

Road work within residential subdivisions and/or cul-de-sac streets should be conducted during daytime hours to avoid night time noise issues.

4. Express Lanes (I-95 & I-495)

All I-95 and I-495 Express Lane closures shall be coordinated with the Express Lanes Operations Center at least 5 business days in advance using their Authorization to Work form (available from the Express Lanes Operations Center at (571) 419-6046. Complete road closures on the I-95 Express Lanes and I-495 Express Lanes will be limited to 30 minutes or less

5. Holiday

In addition to the Sunday or Holiday work limitations, mobile, short duration, short-term stationary or intermediate-term stationary temporary traffic control zone lane closures on mainline lanes, shoulders or ramps shall not be performed during the following Holiday time periods without the written permission of the Engineer. Additionally, long-term stationary temporary traffic control zones shall not be initially put in place, adjusted, or removed during the following Holiday time periods without the written permission of the Engineer (VDOT 2016 Standard Specifications, updated 7/2016):

- **January 1:** From Noon on the preceding day until Noon on the following day, except as indicated below.
- Martin Luther King, Jr. Day and Lee Jackson Day*: From Noon on the preceding Thursday to Noon on the following Tuesday.
- Presidents Day*: As indicated below.
- Easter*: As indicated below.
- Memorial Day: As indicated below.
- **July 4:** From Noon on the preceding day until Noon on the following day, except as indicated below.
- Labor Day: As indicated below.
- Columbus Day*: As indicated below.
- Veterans Day*: From Noon on the preceding day until Noon on the following day, except as indicated below.
- **Thanksgiving Day:** From Noon on the Wednesday proceeding Thanksgiving Day until Noon on the Monday following Thanksgiving Day.
- Christmas Day: From Noon on the preceding day until Noon on the following day, except as indicated below.

If the Holiday occurs on a Friday or Saturday: From Noon on the preceding Thursday to Noon on the following Monday.

If the Holiday occurs on a Sunday or Monday: From Noon on the preceding Friday to Noon on the following Tuesday.

*Note:

For low volume roadways (minor arterial), lane closures will not be allowed during the holidays; however, there will be no restriction to the preceding day and the following day.

	INTERSTATE 395 & INTERSTATE 95										
			N	orthbound							
	WEEKDAY	Single-Lane Closures or Shoulder	Two-Lane Closures	Multiple-Lane Closures	Complete Road Closure						
Segment 1	14 th St. Bridge to	10:00AM to 3:00PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 4:00AM						
Segment i	Springfield Interchange	9:00PM to 5:00AM	TO.OUP IVI (O S.OUAIVI	T1.00FW to 5.00AW	12:00AM to 4:00AM						
Segment 2	Springfield Interchange to	9:30AM to 3:30PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 4:00AM						
oogont 2	Rt.123	9:00PM to 5:00AM	10.001 W to 0.007 W	1 1.001 W to 0.007 W	12.007 111 10 1.007 1111						
Segment 3	Rt.123 to Prince William /	9:30AM to 3:30PM	10:00PM to 4:30AM	11:00PM to 4:00AM	12:00AM to 4:00AM						
	Stafford County line	9:00PM to 5:00AM									
Segment 4	Prince William / Stafford County line to	9:30AM to 3:30PM	10:00PM to 4:30AM	n/a	12:00AM to 4:00AM						
oogo	Rt.3 Exit 130	9:00PM to 4:30AM	10.001 W to 1.007 W	1,70	12.00AW to 4.00AW						
Segment 5	Rt.3 Exit 130 to Caroline / Hanover	9:00AM to 3:30PM	10:00PM to 4:30AM	n/a	12:00AM to 4:00AM						
Segment 3	County line	9:00PM to 5:30AM	10.001 W to 4.30AW	II/a	12.00AN to 4.00AN						
		All lanes	open at 12:00 noon on Friday								
	WEEKDAY	Southbound									
	WEEKDAY	Single-Lane Closures or Shoulder	Two-Lane Closures	Multiple-Lane Closures	Complete Road Closure						
Segment 1	14 th St. Bridge to	10:00AM to 2:30PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 4:00AM						
	Springfield Interchange	9:30PM to 5:00AM									
Segment 2	Springfield Interchange to	9:00AM to 2:00PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 4:00AM						
	Rt.123	9:30PM to 5:00AM									
Segment 3	Rt.123 to Prince William /	9:00AM to 2:00PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 4:00AM						
	Stafford County line	9:30PM to 6:00AM									
Segment 4	Prince William / Stafford County line to	9:00AM to 2:00PM	10:00PM to 5:30AM	n/a	12:00AM to 4:00AM						
Segment 4	Rt.3 Exit 130	9:30PM to 6:00AM	TO.OUT IVI TO O.OUAIVI	II/a	12.00AW (0 4.00AW						
Segment 5	Rt.3 Exit 130 to Caroline / Hanover	9:00AM to 3:00PM	10:00PM to 5:30AM	n/a	12:00AM to 4:00AM						
Segment 5	egment 5 Caroline / Hanover County line	9:30PM to 6:00AM	TO.OUF IVI TO 3.SUAIVI	II/a	12:UUAM TO 4:UUAM						
		All lanes	open at 11:00am on Friday								

	INTERSTATE 395 & INTERSTATE 95										
		Northbound/Southbound*									
WEEKEND	Single-Lane Closures or Shoulder	Multiple-Lane Closures	Complete Road Closure								
Friday to Saturday	10:00PM to 7:00AM	11:00PM to 6:00AM	12:00AM to 5:00AM								
Saturday to Sunday	10:00PM to 7:00AM	11:00PM to 6:00AM	12:00AM to 5:00AM								
Sunday to Monday	Sunday to Monday 10:00PM to 5:00AM 11:00PM to 4:00AM 12:00AM to 4:00AM										
* For special operations, depending or	For special operations, depending on time of year, additional hours may be allowed with proper ADA/ROD approval.										

	REVERSIBLE LANES (HOV & EXPRESS LANES)* Single-Lane Closures or Shoulder Complete Road Closure**							
WEEKDAY	9:30PM (Sunday to Thursday) to 4:00AM (Monday to Friday)	11:00PM to 4:00AM						
WEEKEND 11:00PM (Friday to Saturday) to 9:00AM (Saturday to Sunday) 11:00PM to 4:00AM								

Direction of traffic control for all lane closures in reversible lanes will need to be adjusted as necessary to face direction of traffic. Complete Road Closure on Express Lanes limited to 30 minutes or less.

		INTERSTAT	TE 495 (BELTWAY								
			Inner Loop								
	WEEKDAY	Single-Lane Closures or Shoulder	Two-Lane Closures	Multiple-Lane Closures	Complete Road Closure						
Segment 1	A. L. Bridge to	10:00AM to 3:00PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 5:00AM						
Segment	Springfield Interchange	9:30PM to 5:00AM	TO.OUPINI TO 5.OUAINI	11.00PW to 5.00AW	12.00AW (0 5.00AW						
Comment 0	Springfield Interchange	10:00AM to 3:00PM	10.00DM to 5.00AM	11.00DM to 5.00AM	10:00 AM to 5:00 AM						
Segment 2	to W.W. Bridge	9:30PM to 5:00AM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 5:00AM						
		All lanes oper	n at 12:00 noon on Friday								
			Outer Loop								
	WEEKDAY	Single-Lane Closures or Shoulder	Two-Lane Closures	Multiple-Lane Closures	Complete Road Closure						
Commont 1	A. L. Bridge to	9:30AM to 2:30PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 5:00AM						
Segment 1	Springfield Interchange	9:30PM to 5:00AM	TO.OUPINI TO 5.OUAINI	11.00PW to 5.00AW	12.00AW (0 5.00AW						
Segment 2	Springfield Interchange	10:00AM to 3:00PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 5:00AM						
Segment 2	to W.W. Bridge	9:30PM to 5:00AM	TO.OUP IN TO S.OUAIN	TT.00FW to 5.00AW	12.00AIVI (0 5.00AIVI						
		All lanes oper	n at 12:00 noon on Friday								
			Inner/O	uter Loop							
	WEEKEND	Single-Lane Closures or Shoulder	Multiple-La	ne Closures	Complete Road Closure						
F	riday to Saturday	10:00PM to 8:00AM	11:00PM	to 7:00AM	12:00AM to 5:00AM						
S	aturday to Sunday	10:00PM to 9:00AM	11:00PM	to 8:00AM	12:00AM to 5:00AM						
S	Sunday to Monday	9:30PM to 5:00AM	11:00PM	to 5:00AM	12:00AM to 5:00AM						

	EXPRESS LANES				
	Single-Lane Closures or Shoulder Complete Road Closure**				
WEEKDAY	9:30PM (Sunday to Thursday) to 4:00AM (Monday to Friday)	11:00PM to 4:00AM			
WEEKEND 11:00PM (Friday to Saturday) to 9:00AM (Saturday to Sunday) 11:00PM to 4:00AM					
** Complete Road Closure on Express Lanes limited to 30 minutes or less.					

INTERSTATE 66							
		Eastbound					
WEEKDAY		Single-Lane Closures or Shoulder	Two-Lane Closures	Multiple-Lane Closures	Complete Road Closure		
Segment 1	Prince William County	10:00AM to 3:30PM	0:00PM to 5:00AM	10:00PM to 5:00AM	12:00AM to 4:00AM		
Segment	line to Route 286	8:00PM to 5:00AM	9:00PM to 5:00AM				
Segment 2	Route 286 to Beltway	11:00AM to 3:30PM	10:00PM to 5:00AM**	11:00PM to 5:00AM**	12:00AM to 4:00AM		
ocginent 2	Route 200 to Beitway	9:00PM to 5:00AM	10.001 W to 3.00/W	11.001 W to 3.00/W	12.00AW 10 4.00AW		
Segment 3	Beltway to TR Bridge	9:30PM to 5:00AM	n/a	n/a	12:00AM to 4:00AM		
(Inside Beltway)		9.30FW to 3.00AW	II/a	TI/a	12.00AIVI 10 4.00AIVI		
		All lanes ope	n at 12:00 noon on Friday				

WEEKDAY		Westbound					
		Single-Lane Closures or Shoulder	Two-Lane Closures	Multiple-Lane Closures	Complete Road Closure		
Commont 1	Prince William County	9:00AM to 2:30PM	0.00001 +- 0.00414	10:00DM to 5:00AM	10.00414- 4.00414		
Segment 1 line to Route 286	9:00PM to 6:00AM	9:30PM to 6:00AM	10:30PM to 5:00AM	12:00AM to 4:00AM			
Segment 2	Doute 286 to Poltwoy	9:00AM to 2:00PM*	10:00PM to 5:00AM**	11:00PM to 5:00AM**	12:00AM to 4:00AM		
Segment 2	nt 2 Route 286 to Beltway 9:30PM to 5:00AM 10:00PM to 5:00AM		TO.OUT IVI TO S.OUAIVI	11.00FW to 5.00AW	12.00AW to 4.00AW		
Segment 2 Beltway to TR Bridge		9:30AM to 2:00PM*	40.00DM +- 5.00AM**	/-	40.00414 4.00414		
Segment 3	(Inside Beltway)	10:00PM to 5:00AM	10:00PM to 5:00AM**	n/a	12:00AM to 4:00AM		

All lanes open at 12:00 noon on Friday

WEEKEND		Eastbound/Westbound				
Outside Beltway	Single-Lane Closures or Shoulder	Multiple-Lane Closures	Complete Road Closure			
Friday to Saturday	9:00PM to 9:00AM	10:00PM to 6:00AM	12:00AM to 5:00AM			
Saturday to Sunday	9:00PM to 9:00AM	10:00PM to 6:00AM	12:00AM to 5:00AM			
Sunday to Monday	8:00PM to 5:00AM	9:00PM to 5:00AM	12:00AM to 4:00AM			
Inside Beltway	Single-Lane Closures or Shoulder	Multiple-Lane Closures	Complete Road Closure			
Friday to Saturday	10:00PM to 6:00AM	n/a	12:00AM to 5:00AM			
Saturday to Sunday	10:00PM to 6:00AM	n/a	12:00AM to 5:00AM			
Sunday to Monday	9:30PM to 5:00AM	n/a	12:00AM to 4:00AM			

^{*} Only be considered for three lane segment.

** Consider opening shoulder lane, where Applicable.

ROUTE 267 CONNECTOR						
Eastbound Westbound						
WEEKDAY	Single-Lane Closures or Shoulder Complete Road Closure		Single-Lane Closures or Shoulder	Complete Road Closure		
Manday to Friday	11:00AM to 3:00PM	10:00 AM to 4:00 AM	9:30AM to 3:00PM	10:00 AM to 4:00 AM		
Monday to Friday 9:30PM to 5:00AM 12:00AM to 4:00AM 9:00PM to 5:00AM 12:00AM to 4:00AM						
	All lanes open at 12:00 noon on Friday					

	Eastbound/Westbound			
WEEKEND	Single-Lane Closures or Shoulder	Complete Road Closure		
Friday to Saturday	10:00PM to 8:00AM	12:00AM to 5:00AM		
Saturday to Sunday	11:00PM to 8:00AM	12:00AM to 5:00AM		
Sunday to Monday	9:00PM to 5:00AM	12:00AM to 4:00AM		

Single-Lane Closures* or Shoulder					
ARTERIAL	WEE	KDAY		WEEKEND	
ANIENIAL	Monday to Thursday	Friday	Friday to Saturday	Saturday to Sunday	Sunday to Monday
Major Artoriolo**	9:30AM to 3:00PM	9:30AM to 2:00 PM	10:00PM to 9:00AM	10:00PM to 8:00AM	10:00PM to 5:00AM
Major Arterials**	10:00PM to 5:00AM				
All Other Roadways	9:00AM to 3:30PM	0,00 AM to 0,00 DM	10:00DM to 0:00AM	0,000DM to 0,000AM	10:00DM to 5:00AM
All Other Roadways	9:00PM to 5:00AM	9:00AM to 2:00 PM	10:00PM to 9:00AM	9:00PM to 9:00AM	10:00PM to 5:00AM

Multiple-Lane Closures					
ARTERIAL	WEE	KDAY		WEEKEND	
ANTENIAL	Monday to Thursday	Friday	Friday to Saturday	Saturday to Sunday	Sunday to Monday
Major Arterials**	10:00PM to 5:00AM	Not allowed until 11:00PM	11:00PM to 5:00AM	11:00PM to 6:00AM	11:00PM to 5:00AM
All Other Roadways	9:00PM to 5:00AM	Not allowed until 10:00PM	10:00PM to 6:00AM	10:00PM to 6:00AM	10:00PM to 5:00AM

^{*}Single-lane closures only permitted for multiple-lane roadways.

**Major Arterials defined as Primary Roads, high volume Secondary Roads, and all other routes that connect directly to Interstates.

ATTACHMENT D

State & Federal Roads in Arlington County, VA

State Routes

- Interstate 66: Custis Memorial Parkway
- Interstate 395: Henry G. Shirley Memorial Highway
- U.S. Route 1: Jefferson Davis Highway
- State Route 27: Washington Boulevard (Memorial Bridge to U.S. Route 50)
- U.S. Route 29: Lee Highway
- U.S. Route 50: Arlington Boulevard
- State Route 110: Jefferson Davis Highway (Rosslyn to Crystal City)
- State Route 120: Glebe Road
- State Route 123: Chain Bridge Road
- State Route 124: Spout Run Parkway (Lee Highway to Lorcom Lane)
- State Route 233: Airport Viaduct
- State Route 237: Washington Boulevard (North Glebe Road to Lee Highway)
- State Route 237: Fairfax Drive (Kirkwood Road to North Glebe Road)
- State Route 237: 10th Street North (U.S. Route 50 to Kirkwood Road)
- State Route 309: Old Dominion Drive

Federal Routes

- Arlington Hall Street
- Boundary Channel Drive
- George Washington Memorial Parkway
- Fort Myer streets, including Arlington National Cemetery
- Marshall Drive (North Meade Street to U.S. Route 110)
- Memorial Avenue
- Pentagon Street
- Spout Run Parkway (Lorcom Lane to George Washington Memorial Parkway)

ATTACHMENT E

MATERIAL	VDOT ROAD	MINIMUM RATE OF	LOCATION	REMARKS
AND TEST	AND BRIDGE	SAMPLING	OF	
(REF VDOT	SPECIFICATION	(REF VDOT MANUAL OF	SAMPLING	
TEST METHODS	2002 (Or Latest	INSTRUCTIONS)		
MANUAL)	Version)			

	SOILS AND AGGREGATES						
1. Embankments							
(a) Density, Any Method	303.04(h)	One (1) test per 2500 yd3 or less plus: (a) for fills less than 500 ft. length one (1) test on every other 6-in. layer bottom to top of fill starting with the second lift; (b) for fills from 500-2000 ft. length, two (2) tests per 6-in. layer within top five (5) ft. of fill; (c) for fills greater than 2000 ft length, break into equal segments not to exceed 2000 ft. and use same frequency for each section as for fills 500 to 2000 ft. in length.	Roadway	When tests are not run due to gravel, muck, rock, etc. give station and depth on report in lieu of test, with reason. For nuclear test, use Direct Transmission Method, VTM-10. See Notes 1 and 2.			
2. Finished Sub- grade (Both Cut and Fill Sections)							
(a) Density, Any Method	305.03	One (1) test per 2000 continuous linear ft. of roadway and one test minimum per intersection per construction location	Roadway (24 ft.)	For nuclear test, use Direct Transmission Method, VTM-10. See Notes 1 and 2.			

MATERIAL	VDOT ROAD	MINIMUM RATE OF	LOCATION	REMARKS
AND TEST	AND BRIDGE	SAMPLING	OF	
(REF VDOT TEST METHODS	SPECIFICATION 2002 (Or Latest	(REF VDOT MANUAL OF INSTRUCTIONS)	SAMPLING	
MANUAL)	Version)			

(b) Density, Any Method	305.03	One (1) test per continuous section/block/or intersection	Curb, Comb. Curb and Gutter	For nuclear test, use Direct Transmission Method, VTM-10. See Notes 1 and 2.
(c) Density, Any Method	305.03	One (1) test per continuous section/block/or intersection	Sidewalk	For nuclear test, use Direct Transmission Method, VTM-10. See Notes 1 and 2.
3. Central Mix Aggregate (Treated or Un- treated) Base, Subbase, and Select Material				
(a) Density, Any Method	305.03, 308.03, & 309.05,	One (1) test per 1/2 mile or less per continuous lane application width per layer. If testing by nuclear method, each test shall consist of average of five (5) readings.	Roadway. Location of five (5) nuclear readings at randomly selected sites.	For nuclear tests, use Backscatter, Control Strip Method, VTM-10. With nuclear method, set up roller pattern and control strip for each layer or lift placed. See Notes 1 and 2.
(b) Density, Any Method	305.03, 308.03, & 309.05,	One (1) test per continuous section/block/or intersection	Curb, Comb. Curb and Gutter	For nuclear test, use Direct Transmission Method, VTM-10. See Notes 1 and 2.
(c) Density, Any Method	305.03, 308.03, & 309.05,	One (1) test per continuous section/block/or intersection	Sidewalk	For nuclear test, use Direct Transmission Method, VTM-10. See Notes 1 and 2.

AND TEST AND BRIDGE SAMPLING OF	
(REF VDOT TEST METHODS MANUAL) (REF VDOT MANUAL OF INSTRUCTIONS) SAMPLING Version)	

4. Backfill for	302.03, 303.04(g),	Minimum one test per lift on	Alternating	For nuclear test, use Direct Transmission
Pipes and Box	401.03(i)	alternating sides of pipe for	sides of	Methods, VTM-10. See Notes 1 and 2.
Culverts		each 300 feet of pipe or portion	structure	
		thereof. Test pattern is to begin		Backfill lifts shall be compacted in
		after first 4" compacted layer		horizontal layers not more than 6 inches
		above the structures bedding		in thickness, loose measurement. (Or as
		and continue to 1' above top of		Specified by the Contract Documents)
		pipe or box culvert structure.		
		For rate of testing greater than		
		1' above top of pipe refer to		
		contract documents and Rate of		
		Sampling for embankments.		
5. Backfill for	302.03, 303.04(g)	Minimum one test every other	Perimeter of	To include drop inlets, junction boxes,
Drop Inlets		lift around the perimeter	structure	etc. For nuclear test, use Direct
		beginning after the first 4"		Transmission Methods, VTM-10. See
		compacted layer above the		Notes 1 and 2.
		bedding and continue to top of		
		the structure. Stagger tests to		Backfill lifts shall be compacted in
		ensure consistent compaction		horizontal layers not more than 6 inches
		effort has been achieved.		in thickness, loose measurement. (Or as
				Specified by the Contract Documents)
6. Backfill for	302.03, 303.04(g)		Perimeter of	For nuclear test, use Direct Transmission
Manholes			structure	Methods, VTM-10. See Notes 1 and 2.
				Backfill lifts shall be compacted in
				horizontal layers not more than 6 inches
				in thickness, loose measurement. (Or as
				Specified by the Contract Documents)

MATERIAL	VDOT ROAD	MINIMUM RATE OF	LOCATION	REMARKS
AND TEST	AND BRIDGE	SAMPLING	OF	
(REF VDOT	SPECIFICATION	(REF VDOT MANUAL OF	SAMPLING	
TEST METHODS	2002 (Or Latest	INSTRUCTIONS)		
MANUAL)	Version)			

HYDRAULIC CEMENT CONCRETE						
1. Sidewalk, Curb, Comb. Curb and Gutter						
(a) Temperature Measurements	217	One test per batch (truck), and when making compressive specimens.	At job site, and prior to placing concrete in forms.	If test on any batch fails, recheck batch immediately before rejecting. Enter results of tests in project records.		
(b) Air Content	217	One test per batch (truck), and when making compressive specimens	At job site, and prior to placing concrete in forms	Any of 3 approved methods may be used for this test. However, with any test method used, with readings indicating concrete to be outside of specification must be confirmed first with test by Pressure Method before rejection of concrete. Enter results in project records.		
(c) Consistency (Slump Test).	217	One test per batch (truck), and when making compressive specimens.	At job site, and prior to placing concrete in forms.	If test on any batch fails, recheck batch immediately before rejecting. Enter results in project records.		

Arlington County, VA Materials Testing Specification Reference Guide (8/18/2016)

MATERIAL	VDOT ROAD	MINIMUM RATE OF	LOCATION	REMARKS
AND TEST	AND BRIDGE	SAMPLING	OF	
(REF VDOT	SPECIFICATION	(REF VDOT MANUAL OF	SAMPLING	
TEST METHODS	2002 (Or Latest	INSTRUCTIONS)		
MANUAL)	Version)			

(d) Compressive	217		At job site.	Molding and Curing
Strength		set of 3 cylinders shall be made for each 250 cubic yards, with a minimum of one set of 3 per day. Any one set to be made from same batch. For structural concrete, one set of 3 cylinders shall be made for each 100 cubic yards of concrete placed, with a minimum of 2 sets of 3 cylinders each per structure per class of concrete. Any one set to be made from same batch.		Molds shall be placed on a rigid horizontal surface free from vibration and other disturbances during the first 24 hours, all test specimens shall be stored under conditions that maintain the temperature immediately adjacent to the specimens in the range of 60°F to 80°F, and prevent loss of moisture. Testing Except when high-early strength concrete is specified, compressive strength testing will be performed at 28 days.

Arlington County, VA Materials Testing Specification Reference Guide (8/18/2016)

MATERIAL	VDOT ROAD	MINIMUM RATE OF	LOCATION	REMARKS
AND TEST	AND BRIDGE	SAMPLING	OF	
(REF VDOT	SPECIFICATION	(REF VDOT MANUAL OF	SAMPLING	
TEST METHODS	2002 (Or Latest	INSTRUCTIONS)		
MANUAL)	Version)			

		ASPHALT PAVEME	NT	
(a) In-Place Pavement Density by Nuclear Method (Roller Pattern)/ (Control Strip) (Asphalt Pavement)	Roads and Bridges Section 315.05 VTM-76 AASHTO T-166	Establish Roller pattern and Control Strip according to VTM-76. Ten (10) stratified random sample to establish target density. Verify minimum density achieved with cores per VTM-76. QC technician shall be certified and pass State proficiency	Field	Contractor/Asphalt Producer shall provide Certified Asphalt Paving Technician for density testing
(b) In-place Pavement Density by Nuclear Method and/or VDOT cores Test Section) (Asphalt Pavement)	Roads and Bridges Section 315.05 VTM-76 AASHTO T-166	Test Section- Lot Size: 5000 ft. per Lane width. Ten (10) stratified random samples per lot for nuclear gauge and/or five(5) stratified random plug/cores per lot QC technician shall be certified and pass State proficiency	Field	Contractor/Asphalt Producer shall provide Certified Asphalt Paving Technician for density testing
(c) Temperature Measurements	Roads and Bridges 211.08	One temperature measurement initially on first and fifth loads, each type mix each production day, and thereafter minimum of one per hour of production time for each mix type, by Producer's Certified Asphalt	QC - Processing or mixing plant from back of truck QA - Field	The Contractor should take and record temperature measurements of the asphalt concrete at the beginning of paving operations and thereafter at a rate of not less than one measurement every hour. The

Arlington County, VA Materials Testing Specification Reference Guide (8/18/2016)

MATERIAL AND TEST (REF VDOT TEST METHODS MANUAL)	VDOT ROAD AND BRIDGE SPECIFICATION 2002 (Or Latest Version)	MINIMUM RATE OF SAMPLING (REF VDOT MANUAL OF INSTRUCTIONS)	LOCATION OF SAMPLING	REMARKS
		Concrete Technician. If any test outside of tolerance, minimum of 3 additional tests made in different points of the load, and 4 tests averaged and average		Project Officer may increase the frequency of temperature measurements at any time. The temperature should be checked using an appropriate heat-sensing device.

an appropriate heat-sensing device

(i.e. probe thermometer, infrared

thermometer, etc.).

used as temperature of load or

batch.

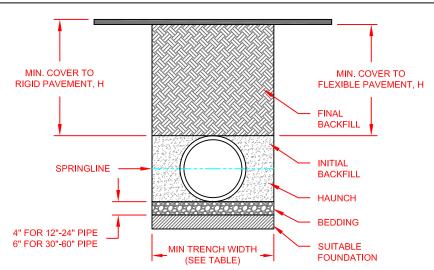
Note 1. Density tests are reported on Forms TL-53, TL-54, TL-55, TL-124, TL-125 (Sand Cone Method), and TL-125A (One-Point Proctor Method).

Note 2. If there is a breakdown in the nuclear testing equipment, then density testing shall continue using other approved methods.

NOTES:

NOTE: STORM TRENCH SHOULD BE ACCORDING TO MANUFACTURERS RECOMMENDATION. PIPE MANUFACTURER TO BE ADS OR COUNTY'S APPROVED EQUAL

N-12 HP STORM TRENCH INSTALLATION DETAIL



- 1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION, WITH THE EXCEPTION THAT THE INITIAL BACKFILL MAY EXTEND TO THE CROWN OF THE PIPE. SOIL CLASSIFICATIONS ARE PER THE LATEST VERSION OF ASTM D2321. CLASS IVB MATERIALS (MH, CH) AS DEFINED IN PREVIOUS VERSIONS OF ASTM D2321 ARE NOT APPROPRIATE BACKFILL MATERIALS.
- 2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
- 3. <u>FOUNDATION:</u> WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
- 4. <u>BEDDING</u>: SUITABLE MATERIAL SHALL BE CLASS I, II, III, OR IV. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLE 3 FOR THE APPLICABLE FILL HEIGHTS LISTED. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 12"-24" (300mm-600mm) DIAMETER PIPE; 6" (150mm) FOR 30"-60" (750mm-900mm) DIAMETER PIPE. THE MIDDLE 1/3 BENEATH THE PIPE INVERT SHALL BE LOOSELY PLACED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
- 5. <u>INITIAL BACKFILL:</u> SUITABLE MATERIAL SHALL BE CLASS I, II, III, OR IV IN THE PIPE ZONE EXTENDING TO THE CROWN OF THE PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLE 3 FOR THE APPLICABLE FILL HEIGHTS LISTED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
- 6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" (300mm) FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS; CLASS I OR II MATERIAL COMPACTED TO 90% SPD AND CLASS III COMPACTED TO 95% SPD IS REQUIRED. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" (300mm) UP TO 48" (1200mm) DIAMETER PIPE AND 24" (600mm) OF COVER FOR 60" (1500mm) DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. CLASS IV MATERIALS ARE NOT RECOMMENDEDAS BACKFILL FOR TRAFFIC APPLICATION WITH LESS THAN 72" (1830mm) OF COVER MEASURED FROM TOP OF PIPE TO TOP OF SURFACE.

TABLE 1, RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN TRENCH WIDTH
12" (300mm)	30" (750mm)
15" (375mm)	34" (860mm)
18" (450mm)	39" (990mm)
24" (600mm)	48" (1200mm)
30" (750mm)	56" (1420mm)
36" (900mm)	64" (1620mm)
42" (1050mm)	72" (1830mm)
48" (1200mm)	80" (2030mm)
60" (1500mm)	96" (2440mm)

TABLE 2, MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS

	SURFACE LIVE LOADING CONDITION	
PIPE DIAM.	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD) *
12" - 48" (300mm - 1200mm)	12" (300mm)	48" (1200mm)
60" (1500mm)	24" (600mm)	60" (1500mm)

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

TABLE 3. MAXIMUM COVER FOR ADS N-12 HP PIPE, ft

	I ABLE 3	, 101/4/110	ION CO	VERT	IN ADS	N-12 NF	rır∟, ı	
	CLASS I	C	CLASS	II	O	CLASS I	ll .	CLASS IV
PIPE DIA	COMPACTED	95%	90%	85%	95%	90%	85%	85%
12"	39 (11.9m)	27	20	15	21	16	14	13
(300mm)	39 (11.9111)	(8.2m)	(6.1m)	(4.6m)	(6.4m)	(4.9m)	(4.3m)	(4.0m)
15"	42 (12.8m)	29	21	16	22	17	15	14
(375mm)	42 (12.011)	(8.8m)	(6.4m)	(4.9m)	(6.7m)	(5.2m)	(4.6m)	(4.3m)
18"	36 (11.0m)	25	18	13	19	14	13	12
(450mm)	30 (11.011)	(7.6m)	(5.5m)	(4.0m)	(5.8m)	(4.3m)	(4.0m)	(3.7m)
24"	31 (9.4m)	22	16	11	16	12	11	10
(600mm)	31 (3.4111)	(6.7m)	(4.9)	(3.4m)	(4.9m)	(3.7m)	(3.4m)	(3.0m)
30"	36 (11.0m)	25	18	13	19	14	13	12
(750mm)	30 (11.011)	(7.6m)	(5.5m)	(4.0m)	(5.8m)	(4.3m)	(4.0m)	(3.7m)
36"	32 (9.8m)	23	16	11	16	12	11	10
(900mm)	32 (3.011)	(7.0m)	(4.9m)	(3.4m)	(4.9m)	(3.7m)	(3.4m)	(3.0m)
42"	37 (11.3m)	25	18	13	18	13	12	9
(1050mm)	37 (11.3111)	(7.6m)	(5.5m)	(4.0m)	(5.5m)	(4.0m)	(3.7m)	(2.7m)
48"	35 (10.7m)	24	17	12	17	13	11	9
(1200mm)	33 (10.7111)	(7.3m)	(5.2m)	(3.7m)	(5.2m)	,	(3.4m)	(2.7m)
60"	37 (11.3m)	25	17	12	18	13	11	7
(1500mm)	UT TABLE OF	,		(3.7m)				(2.1m)

FILL HEIGHT TABLE GENERATED USING AASHTO SECTION 12, LOAD RESISTANCE FACTOR DESIGN (LRFD) PROCEDURE WITH THE FOLLOWING ASSUMPTIONS:

HEIGHT OF WATER (Hw) = CROWN +1', UNIT WEIGHT OF SOIL (γs) = 120 PCF

2	GENERAL UPDATE	CKM	12/4/12		
REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D	

ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED TO DEPICT THE COMPONENTS AS REQUESTED. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT, NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

TYPICAL STORM TRENCH DETAIL N-12 HIGH PERFORMANCE (HP)

STD-108

DRAWING NUMBER:

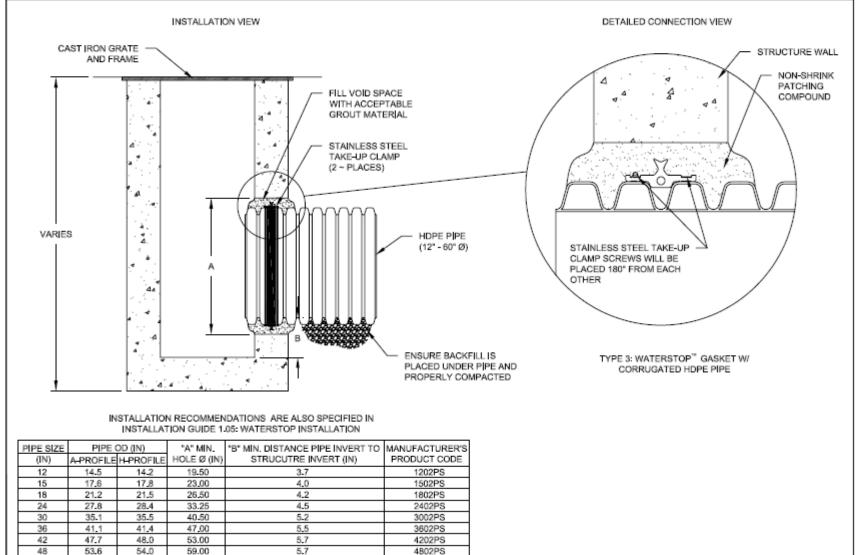
ADVANCED DRAINAGE SYSTEMS, INC.

4640 TRUEMAN BLVD HILLIARD, OHIO 43026 DATE: 01/29/09
OKTO BY:

NTS 1 OF 1







6002PS

60

66.3

67.3

ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS, THIS DRAWING IS INTENDED TO DEPICT THE COMPONENTS AS REQUESTED. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN DRAWING IS INTERDED TO DEPTH THE COMPONENTS AS REQUESTED. AND HIS NOT PERFORMED ANY ENGINEERING ON DESIGN SERVICES FOR THIS PROJECT, NOR HAS ADS INDEPENDENTLY VERRIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

6.4

72.00

UPDATED DRAWING 02/21/07 CK8 REV. DESCRIPTION MWDDYY CHKD 4640 TRUEMAN BLVD

WATERSTOP STRUCTURE CONNECTION DETAIL STD-203 DRAWING NUMBER:

HILLIARD, OHIO 43028 ADVANCED DRAMAGE SYSTEMS, NO.

MANHOLE SKIRT MANUFACTURER TO BE MAR MAC OR COUNTY'S APPROVED EQUAL



MAR MAC MANHOLE SKIRT

Custom Fitted Protection for Pipe Connections to Manhole Structures



MANHOLES DROP INLETS JUNCTION BOXES

ENGINEER'S HANDBOOK

MAR MAC MANHOLE SKIRTS ARE MANUFACTURED
USING SPECIALLY ENGINEERED HIGH STRENGTH FABRIC
DESIGNED TO HOLD SOIL AND FINES IN PLACE.
MEETS MOST DOT STANDARDS.

Q_



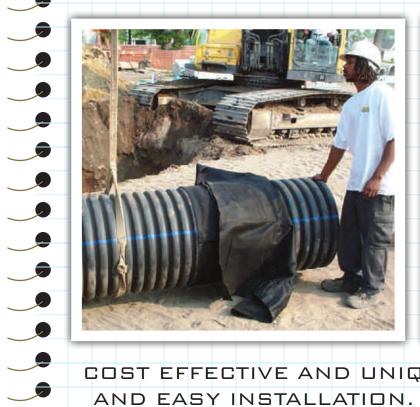
PREVENTS LEACHING AND UNDERMINING OF SUBGRADE MATERIAL THROUGH OPENINGS THAT MIGHT OCCUR AT THE CONNECTION OF THE PIPE AND THE MANHOLE WALL.



REDUCES LIABILITY / REDUCES THE NEED FOR COSTLY REPAIRS /
PERMANENT PROTECTION

MAR MAC MANHOLE SKIRTS ARE EASILY INSTALLED AND PERMANENT WHEN BACKFILLED. SKIRTS HELP TO LIMIT LIABILITY BY MINIMIZING THE CHANCES

OF FAILURE.



.



COST EFFECTIVE AND UNIQUELY DESIGNED FOR QUICK AND EASY INSTALLATION. CLOSURE SYSTEM ALLOWS FOR INFINITE ADJUSTMENT.



ELIMINATE ENTRY OF SUBGRADE MATERIAL / EASY APPLICATION /
ECONOMICAL PROTECTION

MANHOLE SKIRT SPECIFICATION

ALL PIPE TO MANHOLE CONNECTIONS SHALL BE INSTALLED WITH A MANHOLE SKIRT. THE MANHOLE SKIRT SHALL BE MAR MAC MANHOLE SKIRT AS MANUFACTURED BY MAR MAC CONSTRUCTION PRODUCTS CO. OR APPROVED EQUAL AND SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. THE SKIRT SHALL BE MANUFACTURED UTILIZING AN ENGINEERED POLYPROPYLENE FABRIC WHICH MEETS THE MINIMUM AVERAGE ROLL VALUE (MARV) LISTED BELOW.

THE MANHOLE SKIRT SHALL BE INSTALLED WITH TWO STRAPS WHICH ARE REQUIRED TO HOLD THE SKIRT IN PLACE PRIOR TO BACKFILL. ONE STRAP SHALL EXTEND AROUND THE MANHOLE TO SUPPORT THE SKIRT ALONG THE TOP HORIZONTAL SURFACE. THE SECOND STRAP SHALL SECURE THE FABRIC AROUND THE BARREL OF THE PIPE, 4" FROM THE END OF THE MATERIAL.

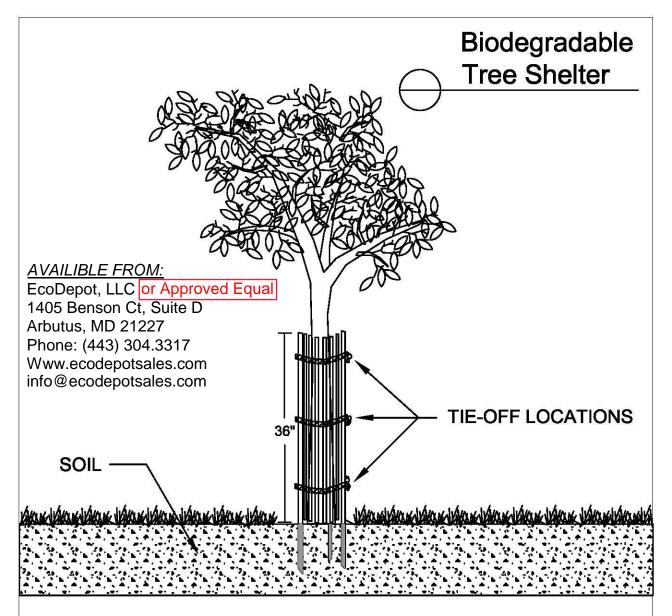
The state of the s	A RECOGNIC CONTRACTOR OF THE RESIDENCE O		ACTUAL TO THE PARTY OF THE PART
PROPERTY	TEST METHOD	MINIMUM AVG. ROLL VALUE (ENGLISH)	MINIMUM AVG. ROLL VALUE (METRIC)
GRAB TENSILE	ASTM D4632	160 LBS	712 N
GRAB ELONGATION	ASTM D4632	50%	50%
PUNCTURE STRENGTH	ASTM D4833	85 LBS	378 N
MULLEN BURST	ASTM D3786	280 PSI	1930 KPA
TRAPEZOIDAL TEAR	ASTM D4533	60 LBS	267 N
UV RESISTANCE	ASTM D4355	70%	70%
APPARENT SIZE OPENING (AOS) ³	ASTM D4751	70 US SIEVE	□.212 мм
PERMITTIVITY	ASTM D4491	1.30 SEC ⁻¹	1.30 sec ⁻¹
WATER FLOW RATE	ASTM D 4491	110 GPM/FT ²	4480 L/MIN/M ²



MAR MAC CONSTRUCTION PRODUCTS CO., INC.
PO BOX 447 334 N 7TH STREET
MCBEE, SC 29101

843-335-5814 FAX: 843-335-5909 WWW.MARMAC.COM

ATTACHMENT G



INSTALLATION INSTRUCTIONS:

- 1. PLANT TREE ACCORDING TO STANDARD SPECIFICATIONS.
- 2. PLACE THE SHELTER AROUND THE TREE.
- 3. DRIVE LONGER STAKES INTO THE GROUND.
- 4. TIE-OFF ROPE ENDS AROUND TREE.

PRODUCT NOTES:

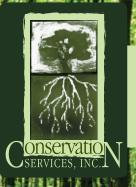
- 1. TREE SHELTER MUST BE MADE OF 100% BIODEGRADABLE MATERIALS.
- 2. TREE SHELTER SHOULD BE MADE OF HARDWOOD SLATS WOVEN TOGETHER WITH NATURAL ROPING.
- 3. TREE SHELTER MUST HAVE LONGER, HARDY STAKES FOR INSERTION INTO GROUND TO PROVIDE SUPPORT.





Treeshelters for Trees

or Approved Equal



Why choose Tubex Standard Treeshelters?

Treeshelters are an important tool when attempting to establish hard-to-grow trees or when working on challenging sites. Developed in the United Kingdom in 1979, Tubex treeshelters are used in over 25 countries around the world. The twinwalled, solid, translucent tubes provide maximum protection from animal browse, wind, chemical sprays and equipment. In addition, the greenhouse environment created inside the shelter promotes growth.

Tubex, the world leader in the development and manufacturing of treeshelters, has the product solutions that work. Today, Tubex treeshelters are considered the standard for seedling protection by foresters, wildlife managers and woodlot owners.

TREESHELTER FEATURES

FLARED RIM guards against bark abrasion after the tree grows out of the shelter.

STRENGTHENING RODS

built in for extra wind resistance.

RELEASABLE TIES tested under extreme weather conditions and found to be pliable, strong and dependable.

TWIN-WALLED

seamless construction assures structural integrity.

LASERLINE is a perforated line that splits from the pressure of fast-growing trees and prevents strangulation - a Tubex™ exclusive.

	Specifications
Materials	UV-stabilized polypropylene co-polymer
Construction	Seamless twin-walled
Rim	Continuous, scrape free flare
Height (feet)	2', 2½', 3', 4', and 5'
Diameter	Ranges from 31/4" to 43/4", average 4"
Color	Green
Life Span	Anticipated 5-7 years, potential variance based on latitude, elevation and shade
Fastening Ties	Releasable, nylon, ratchet-locking
Special Features:	Laser line, prevents tree strangulation
Mesh Netting	Prevents songbirds from becoming trapped in the treeshelter

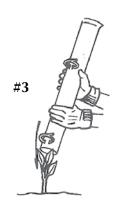


TUBEX® Treeshelters for Trees

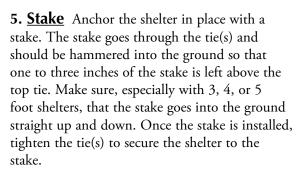
Planting and Installation Instructions

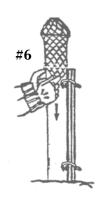


- 1. **Prepare site** At the spot where you want to plant the seedling, if there is sod there, remove a 8 to 10 inch circular section of sod. This is called "scalping" the sod.
- 2. **Plant** the seedling in the center of the scalped area making sure that the hole you dig is as deep as the roots of the seedling.

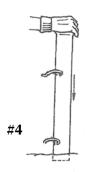


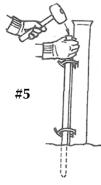
- **3. <u>Slide</u>** the shelter down over the seedling. If necessary, hold side branches to prevent them from catching on bottom lip of shelter. Make sure the tip of the seedling or side branches do not catch on a tie as you slide the shelter down.
- **4. Push** the shelter two inches into the ground by holding the top with both hands and twisting as you push down.





6. Mesh On 3', 4' and 5' shelters, put bird mesh over the top of the shelter. Pull it down so that there is a small hole in the top of the mesh. The mesh prevents birds from getting trapped inside the shelter.



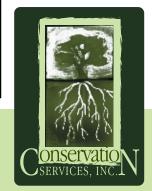






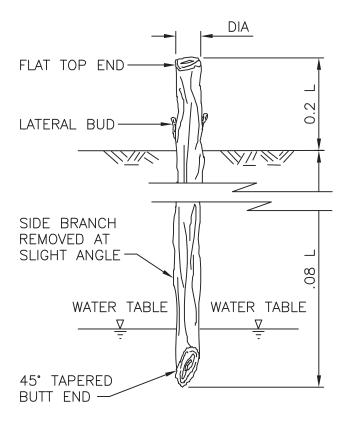
IMPORTANT FOLLOW UP MAINTENANCE FOR TUBEX TREESHELTERS

- 1. Inspect the installed shelter periodically. Straighten leaning shelters, remove competing weeds around outside of shelter, and remove bird mesh if tree is close to or emerging from top of shelter. If weeds begin to grow inside shelter and shade the tree from the sun, simply reverse the shelter installation process, remove the weed, and re-install the shelter.
- 2. Remove the shelter from the tree when the tree reaches 2 inches or more in diameter at breast height.



1620 North Delphine Ave., Waynesboro, VA 22980 877-257-4042 | 540-941-0067 | fax 540-941-1929 www.conservationservicesinc.com trees@conservationservicesinc.com

ATTACHMENT I



NOTE:

1. LIVE STAKES SHALL BE USED DURING THE TIME FRAME OF FEBRUARY 1 TO MARCH 15 OF THE CALENDAR YEAR. OUTSIDE OF THIS TIME FRAME, LIVE STAKES SHALL NOT BE USED, ROOTED CUTTINGS (SEEDLINGS) SHALL BE USED.

LIVE STAKES DETAIL

NOT TO SCALE

2100 Clarendon Boulevard, Suite 813, Arlington, VA 22201

Phone: 703.228.3629 Fax: 703.228.3606 www.arlingtonva.us

Engineering and Capital Projects Division

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Engineering Bureau

PROJECT LOCATION

Construction Drawings For:

FOUR MILE RUN EMERGENCY BANK REPAIR & STABILIZATION

5900 N 4 Mile Run Dr

Project Type: EMERGENCY MAINTENANCE REPAIR

XXXX

18-XXXXSWM Number:

Location Map

Scale: 1" = 1,000'

Vicinity

TABLE OF CONTENTS

COVER SHEET

Project Number:

- **GENERAL NOTES**
- **EXISTING CONDITIONS**
- EROSION AND SEDIMENT CONTROL NOTES & DETAILS
- EROSION AND SEDIMENT CONTROL PLAN
- STREAM BANK STABILIZATION PLAN & CROSS SECTION & DETAIL

THE PROJECT IS WITHIN THE MAPPED FEMA FLOODPLAIN AND RESOURCE PROTECTION AREA (RPA). THE PROPOSED REPAIRS AND MAINTENANCE ARE MINIMAL AND NOT ANTICIPATED TO RESULT IN CHANGES TO THE FEMA WATER SURFACE ELEVATIONS. DUE TO THE NATURE OF THE EMERGENCY WORK TO STABILIZE THE TRAIL FROM FURTHER EROSION, REQUIRED FLOODPLAIN ANALYSIS WILL BE PROVIDED AFTER CONSTRUCTION. THIS PROJECT IS EXEMPT FROM THE CHESAPEAKE BAY PRESERVATION ORDINANCE PER SECTION 61-15(B) AS AN EMERGENCY STREAM STABILIZATION PROJECT OWNED BY ARLINGTON COUNTY. SEE SHEET 4 FOR TOTAL DISTURBED AREA AND SHEET 7 FOR WQIA DOCUMENTATION.

LDA SUBMITTAL WILL BE PROVIDED WITHIN 30 DAYS OF CONSTRUCTION START PER VIRGINIA CODE.

ALL CONSTRUCTION WORK FOR THIS PROJECT SHALL CONFORM TO THE ARLINGTON COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND WHERE APPLICABLE THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) ROAD AND BRIDGE SPECIFICATIONS, AND ROAD AND BRIDGE STANDARDS. THE LATEST EDITIONS OF EACH RELEVANT MANUAL SHALL BE USED.

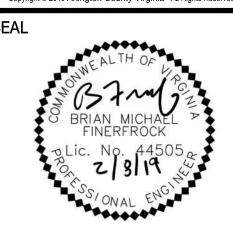
THE SITE SHOW HEREON IS REFERENCED TO THE: HORIZONTAL DATUM: VIRGINIA STATE GRID NORTH AMERICAN DATUM 1983. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM 1988. DATUM ESTABLISHED THROUGH GPS OBSERVATIONS.

Larchmont -(237)-Knolls acey Forest Shreve Family Manor **Dominion Hills** Upton Bluemont Junction

TIME ARLINGTON

> **DEPARTMENT OF ENVIRONMENTAL SERVICES**

Engineering & Capital Projects Division Phone: 703.228.3629



APPROVALS CONSTRUCTION MANAGEMENT SUPERVISOR WATER, SEWER STREETS BUREAU CHIEF

REVISIONS DATE

> Emergency Stabilization SHE un Er And S ır Mile F Repair

Designed: KRL Drawn: KRL Checked: ACO Miss Utility Transmittal #:

COVER

Filename: 1 COVER.dwg Plotted: February 19, 2019

Plotted by: ecox SCALE:

As Noted

SHEET

1 of 10

General Notes:

GENERAL CONSTRUCTION NOTES

- 1. ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL STORMWATER AND ENVIRONMENTAL PROTECTION DATUM OF 1988 (NAVD 88).
- 2. ALL CONSTRUCTION WORK FOR THIS PROJECT SHALL CONFORM TO THE ARLINGTON COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES, CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND WHERE APPLICABLE THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) ROAD AND BRIDGE SPECIFICATIONS. AND ROAD AND BRIDGE STANDARDS. THE LATEST EDITIONS OF EACH RELEVANT MANUAL SHALL BE USED.
- 3. ALL CONSTRUCTION AND WORK ACTIVITIES SHALL COMPLY WITH THE VIRGINIA WORK AREA PROTECTION MANUAL AND ALL OTHER RELEVANT WORK SAFETY REQUIREMENTS, LATEST EDITIONS.
- 4. THE CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 811 FOR MARKING THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES (i.e. WATER, SEWER, GAS, TELEPHONE, ELECTRIC, AND CABLE TV) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION OR CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO IDENTIFY AND PROTECT ALL OTHER UTILITY LINES FOUND IN THE WORK SITE AREA BELONGING TO OTHER OWNERS THAT ARE NOT MEMBERS OF "MISS UTILITY". PRIVATE WATER AND/OR SEWER LATERALS WILL NOT BE MARKED BY MISS UTILITY OR THE COUNTY. THE CONTRACTOR WILL BE EXPECTED TO LOCATE AND PROTECT THESE SERVICES DURING CONSTRUCTION.
- 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAYING OUT THE WORK AND SHALL RETAIN A PROFESSIONAL LAND SURVEYOR LICENSED IN THE COMMONWEALTH OF VIRGINIA TO PROVIDE ALL NECESSARY CONSTRUCTION LAYOUTS AND ESTABLISH ALL CONTROL LINES, GRADES, AND ELEVATION DURING CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT A COPY OF ALL CUT SHEETS FOR REVIEW, PER THE SPECIFICATIONS. THE COST OF ALL NECESSARY SURVEYING SERVICES SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND. UNLESS OTHERWISE SPECIFIED THE COST SHALL BE INCORPORATED INTO THE COSTS FOR RELEVANT ITEMS.
- 6. THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE FROM BEST AVAILABLE RECORDS AND SHALL BE CONSIDERED TO BE APPROXIMATE. WHEN CONSTRUCTION ACTIVITY REACHES IN PROXIMITY TO EXISTING UTILITIES, THE TRENCH(ES) SHALL BE OPENED A SUFFICIENT DISTANCE AHEAD OF THE WORK OR TEST PITS SHALL BE MADE TO VERIFY THE EXACT LOCATION AND INVERTS OF THE UTILITY TO ALLOW FOR POSSIBLE CHANGES IN THE LINE OR GRADE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING UTILITIES AND THE RELATED STRUCTURES. ALL EXISTING UTILITY SYSTEMS SHALL BE PROTECTED TO PREVENT DAMAGE DURING THE CONTRACTOR'S OPERATIONS. ANY SYSTEM DAMAGED SHALL BE PROMPTLY REPAIRED AT NO COST TO THE OWNER.

THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THE APPROVED PLANS.

- 7. EXISTING MANHOLE FRAMES, COVERS, VALVE BOXES, AND OTHER APPURTENANCES SHALL BE ADJUSTED TO THE FINAL GRADE OR REPLACED, AS NECESSARY. UNLESS OTHERWISE SPECIFIED, THE COST FOR THIS SHALL BE CONSIDERED INCIDENTAL TO THE WORK, AND SHALL BE INCORPORATED INTO THE COSTS FOR RELEVANT ITEMS.
- 8. THE CONTRACTOR SHALL PROVIDE ADA COMPLIANT ACCESS THROUGH OR AROUND THE SITE AT ALL TIMES AND SHALL ENSURE THE SAFETY OF ALL THOSE PASSING THROUGH OR ADJACENT TO THE SITE.

- 9. THE CONTRACTOR SHALL PROTECT EXISTING DRAINAGE FACILITIES (TO INCLUDE CURB AND GUTTER) AND WATERWAYS FROM ADVERSE IMPACTS PER SECTION 01500 OF THE ARLINGTON COUNTY STANDARDS & SPECIFICATIONS.
- 10. ANY WORK WITHIN A RESOURCE PROTECTION AREA (RPA) SHALL COMPLY WITH THE REQUIREMENTS OF CHAPTER 61 OF THE COUNTY CODE (THE CHESAPEAKE BAY PRESERVATION ORDINANCE).

TREE PROTECTION

- 11. THE CONTRACTOR SHALL CONFINE ALL ACTIVITIES AT THE SITE ASSOCIATED WITH CONSTRUCTION ACTIVITIES. TO INCLUDE STORAGE OF EQUIPMENT AND OR MATERIALS, ACCESS TO THE WORK, FORMWORK, ETC. TO WITHIN THE DESIGNATED LIMITS OF WORK (LOW).
- 12. NO TREES SHALL BE REMOVED OR OTHERWISE AFFECTED UNLESS CLEARLY MARKED ON THE APPROVED PLAN.
- 13. TREES SHALL BE PROTECTED PER THE REQUIREMENTS OF SECTION 02100 - CLEARING AND GRUBBING

TRAFFIC CONTROL

- 14. CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 3 WORKING DAYS PRIOR TO DISTURBING ANY EXISTING, OR INSTALLING ANY NEW, TRAFFIC SIGNS, SIGNALS, OR OTHER TRAFFIC CONTROL DEVICES.
- 15. THE CONTRACTOR SHALL PREMARK THE LAYOUT OF ANY PERMANENT TRAFFIC CONTROL STRIPING, INDICATING THE PROPOSED LOCATION AND TYPE OF MARKING TO BE INSTALLED THE PREMARKING MAY CONSIST OF TYPE D TAPE. CHALK. OR LUMBER CRAYONS. THE CONTRACTOR SHALL ALLOW 3 WORKING DAYS FOR THE INSPECTION AND APPROVAL OF THE PREMARKINGS PRIOR TO PLACING THE PERMANENT MARKINGS.
- 16. THE CONTRACTOR SHALL SUBMIT ANY REQUESTS FOR TEMPORARY "NO PARKING" RESTRICTIONS TO THE ENGINEER AT LEAST 3 WORKING DAYS PRIOR TO THE DESIRED ONSET OF RESTRICTIONS.
- 17. THE CONTRACTOR SHALL PRESERVE ALL BUS STOPS, INCLUDING MAINTAINING ADEQUATE ACCESS THROUGH AND ADJACENT TO THE CONSTRUCTION FOR BUSES AND THEIR PASSENGERS. THE CONTRACTOR SHALL NOT CLOSE, RELOCATE, OR OTHERWISE MODIFY A BUS STOP WITHOUT PRIOR REQUEST OF THE ENGINEER TYPICALLY ANY RELOCATION OR CLOSURE OF A BUS STOP WILL REQUIRE AT LEAST TWO WEEKS ADVANCE NOTICE FOR COORDINATION WITH THE COUNTY'S BUS STOP COORDINATOR.
- 18. WHEN CONDITIONS WARRANT DUE TO TRAFFIC VOLUMES, PATTERNS, OR SPECIAL EVENTS, THE COUNTY MAY SUSPEND OR OTHERWISE DIRECT THE CONTRACTOR'S ACTIVITIES TO PROTECT THE PUBLIC AND OR THE COUNTY'S TRANSPORTATION NETWORK.

WATER DISTRIBUTION, STORM, AND SANITARY SEWER SYSTEMS

- 19. UNLESS OTHERWISE DIRECTED, CONTRACTORS ARE EXPRESSLY PROHIBITED FROM OPERATING ANY WATER VALVES OR APPURTENANCES. CONTRACTORS SHALL SUBMIT ALL REQUESTS FOR VALVE OPERATIONS TO THE ENGINEER AT LEAST 3 WORKING DAYS IN ADVANCE OF THE REQUIRED OPERATION.
- 20. IN THE EVENT OF A WATER OR SEWER EMERGENCY, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COUNTY'S WATER CONTROL CENTER AT 703-228-6555 AND THE ENGINEER.

21. STORM OR SANITARY SEWERS AND APPURTENANCES TO BE ABANDONED SHALL BE EXCAVATED AND REMOVED, OR ABANDONED AS DETAILED IN THE COUNTY'S STANDARDS AND SPECIFICATIONS.

WORK WITHIN A VDOT RIGHT OF WAY

- 22. WHEN REQUIRED FOR THE WORK, AN APPROVED VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) PERMIT WILL BE PROVIDED BY THE COUNTY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADHERING TO AND IMPLEMENTING ALL PERMIT REQUIREMENTS.
- 23. THE CONTRACTOR SHALL HAVE AT LEAST ONE EMPLOYEE ON-SITE CERTIFIED BY VDOT IN BASIC WORK ZONE TRAFFIC CONTROL AND WILL BE RESPONSIBLE FOR THE PLACEMENT MAINTENANCE AND REMOVAL OF WORK ZONE TRAFFIC COTROL DEVICES WITHIN THE PROJECT LIMITS IN COMPLIANCE WITH THE PERMIT REQUIREMENTS AND CONDITIONS, THE APPROVED PLANS, SPECIFICATIONS. THE VIRGINIA WORK AREA PROTECTION MANUAL AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
- 24. THE CONTRACTOR SHALL HAVE AT LEAST ONE EMPLOYEE ON-SITE WHO HAS COMPLETED VDOT EROSION AND SEDIMENT CONTROL CONTRACTOR CERTIFICATION TRAINING AND WILL BE RESPONSIBLE FOR INSURING COMPLIANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS DURING ALL LAND DISTURBANCE ACTIVITIES.



DEPARTMENT OF **ENVIRONMENTAL SERVICES**

Engineering & Capital Projects Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606

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DATE

APPROVALS

DESIGN TEAM SUPERVISOR

CONSTRUCTION MANAGEMENT SUPERVISOR

WATER, SEWER STREETS BUREAU CHIEF

TRANSPORTATION DIRECTOR

REVISIONS DATE

90 Mije

Designed: KRL Drawn: KRL Checked: ACO Miss Utility Transmittal #:

Filename: 2 GENERAL NOTES.dwg

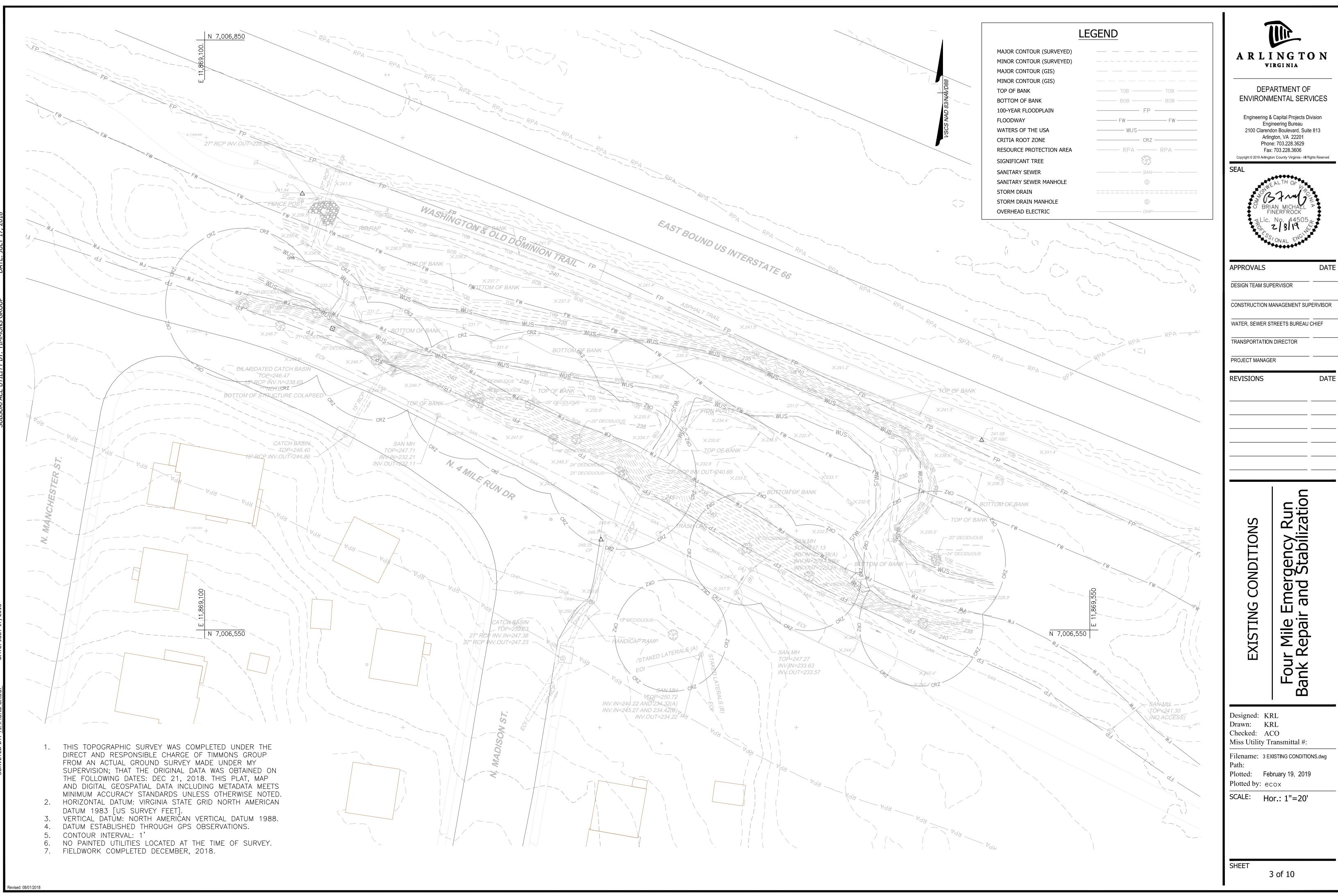
Plotted: February 19, 2019 Plotted by: ecox

SCALE: N.T.S

SHEET

2 of 10

COORDINATE WITH DES - TRANSIT BUREAU AT 703-228-3049 AT LEAST 4 WEEKS PRIOR TO COMMENCEMENT OF WORK IF TRANSIT IS AFFECTED OR IF THERE ARE ANY IMPACTS TO TRANSIT STOPS OR ROUTES. IN THE CASE OF ANY SHELTER REMOVAL, PARTS SHOULD BE TRANSFERRED TO THE SHIRLINGTON STORAGE LOT. NOTE: ALL TEMPORARY AND FINAL BUS TRAVEL LANES MUST BE MINIMUM 11' WIDE.



ARLINGTON



EROSION AND SEDIMENT CONTROL LEGEND

LIMIT OF DISTURBANCE ∞ SAND BAG DIVERSION SUPER SILT FENCE _____ SSF ____ DEWATERING DEVICE PUMP AND PIPING STABILIZED CONSTRUCTION

ENTRANCE

GENERAL EROSION AND SEDIMENT CONTROL NOTES

- 1. UNLESS OTHERWISE INDICATED. ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS 4VAC50-30 EROSION AND SEDIMENT CONTROL REGULATIONS.
- 2. THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE. ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY. AND ONE WEEK PRIOR TO THE FINAL INSPECTION.
- 3. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.
- 4. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
- 5. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
- 6. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.
- 7. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
- 8. DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
- 9. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY
- 10. ALL STORM AND SANITARY SEWER LINES NOT IN STREETS ARE TO BE MULCHED AND SEEDED WITHIN 5 DAYS AFTER BACKFILL. NO MORE THAN 500 FEET ARE TO BE OPEN AT ANY ONE TIME.
- 11. ELECTRIC POWER, TELEPHONE AND GAS SUPPLY TRENCHES ARE TO BE COMPACTED, SEEDED AND MULCHED WITHIN 5 DAYS OF BACKFILL.
- 12. ANY DISTURBED AREA NOT PAVED, SODDED OR BUILT UPON BY NOVEMBER 1ST, OR DISTURBED AFTER THAT DATE, SHALL BE MULCHED WITH HAY OR STRAW AT THE RATE OF 2 TONS PER ACRE AND OVER-SEEDED NO LATER THAN MAY 15TH.
- 13. AT THE COMPLETION OF THE CONSTRUCTION PROJECT AND PRIOR TO BOND RELEASE, ALL TEMPORARY SEDIMENT CONTROLS SHALL BE REMOVED AND ALL DENUDED AREAS SHALL BE STABILIZED. ARLINGTON COUNTY INSPECTOR TO APPROVE REMOVAL OF ALL TEMPORARY SILTATION MEASURES.
- 14. PROTECT TREES DURING CONSTRUCTION OF PROPOSED WORK AS SHOWN. CALL URBAN FORESTER (702-228-1863) PRIOR TO BEGINNING WORK ADJACENT TO TREE. PROCEED WITH WORK AS DIRECTED BY THE ENGINEER IF ANY CONFLICT ARISES WITH PROPOSED WORK.

GENERAL LAND CONSERVATION NOTES

- 1. NO DISTURBED AREA WILL REMAIN DENUDED FOR MORE THAN 7 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY THE DIRECTOR OR HIS AGENT.
- 2. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN GRADING. FIRST AREAS TO BE CLEARED ARE TO BE THOSE REQUIRED FOR THE PERIMETER CONTROLS.
- 3. ALL STORM AND SANITARY SEWER LINES NOT IN STREETS ARE TO BE MULCHED AND SEEDED WITHIN 5 DAYS AFTER BACKFILL. NO MORE THAN 500 FEET ARE TO BE OPEN AT ANY ONE TIME.
- 4. ELECTRIC POWER, TELEPHONE AND GAS SUPPLY TRENCHES ARE TO BE COMPACTED, SEEDED AND MULCHED WITHIN 5 DAYS OF BACKFILL.
- 5. ALL TEMPORARY EARTH BERMS, DIVERSIONS AND SEDIMENT CONTROL DAMS ARE TO BE MULCHED AND SEEDED FOR TEMPORARY VEGETATIVE COVER IMMEDIATELY AFTER GRADING. STRAW OR HAY MULCH IS REQUIRED. THE SAME APPLIES TO ALL SOIL STOCKPILES.
- 6. DURING CONSTRUCTION, ALL STORM SEWER INLETS WILL BE PROTECTED BY INLET PROTECTION DEVICES. MAINTAINED AND MODIFIED AS REQUIRED BY CONSTRUCTION
- 7. ANY DISTURBED AREA NOT COVERED BY NOTE # 1 ABOVE AND NOT PAVED, SODDED OR BUILT UPON BY NOVEMBER 1ST, OR DISTURBED AFTER THAT DATE, SHALL BE MULCHED WITH HAY OR STRAW AT THE RATE OF 2 TONS PER ACRE AND OVER-SEEDED NO LATER THAN MAY 15TH.
- 8. AT THE COMPLETION OF THE CONSTRUCTION PROJECT AND PRIOR TO BOND RELEASE. ALL TEMPORARY SEDIMENT CONTROLS SHALL BE REMOVED AND ALL DENUDED AREAS SHALL BE STABILIZED. ARLINGTON COUNTY INSPECTOR TO APPROVE REMOVAL OF ALL TEMPORARY SILTATION MEASURES.

POLLUTION PREVENTION NOTES

- 1. ONLY THE FOLLOWING NON-STORMWATER DISCHARGES ARE AUTHORIZED BY ARLINGTON COUNTY'S MS4 PERMIT, UNLESS THE STATE WATER CONTROL BOARD, THE VIRGINIA SOIL AND WATER CONSERVATION BOARD (BOARD), OR ARLINGTON COUNTY DETERMINES THE DISCHARGE TO BE A SIGNIFICANT SOURCE OF POLLUTANTS TO SURFACE WATERS, WATER LINE FLUSHING; LANDSCAPE IRRIGATION; DIVERTED STREAM FLOWS; RISING GROUND WATERS; UNCONTAMINATED GROUND WATER INFILTRATION (AS DEFINED AT 40 CFR 35.2005(20)); UNCONTAMINATED PUMPED GROUND WATER; DISCHARGES FROM POTABLE WATER SOURCES; FOUNDATION DRAINS; AIR CONDITIONING CONDENSATION; IRRIGATION WATER; SPRINGS; WATER FROM CRAWL SPACE PUMPS; FOOTING DRAINS; LAWN WATERING; INDIVIDUAL RESIDENTIAL CAR WASHING; FLOWS FROM RIPARIAN HABITATS AND WETLANDS; DECHLORINATED SWIMMING POOL DISCHARGES; DISCHARGES OR FLOWS FROM FIRE FIGHTING: AND. OTHER ACTIVITIES GENERATING DISCHARGES IDENTIFIED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY AS NOT REQUIRING VPDES AUTHORIZATION.
- 2. APPROPRIATE CONTROLS MUST BE IMPLEMENTED TO PREVENT ANY NON-STORMWATER DISCHARGES NOT INCLUDED ON THE ABOVE LIST (E.G., CONCRETE WASH WATER, PAINT WASH WATER, VEHICLE WASH WATER, DETERGENT WASH WATER, ETC.) FROM BEING DISCHARGED INTO ARLINGTON COUNTY'S MS4 SYSTEM, WHICH INCLUDES THE CURB AND GUTTER SYSTEM, AS WELL AS CATCH BASINS AND OTHER STORM DRAIN INLETS, OR STREAM NETWORK.
- 3. PER CHAPTER 26 OF THE ARLINGTON COUNTY CODE, IT SHALL BE UNLAWFUL FOR ANY PERSON TO DISCHARGE DIRECTLY OR INDIRECTLY INTO THE STORM SEWER SYSTEM OR STATE WATERS. ANY SUBSTANCE LIKELY. IN THE OPINION OF THE COUNTY MANAGER, TO HAVE AN ADVERSE EFFECT ON THE STORM SEWER SYSTEM OR STATE WATERS.

PROJECT DESCRIPTION:

THIS EMERGENCY BANK STABILIZATION PROJECT SHALL CONSIST OF INSTALLING 200' ± CLASS II RIP RAP ALONG THE OUTER CURVE OF FOUR MILE RUN IN ORDER TO STABILIZE THE FAILING BANK AND PREVENT THE UNDERMINING OF THE WASHINGTON AND OLD DOMINION TRAIL (W&OD TRAIL). THE PROJECT SITE AREA IS 0.37 ACRES.

EXISTING SITE CONDITIONS:

THE EXISTING SITE HAS MODERATE TO STEEP GRADES ALONG FOUR MILE RUN, WITH NEARLY VERTICAL SLOPES ALONG THE FAILING BANK ADJACENT TO THE W&OD TRAIL. THE SITE IS COMPRISED OF ARLINGTON COUNTY PARK, THE W&OD TRAIL, AND THE FOUR MILE RUN TRAIL, SURROUNDED BY RESIDENTIAL LOTS TO THE SOUTH AND I-66 TO THE NORTH. ONSITE WATER DRAINS TO FOUR MILE RUN. PROJECT AREA IS CONVEYED THROUGH SURFACE FLOW AND STREAM FLOW.

ADJACENT PROPERTY:

THE ADJACENT PROPERTIES CONSIST OF RESIDENTIAL USE AND TRANSPORTATION WITH SEVERAL RESIDENTIAL PROPERTIES LOCATED ADJACENT TO FOUR MILE RUN TRAIL TO THE SOUTH AND I-66 TO THE NORTH. THE PROJECT ACCESS ROAD IS WITHIN THE FOUR MILE RUN TRAIL PARK AREA DIRECTLY ADJACENT TO RESIDENTIAL LOTS. STORM DRAIN SYSTEMS CONVEYING RUNOFF FROM ADJACENT RESIDENTIAL AREAS OUTFALL AT SEVERAL POINTS ALONG THE STREAM. THE LAND COVER WITHIN THE PROJECT IS PRIMARILY PERVIOUS WITH SOME IMPERVIOUS.

OFF-SITE AREAS:

SOIL STOCKPILES (AS NEEDED) SHALL BE KEPT OFF-SITE TO STAY CLEAR OF ALL CONSTRUCTION ACTIVITY. THE STOCKPILES WILL BE STABILIZED WITH TEMPORARY VEGETATION TO PREVENT SOIL LOSS AND SEDIMENT TRANSPORT FROM THE STOCKPILE ITSELF UNTIL NEEDED. PRIOR TO LAND-DISTURBING ACTIVITIES, THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY E&S PLAN TO THE OWNER COVERING THE OFF-SITE STOCKPILE AREA WHICH MUST BE APPROVED BY THE PLAN APPROVING AUTHORITY BEFORE ANY OFF-SITE ACTIVITY COMMENCES.

CRITICAL EROSION AREAS:

AS THE PROJECT CONSISTS OF IN-STREAM WORK, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CLOSELY MONITORED THROUGHOUT THE PROJECT.

LAND DISTURBANCE:

AS THE PROJECT CONSISTS OF IN-STREAM WORK, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CLOSELY MONITORED THROUGHOUT THE PROJECT

EROSION AND SEDIMENT CONTROL MEASURES:

UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE HANDBOOK. THE MINIMUM STANDARDS OF THE VESCH SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY A VARIANCE.

STRUCTURAL PRACTICES:

THE EROSION AND SEDIMENT CONTROL MEASURES FROM THIS PROJECT AREA INCLUDE SUPER SILT FENCE (VESCH ST'D. 3.05), SAFETY FENCE (VESH ST'D. 3.01), INLET PROTECTION (VESCH ST'D. 3.07), DEWATERING DEVICE (VESH ST'D 3.26), CONSTRUCTION ENTRANCE (VESH ST'D. 3.02) AND TREE PROTECTION (ARLINGTON COUNTY).

- <u>DEWATERING BASIN VESCH ST'D. 3.26:</u> A TEMPORARY SEDIMENT AND FILTERING DEVICE FOR WATER WHICH IS DISCHARGED FROM DEWATERING ACTIVITIES. DEWATERING BASIN WILL BE PLACED AS NEEDED AT THE DISCRETION OF THE CONTRACTOR. IN LIEU OF DEWATERING BASIN SHOWN IN DETAILS ON SHEET 4A, AN ALTERNATIVE OPTION FROM THE ARLINGTON COUNTY PLANNING & FIELD GUIDE FOR POLLUTION PREVENTION MAY BE
- 2. <u>CONSTRUCTION ENTRANCE VESH ST'D. 3.02</u>: CONSTRUCTION ENTRANCE LOCATION AS SHOWN IN PLANS IS FINAL. CONSTRUCTION ENTRANCE WILL CONFORM TO VDOT STANDARDS. WASH RACK REQUIRED. SEE E&S DETAIL SHEET 4B FOR SPECIFIC DESIGN CRITERIA.
- 3. TREE PROTECTION: THIS PROJECT HAS PROTECTION THAT INVOLVES PRESERVING TRUNK, CANOPY, AND ROOTS TO THE MAXIMUM EXTENT POSSIBLE. SEE DETAILS AND NOTES O SHEET 5A FOR SPECIFIC DESIGN
- 4. SUPER SILT FENCE- VESH ST'D. 3.05: SUPER SILT FENCE SHALL BE USED ON THE DOWN-GRADE SIDE OF THE STAGING AREA, TO PREVENT SEDIMENT FROM LEAVING THE LIMITS OF WORK, AS WELL AS ALONG THE TRAIL TO THE
- 5. <u>SAFETY FENCE VESH ST'D. 3.01:</u> SAFETY FENCE SHALL BE USED AROUND THE STAGING AREA AND CONSTRUCTION ENTRANCE, AS WELL AS ALONG THE TRAIL TO THE STREAM TO HELP SECURE THE PROJECT SITE.
- 6. <u>SANDBAG DIVERSION— ARLINGTON COUNTY 5.2:</u> SANDBAG DIVERSIONS WILL BE USED FOR IN—STREAM WORK TO CREATE DRY WORKSPACE. DEWATERING BASINS WILL BE USED IN CONJUNCTION WHERE NECESSARY. SEE DETAIL ON SHEET 4B.

PERMANENT STABILIZATION:

ALL OF THE AREA DISTURBED WITH THIS PLAN SHALL BE PERMANENTLY STABILIZED WITH NATIVE GRASS SEEDING. ALL UNPAVED AREAS WILL BE STABILIZED WITH GRASS OR MULCH.

STORMWATER RUNOFF CONSIDERATIONS:

EXISTING DRAINAGE PATTERNS SHOULD BE MAINTAINED DURING CONSTRUCTION.

EROSION & SEDIMENT CONTROL PROGRAM:

THE EROSION CONTROL PLAN IS INTENDED TO ESTABLISH ENTRANCES AND PERIMETER CONTROL MEASURES WHICH INCLUDES SILT FENCE.

- 7. THE SEDIMENT MEASURES ARE INTENDED TO PROVIDE CONTROL DURING THE FINAL STAGES OF IMPROVEMENTS. IT IS ANTICIPATED THAT PHASE-ONE CONTROLS WILL REMAIN IN PLACE UNTIL THEIR REMOVAL IS REQUIRED TO CONSTRUCT THE PROPOSED IMPROVEMENTS.
- 8. NO DISTURBED AREA WILL REMAIN DENUDED FOR MORE THAN 7 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY ARLINGTON COUNTY.
- 9. WHERE CONSISTENT WITH JOB SAFETY REQUIREMENTS, ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES. NO

MATERIAL SHALL BE PLACED IN STREAMBEDS. ANY STOCKPILED MATERIAL WHICH WILL REMAIN IN PLACE LONGER THAN 14 DAYS SHALL BE SEEDED AND MULCHED. WHEN SPOIL IS PLACED ON THE DOWNHILL SIDE OF TRENCH, IT SHALL BE BACKSLOPED TO DRAIN TOWARD THE TRENCH. WHEN NECESSARY TO DEWATER THE TRENCH, THE PUMP DISCHARGE HOSE SHALL OUTLET IN A STABILIZED AREA OR A SEDIMENT TRAPPING DEVICE. DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.

- 10. DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
- 11. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN GRADING. FIRST AREAS TO BE CLEARED ARE TO BE THOSE REQUIRED FOR THE PERIMETER CONTROLS.
- 12. DURING CONSTRUCTION, ALL STORM SEWER INLETS WILL BE PROTECTED BY INLET PROTECTION DEVICES, MAINTAINED AND MODIFIED AS REQUIRED BY CONSTRUCTION PROGRESS.
- 13. THE CONTRACTOR SHALL TAKE THE FOLLOWING STEPS TO MINIMIZE THE VOLUME OF SILT:
- A. CONTRACTOR SHALL EVALUATE THE SITE TO DETERMINE EXTENSIVE CUT AND FILL AREAS, AND SHALL WORK THOSE AREAS TO MINIMIZE THE EXTENT OF HEAVY EQUIPMENT WORK. CONTRACTOR SHALL STRIVE TO BRING AREAS TO GRADE (ROUGH OR FINISH) AND TO STABILIZE, BY TEMPORARY OR PERMANENT VEGETATION, THESE DISTURBED AREAS PRIOR TO BEGINNING WORK IN ANOTHER AREA.
- B. FILL AREAS SHALL BE COMPACTED COMPLETELY PRIOR TO THE END OF EACH WORK DAY. FILL SLOPE SURFACES SHALL BE LEFT ROUGHENED TO REDUCE SHEET EROSION OF THE SLOPES. CONTRACTOR SHALL RE-DIRECT CONCENTRATED RUNOFF, BY EARTH BERMS OR OTHER DEVICES, AROUND ACTIVELY DISTURBED AREAS TO STABILIZED OUTLETS.
- C. CUT SLOPE, AS NECESSARY, SHALL BE PROTECTED FROM CONCENTRATED FLOW BY BERMS ABOVE THE SLOPE AND DIRECTED AROUND THE DISTURBED AREA TO STABILIZED OUTLETS.
- D. IN NEW PAVEMENT AREAS, PLACE THE AGGREGATE BASE STONE ON THE FINISH SUBGRADE AT THE EARLIEST POSSIBLE TIME.

MAINTENANCE PROGRAM:

THE FOLLOWING IS A PROGRAM OF MAINTENANCE FOR THE CONTROLS SPECIFIED IN THIS PLAN:

- 1. THE SITE SUPERINTENDENT OR HIS/HER REPRESENTATIVE SHALL MAKE A VISUAL INSPECTION OF ALL CONTROLS AND NEWLY STABILIZED AREAS (I.E. SEEDED AND MULCHED AREAS) ON A DAILY BASIS; ESPECIALLY AFTER A HEAVY RAINFALL EVENT TO INSURE THAT ALL CONTROLS ARE MAINTAINED AND PROPERLY FUNCTIONING. ANY DAMAGED CONTROLS SHALL BE REPAIRED PRIOR TO THE END OF THE WORK DAY INCLUDING RE-SEEDING AND MULCHING IF NECESSARY.
- 2. ALL SEDIMENT TRAPPING DEVICES SHALL BE CLEARED OUT AT 50% TRAP CAPACITY AND THE SEDIMENT SHALL BE DISPOSED OF BY SPREADING ON THE SITE OR IF NOT SUITABLE FOR FILL, HAULING AWAY, AND DEPOSITING AT AN ACCEPTABLE DUMP SITE.
- 3. THE CONTRACTOR SHALL TAKE SPECIAL CARE TO PREVENT MUD AND/OR OTHER DEBRIS FROM BEING ENTERED ONTO EXISTING SWM/BMP FACILITIES OR DOWN STREAM WATER WAYS. SHOULD OFF SITE AREAS BECOME POLLUTED BY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING THE EFFECTED AREAS TO THE SATISFACTION OF THE INSPECTOR.
- 4. AFTER CONSTRUCTION OPERATIONS HAVE ENDED, ALL DISTURBED AREAS SHALL BE STABILIZED. UPON APPROVAL OF THE COUNTY INSPECTOR, SEDIMENT CONTROLS SHALL BE REMOVED AND THE GROUND PERMANENTLY STABILIZED WITH VEGETATION WITHIN 30 DAYS.

TEMPORARY SEEDING - VESCH ST'D. 3.31:

TEMPORARY SEEDING, SEEDING RATES AND DATES SHALL CONFORM TO COASTAL PLAIN REQUIREMENTS DETAILED IN TABLE 3.31-B OF THE VESCH. LIMING SHALL BE BASED ON TABLE 3.31-B OF VESCH. FERTILIZERS SHALL BE APPLIED AS 600 LB/ACRE. THE FERTILIZER SHALL BE INCORPORATED INTO THE TOP 2"-4" OF SOIL. SEED SHALL BE EVENLY APPLIED AND SMALL GRAINS SHALL BE PLANTED NO MORE THAN 1.5" DEEP. SEEDING MADE IN FALL FOR WINTER COVER AND DURING HOT SUMMER MONTHS SHALL BE MULCHED.

PERMANENT SEEDING (TURF) - VESCH ST'D. 3.32:

PERMANENT SEEDING (TURF). SEEDING RATES AND DATES SHALL CONFORM TO COASTAL PLAIN REQUIREMENTS DETAILED IN TABLE 3.32-E OF THE VESCH. IF SOD IS TO BE USED LIEU OF PERMANENT SEEDING (TURF), REFERENCE SODDING NOTE BELOW. FOR SEEDING WITHIN THE RPA USE METHODS AND SPECIES LISTED IN SECTION 4.0 OF THE SWPPP.

SODDING - VESCH ST'D. 3.33:

SODDED AREAS SHALL BE BROUGHT TO FINAL GRADE IN ACCORDANCE WITH THE APPROVED PLANS. SOIL TEST SHOULD BE MADE TO DETERMINE THE EXACT REQUIREMENTS FOR LIME AND FERTILIZER. PRIOR TO LAYING SOD, SOIL SURFACE SHALL BE CLEAR OF TRASH, DEBRIS AND LARGE OBJECTS. QUALITY OF SOD SHALL BE STATE CERTIFIED AND ENSURE GENETIC PURITY. SOD SHALL NOT BE LAID IN EXCESSIVELY WET OR DRY WEATHER OR ON FROZEN GROUND. SOD SHALL BE INSTALLED PER PAGE III-339 OF THE VESCH, WITHIN 36 HOURS OF DELIVERY.

<u>DUST_CONTROL - VESCH_ST'D. 3.39:</u>

DUST SHALL BE CONTROLLED. DUST CONTROL METHODS INCLUDE VEGETATIVE COVER, MULCH, TILLAGE, IRRIGATION, SPRAY-ON ADHESIVES, STONE, BARRIERS, AND CALCIUM CHLORIDE. DUST CONTROL METHODS SHALL BE INSTALLED PER SECTION 3.39 OF VESCH.



DEPARTMENT OF ENVIRONMENTAL SERVICES

Engineering & Capital Projects Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629

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DATE **APPROVALS**

DESIGN TEAM SUPERVISOR

CONSTRUCTION MANAGEMENT SUPERVISOR

WATER, SEWER STREETS BUREAU CHIEF

PROJECT MANAGER

TRANSPORTATION DIRECTOR

DATE REVISIONS

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Filename: 4 EROSION & SEDIMENT CONTROL NOTES & DETAILS.dwg

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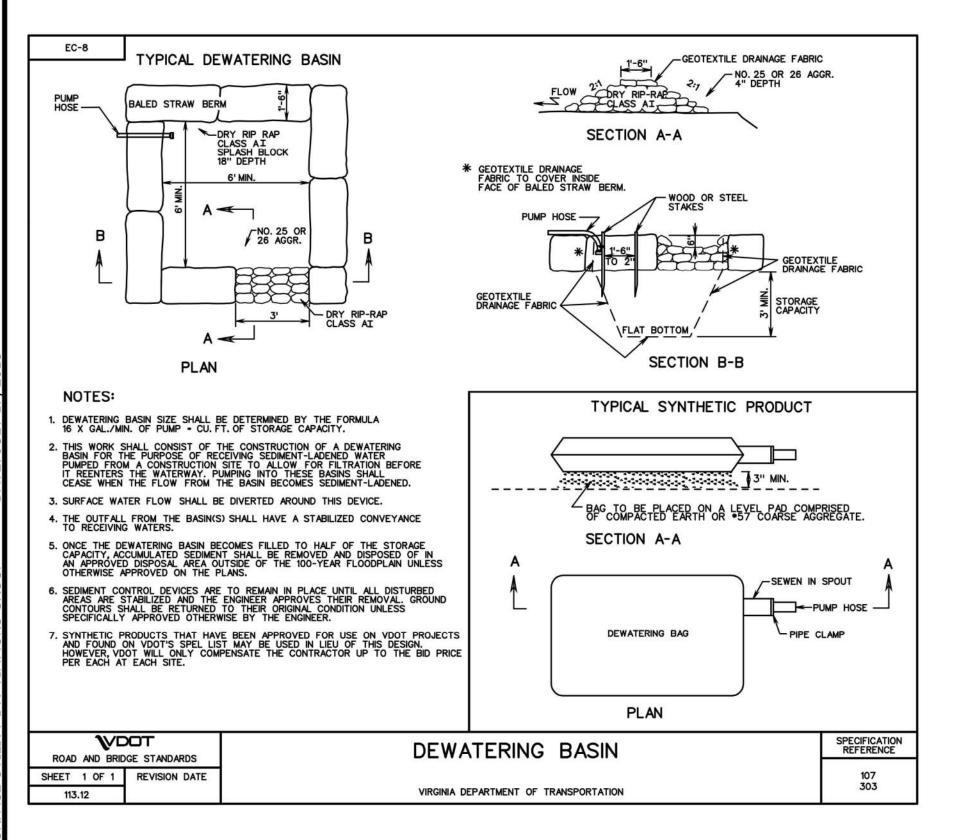
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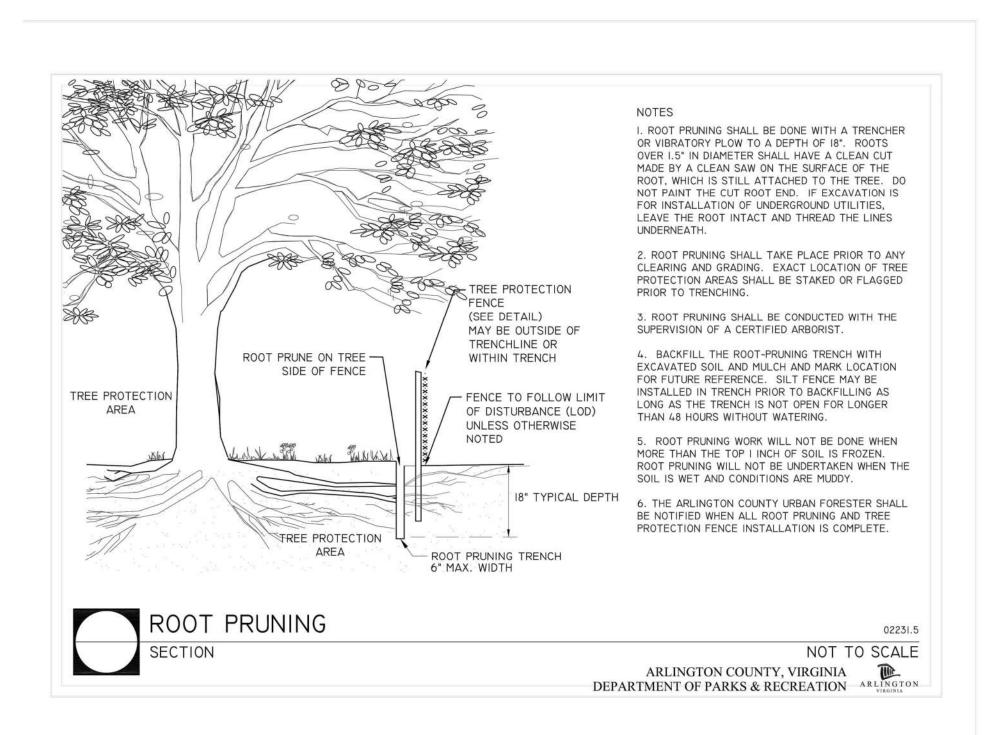
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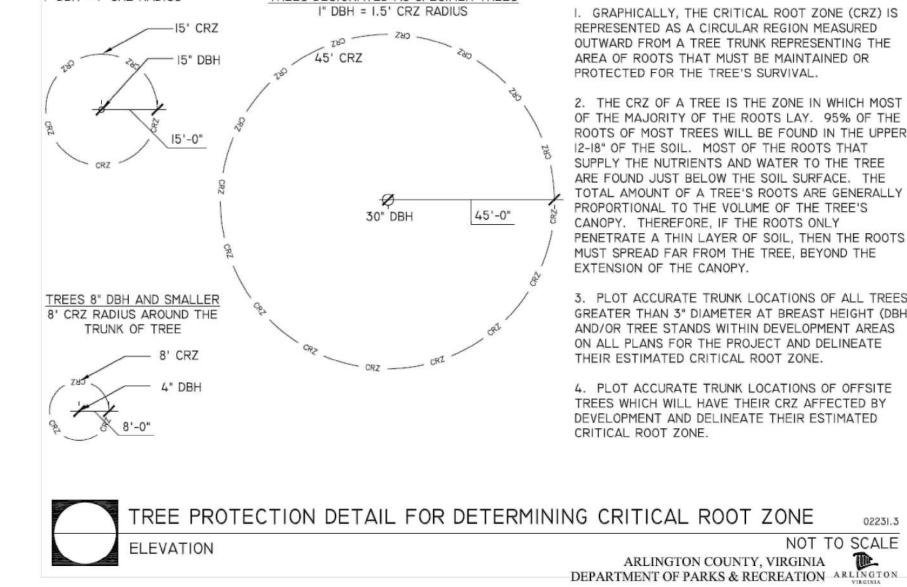
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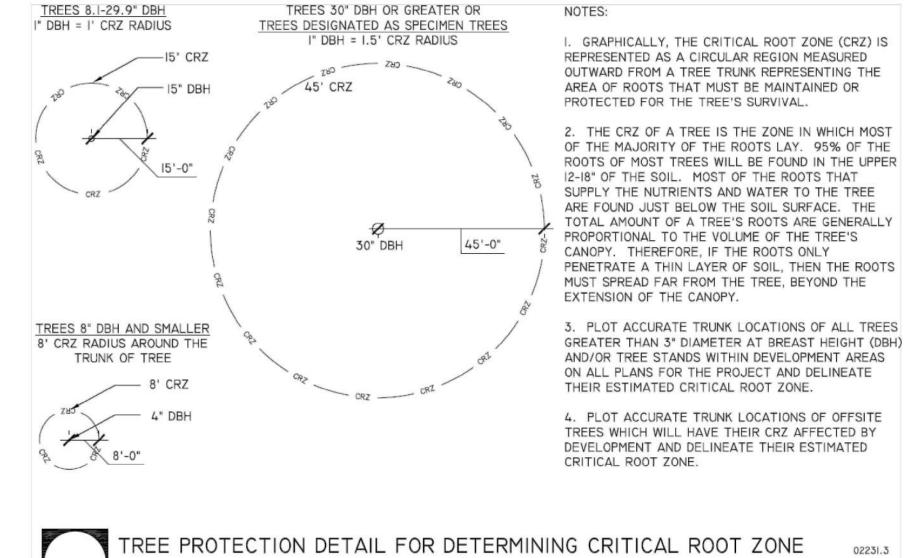
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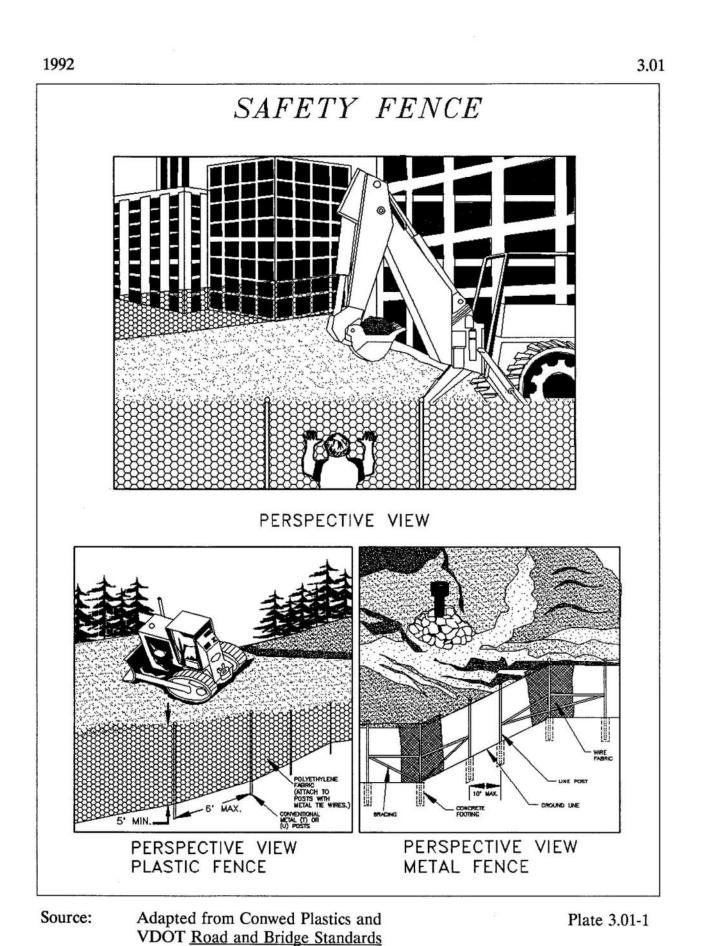
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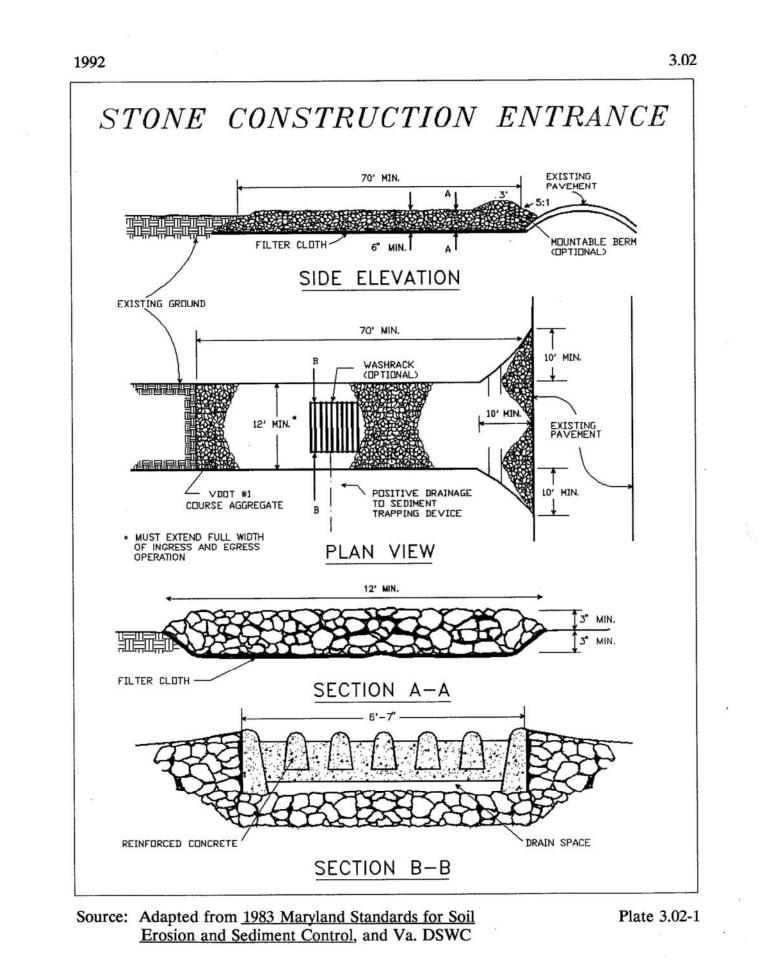


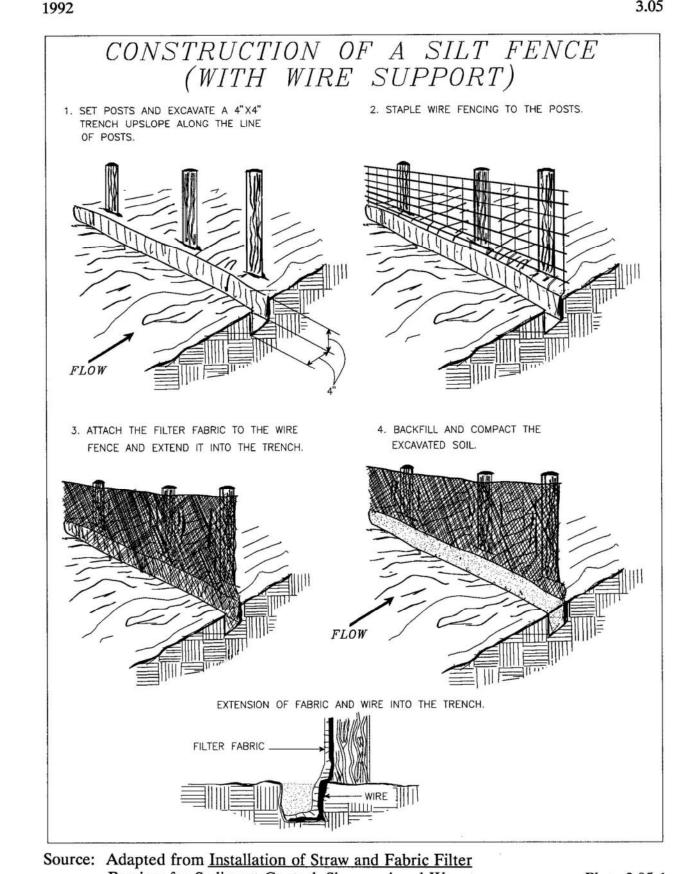






III - 5





Barriers for Sediment Control, Sherwood and Wyant Plate 3.05-1

5 of 10

III - 9

III - 24

Mile Run Emergency epair and Stabilization CONTROL SEDIMENT (

ARLINGTON VIRGINIA

DEPARTMENT OF

ENVIRONMENTAL SERVICES

Engineering & Capital Projects Division

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FINERFROCK

CONSTRUCTION MANAGEMENT SUPERVISOR

WATER, SEWER STREETS BUREAU CHIEF

DATE

DATE

SEAL

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DESIGN TEAM SUPERVISOR

TRANSPORTATION DIRECTOR

PROJECT MANAGER

REVISIONS

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Filename: 5 EROSION & SEDIMENT CONTROL NOTES & DETAILS.dwg

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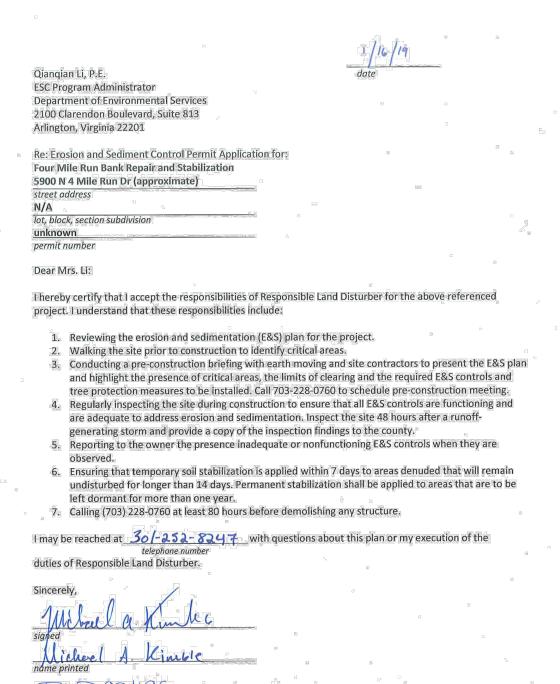
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N.T.S. SCALE:

SHEET

The Virginia Stream Restoration & Stabilization Best Management Practices Guide

RESPONSIBLE LAND DISTURBER FORM



SEEDING SPECIFICATIONS

	<u>SEED</u>	
APPLICATION DATE	S SPECIES	APPLICATION RATES
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (Iolium multi- florum) & Cereal (Winter) Rye (Secale cereale)	50 -100 (lbs/acre)
Feb. 16 - Apr. 30	Annual Ryegrass (Iolium multi-florum)	60 - 100 (lbs/acre)
May 1 - Aug. 31	German Millet	50 (lbs/acre)
	FERTILIZER & LIME	
	FERTILIZER & LIME	

4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/e&s.htm#pubs

-WELDED CONNECTIONS, TYP.

ELEVATION

FINISHED GRADE

- SHOULDER (PREFERABLE 2' WIDTH)

with geotextile fabric to ensure

casing until concrete is poured

Note: Foundation form to be comprised of

corrugated metal pipe, temporarily capped

construction debris does not enter empty

EROSION AND SEDIMENT CONTROL ARLINGTON COUNTY PRE-STORM EROSION AND SEDIMENT CONTROL CHECKLIST

Pre-Storm Erosion and Sediment Control Checklist

Per Erosion and Sediment Control General Note 6, the Contractor is responsible for the installation and maintenance of any additional erosion and sediment control (ESC) measures necessary to prevent erosion and sedimentation as determined by the County. These supplementary practices are in addition to those shown in an ESC plan. ESC practices shall be modified as needed to ensure only clear water is discharged from the site.

The following actions shall be taken <u>prior to storm events with predicted heavy and/or large volume</u> rainfall to prevent sediment discharges from a construction site. A typical summer thunderstorm is an example of a storm event with predicted heavy and/or large volume rainfall.

Perimeter controls

- ☐ Silt fence shall be checked for undermining, holes, or deterioration of the fabric. Fencing shall be replaced immediately if the fabric is damaged or worn. Silt fence must be trenched into the ground per state specifications (Std & Spec 3.09).
- ☐ Wooden stakes or steel posts shall be properly secured upright into the ground. Damaged posts or stakes must be replaced.
- ☐ Sediment that has accumulated against the silt fence should be removed. Accumulated sediment must be removed when the level reaches one-half the height of the fencing.
- ☐ Hay bales or a stone berm should be placed across the construction entrance to prevent sediment from leaving the construction site.

Exposed slopes and soil

- ☐ Exposed slopes not at the final stabilization phase shall be covered with tarps, plastic sheeting, or erosion control matting. Covering material shall be properly secured/anchored.
- ☐ Controls shall be installed to prevent concentrated flow down an exposed slope. Berms or diversion dikes shall be installed at the top of cut / exposed slopes to direct storm flow around the disturbed area.
- ☐ Exposed slopes at the final stabilization phase shall be stabilized using slope stabilization practices such as soil stabilization blankets or matting as specified in the Virginia Erosion and Sediment Control Handbook (VESCH) Std & Spec 3.36. Blankets or mats must be properly secured and anchored to the slope using staples, pins, or stakes.
- ☐ Seeded areas shall be checked and reseeded as necessary to cover exposed soil. Recently seeded areas shall be protected by straw or soil stabilization blankets to prevent seeding from being washed away.

-1 1/2" OD. EXTRA STRONG PIPE FOR POSTS

-1 3/8" O.D. STANDARD PIPE FOR RAILS

<u>"</u>

PIPE SHALL BE WASHED WITH
PAINT THINNER PRIOR TO PAINTING, THE COATED WITH PRIMER
EQUAL TO #1214 SILATHANE
AS MFR. BY BRUNING AND FINISHED WITH BROWN GLOSS EQUAL
TO #1230 SPILATHANE AS MFG.
BY BRUNING, RAILING SHALL BE
PAINTED PRIOR TO INSTALL ATION

PAINTED PRIOR TO INSTALLATION

Portions of detail

clouded are to be

installed in the future

by Arlington County.

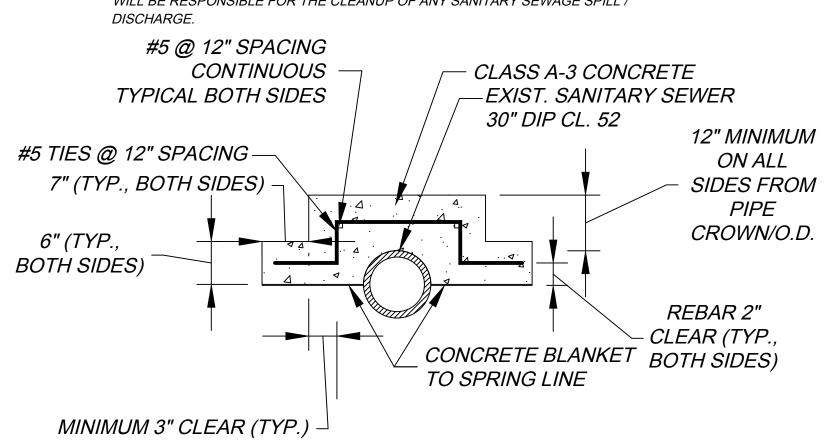
only for future fence.

EQR will install foundation forms ☐ Stockpiled soil and other loose materials that can be washed away shall be covered with a tarp, plastic sheeting, or other stabilization matting. The cover must be properly secured / anchored down to prevent it from being blown off and exposing materials to rain. Controls such as hay bales or booms should be placed along the perimeter of the stock pile (downhill side).

In addition to these pre-storm actions, all erosion and sediment control (ESC) measures must be checked daily and after each significant rainfall.

SANITARY SEWER PROTECTION

- THE SANITARY SEWER LINE THAT TRAVERSES ACROSS THE PROJECT STREAM CORRIDOR SHALL BE PROTECTED FROM DAMAGE DURING ALL CONSTRUCTION OPERATIONS.
- IF REPAIR OR REPLACEMENT OF ANY ASPECT OF THE SANITARY SEWER SYSTEM BECOMES NECESSARY DUE TO DAMAGE RESULTING FROM THE CONTRACTOR'S CONSTRUCTION OPERATION, ALL WORK SHALL CONFORM TO ARLINGTON COUNTY CONSTRUCTION STANDARDS AND SPECIFICATIONS AND BE PERFORMED AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY CONTROLLING AND DIVERTING SEWAGE RELATED TO ANY NECESSARY REPLACEMENT OR REPAIR WORK. THE CONTRACTOR SHALL ALSO MAKE ADEQUATE PROVISIONS TO PROTECT FOUR MILE RUN FROM ANY ACCIDENTAL RELEASES OF SEWAGE.
- 4. IN THE EVENT OF A SPILL OR DISCHARGE, THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY (VADEQ) WITHIN 24 HOURS OF THE SPILL OR DISCHARGE - (804) 698-4000 OR (800) 592-5482 (TOLL FREE IN VIRGINIA).
- THE CONTRACTOR IS ALSO REQUIRED TO CONTACT DIANA HANDY, ARLINGTON COUNTY DES - ASSOCIATE PLANNER AT (703) 228-0772. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE CLEANUP OF ANY SANITARY SEWAGE SPILL /



PROPOSED CONCRETE ENCASEMENT OF SANITARY SEWER (NTS)



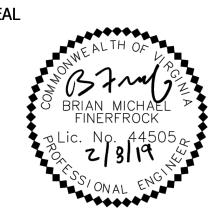
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SEAL



APPROVALS DATE DESIGN TEAM SUPERVISOR CONSTRUCTION MANAGEMENT SUPERVISOR WATER, SEWER STREETS BUREAU CHIEF TRANSPORTATION DIRECTOR

PROJECT MANAGER

DATE

REVISIONS

CONTRO Emergency d Stabilizatior DIMENT & DETAIL

Mile Run E Repair and SE S SION Foul RO Ш

Designed: KRL KRL Drawn: Checked: ACO Miss Utility Transmittal #:

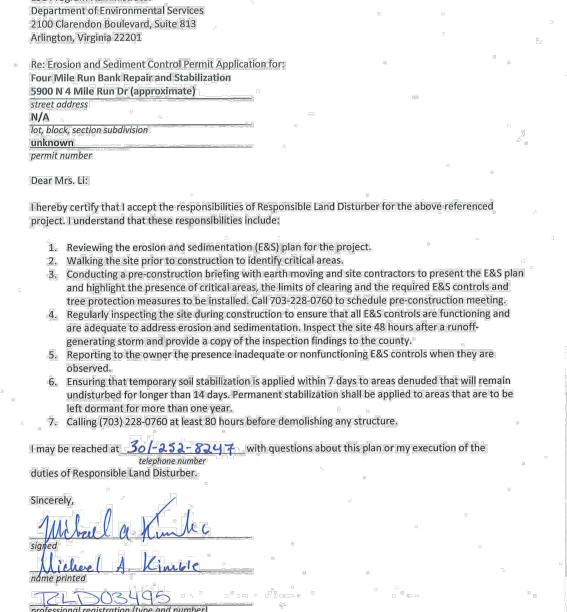
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6 of 10





ARLINGTON COUNTY, VIRGINIA ARTMENT OF ENVIRONMENTAL SERVIO

issued in Permits Plus:

Project Address 5900 N 4 Mile Run Drive, Arlington County, VA 22201			Date: February 2019				
Applicant Name/ Christin Jolicoeur/A Services	Affiliation: rlington County Dept. of Environment	al	Applicant Contact Information (phone and email): 703-228-3588				
Owner/Client Na Arlington County De	me: ept. of Environmental Services		Owner/Client Contact Information (phone and email): 703-228-3629				
Section 1:	Type of activity propo	osed					
Activity type (che	eck all that apply):			74 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -			
	tion (residential, commercial, put	olic. etc.)		atio, or retaining wall			
	non-residential structure		CONTRACTOR CONTRACTOR	aping (includes tree removal)			
☐ Residential ad			☐ Utility w	rork			
☐ Detached res			□ Fence				
□ Detached res	idential structure		☑ Other (p	olease describe): Stream Bank Repair			
Section 2:	Key details of the pro	posed ac	tivity				
Complete all the	at apply			Explanation			
Total area of dist	turbance on parcel (sf)	15,657		Includes building footprint plus a 10 foot buffer. Also includes all soil disturbance, ingress/egres areas, stockpiling areas, etc.			
Area of disturba	nce within RPA (sf)	15,657		Includes removal of trees ≥ 3" in diameter			
	nce on slopes greater than or ent located adjacent to oundary (sf)	2,764		Does not apply to RPA parcels along Chain Bridge Road (15 percent and greater slopes an included as part of RPA)			
Complete all fie	lds	Existing	Proposed condition	Explanation			
	Left third of parcel or site	0	0	The distance (in feet) from the existing or			
RPA encroachment (ft)	Middle third of parcel or site	0	0	proposed structure to the designated RPA feature (edge of stream or open channel, wetland, etc.). Encroachments of zero (0) indicate the project with			
(-7	Right third of parcel or site	0	0	impact the stream or other RPA feature.			
Total developme	ent footprint in RPA (sf)	0	2,443.5	The existing footprint includes the area of any existing structures, patios, decks, walkways, etc. Proposed foorprint is the anticipated post-project area of all structures, additions, decks, walkways regraded area behind a retaining wall, etc.			
Impervious footp	rint in RPA (sf)	0	0	Total area of impervious surfaces within the RP (rooftops, pavement, etc.)			
		(0	VER)				
STAFF USE	ONLY						
Building/demoliti	on/LDA/Fence permit number(s)						
		Dr.					

Stormwater Pollution Prevention Plan Linear / Utility / Right-of-Way Projects (<1 acre and ≥2500 square feet)

Arlington County Department of Environmental Services

Water, Sewer, Streets Bureau

For Construction Activities At:

Project Name: Four Mile Run Bank Repair and Stabilization Project/Site Location: 5900 N 4 Mile Run Drive

Arlington, VA

TOTAL LAND DISTURBANCE AREA: 16,260 SF

Latitude: 38.880594 N (decimal degrees)

Longitude: 77.143056 W (decimal degrees)

Construction Activity Operator:

Name: Christopher Redmon

1 Churchview Road

Millersville, MD 21108 Phone: 410-923-8680

Email: credmon@eqrllc.com

SWPPP Preparation Date:

January 31, 2019

"I certify under penalty of law that I have read and understand this document and that this document and all attachments were prepared in accordance with a system designed to assure that qualified

personnel properly gathered and evaluated the information submitted. Based on my inquiry of the

person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and

complete. I am aware that there are significant penalties for submitting false information, including

the possibility of fine and imprisonment for knowing violations."

CERTIFICATION

Section 3: Plan and Narrative

Provide a plan showing the location of the proposed activity, along with the RPA boundary Briefly describe the proposed project, including any potential water quality impacts and mitigation measuresproposed. The narrative must address three impact categories 1. Tree/vegetation impacts, 2. Stormwater and runoff 3. Erosion and sediment control. Please refer to the WQIA plan/narrative checklist for additional information.

NARRATIVE: SEE WATER QUALITY IMPACT ASSESSMENT NARRATIVE ON

PLAN: LOCATION OF REQUIRED PLAN ELEMENTS PER WATER QUALITY IMPACT ASSESSMENT DATA SHEET PLAN AND NARRATIVE CHECKLIST ARE LISTED IN THE TABLE BELOW

WQIA ELEMENT	SHEET NO.
RPA BOUNDARY	9-10
LIMITS OF DISTURBANCE	9
EXISTING CONDITIONS	3
IMPERVIOUS COVER	N/A
UTILITY PLAN	N/A
SIGNAL PLAN	N/A
DOWNSPOUT LOCATIONS	N/A
EROSION & SEDIMENT CONTROLS	4-9
TREE PROTECTION	4-9
STORMWATER MANAGEMENT PLAN	N/A
LANDSCAPE PLAN	N/A
PLANT LIST	4-8

dditional Water Quality Impact Assessment Information

The information supplied on this form satisfies the minimum requirements for a Minor Water Quality Impact Assessment. For projects that disturb over 2500 square feet, elements of a Major Water Quality Impact Assessment may also be required, depending on the nature and extent of the proposed RPA encroachment, as outlined in Section 61-12 of the ordinance.

WATER QUALITY IMPACT ASSESSMENT (WQIA) NARRATIVE

EXISTING CONDITIONS

THIS PROJECT FALLS ADJACENT TO THE WASHINGTON AND OLD DOMINION (W&OD) TRAIL AND IS REPAIR OF THE NORTHERN STREAM BANK OF FOUR MILE RUN. THIS AREA FALLS BETWEEN MADISON MANOR PARK (TO THE WEST) AND BON AIR PARK (TO THE EAST) ALONG THE W&OD TRAIL. THE CHANNEL OF FOUR MILE RUN WITHIN THE SITE AREA IS UNSTABLE, WITH MODERATE TO SEVERE EROSION PARTICULARLY ALONG THE W&OD TRAIL. THE FLOODPLAIN IS FLAT TO THE NORTH WITH A STEEP SLOPE TO THE SOUTH.

PROPOSED IMPROVEMENTS

THIS PROJECT CONSISTS OF INSTALLATION OF CLASS II RIP RAP REVETMENT TO STABILIZE THE NORTHERN STREAM BANK AT THE W&OD TRAIL. THIS IS AN EMERGENCY MEASURE TO STABILIZED THE EXISTING STREAM BANK AND PREVENT NEAR FUTURE EROSION, WHICH WILL RESULT IN IMPROVING OVERALL WATER QUALITY. PROJECT CONSTRUCTION IS EXPECTED TO BEGIN THE SECOND HALF OF FEBRUARY 2018 AND DURATION IS EXPECTED TO BE FOUR WEEKS.

- DISTURBANCE IS THE MINIMUM REQUIRED FOR WORK: 0.36 ACRES, ALL WITHIN THE RPA.
- ALL POSSIBLE MEASURES TO PROTECT PROTECT WATER QUALITY AND THE EXISTING RPA WILL BE TAKEN DURING CONSTRUCTION, PER THE ESC PLAN.
- NO TREES ARE PROPOSED FOR REMOVAL. MINOR PRUNING WILL OCCUR FOR CONSTRUCTION ACCESS.
- RPA RESTORATION WILL OCCUR, PER SWPPP SPECIFICATIONS IN SECTION 4.0.
- ALL PERMITS NECESSARY FOR THE WORK WILL BE OBTAINED. -USACE NWP13 OBTAINED.

