

**CONTRACT SPECIFICATIONS  
FOR  
City of Burlington  
Vermont**



**Department of Public Works  
Water Resources**

**GSI/CSO - Old North End Subsurface Stormwater  
Retrofits Project**

**MAY 2022**

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## **CITY OF BURLINGTON - SUPPLEMENTARY CONDITIONS**

### **1. Maintenance of Traffic**

Work shall be performed in accordance with all portions of VTrans sections 104.04, excluding 104.04(b).

### **2. Hours of Work**

The CONTRACTOR is limited to working 7:00 AM to 4:00 PM, Monday through Friday and 7:00 AM to 4:00 PM, Saturday unless a waiver is requested in writing and is granted by the Owner.

### **3. Business/Driveway Access**

The CONTRACTOR shall notify property owners or residents 24 hours in advance before blocking access to any drives. Access shall be provided to all drives during non-working hours. The Contractor shall maintain pedestrian access to homes and businesses at all times.

### **4. Construction Signing**

The CONTRACTOR shall erect and maintain adequate construction signing for protection of the public on all Project streets and adjacent streets in accordance with Sections 104.04, 107.07, 107.08, and 107.09 of the VTrans Standard Specifications.

### **5. Dust Control**

Work shall be performed in accordance with all portions of Sections 105.24 and 609 of the VTrans Standard Specifications.

### **6. Temporary Barricades**

The CONTRACTOR shall provide and maintain temporary barricades in all locations where any hazard to the public may occur or as ordered by the OWNER or to protect public safety as described in portions of Section 107 of the VTrans Standard Specifications.

### **7. Maintenance of Utility Services**

The CONTRACTOR shall maintain all existing utility services to homes at all times except during switch-overs from existing services to new services and cooperate with utilities as described in Sections 105.07 and 107.13 of the VTrans Standard Specifications.

### **8. Utility Work**

The CONTRACTOR must coordinate work and cooperate with Burlington Electric, Burlington Water, Burlington Telecom, Fairpoint, Comcast, Level 3, TelJet, and Vermont Gas, as needed. There may be an inspector from Burlington Electric Department on site, if needed.

Employees or agents of the above listed utility companies are to be allowed full and free access within the project limits with the tools, materials, and equipment necessary to install, operate, maintain, place, replace, relocate and remove their facilities. There will be no extra compensation paid to the CONTRACTOR for any inconvenience caused by working around and with the utility company. Should the CONTRACTOR desire additional adjustments of utility facilities for his or her convenience, proper arrangements shall be in conformance with subsection 105.07 and 107.13 of the VTrans Standard Specifications.

## **CITY OF BURLINGTON – GENERAL SPECIAL PROVISIONS**

**Standard Specifications.** The provisions of the 2018 VTrans STANDARD SPECIFICATIONS FOR CONSTRUCTION, as modified herein, shall apply to this Contract unless they conflict with previously defined terms or provisions provided by the City of Burlington. In case of conflict, the City provisions shall govern.

**Utilities.** The Contractor is advised to use caution when working around aerial or underground utilities to protect the facilities from damage.

Employees or agents of utility companies are to be allowed free and full access within the project limits with the tools, materials, and equipment necessary to install, operate, maintain, place, replace, relocate, and remove their facilities.

There will be no extra compensation paid to the Contractor for any inconvenience caused by working around and with utilities.

Act No. 86 of 1987 (30 VSA Chapter 86) (“Dig Safe”) requires that notice be given prior to making an excavation. It is suggested that the Permit Holder or his/her contractor telephone 1-888-344-7233 at least 48 hours before, and not more than 30 days before, beginning any excavation at any location.

Should the Contractor desire additional adjustments of the utility facilities for his/her convenience, proper arrangements shall be made in conformance with Subsection 105.07 of the Standard Specifications for Construction.

**Notice to Bidders.** All temporary construction signs shall meet the following requirements:

- A. Where sign installations are not protected by guardrail or other approved traffic barriers, all sign stands and post installations shall meet National Cooperative Highway Research Program (NCHRP) Report 350 or the AASHTO Manual for Assessing Safety Hardware (MASH). The appropriate resource shall be determined as described in the MASH publication.
- B. As a minimum, roll up sign material shall have ASTM D 4956 Type VI fluorescent orange retroreflective sheeting.
- C. All post-mounted signs and solid substrate portable signs shall have ASTM D 4956 Type VII, Type VIII, or Type IX fluorescent orange retroreflective sheeting.
- D. All retroreflective sheeting on traffic cones, barricades, and drums shall be at a minimum ASTM D 4956 Type III sheeting.
- E. All stationary signs shall be mounted on two 3 lb/ft flanged channel posts or 2 inch square steel inserted in 2-1/4” galvanized square steel anchors. No sign posts shall extend over the top edge of sign installed on said posts.
- F. Construction signs shall be installed so as to not interfere with nor obstruct the view of existing traffic control devices, stopping sight distance, and corner sight distance from drives and town highways.
- G. Speed zones, if used, should be a maximum of 10 mph below existing posted speeds. Temporary speed limit certificates must be approved by the Chief Engineer on State highways and can be approved by the City on local roads.

All retro-reflective sheeting on permanent signs (signs to remain after the project is completed) shall be at a minimum ASTM Type III sheeting, unless otherwise shown on the Plans.

**Construction Vehicle Parking Restrictions.** Only such trucks and equipment as are necessary for the construction of this project will be permitted to stop or park on the shoulders or right-of-way of City roadways. Parking or stopping on the traveled portion of the roadway will not be permitted unless authorized by the Engineer to meet field conditions.

## **SECTION 101 – DEFINITIONS**

**101.02, DEFINITIONS.** are hereby modified by deleting the existing following definitions and replacing as follows:

**AGENCY** – Wherever the word Agency appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; **City of Burlington**, except when referenced to documents or publications.

**BOARD** – Wherever the term Board or Transportation Board appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; the Transportation Board of the State of Vermont or its successor.

**CALENDAR DAY** – Any day shown on the calendar, beginning and ending at midnight.

**CHANGE ORDER** – A document recommended by the Engineer, signed by the Contractor and **City of Burlington** authorizing changes in the plans or quantities or both, establishing the basis of payment and time adjustments for the Work affected by the changes.

**CONSTRUCTION ENGINEER** – Wherever the term Construction Engineer appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; the Resident Engineer and/or Full Time City Employee in Responsible Charge.

**CONTRACT COMPLETION DATE** – The calendar date specified in the Contract and as adjusted by Change Order when applicable, by which the Contractor shall achieve Substantial Completion.

**CONTRACT** – The written agreement between **City of Burlington** and the Contractor setting forth the obligations of the parties relative to the performance of the work. The Contract includes the Contract agreement, Contract Bonds, Project permits, Project Special Provisions, Contract Plans, General Special Provisions, Standard Drawings, Supplemental Specifications, the Standard Specifications for Construction, and any Supplemental Agreements or supporting documents that are required to complete the work in an acceptable manner.

**CONTRACT BOND(S)** – The approved forms of security, signed, notarized and furnished by the Contractor and the Contractor's Surety or Sureties, guaranteeing complete performance of the Contract, compliance with the Contract, and the payment of all legal debts pertaining to the construction of the Project or work.

**CONTRACTOR(S)** – The individual, partnership, firm, corporation, any acceptable combination thereof, or a joint venture which is a party to the Contract with the City which is undertaking the performance of the work under the terms of the Contract and acting directly or through its agent(s) or employee(s). The term "Contractor" means the prime Contractor as differentiated from a Subcontractor. All Contractors must be registered with the Vermont Secretary of State. The Contractor will act in an independent capacity and not as officers or employees of the City.

**ENGINEER** – Wherever the term Engineer appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; the Resident Engineer (RE).

**GENERAL SPECIAL PROVISIONS** – Approved additions and revisions to the Standard Specifications for

Construction approved pursuant to the Specification approval process.

**MATERIALS MANAGER** – Whenever the term Materials Manager appears on the plans, in any specification, or in the Contract, it shall be read as, and shall mean; the Resident Engineer.

**PROPOSAL FORM** – Whenever the term Proposal Form appears on the plans, in any specification, or in the Contract it shall be read as, and shall mean; the BID FORM unless specifically referenced otherwise in these Special Provisions.

**REGIONAL CONSTRUCTION ENGINEER** – Whenever the term Regional Construction Engineer appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; the Resident Engineer.

**RESIDENT ENGINEER** – An entity employed by **City of Burlington** to perform supervisory duties including the oversight of testing services on the project.

**SECRETARY** – Wherever the term Secretary appears on the plans, in any specification, or in the contract it shall be read as, and shall mean; the **City of Burlington**.

**PROJECT SPECIAL PROVISIONS** – Additions and revisions to the Standard Specifications for Construction, Supplemental Specifications, General Special Provisions applicable to the Contract, as well as other provisions specific to the Contract. Also referred to as Special Provisions.

**SPECIFICATIONS** – The compilation of provisions and requirements for the performance of prescribed work including the Standard Specifications for Construction, Supplemental Specifications, General Special Provisions, Project Special Provisions, and other requirements included in the contract.

**STANDARD SPECIFICATIONS or STANDARD SPECIFICATIONS FOR CONSTRUCTION** – The Vermont Agency of Transportation book entitled Standard Specifications For Construction and the specifications included therein, as approved for general and repetitive use and application in Agency/Municipal projects.

**STATE** – Wherever the term State appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; the **City of Burlington**.

**SURETY** – An individual or legal entity acceptable to the Town executing the bond or bonds furnished by the bidder or contractor.

**WORK** – The furnishing of all labor, materials, equipment, and incidentals necessary or convenient to the successful completion of a project and the carrying out of all duties and obligations imposed by a contract.

**WORKING DAY** – Weekdays during the Construction Season during which construction operations may proceed. If the Contractor works on Saturdays, Sundays, holidays, or during the Seasonal Closure Period, those days will be considered Working Days.

**ADD TO DEFINITION LIST IN 101.02, DEFINITIONS**, the following definitions:

**ADDENDUM (addenda)** – Contract revisions developed after advertisement and before opening bids.

**ADVERTISEMENT** – A public announcement, inviting bids for work to be performed or materials to be furnished.

**AGREEMENT** – The written instrument which is evidence of the agreement between **City of Burlington**

and the Contractor.

**AWARD** – The formal acceptance by **City of Burlington** of a bid.

**BID** – The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

**BID BOND** – A bid guarantee as outlined in the Instructions to Bidders for Contracts.

**BIDDER** – The individual, partnership, firm, corporation, or any combination thereof, or joint venture, submitting a Bid in accordance with the bidding requirements.

**CONTRACT TIME** – The time allowed for completion of the contract including authorized time extensions.

**INCIDENTAL AND INCIDENTAL ITEM** – These terms are used to indicate work for which no direct payment will be made. Such work is considered to be incidental to items having contract prices, and the bid prices submitted by the contractor shall be sufficient to absorb the cost of all work designated as incidental or as incidental items.

**INVITATION FOR BIDS** – An advertisement for receiving bids for all work and/or materials on which bids are invited from prospective contractors.

**MUNICIPAL PROJECT MANAGER** – A person or firm employed or appointed by **City of Burlington** to provide administrative services for the project.

**NOTICE OF AWARD** – The written notice of the acceptance of the Bid from the Owner to the successful Bidder.

**OWNER** – **City of Burlington**

**PROPOSAL** – The offer of a bidder, on the prescribed form, to perform work and/or provide materials at the price quoted in the offer.

**PROPOSAL FORM** – The prescribed form on which **City of Burlington** requires the Bid be submitted.

**PROPOSAL GUARANTEE** – The security furnished with a bid to ensure that the bidder will enter into a contract if the bidder's proposal is accepted by **City of Burlington**.

**SUBCONTRACTOR** – An individual or legal entity to which the contractor sublets a part of the work included in the contract.

**TESTING FIRM** – An independent firm employed by **City of Burlington** or Resident Engineer to perform all sampling and testing of materials as specified in the Contract Documents and as defined in the VTrans Qualified Laboratory Program.

**The following sections represent modifications to the VTRANS 2018 Standard Specifications for Construction**

**Section 105 – Control of the Work**

**105.03, Plans and Working Drawings**, paragraph 1, part (b) Working Drawings, and subpart (3) Categories of Working Drawings, a. Fabrication Drawings, and subpart b. Construction Drawings; where the Agency is mentioned it shall mean the **City of Burlington**.

The address where these drawings should be sent is:

Ashley Walenty, PE  
Water Resources Engineer, Department of Public Works, Water Resources  
53 Lavalley Lane  
Burlington, VT 05401  
Telephone: 802-495-9976  
Email: awalenty@burlingtonvt.gov

**105.09, Construction Stakes, Part (a) Initial Layout, (b) Layout of Subgrade and (c) Permanent Marking Layout** delete these paragraphs in their entirety and replace with the following:

Horizontal and vertical control information for the project is shown on the project plans or shall be based on existing conditions. The information is sufficient to enable the Contractor to stake the project. The Contractor shall perform all staking requirements for the proposed work. The Contractor will be responsible for the accuracy and preservation of the staking.

**105.20 Claims for Adjustments**, (c) **Claims Procedure**; Delete the second, third and fourth sentence and replace with the following:

Claims must be evaluated first by the Engineer and then by the Municipal Project Manager. Should a claim be ruled in favor of the Contractor, it will be allowed, in whole or in part, and paid as provided in the Contract. Should a claim be denied in whole or in part by the Municipal Project Manager the Contractor may appeal to the Director of Public Works.

**(d) Claims Documentation Requirements**; In the first sentence, replace Construction Engineer with Municipal Project Manager

**Section 106 – Control of Material**

**106.03 Samples and Tests**, Add the following two paragraphs to the beginning:

An independent firm employed by the **City of Burlington** or Resident Engineer to perform all sampling and testing of materials as specified in the Contract Documents and as defined in the VTrans Qualified Laboratory Program, shall be responsible for all acceptance sampling and testing of materials and completed work.

The Contractor shall be responsible for their Quality Control. The cost of their Quality Control shall be considered incidental to the payment items in the bid. Any sampling, testing, retesting, and submission of reports and certifications by the Contractor as required by the contract documents and plans shall be considered incidental to the payment items in the bid.

Change the last word in the first paragraph from Agency to **City of Burlington**.

Delete the first sentence of the second paragraph and replace with the following:

Samples will be taken and testing performed by certified personnel of the testing firm in accordance with the requirements of the latest edition of the Vermont Agency of Transportation’s Quality Assurance Program and Material Sampling Manual.

Modify the last sentence of the third paragraph to read as follows:

Copies of all test results shall be forwarded directly to the Resident Engineer and the Contractor by the testing firm.

**Section 755 – Landscaping Materials**

Add the following:

755.04 Seed

Seed Mix: “Green Mountain Special Mix” or Approved Equal

100% perennial grasses with fine to medium texture

Catamount Grass Seed Item #s GMS050, GMS025, GMS007, and/or GMS003

Perennial grasses with fine to medium texture	100%
Creeping Red Fescue	40%
Kentucky Bluegrass	30%
Perennial Ryegrass	30%

Application rate: Seed at 4 lbs per 1000 sq ft

## **HAZARDOUS MATERIALS**

1. If at any time during construction the presence of unanticipated hazardous materials at or proximate to a construction site is detected, the construction CONTRACTOR shall cease work in the affected area and perform the following immediately:
  - a. Notify the CITY verbally and in writing. The CITY is responsible for notification of the Waste Management Division of the Agency of Natural Resources.

**THE HAZARDOUS MATERIALS SPILLS AND EMERGENCY REPORTING PHONE NUMBER IS Toll Free 1-800-641-5005.**

- b. Take all action necessary and appropriate for the protection and safety of the public and persons at or about the site, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying CITYs and users of adjacent sites and utilities.
2. Actions at the construction site following completion of these steps shall be at the direction of the Waste Management Division. Nothing in this Article shall be construed to require the CONSULTANT and/or the CONTRACTOR to perform work for which adequate compensation has not been contracted for other than to insure that basic measures necessary to protect the health and welfare of workers, residents and abutters are immediately adopted.
3. At construction sites where the presence of contaminated or hazardous materials are suspected to exist and provisions have been made in the Contract Documents for their management, the requirements in the Contract Documents will determine the appropriate actions of the CONTRACTOR. In any event, discovery of contaminated soils require the immediate notification of the CITY. If sites other than the suspected areas previously delineated in the Contract Documents are discovered, Item 1 above shall apply.

## **HISTORIC PRESERVATION**

1. If at any time during construction, the presence of possible human remains are discovered at or proximate to a construction site, the CONTRACTOR shall cease work in the affected area and immediately contact the local medical examiner or law enforcement official in addition to notifying the CITY or CITY's representative. The CONTRACTOR shall take all action necessary and appropriate for the protection and safety of the public and the site.
  - a. Notify the CITY verbally and in writing. The CITY is responsible for notification of the Agency of Natural Resources and FED Construction Project City
2. If at any time during construction, the presence of unanticipated historic and archeological resources are detected at or proximate to a construction site, the construction CONTRACTOR shall cease work in the affected area, take all action necessary and appropriate for the protection and safety of the public and the site, and inform the following immediately:
  - a. Notify the CITY verbally and in writing. The CITY is responsible for notification of the Agency of Natural Resources.
  - b. Notify the Vermont Division of Historic Preservation at: **(802) 828-3050 landline or (802) 477-2517 cell**  
**Or (802) 828-3048 landline or (802) 310-0289 cell**
3. Actions at the construction site following completion of these steps shall be at the direction of the local medical examiner, law enforcement agent or Historic Preservation Division as appropriate. Nothing in



this Article shall be construed to require the CONSULTANT and/or the CONTRACTOR to perform work for which adequate compensation has not been contracted for other than to insure that basic measures necessary to protect the safety and welfare of the workers and the site.

SECTION 900 - SPECIAL PROVISION ITEMS

900.640 - INFILTRATION CHAMBER

1. DESCRIPTION. This work shall consist of furnishing and installing an arch-shaped subsurface infiltration chamber as defined on the Plans.
2. MATERIALS.
  - a. Chambers shall be arch-shaped and shall be manufactured from virgin, impact-modified polypropylene or polyethylene copolymers.
  - b. Chambers shall meet the requirements of ASTM F2922 (polyethylene) or ASTM F2418-16A (polypropylene), "Standard Specification for Corrugated Wall Stormwater Collection Chambers"
  - c. Chamber rows shall provide continuous, unobstructed internal space with no internal supports that would impede flow or limit access for inspection.
  - d. The structural design of the chambers, the structural backfill, and the installation requirements shall ensure that the load factors specified in the AASHTO LRFD bridge design specifications, Section 12.12, are met for: 1) long-duration dead loads and 2) short-duration live loads, based on the AASHTO design truck with consideration for impact and multiple vehicle presences.
  - e. Chambers shall be designed, tested and allowable load configurations determined in accordance with ASTM F2787, "Standard Practice for Structural Design of Thermoplastic Corrugated Wall Stormwater Collection Chambers". Load configurations shall include: 1) instantaneous (<1 min) AASHTO design truck live load on minimum cover 2) maximum permanent (75-yr) cover load and 3) allowable cover with parked (1-week) AASHTO design truck.
  - f. Only chambers that are approved by the engineer will be allowed. The chamber manufacturer shall submit the following upon request to the engineer for approval before delivering chambers to the project site:
    1. A structural evaluation sealed by a registered professional engineer that demonstrates that the safety factors are greater than or equal to 1.95 for dead load and 1.75 for live load, the minimum required by ASTM F2787 and by AASHTO for thermoplastic pipe.
    2. A structural evaluation sealed by a registered professional engineer that demonstrates that the load factors specified in the AASHTO LRFD bridge design specifications, Section 12.12, are met. The 50 year creep modulus data specified in ASTM F2418 must be used as part of the AASHTO structural evaluation to verify long-term performance.
  - g. Chambers and end caps shall be produced at an ISO 9001 certified manufacturing facility.
  - h. Incidental geotextiles shall be as shown on the Plans or approved equal, refer to special provision below for material details.

