



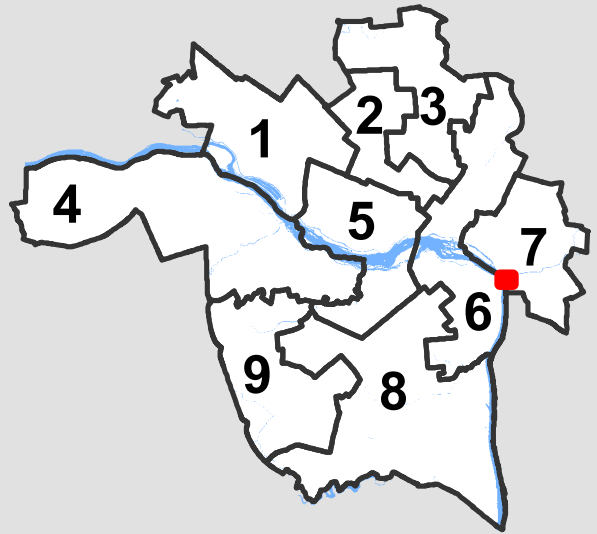
City of Richmond Department of Planning & Development Review

Location, Character, and Extent

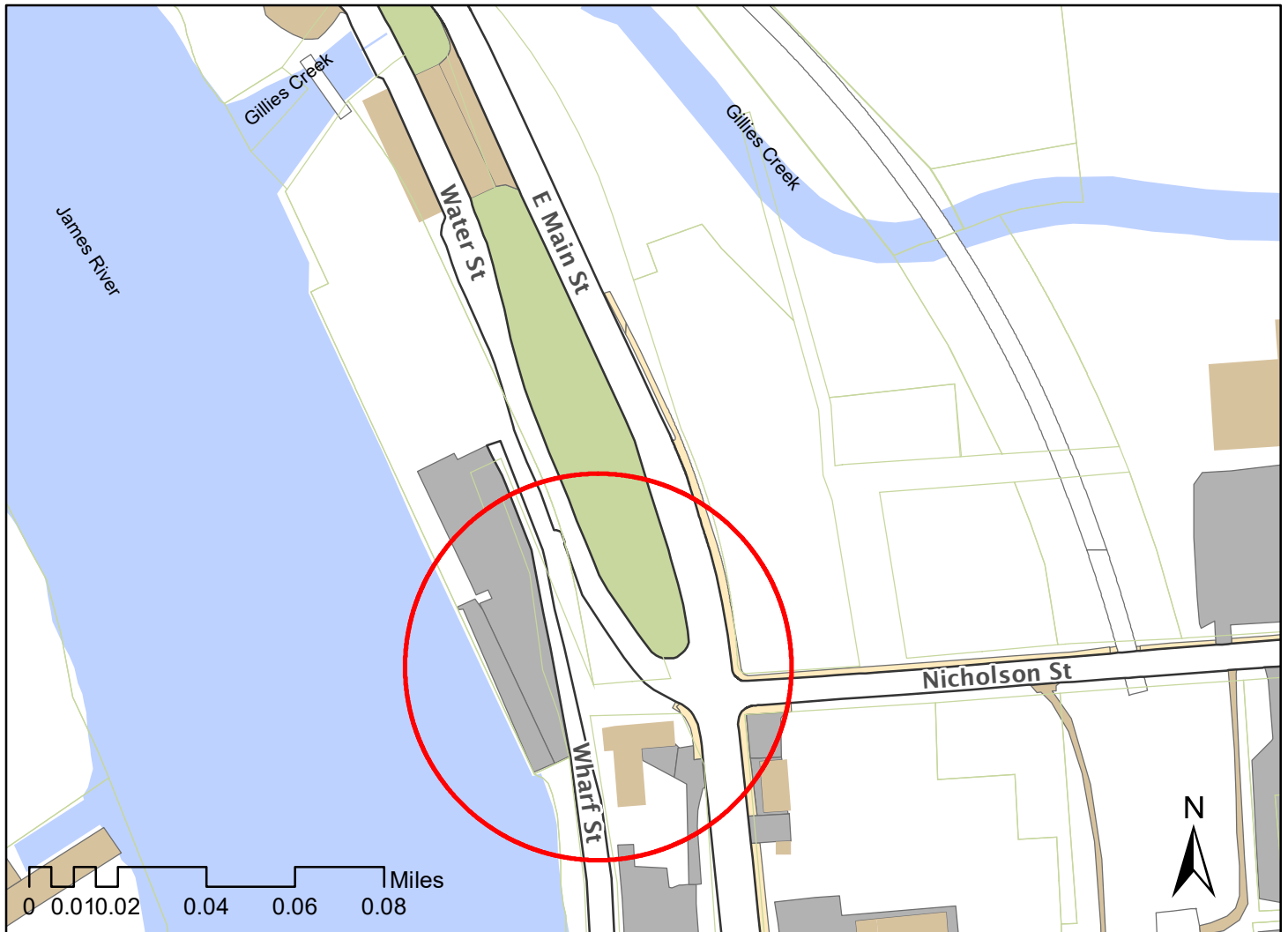
LOCATION: 3101 Wharf St.

COUNCIL DISTRICT: 7

PROPOSAL: Final location, character, and extent review of a self-contained, pre-cast concrete restroom facility within the footprint of the existing Intermediate Terminal Dock site.



*For questions, please contact Josh Son
at 646-3741 or joshua.son@richmondgov.com*





Application for URBAN DESIGN COMMITTEE Review

Department of Planning and Development Review
Planning & Preservation Division
900 E. Broad Street, Room 510
Richmond, Virginia 23219
(804) 646-6335

<http://www.richmondgov.com/CommitteeUrbanDesign>

Application Type

- Addition/Alteration to Existing Structure
 New Construction
 Streetscape
 Site Amenity

- Encroachment
 Master Plan
 Sign
 Other

Review Type

- Conceptual
 Final

Project Name: _____

Project Address: _____

Brief Project Description (this is not a replacement for the required detailed narrative) : _____

Applicant Information

(on all applications other than encroachments, a City agency representative must be the applicant)

Name: _____ Email: _____

City Agency: _____ Phone: _____

Address: _____

Main Contact (if different from Applicant): _____

Company: _____ Phone: _____

Email: _____

Submittal Deadlines

All applications and support materials must be filed no later than 21 days prior to the scheduled meeting of the Urban Design Committee (UDC). Please see the schedule on page 3 as actual deadlines are adjusted due to City holidays. **Late or incomplete submissions will be deferred to the next meeting.**

Filing

Applications can be mailed or delivered to the attention of "Urban Design Committee" at the address listed at the top of this page. **It is important that the applicant discuss the proposal with appropriate City agencies, Zoning Administration staff, and area civic associations and residents prior to filing the application with the UDC.**

UDC Background

The UDC is a ten member committee created by City Council in 1968 whose purpose is to advise the City Planning Commission on the design of projects on City property or right-of-way. The UDC provides advice of an aesthetic nature in connection with the performance of the duties of the Commission under Sections 17.05, 17.06 and 17.07 of the City Charter. The UDC also advises the Department of Public Works in regards to private encroachments in the public right-of-way.



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Submission Requirements

- 10 copies of the application cover sheet and all support materials (see below), unless the application is for an encroachment, in which case only 6 copies are required. Plan sheets should be 11" x 17", folded to 8 1/2" x 11". If it is not possible to scale plans to these dimensions, please provide one set of larger, scaled plans.
- An electronic copy (PDF preferred) of all application materials, which can be burned to disc, emailed, or delivered by FTP.

All applications must include the attached cover sheet and the following support materials, as applicable to the project:

For Conceptual Review

- A detailed project narrative which includes the following: purpose of the project, project background, project budget and funding sources, description of construction program and estimated construction start date (description should also provide information on the surrounding area to provide context).
- A site plan for the project indicating site characteristics which include: building footprints, parking areas, pedestrian routes, recreation areas, open areas and areas of future expansion.
- A set of floor plans and elevations, as detailed as possible.
- A landscaping plan which shows the general location and character of plant materials and notes any existing tree to be removed.

For Final Review

- A detailed project narrative which includes the following: purpose of the project, project background, project budget and funding sources, description of construction program and estimated construction start date (description should also provide information on the surrounding area to provide context).
- A site plan for the project indicating site characteristics which include: building footprints, parking areas, pedestrian routes, recreation areas, open areas and areas of future expansion.
- A set of floor plans and elevations, as detailed as possible.
- A landscaping plan that includes a complete plant schedule, the precise location of all plant materials, and a landscape maintenance analysis. The plant schedule must show number, size and type of each planting proposed. If existing trees are to be removed, their size, type and location must be noted on the landscape plan.
- The location of all lighting units should be noted on a site plan, including wall-mounted, site and parking lot lighting. Other site details, such as benches, trash containers and special paving materials, should also be located. Include specification sheets for each item.
- Samples of all proposed exterior building materials, including but not limited to brick, mortar, shingles, siding, glass, paint and stain colors. When an actual sample cannot be provided, a product information sheet that shows the item or a photo of an existing item may be substituted.

Review and Processing

Once an application is received, it is reviewed by staff, who compiles a report that is sent to the UDC. A copy of the report and the meeting agenda will be sent to the applicant prior to the meeting. The applicant or a representative should be present at the UDC meeting or the application may be deferred to the next regularly scheduled meeting. It is also strongly suggested that a representative of the City Agency which will have final responsibility for the item be present at the meeting (if the applicant and the representative are not the same). Once the UDC recommends action on the application, it is automatically placed on the agenda for the next City Planning Commission (CPC) meeting. An exception to this is encroachment applications, recommendations for which are forwarded to the Department of Public Works. The applicant or a representative must be present at the CPC meeting or the application may be deferred to the next regularly scheduled meeting.

CITY OF RICHMOND URBAN DESIGN COMMITTEE (UDC)

MEETING SCHEDULE

UDC Meetings	UDC Submission Deadlines	Anticipated Date of Planning Commission Following the UDC Meeting
December 7, 2017	November 9, 2017	December 18, 2017
January 4, 2018	December 7, 2017**	January 16, 2018 ¹
February 8, 2018	January 18, 2018	February 20, 2018 ²
March 8, 2018	February 15, 2018	March 19, 2018
April 5, 2018	March 15, 2018	April 16, 2018
May 10, 2018	April 19, 2018	May 21, 2018
June 7, 2018	May 17, 2018	June 18, 2018
July 5, 2018	June 14, 2018	July 16, 2018
August 9, 2018	July 19, 2018	August 20, 2018 ³
September 6, 2018	August 16, 2018	September 17, 2018
October 4, 2018	September 13, 2018	October 15, 2018
November 8, 2018	October 18, 2018	November 19, 2018
December 6, 2018	November 15, 2018*	December 17, 2018 ⁴

¹ Monday, January 15, 2018 is a City of Richmond Holiday.

² Monday, February 19, 2018 is a City of Richmond Holiday.

³ This August CPC Meeting may be canceled. If so, Planning Commission hearing would be Tuesday, September 4, 2018.

⁴ This December CPC Meeting may be canceled. If so, Planning Commission hearing would be Monday, January 7, 2019.

** Moved forward to account for Winter Holiday Schedule

The Richmond Urban Design Committee (UDC) is a ten member advisory committee created by City Council in 1968. Its purpose is to advise the City Planning Commission on the design of City projects. The UDC reviews projects for appropriateness in "location, character and extent" and for consistency with the City's Master Plan and forwards recommendations to the Planning Commission. The UDC also advises the Department of Public Works in regards to private encroachments in the public right-of-way.

Regular meetings are scheduled for the Thursday after the first Monday of each month at 10:00 a.m. in the 5th floor conference room of City Hall. Special meetings are scheduled as needed.

For additional information, please contact the Planning and Preservation Division staff at (804) 646-3741 or joshua.son@richmondgov.com.

Intermediate Terminal Dock Phase 2 – Public Restroom Facility Installation

Project Purpose:

- Intermediate Terminal is the primary opportunity for the City, along the James River, to develop commercial passenger, tourist and City resident interaction with the deep water portions of the river. The Riverfront Development Master Plan has highlighted the Intermediate Terminal Dock area as one that provides the citizens of the City of Richmond a place to enjoy the James River through boating, fishing and other activities. There are currently no public restroom facilities anywhere along this area of the riverfront. In addition, there are no public restroom facilities provided for anyone utilizing the Capital Trail in this area.
- As part of the proposed “Intermediate Terminal Dock Phase 2 – Public Access” project, the city is proposing to install a pre-cast concrete restroom facility within the footprint of the existing Intermediate Terminal Dock site. This restroom facility will serve individuals coming to the dock for passenger cruise ship departures and for those utilizing the Capital Trail and the dock area for recreational purposes.

Project Background:

- The city proposes to install a self-contained, pre-cast concrete restroom facility within the footprint of the existing Intermediate Terminal Dock site.
- The proposed restroom will measure, approximately, 12 ft x 22 ft and consist of a Men’s and Women’s restroom facility
- Each facility will contain 2 stalls and 1 sink. Additionally the facility will provide a water fountain for public use.
- The restroom facilities are proposed to be open during the normal operating hours established by the City’s Parks and Recreation department.

Project Budget:

- The current budget for this project is set at \$81,849. This funding was applied for and received via the “VPA aid to Local Ports” grant program.

Estimated Construction Start Date:

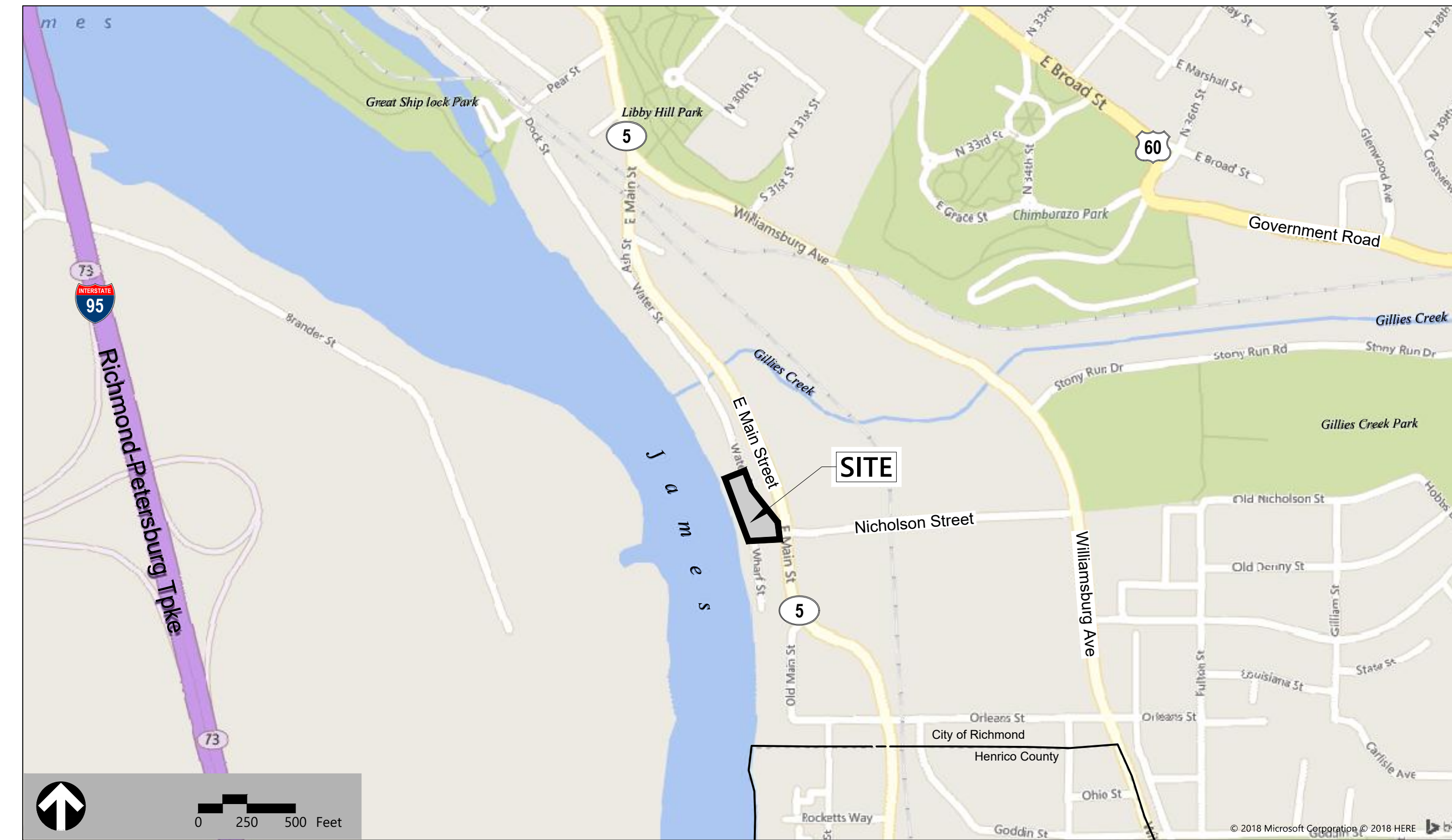
- The proposed start date for this Phase of the project is September, 2018. The project must be underway by December, 2018 in order to qualify for the use of the VPA to Local Port grant program.

Site Plans

Issued for	Permits
Date Issued	February 2, 2018
Latest Issue	June 22, 2018

Intermediate Terminal Dock Phase 2 - Public Access

3101 Wharf Street
Richmond, Virginia



115 South 15th Street
Suite 200
Richmond, VA 23219
804.343.7100

Owner

City of Richmond
Department of Public Works
900 East Broad Street, Suite 602
Richmond, Virginia 23219
804.646.6614

Applicant

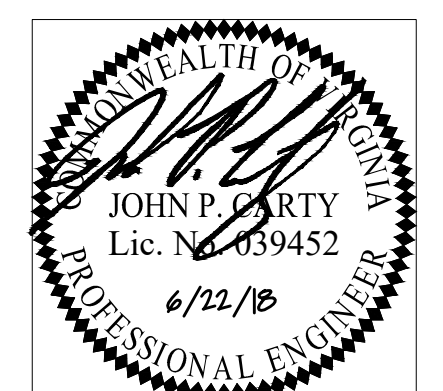
VHB
115 South 15th Street, Suite 200
Richmond, Virginia 23219
804.343.7100

Parcel: E0000817001

Zoning: M-2, Heavy Industrial

Sheet Index

No.	Drawing Title	Latest Issue
C1.01	Legend and General Notes	June 22, 2018
C2.01	Existing Conditions Plan	June 22, 2018
C2.02	Demolition and Erosion and Sediment Control Plan Phase 1	June 22, 2018
C3.01	Layout and Materials Plan	June 22, 2018
C3.02	Utility Plan	June 22, 2018
C4.01	Grading and Drainage Plan	June 22, 2018
C5.01	Erosion and Sediment Control Plan Phase 2	June 22, 2018
C5.02	Erosion Control Notes	June 22, 2018
C5.03	City of Richmond Pollution Prevention Plan	June 22, 2018
C5.04	Erosion Control Details	June 22, 2018
C6.01-C6.05	Details	June 22, 2018
C7.01	Calculations and Profiles	June 22, 2018
C8.01	Drainage Area Maps	June 22, 2018





115 South 15th Street
Suite 200
Richmond, VA 23219
804.343.7100

Legend table with columns for Exist. and Prop. symbols and descriptions for various site features like Property Line, Pavement, Utilities, and Landmarks.