NOTE: PER THE CHESAPEAKE BAY PRESERVATION ORDINANCE, THE WQIA ANALYSIS WILL BE PROVIDED WITH THE LDA SUBMITTAL.

STORMWATER POLLUTION PREVENTION PLAN

1.0 SWPPP Documents Located Onsite & Available for Review

This document, which contains information on erosion and sediment controls and pollution prevention, will be available for review on-site via electronic media (tablet) and/or hard copy kept on-site / in vehicle.

2.0 Authorized Non-Stormwater Discharges

Type of Authorized Non-Stormwater Discharge Likely Present at Your Project Site? Uncontaminated excavation dewatering Landscape irrigation Others [describe]:

3.0 Pollution Prevention Awareness

Employees and contractors will be given a "walk through" of the project / site identifying areas of possible pollution and will be shown Erosion and Sediment Controls and Pollution Prevention Practices (identified in Sections 4.0 and 5.0 of this SWPPP) that are applicable to their assigned job duties. Refresher training will be conducted on an as needed basis.

4.0 Erosion & Sediment Controls

Erosion and Sediment Control Narrative and Notes

Project Description: See erosion and sediment control narrative on Sheet 4 of the associated plan set.

	Installation / repair / maintenance of underground wet utilities – one location
	Installation / repair / maintenance of underground wet utilities – same project at multiple locations
	Replacing road – full reclamation, removal of pavement to bare soil
	Sidewalk or apron – maintenance, repair, replacement of existing pavement
	Sidewalk or apron – new installation
\boxtimes	Other: Stabilize stream bank, Install retaining wall.

This project will involve disturbance in a stream valley, stream channel, and/or other natural area (non-

landscaped, vegetated/wooded area)							
\leq	Location: Four Mile Run, Bank repair and stabilization						

STORMWATER POLLUTION PREVENTION PLAN

Select all that apply	Erosion & Sediment Controls	Description				
	Perimeter Controls	Silt Fence Booms Hay bales Berm Filter Mulch Socks □				
	Inlet Protection	☐ Rock Sock / Stone ☐ Boom ☐ Tarp / Sheeting ☐				
	Stockpile Protection	☐ Plastic cover / tarp ☐ Hay bales ☐ Booms				
\boxtimes	Dewatering	□ Dewatering Bag or Sock □ Dewat				
	Temporary Stabilization/ Seeding					
\boxtimes	Tree Protection	 ☑ Fencing ☐ Plank trunk wrap ☑ Root Pruning ☐ Mulch padding / pallets (to prevent soil compaction) ☑ Super Silt Fence 				
	Construction Entrance for Natural Areas	☐ Pallets ☐ Mulch ☐ Rubber Mats				
	Pump Around					
	Stream Channel Crossing					
	Other:	Sand Bag Diversion				

An erosion and sediment control plan and/or map/drawing (11" x 17") with markups showing the limits of disturbance and location of the selected ESC controls will be included as part of this SWPPP. See Appendix A for examples of practices.

All structural erosion and sediment controls will be maintained throughout the duration of the project. Controls will be inspected periodically and after each runoff producing rainfall event. Any necessary maintenance or repairs to maintain the effectiveness of the controls shall be made immediately.

ARLINGTON

DEPARTMENT OF **ENVIRONMENTAL SERVICES**

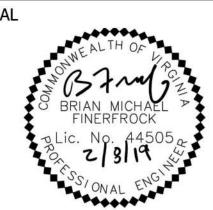
Engineering & Capital Projects Division

Engineering Bureau

2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606

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SEAL



APPROVALS DATE

DESIGN TEAM SUPERVISOR

CONSTRUCTION MANAGEMENT SUPERVISOR

WATER, SEWER STREETS BUREAU CHIEF

PROJECT MANAGER

TRANSPORTATION DIRECTOR

REVISIONS DATE

CONTRO

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During construction, all storm drain inlets will be protected by inlet protection. Dewatering – During dewatering operations, water will be pumped into an approved filtering device.

Excavated material shall be placed on the uphill side of the excavation trench. When material is placed on the downhill side of the excavation, it shall be back-sloped to drain toward the excavation.

☐ Bypass Pumping - Temporary pump(s) shall be utilized to divert flow to the nearest storm drain or

Additional erosion and sediment controls will be implemented as necessary to prevent erosion and sedimentation.

Temporary seeding / stabilization - Seed and straw with Annual rye - Lolium multiflorum at 60 lbs/acre (1.5 lbs/1000 sf) or Oats - Avena sativa at a rate of 50 lbs/acre or 2 lb/1000 sf.

Permanent Stabilization / Restoration – All of the area disturbed as a result of this project will be returned to a condition similar to pre-project condition. All areas not stabilized with pavement will be stabilized with seed, straw, and/or mulch.

Additional information can be found in the "Planning & Field Guide for Erosion & Sediment Control" and VA Erosion and Sediment Control Handbook.

Pre-Storm Erosion and Sediment Control Checklist

The following actions shall be taken prior to storm events with predicted heavy and/or large volume rainfall to prevent sediment discharges from a construction site. A typical summer thunderstorm is an example of a storm event with predicted heavy and/or large volume rainfall.

- Perimeter controls (silt fence, hay bales, stone berms) used to prevent sediment from leaving the site shall be checked for undermining, holes, or deterioration.
- Sediment that has accumulated against controls should be removed.
- Exposed soil or slopes shall be covered with straw, tarps, plastic sheeting, or erosion control matting. Covering material shall be properly secured/anchored.
- Stockpiled soil and other loose materials that can be washed away shall be covered with a tarp, plastic sheeting, or other stabilization matting. The cover must be properly secured / anchored down to prevent it from being blown off and exposing materials to rain. Controls such as hay bales or booms should be placed along the perimeter of the stock pile (downhill side). Stockpiled materials should not obstruct flow along the curb line.
- ☐ Inlet protection controls shall be inspected to ensure they are functioning properly and flooding will not occur. Clogged or damaged controls must be replaced immediately. Ensure controls allow for overflow / bypass of stormwater runoff during significant storm events.

5.0 Potential Sources of Pollution & Pollution Prevention Practices

STORMWATER POLLUTION PREVENTION PLAN

Pollutant-Generating Activity	Likely Present at your Project Site?	Sediment	Nutrients	Heavy Metals	pH (acids and bases)	Oil & Grease	Bacteria	Trash, Debris, Solids	Other Toxic Chemicals	Pollution Prevention Practice
Clearing, grading, excavating, and un-stabilized areas	⊠ Yes □ No	х						x		(1)
Paving operations	☐ Yes ⊠ No	х				Х		Х		(2)
Concrete washout and cement waste	☐ Yes ⊠ No			х	х			х		(3)
Structure construction, painting, and cleaning	☐ Yes ⊠ No			x	х			x	х	(4)
Dewatering operations	⊠ Yes □ No	х	х					х		(5)
Material delivery and storage	⊠ Yes □ No	х	х	х	х	х		х	х	(6)
Material use during building process	⊠ Yes □ No		х	х	х	х		х	х	(7)
Solid waste disposal	☐ Yes ⊠ No						in .	Х	Х	(8)
Sanitary waste	☐ Yes ⊠ No		х		х		х			(9)
Landscaping operations	⊠ Yes □ No	х	х					х	х	(10)
Other	☐ Yes ☐ No									(11)

Pollution Prevention Practices:

- (1) Clearing, grading, excavating and un-stabilized areas Utilize erosion and sediment controls to prevent sediment laden or turbid runoff from leaving the construction site. Dispose of clearing debris at acceptable disposal sites. Apply permanent or temporary stabilization, sodding and/or mulching to denuded areas in accordance with the erosion and sediment control specifications and the general VPDES permit for discharges of stormwater from construction activities.
- Paving operations Cover storm drain inlets during paving operations and utilize pollution prevention materials such as drip pans and absorbent/oil dry for all paving machines to limit leaks and spills of paving materials and fluids.
- Concrete washout and cement waste Direct concrete wash water into a leak-proof container or leak-proof settling basin that is designed so that no overflows can occur due to inadequate sizing or precipitation. Hardened concrete wastes shall be removed and disposed of in a manner consistent with the handling of other construction wastes.
- Structure construction, stucco, painting and cleaning Enclose, cover or berm building material storage areas if susceptible to contaminated stormwater runoff. Conduct painting operations consistent

Resource Protection Areas (RPA) - Submission Requirements

Notice shall be given to DES OSEM whenever work is scheduled to be done in an RPA. Contact Christin Jolicoeur at 703-228-3588 or cjolicoeur@arlingtonva.us

TOTAL LAND DISTURBANCE AREA in RPA: 16,260 Square feet

Will the project add additional impervious cover to the RPA? ☐ Yes ☒ No

Will the project impact the banks of a stream or involve a stream crossing?

☐ Yes ☐ No

Could the work result in a discharge to surface waters?

☐ Yes ☐ No

<u>Tree Protection Measures for Natural Areas and RPAs</u> Measures shall be taken to prevent soil compaction and damage to vegetation from equipment. Specifications in the County's Tree Protection and Planting Standards shall be followed throughout the duration of the work. Contact the Urban Forester 72 hours prior to the start of the project to inspect tree protection at 703-228-1863.

STORMWATER POLLUTION PREVENTION PLAN

Avoid soil disturbance to the extent possible.

How many trees will be removed in the RPA? 0

- ☐ Create access and staging areas using 8 inches of hardwood mulch or wood chips (maximum 2 inch in size) on the ground for soil and root protection. Wooden mats (Carolina Mat http://carolinamat.com/Mat%20Designs.htm or similar) can be placed on top of the mulch. HDPE mats may also be used (Alturnamat - www.alturnamats.com or similar). Wooden wetland protection mats should be used to cross wetlands or floodplains.
- Wrap trunks in burlap and place wooden planks a minimum of 2" thick placed around trees to a height of
- No person, materials or equipment shall be permitted within the tree protection area. Material stockpiles, including topsoil, are included in this exclusion.
- Tree protection will be maintained throughout the duration of the project and shall not be removed until completion of all construction activity.

Restoration Measures for Natural Areas and RPAs

- If streambanks are to be disturbed, contact DES OSEM about bank stabilization alternatives.
- Apply permanent seeding, weed-free straw and matting rather than leaf mulch for stabilization in natural
- ☐ Use only regionally native plant seed mixes, weed-free straw and 100% biodegradable natural fiber matting for permanent stabilization. Non-native perennial grasses such as perennial rye, tall fescue, creeping fescue, Kentucky bluegrass, etc. are not appropriate for stabilization of natural areas.
- Permanent seeding: Seed and straw with the following seed mix at a rate of 50 lb per acre (2 lb/1000 sf):
- 20% Annual rye Lolium multiflorum
- 30% Virginia wild rye Elymus virginicus
- 25% Deer-tongue grass Panicum clandestinum

STORMWATER POLLUTION PREVENTION PLAN

- with local air quality and OSHA regulations. Mix paint indoors, in a containment area or in a flat unpaved area. Prevent the discharge of soaps, solvents, detergents and wash water from construction materials, including the clean-up of stucco paint, form release oils and curing compounds.
- (5) **Dewatering operations** Construction site dewatering may not be discharged without treatment. Sediment laden or turbid water shall be filtered, settled or similarly treated prior to discharge. Material delivery and storage - Designate areas of the construction site for material delivery and
- storage. Place near construction entrances, away from waterways, and avoid transport near drainage paths or waterways. (7) Material use during building process – Use materials only where and when needed to complete the construction activity. Follow manufacturer's instructions regarding uses, protective equipment,
- ventilation, flammability and mixing of chemicals. (8) Solid waste disposal – Designate a waste collection area on the construction site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a waterway. Ensure that containers have lids so they can be covered before periods of rain, and keep containers in a covered area whenever possible. Schedule waste collection to prevent the containers from overfilling.
- (9) Sanitary waste Prevent the discharge of sanitary waste by providing convenient and well-maintained portable sanitary facilities. Locate sanitary facilities in a convenient location away from waterways. (10) Landscaping operations - Maintain as much existing vegetation as practicable. Apply permanent or temporary stabilization, sodding and/or mulching to denuded areas in accordance with the erosion and sediment control specifications and the general VPDES permit for discharges of stormwater from

construction activities. Apply nutrients in accordance with manufacturer's recommendations and not

during rainfall events. (11) Others -

Pollution Prevention Standard Notes (Stormwater Manual Section 2.4)

- · Only the following non-stormwater discharges are authorized by Arlington County's MS4 permit, unless the State Water Control Board, the Virginia Soil and Water Conservation Board (Board), or Arlington County determines the discharge to be a significant source of pollutants to surface waters: water line flushing; landscape irrigation; diverted stream flows; rising ground waters; uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)); uncontaminated pumped ground water; discharges from potable water sources; foundation drains; air conditioning condensation; irrigation water; springs; water from crawl space pumps; footing drains; lawn watering; individual residential car washing; flows from riparian habitats and wetlands; dechlorinated swimming pool discharges; discharges or flows from firefighting; and, other activities generating discharges identified by the Department of Environmental Quality as not requiring VPDES authorization.
- Appropriate controls must be implemented to prevent any non-stormwater discharges not included on the above list (e.g., concrete wash water, paint wash water, vehicle wash water, detergent wash water, etc.) from being discharged into Arlington County's MS4 system, which includes the curb and gutter system, as well as catch basins and other storm drain inlets, or stream network.
- Per Chapter 26 of the Arlington County Code, it shall be unlawful for any person to discharge directly or indirectly into the storm sewer system or state waters, any substance likely, in the opinion of the County Manager, to have an adverse effect on the storm sewer system or state waters.

- 15% Riverbank wild rye Elymus riparius 5% Bottle-brush grass – Elymus hystrix
- 2% Partridge pea Chamaecrista fasciculata
- 1% Rough-stemmed goldenrod Solidago rugosa
- 1% Common milkweed Asclepias syriaca 1% Grass-leaved goldenrod – Euthamia graminifolia

Seed should be applied to roughened soil (soil surface broken up) via broadcast seeding.

Due to significant demand, particularly for native seed mix, it is recommended that seed be pre-ordered and stored. Seed mixes are best used within 1 year of ordering, but can be kept for up to 2 years if necessary. Potential sources for native seed mix and native plants:

- Earth Sangha Wild Plant Nursery (seed mix must be pre-ordered) www.earthsangha.org
- Ernst Conservation Seeds www.ernstseed.com Davey Tree via the County's existing Landscape Contract.

Apply 100% biodegradable natural fiber erosion control matting. Apply from downslope to upslope and lay perpendicular to the slope. Overlap the edges of the matting by at least 3 inches with the upslope layer on top (like a roof shingle). Staples or deadwood stakes are necessary to hold matting on steeper slopes. For areas with regular water flow (swales, ditches) lay in the direction of flow.

Examples of 100% biodegradable natural fiber erosion control matting:

- KoirMat 400 Nedia Enterprises, Inc. (Virginia) http://www.nedia.com/woven_coir_Koirmat400.html ECSC – 2B – East Coast Erosion Blankets, LLC (Pennsylvania) -
- http://www.eastcoasterosion.com/products/erosion-blankets/ BioD – Rolanka International, Inc - http://www.rolanka.com/gn/geonatural.html

☐ Planting – Plant a diverse mix of regionally native shrubs and/or trees

Recommended Plant List

Shrubs	Qty	Trees	Qty
American Hazelnut (Corylus Americana)		Ironwood (Carpinus caroliniana)	
Spicebush (Lindera benzoin)		Dogwood (Cornus florida)	
Common Elderberry (Sambucus nigra)		Black gum (Nyssa sylvatica)	
Arrowwood viburnum (Viburnum dentatum)		Sycamore (Platanus occidentalis)	
Blackhaw vibnurnum (Viburnum prunifolium)	T	White Oak (Quercus alba)	
Mapleleaf viburnum (Viburnum acerifolium)		Northern Red Oak (Quercus rubra)	
		American elm (Ulmus Americana)	
		American holly (Ilex opaca)	
		Hackberry (Celtis occidentalis)	
		Fringetree (Chionanthus virginicus)	

For assistance with choosing plants for a specific site, contact:

Alonso Abugattas – DPR – 703-228-7742 – <u>aabugattas@arlingtonva.us</u>– Park sites Christin Jolicoeur - DES - 703-228-3588 - cjolicoeur@arlingtonva.us - RPA

STORMWATER POLLUTION PREVENTION PLAN

6.0 Stormwater Management Controls - NA

7.0 Spill Prevention & Response

Most spills can be cleaned up following manufacturer specifications. Absorbent/oil dry, sealable containers, plastic bags, and shovels/brooms are suggested minimum spill response items that should be available at this

- 1. Check for hazards (flammable material, noxious fumes, cause of spill) if flammable liquid, turn off
- engines and nearby electrical equipment. If serious hazards are present leave the area and call 911. 2. Make sure the spill area is safe to enter and that it does not pose an immediate threat to health or safety of any person.
- Stop the spill source. 4. Call co-workers and supervisor for assistance and to make them aware of the spill and potential
- 5. If possible, stop spill from entering storm drains (use absorbent or other material as necessary).
- 6. Stop spill from spreading (use absorbent or other material) 7. If spilled material has entered a storm drain or surface waters; contact OSEM (703-228-0772 or
- 703-228-3979). 8. Clean up spilled material according to manufacturer specifications, for liquid spills use absorbent materials and do not flush area with water.
- 9. Properly dispose of cleaning materials and used absorbent material according to manufacturer specifications.

Emergency Contacts:

Arlington County Fire & Police

DES Water, Sewer, Streets 24-Hour Emergency Washington Gas Emergency

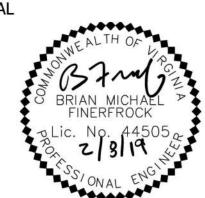
703-558-2222 703-228-6555 703-750-1400 **ENVIRONMENTAL SERVICES** Engineering & Capital Projects Division Engineering Bureau

DEPARTMENT OF

Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606 Copyright © 2019 Arlington County Virginia - All Rights Reserved

2100 Clarendon Boulevard, Suite 813

SEAL



APPROVALS DATE

DESIGN TEAM SUPERVISOR

CONSTRUCTION MANAGEMENT SUPERVISOR

TRANSPORTATION DIRECTOR

WATER, SEWER STREETS BUREAU CHIEF

PROJECT MANAGER

REVISIONS DATE

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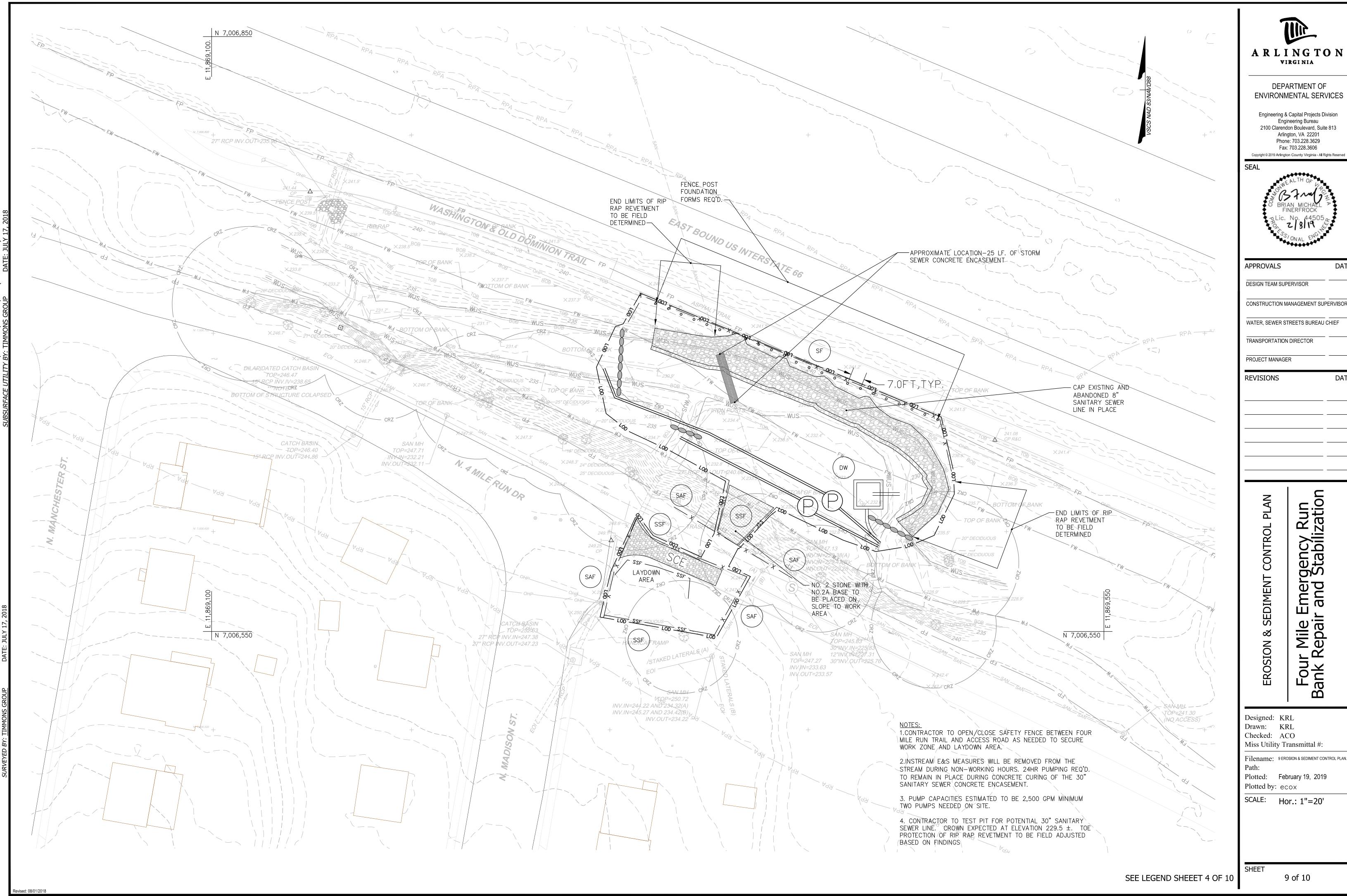
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SCALE: N.T.S.

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Engineering Bureau 2100 Clarendon Boulevard, Suite 813



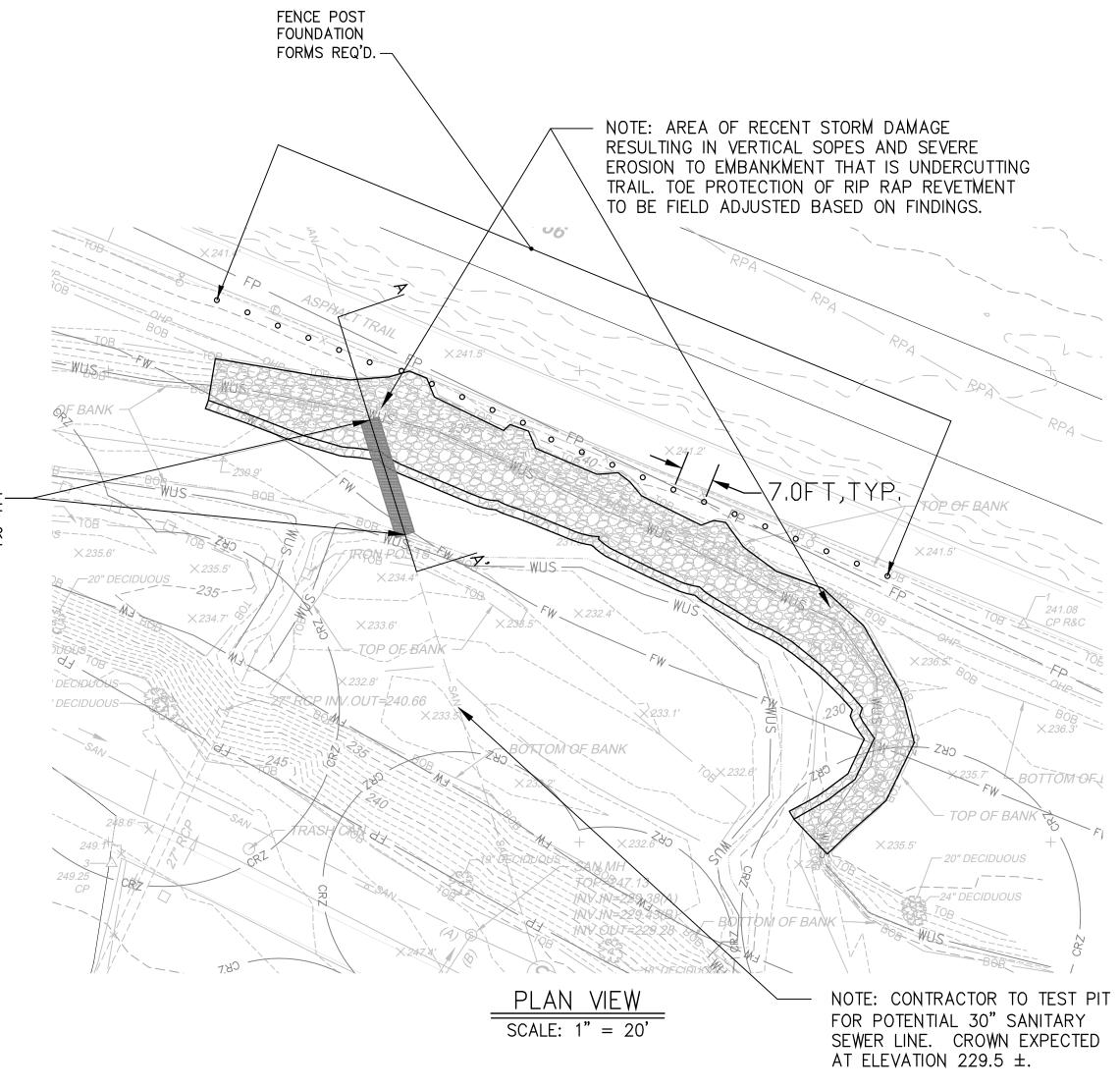
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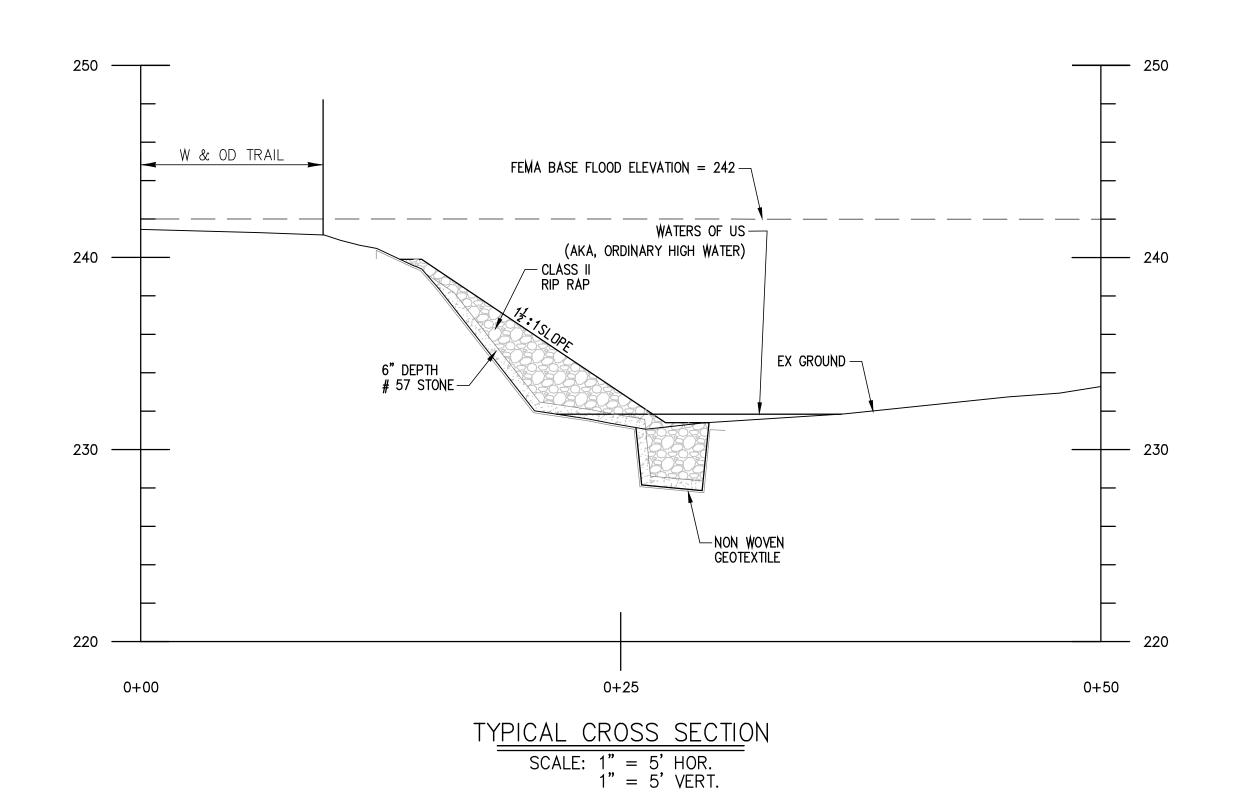
CONSTRUCTION MANAGEMENT SUPERVISOR

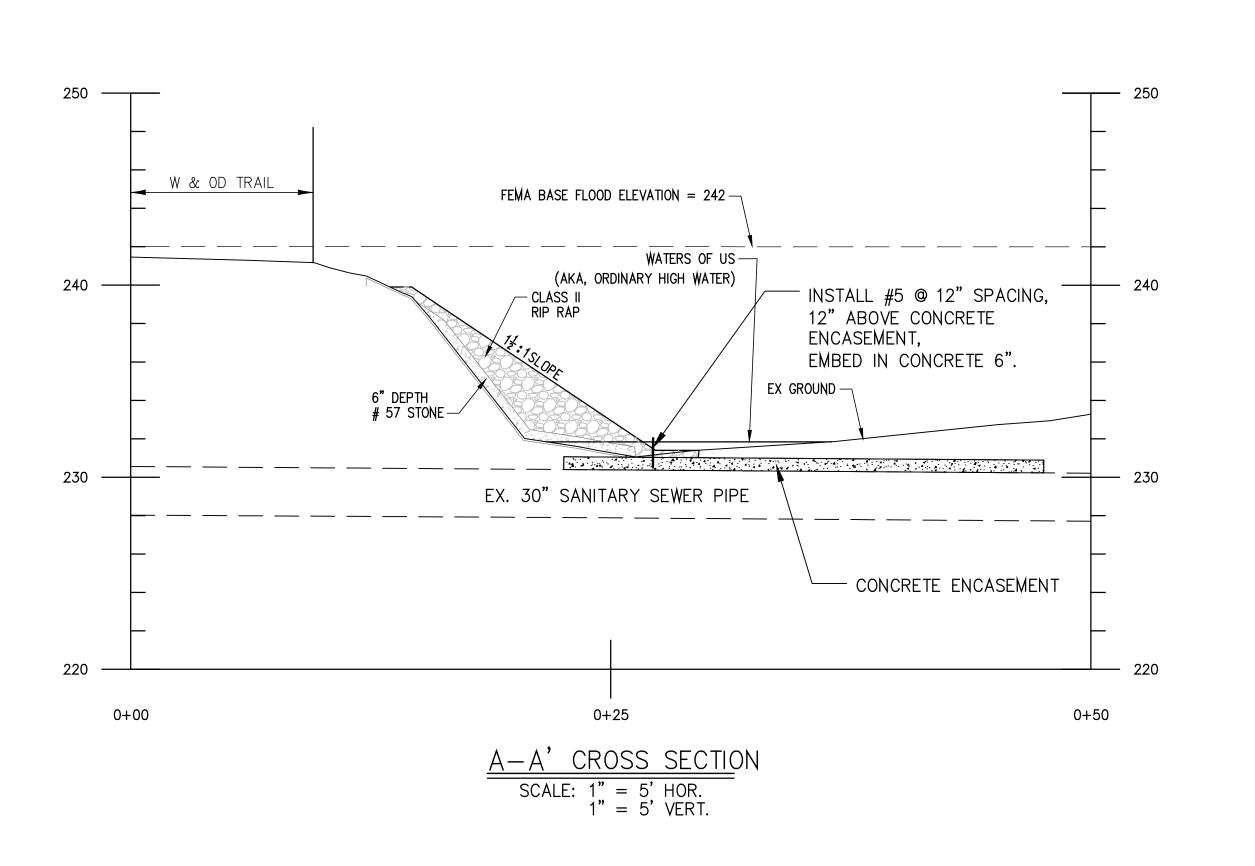
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EMERGENCY BANK STABILIZATION PLAN AND CROSS-SECTION DETAIL



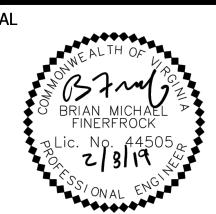






DEPARTMENT OF **ENVIRONMENTAL SERVICES**

Engineering & Capital Projects Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606



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APPROVALS

CONSTRUCTION MANAGEMENT SUPERVISOR

WATER, SEWER STREETS BUREAU CHIEF

TRANSPORTATION DIRECTOR

PROJECT MANAGER

DESIGN TEAM SUPERVISOR

REVISIONS DATE

BANK STABILIZATION PLAN AND CROSS-SECTION DETAIL

Four Mile Run Emergency Bank Repair and Stabilization

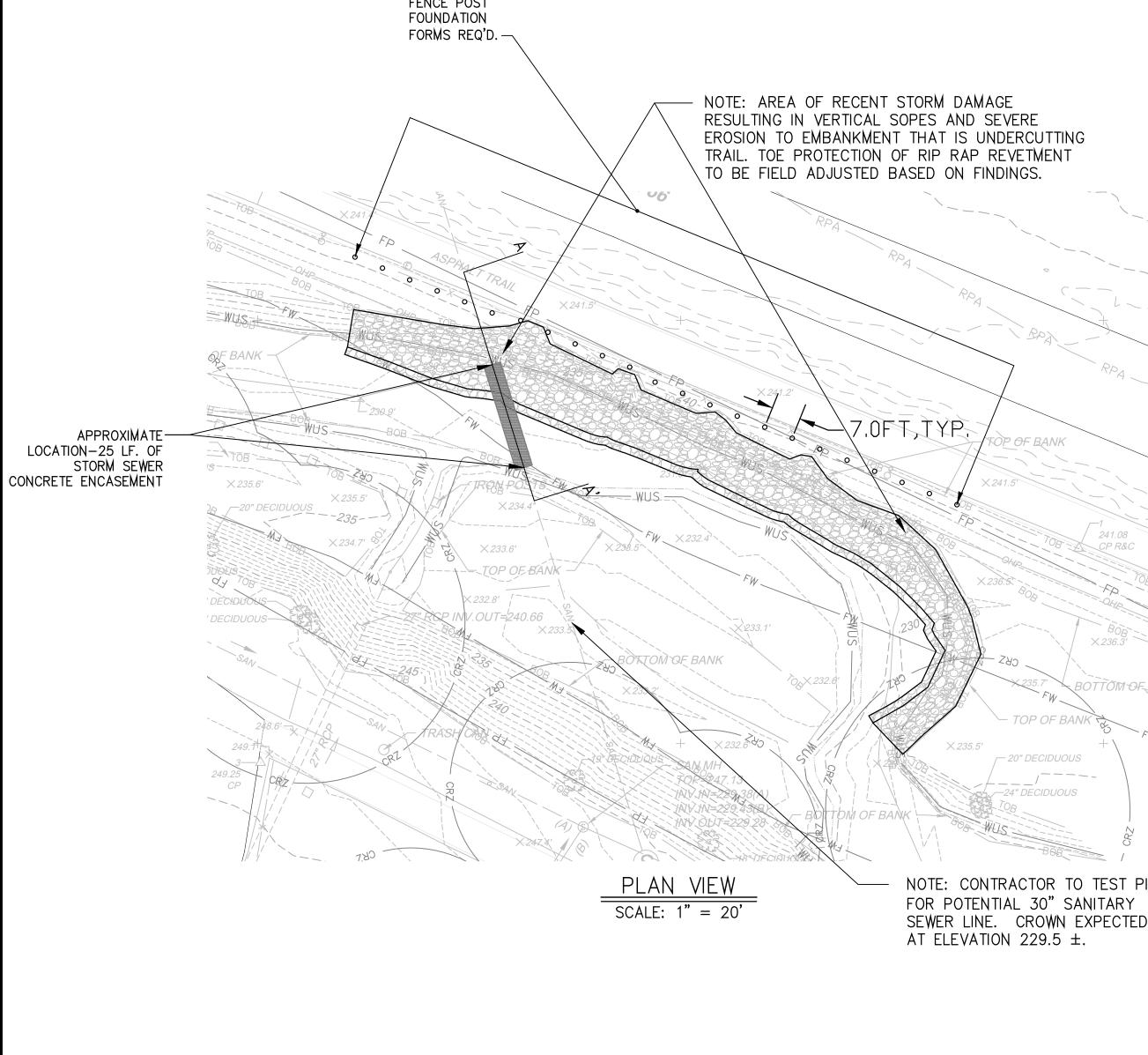
Designed: KRL Drawn: KRL Checked: ACO Miss Utility Transmittal #:

Plotted: February 22, 2019 Plotted by: dblack

SCALE: Hor.: 1"=20'

SHEET

10 of 10





DEPARTMENT OF ENVIRONMENTAL SERVICES

Engineering and Capital Projects Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813, Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606 www.arlingtonva.us Copyright © 2011 Arlington County Virginia - All Rights Reserved

Construction Drawings For:

N. Sycamore Street-Storm Drain Improvements

From 24th Street North To N. Sycamore Street

Project Number: 321 47222 S17D 0000 0000

General Notes:

GENERAL CONSTRUCTION NOTES

1. ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

2. ALL CONSTRUCTION WORK FOR THIS PROJECT SHALL CONFORM TO THE ARLINGTON COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES, CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND WHERE APPLICABLE THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) ROAD AND BRIDGE SPECIFICATIONS, AND ROAD AND BRIDGE

STANDARDS. THE LATEST EDITIONS OF EACH RELEVANT MANUAL SHALL BE USED.

3. ALL CONSTRUCTION AND WORK ACTIVITIES SHALL COMPLY WITH THE VIRGINIA WORK AREA PROTECTION MANUAL AND ALL OTHER RELEVANT WORK SAFETY REQUIREMENTS, LATEST EDITIONS.

4. THE CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 811 FOR MARKING THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES (i.e. WATER, SEWER, GAS, TELEPHONE, ELECTRIC, AND CABLE TV) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION OR CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO IDENTIFY AND PROTECT ALL OTHER UTILITY LINES FOUND IN THE WORK SITE AREA BELONGING TO OTHER OWNERS THAT ARE NOT MEMBERS OF "MISS UTILITY" PRIVATE WATER AND/OR SEWER LATERALS WILL NOT BE MARKED BY MISS UTILITY OR THE COUNTY. THE CONTRACTOR WILL BE EXPECTED TO LOCATE AND PROTECT THESE SERVICES DURING CONSTRUCTION

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAYING OUT THE WORK AND SHALL RETAIN A PROFESSIONAL LAND SURVEYOR LICENSED IN THE COMMONWEALTH OF VIRGINIA TO PROVIDE ALL NECESSARY CONSTRUCTION LAYOUTS AND ESTABLISH ALL CONTROL LINES, GRADES, AND ELEVATION DURING CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT A COPY OF ALL CUT SHEETS FOR REVIEW, PER THE SPECIFICATIONS. THE COST OF ALL NECESSARY SURVEYING SERVICES SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND, UNLESS OTHERWISE SPECIFIED. THE COST SHALL BE INCORPORATED INTO THE COSTS FOR RELEVANT ITEMS.

6. THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE FROM BEST AVAILABLE RECORDS AND SHALL BE CONSIDERED TO BE APPROXIMATE. WHEN CONSTRUCTION ACTIVITY REACHES IN PROXIMITY TO EXISTING UTILITIES THE TRENCH(ES) SHALL BE OPENED A SUFFICIENT DISTANCE AHEAD OF THE WORK OR TEST PITS SHALL BE MADE TO VERIFY THE EXACT LOCATION AND INVERTS OF THE UTILITY TO ALLOW FOR POSSIBLE CHANGES IN THE LINE OR GRADE THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING UTILITIES AND THE RELATED STRUCTURES. ALL EXISTING UTILITY SYSTEMS SHALL BE PROTECTED TO PREVENT DAMAGE DURING THE CONTRACTOR'S OPERATIONS. ANY SYSTEM DAMAGED SHALL BE PROMPTLY REPAIRED AT NO COST TO THE OWNER.

THE CONTRACOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN ACTUAL FIELD

7. EXISTING MANHOLE FRAMES, COVERS, VALVE BOXES, AND OTHER APPURTENANCES SHALL BE ADJUSTED TO THE FINAL GRADE OR REPLACED, AS NECESSARY. UNLESS OTHERWISE SPECIFIED, THE COST FOR THIS SHALL BE CONSIDERED INCIDENTAL TO THE WORK, AND SHALL BE INCORPORATED INTO THE COSTS FOR RELEVANT ITEMS.

8. THE CONTRACTOR SHALL PROVIDE ADA COMPLIANT ACCESS THROUGH OR AROUND THE SITE AT ALL TIMES AND SHALL ENSURE THE SAFETY OF ALL THOSE PASSING THROUGH OR ADJACENT TO THE SITE.

STORMWATER AND ENVIRONMENTAL PROTECTION

9. THE CONTRACTOR SHALL PROTECT EXISTING DRAINAGE FACILITIES (TO INCLUDE CURB AND GUTTER) AND WATERWAYS FROM ADVERSE IMPACTS PER SECTION 01500 OF THE ARLINGTON COUNTY STANDARDS & SPECIFICATIONS.

10.ANY WORK WITHIN A RESOURCE PROTECTION AREA (RPA) SHALL COMPLY WITH THE REQUIREMENTS OF CHAPTER 61 OF THE COUNTY CODE (THE CHESAPEAKE BAY PRESERVATION ORDINANCE).

TREE PROTECTION

11.THE CONTRACTOR SHALL CONFINE ALL ACTIVITIES AT THE SITE ASSOCIATED WITH CONSTRUCTION ACTIVITIES, TO INCLUDE STORAGE OF EQUIPMENT AND OR MATERIALS, ACCESS TO THE WORK, FORMWORK, ETC. TO WITHIN THE DESIGNATED LIMITS OF DISTURBANCE (LOD).

12.NO TREES SHALL BE REMOVED OR OTHERWISE AFFECTED UNLESS CLEARLY MARKED ON THE APPROVED PLAN. 13.TREES SHALL BE PROTECTED PER THE REQUIREMENTS OF SECTION 02100 - CLEARING AND GRUBBING

TRAFFIC CONTROL

14.CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 3 WORKING DAYS PRIOR TO DISTURBING ANY EXISTING, OR INSTALLING ANY NEW, TRAFFIC SIGNS, SIGNALS, OR OTHER TRAFFIC CONTROL DEVICES.

15. THE CONTRACTOR SHALL PREMARK THE LAYOUT OF ANY PERMANENT TRAFFIC CONTROL STRIPING, INDICATING THE PROPOSED LOCATION AND TYPE OF MARKING TO BE INSTALLED. THE PREMARKING MAY CONSIST OF TYPE D TAPE, CHALK, OR LUMBER CRAYONS. THE CONTRACTOR SHALL ALLOW 3 WORKING DAYS FOR THE INSPECTION AND APPROVAL OF THE PREMARKINGS PRIOR TO PLACING THE PERMANENT MARKINGS.

16.THE CONTRACTOR SHALL SUBMIT ANY REQUESTS FOR TEMPORARY "NO PARKING" RESTRICTIONS TO THE ENGINEER

AT LEAST 3 WORKING DAYS PRIOR TO THE DESIRED ONSET OF RESTRICTIONS.

17. THE CONTRACTOR SHALL PRESERVE ALL BUS STOPS, INCLUDING MAINTAINING ADEQUATE ACCESS THROUGH AND ADJACENT TO THE CONSTRUCTION FOR BUSES AND THEIR PASSENGERS. THE CONTRACTOR SHALL NOT CLOSE, RELOCATE, OR OTHERWISE MODIFY A BUS STOP WITHOUT PRIOR REQUEST OF THE ENGINEER. TYPICALLY ANY RELOCATION OR CLOSURE OF A BUS STOP WILL REQUIRE AT LEAST TWO WEEKS ADVANCE NOTICE FOR COORDINATION

18. WHEN CONDITIONS WARRANT DUE TO TRAFFIC VOLUMES, PATTERNS, OR SPECIAL EVENTS, THE COUNTY MAY SUSPEND OR OTHERWISE DIRECT THE CONTRACTOR'S ACTIVITIES TO PROTECT THE PUBLIC AND OR THE COUNTY'S

VATER DISTRIBUTION, STORM, AND SANITARY SEWER SYSTEMS

VISE DIRECTED, CONTRACTORS ARE EXPRESSLY PROHIBITED FROM OPERATING ANY WATER VALVES OR APPURTENANCES. CONTRACTORS SHALL SUBMIT ALL REQUESTS FOR VALVE OPERATIONS TO THE ENGINEER AT LEAST 3 WORKING DAYS IN ADVANCE OF THE REQUIRED OPERATION.

20. IN THE EVENT OF A WATER OR SEWER EMERGENCY, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COUNTY'S WATER CONTROL CENTER AT 703-228-6555 AND THE ENGINEER.

21. STORM OR SANITARY SEWERS AND APPURTENANCES TO BE ABANDONED SHALL BE EXCAVATED AND REMOVED, OR ABANDONED AS DETAILED IN THE COUNTY'S STANDARDS AND SPECIFICATIONS.

WHEN REQUIRED FOR THE WORK, AN APPROVED VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) PERMIT WILL BE PROVIDED BY THE COUNTY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADHERING TO AND IMPLEMENTING ALL

23. THE CONTRACTOR SHALL HAVE AT LEAST ONE EMPLOYEE ON-SITE CERTIFIED BY VDOT IN BASIC WORK ZONE TRAFFIC CONTROL AND WILL BE RESPONSIBLE FOR THE PLACEMENT, MAINTENANCE AND REMOVAL OF WORK ZONE TRAFFIC COTROL DEVICES WITHIN THE PROJECT LIMITS IN COMPLIANCE WITH THE PERMIT REQUIREMENTS AND CONDITIONS, THE APPROVED PLANS, SPECIFICATIONS, THE VIRGINIA WORK AREA PROTECTION MANUAL AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

TOR SHALL HAVE AT LEAST ONE EMPLOYEE ON-SITE WHO HAS COMPLETED VDOT EROSION AND SEDIMENT CONTROL CONTRACTOR CERTIFICATION TRAINING AND WILL BE RESPONSIBLE FOR INSURING COMPLIANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS DURING ALL

Sheet List Table

Cover Sheet Detail Sheet I Storm Structure Details-1 Storm Structure Details-2 Storm Structure Details-4 Storm Structure Details-5 Storm Structure Details-8 Storm Structure Details-10 Storm Structure Details-1 Detail Sheet II Existing Condition Plan Plan & Profile (Storm-STA 0+00 To 4+50) Plan & Profile (Storm-STA 0+00 To 4+50) Plan & Profile (Storm-STA 0+00 To 2+75) Plan & Profile (Sanitary-STA 0+00 To 5+50) Plan & Profile (Watermain-STA 0+00 To 6+00) Plan & Profile (Watermain-STA 0+00 To 2+50) Plan & Profile (Watermain-STA 0+00 To 0+60) Plan and Profile (Median-STA 0+00 To 3+72.15 Profiles (Sanitary & Storm)

Drainage Divides II

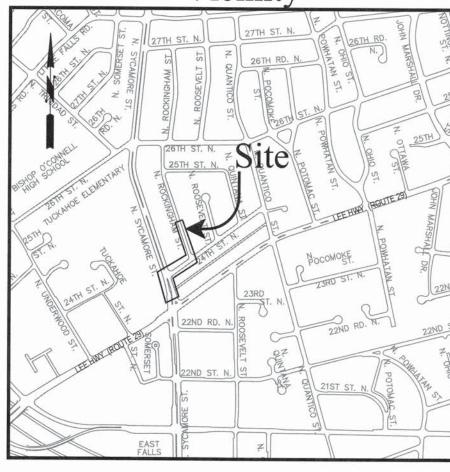
Storm Sewer Computation (Existing) Storm Sewer Computation (Proposed) Erosion and Sediment Control Notes Stormwater Pollution Prevention Plan (SWPPP)

Erosion and Sediment Control Plan Tree Planting Details Overall Drainage Area and Soil Map MOT Notes MOT Plan (Phase 1 & 2) MOT Plan (Phase 3) MOT Plan (Phase 4) MOT Plan (Phase 5) MOT Plan (Phase 8) MOT Plan (Phase 9) MOT Plan (Phase 11) MOT Plan (Phase 12)

> MOT Plan (Phase 14) MOT Plan (Phase 15)

Location Map

Vicinity



Engineering & Capital Projects Division 2100 Clarendon Boulevard, Suite 813 pyright © 2011 Arlington County Virginia - All Rights Res

TRANSPORTATION DIRECTOR

ARLINGTON

DEPARTMENT OF

ENVIRONMENTAL SERVICES

Arlington, VA 22201

Phone: 703.228.3629 Fax: 703.228.3606

Designed: P. Banepali

Drawn: P. Banepali Checked: N. Naikare Miss Utility Transmittal #: 5121D Filename: S17D-PBASE-P.PLAN_Final.dwg Path: Q:\Data\S17D\Design\Drawi Plotted: November 25, 2015 Plotted by: Pbanepali

1 of 38

Scale: As Noted

(SEE SHEET 6 OF 38, 7 OF 38, 8 OF 38 AND 9 OF 38)

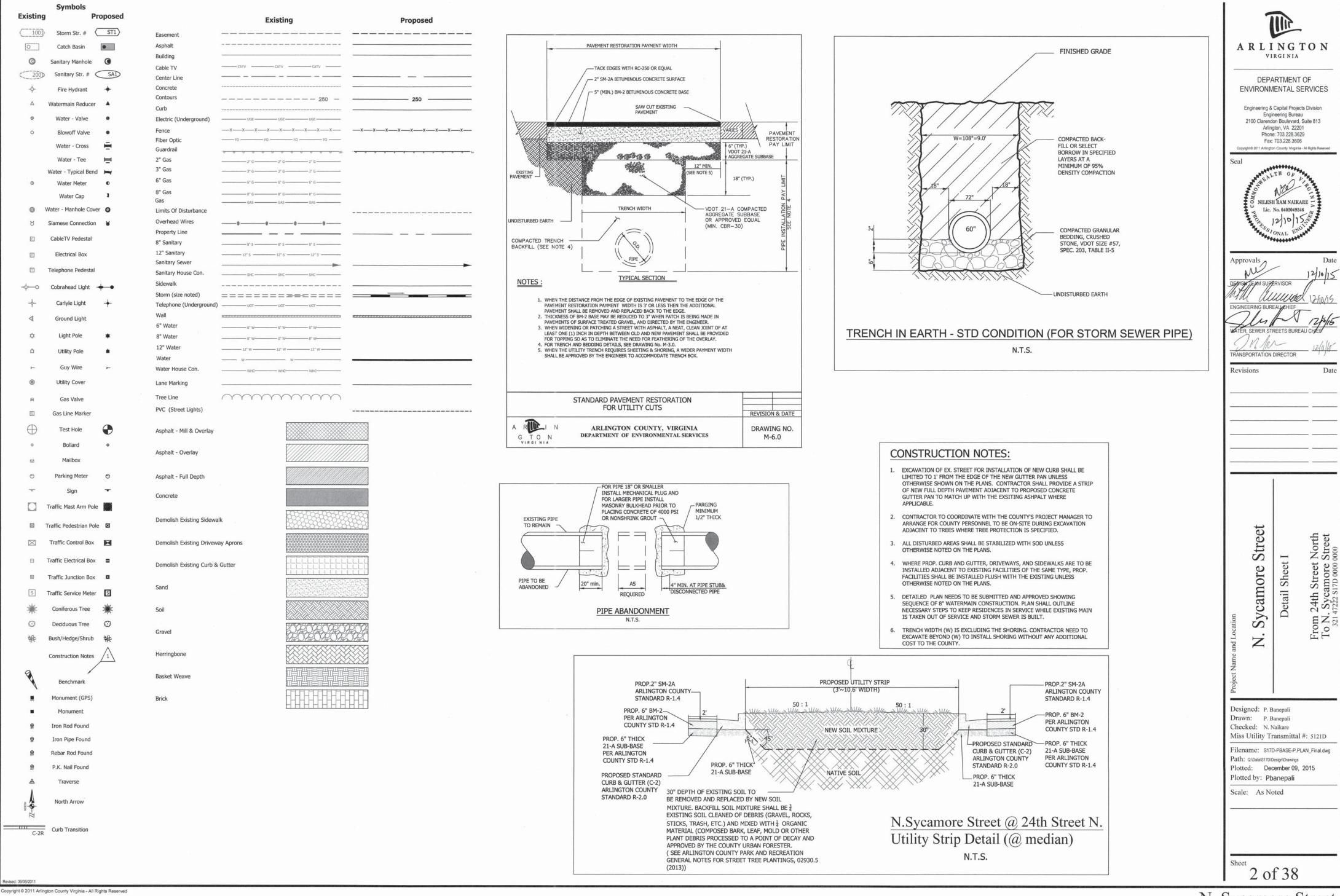
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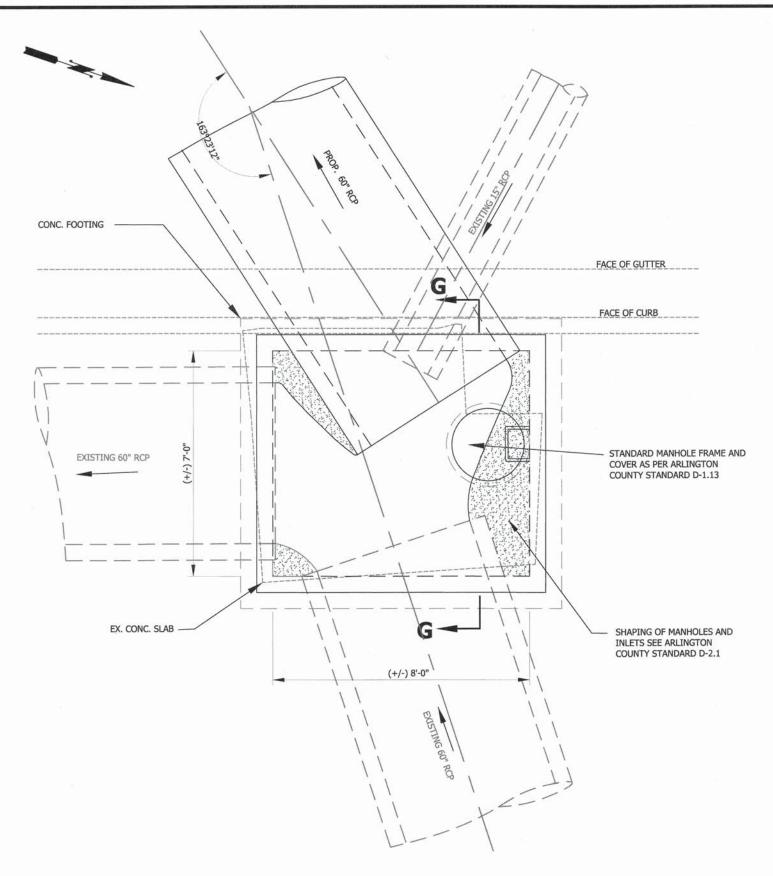
• FROM STA. 7+61.00' - 24TH STREET ST. (4.93' RT.) TO 10+29.00' - 24TH STREET ST. (4.93' RT.)

N. SYCAMORE STREET AND 24TH STREET N. INTERSECTION: 12388 VPD

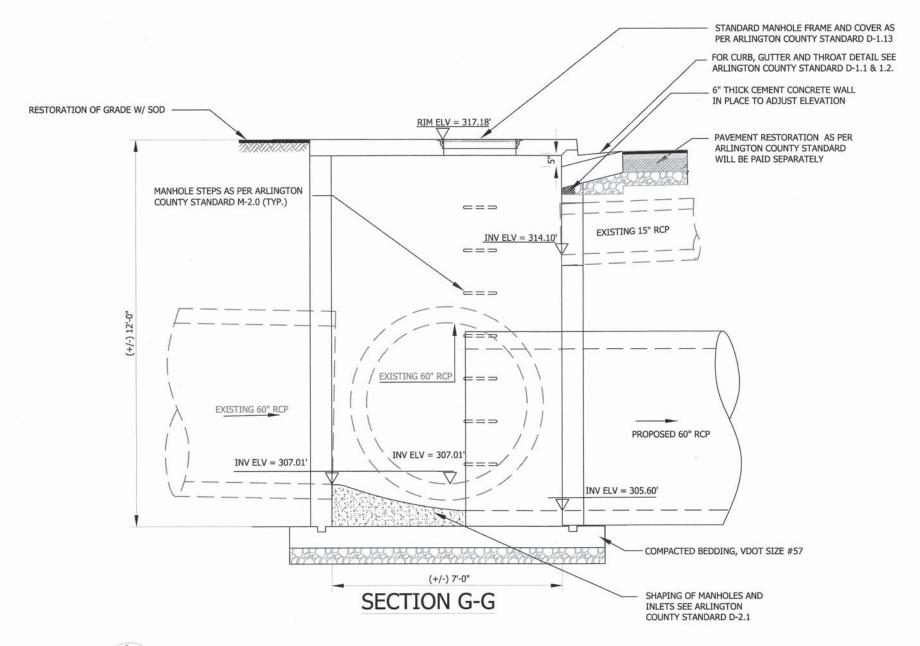
Street Classification:

N. SYCAMORE STREET: PRINCIPAL ARTERIAL 24TH STREET N.: NEIGHBORHOOD MINOR





PLAN VIEW FOR CUSTOM STRUCTURE-6337N CATCH BASIN (CB-2B) THROAT LENGTH 8'
SCALE: 1"=2'-0"

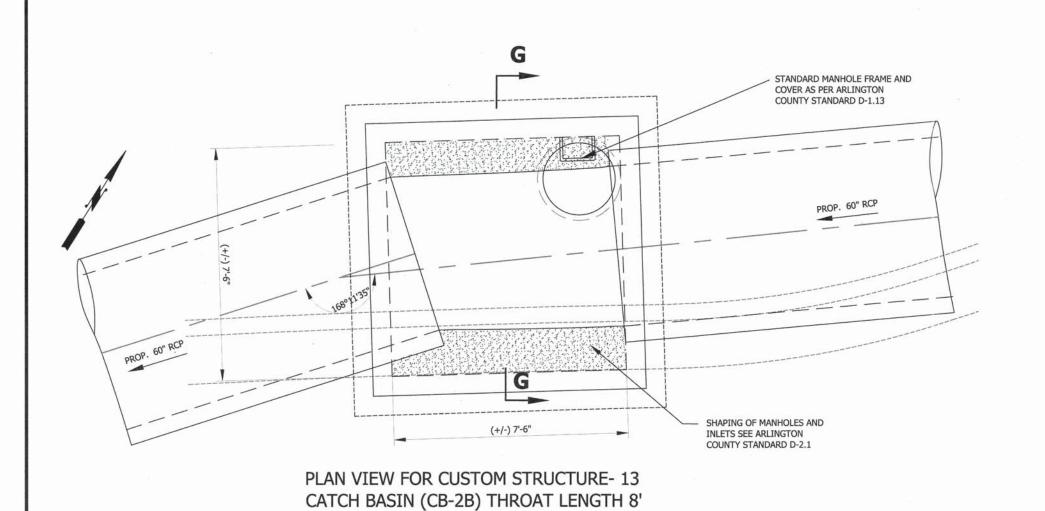


DETAIL FOR CATCH BASIN CB-2B MODIFIED (STRUCTURE-6337N) SCALE: 1"=2'-0"

NOTES:

- 1. FOR GENERAL NOTES SEE ARLINGTON COUNTY STANDARD D-1.1.
- MANHOLES AND JUNCTION BOXES SHALL BE INSTALLED FOR THE LOADING CLASS HS20-44 AS PER VDOT ROAD AND BRIDGE STANDARDS AND SPECIFICATIONS.
- 3. ALL INVERT ELEVATIONS OF EXISTING STRUCTURES AND PIPES NEED TO BE VERIFIED IN THE FIELD AND CONFIRMED.
- IF SHAPE AND SIZE OF INLETS OR MANHOLES ARE TO BE CHANGED, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AS A FORMAL SUBMITTAL AT NO COST TO THE COUNTY.
- 5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SIGNED AND SEALED BY PROFESSIONAL ENGINEER FOR ALL COMPONENTS PROPOSED, INCLUDING THE CONCRETE INLETS AND MANHOLES, TO ARLINGTON COUNTY AS A FORMAL SUBMITTAL

ARLINGTON VIRGINIA DEPARTMENT OF **ENVIRONMENTAL SERVICES** Engineering & Capital Projects Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606 NILESH RAM NAIKARE TRANSPORTATION DIRECTOR Revisions Street Storm Structure Details-1 24th Street I. Sycamore S Sycamore ż Designed: P. Banepali Drawn: P. Banepali Checked: N. Naikare Miss Utility Transmittal #: 5121D Filename: S17D-PBASE-P.PLAN_Final.dwg $Path: \ \, \hbox{Q:Data\S17D\Design\Drawings}$ Plotted: December 09, 2015 Plotted by: Pbanepali Scale: As Noted Sheet 2A of 38



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STANDARD MANHOLE FRAME AND COVER AS PER ARLINGTON COUNTY STANDARD D-1.13 FOR CURB, GUTTER AND THROAT DETAIL SEE ARLINGTON COUNTY STANDARD D-1.1 & 1.2. PAVEMENT RESTORATION AS PER ARLINGTON COUNTY STANDARD WILL BE PAID SEPARATELY RESTORATION OF GRADE W/ SOD _ RIM ELV = 311.63' MANHOLE STEPS AS PER ARLINGTON COUNTY STANDARD M-2.0 (TYP.) 6" THICK CEMENT CONCRETE WALL IN PLACE TO ADJUST ELEVATION INV ELV = 303.60'/ INV ELV = 303.50' COMPACTED BEDDING, VDOT SIZE #57 (+/-) 7'-0" SHAPING OF MANHOLES AND INLETS SEE ARLINGTON COUNTY STANDARD D-2.1

SECTION G-G

DETAIL FOR CATCH BASIN CB-2B MODIFIED (STRUCTURE-13)

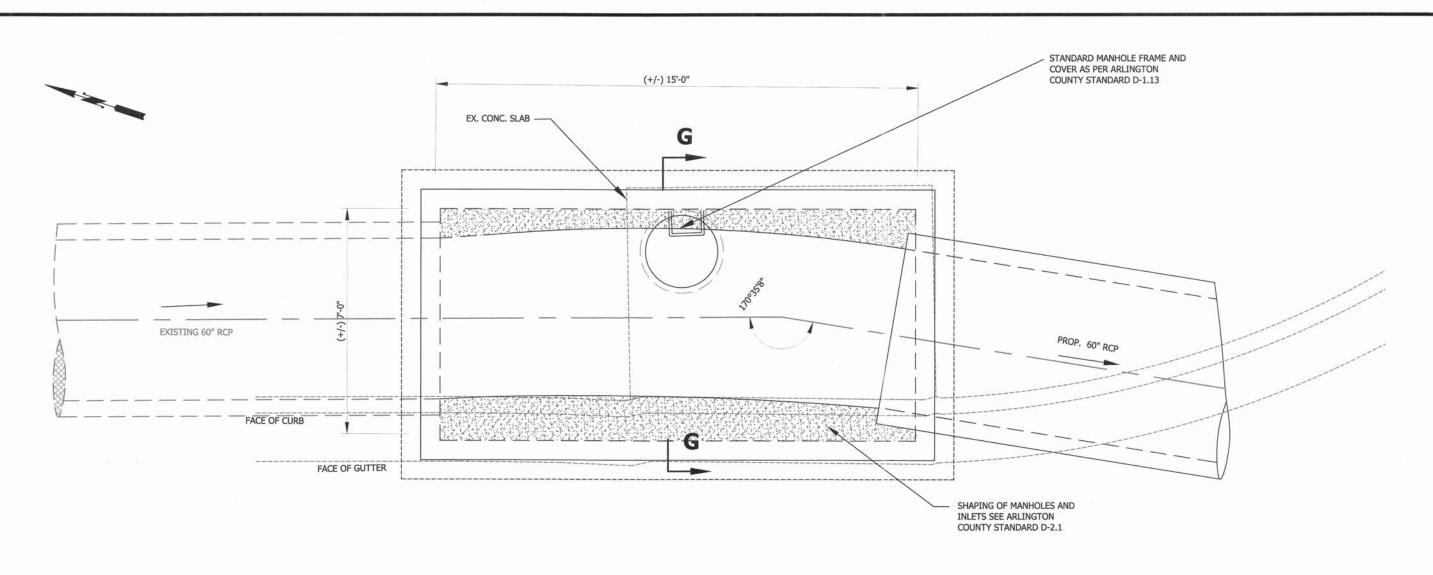
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ARLINGTON VIRGINIA DEPARTMENT OF ENVIRONMENTAL SERVICES Engineering & Capital Projects Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Fax: 703.228.3606 NILESH RAM NAIKARE TRANSPORTATION DIRECTOR Sycamore Street Storm Structure Details-2 24th Street I. Sycamore S Designed: P. Banepali Drawn: P. Banepali Checked: N. Naikare Miss Utility Transmittal #: 5121D Filename: S17D-PBASE-P.PLAN_Final.dwg Path: Q:\Data\S17D\Design\Drawings
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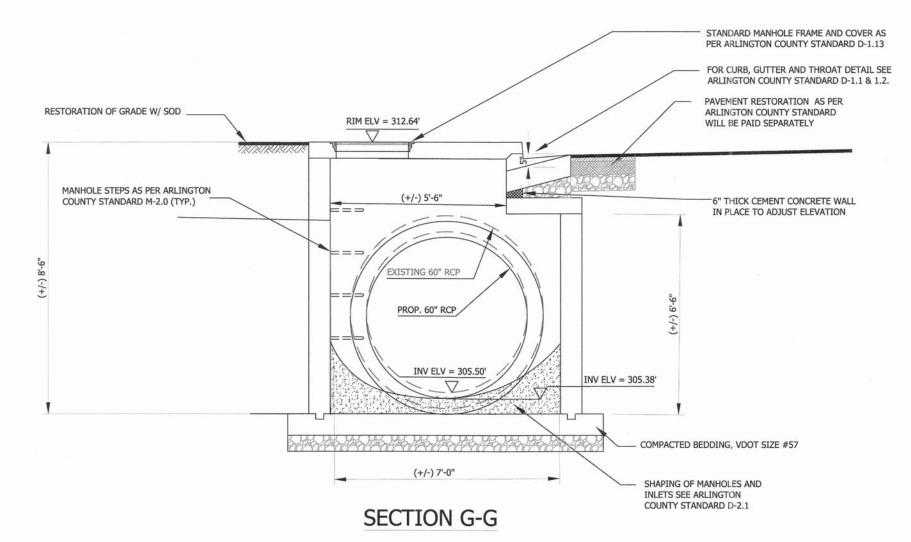
2B of 38

Plotted by: Pbanepali
Scale: As Noted



PLAN VIEW FOR CUSTOM STRUCTURE-6462N CATCH BASIN (CB-2A) THROAT LENGTH 16'

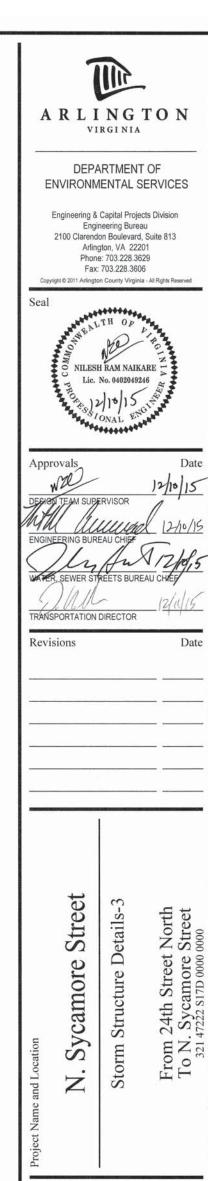
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3 DETAIL FOR CATCH BASIN CB-2A MODIFIED (STRUCTURE-6462N)

NOTES:

- $1. \hspace{0.5cm} \mbox{FOR GENERAL NOTES SEE ARLINGTON COUNTY STANDARD D-1.1.}$
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Designed: P. Banepali Drawn: P. Banepali Checked: N. Naikare Miss Utility Transmit

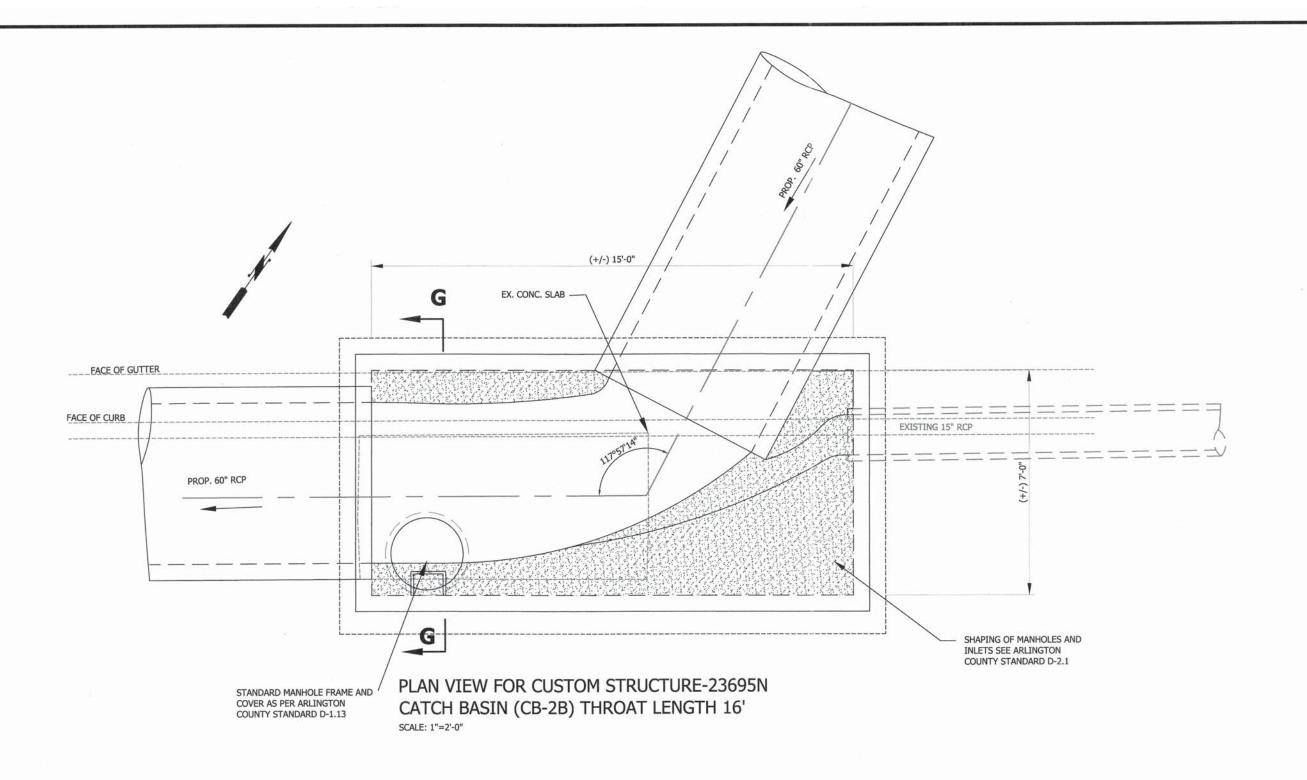
Miss Utility Transmittal #: 5121D

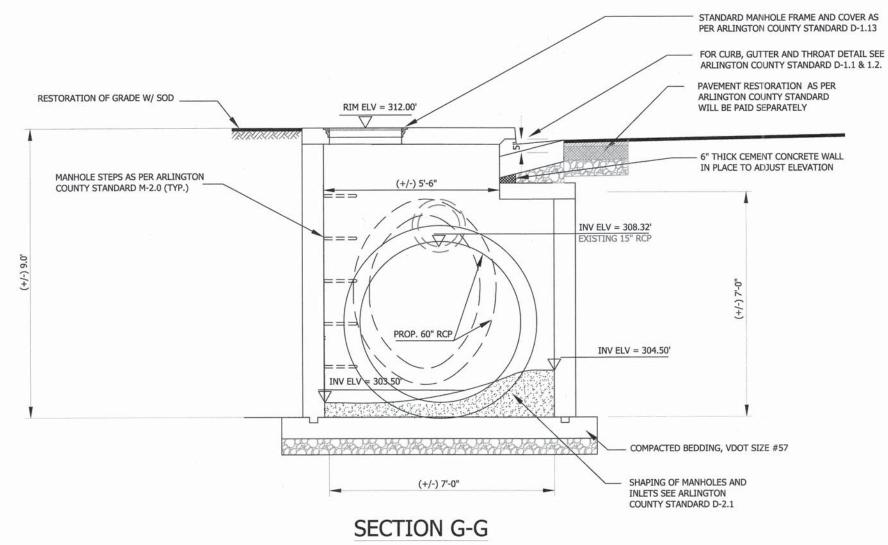
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Plotted: December 08, 2015
Plotted by: Pbanepali

Scale: As Noted

Sheet 2C of 38





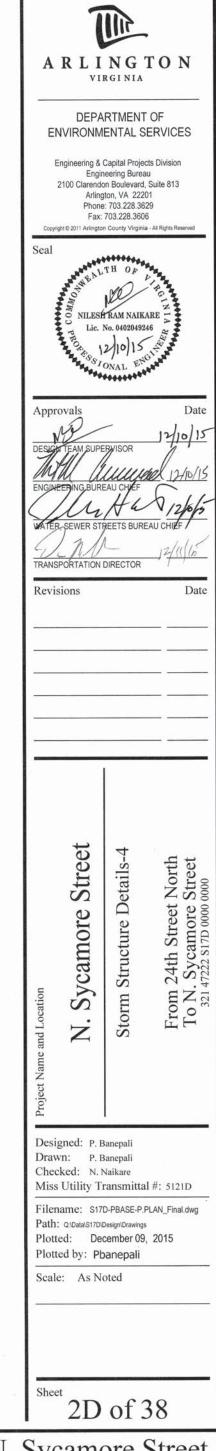
4 DETAIL FOR CATCH BASIN CB-2B MODIFIED (STRUCTURE-23695N)

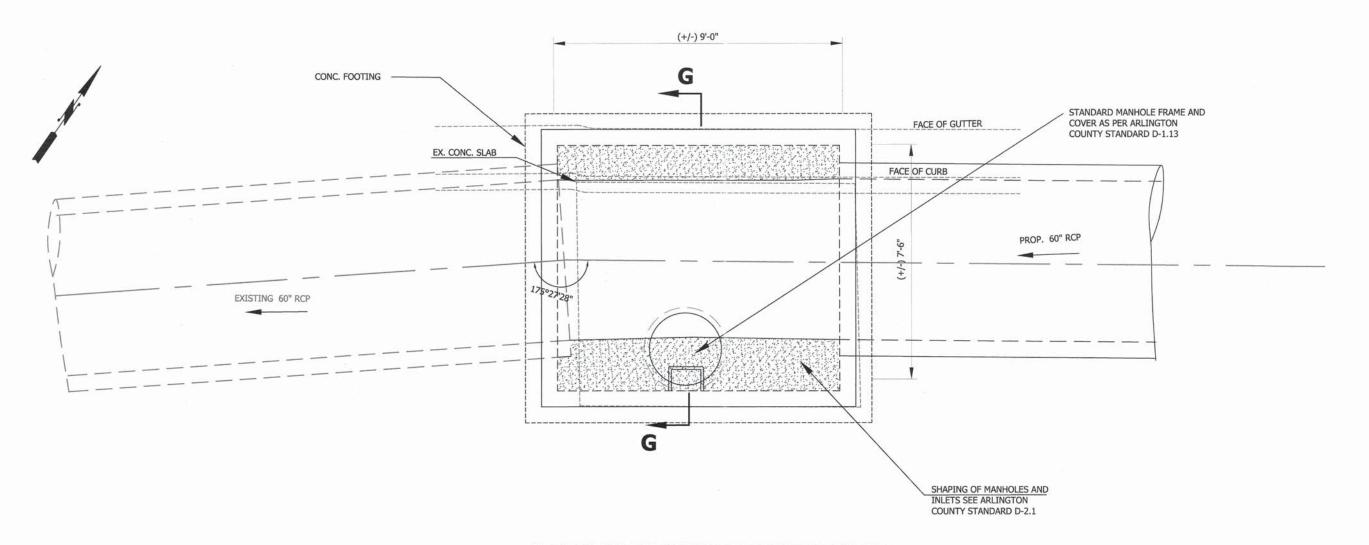
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NOTES:

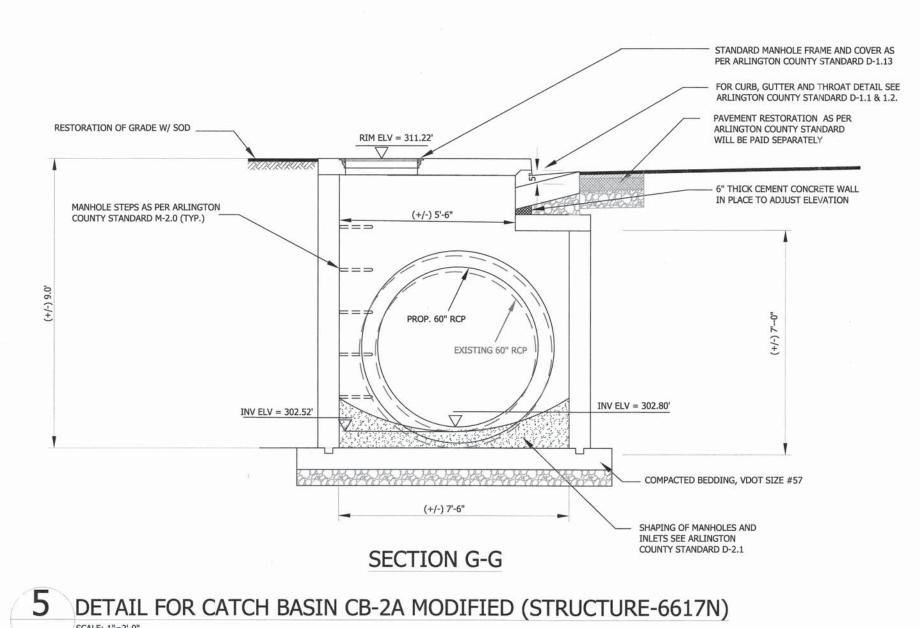
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PLAN VIEW FOR CUSTOM STRUCTURE-6617N CATCH BASIN (CB2A) THROAT LENGTH 10'

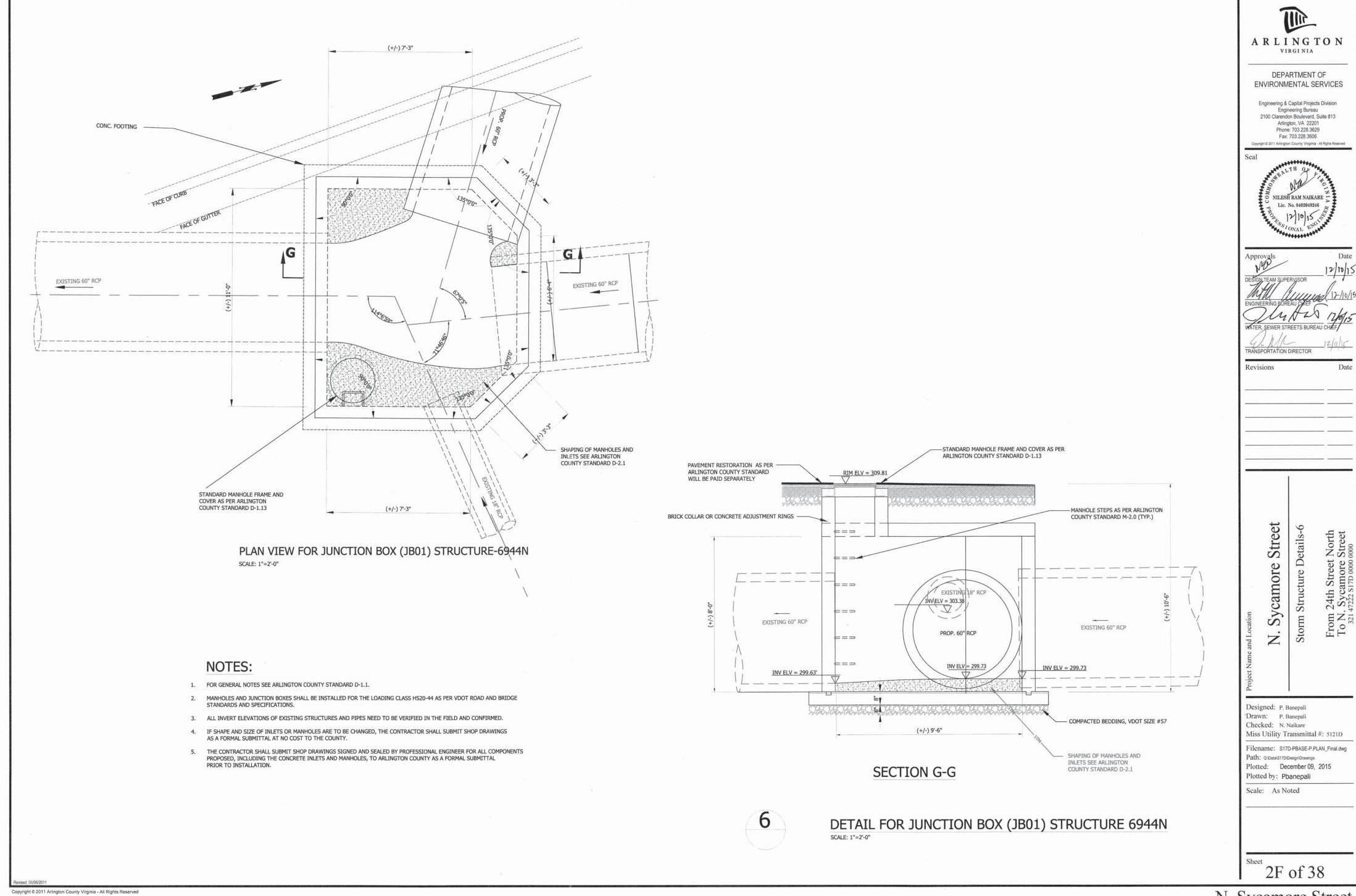
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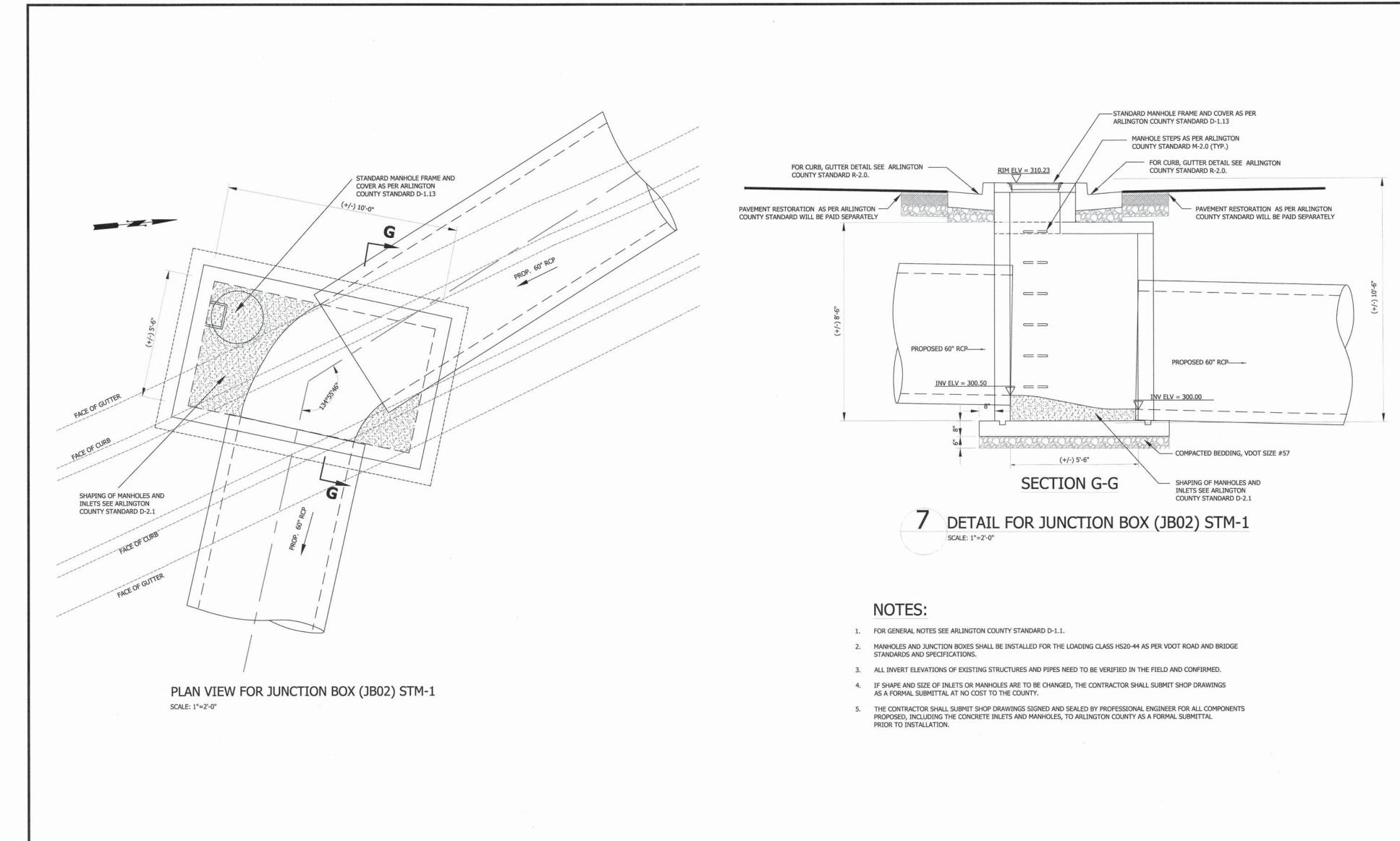


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Appr	Lic.	TH OF FRAM NAIK No. 04020492 2 10 15 ONAL EN	D
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Revi	sions		Date
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Project Name and Location	N. Sycamore Stree	Storm Structure Details-5	From 24th Street North To N. Sycamore Street 321 47222 S17D 0000 0000
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VIRGINIA

Phone: 703.228.3629 Fax: 703.228.3606

Street Sycamore

North Street

24th Street 3. Sycamore 5.

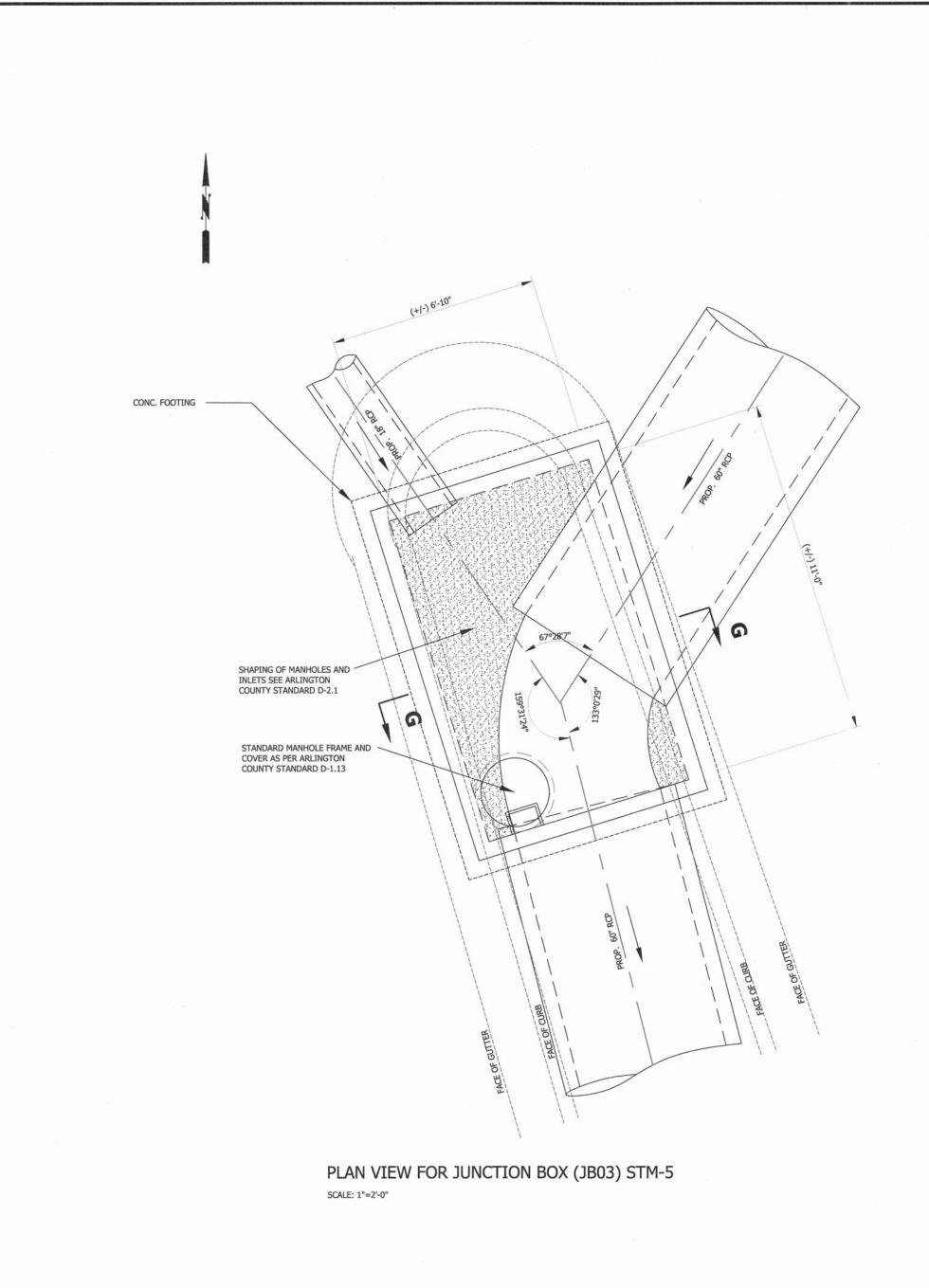
Storm Structure Details-7

Designed: P. Banepali Drawn: P. Banepali Checked: N. Naikare Miss Utility Transmittal #: 5121D

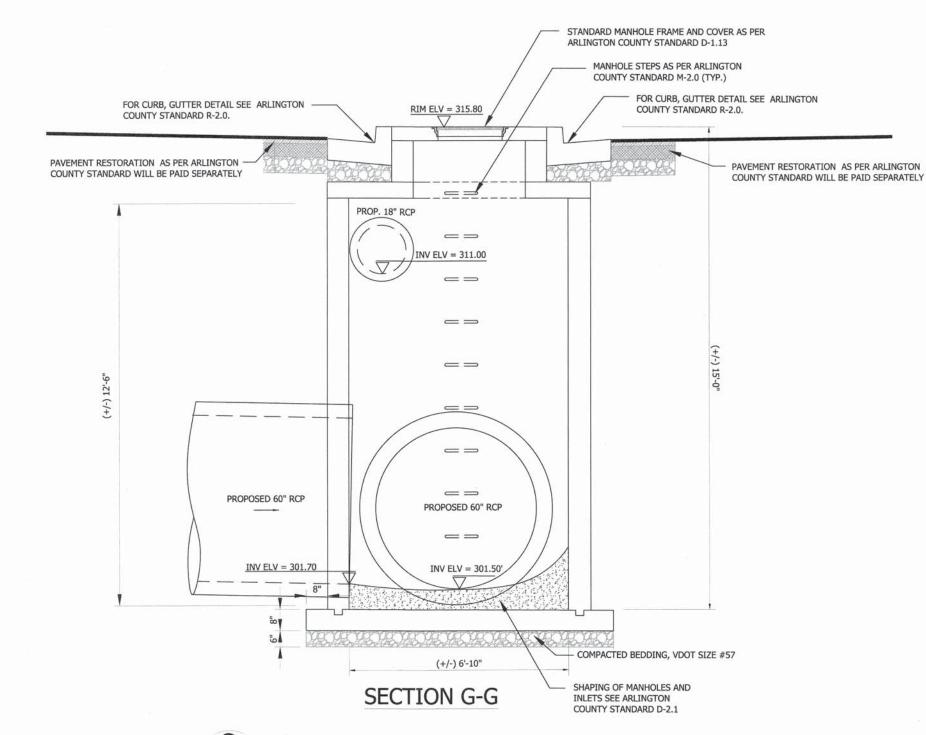
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Plotted: December 08, 2015 Plotted by: Pbanepali

Scale: As Noted

²G of 38



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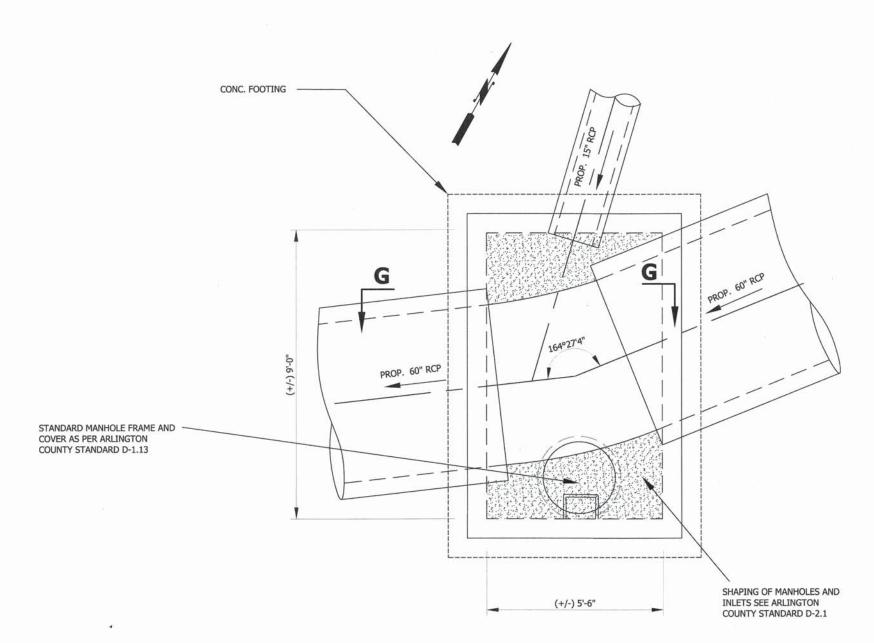


DETAIL FOR JUNCTION BOX (JB03) STM-5

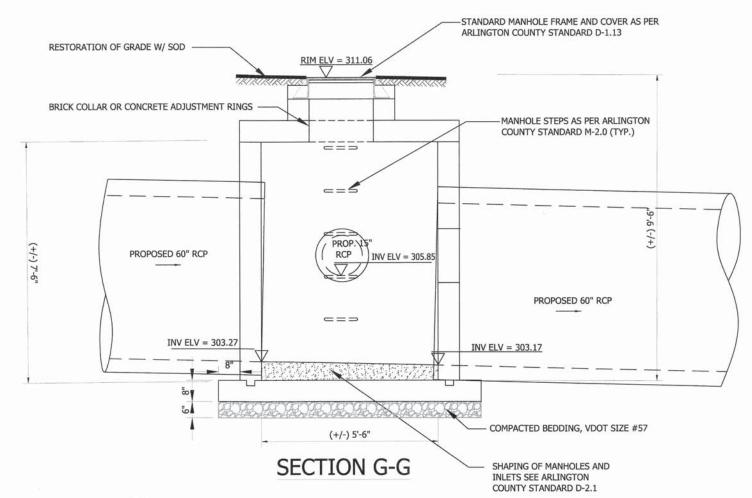
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ARLINGTO N DEPARTMENT OF **ENVIRONMENTAL SERVICES** Engineering & Capital Projects Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606 TRANSPORTATION DIRECTOR Revisions Street 24th Street Sycamore Sycamore S Sycamore 3 Designed: P. Banepali Drawn: P. Banepali Checked: N. Naikare Miss Utility Transmittal #: 5121D Filename: S17D-PBASE-P.PLAN_Final.dwg Path: Q:\Data\S17D\Design\Drawings Plotted: December 09, 2015 Plotted by: Pbanepali Scale: As Noted ²H of 38



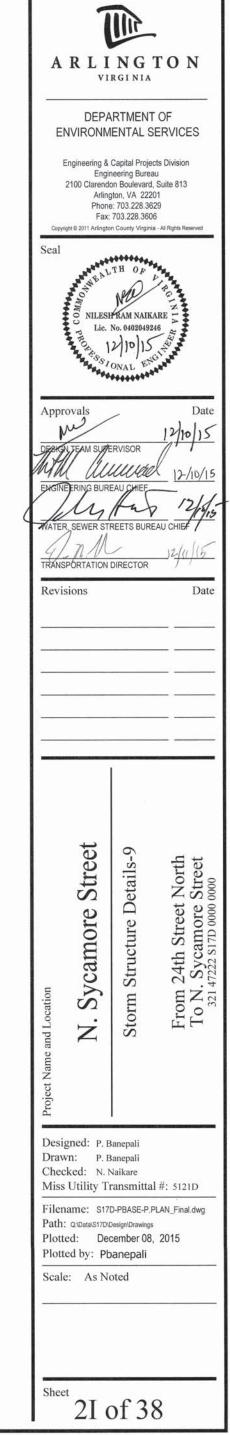
PLAN VIEW FOR JUNCTION BOX (JB05) STRUCTURE-14



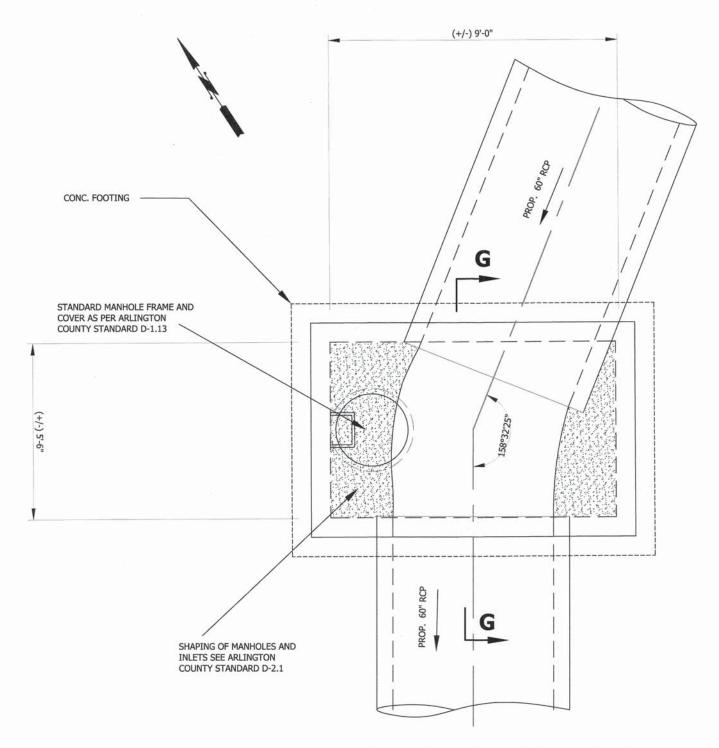
DETAIL FOR JUNCTION BOX (JB05) STRUCTURE-14

NOTES:

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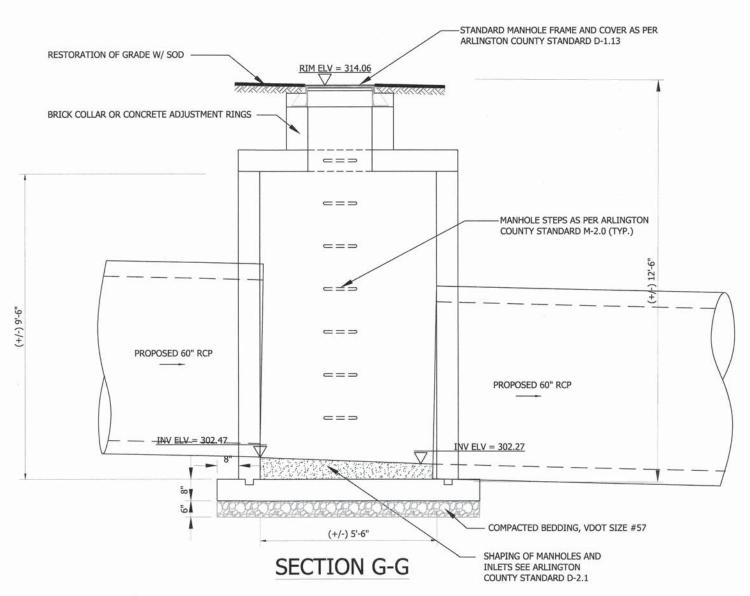


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PLAN VIEW FOR JUNCTION BOX (JB04) STM-3

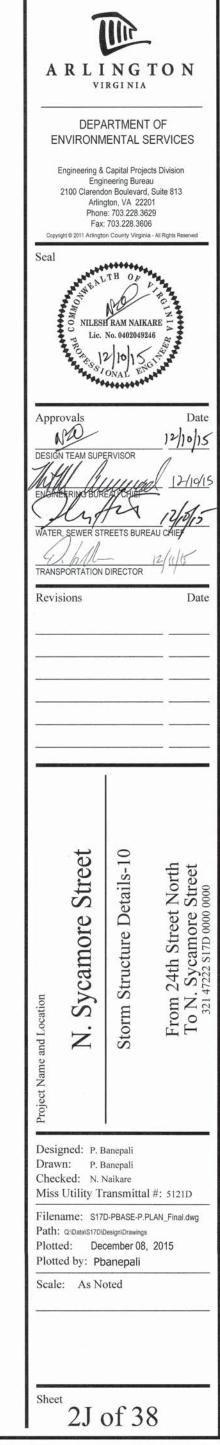
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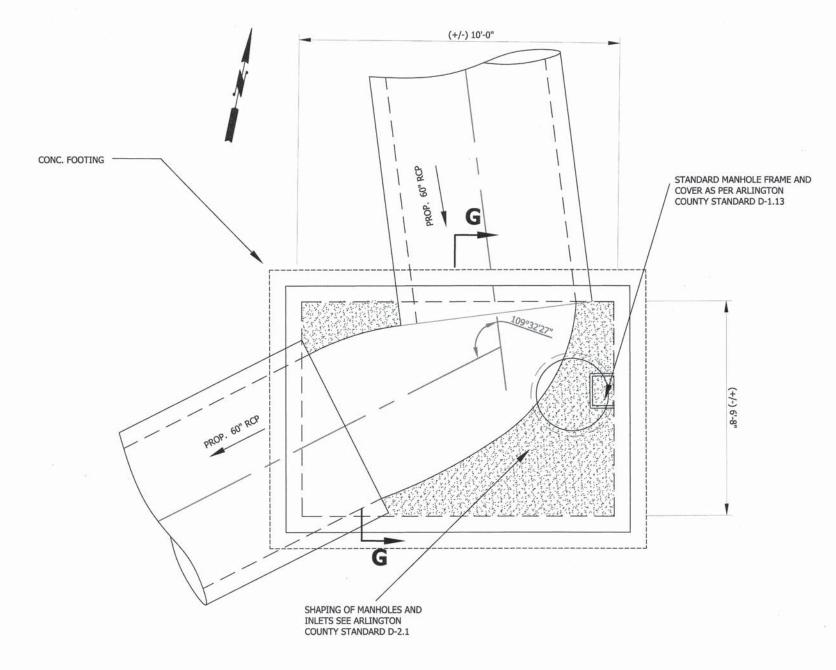


10 DETAIL FOR JUNCTION BOX (JB04) STM-3

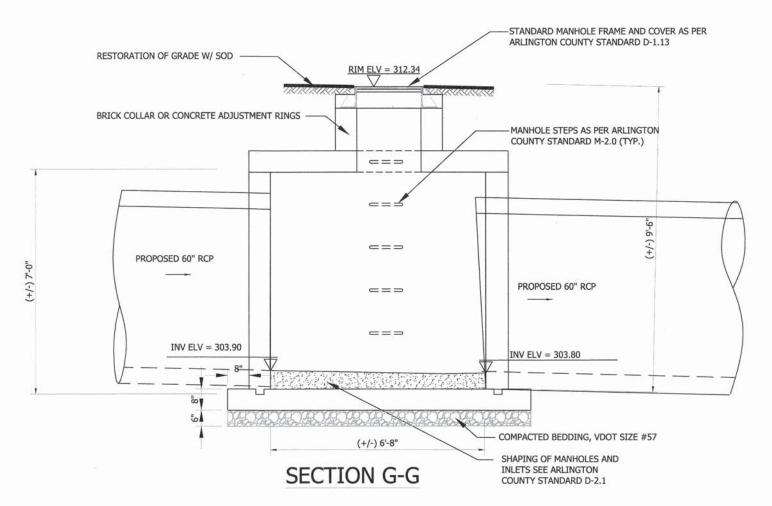
NOTES:

- 1. FOR GENERAL NOTES SEE ARLINGTON COUNTY STANDARD D-1.1.
- MANHOLES AND JUNCTION BOXES SHALL BE INSTALLED FOR THE LOADING CLASS HS20-44 AS PER VDOT ROAD AND BRIDGE STANDARDS AND SPECIFICATIONS.
- 3. ALL INVERT ELEVATIONS OF EXISTING STRUCTURES AND PIPES NEED TO BE VERIFIED IN THE FIELD AND CONFIRMED.
- 4. IF SHAPE AND SIZE OF INLETS OR MANHOLES ARE TO BE CHANGED, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AS A FORMAL SUBMITTAL AT NO COST TO THE COUNTY.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SIGNED AND SEALED BY PROFESSIONAL ENGINEER FOR ALL COMPONENTS PROPOSED, INCLUDING THE CONCRETE INLETS AND MANHOLES, TO ARLINGTON COUNTY AS A FORMAL SUBMITTAL PRIOR TO INSTALLATION.





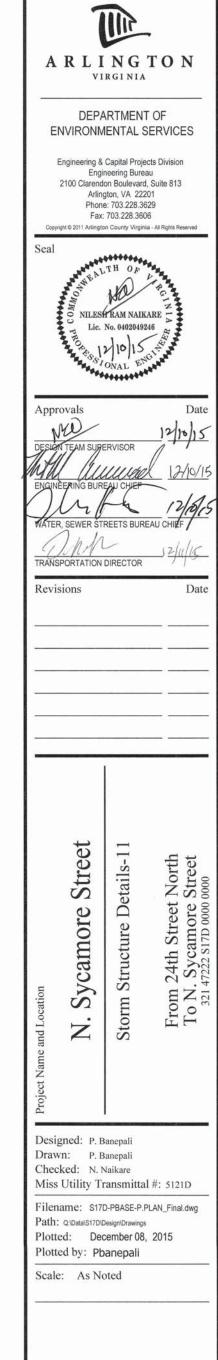
PLAN VIEW FOR JUNCTION BOX(JB06) STRUCTURE-12



11 DETAIL FOR JUNCTION BOX (JB06) STRUCTURE-12

NOTES:

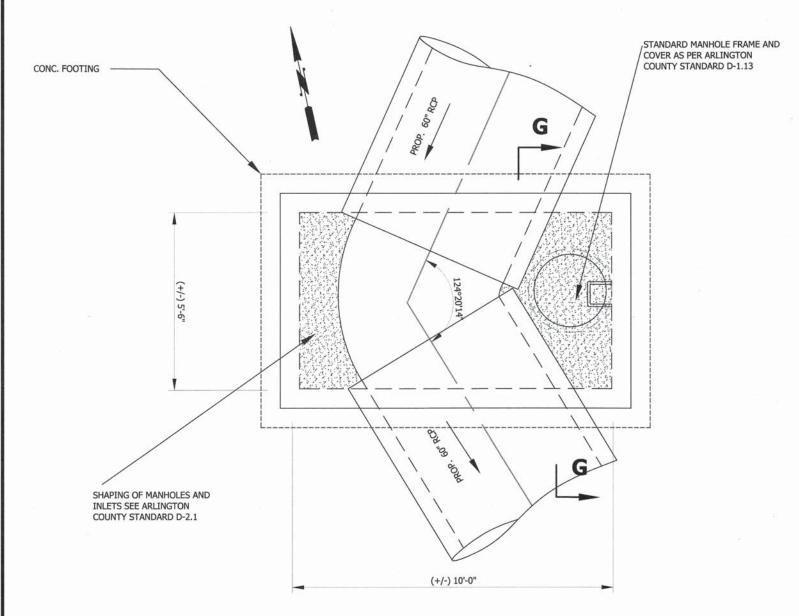
- 1. FOR GENERAL NOTES SEE ARLINGTON COUNTY STANDARD D-1.1.
- MANHOLES AND JUNCTION BOXES SHALL BE INSTALLED FOR THE LOADING CLASS HS20-44 AS PER VDOT ROAD AND BRIDGE STANDARDS AND SPECIFICATIONS.
- 3. ALL INVERT ELEVATIONS OF EXISTING STRUCTURES AND PIPES NEED TO BE VERIFIED IN THE FIELD AND CONFIRMED.
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- 5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SIGNED AND SEALED BY PROFESSIONAL ENGINEER FOR ALL COMPONENTS PROPOSED, INCLUDING THE CONCRETE INLETS AND MANHOLES, TO ARLINGTON COUNTY AS A FORMAL SUBMITTAL PRIOR TO INSTALLATION.