3. PLACING.
  - a. To maintain the width of chambers during shipping and handling, chambers shall have integral, interlocking stacking lugs.
  - b. To ensure a secure joint during installation and backfill, the height of the chamber joint shall not be less than 2".
  - c. To ensure the integrity of the arch shape during installation, a) the arch stiffness constant as defined in Section 6.2.8 of ASTM F2418 shall be greater than or equal to 400 lbs/in/in. And b) to resist softening during hot, sunny conditions, chambers shall be stored out of direct sunlight until installation.
  - d. Install per manufacturer's recommendations.
4. METHOD OF MEASUREMENT. The quantity of Special Provision (Infiltration Chamber) to be measured for payment will be Linear Feet of chamber installed, measured within the limits shown on the Plans or as directed by the Engineer.
5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Infiltration Chamber) will be paid for at the Contract unit price per linear foot. Payment will be full compensation for furnishing, transporting, and placing the material specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.640 Special Provision (Infiltration Chamber)	Linear Foot

900.675 - GEOTEXTILE

1. DESCRIPTION. This work shall consist of furnishing and placing geotextiles and geogrid in infiltration areas. Work shall be carried out in accordance with VTrans Specification Section 649 Geotextile Fabric, with the following exceptions.
2. MATERIALS.
  - a. Non-woven geotextile fabric shall be AASHTO Class 2 non-woven geotextile, ADS 0601T, Mirafi 160N, or approved equal.
  - b. Woven geotextile fabric shall be AASHTO M288 Class 1 woven geotextile, ADS 315T, MIRAFI 600X, or approved equal.
  - c. Geogrid shall be ADS BX15GG, Mirafi BXG120, Tensar Triaxe TX5, or approved equal.
3. PLACING.
  - a. Woven geotextile fabric placed directly under chambers shall be installed in a single, continuous roll out at each infiltration system for ease of maintenance.
  - b. Place non-woven geotextile according to details. May be placed in sections with a minimum of 24" of overlap between sections
  - c. Place geogrid according to details. May be placed in sections with a minimum of 24" of overlap between sections.
4. METHOD OF MEASUREMENT. The quantity of Geotextile of the type specified to be measured for payment will be the number of square yards placed in the complete and accepted work. Slope measurements will be used in computing the area. Measurement will not be made for material used for repairs, seams, or overlaps. Measurement will not be made for material used to replace an installation of fabric that has become damaged, destroyed, lost, washed away, or otherwise ineffective unless authorized by the Engineer.
5. BASIS OF PAYMENT. The accepted quantity of Geotextile of the type specified

will be paid for at the Contract Unit Price per square yard installed. Payment will be full compensation for furnishing, transporting, storing, handling, placing, repairing, and removing the material specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work. Unless otherwise specified in the Contract, payment for the maintenance of Geotextile of the type specified will not be paid for directly, but will be considered incidental to the specific Contract Item.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.675 Special Provision (Geotextile)	Square Yards



# Site Plans

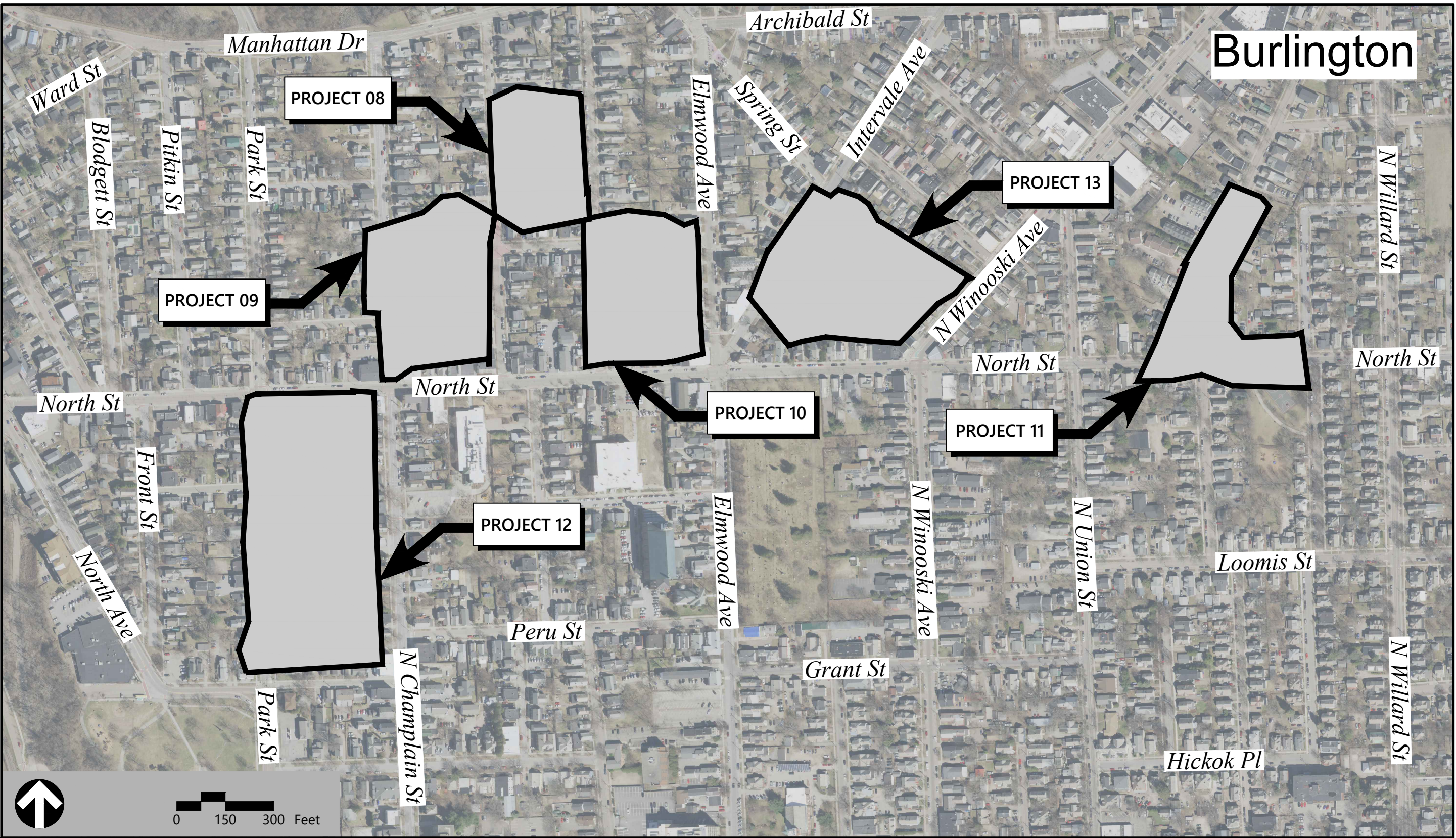
Issued for	Bid
Date Issued	April 14, 2022
Latest Issue	April 14, 2022

## Burlington ONE Stormwater Retrofits

Burlington, VT 05401

### Owner

City of Burlington  
Department of Public Works  
149 Church Street  
Burlington, VT 05401



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C4.01	Project 08 - Stormwater System Plan and Profile	April 14, 2022
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C5.01	Site Details	April 14, 2022
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vhb.com

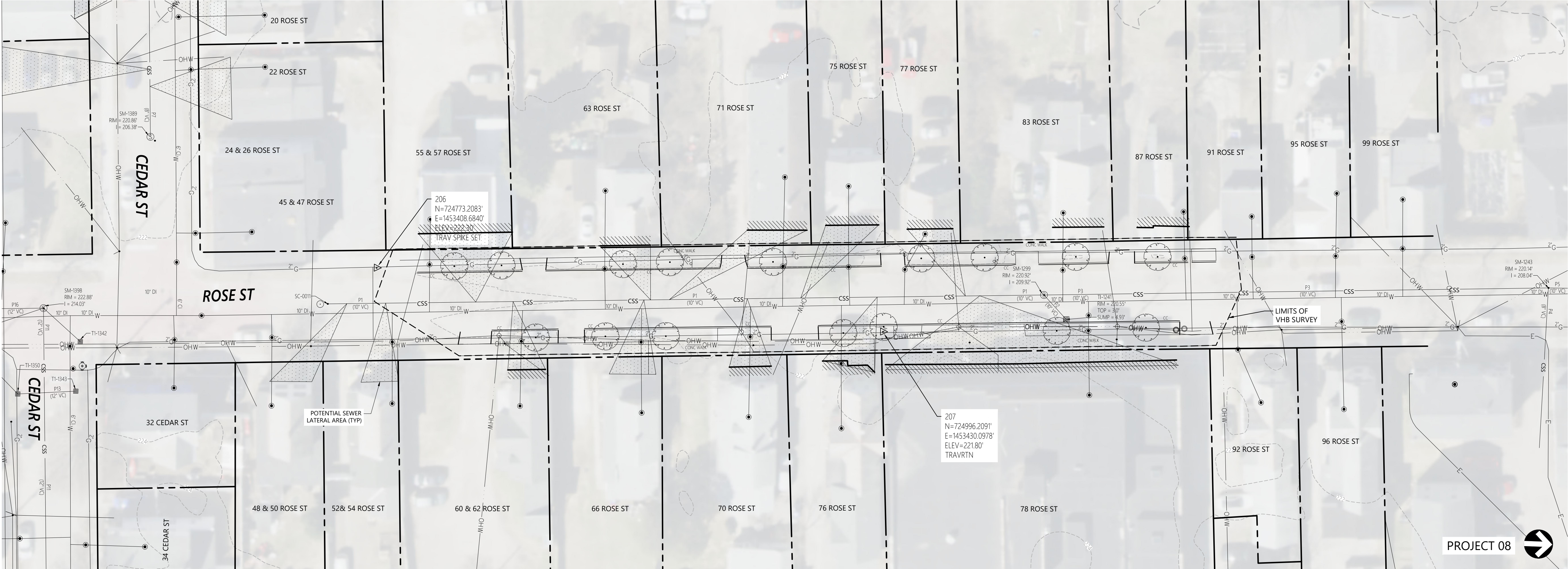


40 IDX Dr  
Building 100 Suite 200  
South Burlington, VT 05403  
802.497.6100









GENERAL SURVEY NOTES

1. THE PROPERTY LINES AND RIGHT-OF-WAY LINES ARE BASED ON STATE PARCEL MAPPING DATA AND ARE APPROXIMATE ONLY. THIS IS NOT A BOUNDARY SURVEY. THE TOPOGRAPHY AND PHYSICAL FEATURES SHOWN ARE BASED ON A FIELD SURVEY PERFORMED BY VHB IN MAY 2021; OTHER FEATURES MAY EXIST THAT ARE NOT SHOWN HEREIN.
2. HORIZONTAL AND VERTICAL DATUMS ARE REFERENCED TO VERMONT STATE PLANE GRID NAD 1983 (2011) AND NAVD88 BASED ON GPS OBSERVATIONS UTILIZING VT CORS.
3. BUILDING FOOTPRINTS WERE DOWNLOADED FROM THE VERMONT OPEN GEODATA PORTAL (VOGP). THE FOOTPRINTS WERE DERIVED FROM CIRCA 2016 HIGH RESOLUTION LIDAR AND 2016 ORTHOIMAGERY. THIS DATASET CONTAINS FOOTPRINTS FOR BUILDINGS AND SOME LARGE OUT BUILDINGS; SOME SMALLER STRUCTURES (E.G. SHEDS) MAY NOT BE INCLUDED.
4. UTILITY LOCATIONS ARE BASED ON GIS DATA OBTAINED FROM VERMONT GAS, BURLINGTON ELECTRIC, AND THE BURLINGTON DEPARTMENT OF PUBLIC WORKS IN MAY OF 2021. AS SUCH, LOCATIONS ARE NOT EXACT, CONTRACTOR SHALL FIELD VERIFY PRIOR TO CONSTRUCTION. OTHER UTILITIES MAY EXIST THAT ARE NOT DEPICTED IN THE PLANS.



**vhb**  
40 IDX Dr  
Building 100 Suite 200  
South Burlington, VT 05403  
802.497.6100

**Burlington ONE**  
**Stormwater Retrofits**

Burlington, VT 05401

No.	Revision	Date	Apprvd.

Designed by	CHS/WAF	Checked by	NCH
Issued for	Bid	Date	April 14, 2022

Not Approved for Construction  
Drawing Title  
**Project 08 & 09 - Existing Conditions Plan**

Drawing Number  
**C1.01**

Sheet  
3 of 23

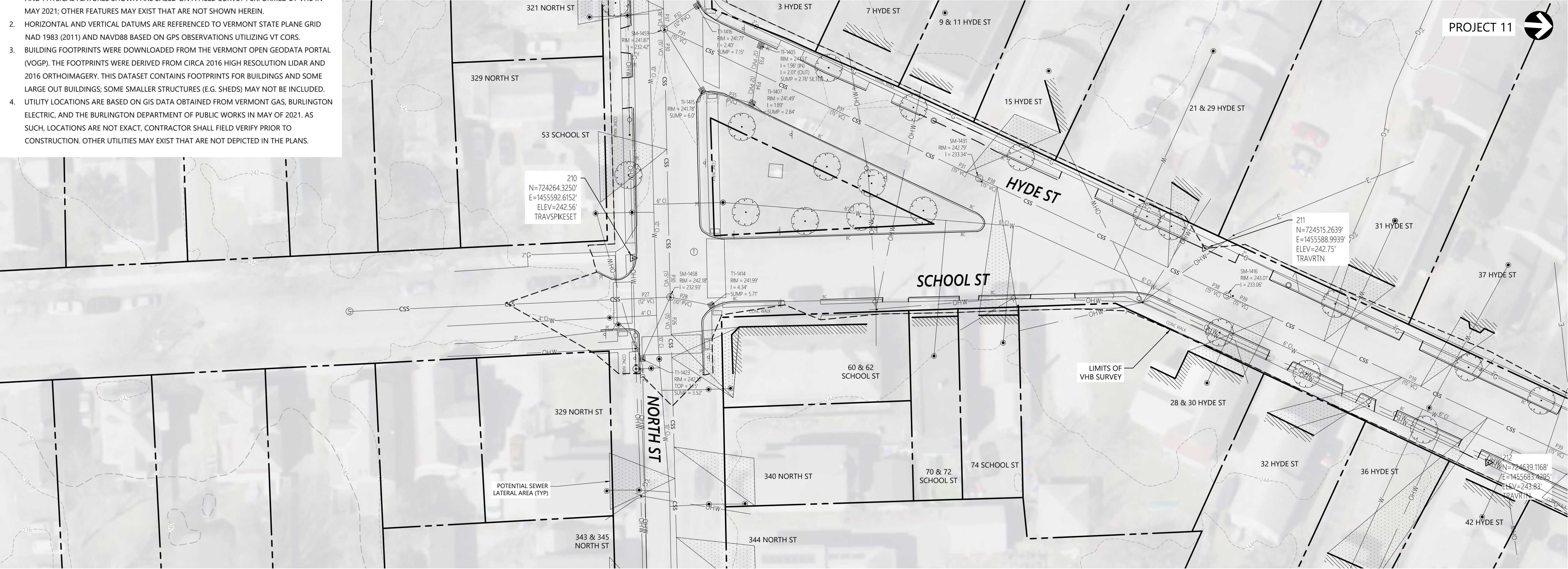
Project Number  
58126.02





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4. UTILITY LOCATIONS ARE BASED ON GIS DATA OBTAINED FROM VERMONT GAS, BURLINGTON ELECTRIC, AND THE BURLINGTON DEPARTMENT OF PUBLIC WORKS IN MAY OF 2021. AS SUCH, LOCATIONS ARE NOT EXACT, CONTRACTOR SHALL FIELD VERIFY PRIOR TO CONSTRUCTION. OTHER UTILITIES MAY EXIST THAT ARE NOT DEPICTED IN THE PLANS.





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0 12.5 25 50 Feet

## Burlington ONE Stormwater Retrofits

Burlington, VT 05401

No.	Revision	Date	Appr'd

Designed by  
CHS/WAF

Checked by  
NCH

Issued for  
Bid

Date  
April 14, 2022

Not Approved for Construction

Drawing Title  
Project 10 & 11 - Existing  
Conditions Plan

Drawing Number

C1.02

Sheet  
4

of  
23

Project Number  
58126.02





GENERAL SURVEY NOTES

1. THE PROPERTY LINES AND RIGHT-OF-WAY LINES ARE BASED ON STATE PARCEL MAPPING DATA AND ARE APPROXIMATE ONLY. THIS IS NOT A BOUNDARY SURVEY. THE TOPOGRAPHY AND PHYSICAL FEATURES SHOWN ARE BASED ON A FIELD SURVEY PERFORMED BY VHB IN MAY 2021; OTHER FEATURES MAY EXIST THAT ARE NOT SHOWN HEREIN.
2. HORIZONTAL AND VERTICAL DATUMS ARE REFERENCED TO VERMONT STATE PLANE GRID NAD 1983 (2011) AND NAVD88 BASED ON GPS OBSERVATIONS UTILIZING VT CORS.
3. BUILDING FOOTPRINTS WERE DOWNLOADED FROM THE VERMONT OPEN GEODATA PORTAL (VOGP). THE FOOTPRINTS WERE DERIVED FROM CIRCA 2016 HIGH RESOLUTION LIDAR AND 2016 ORTHOIMAGERY. THIS DATASET CONTAINS FOOTPRINTS FOR BUILDINGS AND SOME LARGE OUT BUILDINGS; SOME SMALLER STRUCTURES (E.G. SHEDS) MAY NOT BE INCLUDED.
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Burlington ONE

Stormwater Retrofits

Burlington, VT 05401

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Drawing Title

Project 12 & 13 - Existing Conditions Plan

Drawing Number

C1.03

Sheet

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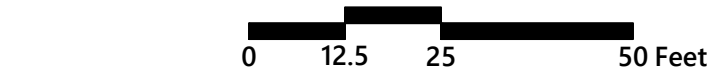
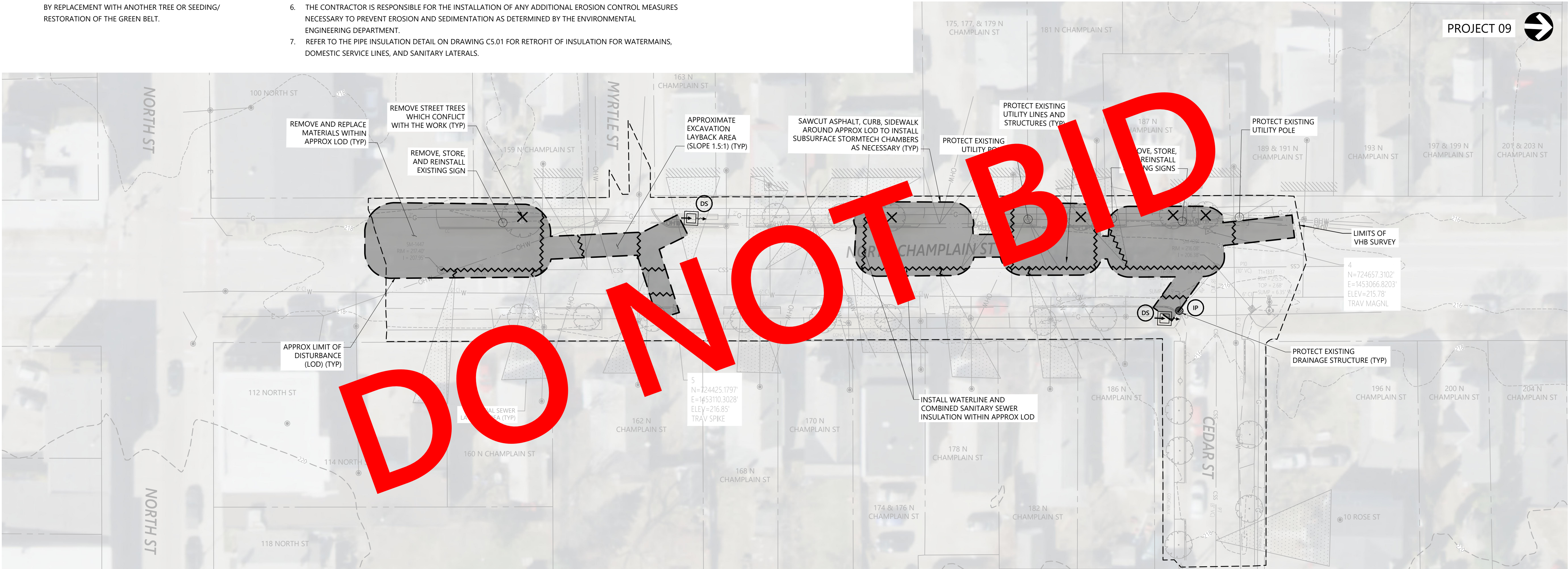
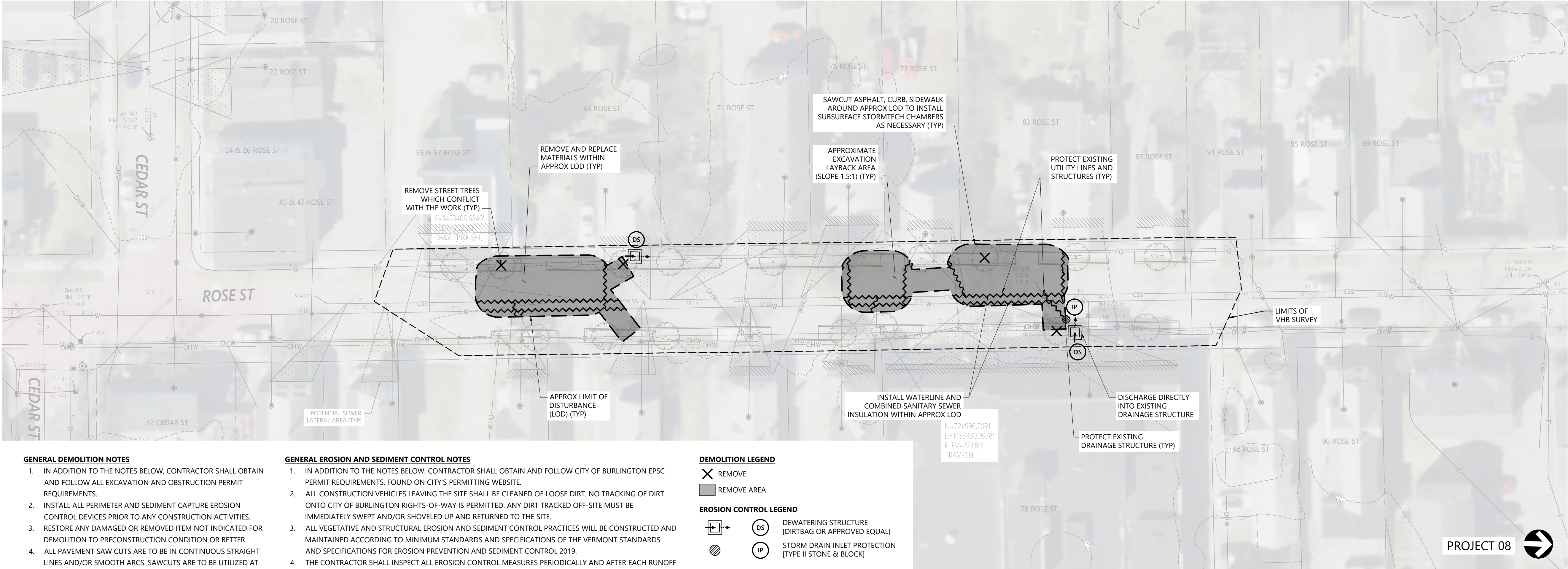
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23