Abbreviations table with columns for General and symbols for items like Catch Basin, Sewer Manhole, and various pipes.

Notes table with a General section and a list of 11 detailed construction notes regarding utility work, excavation, and pavement standards.

Notes table with sections for Geotechnical Notes, Road Subgrade, Construction Notes, Utilities, and Pavement Design, each containing specific technical instructions.

Intermediate Terminal
Phase 2 - Public Access

3101 Wharf Street
Richmond, Virginia

Table with columns: No., Revision, Date, Apprd.

Designed by: [Signature] Checked by: [Signature]
Issued for: [Signature] Date: [Signature]

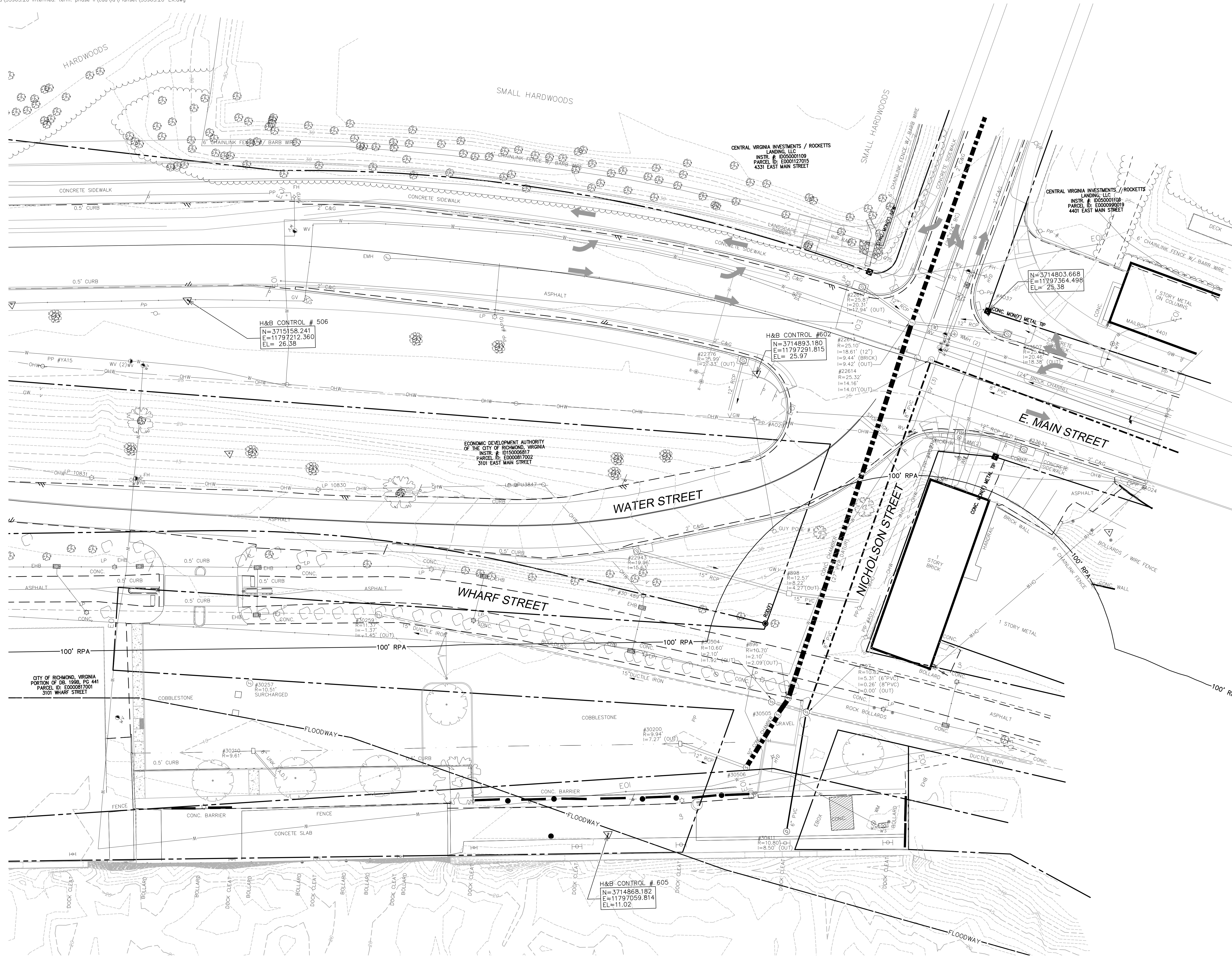
Permitting June 22, 2018

Legend and General Notes table with columns for Drawing Title, Description, and Drawing Number.

Professional Engineer seal for JOHN P. BARTY, Lic. No. 039452, dated 6/22/18, and a large 'C1.01' sheet number.

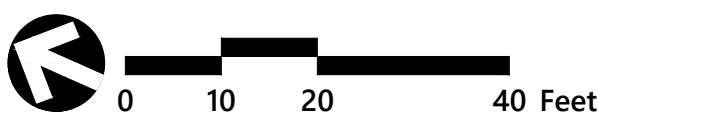


115 South 15th Street
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- H&B NOTES**
- INVERTS FOR PIPES AND STRUCTURES SHOWN HEREON ARE BASED ON FIELD MEASUREMENTS. HOWEVER THEY SHOULD BE VERIFIED PRIOR TO CONSTRUCTION.
 - PIPE SIZES, MATERIAL TYPE AND INVERT ELEVATIONS AS INDICATED ARE BASED UPON OBSERVATIONS MADE ABOVE GROUND. NO MEASUREMENTS HAVE BEEN PERFORMED BY PERSONNEL IN A CONFINED SPACE SITUATION.
 - EXISTING GROUND SURFACE LOCATION PERFORMED BY CONVENTIONAL INSTRUMENT SURVEY.
 - HORIZONTAL (NAD 83) AND VERTICAL (NAVD 83) DATUM ESTABLISHED THROUGH REAL TIME KINEMATIC (RTK) GPS OBSERVATIONS ON SEPTEMBER 28, 2016. DIFFERENTIAL CORRECTIONS WERE DERIVED FROM NATIONAL GEODETIC SURVEY (NGS) CONTINUALLY OPERATING REFERENCE STATION (CORS) 'LOYS'. COORDINATE VALUES, IF SHOWN HEREON, ARE BASED ON VIRGINIA STATE GRID, SOUTH ZONE.
 - UNDERGROUND UTILITIES WERE DESIGNATED BY ACCUMARK, INC. UTILITY INFORMATION ON THIS DRAWING WILL NEED TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION. INDIVIDUALS ARE REQUIRED BY VIRGINIA LAW TO CONTACT MISS UTILITY OF VIRGINIA AT 1-800-552-7001 (OR 811 2 BUSINESS DAYS, 48 HOURS) PRIOR TO CONSTRUCTION OR EXCAVATION ACTIVITIES.
 - THE PROPERTY SHOWN HEREON FALLS IN THE FOLLOWING FLOOD HAZARD ZONE: "AE (SHADED) - SPECIAL FLOOD HAZARD AREA SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD PLAIN, AND FLOODWAY AREA ZONE AE (HATCHED & SHADED) AS SCALED GRAPHICALLY FROM FEMA FLOOD INSURANCE RATE MAP, MAP NUMBER 510129043E, EFFECTIVE DATE: JULY 16, 2014.
 - PROPERTY LINES SHOWN HEREON TAKEN FROM COURT HOUSE RECORDS AND EVIDENCE OF MONUMENTATION AND OCCUPATION FOUND IN THE FIELD. THIS SURVEY DOES NOT CONSTITUTE A BOUNDARY SURVEY AND WAS PREPARED WITHOUT THE BENEFIT OF A TITLE COMMITMENT. THEREFORE ALL EASEMENTS MAY NOT BE SHOWN ON THIS SURVEY.
 - THIS TOPOGRAPHIC SURVEY WAS COMPLETED UNDER THE DIRECT AND RESPONSIBLE CHARGE OF LESLIE R. BYRNSIDE, L.S. FROM AN ACTUAL GROUND SURVEY MADE UNDER HIS SUPERVISION. THE IMAGERY AND/OR ORIGINAL DATA WAS OBTAINED ON SEPTEMBER 28, 2016. THIS PLAT MAP OR DIGITAL GEOSPATIAL DATA INCLUDING METADATA MEETS MINIMUM ACCURACY STANDARDS UNLESS OTHERWISE NOTED.

- VHB NOTES**
- FEATURES SHOWN AS FADING ARE BASED ON DESIGN DOCUMENTS PROVIDED BY THE OWNER. THESE IMPROVEMENTS WERE NOT INSTALLED AFTER THE GROUND SURVEY AND ARE NOT WARRANTED TO BE EXACT. REFER TO "EAST RIVERFRONT TRANSPORTATION IMPROVEMENT" AND "INTERMEDIATE TERMINAL PARKING LOT IMPROVEMENTS" PLANS. CONTRACTOR SHALL FIELD VERIFY THESE IMPROVEMENTS AND REPORT TO ENGINEER ANY CHANGES.
 - ENVIRONMENTAL BUFFERS SUCH AS THE FLOODWAY AND CHESAPEAKE BAY RESOURCE PROTECTION AREA (RPA) 100' BUFFER SHOWN HERE ARE BASED ON CITY OF RICHMOND GIS.
 - IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PRESERVE ALL EXISTING RIGHT-OF-WAY AND PROPERTY LINE MARKERS. ANY MARKERS DAMAGED OR LOST SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE BY A REGISTERED LICENSED SURVEYOR CERTIFIED TO WORK IN THE COMMONWEALTH OF VIRGINIA. ANY GRADE OR CONTROL STAKES DAMAGED OR LOST SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.



**Intermediate Terminal
Phase 2 - Public Access**
3101 Wharf Street
Richmond, Virginia

No.	Revision	Date	Aspd.

Designed by: _____ Checked by: _____
Issued for: _____ Date: _____
Permitting June 22, 2018

Existing Conditions Plan

Drawing Number: _____
Sheet: **C2.01** of _____
Project Number: **33965.20**

Demolition Notes

- CONTRACTOR SHALL REMOVE AND DISPOSE OF MANMADE SURFACE FEATURES WITHIN THE LIMIT OF WORK AS SHOWN AND NOTED ON THESE PLANS.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED ON THE CITY OF RICHMOND UTILITY INFORMATION, ON-THE-GROUND SURVEY, OWNER OBSERVATIONS, AND FROM SUBILITY CONTRACTOR FIELD DESIGNATIONS. THEY ARE NOT WARRANTED TO BE EXACTLY LOCATED NOR IS IT WARRANTED THAT ALL UNDERGROUND UTILITIES OR OTHER STRUCTURES ARE SHOWN ON THIS PLAN. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS, CONTACT A/E IF ACTUAL CONSTRUCTION VARIES FROM PLANS.
- EXISTING UTILITIES SHALL BE TERMINATED, UNLESS OTHERWISE NOTED, IN CONFORMANCE WITH LOCAL STATE AND INDIVIDUAL UTILITY COMPANY STANDARD SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES.
- CONTRACTOR SHALL DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES.
- THE DEMOLITION LIMITS DEPICTED IN THE PLANS IS INTENDED TO AID THE CONTRACTOR DURING THE BIDDING AND CONSTRUCTION PROCESS AND IS NOT INTENDED TO DEPICT EACH AND EVERY ELEMENT OF DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING THE DETAILED SCOPE OF DEMOLITION BEFORE SUBMITTING ITS BID/PROPOSAL TO PERFORM THE WORK AND SHALL MAKE NO CLAIMS AND SEEK NO ADDITIONAL COMPENSATION FOR CHANGED CONDITIONS OR UNFORESEEN OR LATENT SITE CONDITIONS RELATED TO ANY CONDITIONS DISCOVERED DURING EXECUTION OF THE WORK.
- UNLESS OTHERWISE SPECIFICALLY PROVIDED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER HAS NOT PREPARED DESIGNS FOR AND SHALL HAVE NO RESPONSIBILITY FOR THE PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF HAZARDOUS MATERIALS, TOXIC WASTES OR POLLUTANTS AT THE PROJECT SITE. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY CLAIMS OF LOSS, DAMAGE, EXPENSE, DELAY, INJURY OR DEATH ARISING FROM THE PRESENCE OF HAZARDOUS MATERIAL AND CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE ENGINEER FROM ANY CLAIMS MADE IN CONNECTION THEREWITH. MOREOVER, THE ENGINEER SHALL HAVE NO ADMINISTRATIVE OBLIGATIONS OF ANY TYPE WITH REGARD TO ANY CONTRACTOR AMENDMENT INVOLVING THE ISSUES OF PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF ASBESTOS OR OTHER HAZARDOUS MATERIALS.
- ALL PUBLIC AND PRIVATE UTILITIES TO ADJACENT PROPERTIES, INCLUDING CABLE TV, FIBER OPTIC, GAS, ELECTRICAL, WATER, AND SEWER SERVICES, SHALL BE MAINTAINED AND PROTECTED AT ALL TIMES.
- CONTRACTOR TO PROVIDE COMPLETE MAINTENANCE OF TRAFFIC PLAN IN ACCORDANCE WITH CITY OF RICHMOND STANDARDS. COORDINATE WITH DEPARTMENT OF PUBLIC WORKS.

Erosion Control Quantities*

Item	Unit	Quantity
SAFETY FENCE	L.F.	650
SILT FENCE	L.F.	700
DIVERSION DIKE	L.F.	250
CONSTRUCTION ENTRANCE	EACH	1
STORM DRAIN INLET PROTECTION	EACH	5
TEMPORARY SEEDING	ACRES	0.60
TREE PROTECTION	L.F.	200

* CONTRACTOR TO DETERMINE ACTUAL QUANTITIES. QUANTITIES LISTED ARE FOR BOTH PHASE 1 AND PHASE 2 EROSION CONTROL.



115 South 15th Street
Suite 200
Richmond, VA 23219
804.343.7100

Demolition Legend

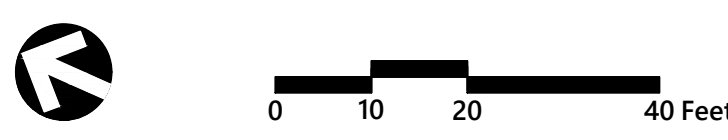
- DEMOLITION LIMITS. REMOVE AND DISPOSE OF EXISTING MANMADE SURFACE FEATURES, INCLUDING BUILDINGS, STRUCTURES, PAVEMENTS, SLABS, CURBING, WALLS, FENCES, UTILITY POLES, SIGNS, ETC., UNLESS OTHERWISE NOTED. REMOVE AND DISPOSE OF FOUNDATIONS AND UNSUITABLE MATERIAL PER DRAWINGS AND SPECIFICATIONS.
- TREE, UTILITY POLES, AND OTHER STRUCTURES TO BE REMOVED
- LIMITS OF WORK
- UTILITY TO BE REMOVED
- UTILITY TO BE ABANDONED IN PLACE ACCORDING TO CITY OF RICHMOND STANDARDS

Erosion Control Legend

- LIMITS OF WORK
- NATURAL DRAINAGE DIVIDE
- 3.01 - TEMPORARY CHAIN LINK SAFETY FENCE, MIN. 6' HEIGHT
- 3.02 - CONSTRUCTION ENTRANCE
- 3.05 - SILT FENCE
- 3.09 - TEMPORARY DIVERSION DIKE
- 3.07 - STORM DRAIN INLET PROTECTION
- 3.31 - TEMPORARY SEEDING
- 3.32 - PERMANENT SEEDING
- 3.38 - TREE PROTECTION FENCING

Soils Legend

- SOIL DIVIDE
- SOIL UNIT TYPE, PER USDA NATURAL RESOURCES CONSERVATION SOIL MAP HYDROLOGIC SOIL GROUP



Intermediate Terminal Phase 2 - Public Access
3101 Wharf Street
Richmond, Virginia

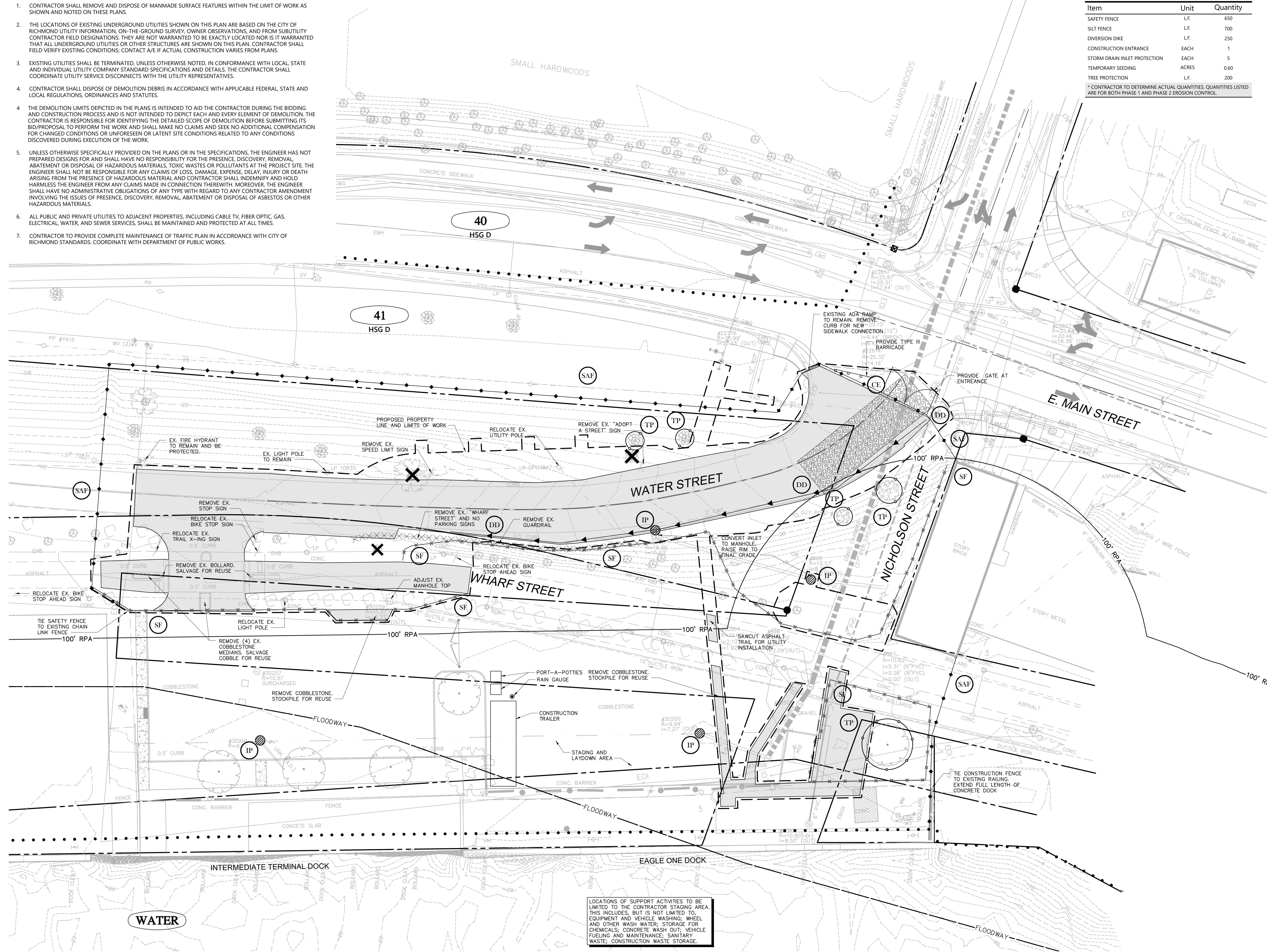
No.	Revision	Date	Aspd.