Revised: 06/06/2011

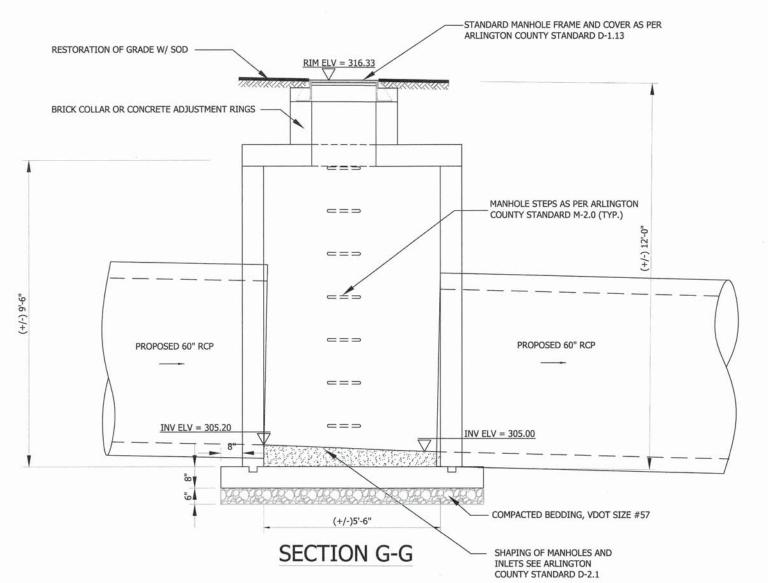
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^a 2K of 38



PLAN VIEW FOR JUNCTION BOX (JB07) STRUCTURE-11

SCALE: 1"=2'-0"



12 DETAIL FOR JUNCTION BOX (JB07) STRUCTURE-11

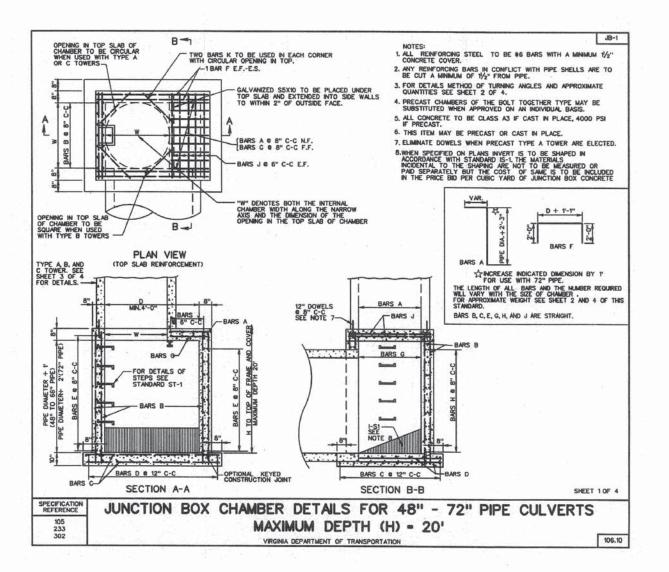
NOTES:

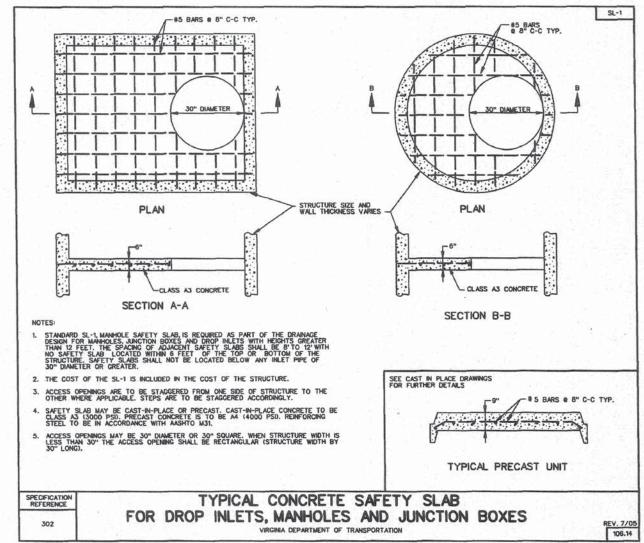
- 1. FOR GENERAL NOTES SEE ARLINGTON COUNTY STANDARD D-1.1.
- MANHOLES AND JUNCTION BOXES SHALL BE INSTALLED FOR THE LOADING CLASS HS20-44 AS PER VDOT ROAD AND BRIDGE STANDARDS AND SPECIFICATIONS.
- 3. ALL INVERT ELEVATIONS OF EXISTING STRUCTURES AND PIPES NEED TO BE VERIFIED IN THE FIELD AND CONFIRMED.
- 4. IF SHAPE AND SIZE OF INLETS OR MANHOLES ARE TO BE CHANGED, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS
 AS A FORMAL SUBMITTAL AT NO COST TO THE COUNTY.
- 5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SIGNED AND SEALED BY PROFESSIONAL ENGINEER FOR ALL COMPONENTS PROPOSED, INCLUDING THE CONCRETE INLETS AND MANHOLES, TO ARLINGTON COUNTY AS A FORMAL SUBMITTAL

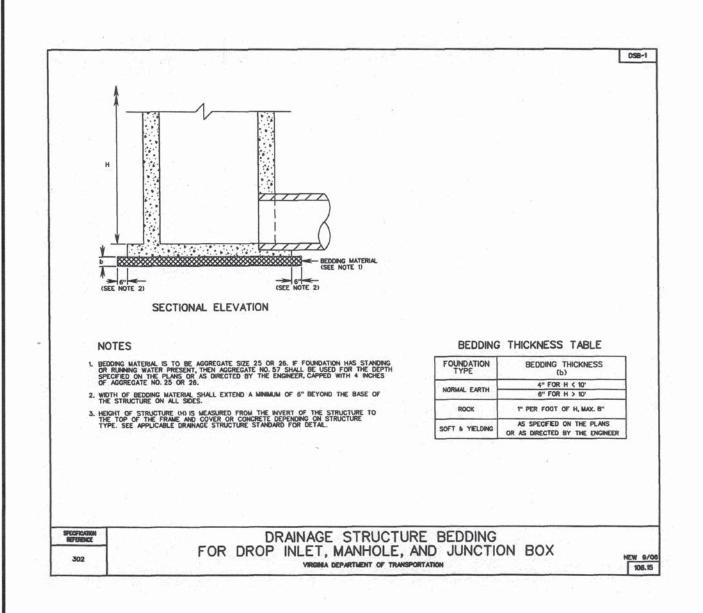
ARLINGTON DEPARTMENT OF ENVIRONMENTAL SERVICES Engineering & Capital Projects Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Phone: 703.228.3629 Fax: 703.228.3606 Approvals TRANSPORTATION DIRECTOR Storm Structure Details-12 Sycamore Street From 24th Street P To N. Sycamore S 321 47222 S17D 0000 00 Designed: P. Banepali Drawn: P. Banepali Checked: N. Naikare Miss Utility Transmittal #: 5121D Filename: S17D-PBASE-P.PLAN_Final.dwg Path: Q:\Data\S17D\Design\Drawings
Plotted: December 08, 2015 Plotted by: Pbanepali Scale: As Noted

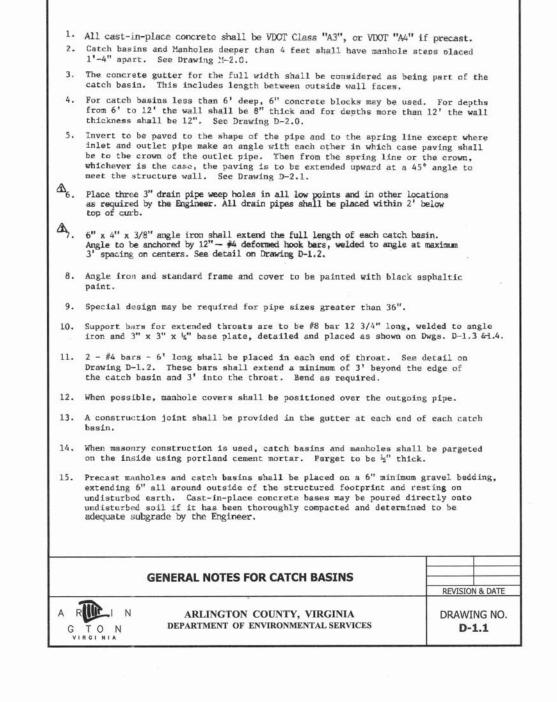
Revised: 06/06/2011

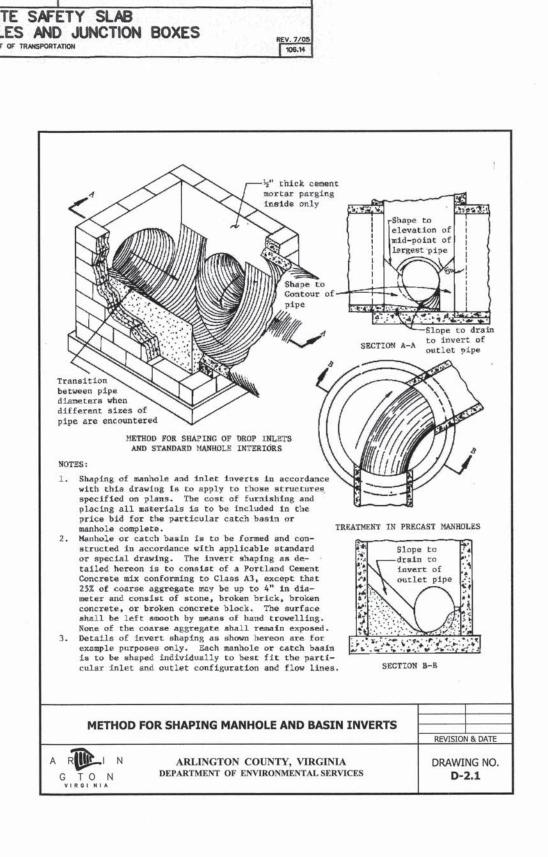
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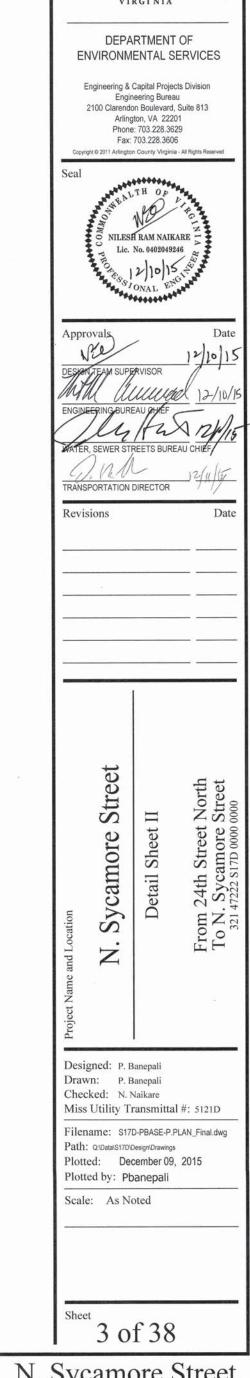




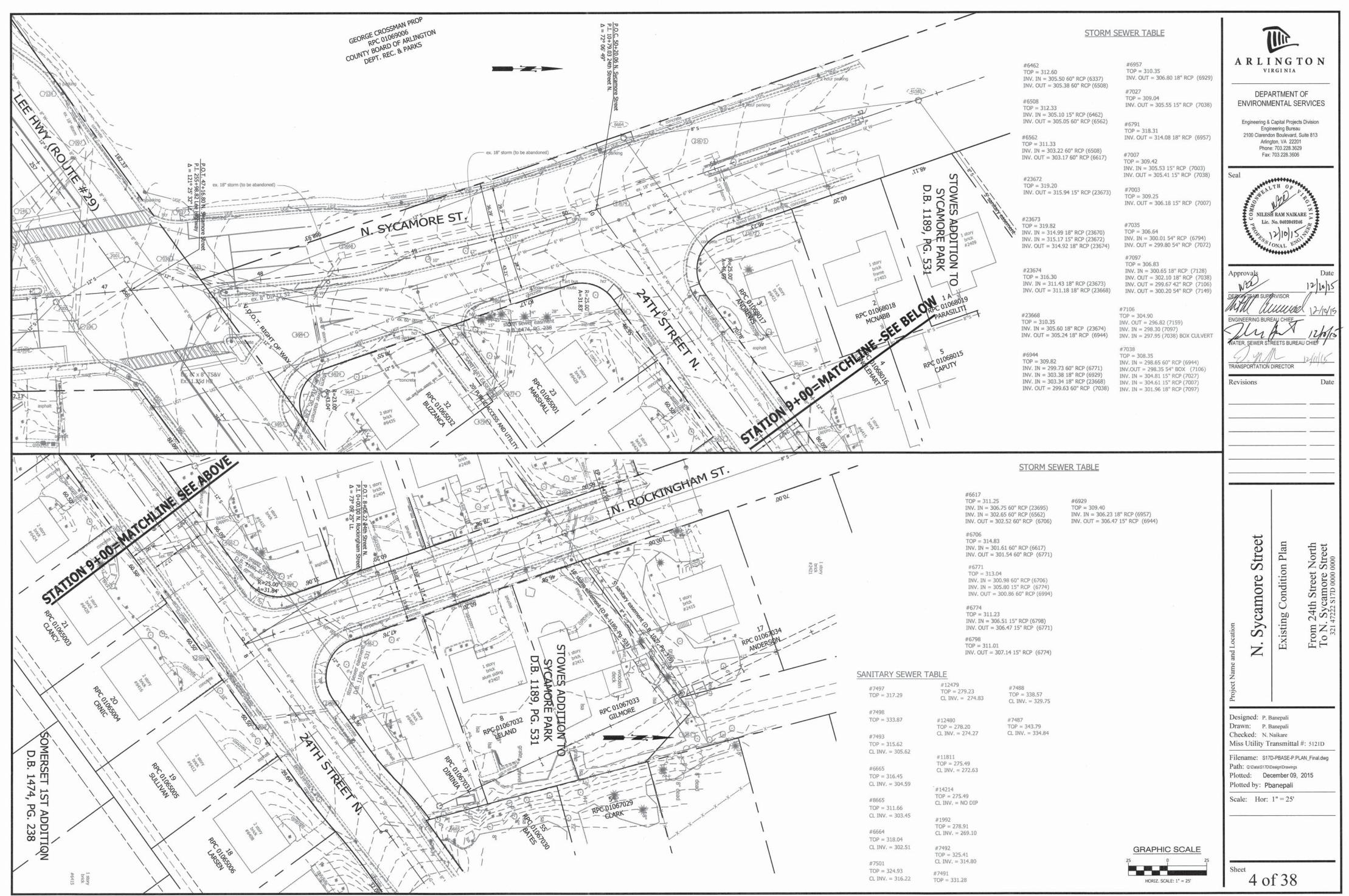


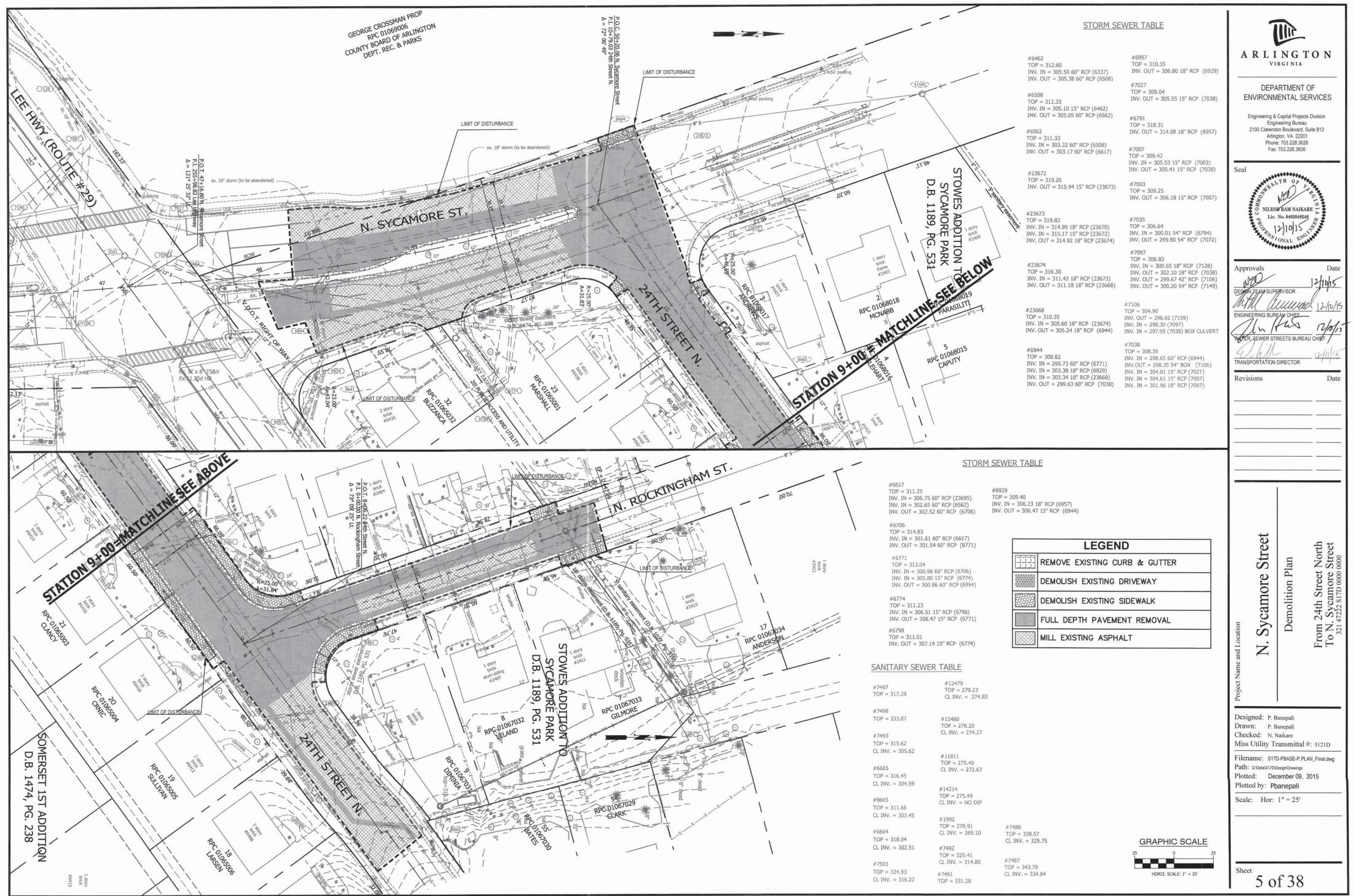


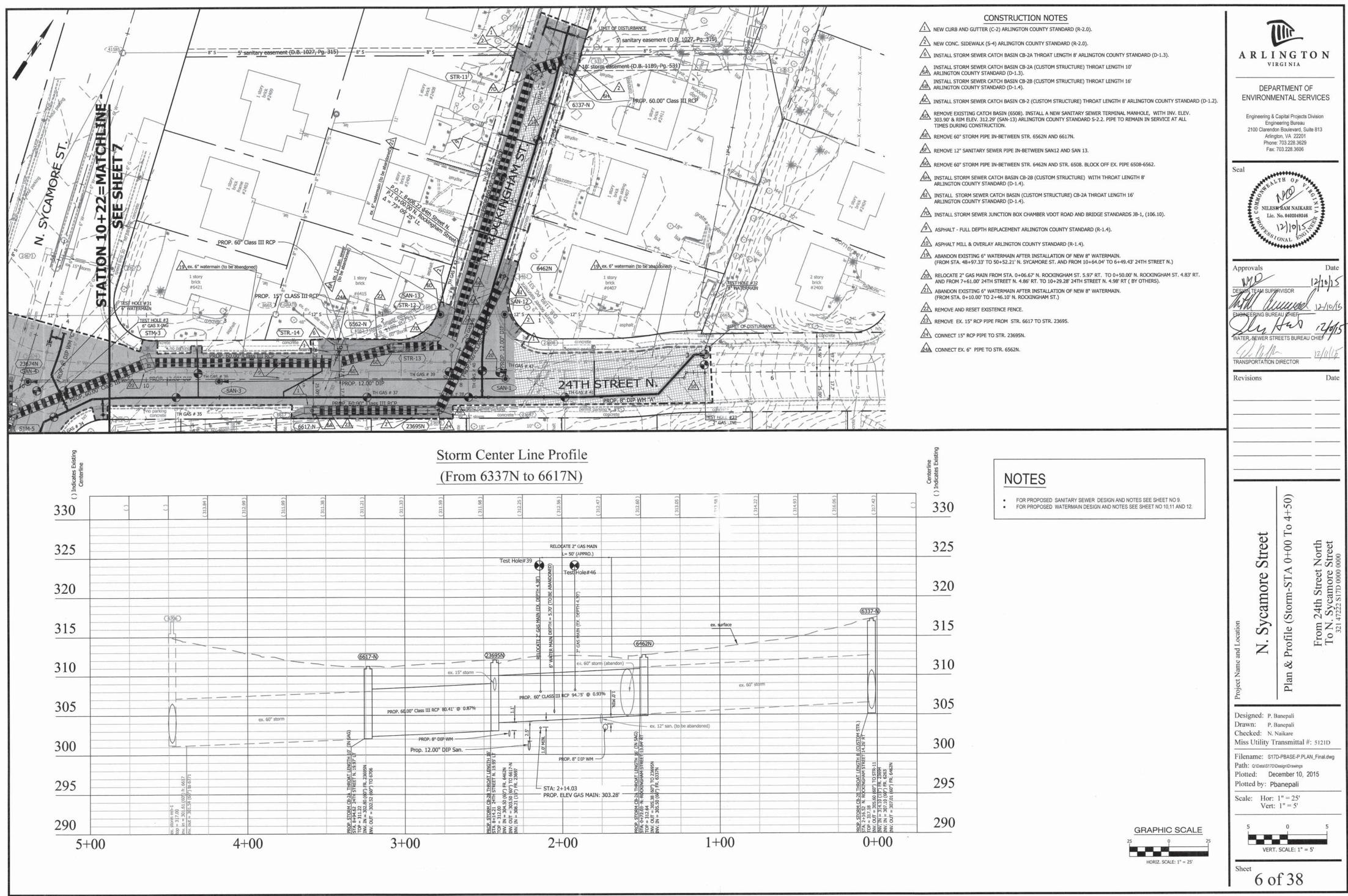


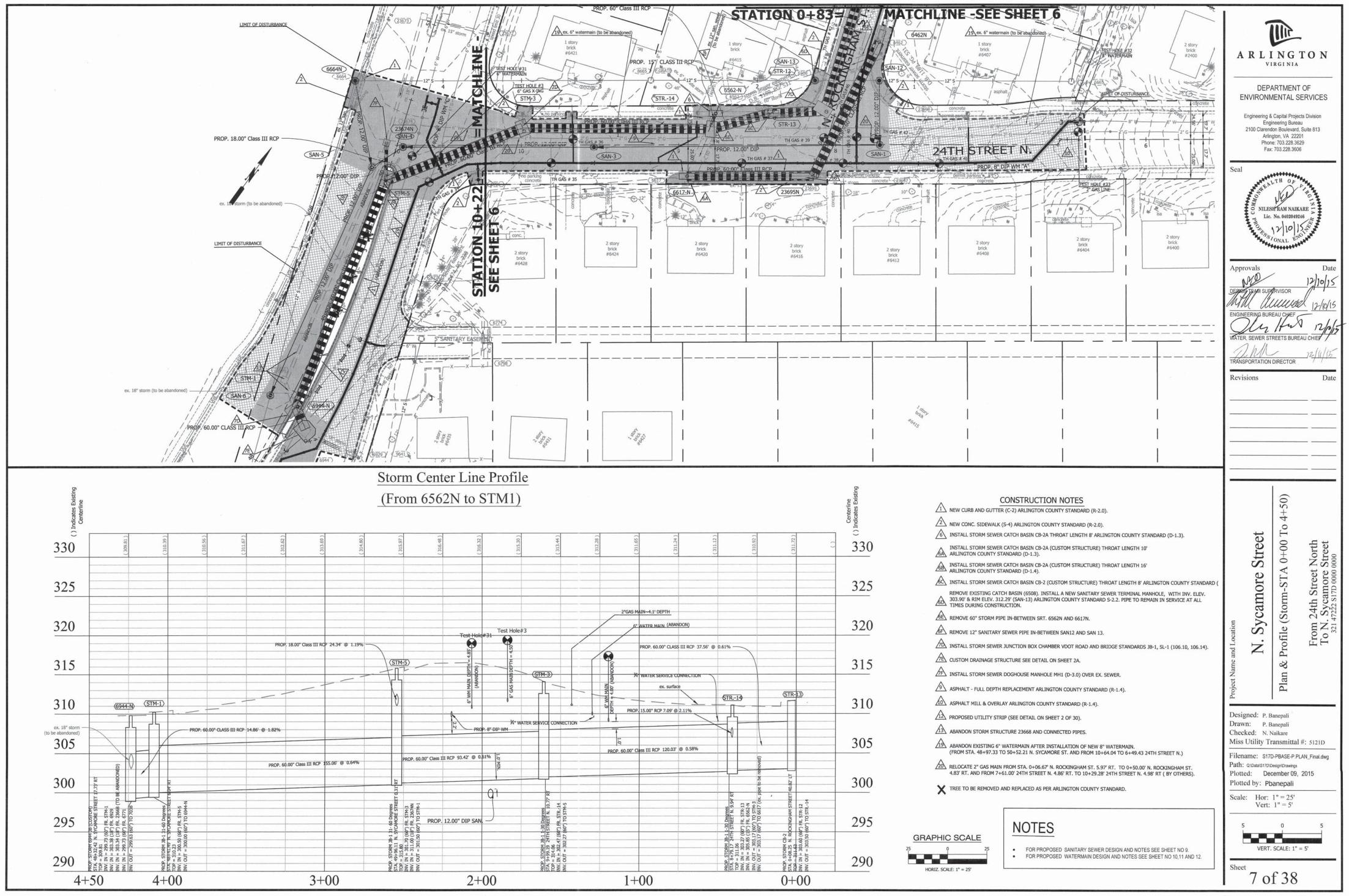


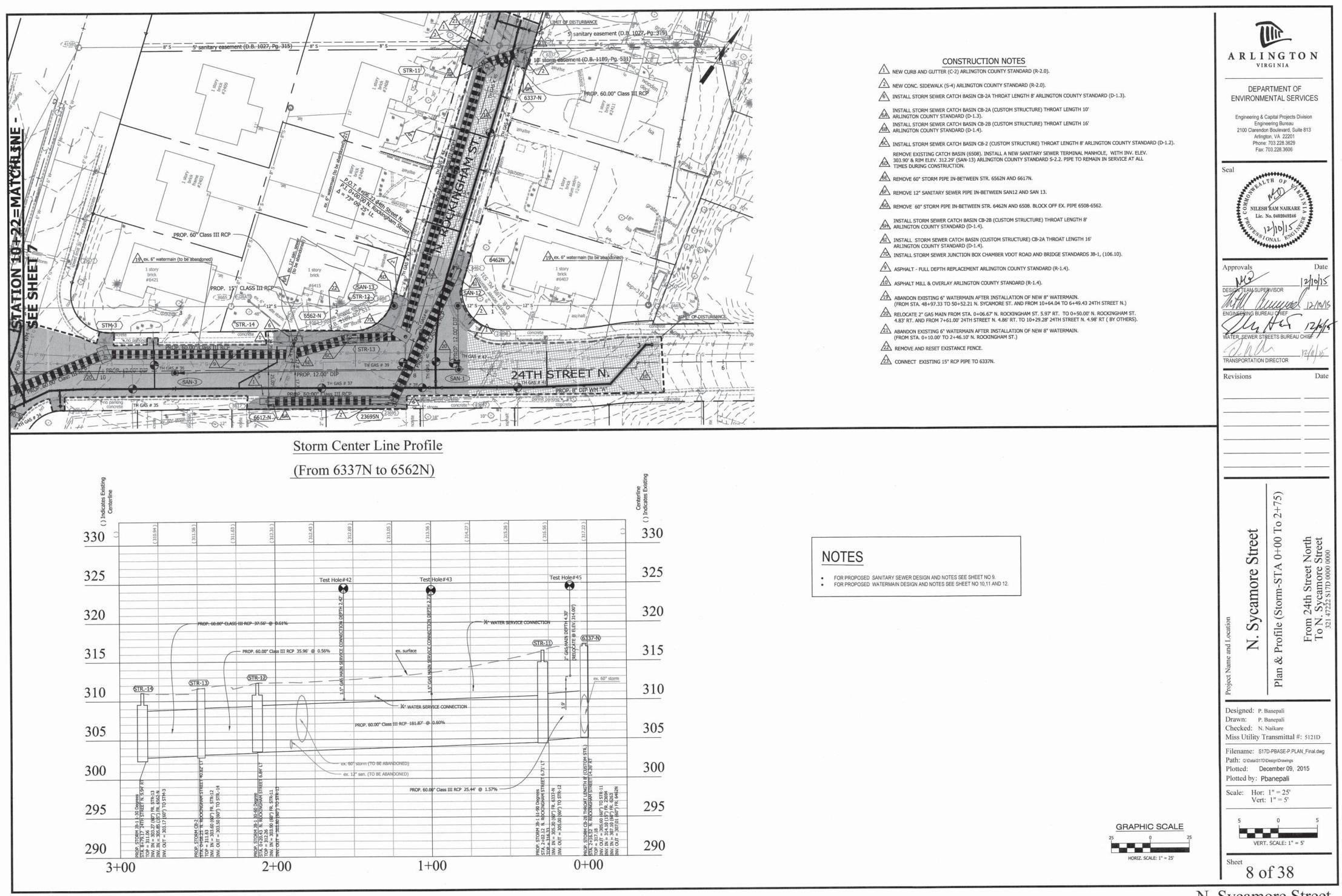
ARLINGTON

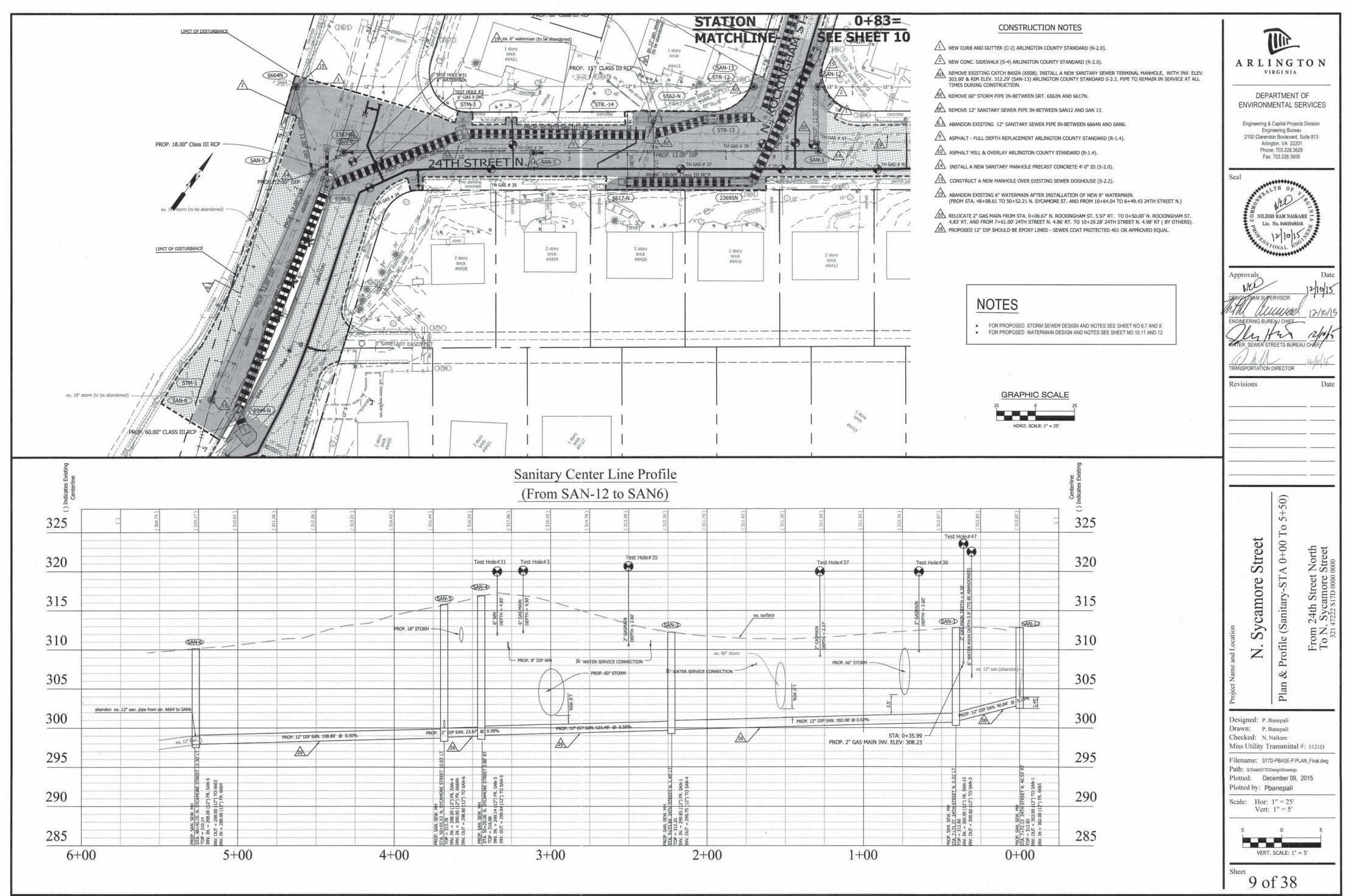


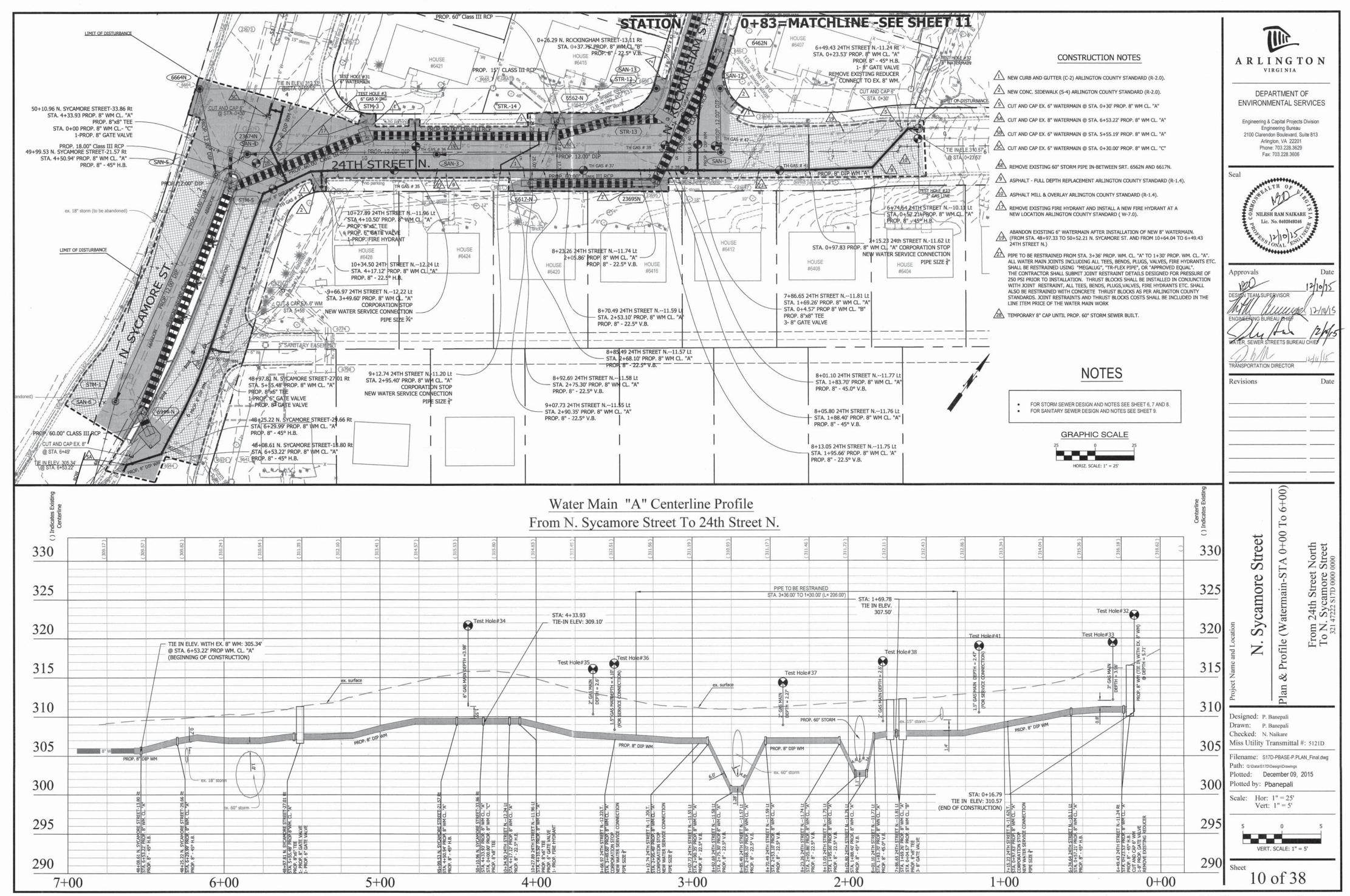


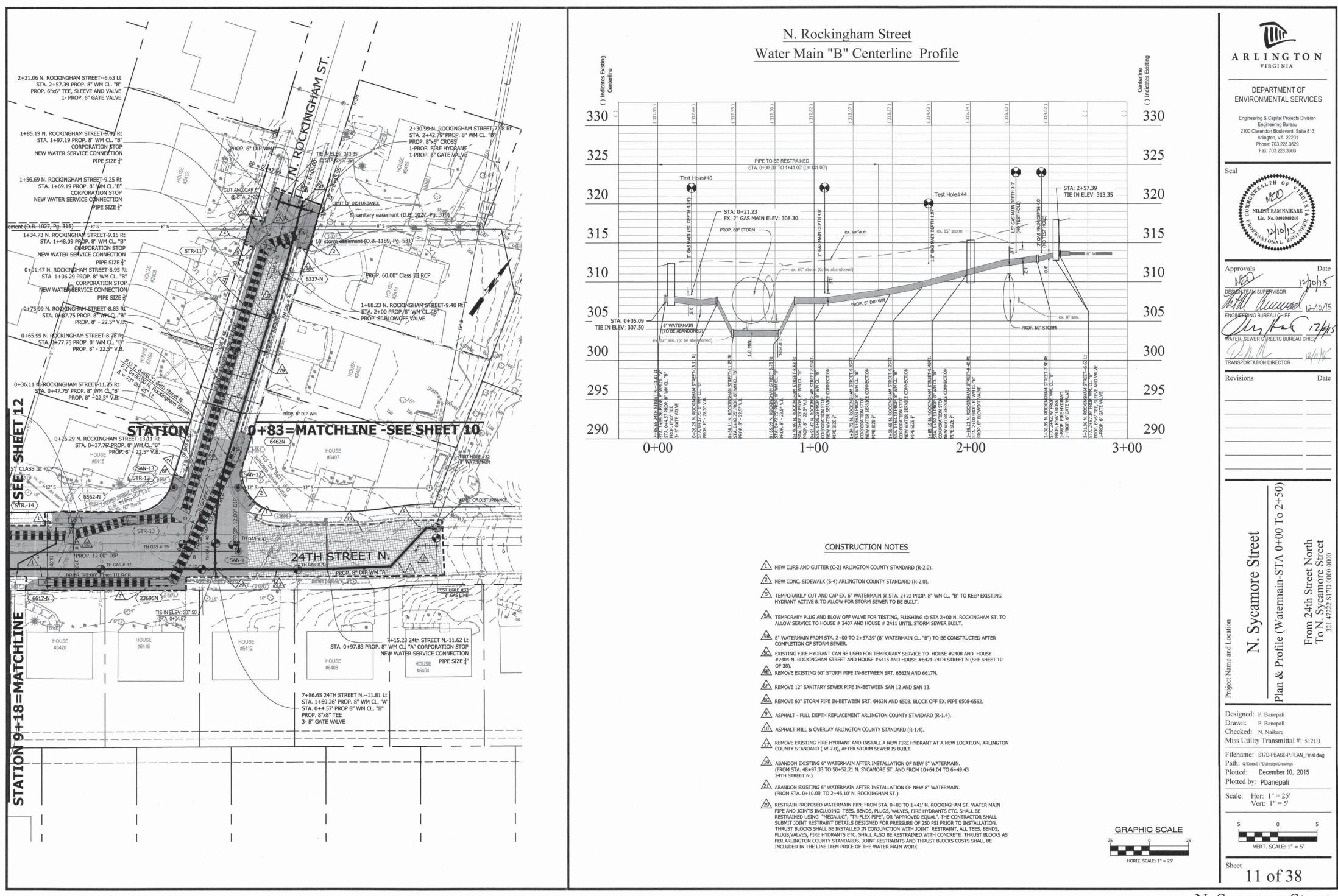


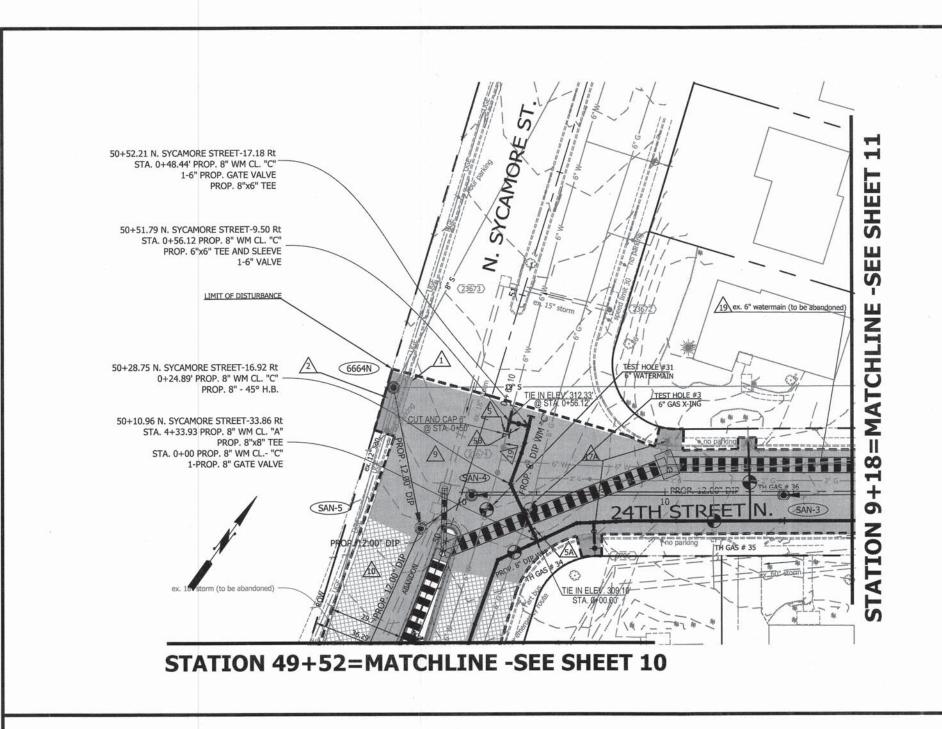


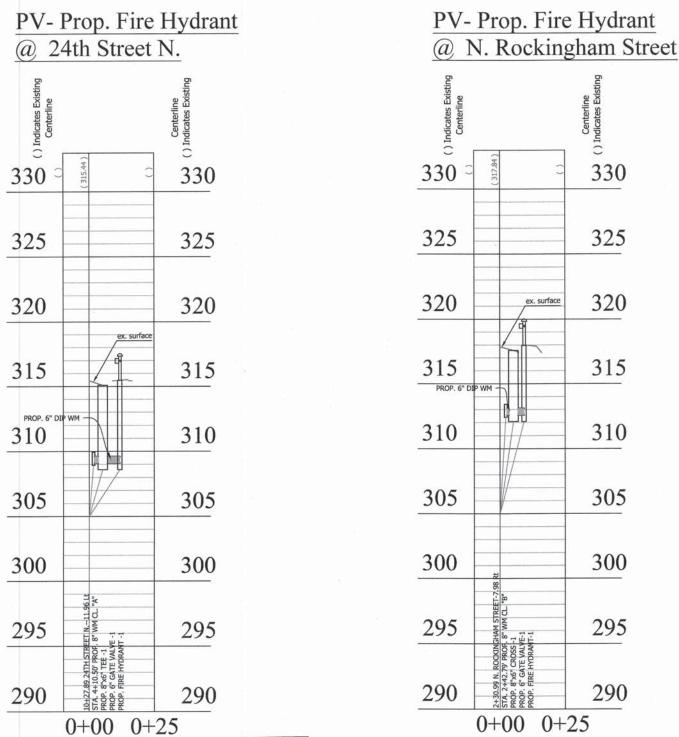


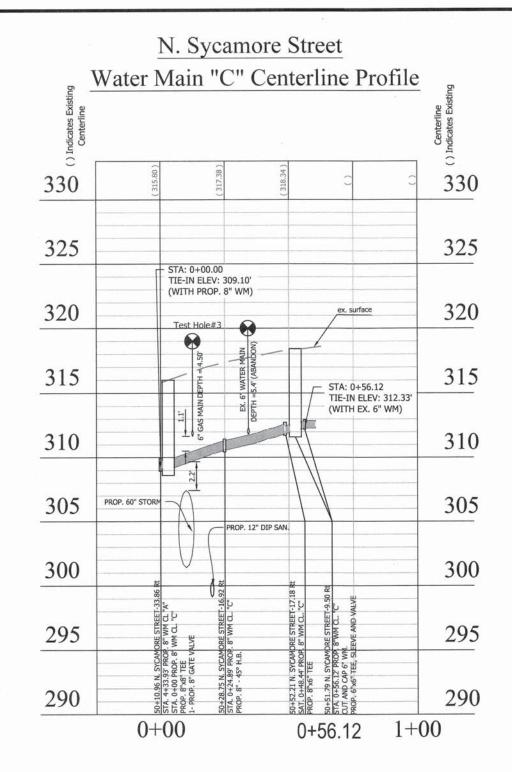












CONSTRUCTION NOTES

NEW CURB AND GUTTER (C-2) ARLINGTON COUNTY STANDARD (R-2.0).

NEW CONC. SIDEWALK (S-4) ARLINGTON COUNTY STANDARD (R-2.0).

CUT AND CAP EX. 6" WATERMAIN @ STA. 0+56. INSTALL 6X6 TEE AND 6" VALVE AFTER 8"WM "A" AND WM "B" ARE BUILT AND IN SERVICE WITH SERVICES TRANSFERRED.

REMOVE TEMP. CAP ON 8" WM AND BUILD 8" WM FROM STA. 0+00 TO 0+50 AFTER STORM INSTALLATION.

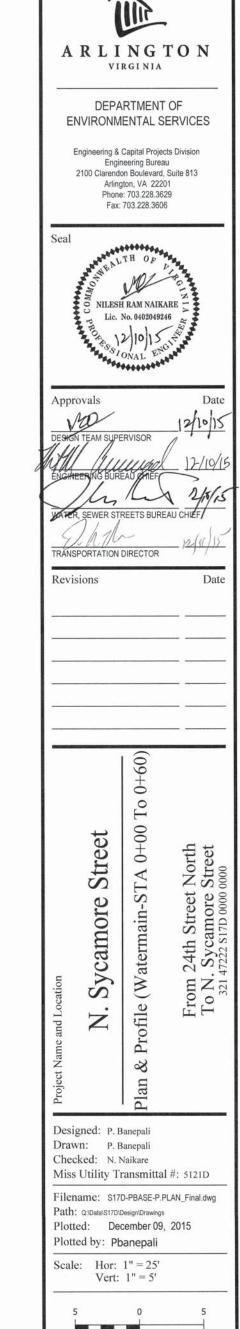
TEMPORARY BLOW OFF VALVE FOR TESTING, FLUSHING @ STA 0+50 PROP. WM. CL. "C" PRIOR TO TIE IN.

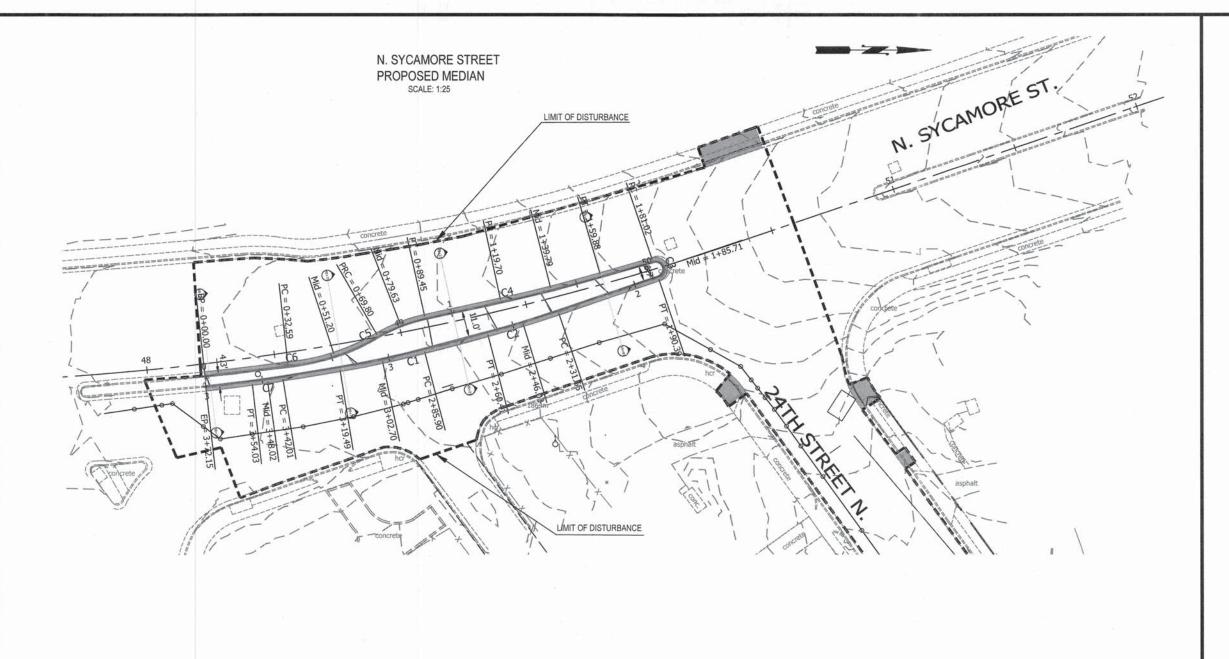
ASPHALT - FULL DEPTH REPLACEMENT ARLINGTON COUNTY STANDARD (R-1.4).

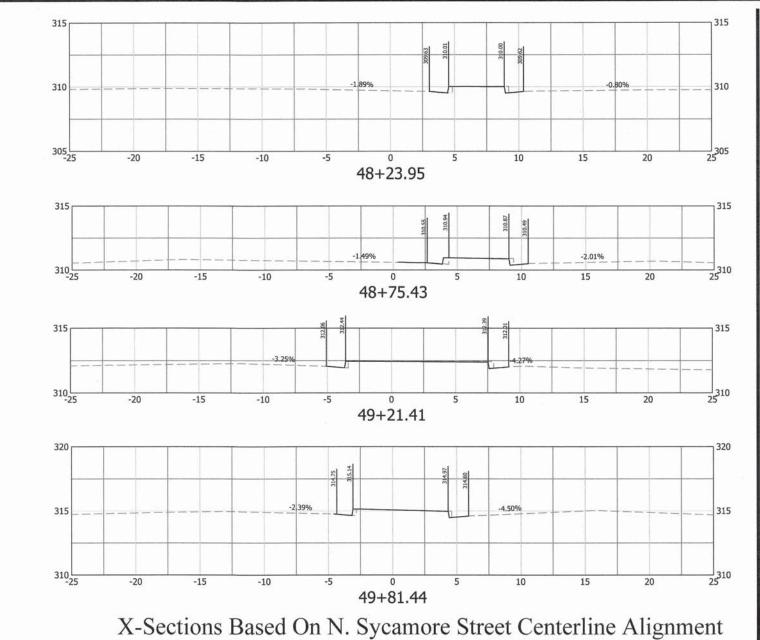
ASPHALT MILL & OVERLAY ARLINGTON COUNTY STANDARD (R-1.4).

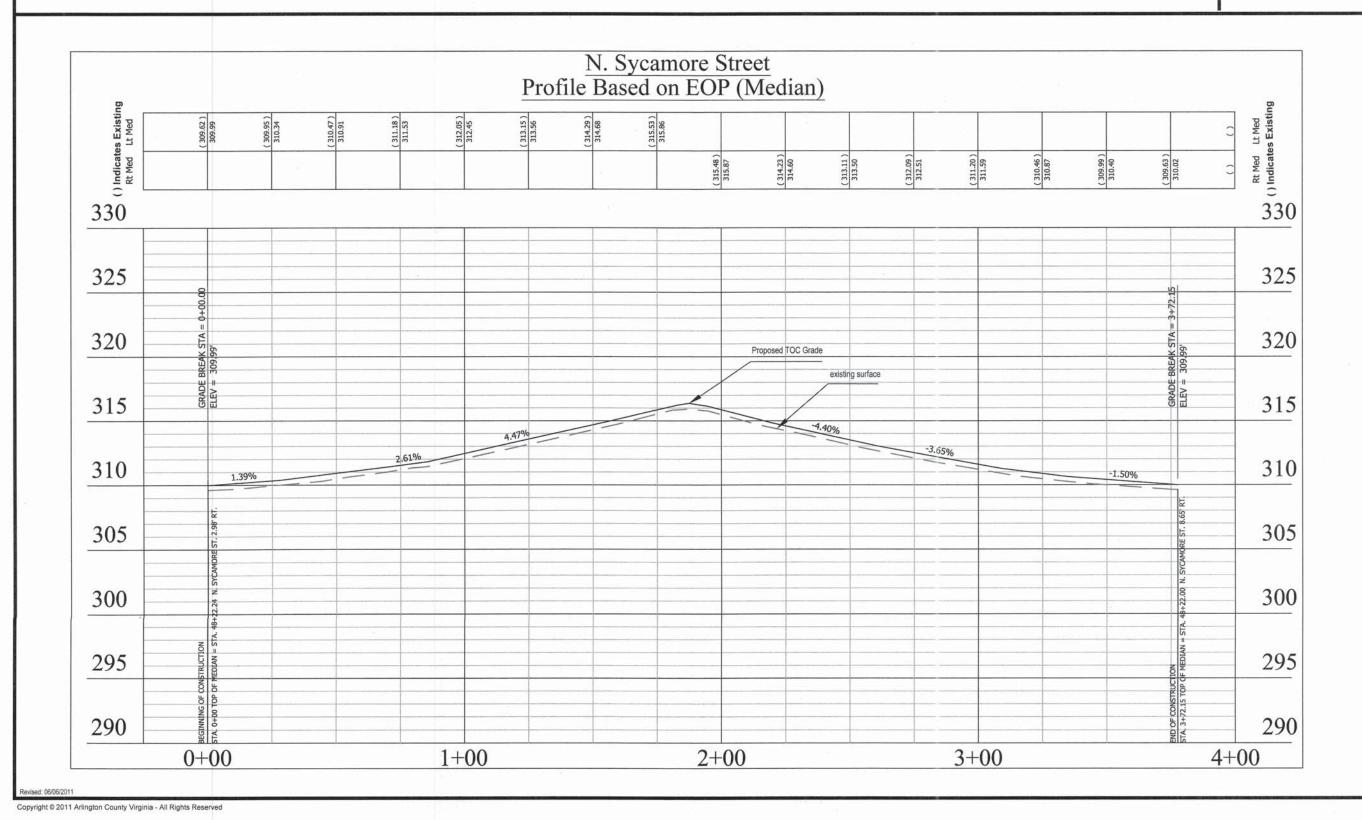
REMOVE EXISTING FIRE HYDRANT AND INSTALL A NEW FIRE HYDRANT AT A NEW LOCATION ARLINGTON COUNTY STANDARD (W-7.0).

ABANDON EXISTING 6" WATERMAIN FROM STA. 48+97.33 N. SYCAMORE STREET TO 50+52.21 N. SYCAMORE STREET, AFTER INSTALLATING NEW 8" WATERMAIN.

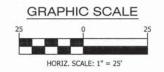








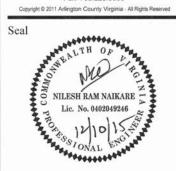
		Cui	rve Table		
Curve #	Radius	Chord Bearing	Chord Length	Delta (Δ)	Arc Length
C1	349.75'	S 11° 58' 31" E	33.57'	5° 30' 06"	33.58'
C2	399.75'	S 16° 47' 14" E	28.75'	4° 07' 19"	28.76'
C3	2.98'	N 71° 23′ 42" E	5.96'	180° 06' 29"	9.37'
C4	575.25'	N 14° 13' 03" W	40.17'	4° 00' 06"	40.18'
C5	90.25'	N 18° 01' 06" W	36.95'	23° 37' 41"	37.22'
C6	90.25'	N 18° 01' 06" W	36.95'	23° 37' 41"	37.22'
C7	249.75'	S 7° 50' 44" E	12.02'	2° 45' 27"	12.02'





DEPARTMENT OF ENVIRONMENTAL SERVICES

Engineering & Capital Projects Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606



Approvals Date

Design Team Supervisor

Design Team Su

Revisions Date

N. Sycamore Street and Profile (Median- STA 0+00 To 3+72.15)

From 24th Street North To N. Sycamore Street 321 47222 S17D 0000 0000

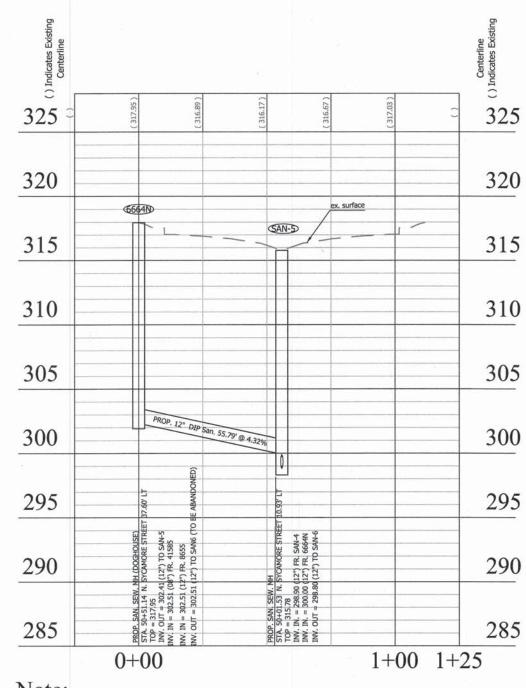
Designed: P. Banepali
Drawn: P. Banepali
Checked: N. Naikare
Miss Utility Transmittal #: 5121D

Filename: S17D-PBASE-P.PLAN_Final.dwg
Path: Q:DatalS17DDesign\Drawings
Plotted: December 09, 2015
Plotted by: Pbanepali

Scale: Hor: 1" = 25'
Vert: 1" = 5'

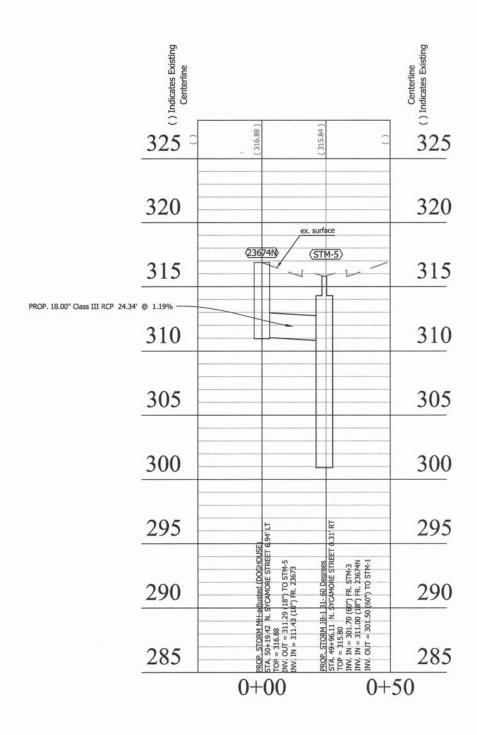
5 0 5 VERT. SCALE: 1" = 5'

N. Sycamore Street
Sanitary Center Line Profile from 6664N To SAN. 5



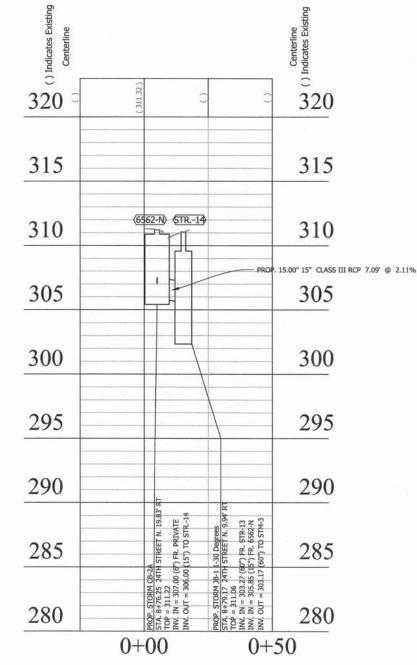
Note: For Plan View See Sheet No #9 Of 38

N. Sycamore Street
Storm Center Line Profile from 23674N To STM. 5

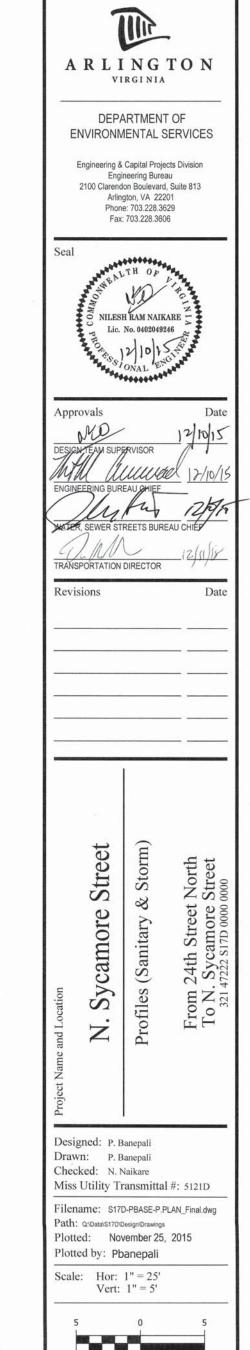


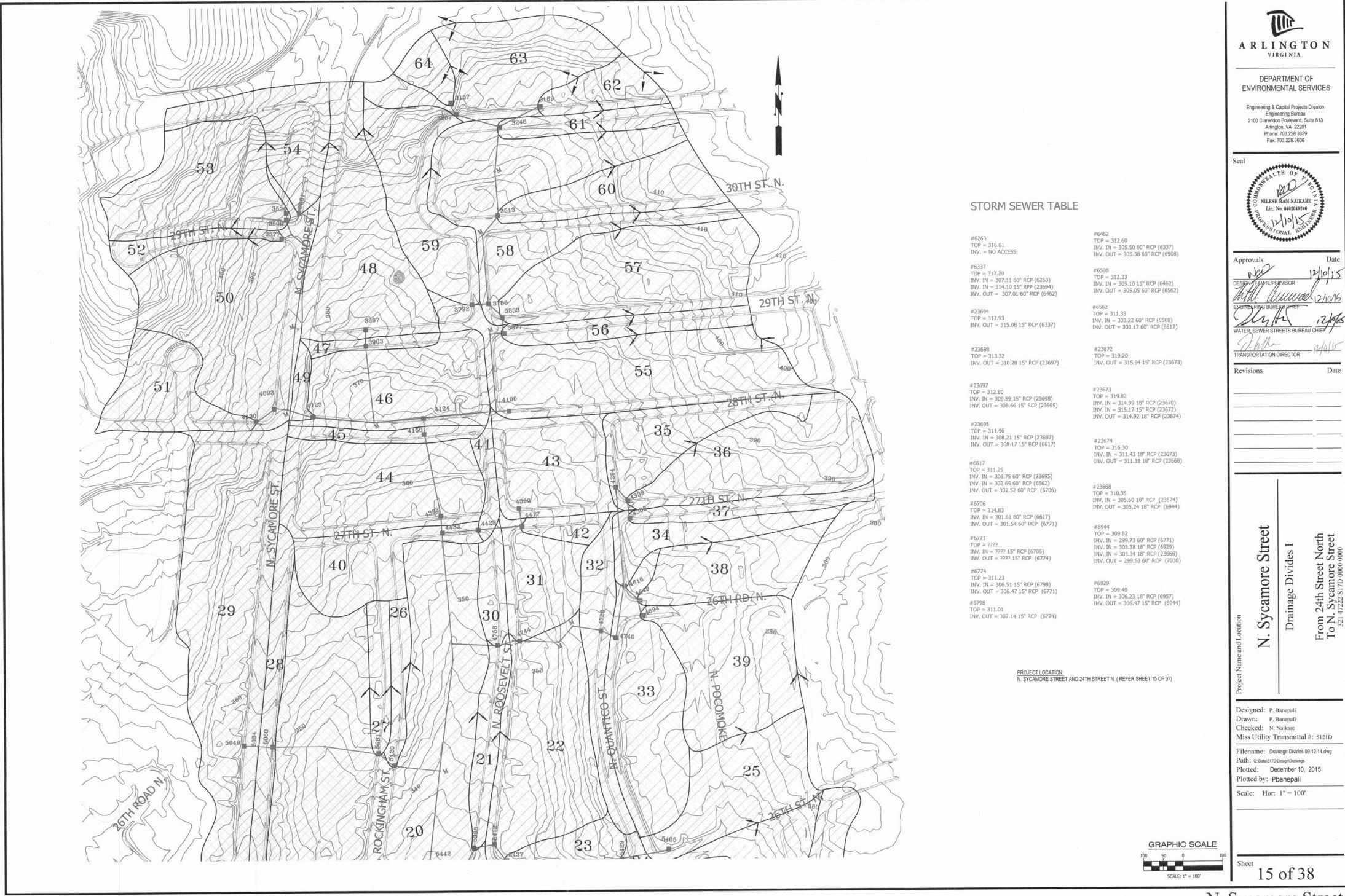
Note: For Plan View See Sheet No #7 Of 38

N. Sycamore Street
Storm Center Line Profile from 6562N To STR14



Note: For Plan View See Sheet No #8 Of 38







STORM SEWED DESIGN COMPLITATIONS

				S	IORI	M SE	:WE	K DE	SIG	N CC	MPL	JIAI	IONS	Š			
Project:	N. Sycamore	St.						(PRE-IM	PROVEN	IENT CO	NDITION	S)					
From	To	Drainage	С	Сх	Α	Inlet	Rain	Runoff	Invert	Elev.	Length	Slope	Dia.	Capacity	VEL.	Flow	Remarks
Point	Point	Area	Factor	Increment	Cumm.	Time Min.	Fall In/Hr	C.F.S.	Upper End	Lower End	FT.	%	IN.	Q C.F.S.	F.P.S.	Time MIN.	
6263	6337	91.89	0.52	47.78	47.78	15.00	4.63	221.23	308.40	307.10	130.5	1.00%	60	260.69	14.90	0.15	
23694	6337	1.02	0.58	0.59	0.59	15.00	4.63	2.74	315.08	314.10	35.5	2.76%	15	10.76	7.33	0.08	
6337	6462	1.42	0.59	0.84	49.21	15.16	4.61	227.11	307.01	305.50	149.7	1.01%	60	262.29	15.04	0.17	
6462	6508	3.88	0.41	1.59	50.80	15.35	4.60	233.57	305.38	305.10	44.6	0.63%	60	207.03	10.54	0.07	Capacity Exceeded
6508	6562	2.14	0.44	0.94	51.74	15.42	4.59	237.56	305.05	303.22	64.2	2.85%	60	440.86	22.87	0.05	
6562	6617	0.71	0.51	0.36	52.11	15.47	4.59	239.00	303.17	302.65	49.8	1.04%	60	266.93	15.37	0.05	
6617	6706	0.66	0.49	0.32	53.61	15.55	4.58	245.49	302.52	301.61	125.3	0.73%	60	222.54	11.33	0.18	Capacity Exceeded
23698	23697	0.23	0.61	0.14	0.14	15.00	4.63	0.65	310.28	309.59	45.1	1.53%	15	8.01	3.93	0.19	
23697	23695	0.64	0.71	0.45	0.59	15.18	4.61	2.74	308.66	308.21	63.3	0.71%	15	5.46	4.46	0.24	
23695	6617	1.17	0.5	0.59	1.18	15.41	4.59	5.42	308.17	306.74	68.0	2.10%	15	9.39	7.93	0.14	
*																	
6706	6771	0.00	0	0.00	53.61	15.73	4.56	244.58	301.54	300.98	64.8	0.86%	60	242.86	12.37	0.09	Capacity Exceeded
6771	6944	0.00	0	0.00	54.78	15.82	4.55	249.48	300.86	299.73	128.6	0.88%	60	244.82	12.47	0.17	Capacity Exceeded
23673	23674	2.03	0.65	1.32	1.41	15.19	4.61	6.53	314.92	311.43	92.1	3.79%	18	20.51	10.31	0.15	
23672	23673	0.14	0.68	0.10	0.10	15.00	4.63	0.44	315.94	315.17	43.3	1.78%	15	8.64	3.69	0.20	
23674	23668	0.00	0	0.00	1.41	15.33	4.60	6.51	311.18	305.60	155.9	3.58%	18	19.93	10.09	0.26	
23668	6944	0.00	0	0.00	1.41	15.57	4.58	6.47	305.24	303.34	33.4	5.68%	18	25.11	11.91	0.05	
6957	6929	0.28	0.69	0.19	0.19	15.00	4.63	0.89	306.80	306.23	48.6	1.17%	18	11.40	3.84	0.21	
6929	6944	0.48	0.42	0.20	0.39	15.20	4.61	1.82	306.47	303.38	39.3	7.87%	18	29.54	1.00	0.65	
6798	6774	1.45	0.56	0.81	0.81	15.00	4.63	3.76	307.14	306.52	23.6	2.63%	15	10.51	7.85	0.05	
6774	6771	0.63	0.57	0.36	1.17	15.05	4.63	5.42	306.47	305.80	34.6	1.94%	15	9.02	7.68	0.08	†
6944	7038	0.00	0	0.00	56.59	15.99	4.54	256.82	299.63	298.65	86.6	1.13%	60	277.88	16.06	0.09	
7003	7007	0.28	0.84	0.24	0.24	15.00	4.63	1.09	306.18	305.53	31.5	2.06%	15	9.30	5.08	0.10	
7007	7038	0.42	0.76	0.32	0.55	15.10	4.62	2.56	305.41	304.61	37.4	2.14%	15	9.48	6.56	0.09	

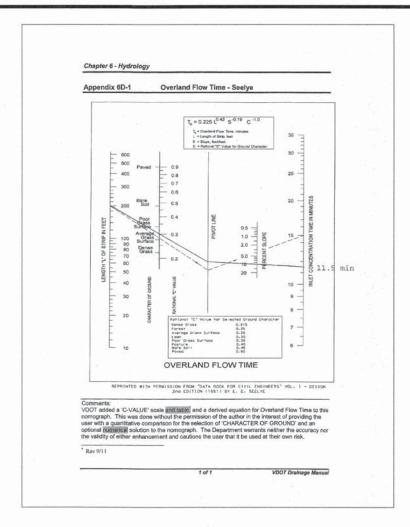
10.09 5.63 0.09

259.39 10.92 0.10 Culvert

Project: N. Sycamore St.

0.51 0.54 0.28 0.28 15.00 4.63 1.28 305.55 304.81 30.5 2.43% 15

0.00 57.42 16.09 4.53 260.04 298.35 297.95 67.4 0.59%



HYDRAULIC GRADE LINE COMPUTATIONS (PRE-IMPROVEMENT CONDITIONS)

INLET	UPSTREAM	Outlet Water	Do	Qo	Lo	Sfo	Hf		11.00	,	J	JNCTION LO	ss					1.3	0.5	FINAL	Inlet Water	RIM
STATION	INLET		in	cfs	ft	%	ft (7)	Vo	Ho	Qi	Vi	QiVi	2 Vi /2g	Hi	Angle	Hd	Ht	Ht	Ht	H	Surface Elev.	ELEV.
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
7106 7038	-	302.35	66.00	260.04	67.40	0.60	0.40	10.92	0.46	Т			_	1 4 40		1.76	2.62	0.00		Elevation	302.35	200.20
7030	6944	302.30	60.00	200.04	07.40	0.00	0.40	10.92	0.40	256.82	16.06	4125.71	4.01	1.40	46.64	1.76	3.63	0.00	1.81	2.22	304.57	308.35
	7007		15.00					_	1	2.56	6.56	16.81	0.67	0.23	58.58	0.36	1					+
	7027		15.00							1.28	5.63	7.18	0.49	0.17	38.81	0.18		1	+		+	
7007	7	304.57	15.00	2.56	37.37	0.16	0.06	6.56	0.17	1.24	0.00	1	0.10	0.14	00.01	0.22	0.52	0.68	0.34	0.40	304.97	309.42
	7003		15.00			1				1.09	5.08	5.53	0.40		58.53		3.02	-	0.01	0.10	001.01	000.11
7003		304.97	15.00	1.09	31.52	0.03	0.01	5.08	0.10					0.00		0.00	0.10	0.13	0.06	0.07	305.04	309.2
	0									1.09	0.00	0.00	0.00		0.00							100
7027		304.57	15.00	1.28	30.51	0.04	0.01	5.63	0.12					0.00		0.00	0.12	0.16	0.08	0.09	304.66	309.04
	0									1.28	0.00	0.00	0.00		0.00							
6944		304.57	60.00	256.82	86.55	0.97	0.84	16.06	1.00					0.84		1.35	3.20	0.00	1.60	2.44	307.01	309.82
	6771		60.00							249.48	12.47	3110.65	2.41	0.84	5.90	0.09						
	23668		18.00							6.47	11.91	77.14	2.20	0.77	70.50	1.35						
	6929		18.00							1.82	1.00	1.82	0.02	0.01	65.88	0.01						
23668		307.01	18.00	6.47	33.43	0.38	0.13	11.91	0.55					0.55	1	0.64	1.75	2.27	1.14	1.26	308.27	310.3
00001	23674		18.00							6.51	10.09	65.64	1.58		43.10			12720				
23674	00070	308.27	18.00	6.51	155.90	0.38	0.60	10.09	0.40	0.70	10.01			0.58		0.08	1.06	0.00	0.53	1.12	309.39	316.30
00070	23673	200.20	18.00	0.50	00.00	0.00	0.05	40.04	0.44	6.53	10.31	67.28	1.65	0.07	7.50	0.15	2.00					
23673	00070	309.39	18.00	6.53	92.06	0.38	0.35	10.31	0.41	0.44	2.00	4.00	204	0.07	07.04	0.15	0.63	0.00	0.32	0.67	310.06	319.8
23672	23672	310.06	15.00	0.44	42.20	0.00	0.00	2.60	0.05	0.44	3.69	1.63	0.21	0.00	87.84	0.00	0.05	0.07	0.00	0.04	240.40	240.00
23012	0	310.00	15.00	0.44	43.28	0.00	0.00	3.69	0.05	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.07	0.03	0.04	310.10	319.20
6929	U	307.01	18.00	1.82	39.28	0.03	0.01	1.00	0.00	0.44	0.00	0.00	0.00	0.08	0.00	0.13	0.00	0.00	0.44	0.45	207.40	200.4
0929	6957	307.01	18.00	1.02	39.20	0.03	0.01	1.00	0.00	0.89	3.84	3.44	0.23	0.06	64.50	0.13	0.22	0.28	0.14	0.15	307.16	309.40
6957	0337	307.16	18.00	0.89	48.64	0.01	0.00	3.84	0.06	0.03	3.04	3.44	0.23	0.00	04.50	0.00	0.06	0.07	0.04	0.04	307.20	310.38
0001	0	307.10	10.00	0.03	40.04	0.01	0.00	3.04	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.04	0.04	307.20	310.30
6771		307.01	60.00	249.48	128.57	0.91	1.17	12.47	0.60	0.00	0.00	0.00	0.00	0.83	0.00	0.63	2.07	0.00	1.03	2.21	309.21	313.04
	6706	501.01	60.00	210.10	120.01	0.01	1	12.11	0.00	244.58	12.37	3025.11	2.38	0.83	13.45	0.21	2.01	0.00	1.00	2,21	303.21	010.0
	6774		15.00							5.42	7.68	41.61	0.92	0.32	87.51	0.63						
6774		309.21	15.00	5.42	34.57	0.70	0.24	7.68	0.23					0.33		0.45	1.01	1.32	0.66	0.90	310.11	311.23
	6798		15.00							3.76	7.85	29.51	0.96		50.17			735-				
6798		310.11	15.00	3.76	23.57	0.34	0.08	7.85	0.24					0.00		0.00	0.24	0.31	0.16	0.23	310.35	311.01
	0									3.76	0.00	0.00	0.00		0.00							
6706		309.21	60.00	244.58	64.75	0.88	0.57	12.37	0.59					0.70		1.02	2.32	3.01	1.51	2.07	311.29	317.00
	6617		60.00							245.49	11.33	2782.38	1.99		55.39							
6562		314.32	60.00	239.00	49.77	0.84	0.42	15.37	0.92					2.84		3.82	7.58	9.85	4.93	5.34	319.67	311.33
	6508		60.00							237.56	22.87	5433.54	8.12		50.00							
6508		319.67	60.00	237.56	64.21	0.83	0.53	22.87	2.03					0.60		0.04	2.68	3.48	1.74	2.27	321.94	312.33
	6462		60.00							233.57	10.54	2462.73	1.73		3.90							
6462		321.94	60.00	233.57	44.55	0.80	0.36	10.54	0.43					1.23		1.72	3.38	4.40	2.20	2.56	324.50	312.60
	6337		60.00							227.11	15.04	3415.03	3.51		52.60							
6617		311.29	60.00	245.49	125.31	0.88	1.11	11.33	0.50				-	1.28		2.08	3.86	0.00	1.93	3.04	314.32	311.25
	6562		60.00				-	_		239.00	15.37	3674.53	3.67	1.28	62.70	2.08						
00000	23695	244.20	15.00	5.40	07.07	0.70	0.10	7.00	0.04	5.42	7.93	42.94	0.98	0.34	3.76	0.02					-	
23695	00007	314.32	15.00	5.42	67.97	0.70	0.48	7.93	0.24	0.74	1.10	40.00		0.11	2.11	0.01	0.36	0.46	0.23	0.71	315.03	311.96
22607	23697	245 02	15.00	274	62.20	0.10	0.11	4.46	0.00	2.74	4.46	12.22	0.31	0.00	2.44	0.40	0.00	0.00	0.40	0.04	245.04	210.01
23697	23698	315.03	15.00 15.00	2.74	63.30	0.18	0.11	4.46	0.08	0.65	2.02	0.55	0.04	0.08	04.04	0.13	0.30	0.38	0.19	0.31	315.34	312.80
22600	23096	245 24		0.65	45 10	0.01	0.00	2.02	0.06	0.65	3.93	2.55	0.24	0.00	61.64	0.00	0.00	0.00	0.04	0.04	245.00	242.00
23698	0	315.34	15.00	0.65	45.12	0.01	0.00	3.93	0.06	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.08	0.04	0.04	315.38	313.3
6337	U	324 50	60.00	227 44	149.68	0.76	4.42	15.04	0.00	0.65	0.00	0.00	0.00	4.04	0.00	244	4.00	E 40	0.74	2.00	200.07	242.7
0331	6263	324.50	60.00	227.11	149.08	0.76	1.13	15.04	0.88	221.23	14.90	3296.26	3.45	1.21	72.02	2.14	4.22	5.49	2.74	3.88	328.37	319.7
	23694		15.00				-			2.74	7.33	20.07	0.83	0.29	61.85	0.47		-				+
6263	25054	328.37	60.00	221.23	130.45	0.72	0.94	14.90	0.86	2.14	1.55	20.01	0.03	0.29	01.00	0.47	0.86	0.00	0.43	1.37	329.74	321.6
	0	020.01	00.00	221.23	100,40	0.12	0.54	14.50	0.00	221.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	1.37	529.14	321,0
23694	-	328.37	15.00	2.74	35.49	0.18	0.06	7.33	0.21	221.20	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.27	0.14	0.20	328 57	317.93

0.00

0.00 0.21 0.27 0.14 0.20 328.57 317.93

TIME OF CONCENTRATION ANALYSIS

USING SUBSHED #63 AT VERY TOP OF DRAINAGE SHED, SHEET 14, and INLET TIME CAN BE COMPUTED to INLET #3246 THUS:

HT. = ELEV. 420 - 400 = 20 FT. OVERLAND FLOW - GRASS/LAWN

L = 200 LF TO INLET #3246 (MAX VALUE TO BE 200')

SLOPE = 20/200 = 10%

FROM SEELYE NOMOGRAPH VDOT APPENDIX 6D-1 - T = 11.5 MIN FOR LAWN

TRAVEL TIME IN THE PIPED DRAINAGE SYSTEM FROM INLET #3246 TO # 6337 CAN BE COMPUTED:

7038

PIPE DIA.	(FT)	S (ft/ft)	MANNINGS V (FPS)	TIME (MIN)			
15 INCH	113.5	.0491	11.67	0.16			-
15 INCH	112.3	.0614	13.05	0.14		-	
18 INCH	63.7	.0188	8.18	0.13			
24 INCH	240	.0382	14.11	0.28			
24 INCH	195.3	.0488	15.95	0.20			
27 INCH	184	.0155	9.71	0.32			
30 INCH	41	.0885	24.96	0.03			
30 INCH	576.6	.0208	12.10	0.79			
42 INCH	636.6	.0278	17.49	0.61			
48 INCH	66.7	.0295	19.68	0.06			
54 INCH	161.3	.01116	13.10	0.21			
54 INCH	32.1	.01402	14.68	0.04			
54 INCH	112.1	.01115	13.09	0.14			
54 INCH	56.8	.0276	20.60	0.05			
54 INCH	191.5	.0276	20.60	0.15			
60 INCH	144.8	.0188	18.24	0.13			
60 INCH	130.5	.01	13.3	0.16			
SUM	3058.8			3.3			

Tc = OVERLAND FLOW + TIME IN PIPES = 11.5 + 3.3 = 14.8 MINUTES

USE Tc = 15 MINUTES



DEPARTMENT OF ENVIRONMENTAL SERVICES

Engineering & Capital Projects Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606

NILESH RAM NAIKARE Lic. No. 0402049246

TRANSPORTATION DIRECTOR

Revisions

Storm Sewer Computation (Existing)

Pre-Improvement Conditions
From 24th Street North
To N. Sycamore Street
321 47222 S17D 0000 0000 N. Sycamore Street

Designed: P. Banepali Drawn: P. Banepali Checked: N. Naikare Miss Utility Transmittal #: 5121D Filename: Drainage Divides 09.12.14.dwg

St

Path: Q:\Data\S17D\Design\Drawings Plotted: November 25, 2015 Plotted by: Pbanepali Scale: Hor: 1" = 100'

STORM SEWER DESIGN COMPUTATIONS

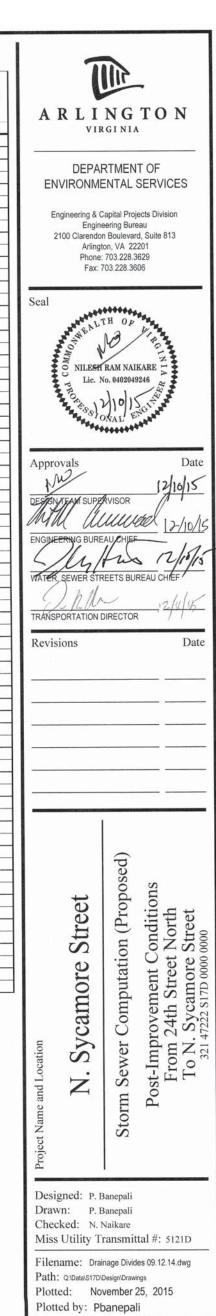
Franc	To	Drainage	С	Cx	Δ	Inlet	Rain	Runoff	Invert	Flev.	Length	Slope	Dia.	Capacity	VEL.	Flow
From Point	Point	Area	Factor	Increment	Cumm.	Time Min.	Fall In/Hr	Q C.F.S.	Upper End	Lower End	FT.	%	IN.	Q C.F.S.	F.P.S.	Time
6263	6337	91.89	0.52	47.78	47.78	15.00	4.63	221.23	308.40	307.10	130.5	1.00%	60	260.69	19.48	0.11
23694	6337	1.02	0.58	0.59	0.59	15.00	4.63	2.74	315.08	314.10	35.5	2.76%	15	10.76	7.33	0.08
6337	6462	1.42	0.59	0.84	24.61	15.16	4.61	113.55	307.01	305.50	149.7	1.01%	60	262.29	12.88	0.19
6337	STR11	0.00	0	0.00	24.19	15.16	4.61	111.62	305.60	305.20	25.4	1.57%	60	327.45	15.09	0.03
STR11	STR12	0.00	0	0.00	24.61	15.30	4.60	113.25	305.00	303.90	181.9	0.60%	60	203.08	10.62	0.2
STR12	STR13	0.00	0	0.00	24.61	15.49	4.58	112.81	303.80	303.60	36.0	0.56%	60	194.78	10.28	0.0
6462	23695N	3.88	0.41	1.59	26.20	15.30	4.60	120.57	305.38	304.50	94.8	0.93%	60	251.67	12.68	0.12
23698	23697	0.23	0.61	0.14	0.14	15.00	4.63	0.65	310.28	309.59	45.1	1.53%	15	8.01	3.93	0.19
23697	23695N	0.64	0.71	0.45	0.59	15.13	4.62	2.75	308.66	308.21	63.3	0.71%	15	5.46	4.46	0.2
23695N	6617N	1.17	0.5	0.59	27.38	15.38	4.59	125.79	303.50	302.80	80.4	0.87%	60	243.65	12.51	0.1
STR13	STR14	2.14	0.44	0.94	25.55	15,52	4.58	117.05	303.50	303.27	37.6	0.61%	60	204.35	10.76	0.0
6562N	STR14	0.71	0.51	0.36	0.36	15.00	4.63	1.68	304.00	303.75	7.1	3.53%	15	12.16	6.96	0.0
STR14	STM3	0.00	0	0.00	25.91	15.56	4.58	118.61	303.17	302.47	120.0	0.58%	60	199.43	10.59	0.1
STM3	STM5	0.00	0	0.00	25.91	15.69	4.57	118.31	302.27	301.70	93.4	0.61%	60	203.98	10.77	0.1
23672	23673	0.14	0.68	0.10	0.10	15.00	4.63	0.44	315.94	315.17	43.3	1.78%	15	8.64	3.69	0.2
23673	23674N	2.03	0.65	1.32	1.41	15.13	4.62	6.53	314.92	311.79	82.6	3.79%	18	20.50	10.32	0.1
23674N	STM 5	0.00	0	0.00	1.41	15.22	4.61	6.52	311.00	310.50	17.4	2.87%	18	17.85	9.31	0.0
STM5	STM1	0.00	0	0.00	27.32	15.79	4.56	124.52	301.50	300.50	155.1	0.64%	60	209.71	11.14	0.2
6617N	6706	0.66	0.49	0.32	27.70	15.45	4.59	127.11	302.52	301.61	125.3	0.73%	60	222.54	11.71	0.1
6706	6771	0.00	0	0.00	27.70	15.57	4.58	126.80	301.54	300.98	64.8	0.86%	60	242.76	12.50	0.0
6798	6774	1.45	0.56	0.81	0.81	15.00	4.63	3.76	307.14	306.52	23.6	2.63%	15	10.51	7.85	0.0
6774	6771	0.63	0.57	0.36	1.17	15.03	4.63	5.42	306.47	305.80	34.6	1.94%	15	9.02	7.68	0.0
6771	6944	0.00	0	0.00	28.87	15.62	4.57	132.00	300.86	299.73	128.6	0.88%	60	244.82	12.70	0.1
6957	6929	0.28	0.69	0.19	0.19	15.00	4.63	0.89	306.80	306.23	48.6	1.17%	18	11.40	3.84	0.2
6929	6944	0.48	0.42	0.20	0.39	15.14	4.62	1.82	306.47	303.38	39.3	7.87%	18	29.54	9.28	0.0
6944	7038	0.00	0	0.00	56.59	15.95	4.54	257.01	299.63	298.65	86.6	1.13%	60	277.88	16.07	0.0
STM1	6944	0.00	0	0.00	27.32	15.94	4.54	124.13	300.00	299.73	14.9	1.82%	60	352.01	16.37	0.0
7003	7007	0.28	0.84	0.24	0.24	15.00	4.63	1.09	306.18	305.53	31.5	2.06%	15	9.30	5.08	0.1
7007	7038	0.42	0.76	0.32	0.55	15.07	4.62	2.56	305.41	304.61	37.4	2.14%	15	9.47	6.56	0.0
7027	7038	0.51	0.54	0.28	0.28	15.00	4.63	1.28	305.55	304.81	30.5	2.43%	15	10.09	5.63	0.0
7038	7106	0.00	0	0.00	57.42	16.06	4.53	260.24	298.35	297.95	67.4	0.59%	66	259.34 LL: 5.5'X 5 .5	10.92	0.1

ADEQUATE	OUTFALL	NARRATI \	/E
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This project consists of approximately 825 LF of storm sewer, 526 LF of sanitary sewer and 800 LF of water main. These improvements are located near the intersection of 24^{th} Street N. and N. Sycamore Street. The storm improvements capture approximately 110 acres of catchment area with a discharge of 266 cfs. The reason for this project is severe flooding which occurred in the homes at the northeast side of N. Rockingham Street and 24th Street N. in June 2006. This project was originally intended to increase the capacity of the pipe from structure #6263 to #6337, but due to the refusal of the adjoining landowners to grant necessary easements, and the presence of a very large tree, that pipe could not be upsized. Hence the project increases capacity of the storm drains downstream from the existing structure #6337 and ends just north of Lee Highway at structure #6944. This project addresses the immediate flooding concerns by lowering the HGL at structure #6337, as shown in the HGL computations and accompanying notes. Inspection of the HGL computations reveals that some structures still experience surcharged conditions, but the proposed project improves the HGL by reducing it substantially from the existing condition. An additional study is currently underway for this entire watershed that will define further storm water improvements from Lee Highway downstream to $\hbox{I-66. This current project addresses the immediate concerns. The storm water from the project outfalls}\\$ into Arlington County's storm water system on the southern side of Lee Highway, into a pipe culvert with capacity adequate to accept 405 cfs.

						HY	DRA	ULIC						UTA	TION	NS.								
Project:	N. SYCAMO	REST. (S17D)						POST	HMPROV											Inlet			
INLET	UPSTREAM	Outlet Water	Do	Qo	Lo	Sfo	Hf	Vo	Но	Qi	-	CTION L	2	Hi	Angle	Hd	Ht	1.3 Ht	0.5 Ht	FINAL H	Water Surface	RIM ELEV.	Pre - Improvement Water Surface	Drop In Inlet Water Surface Elevation
STATION	INLET	Surface Elev.	in	cfs	ft	%	ft	26					Vi /2g	200		A. (17. C. (17	10000000		TO THE STATE OF		Elev.	(21)	Elevation	
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(13)	(14)	(15)	(16)	(17)	(18) Starting E	(19)	302.35	(21)	(22)	(22)-(20)=(23)
7106		302.35	66.00	260.24	67.43	0.60	0.40	10.92	0.46					1.40		1.76	3.63	0.00	1.81	2.22	304.57	308.35		
7030	6944	302.33	60.00	200.24	07.40	0.00	0.10	10.02		257.01	16.07	4129.19	4.01	1.40	46.64	1.76								
	7007		15.00							2.56	6.56 5.63	16.82 7.18	0.67	0.23	58.58 38.81	0.36			-					
7007	7027	304.57	15.00 15.00	2.56	37.40	0.16	0.06	6.56	0.17	1.28	5.03	7.10	0.43	0.14	30.01	0.22	0.52	0.00	0.26	0.32	304.89	309.42		
7007	7003	304.57	15.00	2.00	01.10	3.10				1.09	5.08	5.53	0.40		58.53					2.07	20100	200.05		
7003		304.89	15.00	1.09	31.50	0.03	0.01	5.08	0.10	1.09	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.13	0.07	0.07	304.96	309.25		
7027	0	304.57	15.00	1.28	30.50	0.04	0.01	5.63	0.12	1.09	0.00	0.00		0.00		0.00	0.12	0.16	0.08	0.09	304.66	309.04		
	0					2.07	0.04	40.07	1.00	1.28	0.00	0.00	0.00	1.46	0.00	2.60	5.06	0.00	2.53	3.37	307.94	309.81		
6944	6771	304.57	60.00	257.01	86.55	0.97	0.84	16.07	1.00	132.00	12.70	1676.82	2.51	0.88	5.90	0.10	0.00	0.00	2.00	0.01	001.01	500.01		
	6929		18.00							1.82	9.28	16.92	1.34	0.47	65.88	0.78								
	STM1		60.00	1.00	20.00	0.00	0.01	9.28	0.33	124.13	16.37	2032.17	4.16	1.46 0.08	72.90	0.07	0.48	0.63	0.31	0.33	308.26	309.40		
6929	6957	307.94	18.00	1.82	39.28	0.03	0.01	9.20	0.55	0.89	3.84	3.44	0.23	0.00	31.42	0.01	0.10							
6957	0007	308.26	18.00	0.89	48.64	0.01	0.00	3.84	0.06				0.00	0.00	2.00	0.00	0.06	0.07	0.04	0.04	308.30	310.35		
OT114	0	207.04	60.00	124.13	14.86	0.23	0.03	16.37	1.04	0.89	0.00	0.00	0.00	0.67	0.00	0.82	2.53	0.00	1.27	1.30	309.24	310.23		
STM 1	STM5	307.94	60.00	124.13	14.00	0.23	0.03	10.57	1.04	124.52	11.14	1386.73	1.93		45.07									
STM 5		309.24	60.00	124.52	155.06	0.23	0.35	11.14	0.48			107105	4.00	0.63	47.00	0.80	1.92	2.49	1.25	1.60	310.84	315.80		
	STM3		60.00 18.00							118.31	10.77 9.31	1274.35 60.72	1.80	0.63	47.36 20.32	0.80								
23674N	23674N	310.84	18.00	6.52	17.41	0.38	0.07	9.31	0.34	0.02				0.58		0.18	1.09	0.00	0.55	0.61	311.45	316.88		
	23673		18.00						2.11	6.53	10.32	67.41	1.65	0.07	15.55	0.15	0.63	0.00	0.32	0.63	312.08	319.82		
23673	23672	311.45	18.00 15.00	6.53	82.60	0.38	0.32	10.32	0.41	0.44	3.69	1.63	0.21	0.07	87.84	0.15	0.03	0.00	0.32	0.00	312.00	510.02		
23672	23012	312.08	15.00	0.44	43.30	0.00	0.00	3.69	0.05					0.00		0.00	0.05	0.07	0.03	0.04	312.12	319.20		
	0	7108221212					0.10	40.77	0.45	0.44	0.00	0.00	0.00	0.61	0.00	0.31	1.37	0.00	0.68	0.88	311.72	314.06		
STM3	STR14	310.84	60.00	118.31	93.42	0.21	0.19	10.77	0.45	118.61	10.59	1256.53	1.74	0.01	21.46	0.51	1.57	0.00	0.00	0.00	011.72	011.00		
STR14	31K14	311.72	60.00	118.61	120.03	0.21	0.25	10.59	0.44					0.63		0.45	1.51	0.00	0.76	1.00	312.72	311.06		
	STR13		60.00							117.05	10.76	1259.31	1.80 0.75	0.63	15.84 67.13	0.20	1	-	-					
6562N	6562N	312.72	15.00	1.68	7.09	0.07	0.00	6.96	0.19	1.00	0.50	11.07	0.75	0.00	07.10	0.00	0.19	0.24	0.12	0.13	312.85	311.22	319.67	6.82
000214	0	012.12								1.68	0.00	0.00	0.00		0.00		1.10	2 47	0.74	0.04	242.52	311.63		
STR13	07740	312.72	60.00	117.05	37.56	0.20	0.08	10.76	0.45	112.81	10.28	1159.89	1.64	0.57	9.80	0.11	1.13	1.47	0.74	0.81	313.53	311.03		
STR12	STR12	313.53	60.00	112.81	35.95	0.19	0.07	10.28	0.41	112.01	10.20	1100.00		0.61		1.07	2.10	0.00	1.05	1.12	314.65	312.27		
	STR11		60.00							113.25	10.62	1203.20	1.75	0.00	70.46	1.20	0.70	0.00	1 27	4.74	316.35	316.33		
STR11	6007	314.65	60.00	113.25	181.89	0.19	0.34	10.62	0.44	113.55	12.88	1462.31	2.58	0.90	58.86	1.39	2.73	0.00	1.37	1.71	310.33	310.33		
6771	6337	307.94		132.00	128.57	0.26	0.33	12.70	0.63					0.85		0.63	2.11	2.74	1.37	1.70	309.64	313.04		
	6706		60.00							126.80 5.42	12.50 7.68	1584.84 41.64	0.92	0.85		0.22	-							
6774	6774	309.64	15.00 15.00	1912/1912/19	34.57	0.70	0.24	7.68	0.23	5.42	7.00	41.04	0.52	0.33	07.01	0.45	1.01	0.00	0.51	0.75	310.39	311.23		
0111	6798		15.00							3.76	7.85	29.51	0.96	0.00	50.17	_	0.04	0.00	0.10	0.00	240.59	311.01		
6798	0	310.39	15.00	3.76	23.57	0.34	0.08	7.85	0.24	3.76	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.12	0.20	310.58	311.01		
6706	U	309.64	60.00	126.80	64.80	0.24	0.15	12.50	0.61					0.75		1.09	2.44	0.00	1.22	1.37	311.01	317.00		
	6617N		60.00				0.00	44.74	0.50	127.11	11.71	1488.28	2.13	0.85	55.39	0.07	1.46	1.89	0.95	1.24	312.25	311.22	314.32	2.07
6617N	23695N	311.01	60.00	_	125.31	0.24	0.30	11.71	0.53	125.79	12.51	1573.43	2.43		4.54	0.07	1.40	1,09	0.50	1.24	312,20	011.22	314.02	
23695N	2000014	312.25		125.79	80.41	0.23	0.19	12.51	0.61					0.87	00.00	1.43	2.91	3.78	1.89	2.08	314.33	312.00	315.03	0.70
	6462		60.00	_		-				120.57 2.75	12.68	1528.99	0.31	0.87	0.00	0.00		-	+					
23697	23697	314.33	15.00		63.30	0.18	0.11	4.46	0.08	2.13	7,40	14.40	0.01	0.08	5.50	0.13	0.30	0.38	0.19	0.31	314.64	312.80	315.34	0.70
20007	23698	3,	15.00							0.65	3.93	2.55	0.24		61.64		0.00	0.00	0.04	0.04	314.68	313.32	315.38	0.70
23698	0	314.64	15.00	0.65	45.12	0.01	0.00	3.93	0.06	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.08	0.04	0.04	314.08	313.32	310.30	0.70
6462	0	314.33	60.00	120.57	94.75	0.21	0.20	12.68	0.62		-,			0.90		0.16	1.69	2.19	1.10	1.30	315.63	312.64	324.5	8.87
	6337		60.00				6.00	40.00	0.01	113.55	12.88	1462.31	2.58	2.06	9.41	3.65	6.36	8.26	4.13	4.42	320.04	317.18	328.37	8.33
6337	6263	315.63	60.00	113.55	149.68	0.19	0.28	12.88	0.64	221.23	19.48	4308.56	5.89	2.06				3.20	7.13	4.42	520.04	317.10	0.0.01	5.30
	23694		15.00	_						2.74	7.33	20.07			_	0.47					204 70	201.01	200.74	9.00
6263	0	320.04	60.00	221.23	130.45	0.72	0.94	19.48	1.47	221.23	0.00	0.00	0.00	0.00	0.00	0.00	1.47	0.00	0.74	1.67	321.72	321.61	329.74	8.02
23694	0	320.04	15.00	2.74	35.49	0.18	0.06	7.33	0.21	221.23	0.00	0.00	0.00	0.00		0.00	0.21	0.27	0.14	0.20	320.24	317.93	328.57	8.33
2001	0		10.000							2.74	0.00	0.00	0.00		0.00									

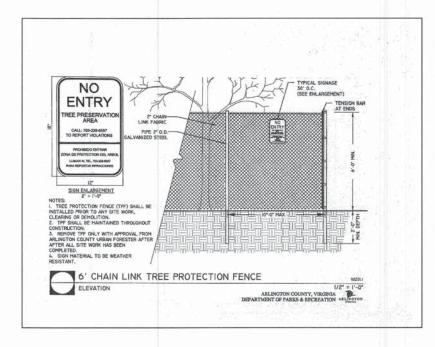
Droject.	N SVC	MORE	STREET ((S17D)																													
	INLET	IVIONE	JINLLI (OTTD)					Q	Q	Q	S	Sx	T	W	W/T	Sw	SwSx	Eo	а	S'w	Se	Lt	Р	L/Lt	d	Ε	h	Q	d/H	Qb	T	
NUMBER	TYPE	LENGTH	STATION	DRAINAGE AREA	C	CxA	CxA W	INTENSITY	INCR	CARRY OVER	TOTAL	GUTTER	CROSS SLOPE	SPREAD	GUTTER PAN	WIDTH/SPREAD	G P. SLOPE	=	GUTTER FLOW RATIO	Total Depression		Equivalent cross slope	Req. for 100%	PERIMETEROFGRATE	a c	Depth of flow @ sag	Inlet Effeciency	Actual height of curb opening	INT		CARRY OVER	SPREAD AT SAG	REMARKS
6227	CB-2	8.0	2+16.28	1.42	0.59	0.84	0.84	4.00	3.35	0.00	3.35	0.0620	0.0440	4.46	1.50	0.34	0.0833	1.89	0.73	2.21	0.12	0.13	18.05		0.44		0.65		2.18		1.17		
6337 23694	CB-2	8.0	2+29.17	1.02	0.58	0.59	0.59	4.00	2.37	0.00	2.37	0.0620	0.0440	3.82	1.50	0.39	0.0833	1.89	0.80	2.21	0.12	0.14	15.01		0.53		0.75		1.77		0.60		
STR13	CB-2	8.0	8+40.40	2.14	0.44	0.94	0.94	4.00	3.77	0.60	4.37	0.0450	0.0520	4.86	1.50	0.31	0.0833	1.60	0.67	2.06	0.11	0.13	18.70		0.43		0.63		2.77		1.60		
6562N	CB-2A	8	8+74.53	0.35	0.51	0.18	0.18	4.00	0.71	1.60	2.31	0.03	0.052	4.06	1.5		0.083	1.60						11.60		0.25		0.46		0.54		4.75	
000214	05-21		0.71.00	0.36	0.51	0.18	0.18	4.00	0.73	0.00	0.73			2.43																			
23698	CB-2	8.0	7+40.50	0.23	0.61	0.14	0.14	4.00	0.56	0.00	0.56	0.0330	0.0430	2.18	1.50	0.69	0.0833	1.94	0.98	2.23	0.12	0.16	6.22		1.29		1.00		0.56		0.00		
6462N	CB-2A	16.0	0+64.75	1.94	0.41	0.80	0.80	4.00	3.18	1.17	4.35	0.038	0.056	4.82	1.5		0.0833	1.49						19.60		0.31		0.46		0.68		5.56	
				1.94	0.41	0.80	0.80	4.00	3.18	0.00	3.18			4.25																	0.04		
23697	CB-2	8.0	7+61.97	0.64	0.71	0.45	0.45	4.00	1.82	0.00	1.82	0.0320	0.0340	4.52	1.50	-	0.0833	2.45		2.39	-		11.42		0.70		0.89		1.61		0.21		
23695N	CB-2B	16.0	8+29.54	1.17	0.50	0.59	0.59	4.00	2.34	0.21	2.55	0.0320	0.0380	4.96	1.50	0.30	0.0833	2.19	0.69	2.32	0.13	0.13	13.56		1.18	0.15	1.00	0.40	2.55	0.04	0.00	2.00	
6617N	CB-2A	10	8+92.84	0.33	0.49	0.16	0.16	4.00	0.65	0.53	1.18	0.024	0.052	3.18	1.5		0.083	1.60				-		13.60		0.16		0.46		0.34		3.00	***
				0.33	0.49	0.16	0.16	4.00	0.65	0.00	0.65			2.41																			10.00



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Scale: Hor: 1" = 100'

PERVIOUS AND	IMPERVIOUS A	REA TABLE
	EXISTING CONDITION	PROPOSED CONDITION
TOTAL AREA DISTURBED	28,082.00 SF	28,082.00 SF
PERVIOUS AREA	3,682.00 SF	3,682.00 SF
IMPERVIOUS AREA	24,400.00 SF	24,400.00 SF
DECREASED IMPERVIOUS AREA	0.00	SF



EROSION AND SEDIMENT CONTROL LEGEND

3.07	(IP)		MILE PROFESSION
3.38	TP	← (TP) →	TRUE PRESERVATION AND PROTECTION
	(LOD)		LIMIT OF DISTURBANCE

FROM STORM WATER MANUAL:

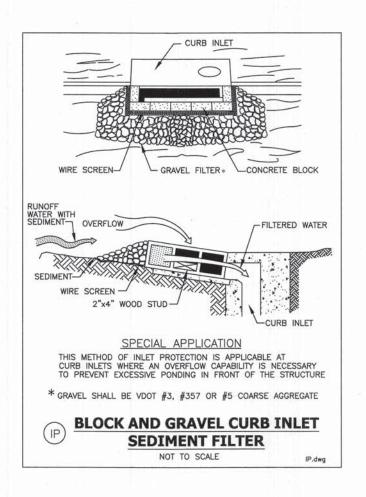
2.4 POLLUTION PREVENTION PLAN (P2 PLAN)

- Only the following non-stormwater discharges are authorized by Arlington County's MS4 permit, unless the State Water Control Board, the Virginia Soil and Water Conservation Board (Board), or Arlington County determines the discharge to be a significant source of pollutants to surface waters: landscape irrigation; diverted stream flows; rising ground waters; uncontaminated ground water infiltration (as defined at 40 cfr 35.2005 (20)); uncontaminated pumped ground water; discharge from potable water source; foundation drains; air conditioning condensation; irrigation water; springs; water from crawl space pumps; fotting drains; lawn watering; individual residential car washing; flows from riparian habitats and wetlands; dechlorinated swimming pool discharges; discharges or flows from fire fighting; and other activities generating discharges identified by the Department of Environmental Quality as not requiring VPDES authorization.
- Appropriate controls must be implemented to prevent any non-stormwater discharges not included on the above
 list (e.g. concrete wash water, paint wash water, vehicle wash water, detergent wash water, etc.) from being
 discharge into Arlington County's MS4, which includes the curb and gutter systems, as well as catch basins, and
 other storm drain inlets, or stream network.
- Per Chapter 26 of the Arlington County Code, it shall be unlawful for any person to discharge directly or indirectly
 into the storm sewer system or state waters, any substance likely, in the opinion of the Country Manager, to have
 and adverse effect on the storm sewer system or state waters.

	ARLINGTO	ON COUNTY CODE	
CHAPTER 61	- CHESAPEAKE	BAY PRESERVATION	ORDINANCE

§ 61-15. Exemptions

The project was funded before July 1, 2012, it has been grandfathered, therefore not subject to Arlington's new Stormwater Management Ordinance. It should be granted an exemption under the Chesapeake Bay Preservation Ordinance Section § 61-15(a). This exemption is applicable to public linear projects that consist solely of transportation and utility -related infrastructure.



		date			
Qianqian L	i, P.E.				
	am Administrator				
	t of Environmental Sevices adon Boulevard, Suite 813				
	Virginia 22201				
Dat Danda	n and Sediment Control Permit Applic	usting form			
Re. Erosio	n and Sediment Control Permit Applic	anon for.			
street addre	153				
lot, block, s	ection subdivision				
permit num	ber				
Dear Mrs. I					
Dear Nus. I	•				
1. 2.	esponsibilities include: Reviewing the crosion and sediment Walking the site prior to construction	n to identify critical areas.			
1. 2. 3. 4. 5. 6. 7. I may be res	Reviewing the erosion and sediment Walking the site prior to construction Conducting a pre-construction brief highlight the presence of critical are measures to be installed. Call 703-12 Regularly inspecting the site direction and experiment of the provide a copy of the inspection find Reporting to the owner the presence Ensuring that temporary soil stabilize undisturbed for longer than 30 days. Calling (703) 228-0760 at least 80 h	n to identify critical areas, ing with earth moving and site as, the limits of clearing and it 28-0760 to schedule pre-const construction to ensure that all mentation. Inspect the site 48 tings to the county, inadequate or non functioning ation is applied within 7 days	contractors to present the required E&S controls are fundours after a runoff-test controls when to areas denuded the tructure.	trols and tree protect metioning and are generating storm, an they are observed. at will remain	ion
1. 2. 3. 4. 5. 6. 7. I may be res	Reviewing the erosion and sediment Walking the site prior to construction Conducting a pre-construction brief highlight the presence of critical are measures to be installed. Call 703-22 Regularly inspeccing the site during adequate to address erosion and sod provide a copy of the inspection fine Reporting to the owner the presence Ensuring that temporary soil stabilizundisturbed for longer than 30 days. Calling (703) 228-0760 at least 80 h siched at with telephone number	n to identify critical areas, ining with earth moving and site as, the limits of clearing and it 28-0769 to schedule pre-construction to ensure that all mentation. Inspect the site 48 tings to the county, inadequate or non functioning attion is applied within 7 days ours before demolishing any s	contractors to present the required E&S controls are fundours after a runoff-test controls when to areas denuded the tructure.	trols and tree protect metioning and are generating storm, an they are observed. at will remain	ion
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EROSION AND SEDIMENT CONTROL NARRATIVE

THIS IS AN ARLINGTON COUNTY STORMWATER IMPROVEMENT PROJECT.

PROJECT DESCRIPTION:

THIS PROJECT (N. SYCAMORE STREET AND 24TH STREET N. INTERSECTION) - CONSISTS OF INSTALLING APPROXIMATELY 850 LINEAR FEET OF 60" STORM SEWER, INSTALLING APPROXIMATELY 900 LINEAR FEET OF 12" SANITARY SEWER AND INSTALLING APPROXIMATELY 950 LINEAR FEET OF 8" WATERMAIN ALONG THE N. ROCKINGHAM STREET, 24TH STREET N. AND N. SYCAMORE STREET. THE PROJECT ALSO INCLUDE MILLING & PAVING OF APPROXIMATELY 34,566 SQUARE FEET OF ASPHALT PAVEMENT.

EXISTING SITE CONDITION

MOST OF THE SITE CONSISTS OF EXISTING PAVEMENT AND EXISTING BUILDINGS ALONG N. ROCKINGHAM STREET AND 24TH STREET N.

TOTAL	PROJECT AREA = 40,681 SQ.FT (0.93 ACRES)
PRE-IM	PERVIOUS AREA = 24,400 SQ. FT.
PRE-IM	PERVIOUS COVERAGE OF PROJECT AREA= 60.00%
TOTAL	LAND DISTURBANCE AREA (LDA) = 28,082 SQ. FT. (0.64 ACRE
TOTAL	LAND DISTURBANCE AREA (LDA) = 28,082 SQ. FT. (0.64 ACRE LDA @ VDOT R-O-W = 0.00 SQ. FT

ADJACENT PROPERTIES:

THE AREA AROUND 24TH STREET N. AND N. ROCKINGHAM STREET IS RESIDENTIAL, SINGLE UNIT DWELLINGS

THE EXTENT OF OFFSITE CONSTRUCTION IS LIMITED TO PROPERTY LINE.

POST-IMPERVIOUS COVERAGE OF PROJECT AREA..... = 60.00%

CRITICAL AREAS

THERE ARE NO STEEP SLOPES OR CRITICAL AREAS LOCATED IN THE AREAS TO BE DISTURBED.

EXISTING AND PROPOSED STORM SEWER:

THE STORMWATER OUTFALLS INTO ARLINGTON COUNTY'S STORMWATER SYSTEM ON THE SOUTH SIDE OF THE LEE HIGHWAY (CROSSMAN RUN). THE PROPOSED PROJECT WILL NOT ALTER THE EXISTING DRAINAGE PATTERNS OR MODIFY THE EXISTING STORM SEWER NETWORK. THERE WAS FLOODING RECORDED IN 2006 IN THIS AREA.

STORMWATER RUNOFF CONSIDERATION:

EXISTING STORM SEWER WILL BE USED TO DRAIN THE STORMWATER RUNOFF. THERE IS NO CHANGE IN STORM WATER QUANTITY RESULTING FROM THIS PROJECT.

EROSION AND SEDIMENT CONTROL MEASURES:

THE EROSION AND SEDIMENT CONTROL MEASURES FOR THIS PROJECT AREA IS LIMITED TO INLET PROTECTION AND TREE PRESERVATION AND PROTECTION.

EROSION & SEDIMENT CONTROL PROGRAM:

- THE PHASE ONE EROSION CONTROL PLAN IS INTENDED TO ESTABLISH PERIMETER CONTROL MEASURES
 WHICH INCLUDES THE PROTECTION (IP).
- THE PHASE TWO SEDIMENT MEASURES ARE INTENDED TO PROVIDE CONTROL DURING THE FINAL STAGES OF IMPROVEMENTS. IT IS ANTICIPATED THAT PHASE-ONE CONTROLS WILL REMAIN IN PLACE UNTIL THEIR REMOVAL IS REQUIRED TO CONSTRUCT THE PROPOSED IMPROVEMENTS.
- NO DISTURBED AREA WILL REMAIN DENUDED FOR MORE THAN 7 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY ARLINGTON COUNTY.
- 4. WHERE CONSISTENT WITH JOB SAFETY REQUIREMENTS, ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES. NO MATERIAL SHALL BE PLACED IN STREAMBEDS. ANY STOCKPILED MATERIAL WHICH WILL REMAIN IN PLACE LONGER THAN 14 DAYS SHALL BE SEEDED AND MULCHED. WHEN SPOIL IS PLACED ON THE DOWNHILL SIDE OF TRENCH, IT SHALL BE BACKSLOPED TO DRAIN TOWARD THE TRENCH. WHEN NECESSARY TO DEWATER THE TRENCH, THE PUMP DISCHARGE HOSE SHALL OUTLET IN A STABILIZED AREA OR A SEDIMENT TRAPPING DEVICE.
- ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN GRADING. FIRST AREAS TO BE CLEARED ARE TO BE THOSE REQUIRED FOR THE PERIMETER CONTROLS.
- 6. DURING CONSTRUCTION, ALL STORM SEWER INLETS WILL BE PROTECTED BY INLET PROTECTION
- ALL PRACTICES AND CONTROL DEVICES DESCRIBED HEREON, SHALL CONFORM TO THE CURRENT VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH). IN ADDITION, THE CONTRACTOR SHALL TAKE THE FOLLOWING STEPS TO MINIMIZE THE VOLUME OF SILT:
- A. CONTRACTOR SHALL EVALUATE THE SITE TO DETERMINE EXTENSIVE CUT AND FILL AREAS, AND SHALL WORK THOSE AREAS TO MINIMIZE THE EXTENT OF HEAVY EQUIPMENT WORK. CONTRACTOR SHALL STRIVE TO BRING AREAS TO GRADE (ROUGH OR FINISH) AND TO STABILIZE, BY TEMPORARY OR PERMANENT VEGETATION, THESE DISTURBED AREAS PRIOR TO BEGINNING WORK IN ANOTHER AREA.
- B. FILL AREAS SHALL BE COMPACTED COMPLETELY PRIOR TO THE END OF EACH WORK DAY. FILL SLOPE SURFACES SHALL BE LEFT ROUGHENED TO REDUCE SHEET EROSION OF THE SLOPES. CONTRACTOR SHALL RE-DIRECT CONCENTRATED RUNOFF, BY EARTH BERMS OR OTHER DEVICES, AROUND ACTIVELY DISTURBED AREAS TO STABILIZED OUTLETS.
- C. CUT SLOPE, AS NECESSARY, SHALL BE PROTECTED FROM CONCENTRATED FLOW BY BERMS ABOVE THE SLOPE AND DIRECTED AROUND THE DISTURBED AREA TO STABILIZED QUITLETS.
- D. IN NEW PAVEMENT AREAS, PLACE THE AGGREGATE BASE STONE ON THE FINISH SUBGRADE AT THE EARLIEST POSSIBLE TIME.

SODDING:

SODDED AREAS SHALL BE BROUGHT TO FINAL GRADE IN ACCORDANCE WITH THE APPROVED PLANS. SOIL TEST SHOULD BE MADE TO DETERMINE THE EXACT REQUIREMENTS FOR LIME AND FERTILIZER. PRIOR TO LAYING SOD, SOIL SURFACE SHALL BE CLEAR OF TRASH, DEBRIS AND LARGE OBJECTS. QUALITY OF SOD SHALL BE STATE CERTIFIED AND ENSURE GENETIC PURITY AND HIGH QUALITY. SOD SHALL NOT BE LAID IN EXCESSIVELY WET OR DRY WEATHER AND BE DELIVERED AND INSTALLED WITHIN 36 HOURS. SOD SHOULD NOT BE LAID ON FROZEN SOIL SURFACE AND SHALL BE INSTALLED PER PAGE III-339 OF VESCH.

PERMANENT STABILIZATION:

ALL OF THE AREA DISTURBED WITH THIS PLAN WILL BE RETURN TO A SIMILAR CONDITION TO EXISTING. ALL AREA NOT STABILIZED WITH PAVEMENT WILL BE STABILIZED WITH GRASS OR MULCH.

GENERAL LAND CONSERVATION NOTES

- NO DISTURBED AREA WILL REMAIN DENUDED FOR MORE THAN 7 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY THE DIRECTOR OR HIS AGENT.
- ALL EROSION CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN GRADING. FIRST AREAS TO BE CLEARED ARE TO BE THOSE REQUIRED FOR THE PERIMETER CONTROLS.
- ALL STORM AND SANITARY SEWER LINES NOT IN STREET ARE TO BE MULCHED AND SEEDED WITHIN 5 DAYS AFTER BACKFILL. NO MORE THAN 500 FEET ARE TO BE OPEN AT ANY ONE TIME
- ELECTRIC POWER, TELEPHONE AND GAS SUPPLY TRENCHED ARE TO BE COMPACTED, SEEDED AND MULCH WITHIN 5 DAYS OF BACKFILL.
- DURING CONSTRUCTION, ALL STORM INLETS WILL BE PROTECTED BY INLET PROTECTION DEVICES, MAINTAINED AND MODIFIED AS REQUIRED BY CONSTRUCTION PROGRESS.
- ANT DISTURBED AREA NOT COVERED NY NOTE # 1 ABOVE AND NOT PAVED, SODDED OR BUILT UPON BY NOVEMBER 1ST, OR DISTURBED AFTER THAT DATE, SHALL BE MULCHED WITH HAY OR STRAW AT THE RATE OF 2 TONS PER ACRE AND OVER-SEEDED NO LATER THAN MAY 1STH.
- AT THE COMPLETION OF THE CONSTRUCTION PROJECT AND PRIOR TO BOND RELEASE, ALL TEMPORARY SEDIMENT CONTROLS SHALL BE REMOVED AND ALL DENUDED AREAS SHALL BE STABILIZED. ARLINGTON COUNTY INSPECTOR TO APPROVE REMOVAL OF ALL TEMPORARY SILTATION MEASURES.

TABLE 6-1 EROSION AND SEDIMENT CONTROL NOTES

ES-1: Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and specifications of the <u>Virginia Erosion and Sediment Control Handbook</u> and Virginia's Regulations 4VAC50-30 Erosion and Sediment Control Regulations.

ES-2: The plan approving authority must be notified one week prior to the pre-construction conference, one week prior to the commencement of land disturbing activity, and one week prior to the final inspection.

ES-3: All erosion and sediment control measures are to be placed prior to or as the first step in clearing.

ES-4: A copy of the approved erosion and sediment control plan shall be maintained on the site at all times.

ES-5: Prior to commencing land disturbing activities in areas other than indicated on these plans (including, but not limited to, off-site borrow or waste areas), the contractor shall submit a supplementary erosion control plan to the owner for review and approval by the plan approving authority.

ES-6: The contractor is responsible for installation of any additional erosion control measures necessary to prevent erosion and sedimentation as determined by the plan approving authority.

ES-7: All disturbed area are to be drain to approved sediment control measures at all times during land disturbing activities and during site development until final stabilization is achieved.

ES-8: During dewatering operations, water will be pumped into an approved filtering device.

ES-9: The contractor shall inspect all erosion control measures periodically and after each runoff-producing rainfall event. Any necessary repairs or cleanup to maintain the effectiveness of the erosion control devices shall be made immediately.

BYPASS PUMPING AND DEWATERING

TEMPORARY PUMP(S) SHALL BE UTILIZED BY THE CONTRACTOR IN PORTIONS OF STORM PIPE INSTALLATION AND BIORETENTION FILTER CONSTRUCTION AREA TO DIVERT NORMAL FLOW TO NEAREST STORM STRUCTURE AND DEWATER THE WORK AREA. THE TEMPORARY PUMP(S) SHALL BE INSTALLED AND REMOVED IN ACCORDANCE WITH THE MANUFACTURER'S GUIDELINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING PUMP(S) SUFFICIENT TO BYPASS THE NORMAL FLOW AND DEWATER THE WORK AREA.

BYPASS PUMPING AND DEWATERING SHALL BE A SUBSIDIARY OBLIGATION TO THE CONTRACT. THEREFORE, NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK.

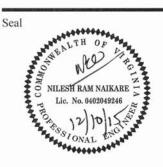
NOTE:

THE CONTRACTOR SHOULD CONTACT THE ARLINGTON COUNTY FORESTER TO SCHEDULE A PRE-CONSTRUCTION INSPECTION OF TREE PROTECTION MEASURE BEFORE CONSTRUCTION STARTS. TO SCHEDULE THE PRE-CONSTRUCTION MEETING CALL 703-228-1863.