Project Number

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## Burlington ONE Stormwater Retrofits

Burlington, VT 05401

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Designed by	CHS/WAF	Checked by	NCH
Issued for	Bid	Date	April 14, 2022

Not Approved for Construction  
Drawing Title  
**Project 08 & 09 - Demolition and Erosion Control Plan**

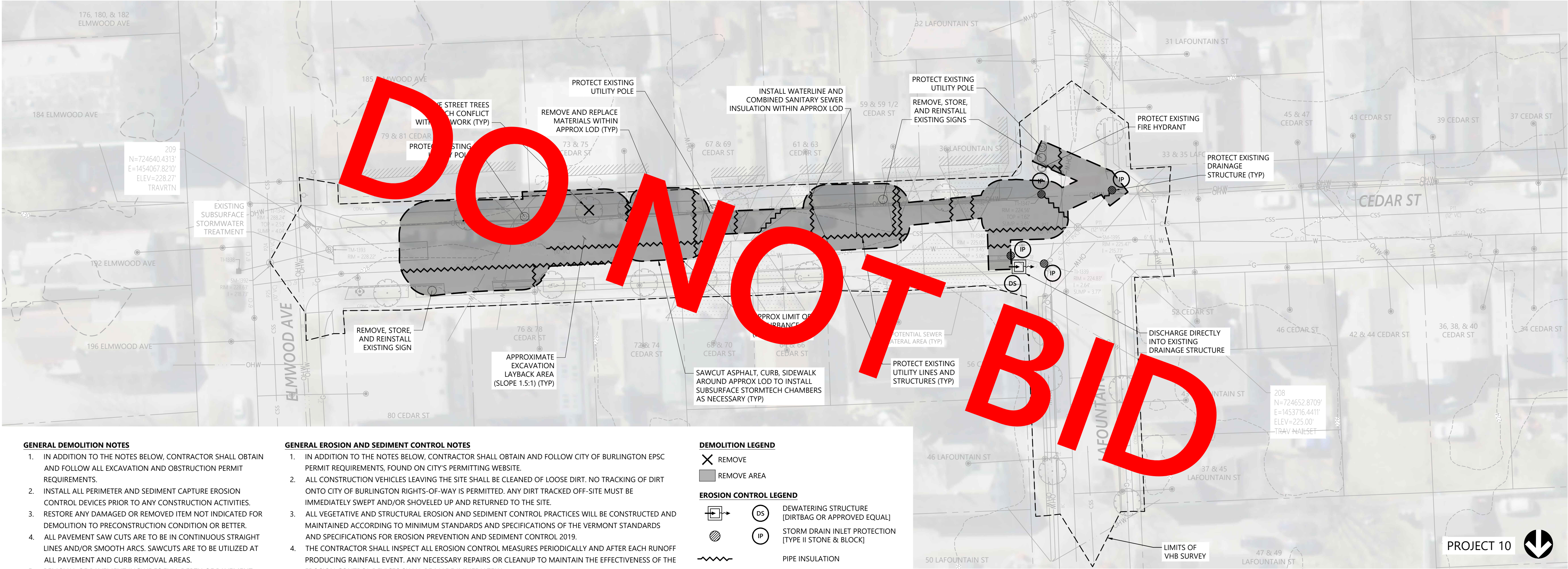
Drawing Number

# C2.01

Sheet 6 of 23

Project Number  
58126.02





**GENERAL DEMOLITION NOTES**

1. IN ADDITION TO THE NOTES BELOW, CONTRACTOR SHALL OBTAIN AND FOLLOW ALL EXCAVATION AND OBSTRUCTION PERMIT REQUIREMENTS.
2. INSTALL ALL PERIMETER AND SEDIMENT CAPTURE EROSION CONTROL DEVICES PRIOR TO ANY CONSTRUCTION ACTIVITIES.
3. RESTORE ANY DAMAGED OR REMOVED ITEM NOT INDICATED FOR DEMOLITION TO PRECONSTRUCTION CONDITION OR BETTER.
4. ALL PAVEMENT SAW CUTS ARE TO BE IN CONTINUOUS STRAIGHT LINES AND/OR SMOOTH ARCS. SAWCUTS ARE TO BE UTILIZED AT ALL PAVEMENT AND CURB REMOVAL AREAS.
5. REMOVAL OF PAVEMENT INCLUDES FULL DEPTH OF PAVEMENT AND SUBBASE.
6. ALL ASH TREE REMOVALS SHALL HAVE THEIR STUMP GROUND OR REMOVED ENTIRELY PRIOR TO RESTORATION, WHETHER THAT BE BY REPLACEMENT WITH ANOTHER TREE OR SEEDING/ RESTORATION OF THE GREEN BELT.

**GENERAL EROSION AND SEDIMENT CONTROL NOTES**

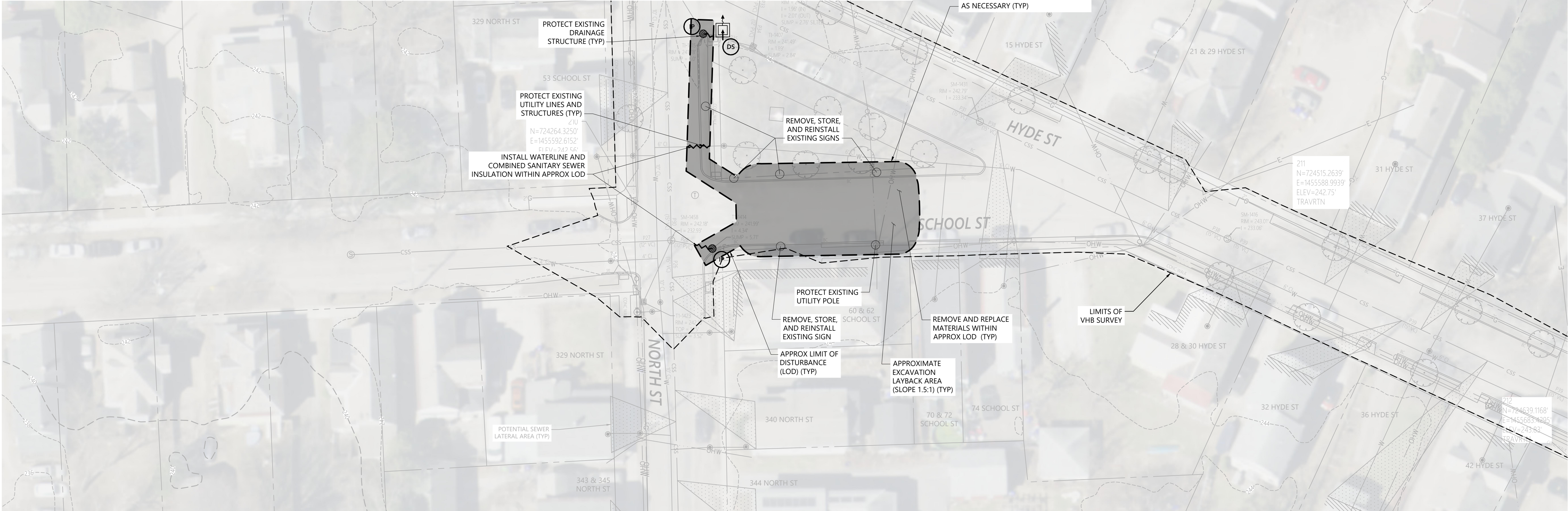
1. IN ADDITION TO THE NOTES BELOW, CONTRACTOR SHALL OBTAIN AND FOLLOW CITY OF BURLINGTON EPSC PERMIT REQUIREMENTS, FOUND ON CITY'S PERMITTING WEBSITE.
2. ALL CONSTRUCTION VEHICLES LEAVING THE SITE SHALL BE CLEANED OF LOOSE DIRT. NO TRACKING OF DIRT ONTO CITY OF BURLINGTON RIGHTS-OF-WAY IS PERMITTED. ANY DIRT TRACKED OFF-SITE MUST BE IMMEDIATELY SWEEP AND/OR SHOVELED UP AND RETURNED TO THE SITE.
3. ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VERMONT STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL 2019.
4. 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.
5. 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. IF DIRT BAG DEWATERING DEVICE IS USED, IT IS TO BE MONITORED AT ALL TIMES.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE ENVIRONMENTAL ENGINEERING DEPARTMENT.
7. REFER TO THE PIPE INSULATION DETAIL ON DRAWING C5.01 FOR RETROFIT OF INSULATION FOR WATERMAINS, DOMESTIC SERVICE LINES, AND SANITARY LATERALS.

**DEMOLITION LEGEND**

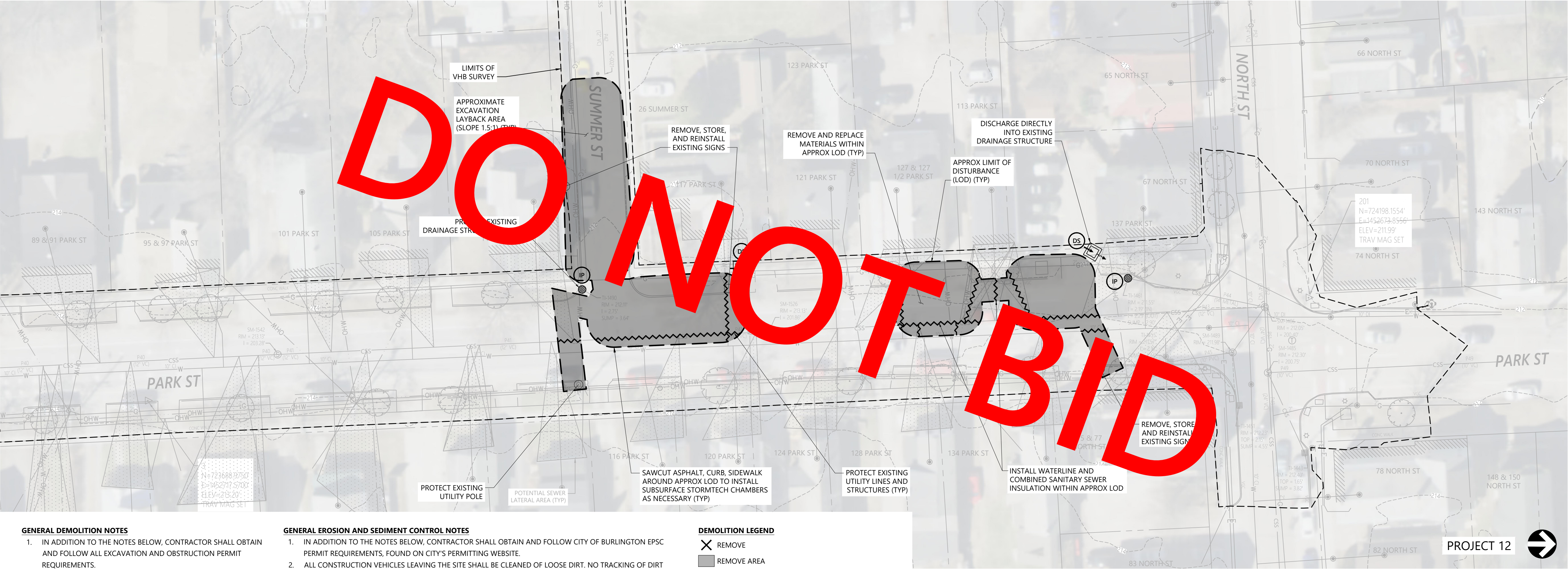
- X REMOVE
- REMOVE AREA

**EROSION CONTROL LEGEND**

- DS DEWATERING STRUCTURE (DIRTBAG OR APPROVED EQUAL)
- IP STORM DRAIN INLET PROTECTION [TYPE II STONE & BLOCK]
- PIPE INSULATION







**GENERAL DEMOLITION NOTES**

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5. REMOVAL OF PAVEMENT INCLUDES FULL DEPTH OF PAVEMENT AND SUBBASE.
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**GENERAL EROSION AND SEDIMENT CONTROL NOTES**

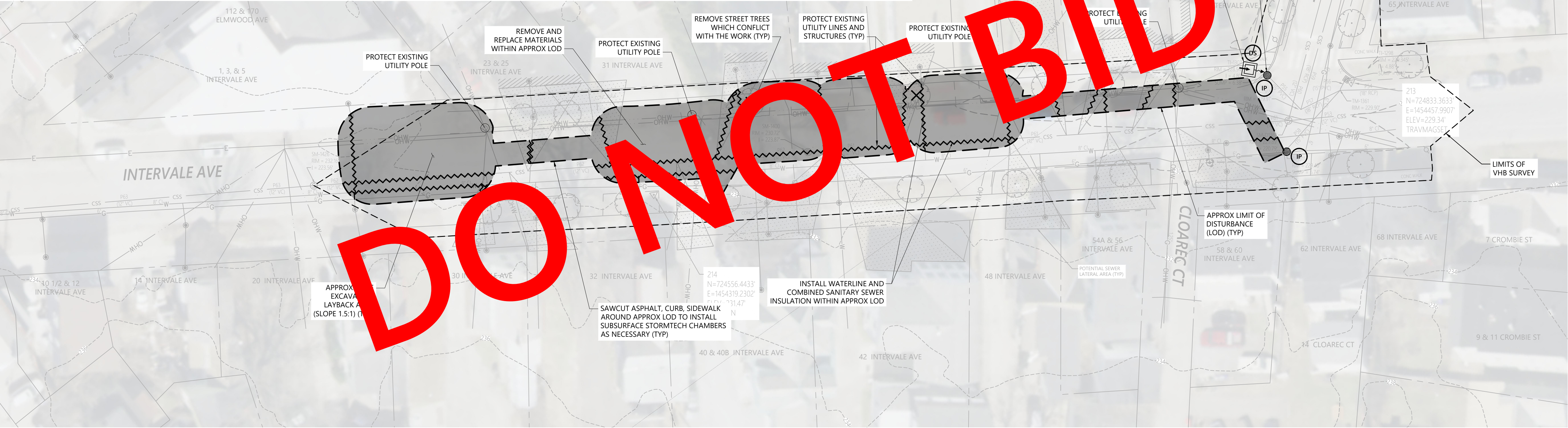
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7. REFER TO THE PIPE INSULATION DETAIL ON DRAWING CS.01 FOR RETROFIT OF INSULATION FOR WATERMAINS, DOMESTIC SERVICE LINES, AND SANITARY LATERALS.

**DEMOLITION LEGEND**

- X REMOVE
- REMOVE AREA

**EROSION CONTROL LEGEND**

- DS DEWATERING STRUCTURE [DIRTBAG OR APPROVED EQUAL]
- IP STORM DRAIN INLET PROTECTION [TYPE II STONE & BLOCK]
- PIPE INSULATION



**Burlington ONE  
Stormwater Retrofits**

Burlington, VT 05401

No.	Revision	Date	Appvd.

Designed by	CHS/WAF	Checked by	NCH
Issued for	Bid	Date	April 14, 2022

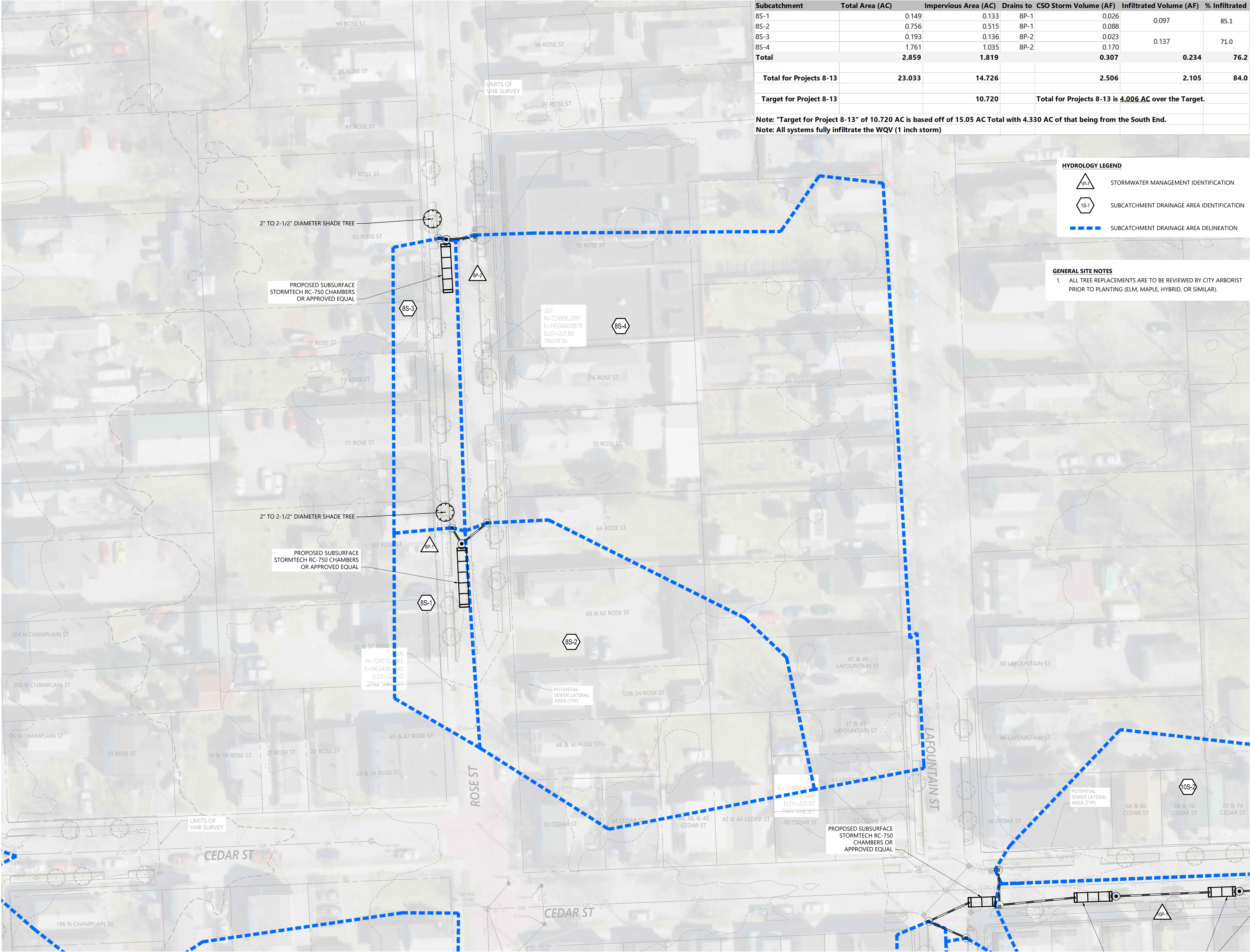
**Not Approved for Construction**  
Project 12 & 13 - Demolition  
and Erosion Control Plan

**C2.03**

Sheet 8 of 23

Project Number  
58126.02





Subcatchment	Total Area (AC)	Impervious Area (AC)	Drains to	CSO Storm Volume (AF)	Infiltrated Volume (AF)	% Infiltrated
8S-1		0.149	0.133	8P-1	0.026	0.097
8S-2		0.756	0.515	8P-1	0.088	85.1
8S-3		0.193	0.136	8P-2	0.023	0.137
8S-4		1.761	1.035	8P-2	0.170	71.0
Total	2.859	1.819		0.307	0.234	76.2
Total for Projects 8-13	23.033	14.726		2.506	2.105	84.0
Target for Project 8-13		10.720		Total for Projects 8-13 is 4.006 AC over the Target.		