Designed by: _____ Checked by: _____
Issued for: **Permitting** Date: **June 22, 2018**

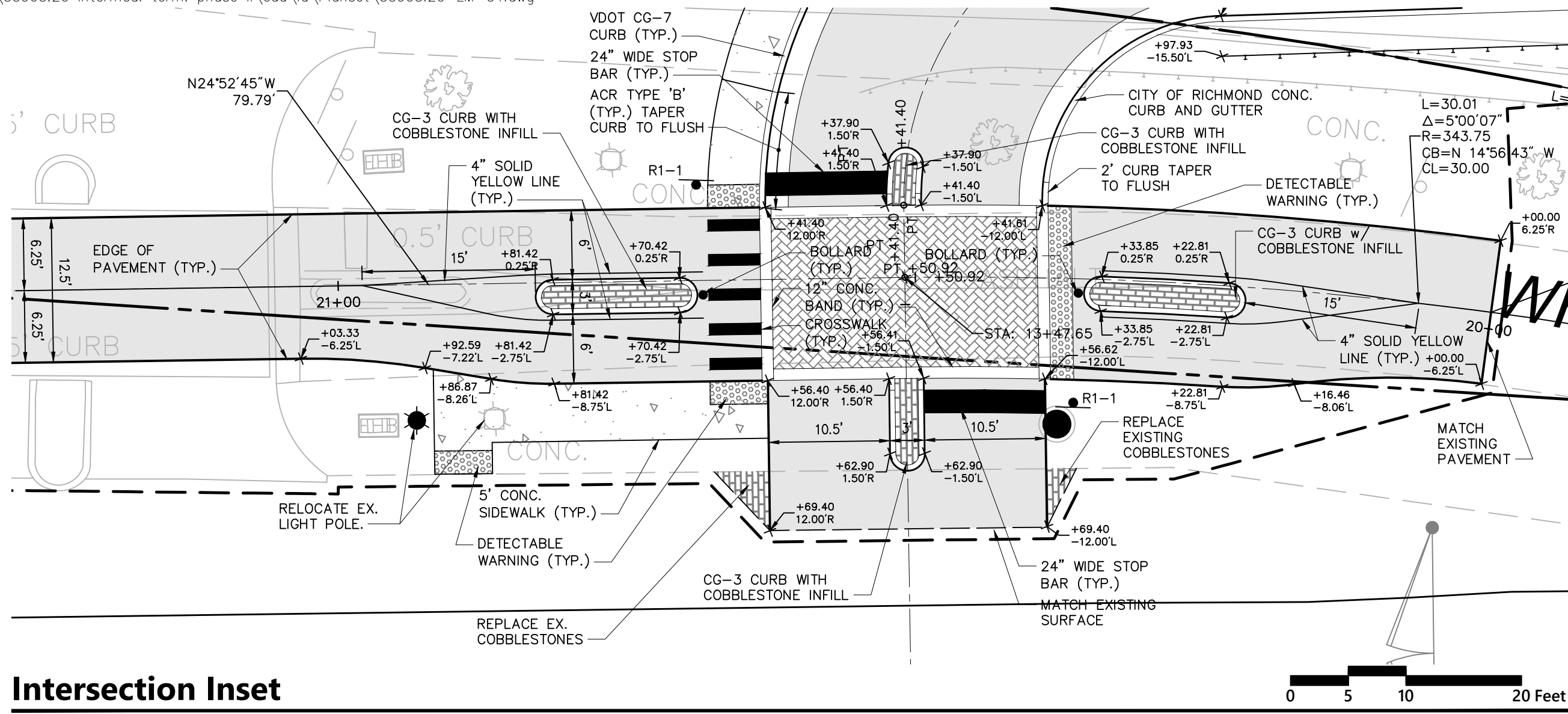
Demolition and Erosion and Sediment Control Plan Phase 1

Drawing Number: _____

C2.02
 Sheet of _____
 Project Number: **33965.20**



LOCATIONS OF SUPPORT ACTIVITIES TO BE LIMITED TO THE CONTRACTOR STAGING AREA. THIS INCLUDES, BUT IS NOT LIMITED TO, EQUIPMENT AND VEHICLE WASHING; WHEEL AND OTHER WASH WATER; STORAGE FOR CHEMICALS; CONCRETE WASH OUT; VEHICLE FUELING AND MAINTENANCE; SANITARY WASTE; CONSTRUCTION WASTE STORAGE.

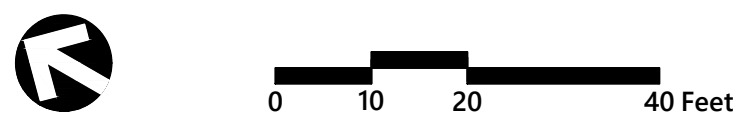


Pavement Legend

	ASPHALT PAVEMENT
	CONCRETE SIDEWALK
	VEHICULAR RATED BRICK CROSSING
	COBBLESTONE

Sign Summary

MUTCD Number	Height	Width	Description
R1-1	30"	2'-6"	
R2-1	30"	24"	



**Intermediate Terminal
Phase 2 - Public Access**

3101 Wharf Street
Richmond, Virginia

No. Revision Date Aspd.

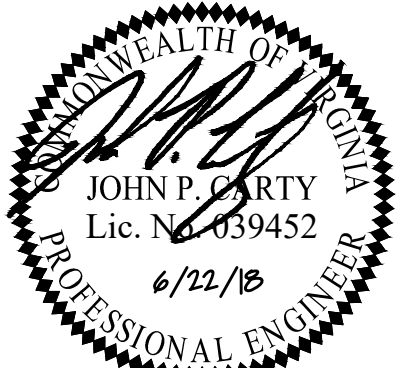
Designed by _____ Checked by _____

Issued for _____ Date _____

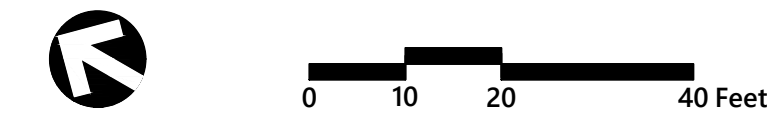
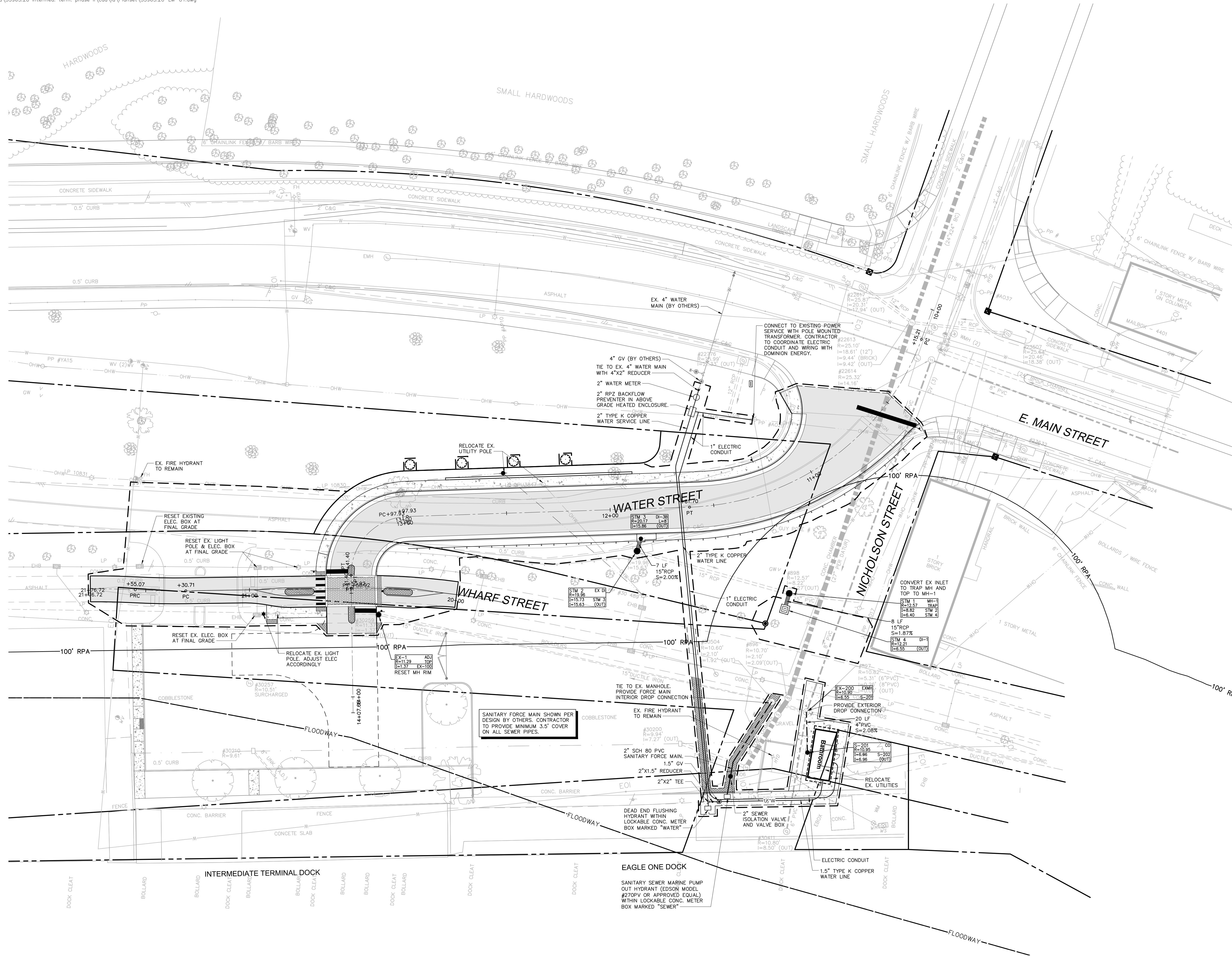
Permitting June 22, 2018

Layout and Materials Plan

Drawing Number
C3.01
Sheet _____ of _____



Project Number
33965.20



Intermediate Terminal Phase 2 - Public Access

3101 Wharf Street
Richmond, Virginia

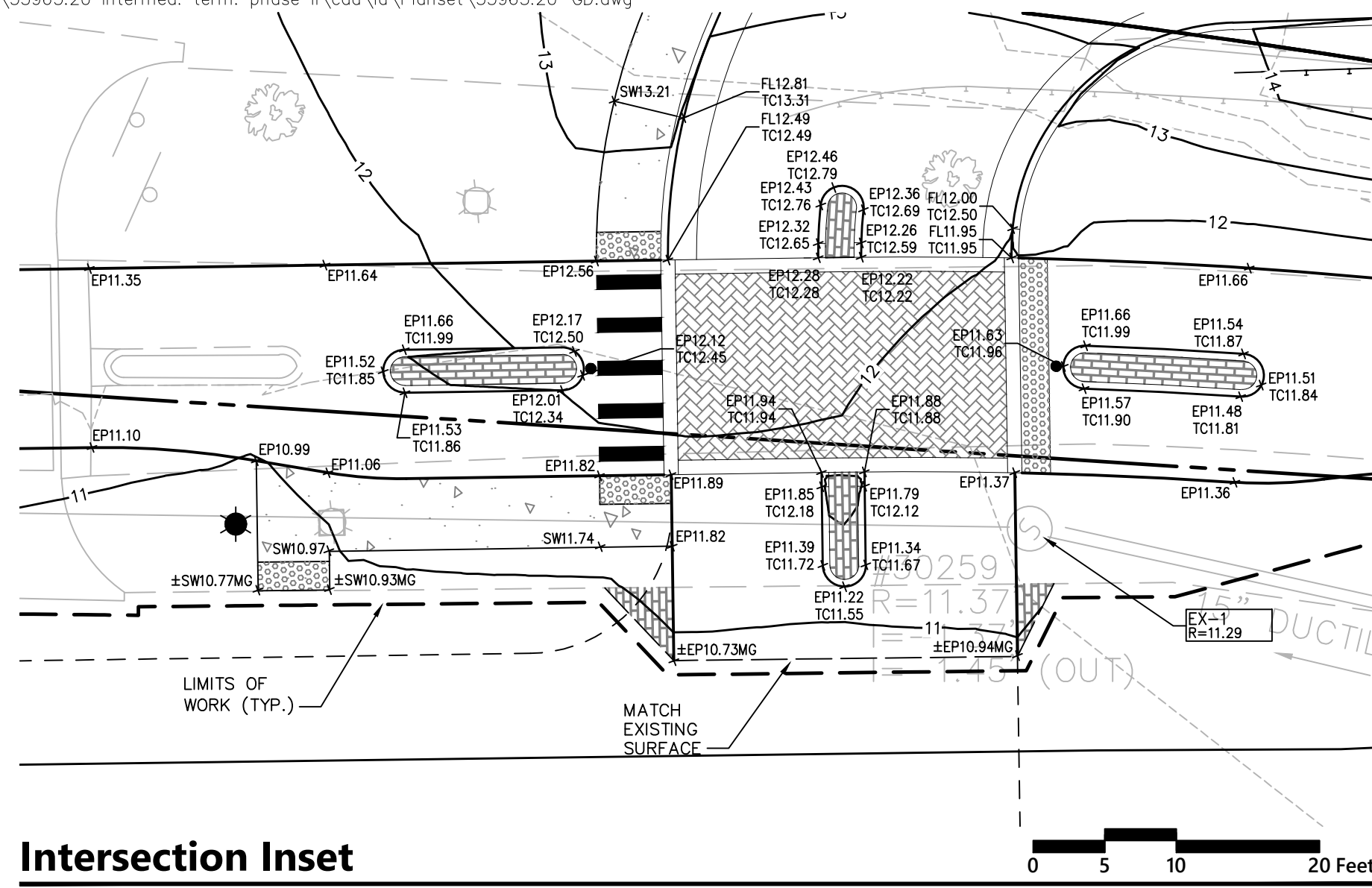
No.	Revision	Date	Aspd.