DEPARTMENT OF ENVIRONMENTAL SERVICES

Engineering & Capital Projects Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606



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Erosion and Sediment Control

North Street

Street

24th Syca

Designed: P. Banepali Drawn: P. Banepali

Checked: N. Naikare
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Plotted: November 25, 2015

Plotted by: Pbanepali
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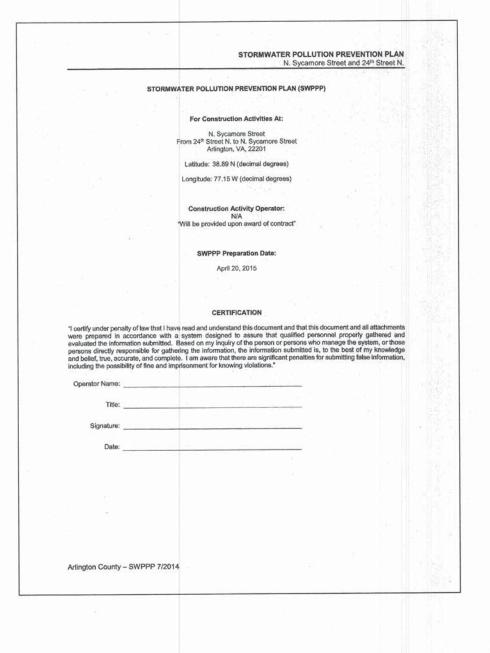
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LDA Permit # 15111

SWM # 15-1985

19 of 38

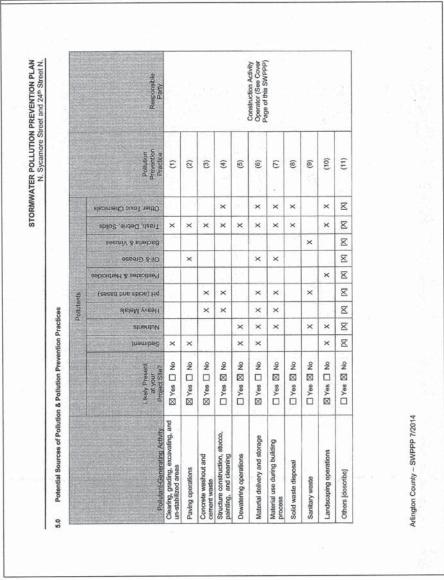
N. Sycamore Street



		STORMWA	N. Sycamore	Street and 24th Street N	
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ype of Authoriz	ed Non-Stormwater Discharge		ikely Present at	Your Project Site?	
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Arlington County - SWPPP 7/2014

		STORMWAT		PREVENTION PLAN eet and 24th Street N.
olluti	ion Prev	ention Practices:		
1)	Clearing, grading, excavating and un-stabilized areas – Utilize sediment laden or turbid runoff from leaving the construction site. disposal sites. Apply permanent or temporary stabilization, soddir accordance with the erosion and sediment control specifications and of stormwater from construction activities.		Dispose of clearing debris at acceptable ding and/or mulching to denuded areas in	
2)	Paving such as	operations – Cover storm drain inlets during paving operation drip pans and absorbent/oil dry for all paving machines to	ons and utilize pollut limit leaks and spills	ion prevention materials of paving materials and
3)	settling	te washout and cement waste - Direct concrete wash we basin that is designed so that no overflows can occur due to e wastes shall be removed and disposed of in a man	inadequate sizing or	precipitation. Hardened
4)	Structu areas if quality dischar	ction wastes. re construction, stucco, painting and cleaning – Enclo susceptible to contaminated stormwater runoff. Conduct and OSHA regulations. Mix paint indoors, in a containment per company of soaps, solvents, detergents and wash water from containt, form release oils and curing compounds.	painting operations area or in a flat un	consistent with local air paved area. Prevent the
5)	Dewate	ring operations - Construction site dewatering from buil ged without treatment. Sediment laden or turbid water shall	ding footings or oth I be filtered, settled	er sources may not be or similarly treated prior
3)		Il delivery and storage - Designate areas of the constru- near construction entrances, away from waterways, and		
7)	Materia	use during building process - Use materials only	where and when n	eeded to complete the
	constru	ction activity. Follow manufacturer's instructions regarding	ng uses, protective	equipment, ventilation,
3)	flamma Solld v substar contain	bility and mixing of chemicals. raste disposal – Designate a waste collection area on the tital amount of runoff from upland areas and does not can have lids so they can be covered before periods of results.	e construction site drain directly to a ain, and keep conta	that does not receive a waterway. Ensure that iners in a covered area
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DEPARTMENT OF ENVIRONMENTAL SERVICES
Engineering & Capital Projects Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606
Seal NILESH RAM NAIKARE Lic. No. 0402049246
Approvals Day DESIGN TEAM SUPPRISOR WILL LILLUS 12/10 ENGINEERING BUREAU CHIEF WATER SEWER STREETS BUREAU CHIEF TRANSPORTATION DIRECTOR
Revisions Da

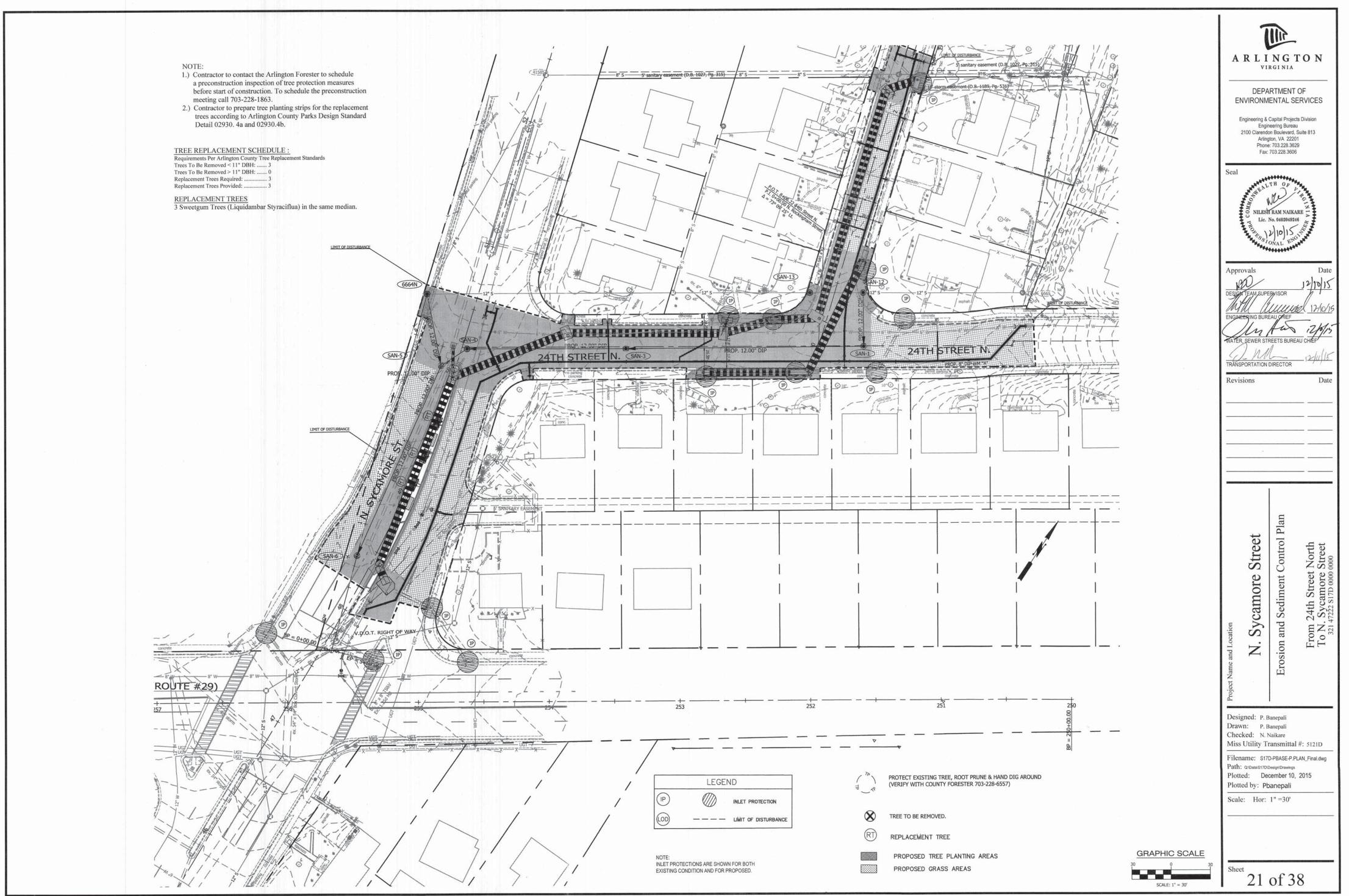
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	Bioretention (1 or 2)	Insert Date	Construction Activity Operator (See Cover Page	
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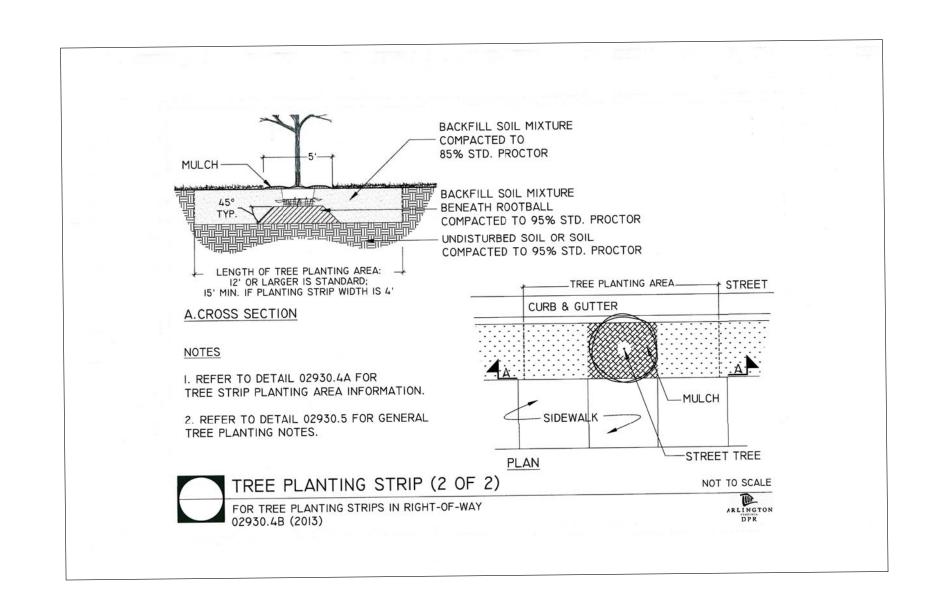
		STORMWATER POLLUTION PREVENTION PLAN N. Sycamore Street and 24th Street N.	
8.0 Inspections & Co	orrective Action Log (mal	ke additional copies as necessary)	
Qualified Inspector			
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Inspection Schedule			
	estara everface waters wil	thin a TMDL watershed, or exceptional waters:	
Once every 4 bus Once every 5 bus occurs when there next business day	iness days; or iness days and no later tha a are more than 48 hours b	an 48 hours following a measurable storm event. If storm event etween business days, inspection must be conducted on the	
Inspection Date	Insert Inspection	Date	
Best Management Practices (BMPs)	In Compliance with SWPPP?	Corrective Action Needed; Date Corrective Action Taken	
Erosion & Sediment Controls (Section 4.0)	☐ Yes ☐ No	ing the state of t	
Pollution Prevention Practices (Section 5.0)	☐Yes ☐ No		
Stormwater Management Controls (Section 6.0)	Yes No		
were prepared in accorda evaluated the information s persons directly responsible	ince with a system design submitted. Based on my in the for gathering the information and complete. I am aware to	erstand this document and that this document and all attachments ned to assure that qualified personnel properly gathered and quiry of the person or persons who manage the system, or those ation, the information submitted is, to the best of my knowledge hat there are significant penalties for submitting false information, knowing violations."	
Operator Name:		Inspector Name:	
Signature:		Signature:	
Date:		Date:	

Arlingto	n, Virgir	nia - Capital Improv	ement Progran	n 🔟	HELP
Home Progr	rams Projec	ts Project Groups IPR Rep	orts Utilities		
► Phases & Ste	ps Daily F	Reports > Budget Search R	esults Transmittals		
Project Sum	mary				
Project Code	5170		Current Phase (of 5)	2. Planning	
Project Name		more Street @ 24th Street North - d SA63 for sanitary work	Current Status Plan Start Date	Active 4/5/2010	
Program	Storr	nwater Management	Plan End Date	6/16/2015	
Project Type	Storr	n Drainage Improvements	Projected Months		
Project Manag	er Thur	ber, Elizabeth / 703-228-3363 😭	Current Duration	59 months	
Neighborhood	Arlin	gton - East - Falls - Church	Design Source	Internal	
Citizen Review	Needed: No		Design Team	Team B - Prab	In
		0 linear feet of large diameter	Design ream	Banepali	
		d from the intersection of 24th nam Street; west along 24th	Next Step		
Street North to	N. Sycamore Str	eet, and south along N. Sycamore	Primary Street	N SYCAMORE	ST
Street to tie into		200 linear feet of large diameter	Secondary Street	24TH ST N	
(60") storm sew	er pipe will ever	200 linear feet of large diameter stually be installed from the and North Rockingham Street;	Third Street ➤ Click here for addition	N ROCKINGHA	M ST
along the propo- of-way must be easments or rigi completed to de impacted by the documents that pipeline. A conce pipeline needs to other utilities, sy preliminary plan completed in ord	sed route. Prope located to deter thts-of-way. Topo termine possible eventual construit will be needed fe eptual or prelimi o be completed ! pecial design ner and profile of the der to identify por the profile of the profile of the der to identify por der to der to	abed horizontally and vertically ry lines, easements and rights- mine the need for additional ographic surveys must be physical features that will be uction and to provide base or the future final design of the nary plan and profile of the to evaluate potential conflicts with eds, and the final route. A ne proposed storm sewer will be sossible conflicts with other utilities.	Work Types Design Team B Other Storm Drainage Include on County website?	No	
Next Action by					
Monthly Pro					
► Project Cost	CONTRACTOR OF THE PARTY OF THE				
THE RESERVE OF THE PARTY OF THE	ect Tracking Rep	or.			
► Project Prog	72	tional Information			
Law Art and State of the		IPR09-6B-150-05)			
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Project Revi (Click on a date t	ew Session o see more deta	s il on the project review session.)			
Submitted	Reviewed	Review Status			Snapshot
6/4/2009	6/5/2009	Rejected			View
3/24/2010	3/24/2010	Rejected		10.00	View
3/24/2010	3/24/2010	Rejected			View
3/26/2010	3/26/2010	Approved			Vlew
3/20/2010					

roject Detail					Page 2
Date	User		Comment		
Project Comments	Show All Com	ments	Add Status Co	omment 7 Ad	d General Comment
Date User Typ	e Commer	nt			
ACCOUNTS BUC		ge from previou	is period		
	edule nment No chang	ge from previou	is period		
4/30/2014 arowley Sco	pe nment No chang	ge from previou	us period		
Project Contacts					
Role DES/Eng. Project Coordinate	Name or Craig, Elizabet	th	Work Phone	Email Address	Entered On 3/19/2010
Project Manager	Thurber, Elizal		703-228-3363	Ethurber@arlingtonva.u	
DES/Eng. Project Coordinate			703-228-3363	Ethurber@arlingtonva.u	
Project Files Seq. File Type Status Flags	11.°	File Path or	Web Address		
nazate n zoneszenana.	Entered On	File Path or	Web Address		
Seq. File Type Status Flags Status Flag Active	5/14/2010	Comment	Web Address	on 4/5/10.	
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Seq. File Type Status Flags Status Flag Active Funded	5/14/2010 4/14/2010 5/18/2009	Comment		on 4/5/10.	
Seq. File Type Status Flags Status Flag Active Funded Initial Project Request	5/14/2010 4/14/2010 5/18/2009	Comment	gineering Schedule	on 4/5/10.	
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Engineering & Capital Projects Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606 Seal NILESH RAM NAIKARE Lic. No. 0402049246
Approvals Date 12 10 15 DESIGN TEAM SUPERVISOR DESIGN TEAM SUPERVISOR 12 10 15 ENGINEERING BUREAU CHIEF WATER, SEWER STREETS BUREAU CHIEF TRANSPORTATION DIRECTOR Revisions Date
Project Name and Location N. Sycamore Street Stormwater Pollution Prevention Plan (SWPPP) From 24th Street North To N. Sycamore Street To N. Sycamore Street
Designed: P. Banepali Drawn: P. Banepali Checked: N. Naikare Miss Utility Transmittal #: 5121D
Filename: S17D-PBASE-P.PLAN_Final.dwg Path: Q:\Data\S17D\Design\Drawings Plotted: November 25, 2015 Plotted by: Pbanepali
Scale: Hor: 1" = 30'
Sheet 20 of 38







I. A PERMIT IS REQUIRED WHEN TREES ARE PLANTED IN PUBLIC RIGHT-OF-WAY OR IN A PUBLIC EASEMENT. THE DEPARTMENT OF ENVIRONMENTAL SERVICES SHALL ISSUE THE PERMIT ACCORDING TO THE PROVISIONS OF THE CURRENT ARLINGTON COUNTY ADMINISTRATIVE REGULATION 4.3.

2. TREE SPECIES SHALL BE SELECTED FROM THE "ARLINGTON COUNTY STREET TREE LIST" OR PER SECTOR PLAN REQUIREMENTS.

3. TREES SHALL BE NURSERY GROWN SPECIMENS THAT MEET THE LATEST EDITION OF THE AMERICAN STANDARDS FOR NURSERY STOCK (ANSI Z60). BALLED AND BURLAPPED TREES SHALL BE SECURELY HELD IN PLACE BY UNTREATED BURLAP AND STOUT ROPE (NYLON ROPE IS NOT ACCEPTABLE). LOOSE, BROKEN OR MANUFACTURED BALLS ARE UNACCEPTABLE.

4. CALL MISS UTILITY AT (800) 552-7001 FOR UTILITY LOCATIONS PRIOR TO EXCAVATION.

AT TIME OF PLANTING PRUNE ONLY CROSSING LIMBS, BROKEN OR DEAD BRANCHES, AND ANY BRANCHES THAT POSE A HAZARD TO PEDESTRIANS. DO NOT PRUNE INTO OLD WOOD ON EVERGREENS.

TREE PIT AND TREE STRIP PLANTING AREA DIMENSIONS:
 (A) 5' X 12' OR LARGER IS STANDARD
 (B) 4' X 15' MINIMUM IS ALLOWED PER SITE CONDITIONS AND

COUNTY URBAN FORESTER'S APPROVAL.

7. SPACE TREES 25'-30' APART OR PER SECTOR PLAN REQUIREMENTS OR SITE CONDITIONS.

8. SITE CHARACTERISTICS, SUCH AS OVERHEAD POWER LINES, EXISTING VEGETATION, AND INFRASTRUCTURE ITEMS SUCH AS CURBS, SIDEWALKS AND UTILITIES SHALL BE CONSIDERED. TREES THAT GROW TALLER THAN

TREES PLANTED WITHOUT THE TRUNK FLARE VISIBLE WILL BE REJECTED.
 TREES MAY ONLY BE STAKED IF REQUIRED BY THE COUNTY URBAN

FOLLOWING SPECIFICATIONS:

OF LO% ORGANIC MATTER

MILLIOHMS PER CENTIMETER.

12. TREES MAY ONLY BE STAKED IF REQUIRED BY THE COUNTY URBAN FORESTER. REFER TO ARLINGTON COUNTY STANDARD STAKING DETAILS.

9. BACKFILL SOIL MIXTURE SHALL BE 3/4 EXISTING SOIL CLEANED OF DEBRIS (GRAVEL, ROCKS, STICKS, TRASH, ETC.) AND MIXED WITH 1/4 ORGANIC MATERIAL (COMPOSTED BARK, LEAF MOLD, OR OTHER PLANT DEBRIS

PROCESSED TO A POINT OF DECAY AND APPROVED BY THE COUNTY URBAN FORESTER. PEAT MOSS MAY NOT BE USED.

10. IF THE QUANTITY OF ACCEPTABLE EXISTING SOIL IS INSUFFICIENT FOR THE PLANTING REQUIREMENTS, THE CONTRACTOR MAY USE TOPSOIL. SOIL TEST REPORT RESULTS FOR THE TOPSOIL WILL BE MADE AVAILABLE TO THE COUNTY URBAN FORESTER UPON REQUEST. CONTRACTOR SHALL SUBMIT TOPSOIL FOR APPROVAL TO COUNTY URBAN FORESTER THAT MEETS THE

(A.) TOPSOIL CONSISTS OF A SANDY LOAM WITH UNIFORM COMPOSITION AND IS FREE OF STONES, LUMPS, PLANTS, ROOTS, AND OTHER DEBRIS

OVER 1/2" IN LENGTH.

(B.) TOPSOIL HAS A PH RANGE OF 5.5 TO 6.5 AND A MINIMUM CONTENT

(C.) TOPSOIL DOES NOT CONTAIN TOXIC SUBSTANCES HARMFUL TO
PLANT GROWTH. SOLUBLE SALT LEVEL SHALL NOT EXCEED 3

13. MULCH SHALL BE CLEAN, SCREENED, DOUBLE-HAMMERED HARDWOOD BARK MULCH, UNIFORM IN SIZE AND FREE OF STONES, CLODS, NON-ORGANIC DEBRIS AND OTHER FOREIGN MATERIAL.

I4. ALL PLANTS SHALL BE WATERED TWICE: ONCE AT INSTALLATION AND AGAIN WITHIN 48-HOURS OF INSTALLATION. EACH WATERING WILL CONSIST OF 20 GALLONS PER TREE.

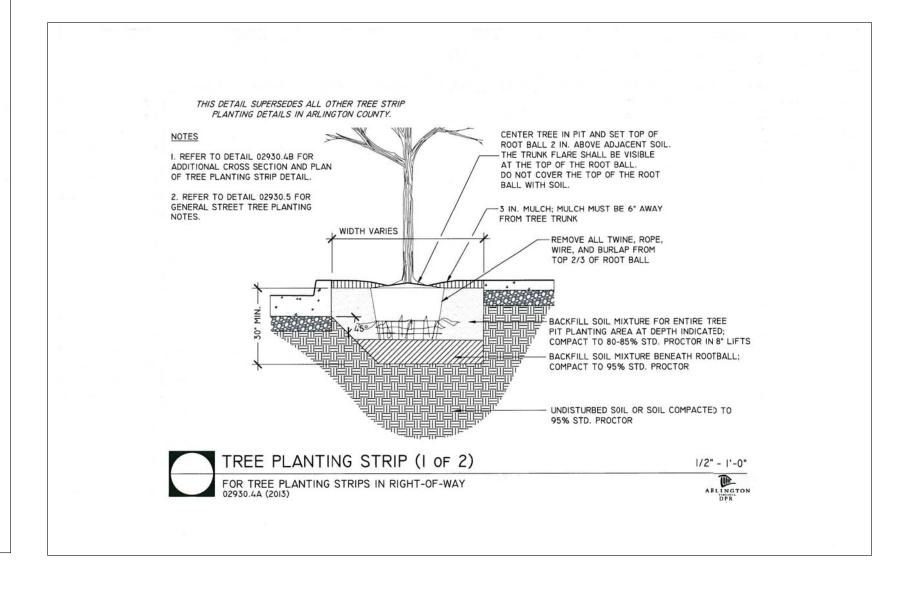
AND UTILITIES SHALL BE CONSIDERED. TREES THAT GROW TALLER THAN 25 FEET SHOULD NOT BE PLANTED DIRECTLY UNDER POWER LINES. WHEN POSSIBLE THE TREE LEADER SHALL BE OFFSET FROM POWER LINES.

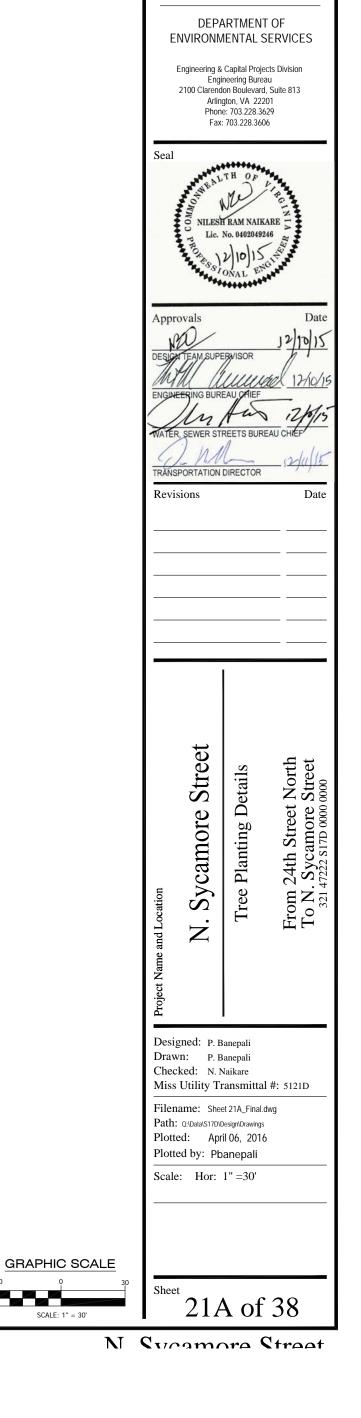


GENERAL NOTES FOR STREET TREE PLANTINGS

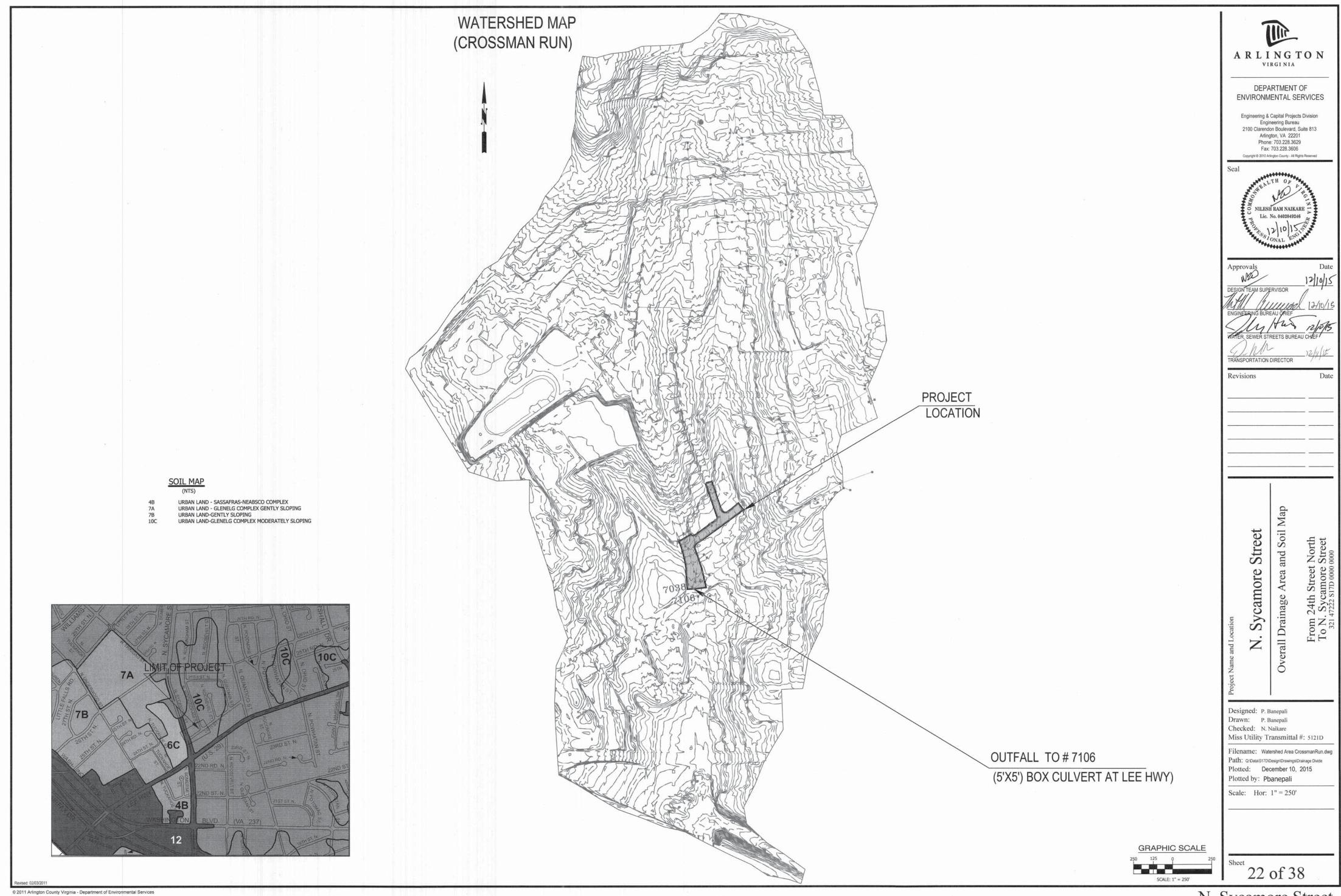
FOR TREES PLANTED IN RIGHT-OF-WAY

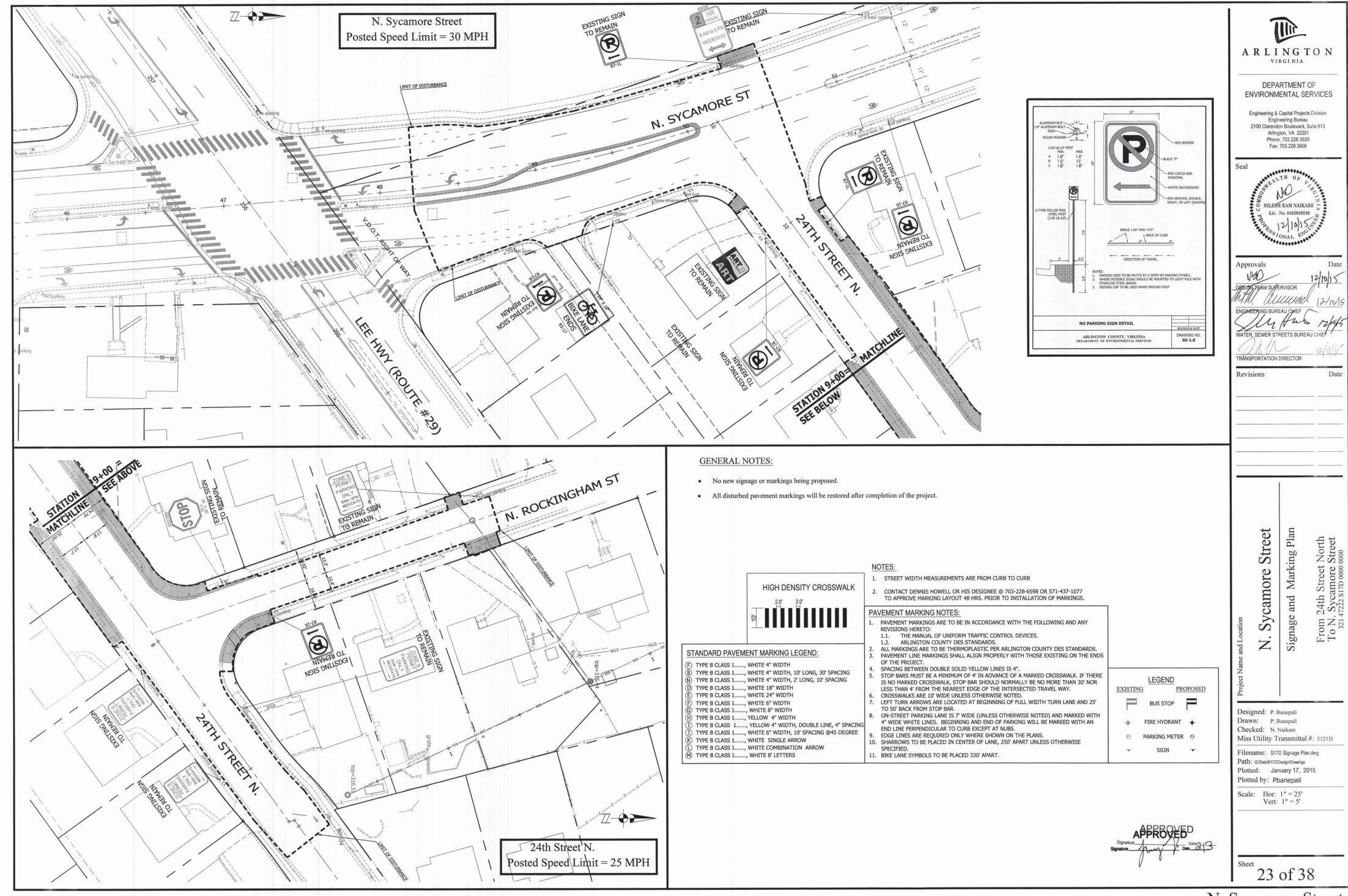
ARLINGTON





ARLINGTON VIRGINIA





CONSTRUCTION NOTES

WORK HOURS:

- IN ARLINGTON RIGHT-OF-WAY 9:00 AM TO 4:00 PM (MON TO FRI);
- IN VDOT'S RIGHT-OF-WAY 9:30 AM TO 3:30 PM (MON THUR) AND 9:30 AM TO 2:00 PM (FRI).

MOT NOTES:

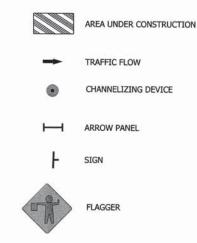
- PARKING SHALL BE RESTRICTED BY THE COUNTY AS PART OF THE RIGHT OF WAY PERMIT. CONTACT DES PERMITTING SECTION, 703-228-4798, AT LEAST 72 HOURS PRIOR TO COMMENCEMENT OF WORK.
- COORDINATE WITH ARLINGTON COUNTY TRANSIT BUREAU, 703-228-3049, AT LEAST 2 WEEKS PRIOR TO COMMENCEMENT OF WORK FOR APPROVAL, IF TRANSIT IS AFFECTED.
- ALL TRAFFIC CONTROL DEVICES MUST BE INSTALLED IN STRICT COMPLIANCE WITH VA WORK PROTECTION MANUAL (2011).
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SAFE WALKWAYS FOR PEDESTRIANS WITHIN THE CONSTRUCTION AREA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ACTIVITIES WITH ADJACENT ALLEY/DRIVEWAY ENTRANCES TO PROVIDE ADEQUATE EGRESS/INGRESS AT ALL TIMES. ACCESS MUST BE MAINTAINED AT ALL TIMES TO ALL ADJACENT PROPERTY PARCEL AFFECTED BY CONSTRUCTION.
- MAINTENANCE OF TRAFFIC PLANS AND DETAILS SHOWN HERE SHALL BE FOLLOWED BY THE CONTRACTOR DURING CONSTRUCTION. SHOULD THE CONTRACTOR DESIRE TO FOLLOW AN ALTERNATE PLAN, HE SHALL SUBMIT THE PLAN PRIOR TO CONSTRUCTION FOR REVIEW AND APPROVAL. ALTERNATIVE PLAN PREPARATION SHALL BE NO COST TO THE COUNTY.
- PHASE 1 AND 2 CONSTRUCTION WILL BE FOR 3 DAYS.
- PHASE 3 CONSTRUCTION WILL BE FOR 5 DAYS.
- PHASE 4 AND 5 CONSTRUCTION WILL BE FOR 6 DAYS.
- 10. PHASE 6 SHALL START UPON COMPLETION OF PHASE 5. PHASE 6 CONSTRUCTION WILL BE FOR 7 DAYS.
- 12. PHASE 7 CONSTRUCTION WILL BE FOR 14 DAYS. PHASE 8 CONSTRUCTION WILL BE FOR 3 DAYS.
- PHASE 9 SHALL START UPON COMPLETION OF PHASE 8.
- PHASE 9 CONSTRUCTION WILL BE FOR 10 DAYS.
- PHASE 10 CONSTRUCTION WILL BE FOR 7 DAYS.
- PHASE 11 CONSTRUCTION WILL BE FOR 10 DAYS.
- PHASE 12 CONSTRUCTION WILL BE FOR 10 DAYS.
- PHASE 13 CONSTRUCTION WILL BE FOR 2 DAYS.
- 20. PHASE 14 SHALL START UPON COMPLETION OF PHASE 13.
- 21. PHASE 14 CONSTRUCTION WILL BE FOR 3 DAYS.
- PHASE 15 CONSTRUCTION WILL BE FOR 3 DAYS.
- 23. ALL CONSTRUCTION WORKS WILL BE FOR THE DURATION OF 83 DAYS TOTAL.
- 24. CONTRACTOR SHALL REMOVE EXISTING PAVEMENT MARKING IN CONFLICT WITH TEMPORARY PAVEMENT MARKINGS.
- 25. CONTRACTOR TO CONTACT ARLINGTON COUNTY DEPT. OF TRANSPORTATION PRIOR TO INSTALLATION OF PERMANENT PAVEMENT
- MARKINGS DISTURBED DURING CONSTRUCTION. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN THE FLOW OF
- TRAFFIC ON ANY INTERSECTION WITHIN THE WORK AREA. 27. IF ON-STREET PARKING ON ANY OF THE STREETS IMPACTED BY THIS PROJECT NEEDS TO BE TEMPORARILY SUSPENDED, THEN TEMPORARY "NO PARKING" SIGNS SHALL BE INSTALLED ALONG THE IMPACTED STRECHES OF THOSE STREETS BY

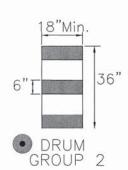
FIRE DEPARTMENT NOTES:

ARLINGTON COUNTY.

- 1. ALL EXISTING FIRE HYDRANTS AND FIRE DEPARTMENTS CONNECTIONS SHALL BE MAINTAINED UNOBSTRUCTED AND ACCESSIBLE AT ALL TIMES IN ACCORDANCE WITH SECTIONS 508.5.4 AND 508.5.5 OF THE ARLINGTON COUNTY FIRE PREVENTION CODE.
- ACCESS TO BUILDING FOR FIREFIGHTING SHALL BE MAINTAINED AT ALL TIMES. EXISTING FIRE APPARATUS ACCESS ROADS (FIRE LANES) SHALL BE KEPT CLEAR OF OBSTRUCTION IN ACCORDANCE WITH SECTION 503.4 OF THE ARLINGTON COUNTY FIRE PREVENTION CODE. ACCESS TO CONSTRUCTION SITES SHALL BE PROVIDED AND MAINTAINED IN ACCORDANCE WITH SECTION 1410 OF THE ARLINGTON COUNTY FIRE PREVENTION CODE.
- 3. IN THE EVENT THAT EXISTING FIRE DEPARTMENT CONNECTIONS OR FIRE APPARATUS ACCESS ROADS (FIRE LANES) MUST BE OBSTRUCTED TO FACILITATE CONSTRUCTION ACTIVITIES, CONTACT THE ARLINGTON FIRE DEPARTMENT FIRE PREVENTION OFFICE AT 703 228 4644 TO COORDINATE REVIEW AND APPROVAL OF TEMPORARY FIRE DEPARTMENT CONNECTIONS AND / OR FIRE APPARATUS ACCESS ROADS PRIOR TO CREATING THE OBSTRUCTION.

LEGEND:





DEPARTMENT OF **ENVIRONMENTAL SERVICES** Engineering & Capital Projects Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Fax: 703.228.3606 Copyright © 2011 Arlington County Virginia - All Rights Reserved Seal NILESH RAM NAIKARE Lic. No. 0402049246 Approvals TRANSPORTATION DIRECTOR Revisions Street Notes 24th Street [. Sycamore Street] Sycamore

ARLINGTON

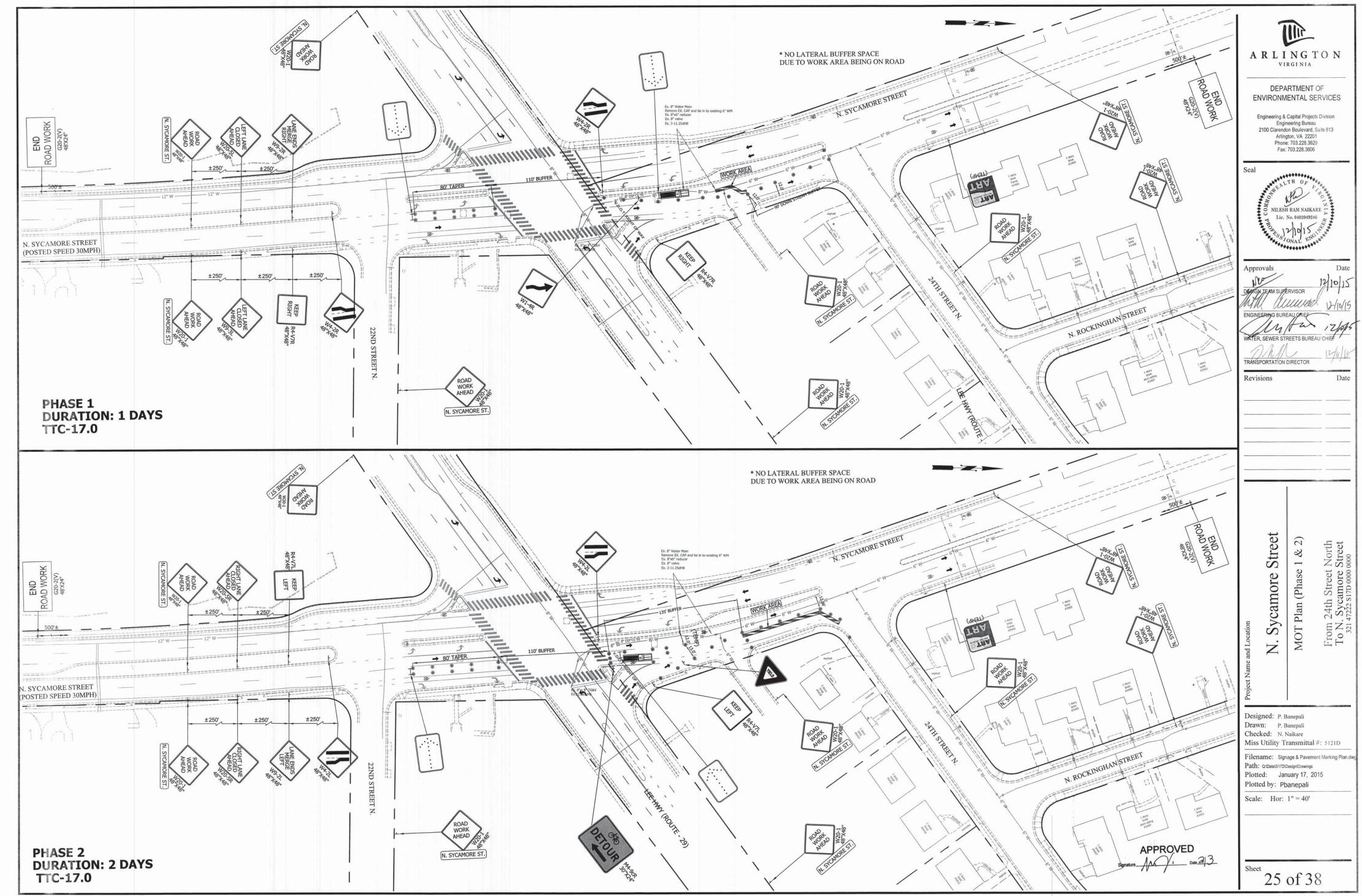
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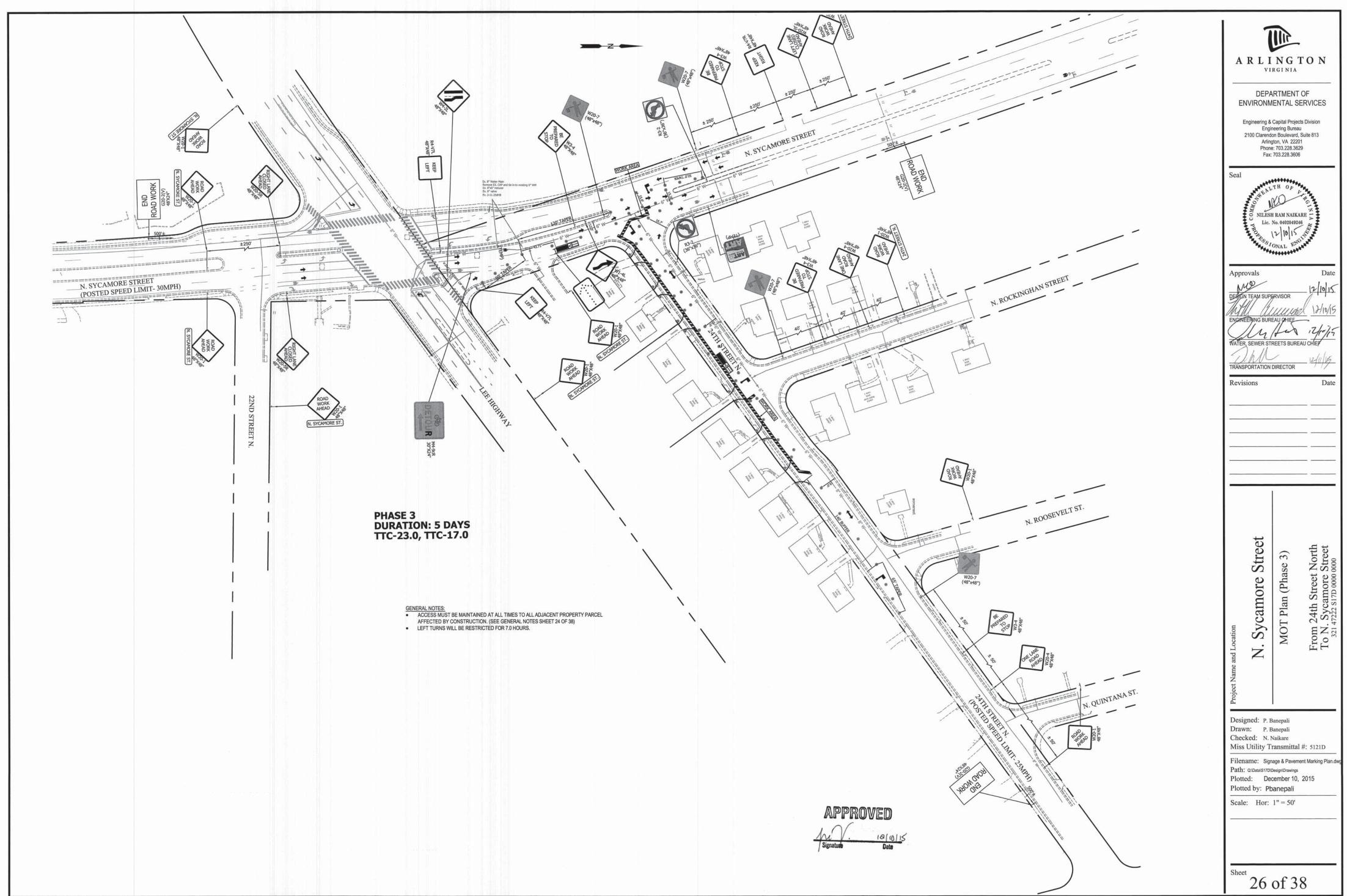
APPROVED
Signature Date 23

Designed: P. Banepali Drawn: P. Banepali Checked: N. Naikare

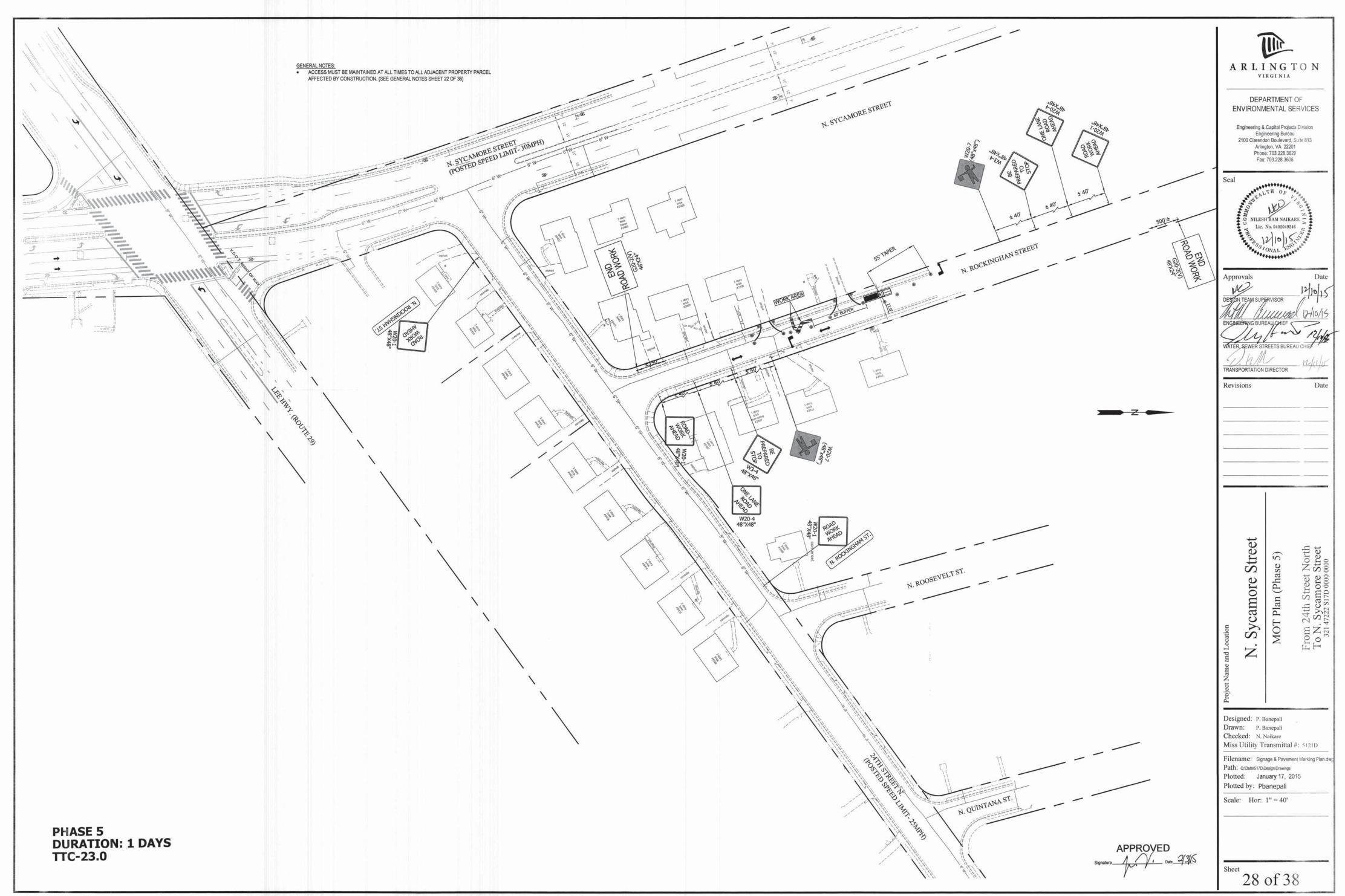
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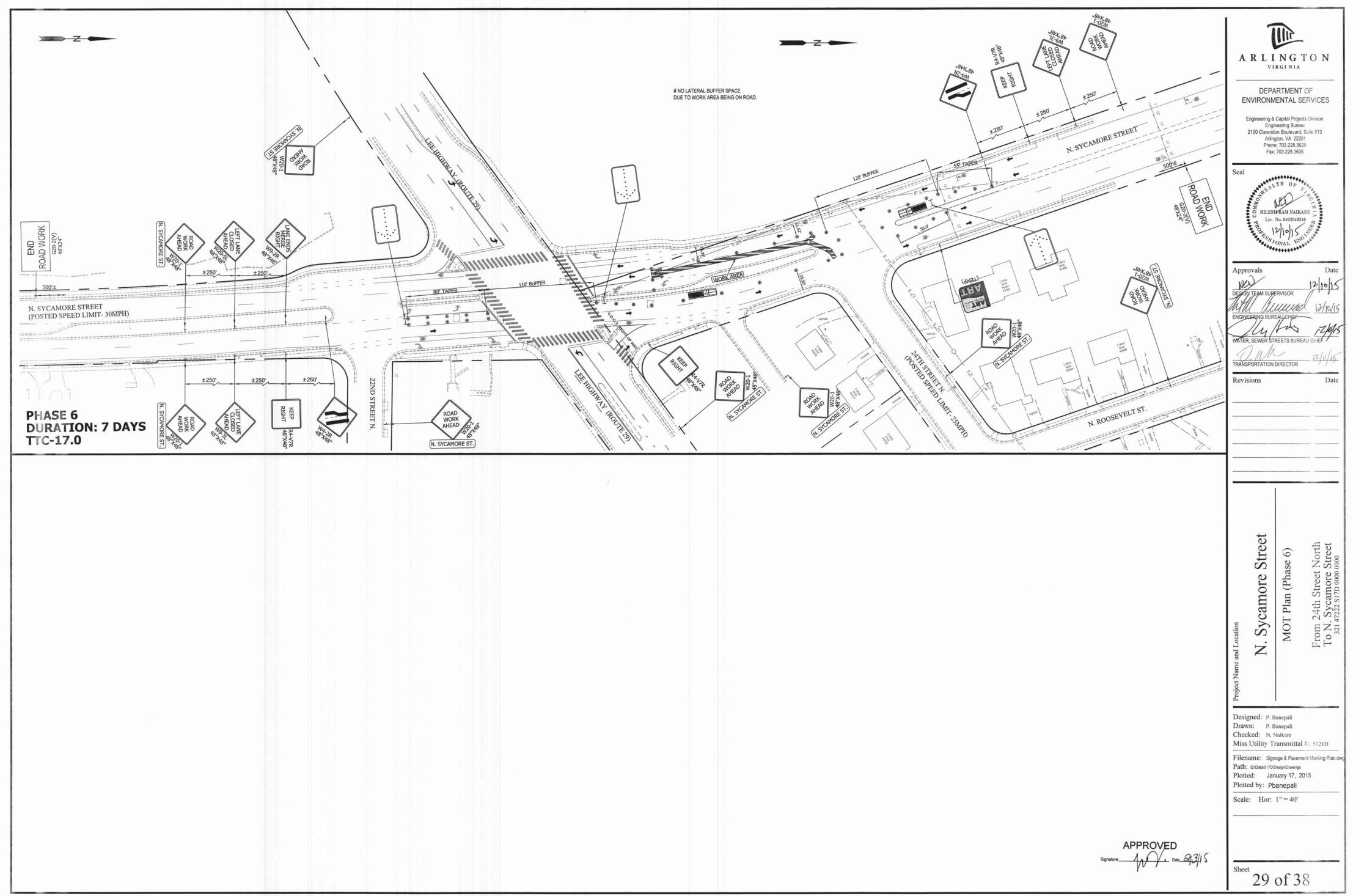
Miss Utility Transmittal #: 5121D

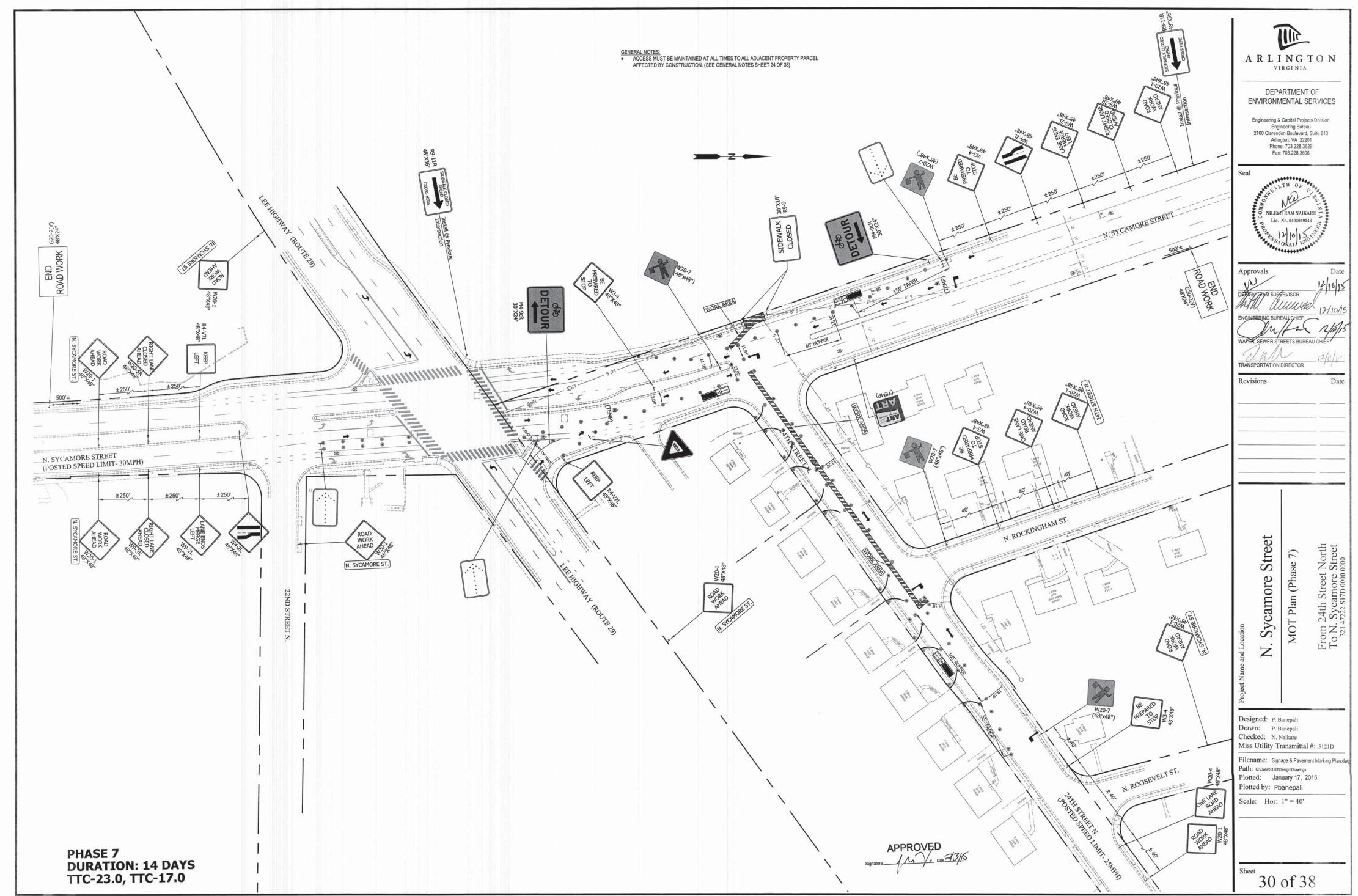


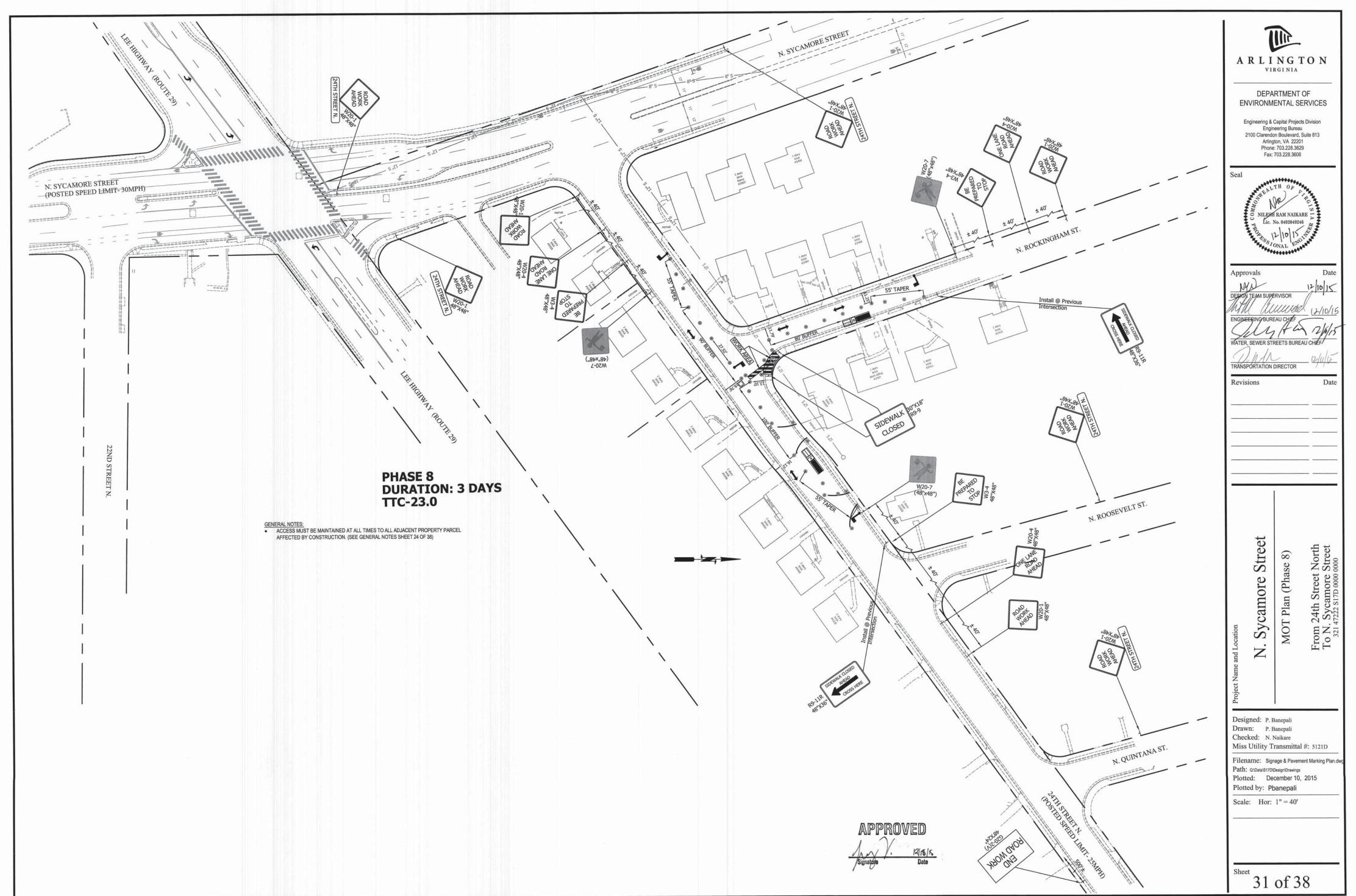


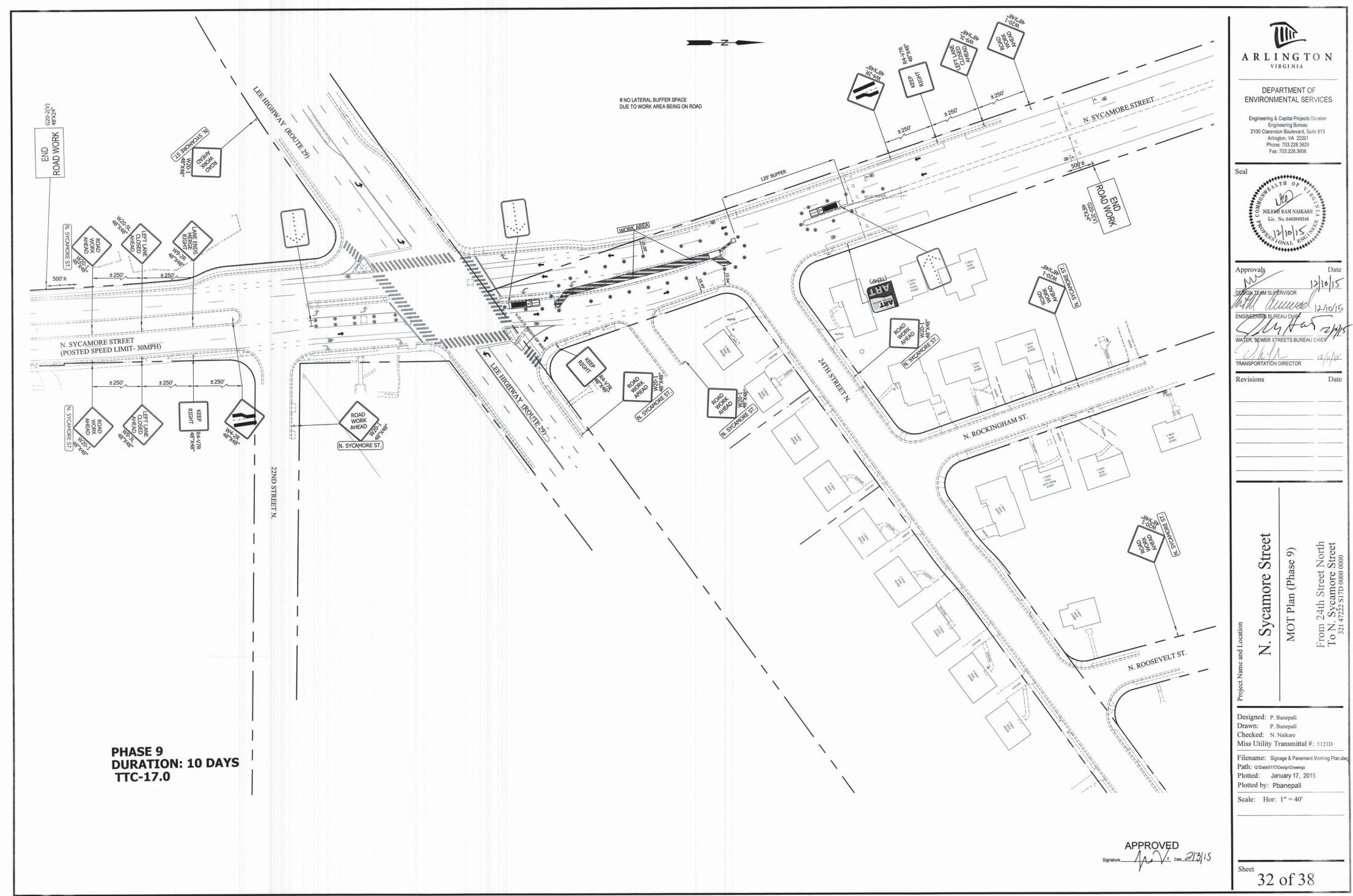


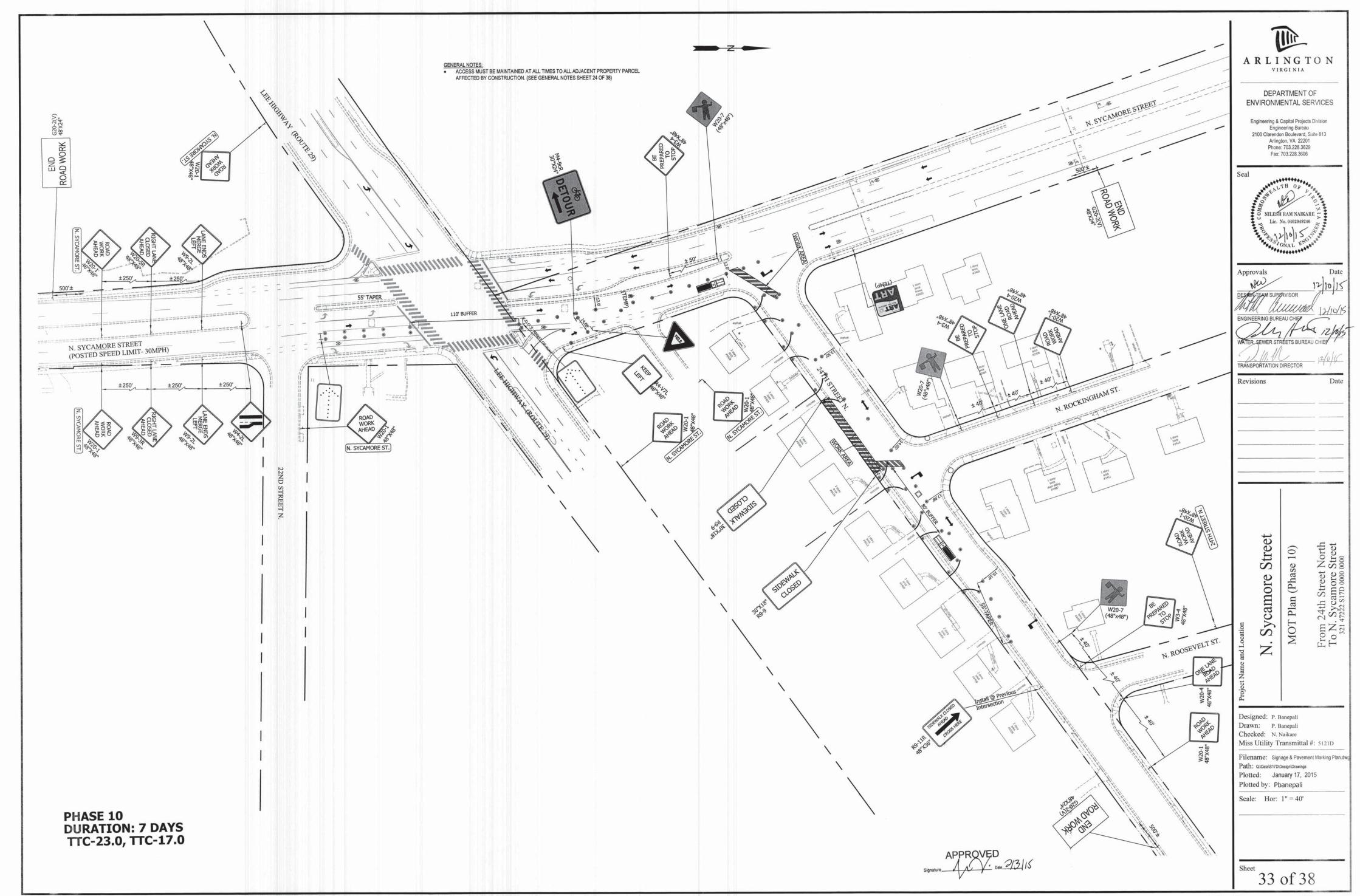


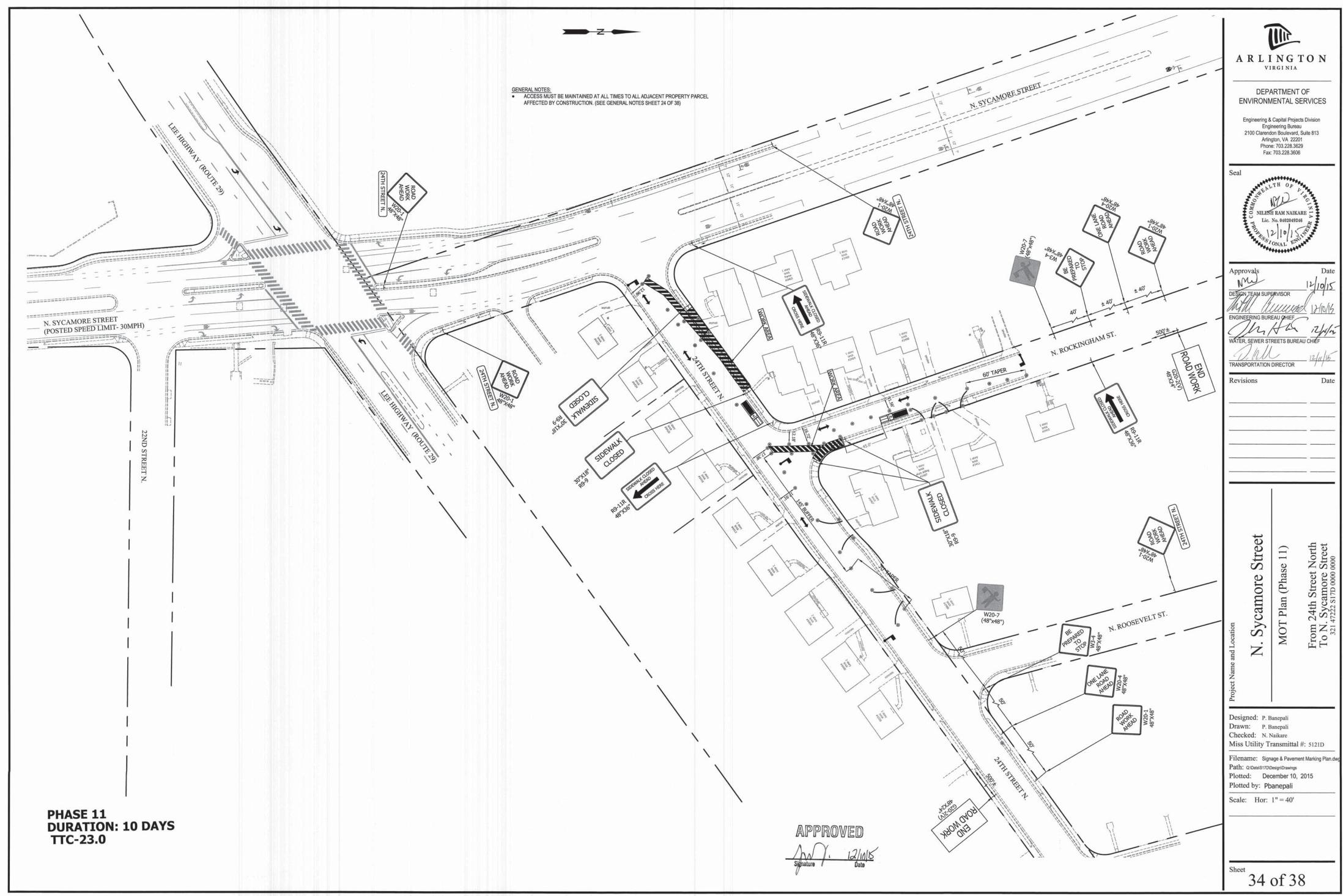


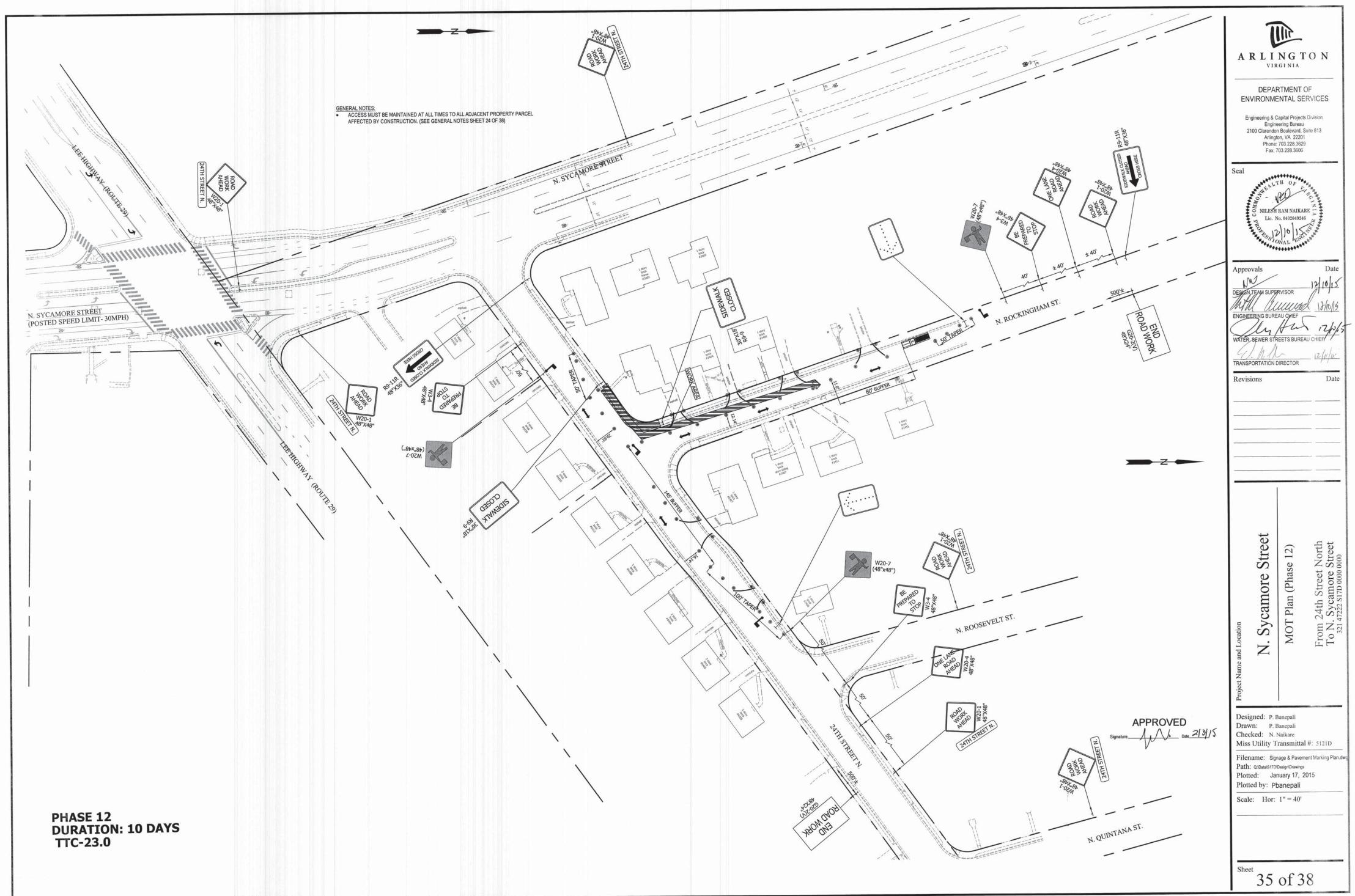


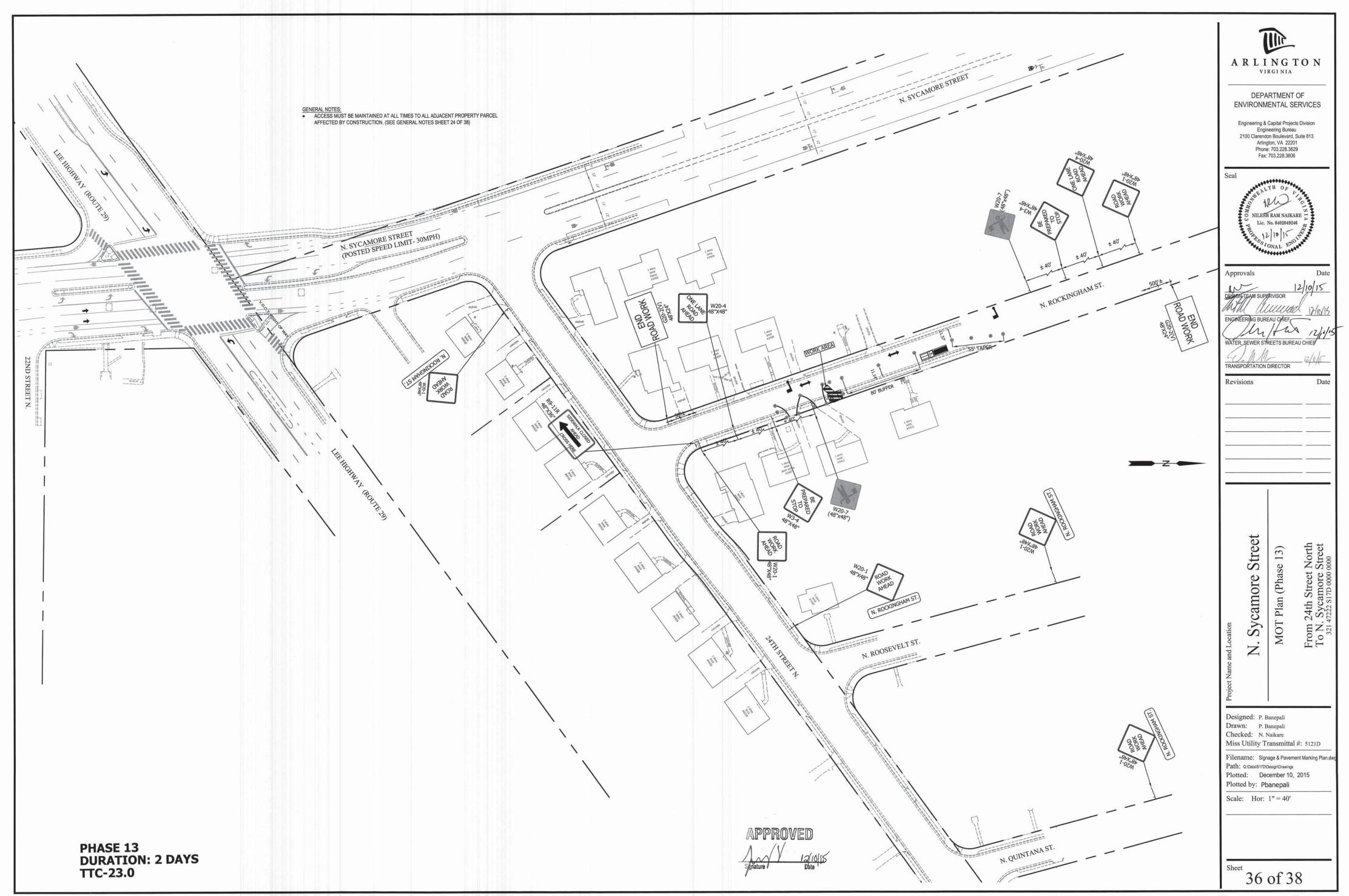


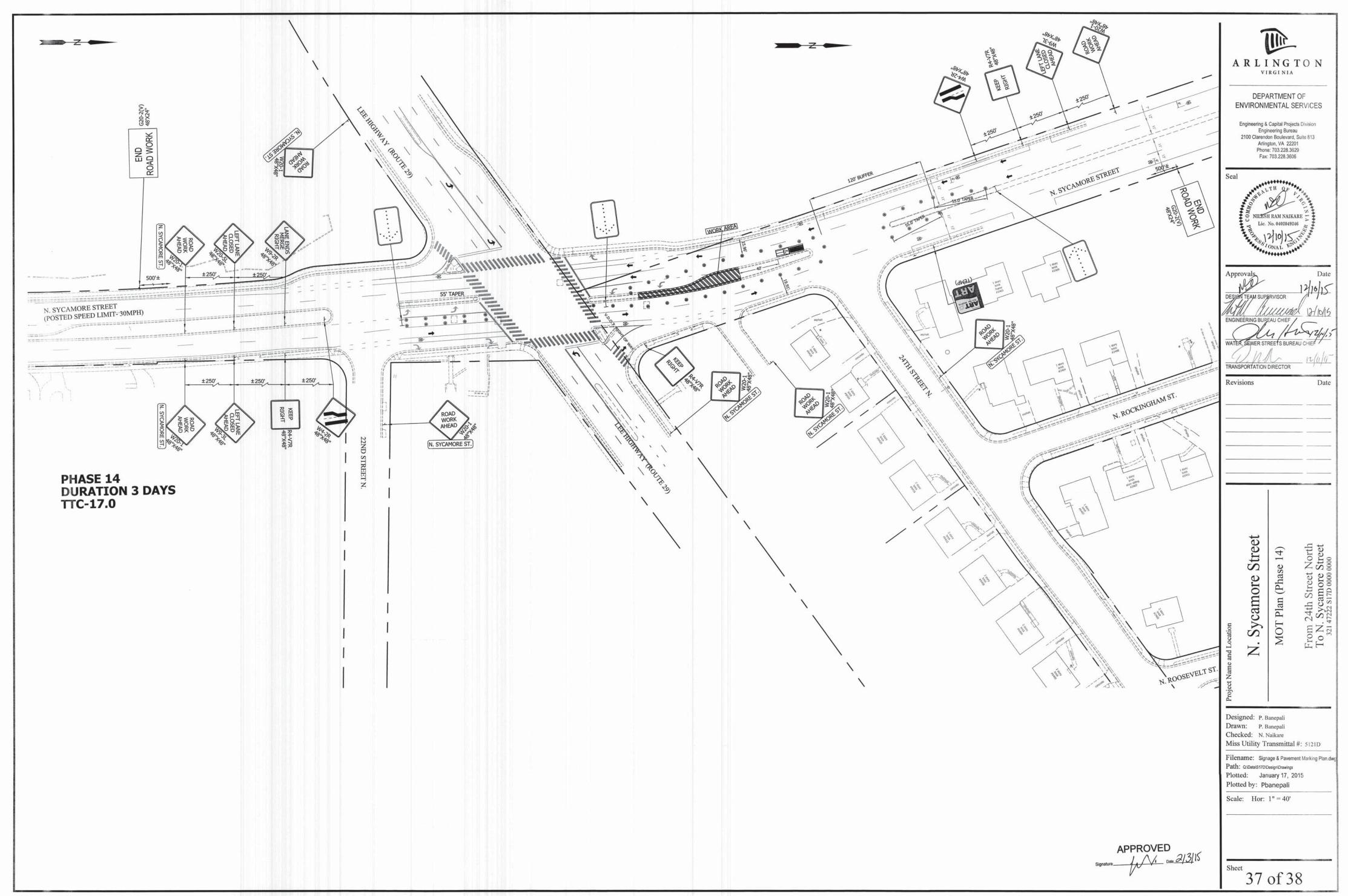


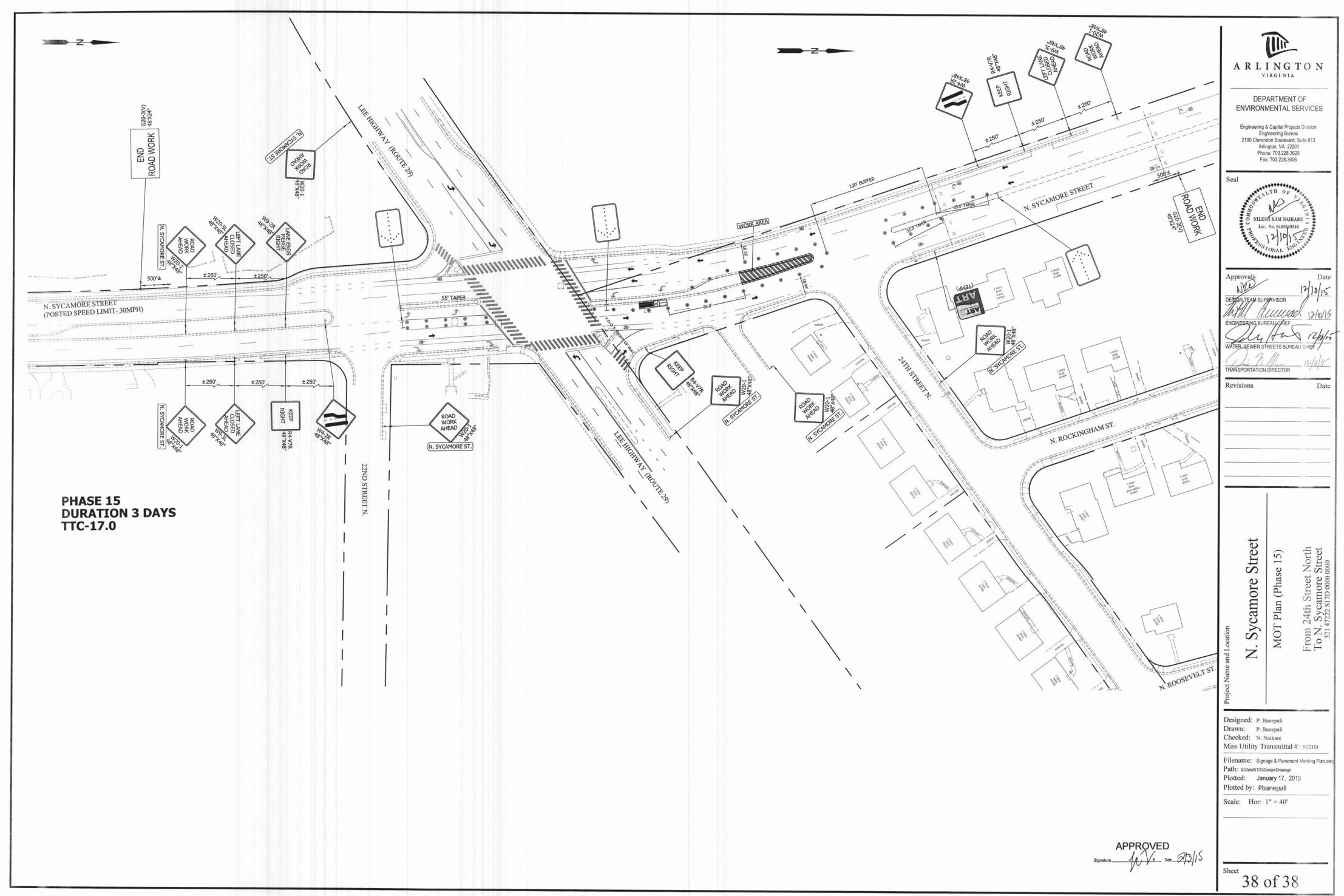














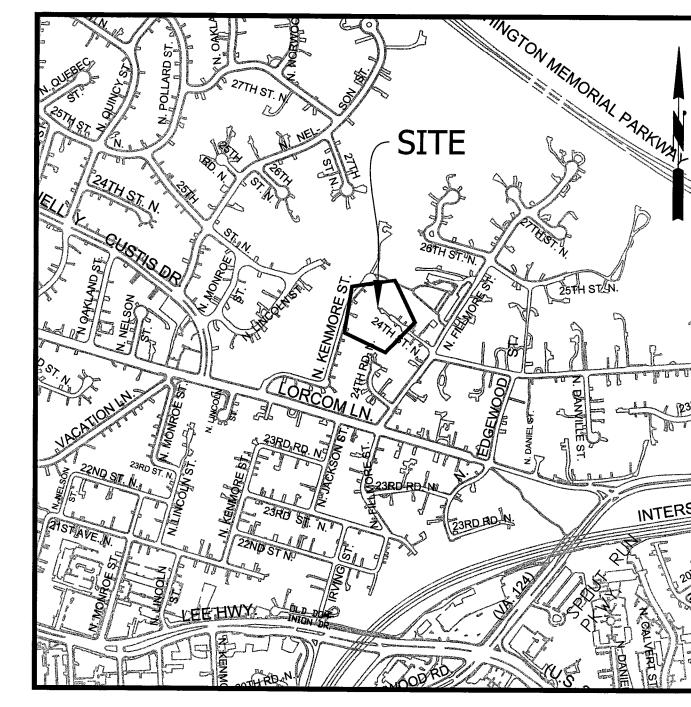
ENGINEER DEPARTMENT OF **ENVIRONMENTAL SERVICES**

FACILITIES & ENGINEERING DIVISION **ENGINEERING BUREAU** 2100 CLARENDON BOULEVARD, SUITE 813 ARLINGTON, VA 22201

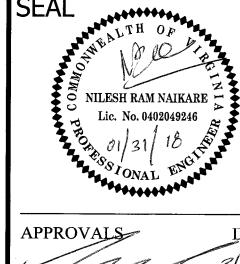
PHONE: 703.228.3629 FAX: 703.228.3606

OWNER DES/OSEM/STORM CONTRACTOR TO BE DETERMINED





ARLINGTON DEPARTMENT OF



REVISIONS DATE

WOODMONT

DESIGNED: PB DRAWN: PB

CHECKED: NN MISS UTILITY TRANSMITTAL #: 5036-D

FILENAME: S28D-200-COVER_90%.DWG PATH: Q:\DATA\S28D\DESIGN\DRAWINGS PLOTTED: JANUARY 30 2018

PLOTTED BY:PBANEPALI

SCALE AS NOTED

1 OF 25

CONSTRUCTION DRAWINGS FOR: PROJECT NAME: WOODMONT SWALE-PHASE I

WWW.ARLINGTONVA.US

PROJECT LOCATION: FROM N. FILLMORE STREET TO N. KENMORE STREET

PROJECT CODE: S28D

GENERAL NOTES:

- . ALL CONSTRUCTION WORK FOR THIS PROJECT SHALL CONFORM TO THE ARLINGTON COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES, CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND WHERE APPLICABLE THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) ROAD AND BRIDGE SPECIFICATIONS, AND ROAD AND BRIDGE STANDARDS. THE LATEST EDITIONS OF EACH RELEVANT MANUAL SHALL BE USED.
- 2. ALL CONSTRUCTION AND WORK ACTIVITIES SHALL COMPLY WITH THE VIRGINIA WORK AREA PROTECTION MANUAL AND ALL OTHER RELEVANT WORK SAFETY REQUIREMENTS, LATEST
- 3. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT OFFICER OF ANY DISCREPANCIES

BETWEEN ACTUAL FIELD CONDITIONS AND THE APPROVED PLANS.

- I. THE CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 811 FOR MARKING THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES (i.e. WATER, SEWER, GAS, TELEPHONE, ELECTRIC, AND CABLE TV) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION OR CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO IDENTIFY AND PROTECT ALL OTHER UTILITY LINES FOUND IN THE WORK SITE AREA BELONGING TO OTHER OWNERS THAT ARE NOT MEMBERS OF "MISS UTILITY". PRIVATE WATER. SEWER AND GAS LATERALS WILL NOT BE MARKED BY MISS UTILITY OR THE COUNTY. THE CONTRACTOR SHALL LOCATE AND PROTECT THESE SERVICES DURING CONSTRUCTION.
- 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAYING OUT THE WORK AND SHALL RETAIN A PROFESSIONAL LAND SURVEYOR LICENSED IN THE COMMONWEALTH OF VIRGINIA TO PROVIDE ALL NECESSARY CONSTRUCTION LAYOUTS AND ESTABLISH ALL CONTROL LINES, GRADES, AND ELEVATION DURING CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT A COPY OF ALL CUT SHEETS FOR REVIEW, PER THE SPECIFICATIONS. THE COST OF ALL NECESSARY SURVEYING SERVICES SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND, UNLESS OTHERWISE SPECIFIED, THE COST SHALL BE INCORPORATED INTO THE COSTS FOR RELEVANT ITEMS.
- S. THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE FROM BEST AVAILABLE RECORDS AND SHALL BE CONSIDERED TO BE APPROXIMATE. WHEN CONSTRUCTION ACTIVITY REACHES IN PROXIMITY TO EXISTING UTILITIES, THE TRENCH(ES) SHALL BE OPENED A SUFFICIENT DISTANCE AHEAD OF THE WORK OR TEST PITS SHALL BE MADE TO VERIFY THE EXACT LOCATION AND INVERTS OF THE UTILITY TO ALLOW FOR POSSIBLE CHANGES IN THE LINE OR GRADE AS DIRECTED BY OFFICER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING UTILITIES AND THE RELATED STRUCTURES. ALL EXISTING UTILITY SYSTEMS SHALL BE PROTECTED TO PREVENT DAMAGE DURING THE CONTRACTOR'S OPERATIONS. ANY SYSTEM DAMAGED SHALL BE PROMPTLY REPAIRED AT NO COST TO THE
- 7. EXISTING MANHOLE FRAMES, COVERS, VALVE BOXES, AND OTHER APPURTENANCES SHALL BE ADJUSTED TO THE FINAL GRADE OR REPLACED, AS NECESSARY. UNLESS OTHERWISE SPECIFIED, THE COST FOR THIS SHALL BE CONSIDERED INCIDENTAL TO THE WORK, AND SHALL BE INCORPORATED INTO THE COSTS FOR RELEVANT ITEMS.
- 8. THE CONTRACTOR SHALL PROVIDE ADA COMPLIANT ACCESS THROUGH OR AROUND THE SITE AT ALL TIMES AND SHALL ENSURE THE SAFETY OF ALL THOSE PASSING THROUGH OR ADJACENT TO THE SITE.

9. THE CONTRACTOR SHALL CONFINE ALL ACTIVITIES AT THE SITE ASSOCIATED WITH CONSTRUCTION ACTIVITIES, TO INCLUDE STORAGE OF EQUIPMENT AND OR MATERIALS. ACCESS TO THE WORK, FORMWORK, ETC. TO WITHIN THE DESIGNATED LIMITS OF DISTURBANCE

TREE PROTECTION

10. TREES SHALL BE PROTECTED PER THE REQUIREMENTS OF ARLINGTON PARK & RECREATIONS STANDARD.

TRAFFIC CONTROL

- 11. CONTRACTOR SHALL NOTIFY THE PROJECT OFFICER AT LEAST 3 WORKING DAYS PRIOR TO DISTURBING ANY EXISTING, OR INSTALLING ANY NEW, TRAFFIC SIGNS, SIGNALS, OR OTHER TRAFFIC CONTROL DEVICES.
- 12. THE CONTRACTOR SHALL PREMARK THE LAYOUT OF ANY PERMANENT TRAFFIC CONTROL STRIPING, INDICATING THE PROPOSED LOCATION AND TYPE OF MARKING TO BE INSTALLED. THE PREMARKING MAY CONSIST OF TYPE D TAPE, CHALK, OR LUMBER CRAYONS. THE CONTRACTOR SHALL ALLOW 3 WORKING DAYS FOR THE INSPECTION AND APPROVAL OF THE PREMARKINGS PRIOR TO PLACING THE PERMANENT MARKINGS.
- 13. THE CONTRACTOR SHALL SUBMIT ANY REQUESTS FOR TEMPORARY "NO PARKING" RESTRICTIONS TO THE PROJECT OFFICER AT LEAST 3 WORKING DAYS PRIOR TO THE DESIRED ONSET OF RESTRICTIONS.
- 14. THE CONTRACTOR SHALL PRESERVE ALL BUS STOPS, INCLUDING MAINTAINING ADEQUATE ACCESSIBILITY THROUGH AND ADJACENT TO THE CONSTRUCTION FOR BUSES AND THEIR PASSENGERS. THE CONTRACTOR SHALL NOT CLOSE, RELOCATE, OR OTHERWISE MODIFY A BUS STOP WITHOUT PRIOR REQUEST OF THE PROJECT OFFICER. TYPICALLY ANY RELOCATION OR CLOSURE OF A BUS STOP WILL REQUIRE AT LEAST TWO WEEKS ADVANCE NOTICE FOR COORDINATION WITH THE COUNTY'S BUS STOP COORDINATOR.
- 15. WHEN CONDITIONS WARRANT DUE TO TRAFFIC VOLUMES, PATTERNS, OR SPECIAL EVENTS, THE COUNTY MAY SUSPEND OR OTHERWISE DIRECT THE CONTRACTOR'S ACTIVITIES TO PROTECT THE PUBLIC AND OR THE COUNTY'S TRANSPORTATION NETWORK.

WATER DISTRIBUTION, STORM, AND SANITARY SEWER SYSTEMS

- 16. UNLESS OTHERWISE DIRECTED, CONTRACTORS ARE EXPRESSLY PROHIBITED FROM OPERATING ANY WATER VALVES OR APPURTENANCES. CONTRACTORS SHALL SUBMIT ALL REQUESTS FOR VALVE OPERATIONS TO THE PROJECT OFFICER AT LEAST 3 WORKING DAYS IN ADVANCE OF THE REQUIRED OPERATION.
- 17. IN THE EVENT OF A WATER OR SEWER EMERGENCY, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COUNTY'S WATER CONTROL CENTER AT 703-228-6555 AND THE PROJECT OFFICER.

Sheet Number Sheet Title COVER SHEET **LEGEND SHEET** 2 3 DETAIL SHEET 3A DETAIL SHEET-1 RETAINING WALL & DRIVEWAY DETAILS EXISTING CONDITION PLAN 6 GEOMETRIC CONTROL PLAN 7 **EROSION & SEDIMENT CONTROL NOTES** 8 **EROSION & SEDIMENT CONTROL PLAN** 9 **EROSION & SEDIMENT CONTROL DETAILS** 10 EROSION & SEDIMENT CONTROL DETAILS AND RLD 11 STORMWATER POLLUTION PREVENTION PLAN-1 11A STORMWATER POLLUTION PREVENTION PLAN-2 11B STORMWATER POLLUTION PREVENTION PLAN-3 12 WATER QUALITY IMPACT ASSESSMENT DATA SHEET 13 VIRGINIA RUNOFF REDUCTION METHOD 14 TREE PROTECTION PLAN TREE PLANTING DETAILS 16 DEMOLITION PLAN 17 STORM SEWER PLAN & PROFILE CROSS SECTIONS 19 DRAINAGE DIVIDES 20 STORM COMPUTATIONS_EXISTING 21 STORM COMPUTATIONS_PROPOSED 22 OVERALL DRAINAGE AREA AND SOIL MAP 23 LANDSCAPING PLAN 24 MOT ZONES A AND B 25 MOT DETAIL SHEET

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955 - 24TH STREET N. (FROM N. FILLMORE STREET TO 24TH STREET N.)

N/A - N. KENMORE STREET (FROM LORCOM LANE TO N. KENMORE STREET) 14,000 VPD - LORCOM LANE (VDOT 2016)

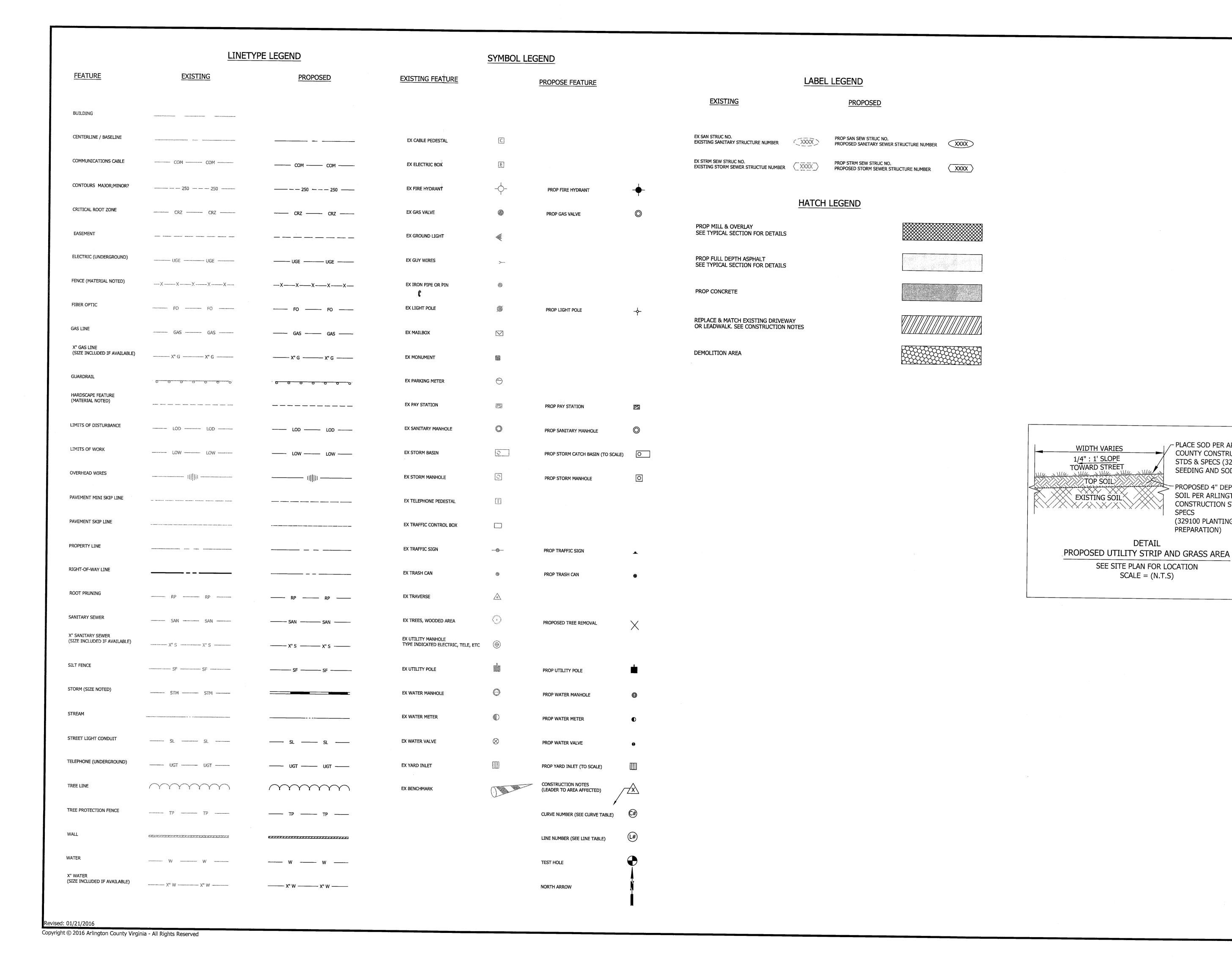
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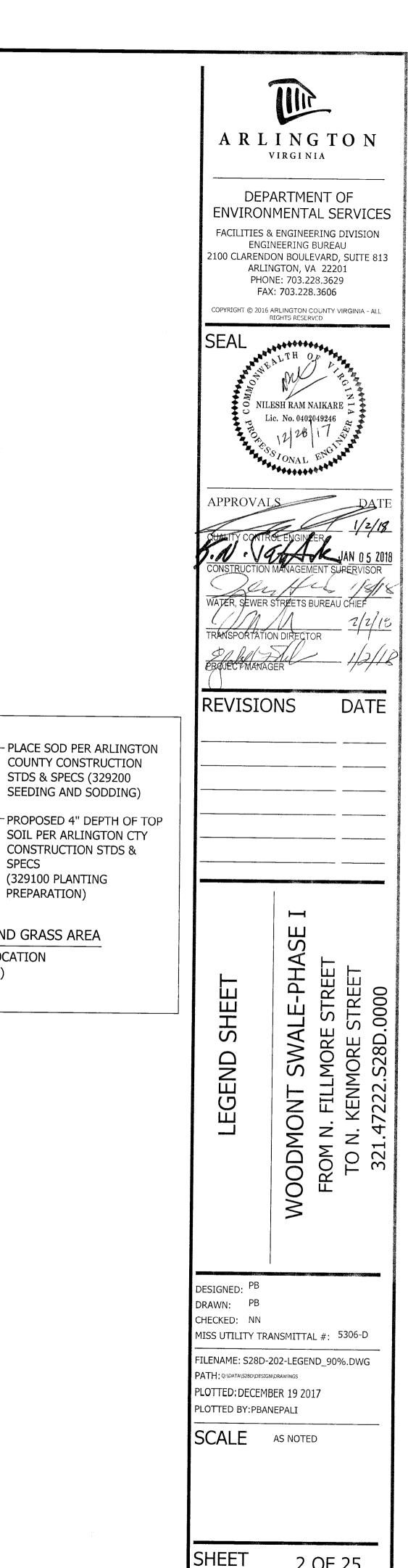
NEIGHBORHOOD MINOR - N. KENMORE STREET

POSTED SPEED

25 MPH - N. KENMORE STREET

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/- PLACE SOD PER ARLINGTON

COUNTY CONSTRUCTION

STDS & SPECS (329200

SEEDING AND SODDING)

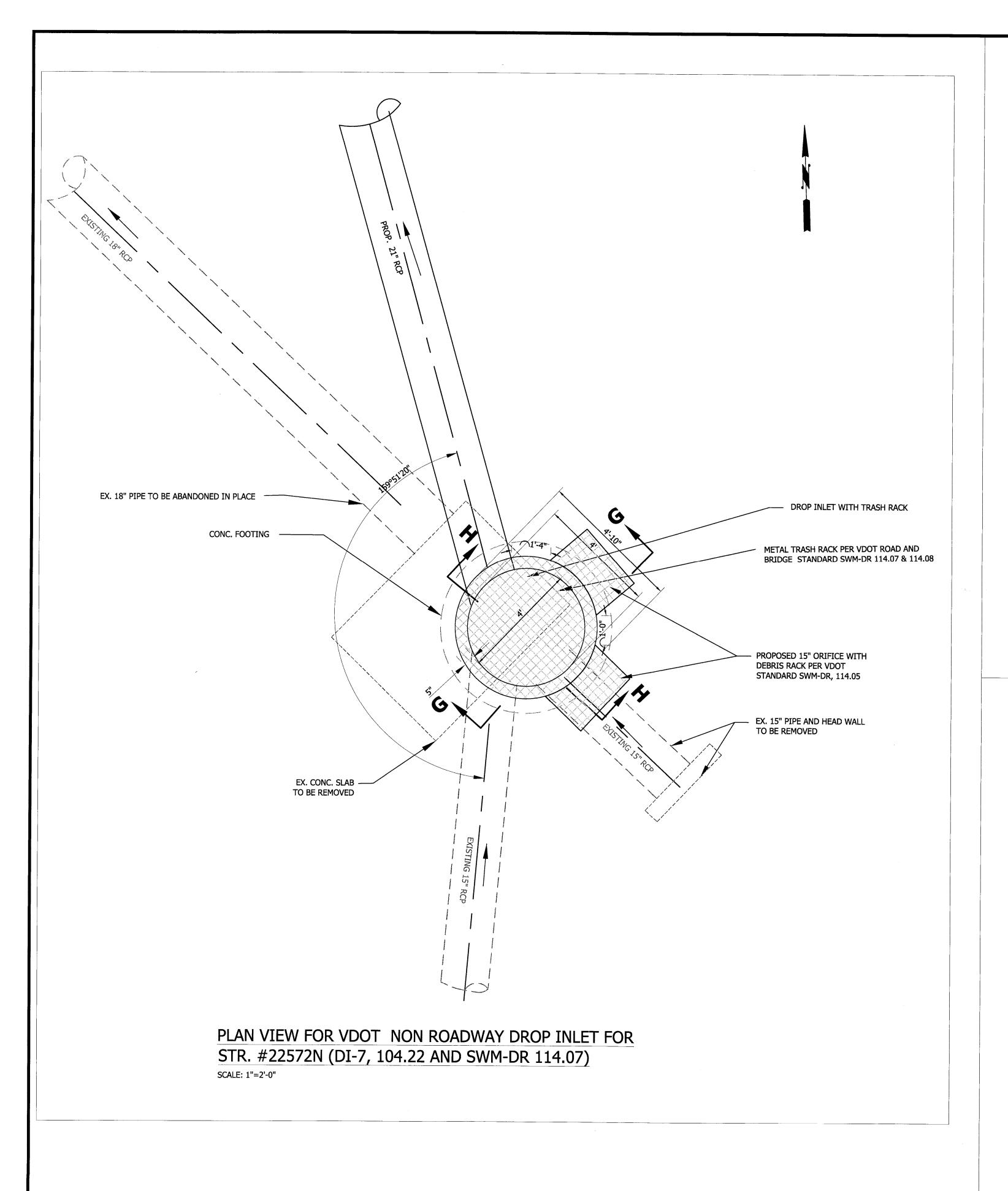
SOIL PER ARLINGTON CTY

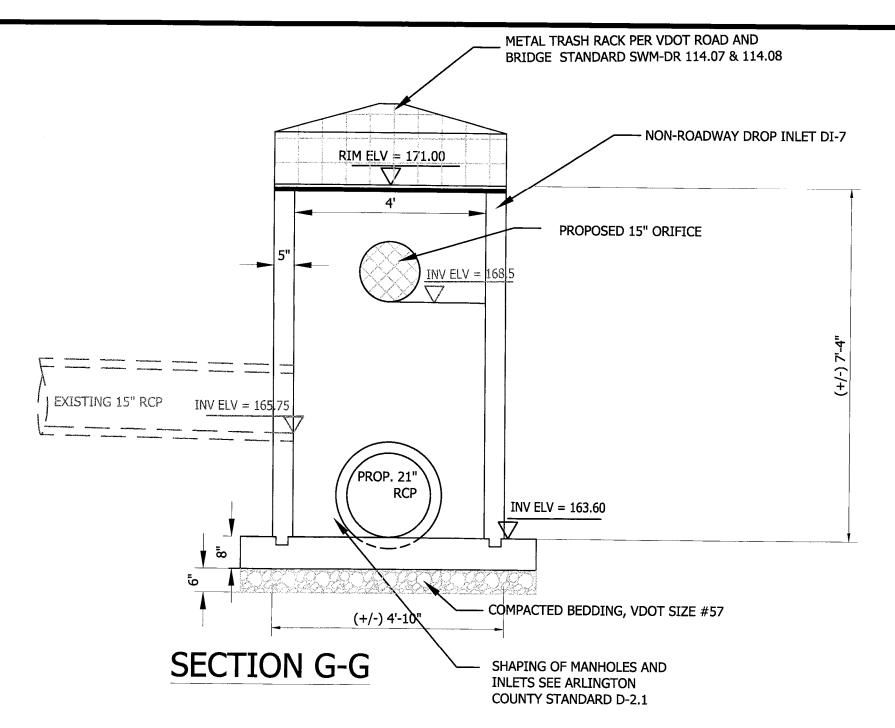
CONSTRUCTION STDS &

(329100 PLANTING

PREPARATION)

SPECS

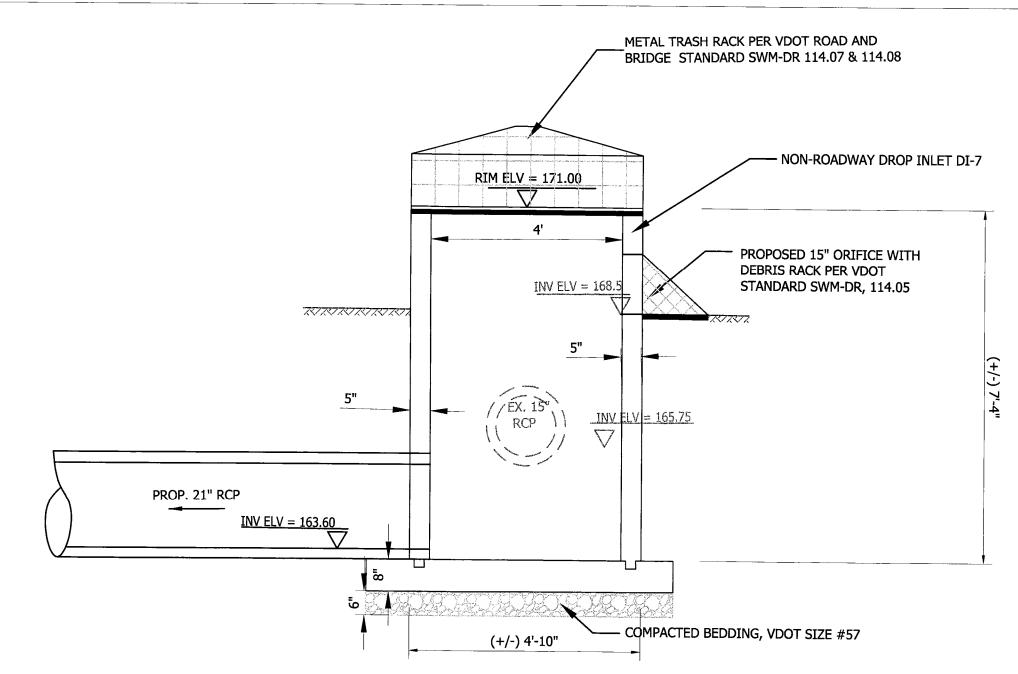




DETAIL FOR VDOT NONROADWAY DROP INLET STR. 22572N SCALE: 1"=2'-0"

NOTES:

- FOR GENERAL NOTES SEE VDOT ROAD AND BRIDGE STANDARD DI-7, 104.22 AND SWM-DR 114.05, 114.06,114.07 AND 114.08. ALL INVERT ELEVATIONS OF EXISTING STRUCTURES AND PIPES NEED TO BE VERIFIED IN THE FIELD AND CONFIRMED.
- IF SHAPE AND SIZE OF INLETS OR MANHOLES ARE TO BE CHANGED, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS
- AS A FORMAL SUBMITTAL AT NO COST TO THE COUNTY.
- 4. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SIGNED AND SEALED BY PROFESSIONAL ENGINEER FOR ALL COMPONENTS PROPOSED, INCLUDING THE CONCRETE INLETS AND MANHOLES, TO ARLINGTON COUNTY AS A FORMAL SUBMITTAL PRIOR TO INSTALLATION.

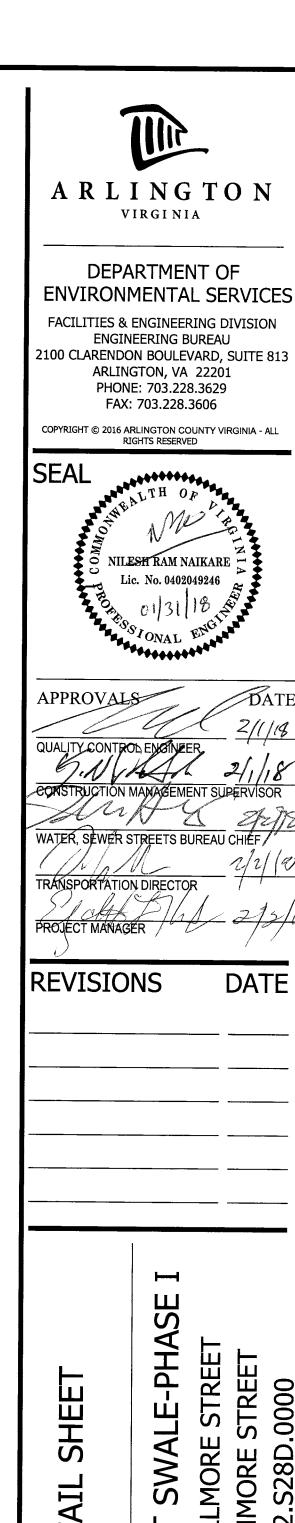


SECTION H-H

DETAIL FOR VDOT NONROADWAY DROP INLET STR. 22572N SCALE: 1"=2'-0"

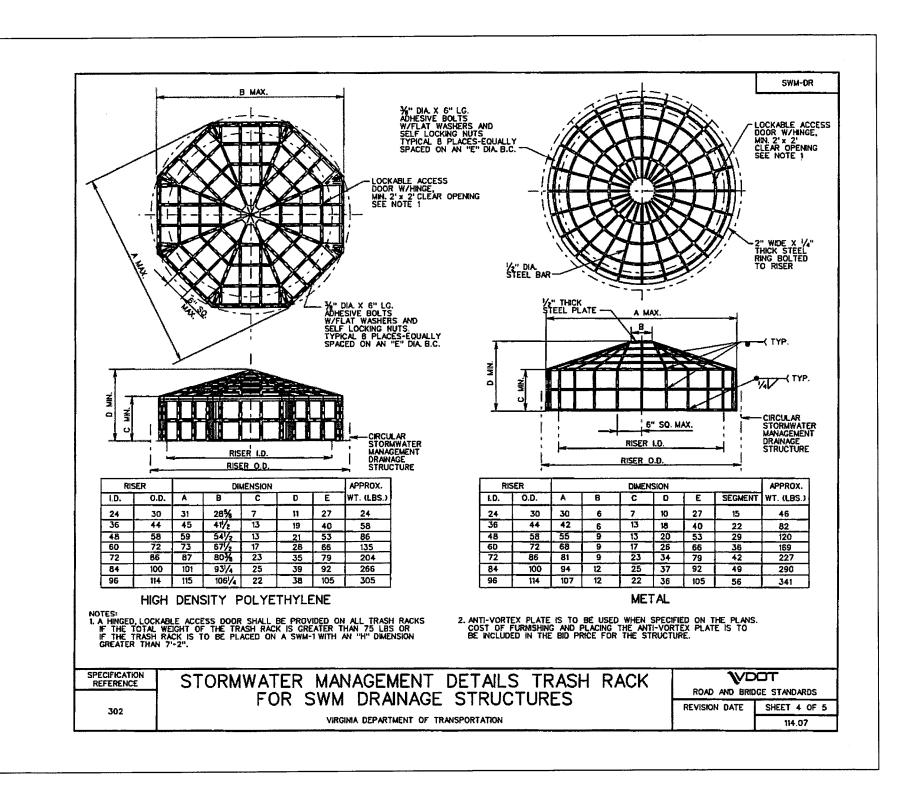
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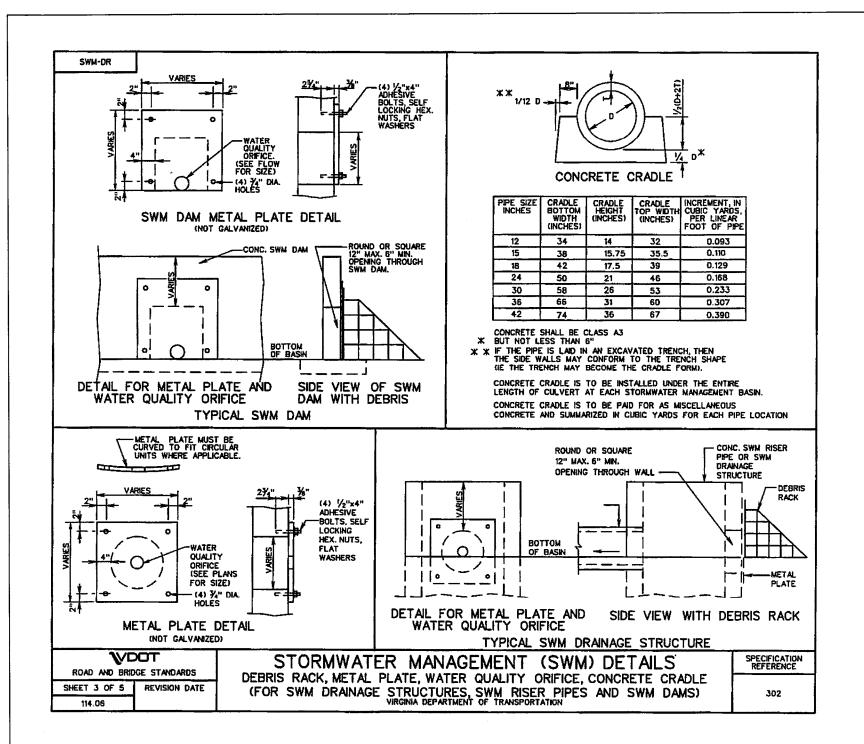
- FOR GENERAL NOTES SEE VDOT ROAD AND BRIDGE STANDARD DI-7 104.22 AND SWM-DR 114.05, 114.06,114.07 AND 114.08.
- ALL INVERT ELEVATIONS OF EXISTING STRUCTURES AND PIPES NEED TO BE VERIFIED IN THE FIELD AND CONFIRMED
- IF SHAPE AND SIZE OF INLETS OR MANHOLES ARE TO BE CHANGED, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AS A FORMAL SUBMITTAL AT NO COST TO THE COUNTY.
- 4. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SIGNED AND SEALED BY PROFESSIONAL ENGINEER FOR ALL COMPONENTS
- PROPOSED, INCLUDING THE CONCRETE INLETS AND MANHOLES, TO ARLINGTON COUNTY AS A FORMAL SUBMITTAL PRIOR TO INSTALLATION.