Note: "Target for Project 8-13" of 10.720 AC is based off of 15.05 AC Total with 4.330 AC of that being from the South End.  
Note: All systems fully infiltrate the WQV (1 inch storm)

**HYDROLOGY LEGEND**

△ 8P-1 STORMWATER MANAGEMENT IDENTIFICATION

⬡ 8S-1 SUBCATCHMENT DRAINAGE AREA IDENTIFICATION

--- SUBCATCHMENT DRAINAGE AREA DELINEATION

**GENERAL SITE NOTES**

1. ALL TREE REPLACEMENTS ARE TO BE REVIEWED BY CITY ARBORIST PRIOR TO PLANTING (ELM, MAPLE, HYBRID, OR SIMILAR).

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**Burlington ONE**  
**Stormwater Retrofits**

Burlington, VT 05401

No.	Revision	Date	Appvd.

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Issued for Bid      Date April 14, 2022

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Project 08 - Site Layout and Drainage Plan

Drawing Number

**C3.01**




Sheet 9 of 23

Project Number 58126.02



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Subcatchment	Total Area (AC)	Impervious Area (AC)	Drains to	CSO Storm Volume (AF)	Infiltrated Volume (AF)	% Infiltrated
9S-1	0.766	0.552	9P-1	0.096	0.124	100.0
9S-2	0.185	0.151	9P-1	0.028		
9S-3	1.752	0.879	9P-2	0.139	0.202	100.0
9S-4	0.394	0.336	9P-2	0.063		
Total	3.097	1.918		0.326	0.326	100.0
Total for Projects 8-13	23.033	14.726		2.506	2.105	84.0
Target for Project 8-13		10.720	Total for Projects 8-13 is 4.006 AC over the Target.			
Note: "Target for Project 8-13" of 10.720 AC is based off of 15.05 AC Total with 4.330 AC of that being from the South End.						
Note: All systems fully infiltrate the WQV (1 inch storm)						

HYDROLOGY LEGEND

-  STORMWATER MANAGEMENT IDENTIFICATION
-  SUBCATCHMENT DRAINAGE AREA IDENTIFICATION
-  SUBCATCHMENT DRAINAGE AREA DELINEATION

GENERAL SITE NOTES

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0153060

Feet

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


Drawing Title

Project 09 - Site Layout and Drainage Plan



Subcatchment	Total Area (AC)	Impervious Area (AC)	Drains to	CSO Storm Volume (AF)	Infiltrated Volume (AF)	% Infiltrated
10S-1	1.703	1.239	10P-1	0.218	0.324	70.1
10S-2	0.462	0.376	10P-1	0.069		
10S-3	0.981	0.689	10P-1	0.119		
10S-4	0.290	0.280	10P-1	0.056		
Total	3.436	2.584		0.462	0.324	70.1
Total for Projects 8-13	23.033	14.726		2.506	2.112	84.3
Target for Project 8-13		10.720		Total for Projects 8-13 is 4.006 AC over the Target.		
Note: "Target for Project 8-13" of 10.720 AC is based off of 15.05 AC Total with 4.330 AC of that being from the South End.						
Note: All systems fully infiltrate the WQV (1 inch storm)						

HYDROLOGY LEGEND

-  STORMWATER MANAGEMENT IDENTIFICATION
-  SUBCATCHMENT DRAINAGE AREA IDENTIFICATION
-  SUBCATCHMENT DRAINAGE AREA DELINEATION

GENERAL SITE NOTES




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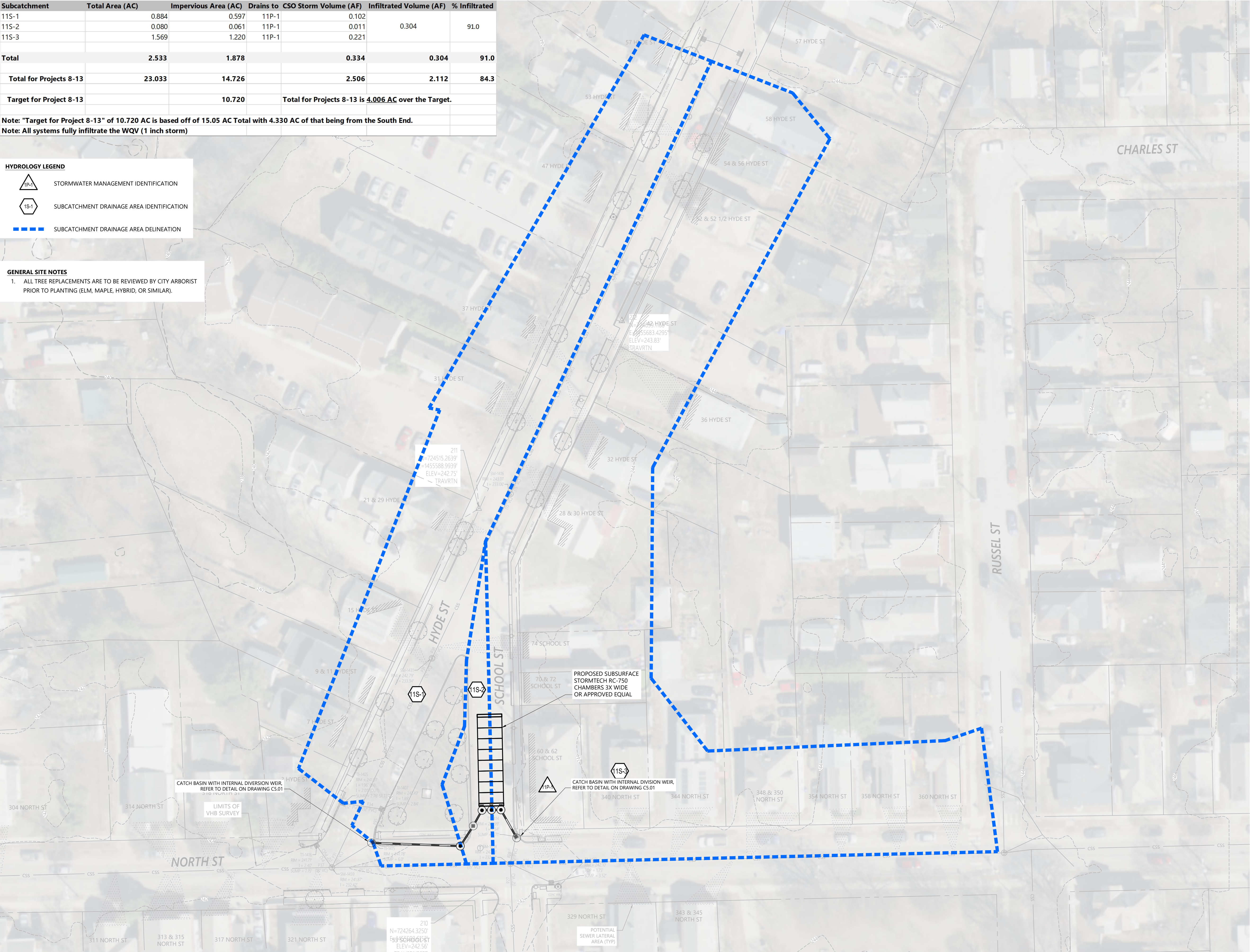
Subcatchment	Total Area (AC)	Impervious Area (AC)	Drains to	CSO Storm Volume (AF)	Infiltrated Volume (AF)	% Infiltrated
11S-1	0.884	0.597	11P-1	0.102	0.304	91.0
11S-2	0.080	0.061	11P-1	0.011		
11S-3	1.569	1.220	11P-1	0.221		
Total	2.533	1.878		0.334	0.304	91.0
Total for Projects 8-13	23.033	14.726		2.506	2.112	84.3
Target for Project 8-13		10.720	Total for Projects 8-13 is 4.006 AC over the Target.			
Note: "Target for Project 8-13" of 10.720 AC is based off of 15.05 AC Total with 4.330 AC of that being from the South End.						
Note: All systems fully infiltrate the WQV (1 inch storm)						

HYDROLOGY LEGEND

-  STORMWATER MANAGEMENT IDENTIFICATION
-  SUBCATCHMENT DRAINAGE AREA IDENTIFICATION
-  SUBCATCHMENT DRAINAGE AREA DELINEATION

GENERAL SITE NOTES

- ALL TREE REPLACEMENTS ARE TO BE REVIEWED BY CITY ARBORIST PRIOR TO PLANTING (ELM, MAPLE, HYBRID, OR SIMILAR).



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0 15 30 60 Feet

Burlington ONE  
Stormwater Retrofits

Burlington, VT 05401

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Designed by	CHS/WAF	Checked by	NCH
Issued for	Bid	Date	April 14, 2022

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Drawing Title  
Project 11 - Site Layout and  
Drainage Plan

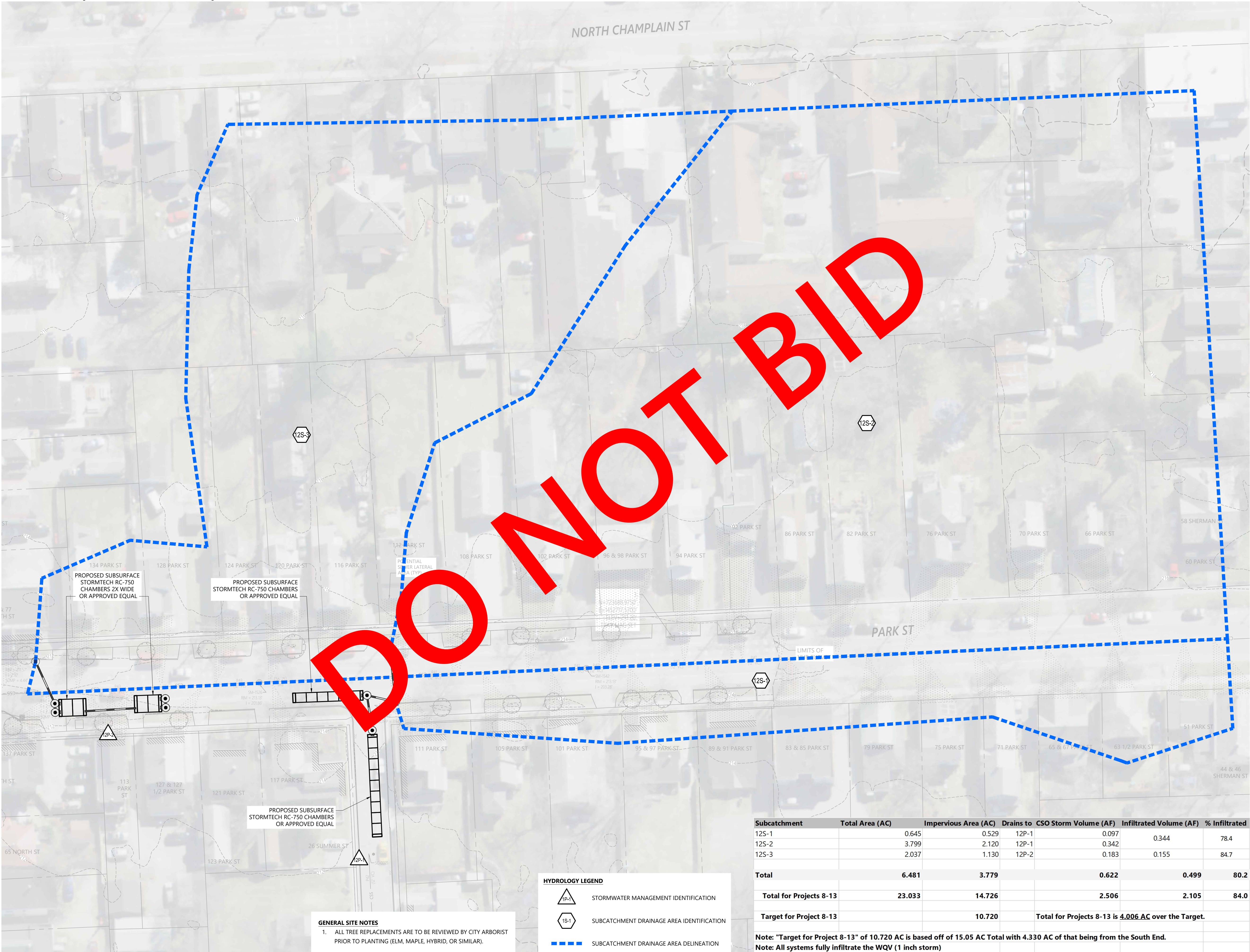
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Sheet 12 of 23

Project Number  
58126.02







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Burlington, VT 05401

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Date

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Drawing Title

**Project 12 - Site Layout and Drainage Plan**





Subcatchment	Total Area (AC)	Impervious Area (AC)	Drains to	CSO Storm Volume (AF)	Infiltrated Volume (AF)	% Infiltrated
13S-1	0.848	0.584	13P-1	0.101	0.418	91.9
13S-2	0.186	0.153	13P-1	0.029		
13S-3	0.273	0.204	13P-1	0.036		
13S-4	3.320	1.807	13P-1	0.289		
Total	4.627	2.748		0.455	0.418	91.9
Total for Projects 8-13	23.033	14.726		2.506	2.112	84.3
Target for Project 8-13		10.720		Total for Projects 8-13 is 4.006 AC over the Target.		
Note: "Target for Project 8-13" of 10.720 AC is based off of 15.05 AC Total with 4.330 AC of that being from the South End.						
Note: All systems fully infiltrate the WQV (1 inch storm)						

HYDROLOGY LEGEND

STORMWATER MANAGEMENT IDENTIFICATION

SUBCATCHMENT DRAINAGE AREA IDENTIFICATION

SUBCATCHMENT DRAINAGE AREA DELINEATION

GENERAL SITE NOTES

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Drawing Title

Project 13 - Site Layout and Drainage Plan

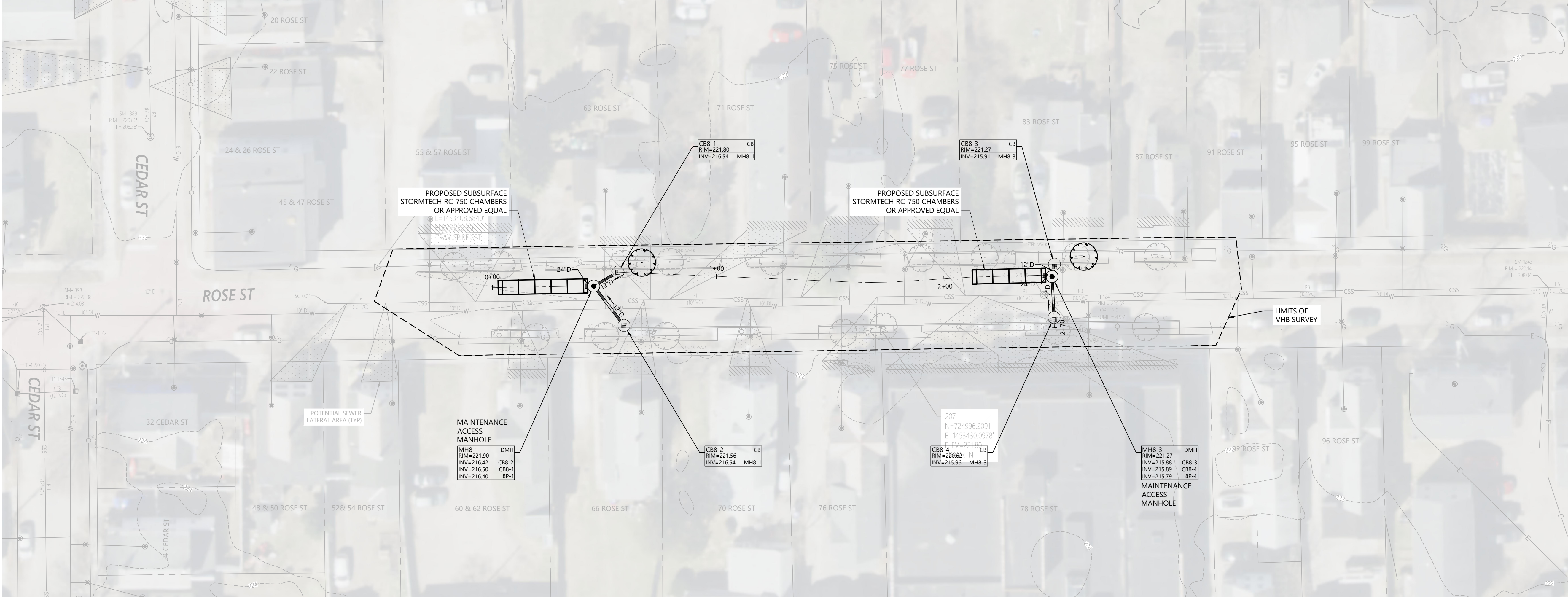
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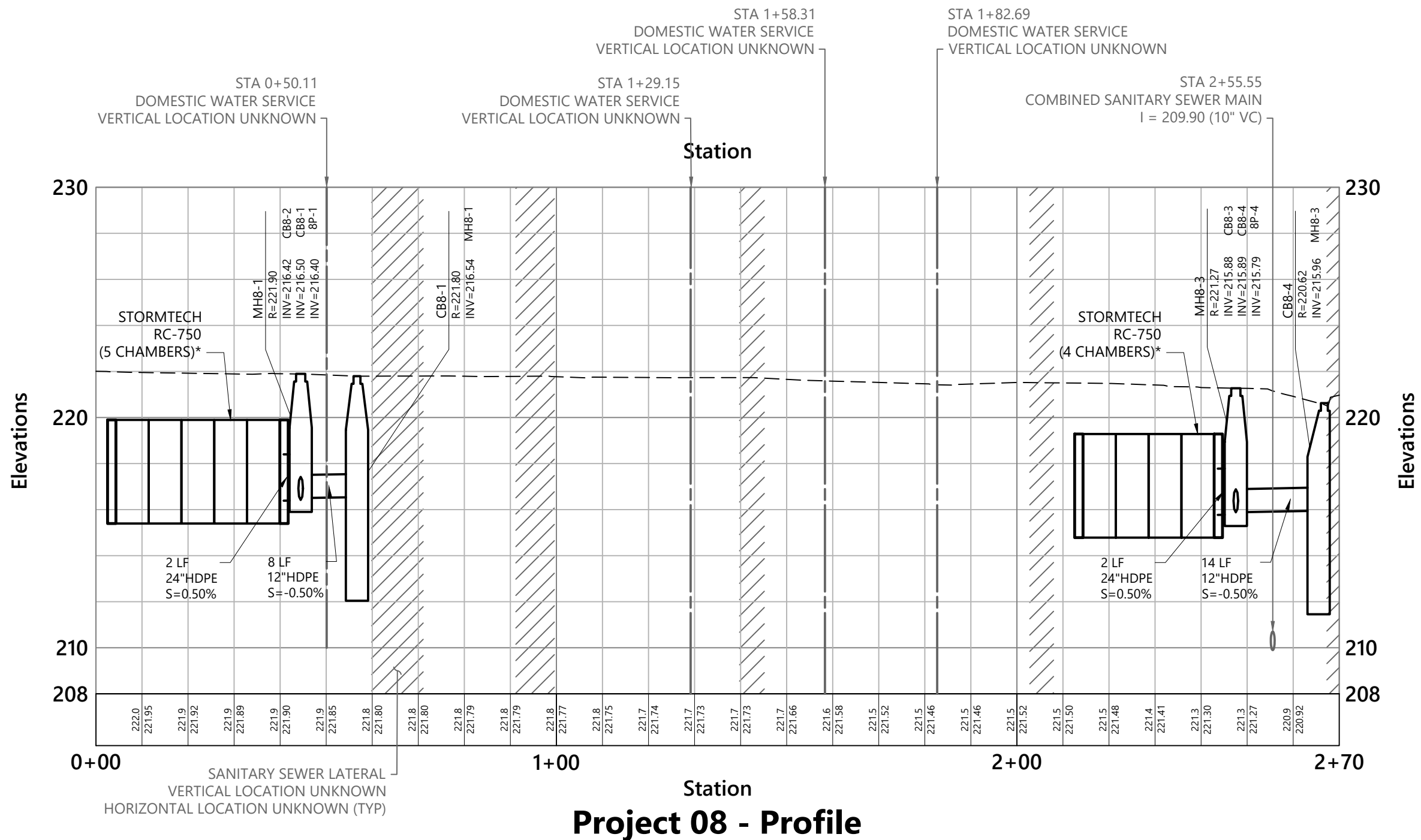
Project Number 58126.02



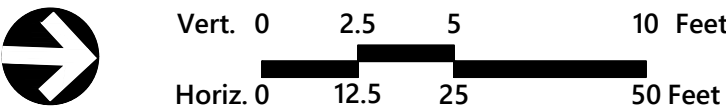


INVERTS OF 12" HDPE PIPES MAY BE MOVED VERTICALLY TO AVOID UTILITY CONFLICTS ONLY. CONTRACTOR TO COORDINATE INVERT CHANGES WITH THE ENGINEER. WHERE POSSIBLE MAINTAIN POSITIVE DRAINAGE.