Designed by: _____ Checked by: _____
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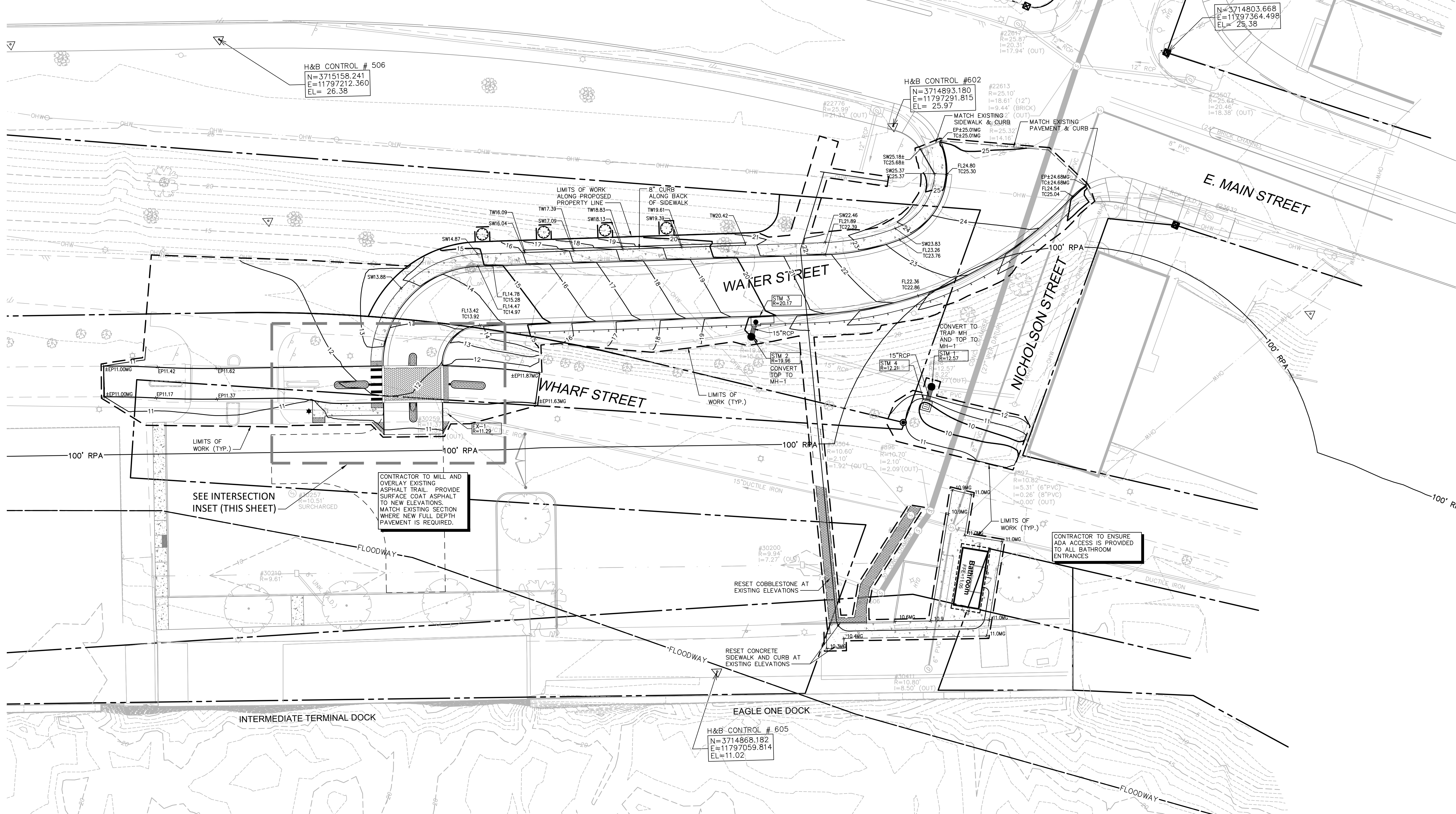
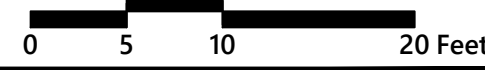
Utility Plan

Drawing Number: _____
C3.02
 Sheet _____ of _____
 Project Number: 33965.20

Saved Friday, June 22, 2018 4:28:47 PM CVAUGHAN Plotted Friday, June 22, 2018 4:51:14 PM Vaughan, Charlie



Intersection Inset



H&B CONTROL # 506
N=3715158.241
E=11797212.360
EL= 26.38

H&B CONTROL #602
N=3714893.180
E=11797291.815
EL= 25.97

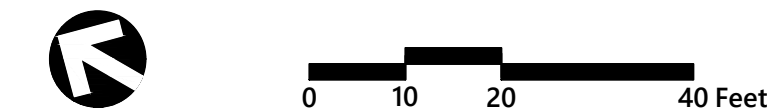
N=3714803.668
E=11797364.498
EL= 25.38

H&B CONTROL # 605
N=3714868.182
E=11797059.814
EL=11.02

SEE INTERSECTION
INSET (THIS SHEET)

CONTRACTOR TO MILL AND
OVERLAY EXISTING
ASPHALT TRAIL. PROVIDE
SURFACE COAT ASPHALT
TO NEW ELEVATIONS.
MATCH EXISTING SECTION
WHERE NEW FULL DEPTH
PAVEMENT IS REQUIRED.

CONTRACTOR TO ENSURE
ADA ACCESS IS PROVIDED
TO ALL BATHROOM
ENTRANCES



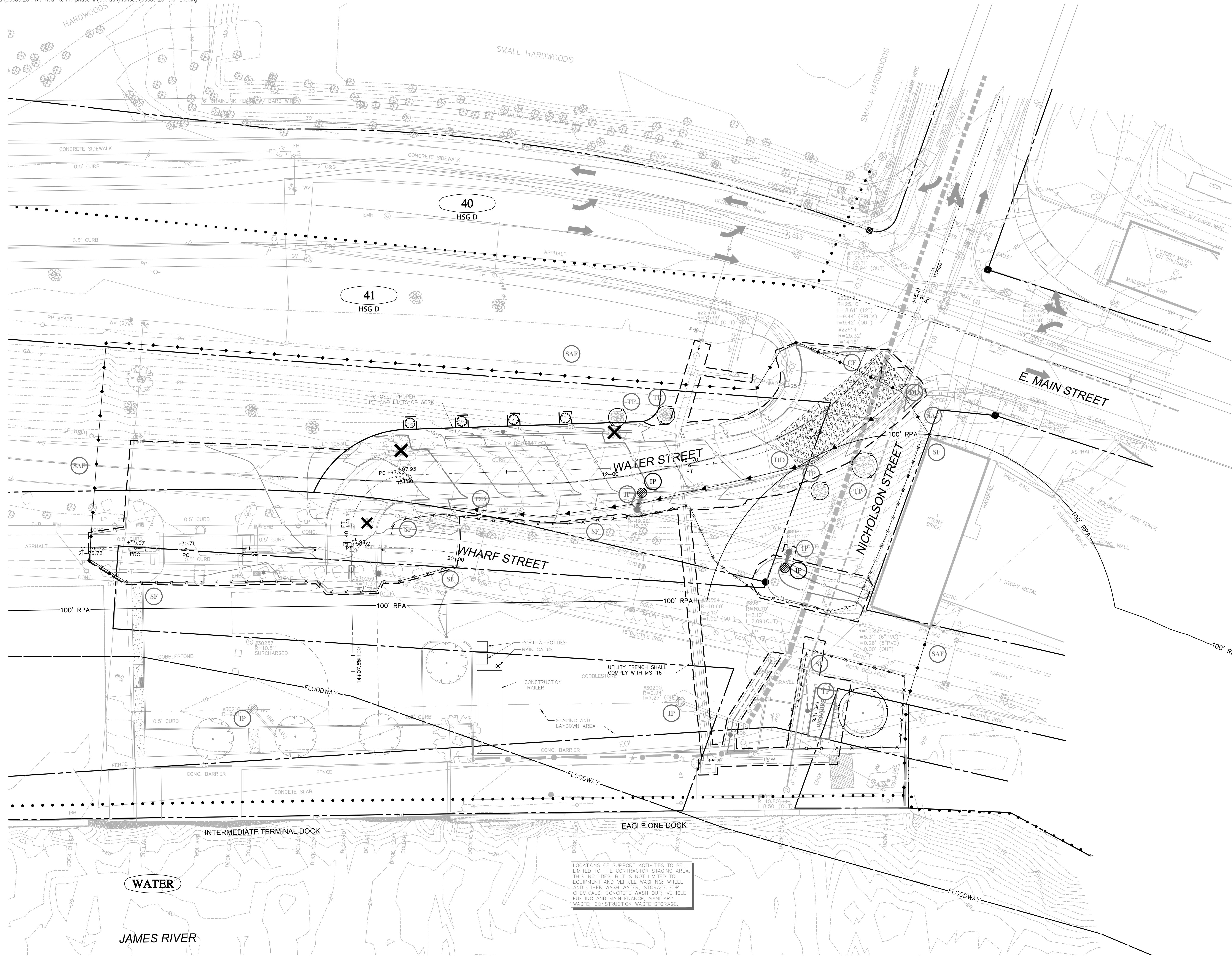
Intermediate Terminal
Phase 2 - Public Access
3101 Wharf Street
Richmond, Virginia

No.	Revision	Date	Aspd.

Designed by: _____ Checked by: _____
 Issued for: _____ Date: _____
 Permitting June 22, 2018

Grading and Drainage Plan

Drawing Number: _____
C4.01
 Sheet _____ of _____
 Project Number: 33965.20

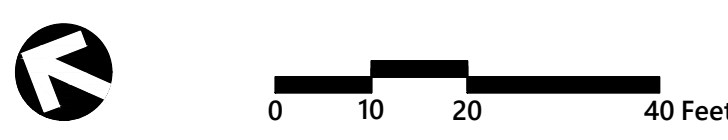


Erosion Control Legend

- LIMITS OF WORK
- - - NATURAL DRAINAGE DIVIDE
- (SAF) 3.01 - TEMPORARY CHAIN LINK SAFETY FENCE, MIN. 6' HEIGHT
- (CE) 3.02 - CONSTRUCTION ENTRANCE
- (SF) 3.05 - SILT FENCE
- (DD) 3.09 - TEMPORARY DIVERSION DIKE
- (IP) 3.07 - STORM DRAIN INLET PROTECTION
- (TS) 3.31 - TEMPORARY SEEDING
- (PS) 3.32 - PERMANENT SEEDING
- (TP) 3.38 - TREE PROTECTION FENCING

Soils Legend

- - - SOIL DIVIDE
- (XX) SOIL UNIT TYPE, PER USDA NATURAL RESOURCES CONSERVATION SOIL MAP
- HSG X HYDROLOGIC SOIL GROUP



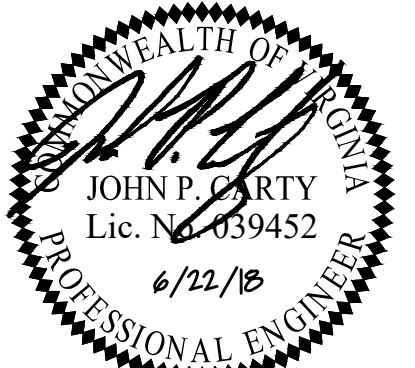
**Intermediate Terminal
Phase 2 - Public Access**
3101 Wharf Street
Richmond, Virginia

No.	Revision	Date	Aspd.

Designed by _____ Checked by _____
Issued for _____ Date _____
Permitting June 22, 2018

**Erosion and Sediment
Control Plan Phase 2**

Drawing Number
C5.01
Sheet _____ of _____
Project Number
33965.20



LOCATIONS OF SUPPORT ACTIVITIES TO BE LIMITED TO THE CONTRACTOR STAGING AREA. THIS INCLUDES, BUT IS NOT LIMITED TO, EQUIPMENT AND VEHICLE WASHING; WHEEL AND OTHER WASH WATER; STORAGE FOR CHEMICALS; CONCRETE WASH OUT; VEHICLE FUELING AND MAINTENANCE; SANITARY WASTE; CONSTRUCTION WASTE STORAGE.



115 South 15th Street
Suite 200
Richmond, VA 23219
804.343.7100

POLLUTION PREVENTION PLAN

**CITY OF RICHMOND
DEPARTMENT OF PUBLIC UTILITIES**

Intermediate Terminal
Phase 2 - Public Access
3101 Wharf Street
Richmond, Virginia

Table with columns: No., Revision, Date, Appr.

Designed by: Permitted Authority
Checked by: Signature
Issued for: June 22, 2018
Permitting

Drawing Title: City of Richmond Pollution Prevention Plan
Drawing Number: C5.03
Sheet: 1 of 1
Project Number: 33965.20

PURPOSE

9VAC25-870-54 of the Virginia Stormwater Management Program (VSMPP) Permit Regulations requires that Stormwater Pollution Prevention Plan (SWPPP) be developed for all regulated land disturbing activities...

The plan for implementing pollution prevention measures during construction activities developed on this sheet must be implemented and updated as necessary. Any PMP requirements not included on this sheet must be incorporated into the SWPPP...

OTHER REFERENCED PLANS

SWPPP requirements may be fulfilled by incorporating, by reference, other plans. All plans incorporated by reference become enforceable under the VSMPP Permit Regulations...

Table with columns: Independent Plans Incorporated by Reference, Date Approved

POTENTIAL POLLUTANT SOURCES

The following sources of potential pollutants must be addressed in the Pollution Prevention Plan. Various controls and/or measures designed to prevent and/or minimize pollutants in stormwater discharges from the project site...

LEAKS, SPILLS, AND OTHER RELEASES

- The operator(s) shall ensure procedures are in place to prevent and respond to all leaks, spills and other releases of pollutants.
The operator(s) shall ensure all leaks, spills and other releases of pollutant are contained and cleaned immediately upon discovery...

Table with columns: Date, Shown on Plan Sheet #, Location

The operator(s) shall notify the Department of Environmental Quality of leaks, spills and other releases that discharge to or have the potential to discharge to surface waters immediately upon discovery of the discharge but in no case later than 24 after the discovery...

Table with columns: Virginia Department of Environmental Quality, City of Richmond Department of Public Utilities

EQUIPMENT / VEHICLE WASHING

- Washing must be conducted in a dedicated area that is located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
All wash water used in vehicle wheel washing must be directed to a sediment basin/rap.

Table with columns: Activity, Location of Dedicated Area(s), Shown on Plan Sheet #, Water Source Location

REVISIONS TO LOCATIONS

Table with columns: Activity, Location of Dedicated Area(s), Shown on Plan Sheet #, Water Source Location, Operator's Initials

VEHICLE FUELING AND MAINTENANCE

- Conduct regular maintenance in a dedicated area that is located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
If fueling is conducted at a dedicated area, the location must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.

Table with columns: Date, Shown on Plan Sheet #, Location of Dedicated Area(s)

- If mobile fueling will be used, the fueling must be done in an area that located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
Spill kits must be readily available at all mobile fueling locations.

DISCHARGE FROM STORAGE, HANDLING, AND DISPOSAL OF CONSTRUCTION PRODUCTS, MATERIALS, AND WASTE

- Storage of construction products, materials, and waste is to be conducted in dedicated areas.
The dedicated area must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.

Table with columns: Date, Shown on Plan Sheet #, Location(s) of Dedicated Area(s) for storage of construction products and materials

Table with columns: Date, Shown on Plan Sheet #, Location(s) of Dedicated Area(s) for waste from construction products and materials

- Follow all federal, state, and local requirements that apply to the use, handling and disposal of pesticides, herbicides, and fertilizers.
Clean up solid waste, including building materials, garbage, and debris on a daily basis and deposit into covered dumpsters that are periodically emptied.

DISCHARGES FROM OTHER POTENTIAL POLLUTANT SOURCES

Table with columns: Other Potential Pollutant Sources, Location(s) of Potential Pollutant Sources

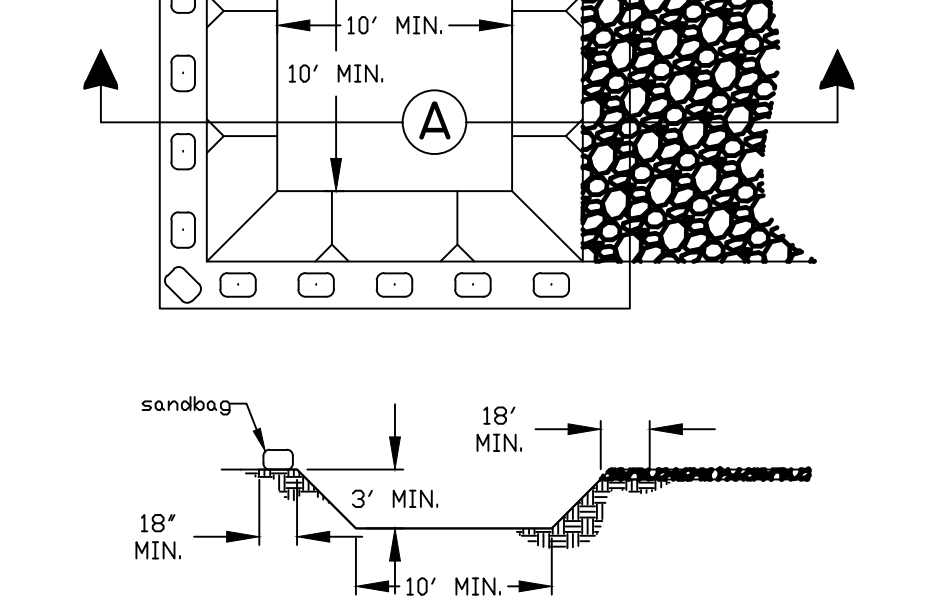
- Above ground oil storage tanks with a storage capacity exceeding 1,320 gallons and have a reasonable expectation of a discharge into or upon Waters of the United States are required to have a Spill Prevention Control and Countermeasure (SPCC) Plan.
The discharge of contaminated flush water and material removed during flushing operations must be collected and disposed of in accordance with appropriate federal, state, and local requirements.

DISCHARGES FROM CONCRETE RELATED WASH ACTIVITIES

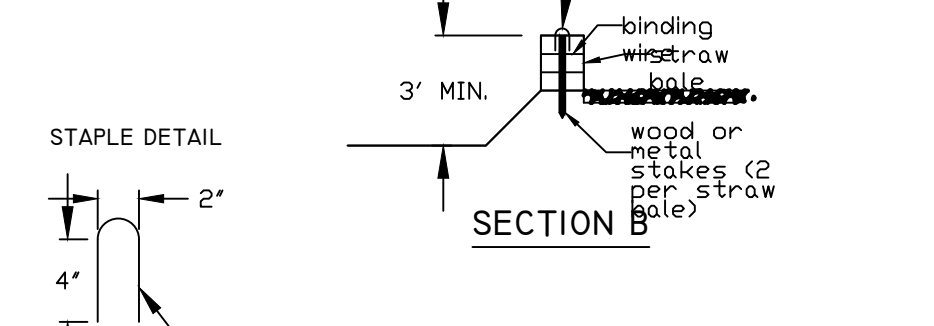
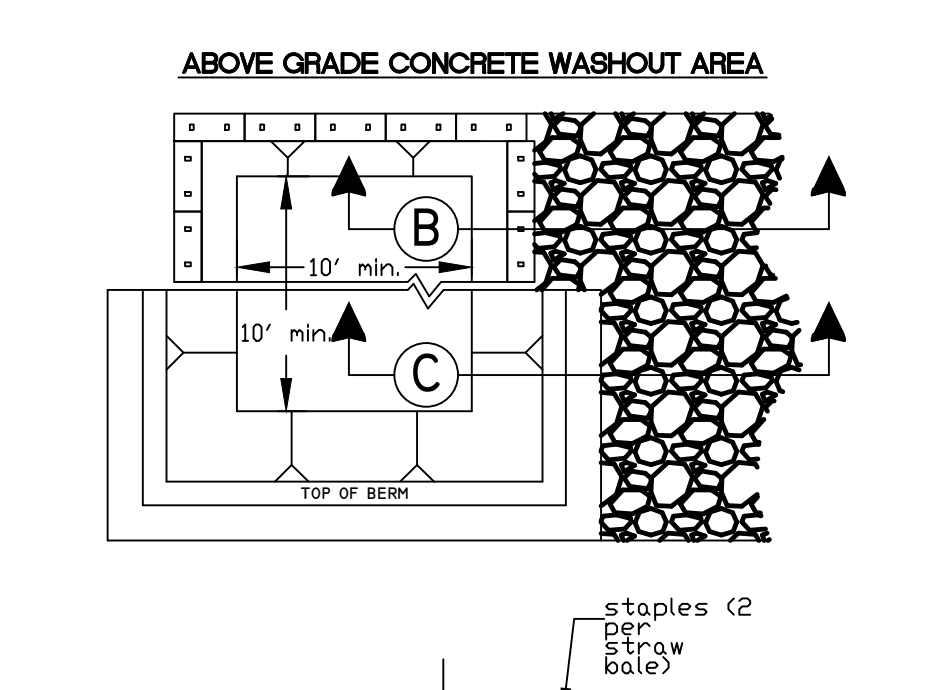
- Concrete trucks are not allowed to wash out or discharge surplus concrete or drum wash water on site except in a dedicated area(s) that is located to prevent discharge to storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.