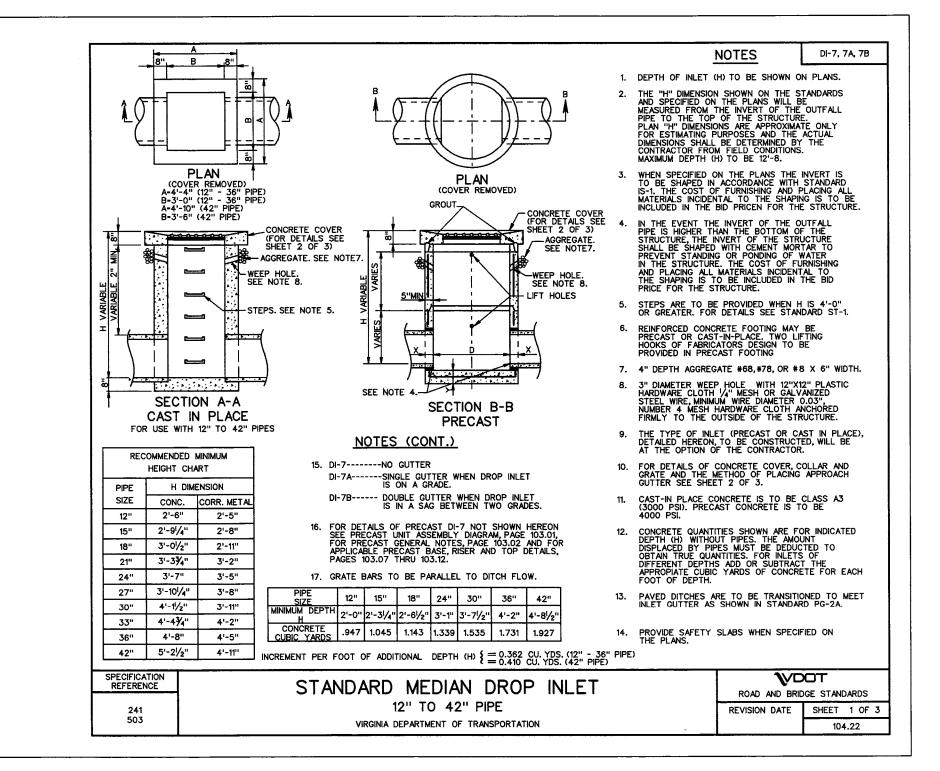


DESIGNED: PB DRAWN: PB CHECKED: NN MISS UTILITY TRANSMITTAL #: 5306-D FILENAME: S28D-204-DETAILS_90%.DWG PATH: Q:\DATA\S28D\DESIGN\DRAWINGS PLOTTED: JANUARY 30 2018 PLOTTED BY:PBANEPALI

SCALE AS NOTED

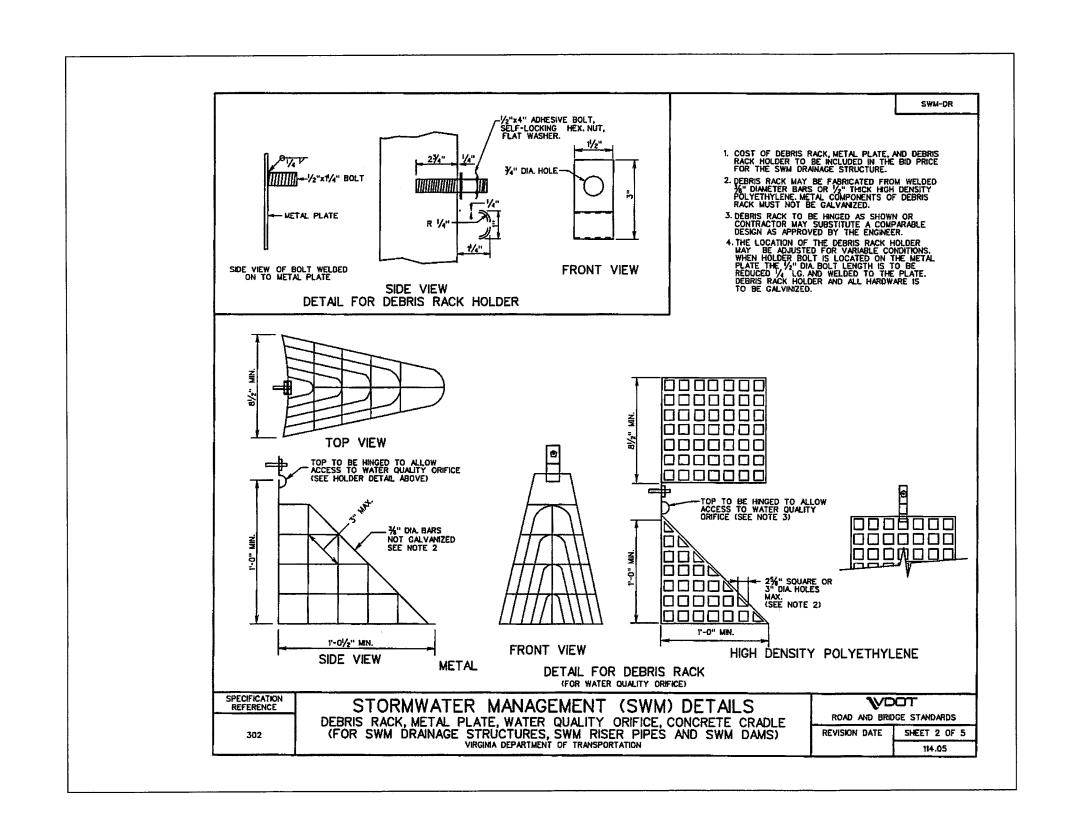


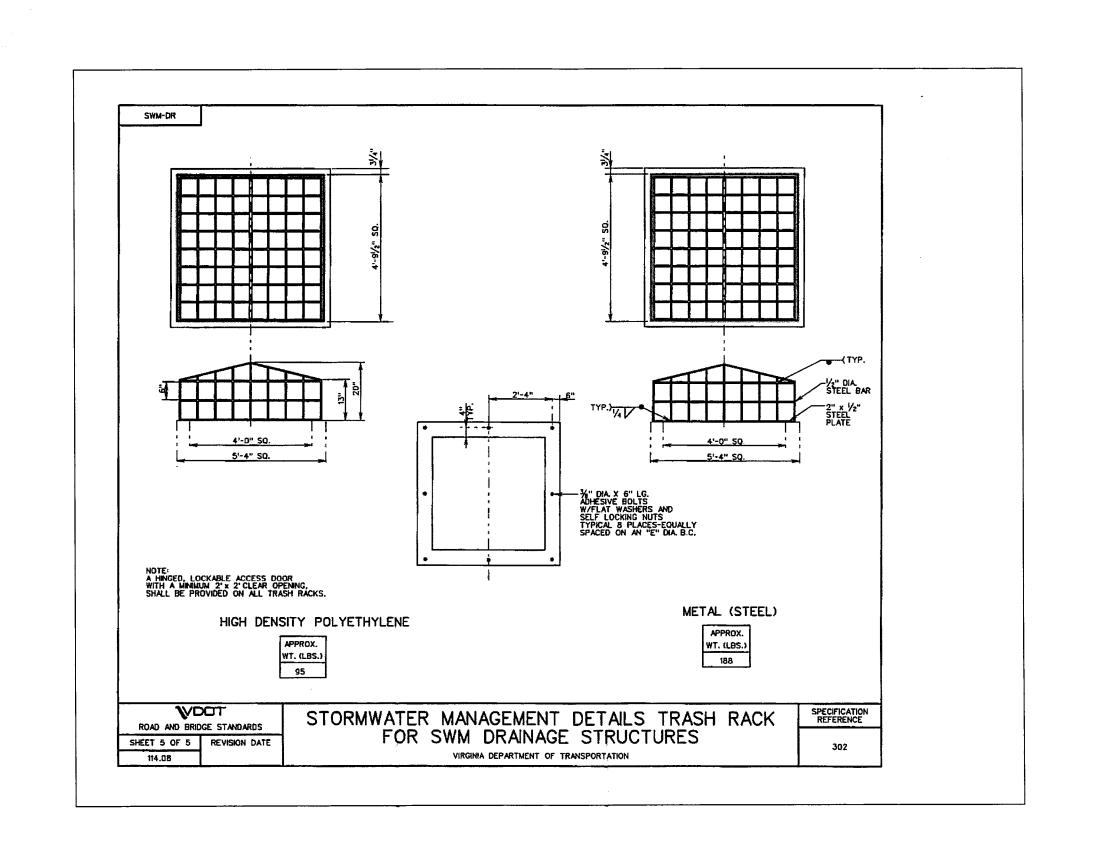




NOTES:

FOR VDOT DROP INLET STRUCTURE DI-7 104.22, REPLACE CONCRETE COVER WITH ROUND METAL TRASH RACK. FOR TRASH RACK USE SM-DR 114.07 ROUND METAL PLATE WITH 48" INNER DIAMETER AND 58" OUTER DIAMETER





ARLINGTON VIRGINIA DEPARTMENT OF

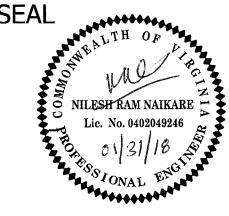
ENVIRONMENTAL SERVICES FACILITIES & ENGINEERING DIVISION ENGINEERING BUREAU 2100 CLARENDON BOULEVARD, SUITE 813

ARLINGTON, VA 22201

PHONE: 703.228.3629

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DATE APPROVALS QUALITY CONTROL ENGINEER WATER, SEWER STREETS BUREAU CHIEF TRANSPORTATION DIRECTOR/ PROJECT MANAGER

REVISIONS DATE

SHEET

DETAIL

SWALE-PHAS ILLMORE STREET SUMORE STREET 22.S28D.0000 WOODMONT

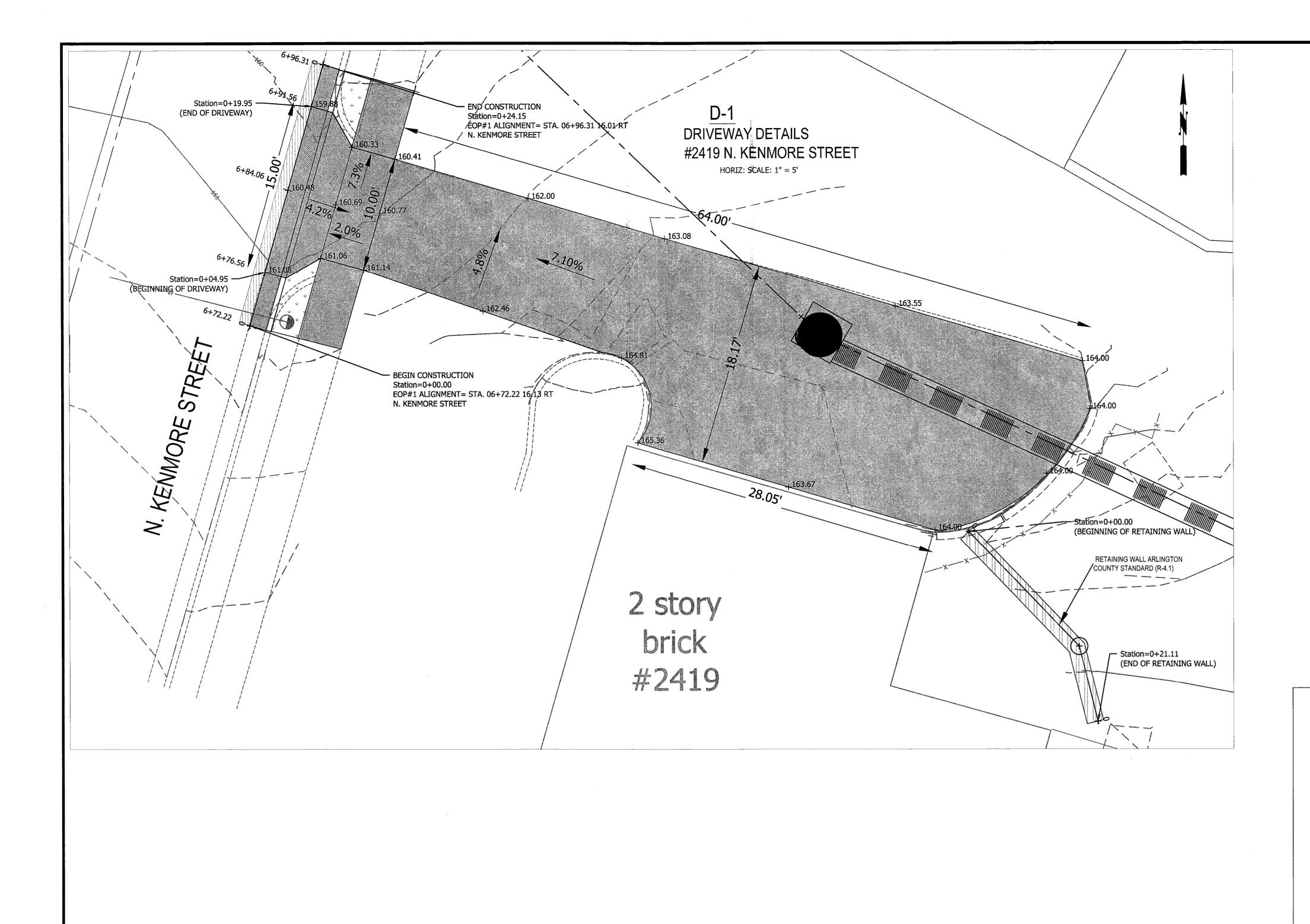
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SCALE AS NOTED

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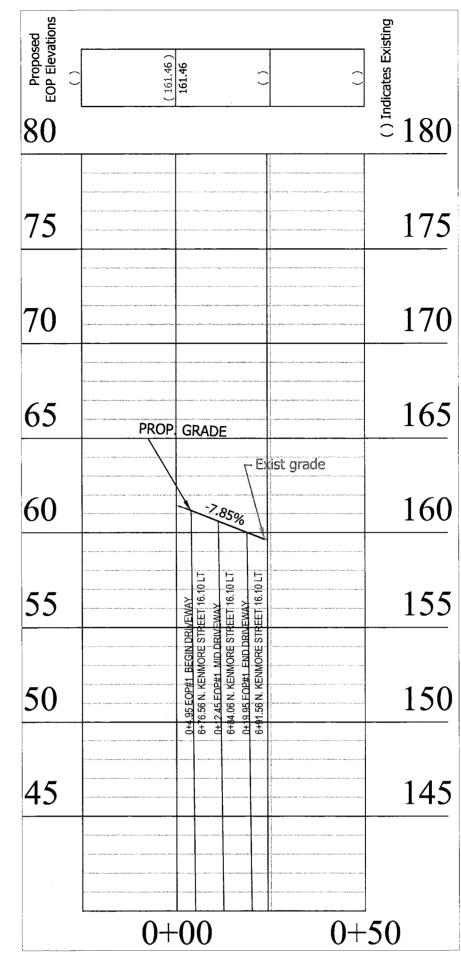
3A OF 25

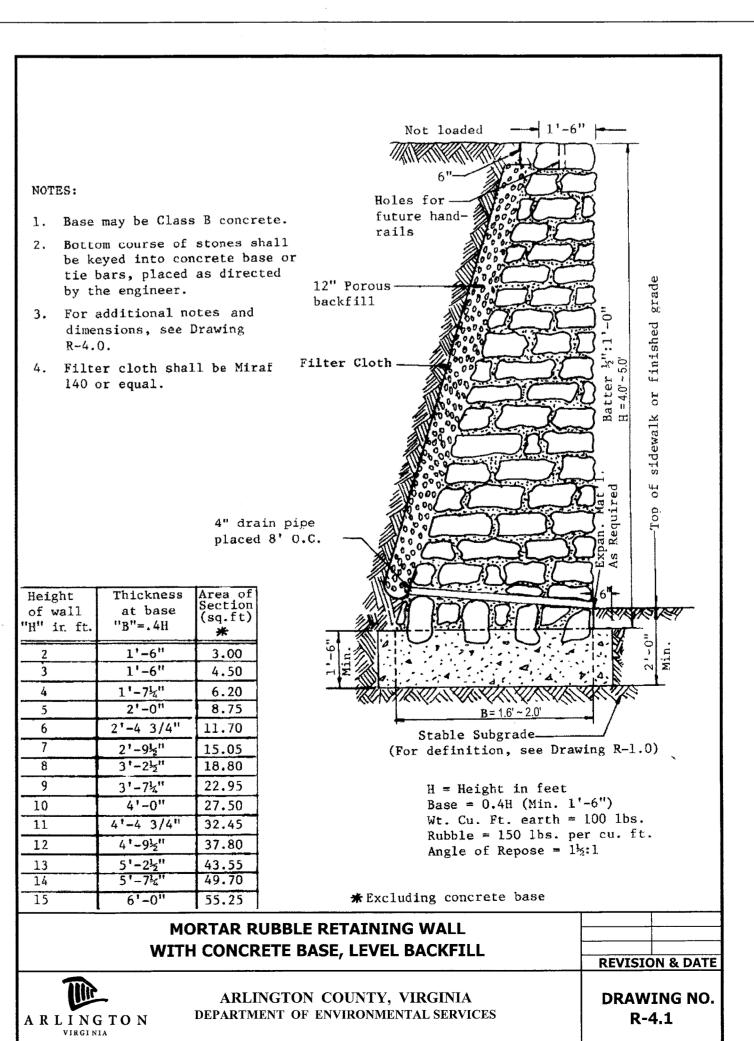


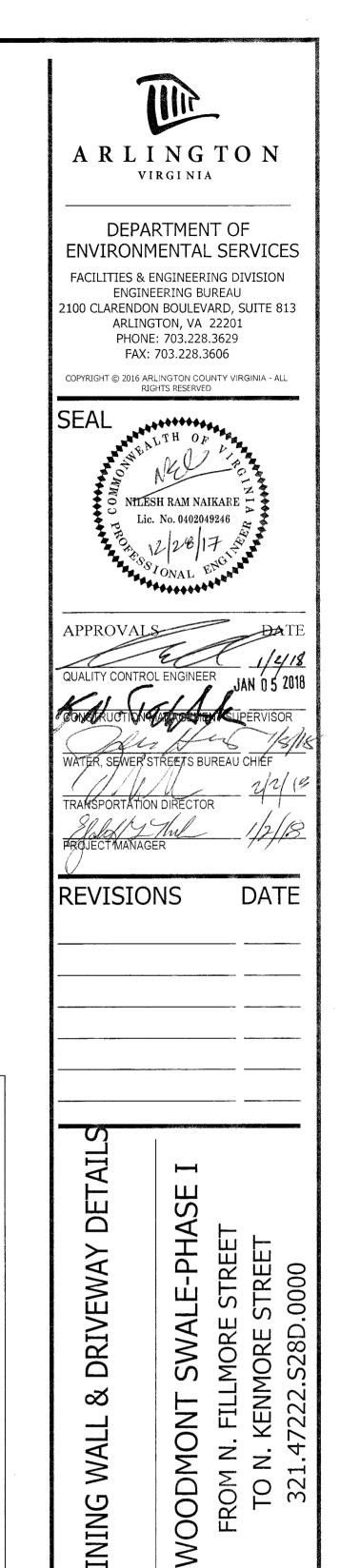
NOTE:

- PROVIDE 2 INCHES CONCRETE ON THE TOP OF RETAINING WALL TO ACHIEVE SMOOTH BRUSH FINISHED SURFACE.
- SEPARATE RESTORATION PLAN WILL BE PROVIDED FOR LOT #2419 IN PHASE III.









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RETAINING

DESIGNED: PB

DRAWN: PB

CHECKED: NN

PATH: Q:\DATA\S28D\DESIGN\DRAWINGS

PLOTTED BY:PBANEPALI

SCALE

SHEET

PLOTTED: DECEMBER 27 2017

MISS UTILITY TRANSMITTAL #: 5306-D

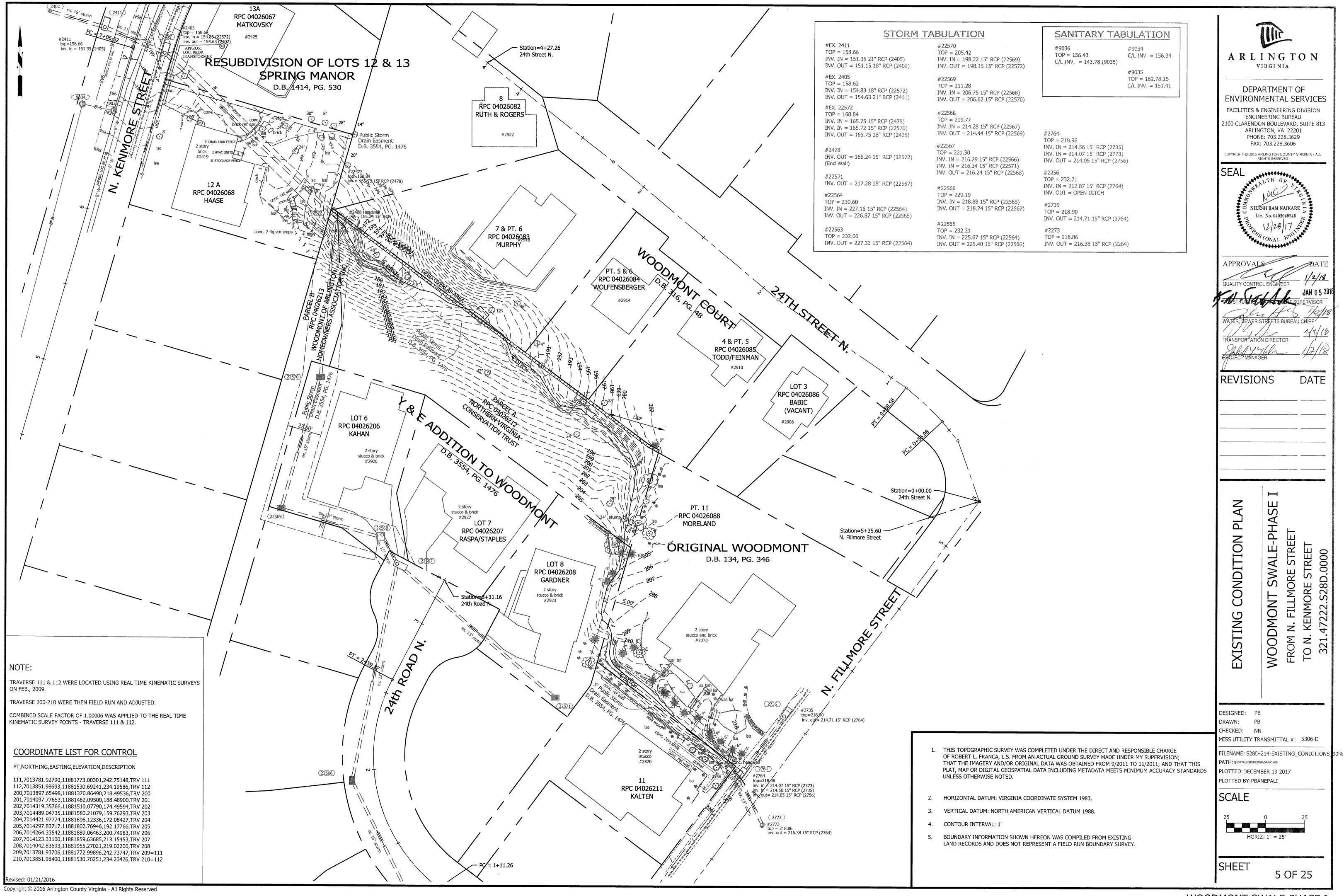
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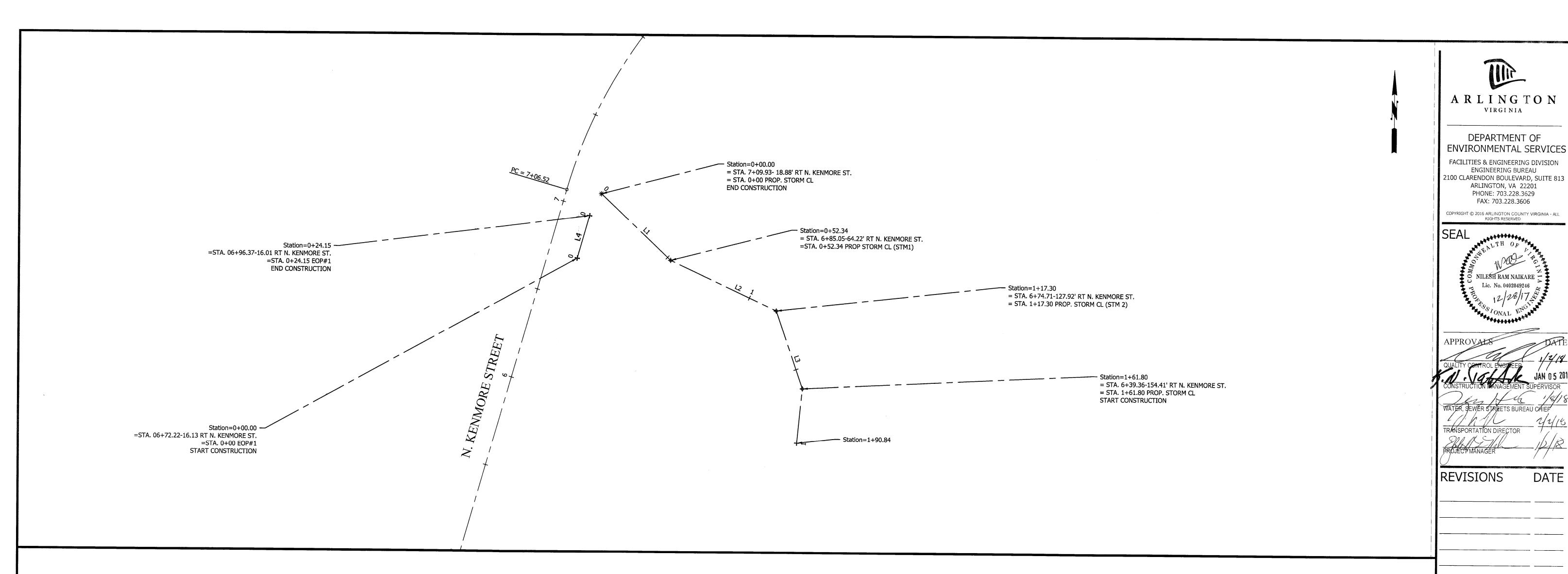
VERT: 1" = 5'

4 OF 25

FILENAME: S28D-234-CROSS_SECTIONS_90%.DWC

FROM TO N 321.





Line Table

Line # Start Station | End Station | Distance |

1+60.95

0+24.15

63.93'

L1 0+00.00

L2 0+52.34

L4 0+00.00

1+16.27

Start Station

(Northing, Easting)

52.34' | S 46° 25' 30" E | (7014501.5436), (11881587.7485) | (7014465.4651), (11881625.6678)

24.15' N 15° 50' 59" E (7014466.3247), (11881574.6773) (7014489.5581), (11881581.2735)

S 64° 50' 50" E (7014465.4651), (11881625.6678) (7014438.2945), (11881683.5316)

S 18° 58' 17" E (7014438.2945), (11881683.5316) (7014396.0357), (11881698.0589)

End Station

(Northing, Easting)



DATE

DESIGNED: PB DRAWN: PB CHECKED: NN

MISS UTILITY TRANSMITTAL #: 5036-D

FILENAME: S28D-216-GEOMETRIC_CONTROL_LAN PATH: Q:\DATA\S28D\DESIGN\DRAWINGS PLOTTED: DECEMBER 27 2017

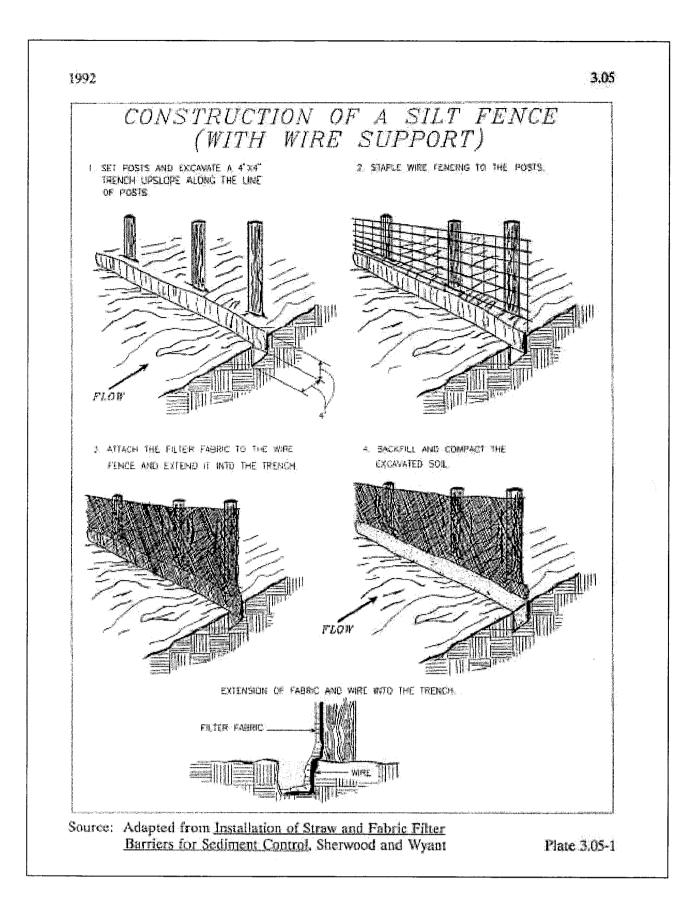
PLOTTED BY:PBANEPALI SCALE

HORIZ. SCALE: 1" = 25'

SHEET

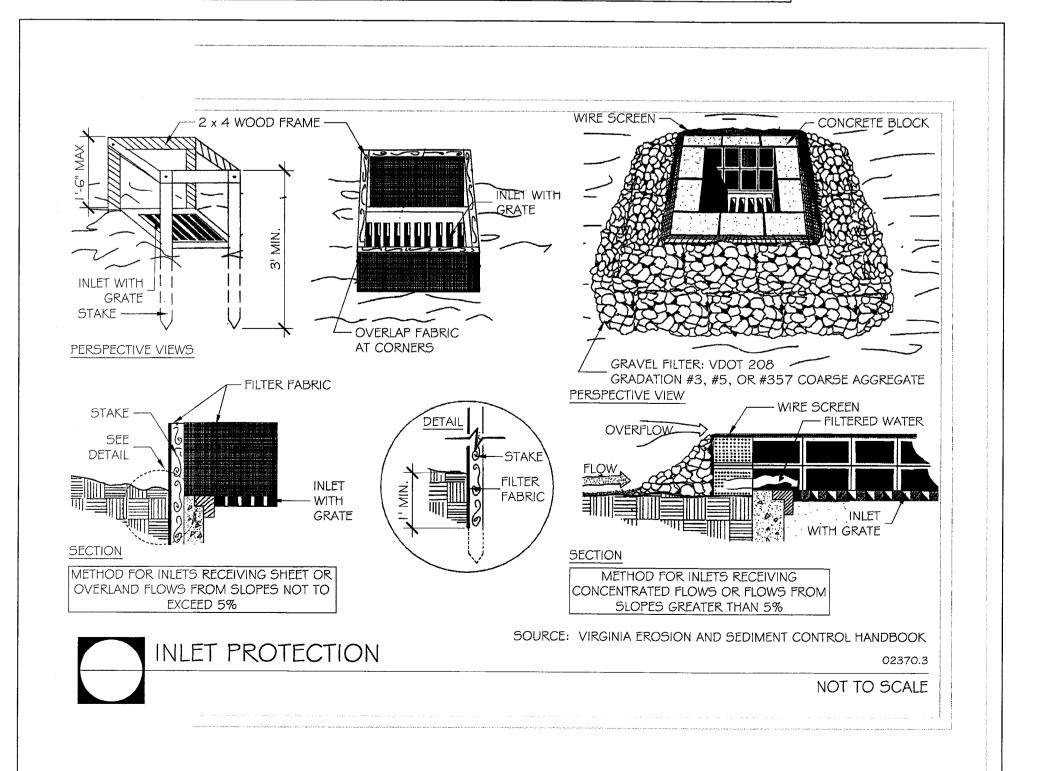
6 OF 25

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DEWATERING DEVICE FILTER BOX - VDOT #3 COARSE AGGREGATE (FROM OUTLET WOODEN BASE 2- 2"X4" STUDS NAILED TOGETHER **ELEVATION VIEW** SOURCE: VA. DSWC PLATE: 3.26-2

PERVIOUS AND IMPERVIOUS AREA TABLE						
	PRE-DEVELOPMENT	POST-DEVELOPMENT				
TOTAL PROJECT AREA (LOW)	4,000	SF (0.09 AC)				
IMPERVIOUS AREA	1,183 SF	1,183 SF				
IMPERVIOUS COVERAGE OF PROJECT AREA	29.60%	29.60%				
TOTAL LAND DISTURBANCE AREA (LOD)	2,463 SF	2,463 SF				
PERVIOUS AREA	1,280 SF	1,280 SF				
DECREASED IMPERVIOUS AREA	0.00 SF	0.00 SF				



EROSION AND SEDIMENT CONTROL NARRATIVE

THIS IS AN ARLINGTON COUNTY STORM DRAINAGE IMPROVEMENTS PROJECT

PROJECT DESCRIPTION:

THIS PHASE OF THE PROJECT CONSISTS OF REPLACING EXISTING 18-INCH STORM PIPE WITH A 21-INCH PIPE.

EXISTING SITE CONDITION:

THE HIGHEST POINT OF THE PROJECT AREA IS ON THE NORTH EAST SIDE OF N. KENMORE STREET. THE SITE IS LOCATED WITHIN WINDY RUN WATERSHED, AND IT HAS A VARIABLE HYDROLOGIC SOIL GROUP. THE SOIL

TYPE IS "URBAN LAND-GLENELG COMPLEX". SITE HAS STEEP SLOPES BETWEEN 15% TO 25%. ADJACENT PROPERTIES:

THE NUMEROUS PROPERTIES ARE LOCATED ON NORTH AND SOUTH OF THE PROJECT AREA.

OFF-SITE AREAS:

THE EXTENT OF OFFSITE CONSTRUCTION IS LIMITED TO CONNECTING TO THE EXISTING PUBLIC STREETS ADJACENT TO THE PARCEL AND CONNECTING UTILITIES TO THE EXISTING.

CRITICAL AREAS:

THERE ARE STEEP SLOPES WITH 15% TO 25% AND CRITICAL AREAS LOCATED IN THIS PROJECT.

EXISTING AND PROPOSED STORM SEWER:

STORM DRAINAGE SYSTEM EVENTUALLY DISCHARGES INTO WINDY RUN. THIS PROJECT WILL NOT ALTER THE EXISTING DRAINAGE PATTERNS, BUT IT IMPROVES THE STORM DRAINAGE CAPACITY. ONE NEW STRUCTURE AND TWO STORM MANHOLES WILL BE ADDED INTO THE SYSTEM. ONE HEADWALL AND ITS CONNECTING PIPES WILL ALSO BE REPLACED IN NEXT PHASES.

STORMWATER RUNOFF CONSIDERATION:

EXISTING AND PROPOSED STORM SEWER WILL BE USED TO DRAIN THE STORMWATER RUNOFF. THERE IS NO CHANGE IN STORM WATER QUANTITY RESULTING FROM THIS PROJECT.

EROSION AND SEDIMENT CONTROL MEASURES:

THE EROSION AND SEDIMENT CONTROL MEASURES FOR THIS PROJECT AREA INCLUDE SILT FENCE WITH WIRE SUPPORT, CULVERT INLET PROTECTION, SOIL SRABILIZATION BLANKETS AND MATTING, DEWATERING STRUCTURES, INLET PROTECTION CONSTRUCTION ENTRANCE AND TREE PROTECTION. INLET PROTECTION: VESCH 3.07 TREE PROTECTION FENCE: **VESCH 3.38** DEWATERING STRUCTURE VESCH 3.26 SILT FENCE WITH WIRE SUPPORT: **VESCH 3.05** CONSTRUCTION ENTRANCE VESCH 3.02 SOIL STABILIZATION BLANKETS & MATTING VESCH 3.36 CULVERT INLET PROTECTION VESCH 3.08

PERMANENT STABILIZATION:

ALL OF THE AREA DISTURBED WITH THIS PLAN WILL BE RETURN TO A SIMILAR CONDITION TO EXISTING. ALL AREA NOT STABILIZED WITH PAVEMENT WILL BE STABILIZED WITH GRASS OR MULCH.

EROSION & SEDIMENT CONTROL PROGRAM:

- 1. THE EROSION CONTROL PLAN IS INTENDED TO ESTABLISH PERIMETER CONTROL MEASURES WHICH INCLUDES INLET PROTECTION (IP) & (SILT FENCE).
- 2. NO DISTURBED AREA WILL REMAIN DENUDED FOR MORE THAN 7 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY ARLINGTON COUNTY.
- 3. WHERE CONSISTENT WITH JOB SAFETY REQUIREMENTS, ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES. NO MATERIAL SHALL BE PLACED IN STREAMBEDS. ANY STOCKPILED MATERIAL WHICH WILL REMAIN IN PLACE LONGER THAN 14 DAYS SHALL BE SEEDED AND MULCHED. WHEN SPOIL IS PLACED ON THE DOWNHILL SIDE OF TRENCH, IT SHALL BE BACKSLOPED TO DRAIN TOWARD THE TRENCH. WHEN NECESSARY TO DEWATER THE TRENCH, THE PUMP DISCHARGE HOSE SHALL OUTLET IN A STABILIZED AREA OR A SEDIMENT TRAPPING DEVICE.
- 4. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN GRADING. FIRST AREAS TO BE CLEARED ARE TO BE THOSE REQUIRED FOR THE PERIMETER
- 5. ALL TEMPORARY EARTH BERMS, DIVERSIONS AND SEDIMENT CONTROL DAMS ARE TO BE MULCHED AND SEEDED FOR TEMPORARY VEGETATIVE COVER IMMEDIATELY AFTER GRADING. STRAW OR HAY MULCH IS REQUIRED. THE SAME APPLIES TO ALL SOIL STOCKPILES.
- 6. DURING CONSTRUCTION, ALL STORM SEWER INLETS WILL BE PROTECTED BY INLET PROTECTION
- 7. ALL PRACTICES AND CONTROL DEVICES DESCRIBED HEREON, SHALL CONFORM TO THE CURRENT VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH). IN ADDITION, THE CONTRACTOR SHALL TAKE THE FOLLOWING STEPS TO MINIMIZE THE VOLUME OF SILT:
- A. CONTRACTOR SHALL EVALUATE THE SITE TO DETERMINE EXTENSIVE CUT AND FILL AREAS, AND SHALL WORK THOSE AREAS TO MINIMIZE THE EXTENT OF HEAVY EQUIPMENT WORK, CONTRACTOR SHALL STRIVE TO BRING AREAS TO GRADE (ROUGH OR FINISH) AND TO STABILIZE, BY TEMPORARY OR PERMANENT VEGETATION, THESE DISTURBED AREAS PRIOR TO BEGINNING WORK IN ANOTHER AREA.
- B. FILL AREAS SHALL BE COMPACTED COMPLETELY PRIOR TO THE END OF EACH WORK DAY, FILL SLOPE SURFACES SHALL BE LEFT ROUGHENED TO REDUCE SHEET EROSION OF THE SLOPES. CONTRACTOR SHALL RE-DIRECT CONCENTRATED RUNOFF, BY EARTH BERMS OR OTHER DEVICES, AROUND ACTIVELY DISTURBED AREAS TO STABILIZED OUTLETS.
- C. CUT SLOPE, AS NECESSARY, SHALL BE PROTECTED FROM CONCENTRATED FLOW BY BERMS ABOVE THE SLOPE AND DIRECTED AROUND THE DISTURBED AREA TO STABILIZED OUTLETS.
- D. IN NEW PAVEMENT AREAS, PLACE THE AGGREGATE BASE STONE ON THE FINISH SUBGRADE AT THE EARLIEST POSSIBLE TIME.

EROSION AND SEDIMENT CONTROL LEGEND

Spec & Std	Key	Symbol	Title
3.05	SF	—x——x—	SILT FENCE WITH WIRE SUPPORT
3.07	(IP)		INLET PROTECTION
3.38	TP	ТР	TREE PROTECTION
	LOD		LIMIT OF DISTURBANCE
3.26	DS	→	DEWATERING STRUCTURE
3.02	CE		TEMPORARY STONE CONSTRUCTION ENTRANCE
3.08	CIP	B	CULVERT INLET PROTECTION
3.36	B/M	7	SOIL STABILIZATION BLANKETS AND MATTING

MAINTENANCE PROGRAM:

THE FOLLOWING IS A PROGRAM OF MAINTENANCE FOR THE MECHANICAL CONTROLS SPECIFIED IN THIS NARRATIVE AND ON THE PLAN:

- 1. THE SITE SUPERINTENDENT OR HIS/HER REPRESENTATIVE SHALL MAKE A VISUAL INSPECTION OF ALL MECHANICAL CONTROLS AND NEWLY STABILIZED AREA (I.E. SEEDED AND MULCHED AND/OR SODDED AREAS) ON A DAILY BASIS; ESPECIALLY AFTER A HEAVY RAINFALL EVENT TO INSURE THAT ALL CONTROLS ARE MAINTAINED AND PROPERLY FUNCTIONING. ANY DAMAGED CONTROLS SHALL BE REPAIRED PRIOR TO THE END OF THE WORK DAY INCLUDING RE-SEEDING AND MULCHING OR RE-SODDING IF NECESSARY.
- 2. ALL SEDIMENT TRAPPING DEVICES SHALL BE CLEARED OUT AT 50% TRAP CAPACITY AND THE SEDIMENT SHALL BE DISPOSED OF BY SPREADING ON THE SITE OR IF NOT SUITABLE FOR FILL, HAULING AWAY AND DEPOSITING AT AN ACCEPTABLE DUMP SITE.
- 3. THE CONTRACTOR SHALL TAKE SPECIAL CARE TO PREVENT MUD AND/OR OTHER DEBRIS FROM BEING ENTERED ONTO EXISTING SWM/BMP FACILITIES OR DOWN STREAM WATER WAYS. SHOULD OFF SITE AREAS BECOME POLLUTED BY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING THE EFFECTED AREAS TO THE SATISFACTION OF THE INSPECTOR.
- 4. AT THE COMPLETION OF CONSTRUCTION AND PRIOR TO BOND RELEASE, ALL TEMPORARY SEDIMENT CONTROLS SHALL BE REMOVED AND ANY REMAINING DENUDED AREAS SHALL BE STABILIZED. CERTAIN DEVICES MAY BE REMOVED PRIOR TO CONSTRUCTION COMPLETION BUT ONLY WITH THE APPROVAL OF THE COUNTY INSPECTOR.
- 5. AFTER CONSTRUCTION OPERATIONS HAVE ENDED, ALL DISTURBED AREAS SHALL BE STABILIZED. UPON APPROVAL OF THE COUNTY INSPECTOR, MECHANICAL SEDIMENT CONTROLS SHALL BE REMOVED AND THE GROUND PERMANENTLY STABILIZED WITH VEGETATION WITHIN 30 DAYS.

SEE SHEET III-288 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH) FOR ALLOWABLE PLANTING MATERIAL, SEEDING RATES, AND DATES. THE REQUIREMENTS OF THE "SOUTH" PLANTING REQUIREMENTS SHALL BE FOLLOWED. LIMING SHALL BE BASED ON TABLE 3.31-A OF VESCH. FERTILIZERS SHALL BE APPLIED AS 600 LB/ACRE. THE FERTILIZER SHALL BE INCORPORATED INTO THE TOP 2-4" OF SOIL. SEED SHALL BE EVENLY APPLIED AND SMALL GRAINS SHALL BE PLANTED NO MORE THAN 1.5" DEEP. SEEDING MADE IN FALL FOR WINTER COVER AND DURING HOT SUMMER MONTHS SHALL BE MULCHED.

SODDED AREAS SHALL BE BROUGHT TO FINAL GRADE IN ACCORDANCE WITH THE APPROVED PLANS, SOIL TEST SHOULD BE MADE TO DETERMINE THE EXACT REQUIREMENTS FOR LIME AND FERTILIZER, PRIOR TO LAYING SOD, SOIL SURFACE SHALL BE CLEAR OF TRASH, DEBRIS AND LARGE OBJECTS. QUALITY OF SOD SHALL BE STATE CERTIFIED AND ENSURE GENETIC PURITY AND HIGH QUALITY. SOD SHALL NOT BE LAID IN EXCESSIVELY WET OR DRY WEATHER AND BE DELIVERED AND INSTALLED WITHIN 36 HOURS. SOD SHOULD NOT BE LAID ON FROZEN SOIL SURFACE AND SHALL BE INSTALLED PER PAGE III-339 OF VESCH.

DUST SHALL BE CONTROLLED USING A VARIETY OF METHODS TO INCLUDE VEGETATIVE COVER, MULCH, TILLAGE, IRRIGATION, SPRAY-ON ADHESIVES, STONE, BARRIERS, AND CALCIUM CHLORIDE. THE IMPLEMENTATION OF THE DUST CONTROL METHODS SHALL BE INSTALLED PER SECTION 3.39 OF VESCH.

STOCKPILING NOTE:

NO STOCKPILING IS PROPOSED EXCEPT FOR NORMAL EARTH MOVING ACTIVITIES WITHIN THE AREAS OF THE LIMITS OF DISTURBANCE, FOR WHICH EROSION AND SEDIMENT CONTROLS ARE PROVIDED. ALL EXCESS SOIL SOIL MATERIAL SHALL BE HAULED OFF AND DISPOSED OF IN LIEU OF ON-SITE STOCKPILING. IN THE EVENT OF STOCKPILING, CONTRACTOR SHALL APPLY THE CRITERIA FROM MINIMUM STANDARDS MS-1, MS-2 (9VAC25-840-40).

GENERAL LAND CONSERVATION NOTES

- 1. NO DISTURBED AREA WILL REMAIN DENUDED FOR MORE THAN 7 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY THE DIRECTOR OR HIS AGENT.
- 2. ALL EROSION CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN GRADING. FIRST AREAS TO BE CLEARED ARE TO BE THOSE REQUIRED FOR THE PERIMETER CONTROLS.
- 3. ALL STORM AND SANITARY SEWER LINES NOT IN STREET ARE TO BE MULCHED AND SEEDED WITHIN 5 DAYS AFTER BACKFILL. NO MORE THAN 500 FEET ARE TO BE OPEN AT ANY ONE TIME
- 4. ELECTRIC POWER, TELEPHONE AND GAS SUPPLY TRENCHED ARE TO BE COMPACTED, SEEDED AND MULCH WITHIN 5 DAYS OF BACKFILL.
- 5. ALL TEMPORARY BERMS, DIVERSION AND SEDIMENT CONTROL DAMS ARE TO BE MULCHED AND SEEDED FOR TEMPORARY VEGETATIVE COVER IMMEDIATELY AFTER GRADING. STRAW OR HAY MULCH IS REQUIRED. THE SAME APPLIES TO ALL SOIL STOCKPILE
- 6. DURING CONSTRUCTION, ALL STORM INLETS WILL BE PROTECTED BY INLET PROTECTION DEVICES, MAINTAINED AND MODIFIED AS REQUIRED BY CONSTRUCTION PROGRESS.
- ANT DISTURBED AREA NOT COVERED NY NOTE # 1 ABOVE AND NOT PAVED, SODDED OR BUILT UPON BY NOVEMBER 1ST, OR DISTURBED AFTER THAT DATE, SHALL BE MULCHED WITH HAY OR STRAW AT THE RATE OF 2 TONS PER ACRE AND OVER-SEEDED NO LATER THAN MAY 15TH.
- 8. AT THE COMPLETION OF THE CONSTRUCTION PROJECT AND PRIOR TO BOND RELEASE, ALL TEMPORARY SEDIMENT CONTROLS SHALL BE REMOVED AND ALL DENUDED AREAS SHALL BE STABILIZED. ARLINGTON COUNTY INSPECTOR TO APPROVE REMOVAL OF ALL TEMPORARY SILTATION MEASURES.

TABLE 6-1 **EROSION AND SEDIMENT CONTROL NOTES**

ES-1: Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook and Virginia's Regulations 4VAC50-30 Erosion and Sediment Control Regulations.

ES-2: The plan approving authority must be notified one week prior to the pre-construction conference, one week prior to the commencement of land disturbing activity, and one week prior to the final inspection.

ES-3: All erosion and sediment control measures are to be placed prior to or as the first step in clearing.

ES-4: A copy of the approved erosion and sediment control plan shall be maintained on the site at all times.

ES-5: Prior to commencing land disturbing activities in areas other than indicated on these plans (including, but not limited to, off-site borrow or waste areas), the contractor shall submit a supplementary erosion control plan to the owner for review and approval by the plan approving authority.

ES-6: The contractor is responsible for installation of any additional erosion control measures necessary to prevent erosion and sedimentation as determined by the plan approving authority.

ES-7: All disturbed area are to be drain to approved sediment control measures at all times during land disturbing activities and during site development until final stabilization is achieved.

ES-8: During dewatering operations, water will be pumped into an approved filtering device.

ES-9: The contractor shall inspect all erosion control measures periodically and after each runoff-producing rainfall event. Any necessary repairs or cleanup to maintain the effectiveness of the erosion control devices shall be made

> FOR ALL DETAILS AND SPECIFICATIONS, SEE THE VIRGINIA **EROSION & SEDIMENT CONTROL HANDBOOK**



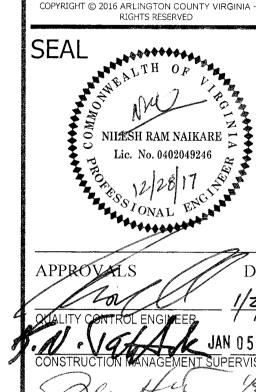
DEPARTMENT OF **ENVIRONMENTAL SERVICES**

FACILITIES & ENGINEERING DIVISION ENGINEERING BUREAU

2100 CLARENDON BOULEVARD, SUITE 813 ARLINGTON, VA 22201 PHONE: 703.228.3629

FAX: 703.228.3606

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REVISIONS DATE

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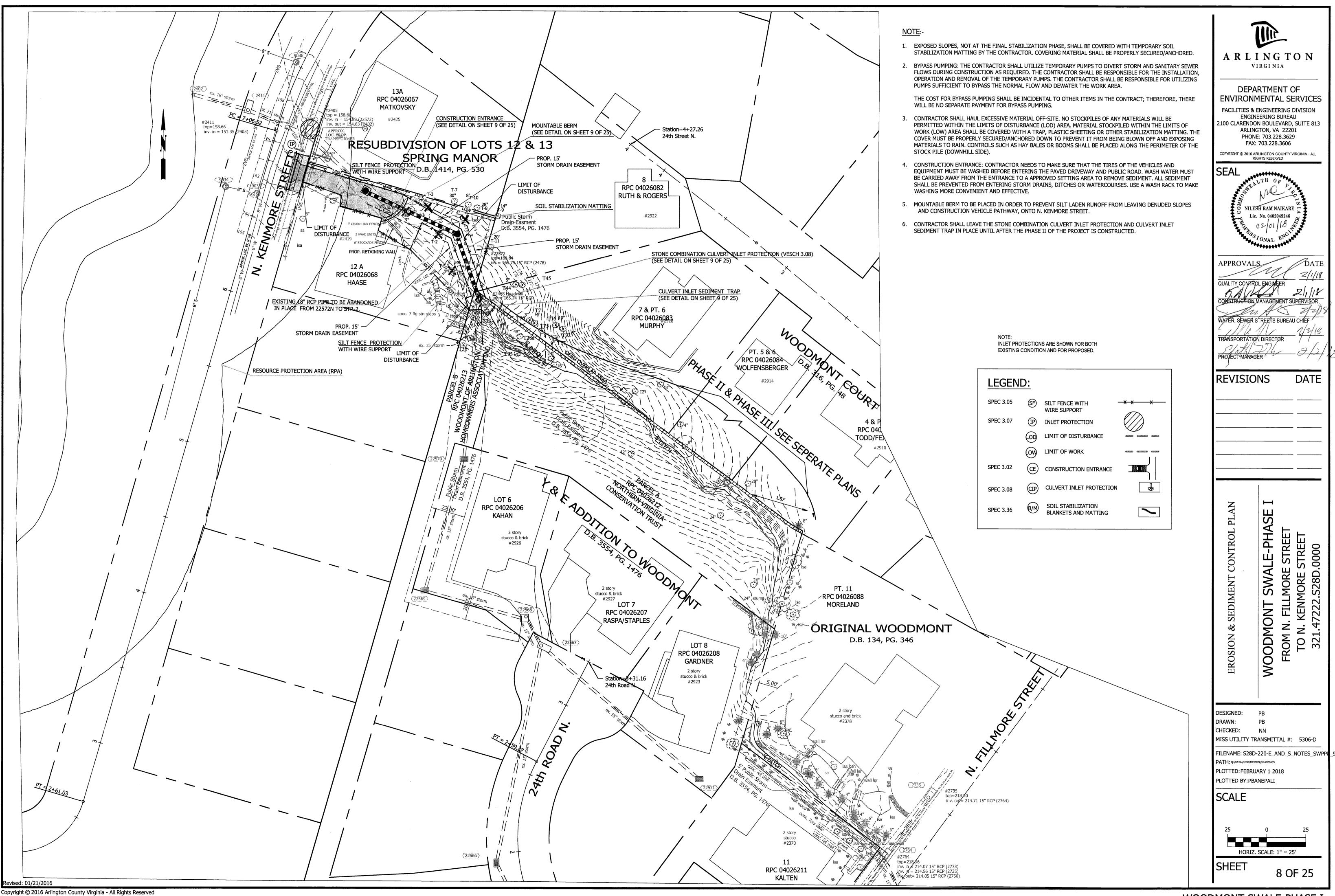
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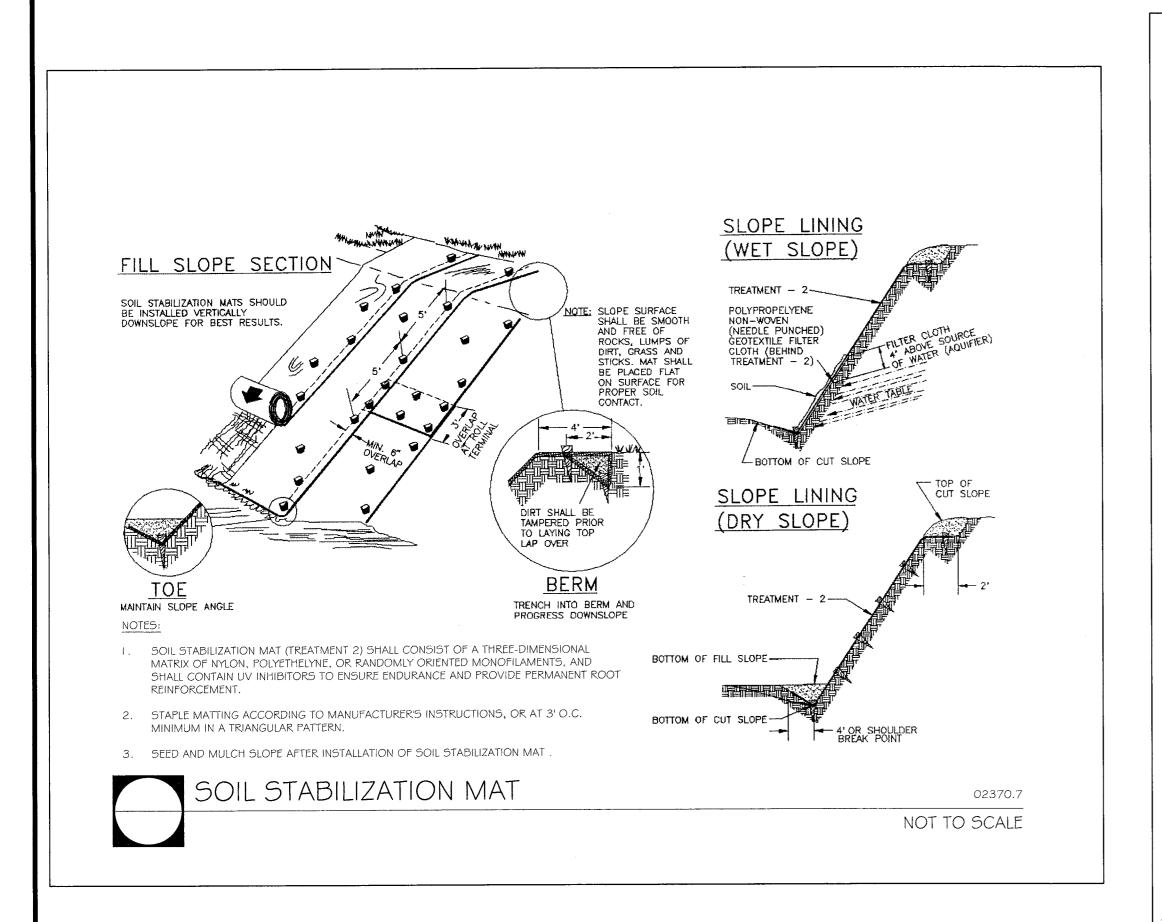
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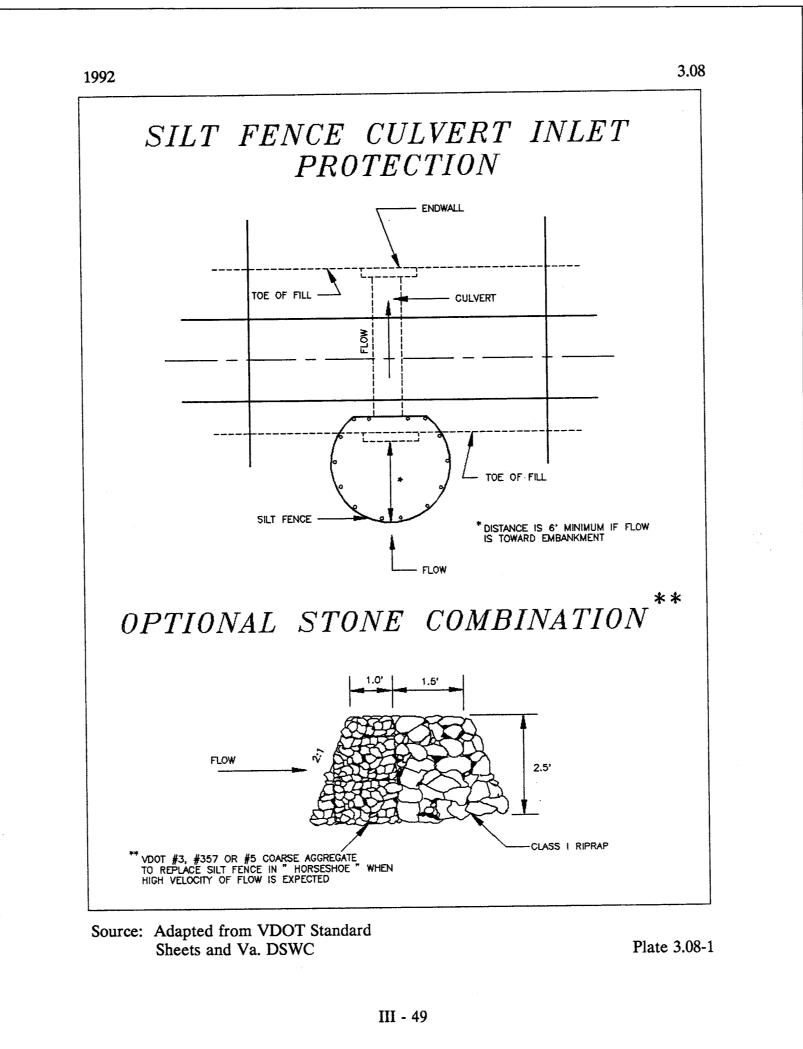
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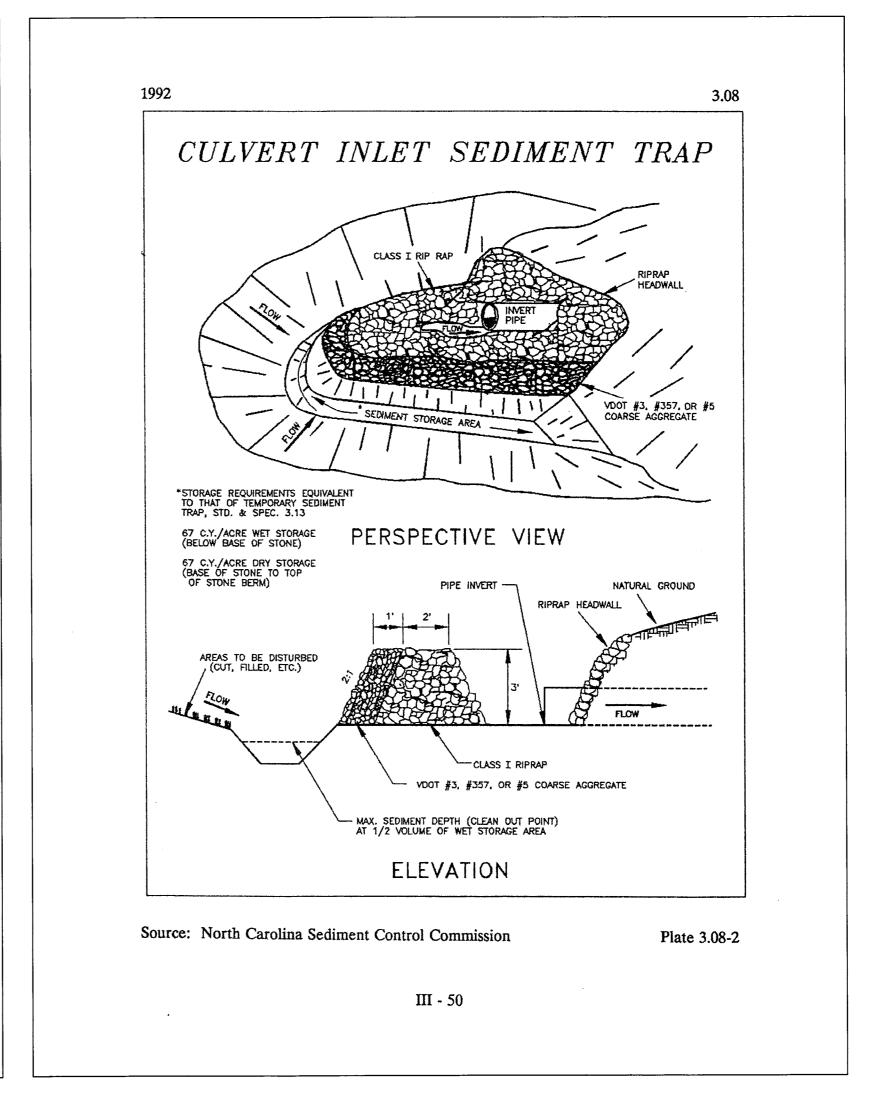
WOODMONT SWALE-PHASE I

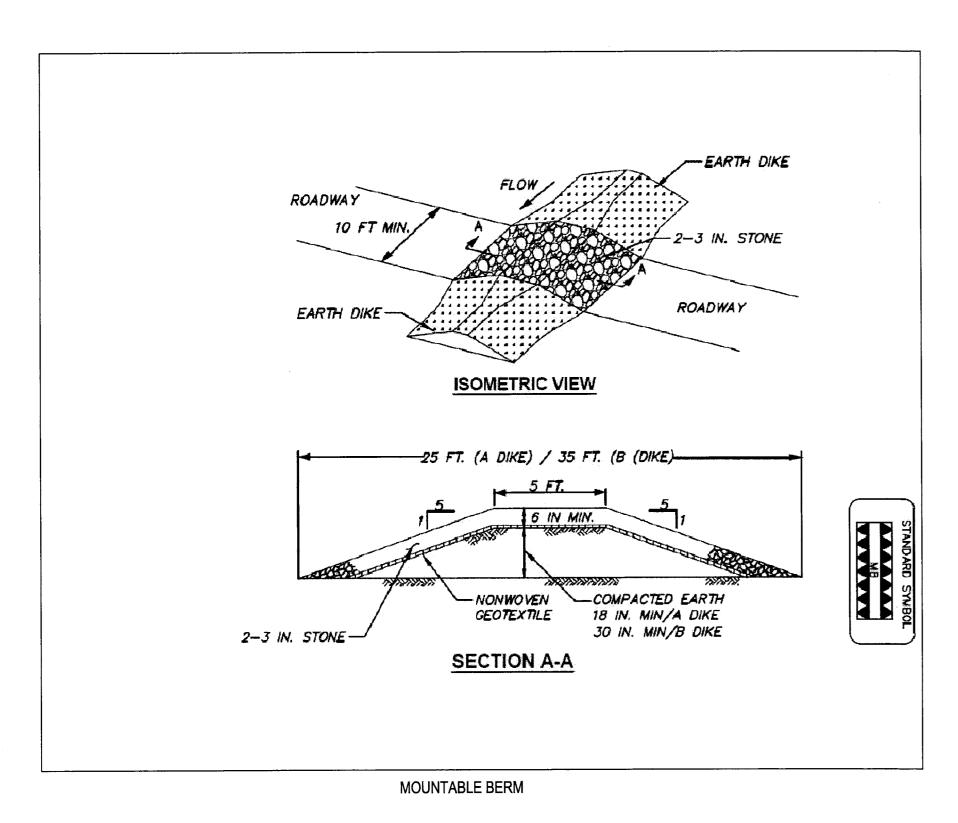
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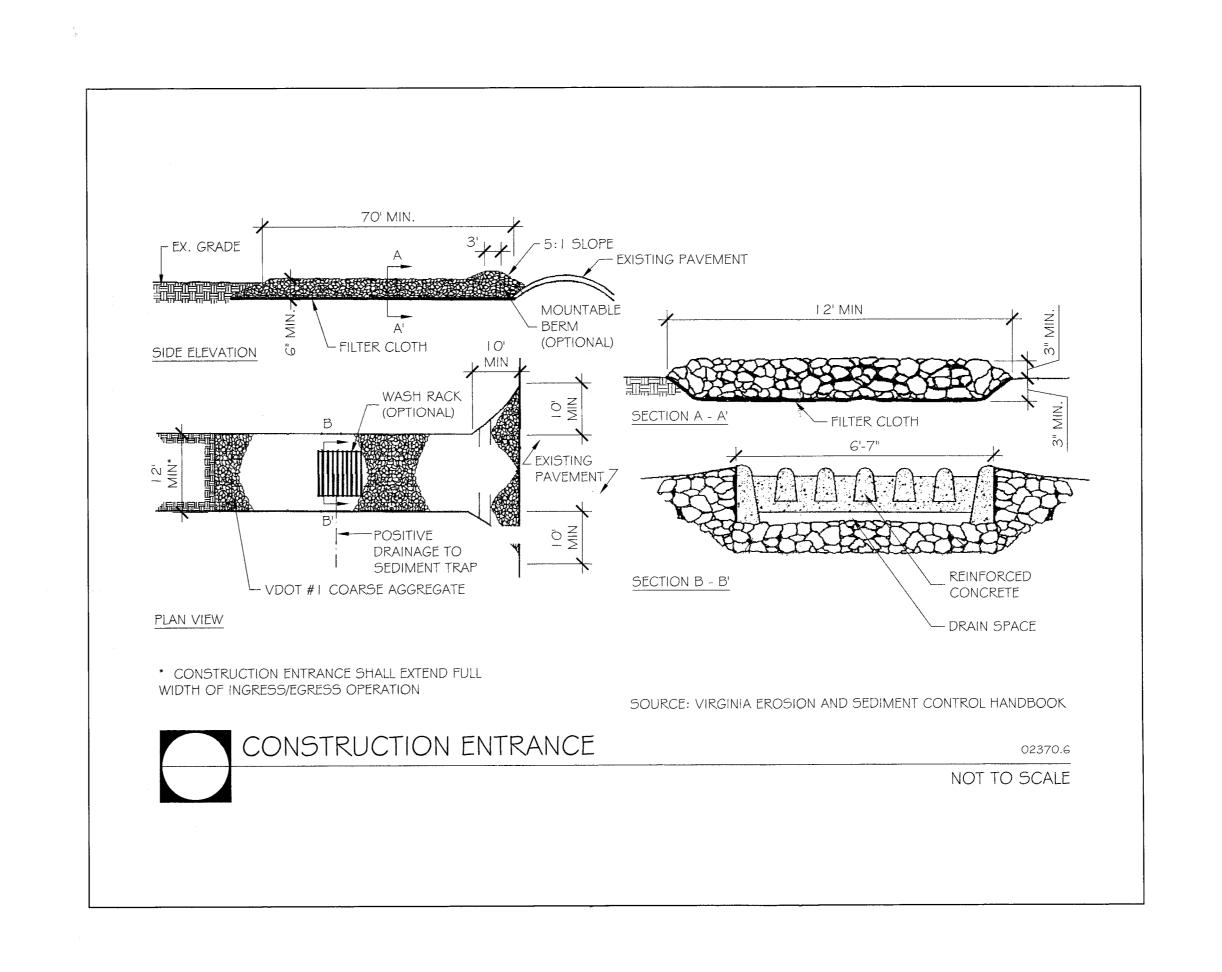








- 1. USE MINIMUM WIDTH OF 10 FEET TO ALLOW FOR VEHICULAR PASSAGE.
- 2. PLACE NON-WOVEN GEOTEXTILE OR NON WOVEN FABRIC OVER THE EARTH MOUND PRIOR TO PLACING STONE.
- 3. PLACE 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE MOUNTABLE BERM.
- 4. MAINTAIN LINE, GRADE AND CROSS SECTION. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN SPECIFIED DIMENSIONS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS MAINTAIN POSITIVE DRAINAGE.



ARLINGTON DEPARTMENT OF **ENVIRONMENTAL SERVICES FACILITIES & ENGINEERING DIVISION** ENGINEERING BUREAU 2100 CLARENDON BOULEVARD, SUITE 813 ARLINGTON, VA 22201 PHONE: 703.228.3629 FAX: 703.228.3606 COPYRIGHT © 2016 ARLINGTON COUNTY VIRGINIA - ALL RIGHTS RESERVED APPROVALS_ TRANSPORTATION DIRECTOR REVISIONS DATE

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SCALE

HORIZ. SCALE: 1" = 25' 9 OF 25

TABLE 3.31-B (Revised June 2003) TEMPORARY SEEDING SPECIFICATIONS QUICK REFERENCE FOR ALL REGIONS

SEED				
APPLICATION DATES	SPECIES	APPLICATION RATES		
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (Iolium multi- florum) & Cereal (Winter) Rye (Secale cereale)	50 -100 (lbs/acre)		
Feb. 16 - Apr. 30	Annual Ryegrass (Iolium multi-florum)	60 - 100 (lbs/acre)		
May 1 - Aug. 31	German Millet	50 (lbs/acre)		

FERTILIZER & LIME

- Apply 10-10-10 fertilizer at a rate of 450 lbs. / acre (or 10 lbs. / 1,000 sq. ft.)
 Apply Pulverized Agricultural Limestone at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)
- 1 A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
 2 Incorporate the lime and fertilizer into the top 4 6 inches of the soil by disking or by other means.
 3 When applying Slowly Available Nitrogen, use rates available in <u>Erosion & Sediment Control Technical Bulletin</u>

4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/e&s.htm#pubs

TABLE 3.32-D (Revised June 2003) PERMANENT SEEDING SPECIFICATIONS FOR PIEDMONT AREA

SEED ¹			
LAND USE	SPECIES	APPLICATION PER ACRE	
	Tall Fescue ¹	95-1009	
Minimum Care Lawn	Perennial Ryegrass	0-59	
(Commercial or Residential)	Kentucky Bluegrass ¹	0-59	
		TOTAL: 175-200 lb:	
High-Maintenance Lawn	Tall Fescue ¹	TOTAL: 200-250 lbs	
	Tall Fescue ¹	128 lbs	
Conoral Plana (2:1 ar leas)	Red Top Grass or Creeping Red Fescue	2 lb:	
General Slope (3:1 or less)	Seasonal Nurse Crop ²	<u>20 lb</u> :	
	·	TOTAL: 150 lb	
	Tall Fescue ¹	108 lb:	
Low Maintenance Clans	Red Top Grass or Creeping Red Fescue	2 lb:	
Low-Maintenance Slope (Steeper than 3:1)	Seasonal Nurse Crop ²	20 lbs	
(Steeper than 3:1)	Crownvetch ³	<u>20 lbs</u>	
		TOTAL: 150 lbs	

1 - When selecting varieties of turfgrass, use the Virginia Crop Improvement Association (VCIA) recommended turfgrass variety list. Quality seed will bear a label indicating that they are approved by VCIA. A current turfgrass variety list is available at the local County Extension office or through VCIA at 804-746-4884 or at http://sudan.cses.vt.edu/html/Turf/turf/publications/publications2.html
2 - Use seasonal nurse crop in accordance with seeding dates as stated below:

3 - Substitute Sericea lespedeza for Crownvetch east of Farmville, VA (May through September use hulled seed, all other periods, use unhulled Sericea). If Flatpea is used, increase rate to 30 lbs./acre. If Weeping Lovegrass is used, include in any slope or low maintenance mixture during warmer seeding periods, increase to 30 -40

FERTILIZER & LIME

- Apply 10-20-10 fertilizer at a rate of 500 lbs. / acre (or 12 lbs. / 1,000 sq. ft.)
 Apply Pulverized Agricultural Limestone at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)
- NOTE:
 A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
- Incorporate the lime and fertilizer into the top 4 6 inches of the soil by disking or by other means.
 When applying Slowly Available Nitrogen, use rates available in <u>Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/e&s.htm#pubs
 </u>

Pre-Storm Erosion and Sediment Control Checklist

Per Erosion and Sediment Control General Note 6, the Contractor is responsible for the installation and maintenance of any additional erosion and sediment control (ESC) measures necessary to prevent erosion and sedimentation as determined by the County. These supplementary practices are in addition to those shown in an ESC plan. ESC practices shall be modified as needed to ensure only clear water is discharged from the site.

The following actions shall be taken <u>prior to storm events with predicted heavy and/or large volume</u>
<u>rainfall</u> to prevent sediment discharges from a construction site. A typical summer thunderstorm is an example of a storm event with predicted heavy and/or large volume rainfall.

Perimeter controls

- Silt fence shall be checked for undermining, holes, or deterioration of the fabric. Fencing shall be replaced immediately if the fabric is damaged or worn. Silt fence must be trenched into the ground per state specifications (Std & Spec 3.09).
- ☐ Wooden stakes or steel posts shall be properly secured upright into the ground. Damaged posts or stakes must be replaced.
- ☐ Sediment that has accumulated against the silt fence should be removed. Accumulated sediment must be removed when the level reaches one-half the height of the fencing.
- ☐ Hay bales or a stone berm should be placed across the construction entrance to prevent sediment from leaving the construction site.

Exposed slopes and soil

- Exposed slopes not at the final stabilization phase shall be covered with tarps, plastic sheeting, or erosion control matting. Covering material shall be properly secured/anchored.
- ☐ Controls shall be installed to prevent concentrated flow down an exposed slope. Berms or diversion dikes shall be installed at the top of cut / exposed slopes to direct storm flow around the disturbed area.
- ☐ Exposed slopes at the final stabilization phase shall be stabilized using slope stabilization practices such as soil stabilization blankets or matting as specified in the Virginia Erosion and Sediment Control Handbook (VESCH) Std & Spec 3.36. Blankets or mats must be properly secured and anchored to the slope using staples, pins, or stakes.
- Seeded areas shall be checked and reseeded as necessary to cover exposed soil. Recently seeded areas shall be protected by straw or soil stabilization blankets to prevent seeding from being washed away.

Stockpiles

Stockpiled soil and other loose materials that can be washed away shall be covered with a tarp, plastic sheeting, or other stabilization matting. The cover must be properly secured / anchored down to prevent it from being blown off and exposing materials to rain. Controls such as hay bales or booms should be placed along the perimeter of the stock pile (downhill side).

Inlet protection

- ☐ Inlet protection controls shall be inspected to ensure they are functioning properly and flooding will not occur. Clogged or damaged controls must be replaced immediately. Ensure controls allow for overflow / bypass of stormwater runoff during significant storm events.
- In addition to these pre-storm actions, all erosion and sediment control (ESC) measures must be checked daily and after each significant rainfall.

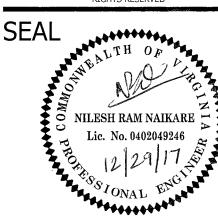
Qianqian Li, P.E. ESC Program Administrator Department of Environmental Sevices 2100 Clarendon Boulevard, Suite 813 Arlington, Virginia 22201 Re: Erosion and Sediment Control Permit Application for: street address lot, block, section subdivision permit number Dear Mrs. Li: I hereby certify that I accept the responsibilities of Responsible Land Disturber for the above referenced project. I understand that these responsibilities include: 1. Reviewing the erosion and sedimentation (E&S) plan for the project. 2. Walking the site prior to construction to identify critical areas. 3. Conducting a pre-construction briefing with earth moving and site contractors to present the E&S plan and highlight the presence of critical areas, the limits of clearing and the required E&S controls and tree protection measures to be installed. Call 703-228-0760 to schedule pre-construction meeting. 4. Regularily inspecting the site during construction to ensure that all E&S controls are functioning and are adequate to address erosion and sedimentation. Inspect the site 48 hours after a runoff-generating storm, and provide a copy of the inspection findings to the county. 5. Reporting to the owner the presence inadequate or non functioning E&S controls when they are observed. 6. Ensuring that temporary soil stabilization is applied within 7 days to areas denuded that will remain undisturbed for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left dormant 7. Calling (703) 228-0760 at least 80 hours before demolishing any structure. _ with questions about this plan or my execution of the duties of Responsible Land Disturber. name printed professional registration (type and number)



DEPARTMENT OF ENVIRONMENTAL SERVICES

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ARLINGTON, VA 22201
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FAX: 703.228.3606

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OUALITY CONTROL ENGINEER JAN 0.5 CONSTRUCTION MANAGEMENT SUPERVISOR
WATER, SEWER STREETS BUREAU CHIEF
TRANSPORTATION DIRECTOR
PROJECT MANAGER

REVISIONS

RL

DETAILS

SEDIMENT

WOODMONT SWALE-PHASE
FROM N. FILLMORE STREET
TO N. KENMORE STREET
321.47222.S28D.0000

DESIGNED: PB
DRAWN: PB
CHECKED: NN
MISS UTILITY TRANSMITTAL #: 5306-D

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STORMWATER POLLUTION PREVENTION PLAN **Woodmont Swale-Phase I**

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) **Arlington County Projects** (Linear Development / Stormwater Retrofit)

For Construction Activities At:

Woodmont Swale-Phase I From N. Fillmore Street to N. Kenmore Street Arlington, VA 22207

Latitude: 38.9015 N (decimal degrees)

Longitude: 77.0985 W (decimal degrees)

Construction Activity Operator:

Insert Company/Organization Name Insert Name Insert Address Insert City, State, Zip Code Insert Telephone Number Insert Email Address Insert 24-hour Emergency Contact

SWPPP Preparation Date:

November 22, 2017

CERTIFICATION

"I certify under penalty of law that I have read and understand this document and that this document and all attachments were prepared in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Arlington County SWPPP 12/2016

STORMWATER POLLUTION PREVENTION PLAN **Woodmont Swale-Phase I**

1.0 SWPPP Documents Located Onsite & Available for Review

Located Onsite & Available for Review? SWPPP Document Type Registration Statement Yes
Yes
Yes
Yes
Yes
Yes
Yes Notice of Coverage Letter □ NA Construction General Permit Pollution Prevention Plan Erosion & Sediment Control Plan □ NA Stormwater Management Plan ☐ NA LDA Permit

Required documents must be kept at a centralized location on the project site (i.e. in a mail box or other container)

2.0 Authorized Non-Stormwater Discharges

Type of Authorized Non-Stormwater Discharges Likely Present at Your Project Site? Uncontaminated excavation dewatering Landscape irrigation Others [describe]

3.0 Pollution Prevention Awareness

Employees will be given a "walk through" of the site identifying areas of possible pollution and will be shown Erosion and Sediment Controls and Pollution Prevention Practices (identified in Sections 4.0 and 5.0 of this SWPPP) that are applicable to their assigned job duties. A refresher meeting and "walk through" will be conducted on an as needed

4.0 Erosion & Sediment Controls

Select all that apply	Erosion & Sediment Control	Estimated Installation Date	Estimated Removal Date	Responsible Party (Name, Contact Phone Number)
	Construction Entrance (Std. & Spec. 3.02)			
\boxtimes	Silt Fence (Std. & Spec. 3.05)			
\boxtimes	Culvert Inlet Protection (Std. & Spec. 3.08)			
	Outlet Protection (Std. & Spec. 3.18)		NA	
	Temporary Seeding (Std. & Spec. 3.31)	As required	NA	
	Permanent Seeding (Std. & Spec. 3.32)		NA	
\boxtimes	Sodding (Std. & Spec. 3.33)		NA	
⊠	Mulching (Std. & Spec. 3.35)		NA	
	Safety Fence (Std. & Spec 3.01)			
\boxtimes	Storm Drain Inlet Protection			

Arlington County SWPPP 12/2016

STORMWATER POLLUTION PREVENTION PLAN Woodmont Swale-Phase I

	(Std. & Spec 3.08 and/or Arlington County Std. & Spec from approved ESC plan)		
	Dewatering (Std. & Spec 3.26 and/or Arlington County Std. & Spec from approved ESC plan)		
	Turbidity Curtain (Std. & Spec 3.27 and/or Arlington County Std. & Spec from approved ESC plan)		
	Tree Protection (Arlington County Std. & Spec from approved ESC plan)		
	Stream Crossing / Cofferdams (Std. & Spec 3.25 or on plan)		
	Pump Around System (detail on approved plan)		
	Rip Rap (Std. & Spec. 3-19)		
	Other(s) [describe]		

Pre-Storm Erosion and Sediment Control Checklist The following actions shall be taken prior to storm events with predicted heavy and/or large volume rainfall to prevent sediment discharges from a construction site. A typical summer thunderstorm is an example of a storm event with

Perimeter controls (silt fence, hay bales, stone berms) used to prevent sediment from leaving the site shall be

checked for undermining, holes, or deterioration and repaired/replaced if needed. Sediment that has accumulated against perimeter controls shall be removed if the depth exceeds more than 1/2 of

Exposed soil or slopes shall be covered with straw, tarps, plastic sheeting, or erosion control matting. Covering material shall be properly secured/anchored.

Stockpiled soil and other loose materials that can be washed away shall be covered with a tarp, plastic sheeting, or other stabilization matting. The cover must be properly secured / anchored down to prevent it from being blown off and exposing materials to rain. Controls such as hay bales or booms should be placed along the perimeter of the stock pile (downhill side). Stockpiled materials should not obstruct flow along the curb line.

☐ Inlet protection controls shall be inspected to ensure they are installed per approved ESC plan, are functioning properly, and maintained as needed.

Arlington County SWPPP 12/2016

predicted heavy and/or large volume rainfall.

the silt fence height.

Pollution Prevention Practices:

(1) Clearing, grading, excavating, and un-stabilized areas – Maintain as much existing vegetation as practicable. Utilize erosion and sediment controls to prevent sediment from leaving the construction site. Dispose of clearing debris at acceptable disposal sites. Apply permanent or temporary stabilization, sodding and/or mulching to denuded areas in accordance with the erosion and sediment control specifications and the general VPDES permit for discharges of stormwater from construction activities. Plastic sheeting, tarps, 2" deep straw cover, and/or erosion matting can be used for temporary slope stabilization.

STORMWATER POLLUTION PREVENTION PLAN

(2) Paving and saw cutting operations – Cover storm drain inlets during paving and saw cutting operations. Use pollution prevention materials such as drip pans and absorbent/oil dry for all paving machines to limit leaks and spills of paving materials and fluids. Slurry from saw cutting operations may not enter a storm drain; it must be captured and disposed of properly.

Temporary controls (i.e. tarp and block, sand berms, booms, and/or filter fabric) shall be used to cover storm drains during paving and saw cutting operations to prevent any discharges from entering the storm drain. These temporary controls SHALL BE REMOVED AT THE END OF EACH DAY. Inlet protection specified in the approved ESC plan shall be installed or reinstalled following the completion of paving or saw cutting work.

Method of covering / protecting storm drains: Method for containment, collection, disposal of saw cut slurry:

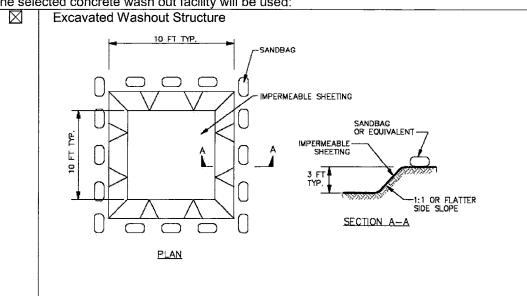
Concrete operations, washout, and cement waste - Direct concrete wash water into a leak-proof container or leak-proof settling basin that is designed so that no overflows can occur due to inadequate sizing or precipitation. Hardened concrete wastes shall be removed and disposed of in a manner consistent with the handling of other construction wastes. Washouts must be sized appropriately for the needs of the project. Do not locate washouts near storm drains. Concrete wash water is not allowed to enter a storm drain.

Concrete washout areas cannot be used for the purpose of dewatering. Set up and operate small mixers on top of plywood that is covered by tarps or heavy plastic drop cloths.

Wash out mixers and truck chutes in designated contained washout areas

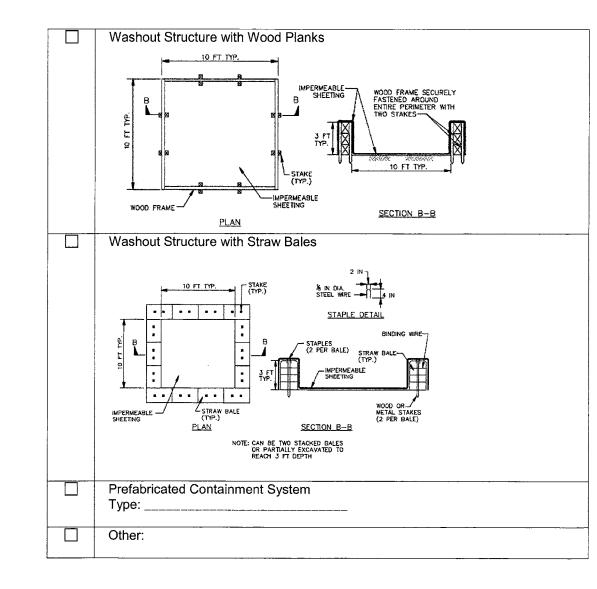
No tracking from washout areas may occur. Place plastic sheeting, boards, or tarps under concrete truck chutes during pouring

The selected concrete wash out facility will be used:



Arlington County SWPPP 12/2016

STORMWATER POLLUTION PREVENTION PLAN



- (4) Washing / cleaning Prevent the discharge of wash water to the storm drain system or surface waters.
 - ☐ Wash water or liquid wastes may not enter a storm drain or surface waters.
 - Provide a suitable containment system for cleaning equipment such as a drum, prefabricated system, lined container, or portable wash pad.
 - ☐ The wash / containment area must be sized appropriately for the needs of the project.
 - □ Locate wash / containment areas away from storm drains.
- Dewatering operations Construction site dewatering may not be discharged without treatment. Sediment laden or turbid water shall be filtered, settled or similarly treated prior to discharge.
 - Dewatering detail on approved ESC plan will be used.
 - Dewatering option from Planning & Field Guide for Pollution Prevention (P2): Straw Bale/Silt Fence Pit ☐ Portable Sediment Tank

Arlington County SWPPP 12/2016

☐ Filter Bag

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NILESH RAM NAIKARI

REVISIONS

-PHA E STREET STREET

OODMONT

DESIGNED: PB DRAWN: PB CHECKED: NN MISS UTILITY TRANSMITTAL #: 5306-D

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11 OF 25

STORMWATER POLLUTION PREVENTION PLAN

5.0 Potential Sources of Pollution & Pollution Prevention Practices

	Pollutants											
Pollutant-Generating Activity	Likely Present at your Project Site?	Sediment	Nutrients	Heavy Metals	pH (acids and bases)	Pesticides & Herbicides	Oil & Grease	Bacteria & Viruses	Trash, Debris, Solids	Other Toxic Chemicals	Pollution Prevention Practice	Responsible Party (Name, Contact Phone Number)
Clearing, grading, excavating, and un-stabilized areas	⊠ Yes □ No	x	Х						x		(1)	
Paving and saw cutting operations	⊠ Yes □ No	х					х		х		(2)	
Concrete operations, washout, and cement waste	⊠ Yes □ No			Х	Х				Х		(3)	
Washing / cleaning	⊠ Yes □ No	x	х	х	х		×		х	х	(4)	
Dewatering operations	⊠ Yes □ No	Х	х						х		(5)	
Material / chemical use and storage	⊠ Yes □ No	Х	х	Х	Х	х	Х		Х	х	(6)	
Equipment and vehicle maintenance	⊠ Yes □ No				Х		х		Х	Х	(7)	
Waste management / disposal	☐ Yes ⊠ No								Х	х	(8)	
Sanitary waste	⊠ Yes □ No		Х		Х			Х			(9)	
Nutrient management	☐ Yes ⊠ No	Х	х						X	х	(10)	

Arlington County SWPPP 11/2016

STORMWATER POLLUTION PREVENTION P	LAN

☐ Pump from Settling Pit☐ Manufactured System:	
Other:	

(6) Material / chemical use and storage —Designate areas of the construction site for material delivery and storage. Locate these areas near construction entrances and away from waterways and storm drains. Enclose, cover or berm construction material storage areas if susceptible to stormwater.

Stockpiled soil and other loose materials that can be washed away shall be covered with a tarp, plastic sheeting, or other stabilization matting. The cover must be properly secured / anchored down to prevent it from being blown off and exposing materials to rain. Controls such as hay bales or booms should be placed along the perimeter of the stock pile (downhill side).

Stockpiled materials located on the edge of roadways should not obstruct flow along the curb line (gutter). Leave at least a one (1) foot space away from the curb to allow stormwater to flow along the curb line. Boards with cinder blocks and/or bricks may be used to create the flow through space.

Method used to ensure flow through:

☐ Provide secondary containment for paint, pesticides, cleaners, solvents, and/or other chemicals and keep these items secured and covered when not in use

☐ Regularly inspect containers.

(7) Equipment and vehicle maintenance – Use a designated area, away from storm drains and surface waters, to refuel vehicle or equipment or perform maintenance.

Regularly inspect vehicles and equipment for leaks. Clean up all spills and leaks upon discovery.

☐ Use containment measures when conducting fueling (e.g. place spill pad, board, plastic sheeting on ground)

□ Regularly inspect fuel containers.

Provide secondary containment and secure storage for fuel, oil, and/or lubricants

⊠ Keep drip pans, sheeting, and/or absorbent pads under heavy equipment when not in use (i.e. overnight) to capture leaks.

(8) Waste management / disposal – Designate a waste collection area on the construction site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a waterway. Ensure that waste containers have lids so they can be covered before periods of rain. Schedule waste collection to prevent the containers from overfilling.

A sufficient number of waste containers must be kept on a site to handle the quantity of waste produced.

☐ Keep roll off containers covered and/or dumpster / trash lids closed.

☐ Check waste containers frequently for damage / leaks and clean using DRY methods when necessary. Never clean out a dumpster by power washing or hosing it out.

Replace containers that are leaking, cracked, corroded, or otherwise deteriorating.

☐ Do not bury waste material. Dispose of excess dry concrete, grout and mortar in the trash.

Arlington County SWPPP 12/2016

STORMWATER POLLUTION PREVENTION PLAN

7.0 Spill Prevention & Response

Most spills can be cleaned up using a spill kit. Absorbent/oil dry, sealable containers, plastic bags, and shovels/brooms are suggested minimum spill response items that should be available at the project site.

1st Priority: Protect all people
2nd Priority: Protect equipment and property

2nd Priority: Protect equipment and property 3rd Priority: Protect the environment

1. Check for hazards (flammable material, noxious fumes, cause of spill) – if flammable liquid, turn off engines and nearby electrical equipment. If serious hazards are present leave the area and call 911. LARGE SPILLS

ARE LIKELY TO PRESENT A HAZARD.

2. Ensure the spill area is safe to enter and that it does not pose an immediate threat to health or safety of any

person.
3. Stop the spill source.

Stop the spill source.
 Call co-workers and supervisor for assistance and to make them aware of the spill and potential dangers.

5. If possible, stop spill from spreading and/or entering storm drains (use absorbent or other materials as

necessary).
6. If spilled material has entered a storm drain; contact Arlington County Fire Department and project manager.
7. Clean up spilled material according to manufacturer specifications, for liquid spills use absorbent materials

and do not flush area with water.8. Properly dispose of cleanup materials and used absorbent material according to manufacturer specifications.

Emergency Contacts:

Local Contacts
Arlington County Fire & Police

DES Water, Sewer, Streets 24-Hour Emergency Washington Gas Emergency 703-558-2222 703-228-6555 703-750-1400

Nights, Holidays & Weekends
VA Dept. of Emergency Management
24 Hour Reporting Service

804-674-2400

Spill kit on site: Yes No
Location(s) of spill kit:

Arlington County SWPPP 12/2016

STORMWATER POLLUTION PREVENTION PLAN

(9) Sanitary waste – Prevent the discharge of sanitary waste by providing convenient and well-maintained portable sanitary facilities.

☐ Locate portable lavatories away from storm drains and surface waters.

Regularly inspect facilities for leaks

Schedule routine maintenance

(10) Nutrient management – Apply nutrients in accordance with manufacturer's recommendations. Do not apply during rainfall events or windy conditions. Provide secondary containment and keep fertilizer properly secured when not being used.

Additional information and details can be found in the Arlington County Planning & Field Guide for Pollution Prevention (P2).

6.0 Stormwater Management Controls

Select all that apply	Stormwater Management Control	Estimated Installation Date	Responsible Party
	Exempted – stormwater management retrofit facility or stream restoration project	NA	NA
	Linear development project per Arlington County Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan ¹	NA	NA
	Post-development Stormwater Management Controls provided by a Larger Common Plan of Development or Sale	NA	Common Plan Construction Activity Operator
	Rooftop Disconnection		Construction Activity Operator

In accordance with Arlington County's Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan, approved by the Virginia Department of Environmental Quality (DEQ) on September 1, 2015, linear development projects conducted by the County are administered and tracked as follows consistent with 9VAC25-870-69.A.4, 9VAC25-870-76, and 9VAC25-870-92:

 Pollutant load changes will be computed as described in Section 3.A of the Action Plan.

- Retrofit opportunities will be evaluated for each project, using the screening and selection criteria applied and
- described in the adopted Stormwater Master Plan.
 Retrofit projects that meet the screening criteria and are determined by Arlington to be feasible and cost-effective will be implemented with specific linear development projects. Pollutant load reductions from retrofit projects will be computed as described in Section 5 of the Action Plan.
- In cases where retrofit projects are not feasible and cost-effective for a particular linear project, any POC load increases that might occur for that project will be addressed by larger overall POC load reductions in place or added

In the above manner Arlington, as the MS4 operator and the construction site operator for its linear development projects, implements linear projects and retrofit projects in a manner that achieves the most TMDL POC reduction for the least cost, while fully accounting for load changes that occur with linear development project activity consistent with the DEQ Chesapeake Bay TMDL Special Condition Guidance.

Arlington County SWPPP 12/2016

through TMDL action plan implementation.

STORMWATER POLLUTION PREVENTION PLAN

8.0 Self Inspection Report & Corrective Action Log (make additional copies as necessary)

Company/Organization:	
Name of Inspector:	
Telephone Number:	
Qualifications:	

Inspection Schedule

Discharges to impaired waters, surface waters within a TMDL watershed, or exceptional waters:

☐ Once every 4 business days

Inspection Date: _

Describe phase of construction:

Is a copy of the SWPPP available on site?

Yes

No Is the SWPPP complete?

Yes

No

Erosion & Sediment Controls/ Pollution Prevention Practices	In Compliance?	Corrective Action Needed & Notes	Date Corrective Action Taken
Are controls in place to prevent sediment from being tracked off site or onto the street?	☐ Yes ☐ No ☐ NA		
Are perimeter controls adequately installed and properly maintained?	☐ Yes ☐ No ☐ NA		
Are storm drains properly protected / approved inlet protection is in place?	☐ Yes ☐ No ☐ NA		
Are all slopes and disturbed areas, including stockpiles, not actively being worked properly stabilized?	☐ Yes ☐ No ☐ NA		
Are dewatering operations working properly?	☐ Yes ☐ No ☐ NA		
Is construction dust properly controlled?	☐ Yes ☐ No ☐ NA		
Are mature trees and/or natural areas properly protected?	☐ Yes ☐ No ☐ NA		

Arlington County SWPPP 12/2016

STORMWATER POLLUTION PREVENTION PLAN

Sheet flow to Vegetated Filter (1 or 2)	(See Cover Pa of this SWPPF
Grass Channel	
Rainwater Harvesting	
Permeable Pavement (1 or 2)	
Infiltration (1 or 2)	
Bio-retention (1 or 2)	
Others [describe]	
	Grass Channel Rainwater Harvesting Permeable Pavement (1 or 2) Infiltration (1 or 2) Bio-retention (1 or 2)

Arlington County SWPPP 12/2016

STORMWATER POLLUTION PREVENTION PLAN

Are washout facilities (concrete, paint) available, labeled, and properly maintained?	☐ Yes ☐ No ☐ NA	
Are trash and waste materials properly managed and disposed of?	☐ Yes ☐ No ☐ NA	
Are trash receptacles covered and not leaking?	☐ Yes ☐ No ☐ NA	
Are non-stormwater discharges (i.e. wash water, saw cut slurry) properly managed?	☐ Yes ☐ No ☐ NA	
Are vehicle and equipment fueling, maintenance, and/or staging areas free of spills and leaks?	☐ Yes ☐ No ☐ NA	
Are materials that are potential stormwater contaminants stored properly (covered / have secondary containment)?	☐ Yes ☐ No ☐ NA	
Are portable lavatories level, in good condition, and located away from storm drains?	☐ Yes ☐ No ☐ NA	
Is a spill kit accessible onsite?	☐ Yes ☐ No ☐ NA	

Are there any unauthorized discharges at the time of this inspection?

Yes
No
If yes, describe:

Non – Compliance Issues

Describe any incidents of non-compliance not described above (use another page if necessary)

Certification

"I certify under penalty of law that I have read and understand this document and that this document and all attachments were prepared in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Operator or Assigned Qualified Personnel Name: ______
Signature: _____

Arlington County SWPPP 12/2016

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11A OF 25

Revised: 01/21/2016

ARLINGTON
VIRGINIA

DEPARTMENT OF

ENVIRONMENTAL SERVICES

FACILITIES & ENGINEERING DIVISION

ENGINEERING BUREAU

ARLINGTON, VA 22201

PHONE: 703.228.3629

FAX: 703.228.3606

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REVISIONS

DATE

ONT SWALE-PHAS

N. FILLMORE STREET

KENMORE STREET

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FROM N. TO N. K 321.47

WOODMONT

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PLOTTED: DECEMBER 19 2017

RIGHTS RESERVED

2100 CLARENDON BOULEVARD, SUITE 813

STORMWATER POLLUTION PREVENTION PLAN

9.0 Grading & Stabilization Activities Log

Date Grading Activity Initiated	Description of the Grading Activity (including location)	Date Grading Activity Ceased	Date Stabilization Measures Initiated	Description of the Stabilization Measure (including location)

10.0 SWPPP Modification & Update Log

Modification Date	Description of the Modification / Update	Modification Prepared By (name & title)

Arlington County SWPPP 12/2016

INSTRUCTIONS for COMPLETING the SINGLE FAMILY RESIDENCE, COMMON PLAN of DEVELOPMENT or SALE STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

General
A Stormwater Pollution Prevention Plan (SWPPP) must be developed prior to obtaining locality (e.g., City, County, Town) authorization to commence land disturbance.

SWPPP Cover Page
For a construction activity, enter the project/site name and physical address (if available), including city (or town), state and zip code.
Enter the latitude and longitude in decimal degrees of the construction activity.

Enter the Construction Activity Operator's company/organization name, the Operator's name and mailing address, including city (or town), state, and zip code, telephone number, email address (if available), and a 24-hour emergency contact.

Enter the SWPPP preparation date.

The Construction Activity Operator identified on the cover page of the SWPPP is responsible for certifying the information contained therein. Please sign the certification in INK. Please note that state statues require the SWPPP to be signed as follows: (1) For a corporation: by a responsible corporate officer;

(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
(3) For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official.

Section 1.0 SWPPP Documents Located Onsite & Available for Review
Utilize the provided checklist to ensure that the required SWPPP documents are located onsite and are available for review, if

Section 2.0 Authorized Non-Stormwater Discharges
Identify the authorized non-stormwater discharges likely to be present at the project site. If an unlisted authorized non-stormwater discharge is likely to be present at the project site, provide it here.

Section 3.0 Pollution Prevention Awareness Provide employees with a "walk through" of the project site and identify areas of possible pollution, erosion and sediment controls, and pollution prevention practices which are applicable to their assigned job duties. Conduct refresher meetings and perform

additional "walk throughs" on an as needed basis. Section 4.0 Erosion & Sediment Controls Identify the erosion and sediment controls to be implemented at the project site. For each erosion and sediment control, enter the

estimated installation date and estimated removal date. If an unlisted erosion and sediment control will be implemented at the project site, provide the applicable information here.

Section 5.0 Potential Sources of Pollution & Pollution Prevention Practices
Identify the pollutant-generating activities likely to be present at the project site; implement and maintain the corresponding pollution

prevention practices. If an unlisted pollutant-generating activity is likely to be present at the project site, describe it, identify the

associated pollutant(s), and provide the corresponding pollution prevention practice(s) to be implemented and maintained.

Section 6.0 Stormwater Management Controls Identify the stormwater management controls to be implemented at the project site, if applicable. For each stormwater management control, enter the estimated installation date. If an unlisted stormwater management control will be implemented at the project site,

provide the applicable information here.

<u>Section 7.0</u> Spill Prevention & Response

Most spills can be cleaned up following manufacturer specifications. The priority should be to protect all people, equipment, property, and the environment. Enter the telephone number of your local fire and police departments.

Section 8.0 Inspections & Corrective Action Log
Enter the qualified inspector's company/organization name, the Inspector's name, telephone number, and qualifications. Select the applicable inspection schedule, enter the construction activity inspection date, and enter the date and rainfall amount of the last measurable storm event (if applicable). Identify if the implemented best management practices are in compliance with the SWPPP. Enter corrective actions needed; the party responsible for implementing the corrective actions, and the date corrective actions were taken, if applicable. Make additional copies of the inspection and corrective action log as necessary.

Section 9.0 Grading & Stabilization Activities Log

Enter the date grading activities were initiated, a description of the grading activities including location, the date grading activities ceased, the date stabilization measures were initiated, and a description of the stabilization measures including location.

Section 10.0 SWPPP Modification & Update Log
Enter the SWPPP modification date, description of the SWPPP modification/update, and the name and title of the SWPPP modification preparer, if applicable.

Arlington County SWPPP 12/2016

FROM STORM WATER MANUAL: 2.4 POLLUTION PREVENTION PLAN (P2 PLAN)

- Only the following non-stormwater discharges are authorized by Arlington County's MS4 permit, unless the State Water Control Board, the Virginia Soil and Water Conservation Board (Board), or Arlington County determines the discharge to be a significant source of pollutants to surface waters: landscape irrigation; diverted stream flows; rising ground waters; uncontaminated ground water infiltration (as defined at 40 cfr 35.2005 (20)); uncontaminated pumped ground water; discharge from potable water source; foundation drains; air conditioning condensation; irrigation water; springs; water from crawl space pumps; fotting drains; lawn watering; individual residential car washing; flows from riparian habitats and wetlands; dechlorinated swimming pool discharges; discharges or flows from fire fighting; and other activities generating discharges identified by the Department of Environmental Quality as not requiring VPDES authorization.
- Appropriate controls must be implemented to prevent any non-stormwater discharges not included on the above list (e.g. concrete wash water, paint wash water, vehicle wash water, detergent wash water, etc.) from being discharge into Arlington County's MS4, which includes the curb and gutter systems, as well as catch basins, and other storm drain inlets, or stream network.
- Per Chapter 26 of the Arlington County Code, it shall be unlawful for any person to discharge directly or indirectly into the storm sewer system or state waters, any substance likely, in the opinion of the Country Manager, to have and adverse effect on the storm sewer system or state waters.

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	DEPARTMENT ENVIRONMENTAL FACILITIES & ENGINEERIN ENGINEERING BUF 2100 CLARENDON BOULEVA	SERVICES NG DIVISION REAU
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Revised: 01/21/2016

WATER QUALITY IMPACT ASSESSMENT (WQIA) NARRATIVE

THIS IS AN ARLINGTON COUNTY STORM DRAINAGE IMPROVEMENTS PROJECT.

THIS PHASE OF THE PROJECT CONSISTS OF REPLACING EXISTING 18-INCH STORM PIPE WITH A 21-INCH PIPE. THE SITE AREA FOR THE WQIA IS DEFINED BY THE LIMITS OF WORK. A SITE SPECIFIC RPA HAS NOT BEEN DETERMINED, THE RPA BOUNDARY SHOWN IS BASED ON ARLINGTON COUNTY GIS.

THE HIGHEST POINT OF THE PROJECT AREA IS ON THE NORTH EAST SIDE OF N. KENMORE STREET. THE SITE IS LOCATED WITHIN WINDY RUN WATERSHED, AND IT HAS A VARIABLE HYDROLOGIC SOIL GROUP. THE SOIL TYPE IS "URBAN LAND-GLENELG COMPLEX". SITE HAS STEEP SLOPES BETWEEN 15% TO 25%.

STORM DRAINAGE SYSTEM EVENTUALLY DISCHARGES INTO WINDY RUN. THIS PROJECT WILL NOT ALTER THE EXISTING DRAINAGE PATTERNS, BUT IT IMPROVES THE STORM DRAINAGE CAPACITY. ONE NEW STRUCTURE AND TWO STORM MANHOLES WILL BE ADDED INTO THE SYSTEM. ONE HEADWALL AND ITS CONNECTING PIPE WILL ALSO BE REPLACED IN PHASE II.

TREES/VEGETATION IMPACTS
THE CONTRACTOR WILL RESTORE DISTURBED AREAS TO THEIR ORIGINAL CONDITION, UNLESS OTHERWISE INDICATED IN THE LANDSCAPE PLAN. IN ORDER TO MAINTAIN CLEAR ZONE AND LINE OF SIGHT, THE MAJORITY OF THE VEGETATION CONSISTS OF TREES AND SHORTER SHRUBS. IMPACTED TREES WILL BE REMOVED FROM THE SITE AREA, AND WILL BE REPLACED AS PER REQUIREMENT OF ARLINGTON COUNTY TREE REPLACEMENT CRITERIA. EXISTING TREES TO REMAIN WILL REQUIRE ROOT PRUNING AND/OR STANDARD TREE PROTECTION. TREE PROTECTION, REMOVAL, AND PRUNING AS WELL AS EXISTING TREE SURVEY AND TREE REPLACEMENT TABLES ARE SHOWN ON SHEET 20 OF 22.

STORMWATER AND RUNOFF IMPACTS

EXISTING AND PROPOSED STORM SEWER WILL BE USED TO DRAIN THE STORMWATER RUNOFF. THERE IS NO CHANGE IN STORM WATER QUANTITY RESULTING FROM THIS PROJECT.

EROSION AND SEDIMENT CONTROL IMPACTS

THE EROSION AND SEDIMENT CONTROL MEASURES FOR THIS PROJECT AREA IS LIMITED TO SILT FENCE WITH WIRE SUPPORT, CULVERT INLET PROTECTION, SOIL SRABILIZATION BLANKETS AND MATTING, DEWATERING STRUCTURES, INLET PROTECTION CONSTRUCTION ENTRANCE AND TREE PROTECTION. INLET PROTECTION: VESCH 3.07 TREE PROTECTION FENCE:

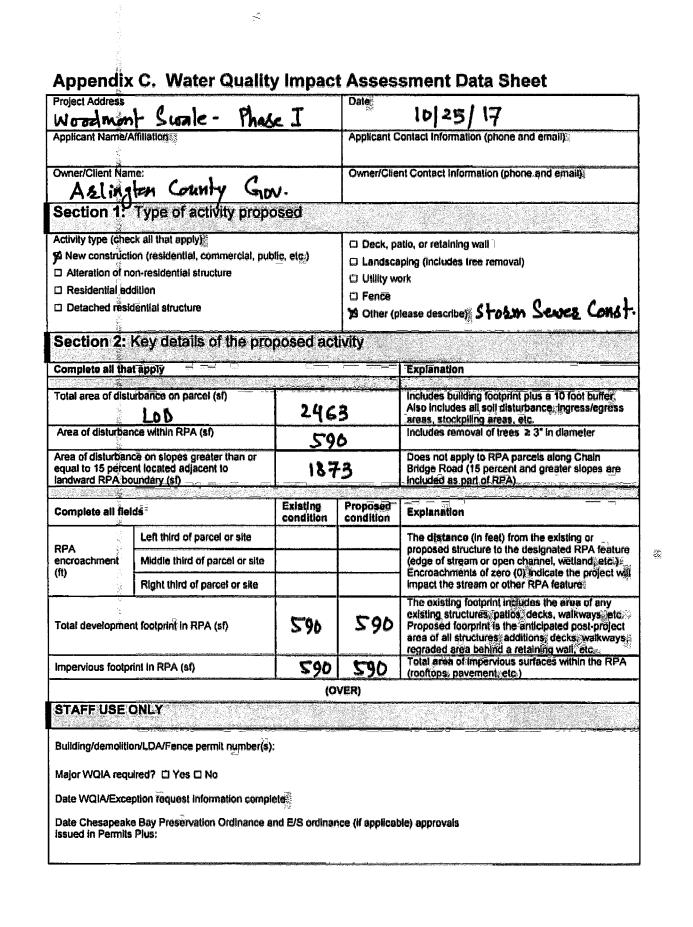
DEWATERING STRUCTURE VESCH 3.26 SILT FENCE WITH WIRE SUPPORT: VESCH 3.05 SOIL STABILIZATION BLANKETS & MATTING VESCH 3.36 CONSTRUCTION ENTRANCE VESCH 3.02 CULVERT INLET PROTECTION VESCH 3.08

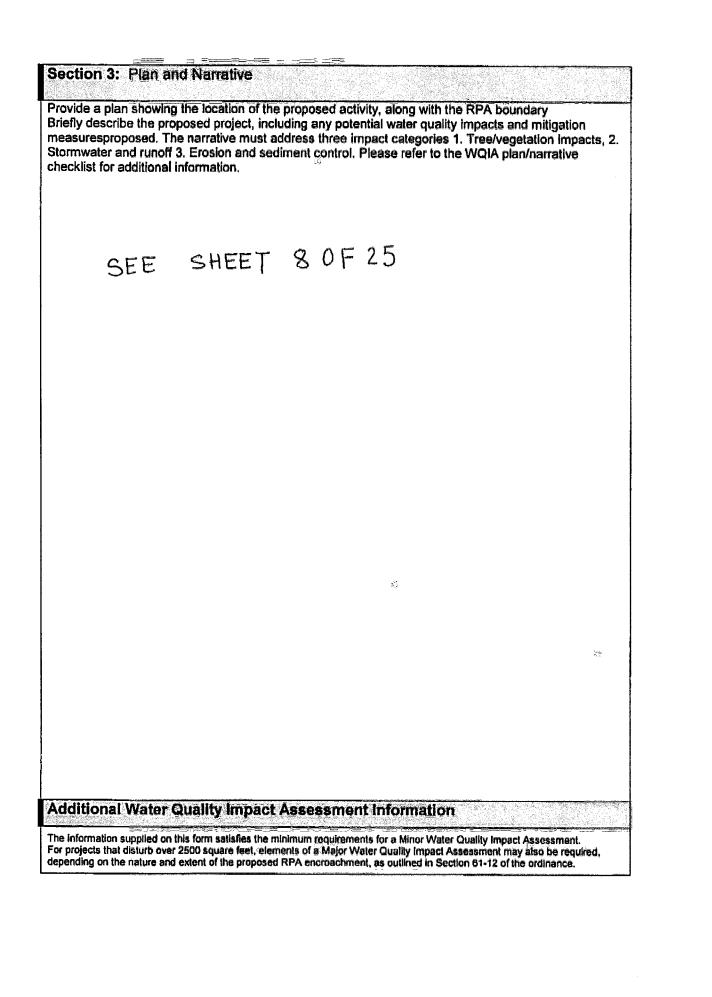
THE LIMITS OF WORK HAS BEEN DRAWN TO MINIMIZE DISTURBED AREA. A SMALL PORTION OF THE SITE AREA IS CURRENTLY COVERED IN IMPERVIOUS SURFACE, FOR WHICH THE SUBGRADE WILL NOT BE DISTURBED. SCHEDULED E&S INSPECTION AS DICTATED BY THE STORMWATER POLLUTION PREVENTION PLAN.

THE LANDSCAPE PLAN CONSERVES AS MUCH OF THE EXISTING VEGETATION AS PRACTICAL, WHERE VEGETATION IS REPLACED, THERE ARE GREATER NUMBER OF PLANTS AND MORE OF A VARIETY OF SPECIES COMPARED TO EXISTING. THE CONTRACTOR IS REQUIRED TO CONTACT THE ARLINGTON COUNTY FORESTER TO SCHEDULE PRE-CONSTRUCTION INSPECTION OF TREE PROTECTION MEASURES PRIOR TO ANY WORK NEAR THE CRITICAL ROOT ZONES OF EXISTING TREES.

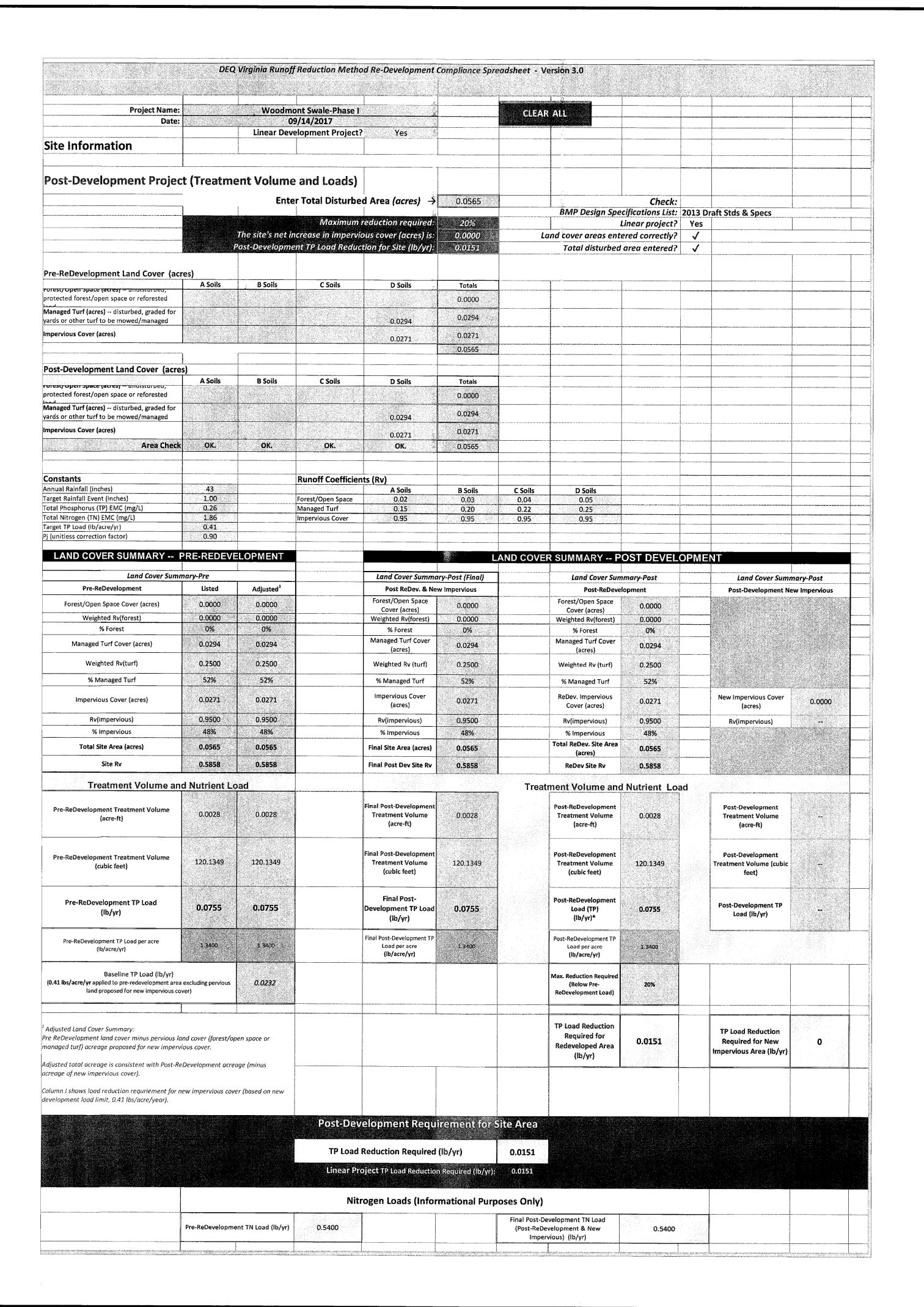
REQUIRED PERMITS

- LAND DISTURBING ACTIVITY PERMIT-ARLINGTON COUNTY DES
- TRANSPORTATION RIGHT-OF-WAY PERMIT-ARLINGTON COUNTY DES
- PUBLIC RIGH-OF-WAY PERMIT-ARLINGTON COUNTY DES





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NOTE:

The Runoff Reduction Spreadsheet information on this plan is for data tracking purposes to document the area of land disturbance and to characterize pre- and post-development land use conditions.