\* INSTALL SPECIFIED STORMTECH SYSTEMS OR APPROVED EQUAL.



Project 08 - Profile



## Burlington ONE Stormwater Retrofits

Burlington, VT 05401

No.	Revision	Date	Appvd.

Designed by	CHS/WAF	Checked by	NCH
Issued for		Date	
<b>Bid</b>		<b>April 14, 2022</b>	

Not Approved for Construction

Drawing Title

**Project 08 - Stormwater  
System Plan and Profile**

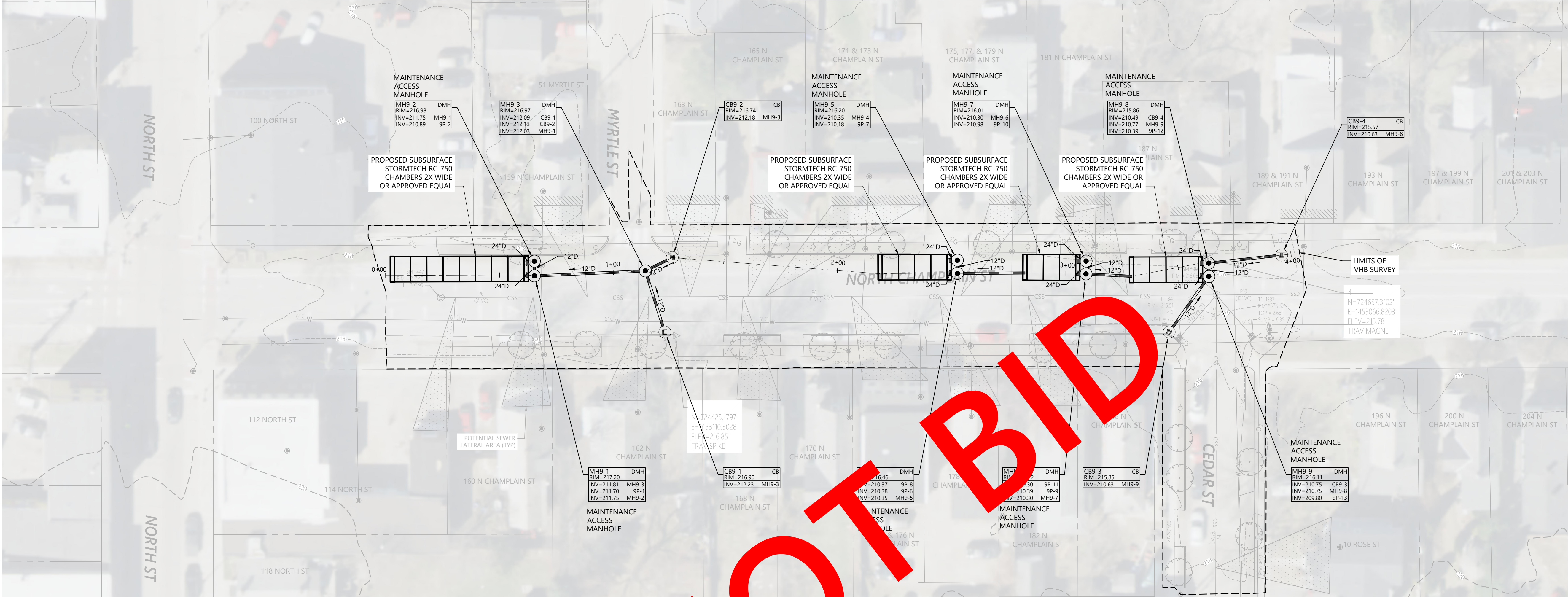
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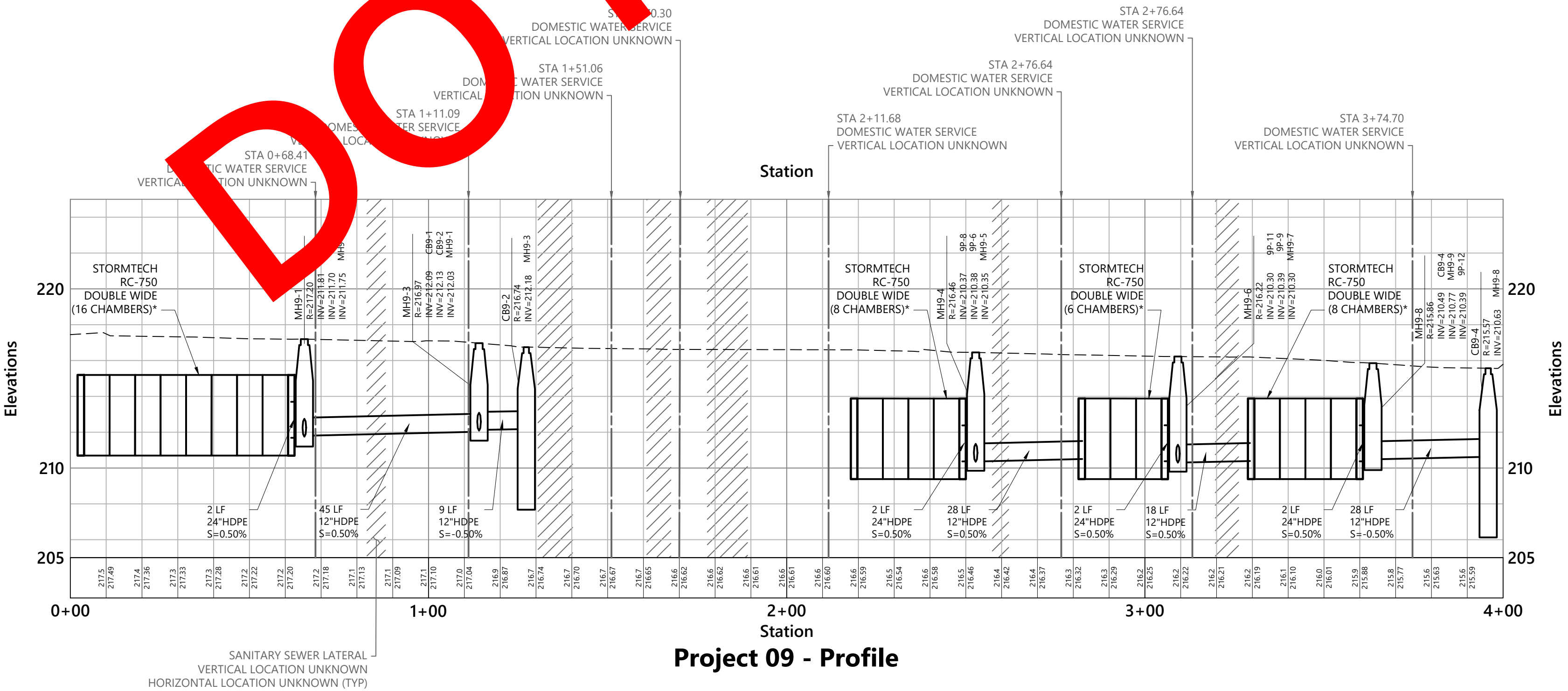
Project Number  
58126.02






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Vert. 0 2.5 5 10 Feet  
Horiz. 0 12.5 25 50 Feet

### Burlington ONE

## Stormwater Retrofits

Burlington, VT 05401

No.	Revision	Date	Appr'd.

Designed by CHS/WAF

Checked by NCH

Issued for Bid

Date April 14, 2022

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Drawing Title

## Project 09 - Stormwater System Plan and Profile

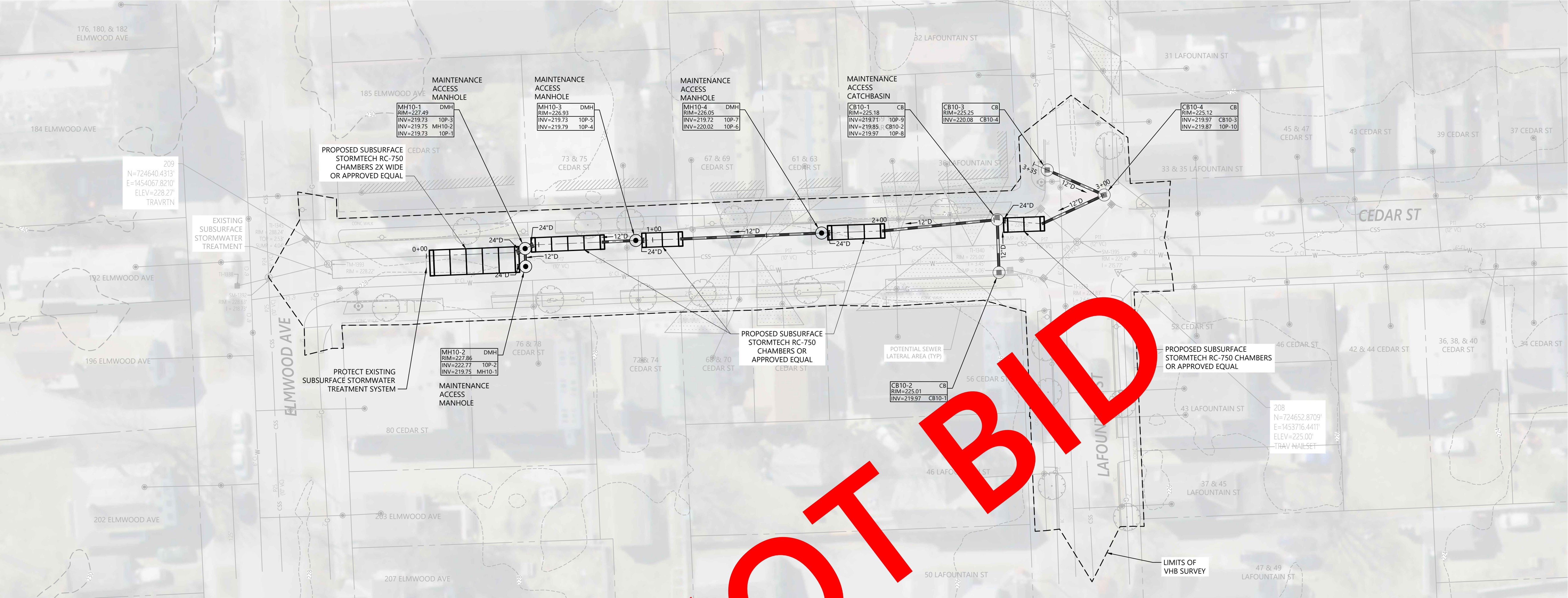
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# C4.02

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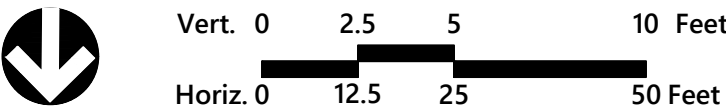
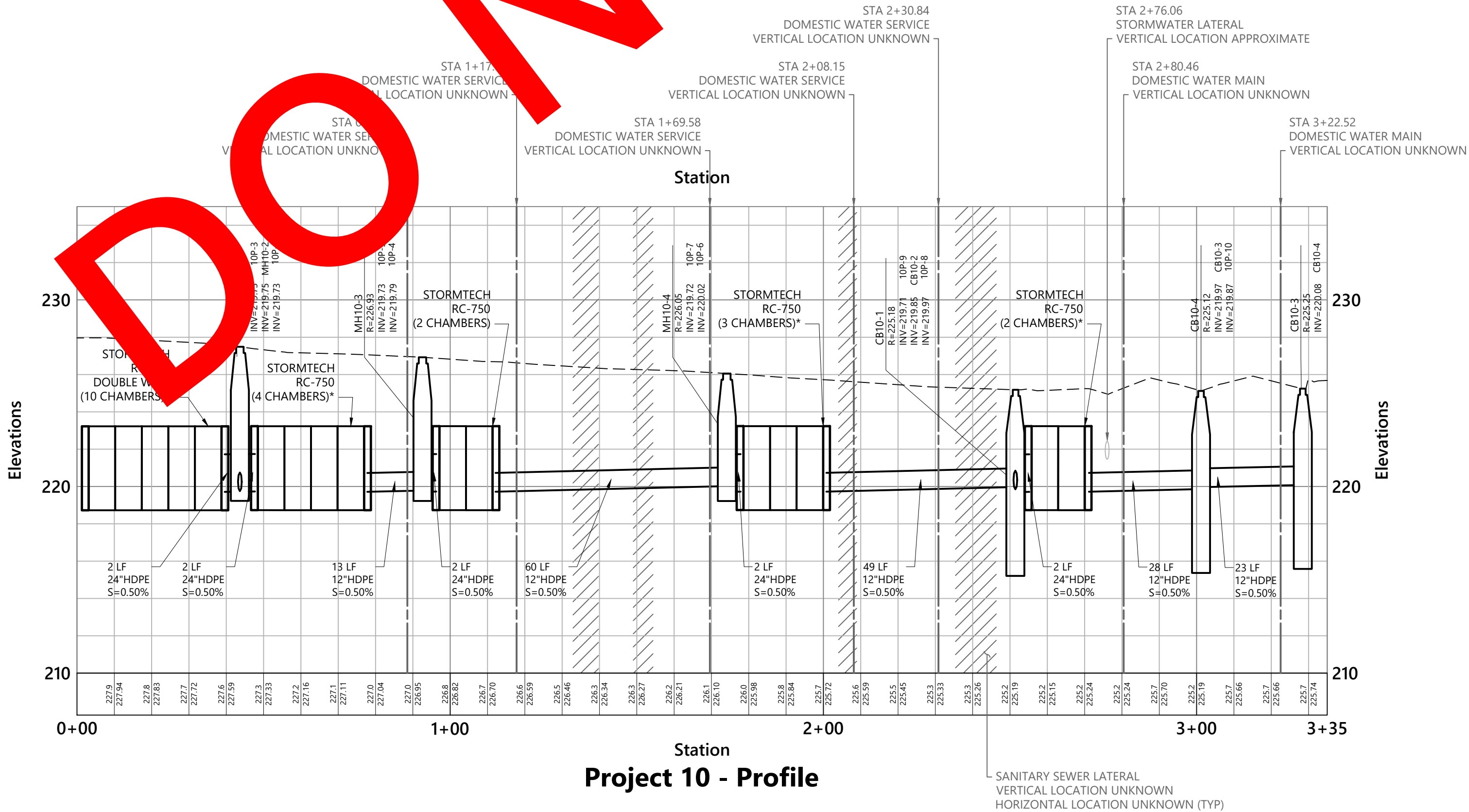
Project Number  
58126.02





INVERTS OF 12" HDPE PIPES MAY BE MOVED VERTICALLY TO AVOID UTILITY CONFLICTS ONLY. CONTRACTOR TO COORDINATE INVERT CHANGES WITH THE ENGINEER. WHERE POSSIBLE MAINTAIN POSITIVE DRAINAGE.

\* INSTALL SPECIFIED STORMTECH SYSTEMS OR APPROVED EQUAL.



## Burlington ONE Stormwater Retrofits

Burlington, VT 05401

No.	Revision	Date	Appr'd.

Designed by	CHS/WAF	Checked by	NCH
Issued for	Bid	Date	April 14, 2022

Not Approved for Construction

Project 10 - Stormwater  
System Plan and Profile

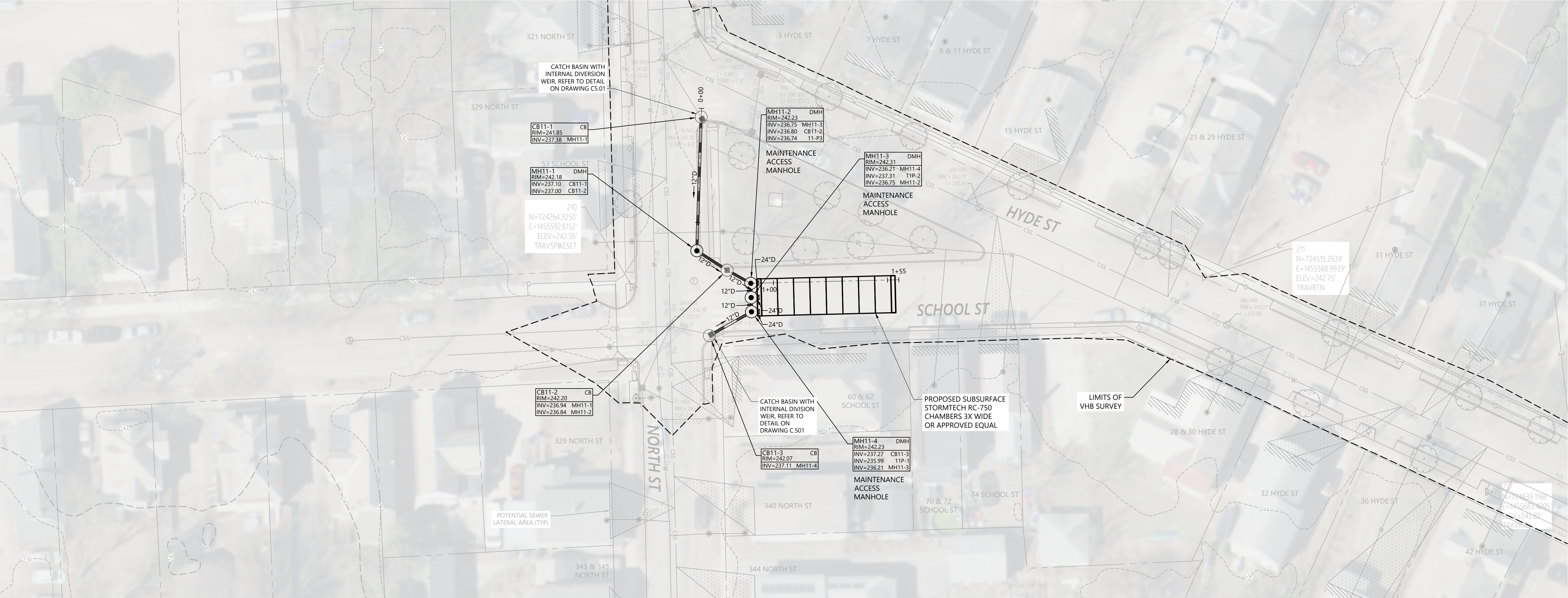
Drawing Number

C4.03

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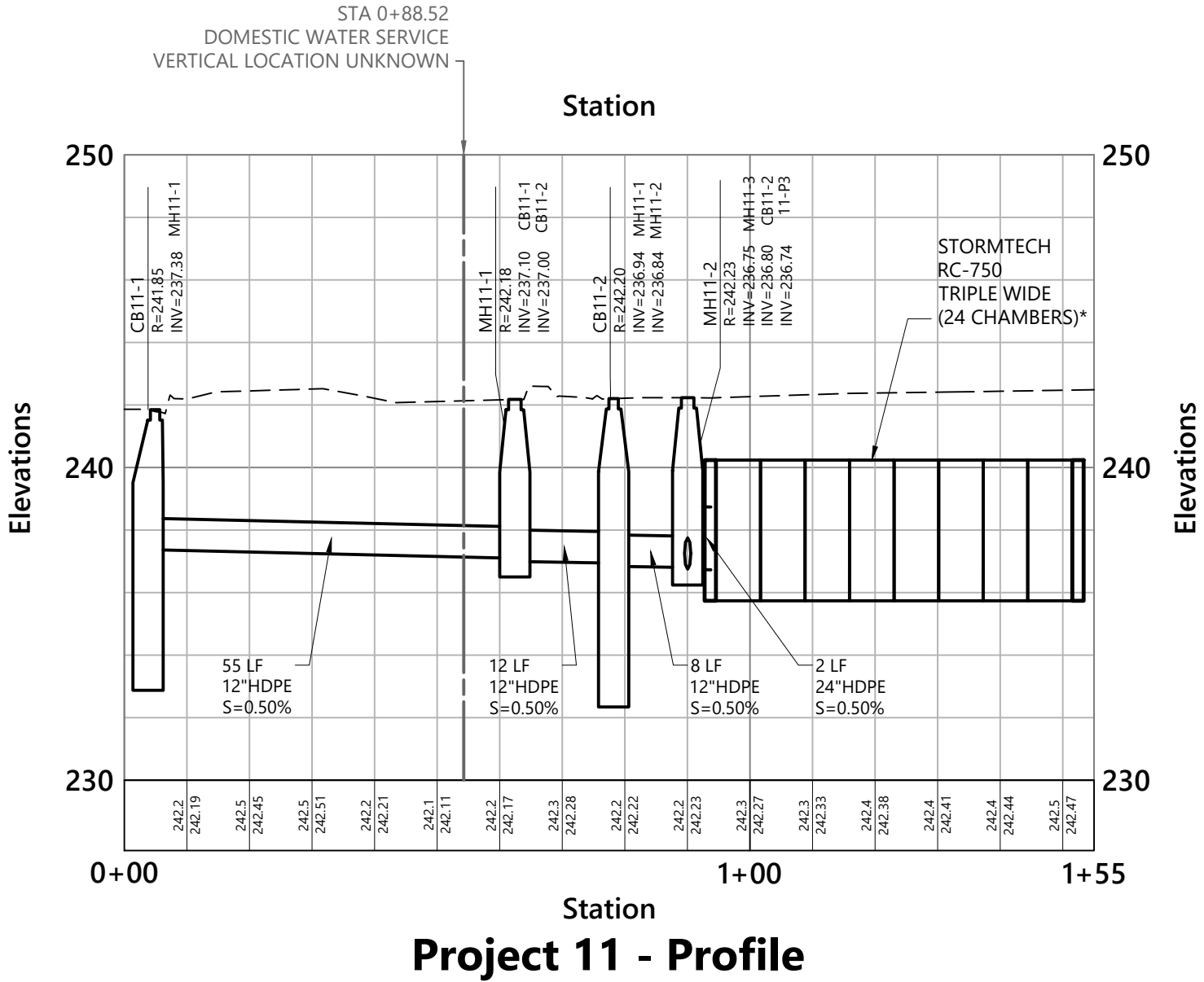
Project Number  
58126.02