Table with columns: Date, Shown on Plan Sheet #, Location of Dedicated Area(s)

BELOW GRADE CONCRETE WASHOUT AREA



ABOVE GRADE CONCRETE WASHOUT AREA



CONCRETE WASHOUT AREA NOTES

- The facility must be lined with 10 mil plastic lining that is free from holes, tears, or other defects that might compromise the material's impermeability.
The lining must be anchored with staples (2 spacing) or sandbags.
Side slopes must be 1:1 (horizontal:vertical) or flatter.

DISCHARGES OF SOAPS, DETERGENTS, SOLVENTS, AND WASH WATER FROM CONSTRUCTION ACTIVITIES SUCH AS CLEANUP OF STUCCO, PAINT, FORM RELEASE OILS, AND CURING COMPOUNDS

- Washing activities associated with construction activities other than vehicle and equipment washing, such as clean up of stucco, paint, form release oils, and curing compounds are to be conducted in a dedicated area.
The dedicated area must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.

Table with columns: Date, Shown on Plan Sheet #, Location(s) of Dedicated Area(s)

- The dedicated area must be covered (e.g., plastic sheeting, temporary roof, etc.) to prevent contact with stormwater.
The contaminated wastewater from the dedicated area must be collected for disposal by a waste hauler or discharged to the sanitary sewer.

DISCHARGES OF HAZARDOUS, TOXIC, AND SANITARY WASTE

- Storage and disposal of hazardous, toxic and sanitary wastes are to be conducted in dedicated areas.
The dedicated areas must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.

Table with columns: Date, Shown on Plan Sheet #, Location(s) of Dedicated Area(s) for storage and disposal of hazardous and toxic wastes

Table with columns: Date, Shown on Plan Sheet #, Location(s) of Dedicated Area(s) for portable toilets

- Consult with local waste management authorities or private firms about the requirements for disposing of hazardous materials and/or soils that may be contaminated with hazardous materials.
Never remove the original product label from the container. Follow the manufacturer's recommended method of disposal.

SWPPP MODIFICATIONS AND REVISIONS

- The operator(s) shall ensure the SWPPP is modified and/or revised to reflect:
Changes in qualified personnel, delegated authorities or other personnel required as a condition of the General Construction Permit.
Changes in site conditions.
Changes in the design, construction, operation, or maintenance of the construction site that affect the potential for discharges of pollutants that are not addressed in the normal implementation of the plan, and
Ineffective control measures identified during inspections or investigations conducted by the operator's qualified personnel or local, state or federal officials.

Modifications/revisions to the SWPPP shall include additional or modified control measures to address the identified deficiencies.

- If the necessary modifications/revisions require approval by the Administrator or DEQ, the modifications/revisions must be implemented no later than seven (7) calendar days following approval.
If the necessary modifications/revisions do not require approval by the Administrator, the modifications/revisions must be implemented prior to the next anticipated storm event or as soon as practicable.

SWPPP UPDATES

- The operator(s) shall update the SWPPP to include:
A record of dates when 1) major grading activities occur, 2) construction activities temporarily or permanently cease on a portion of the site, and 3) stabilization measures are initiated.
Documentation of modifications and revisions to the SWPPP.
Areas that have reached final stabilization where no further SWPPP or inspection requirements apply.
All properties that are no longer under the legal control of the operator and the dates on which the operator no longer had legal control over each property, and
The date, volume, and corrective/preventative actions implemented for any prohibited discharge.

The operator(s) shall update the SWPPP no later than seven (7) days following any of the situations identified above.

OPERATOR INSPECTIONS

- The operator(s) identified below shall provide for inspections of the permitted land-disturbing activities by the qualified personnel identified below. The inspections will be conducted (select one the following options):
At least once every four (4) business days; or
At least once every five (5) business days and no later than 48 hours following any measurable storm event.

Where areas are in a stabilized condition or runoff is unlikely due to winter conditions, the inspection frequency may be reduced to once every 30 days while these conditions exist. Otherwise, the operator(s) shall resume the regular inspection frequency identified above.

The operator(s) shall provide for inspections of the permitted land-disturbing activity to ensure implementation and continued maintenance of all requirements of the Stormwater Pollution Prevention Plan (Erosion and Sediment Control Plan, Stormwater Management Plan, Pollution Prevention Plan, TMDL requirements, etc.)

Records of the required inspections must be maintained and included in the SWPPP binder. The qualified personnel are encouraged to use the Operator Inspection form provided in the SWPPP binder to document the required inspections.

ACKNOWLEDGEMENTS

- I certify under penalty of law that I:
have been designated by the Operator to conduct inspections of the permitted site,
am knowledgeable in the principles and practices of erosion and sediment control and stormwater management,
possess the skills to assess conditions at the permitted site for the Operator(s) that could impact stormwater quality and quantity,
will assess the effectiveness of any erosion and sediment control measures or stormwater management facilities selected to control the stormwater discharges from the permitted site; and
will conduct inspections in accordance with the frequency noted above in the OPERATOR INSPECTIONS section of this sheet.

Table with columns: Name (print), Phone

As the Operator(s), I/we understand that prior to initiating land disturbance, the potential pollutant sources, appropriate control measures, and all responsible parties (operator, qualified inspection personnel, contractors, etc.) required as a condition of the General Construction Permit (GCP) and the Stormwater Pollution Prevention Plan (SWPPP) must be identified. I also understand this information must be updated as necessary throughout all phases of construction until the GCP is terminated.

Furthermore, I/we certify under penalty of law that I/we have read and understand all requirements of the SWPPP (erosion and sediment control plan, stormwater management plan, pollution prevention plan, TMDL provisions, administrative requirements, etc) and GCP and that the information herein 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 or imprisonment for knowing violations.

I/we understand that I/we are ultimately responsible for compliance with all conditions and requirements of the SWPPP and GCP and for ensuring all contractors and subcontractors on the permitted site are aware of the conditions and requirements of the SWPPP and GCP.

I/we shall comply with all conditions and requirements of the SWPPP and shall at all times properly operate and maintain all measures and control (and related appurtenances) which are installed or used to achieve compliance with the conditions of the GCP. Proper operation and maintenance also includes adequate funding and adequate staffing.

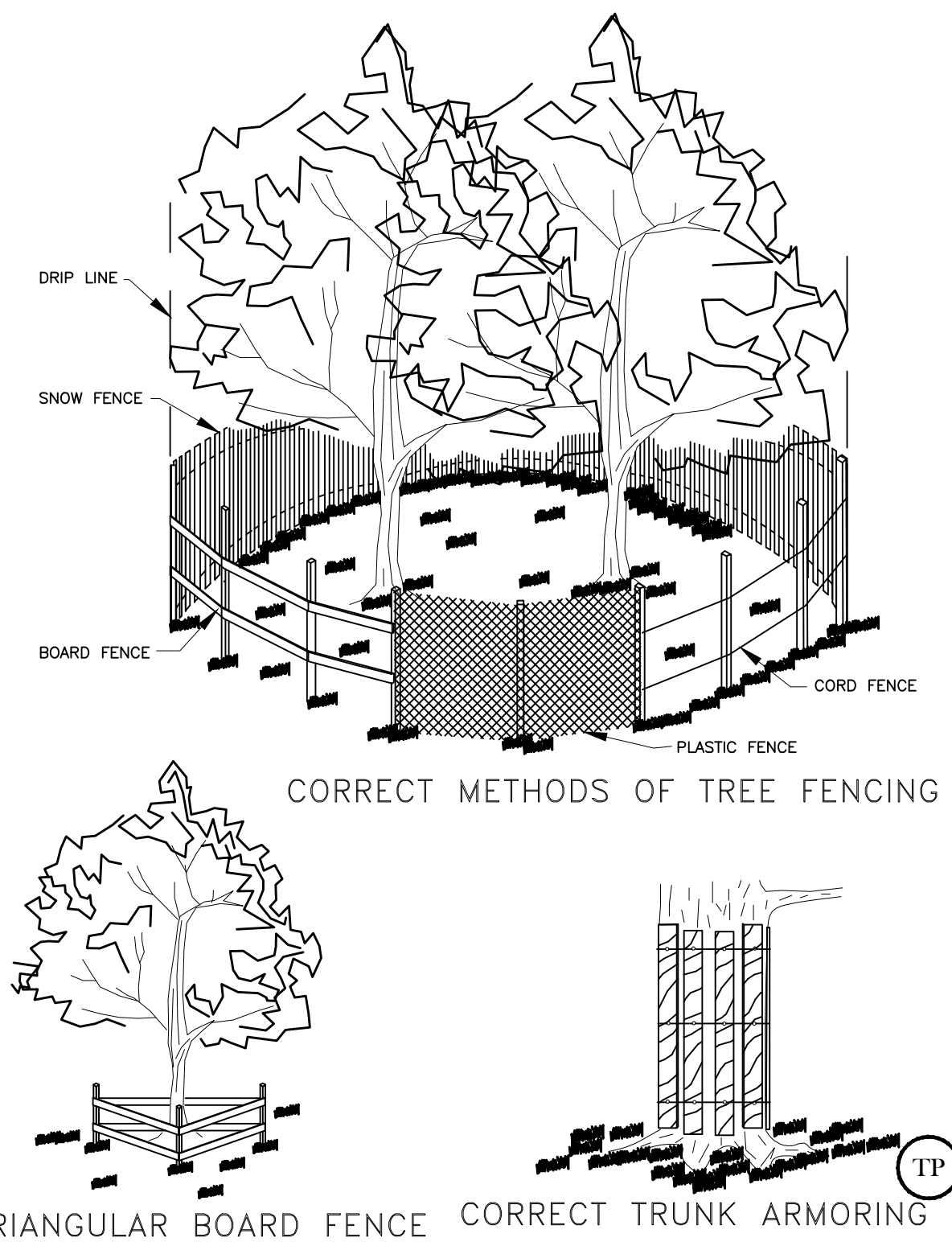
- I/we shall take all reasonable steps to minimize or prevent any discharge in violation of the SWPPP and/or GCP.
I/we understand that if it determined by the Department of Environmental Quality (DEQ) in consultation with the State Water Control Board at any time that stormwater discharges are causing, have reasonable potential to cause, or contribute to and excursion above any applicable water quality standard, the DEQ may, in consultation with the Administrator, take appropriate enforcement action and require:
Modification of control measures to adequately address water quality concerns.
Submission of valid and verifiable data and information that are representative of ambient conditions and indicate that the receiving water is attaining water quality standards or
Cessation of discharges of pollutants from construction activity and submit an individual permit application according to 9VAC25-870-410.

Table with columns: OPERATOR(S) / DELEGATED AUTHORITY, Name (print), Signature, Date

Additional contact information can be found in the SWPPP Binder



C5.03



Fencing and Armoring 06/08
N.T.S. Source: Virginia Erosion and Sediment Control Handbook PL 3.38.2

TABLE 3.32-E
(Revised June 2003)
PERMANENT SEEDING SPECIFICATIONS FOR COASTAL PLAIN AREA

LAND USE	SEED ¹		APPLICATION RATES
	SPECIES		
Minimum Care Lawn (Commercial or Residential)	Tall Fescue ¹		175 - 200 lbs.
	or Bermudagrass ¹		75 lbs.
High-Maintenance Lawn	Tall Fescue ¹		200-250 lbs.
	or Bermudagrass ¹ (seed) or Bermudagrass ¹ (by other vegetative establishment method, see Std. & Spec. 3.34)		40 lbs. (unhulled) 30 lbs. (hulled)
General Slope (3:1 or less)	Tall Fescue ¹		128 lbs.
	Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop ²		2 lbs. 20 lbs.
		TOTAL: 150 lbs.	
Low-Maintenance Slope (Sleeper than 3:1)	Tall Fescue ¹		93-108 lbs.
	Bermudagrass ¹ Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop ² Sericea Lespedeza ³		0-15 lbs. 2 lbs. 20 lbs. 20 lbs.
		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 804-746-4894 or at <http://urban.ces.vt.edu/html/Turf/turfpublications/publications2.htm>

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

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

3 - May through October, use hulled seed. All other seeding periods, use unhulled seed. If Weeping Lovegrass is used, include in any slope or low maintenance mixture during warmer seeding periods, increase to 30-40 lbs/acre.

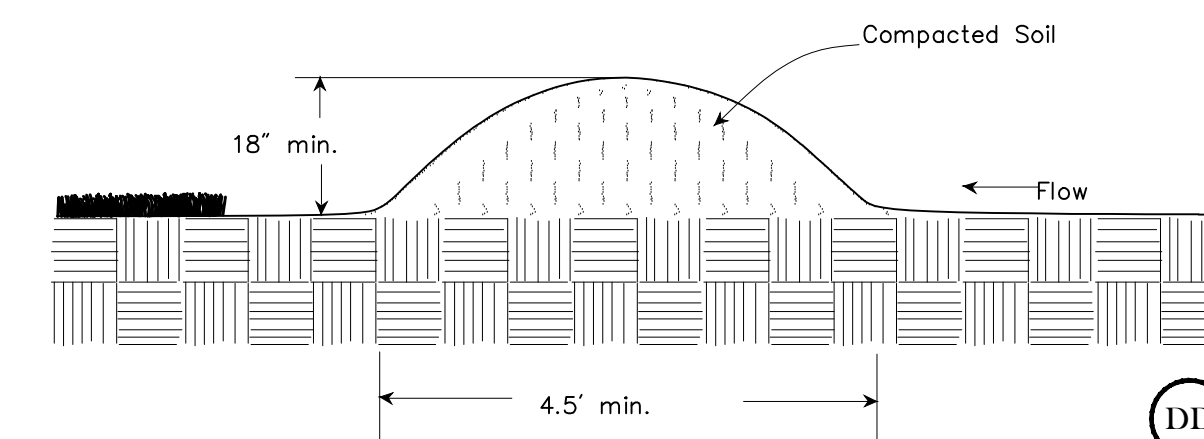
FERTILIZER & LIME

- 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 *Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites* at <http://www.dcr.state.va.us/swe&s.htm#pubs>

Permanent Seeding Specifications 06/03
N.T.S. Source: Virginia Erosion And Sediment Control Handbook PL 3.32-E



Temporary Diversion Dike 06/08
N.T.S. Source: Virginia Erosion and Sediment Control Handbook Plate 3.09-1

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 (lolium 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)

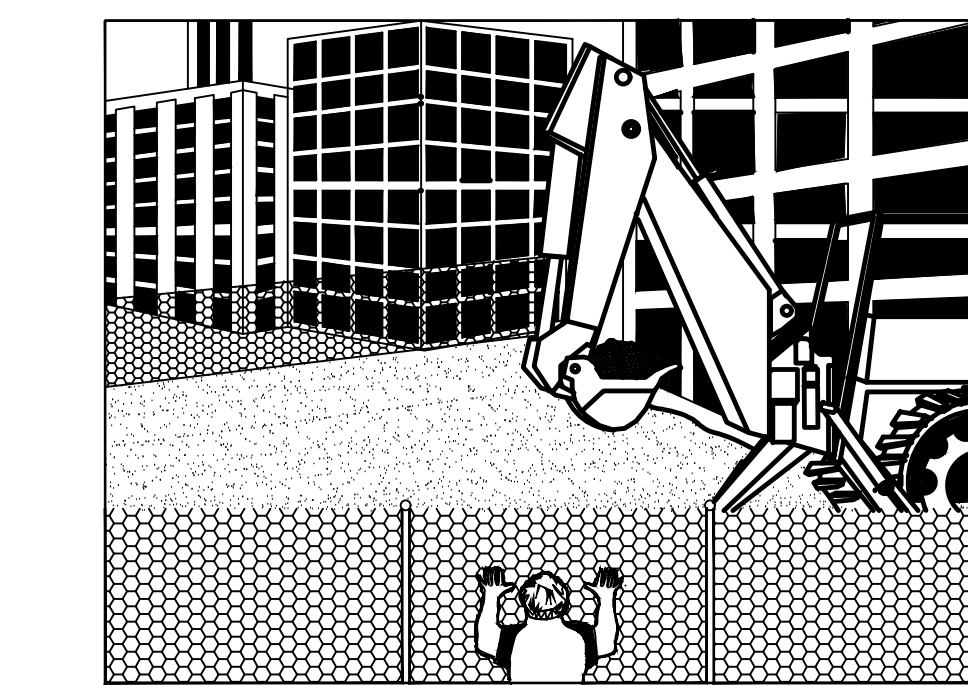
FERTILIZER & LIME

- 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.)