In accordance with Arlington County's Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan, approved by the Virginia Department of Environmental Quality (DEQ) on September 1, 2015, linear development projects conducted by the County are administered and tracked as follows consistent with 9VAC25-870-69.A.4, 9VAC25-870-76, and 9VAC25-870-92:

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VIRGINIA

DEPARTMENT OF

ENVIRONMENTAL SERVICES

FACILITIES & ENGINEERING DIVISION
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NILESH RAM NAIKARE Lic. No. 0402049246

PPROVALS

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CONSTRUCTION MANAGEMENT SUPERVISOR
WATER, SEWER STREETS BUREAU CHIEF

TRANSPORTATION DIRECTOR
PROJECT MANAGER

REVISIONS D

REDUCTION METHOD

WOODMONT SWALE-PHAS FROM N. FILLMORE STREET TO N. KENMORE STREET 321.47222.S28D.0000

DESIGNED: PB
DRAWN: PB

RUNOFF

VIRGINIA

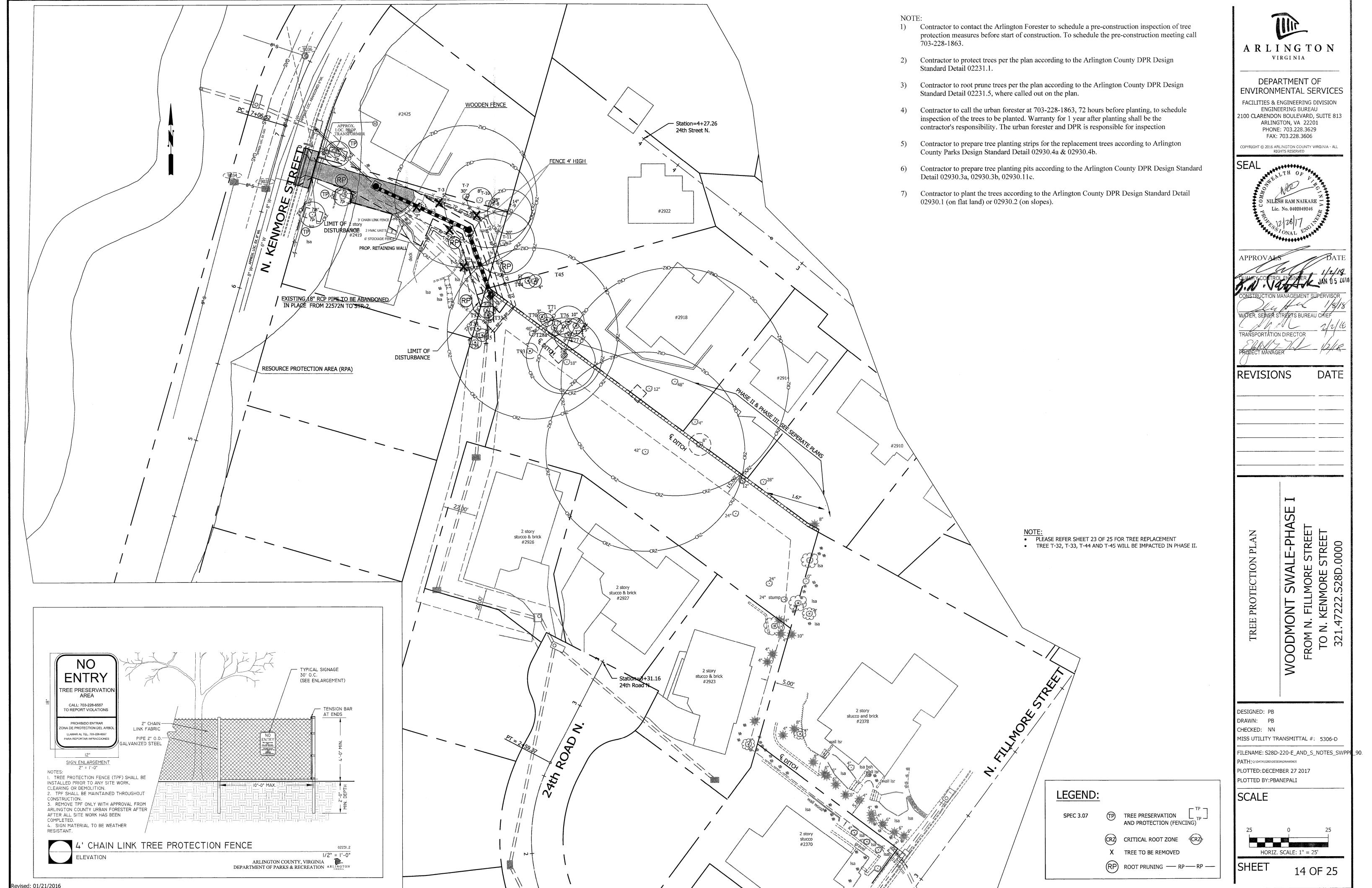
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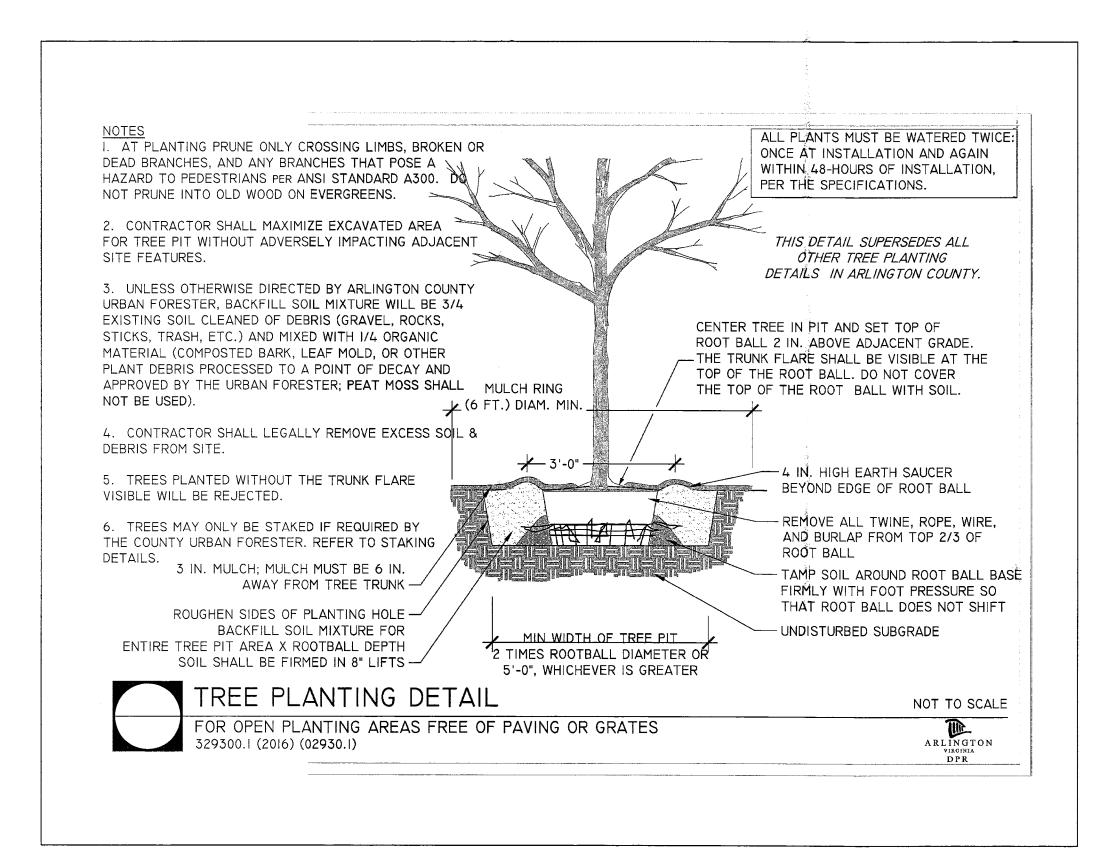
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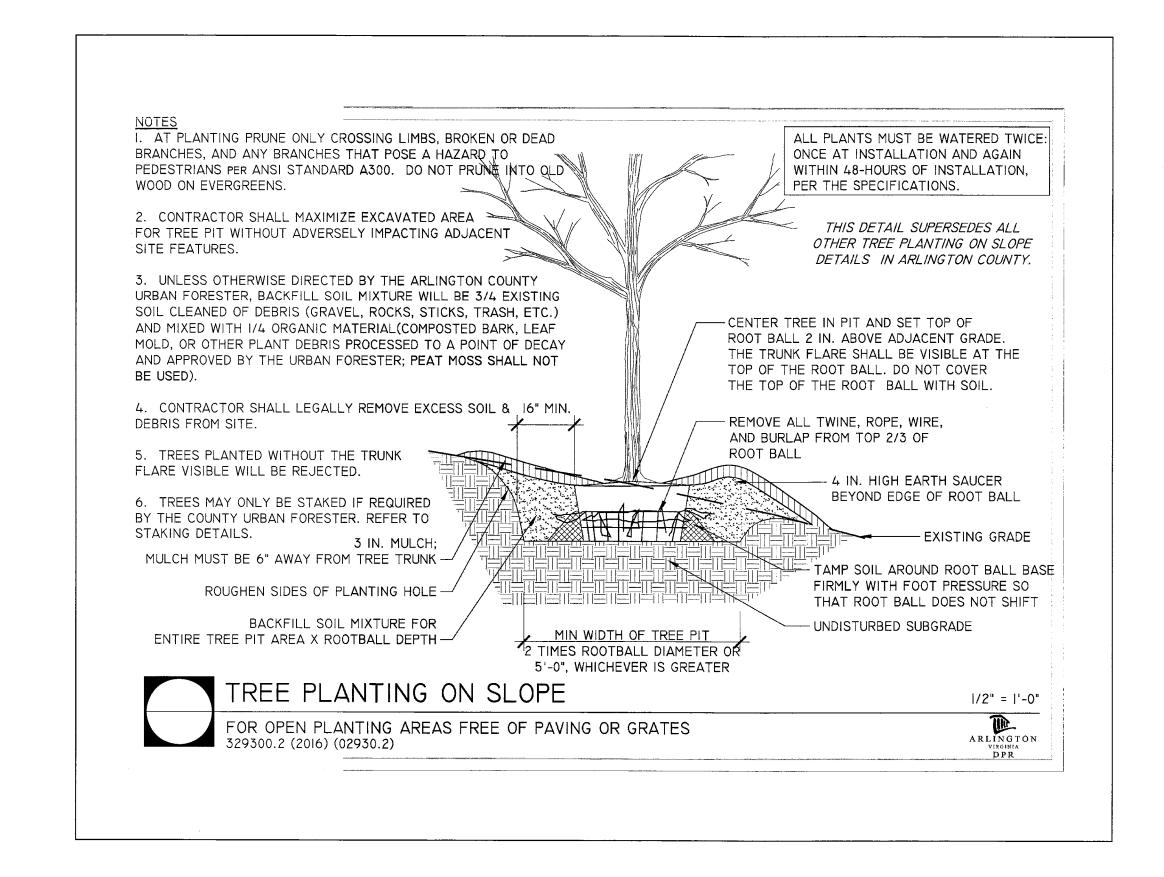
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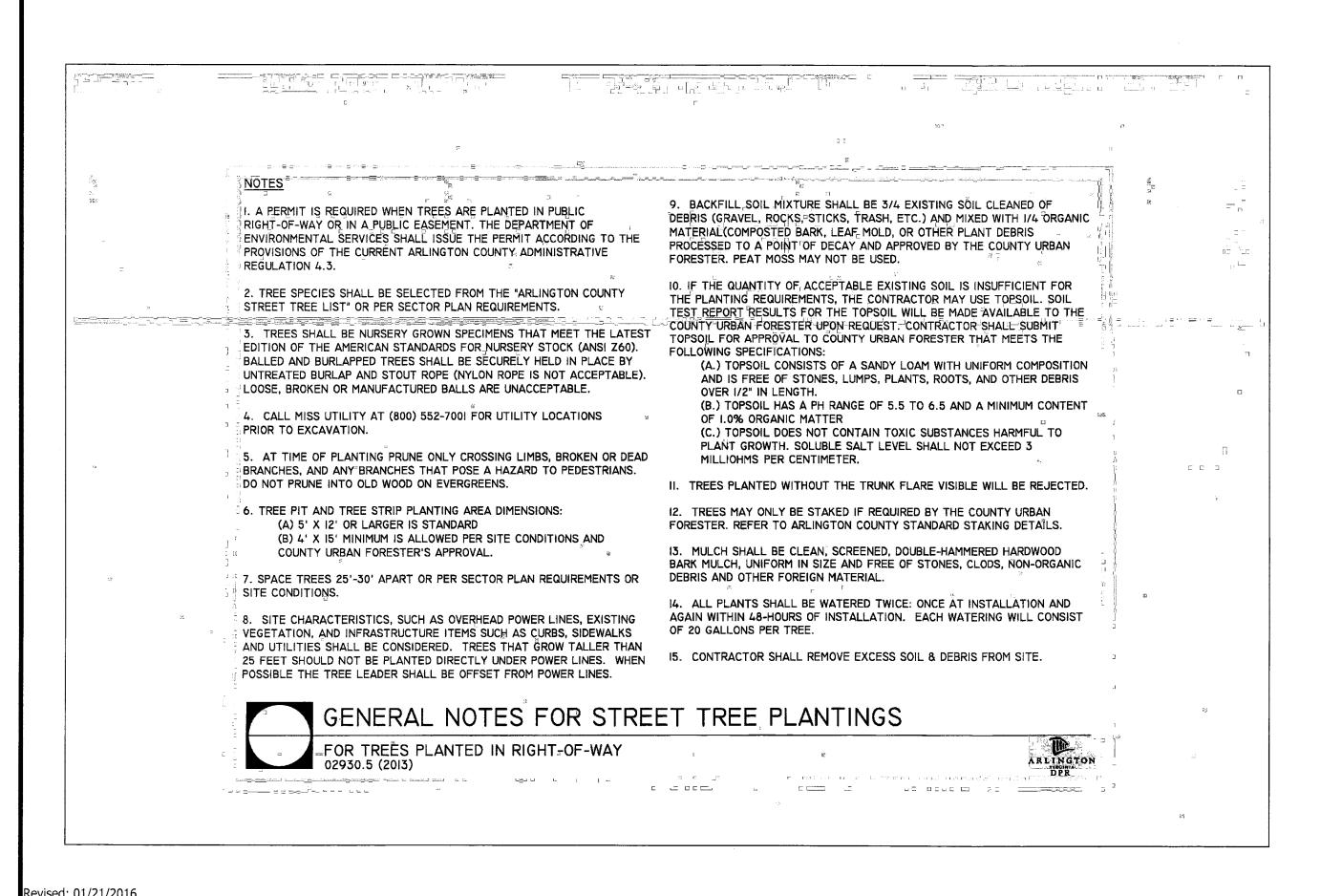
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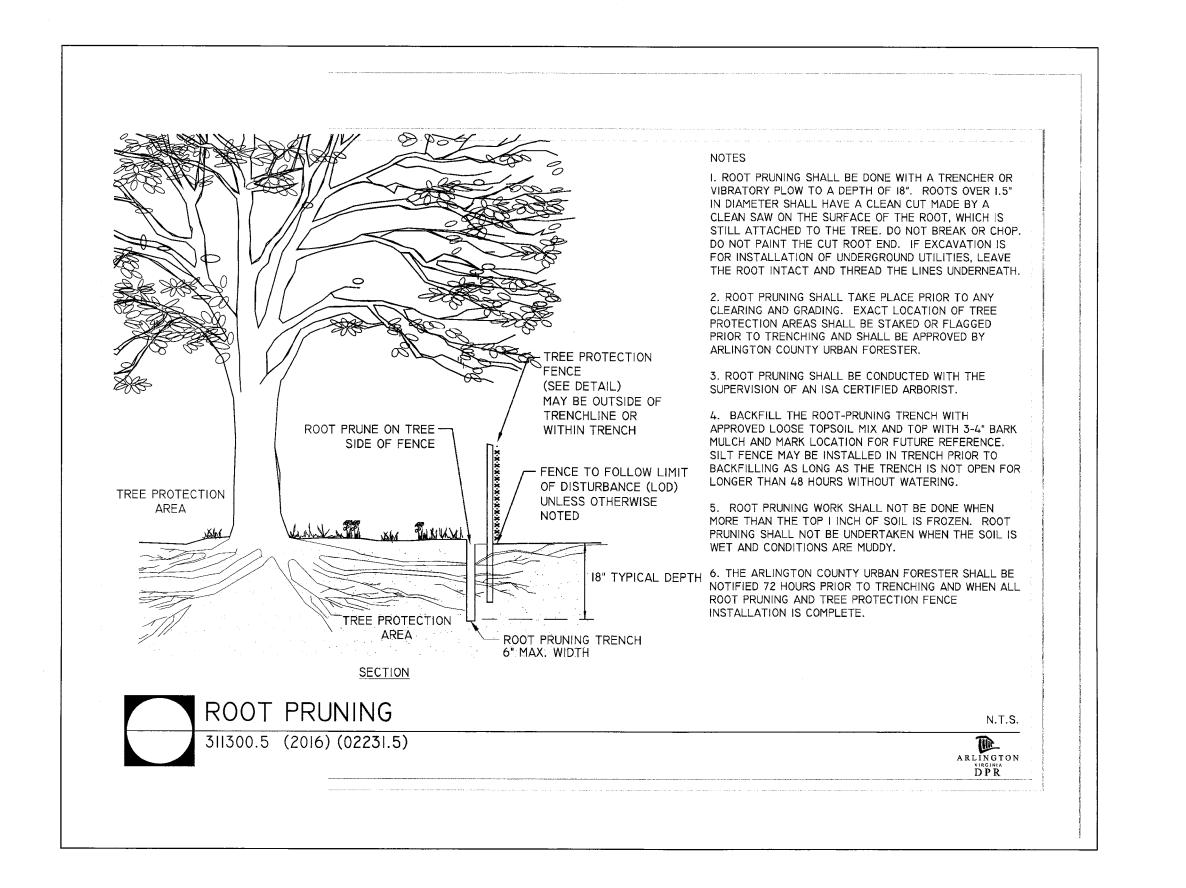
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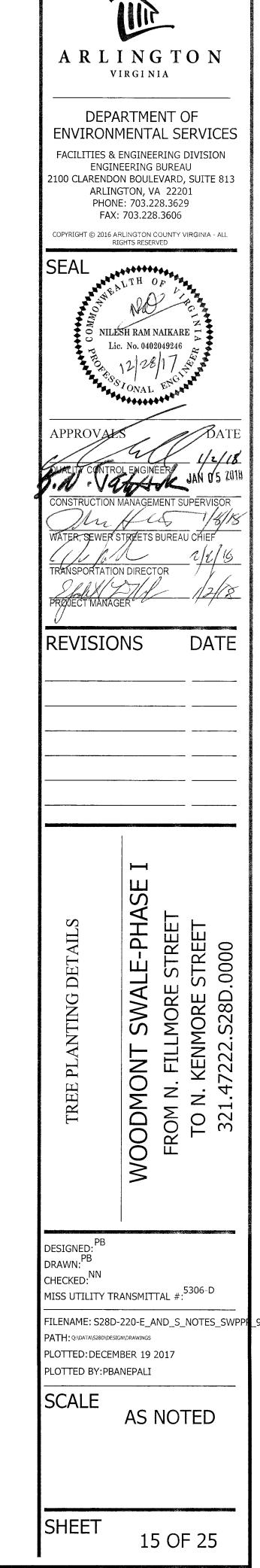


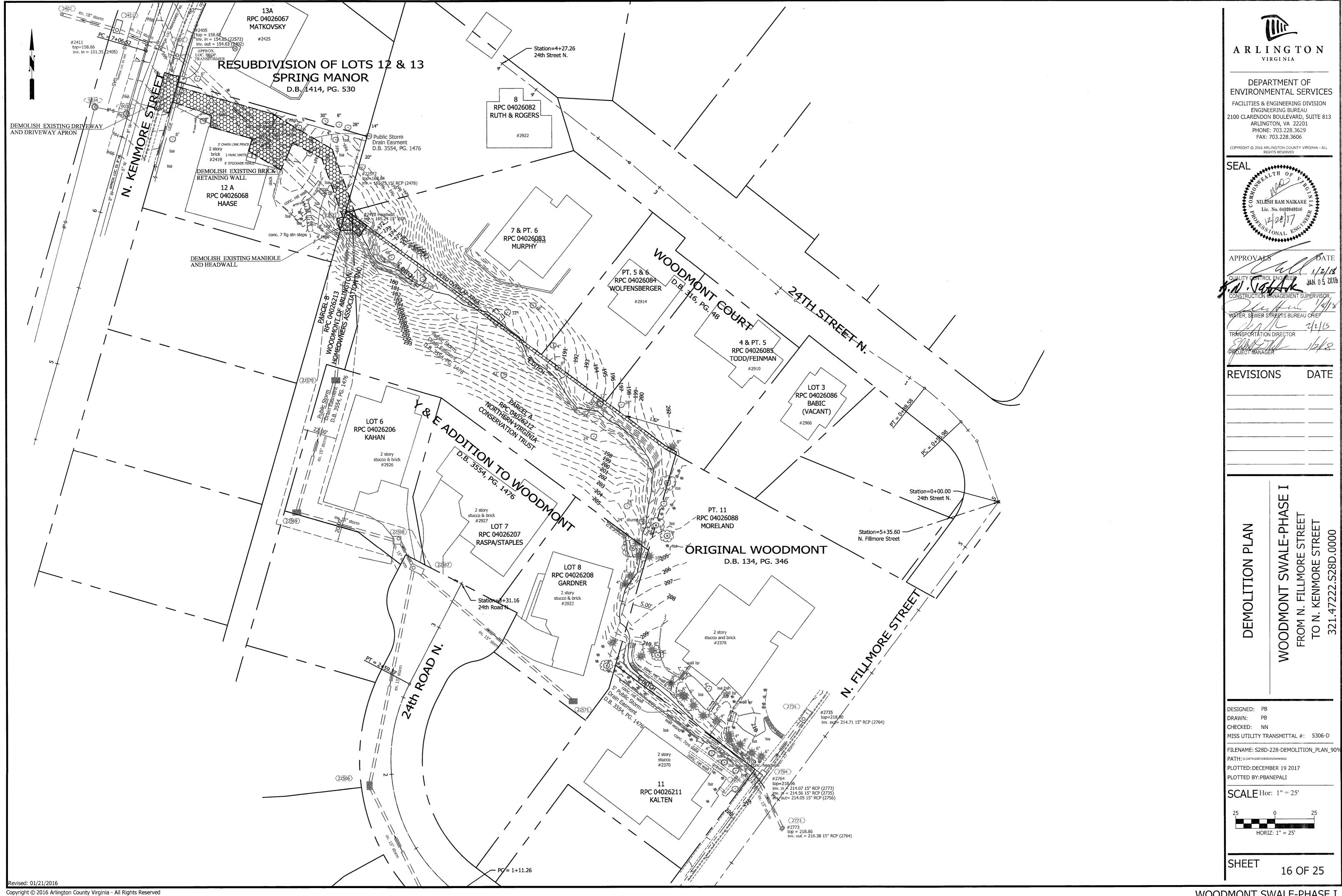


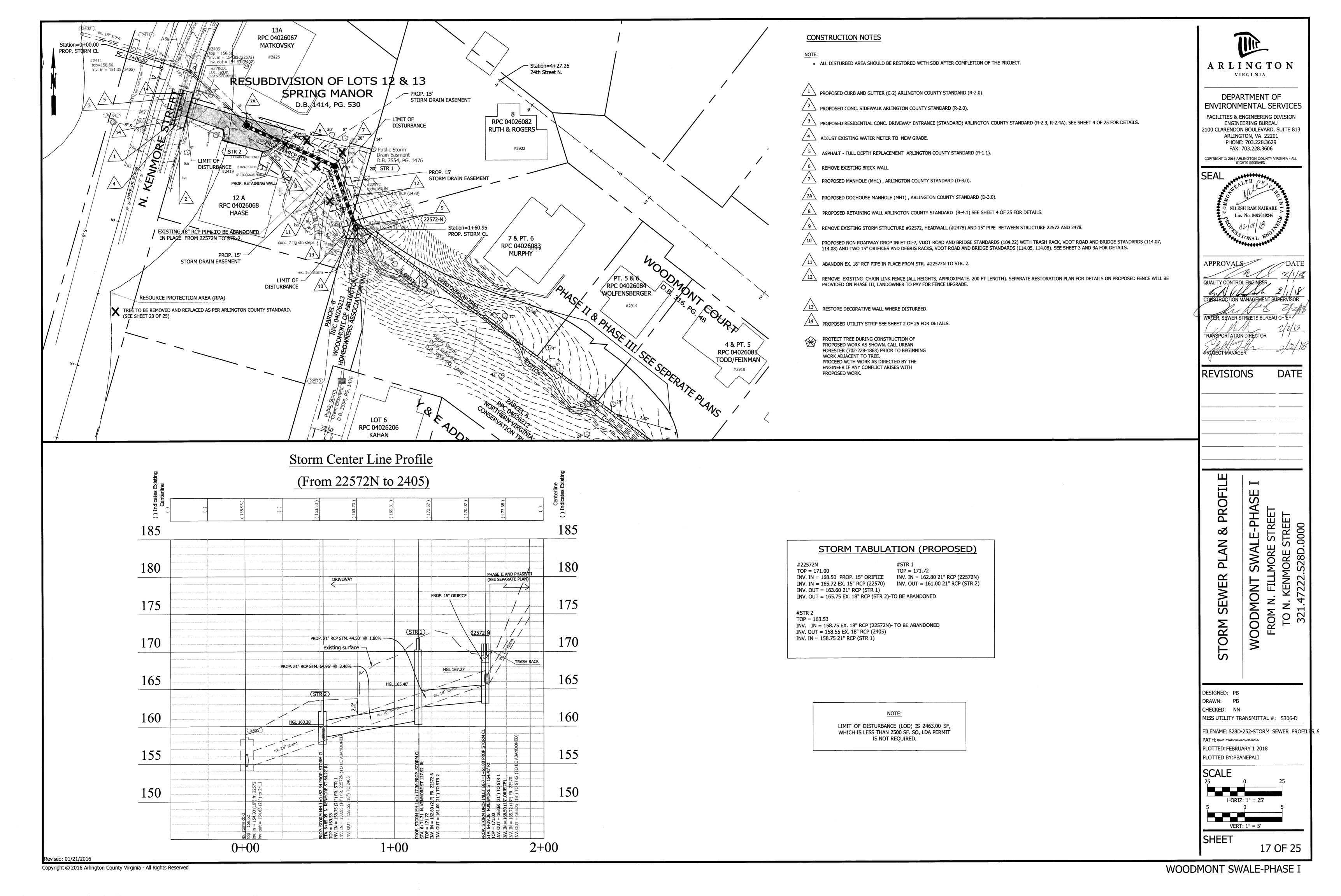




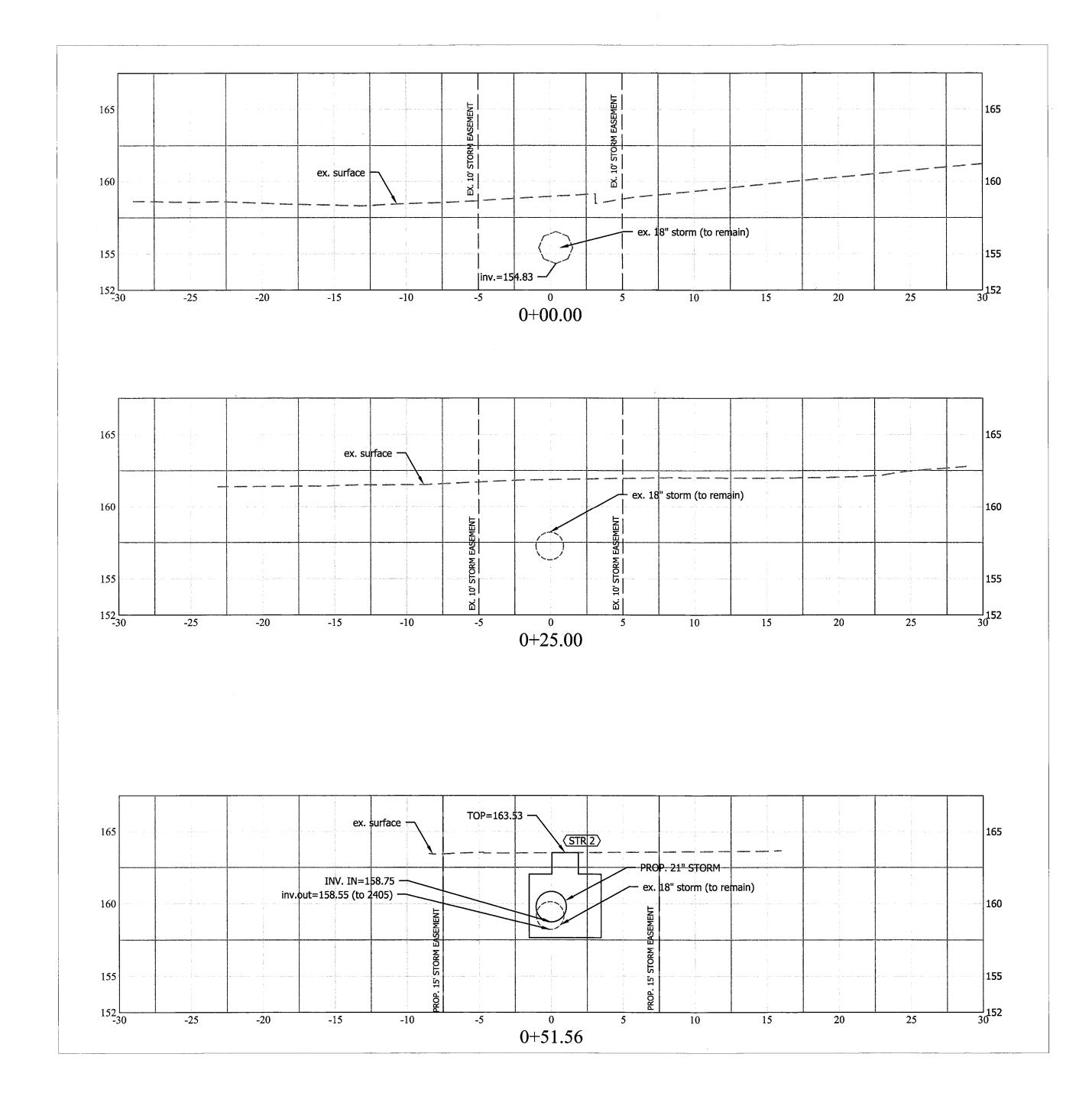


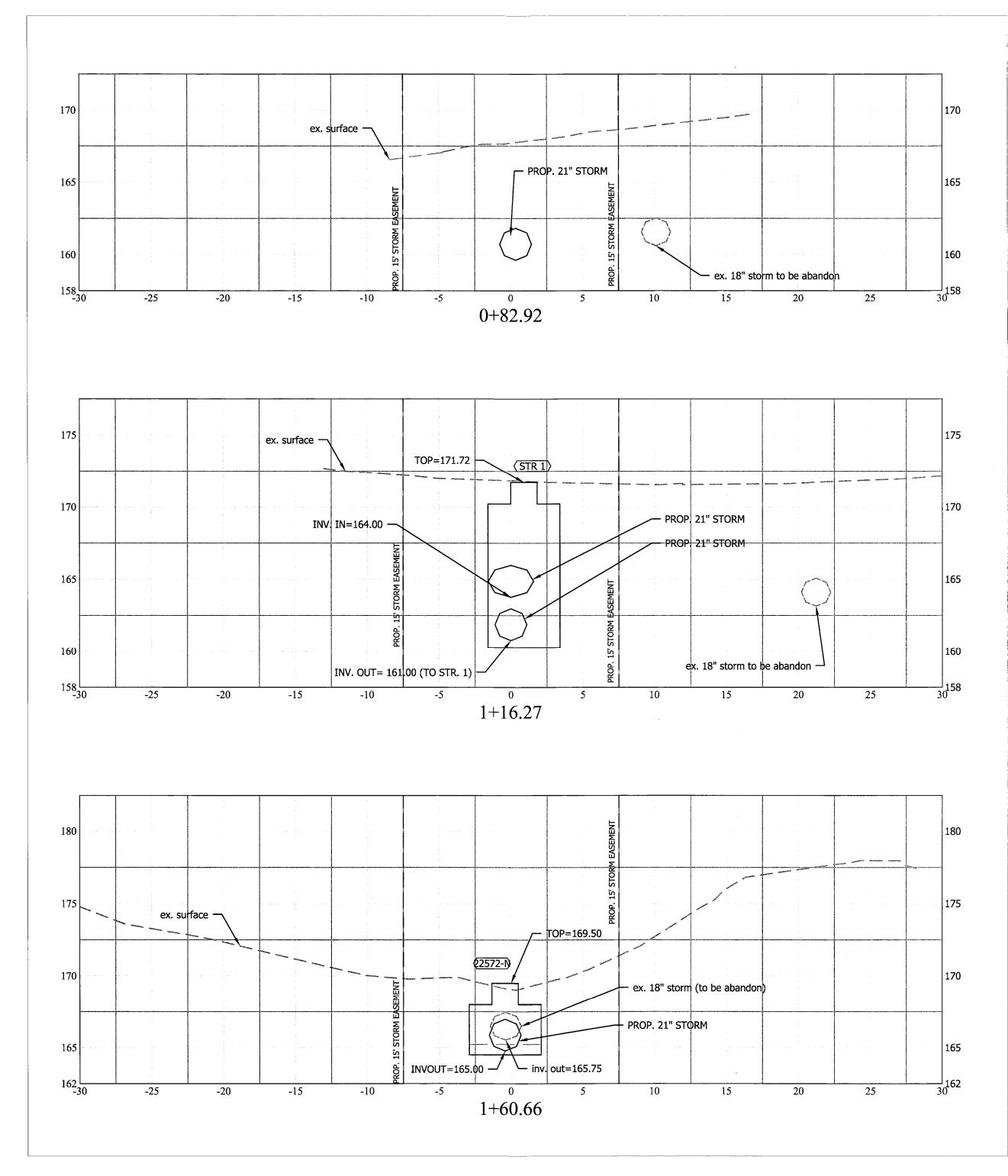






CROSS SECTIONS OF PROPOSED STORM CENTERLINE PROFILE







DEPARTMENT OF ENVIRONMENTAL SERVICES FACILITIES & ENGINEERING DIVISION ENGINEERING BUREAU

2100 CLARENDON BOULEVARD, SUITE 813 ARLINGTON, VA 22201 PHONE: 703.228.3629 FAX: 703.228.3606

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O NILESH RAM NAIKARE

Lic. No. 0402049246

CONSTRUCTION MANAGEMENT SUPERV
WATER, SEWER STREETS BUREAU CHIE
TRANSPORTATION BIRECTOR

REVISIONS

DATE

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CROSS SECTIONS
WOODMONT SWALE-PHASE I
FROM N. FILLMORE STREET
TO N. KENMORE STREET
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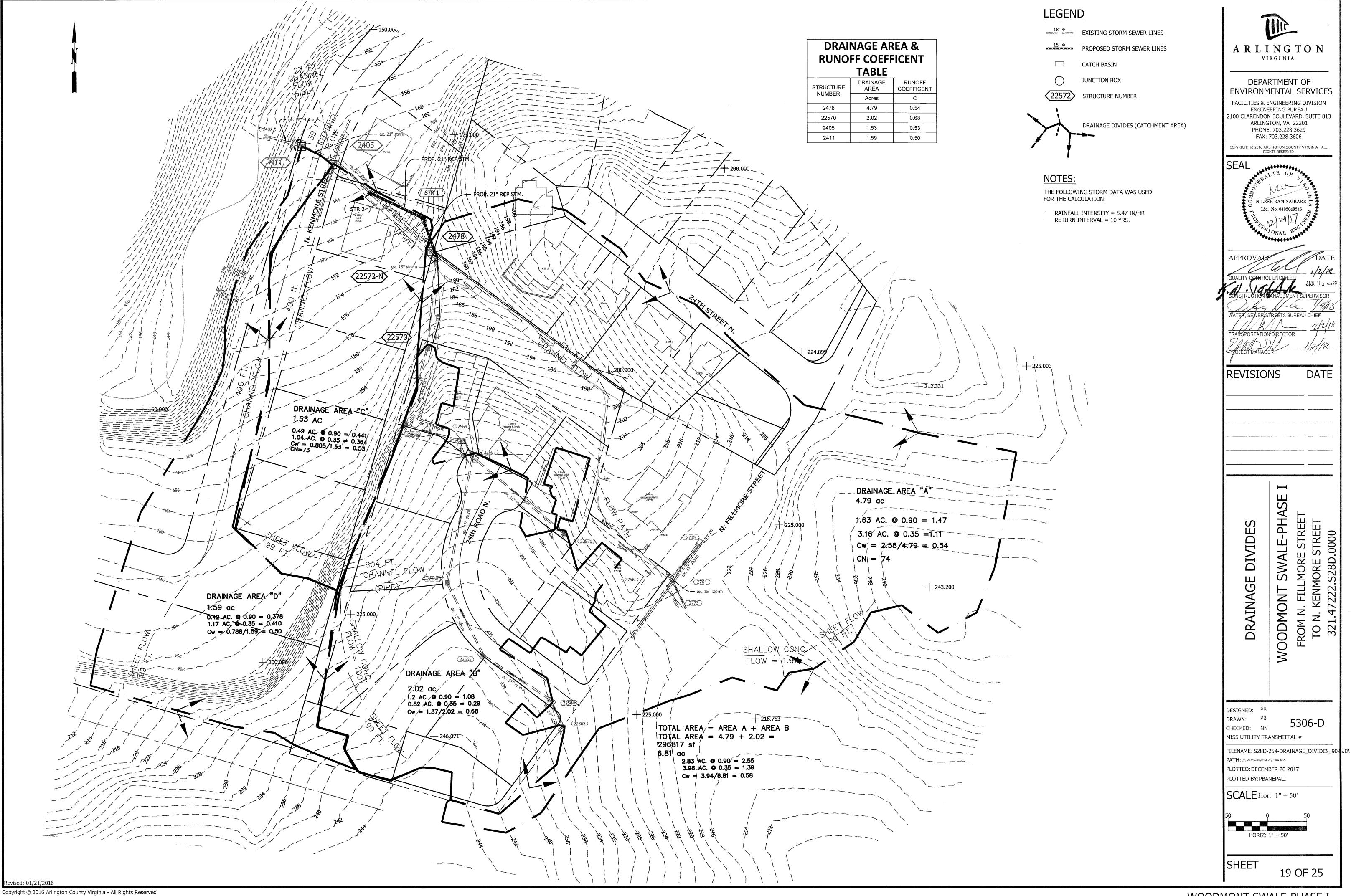
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HEET 18 OF 25

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EXISTING STORM CALCULATIONS

STORM SEWER DESIGN COMPUTATIONS

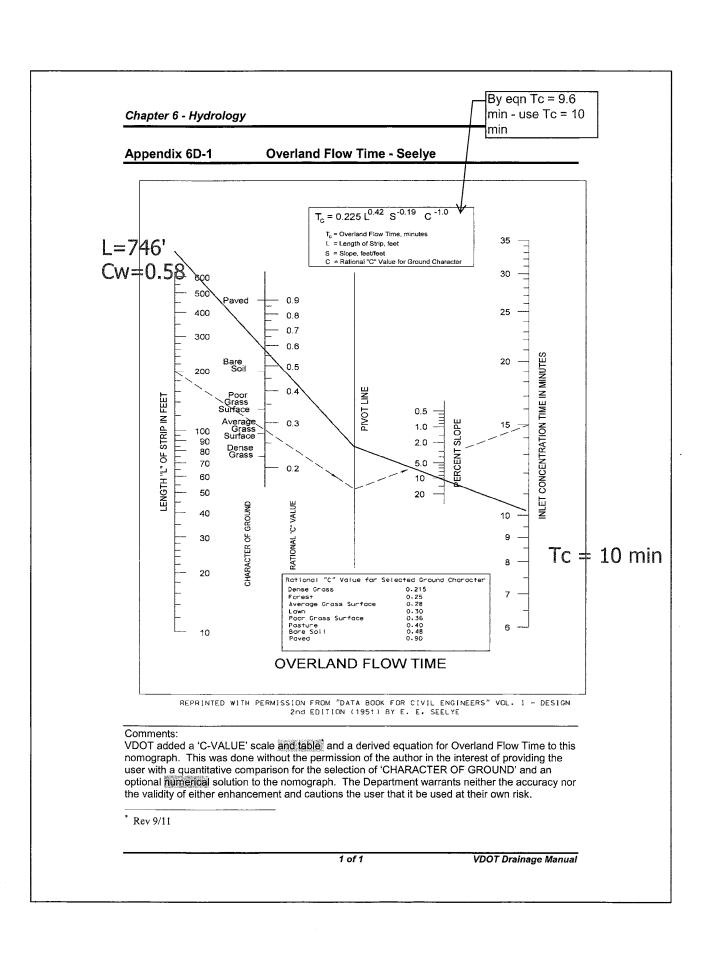
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22570	22572	2.02	0.68	1.37	1.37	10.57	5.38	7.39	198.15	165.72	100.2	32.36%	15	36.85	23.46	0.07	
2478	22572	4.79	0.54	2.59	2.59	10.00	5.47	14.15	165.75	165.24	4.7	10.83%	15	21.31	18.58	0.00	
22572	2405	0.00	0	0.00	3.96	10.00	5.47	21.66	165.75	154.83	150.7	7.25%	18	28.36	17.67	0.14	
2405	2411	1.53	0.53	0.81	4.77	10.18	5.44	25.96	154.63	151.35	41.6	7.88%	21	44.59	19.24	0.04	
2411	2402	1.59	0.5	0.80	5.57	10.21	5.44	30.26	151.15	143.57	28.0	27.07%	18	54.80	31.78	0.01	

roject:	WOODN	IONT S	WALE PHA	SE I (S2	28D)	1					3			PRE-IM	<i>IPROV</i>	EMENT	COND	ITIONS											: :				
	INLET								Q	Q	Q	S	Sx	T	W	W/T	Sw	Sw/Sx	Eo	а	S'w	Se	Lt	Р	L/Lt	d	Ε	h	Q	d/H	Qb	T	
NUMBER	ТҮРЕ	LENGTH	STATION (FROM N. KENMORE ST.)	DRAINAGE AREA	С	C×A	C×A W	INTENSITY	INCR	CARRY OVER	TOTAL	GUTTER	CROSS SLOPE	SPREAD	GUTTER PAN	WIDTH/SPREAD	G P. SLOPE	•	GUTTER FLOW RATIO	Total Depression		Equivalent cross slope	Req. for 100%	PERIMETEROFGRATE		Depth of flow	Inlet Effeciency	Actual height of curb opening	NT		CARRY OVER	SPREAD AT SAG	REMARKS
2570	DI-1	4	5+38.87	2.02	0.68	1.37	1.37	4.00	5.49	0.00	5.49													10		0.32							
105	CB-2	8.5	7+09.33	1.53	0.53	0.81	0.81	4.00	3.24	0.00	3.24	0.0700	0.0600	3.82	0.07	0.02	0.0833	1.39	0.05	0.09	0.11	0.07	28.33		0.30		0.47		1.54		1.71		
111	CB-2	8.5	7+16.40	1.59	0.50	0.80	0.80	4.00	3.18	0.00	3.18	0.0700	0.0600	3.61	1.50	0.42	0.0833	1.39	0.79	1.92	0.11	0.14	17.44		0.49		0.70		2.22		0.96		

HYDRAULIC GRADE LINE COMPUTATIONS

Project:	WOODMON	T SWALE	PHASE	I (S28D)					PR	E-IMPRO	VEMENT	CONDIT	ONS									
	-	Outlet							<u>-</u>		JUN	VCTION L	oss				,				Inlet	
INLET	UPSTREAM	Water	Do	Qo	Lo	Sfo	Hf											1.3	0.5	FINAL	Water	RIM
STATION	INLET	Surface						Vo	Но	Qi	Vi	QiVi	2	Hi	Angle	Hd	Ht	Ht	Ht	H	Surface	ELEV.
		Elev.	in	cfs	ft	%	ft						Vi /2g		:						Elev.	
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
2402																			Starting	Elevation	145.07	
2411		145.07	18.00	30.26	28.00	8.25	2.31	31.78	3.92					2.01		0.26	6.20	8.06	4.03	6.34	151.41	158.66
	2405		21.00							25.96	19.24	499.48	5.75		6.91							
2405		152.55	21.00	25.96	41.64	2.67	1.11	19.24	1.44					1.70		0.81	3.95	5.13	2.56	3.68	156.23	158.66
	22572		18.00							21.66	17.67	382.82	4.85		20.60							
22572		156.42	18.00	21.66	150.65	4.23	6.37	17.67	1.21					2.99		4.12	8.33	0.00	4.16	10.53	166.95	169.50
	22570		15.00							7.39	23.46	173.28	8.55	2.99	51.54	4.12						
:	2478		15.00							14.15	18.58	262.83	5.36	1.88	0.75	0.03						
2478		166.95	15.00	14.15	4.71	4.77	0.22	18.58	1.34					0.00		0.00	1.34	1.74	0.87	1.10	168.05	169.50
	0									14.15	0.00	0.00	0.00		0.00							
22570		166.95	15.00	7.39	100.22	1.30	1.30	23.46	2.14					0.00		0.00	2.14	2.78	1.39	2.69	169.64	205.42
	0									7.39	0.00	0.00	0.00		0.00				_			

NOTE: INLET WATER SURFACE ELEVATION 145.07' AT STR. 2402 IS CALCULATED FROM THE AS BUILT RECORD.



DEPARENVIRONM FACILITIES & E ENGINE 2100 CLARENDON ARLING PHONE FAX: COPYRIGHT © 2016 ARI RIG	RGINI RTME RENTA NGINEE EERING E N BOULE TON, VA : 703.228 LINGTON C HTS RESERV	NT C L SE RING D BUREAL VARD, 2220 8.3629 .3606 OUNTY VI	F RVICOIVISIO J SUITE :	— N 813
TRANSPORTATION PROJECT MANAGE REVISION	7/	BUREAU	PERVIS //S I CHIEF /// /// DA	1/8
STORM COMPUTATIONS_EXISTING	WOODMONT SWALE-PHASE I	FROM N. FILLMORE STREET	TO N. KENMORE STREET	321.47222.S28D.0000
DESIGNED: PB DRAWN: PE CHECKED: NN MISS UTILITY TRA FILENAME: S28D-2 PATH: Q:\DATA\S28D\DESIGN PLOTTED: DECEMBE PLOTTED BY:PBAN SCALE	ANSMITT 254-STO VIDRAWINGS BER 28 2	RM CO	MPUTA	
SHEET	2	0 O	F 2!	<u> </u>

ed: 01/21/2016

WOODMONT SWALE-PHASE I

PROPOSED STORM CALCULATIONS

STORM SEWER DESIGN COMPUTATIONS

Project: \	WOODMON	SWALE PH	ASE I (S	28D)			POS	T-IMPRO	VEMENT	CONDIT	IONS						
From	To	Drainage	С	Cx.	A	Inlet	Rain	Runoff	Invert	Elev.	Length	Slope	Dia.	Capacity	VEL.	Flow	Remarks
Point	Point	Area	Factor	Increment	Cumm.	Time Min.	Fall In/Hr	Q C.F.S.	Upper End	Lower End	FT.	%	IN.	Q C.F.S.	F.P.S.	Time MIN.	
22570	22572N	2.02	0.68	1.37	1.37	10.00	5.47	7.51	198.15	165.72	100.2	32.36%	15	36.85	23.57	0.07	
2478	22572N	4.79	0.54	2.59	2.59	10.00	5.47	14.15	165.75	165.50	4.7	5.31%	24	52.26	14.14	0.01	
2405	2411	1.53	0.53	0.81	4.77	10.06	5.46	26.05	154.63	151.35	41.6	7.88%	21	44.59	19.26	0.04	
2411	2402	1.59	0.5	0.80	5.57	10.09	5.46	30.37	151.15	143.57	28.0	27.07%	18	54.80	31.80	0.01	
22572N	STR 1	0.00	0.54	0.00	3.96	10.06	5.46	21.63	163.60	162.80	44.5	1.80%	21	21.30	8.86	0.08	
STR 1	STR 2	0.00	0	0.00	3.96	10.06	5.46	21.62	161.00	158.75	65.0	3.46%	21	29.57	13.42	0.08	
STR 2	2405	0.00	0	0.00	3.96	10.06	5.46	21.62	158.55	154.83	51.5	7.22%	18	28.31	17.64	0.05	

STORM	SEWER	INI ET	COMPI	JTATIONS
3 I URIVI	SEVVER	IINLEI	COMP	JIAIIUNS

Project:	WOODN	ONT S	WALE PHA	SE I (S	28D)		1						POST-IN	MPROVE	EMENT	CON	DITIONS	: : :	,														
	INLET								Q	Q	Q	S	Sx	T	W	W/T	Sw	Sw/Sx	Eo	а	S'w	Se	Lt	Р	L/Lt	d	E	h	Q	d/H	Qb	T	
NUMBER	ТҮРЕ	LENGTH	STATION (FROM N. KENMORE ST.)	DRAINAGE AREA	C	C×A	C×A W	INTENSITY	INCR	CARRY OVER	TOTAL	GUTTER	CROSS SLOPE	SPREAD	GUTTER PAN	WIDTH/SPREAD	G P. SLOPE		GUTTER FLOW RATIO	Total Depression		Equivalent cross slope	Req. for 100%	PERIMETEROFGRATE		Depth of flow	Inlet Effeciency	Actual height of curb opening	TNI		CARRY OVER	SPREAD AT SAG	REMARKS
2405	CB-2	8.5	7+09.33	1.53	0.53	0.81	0.81	4.00	3.24	0.00	3.24	0.0700	0.0600	3.82	0.07	0.02	0.0833	1.39	0.05	0.09	0.11	0.07	28.33		0.30		0.47		1.54		1.71		
2411	CB-2	8.5	7+16.40	1.59	0.50	0.80	0.80	4.00	3.18	0.00	3.18	0.0700	0.0600	3.61	1.50	0.42	0.0833	1.39	0.79	1.92	0.11	0.14	17.44		0.49		0.70		2.22		0.96		
22570	DI-1	4.0	5+38.87	2.02	0.68	1.37	1.37	4.00	5.49	0.00	5.49	0.0700	0.0600	4.51	1.50	0.33	0.0833	1.39	0.69	1.92	0.11	0.13	23.00		0.17		0.29		1.60		3.90		

NOTE: INLET WATER SURFACE ELEVATION 145.07' AT STR. 2402 IS CALCULATED FROM THE AS BUILT RECORD.

Project:	WOODMON	IT SWALE	E PHASE	1 (S28D)			·		POS	ST-IMPRO	VEMEN ⁻	T CONDIT	TIONS									
INLET	UPSTREAM	Outlet Water	Do	Qo	Lo	Sfo	Hf				JUI	VCTION L	OSS			-		1.3	0.5	FINAL	Inlet Water	RIM
STATION	INLET	Surface	9					Vo	Но	Qi	Vi	QiVi	2	Hi	Angle	Hd	Ht	Ht	Ht	Н	Surface	ELEV.
(1)		Elev. (2)	in (3)	cfs (4)	ft (5)	% (6)	ft (7)	(8)	(9)	(10)	(11)	(12)	Vi /2g	(13)	(14)	(15)	(16)	(17)	(18)	(19)	Elev. (20)	(21)
2402												<u> </u>		vi " <u>" </u>					Starting	Elevation	145.07	
2411		145.07	18.00	30.37	28.00	8.31	2.33	31.80	3.93					2.02		0.27	6.21	8.07	4.03	6.36	151.43	158.66
	2405		21.00							26.05	19.26	501.63	5.76		6.91							
2405		152.55	21.00	26.05	41.64	2.69	1.12	19.26	1.44					1.69		0.68	3.81	4.95	2.48	3.60	156.15	158.66
	STR 2		18.00							21.62	17.64	381.51	4.83		18.37							
STR 2		156.42	18.00	21.62	51.50	4.22	2.17	17.64	1.21					0.98		1.20	3.38	0.00	1.69	3.86	160.28	163.53
	STR 1		21.00							21.62	13.42	290.26	2.80		45.28							
STR 1		160.37	21.00	21.62	64.96	1.85	1.20	13.42	0.70					0.43		0.26	1.39	0.00	0.69	1.90	165.40	171.72
	22572N		21.00							21.63	8.86	191.53	1.22		24.63							
22572N		165.40	21.00	21.63	44.50	1.85	0.82	8.86	0.30					3.02		4.16	7.49	0.00	3.74	1.87	167.27	171.00
	22570		15.00							7.51	23.57	177.10	8.63	3.02	51.54	4.16						
	2478		24.00							14.15	14.14	200.02	3.10	1.09	0.75	0.02						
22570		167.27	15.00	7.51	100.22	1.35	1.35	23.57	2.16					0.00		0.00	2.16	2.80	1.40	2.75	170.02	205.42
	0									7.51	0.00	0.00	0.00		0.00							
2478		167.27	24.00	14.15	4.71	0.39	0.02	14.14	0.78					0.00		0.00	0.78	1.01	0.50	0.52	167.79	169.50
	0						-		1	14.15	0.00	0.00	0.00		0.00							

		Orifice	Weir	Orifice	Weir	Total
Depth, ft	Elevation, ft	Hea	d, ft	Di	scharge, cfs	5
0	168.5	0	0	0.00	0	0
0.5	169	0	0	0.00	0	0
1	169.5	0.375	0	7.25	0	7.25
1.5	170	0.875	0	11.08	0	11.08
2	170.5	1.375	0	13.89	0	13.89
2.052	170.552	1.427	0	14.15	0	14.15
2.5	171	1.875	0	16.22	0	16.22
2.739	171.239	2.114	0.239	17.22	4	21.62
3	171.5	2.375	0.5	18.25	13.32	31.58
3.5	172	2.875	1	20.08	37.68	57.76
4	172.5	3.375	1.5	21.76	69.22	90.98
4.5	173	3.875	2	23.32	106.58	129.89
5	173.5	4.375	2.5	24.78	148.94	173.72

STAGE STORAGE COMPUTATION

ASSUMPTIONS:

1. FOR 100 YEARS DESIGN, INTENSITY OF RAINFALL= 8.37 IN/HR.



DEPARTMENT OF ENVIRONMENTAL SERVICES

FACILITIES & ENGINEERING DIVISION ENGINEERING BUREAU 2100 CLARENDON BOULEVARD, SUITE 813 ARLINGTON, VA 22201 PHONE: 703.228.3629 FAX: 703.228.3606

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RIGHTS RESERVED

EAL

THOP

NILESH RAM NAIKARE

Lic. No. 0402049246

QUALITY CONTROL ENGINEER

QUALITY CONTROL ENGINEER

CONSTRUCTION MANAGEMENT SUPERVISOR

WATER, SEWER STREETS BUREAU CHIEF

TRANSPORTATION DIRECTOR

REVISIONS DAT

PROPOSED -PHASE I

STORM COMPUTATIONS_PROPO
WOODMONT SWALE-PHASE
FROM N. FILLMORE STREET

DESIGNED: PB
DRAWN: PB
CHECKED: NN

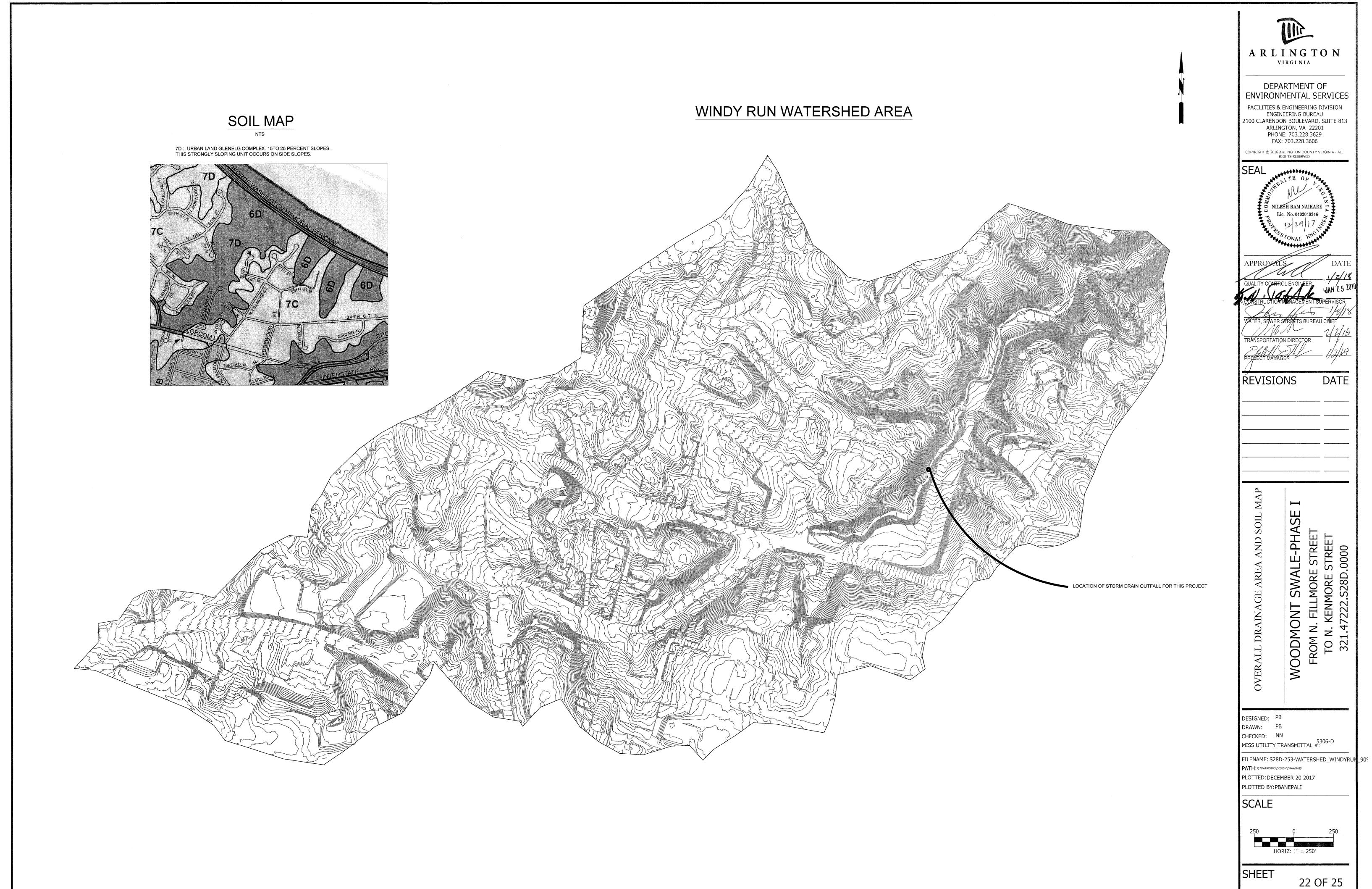
CHECKED: NN
MISS UTILITY TRANSMITTAL #: 5306-D

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PLOTTED: JANUARY 30 2018

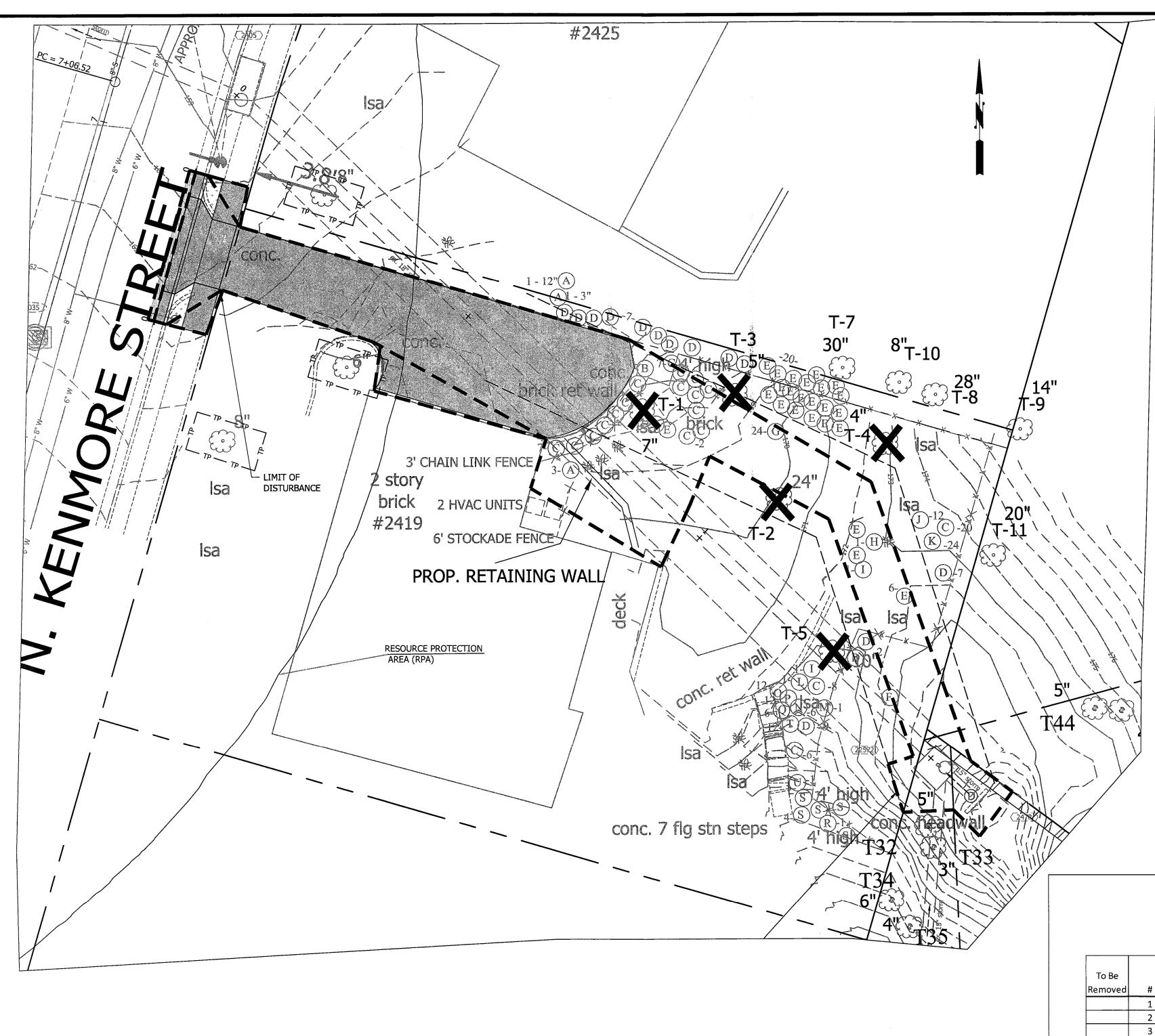
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SCALE AS NOTED

SHEET



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1. T-32, T-33, T-44, T-45 WILL BE IMPACTED IN PHASE II

PROPOSED TREES, PLANTS AND LANDSCAPING

3. FUTURE PLAN FOR PHASE II AND PHASE III WILL BE

DURING CONSTRUCTION OF THE END WALL.

WORKS WILL BE SHOWN IN NEXT PHASE.

PREPARED SEPARATELY.

NOTE:

SYMBOI	COMMON	SCIENTIFIC	NUMBER	COMMENTS	COMMON	SCIENTIFIC	NUMBER	SIZE
3 I WIDOL	NAME	NAME	NOWBER	COMMENTS	NAME	NAME	NOMBER	SIZE
A	BOXWOOD	BUXUS SEMPERVIRENS	5		HOLLY	ILEX OPACA	5	
B	PINK LADY FERN	ATHYRIUM FILIX- FEMINA	1		PINK LADY FERN	ATHYRIUM FILIX- FEMINA	1	1 G
(C)	HOSTA LILY	HOSTA TRATT.	44	OSAGE 6 TO REMAIN	BUTTERFLY WEED	ASCLEPIAS TUBEROSA	38	1 G.
D	AZALEA	AZALEA TO REMAIN	28	9 TO REMAIN	AZALEA	AZALEA	9 19	1 G
E	LIRIOPES	LIRIOPES	30		PENNSYLVANIA SEDGE	CAREX PENSYLVANICA	30	1 G
F	ВАМВОО		_	NOT REPLACED			-	
G	IMPATIENS	IMPATIENS	24		SPOTTED GERANIUM	GERANIUM MACULATUM	24	1 G
H	ACUBA	AUCUBA THUNB.	1		SPOTTED GERANIUM	GERANIUM MACULATUM	1	1 G
	HELLEBORUS	HELLEBORUS	2		PURPLE CONEFLOWER	ECHINACEA PURPUREA	2	1 G
$\overline{\left(J\right) }$	DAY LILY	HEMEROCALLIS L.	12		WHITE TURTLEHEAD	CHELONE GLABRA	12	1 G
(K)	COMMON PERIWINKLE	VINCA MINOR	24		YARROW	ACHILLEA	24	1 G
(L)	WEEPING CEDAR	CEDRUS ATLANTICA	1		SPICEBUSH	LINDERA BENZOIN	1	15- CO
(M)	NANDINA	NANDINA	1	(TO BE REPLAC	CED IN 2ND PHASE)		1	
(N)	COLUMBINE	AQUILEGIA L.	6	TO REMAIN			6	
(0)	SOLOMON'S SEAL	POLYGONATUM MILL.	12	TO REMAIN			12	
P	AROMATIC DOGWOOD	CORNUS RACEMOSA	12	TO REMAIN			12	
(0)	MISC. ANNUALS		6	TO REMAIN			6	
R	ARBORVITEA	THUJA OCCIDENTALIS L.	1	TO REMAIN			1	
(s)	HOLLY	ILEX L.	5	TO REMAIN			5	
T	PERIWINKLE	CATHARANTHUS G. DON	12	(TO BE REPLAC	ED IN 2ND PHASE)		12	
(U)	BEAUTYBERRY	CALLICARPA AMERICANA L.	1	TO REMAIN				

TOTAL = 228 PLANTS

TOTAL TO REMAIN = 71 PLANTS

TOTAL REPLACED = 157 PLANTS

TOTAL = 228 PLANTS

EXISTING TREE TABULATION

HAASE PROPERTY TREE INVENTORY

To Be Removed	#	DBH	Condition	Common name	Species	Species Rating	•	Replacements	Comments
	1	7	70	Japanese Maple	Acer Palmatum	70	3.43	1	SEPARATE RESTORATION PLAN
	2	26	70	Silver Maple	Acer Saccharinum	50	9.1	2	REQUIRED WITH LANDOWNER APPROVAL
·	3	5	70	Red Bud	Cercis Canadensis	60	2.1	1	
·	4	4	70	Red Bud	Cercis Canadensis	60	1.68	1	
,	5	6	70	Dogwood	Cornus Florida	60	2.52	1	

Total: 6

JOHNSTON PROPERTY TREE INVENTORY

To Be						Species	Replacement		
Removed	#	DBH	Condition	Common name	Species	Rating	value	Replacements	Comments
	7	30	50	Japanese Pagodatree	Styphnolobium Japonica	40	6	2	N/A (TO REMAIN)
	8	28	50	Japanese Pagodatree	Styphnolobium Japonica	40	5.6	2	N/A (TO REMAIN)
	10	8	70	Tulip Poplar	Liriodendron tulipifera	70	3.92	1	N/A (TO REMAIN)

NO PROPOSED IMPACTS

ROGERS PROPERTY TREE INVENTORY

To Be						Species	Replacement		
moved	#	DBH	Condition	Common name	Species	Rating	value	Replacements	Comments
	9	14	70	Black Tupelo Gum	Nyssa Sylvatica	80	7.84	2	N/A (TO REMAIN)
	11	20	65	Red Oak	Quercus rubra	75	9.75	2	N/A (TO REMAIN)

Total: 4 NO PROPOSED IMPACTS

ARLINGTON VIRGINIA

DEPARTMENT OF ENVIRONMENTAL SERVICES

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NILESH RAM NAIKARE I Lic. No. 0402049246

APPROVALS D

WATER, SEWER STREETS BUREAU CHIEF
TRANSPORTATION DIRECTOR

REVISIONS DAT

ODMONT SWALE-PHASE I ROM N. FILLMORE STREET TO N. KENMORE STREET

DESIGNED: PB
DRAWN: PB

CHECKED: NN
MISS UTILITY TRANSMITTAL #: 5306-D

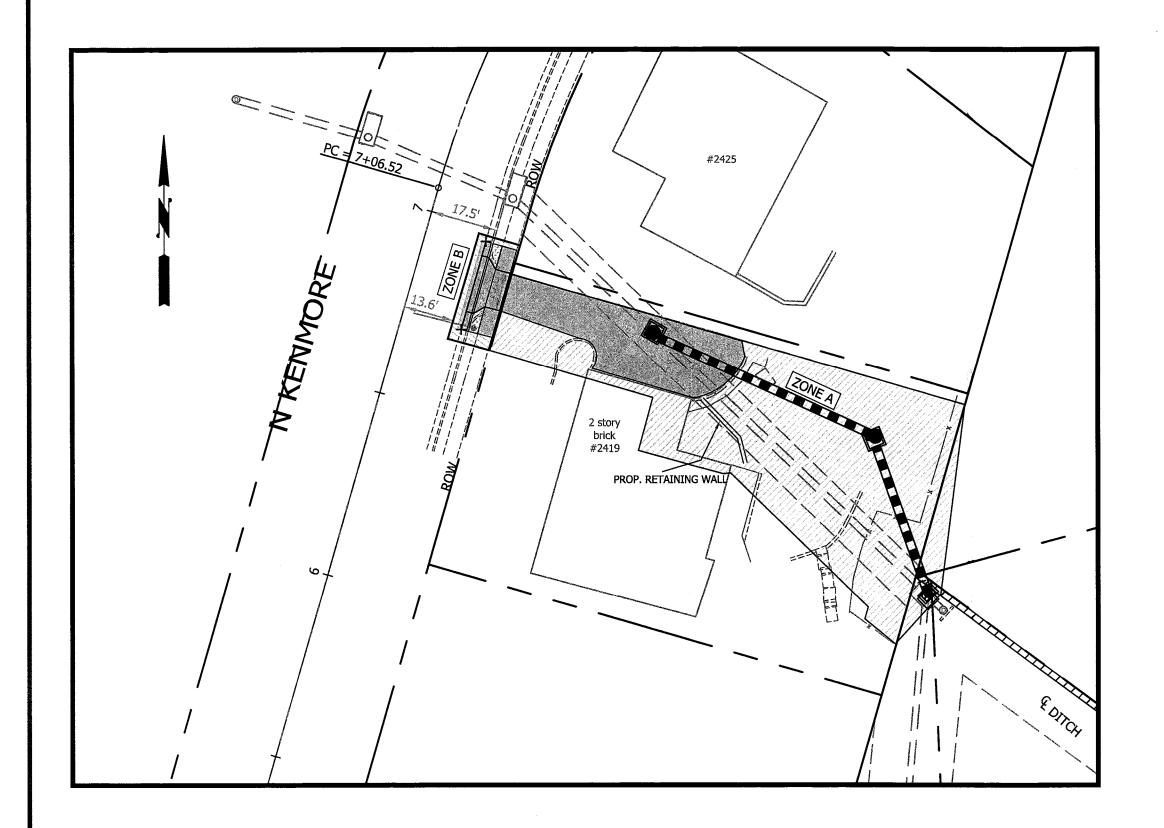
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PLOTTED BY:PBANEPALI

SCALE

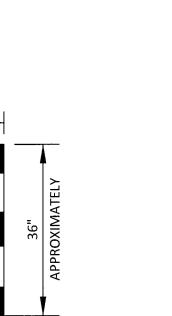
25 0 10 HORIZ. SCALE: 1" = 10' SHEET 23 OF 25

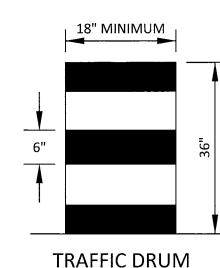
WOODMONT SWALE-PHASE I



		ZONE TABLE
ZONE#	TTC#	COMMENTS
ZONE A	TTC-1.1 & TTC-36.1	WORK BEYOND THE SHOULDER OPERATION
ZONE B	TTC-23.1 & TTC-36.1	LANE CLOSURE ON A TWO-LANE ROADWAY USING FLAGGERS & CROSSWALK CLOSURE AND PEDESTRIAN DETOUR OPERATION
		NOTES:
		1. THE FOLLOWING ZONES CAN NOT BE BUILT AT THE SAME TIME :
		A AND B
		2. WARNING SIGN SPACING : 100' ——————————————————————————————————
		CHANNELIZATION DEVICES SPACING FOR TRANSITIONA AREAS = 20'

ARROW PANEL ARROW PANEL ON TRAILER AREA UNDER CONSTRUCTION AREA CONSTRUCTED IN PREVIOUS PHASE SUB-PHASE OF AREA UNDER CONSTRUCTION TRAFFIC FLOW TRAFFIC DRUM 2" X 36" TUBULAR MARKERS ARROW PANEL ON TRAILER SIGN TYPE III BARRICADE FLAGGER





CONSTRUCTION NOTES

- 1. CONSTRUCTION WORKS INCLUDE THE INSTALLATION OF 21-INCH REINFORCED CONCRETE PIPE CLASS III, AT THE PROPERTY OF 2419 N. KENMORE ST.
 TRAFFIC CONTROL DEVICES, TEMPORARY PAVEMENT MARKINGS AND TEMPORARY ASPHALT CONCRETE, WHERE REQUIRED, SHALL BE INSTALLED FOR ALL PHASES.
- 2. DRIVEWAY ENTRANCES SHALL REMAIN OPEN AT ALL TIMES.
- 3. PORTABLE VARIABLE MESSAGE SIGNS WITH CLOSURE INFORMATION MUST BE INSTALLED AHEAD OF WORK AREA 3 WEEKS PRIOR TO STREET CLOSURE.
- 4. ALL TRAFFIC CONTROL DEVICES MUST BE INSTALLED IN STRICT COMPLIANCE WITH VA WORK AREA PROTECTION MANUAL (2011 EDITION REVISION 1 APRIL 1, 2015)
- 5. ALL CONSTRUCTION WORK WILL BE FOR THE DURATION OF APPROXIMATELY 30 DAYS WITH 2 ZONES ON N KENMORE STREET. WORKING HOURS SHALL BE 9:00 AM TO 4:00 PM (MON.-FRI.)
 ALL LANES OF TRAFFIC SHALL BE OPEN TO TRAFFIC OUTSIDE WORKING HOURS, EXCEPT AS NOTED OTHERWISE.
- 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SAFE WALKWAYS FOR PEDESTRIANS WITHIN THE CONSTRUCTION AREA. FOR ANY SIDEWALK CLOSURE, IT IS THE RESPONSIBILITY OF
- CONTRACTOR TO INSTALL AND IMPLEMENT TTC -1.1, TTC 23.1 AND TTC 36.1

 THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ACTIVITIES WITH ADJACENT ALLEY/DRIVEWAY ENTRANCES TO PROVIDE ADEQUATE EGRESS/INGRESS AT ALL TIMES.
- 8. MAINTENANCE OF TRAFFIC PLANS AND DETAILS SHOWN HERE SHALL BE FOLLOWED BY THE CONTRACTOR DURING CONSTRUCTION. SHOULD THE CONTRACTOR DESIRE TO FOLLOW AN ALTERNATE
- PLAN, HE / SHE SHALL SUBMIT THE PLAN PRIOR TO CONSTRUCTION TO ARLINGTON COUNTY TRANSPORTATION DIVISION FOR REVIEW AND APPROVAL, AND ALTERNATIVE PLAN PREPARATION SHALL BE NO COST TO THE COUNTY.
- 9. CONTRACTOR SHALL REMOVE EXIST. PAVEMENT MARKING IN CONFLICT WITH TEMPORARY PAVEMENT MARKINGS.
- 10. CONTACT DENNIS HOWELL OR HIS DESIGNEE AT 703-228-6598 OR 571-437-1077 TO APPROVE MARKING LAYOUT 48 HOURS PRIOR TO INSTALLATION OF MARKINGS.
- 11. ONE LANE CLOSURE IN EACH DIRECTION OF TRAFFIC WILL BE PERMITTED FOR FINAL PAVEMENT OVERLAY.
- 12. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN THE FLOW OF TRAFFIC ON ANY INTERSECTION WITHIN THE WORK AREA.
- 13. THE CONTRACTOR SHALL NOTIFY ARLINGTON COUNTY PUBLIC SCHOOLS TWO WEEKS PRIOR TO STARTING CONSTRUCTION.

MOT NOTES:

- 1. PARKING SHALL BE RESTRICTED BY THE COUNTY AS PART OF THE RIGHT OF WAY PERMIT. CONTACT DES PERMITTING SECTION, 703-228-4798, AT LEAST 72 HOURS PRIOR TO COMMENCEMENT OF WORK.
- 2. COORDINATE WITH ARLINGTON COUNTY TRANSIT BUREAU, 703-228-3049, AT LEAST 2 WEEKS PRIOR TO COMMENCEMENT OF WORK FOR APPROVAL, IF TRANSIT IS AFFECTED.
- THE CONTRACTOR SHALL MAINTAIN ADA ACCESSIBLE PARKING SPACES AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR SHALL CONTACT DES PERMITING, 703-228-4798, TO COORDINATE RELOCATION OF EXISTING ADA ACCESSIBLE PARKING SPACES OR TO INSTALL TEMPORARY SIGNAGE OUT OF AND ADJACENT TO THE WORK ZONE AS CONSTRUCTION PROGRESSES. MULTIPLE RELOCATIONS MAY BE NECESSARY DURING EACH PHASE.

GENERAL NOTES:

- 1. PEDESTRIAN TRAFFIC SHALL BE MAINTAINED AT ALL TIMES, INCLUDING ACCESS TO BUS STOP SHELTERS, UNLESS OTHERWISE APPROVED IN THE PLANS.
- 2. PEDESTRIAN TRAFFIC SHALL BE SEPARATED FROM THE WORK ZONES WITH APPROPRIATE MEASURES IN ACCORDANCE WITH MUTCD.
- 3. ADEQUATE PROVISIONS FOR PERSONS WITH DISABILITIES SHALL BE PROVIDED AT ALL TIMES PER ADA REQUIREMENTS.
- 4. WHEN NECESSARY, PEDESTRIANS SHALL BE APPROPRIATELY DIRECTED WITH ADVANCED WARNING SIGNS PLACED AT INTERSECTIONS, TO CROSS TO THE OPPOSITE SIDE OF THE ROADWAY IN ORDER TO PREVENT CONFLICT WITH MIDBLOCK WORK SITES.
- 5. PEDESTRIANS SHALL NOT BE LED INTO CONFLICT WITH WORK SITE EQUIPMENT, OPERATIONS, AND/OR VEHICLES MOVING THROUGH OR AROUND THE WORK SITE.

FIRE DEPARTMENT NOTES:

- 1. ALL EXISTING FIRE HYDRANTS AND FIRE DEPARTMENT CONNECTIONS SHALL BE MAINTAINED UNOBSTRUCTED AND ACCESSIBLE AT ALL TIMES IN ACCORDANCE WITH SECTIONS 508.5.4 AND 508.5.5 OF THE ARLINGTON COUNTY FIRE PREVENTION CODE.
- 2. ACCESS TO BUILDINGS FOR FIREFIGHTING SHALL BE MAINTAINED AT ALL TIMES. EXISTING FIRE APPARATUS ACCESS ROADS (FIRE LANES) SHALL BE KEPT CLEAR OF OBSTRUCTIONS IN ACCORDANCE WITH SECTION 503.4
 OF THE ARLINGTON COUNTY FIRE PREVENTION CODE. ACCESS TO CONSTRUCTION SITES SHALL BE PROVIDED AND MAINTAINED IN ACCORDANCE WITH SECTION 1410 OF THE ARLINGTON COUNTY FIRE PREVENTION CODE.
- 3. IN THE EVENT THAT EXISTING FIRE DEPARTMENT CONNECTIONS OR FIRE APPARATUS ACCESS ROADS (FIRE LANES) MUST BE OBSTRUCTED TO FACILITATE CONSTRUCTION ACTIVITIES, CONTACT THE ARLINGTON COUNTY FIRE DEPARTMENT FIRE PREVENTION OFFICE AT 703-228-4644 TO COORDINATE REVIEW AND APPROVAL OF TEMPORARY FIRE DEPARTMENT CONNECTIONS AND/OR FIRE APPARATUS ACCESS ROADS PRIOR TO CREATING THE OBSTRUCTION.

WORK HOURS:

WORK HOURS SHALL BE MONDAY TO FRIDAY AS FOLLOWS:

N KENMORET ST

FROM 9:00 AM TO 4:00 PM

-PHA AND STREET STREET **SWAL** WOODMONT FROM DESIGNED: PB DRAWN: PB CHECKED: NN MISS UTILITY TRANSMITTAL #: 5306-D FILENAME: S28D-286-MOT_90%.DWG PATH: Q:\DATA\S28D\DESIGN\DRAWINGS PLOTTED: DECEMBER 29 2017 PLOTTED BY:PBANEPALI **SCALE** 24 OF 25 WOODMONT SWALE-PHASE

A R LINGTO N

DEPARTMENT OF ENVIRONMENTAL SERVICES

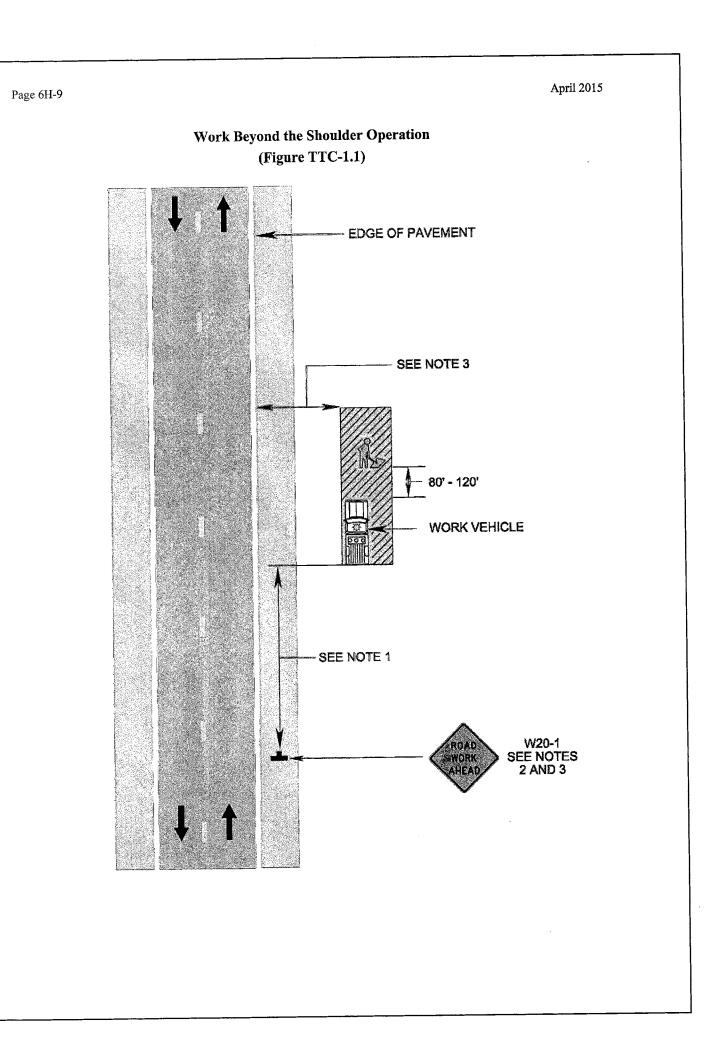
FACILITIES & ENGINEERING DIVISION ENGINEERING BUREAU

2100 CLARENDON BOULEVARD, SUITE 813 ARLINGTON, VA 22201 PHONE: 703.228.3629

FAX: 703.228.3606

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Lane Closure on a Two-Lane Roadway Using Flaggers
(Figure TTC-23.1)

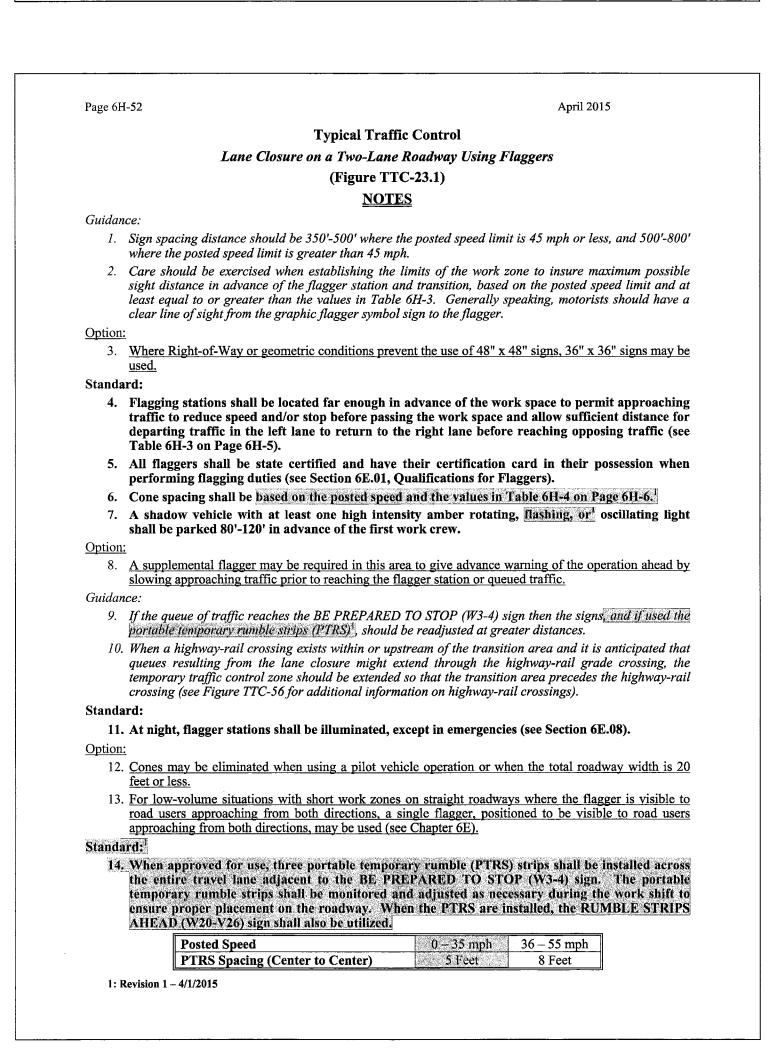
SEE NOTE 4

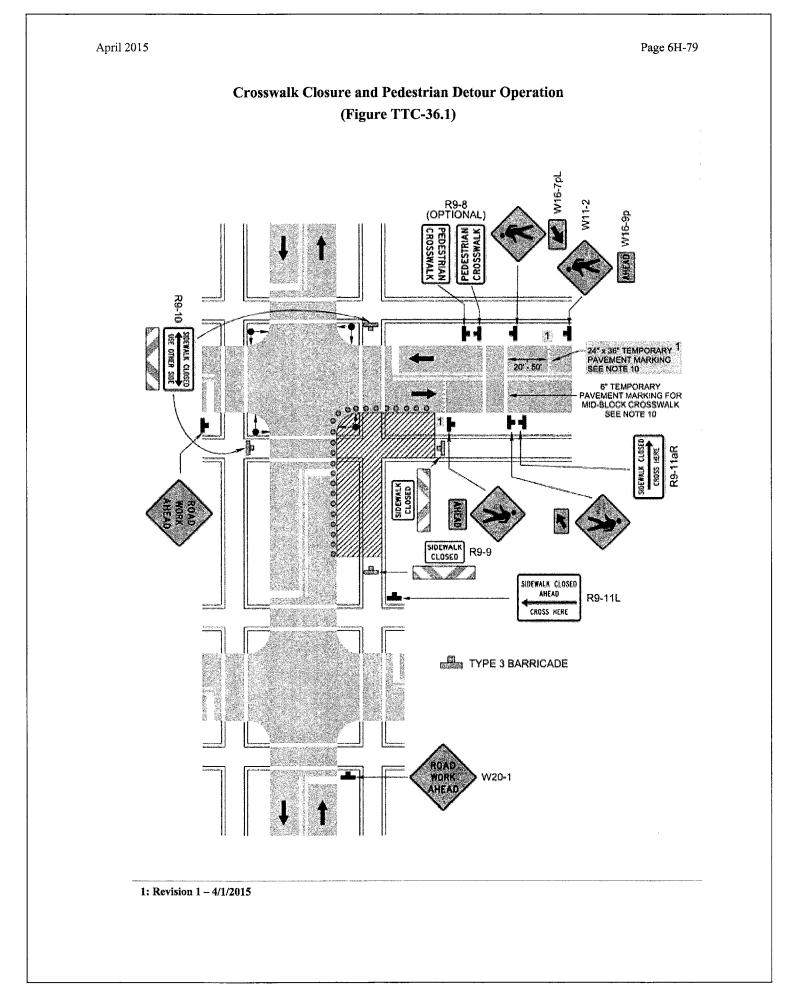
SEE NOTE 4

SEE NOTE 1

Page 6H-53

April 2015 Page 6H-8 **Typical Traffic Control** Work Beyond the Shoulder Operation (Figure TTC-1.1) **NOTES** 1. The minimum distance between the sign and work vehicle should be 1300'-1500' on Limited Access highways, and on all other roadways 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limited is 45 mph or less. 2. The ROAD WORK AHEAD (W20-1) sign may be replaced with other appropriate signs such as the SHOULDER WORK (W21-5) sign. The SHOULDER WORK sign may be used for work adjacent to 3. The ROAD WORK AHEAD sign may be omitted where the work space is behind a barrier, more than 4 feet behind vertical curb (Standard CG-2 and CG-6) on urban roadways, or outside of the clear zone for all other roadways. For clear zone values see Page A-4 of Appendix A. 4. For short-term, short duration or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with activated high-intensity amber rotating, flashing, or oscillating lights is <u>used.</u> Standard: 5. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or oscillating lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, or oscillating lights. 6. If the work space is in the median of a divided highway, an advance warning sign shall also be placed on the left side of the directional roadway.





Page 6H-78 April 2015 **Typical Traffic Control** Crosswalk Closure and Pedestrian Detour Operation (Figure TTC-36.1) **NOTES** Standard: 1. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility. 2. Curb parking shall be prohibited for at least 50 feet in advance of the midblock crosswalk. Guidance: 3. Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities. 4. Pedestrian traffic signal displays controlling closed crosswalks should be covered or deactivated. 5. Temporary markings should be considered for operations exceeding three days in duration. 6. Only the TTC devices related to pedestrians are shown. Other devices, such as lane closure signing or ROAD NARROWS (W5-1) signs, may be used to control vehicular traffic. 7. For nighttime closures, Type A Flashing warning lights may be used on barricades supporting signs and closing sidewalks. 8. In order to maintain the systematic use of the fluorescent yellow-green background for pedestrian, bicycle, and school warning signs in a jurisdiction, the fluorescent yellow-green background for pedestrian, bicycle, and school warning signs may be used in TTC zones. 9. All sidewalk closures shall be closed with Type 3 Barricades. 10. Refer to Sections 3B-16 through 3B-18 of the 2009 MUTCD and the Virginia Supplement to the MUTCD for crosswalk lines, yield lines and other related TTC devices that may be used to control vehicular traffic at midblock crosswalks.

ARLINGTON VIRGINIA DEPARTMENT OF **ENVIRONMENTAL SERVICES** FACILITIES & ENGINEERING DIVISION ENGINEERING BUREAU 2100 CLARENDON BOULEVARD, SUITE 813 ARLINGTON, VA 22201 PHONE: 703.228.3629 FAX: 703.228.3606 COPYRIGHT © 2016 ARLINGTON COUNTY VIRGINIA - ALL RIGHTS RESERVED REVISIONS FROM N. FILLMORE STREET TO N. KENMORE STREET 321.47222.S28D.0000 **SWALE-PHA** SHEE ETAIL WOODMONT MOT DESIGNED: DRAWN: CHECKED: MISS UTILITY TRANSMITTAL #: 5306-D FILENAME: S28D-286-MOT_90%.DWG PATH: Q:\DATA\S28D\DESIGN\DRAWINGS

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PLOTTED BY: PBANEPALI

SHEET



ENGINEER DEPARTMENT OF **ENVIRONMENTAL SERVICES**

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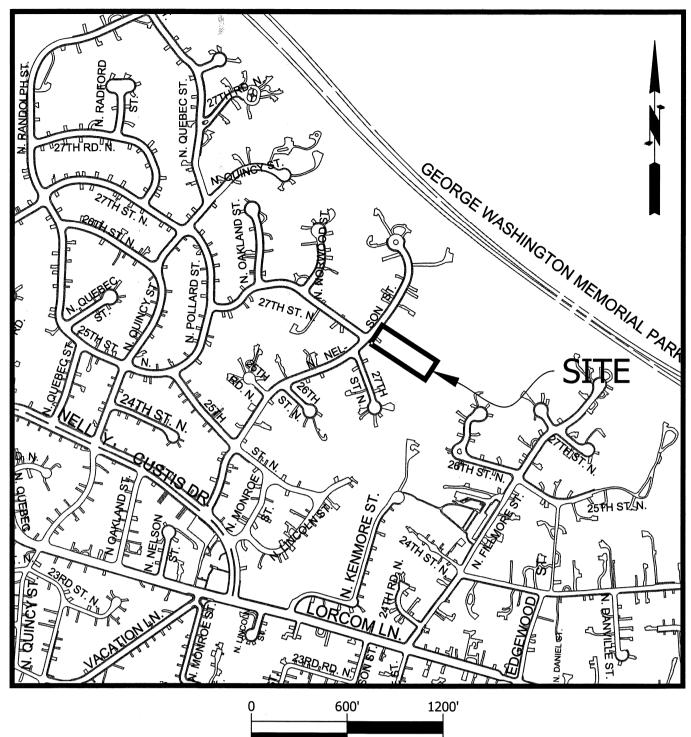
CONSTRUCTION DRAWINGS FOR:

PROJECT NAME: WINDY RUN OUTFALL - PHASE 1

PROJECT LOCATION: 2701 & 2707 N NELSON ST

FACILITIES & ENGINEERING DIVISION **ENGINEERING BUREAU** 2100 CLARENDON BOULEVARD, SUITE 813 ARLINGTON, VA 22201 PHONE: 703.228.3629 FAX: 703.228.3606

OWNER DES/OSEM/STORM CONTRACTOR TO BE DETERMINED LOCATION MAP



ARLINGTON

DEPARTMENT OF ENVIRONMENTAL SERVICES

APPROVALS

REVISIONS

ON

0

GENERAL NOTES:

GENERAL CONSTRUCTION NOTES

PROJECT CODE: S48D

- 1. ALL CONSTRUCTION WORK FOR THIS PROJECT SHALL CONFORM TO THE ARLINGTON COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES, CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND WHERE APPLICABLE THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) ROAD AND BRIDGE SPECIFICATIONS. AND ROAD AND BRIDGE STANDARDS. THE LATEST EDITIONS OF EACH RELEVANT MANUAL SHALL BE USED.
- 2. ALL CONSTRUCTION AND WORK ACTIVITIES SHALL COMPLY WITH THE VIRGINIA WORK AREA PROTECTION MANUAL AND ALL OTHER RELEVANT WORK SAFETY REQUIREMENTS, LATEST
- 3. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT OFFICER OF ANY DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THE APPROVED PLANS.
- 4. THE CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 811 FOR MARKING THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES (i.e. WATER, SEWER, GAS, TELEPHONE, ELECTRIC, AND CABLE TV) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION OR CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO IDENTIFY AND PROTECT ALL OTHER UTILITY LINES FOUND IN THE WORK SITE AREA BELONGING TO OTHER OWNERS THAT ARE NOT MEMBERS OF "MISS UTILITY" PRIVATE WATER SEWER AND GAS LATERALS WILL NOT BE MARKED BY MISS UTILITY OR THE COUNTY. THE CONTRACTOR SHALL LOCATE AND PROTECT THESE SERVICES DURING CONSTRUCTION.
- 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAYING OUT THE WORK AND SHALL RETAIN A PROFESSIONAL LAND SURVEYOR LICENSED IN THE COMMONWEALTH OF VIRGINIA TO PROVIDE ALL NECESSARY CONSTRUCTION LAYOUTS AND ESTABLISH ALL CONTROL LINES, GRADES, AND ELEVATION DURING CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT A COPY OF ALL CUT SHEETS FOR REVIEW, PER THE SPECIFICATIONS. THE COST OF ALL NECESSARY SURVEYING SERVICES SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND, UNLESS OTHERWISE SPECIFIED, THE COST SHALL BE INCORPORATED INTO THE COSTS FOR RELEVANT ITEMS.
- 6. THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE FROM BEST AVAILABLE RECORDS AND SHALL BE CONSIDERED TO BE APPROXIMATE. WHEN CONSTRUCTION ACTIVITY REACHES IN PROXIMITY TO EXISTING UTILITIES, THE TRENCH(ES) SHALL BE OPENED A SUFFICIENT DISTANCE AHEAD OF THE WORK OR TEST PITS SHALL BE MADE TO VERIFY THE EXACT LOCATION AND INVERTS OF THE UTILITY TO ALLOW FOR POSSIBLE CHANGES IN THE LINE OR GRADE AS DIRECTED BY OFFICER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING UTILITIES AND THE RELATED STRUCTURES. ALL EXISTING UTILITY SYSTEMS SHALL BE PROTECTED TO PREVENT DAMAGE DURING THE CONTRACTOR'S OPERATIONS. ANY SYSTEM DAMAGED SHALL BE PROMPTLY REPAIRED AT NO COST TO THE
- 7. EXISTING MANHOLE FRAMES. COVERS, VALVE BOXES, AND OTHER APPURTENANCES SHALL BE ADJUSTED TO THE FINAL GRADE OR REPLACED, AS NECESSARY. UNLESS OTHERWISE SPECIFIED, THE COST FOR THIS SHALL BE CONSIDERED INCIDENTAL TO THE WORK, AND SHALL BE INCORPORATED INTO THE COSTS FOR RELEVANT ITEMS.
- 8. THE CONTRACTOR SHALL PROVIDE ADA COMPLIANT ACCESS THROUGH OR AROUND THE SITE AT ALL TIMES AND SHALL ENSURE THE SAFETY OF ALL THOSE PASSING THROUGH OR ADJACENT TO THE SITE.

9. THE CONTRACTOR SHALL CONFINE ALL ACTIVITIES AT THE SITE ASSOCIATED WITH CONSTRUCTION ACTIVITIES, TO INCLUDE STORAGE OF EQUIPMENT AND OR MATERIALS, ACCESS TO THE WORK, FORMWORK, ETC. TO WITHIN THE DESIGNATED LIMITS OF WORK (LOW).

TREE PROTECTION

10. TREES SHALL BE PROTECTED PER THE REQUIREMENTS OF ARLINGTON PARK & RECREATIONS

TRAFFIC CONTROL

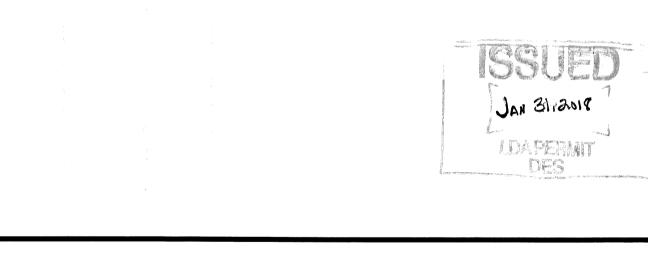
- 11. CONTRACTOR SHALL NOTIFY THE PROJECT OFFICER AT LEAST 3 WORKING DAYS PRIOR TO DISTURBING ANY EXISTING, OR INSTALLING ANY NEW, TRAFFIC SIGNS, SIGNALS, OR OTHER TRAFFIC CONTROL DEVICES.
- 12. THE CONTRACTOR SHALL PREMARK THE LAYOUT OF ANY PERMANENT TRAFFIC CONTROL STRIPING, INDICATING THE PROPOSED LOCATION AND TYPE OF MARKING TO BE INSTALLED. THE PREMARKING MAY CONSIST OF TYPE D TAPE, CHALK, OR LUMBER CRAYONS. THE CONTRACTOR SHALL ALLOW 3 WORKING DAYS FOR THE INSPECTION AND APPROVAL OF THE PREMARKINGS PRIOR TO PLACING THE PERMANENT MARKINGS.
- 13. THE CONTRACTOR SHALL SUBMIT ANY REQUESTS FOR TEMPORARY "NO PARKING" RESTRICTIONS TO THE PROJECT OFFICER AT LEAST 3 WORKING DAYS PRIOR TO THE DESIRED ONSET OF RESTRICTIONS.
- 14. THE CONTRACTOR SHALL PRESERVE ALL BUS STOPS, INCLUDING MAINTAINING ADEQUATE ACCESSIBILITY THROUGH AND ADJACENT TO THE CONSTRUCTION FOR BUSES AND THEIR PASSENGERS. THE CONTRACTOR SHALL NOT CLOSE, RELOCATE, OR OTHERWISE MODIFY A BUS STOP WITHOUT PRIOR REQUEST OF THE PROJECT OFFICER. TYPICALLY ANY RELOCATION OR CLOSURE OF A BUS STOP WILL REQUIRE AT LEAST TWO WEEKS ADVANCE NOTICE FOR COORDINATION WITH THE COUNTY'S BUS STOP COORDINATOR.
- 15. WHEN CONDITIONS WARRANT DUE TO TRAFFIC VOLUMES, PATTERNS, OR SPECIAL EVENTS, THE COUNTY MAY SUSPEND OR OTHERWISE DIRECT THE CONTRACTOR'S ACTIVITIES TO PROTECT THE PUBLIC AND OR THE COUNTY'S TRANSPORTATION NETWORK.

WATER DISTRIBUTION, STORM, AND SANITARY SEWER SYSTEMS

- 16. UNLESS OTHERWISE DIRECTED, CONTRACTORS ARE EXPRESSLY PROHIBITED FROM OPERATING ANY WATER VALVES OR APPURTENANCES. CONTRACTORS SHALL SUBMIT ALL REQUESTS FOR VALVE OPERATIONS TO THE PROJECT OFFICER AT LEAST 3 WORKING DAYS IN ADVANCE OF THE REQUIRED OPERATION.
- 17. IN THE EVENT OF A WATER OR SEWER EMERGENCY, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COUNTY'S WATER CONTROL CENTER AT 703-228-6555 AND THE PROJECT OFFICER.

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6	EROSION & SEDIMENT CONTROL PLAN
7	EROSION & SEDIMENT CONTROL DETAILS
8	EROSION AND SEDIMENT CONTROL NOTES
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10A	POLLUTION PREVENTION PLAN
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17A	STREAM COMPUTATIONS (PHASE 1)
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18	EXISTING STORM COMPUTATIONS
¹ 2 19	PROPOSED STORM COMPUTATIONS
20	LANDSCAPE PLAN
20A	LANDSCAPE PLAN
21	OVERALL DRAINAGE AREA AND SOIL MAP

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ADT 960 - N NELSON ST - 2014 - ACPD

STREET CLASSIFICATION

POSTED SPEED

OUTFALL

DESIGNED: KP DRAWN: KP CHECKED: NN

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PLOTTED: JANUARY 30 2018 PLOTTED BY:KPILONG

SCALE: AS NOTED

SHEET 1 OF 21 LINETYPE LEGEND

SYMBOL LEGEND

<u>FEATURE</u>	EXISTING	PROPOSED	EXISTING FEATURE		PROPOSE FEATURE		LABEL LEGEND	
							EXISTING	PROPOSED
BUILDING								
CENTERLINE / BASELINE			EX CABLE PEDESTAL	C			EX SAN STRUC NO. EXISTING SANITARY STRUCTURE NUMBER XXXX	PROP SAN SEW STRUC NO. PROPOSED SANITARY SEWER STRUCTURE NUMBER XXXX
COMMUNICATIONS CABLE	сом	сом	EX ELECTRIC BOX	E			EX STRM SEW STRUC NO. EXISTING STORM SEWER STRUCTUE NUMBER	PROP STRM SEW STRUC NO. PROPOSED STORM SEWER STRUCTURE NUMBER XXXX
CONTOURS MAJOR; MINOR?			EX FIRE HYDRANT		PROP FIRE HYDRANT	-	НАТСН	LEGEND
CRITICAL ROOT ZONE	CRZ	CRZ	EX GAS VALVE		PROP GAS VALVE	0	PROP MILL & OVERLAY	<u> </u>
EASEMENT			EX GROUND LIGHT	•			SEE TYPICAL SECTION FOR DETAILS	
ELECTRIC (UNDERGROUND)	UGE	UGE	EX GUY WIRES	>-			PROP FULL DEPTH ASPHALT SEE TYPICAL SECTION FOR DETAILS	
FENCE (MATERIAL NOTED)	XXXX	_xxxx	EX IRON PIPE OR PIN				PROP CONCRETE	
FIBER OPTIC	——— FO ———	—— FO ———	EX LIGHT POLE	Ø	PROP LIGHT POLE	+	DEDLACE & MATCH EVICTING DRIVENAY	
GAS LINE	GAS GAS	——— GAS ———	EX MAILBOX				REPLACE & MATCH EXISTING DRIVEWAY OR LEADWALK. SEE CONSTRUCTION NOTES	
X" GAS LINE (SIZE INCLUDED IF AVAILABLE)	——————————————————————————————————————	——————————————————————————————————————	EX MONUMENT	•			DEMOLITION AREA	
GUARDRAIL	. 0 0 0 0 0	· o o o o o o o	EX PARKING METER	Θ				
HARDSCAPE FEATURE (MATERIAL NOTED)			EX PAY STATION	PS	PROP PAY STATION	PS		
LIMITS OF DISTURBANCE	LOD	LOD	EX SANITARY MANHOLE	0	PROP SANITARY MANHOLE	0		
LIMITS OF WORK	LOW	LOW	EX STORM BASIN	0	PROP STORM CATCH BASIN (TO	SCALE) O		
OVERHEAD WIRES		IIIIII	EX STORM MANHOLE	0	PROP STORM MANHOLE	<u>O</u>		
PAVEMENT MINI SKIP LINE	·		EX TELEPHONE PEDESTAL	T	e Week			
PAVEMENT SKIP LINE			EX TRAFFIC CONTROL BOX					
PROPERTY LINE	\$ \$ 		EX TRAFFIC SIGN		PROP TRAFFIC SIGN	•		· · · · · · · · · · · · · · · · · · ·
RIGHT-OF-WAY LINE			EX TRASH CAN		PROP TRASH CAN	⊕		
ROOT PRUNING	RP RP	RP	EX TRAVERSE	\triangle				
SANITARY SEWER	SAN SAN	SAN	EX TREES, WOODED AREA	8	PROPOSED TREE REMOVAL	X		
X" SANITARY SEWER (SIZE INCLUDED IF AVAILABLE)	X" S X" S	X" S	EX UTILITY MANHOLE TYPE INDICATED ELECTRIC, TELE, ETC	(
SILT FENCE	SF SF	SF	EX UTILITY POLE		PROP UTILITY POLE	±		
STORM (SIZE NOTED)	STM STM		EX WATER MANHOLE	Θ	PROP WATER MANHOLE			
STREAM			EX WATER METER		PROP WATER METER	•		
STREET LIGHT CONDUIT	SL	SL	EX WATER VALVE	\otimes	PROP WATER VALVE	Θ		
TELEPHONE (UNDERGROUND)	UGT	UGT UGT	EX YARD INLET		PROP YARD INLET (TO SCALE)			
TREE LINE			EX BENCHMARK		CONSTRUCTION NOTES (LEADER TO AREA AFFECTED)	/_X		
TREE PROTECTION FENCE	TP	—— ТР —— ТР ——			CURVE NUMBER (SEE CURVE TAB			
WALL		V			LINE NUMBER (SEE LINE TABLE)	(L#)		
WATER		W W			TEST HOLE	•		
X" WATER (SIZE INCLUDED IF AVAILABLE)		w						
	X" W X" W	X" W			NORTH ARROW	•		



DEPARTMENT OF
ENVIRONMENTAL SERV
EACTLITTES & ENGINEEDING DIV

FACILITIES & ENGINEERING DIVISION ENGINEERING BUREAU 2100 CLARENDON BOULEVARD, SUITE 813 ARLINGTON, VA 22201 PHONE: 703.228.3629 FAX: 703.228.3606

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NILESH RAM NAIKARE Lic.No.0402049246 & O/30/18

APPROVALS	DATE
Mall	2/8/18
QUALITY CONTROL ENGINEER	2/14/18
CONSTRUCTION MANAGEMENT	SUPERVISOR
& Septent	2/11/18

WATER, SEWER, STREETS BUREAU CHIEF NOT APPLICABLE TRANSPORTATION DIRECTOR

PROJECT MANAGER

PROJECT MANAGER

ŘEVISIONS	

PHASE

RUN

2707 N NELSON 321.47221.548D.0000 OUTFALL **LEGEND**

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DRAWN: KP	
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JAN 3112018