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Project 11 - Profile



**Burlington ONE**  
**Stormwater Retrofits**

Burlington, VT 05401

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Issued for	Bid	Date	April 14, 2022

Not Approved for Construction

Drawing Title

**Project 11 - Stormwater System Plan and Profile**

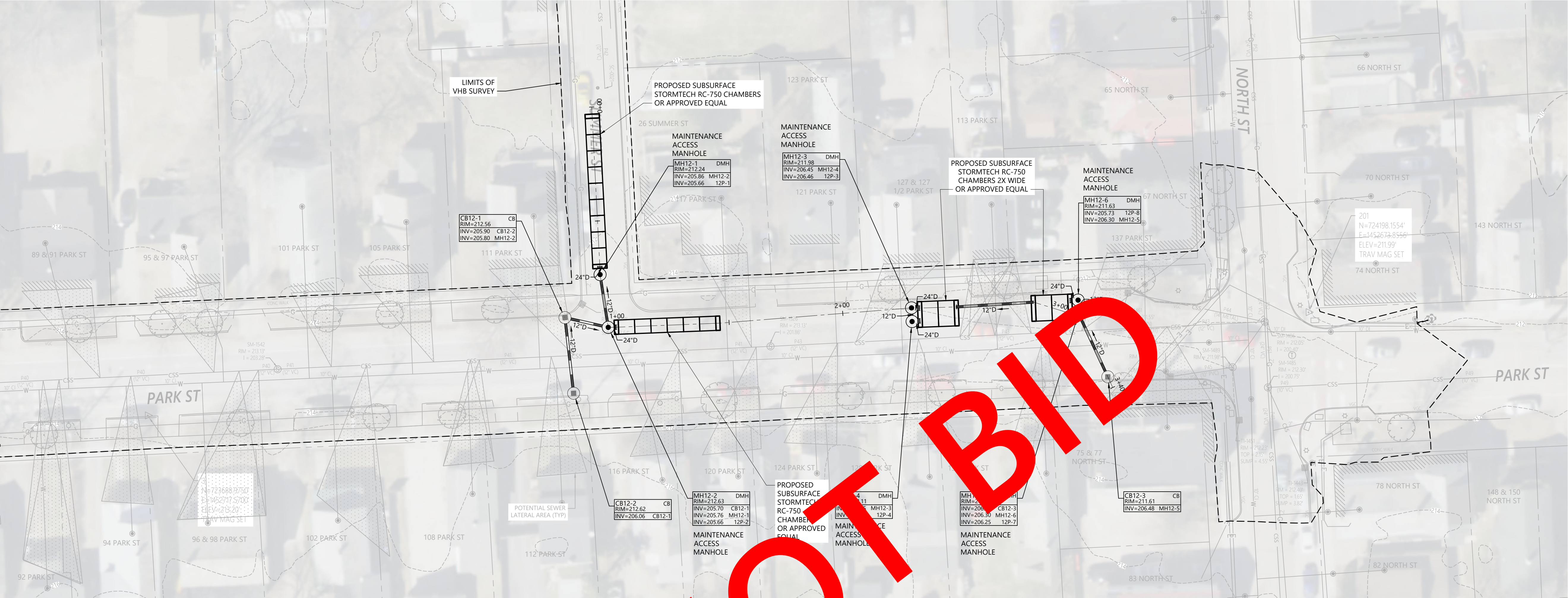
Drawing Number

**C4.04**

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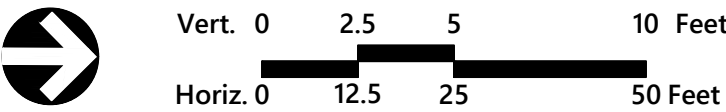
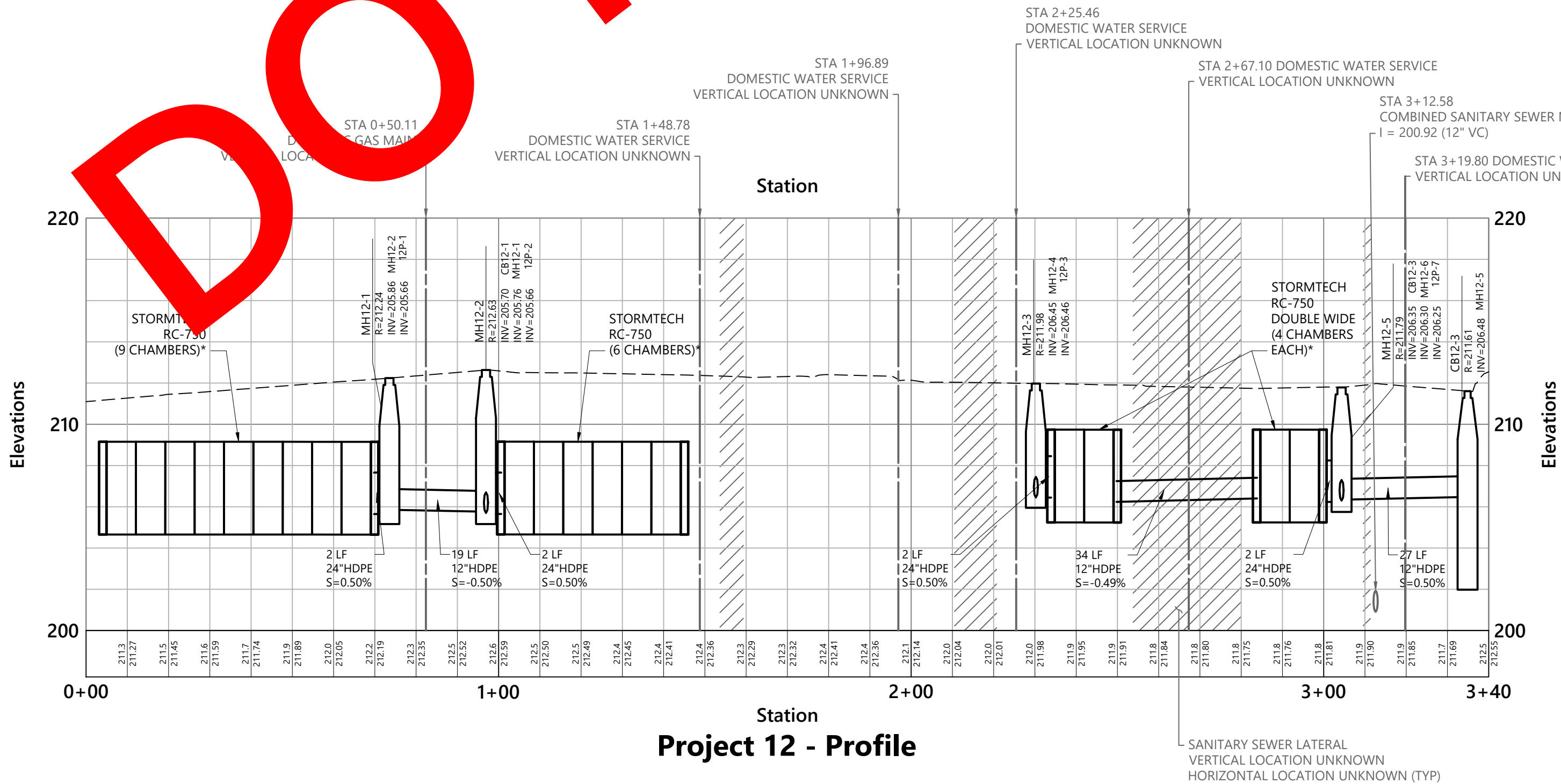
Project Number  
58126.02





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Drawing Title

**Project 12 - Stormwater  
System Plan and Profile**

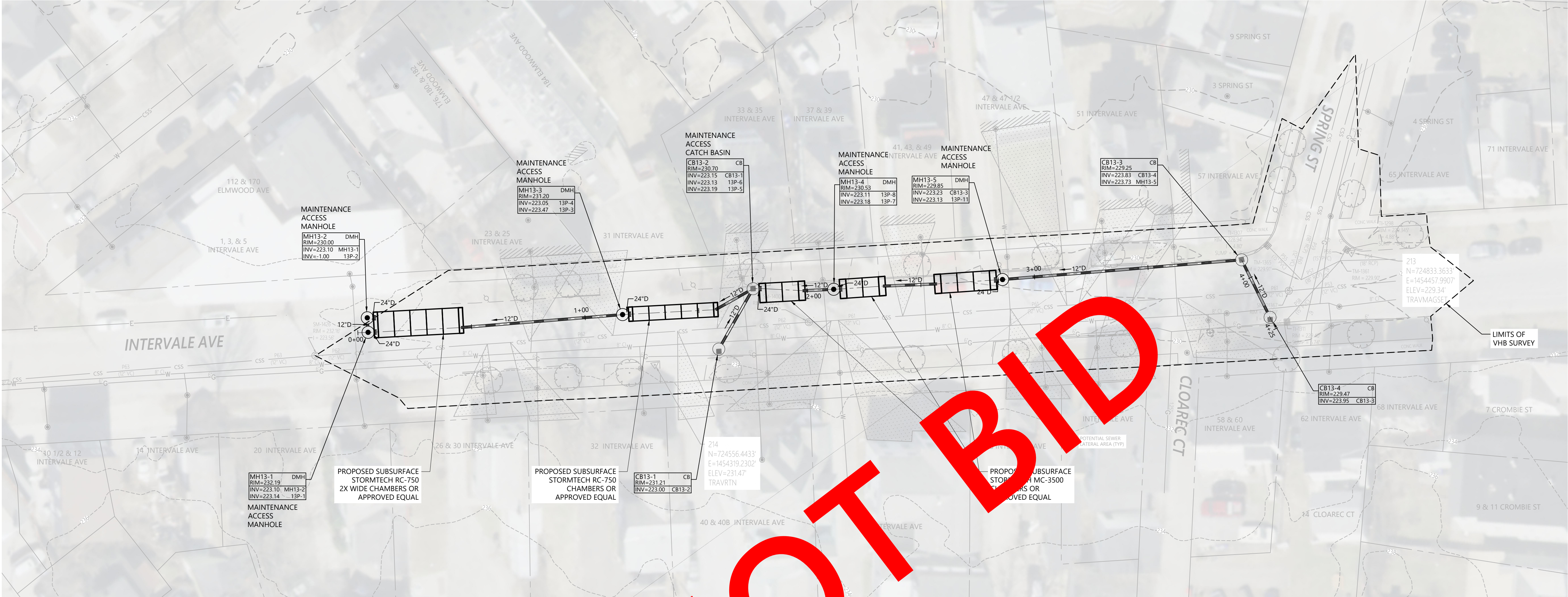
Drawing Number

**C4.05**

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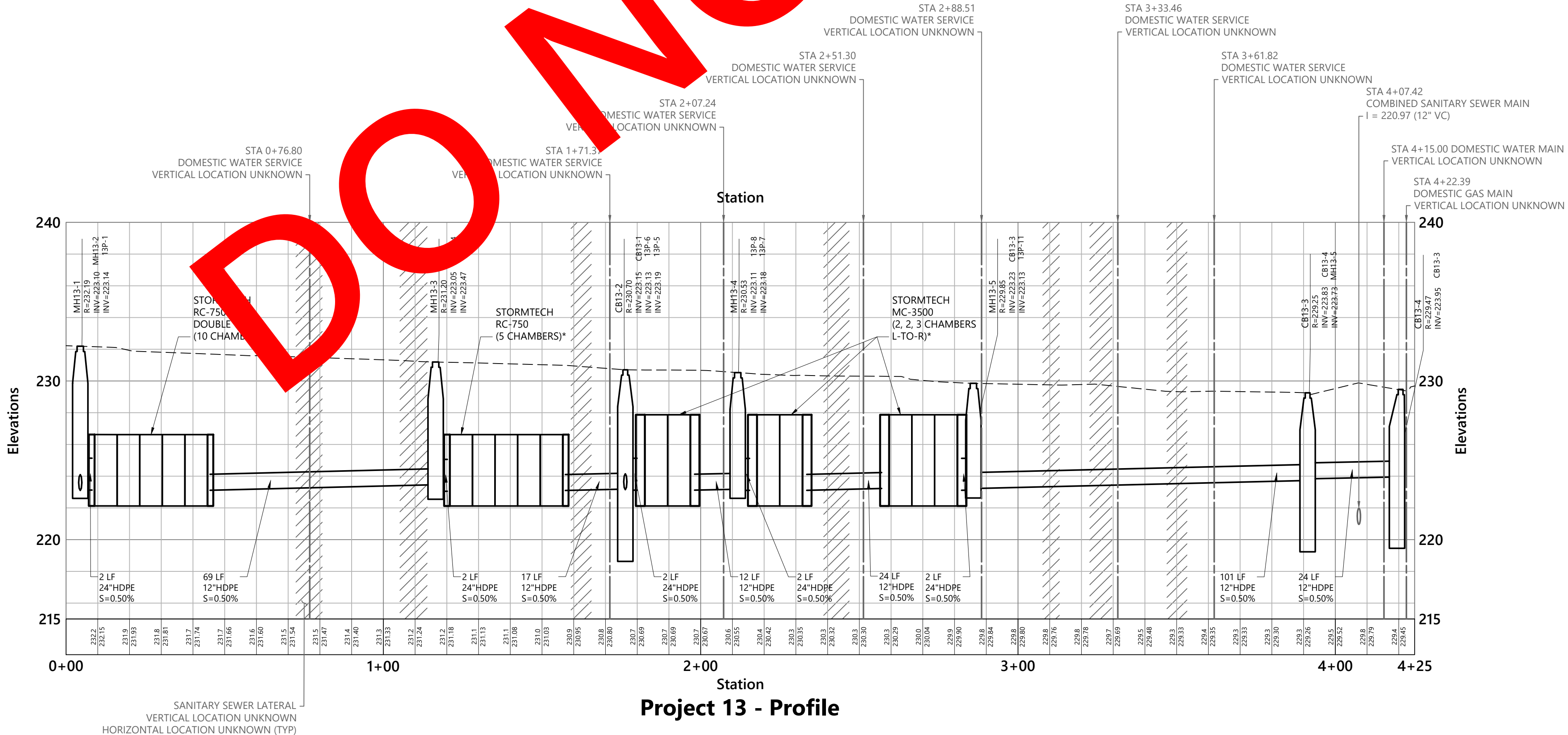
Project Number  
58126.02





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**Stormwater Retrofits**  
Burlington, VT 05401

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Issued for Bid      Date April 14, 2022

Not Approved for Construction  
Project 13 - Stormwater  
System Plan and Profile