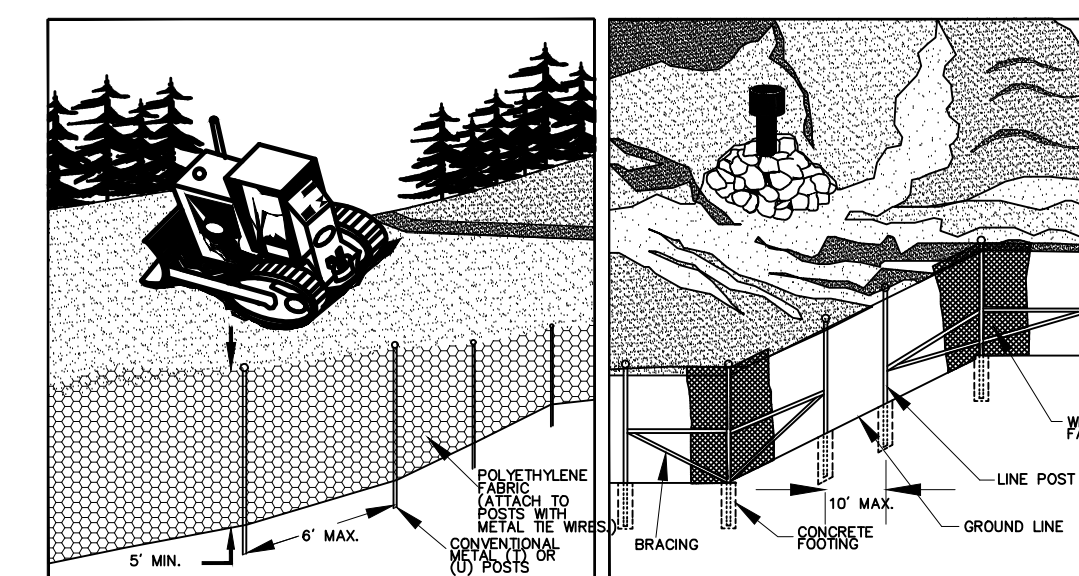
NOTE:

- 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 *Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites* at <http://www.dcr.state.va.us/swe&s.htm#pubs>

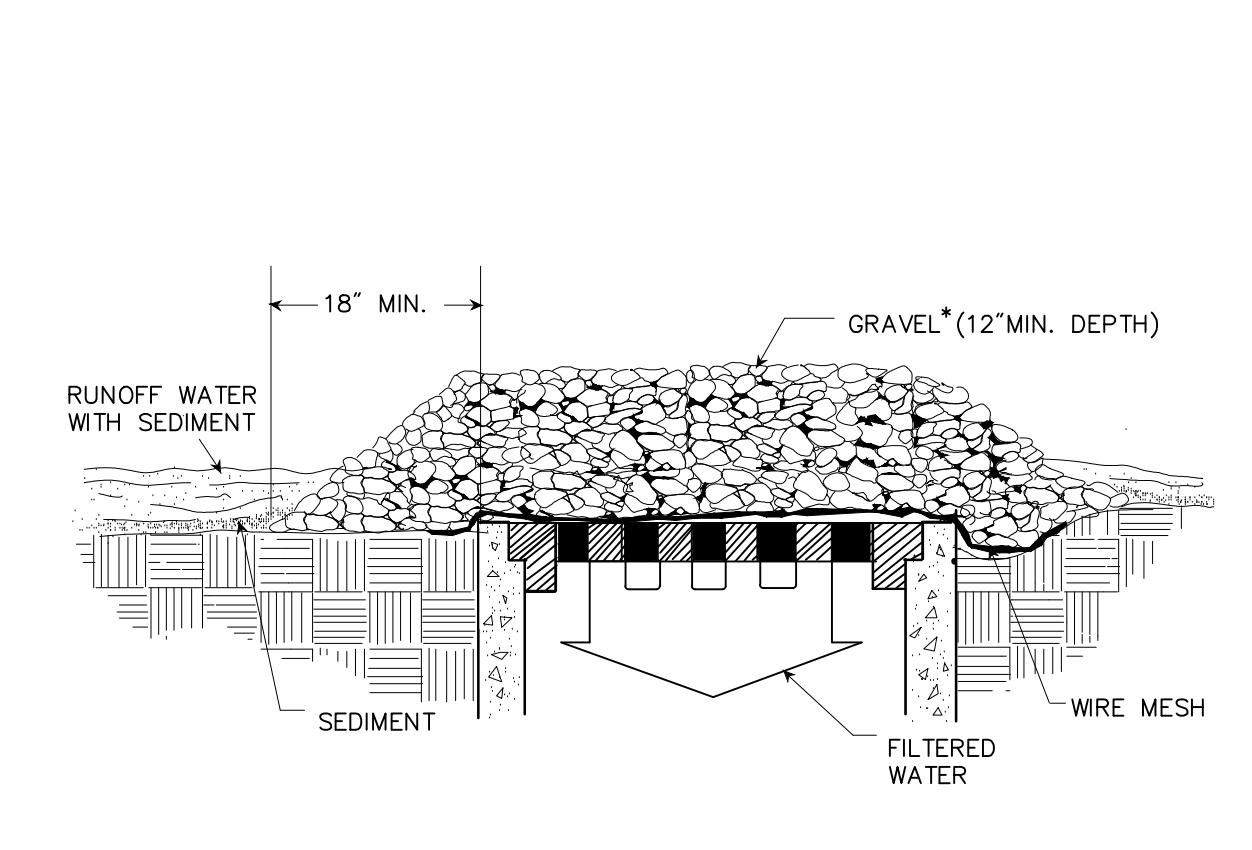
Temporary Seeding Specifications 06/03
N.T.S. Source: Virginia Erosion And Sediment Control Handbook PL 3.31-B



Perspective View



Safety Fence 06/08
N.T.S. Source: Virginia Erosion And Sediment Control Handbook PL 3.01-1

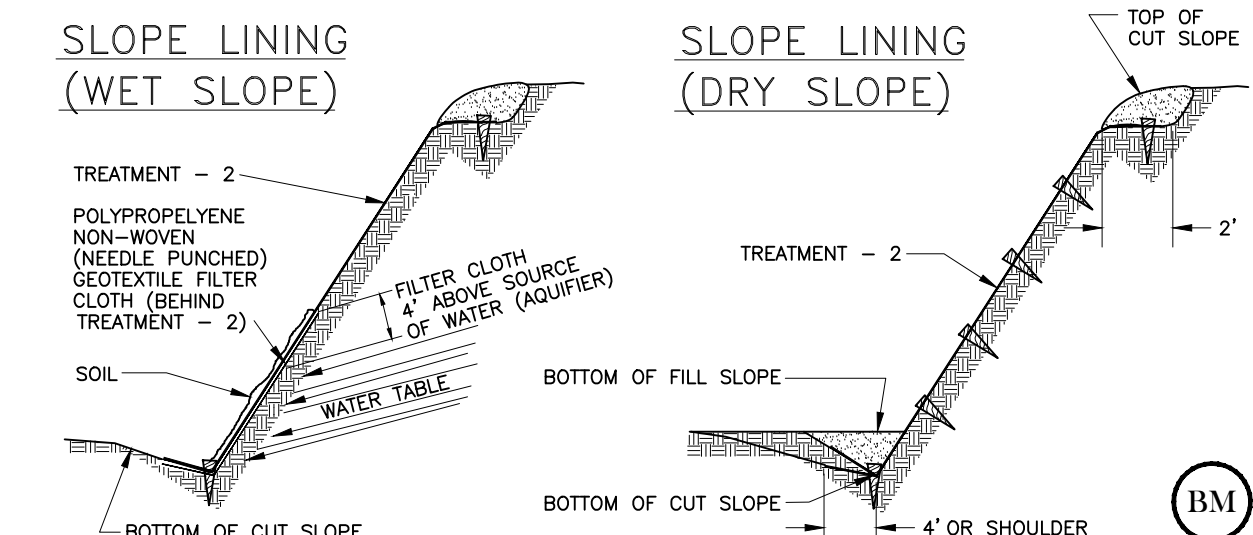
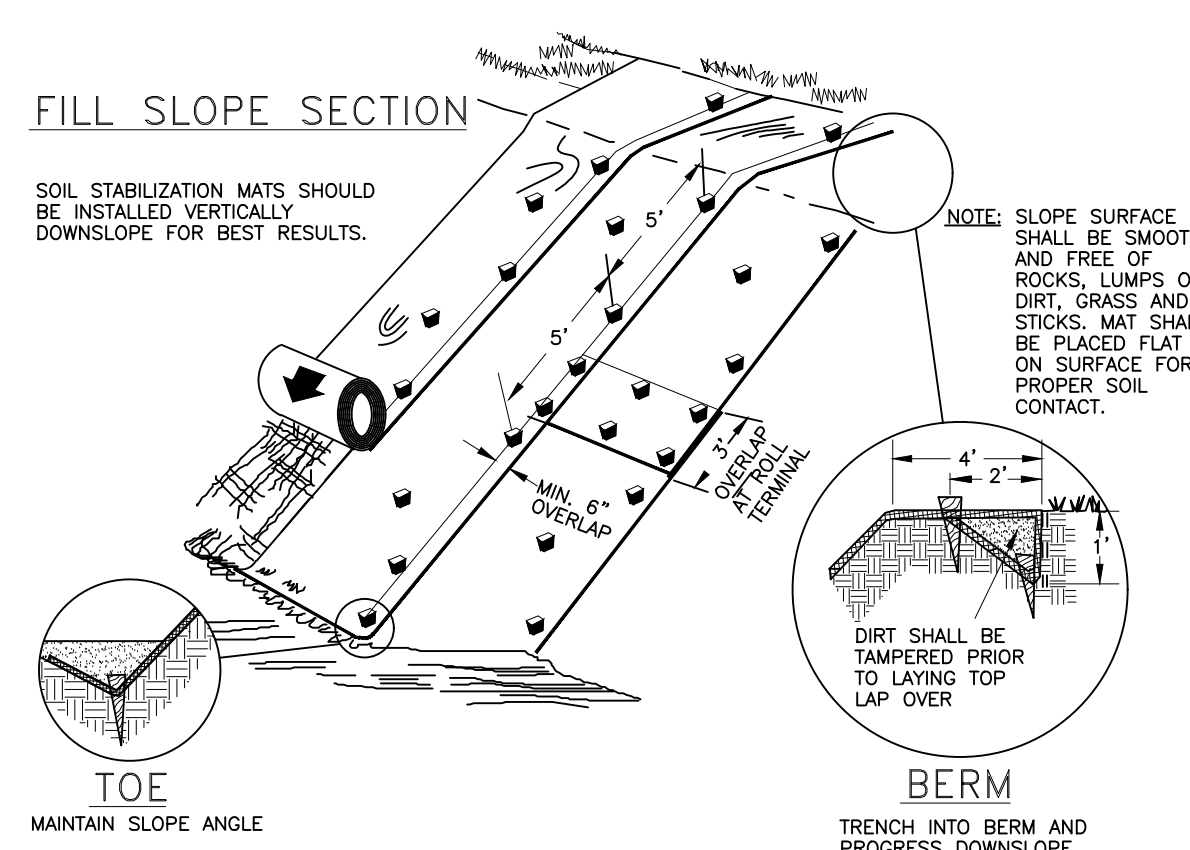


Specific Application

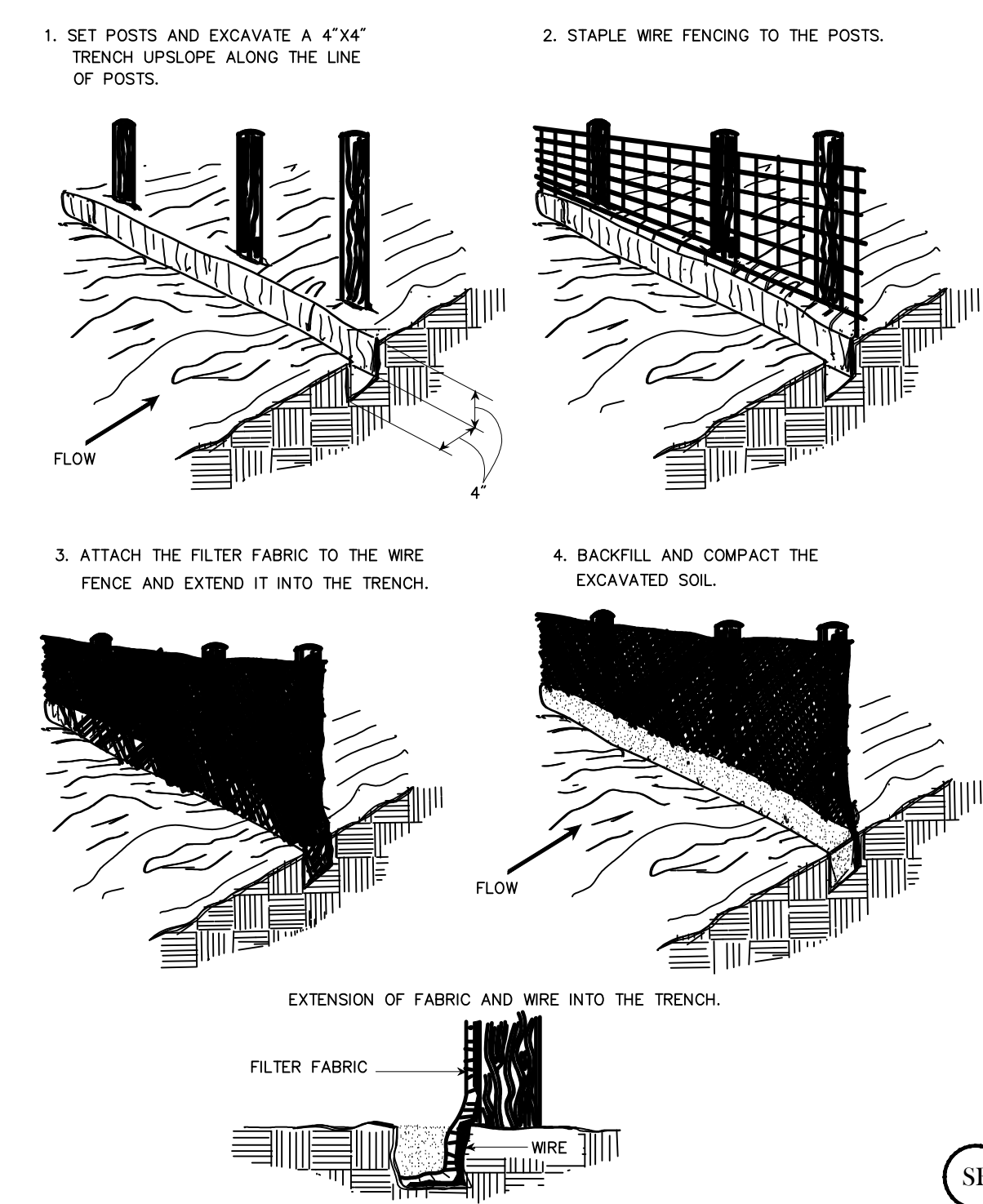
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED BUT NOT WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

* GRAVEL SHALL BE VDOT #3, #357 OR #5 COARSE AGGREGATE.

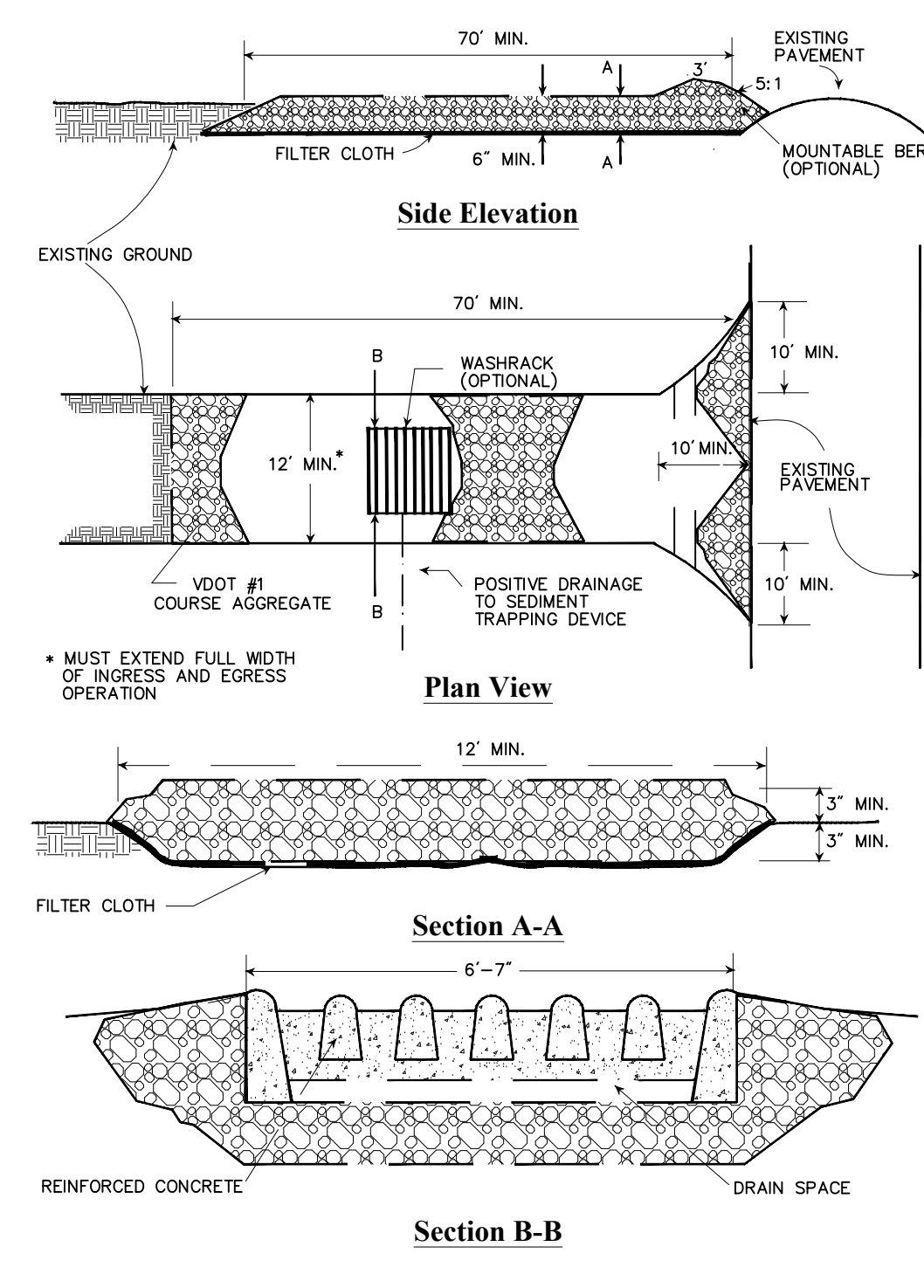
Gravel And Wire Mesh Drop Inlet Sediment Filter 06/08
N.T.S. Source: Virginia Erosion And Sediment Control Handbook PL 3.07-2



Typical Treatment Soil Stabilization Matting Slope Installation 06/08
N.T.S. Source: Virginia Erosion And Sediment Control Handbook PL 3.36-5



Construction Of A Silt Fence (With Wire Support) 06/08
N.T.S. Source: Virginia Erosion And Sediment Control Handbook PL 3.05-1



Stone Construction Entrance 06/08
N.T.S. Source: Virginia Erosion And Sediment Control Handbook PL 3.02-1