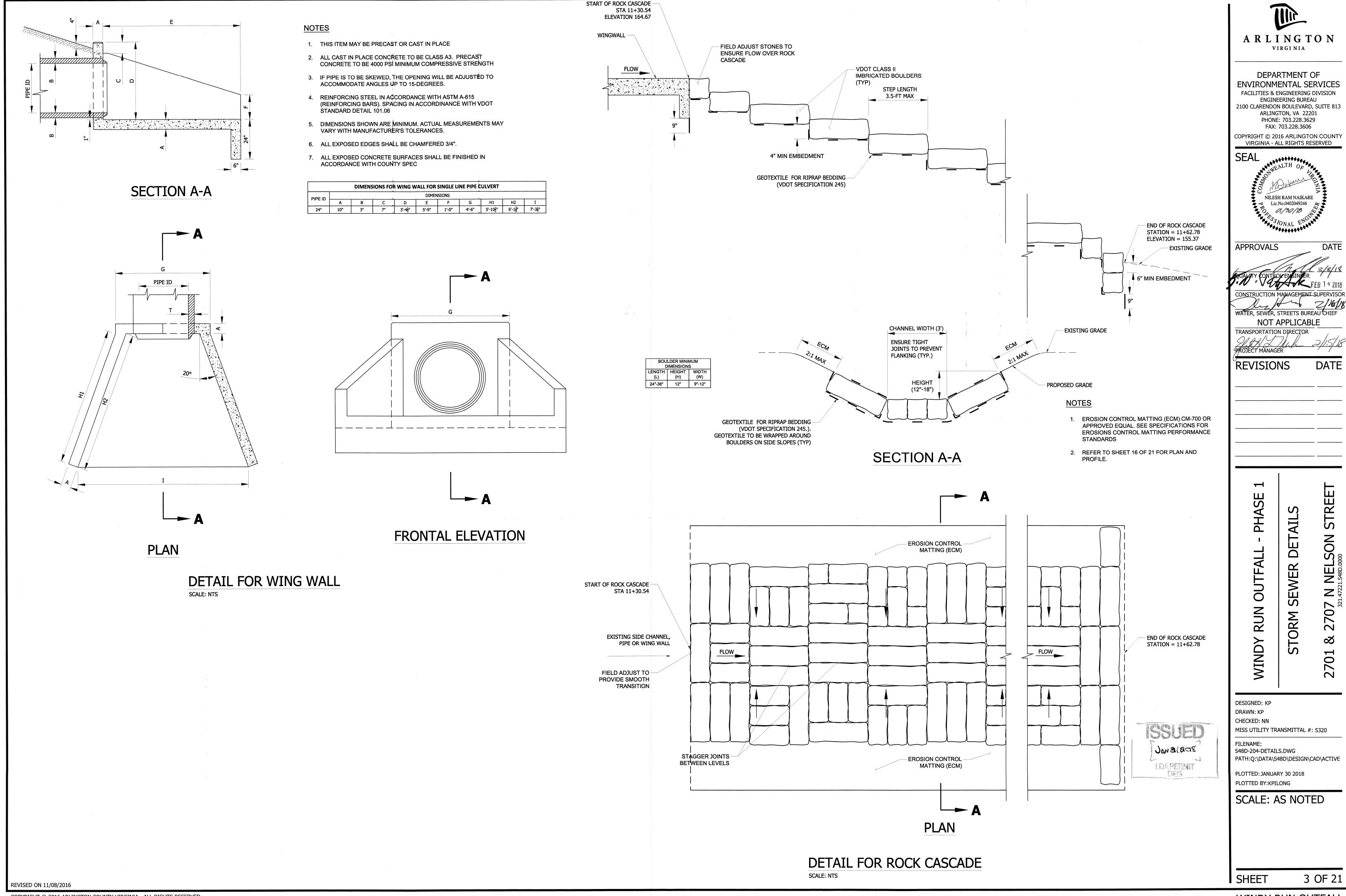
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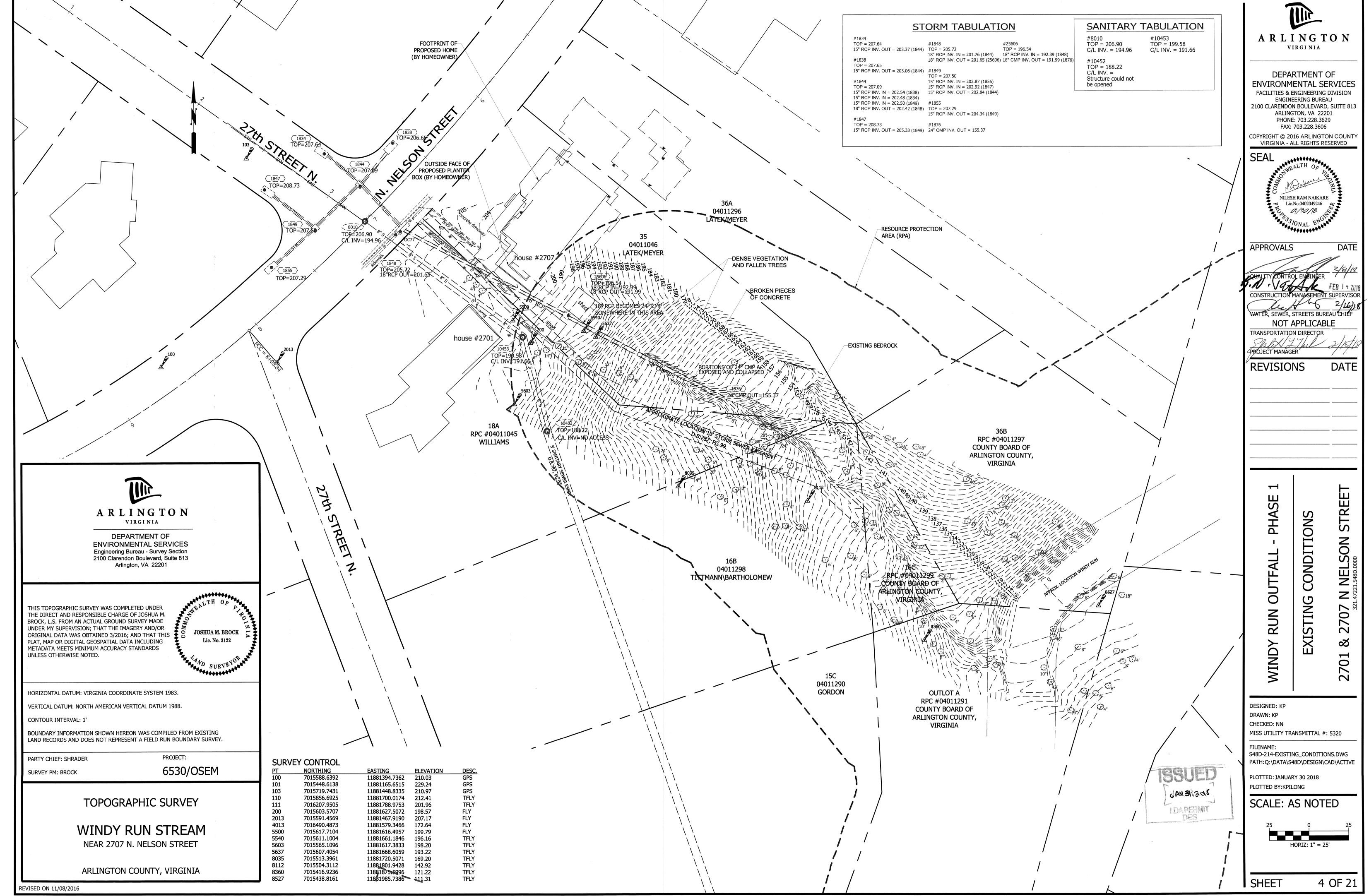
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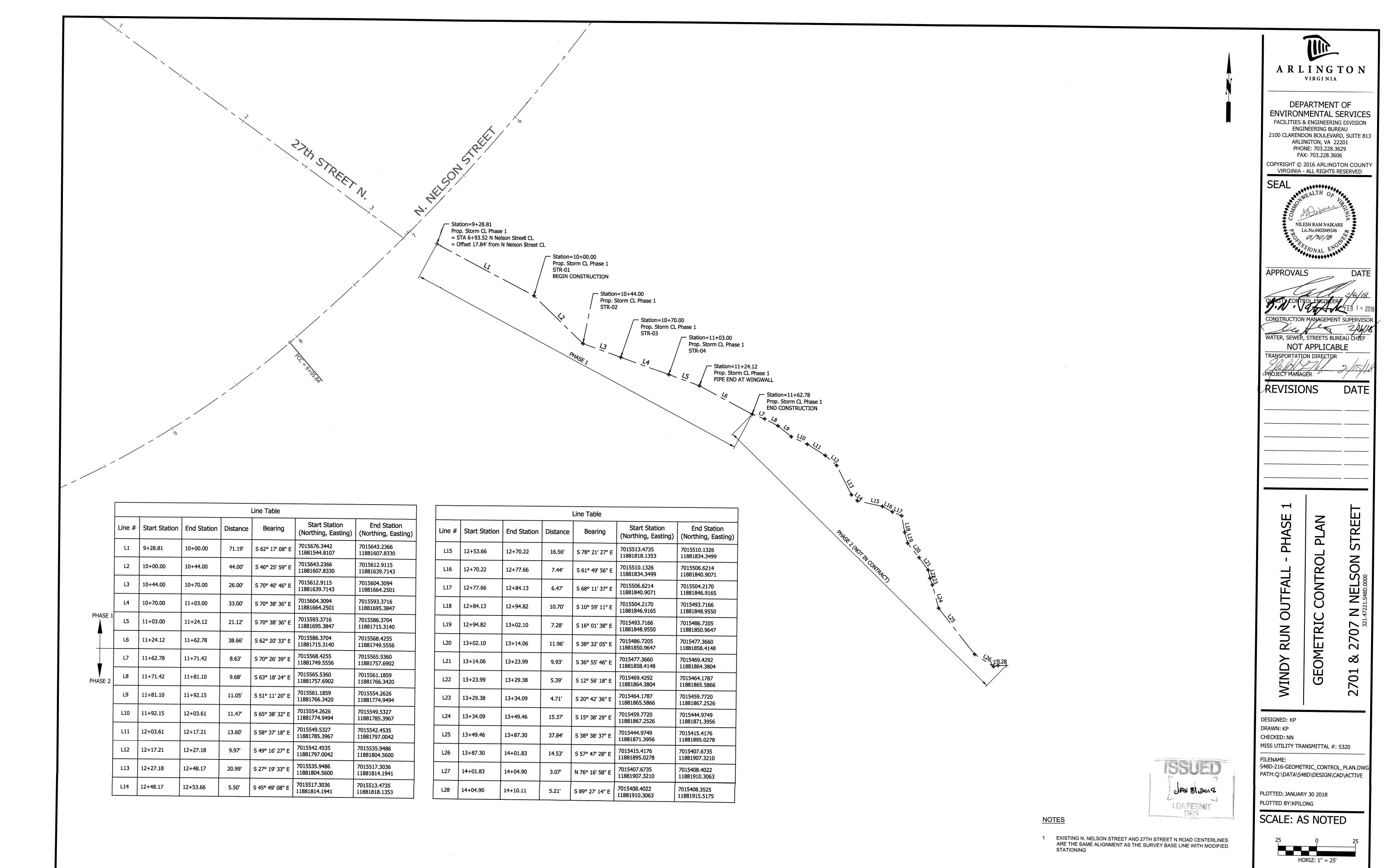
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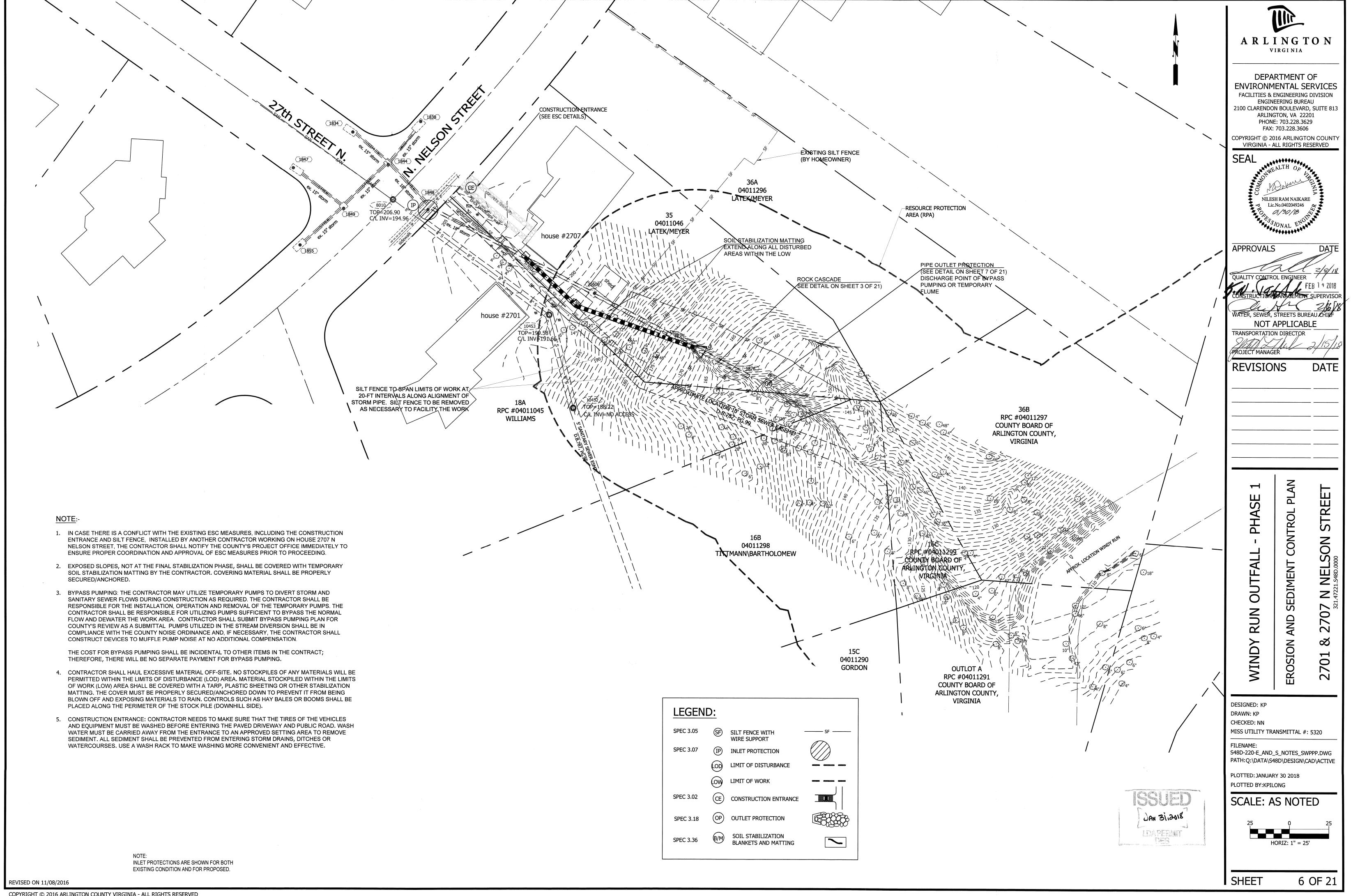
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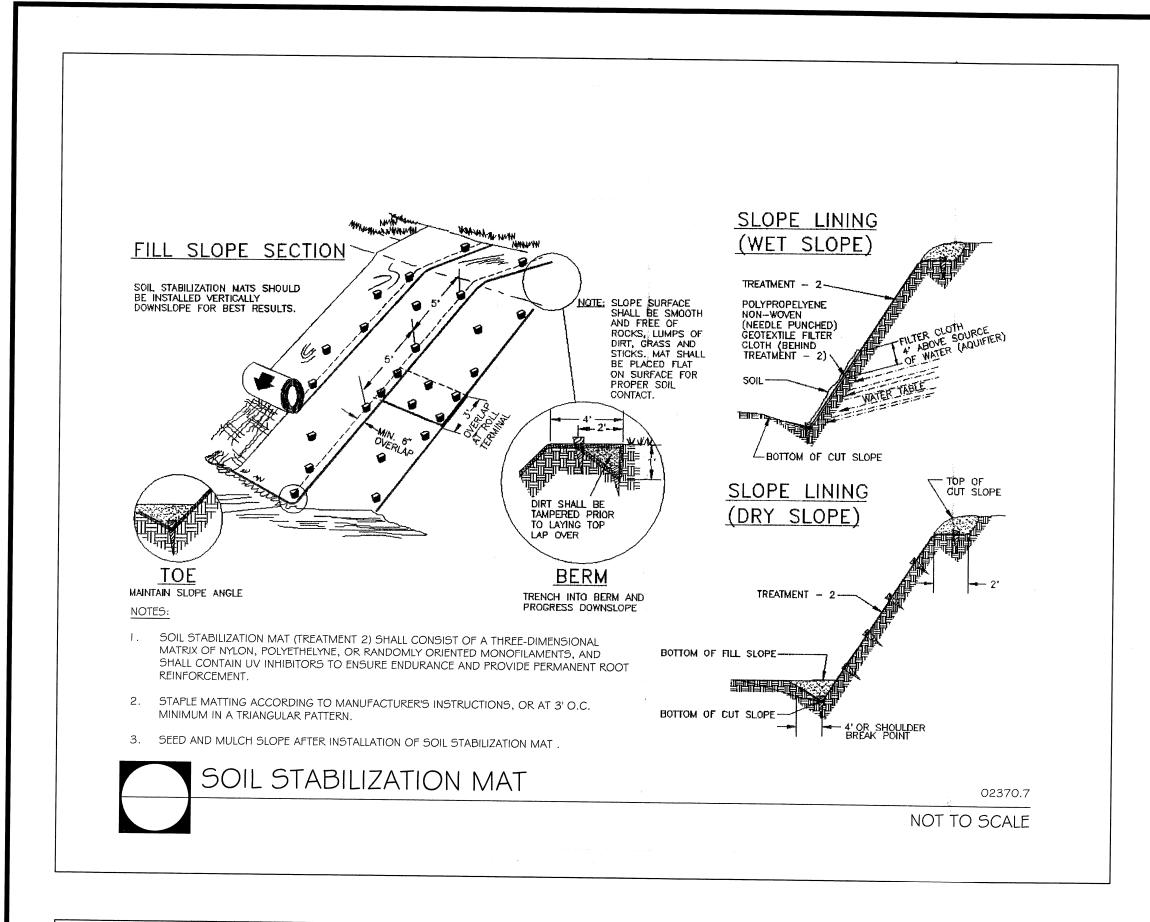
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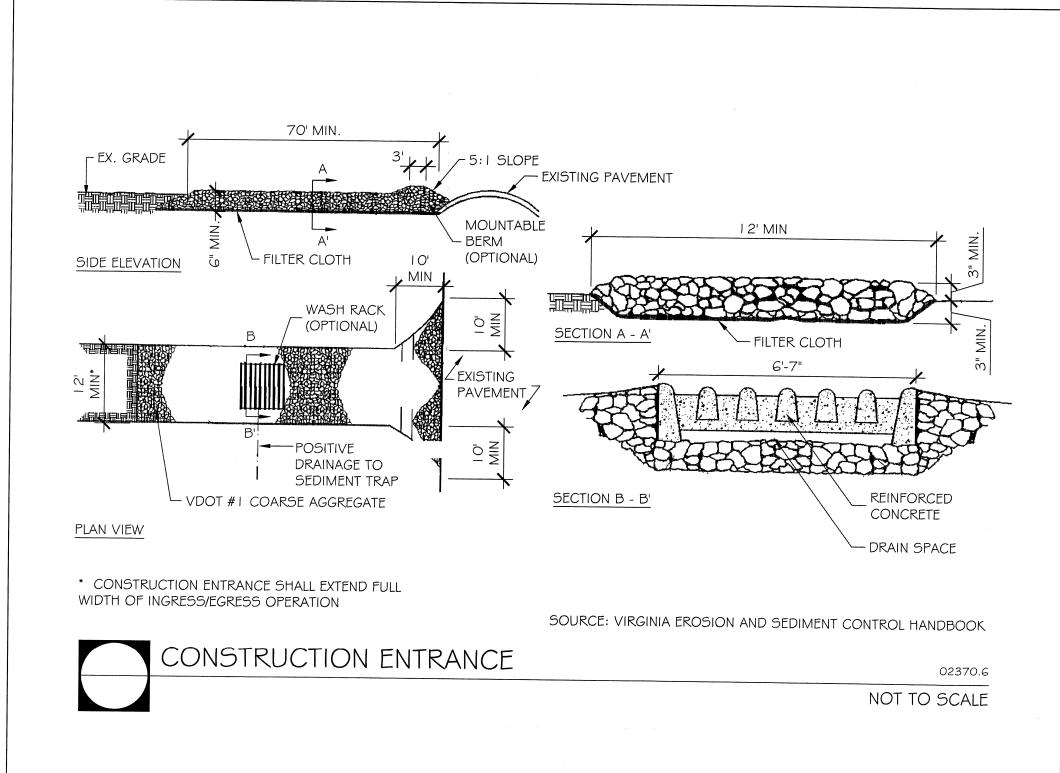
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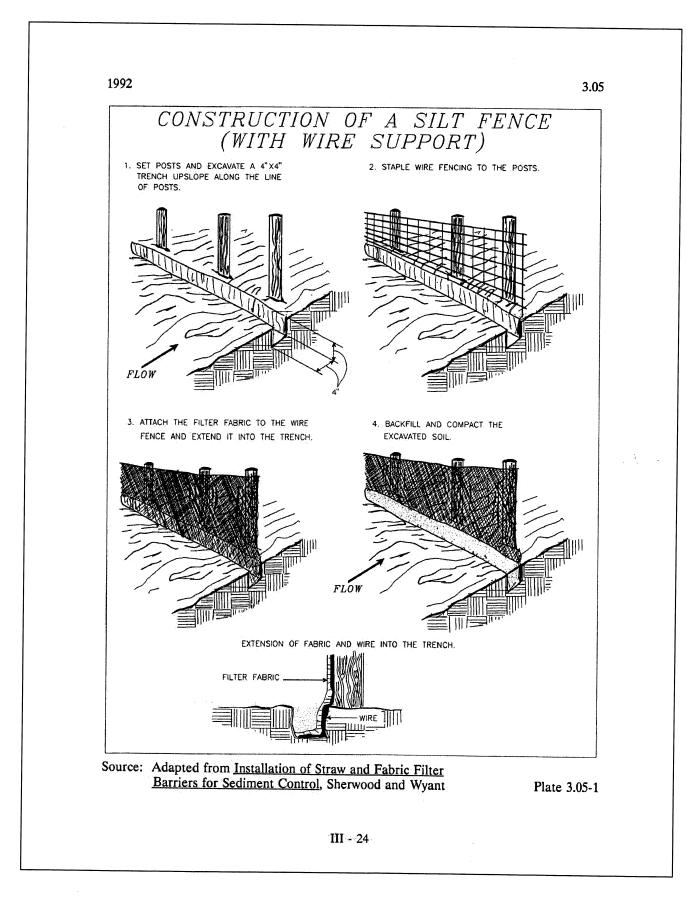
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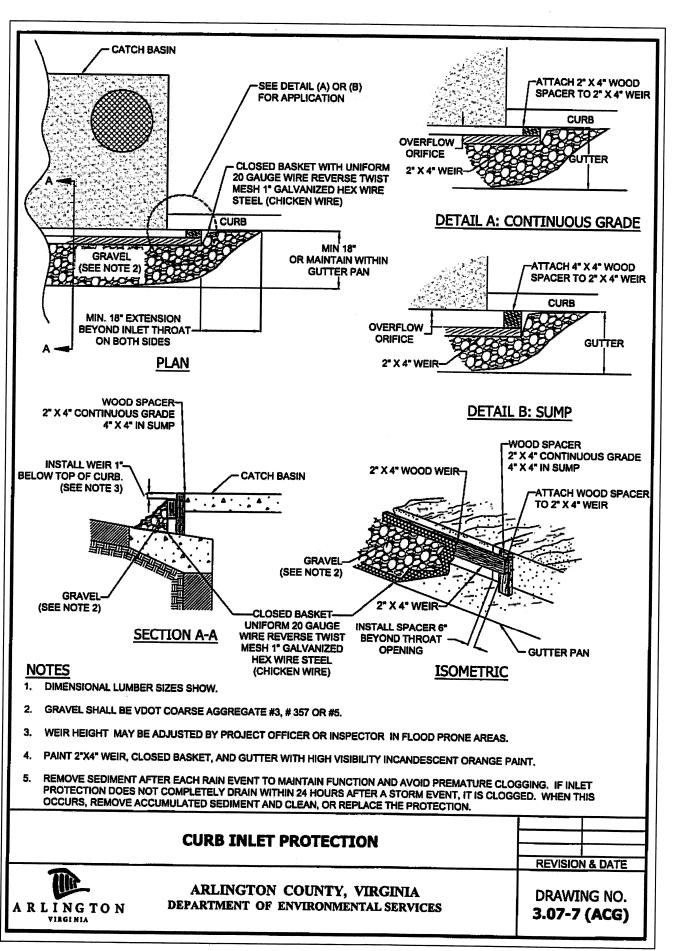
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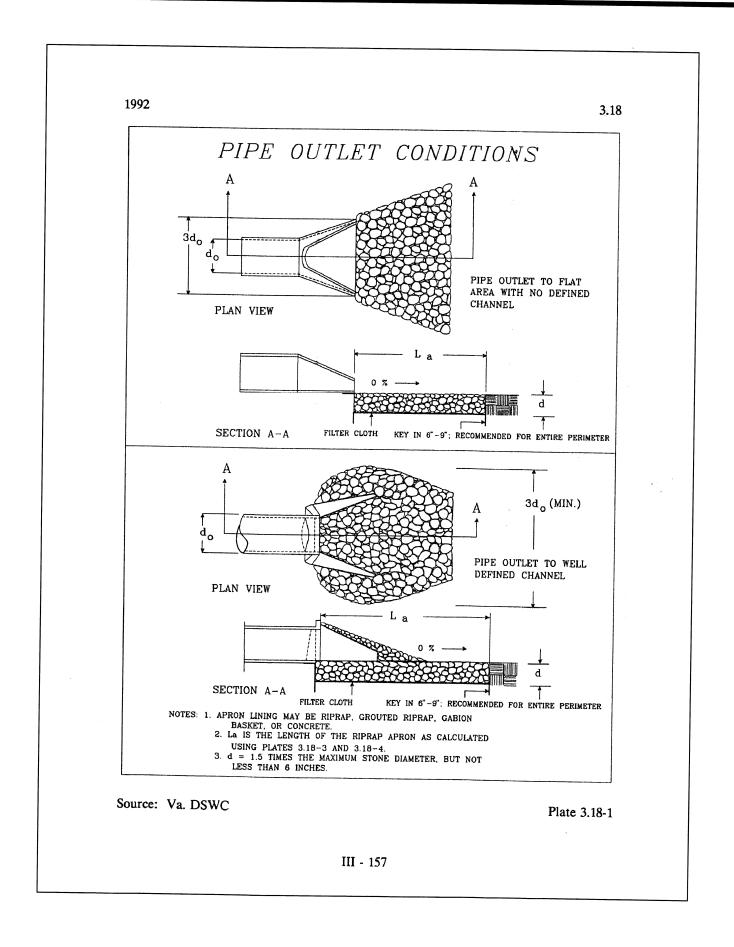


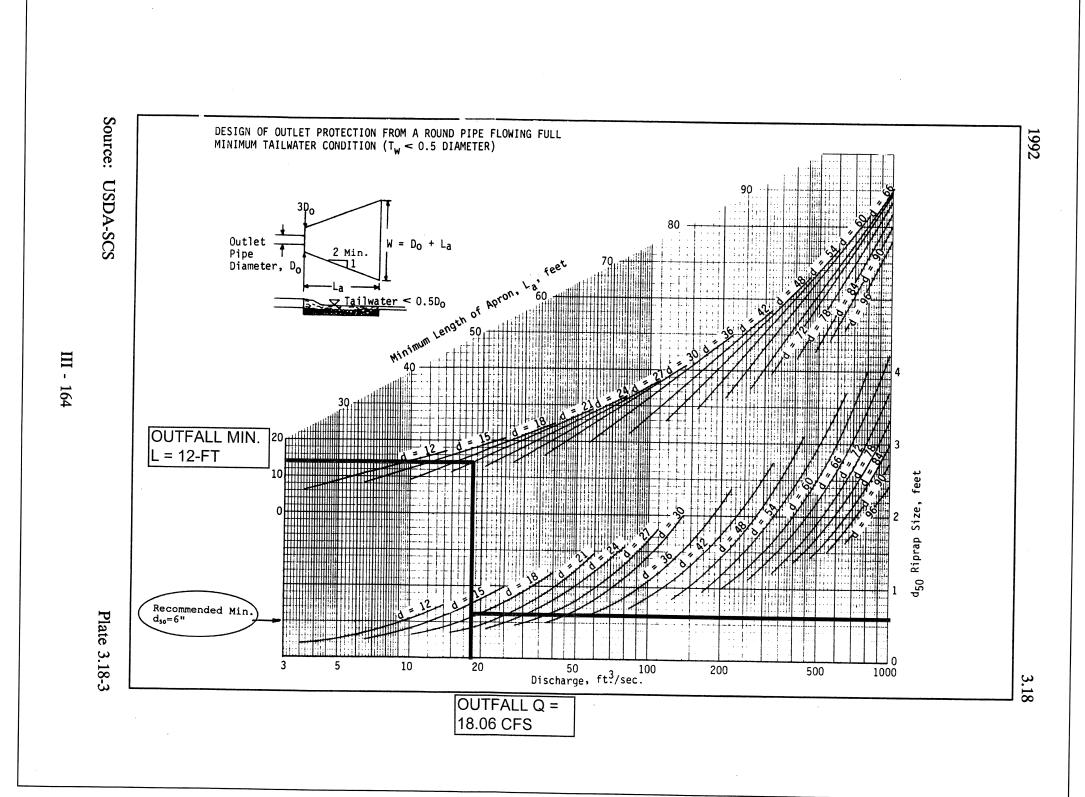
















DEPARTMENT OF
ENVIRONMENTAL SERVICES
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NILESH RAM NAIKARE
Lic.No.0402049246

ONAL ENGINE

QUALITY CONTROL ENGINEER

QUALITY CONTROL ENGINEER

CONSTRUCTION MANAGEMENT SUPERVI

WATER, SEWER, STREETS BUREAU CHIE

NOT APPLICABLE

TRANSPORTATION DIRECTOR

REVISIONS

ASE 1
DETAILS

OSION & SEDIMENT CONTROL DETAILS
701 & 2707 N NELSON STREET

7

DESIGNED: KP
DRAWN: KP
CHECKED: NN
MISS UTILITY TRANSMITTAL #: 5320

FILENAME:
S48D-220-E_AND_S_NOTES_SWPPP.DWG
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PLOTTED: JANUARY 30 2018 PLOTTED BY:KPILONG

SCALE: AS NOTED

SHEET

7 OF 21

POLLUTION PREVENTION PLAN NOTES

ONLY THE FOLLOWING NON-STORMWATER DISCHARGES ARE AUTHORIZED BY ARLINGTON COUNTY'S MS4 PERMIT, UNLESS THE STATE WATER CONTROL BOARD, THE VIRGINIA SOIL AND WATER CONSERVATION BOARD (BOARD), OR ARLINGTON COUNTY DETERMINES THE DISCHARGE TO BE A SIGNIFICANT SOURCE OF POLLUTANTS TO SURFACE WATERS:

WATER LINE FLUSHING; LANDSCAPE IRRIGATION; DIVERTED STREAM FLOWS; RISING GROUND WATERS; UNCONTAMINATED GROUND WATER INFILTRATION (AS DEFINED AT 40 CFR 35.2005(20)): UNCONTAMINATED PUMPED GROUND WATER; DISCHARGES FROM POTABLE WATER SOURCES; FOUNDATION DRAINS; AIR CONDITIONING CONDENSATION; IRRIGATION WATER; SPRINGS; WATER FROM CRAWL SPACE PUMPS; FOOTING DRAINS; LAWN WATERING; INDIVIDUAL RESIDENTIAL CAR WASHING; FLOWS FROM RIPARIAN HABITATS AND WETLANDS; DECHLORINATED SWIMMING POOL DISCHARGES; DISCHARGES OR FLOWS FROM FIRE FIGHTING; AND, OTHER ACTIVITIES GENERATING DISCHARGES IDENTIFIED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY AS NOT REQUIRING VPDES AUTHORIZATION.

APPROPRIATE CONTROLS MUST BE IMPLEMENTED TO PREVENT ANY NON-STORMWATER DISCHARGES NOT INCLUDED ON THE ABOVE LIST (E.G., CONCRETE WASH WATER, PAINT WASH WATER, VEHICLE WASH WATER, DETERGENT WASH WATER, ETC.) FROM BEING DISCHARGED INTO ARLINGTON COUNTY'S MS4 SYSTEM, WHICH INCLUDES THE CURB AND GUTTER SYSTEM, AS WELL AS CATCH BASINS AND OTHER STORM DRAIN INLETS, OR STREAM NETWORK.

PER CHAPTER 26 OF THE ARLINGTON COUNTY CODE, IT SHALL BE UNLAWFUL FOR ANY PERSON TO DISCHARGE DIRECTLY OR INDIRECTLY INTO THE STORM SEWER SYSTEM OR STATE WATERS, ANY SUBSTANCE LIKELY, IN THE OPINION OF THE COUNTY MANAGER, TO HAVE AN ADVERSE EFFECT ON THE STORM SEWER SYSTEM OR STATE WATERS.

UTILITY INSTALLATION

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.
- 2. EXCAVATED MATERIAL SHALL BE PLACED ON THE 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.
- 4. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
- 5. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
- 6. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.

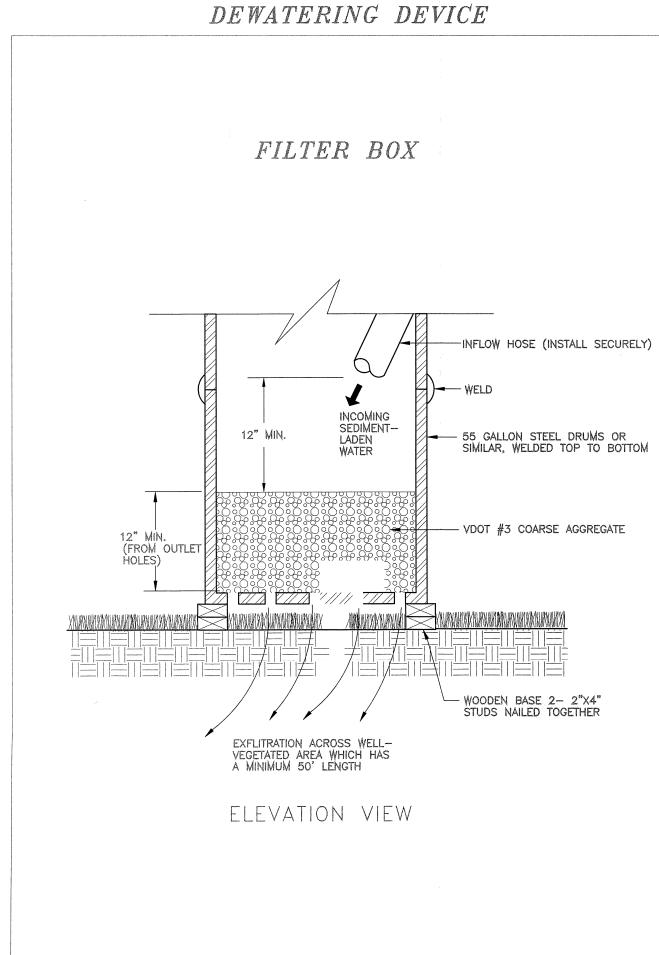


PLATE: 3.26-2

EROSION AND SEDIMENT CONTROL LEGEND

Spec & Std	Key	Symbol	Title
3.05	SF	SF	SILT FENCE WITH WIRE SUPPORT
3.07	(IP)		INLET PROTECTION
3.3 8	TP	TP	TREE PROTECTION
1	LOD		LIMIT OF DISTURBANCE
3.26	DS	→	DEWATERING STRUCTURE
3.02	CE		TEMPORARY STONE CONSTRUCTION ENTRANCE
3.18	(OP)		CULVERT OUTLET PROTECTION
3.36	(B/M)		SOIL STABILIZATION BLANKETS AND MATTING

EROSION AND SEDIMENT CONTROL NARRATIVE

THIS IS AN ARLINGTON COUNTY STORM DRAINAGE IMPROVEMENTS PROJECT

PROJECT DESCRIPTION:

THIS PHASE OF THE PROJECT CONSISTS OF REPLACING AN EXISTING 18-INCH STORM PIPE AND 24-INCH STORM PIPE WITH A 24-INCH PIPE.

EXISTING SITE CONDITION:

THE HIGHEST POINT OF THE PROJECT AREA IS ON THE NORTH WEST SIDE OF 2707 N. NELSON STREET, THE SITE IS LOCATED WITHIN WINDY RUN WATERSHED, AND IT HAS A VARIABLE HYDROLOGIC SOIL GROUP. THE SOIL TYPE IS "GLENELG-MANOR COMPLEX". SITE HAS STEEP SLOPES BETWEEN 12% TO 45%.

ADJACENT PROPERTIES:

THE PROPERTIES ARE LOCATED WEST AND SOUTH OF THE PROJECT AREA

OFF-SITE AREAS:

THE FULL EXTENT OF CONSTRUCTION IS WITHIN AN OFF-SITE AREA

CRITICAL AREAS:

THERE ARE STEEP SLOPES WITH 12% TO 45% AND CRITICAL AREAS LOCATED IN THIS PROJECT

EXISTING AND PROPOSED STORM SEWER:

THE STORM DRAINAGE SYSTEM EVENTUALLY DISCHARGES INTO THE WINDY RUN STREAM. THIS PROJECT WILL NOT ALTER THE EXISTING DRAINAGE PATTERNS, BUT IT IMPROVES THE STORM DRAINAGE CAPACITY. FOUR STORM MANHOLES AND ONE WINGWALL OUTFALL WILL BE ADDED INTO THE SYSTEM ALONG WITH STREAM CHANNEL IMPROVEMENTS TO THE EXISTING OUTFALL LOCATION. IMPROVEMENTS TO THE STREAM CHANNEL DOWNSTREAM OF THE EXISTING OUTFALL LOCATION WILL BE PREPARED IN THE NEXT PHASE OF THE

STORMWATER RUNOFF CONSIDERATION:

EXISTING AND PROPOSED STORM SEWER WILL BE USED TO DRAIN THE STORMWATER RUNOFF. THERE IS NO CHANGE IN STORM WATER QUANTITY RESULTING FROM THIS PROJECT.

EROSION AND SEDIMENT CONTROL MEASURES:

THE EROSION AND SEDIMENT CONTROL MEASURES FOR THIS PROJECT AREA INCLUDE SILT FENCE WITH WIRE SUPPORT, CULVERT INLET PROTECTION, SOIL SRABILIZATION BLANKETS AND MATTING, DEWATERING STRUCTURES, INLET PROTECTION CONSTRUCTION ENTRANCE AND TREE PROTECTION. INLET PROTECTION: VESCH 3.07 TREE PROTECTION FENCE: VESCH 3.38 DEWATERING STRUCTURE VESCH 3.26 SILT FENCE WITH WIRE SUPPORT VESCH 3.05 CONSTRUCTION ENTRANCE VESCH 3.02 SOIL STABILIZATION BLANKETS & MATTING VESCH 3.36 CULVERT OUTLET PROTECTION VESCH 3.18

PERMANENT STABILIZATION:

ALL OF THE AREA DISTURBED WITH THIS PLAN WILL BE RESTORED IN ACCORDANCE WITH THE LANDSCAPING PLAN AND THE SEED MIX IDENTIFIED ON SHEET 20 AND 20A.

EROSION & SEDIMENT CONTROL PROGRAM:

- 1. THE EROSION CONTROL PLAN IS INTENDED TO ESTABLISH PERIMETER CONTROL MEASURES WHICH INCLUDES INLET PROTECTION (IP) & (SILT FENCE).
- 2. NO DISTURBED AREA WILL REMAIN DENUDED FOR MORE THAN 7 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY ARLINGTON COUNTY.
- 3. WHERE CONSISTENT WITH JOB SAFETY REQUIREMENTS, ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES. NO MATERIAL SHALL BE PLACED IN STREAMBEDS. ANY STOCKPILED MATERIAL WHICH WILL REMAIN IN PLACE LONGER THAN 14 DAYS SHALL BE SEEDED AND MULCHED. WHEN SPOIL IS PLACED ON THE DOWNHILL SIDE OF TRENCH, IT SHALL BE BACKSLOPED TO DRAIN TOWARD THE TRENCH. WHEN NECESSARY TO DEWATER THE TRENCH, THE PUMP DISCHARGE HOSE SHALI OUTLET IN A STABILIZED AREA OR A SEDIMENT TRAPPING DEVICE.
- 4. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN GRADING. FIRST AREAS TO BE CLEARED ARE TO BE THOSE REQUIRED FOR THE PERIMETER CONTROLS.
- 5. ALL TEMPORARY EARTH BERMS, DIVERSIONS AND SEDIMENT CONTROL DAMS ARE TO BE MULCHED AND SEEDED FOR TEMPORARY VEGETATIVE COVER IMMEDIATELY AFTER GRADING. STRAW OR HAY MULCH IS REQUIRED. THE SAME APPLIES TO ALL SOIL STOCKPILES.
- 6. DURING CONSTRUCTION, ALL STORM SEWER INLETS WILL BE PROTECTED BY INLET PROTECTION
- 7. ALL PRACTICES AND CONTROL DEVICES DESCRIBED HEREON, SHALL CONFORM TO THE CURRENT VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH). IN ADDITION, THE CONTRACTOR SHALL TAKE THE FOLLOWING STEPS TO MINIMIZE THE VOLUME OF SILT:
 - CONTRACTOR SHALL EVALUATE THE SITE TO DETERMINE EXTENSIVE CUT AND FILL AREAS, AND SHALL WORK THOSE AREAS TO MINIMIZE THE EXTENT OF HEAVY EQUIPMENT WORK. CONTRACTOR SHALL STRIVE TO BRING AREAS TO GRADE (ROUGH OR FINISH) AND TO STABILIZE, BY TEMPORARY OR PERMANENT VEGETATION, THESE DISTURBED AREAS PRIOR TO BEGINNING WORK IN ANOTHER AREA.
- FILL AREAS SHALL BE COMPACTED COMPLETELY PRIOR TO THE END OF EACH WORK DAY. FILL SLOPE SURFACES SHALL BE LEFT ROUGHENED TO REDUCE SHEET EROSION OF THE SLOPES. CONTRACTOR SHALL RE-DIRECT CONCENTRATED RUNOFF, BY EARTH BERMS OR OTHER DEVICES, AROUND ACTIVELY DISTURBED AREAS TO STABILIZED OUTLETS.
- C. CUT SLOPE, AS NECESSARY, SHALL BE PROTECTED FROM CONCENTRATED FLOW BY BERMS ABOVE THE SLOPE AND DIRECTED AROUND THE DISTURBED AREA TO STABILIZED OUTLETS.
- D. IN NEW PAVEMENT AREAS, PLACE THE AGGREGATE BASE STONE ON THE FINISH SUBGRADE AT THE EARLIEST POSSIBLE TIME.

PERVIOUS AND IMPERVIOUS AREA TABLE PRE-DEVELOPMENT | POST-DEVELOPMENT TOTAL PROJECT AREA (LOW) 8,164 SF (0.19 AC) IMPERVIOUS AREA 975 SF 975 SF IMPERVIOUS COVERAGE 11.94% 11.94% OF PROJECT AREA TOTAL LAND DISTURBANCE 8,164 SF 8,164 SF AREA (LOD) PERVIOUS AREA 7189 SF 7189 SF **DECREASED IMPERVIOUS AREA** 0.00 SF 0.00 SF

MAINTENANCE PROGRAM:

THE FOLLOWING IS A PROGRAM OF MAINTENANCE FOR THE MECHANICAL CONTROLS SPECIFIED IN THIS NARRATIVE AND ON THE PLAN:

- 1. THE SITE SUPERINTENDENT OR HIS/HER REPRESENTATIVE SHALL MAKE A VISUAL INSPECTION OF ALL MECHANICAL CONTROLS AND NEWLY STABILIZED AREA (I.E. SEEDED AND MULCHED AND/OR SODDED AREAS) ON A DAILY BASIS; ESPECIALLY AFTER A HEAVY RAINFALL EVENT TO INSURE THAT ALL CONTROLS ARE MAINTAINED AND PROPERLY FUNCTIONING. ANY DAMAGED CONTROLS SHALL BE REPAIRED PRIOR TO THE END OF THE WORK DAY INCLUDING RE-SEEDING AND MULCHING OR RE-SODDING IF NECESSARY.
- 2. ALL SEDIMENT TRAPPING DEVICES SHALL BE CLEARED OUT AT 50% TRAP CAPACITY AND THE SEDIMENT SHALL BE DISPOSED OF BY SPREADING ON THE SITE OR IF NOT SUITABLE FOR FILL, HAULING AWAY AND DEPOSITING AT AN ACCEPTABLE DUMP SITE.
- 3. THE CONTRACTOR SHALL TAKE SPECIAL CARE TO PREVENT MUD AND/OR OTHER DEBRIS FROM BEING ENTERED ONTO EXISTING SWM/BMP FACILITIES OR DOWN STREAM WATER WAYS. SHOULD OFF SITE AREAS BECOME POLLUTED BY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING THE EFFECTED AREAS TO THE SATISFACTION OF THE INSPECTOR.
- 4. AT THE COMPLETION OF CONSTRUCTION AND PRIOR TO BOND RELEASE, ALL TEMPORARY SEDIMENT CONTROLS SHALL BE REMOVED AND ANY REMAINING DENUDED AREAS SHALL BE STABILIZED. CERTAIN DEVICES MAY BE REMOVED PRIOR TO CONSTRUCTION COMPLETION BUT ONLY WITH THE APPROVAL OF THE COUNTY INSPECTOR.
- 5. AFTER CONSTRUCTION OPERATIONS HAVE ENDED, ALL DISTURBED AREAS SHALL BE STABILIZED. UPON APPROVAL OF THE COUNTY INSPECTOR, MECHANICAL SEDIMENT CONTROLS SHALL BE REMOVED AND THE GROUND PERMANENTLY STABILIZED WITH VEGETATION WITHIN 30 DAYS.

TEMPORARY SEEDING:

SEE SHEET III-288 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH) FOR ALLOWABLE PLANTING MATERIAL, SEEDING RATES, AND DATES. THE REQUIREMENTS OF THE "SOUTH" PLANTING REQUIREMENTS SHALL BE FOLLOWED. LIMING SHALL BE BASED ON TABLE 3.31-A OF VESCH. FERTILIZERS SHALL BE APPLIED AS 600 LB/ACRE. THE FERTILIZER SHALL BE INCORPORATED INTO THE TOP 2-4" OF SOIL. SEED SHALL BE EVENLY APPLIED AND SMALL GRAINS SHALL BE PLANTED NO MORE THAN 1.5" DEEP. SEEDING MADE IN FALL FOR WINTER COVER AND DURING HOT SUMMER MONTHS SHALL BE MULCHED.

SODDED AREAS SHALL BE BROUGHT TO FINAL GRADE IN ACCORDANCE WITH THE APPROVED PLANS. SOIL TEST SHOULD BE MADE TO DETERMINE THE EXACT REQUIREMENTS FOR LIME AND FERTILIZER. PRIOR TO LAYING SOD, SOIL SURFACE SHALL BE CLEAR OF TRASH, DEBRIS AND LARGE OBJECTS. QUALITY OF SOD SHALL BE STATE CERTIFIED AND ENSURE GENETIC PURITY AND HIGH QUALITY. SOD SHALL NOT BE LAID IN EXCESSIVELY WET OR DRY WEATHER AND BE DELIVERED AND INSTALLED WITHIN 36 HOURS. SOD SHOULD NOT BE LAID ON FROZEN SOIL SURFACE AND SHALL BE INSTALLED PER PAGE III-339 OF VESCH.

DUST SHALL BE CONTROLLED USING A VARIETY OF METHODS TO INCLUDE VEGETATIVE COVER, MULCH, TILLAGE, IRRIGATION, SPRAY-ON ADHESIVES, STONE, BARRIERS, AND CALCIUM CHLORIDE. THE IMPLEMENTATION OF THE DUST CONTROL METHODS SHALL BE INSTALLED PER SECTION 3.39 OF

NO STOCKPILING IS PROPOSED EXCEPT FOR NORMAL EARTH MOVING ACTIVITIES WITHIN THE AREAS OF THE LIMITS OF DISTURBANCE, FOR WHICH EROSION AND SEDIMENT CONTROLS ARE PROVIDED. ALL EXCESS SOIL SOIL MATERIAL SHALL BE HAULED OFF AND DISPOSED OF IN LIEU OF ON-SITE STOCKPILING. IN THE EVENT OF STOCKPILING, CONTRACTOR SHALL APPLY THE CRITERIA FROM MINIMUM STANDARDS MS-1, MS-2 (9VAC25-840-40).

GENERAL LAND CONSERVATION NOTES

- 1. NO DISTURBED AREA WILL REMAIN DENUDED FOR MORE THAN 7 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY THE DIRECTOR OR HIS AGENT
- 2. ALL EROSION CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN GRADING. FIRST AREAS TO BE CLEARED ARE TO BE THOSE REQUIRED FOR THE PERIMETER
- 3. ALL STORM AND SANITARY SEWER LINES NOT IN STREET ARE TO BE MULCHED AND SEEDED WITHIN 5 DAYS AFTER BACKFILL. NO MORE THAN 500 FEET ARE TO BE OPEN AT ANY ONE TIME
- 4. ELECTRIC POWER, TELEPHONE AND GAS SUPPLY TRENCHED ARE TO BE COMPACTED, SEEDED AND MULCH WITHIN 5 DAYS OF BACKFILL.
- 5. ALL TEMPORARY BERMS, DIVERSION AND SEDIMENT CONTROL DAMS ARE TO BE MULCHED AND SEEDED FOR TEMPORARY VEGETATIVE COVER IMMEDIATELY AFTER GRADING. STRAW OR HAY MULCH IS REQUIRED. THE SAME APPLIES TO ALL SOIL STOCKPILE
- 6. DURING CONSTRUCTION, ALL STORM INLETS WILL BE PROTECTED BY INLET PROTECTION DEVICES. MAINTAINED AND MODIFIED AS REQUIRED BY CONSTRUCTION PROGRESS.
- 7. ANY DISTURBED AREA NOT COVERED NY NOTE # 1 ABOVE AND NOT PAVED, SODDED OR BUILT UPON BY NOVEMBER 1ST, OR DISTURBED AFTER THAT DATE, SHALL BE MULCHED WITH HAY OR STRAW AT THE RATE OF 2 TONS PER ACRE AND OVER-SEEDED NO LATER THAN MAY 15TH.
- 8. AT THE COMPLETION OF THE CONSTRUCTION PROJECT AND PRIOR TO BOND RELEASE, ALL TEMPORARY SEDIMENT CONTROLS SHALL BE REMOVED AND ALL DENUDED AREAS SHALL BE STABILIZED. ARLINGTON COUNTY INSPECTOR TO APPROVE REMOVAL OF ALL TEMPORARY SILTATION MEASURES.

TABLE 6-1

EROSION AND SEDIMENT CONTROL NOTES

ES-1: Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook and Virginia's Regulations 4VAC50-30 Erosion and Sediment Control Regulations.

ES-2: The plan approving authority must be notified one week prior to the pre-construction conference, one week prior to the commencement of land disturbing activity, and one week prior to the final inspection.

ES-3: All erosion and sediment control measures are to be placed prior to or as the first step in clearing.

ES-4: A copy of the approved erosion and sediment control plan shall be maintained on the site at all times.

ES-5: Prior to commencing land disturbing activities in areas other than indicated on these plans (including, but not limited to, off-site borrow or waste areas), the contractor shall submit a supplementary erosion control plan to the owner for review and approval by the plan approving authority.

ES-6: The contractor is responsible for installation of any additional erosion control measures necessary to prevent erosion and sedimentation as determined by the plan approving authority.

ES-7: All disturbed area are to be drain to approved sediment control measures at all times during land disturbing activities and during site development until final stabilization is achieved.

ES-8: During dewatering operations, water will be pumped into an approved filtering device.

ES-9: The contractor shall inspect all erosion control measures periodically and after each runoff-producing rainfall event. Any necessary repairs or cleanup to maintain the effectiveness of the erosion control devices shall be made immediately.

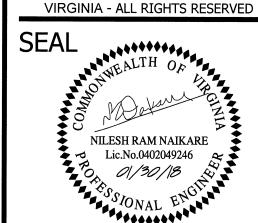
> FOR ALL DETAILS AND SPECIFICATIONS, SEE THE VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK



DEPARTMENT OF **ENVIRONMENTAL SERVICES** FACILITIES & ENGINEERING DIVISION ENGINEERING BUREAU 2100 CLARENDON BOULEVARD, SUITE 813 ARLINGTON, VA 22201

FAX: 703.228.3606 COPYRIGHT © 2016 ARLINGTON COUNTY

PHONE: 703.228.3629



APPROVALS QUALITY CONTROL ENGINEER WATER, SEWER, STREETS BUREAU CHIE NOT APPLICABLE

PRØJECT MANAGER REVISIONS DATE

TRANSPORTATION DIRECTOR

NOT CONTROL \bigcirc 70 S

NOIS

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RUN

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PLOTTED: JANUARY 30 2018 PLOTTED BY:KPILONG

SCALE: AS NOTED



8 OF 21 SHEET

SOURCE: VA. DSWC

REVISED ON 11/08/2016

TABLE 3.31-B (Revised June 2003) **TEMPORARY SEEDING SPECIFICATIONS** QUICK REFERENCE FOR ALL REGIONS

<u>SEED</u>						
APPLICATION DATES	SPECIES	APPLICATION RATES				
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (Iolium multi- florum) & Cereal (Winter) Rye (Secale cereale)	50 -100 (lbs/acre)				
Feb. 16 - Apr. 30	Annual Ryegrass (lolium multi-florum)	60 - 100 (lbs/acre)				
May 1 - Aug. 31	German Millet	50 (lbs/acre)				

FERTILIZER & LIME

 Apply 10-10-10 fertilizer at a rate of 450 lbs. / acre (or 10 lbs. / 1,000 sq. ft.) Apply Pulverized Agricultural Limestone at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

1 - A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site. 2 - Incorporate the lime and fertilizer into the top 4-6 inches of the soil by disking or by other means.

3 - When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/e&s.htm#pubs

Pre-Storm Erosion and Sediment Control Checklist

Per Erosion and Sediment Control General Note 6, the Contractor is responsible for the installation and maintenance of any additional erosion and sediment control (ESC) measures necessary to prevent erosion and sedimentation as determined by the County. These supplementary practices are in addition to those shown in an ESC plan. ESC practices shall be modified as needed to ensure only clear water is discharged from the site.

The following actions shall be taken prior to storm events with predicted heavy and/or large volume rainfall to prevent sediment discharges from a construction site. A typical summer thunderstorm is an example of a storm event with predicted heavy and/or large volume rainfall.

Perimeter controls

- ☐ Silt fence shall be checked for undermining, holes, or deterioration of the fabric. Fencing shall be replaced immediately if the fabric is damaged or worn. Silt fence must be trenched into the ground per state specifications (Std & Spec 3.09).
- ☐ Wooden stakes or steel posts shall be properly secured upright into the ground. Damaged posts or stakes must be replaced.
- ☐ Sediment that has accumulated against the silt fence should be removed. Accumulated sediment must be removed when the level reaches one-half the height of the fencing.
- ☐ Hay bales or a stone berm should be placed across the construction entrance to prevent sediment from leaving the construction site.

Exposed slopes and soil

- ☐ Exposed slopes not at the final stabilization phase shall be covered with tarps, plastic sheeting, or erosion control matting. Covering material shall be properly secured/anchored.
- ☐ Controls shall be installed to prevent concentrated flow down an exposed slope. Berms or diversion dikes shall be installed at the top of cut / exposed slopes to direct storm flow around the disturbed area.
- ☐ Exposed slopes at the final stabilization phase shall be stabilized using slope stabilization practices such as soil stabilization blankets or matting as specified in the Virginia Erosion and Sediment Control Handbook (VESCH) Std & Spec 3.36. Blankets or mats must be properly secured and anchored to the slope using staples, pins, or stakes.
- ☐ Seeded areas shall be checked and reseeded as necessary to cover exposed soil. Recently seeded areas shall be protected by straw or soil stabilization blankets to prevent seeding from being washed away.

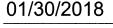
Stockpiles

☐ Stockpiled soil and other loose materials that can be washed away shall be covered with a tarp, plastic sheeting, or other stabilization matting. The cover must be properly secured / anchored down to prevent it from being blown off and exposing materials to rain. Controls such as hay bales or booms should be placed along the perimeter of the stock pile (downhill side).

- checked daily and after each significant rainfall.

In addition to these pre-storm actions, all erosion and sediment control (ESC) measures must be

☐ Inlet protection controls shall be inspected to ensure they are functioning properly and flooding will not occur. Clogged or damaged controls must be replaced immediately. Ensure controls allow for overflow / bypass of stormwater runoff during significant storm events.



Qianqian Li, P.E. ESC Program Administrator Department of Environmental Sevices 2100 Clarendon Boulevard, Suite 813 Arlington, Virginia 22201

Re: Erosion and Sediment Control Permit Application for:

Windy Outfall

street address

2701 and 2707 N. Nelson Street

lot, block, section subdivision

permit number

Dear Mrs. Li:

I hereby certify that I accept the responsibilities of Responsible Land Disturber for the above referenced project. I understand that these responsibilities include:

- 1. Reviewing the erosion and sedimentation (E&S) plan for the project.
- 2. Walking the site prior to construction to identify critical areas. 3. Conducting a pre-construction briefing with earth moving and site contractors to present the E&S plan and highlight the presence of critical areas, the limits of clearing and the required E&S controls and tree protection measures to be installed. Call 703-228-0760 to schedule pre-construction meeting.
- 4. Regularily inspecting the site during construction to ensure that all E&S controls are functioning and are adequate to address erosion and sedimentation. Inspect the site 48 hours after a runoff-generating storm, and provide a copy of the inspection findings to the county.
- 5. Reporting to the owner the presence inadequate or non functioning E&S controls when they are observed. 6. Ensuring that temporary soil stabilization is applied within 7 days to areas denuded that will remain
- undisturbed for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.

Responsible Land Disturber.

7. Calling (703) 228-0760 at least 80 hours before demolishing any structure.

I may be reached at _____ with questions about this plan or my execution of the duties of

Nilesh Naikare

name printed VA PE 0402049246

professional registration (type and number)

DEPARTMENT OF **ENVIRONMENTAL SERVICES**

FACILITIES & ENGINEERING DIVISION ENGINEERING BUREAU 2100 CLARENDON BOULEVARD, SUITE 813 ARLINGTON, VA 22201 PHONE: 703.228.3629 FAX: 703.228.3606

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NILESH RAM NAIKARE Lic.No.0402049246

APPROVALS

NOT APPLICABLE TRANSPORTATION DIRECTOR

DATE

REVISIONS

PHASE

OUTFALL

RUN

RLD CONTROL ON SEDIMENT

DESIGNED: KP DRAWN: KP CHECKED: NN MISS UTILITY TRANSMITTAL #: 5320

FILENAME: S48D-220-E_AND_S_NOTES_SWPPP.DWG

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PLOTTED BY:KPILONG

LDAPERMIT

SCALE: AS NOTED

SHEET 9 OF 21

STORMWATER POLLUTION PREVENTION PLAN Windy Run Outfall

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) **Arlington County Projects** (Linear Development / Stormwater Retrofit)

For Construction Activities At:

Windy Run Outfall 2701 & 2707 N. Nelson Street Arlington, VA 22207

Latitude: 38.9047 N (decimal degrees)

Longitude: 77.0988 W (decimal degrees)

Construction Activity Operator:

Insert Company/Organization Name Insert Address Insert City, State, Zip Code Insert Telephone Number Insert Email Address Insert 24-hour Emergency Contact

SWPPP Preparation Date:

November 22, 2017

CERTIFICATION

"I certify under penalty of law that I have read and understand this document and that this document and all attachments were prepared in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information. including the possibility of fine and imprisonment for knowing violations."

Operator Name:	
Title:	
Signature:	
Date:	

Arlington County SWPPP 12/2016

STORMWATER POLLUTION PREVENTION PLAN Windy Run Outfall

1.0 SWPPP Documents Located Onsite & Available for Review

SWPPP Document Type	Located Onsite 8	& Available for Review?
Registration Statement Notice of Coverage Letter Construction General Permit Pollution Prevention Plan Erosion & Sediment Control Plan Stormwater Management Plan LDA Permit	Yes	

Required documents must be kept at a centralized location on the project site (i.e. in a mail box or other container)

2.0 Authorized Non-Stormwater Discharges

Type of Authorized Non-Stormwater Discharges	Likely Present a	at Your Project Site?
	57	
Uncontaminated excavation dewatering	⊠ Yes	∐ No
Landscape irrigation		□ No
Others [describe]	☐ Yes	□ No

3.0 Pollution Prevention Awareness

Employees will be given a "walk through" of the site identifying areas of possible pollution and will be shown Erosion and Sediment Controls and Pollution Prevention Practices (identified in Sections 4.0 and 5.0 of this SWPPP) that are applicable to their assigned job duties. A refresher meeting and "walk through" will be conducted on an as needed

4.0 Erosion & Sediment Controls

Select all that apply	Erosion & Sediment Control	Estimated Installation Date	Estimated Removal Date	Responsible Party (Name, Contact Phone Number)
\boxtimes	Construction Entrance (Std. & Spec. 3.02)			
\boxtimes	Silt Fence with wire support (Std. & Spec. 3.05)			
	Culvert Inlet Protection (Std. & Spec. 3.08)	*		
	Outlet Protection (Std. & Spec. 3.18)		NA	
	Temporary Seeding (Std. & Spec. 3.31)	As required	NA	
	Permanent Seeding (Std. & Spec. 3.32)		NA	
	Sodding (Std. & Spec. 3.33)	\$ 1	NA	
	Mulching (Std. & Spec. 3.35)		NA	
	Safety Fence (Std. & Spec 3.01)			
	Storm Drain Inlet Protection			

Arlington County SWPPP 12/2016

STORMWATER POLLUTION PREVENTION PLAN Windy Run Outfall

	(Std. & Spec 3.08 and/or Arlington County Std. & Spec from approved ESC plan)		
\boxtimes	Dewatering (Std. & Spec 3.26 and/or Arlington County Std. & Spec from approved ESC plan)		
	Turbidity Curtain (Std. & Spec 3.27 and/or Arlington County Std. & Spec from approved ESC plan)		
	Tree Protection (Arlington County Std. & Spec from approved ESC plan)		
	Stream Crossing / Cofferdams (Std. & Spec 3.25 or on plan)		
	Pump Around System (detail on approved plan)	1.	
	Rip Rap (Std. & Spec. 3-19)		
	Other(s) [describe]		

<u>Pre-Storm Erosion and Sediment Control Checklist</u>
The following actions shall be taken <u>prior to storm events with predicted heavy and/or large volume rainfall</u> to prevent sediment discharges from a construction site. A typical summer thunderstorm is an example of a storm event with predicted heavy and/or large volume rainfall.

- Perimeter controls (silt fence, hay bales, stone berms) used to prevent sediment from leaving the site shall be checked for undermining, holes, or deterioration and repaired/replaced if needed.
- Sediment that has accumulated against perimeter controls shall be removed if the depth exceeds more than 1/2 of the silt fence height.
- Exposed soil or slopes shall be covered with straw, tarps, plastic sheeting, or erosion control matting. Covering material shall be properly secured/anchored.
- Stockpiled soil and other loose materials that can be washed away shall be covered with a tarp, plastic sheeting, or other stabilization matting. The cover must be properly secured / anchored down to prevent it from being blown off and exposing materials to rain. Controls such as hay bales or booms should be placed along the perimeter of the stock pile (downhill side). Stockpiled materials should not obstruct flow along the curb line.
- ☐ Inlet protection controls shall be inspected to ensure they are installed per approved ESC plan, are functioning properly, and maintained as needed.

Arlington County SWPPP 12/2016

STORMWATER POLLUTION PREVENTION PLAN

5.0 Potential Sources of Pollution & Pollution Prevention Practices

	Pollutants											
Pollutant-Generating Activity	Likely Present at your Project Site?	Sediment	Nutrients	Heavy Metals	pH (acids and bases)	Pesticides & Herbicides	Oil & Grease	Bacteria & Viruses	Trash, Debris, Solids	Other Toxic Chemicals	Pollution Prevention Practice	Responsible Party (Name, Contact Phone Number)
Clearing, grading, excavating, and un-stabilized areas	⊠ Yes □ No	X	х	200000000000000000000000000000000000000					х		(1)	,
Paving and saw cutting operations	☐ Yes ⊠ No	x	*				×		х		(2)	
Concrete operations, washout, and cement waste	☐ Yes ⊠ No			Х	х				х		(3)	
Washing / cleaning	⊠ Yes □ No	X	×	x	x		x		х	х	(4)	
Dewatering operations	⊠ Yes □ No	х	х						х		(5)	
Material / chemical use and storage	⊠ Yes □ No	х	х	х	х	X	х		х	Х	(6)	
Equipment and vehicle maintenance	⊠ Yes □ No		-		Х		х		х	х	(7)	
Waste management / disposal	☐ Yes ⊠ No								х	х	(8)	
Sanitary waste	⊠ Yes □ No		X		Х			х			(9)	
Nutrient management	☐ Yes ⊠ No	х	х						х	х	(10)	

Arlington County SWPPP 11/2016

REVISED ON 11/08/2016

STORMWATER POLLUTION PREVENTION PLAN

Pollution Prevention Practices:

- (1) Clearing, grading, excavating, and un-stabilized areas Maintain as much existing vegetation as practicable. Utilize erosion and sediment controls to prevent sediment from leaving the construction site. Dispose of clearing debris at acceptable disposal sites. Apply permanent or temporary stabilization, sodding and/or mulching to denuded areas in accordance with the erosion and sediment control specifications and the general VPDES permit for discharges of stormwater from construction activities. Plastic sheeting, tarps, 2" deep straw cover, and/or erosion matting can be used for temporary slope stabilization.
- (2) Paving and saw cutting operations Cover storm drain inlets during paving and saw cutting operations. Use pollution prevention materials such as drip pans and absorbent/oil dry for all paving machines to limit leaks and spills of paving materials and fluids. Slurry from saw cutting operations may not enter a storm drain; it must be captured and disposed of properly.

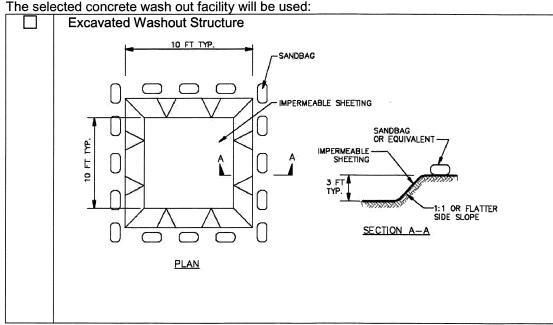
Temporary controls (i.e. tarp and block, sand berms, booms, and/or filter fabric) shall be used to cover storm drains during paving and saw cutting operations to prevent any discharges from entering the storm drain. These temporary controls SHALL BE REMOVED AT THE END OF EACH DAY. Inlet protection specified in the approved ESC plan shall be installed or reinstalled following the completion of paving or saw cutting work.

	Method of covering / protecting storm drains:
	Method for containment, collection, disposal of saw cut slurry:

(3) Concrete operations, washout, and cement waste – Direct concrete wash water into a leak-proof container or leak-proof settling basin that is designed so that no overflows can occur due to inadequate sizing or precipitation. Hardened concrete wastes shall be removed and disposed of in a manner consistent with the handling of other construction wastes.

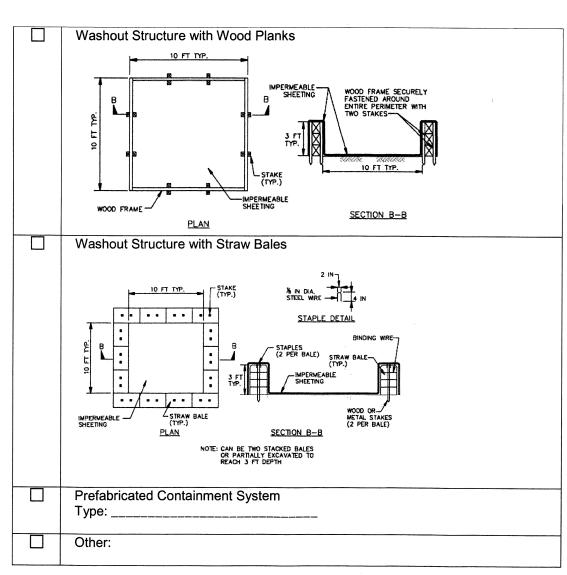
Washouts must be sized appropriately for the needs of the project. Do not locate washouts near storm drains. Concrete wash water is not allowed to enter a storm drain. Concrete washout areas cannot be used for the purpose of dewatering. Set up and operate small mixers on top of plywood that is covered by tarps or heavy plastic drop cloths. Wash out mixers and truck chutes in designated contained washout areas No tracking from washout areas may occur.

☐ Place plastic sheeting, boards, or tarps under concrete truck chutes during pouring



Arlington County SWPPP 12/2016

STORMWATER POLLUTION PREVENTION PLAN



- (4) Washing / cleaning Prevent the discharge of wash water to the storm drain system or surface waters.
- Provide a suitable containment system for cleaning equipment such as a drum, prefabricated system, lined container, or portable wash pad.
- ☐ The wash / containment area must be sized appropriately for the needs of the project.
- Locate wash / containment areas away from storm drains.
- Dewatering operations Construction site dewatering may not be discharged without treatment. Sediment laden or turbid water shall be filtered, settled or similarly treated prior to discharge.
 - ☐ Dewatering detail on approved ESC plan will be used.
 - Dewatering option from Planning & Field Guide for Pollution Prevention (P2):
 - ⊠ Filter Box
 ■
 Filter Box
 Straw Bale/Silt Fence Pit Portable Sediment Tank ☐ Filter Bag
- Arlington County SWPPP 12/2016



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NILESH RAM NAIKARE

Lic.No.0402049246

01/30/18

WATER, SEWER, STREETS BUREAU CHIE NOT APPLICABLE

TRANSPORTATION DIRECTOR

PROJECT MANAGER

SE

REVISIONS

APPROVALS

DESIGNED: KP DRAWN: KP CHECKED: NN

MISS UTILITY TRANSMITTAL #: 5320

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SCALE: AS NOTED

SHEET 10 OF 21

	☐ Pump from Settling Pit ☐ Manufactured System:
	☐ Other:
(6)	Material / chemical use and storage –Designate areas of the construction site for material delivery and storage. Locate these areas near construction entrances and away from waterways and storm drains. Enclose, cover or berm construction material storage areas if susceptible to stormwater.
	☑ Stockpiled soil and other loose materials that can be washed away shall be covered with a tarp, plastic sheeting, or other stabilization matting. The cover must be properly secured / anchored down to prevent it from being blown off and exposing materials to rain. Controls such as hay bales or booms should be placed along the perimeter of the stock pile (downhill side).
	Stockpiled materials located on the edge of roadways should not obstruct flow along the curb line (gutter). Leave at least a one (1) foot space away from the curb to allow stormwater to flow along the curb line. Boards with cinder blocks and/or bricks may be used to create the flow through space.
	☐ Method used to ensure flow through:
	☐ Provide secondary containment for paint, pesticides, cleaners, solvents, and/or other chemicals and keep these items secured and covered when not in use
	Regularly inspect containers.
(7)	Equipment and vehicle maintenance – Use a designated area, away from storm drains and surface waters, to refuel vehicle or equipment or perform maintenance.
	Regularly inspect vehicles and equipment for leaks. Clean up all spills and leaks upon discovery.
	The second of th
	oxtimes Use containment measures when conducting fueling (e.g. place spill pad, board, plastic sheeting on ground)
	ground)
	ground) ☐ Regularly inspect fuel containers.
(8)	ground) ☑ Regularly inspect fuel containers. ☑ Provide secondary containment and secure storage for fuel, oil, and/or lubricants ☑ Keep drip pans, sheeting, and/or absorbent pads under heavy equipment when not in use (i.e.
(8)	ground) Regularly inspect fuel containers. Provide secondary containment and secure storage for fuel, oil, and/or lubricants Keep drip pans, sheeting, and/or absorbent pads under heavy equipment when not in use (i.e. overnight) to capture leaks. Waste management / disposal – Designate a waste collection area on the construction site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a waterway. Ensure that waste containers have lids so they can be covered before periods of rain. Schedule waste collection to
(8)	ground) Regularly inspect fuel containers. Provide secondary containment and secure storage for fuel, oil, and/or lubricants Keep drip pans, sheeting, and/or absorbent pads under heavy equipment when not in use (i.e. overnight) to capture leaks. Waste management / disposal – Designate a waste collection area on the construction site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a waterway. Ensure that waste containers have lids so they can be covered before periods of rain. Schedule waste collection to prevent the containers from overfilling. A sufficient number of waste containers must be kept on a site to handle the quantity of waste
(8)	ground) ☐ Regularly inspect fuel containers. ☐ Provide secondary containment and secure storage for fuel, oil, and/or lubricants ☐ Keep drip pans, sheeting, and/or absorbent pads under heavy equipment when not in use (i.e. overnight) to capture leaks. ☐ Waste management / disposal — Designate a waste collection area on the construction site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a waterway. Ensure that waste containers have lids so they can be covered before periods of rain. Schedule waste collection to prevent the containers from overfilling. ☐ A sufficient number of waste containers must be kept on a site to handle the quantity of waste produced.
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(8)	management / disposal – Designate a waste collection area on the construction site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a waterway. Ensure that waste containers have lids so they can be covered before periods of rain. Schedule waste collection to prevent the containers from overfilling. A sufficient number of waste containers must be kept on a site to handle the quantity of waste produced. Check waste containers frequently for damage / leaks and clean using DRY methods when necessary. Never clean out a dumpster by power washing or hosing it out.

STORMWATER POLLUTION PREVENTION PLAN

Corrective Action Needed

& Notes

Date Corrective

Action Taken

8.0 Self Inspection Report & Corrective Action Log (make additional copies as necessary)

Discharges to impaired waters, surface waters within a TMDL watershed, or exceptional waters:

Is a copy of the SWPPP available on site? ☐ Yes ☐ No Is the SWPPP complete? ☐ Yes ☐ No

Compliance?

Company/Organization:

Name of Inspector:

Qualifications:

Inspection Schedule

Once every 4 business days

Describe phase of construction: ___

Erosion & Sediment Controls/

Pollution Prevention Practices

Are controls in place to prevent sediment

Are perimeter controls adequately installed

from being tracked off site or onto the

Are storm drains properly protected /

Are all slopes and disturbed areas,

Are dewatering operations working

Is construction dust properly controlled?

Are mature trees and/or natural areas

worked properly stabilized?

properly?

properly protected?

Arlington County SWPPP 12/2016

including stockpiles, not actively being

approved inlet protection is in place?

and properly maintained?

Inspection Date: _____

Telephone Number:

STORMWATER POLLUTION PREVENTION PLAN

Sanitary waste - Prevent the discharge of sanitary waste by providing convenient and well-maintained portable sanitary facilities.

- □ Locate portable lavatories away from storm drains and surface waters.
- Keep portable lavatories level and provide secondary containment (i.e. trays)
- Regularly inspect facilities for leaks
- Schedule routine maintenance
- (10) Nutrient management Apply nutrients in accordance with manufacturer's recommendations. Do not apply during rainfall events or windy conditions. Provide secondary containment and keep fertilizer properly secured when not being used.
- Additional information and details can be found in the Arlington County Planning & Field Guide for Pollution Prevention (P2).

Stormwater Management Controls

Select all that apply	Stormwater Management Control	Estimated Installation Date	Responsible Party
	Exempted – stormwater management retrofit facility or stream restoration project	NA	NA
	Linear development project per Arlington County Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan ¹	NA	NA
	Post-development Stormwater Management Controls provided by a Larger Common Plan of Development or Sale	NA	Common Plan Construction Activity Operator
	Rooftop Disconnection		Construction Activity Operator

In accordance with Arlington County's Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan, approved by the Virginia Department of Environmental Quality (DEQ) on September 1, 2015, linear development projects conducted by the County are administered and tracked as follows consistent with 9VAC25-870-69.A.4, 9VAC25-870-76, and 9VAC25-870-92:

- Pollutant load changes will be computed as described in Section 3.A of the Action Plan. Retrofit opportunities will be evaluated for each project, using the screening and selection criteria applied and
- described in the adopted Stormwater Master Plan.
- Retrofft projects that meet the screening criteria and are determined by Arlington to be feasible and cost-effective will be implemented with specific linear development projects. Pollutant load reductions from retrofit projects will be
- computed as described in Section 5 of the Action Plan. In cases where retrofit projects are not feasible and cost-effective for a particular linear project, any POC load
- increases that might occur for that project will be addressed by larger overall POC load reductions in place or added through TMDL action plan implementation.

STORMWATER POLLUTION PREVENTION PLAN

In the above manner Arlington, as the MS4 operator and the construction site operator for its linear development projects, implements linear projects and retrofit projects in a manner that achieves the most TMDL POC reduction for the least cost, while fully accounting for load changes that occur with linear development project activity consistent with the DEQ Chesapeake Bay TMDL

Arlington County SWPPP 12/2016

maintained?

Are washout facilities (concrete, paint) available, labeled, and properly

Are trash and waste materials properly

Are trash receptacles covered and not

Are non-stormwater discharges (i.e. wash

water, saw cut slurry) properly managed?

maintenance, and/or staging areas free of

Are materials that are potential stormwater contaminants stored properly (covered /

Are vehicle and equipment fueling,

have secondary containment)?

Is a spill kit accessible onsite?

If yes, describe:

Arlington County SWPPP 12/2016

Non – Compliance Issues

Are portable lavatories level, in good

condition, and located away from storm

Are there any unauthorized discharges at the time of this inspection? $\ \square$ Yes $\ \square$ No

Has any unauthorized discharge occurred since the last inspection? ☐ Yes ☐ No

Describe any incidents of non-compliance not described above (use another page if necessary)

including the possibility of fine and imprisonment for knowing violations."

Operator or Assigned Qualified Personnel Name: ______

"I certify under penalty of law that I have read and understand this document and that this document and all attachments

were prepared in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those

persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information,

spills and leaks?

managed and disposed of?

STORMWATER POLLUTION PREVENTION PLAN

STORMWATER POLLUTION PREVENTION PLAN

Stabilization Measure

Modification Prepared By

(name & title)

(including location)

Sheet flow to Vegetated Filter (1 or 2)	(See Cover Page of this SWPPP)
Grass Channel	
Rainwater Harvesting	
Permeable Pavement (1 or 2)	
Infiltration (1 or 2)	
Bio-retention (1 or 2)	
Others [describe]	

Arlington County SWPPP 12/2016

Grading & Stabilization Activities Log

10.0 SWPPP Modification & Update Log

Arlington County SWPPP 12/2016

Date

Grading Activity

(including location)

Date Grading Activity Ceased

Description of the Modification / Update

Measures

Initiated

STORMWATER POLLUTION PREVENTION PLAN

7.0 Spill Prevention & Response

Most spills can be cleaned up using a spill kit. Absorbent/oil dry, sealable containers, plastic bags, and shovels/brooms are suggested minimum spill response items that should be available at the project site.

Protect all people Protect equipment and property 3rd Priority: Protect the environment

ARE LIKELY TO PRESENT A HAZARD. 2. Ensure the spill area is safe to enter and that it does not pose an immediate threat to health or safety of any

1. Check for hazards (flammable material, noxious fumes, cause of spill) – if flammable liquid, turn off engines

3. Stop the spill source. 4. Call co-workers and supervisor for assistance and to make them aware of the spill and potential dangers. 5. If possible, stop spill from spreading and/or entering storm drains (use absorbent or other materials as

and nearby electrical equipment. If serious hazards are present leave the area and call 911. LARGE SPILLS

- 6. If spilled material has entered a storm drain; contact Arlington County Fire Department and project manager. 7. Clean up spilled material according to manufacturer specifications, for liquid spills use absorbent materials
- and do not flush area with water. 8. Properly dispose of cleanup materials and used absorbent material according to manufacturer specifications.

Emergency Contacts:

Local Contacts Arlington County Fire & Police DES Water, Sewer, Streets 24-Hour Emergency Washington Gas Emergency

703-558-2222 703-228-6555 703-750-1400

Nights, Holidays & Weekends VA Dept. of Emergency Management 24 Hour Reporting Service

804-674-2400

Spill kit on site: Yes No

Location(s) of spill kit:

Arlington County SWPPP 12/2016

INSTRUCTIONS for COMPLETING the SINGLE FAMILY RESIDENCE, COMMON PLAN of DEVELOPMENT or SALE

General

A Stormwater Pollution Prevention Plan (SWPPP) must be developed prior to obtaining locality (e.g., City, County, Town) authorization

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

SWPPP Cover Page
For a construction activity, enter the project/site name and physical address (if available), including city (or town), state and zip code. Enter the latitude and longitude in decimal degrees of the construction activity

Enter the Construction Activity Operator's company/organization name, the Operator's name and mailing address, including city (or town), state, and zip code, telephone number, email address (if available), and a 24-hour emergency contact. Enter the SWPPP preparation date.

The Construction Activity Operator identified on the cover page of the SWPPP is responsible for certifying the information contained therein. Please sign the certification in INK. Please note that state statues require the SWPPP to be signed as follows: (1) For a corporation: by a responsible corporate officer; (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; (3) For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official.

Section 1.0 SWPPP Documents Located Onsite & Available for Review Utilize the provided checklist to ensure that the required SWPPP documents are located onsite and are available for review, if

Section 2.0 Authorized Non-Stormwater Discharges Identify the authorized non-stormwater discharges likely to be present at the project site. If an unlisted authorized non-stormwater discharge is likely to be present at the project site, provide it here.

Section 3.0 Pollution Prevention Awareness
Provide employees with a "walk through" of the project site and identify areas of possible pollution, erosion and sediment controls, and pollution prevention practices which are applicable to their assigned job duties. Conduct refresher meetings and perform additional "walk throughs" on an as needed basis.

Section 4.0 Erosion & Sediment Controls Identify the erosion and sediment controls to be implemented at the project site. For each erosion and sediment control, enter the estimated installation date and estimated removal date. If an unlisted erosion and sediment control will be implemented at the project site, provide the applicable information here.

Identify the pollutant-generating activities likely to be present at the project site; implement and maintain the corresponding pollution prevention practices. If an unlisted pollutant-generating activity is likely to be present at the project site, describe it, identify the associated pollutant(s), and provide the corresponding pollution prevention practice(s) to be implemented and maintained. Section 6.0 Stormwater Management Controls

Identify the stormwater management controls to be implemented at the project site, if applicable. For each stormwater management control, enter the estimated installation date. If an unlisted stormwater management control will be implemented at the project site, provide the applicable information here. Section 7.0 Spill Prevention & Response

Most spills can be cleaned up following manufacturer specifications. The priority should be to protect all people, equipment, property, and the environment. Enter the telephone number of your local fire and police departments. Section 8.0 Inspections & Corrective Action Log Enter the qualified inspector's company/organization name, the inspector's name, telephone number, and qualifications. Select the

Section 5.0 Potential Sources of Pollution & Pollution Prevention Practices

Enter corrective actions needed; the party responsible for implementing the corrective actions, and the date corrective actions were taken, if applicable. Make additional copies of the inspection and corrective action log as necessary. Section 9.0 Grading & Stabilization Activities Log
Enter the date grading activities were initiated, a description of the grading activities including location, the date grading activities

applicable inspection schedule, enter the construction activity inspection date, and enter the date and rainfall amount of the last

measurable storm event (if applicable). Identify if the implemented best management practices are in compliance with the SWPPP.

ceased, the date stabilization measures were initiated, and a description of the stabilization measures including location

Section 10.0 SWPPP Modification & Update Log
Enter the SWPPP modification date, description of the SWPPP modification/update, and the name and title of the SWPPP modification preparer, if applicable.

Arlington County SWPPP 12/2016

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NILESH RAM NAIKARE

Lic.No.0402049246

01/30/18

WATER, SEWER, STREETS BUREAU CHIE

TRANSPORTATION DIRECTOR

NOT APPLICABLE

DATE

SEAL

APPROVALS

DESIGNED: KP DRAWN: KP

CHECKED: NN MISS UTILITY TRANSMITTAL #: 5320

FILENAME: S48D-220-E_AND_S_NOTES_SWPPP.DWG PATH:Q:\DATA\S48D\DESIGN\CAD\ACTIVE

PLOTTED: JANUARY 30 2018 PLOTTED BY:KPILONG

SCALE: AS NOTED

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REVISED ON 11/08/2016

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WINDY RUN OUTFALL

WATER QUALITY IMPACT ASSESSMENT (WQIA) NARRATIVE

THIS IS AN ARLINGTON COUNTY STORM DRAINAGE IMPROVEMENTS PROJECT.

THIS PHASE OF THE PROJECT CONSISTS OF REPLACING EXISTING 18-INCH STORM PIPE AND 24"

STORM PIPE WITH A 24-INCH PIPE. THE SITE AREA FOR THE WQIA IS DEFINED BY THE LIMITS OF

STORM PIPE WITH A 24-INCH PIPE. THE SITE AREA FOR THE WQIA IS DEFINED BY THE LIMITS OF WORK. A SITE SPECIFIC RPA HAS BEEN DETERMINED BASED ON CERTIFIED SURVEY INFORMATION PRESENTED HEREIN. THE RPA BOUNDARY WAS DELINEATED FROM THE PROPOSED STORM PIPE OUTSALL

EXISTING CONDITIONS

THE HIGHEST POINT OF THE PROJECT AREA IS ON THE NORTH WEST SIDE OF 2707 N. NELSON STREET. THE SITE IS LOCATED WITHIN WINDY RUN WATERSHED, AND IT HAS A VARIABLE HYDROLOGIC SOIL GROUP. THE SOIL TYPE IS "GLENELG-MANOR COMPLEX". SITE HAS STEEP SLOPES BETWEEN 12% TO 45%.

PROPOSED IMPROVEMENTS

THE STORM DRAINAGE SYSTEM EVENTUALLY DISCHARGES INTO THE WINDY RUN STREAM. THIS PROJECT WILL NOT ALTER THE EXISTING DRAINAGE PATTERNS, BUT IT IMPROVES THE STORM DRAINAGE CAPACITY. FOUR STORM MANHOLES AND ONE WINGWALL OUTFALL WILL BE ADDED INTO THE SYSTEM ALONG WITH STREAM CHANNEL IMPROVEMENTS TO THE EXISTING OUTFALL LOCATION. IMPROVEMENTS TO THE STREAM CHANNEL DOWNSTREAM OF THE EXISTING OUTFALL LOCATION WILL BE PREPARED IN THE NEXT PHASE OF THE PROJECT.

TREES/VEGETATION IMPACTS

THE CONTRACTOR WILL RESTORE DISTURBED AREAS TO THEIR ORIGINAL CONDITION, UNLESS OTHERWISE INDICATED IN THE LANDSCAPE PLAN. IN ORDER TO MAINTAIN CLEAR ZONE AND LINE OF SIGHT, THE MAJORITY OF THE VEGETATION CONSISTS OF TREES AND SHORTER SHRUBS. IMPACTED TREES WILL BE REMOVED FROM THE SITE AREA, AND WILL BE REPLACED AS PER REQUIREMENTS OF ARLINGTON COUNTY TREE REPLACEMENT CRITERIA. EXISTING TREES TO REMAIN WILL REQUIRE ROOT PRUNING AND/OR STANDARD TREE PROTECTION. TREE PROTECTION, REMOVAL, AND PRUNING AS WELL AS EXISTING TREE SURVEY AND TREE REPLACEMENT TABLES ARE SHOWN ON TREE PROTECTION PLAN AND LANDSCAPING PLAN.

STORMWATER AND RUNOFF IMPACTS

EXISTING AND PROPOSED STORM SEWER WILL BE USED TO DRAIN THE STORMWATER RUNOFF. THERE IS NO CHANGE IN STORM WATER QUANTITY RESULTING FROM THIS PROJECT.

EROSION AND SEDIMENT CONTROL IMPACTS

THE EROSION AND SEDIMENT CONTROL MEASURES FOR THIS PROJECT AREA IS LIMITED TO SILT FENCE WITH WIRE SUPPORT, CULVERT INLET PROTECTION, SOIL STABILIZATION BLANKETS AND MATTING, DEWATERING STRUCTURES, INLET PROTECTION CONSTRUCTION ENTRANCE AND TREE PROTECTION.

INLET PROTECTION: VESCH 3.07 TREE PROTECTION FENCE: VESCH 3.38

DEWATERING STRUCTURE VESCH 3.26 SILT FENCE WITH WIRE SUPPORT: VESCH 3.05

CONSTRUCTION ENTRANCE VESCH 3.02 SOIL STABILIZATION BLANKETS & MATTING VESCH

CULVERT INLET PROTECTION VESCH 3.08

MITIGATION MEASURES

THE LIMITS OF WORK HAS BEEN DRAWN TO MINIMIZE DISTURBED AREA. A SMALL PORTION OF THE SITE AREA IS CURRENTLY COVERED IN IMPERVIOUS SURFACE, FOR WHICH THE SUBGRADE WILL NOT BE DISTURBED. SCHEDULED E&S INSPECTION AS DICTATED BY THE STORMWATER POLLUTION PREVENTION PLAN.

THE LANDSCAPE PLAN CONSERVES AS MUCH OF THE EXISTING VEGETATION AS PRACTICAL. WHERE VEGETATION IS REPLACED, THERE ARE GREATER NUMBER OF PLANTS AND MORE OF A VARIETY OF SPECIES COMPARED TO EXISTING. THE CONTRACTOR IS REQUIRED TO CONTACT THE ARLINGTON COUNTY FORESTER TO SCHEDULE PRE-CONSTRUCTION INSPECTION OF TREE PROTECTION MEASURES PRIOR TO ANY WORK NEAR THE CRITICAL ROOT ZONES OF EXISTING TREES.

REQUIRED PERMITS

- LAND DISTURBING ACTIVITY PERMIT-ARLINGTON COUNTY DES
- TRANSPORTATION RIGHT-OF-WAY PERMIT-ARLINGTON COUNTY DES
- PUBLIC RIGH-OF-WAY PERMIT-ARLINGTON COUNTY DES

Appendix C. Water Quality Impact Assessment Data Sheet 11/14/2017 2701 & 2707 N Nelson St, Arlington Virginia Applicant Name/Affiliation: Applicant Contact Information (phone and email): 703-228-3632 (nnaikare@arlingtonva.us) Nilesh Naikare/Arlington County DES Owner/Client Name: Owner/Client Contact Information (phone and email): **Arlington County Section 1:** Type of activity proposed Activity type (check all that apply) ☐ Deck, patio, or retaining wall ☒ New construction (residential, commercial, public, etc.) ☑ Landscaping (includes tree removal) ☐ Alteration of non-residential structure ☑ Utility work □ Residential addition ☐ Fence □ Detached residential structure ☐ Other (please describe):

Complete all th	at apply _			Explanation	
Total area of disturbance on parcel (sf)		8,164		Includes building footprint plus a 10 foot building footprint plus a 10 foot building includes all soil disturbance, ingress, areas, stockpilling areas, etc.	
Area of disturba	ince within RPA (sf)	6,327	,	Includes removal of trees ≥ 3" in diamete	
Area of disturbance on slopes greater than or equal to 15 percent located adjacent to landward RPA boundary (\$f)		0		Does not apply to RPA parcels along Cha Bridge Road (15 percent and greater slop- included as part of RPA)	
	Committee of the commit		,		
Complete all fie	elds	Existing condition	Proposed condition	Explanation	
RPA	Left third of parcel or site	0	0	The distance (in feet) from the existing or	
encroachment	Middle third of parcel or site	0	0 5	proposed structure to the designated RPA (edge of stream or open channel, wetland	
(ft)	Right third of parcel or site	0	0	Encroachments of zero (0) indicate the pr impact the stream or other RPA feature.	
Total developme	ent footprint in RPA (sf)	331	1,808	The existing footprint includes the area of existing structures, patios, decks, walkway Proposed foorprint is the anticipated postarea of all structures, additions, decks, was regraded area behind a retaining wall, etc.	
Impervious footprint in RPÅ (sf)		238 238		Total area of impervious surfaces within t (rooftops, pavement, etc.)	

Building/demolition/LDA/Fence permit number(s):

Date WQIA/Exception request information complete:

Date Chesapeake Bay Preservation Ordinance and E/S ordinance (if applicable) approvals

Major WQIA required? ☐ Yes ☐ No

issued in Permits Plus:

Section 3: Plan and Narrative

Provide a plan showing the location of the proposed activity, along with the RPA boundary Briefly describe the proposed project, including any potential water quality impacts and mitigation measuresproposed. The narrative must address three impact categories 1. Tree/vegetation impacts, 2. Stormwater and runoff 3. Erosion and sediment control. Please refer to the WQIA plan/narrative checklist for additional information.

- The subject project site is located at 2707 and 2701 N Nelson Street entirely within private property.
- 1. We anticipate the removal of 4 trees and to protect and save all others. See Sheet 13 and 20. Please note while the survey indicates additional 4 trees to be removed, these were not found during a recent field visit but are shown as removed for pricing purposes. Tree and critical root zone protections measures will be implements using the details on Sheet 14. The landscaping plan presented on Sheet 20 and 20A depict the proposed trees, shrubs and show how the site will be re-vegetated.
- 2. The storm system was analyzed for both the existing and proposed conditions using the 10-yr storm event, including hydrologic and hydraulic computations. The proposed storm pipe results in a velocity of 7.95 fps at the outfall which is a significant improvement from the existing outfall velocity of 28.65 fps. Refer to Sheets 18 and 19 for the computations
- Additionally, the 2-yr storm event was analyzed to determine the velocity in the proposed channel demonstrating an improvement from the existing condition. Sheets 17A and Sheet 17B depict the stream channel computations. The proposed stream channel will utilize a rock step cascade and tie into the existing stream at bedrock which will further reduce erosion from the existing condition and improve the water quality of Windy Run. The 10-yr storm event was analyzed to confirm the HGL will not overtop the bank of the proposed channel.
- 3. The project will utilize the following E&S measures during construction: inlet protection, outlet protection, silt fence with wire support, soil stabilization mats and tree protection. See Sheet 6 through 9

Additional Water Quality Impact Assessment Information

The information supplied on this form satisfies the minimum requirements for a Minor Water Quality Impact Assessment.

For projects that disturb over 2500 square feet, elements of a Major Water Quality Impact Assessment may also be required, depending on the nature and extent of the proposed RPA encroachment, as outlined in Section 61-12 of the ordinance.

ARLINGTON
VIRGINIA

DEPARTMENT OF
ENVIRONMENTAL SERVICES
FACILITIES & ENGINEERING DIVISION
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ARLINGTON, VA 22201

PHONE: 703.228.3629

SEAL

APPROVALS

NILESH RAM NAIKARE
Lic.No.0402049246

Olympia Carry Ca

CONSTRUCTION MANAGEMENT SUPERVISOR
WATER, SEWER, STREETS BUREAU CHIEF
NOT APPLICABLE
TRANSPORTATION DIRECTOR

PROJECT MANAGER

REVISIONS

(CV1010140

MPACT ASSESSMENT
NELSON STREET

DATE

DESIGNED: KP
DRAWN: KP
CHECKED: NN

MISS UTILITY TRANSMITTAL #: 5320

FILENAME:
S48D-220-E_AND_S_NOTES_SWPPP.DWG
PATH:Q:\DATA\S48D\DESIGN\CAD\ACTIVE

PLOTTED: JANUARY 30 2018 PLOTTED BY: KPILONG

SCALE: AS NOTED

JAN 312018

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DES

SHEET

11 OF 21

REVISED ON 11/08/2016

NOTE:

The Runoff Reduction Spreadsheet information on this plan is for data tracking purposes to document the area of land disturbance and to characterize pre- and post-development land use conditions.

In accordance with Arlington County's Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan, approved by the Virginia Department of Environmental Quality (DEQ) on September 1, 2015, linear development projects conducted by the County are administered and tracked as follows consistent with 9VAC25-870-69.A.4, 9VAC25-870-76, and 9VAC25-870-92:

- Pollutant load changes will be computed as described in Section 3.A of the Action Plan.
- Retrofit opportunities will be evaluated for each project, using the screening and selection criteria applied and described in the adopted Stormwater Master Plan.
- Retrofit projects that meet the screening criteria and are determined by Arlington to be feasible and cost-effective will be implemented with specific linear development projects. Pollutant load reductions from retrofit projects will be computed as described in Section 5 of the Action Plan.
- In cases where retrofit projects are not feasible and cost-effective for a particular linear project, any pollutant of concern (POC) load increases that might occur for that project will be addressed by larger overall POC load reductions in place or added through TMDL action plan implementation.

In the above manner Arlington, as the MS4 operator and the construction site operator for its linear development projects, implements linear projects and retrofit projects in a manner that achieves the most TMDL POC reduction for the least cost, while fully accounting for load changes that occur with linear development project activity consistent with the DEQ Chesapeake Bay TMDL Special Condition Guidance.

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

Project Name: Windy Run Outfall
Date: 11/2/2017
Linear Development Project? Yes

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area (acres) → 0.0641

Maximum reduction required: 20%

The site's net increase in impervious cover (acres) is: 0.0000

Post-Development TP Load Reduction for Site (lb/yr): 0.0252

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) undisturbed,	T. 12 (1971)				0.0000
protected forest/open space or reforested land					0.0000
Managed Turf (acres) disturbed, graded for					0.1648
yards or other turf to be mowed/managed		0.1648			0.1648
Impervious Cover (acres)		0.0234			0.0234
· · · · · · · · · · · · · · · · · · ·					0.1882

Post-Development Land Cover (acres)

Constants

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) undisturbed, protected forest/open space or reforested land				EMPERATURE.	0.0000
Managed Turf (acres) disturbed, graded for yards or other turf to be mowed/managed		0.1648			0.1648
Impervious Cover (acres)		0.0234			0.0234
Area Check	OK.	OK.	OK.	OK.	0.1882

43 1.00

Annual Raintail (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

Forest/Op

0.0772

	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

0.0000

0.0000

0%

0.1648

0.2000

. 88%

0.9500

0.1259

0.6700

Land Cover Summary-Post (Final)

Post ReDev. & New Impervious

Forest/Open Space

Cover (acres)

Weighted Rv(forest)

% Forest

Managed Turf Cover

(acres)

Weighted Rv (turf)

% Managed Turf

Rv(impervious)

% Impervious

Final Site Area (acres)

Final Post Dev Site Rv

(acre-ft)

Final Post-Developme

Treatment Volume

(cubic feet)

Final Post-

Development Ti

(lb/yr)

Final Post-Development

TP Load per acre

(lb/acre/yr)

Land Cover Sum	mary-Pre	-
Pre-ReDevelopment	Listed	Adjusted ¹
Forest/Open Space Cover (acres)	0.0000	0.0000
Weighted Rv(forest)	0.0000	0.0000
% Forest	0%	0%
Managed Turf Cover (acres)	0.1648	0.1648
Weighted Rv(turf)	0.2000	0.2000
% Managed Turf	88%	88%
Impervious Cover (acres)	0.0234	. 0.0234
Rv(impervious)	0.9500	0.9500
% Impervious	12%	12%
Total Site Area (acres)	0.1882	0.1882
Site Rv	0.2933	0.2933

Pre-ReDevelopment Treatment Volume (acre-ft)	0.0046	0.0046
Pre-ReDevelopment Treatment Volume (cubic feet)	200.3397	200.3397
Pre-ReDevelopment TP Load (lb/yr)	0.1259	0.1259
Pre-ReDevelopment TP Load per acre	0.6700	0.6700

Treatment Volume and Nutrient Load

	Baseline TP Load (lb/yr)	
(0.	41 lbs/acre/yr applied to pre-redevelopment area excluding	
	pervious land proposed for new impervious cover)	

development load limit, 0.41 lbs/acre/year).

¹Adjusted Land Cover Summary:

Pre ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).

Column I shows load reduction requriement for new impervious cover (based on new

TP Load Reduction	
Required for	0.005
Redeveloped Area	0.025
(lb/yr)	
(15) 41)	

Check:

Linear project? Yes

Land cover areas entered correctly? ✓

LAND COVER SUMMARY -- POST DEVELOPMENT

Forest/Open Space

Cover (acres)

Weighted Rv(forest)

% Forest

Managed Turf Cover

(acres)

Weighted Rv (turf)

% Managed Turf

ReDev. Impervious

Cover (acres)

Rv(impervious)

% Impervious

Total ReDev. Site Area

ReDev Site Rv

(acre-ft)

Post-ReDevelopment

Treatment Volume

(cubic feet)

Post-ReDevelopment

(lb/yr)*

Post-ReDevelopment TP

(lb/acre/yr)

Max. Reduction

(Below Pre-ReDevelopment Load

Load per acre

Treatment Volume and Nutrient Load

Land Cover Summary-Post

0.0000

0.0000

0%

0.1648

0.2000

0.9500

12%

0.1882

0.2933

200.3397

0.1259

0.6700

Total disturbed area entered? ✓

BMP Design Specifications List: 2013 Draft Stds & Specs

TP Load Reduction	
Required for New	0
Impervious Area (lb/yr)	

Land Cover Summary-Post

Post-Development New Impervious

New Impervious Cover

Rv(impervious)

Treatment Volume

(acre-ft)

Post-Development

Treatment Volume (cubic

Post-Development TP

Load (lb/yr)

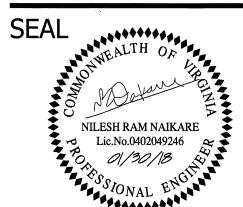
	Post-Development Requirement for	Site Area		
	TP Load Reduction Required (lb/yr)	0.0252		
	Linear Project TP Load Reduction Required (lb/y	r): 0.0252		
	Nitrogen Loads (Informational Pu	rposes Only)		
Pre-ReDevelopment TN Load (b/yr) 0.9005	Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	0.9005	
				rholou estimational estida e.



DEPARTMENT OF ENVIRONMENTAL SERVICES FACILITIES & ENGINEERING DIVISION

ENGINEERING BUREAU
2100 CLARENDON BOULEVARD, SUITE 813
ARLINGTON, VA 22201
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FAX: 703.228.3606

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APPROVALS	DATE
MAG	2/8/18
QUALITY CONTROL ENGINEER	
J.N. VELLAKE	B 1'4 2018
CONSTRUCTION MANAGEMENT S	UPERVISO
De Kes	2/14/12
WATER, SEWER, STREETS BUREA	U CHIEF
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TRANSPORTATION DIRECTOR	
Shl/127/1-2	/15/
PROJECT MANAGER /	· //
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ľ	REVISIONS	

FF REDUCTION METHOD N NFI SON STREFT

VIRGINIA RUNOFF REDU	2701 & 2707 N NELS
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DESIGNED: KP DRAWN: KP CHECKED: NN

RUN

WINDY

FILENAME: S48D-220-E_AND_S_NOTES_SWPPP.DWG

MISS UTILITY TRANSMITTAL #: 5320

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PLOTTED: JANUARY 30 2018

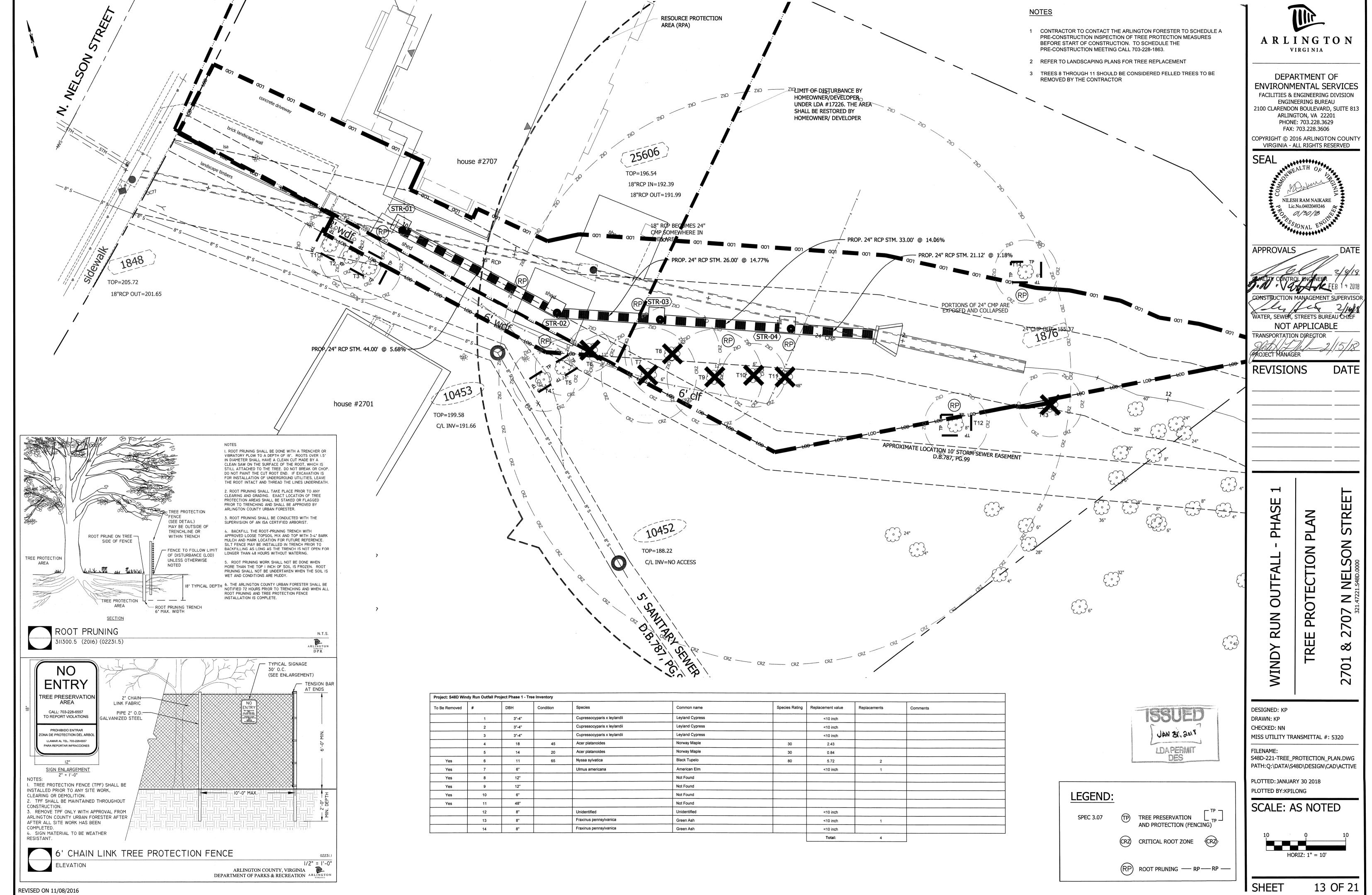
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PLOTTED BY:KPILONG

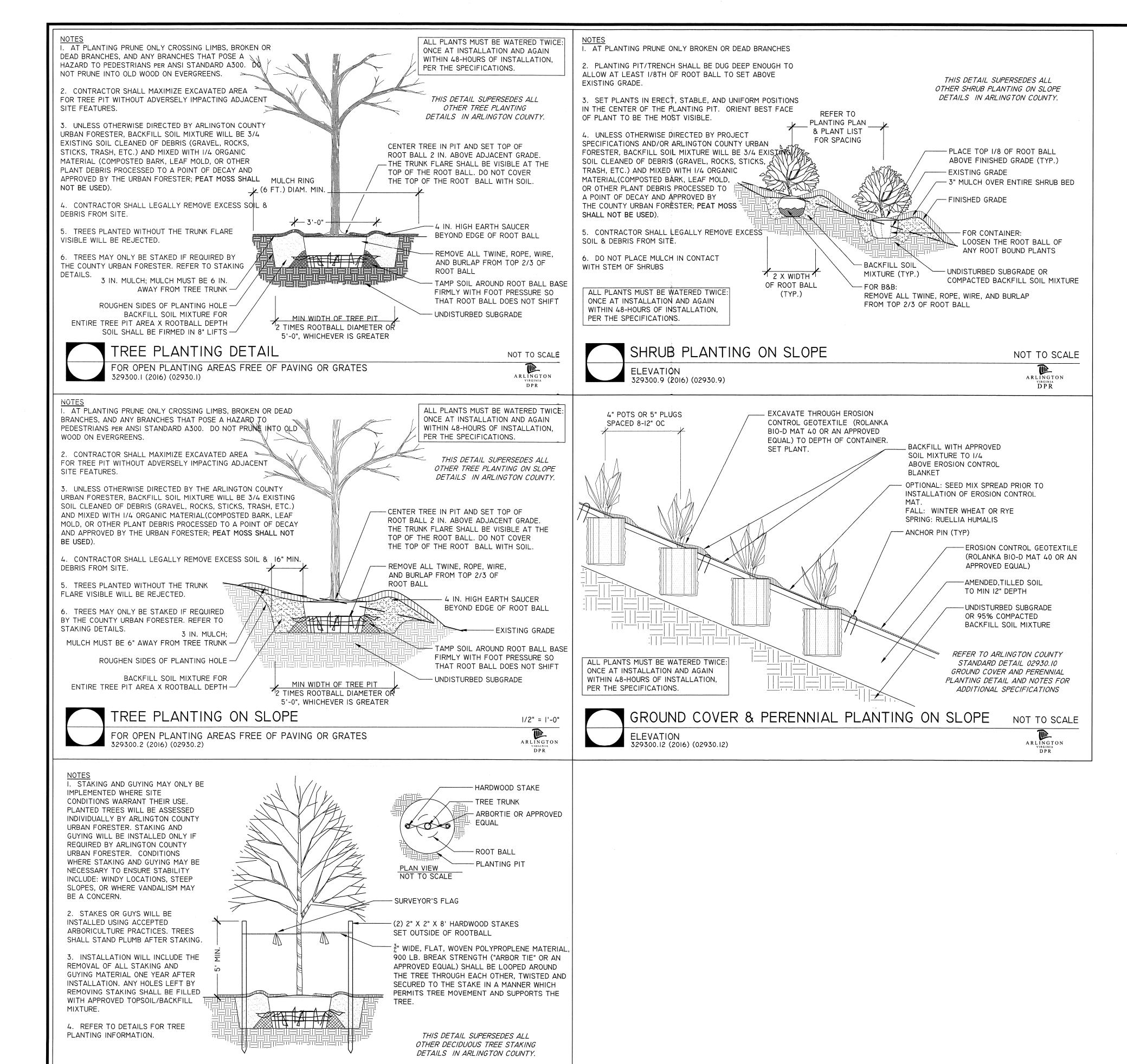
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SHEET 12 OF 21





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ARLINGTON

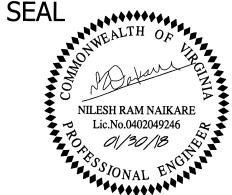
- BEFORE ANY GRADING, DEMOLITION, OR OTHER DISTURBANCE, TREE PROTECTION NEEDS TO BE INSTALLED PER PLAN, AND INSPECTED BY AN
 ARLINGTON COUNTY PARKS AND RECREATION URBAN FORESTER. EROSION AND SEDIMENT CONTROLS ARE INSPECTED BY THE DEPARTMENT OF
 ENVIRONMENTAL SERVICES.
- 2. PLANTS SHALL BE FURNISHED AND INSTALLED AS INDICATED, INCLUDING ALL PLANTS, MATERIALS, AND EQUIPMENT.
- 3. PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY; HAVE NORMAL GROWTH HABITS, WELL-DEVELOPED DENSELY FOLIATED BRANCHES, AND VIGOROUS ROOT SYSTEMS; AND BE FREE FROM DEFECTS AND INJURIES.
- 4. PLANTS SHALL BE PLANTED ON THE DAY OF DELIVERY IF/WHEN PRACTICAL. IN THE EVENT THAT THIS IS NOT POSSIBLE, THE CONTRACTOR SHALL PROTECT STOCK NOT PLANTED. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE-DAY PERIOD AFTER DELIVERY. ANY PLANTS NOT INSTALLED DURING THIS PERIOD SHALL BE REJECTED, UNLESS OWNER AND CONTRACTOR PROVIDE OTHERWISE BY WRITTEN AGREEMENT. ALL PLANTS KEPT ON SITE FOR ANY PERIOD OF TIME SHOULD BE WATERED AND CARED FOR USING ANSI A300 STANDARDS.
- 5. PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES. PLANTS SHALL BE HANDLED FROM THE BOTTOM OF THE ROOT BALL ONLY.
- 6. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOP SOIL THAT IS IN MUDDY OR FROZEN CONDITION. LAWNS, TREES AND SHRUBS SHALL BE INSTALLED BETWEEN 03/15 AND 06/15 OR BETWEEN 09/15 AND 12/01. IF A PROJECT COMPLETION IS OUTSIDE OF THIS PLANTING PERIOD, CONTACT THE ARLINGTON COUNTY URBAN FORESTER TO OBTAIN A DEFERRAL OR APPROVAL FOR PLANTING OUT OF SEASON.
- 7. NO PLANT, EXCEPT GROUNDCOVERS, SHALL BE PLANTED WITHIN TWO FEET OF A SIDEWALK.
- 8. TREES AND SHRUBS SHALL BE PLANTED IN HOLES TWO TO THREE TIMES AS WIDE AND TO THE DEPTH OF THE ROOT BALL.
- 9. PLANTS SHALL BE PLANTED IN IN SITU SOIL THAT IS THOROUGHLY WATERED.
- 10. SET ALL PLANTS PLUMB AND STRAIGHT SET AT SUCH LEVEL THAT NORMAL OR NATURAL RELATIONSHIP BETWEEN THE PLANT AND THE GROUND SURFACE WILL BE ESTABLISHED. LOCATE THE PLANT IN THE CENTER OF THE PIT.
- 11. INJURED ROOTS SHALL BE PRUNED TO CLEAN ENDS BEFORE PLANTING WITH CLEAN, SHARP TOOLS. THE LEADER OF TREES SHALL NOT BE CUT BACK.
- 12. PRESERVED AND PLANTED TREES MUST BE INSPECTED AND APPROVED BY A DEPARTMENT OF PARKS AND RECREATION URBAN FORESTER.
- 13. ALL DISTURBED AREAS SHALL BE TREATED WITH 4" TOP SOIL OR COMPOST AND SEEDED IN ACCORDANCE WTH PERMANENT STABILIZATION METHODS INDICATED ON SOIL EROSION AND SEDIMENT CONTROL SHEET AND/OR LANDSCAPE PLAN.

ARLINGTON

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ENGINEERING BUREAU

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APPROVALS

OUALITY CONTROL ENGINEER

CONSTRUCTION MANAGEMENT SUPERVISOR

2/6//

WATER, SEWER, STREETS BUREAU CHIEF

NOT APPLICABLE

TRANSPORTATION DIRECTOR

PROJECT MANAGER

REVISIONS

I/C 1210I/2

S

PHA

RUN

SHRUB PLANTING DETAILS
707 N NELSON STREET

7

7

DESIGNED: KP
DRAWN: KP
CHECKED: NN

S48D-221-TREE_PROTECTION_PLAN.DWG
PATH:Q:\DATA\S48D\DESIGN\CAD\ACTIVE

PLOTTED: JANUARY 30 2018 PLOTTED BY:KPILONG

JAN 31,2018

LDAPERMIT

SCALE: AS NOTED

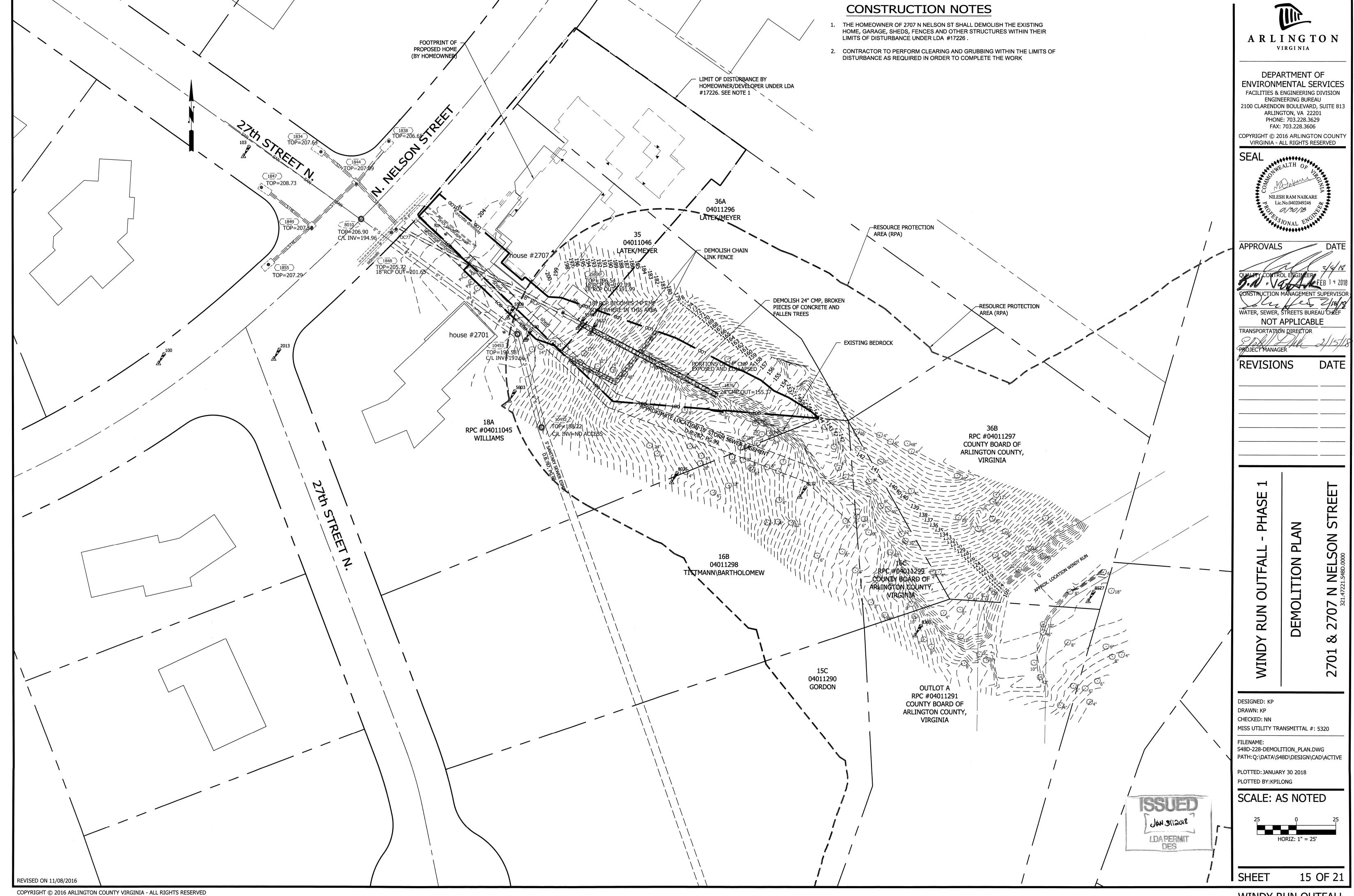
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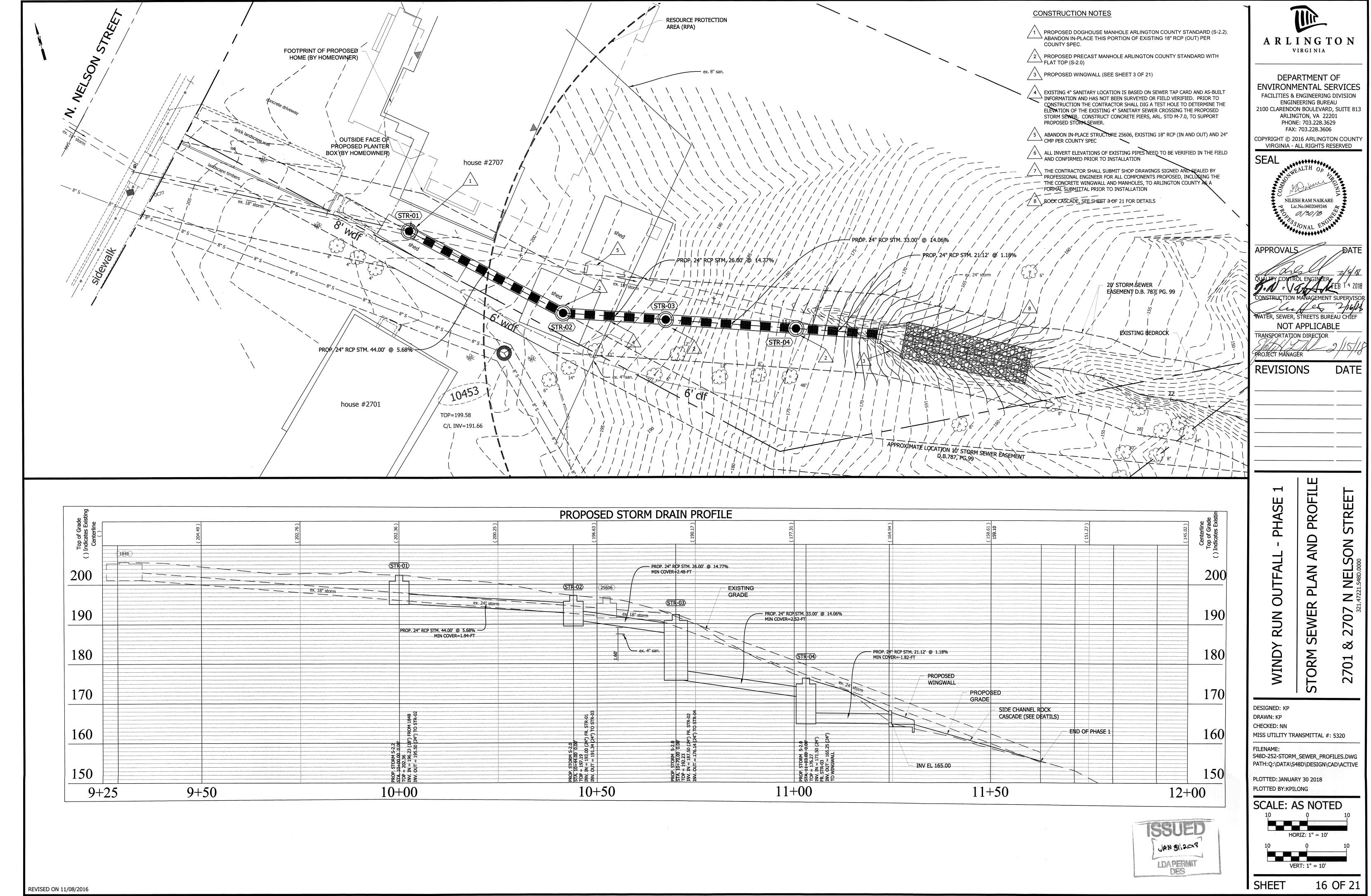
SHEET 14 OF 21

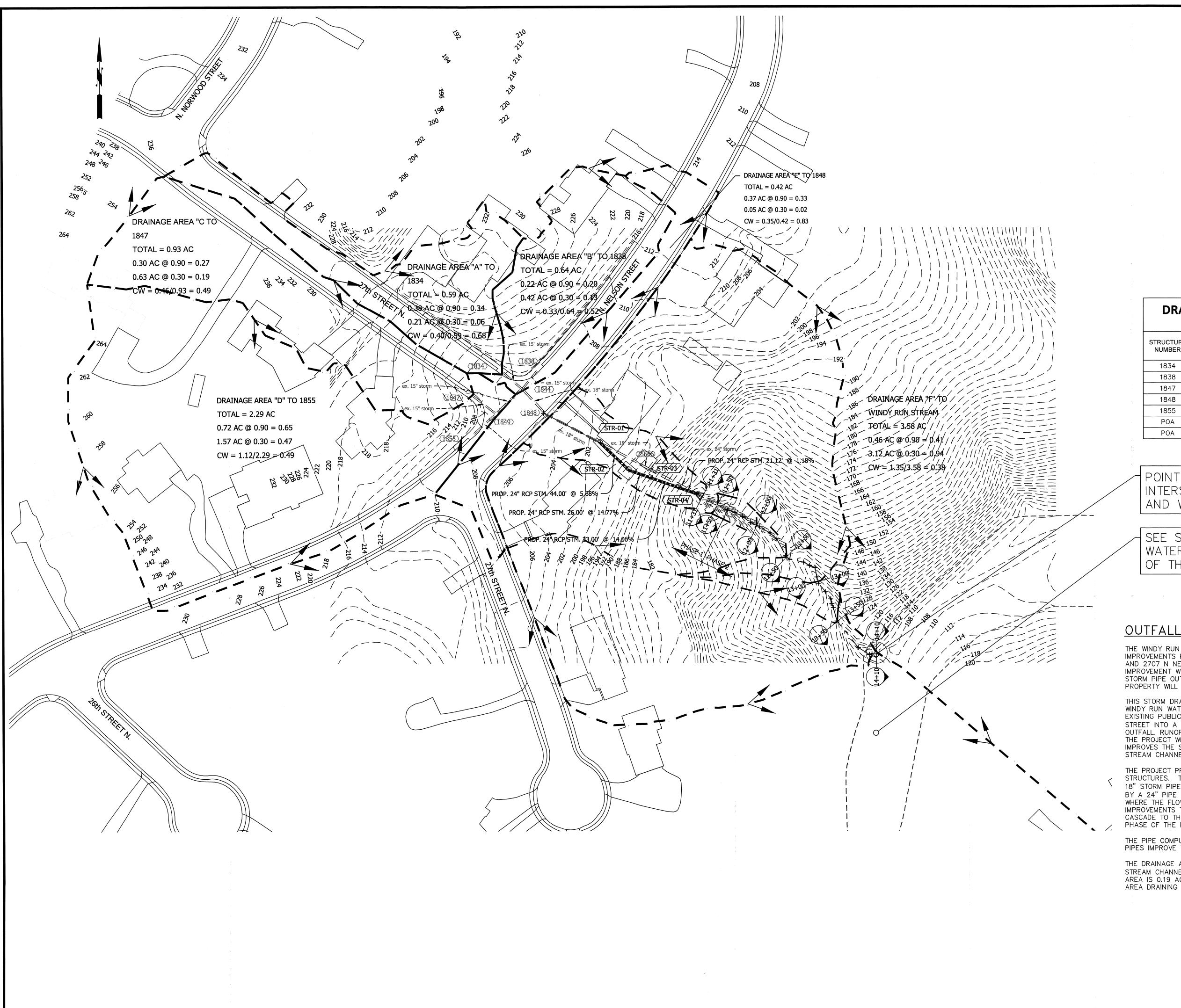
ELEVATION

329300.6 (2016) (02930.6)

DECIDUOUS TREE STAKING







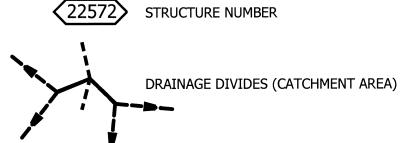
LEGEND

= EXISTING STORM SEWER LINES

15" Ø PROPOSED STORM SEWER LINES

AUC)

JUNCTION BOX



NOTES:

- 1. THE FOLLOWING STORM DATA WAS USED FOR THE CALCULATION:
 - RAINFALL INTENSITY = 6.79 IN/HRRETURN INTERVAL = 10 YRS.
- 2. ONSITE DATA FROM COUNTY SURVEY, OFFSITE DATA FROM COUNTY GIS

DRAINAGE AREA & RUNOFF COEFFICIENT TABLE

	OEFFICIE	INI IADL	C
STRUCTURE	DRAINAGE AREA	DRAINAGE AREA	RUNOFF COEFFICENT
NUMBER	ID	Acres	С
1834	Α	0.59	0.68
1838	В	0.64	0.52
1847	С	0.93	0.49
1848	D	0.42	0.83
1855	E	2.29	0.49
POA	F	3.58	0.38
POA	G	276.55	

TOTAL 285.00

POINT OF ANALYSIS (POA)
INTERSECTION OF OUTFALL
AND WINDY RUN STREAM

SEE SHEET 21 OF 21 FOR WATERSHED AREA UPSTREAM OF THE POA

OUTFALL NARRATIVE:

THE WINDY RUN OUTFALL PHASE 1 PROJECT IS A STORM DRAINAGE IMPROVEMENTS PROJECT. THE IMPROVEMENTS ARE LOCATED AT 2701 AND 2707 N NELSON STREET ENTIRELY WITHIN PRIVATE PROPERTY. THE IMPROVEMENT WORK CONSISTS OF STORM PIPE REPLACEMENTS AND STORM PIPE OUTFALL RESTORATION. A TOTAL OF 0.19 AC IN PRIVATE PROPERTY WILL BE DISTURBED FOR THE IMPROVEMENTS.

THIS STORM DRAINAGE IMPROVEMENTS PROJECT IS LOCATED IN THE WINDY RUN WATERSHED. THIS OUTFALL ANALYSIS IS PREPARED FOR EXISTING PUBLIC STORM SEWER SYSTEM EXTENDING ACROSS N NELSON STREET INTO A 18" STORM DRAIN FLOWING SOUTHEAST INTO A 24" OUTFALL. RUNOFF FROM SITE ULTIMATELY OUTFALLS INTO WINDY RUN. THE PROJECT WILL NOT ALTER THE EXISTING DRAINAGE PATTERNS, BUT IMPROVES THE STORM DRAINAGE VELOCITIES WITHIN THE PIPES AND STREAM CHANNEL.

THE PROJECT PROPOSES A SERIES OF NEW 24" RCP STORM STRUCTURES. THE PROPOSED PIPE NETWORK TIES INTO THE EXISTING 18" STORM PIPE AT STR-01. FROM THIS POINT ON FLOW IS CONVEYED BY A 24" PIPE AND A SERIES OF MANHOLES LEADING TO A WINGWALL WHERE THE FLOW IS DISCHARGED INTO A STEPPED ROCK CASCADE. IMPROVEMENTS TO THE STREAM CHANNEL DOWNSTREAM OF THE ROCK CASCADE TO THE WINDY RUN STREAM WILL BE PREPARED IN THE NEXT PHASE OF THE PROJECT

THE PIPE COMPUTATIONS ON SHEET 19-19 SHOW THE PROPOSED 24" PIPES IMPROVE THE VELOCITY FROM THE EXISTING CONDITION

THE DRAINAGE AREA TO THE POINT OF ANALYSIS (INTERSECTION OF STREAM CHANNEL AND WINDY RUN STREAM) IS 285 AC. THE SITE AREA IS 0.19 AC; WHICH IS LESS THAN 1% OF THE TOTAL WATERSHED AREA DRAINING TO THE POINT OF ANALYSIS.