Drawing Number

**C4.06**

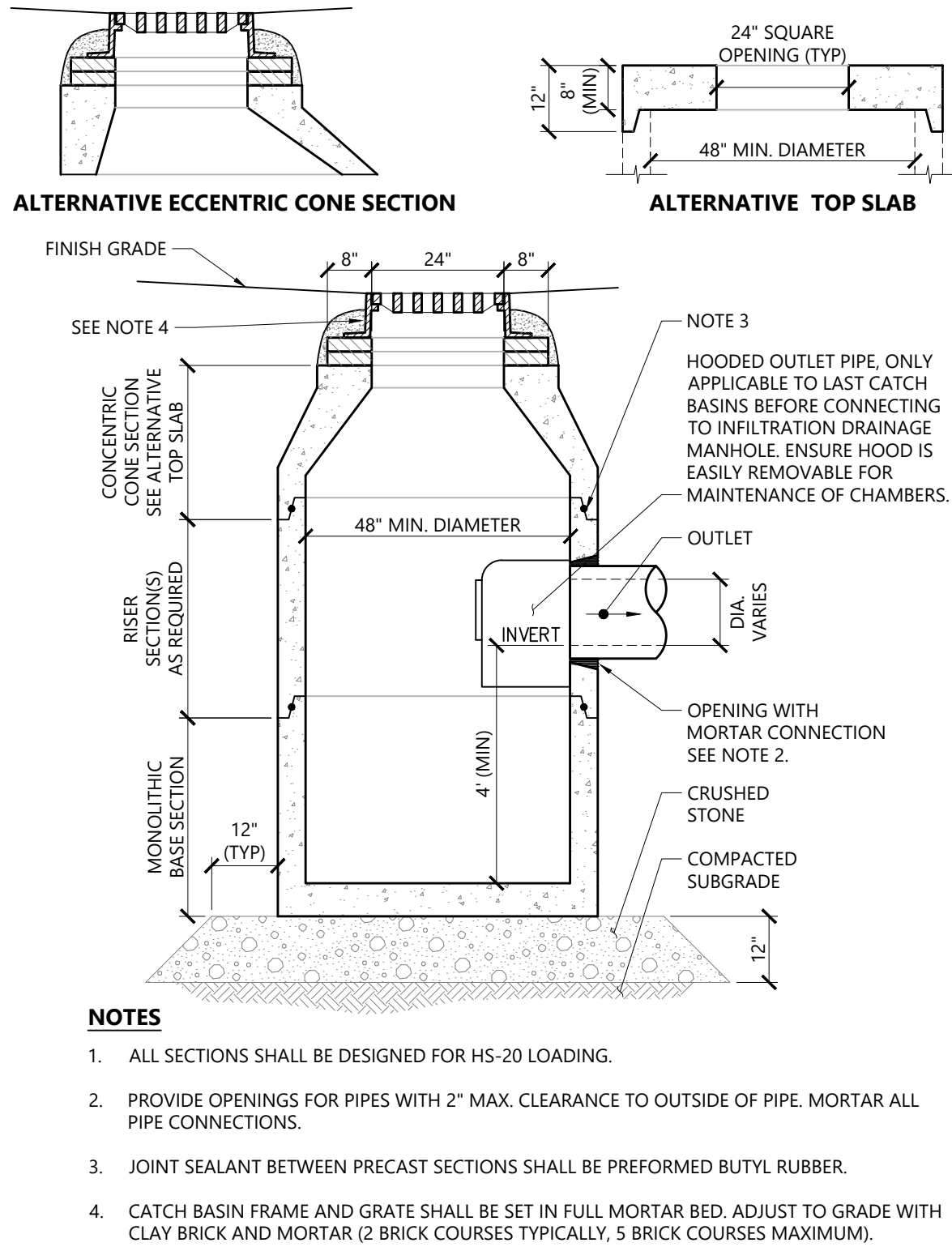
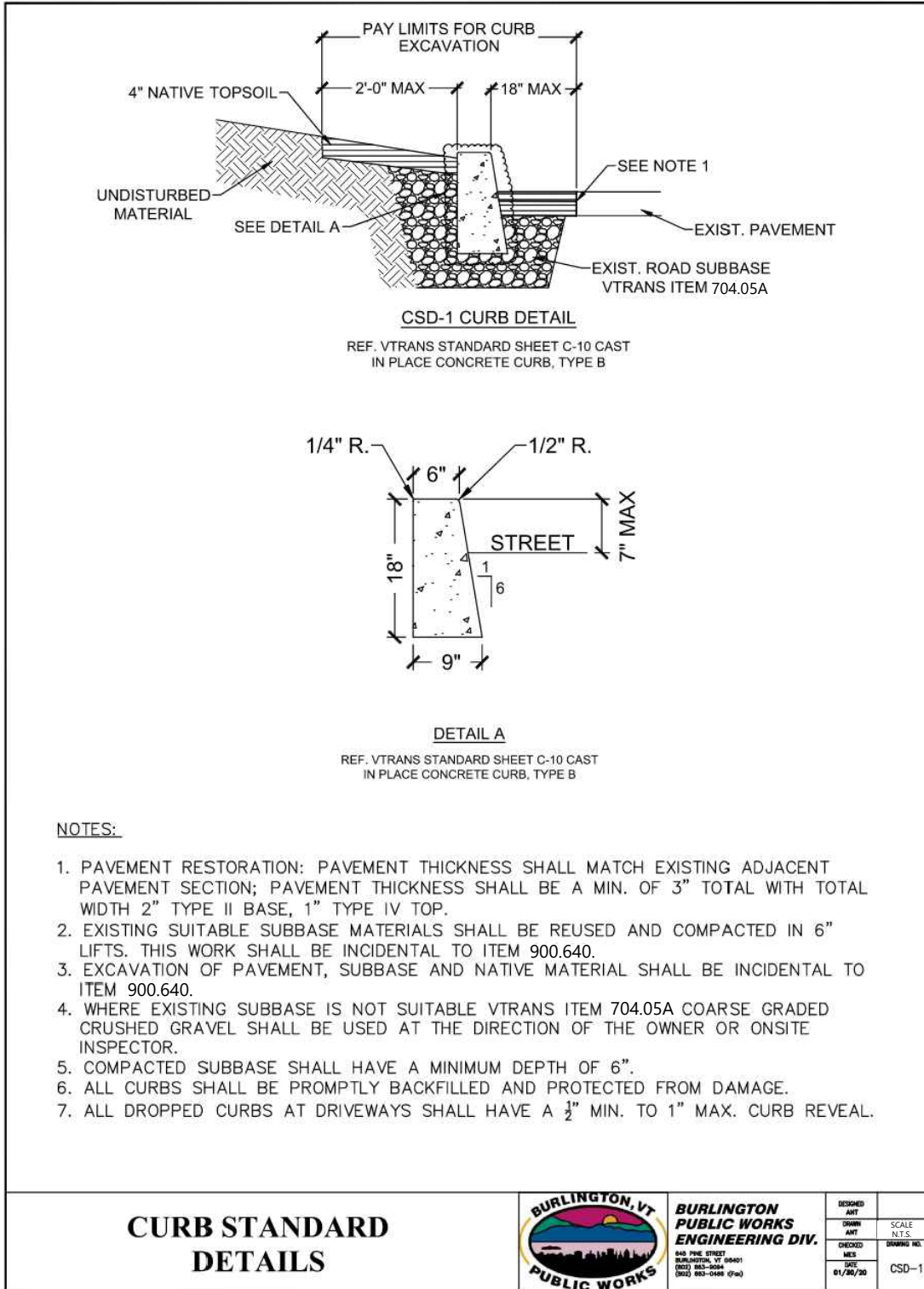
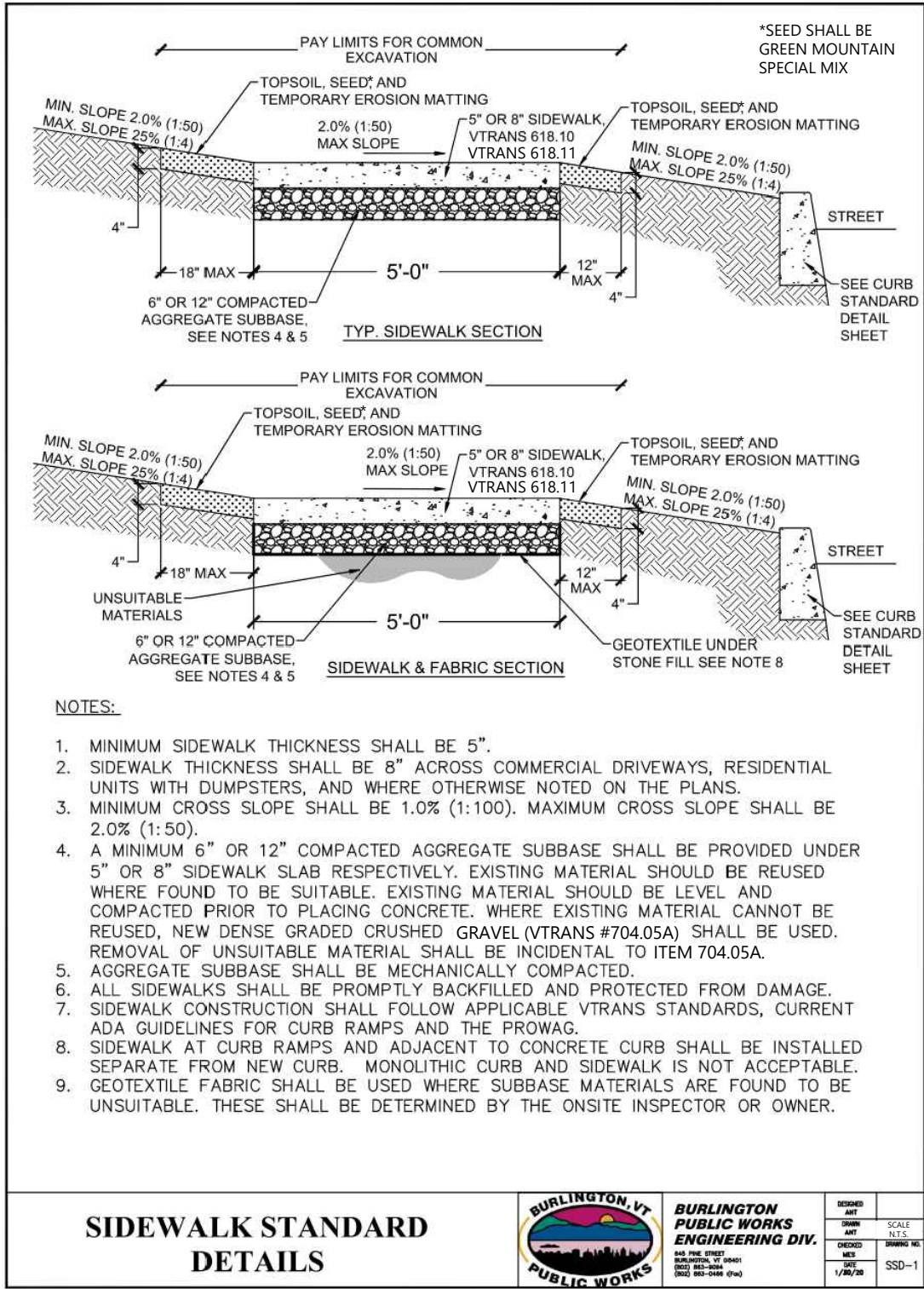
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Project Number  
58126.02

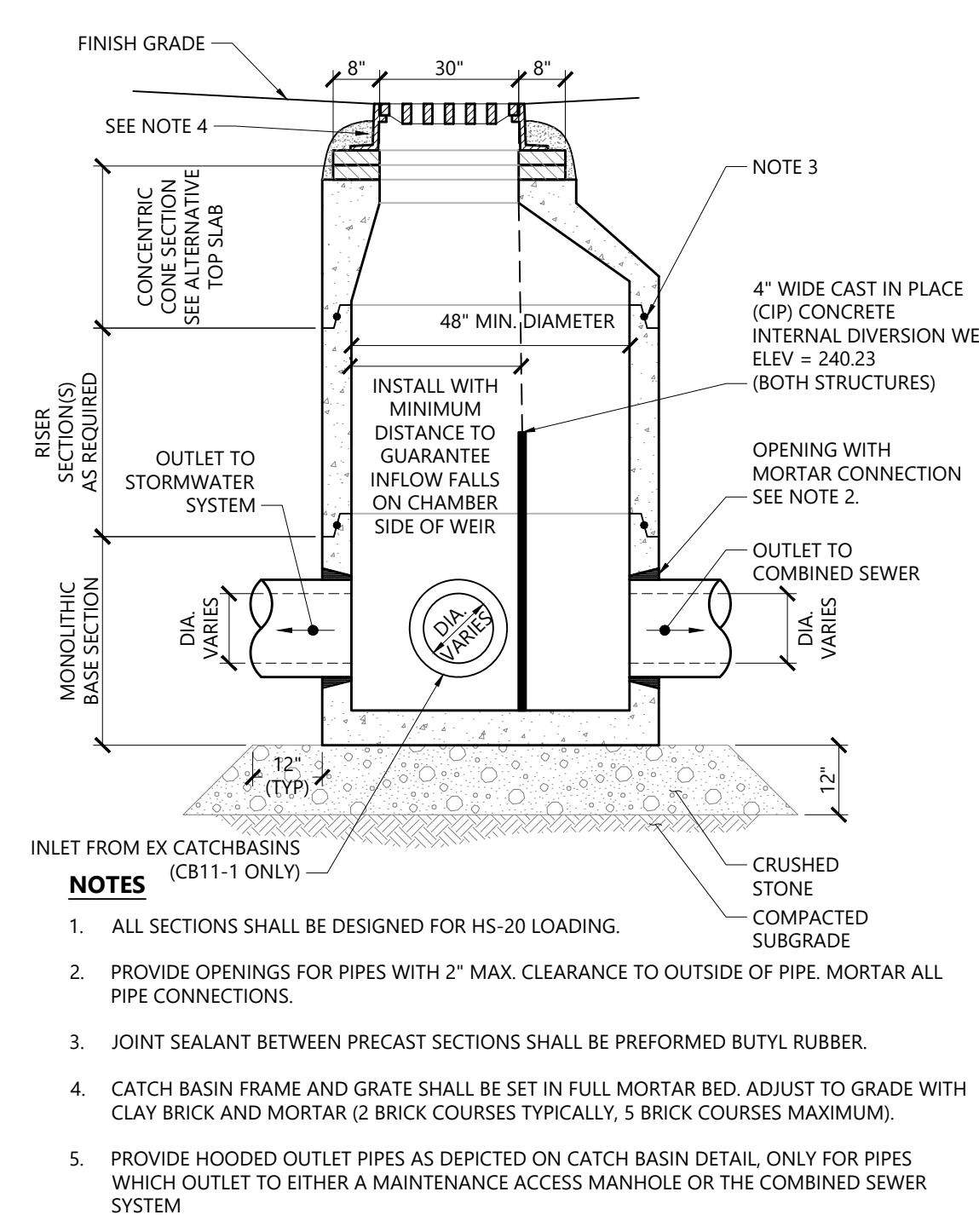




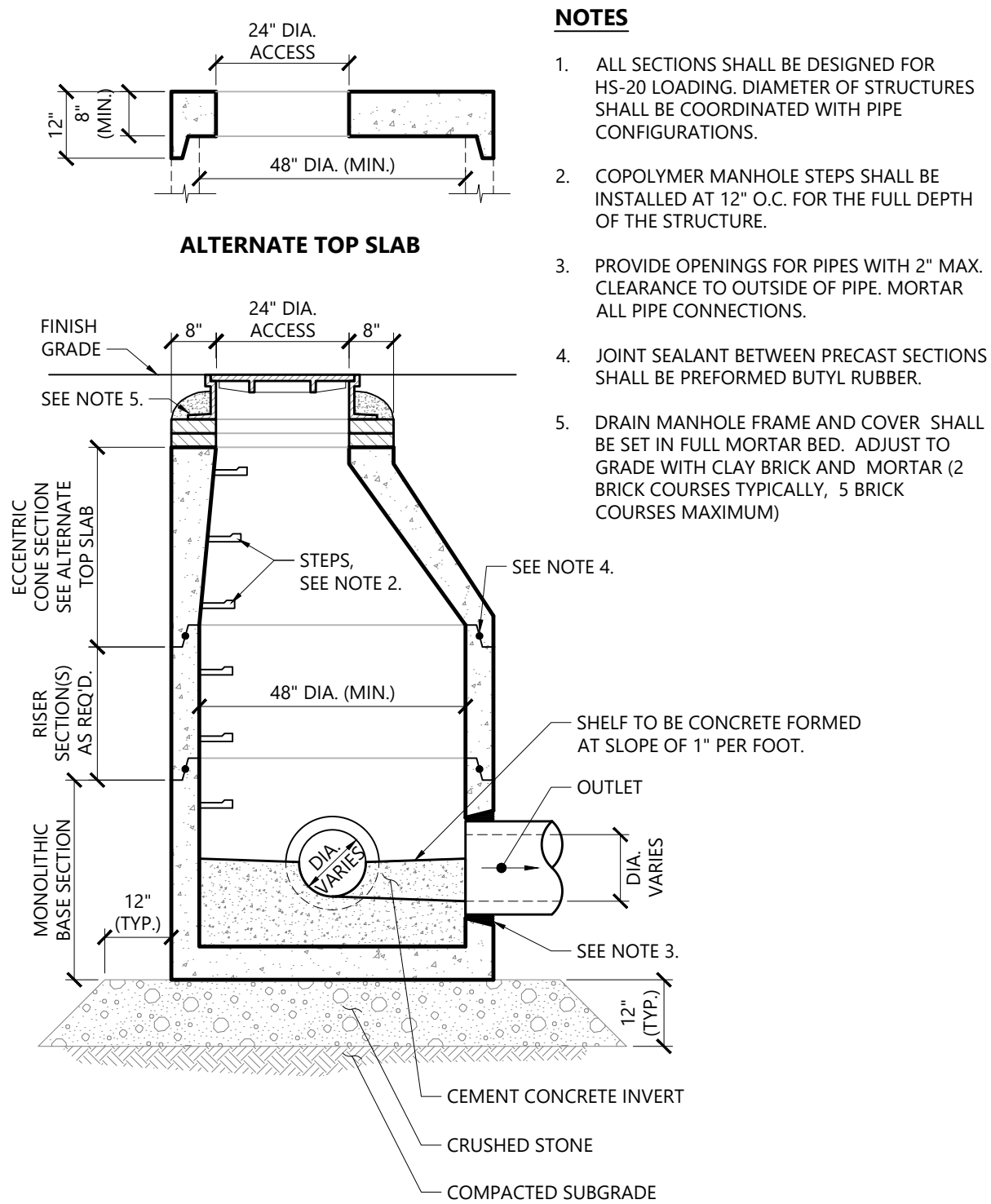
40 IDX Dr  
Building 100 Suite 200  
South Burlington, VT 05403  
802.497.6100



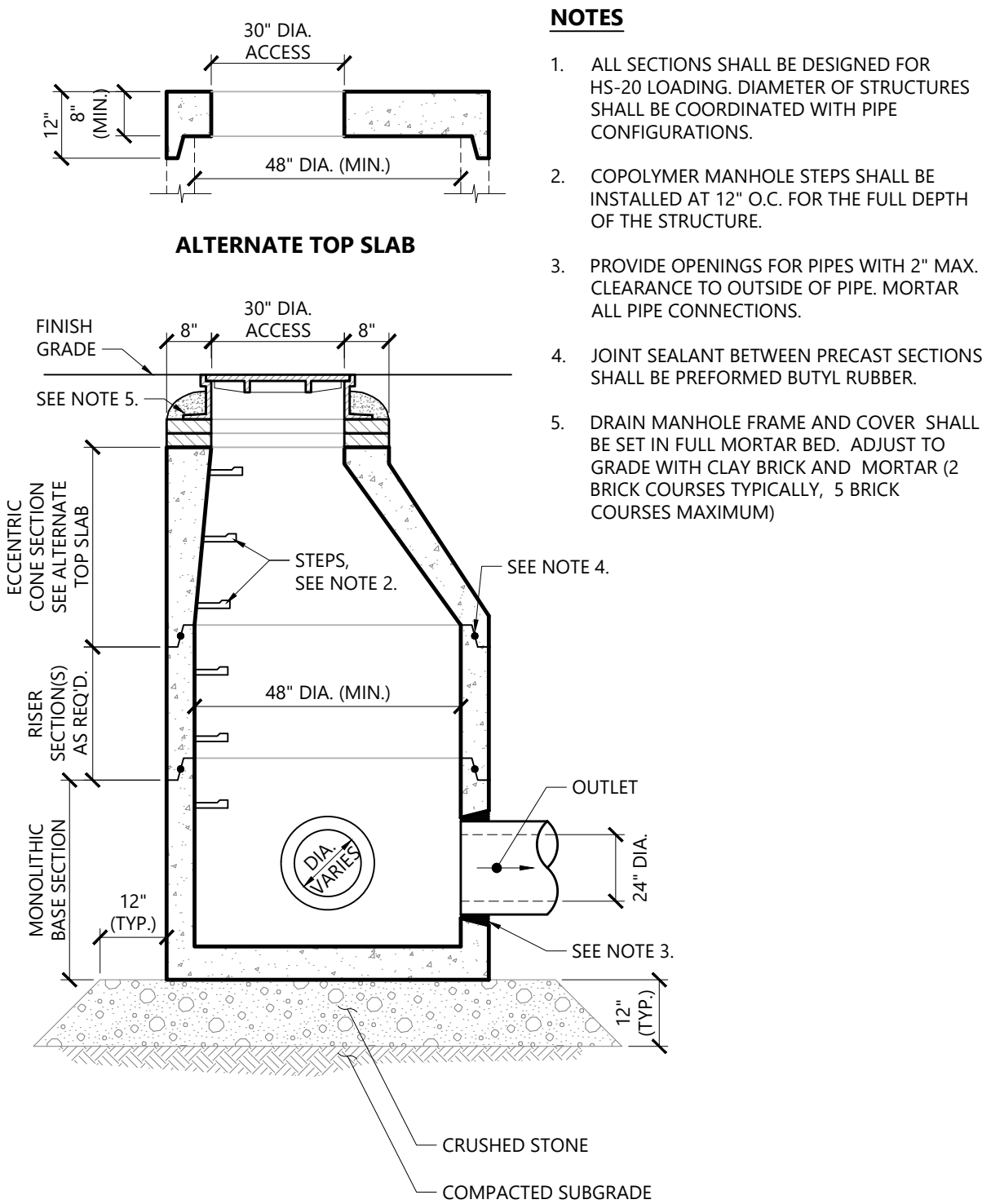
Catch Basin (CB) 1/16  
N.T.S. Source: VHB LD\_100



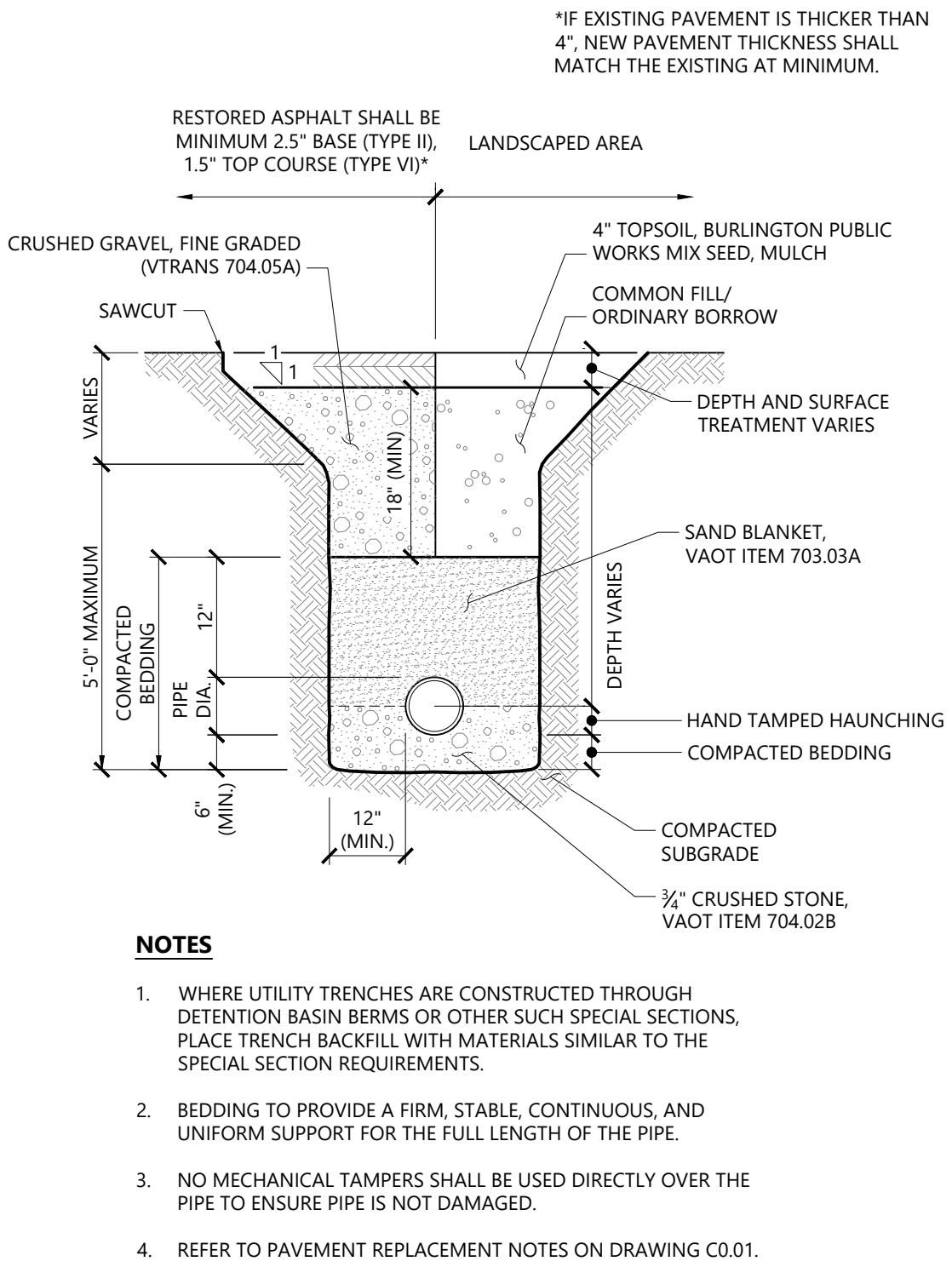
Catch Basin with Internal Diversion Weir 3/22  
N.T.S. Source: VHB LD\_100