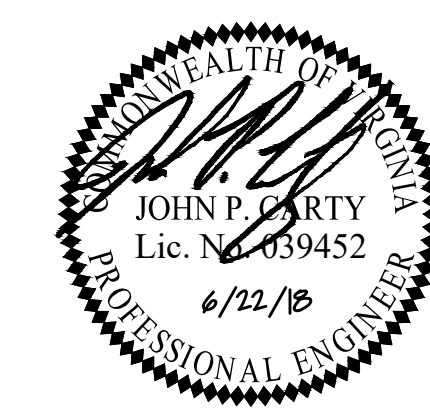
**Intermediate Terminal
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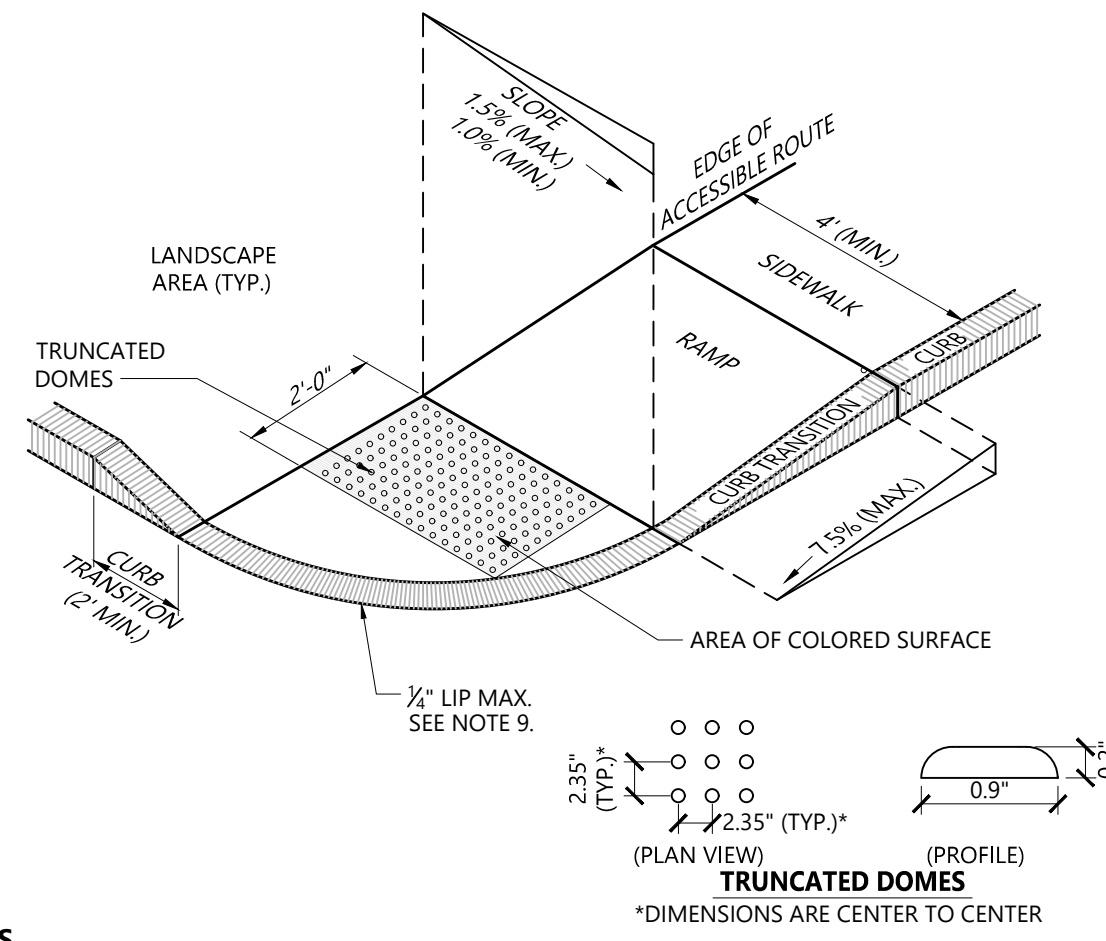
No.	Revision	Date	App'd

Designed by: _____ Checked by: _____
Issued for: _____ Date: _____
Permitting June 22, 2018

Erosion Control Details

Drawing Number
C5.04
Sheet _____ of _____
Project Number
33965.20

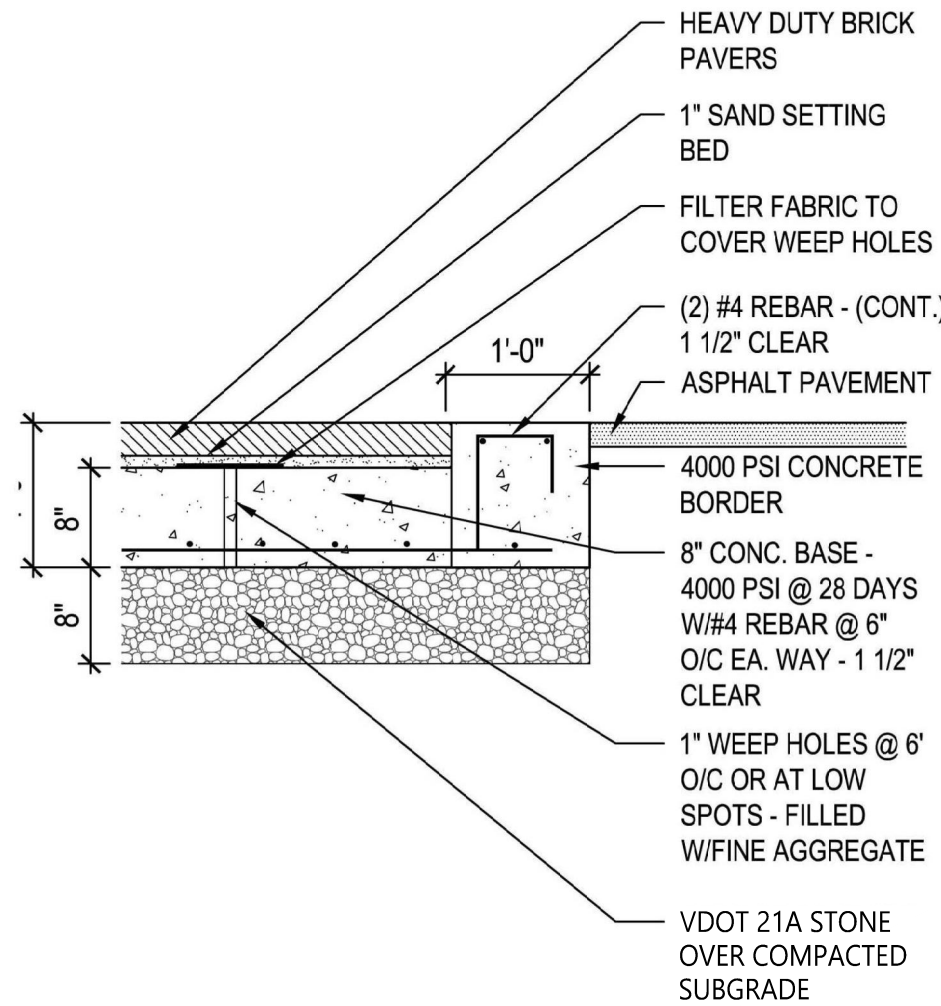




NOTES

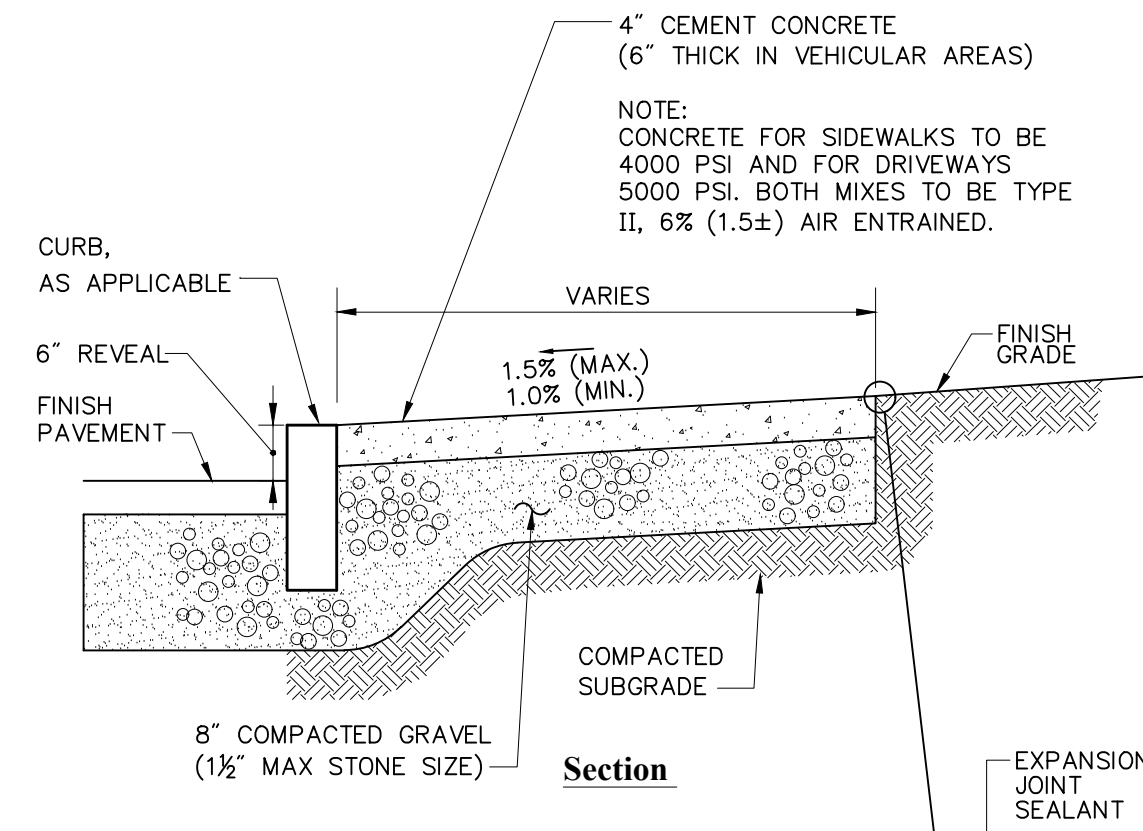
- 1. THE MAXIMUM ALLOWABLE SIDEWALK AND CURB RAMP CROSS SLOPES SHALL BE 1.5 (1% MIN).
- 2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMP SHALL BE 5%.
- 3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE AT CURB RAMP SHALL BE 7.5%.
- 4. A MINIMUM OF 3 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (I.E. HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
- 5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
- 6. RAMP, CURB AND ADJACENT PAVEMENTS SHALL BE GRADED TO PREVENT PONDING.
- 7. SEE TYPICAL SIDEWALK SECTION FOR RAMP CONSTRUCTION.
- 8. WHERE ACCESSIBLE ROUTES ARE LESS THAN 5' IN WIDTH (EXCLUDING CURBING) A 5' x 5' PASSING AREA SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 200 FEET.
- 9. ELIMINATE CURBING AT RAMP WHERE IT ABUTS ROADWAY EXCEPT WHERE VERTICAL CURBING IS INDICATED ON THE DRAWINGS TO BE INSTALLED AND SET FLUSH.
- 10. DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES.
- 11. DETECTABLE WARNINGS SHALL BE INSTALLED PERPENDICULAR TO THE ACCESSIBLE ROUTE.
- 12. CONTRACTOR TO SUBMIT R.F.I. FOR THIS TYPE OF ACCESSIBLE CURB RAMP FOR APEX ROADWAY CROSSINGS.

Accessible Curb Ramp (ACR) - Type 'B-D' 1/16
N.T.S. Source: VHB LD_501



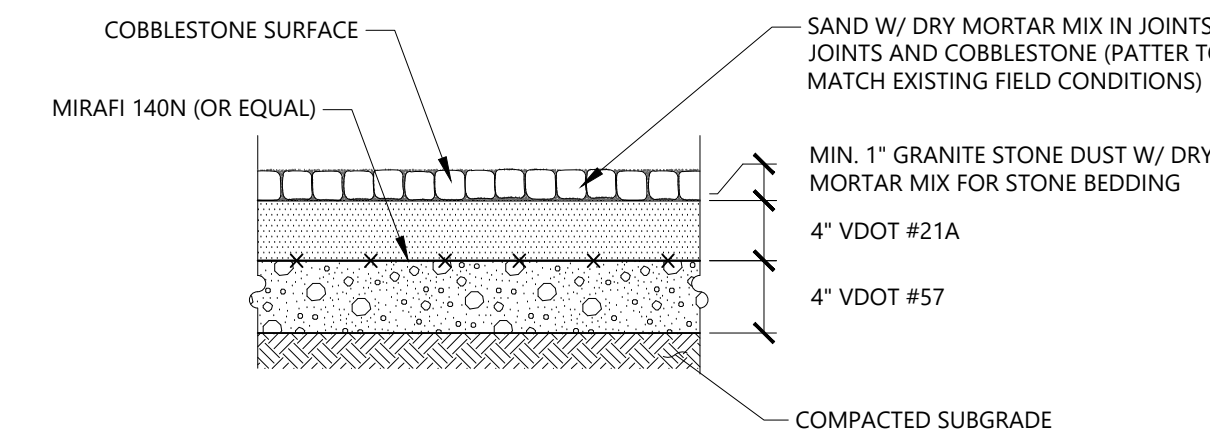
Brick Pavers in Vehicular Area

N.T.S. Source: VHB



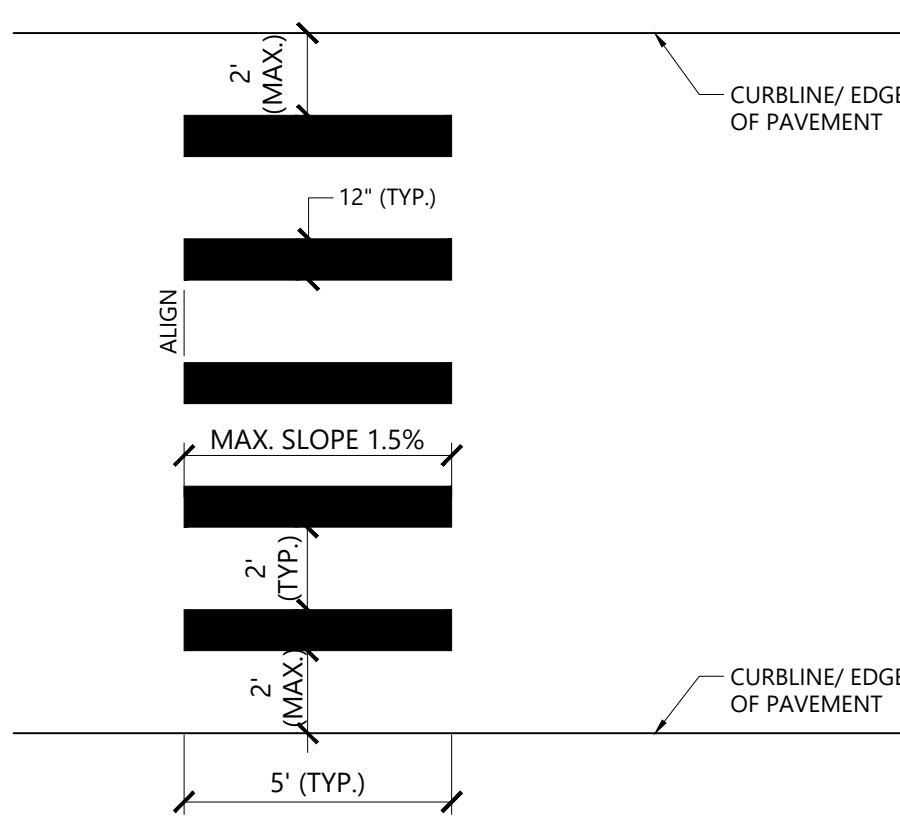
Concrete Sidewalk

N.T.S. Source: VHB 04/11 LD_420



Cobblestone Pavement Section

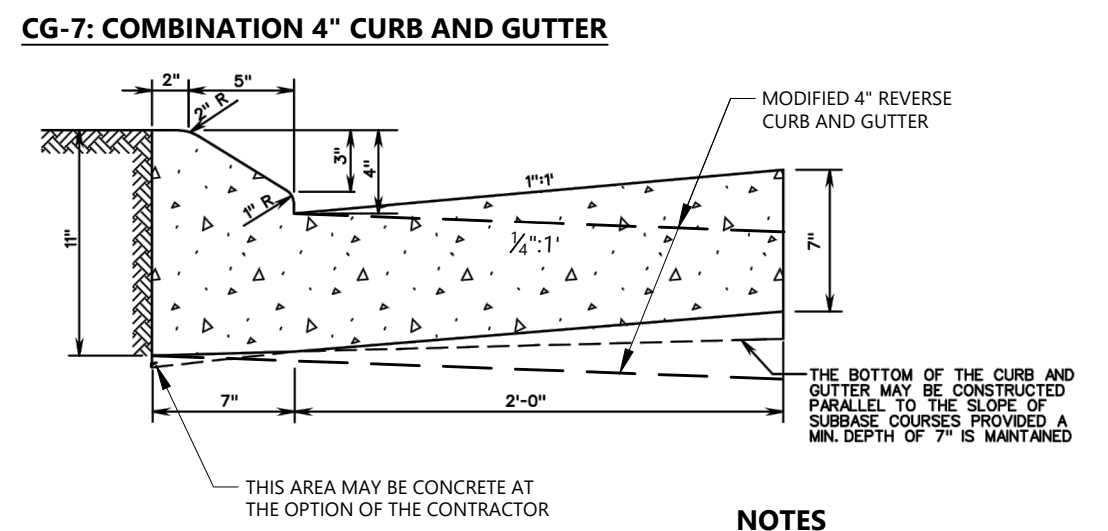
N.T.S. Source: VHB REV



NOTES

- 1. TWELVE INCH (12") LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO - 6 INCH LINES) WILL BE ACCEPTED.
- 2. LONGITUDINAL CROSSWALK LINES TO BE PARALLEL TO CURBLINE.
- 3. ALL LONGITUDINAL CROSSWALK LINES TO BE THE SAME LENGTH AND PROPERLY ALIGNED.
- 4. CROSS WALK SIDESLOPE SHALL NOT EXCEED 1.5%.