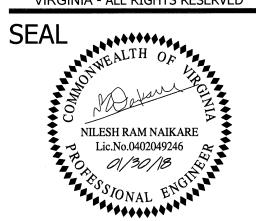


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ENVIRONMENTAL SERVICES
FACILITIES & ENGINEERING DIVISION

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FAX: 703.228.3606



APPROVALS

DATE

2/5/18

CONSTRUCTION MANAGEMENT SUPERVISOR

NOT APPLICABLE

RANSPORTATION DIRECTOR

REVISIONS DATE

AINAGE DIVIDES
707 N NELSON STREET

DESIGNED: KP
DRAWN: KP

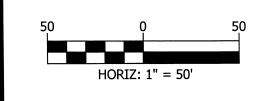
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DRAWN: KP CHECKED: NN MISS UTILITY TRANSMITTAL #: 5320

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PATH: Q:\DATA\S48D\DESIGN
PLOTTED: JANUARY 30 2018

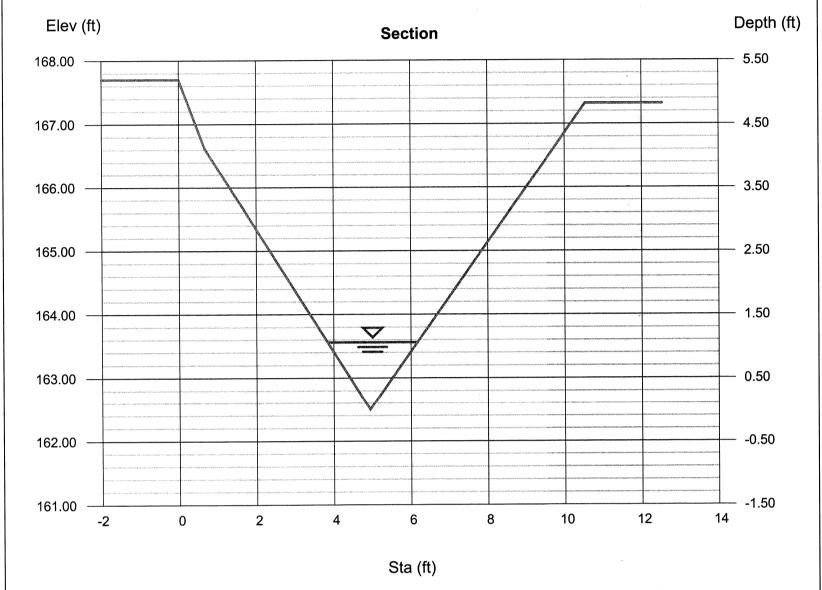
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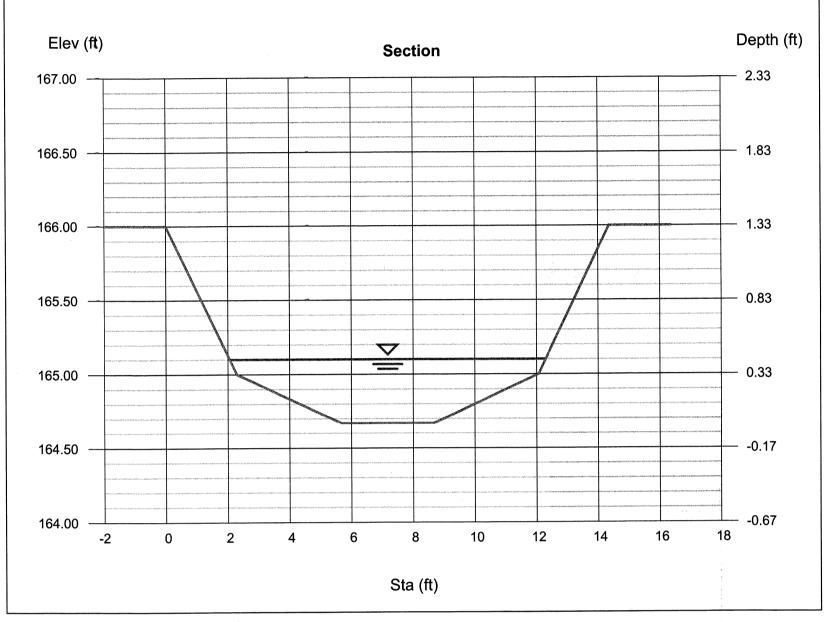
SHEET 17 OF 21

REVISED ON 11/08/2016

Channel Report Monday, Dec 11 2017 Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Section 11+31 Existing (2-YR) **User-defined** = 1.06 Depth (ft) = 162.50 Invert Elev (ft) = 13.86 Q (cfs) = 25.18 Slope (%) Area (sqft) = 1.23 = 0.035N-Value = 11.22 Velocity (ft/s) = 3.15 Wetted Perim (ft) **Calculations** = 1.59 Crit Depth, Yc (ft) Known Q Compute by: = 2.33= 13.86 Top Width (ft) Known Q (cfs) = 3.02EGL (ft) (Sta, El, n)-(Sta, El, n)... (0.00, 167.70)-(0.67, 166.62, 0.035)-(4.94, 162.50, 0.035)-(10.54, 167.32, 0.035)



Channel Report Monday, Dec 11 2017 Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Section 11+31 Proposed (2-YR) **User-defined** = 0.43= 164.67 Depth (ft) Invert Elev (ft) = 13.86 Q (cfs) Slope (%) = 8.33 = 3.11 = 0.042Area (sqft) N-Valu**e** Velocity (ft/s) = 4.46 = 10.31 Wetted Perim (ft) Calculations = 0.52Crit Depth, Yc (ft) Compute by: Known Q = 10.24 = 13.86 Top Width (ft) Known Q (cfs) = 0.74EGL (ft) (Sta, Eİ, n)-(Sta, El, n)... (0.00, 166.00)-(2.29, 165.00, 0.042)-(5.68, 164.67, 0.042)-(8.68, 164.67, 0.042)-(12.07, 165.00, 0.042)-(14.36, 166.00, 0.042)



Highlighted Depth (ft)

Area (sqft)

Velocity (ft/s)

Top Width (ft)

EGL (ft)

Wetted Perim (ft)

Crit Depth, Yc (ft)

Q (cfs)

= 0.41

= 1.64

= 8.80

= 5.16

= 0.73

= 5.00

= 1.61

= 14.43

Channel Report

User-defined

Invert Elev (ft)

Calculations

Compute by:

Known Q (cfs)

Slope (%)

N-Value

Section 11+50 Proposed (2-YR)

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

= 159.10

= 28.85

= 0.042

Known Q

= 14.43

(Sta, EI, n)-(Sta, EI, n)... (0.00, 162.62)-(8.60, 159.10, 0.042)-(11.60, 159.10, 0.042)-(17.73, 161.61, 0.042)

Channel Report Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Dec 14 2017 Section 11+31 Proposed (10-YR) **User-defined** Highlighted = 0.48= 164.67 Depth (ft) Invert Elev (ft) = 18.06 = 8.33 Q (cfs) Slope (%) = 0.042= 3.63N-Value Area (sqft) = 4.98 Velocity (ft/s) = 10.56 Wetted Perim (ft) **Calculations** = 0.60Known Q Crit Depth, Yc (ft) Compute by: = 10.47 Known Q (cfs) = 18.06 Top Width (ft) = 0.87EGL (ft) (Sta, El, n)-(Sta, El, n)... (0.00, 166.00)-(2.29, 165.00, 0.042)-(5.68, 164.67, 0.042)-(8.68, 164.67, 0.042)-(12.07, 165.00, 0.042)-(14.36, 166.00, 0.042)

NOTES:

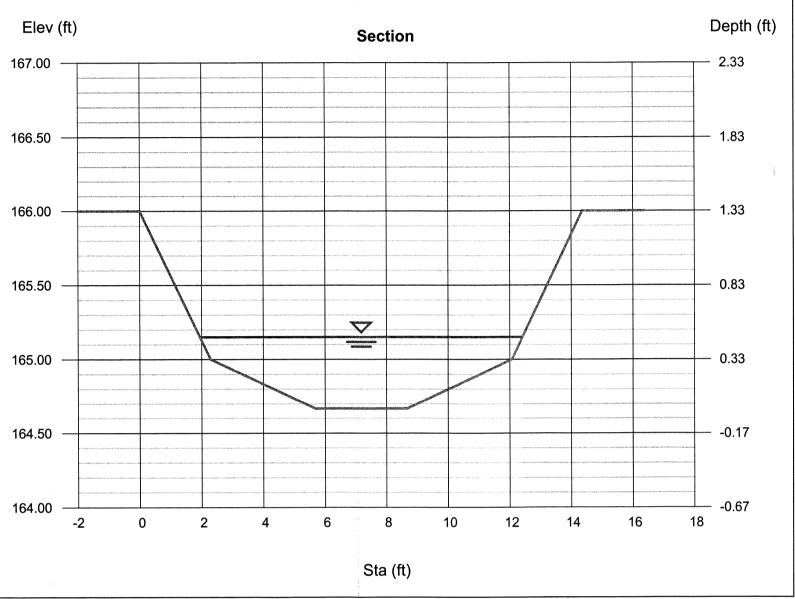
THE CHANNEL REPORTS PRESENT IMPROVEMENTS

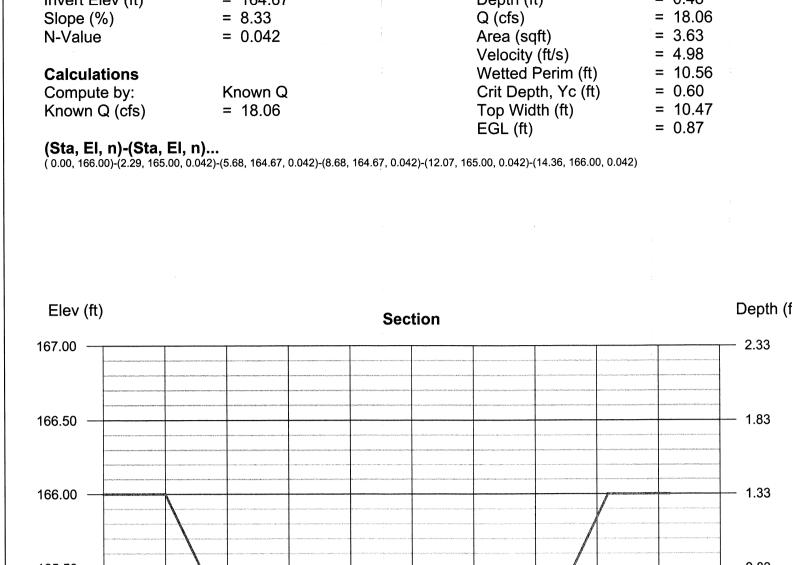
WILL NOT OVERTOP THE BANK OF THE PROPOSED.

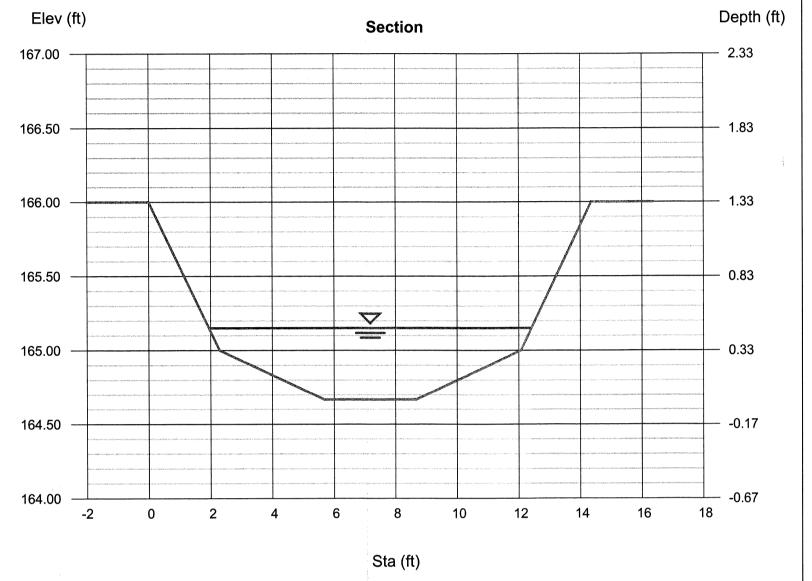
CONSTRUCTED AS PART OF PHASE 1. THE 2-YR 24 HR

STORM WAS ANALYZED AND SHOWS AN IMPROVEMENT IN

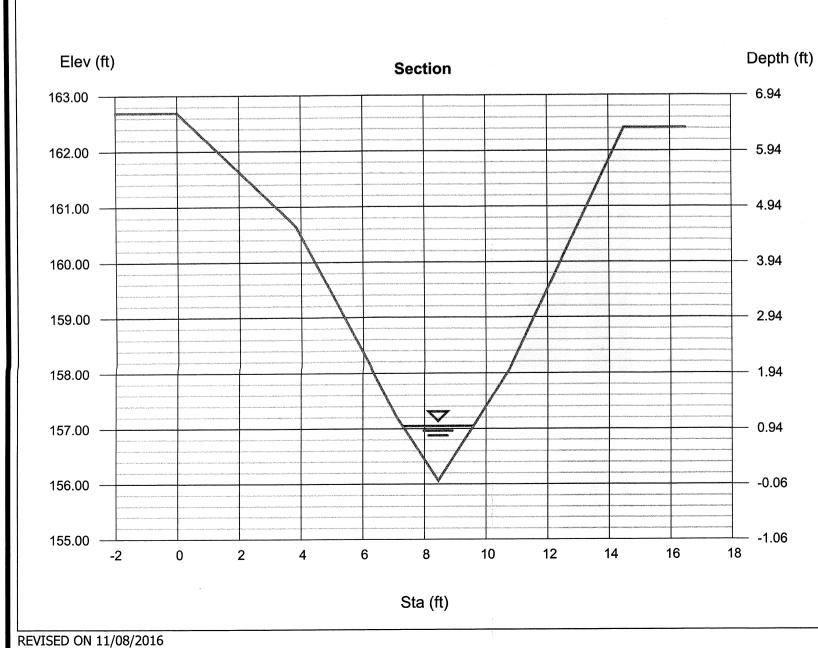
CHANNEL VELOCITY FROM THE EXISTING CONDITION. THE 10-YR, 24 HOUR STORM WAS ANALYZED TO CONFIRM IT

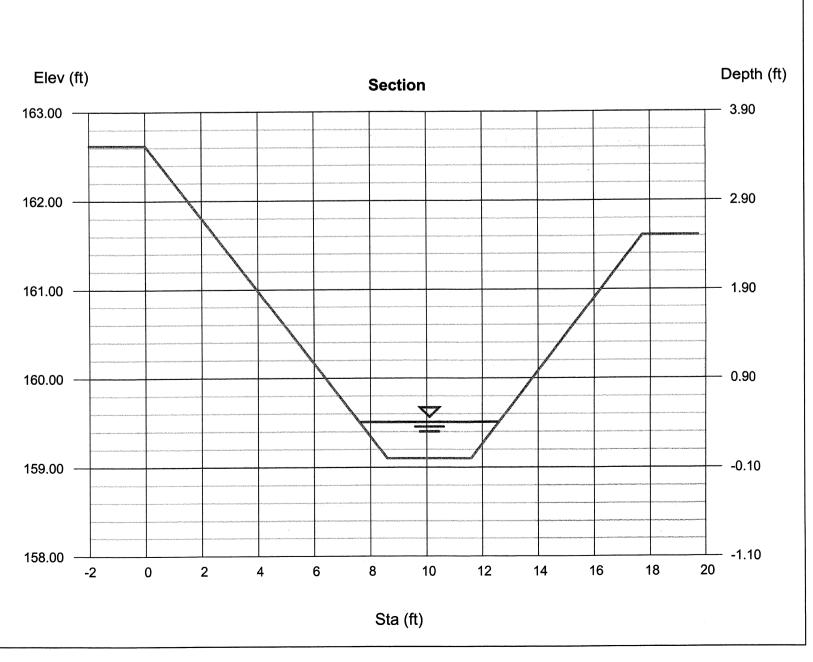


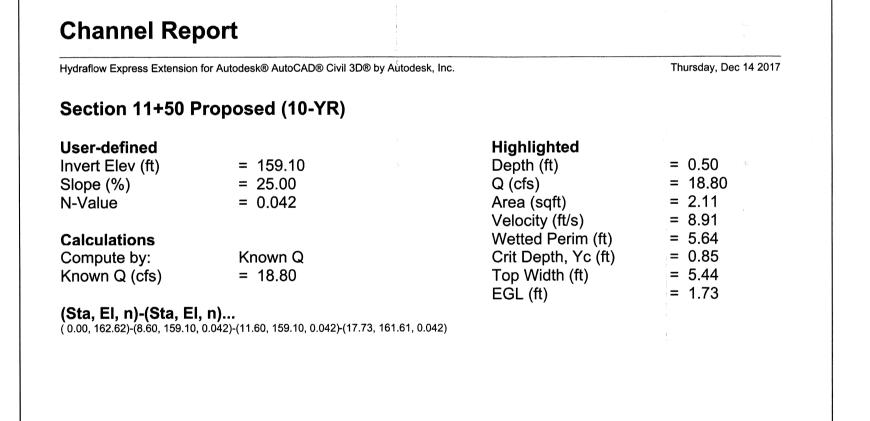


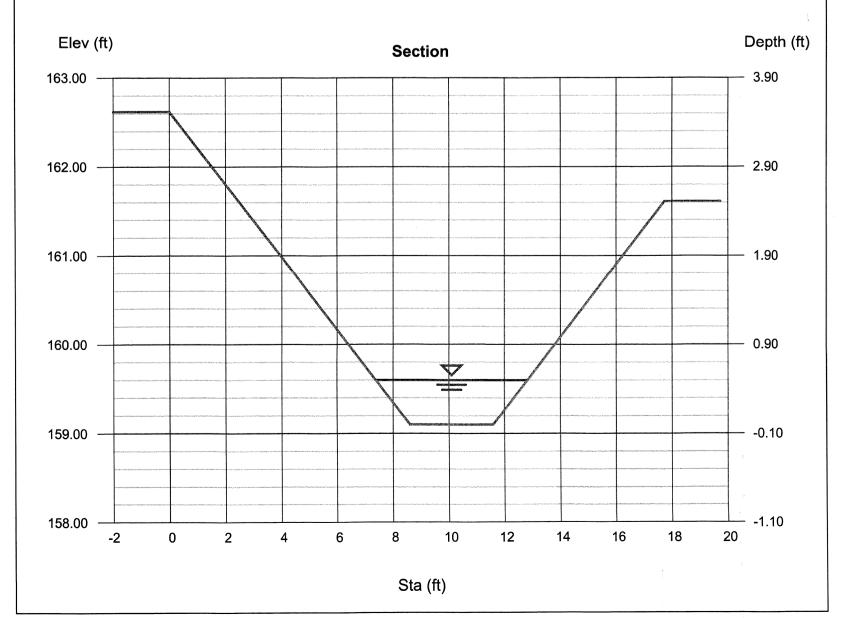


Channel Report Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Section 11+50 Existing (2-YR) Highlighted **User-defined** Depth (ft) = 0.99= 156.06 Invert Elev (ft) = 14.43 = 33.00Slope (%) = 1.14 = 0.035Area (sqft) N-Value = 12.66 Velocity (ft/s) = 3.04Wetted Perim (ft) Calculations Crit Depth, Yc (ft) = 1.57 Known Q Compute by: = 2.30= 14.43 Top Width (ft) Known Q (cfs) = 3.48EGL (ft) (Sta, El, n)-(Sta, El, n)... (0.00, 162,69)-(3.83, 160,65, 0.035)-(7.10, 157.21, 0.035)-(8.45, 156.06, 0.035)-(10.73, 158.04, 0.035)-(14.50, 162.41, 0.035)











DEPARTMENT OF **ENVIRONMENTAL SERVICES** FACILITIES & ENGINEERING DIVISION ENGINEERING BUREAU 2100 CLARENDON BOULEVARD, SUITE 813

ARLINGTON, VA 22201 PHONE: 703.228.3629 FAX: 703.228.3606 COPYRIGHT © 2016 ARLINGTON COUNTY

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SEAL NILESH RAM NAIKARE Lic.No.0402049246 01/30/18

APPROVALS WATER, SEWER, STREETS BUREAU CHIEF NOT APPLICABLE TRANSPORTATION DIRECTOR PROJECT MANAGER

REVISIONS DATE

PHA

OUTF,

(PHASE SE COMPUTATIONS

WINDY STREAM DESIGNED: KP

ISSUED

PIOSINE NAL

LDA PERMIT DES

DRAWN: KP CHECKED: NN MISS UTILITY TRANSMITTAL #: 5320

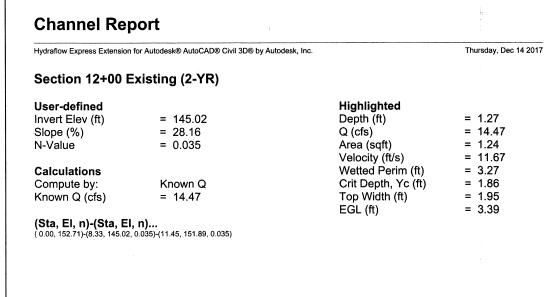
FILENAME: S48D-250-DRAINAGE_DIVIDES.DWG PATH:Q:\DATA\S48D\DESIGN\CAD\ACTIVE

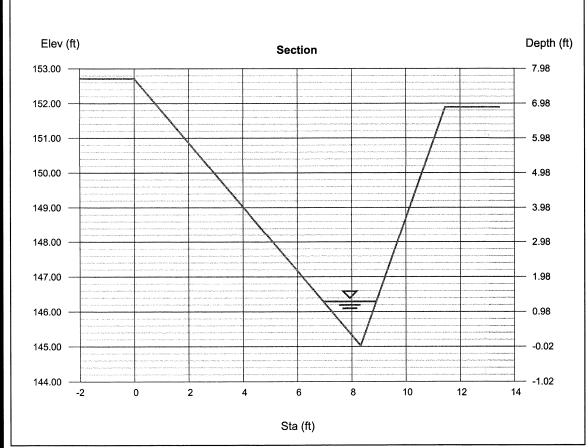
PLOTTED: JANUARY 30 2018 PLOTTED BY:KPILONG

SCALE: AS NOTED

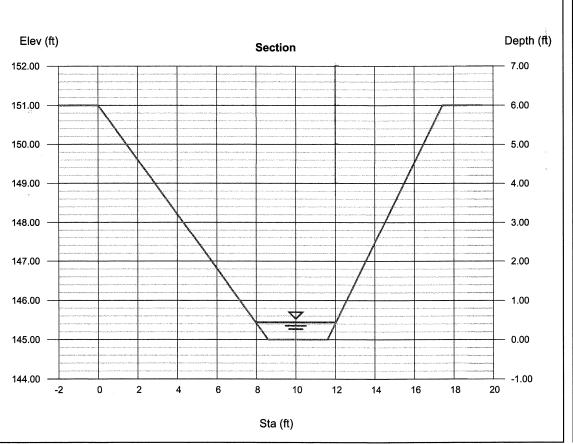
17A OF 21 SHEET

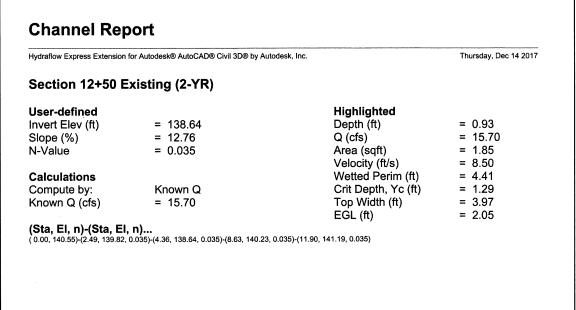
PROPOSED IMPROVEMENTS TO BE PERFORMED DURING PHASE 2

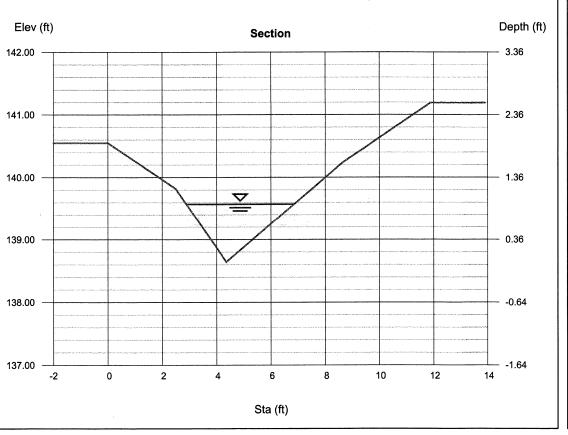


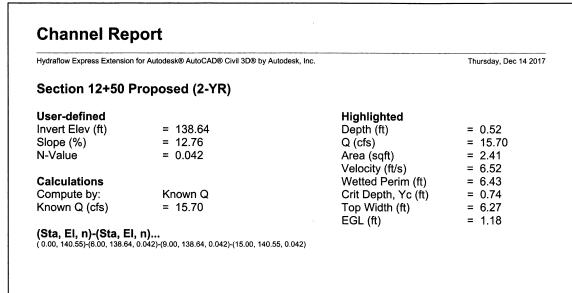


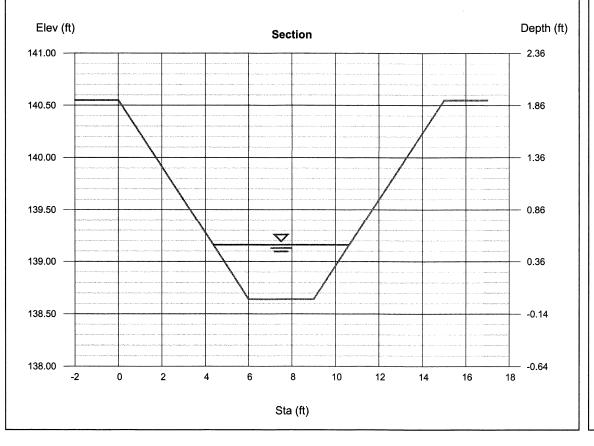
,	or Autodesk® AutoCAD® Civil 3D® by A	utodesk, Inc.	Thursday, Dec 14 201
Section 12+00 P	roposed (2-YR)		
User-defined		Highlighted	
Invert Elev (ft)	= 145.00	Depth (ft)	= 0.44
Slope (%)	= 28.16	Q (cfs) ်	= 14.47
N-Value	= 0.042	Area (sqft)	= 1.55
		Velocity (ft/s)	= 9.32
Calculations		Wetted Perim (ft)	= 4.38
Compute by:	Known Q	Crĺt Depth, Yc (ft)	= 0.81
Known Q (cfs)	= 14.47	Top Width (ft)	= 4.06
• •		EĞL (ft)	= 1.79
(Sta, El, n)-(Sta, El,	n) 0.042)-(11.60, 145.00, 0.042)-(17.43, 151	` ,	5

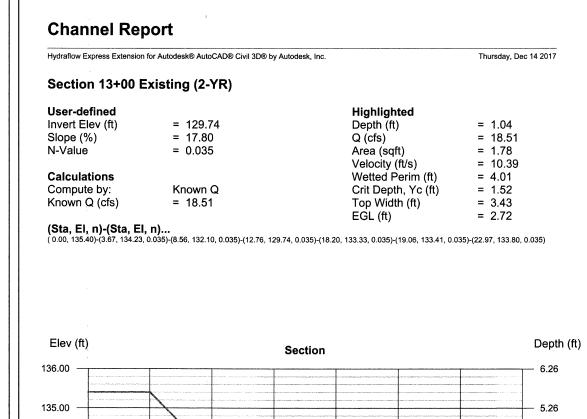


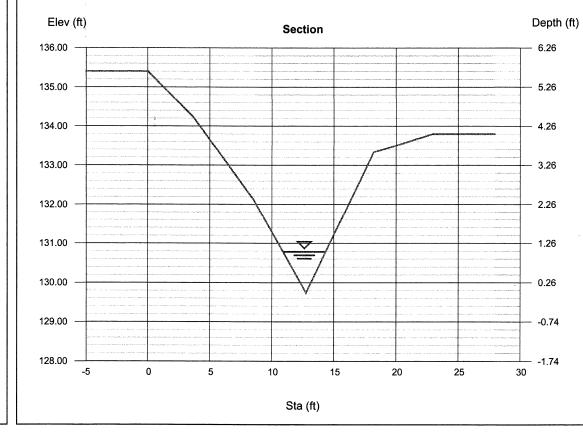




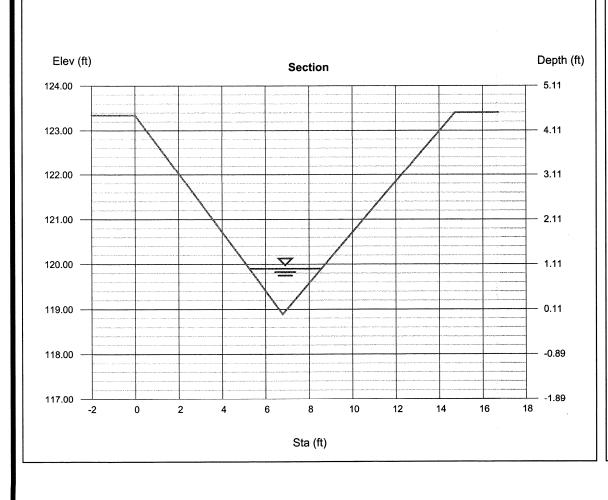


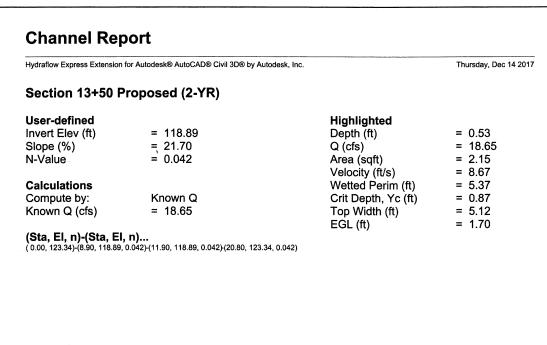


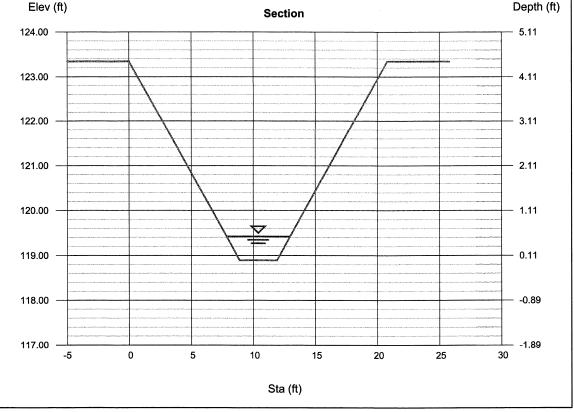


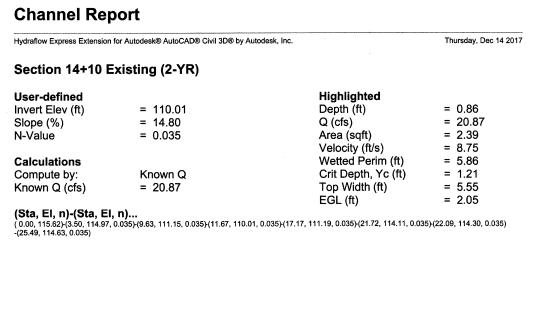


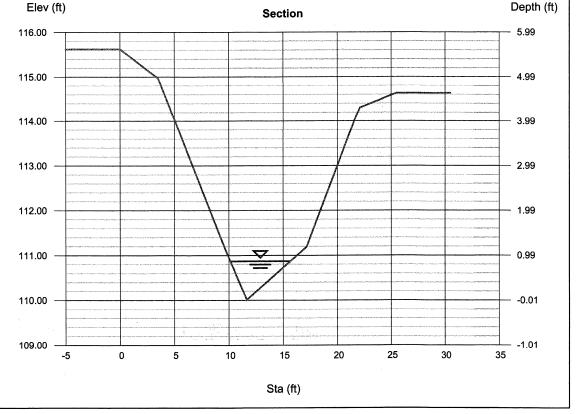
Hydraflow Express Extension	for Autodesk® AutoCAD® Civil 3D® by A	utodesk, Inc.	Thursday, Dec 14 2017
Section 13+50 E	existing (2-YR)		
User-defined		Highlighted	
Invert Elev (ft)	= 118.89	Depth (ft)	= 1.01
Slope (%)	= 21.70	Q (cfs)	= 18.65
N-Value	= 0.035	Area (sqft)	= 1.68
		Velocity (ft/s)	= 11.13
Calculations		Wetted Perim (ft)	= 3.89
Compute by:	Known Q	Crit Depth, Yc (ft)	= 1.52
Known Q (cfs)	= 18.65	Top Width (ft)	= 3.32
. ,		EGL (ft)	= 2.93



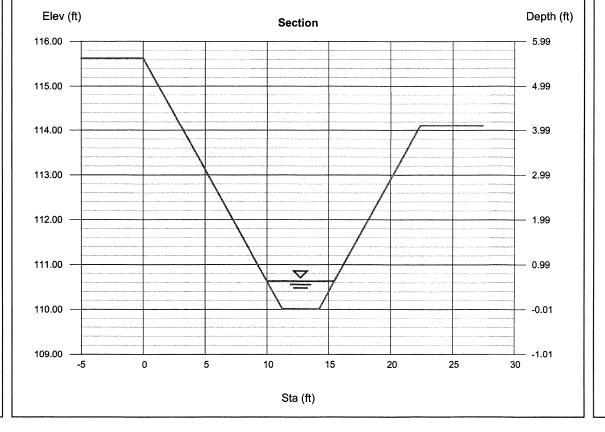




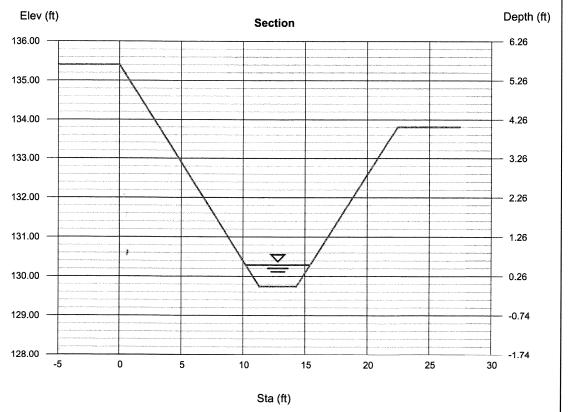




Hydraflow Express Extension	for Autodesk® AutoCAD® Civil 3D® by Au	utodesk, Inc.	Thursday, Dec 14 201
Section 14+10 P	Proposed (2-YR)		
User-defined		Highlighted	
Invert Elev (ft)	= 110.01	Depth (ft)	= 0.62
Slope (%)	= 14.80	Q (cfs)	= 20.87
N-Value	= 0.042	Area (sqft)	= 2.63
		Velocity (ft/s)	= 7.94
Calculations		Wetted Perim (ft)	= 5.77
Compute by:	Known Q	Crit Depth, Yc (ft)	= 0.93
Known Q (cfs)	= 20.87	Top Width (ft)	= 5.48
, ,		EGL (ft)	= 1.60
(Sta, El, n)-(Sta, El	, n)	,	
(0.00, 115.62)-(11.22, 110.01	, 0.042)-(14.22, 110.01, 0.042)-(22.40, 114	.11, 0.042)	



Hydraflow Express Extension	for Autodesk® AutoCAD® Civil 3D® by Auto	odesk, Inc.	Thursday, Dec 14 20
Section 13+00 F	Proposed (2-YR)		
User-defined		Highlighted	
Invert Elev (ft)	= 129.74	Depth (ft)	= 0.55
Slope (%)	= 17.80	Q (cfs)	= 18.51
N-Value	= 0.042	Area (sqft)	= 2.26
		Velocity (ft/s)	= 8.21
Calculations		Wetted Perim (ft)	= 5.46
Compute by:	Known Q	Crit Depth, Yc (ft)	= 0.87
Known Q (cfs)	= 18.51	Top Width (ft)	= 5.20
		EGL (ft)	= 1.60



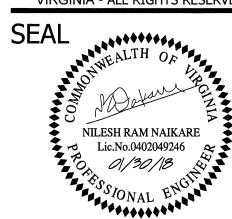


ARLINGTON
VIRGINIA

DEPARTMENT OF
ENVIRONMENTAL SERVICES
FACILITIES & ENGINEERING DIVISION
ENGINEERING BUREAU
2100 CLARENDON BOULEVARD, SUITE 813

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APPROVALS

OLAHTY, CONTROL ENGINEER

OLAHTY, CONTROL ENGINEER

OLAHTY, CONTROL ENGINEER

CONSTRUCTION MANAGEMENT SUPERVISO

WATER, SEWER, STREETS BUREAU CAIEF

NOT APPLICABLE

TRANSPORTATION DIRECTOR

REVISIONS DATE

PHASE

OUTFALL

COMPUTATIONS (PHASE 2)
2707 N NELSON STREET

DESIGNED: KP
DRAWN: KP
CHECKED: NN
MISS UTILITY TRANSMITTAL #: 5320

FILENAME: S48D-250-DRAINAGE_DIVIDES.DWG PATH:Q:\DATA\S48D\DESIGN\CAD\ACTIVE

PLOTTED: JANUARY 30 2018 PLOTTED BY:KPILONG

SCALE: AS NOTED

SHEET 17B OF 21

										EXISTIN	IG CONDIT	IONS STO	RM COMI	PUTATIONS								
Project:	S48D-Windy Run Outfall Phase 1																					
From	То	Drainage	С	CXA		Inlet	Rain	Runoff	Invert Elev.		Length	Slope	Dia.	Capacity	VEL.	Flow	Remarks		Pipe		US Structure	
Point	Point	Area	Factor	Increment	Cumm.	Time	Fall	Q	Upper	Lower				Q		Time		Structure Top	Coefficient	1	2	3
					<u>.</u>	Min.	In/Hr	C.F.S.	End	End	FT.	%	IN.	C.F.S.	F.P.S.	MIN.		Elevation				
· · · · · · · · · · · · · · · · · · ·									, is										ŧ			
*					-					EXIS	TING STORM	SYSTEM DRA	INING TOWA	RDS WINDY RU	N OUTFALL					•		
1834	1844	0.59	0.68	0.40	0.40	5	6.79	2.72	203.37	202.48	29.30	3.04%	15	11.29	7.57	0.06		207.64	0.013			
1838	1844	0.64	0.52	0.33	0.33	5	6.79	2.26	203.06	202.54	30.75	1.69%	15	8.42	5.82	0.09		206.65	0.013			
1847	1849	0.93	0.49	0.46	0.46	5	6.79	3.09	205.33	202.92	31.37	7.68%	15	17.95	10.95	0.05		208.73	0.013	10.00		
1855	1849	2.29	0.49	1.12	1.12	5	6.79	7.62	204.34	202.87	34.96	4.20%	15	13.28	11.19	0.05		207.29	0.013			
1849	1844	0.00		0.00	1.58	5	6.79	10.71	202.84	202.50	35.35	0.96%	15	6.35	5.18	0.11	Capacity Exceeded	207.50	0.013	1847	1855	
1844	1848	0.00		0.00	2.31	5	6.79	15.70	202.42	201.76	34.54	1.91%	18	14.56	8.24	0.07	Capacity Exceeded	207.09	0.013	1834	1838	1849
1848	25606	0.42	0.83	0.35	2.66	5	6.79	18.06	201.65	192.39	115.25	8.03%	18	29.86	17.70	0.11		205.72	0.013	1844		
25606	1876	0.00		0.00	2.66	5	6.79	18.06	191.99	155.37	116.67	31.39%	24	127.08	28.65	0.07		196.54	0.013	1848		
				\$					u .									End Table Print out				
*			.		-	-	•		5	-		GENERA	L ASSUMPTION	ONS			•				•	-
*	Existing pipe diame	eters, lengths, i	nverts, & top	s from survey (ur	nless otherwis	e noted). La	time not con	sidered in this a	nalysis. C-Factors b	pased on existing o	conditions GIS da	ata and standar	d C-Factor table)S.					<u> </u>			
*	Proposed structure				-																	

										E	XISTI	NG CC	DNDITI	IONS	STO	RM S	EWĖR	INLE	ТСС	MPU	TATI	ONS							/				
Project:	S48D-W	Vindy Ru	ın Outfal	ll Phase	1																												
NLET									Q	Q	Q	s	Sx	Т	W	W/T	Sw	Sw/S x	Eo	а	S'w	Se	Lt	P	L/Lt	d	Ε	h	Q	d/H	Qb	Т	
NUMBER	TYPE	LENGTH	STATION	DRAINAGE AREA	С	C×A	C×A W	INTENSITY	INCR	CARRY OVER	TOTAL	LONGITUDINAL (GUTTER) SLOPE, ft/ft	CROSS SLOPE (OF THE ROAD)	SPREAD	WIDTH OF GUTTER PAN	WIDTH/SPREAD	CROSS-SLOPE (OF THE GUTTER)		GUTTER FLOW RATIO	Total Depression		Equivalent cross slope	Req. for 100%	PERIMETEROFGRATE		Depth of flow @ sag (feet)	Inlet Effeciency	Actual height of curb opening	INT		CARRY OVER	SPREAD AT SAG	REMARKS
													EV	ISTING	CONI	DITIONS	S SAG/S	IMD 63	CODM I	NI ETC													
															CONL			UIVIP 3	ORIVI	NLEIS										· · · · · · · · · · · · · · · · · · ·			
1834	CB-2	8.5	T	0.59	0.68	0.40	0.40	4.00	1.60	<u> </u>	1.60	0.065	0.0208	4.64	1.5	0.323	0.0833	4.00	0.80	2.63	0.15	0.14	13.15		0.65		0.85		1.36		0.25		
1838	CB-2			0.53	0.52	0.40	0.33	4.00	1.33		1.33	0.0265	0.0208	5.36	1.5	0.28	0.0833	4.00	0.74	2.63	0.15	0.13			0.88		0.85		1.30		0.25		
1847	CB-2	8.5		0.93	0.49	0.46	0.46	4.00	1.82		1.82	0.065	0.0208	4.98	1.5	0.301	0.0833	4.00	0.77	2.63	0.15	0.13			0.60		0.81	ϵ_{i}	1.47		0.35		
1855	CB-2	8.5		2.29	0.49	1.12	1.12	4.00	4.49		4.49	0.065	0.0208	7.76	1.5	0.193	ļ	4.00	0.56	2.63	0.15	0.10			0.35		0.54		2.42		2.07		
1848	CB-2	8.5		0.42	0.83	0.35	0.35	4.00	1.39		1.39	0.023	0.0208	5.69	1.5	0.263		4.00	0.71	2.63	0.15	0.12	9.67		0.88		0.98		1.36	,	0.03		
		I								1	1	1	1	1	GE	NERAL	ASSUM	PTION	S	L	L	1	1		1	I				,	1		
	Assum	e stand	ard dim	ensions	for Arli	ngton C	ounty C	B-2 cate	ch basin	ns.																							
	Assum	e stand	lard dim	ensions	for Arli	naton C	ounty a	nd VDO	T curb 8	& autter	(1.5' wic	le and 2' v	wide autte	er pans.	and 0.0	833 aut	er nan cr	nee elon	ω) Δες	ume sta	ndard r	oad cro	ss slope	(one ir	ch ner f	oot or 0	0208) 11	nless o	therwise	noted/	shown		



											1	EXISTING	CONDITI	ONS HY	DRAULIC	GRADE	LINE CO	MPUTA	TIONS										
Project:	S	S48D-Windy Run O	outfall Phase 1																								T		
		Outlet		FF	RICTION LOSS	SES							JUNCTIO	LOSSES						FINAL H	Inlet		max @ in	let pre-hgl 10yr-wse	inv1val	inv2val	inv3val	1	
INLET	UP	Water	Do	Qo	Lo	Sfo	Hf	Exit	Loss			Entrance Loss			Bend	Loss	Junct	ion Loss Adju	ıstments	(Junction + Friction	Water	RIM						no plunging losses.	inlet shaping
STATION	STREAM	Surface				`		Vo	Но	Qi	Vi	QiVi	2	Hi	Angle	Hd	Ht	1.3	0.5	Losses)	Surface	ELEV.						100001	
	INLET	Elev.	in	cfs	ft	%	ft						Vi /2g					Ht	Ht		Elev.								
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)							
				!																			#N/A		#N/A	0	0	n	
76				:	-														Starting Elevation		156.97		156.97		156.97	0	0	FALSE	
606		156.97	24.00	18.06	116.67	0.63	0.74	28.65	3.19					1.70		0.00	4.89	0.00	0.00	5.63	162.60	196.54	193.59	162.60	193.59	0	0	TRUE	FALSE
	1848		18.00							18.06	17.69	319.54	4.86				:												
48		193.59	18.00	18.06	115.25	2.94	3.39	17.69	1.22					0.37		0.00	1.58	0.00	0.00	4.97	198.56	205.72	202.96	198.56	202.96	0	0	TRUE	FALSE
	1844		18.00		7 7 7					15.69	8.24	129.30	1.05																
44		202.96	18.00	15.69	34.54	2.22	0.77	8.24	0.26					0.31		0.36	0.94	0.00	0.47	1.24	204.20	207.09	204.198	204.20	203.48	203.54	203.5	TRUE	TRUE
	1834		15.00							2.76	7.60	21.01	0.90	0.31		0.00													
	1838		15.00							2.22	5.79	12.83	0.52	0.18	90.00	0.36													
	1849		15.00							10.71	5.18	55.46	0.42	0.15	90.00	0.29													
49		204.20	15.00	10.71	35.35	2.74	0.97	5.18	0.10					0.68		1.30	2.09	0.00	1.04	2.01	206.21	207.50	206.209	206.21	203.92	203.87	0	TRUE	TRUE
	1847		15.00							3.09	10.95	33.88	1.86	0.65	90.00	1.30													
	1855		15.00							7.62	11.19	85.29	1.95	0.68		0.00													

ARLINGTON VIRGINIA DEPARTMENT OF **ENVIRONMENTAL SERVICES** FACILITIES & ENGINEERING DIVISION ENGINEERING BUREAU 2100 CLARENDON BOULEVARD, SUITE 813

ARLINGTON, VA 22201 PHONE: 703.228.3629 FAX: 703.228.3606

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APPROVALS

TRANSPORTATION DIRECTOR PROJECT MANAGER

DATE

STORM COMPUTATIONS 2707 N NELSON 321.47221.548D.0000 **EXISTING** 2701

DESIGNED: KP DRAWN: KP CHECKED: NN MISS UTILITY TRANSMITTAL #: 5320

FILENAME: S48D-250-DRAINAGE_DIVIDES.DWG

PATH:Q:\DATA\S48D\DESIGN\CAD\ACTIVE PLOTTED: JANUARY 30 2018

PLOTTED BY:KPILONG

SCALE: AS NOTED

SHEET 18 OF 21

REVISED ON 11/08/2016

Gutter longitudinal slope computed from survey or GIS topographic data, unless otherwise noted/shown.

				· ·		1	Т			1 101 00				IPUTATION								1
Project:	S48D-Windy Run Outfall Phase 1			: .a	,					Á-		0/		Consoity	100	- Flow	Remarks		Pipe		US Structure	<u></u>
m	То	Drainage	С	CXA		Inlet	Rain	Runoff	Invert Elev.	<u> </u>	Length	Slope	Dia.	Capacity	VEL.	Flow 	-		Coefficient	1	2	3
nt	Point	Area	Factor	Increment	Cumm.	Time	Fall	Q	Upper	Lower				Q		Time	4	Structure Top		-		
					. «	Min.	In/Hr	C.F.S.	End	End	FT.	%	IN.	C.F.S.	F.P.S.	MIN.		Elevation				
					·				i.	DPOD	OSED STORM	SVSTEM DRA	NINING TOW	ARDS WINDY RU	JN OUTFALL				,			
					<u> </u>					<u></u>				11.29	7.57	0.06		207.64	0.013			ž.
	1844	0.59	0.68	0.40	0.40	5.00	6.79	2.72	203.37	202.48	29.30	3.04%	15	8.42	5.82	0.09		206.65	0.013			
	1844	0.64	0.52	0.33	0.33	5.00	6.79	2.26	203.06	202.54	30.75	1.69%	15	1.		0.09		208.73	0.013			
	1849	0.93	0.49	0.46	0.46	5.00	6.79	3.09	205.33	202.92	31.37	7.68%	15	17.95	10.95			207.29	0.013			
	1849	2.29	0.49	1.12	1.12	5.00	6.79	7.62	204.34	202.87	34.96	4.20%	15	13.28	11.19	0.05	0 % Fded	207.50	0.013	1847	1855	
,	1844	0.00		0.00	1.58	5.00	6.79	10.71	202.84	202.50	35.35	0.96%	15	6.35	5.18	0.11	Capacity Exceeded		0.013	1834	1838	18
ı	1848	0.00		0.00	2.31	5.00	6.79	15.70	202.42	201.76	34.54	1.91%	18	14.56	8.24	0.07	Capacity Exceeded	207.09	· ·		1000	+
	STR-01	0.42	0.83	0.35	2.66	5.00	6.79	18.06	201.65	196.27	67.00	8.03%	18	29.85	17.69	0.06		205.72	0.013	1844		
01	STR-02	0.00		0.00	2.66	5.00	6.79	18.06	195.50	193.00	40.00	6.25%	24	49.15	14.45	0.05		202.21	0.015	1848		-
02	STR-03	0.00		0.00	2.66	5.00	6.79	18.06	191.34	187.50	24.00	16.00%	24	78.64	20.32	0.02		197.70	0.015	STR-01		
03	STR-04	0.00		0.00	2.66	5.00	6.79	18.06	176.14	171.50	29.00	16.00%	24	78.64	20.32	0.02		191.75	0.015	STR-02		
04	OUTFALL	0.00		0.00	2.66	5.00	6.79	18.06	165.25	165.00	19.16	1.30%	24	22.46	7.95	0.04		175.86	0.015	STR-03		
-																		End Table Print out				
												GENERA	L ASSUMPTI	ONS								
		-4 lamm4b !		- f	nloop othorwi	so noted) La	time not con	eidered in this a	nalysis. C-Factors I	pased on existing	conditions GIS da	ata and standar	rd C-Factor tab	les.								

								T		- KOI	USL	D COI	NDITIC	JIVO C		IVI SE	TVEIX II				A110		F I									ПТ
Project:	S48D-W	/indy Ru	ın Outfal	l Phase	1													0 (0			:											
LET									Q	Q	Q	S	Sx	Т	W	W/T	Sw	Sw/S x	Eo	а	S'w	Se	Lt	P	L/Lt	d	Ε	h	Q	d/H	Qb	T
NUMBER	TYPE	LENGTH	STATION	DRAINAGE AREA	С	C×A	CxA W	INTENSITY	INCR	CARRY OVER	TOTAL	LONGITUDINAL (GUTTER) SLOPE, ft/ft	CROSS SLOPE (OF THE ROAD)	SPREAD	WIDTH OF GUTTER PAN	WIDTH/SPREAD	CROSS SLOPE (OF THE GUTTER)		GUTTER FLOW RATIO	Total Depression		Equivalent cross slope	Req. for 100%	PERIMETEROFGRATE		Depth of flow @ sag (feet)	Inlet Effeciency	Actual height of curb opening	INT		CARRY OVER	SPREAD AT SAG
													PROP	OSED (CONDI	TIONS S	AG/SUN	IP STO	RM INL	_ETS												<u></u>
													·	г	r	T		1	1	T	T =	T	1 40 45	<u> </u>	0.05	I		1	T		2.05	Τ-
1834	CB-2	8.5		0.59	0.68	0.40	0.40	4.00	1.60		1.60	0.065	0.0208	4.64	1.5	0.323	0.0833	4.00	0.80	2.63	0.15	0.14	13.15		0.65		0.85		1.36		0.25	+-
1838	CB-2	8.5		0.64	0.52	0.33	0.33	4.00	1.33		1.33	0.0265	0.0208	5.36	1.5	0.28	0.0833	4.00	0.74	2.63	0.15	0.13	9.70		0.88		0.98		1.30		0.03	+
1847	CB-2	8.5		0.93	0.49	0.46	0.46	4.00	1.82		1.82	0.065	0.0208	4.98	1.5	0.301	0.0833		0.77	2.63	0.15	0.13	14.16		0.60		0.81		1.47		0.35	+
1855	CB-2	8.5		2.29	0.49	1.12	1.12	4.00	4.49		4.49	0.065	0.0208	7.76	1.5	0.193	0.0833		0.56	2.63	0.15	0.10	24.29		0.35		0.54		2.42		2.07	+-
1848	CB-2	8.5		0.42	0.83	0.35	0.35	4.00	1.39		1.39	0.023	0.0208	5.69	1.5	0.263	0.0833	4.00	0.71	2.63	0.15	0.12	9.67		0.88		0.98		1.36		0.03	+-
																						l.		***								
										•					GENE	RAL AS	SUMPTI	ONS														
		o stanc	lard dim	ensions	for Arl	ington C	County (CB-2 cat	ch basir	ns.																						



			***	3									HYDRA	AULIC GF	RADE LIN	IE COMP	IOITATU	NS										T	
Project:	S48D-Windy Run	Outfall Phase 1										PROPOSED C	ONDITIONS																
T TOJECI.	040D-Willay Kall	Outlet		FR	L RICTION LOSS	L SES							JUNCTIO	N LOSSES						FINAL H	Inlet	,	max @ inl	et pre-hgl 10yr-wse	inv1val	inv2val	inv3val	Structure has no plunging	
INLET	UP	Water	Do	Qo	Lo	Sfo	Hf	Exit	Loss			Entrance Loss			Bend	Loss	Junct	ion Loss Adjus	stments	(Junction + Friction	Water	RIM						losses.	
	STREAM	Surface	- 50					Vo	Но	Qi	Vi	QiVi	2	Hi	Angle	Hd	Ht	1.3	0.5	Losses)	Surface	ELEV.							
STATION	INLET		in	cfs	ft	%	ft						Vi /2g					Ht	Ht		Elev.								
	INLET	Elev.		<u> </u>	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)			*				
(1)		(2)	(3)	(4)	(5)	(0)	(')	(0)	(0)	(10)	(,	(/											#N/A		#N/A	0	0	n	
						<u> </u>													Starting				400.00		166.6			FALSE	
OUTFALL																			Elevation	 	166.60	175.00	166.60	168.01	173.1	0	0	TRUE	TRUE
TR-04		166.60	24.00	18.06	19.16	0.84	0.16	7.95	0.25					2.24		0.00	2.49	0.00	1.24	1.41	168.01	175.86	173.1	100.01	173.1			INOL	TROE
	STR-03		24.00							18.06	20.32	367.01	6.41		0.00				1.00	0.17	175.27	191.75	189.1	175.27	189.1	10	10	TRUE	TRUE
TR-03		173.10	24.00	18.06	29.00	0.84	0.24	20.32	1.60					2.24		0.00	3.85	0.00	1.92	2.17	1/5.2/	191.75	109.1	113.21	109.1	-		INOL	11102
	STR-02		24.00							18.06	20.32	367.01	6.41		0.00		0.40	0.00	1.71	1.91	191.01	197.70	194.6	191.01	194.6	0	0	TRUE	TRUE
TR-02		189.10	24.00	18.06	24.00	0.84	0.20	20.32	1.60					1.13		0.68	3.42	0.00	1./1	1.91	191.01	197.70	104.0	101.01					
	STR-01		24.00							18.06	14.44	260.88	3.24		24.21	0.54	3.05	0.00	1.52	1.86	196.46	202.21	197.47	196.46	197.47	0	0	TRUE	TRUE
STR-01		194.60	24.00	18.06	40.00	0.84	0.34	14.44	0.81					1.70	45.05	0.54	3.05	0.00	1.52	1.00	100.40	202.21							
	1848		18.00							18.06	17.69	319.47	4.86	0.07	15.85	0.00	1.58	0.00	0.79	2.76	200.23	205.72	202.96	200.23	202.96	0	0	TRUE	TRUE
848		197.47	18.00	18.06	67.00	2.94	1.97	17.69	1.21		0.04	400.00	4.05	0.37	0.00	0.00	1.50	0.00	0.70	20									
	1844	,	18.00							15.69	8.24	129.30	1.05	0.31	0.00	0.36	0.94	0.00	0.47	1.24	204.20	207.09	204.198	204.20	203.48	203.54	203.5	TRUE	TRUE
844		202.96	18.00	15.69	34.54	2.22	0.77	8.24	0.26	0.70	7.00	21.01	0.90	0.31	0.00	0.00	0.01												
	1834		15.00					-		2.76	7.60	12.83	0.52	0.18	90.00	0.36													
	1838		15.00	\$						2.22	5.79 5.18	55.46	0.32	0.15	90.00	0.29													
	1849		15.00	40 = 1	05.05	0.74	0.07	F 10	0.10	10.71	J. 10	33.40	0.72	0.68		1.30	2.09	0.00	1.04	2.01	206.21	207.50	206.209	206.21	203.92	203.87	0	TRUE	TRUE
349		204.20	15.00	10.71	35.35	2.74	0.97	5.18	0.10	3.09	10.95	33.88	1.86	0.65	90.00	1.30													
	1847		15.00 15.00							7.62	11.19	85.29	1.95	0.68	0.00	0.00													

ARLINGTON VIRGINIA

DEPARTMENT OF
ENVIRONMENTAL SERVICES
FACILITIES & ENGINEERING DIVISION
ENGINEERING BUREAU
2100 CLARENDON BOULEVARD, SUITE 813

ARLINGTON, VA 22201
PHONE: 703.228.3629
FAX: 703.228.3606

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SEAL

NILESH RAM NAIKARE
Lic.No.0402049246

O 0/30/18

STONAL ENGINE

APPROVALS

ALITY CONTROL ENGINEER

FEB 14

WETRUCKER STREETS BUIDEAU CHU

NOT APPLICABLE

TRANSPORTATION DIRECTOR

PROJECT MANAGER

REVISIONS

(LV1510145

WINDY RUN OUTFALL - PHASE 1

PROPOSED STORM COMPUTATIONS

270.1 8, 270.7 NI NEI CON STREET

DESIGNED: KP
DRAWN: KP
CHECKED: NN

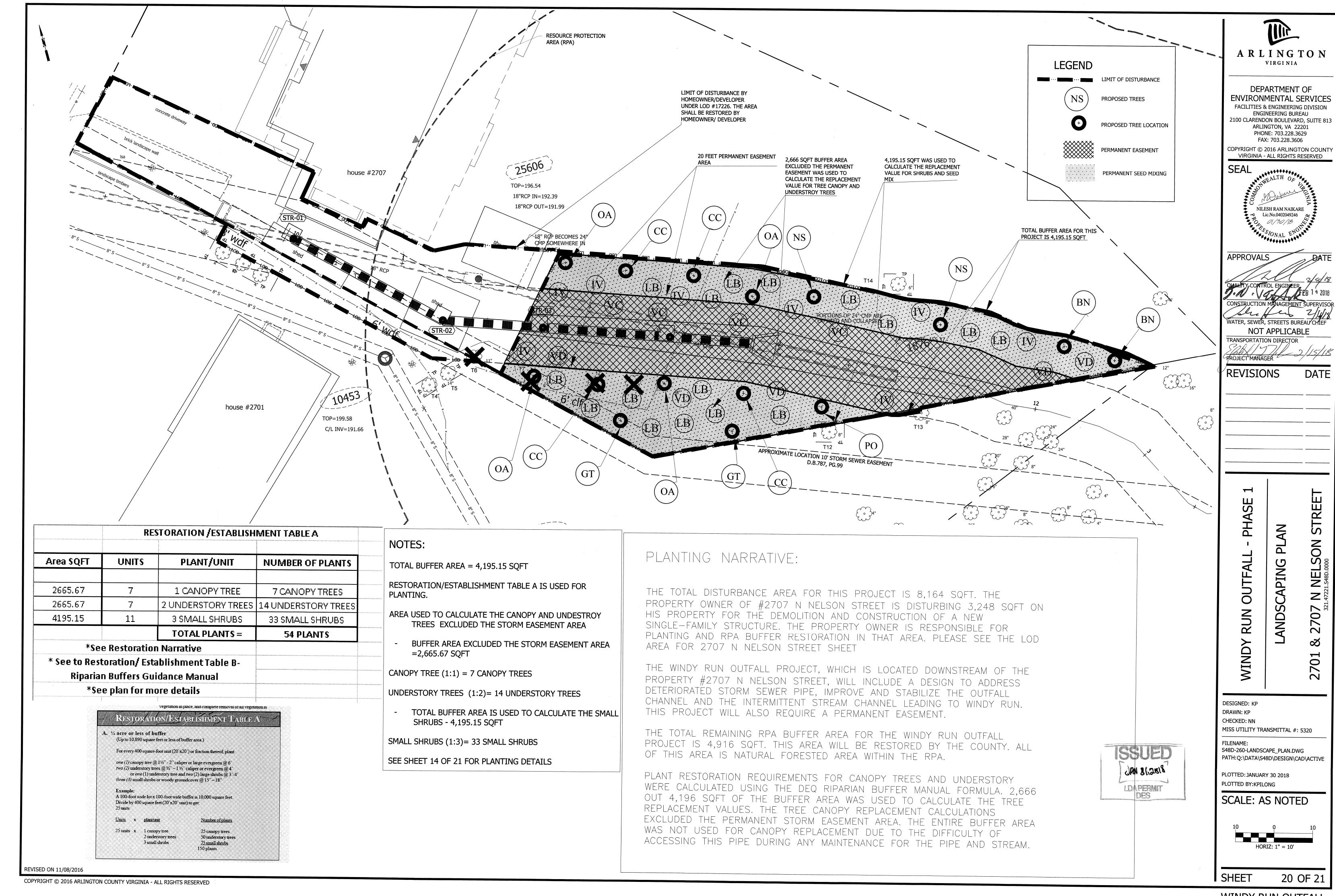
DRAWN: KP CHECKED: NN MISS UTILITY TRANSMITTAL #: 5320

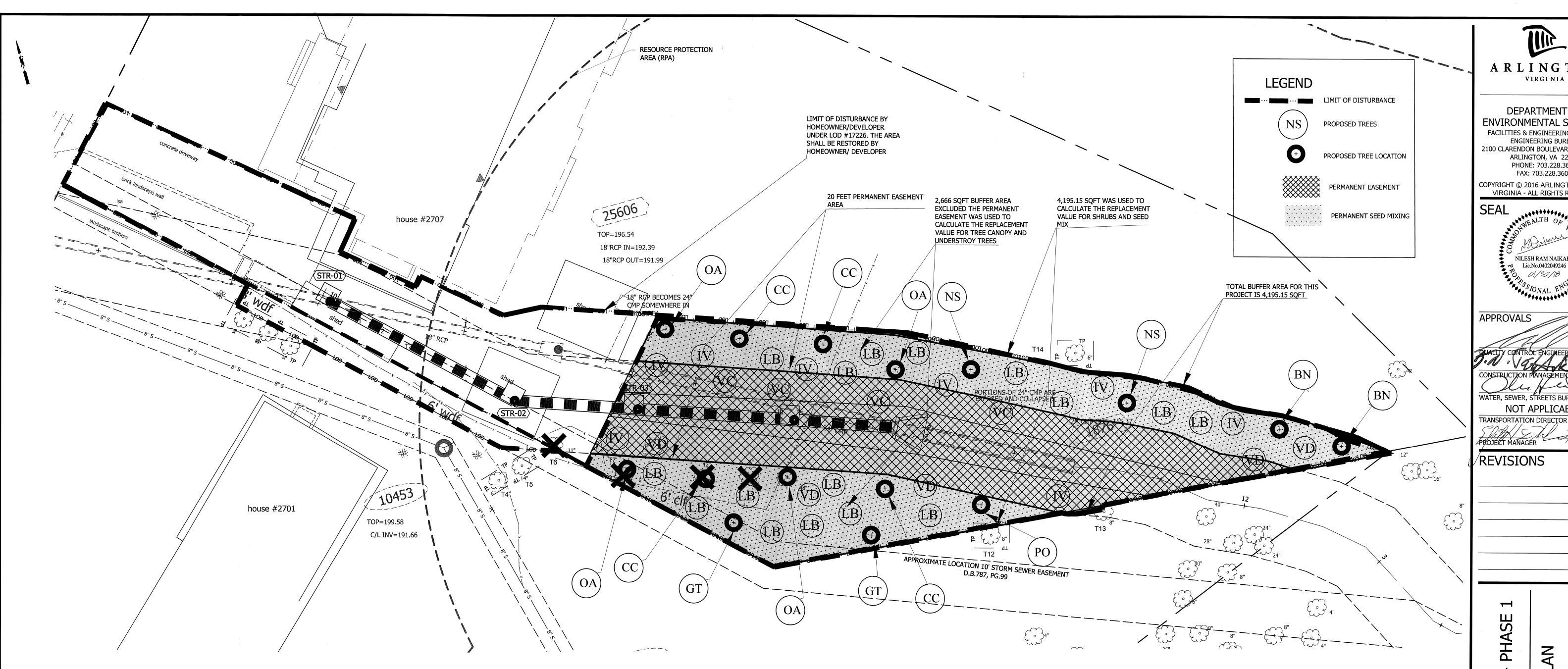
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PLOTTED: JANUARY 30 2018 PLOTTED BY:KPILONG

SCALE: AS NOTED

SHEET 19 OF 21





			CANOPY	TREES				NATIVE OD A COEC O	
SYMBOL	SPECIES NAME	COMMON NAME	NUMBER OF PLANTS	SPREAD PLANTING	ROOTS	SIZE	NOTES	NATIVE GRASSES & I	FORBES
(BN)	BETULA NIGRA	RIVER BIRCH	2	15 ft	CONT.	1 ½"-2"	ONE LEADER (TRUNK)	SPECIES NAME	COMMOI
PO	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	1	25 ft	CONT.	1 ½"-2"		DICHANTHELUM CLANDESTINUM	DEERTO GRA
(GT)	GLEDITSIA TRIACANTHOS	HONEYLOCUST	2	20 ft	CONT.	1 ½"-2"		ELYMUS HYSTRIX	BOTTLE GRA
NS	NYSSA SYLVATICA	BLACK GUM	2	20 ft	CONT.	1 ½"-2"		CHASMANTHIUM LAXUM	SLEN WOOD
	3.2	TOTAL	7				·	VERNONIA NOVEBORACENSIS	NEW Y IRONV
								1 0 0 1 1 0	

			UNDERSTO	ORY TREES			
SYMBOL	SPECIES NAME	COMMON NAME	NUMBER OF PLANTS	SPREAD PLANTING	ROOTS	SIZE	NOTES
OA	OXYDENDRUM ARBOREUM	SOURWOOD	4	15 ft	CONT.	3 ₄ - 1 1/2"	
CC	CERCIS CANADENSIS	REDBUD	4	10 ft	CONT.	3 ₄ - 1 1/2"	
MV	MAGNOLIA VIRGININIANA	SWEETBAY MAGNOLIA	6	7 ft	CONT.	3/4" - 1 1/2"	
		TOTAL	14		į		

IK)	SPECIES NAME	COMMON NAME	PLS PERCENT OF SEED MIX
	DICHANTHELUM	DEERTONGUE	20
	CLANDESTINUM	GRASS	20
	ELYMUS HYSTRIX	BOTTLEBRUSH	15
	ELTIVIOSTITISTRIA	GRASS	13
	CHASMANTHIUM	SLENDER	20
	LAXUM	WOODOATS	20
	VERNONIA	NEW YORK	15
	NOVEBORACENSIS	IRONWEED	13
	ASCLEPIAS	SWAMP	2
,	INCARNATA	MILKWEED	2
	BAPTISIA	BLUE WILD	
	AUSTRALIS	INDIGO	5
	7.00117.610		
	SEDUM TERNATUM	WILD	3
		STONECROP	
			4000/
		TOTAL	100%
- 11			

ANNUAL RYEGRASS										
SPECIES NAME	COMMON NAME	PLS PERCENT OF SEED MIX								
	ANNUAL RYE	100								

			SMALLS	SHRUBS			
SYMBOL	SPECIES NAME	COMMON NAME	NUMBER OF PLANTS	SPREAD PLANTING	ROOTS	SIZE	NOTES
LB	LINDERA BENZOIN	SPICEBUSH	16	6-12 ft	CONT.	15"-18"	
(IV)	ILEX VERTICILATA	WINTERBERRY	8	5-8 ft	CONT.	15"-18"	
VC	VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	4	9-10 ft	CONT.	15"-18"	
(VD)	VIBURNUM DENTATUM	SOUTHERN ARROWWOOD	5	7-10 ft	CONT.	15"-18"	
		TOTAL	33				

NOTES:

- 1. NATIVE GRASSES AND FORBS/ PERENNIALS SHALL BE APPLIED AT A RATE OF 40 LBS/ACRE
- 2. ANNUAL RYEGRASS SHALL BE APPLIED AT A RATE OF 20 LBS/ACRE
- 3. NATIVE FORBES AND FORBS/PERENNIALS SHALL BE MIXED WITH ANNUAL RYEGRASS WHEN THEY ARE APPLIED
- 4. SEE SHEET 14 OF 21 FOR PLANTING DETAILS





DEPARTMENT OF **ENVIRONMENTAL SERVICES** FACILITIES & ENGINEERING DIVISION ENGINEERING BUREAU 2100 CLARENDON BOULEVARD, SUITE 813 ARLINGTON, VA 22201 PHONE: 703.228.3629 FAX: 703.228.3606

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SEAL NILESH RAM NAIKARE Lic.No.0402049246

APPROVALS NOT APPLICABLE

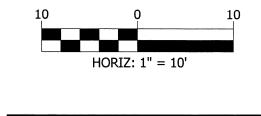
PROJECT MANAGER REVISIONS

DESIGNED: KP DRAWN: KP CHECKED: NN MISS UTILITY TRANSMITTAL #: 5320

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PLOTTED: JANUARY 30 2018 PLOTTED BY:KPILONG

SCALE: AS NOTED



SHEET 20A OF 21

REVISED ON 11/08/2016

Mr. CIV PROJECT VIRGINIA POINT OF ANALYSIS (POA): INTERSECTION OF OUTFALL AND WINDY RUN STREAM TO EVALUATE 1% RULE DRAINAGE AREA FOR WINDY RUN AT THIS POINT = 285 AC LIMITS OF DISTURBANCE FOR THE PROJECT = 0.19 AC 100 X 0.19 = 19 AC 285 > 19 THUS 1% RULE IS MET WINDY RUN WATERSHED AREA SOIL MAP STREAM RESTORATION PROJECT WILL ENSURE THAT THE CHANNEL IS STABLE AND ADEQUATE 7D :- URBAN LAND GLENELG COMPLEX. 15TO 25 PERCENT SLOPES. THIS STRONGLY SLOPING UNIT OCCURS ON SIDE SLOPES. REVISIONS UTFALL FOR THIS PROJECT OUTFALL WINDY RUN DESIGNED: KP DRAWN: KP CHECKED: NN 31.2018 JAN 31 A OIY PLOTTED: JANUARY 30 2018 PLOTTED BY:KPILONG SCALE: AS NOTED

ARLINGTON

DEPARTMENT OF ENVIRONMENTAL SERVICES FACILITIES & ENGINEERING DIVISION

ENGINEERING DIVISION
ENGINEERING BUREAU
2100 CLARENDON BOULEVARD, SUITE 813
ARLINGTON, VA 22201
PHONE: 703.228.3629
FAX: 703.228.3606

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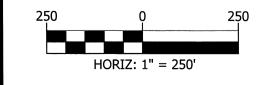
Lic.No.0402049246

NOT APPLICABLE

OVERALL DRAINAGE AREA AND SOIL MAP

MISS UTILITY TRANSMITTAL #: 5320

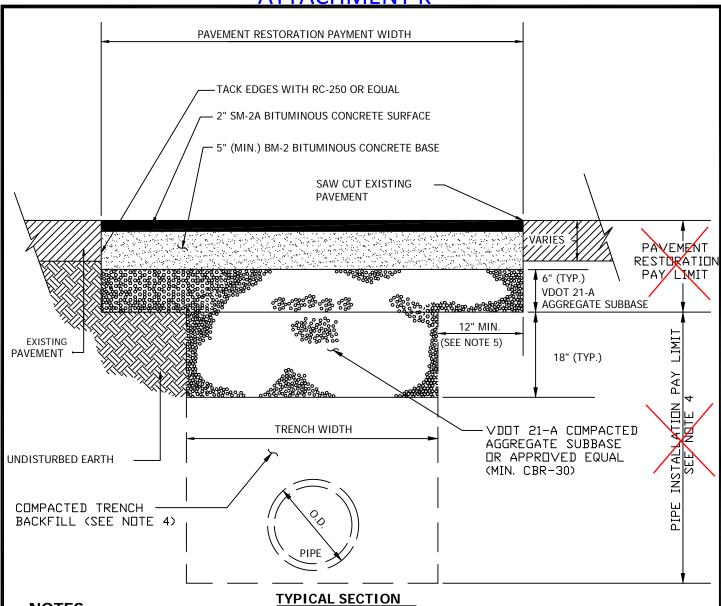
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21 OF 21

REVISED ON 11/08/2016

<u>ATTACHMENT K</u>



NOTES:

- 1. WHEN THE DISTANCE FROM THE EDGE OF EXISTING PAVEMENT TO THE EDGE OF THE PAVEMENT RESTORATION PAYMENT WIDTH IS 3' OR LESS THEN THE ADDITIONAL PAVEMENT SHALL BE REMOVED AND REPLACED BACK TO THE EDGE.
- 2. THICKNESS OF BM-2 BASE MAY BE REDUCED TO 3" WHEN PATCH IS BEING MADE IN PAVEMENTS OF SURFACE TREATED GRAVEL, AND DIRECTED BY THE ENGINEER.
- 3. WHEN WIDENING OR PATCHING A STREET WITH ASPHALT, A NEAT, CLEAN JOINT OF AT LEAST ONE (1) INCH IN DEPTH BETWEEN OLD AND NEW PAVEMENT SHALL BE PROVIDED FOR TOPPING SO AS TO ELIMINATE THE NEED FOR FEATHERING OF THE OVERLAY.
- 4. FOR TRENCH AND BEDDING DETAILS, SEE DRAWING No. M-3.0.
- 5. WHEN THE UTILITY TRENCH REQUIRES SHEETING & SHORING, A WIDER PAYMENT WIDTH SHALL BE APPROVED BY THE ENGINEER TO ACCOMMODATE TRENCH BOX.

	STANDARD PAVEMENT RESTORATION	
	FOR UTILITY CUTS	REVISION & DATE
ARLING TO N	ARLINGTON COUNTY, VIRGINIA DEPARTMENT OF ENVIRONMENTAL SERVICES	DRAWING NO. M-6.0

ARLINGTON COUNTY, VIRGINIA OFFICE OF THE PURCHASING AGENT

INVITATION TO BID NO.19-279-ITB

BID FORM

SUBMIT TWO (2) FULLY-COMPLETED AND SIGNED BID FORMS TO THE OFFICE OF THE BID CLERK, SUITE 511, 2100 CLARENDON BLVD., ARLINGTON, VIRGINIA 22201 (ONE FORM SHALL CONTAIN AN ORIGINAL LONGHAND SIGNATURE; THE OTHER SHALL BE A PHOTOCOPY OF THE SIGNED ORIGINAL)

BIDS WILL BE OPENED AT ON JUNE 4, 2019 AT 2:00 P.M. EST

FOR PROVIDING CONSTRUCTION SERVICES IDENTIFIED HEREIN IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS, TERMS AND CONDITIONS OF THIS SOLICITATION

THE OFFICIAL, TRUE, AND COMPLETE COPY OF THE SOLICITATION DOCUMENTS, WHICH SHALL INCLUDE ALL ADDENDUMS THERETO, IS THE ELECTRONIC COPY OF THE SOLICITATION DOCUMENTS PROVIDED AT THE COUNTY'S WEBSITE (http://budget.arlingtonva.us/purchasing).

THE UNDERSIGNED UNDERSTANDS AND ACKNOWLEDGES THE FOLLOWING:

EACH BIDDER IS RESPONSIBLE FOR DETERMINING THE ACCURACY AND COMPLETENESS OF <u>ALL</u> SOLICITATION DOCUMENTS THEY RECEIVE, INCLUDING DOCUMENTS OBTAINED FROM THE COUNTY AND DOCUMENTS OBTAINED FROM ALL OTHER SOURCES.

The undersigned certifies that (Bidder Name)Sagres Construction Corporation
is currently registered with the Virginia State Board of Contractors as required by the Code of Virginia.
Certificate Number 2705060219 for a Class A License was issued on the 31st day of
January, 20 <u>01</u> . The undersigned further certifies that the registration fee and all renewal fees
required under law have been paid. The Contractor agrees to furnish all necessary labor, equipment,
materials, and all things necessary to perform the Work as set forth in accordance with the plans and
specifications at the following prices: (All prices include provision and installation).

The undersigned acknowledges receipt of the following Addendums:

	ADDENDUM A	DATE: 5/30/2019	INITIAL:	N.D.
	ADDENDUM B	DATE:	INITIAL:	
	ADDENDUM C	DATE:	INITIAL:	
BIDDER NAME:	Sagres Construction (Corporation		

BID FORM, PAGE 2 OF 6

FURNISHING ALL LABOR, MATERIALS, EQUIPMENT, TRANSPORTATION, INCIDENTALS AND SUPERVISION ON AN ON-CALL BASIS FOR CONSTRUCTION OF WET UTILITIES (STORM/SANITARY/WATER MAINS) AND ASSOCIATED OUTFALL AND STREAM CHANNEL IMPROVEMENT PROJECTS IN ARLINGTON COUNTY.

LIQUIDATED DAMAGES:

\$1,428.00 PER DAY

PLEASE COMPLETE THE PRICING SHEET PROVIDED WITH THE BID DOCUMENTS AS ATTACHMENT A TO ITB NO. 19-279-ITB AND SUBMIT IT WITH YOUR BID IN HADRCOPY AS WELL AS A DIGITAL COPY ON USB DRIVE OF A COMPACT DISK

FAILURE TO SUBMIT THE PRICING SHEET WITH THE BID WILL DEEM THE BIDDER NONRESPONSIVE.

MINIMUM BIDDER QUALIFICATIONS

The Contractor shall have three (3) continuous years of on-call services construction contract experience conducting public works infrastructure and wet utilities improvement projects in an urban environment. The Contractor/Subcontractor shall also have three (3) years of continuous on-call services construction contract experience in regenerative stormwater conveyance (RSC), streambank stabilization and stream restoration construction including work in urban environment.

The experience shall be work of similar size and scope, construction and re-construction and shall include at least one (1) RSC project.

The Contractor obtained project experience shall consist of the following:

- State and County streets
- Storm sewer pipes and inlets
- Water mains
- Sanitary sewer pipes and structures
- Curbs and gutters
- Sidewalks and walkways
- Driveway aprons
- Pavement markings and signage
- Streetscapes
- Erosion and sediment control in and adjacent to waterways
- Step pool and weir construction
- Longitudinal and cross-section channel surveys
- Stone stream BMP walls
- Bank, floodplain and channel grading
- Riffle and pool construction
- Bank stabilization, including biostabilization
- Riparian planting and restoration

The Contractor shall provide a list of ten (10) projects completed within the last five (5) years with reference contact information for each project for Bidder qualification verification. Failure to qualify according to the foregoing requirements will result in bid rejection by the Arlington County Purchasing Office.

BID FORM, PAGE 3 OF 6

THE UNDERSIGNED (INITIAL ONE ENTRY) ELECTS	, DOES NOT ELECT \underline{x} , TO USE THE ESCROV
PROCEDURES DESCRIBED IN SECTION 11-56.1 OF THE	VIRGINIA PUBLIC PROCLIREMENT ACT.

TRADE SECRETS OR PROPRIETARY INFORMATION:

Trade secrets or proprietary information submitted by an Bidder in connection with a procurement transaction shall not be subject to public disclosure under the Virginia Freedom of Information Act. However, Section 4-111 of the Arlington County Purchasing Resolution states that the Bidder must invoke the protection of this section prior to or upon submission of the data or other materials, and must identify the data or other materials to be protected and state the reasons why protection is necessary.

Please mark one:

No, the bid I have submitted does <u>not</u> contain any trade secrets and/or proprietary information.	
Yes, the bid I have submitted does contain trade secrets and/or proprietary information	n
If Yes, you must clearly identify below the exact data or other materials to be protecte and list all applicable page numbers of the bid containing such data or materials:	d
State the specific reason(s) why protection is necessary:	

If you fail to identify the data or other materials to be protected and state the reasons why protection is necessary in the space provided above, you will not have invoked the protection of Section 4-111 of the Purchasing Resolution. Accordingly, effective upon the award of contract, the bid will be open for public inspection consistent with applicable law.

BIDDER	NAMF:	Sagres	Construction	Corporation
0.000.				

BID FORM, PAGE 4 OF 6

NAME:

<u>CERTIFICATION OF NON-COLLUSION:</u> The undersigned certifies that this bid is not the result of, or affected by, any act of collusion with another person(under Virginia Code Section 59.1-68.6 et seq.), engaged in the same line of business or commerce; or any act of fraud punishable under Article 1.1 of the Virginia Governmental Frauds Act (Va. Code §18.2-498.1 et seq.).

<u>CERTIFICATION OF UNDERSTANDING OF THE CONTRACT DOCUMENTS:</u> The undersigned affirms that he has carefully examined all of the Solicitation Documents and that there are no erroneous, contradictory, incomplete or infeasible requirements or directions apparent in the Bid. The undersigned agrees to waive any claims in any way associated with any such erroneous, contradictory, incomplete or infeasible requirements or directions unless

such requirements could only reasonably be uncovered during the course of the Work.

CONTACT PERSON AND MAILING ADDRESS FOR DELIVERY OF NOTICES

Dejan Dragacevac

Provide the name and address of the person designated by the Bidder to receive notices and other communications (Refer to section headed Notices in the <u>Contract Terms and Conditions</u> of this solicitation for further details):

ADDRESS:	3680 Wheeler Ave., Suite 3	00		
	Alexandria, VA 22304			
E-MAIL:	dan@sagresconstruction.co	om		
SPACE PROVIDED INVITATION TO BI	AL NAME OF THE FIRM OR ENTITY SUBMIT BELOW. THIS BID FORM, AND ALL OTHER ID TO BE SUBMITTED WITH THIS BID FORI	R DOCUMENTS R M, INCLUDING, I	EQUIRED BY THE BUT NOT LIMITED TO A	
	IMS, <u>MUST BE FULLY AND ACCURAPELY C</u> IZED TO LEGALLY BIND THE BIDDER, <u>OR T</u>			
PERSON AUTHOR	LEGALET BIND THE BIDGER, OR T	2/	ADECTED.	
AUTHORIZED SIGI	NATURE:			
PRINT NAME AND	TITLE: Dejan Dragacevac, Vice	President		
	ME AND CONTACT INFORMATION OF THE 7 TO ANY QUESTIONS REGARDING THIS BII			
NAME (PRINTED):	Dejan Dragacevac	TEL. NO.: _	703-924-7220	
E-MAIL ADDRESS:	dan@sagresconstruction.com	FAX. NO.:	703-924-5145	

BID FORM, PAGE 5 OF 6

SUBMITTED BY: (LEGA		s Co	onstruction Corp	oratio	n		
ADDRESS: 3680 Who	eeler Ave., Suite 300	<u> </u>		23.4110			
	exandria, VA 22304		~**				
TELEPHONE NO: 703	-924-7220		FACSIMILE NO.: 70	03-924	-5145		
VA. CONTRACTOR LIC	ZENSE #: 270506024	9 CI	ass A				
<u>x</u> CORF	M IS A: • INSERT NAME OF PORATION, GENERAL IINCORPORATED ASSOCIA SOLE	PART ATION	NERSHIP, LIMIT				
IS FIRM AUTHORIZED	TO TRANSACT BUSINESS	IN TH	E COMMONWEALT	H OF VA	?	Yes	3
IDENTIFICATION NO.	ISSUED TO THE FIRM BY T	HE SO	CC:	0533	2796		
	FROM SCC AUTHORIZATI IEY ARE NOT REQUIRED T	-	• •	INCLUC	E A STATE	MENT	·
	NTLY DEBARRED FROM SI HER STATE OR POLITICAL			NGTON	COUNTY,		No
ENTITY'S DUN & BRAI (if available)	DSTREET D-U-N-S NUMBE	R:	093718786				
BIDDER STATUS:	MINORITY OWNED:	х	WOMAN OWNED:		NEITHER:	3	

BID FORM, PAGE 6 OF 6

Insurance Services

INSURANCE CHECKLIST

	ALL COVERAGE AND ENDORSEMENTS MARKED "X".
COVERAGES REQUIRED	COVERAGE MINIMUM(S)
	Statutory limits of Virginia
	\$100,000 accident, \$100,000 disease, \$500,000 disease policy limit
	\$1,000,000 CSL BI/PD each occurrence, \$2 Million annual aggregate
	\$500,000 CSL BI/PD each occurrence, \$1 Million annual aggregate
	\$1 Million BI/PD each accident, Uninsured Motorist
	\$1 Million BI/PD each accident, Uninsured Motorist
X 7. Independent Contractors	\$500,000 CSL BI/PD each occurrence, \$1 Million annual aggregate
	\$500,000 CSL BI/PD each occurrence, \$1 Million annual aggregate
X 9. Completed Operations	\$500,000 CSL BI/PD each occurrence, \$1 Million annual aggregate
X 10. Contractual Liability (Must be shown or	n Certificate)\$500,000 CSL BI/PD each occurrence,
	\$1 Million annual aggregate
11. Personal and Advertising Injury Liabilit	y\$1 Million each offense, \$1 Million annual aggregate
	\$1 Million Bodily Injury, Property Damage and Personal Injury
X 13. Per Project Aggregate	,
14. Professional Liability	
_ ,	\$1 Million per occurrence/claim
	\$2 Million per occurrence/claim
d Medical Professional Liability	\$ Limits as set forth in Virginia Code 8.01.581.15
15 Missellanceus FRO	\$ Links as sectorul in Viginia Code 6.01.361.13
	\$1 Million BI/PD each accident, Uninsured Motorist
17. Motor Cargo Insurance	A. A. A. M
18. Garage Liability	\$1 Million Bodily Injury, Property Damage per occurrence
19. Garage Keepers Liability	\$500,000 Comprehensive, \$500,000 Collision
	\$
	Endorsement to CGL
	rage\$
	de Coverage in the full amount of Contract, including any amendments
24. XCU Coverage	Endorsement to CGL
	Federal Statutory Limits
X 26. Carrier Rating shall be A.M. Best Co.'s	Rating of A-VII or better or equivalent
X 27. Notice of Cancellation, nonrenewal or i	material change in coverage shall be provided to County at least 30 days
prior to action.	
X 28. The County shall be an Additional	Insured on all policies except Workers Compensation and Auto and
Professional Liability.	
X 29. Certificate of Insurance shall show Bid	Number and Bid Title.
30. OTHER INSURANCE REQUIRED:	
INSURANCE AGENT'S STATEMENT:	
	h the Bidder named below and have advised the Bidder of required
coverages not provided through this agency.	
coverages not provided through this agency.	, , , , , , , , , , , , , , , , , , ,
AGENCY NAME: McGriff Insurance Services	AUTH. SIGNATURE: COVOLING YARRA)
AGENCT NAME:	
SIDDEDIC CTATEL ACAIT	Caroline George
BIDDER'S STATEMENT:	1 //
if awarded the Contract, I will comply with a	Il Contract insurance requirements.
Constanting Committee Committee	
BIDDER NAME: Sagres Construction Corp	oration AUTH. SIGNATURE:
	205
	LU3

ITB No. 19-279-ITB

*23. No Builder's Risk Coverage at this time, but eligible if awarded contract. \$500,000 Installation Floater currently provided. McGriff

restoration and stabilization MBP guide is: https://www.deq.virginia.gov/Portals/0/DEQ/Water/Publications/BMPGuide.pdf

88. Traffic Control is listed as a percentage item. There does not appear to be a specific reference to barriers / attenuators under the line item. Are these expected to be installed under this item? If so will the county consider additional line items for these occurrences as without plans this requirement and greatly skew the % number received from contractors.

<u>Response:</u> Traffic control shall remain a percentage item per County specs Section 13180. There will be no additional compensation provided.

89. Traffic Control is listed as a percentage item. There is no specific reference to Striping / Eradication of Existing markings. Is this a requirement of this item or is the temporary striping being paid under the striping items in the contract?

<u>Response:</u> Eradication of the existing marking shall be considered incidental to the work. Per County specs Section 02900, provision of temporary pavement markings is incidental to work and no additional compensation will be provided.

90. The SWPPP Administration was not included under the percentage line items like previous bids. Will the county consider including this item for this contract?

<u>Response:</u> No separate payment will be made by the County for the SWPPP implementation. It shall be considered a subsidiary obligation under this contract. The Contractor shall **not** be entitled to any additional payment for changes to the SWPPP which are the result of the Contractor's work schedule or resource allocation, weather delays, or other factors not controlled by the County.

The balance of the solicitation remains unchanged.

Arlington County, Virginia

Igor Scherbakov Procurement Officer

RETURN THIS PAGE, FULLY COMPLETED AND SIGNED, WITH YOUR BID:

Same Carate ation Caraction

BIDDER ACKNOWLEDGES RECEIPT OF ADDENDUM A.

FIRM NAME:	Sagres Construction Corporation			
AUTHORIZED SIGNATURE: _	MMMM	DATE:	6/11/2019	
	1/1///		_	

Project Title	Owner	Project Description	Contract Award Date	Contract Amount	
BAD/ CONTINCT NUMBER	Vooless			Completion	
Location	Phone Number		Type of Contract	Original Completion Date	tion Date
Bid Date			Project Duration	Actual Completion Date	ion Dete
Annual County Storm Water Quality Improvement	Fairfax Co. Dept. of Public Works and Environmental Services	Construction, repair, and enhancement of multiple stormwater basins and stormwater quality improvement projects. Inclusive of: Installing and placing drainage pipes, dam repairs, dam construction, stormwater management basin retroits, concrete structures, biorretention facilities, the creation of or modification to wetland environments in existing stormwater management facilities and stream and outfall restoration projects.	2018-08-13	v	3,472,850.00
CN17125002	12000 Government Center Parkway, Suite 463		Waiting on NTP		
Various Locations Throughout Fairfax, VA 2018-07-18	Fairfax, VA 22035 703-324-5111		Task Order 365 Calendar Days + Option to extend up to 4 - one year		
DC Water Condition Assessment of Large	Pure Technologies	Construction support tasks	1/29/2018	s	1,000,000.00
Dlameter Water Mains and Sewers DC Water FCFAM48S-WSA	8920 State Route 108, Suite D Columbia, MD 21045	Clent: DC WASA	Task Order 5 Years		
Pre-Condition Assessment and Structural Analysis of the 108' Pure Technologies	Pure Technologies	Removal of a pipe / Support Tasks	2018-01-29	20960 - 7772000	Q
Anacostua Force Main 217091516	8920 State Route 108, Suite D	• This was an add on to the original contract	2018-08-17		
	Columbia, MD 21044	Clent: WSSC	Task Order		
IDIQ: TO 49 Dodge Park Road Water Main	WSSC	Construction of approximately 5,400 feet of small diameter 10/12 inch water/sewer main replacement/relocation and water/sewer house service reconnections/replacements.	2018-08-21	\$	1,640,735.00
BRG122A16 / PM0005A15 Landover, Prince George's County, Maryland 2018-08-21	14501 Sweltzer Un. Laurel, MD 20707 301-208-9772		2018-09-10 Task Order 240 Calendar Days	2019-05-07	
IDIQ: TO 46 Greenvale Road Water Main Replacement	WSSC	Replacement/relocation of approximately 130 feet of 12-Inch water 2018-07-19 main, 3,535 feet of 10-Inch water main, 6,065 feet of water house connections and 305 feet	2018-07-19	\$	2,945,750.00
PM0005A15 / BRCR6293A17/AW6293L17 West Greenvale Parkway, Cummings Lane, Daniel Road and various streets in the Chevy Chase area of Montgomery County, Maryland.	14501 Sweitzer Ln. Laurel, MD 20707	of B-inch sewer main.	2018-08-13 Task Order	2020-06-03	
2018-07-19	301-208-9772		660 Calendar Days		
IDIQ: TO 40 Pinevale Avenue Water Main Replacement	WSSC	Construction of approximately 6,195 feet of 10" water main, 8,695 feet of 8" water main and replacement of 302 water house connections.	2018-05-02	w	3,087,291.00

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Project Tible	Owner	Project Description	Contract Award Date	Contract Amount	
Bid / Contract Number	Address		MODICE TO PROCEED	Comoletion	
Location	Phone Number		Type of Contract	Original Completion Date	Date
84d Date			Project Duration	Actual Completion Date	al te
PM000SA15 / BR6219A17 Various streets in Forestville, Prince George's County,	14501 Sweltzer Ln. Laurel, MD 20707		2018-05-23 Task Order	2020-02-27	
Maryland. 5/2/018	301-208-9772		645 Calendar Days		
IDIQ: TP 37 Rosemont Water Main Replacement	WSSC	Replacement of approximately 422 feet of 3-inch water main with 4- 2018-03-09 inch water main, 6,870 feet of 6-inch and 8-inch with 8-inch water main, 52 feet of 10-inch with 10- inch water main, 2,286 feet of 3/4 inch and 1-inch water house connections with 1-inch water house connections, including single outside meter, with 1-inch water house connections, 15 feet of 3-inch water house connections, 26 feet of 6- inch water house connections.		\$ 1,2 <i>75.</i>	1,275,960.50
PM000SA1S / BR6123A16 City of Gaithersburg within Montgomery County, Maryland.	14501 Sweitzer Ln. Laurel, MD 20707		2018-04-02 Task Order	2018-11-17	
2018-03-07	301-208-9772		229 Calendar Days		
IDHQ: TO 30 Sandy Bar Water Main Replacement	WSSC	Replacement of approximately 83 feet of 10 inch water main, 9,963 feet of 8 inch water main, 1,558 feet of 4 inch water main, 155 feet of 8 inch sewer main, and 4,813 feet of water house connections.	2017-12-11	\$ 2,073,	2,073,479.00
BRCRSB23A15 Sandy Bar Drive and various streets in Fort Washington, Prince George's County, Maryland. 2017-12-08	14501 Sweltzer Ln. Laurel, MD 20707 301-208-9772		2018-01-15 Task Order 485 Calendar Days	2019-05-18	
IDIQ: TO 20 Briancroft Water Main Replacement	WSSC	Replacement of approximately 2,310 feet of 10 inch water main, 4,205 feet of 8 inch water main, 435 feet of 4 inch water main, and 2,725 feet of water house connection.	2017-07-07	\$ 1,115,	1,115,795.00
PMO00SA15 / BRLR5990A15 Briarcroft Lane, Briarwood Drive, Santa Anita Road and various streets in the Laurel area of Prince George's County, Maryland. 2017-07-06	14501 Sweitzer Ln. Laurel, MD 20707 301-208-9772		2017-08-14 Task Order 280 Calendar Days	2018-05-20	
IDIQ. TO 18 Warren Street Water Main Replacement	WSSC	Replacement/Relocation of approximately 101 feet of 4-inch water mains, approximately 5,901 feet of 8-inch water mains, approximately 5,901 feet of 8-inch water mains, approximately 4,114 feet of 10-inch water mains, approximately 54 feet of 16-inch water main and approximately 3,663 feet of water house connections.	2017-06-19	\$ 2,047,	2,047,455.00
PMO005A15 / BRCR6058A16 Seminary Road, Unden Lane, Warren Street, Monroe Street, Fraser Avenue and various streets, Silver Spring, Central Zone, Montgomery County, Maryland	14501 Sweltzer Ln. Laurel, MD 20707		2017-07-17 Task Order	2018-04-09	
2017-06-13	301-208-9772		267 Calendar Days		1

Brolart Title	Durier	Prolect Description	Contract Award Date	Contract Amount	¥
Bid / Contract Number	Address		Notice to Proceed	Construction Cost at	ost at
Location	Phone Number		Type of Contract	Original Completion Date	etion Date
Bk/d Date			Project Duration	Actual Completion Date	tion Date
IDIQ: TO 17 Locksley Water/Sewer Main Replacement	WSSC	Replacement of approximately 123 feet of 2-inch water main with 4- 2017-04-25 inch water main, 14,542 feet of 6 inch and 8-inch with 8-inch water main, 3,623 feet of 10-inch with 10-inch water main, 26 feet of 12-inch with 12-inch water main, 7,925 feet of 3,4 inch and 1-inch water bouse connections with 1-inch water house connections with 1-inch water house connections, including single outside meter.	2017-04-25	u,	3,553,326.00
PMD0G5A15 / BRLR5978A15 Oxen Hil district of Fort Washington within Prince George's County, Maryland.	14501 Sweltzer Ln. Laurel, MD 20707 301-308-9772		2017-05-15 Task Order 490 Calendar Days	2018-09-16	
IDIQ: TO 14 Oxon Run III Water Main Replacement	WSSC	Replacement of approximately 1,470 feet of 10 inch water main, 5,990 feet of 8 inch water main, and 1,800 feet of water house connection.	2016-12-22	w	1,384,720.00
PM0005A15 / BR6052A16 Oxon Run Orive and various streets in the Oxon Hill area of Prince George's County, Maryland.	14501 Sweltzer Ln. Laurel, MD 20707		2017-01-23 Task Order 108 Calendar Davs	2017-11-26	
2016-12-21	2776-977-106	niem sateur dani 10 for feet 000 fasterniement in formanched	2016-11-03	v	1 747 735 00
PM0005A15 / BRCRLR6051A15	14501 Sweitzer Ln.	3,370 feet of 8 inch water make, 300 feet of 8 inch sewer main, 3,930 feet of water house connection, and 680 feet of sewer house connection. Replacement of approximately 2,950 feet of 10 inch water main, 3,370 feet of 8 inch water main, 3,930 feet of 8 inch water main, 3,930 feet of 8 water house connection, and 680 feet of sewer house connection.	2016-11-28	s	1,764,078.92
Neptune Avenue and various streets in the Oxon Run area of Laurel, MD 20707 Prince George's County, Maryland.	Laurel, MD 20707		Task Order 325 Calendar Davs	2017-10-18 Pending	
IDIQ: TO 7 Genridge Recreation Area Water Main Replacement	WSSC	Construction of approximately 4,924 feet of 10" water main, 3,389 feet of 8" water main, 630 feet of 4" water main and replacement of 245 water house connections.	1	w	1,870,795.00
PM000SA15 / BR56013A16 Various streets in Riverdale, Maryland. 2016-10-04	14501 Sweitzer Ln. Laurel, MD 20707 301-208-9772		2016-10-27 650 Calendar Days	\$ 2018-08-07 2017-09-20	1,820,493.94
IDIQ: TO 2 Aquinas Drive Water Main Replacement	wssc	Replacement of approximately 925 LF of 4-inch, 7,355 LF of 8-inch, 1,424 LF of 10-inch, 2,514 LF, of 12-inch and 5,573 LF water house connections and associated appurtenances including double outside meter settings.	2016-07-15	s.	2,414,114.00
PM0005A15 / BR5898A15 Various streets in Prince George's County, MD	14501 Sweitzer Ln. Laurel, MD 20707		2016-08-01	\$ 2017-11-08	2,523,470.00
2016-07-14	3/15-202-3/12		2015,12,20	20102	
INLY Water Main Replacements & Reocations Mongoniery and PG County			£015-12-53		
rMUUSAIS	Laurel, MD 20707				

The last of The la	Charac	Project Description	Contract Award Date	Contract Amount
Rid / Contract Mumber	Address		Notice to Proceed	Construction Cost at
				Completion Output Completion Date
Location	Phone Number		she or contact	Crigation Compression Long
Bld Date			Project Duration	Actual Completion Date
3/26/2015	301-208-9772			
IDIQ Water Main Replacements & Relocations Montgomery	1			
and PG County				
PM0005A15	14501 Sweltzer Ln.		2016-01-20	
	Laurel, MD 20707 201, 208, 0777		730 Calendar Days	
IDIO Water Main Benjacements & Refocations Monteomery				
and PG County				
PM0005A15	14501 Sweitzer Ln.		2018-06-15	
	Laurel, MD 20707			2020-06-14
Exercise of Option Term 1 - Amendment No. 1	301-208-9772			
Emergency Water and Sewer Main Repair Services	Wesley McBride	Repairs/Replacements and Rehabilitations to water and sewer mains throughout Montgomery and PG Counties	2016-02-18	
Contract No.: 1121	301-206-7337	**60 Project Orders	2016-03-10	
Various locations throughout Montgomer and PG Counties	wesley.mcbride@wsscwater.com		Task Order/Purchase Order	2019-03-10
Emergency Water and Sewer Main Repair Services (804)			2015-03-23	
Contract No.: 1121			2015-03-23	2016-03-23
On-Call Roadway Maintenance	Town of Vienna	On - Call Contract for various projects	9/30/2015	
IFB 15-10	127 Center Street South 703-255-5739	- SU Project Graets	Task Order	9/30/2016
2015-09-10 Water Main Rebabilitation and emergency utility repairs	City of Rockville, Public Works Dept.		2015-12-31	
44-15	111 Maryland Ave. Rockville, MD 20850 241-314-8430	**20 Project Orders	N/A	2016-12-31
	Contraction of the Contraction o			

	at Completion in Date	1,234,009.00	1,277,969.35			1,145,190.00	1,180,886.91	
Contract Amount	Constructing Cost. Original Completes Actual Completes	w	v	2018-05-02		~	w	2018-05-10
Contract Award Date	Nutice to Proceed Type of Contract Prosect Durston	2017-06-09 15 16.	2017-08-07		300 Calendar Days	m 2017-02-02	2017-02-22	270 Calendar Days
Project Description	Project Highlights Highlights	Construction of approximately 722 Unear Feet of 8- to 15 Inch storm pipe, 19 storm structures, 10 bioreteertion filter celt, 1,915 linear Feet of concrete curb and gutter, 89 square yards of concrete sidewalk, 1,618 rors of bitumicous pavement, pavement markings, installing traffic signs, extensive landscaping, and all other related incidental work.				Installation of regenerative stormwater convergance system 2017-02-02 inclusive of imbricated no rap with large boulders, a Rock Vane and plange pools utilizing reinforced bedding material 24" thick and 40" wode leading to a second and third plange pool specifically designed for maintenance of stream flow. Project also included additional imbricated no rap rock vane upstream to culvert. Replaced the existing corrugated metal plea arched culvert located on Sanger Avenue with a new concrete box culvert. Mahalaned traffic to allow for concrete box culvert. Mahalaned traffic to allow for controusus traffic flow during construction. Replacement/relocation of approximately 1,860" of 16" water main, 95" of 12" water main, 90" of 10" water, 25" of 8" water main, 1,260" of water house connections, 365" of 8" sewer, and 1,78" of sewer house connections.		
Owner Contact	Place Total	Mannan Qureshi	703-228-3591	mqyreshl@arkingsonva.us	Construction Environmental Specialist	Brian Mei	703-746-4110	brian.meli@alexandriava.gov Project Manager
DWINE	Address. Phone Number	Arlington County; Dept. of Environmental Services, Engineering and Capital Projects Division	2100 Clarendon Blvd., Suite 703-228-3591	gton, VA 22201	703-228-0764	City of Alexandria, Dept. of Project Implementation		
Popular Title	Bid / Contract Number Jocation	Williamsburg Blvd & Green Streets Projects	17-231-TB	Site 1 is on Williamsburg Bhd. between 3ard Road N. and 35th Street N. Site 2 is on Williamsburg Bhd. between N. Kensington Street and N. Edison Street	2017-04-13	Sanger Avenue Culvert Replacement	ITB 00000646	5351 Singer Ave, Alexandria, Alexandria, VA 22314 VA 22311 703-746-4045

Project Tale	Owner	Owner Contact:	Project Description	Contract Award Date	Contract Amount	
Bod / Contract Number	Address	Phone		Notice to Proceed	Construction Cost at C	ompletion
Location	Phone Number	Email	Project Highlights utility Strikes	Type of Contract Project Donation	Original Completion Day Actual Completion Day	
Franklin Park and Chesterbrook Neighborhood Stormwater Improvement Project	Fairfax Co. Dept. of Public Works and Environmental Services	Dawd Becker	Modified VDOT standard MH-1, earth work, 6" underdrain, RCP Class 3 and 4, various sizes, 19" X 30" elliptical CLASS 3, 12" HDPE Pipe, end sections ES-1, various sizes, end sections ES-1, yarious sizes, end sections ES-1, yarious dizes, end sections eS-1, yarious dizes, end sections adjustment of sanitary manhoies to revised grades. Installed channel drains, 40 CY of River Rock at outlets, 25 installed stone check dams and seven, 4" sanitary sever laterals. Construction of concrete stakrase, and concrete and asphalt driveways. Sate and stone sidewalks.	2016-01-05 s	w	1,947,552.50
CN13125070 / 5D-000031 061	12000 Government Center Parkway, Suite 463	703-324-5111			vs	1,756,923.37
Franklin Park and Chesterbrook Neighborhood, Falrfax, VA	Fairfax, VA 22035	david.becker2@fairfaxcounty.gov			2016-10-31	
		Engineer		300 Calendar Days	2016-03-30	
Taylor Run Sanitary Sewer Upgrade	City of Alexandria Dept. of Project implementation	John Soderberg, Sr.	Initialiation of five (5) reinforced concrete mainholes and a 250° long Luckle fron pipe sanitary sewer at the downstream side of the culvert. The Work also includes the removal and replacement of the upstream and downstream culvert headwalfs stabilization of stream beds, installing plunge pools and step pools consisting of Class I & III rip rap, and stabilization of stream banks with vegetated mechanically stabilized earth (MSE) walks. In addition, the Work includes restoration work such as milling and paving of asphalt pavement, restoration of existing floodplain benches, gabion baskets, sidewalfs, curb & gutters.	2014-02-11 1	en	527,750.00
Contract No: 09-107 / PO	301 King St.	703-746-4295		2014-05-05	vs.	527,750.00
located along Taylor flun at its intersection with Janney's	Alexandria, VA 22314				2014-11-01	
	703-746-4035			180 Calendar Days		

				1	
Projectiving	Dwiner	Owner Contact	Project Description		The state of the s
Hie / Contract Number	Address	Phone		Notice to Proceed	Construction Cast in Completion
Location	Phone Number	Free Ton Control of the Control of t	Project Hephaliss	Type of Contract Project Buration	Örlginst Completion Date Actual Completion Date
Pertomac Interceptor Junction Arlington Country, Dept. of Construction #18 Environmental Services, Engineering and Capital Projects Division	Arlington County, Dept. of Environmental Services, Engineering and Capital Projects Division	Edward Sanders	Installation of the manhole junction structure \$18, inclusive of temporary bypass utilization, 60 LF of 48° sanitary sewer pipeline and 10 LF of 36° sanitary sewer pipeline in order to john the existing 36° sewer main with the recently constructed 48° sewer main with the recently of abandonment of approximately 4,400 LF of the existing 36° sewer main and apportnerances south of junction structure #18 by filling the pipeline with flowable fill.	2/27/2014	\$ 1,070,500.00
Contract No.: 581-14	2100 Clarendon Blvd., Suite 703-228-3756 813	703-228-3756		5/19/2014	\$ 1,115,360.14
function structure #18 at the Arlington National Cemetery in Arlington, VA		Esanders@arlingtonva.us			11/15/2014
2014-01-23	703-228-0764			180 Calendar Days	11/13/2014
Leesburg Pite (Rt. 7) Sidewalik Fairfax County, Department Lisa McCorthe Rd. under Chain Bridge Rd. of Public Worts and (Rt. 123) North and South Environmental Services	i Fairfar County, Department of Public Works and Environmental Services	i 'lisa McCortile	Construction of a sidewalk on the North and South side of Route 7 under the Route 123 interchange. Scope of work included storm water drainage (Approx. 325 Le of 15-24" Storm Pipe), Video Inspection of storm drain system, boretention facility, 27 rock check dam's, retaining walk on both North and South side, signal work and sreet light westallation, asphalt paving, striping and associated restoration work including approx. 1650 LF of curb and gutter, landscaping and trees.	2017- <i>07-</i> 12	North: 1,317,325.00 & South: 1,570,335.00
CN16102023 & CN16102024 / Proj. # AA1400069-2012 & AA1400070-2012	12000 Government Center Parkway, Suite 463	703-324-5254		2017-11-20	North: 1,372,432.86 & South: 1,581,279,41
Leesburg Pike (Rt. 7) and Chain Bridge Rd. (Rt. 123) (North and South)	Fairfax, VA 22035	lsa.mccorkle@fairfarva.gov			North Sub Completion Date: 8/15/2018 South Sub Completion Date: 8/15/2018
2017-04-12				279 Calendar Days	North Actual Completion Date: 10/24/2018 South Actual Completion Date: 8/25/2018

Designed Total	Duon	Dworf Cootlet	Project Description	Contract Award Date	Contract Amount	
Bid / Contract Number	Address	Phone		Notice to Proceed.	Conjunction Cost at Completion	
Location But Sate	Phone Number	Email Title	Project Highlights Units Strikes	Type of Contract Project Duration	Original Completion Date Actual Completion Date	
Turn Lane Modifications at intersection of lefferson Davis Hwy, (US Rt 1 & Dumfries Rd. (Rt.234)	Prince William County	Mohammad (Mo) Ayyoubl / Ibrahim Idris	Widering North Bound U.S. Re. 1 for an approximate 1,300°. Widening West Bound Rte. 234 for an approximate length of 300°. Signal Modifications at the intersection of U.S. Rte. 1 / Rte. 234. Installation of erosion control devices, cleaning and grubbing, grading, excavation, installation of storm sever placs and drainage structures, rehabilitation of storm sever placs and drainage structures, rehabilitation of existing were pond, modifying existing dam emban/ment and construction of new outfall channel. Work also included retaining walls, placing aggregate, asphalt paving, pedestrian facilities (sidewalk), installation of traffic signal equipment.	2015-09-22	3,382,287.00	8
FB14-00218	1 County Complex Court	703-792-7193		2015-10-07	\$ 2,438,274.03	E3
Intersection of Jefferson Davis Highway (US fite. 1) and Dumfries fid. (fite. 234)	Prince Wilkam, VA 22192	mayyoubl@pwtgov.org / lidris@pwtgov.org			2016-05-20	
	7030-792-6770				2016-06-09	
Georgia Avenue 16* Transmission Water Main Retocation	WSSC	Gary McHugh	Replacement/relocation of approximately 5,751 linear feet of 16-inch water main; 106 linear feet of 14-inch water main; 106 linear feet of 14-inch water main; 105 linear feet of 10, water main; 175 linear feet of 10, linch water main; 128 linear feet of 6-inch water main; and 3,551 linear feet of new water house connections and appurtenances. Project also inclusive of 16 horizontal gate valve and vault and 48° Manhole with 2° air valve and assembly.	4/20/2015	5,791,812.09	8
BTS512A13 Georgia Avenue and various streets in the Wheaton/Silver Spring area of Montgomery County, Maryland.	14501 Sweltzer Ln. Laurel, MD 20707	301-206-7363 gary.mchugh@wsscwater.com		5/4/2015 Fixed-price contracts	\$ 11/6/2016 5,901,583.91	16
1/29/2014	301-206-9772	Contract Manager		553 Calendar Days	11/4/2016	

		The second secon				
Project fale	Dwner	Dwinz Contact	Project Description	Contract Award Date		
Ted / Contract Number	Adress	Phone		Notice to Proceed	Corpstruction Cost at Co.	and the same of th
Josephon See Chaire	Phone Number	Fruit	Project Hamilights Unline Strikes	Type of Contract Project Duration	Original Completion Da Actual Completion Date	
Cheverly Avenue Water Main WSSC Replacement	WSSC	Robert Spigone	Replacement/Relocation of approximately 6.194 feet of 16- inch water mains, 99 feet of 12-inch water mains, 540 feet of 8-inch water mains and approximately 3,248 feet of water house connections.	2015-04-20	v,	3,094,106.11
BT5652A14 Cheverity Avenue and various streets , Cheverity , Central Zone, Prince Georges County, Maryland	14501 Swettzer Ln. Laurel, MD 20707	301-206-4238 robert.spigone@wsscwater.com		2015-05-06	\$ 2016-02-01	3,356,810.53
2015-01-28	301-206-9772			262 Calendar Days	2016-04-19	
20" Water Main, Pressure Reducing Valve (PRV) and Small Diameter Water Main Replacement (SDWIMR)	DC WASA	Wisal Khan	Replacement of 5,474.5 LF of 20"-30" water main, 6,442 LF 2014-09-29 of 4"-12" water main and 5400 LF of 2" and smaller water services. Installation a large vault for installation of 20" PRV and electronic reporting equipment installed on the valve. Project included copper water service connections both public and private, meter box installation, curb stop/curb stop box installations, concrete pavement, asphalt mill and overlay, brick sidewalk replacement, curb and gutter, stone curb, sodding, valves and appurtenances, PRV, bituminous concrete pavement, and two bus pad replacements. We removed 2 large concrete vaults as a change order.	2014-09-29	n.	8,575,650.00
Contract No.: 130070	5000 Overlook Ave., SW	202.787.7575		2014-10-20	vs.	8,681,976.00
17th St. SE/NE, Potomac Ave. Washington, DC 20032 SE, 16th St. SE, G St. SE and Kentucky Ave. SE 2014-07-09	. Washington, DC 20032	Wisal.Khan@dcwater.com		SSO Çalendar Dəys	2016-04-21	

Document A310[™] – 2010

Conforms with The American Institute of Architects AIA Document 310

Bid Bond

CONTRACTOR:

(Name, legal status and address)

Sagres Construction Corporation 3680 Wheeler Avenue, Suite 300

Alexandria, VA 22304

OWNER:

(Name, legal status and address)

Arlington County

2100 Clarendon Blvd., Suite 500

Arlington, VA 22201

BOND AMOUNT: \$ \$50,000

Fifty Thousand Dollars

PROJECT:

(Name, location or address, and Project number, if any)

19-279-ITB On Call Wet Utilities

SURETY:

(Name, legal status and principal place of business)

Arch Insurance Company

Harborside 3, 210 Hudson Street Suite 300 Jersey City, NJ 07311-1107 This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed detected herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this

/Ith

day of June, 2019

(Il'imaxi) Jessica Wright

Sagres Construction Corporation

(Principal)

Ву

Arch Insurance Company

(Surety)

(Scal)

CORPORATE

Missouri

(Title) Laurie A. Daugherty Attorney-in-Fact

Surety Phone No.

201-743-4000

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated. Not valid for Note, Loan, Letter of Credit, Currency Rate, Interest Rate or Residential Value Guarantees.

POWER OF ATTORNEY

Know All Persons By These Presents:

That the Arch Insurance Company, a corporation organized and existing under the laws of the State of Missouri, having its principal administrative office in Jersey City, New Jersey (hereinafter referred to as the "Company") does hereby appoint:

Laurie A. Daugherty

its true and lawful Attorney-in-Fact, to make, execute, seal, and deliver from the date of issuance of this power for and on its behalf as surety, and as its act and deed:

Any and all bonds, undertakings, recognizances and other surety obligations.

Surety Bond Number: Bid Bond

Principal: Sagres Construction Corporation

Obligee: Arlington County

This authority does not permit the same obligation to be split into two or more bonds in order to bring each such bond within the dollar limit of authority as set forth herein.

The execution of such bonds, undertakings, recognizances and other surety obligations in pursuance of these presents shall be as binding upon the said Company as fully and amply to all intents and purposes, as if the same had been duly executed and acknowledged by its regularly elected officers at its principal administrative office in Jersey City, New Jersey.

This Power of Attorney is executed by authority of resolutions adopted by unanimous consent of the Board of Directors of the Company on September 15, 2011, true and accurate copies of which are hereinafter set forth and are hereby certified to by the undersigned Secretary as being in full force and effect:

"VOTED, That the Chairman of the Board, the President, or the Executive Vice President, or any Senior Vice President, of the Surety Business Division, or their appointees designated in writing and filed with the Secretary, or the Secretary shall have the power and authority to appoint agents and attorneys-in-fact, and to authorize them subject to the limitations set forth in their respective powers of attorney, to execute on behalf of the Company, and attach the seal of the Company thereto, bonds, undertakings, recognizances and other surety obligations obligatory in the nature thereof, and any such officers of the Company may appoint agents for acceptance of process."

This Power of Attorney is signed, sealed and certified by facsimile under and by authority of the following resolution adopted by the unanimous consent of the Board of Directors of the Company on September 15, 2011:

VOTED, That the signature of the Chairman of the Board, the President, or the Executive Vice President, or any Senior Vice President, of the Surety Business Division, or their appointees designated in writing and filed with the Secretary, and the signature of the Secretary, the seal of the Company, and certifications by the Secretary, may be affixed by facsimile on any power of attorney or bond executed pursuant to the resolution adopted by the Board of Directors on September 15, 2011, and any such power so executed, sealed and certified with respect to any bond or undertaking to which it is attached, shall continue to be valid and binding upon the Company.

		30RFATH 2017	
In Testimony Whereof, the Company has ca	used this instrument to be signed and	its corporate seal to be affixed by their authorized	
officers, this 28th day of September	<u>er</u> , 20 <u>17</u> ,		
Attested and Certified		Arch Insurance Company	
Datuck & Mest	CORPORATE SIAL 1971	Hard Finkelit-	
Patrick K. Nails, Secretary	Missouri	David M. Finkelstein, Executive Vice President	
STATE OF PENNSYLVANIA SS			
COUNTY OF PHILADELPHIA SS			
persons whose names are respectively as organized and existing under the laws of the person and severally acknowledged that they	Secretary and Executive Vice Preside State of Missouri, subscribed to the for being thereunto duly authorized signest of said corporation and as their own	1. Finkelstein personally known to me to be the same ent of the Arch Insurance Company, a Corporation regoing instrument, appeared before me this day in ed, sealed with the corporate seal and delivered the free and voluntary acts for the uses and purposes	
	NOTARIAL SEAL MICHELE TRIPODI, Notary Public City of Phitzdelphia, Phila, County My Commission Expires July 31, 2021	Michele Tripodi, Notary Public My commission expires 07/31/2021	
CERTIFICATION			
I, Patrick K. Nails, Secretary of the Arch Insurance Company, do hereby certify that the attached Power of Attorney dated September 28, 2017 on behalf of the person(s) as listed above is a true and correct copy and that the same has been in full force and effect since the date thereof and is in full force and effect on the date of this certificate; and I do further certify that the said David M. Finkelstein, who executed the Power of Attorney as Executive Vice President, was on the date of execution of the attached Power of Attorney the duly elected Executive Vice President of the Arch Insurance Company.			
IN TESTIMONY WHEREOF, I have hereunto this 4th day of June, 2019	subscribed my name and affixed the c	orporate seal of the Arch Insurance Company on	
		Dateck & Mest	
		Patrick K. Nails, Secretary	

This Power of Attorney limits the acts of those named therein to the bonds and undertakings specifically named therein and they have no authority to bind the Company except in the manner and to the extent herein stated.

PLEASE SEND ALL CLAIM INQUIRIES R.ELATING TO THIS BOND TO THE FOLLOWING ADDRESS:

Arch Insurance – Surety Division 3 Parkway, Suite 1500 Philadelphia, PA 19102