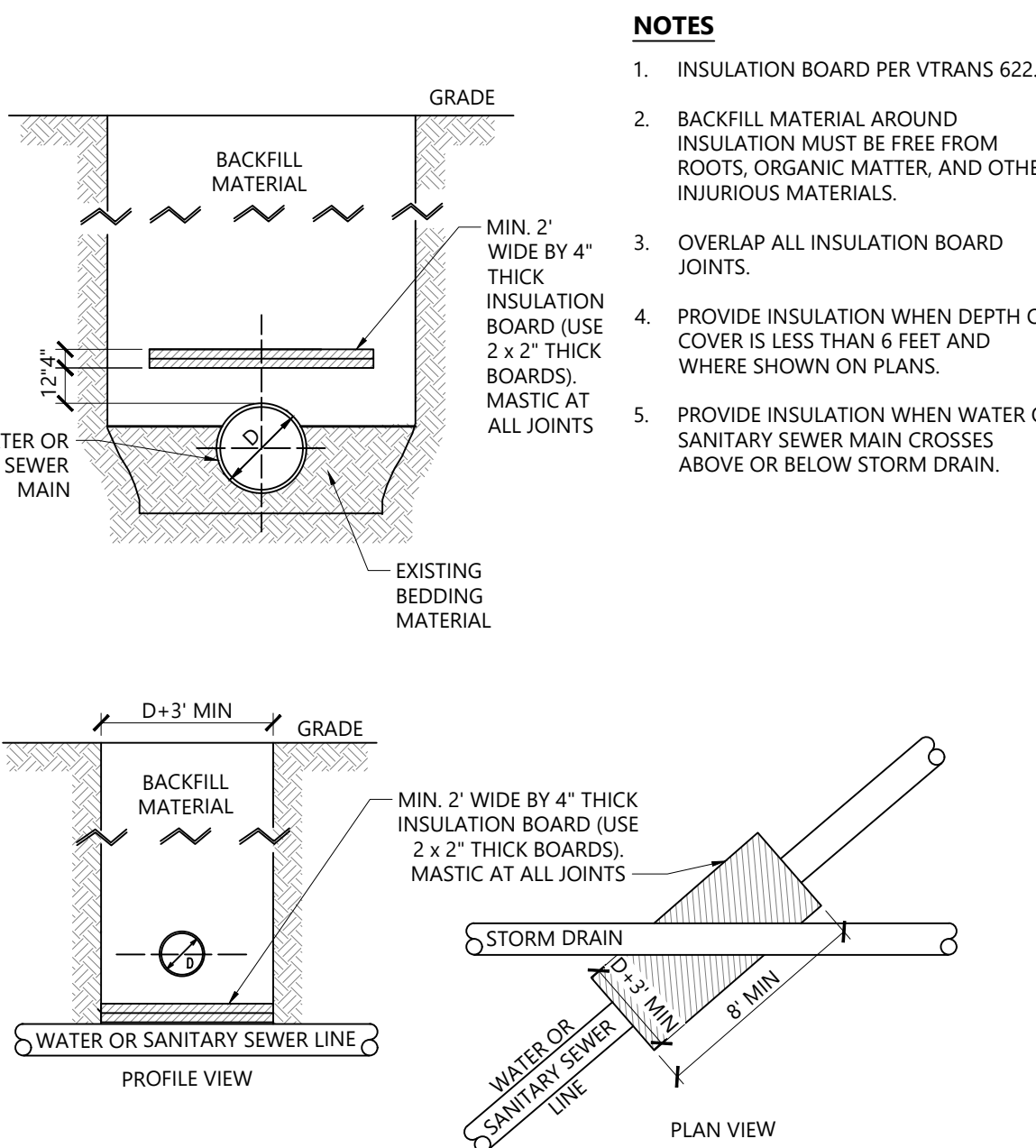
Drain Manhole (DMH) 1/16  
N.T.S. Source: VHB LD\_115



Maintenance Access Manhole 3/22  
N.T.S. Source: VHB LD\_115



Storm Drain Trench 1/16  
N.T.S. Source: VHB LD\_



Pipe Isulation 03/22  
N.T.S. Source: VHB LD\_

## Burlington ONE Stormwater Retrofits

Burlington, VT 05401

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Issued for		Date	April 14, 2022

Not Approved for Construction

Site Details

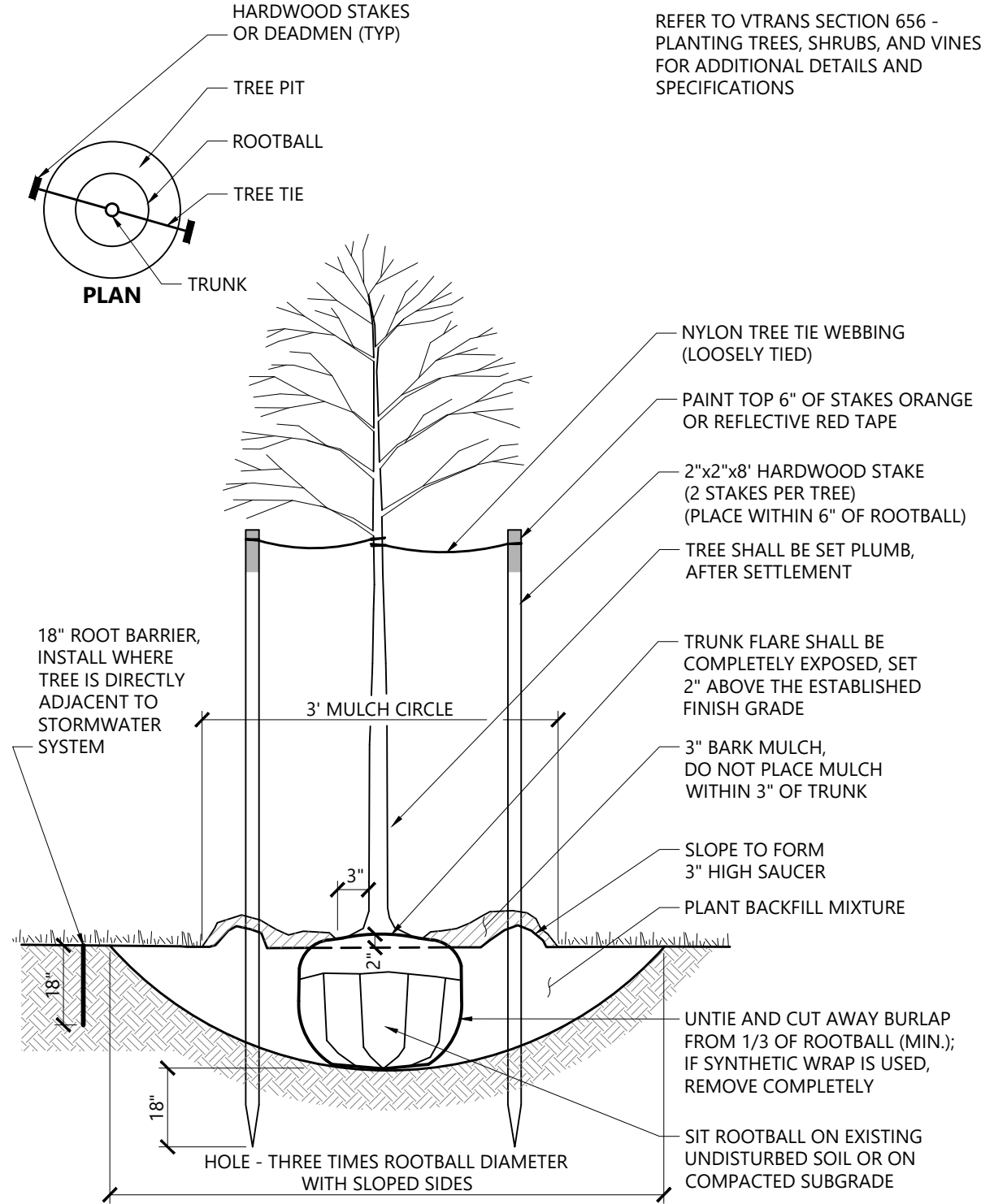
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C5.01

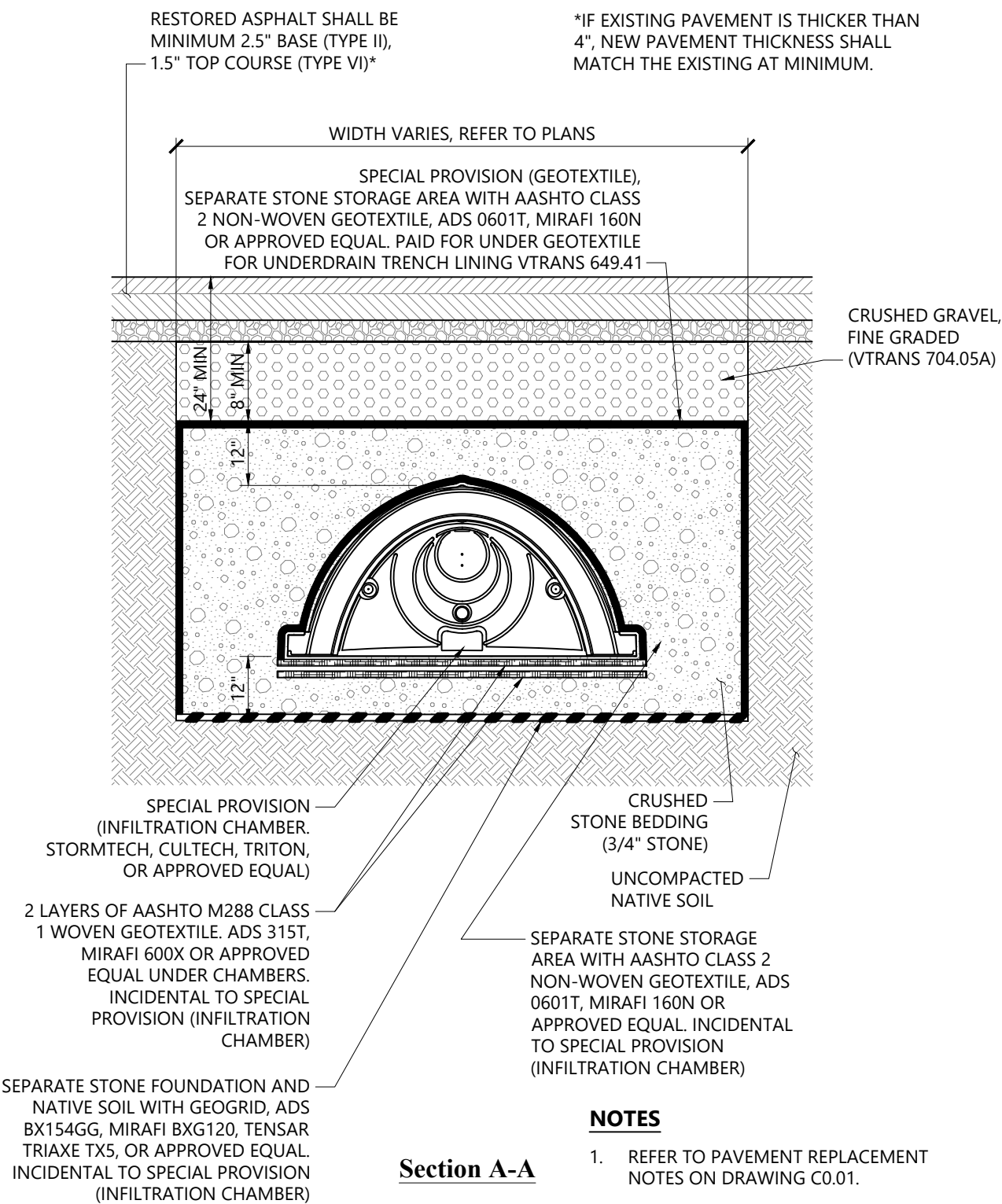
Sheet of  
21 23

Project Number  
58126.02

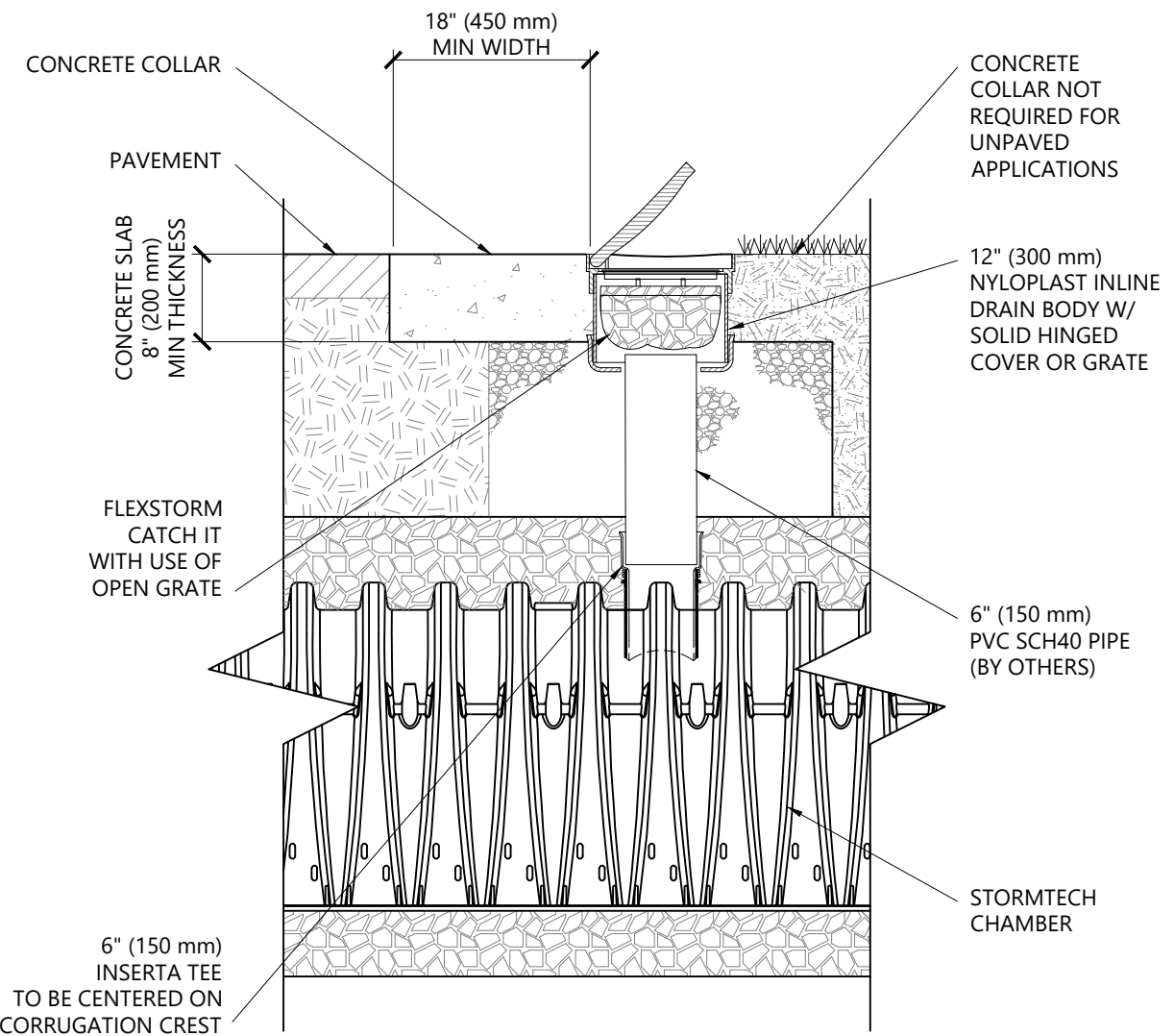




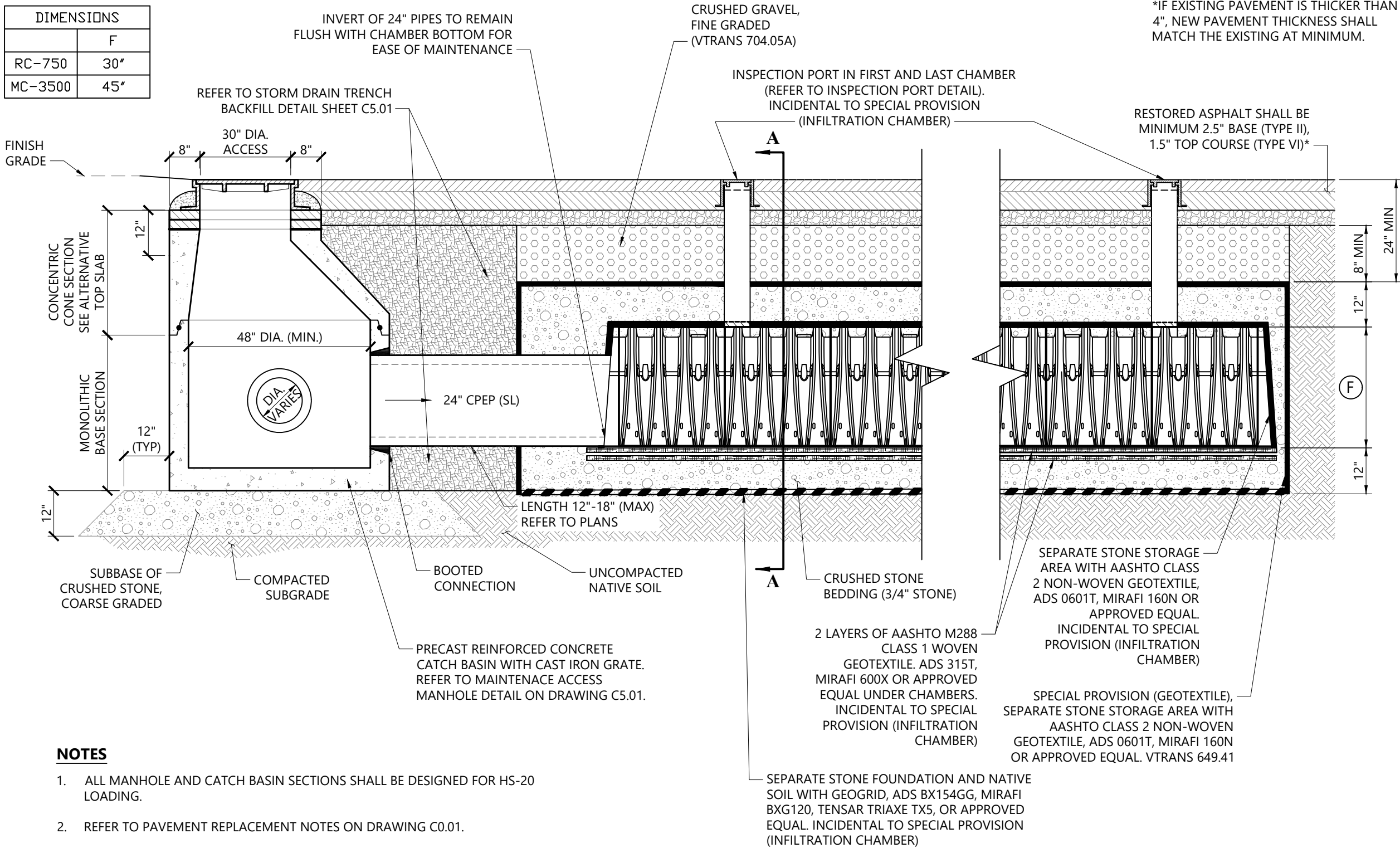
**Tree Planting (For Trees Under 4" Caliper)** 3/22  
N.T.S. Source: VHB REV LD\_602



**Infiltration Chamber Section** 3/22  
N.T.S. Source: VHB LD\_



**Stormtech 6" Inspection Port Detail** 1/17  
N.T.S. Source: VHB LD\_



**Typical Profile - Infiltration Chamber** 3/22  
N.T.S. Source: VHB LD\_

## Burlington ONE Stormwater Retrofits

Burlington, VT 05401

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Bid

Not Approved for Construction

Drawing Title

## Site Details

Drawing Number

# C5.02

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Project Number  
58126.02