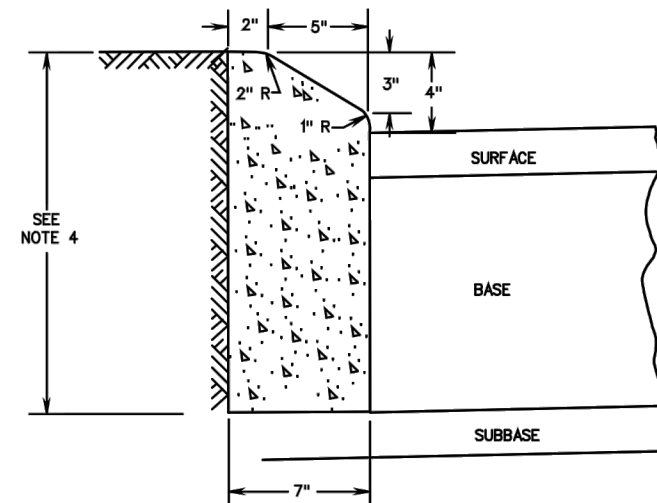
Crosswalk 1/16
N.T.S. Source: VHB REV LD_553



NOTES

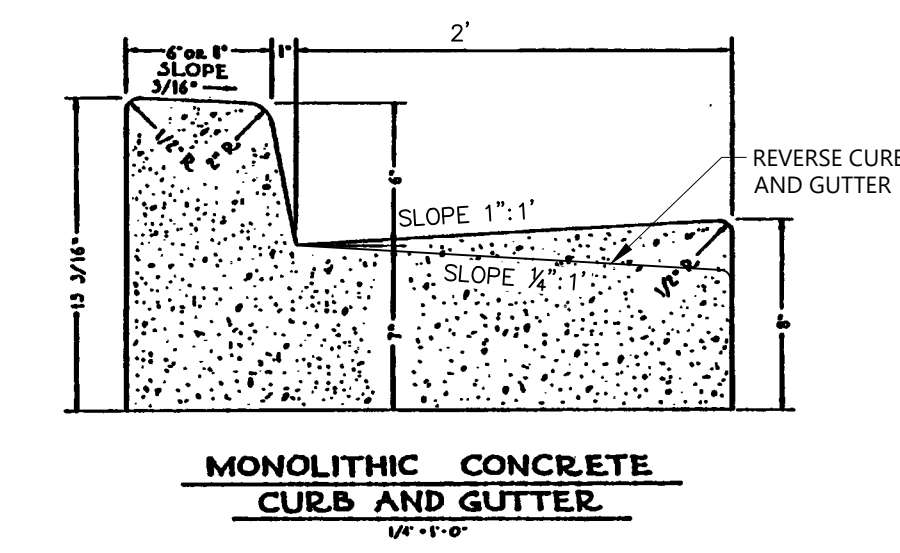
- 1. THESE ITEMS MAY BE PRECAST OR CAST IN PLACE.
- 2. CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4,000 PSI IF PRECAST.
- 3. CURB HAVING A RADIUS OF 300 FEET OR LESS (ALONG FACE OF CURB) WILL BE PAID FOR AS RADIAL CURB.
- 4. THE DEPTH OF CG-3 CURB MAY BE REDUCED AS MUCH AS 3" (13" DEPTH) OR INCREASED AS MUCH AS 3" (19" DEPTH) IN ORDER THAT THE BOTTOM OF CURB WILL COINCIDE WITH THE TOP OF A COURSE OF THE PAVEMENT SUBSTRUCTURE, OTHERWISE THE DEPTH IS TO BE 16" AS SHOWN, NO ADJUSTMENT IN THE PRICE BID IS TO BE MADE FOR A DECREASE OR INCREASE IN DEPTH.
- 5. ALLOWABLE CRITERIA FOR THE USE OF CG-3 AND CG-7 IS BASED ON ROADWAY CLASSIFICATION AND DESIGN SPEED AS SHOWN IN APPENDIX A OF THE VDOT ROAD DESIGN MANUAL IN THE SECTION ON URBAN CGS STANDARDS.
- 6. WHEN THIS STANDARD IS TO BE TIED INTO EXISTING BARRIER CURB, THE TRANSITION IS TO BE MADE WITHIN 10' OR THE CHANGE IN STANDARDS MADE AT REGULAR OPENINGS.
- 7. WHEN COMBINATION MOUNTABLE CURB AND GUTTER IS USED, THE STANDARD ENTRANCE GUTTERS OR STANDARD CONNECTION FOR STREET INTERSECTIONS ARE TO HAVE THE MOUNTABLE CURB CONFIGURATION INCORPORATED.

CG-3: STANDARD 4 inch CURB



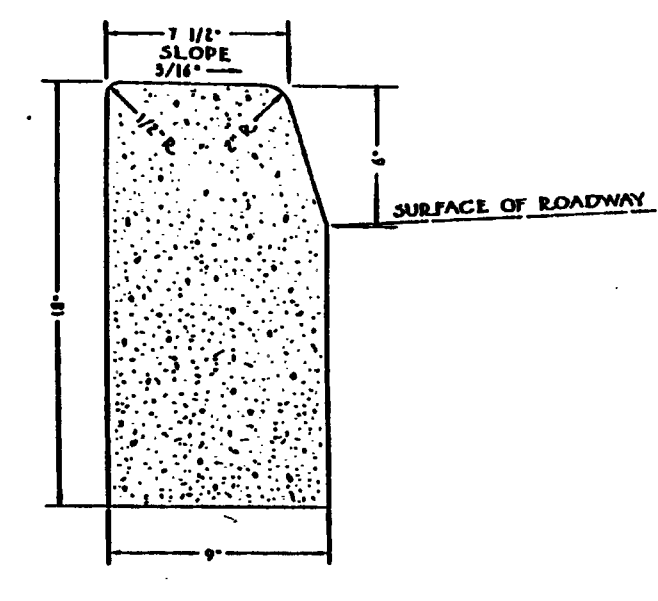
VDOT Standard Mountable Curb and Gutter 09/06

N.T.S. Source: VDOT 201.02 and 201.04



MONOLITHIC CONCRETE CURB AND GUTTER

16" x 16"



CONCRETE CURB

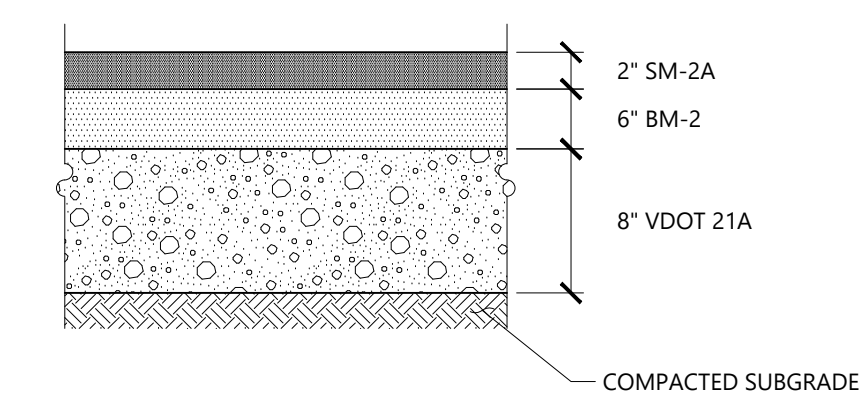
16" x 16"

NOTES

- 1. ANY EXISTING CONCRETE CURB DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN ACCORDANCE WITH CITY OF RICHMOND DETAIL.

City of Richmond Concrete Curb and Gutters 06/03

N.T.S. Source: City of Richmond - Department of Public Works N-14000



STANDARD DUTY FLEXIBLE PAVEMENT

NOTES

- 1. PAVEMENT SECTION IS BASED ON CITY OF RICHMOND MINIMUM AND IS SUBJECT TO CHANGE BASED ON FURTHER GEOTECHNICAL INVESTIGATIONS.
- 2. FOR PAVEMENT REPLACEMENT, SECTION LISTED IS THE MINIMUM REQUIREMENT. CONTRACTOR SHALL MATCH THE EXISTING PAVEMENT SECTION, IF MORE STRINGENT.

Bituminous Concrete Pavement Sections 1/16

N.T.S. Source: VHB REV LD_430

Intermediate Terminal Phase 2 - Public Access
3101 Wharf Street
Richmond, Virginia

No.	Revision	Date	App'd

Designed by: _____ Checked by: _____
Issued for: _____ Date: _____
Permitting June 22, 2018

Details

1. PAVEMENT SECTION IS BASED ON CITY OF RICHMOND MINIMUM AND IS SUBJECT TO CHANGE BASED ON FURTHER GEOTECHNICAL INVESTIGATIONS.

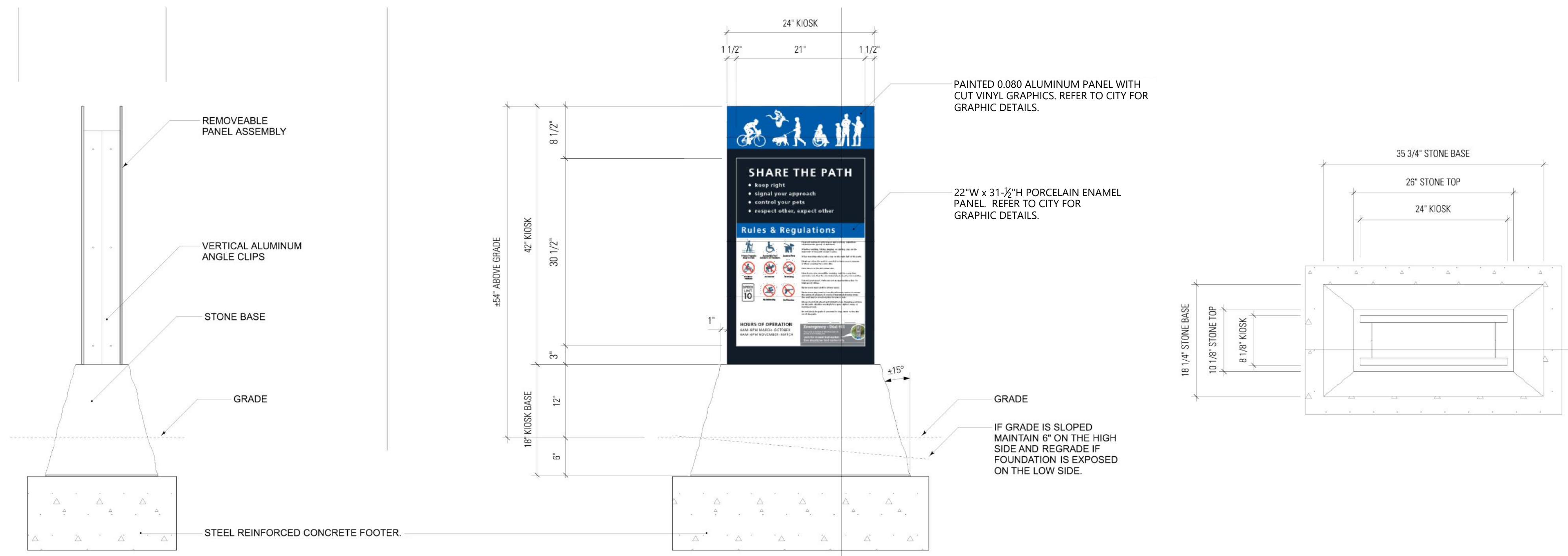
2. FOR PAVEMENT REPLACEMENT, SECTION LISTED IS THE MINIMUM REQUIREMENT. CONTRACTOR SHALL MATCH THE EXISTING PAVEMENT SECTION, IF MORE STRINGENT.

Drawing Number: _____

C6.01

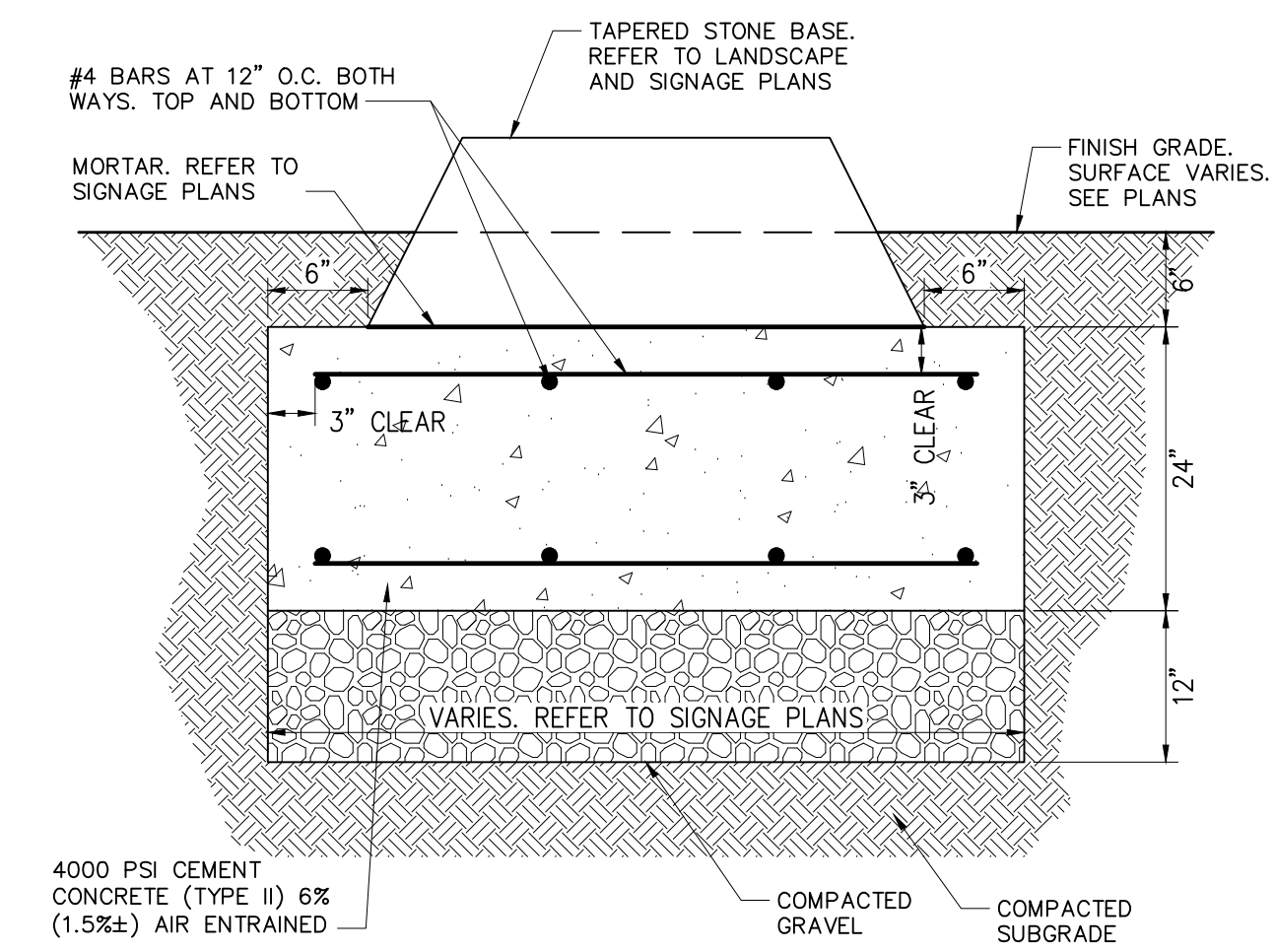
Sheet _____ of _____

Project Number: 33965.20



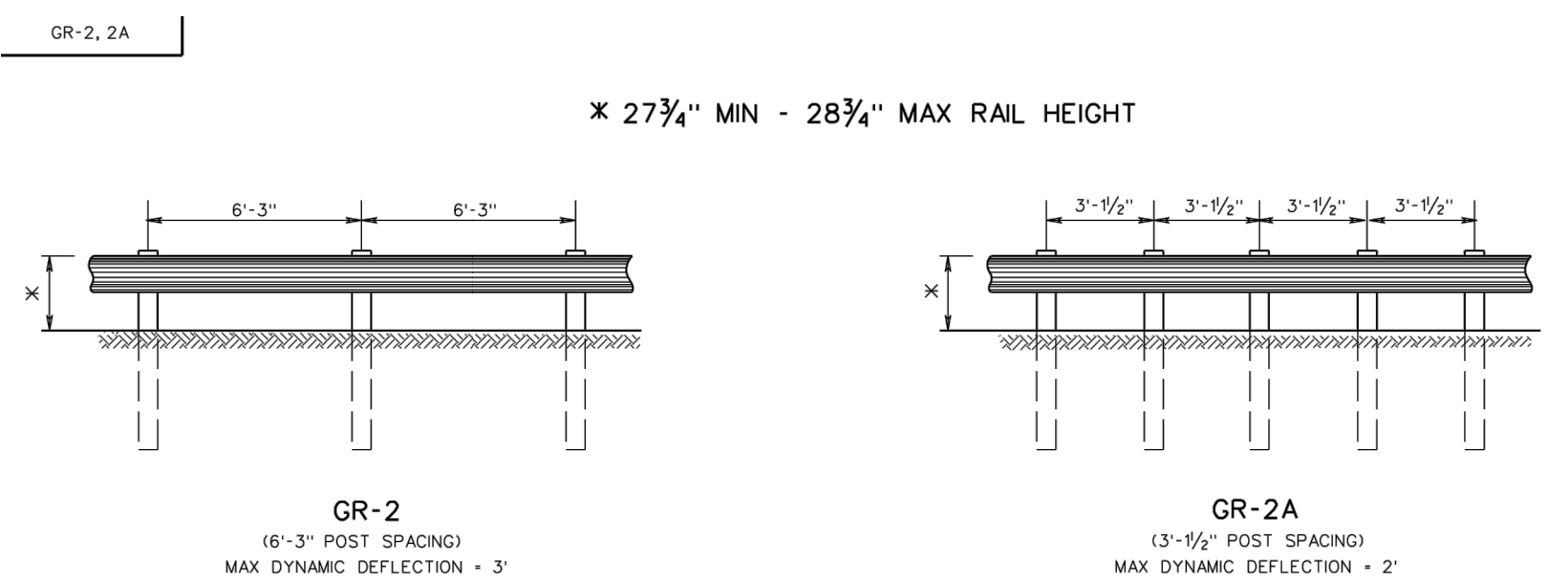
Monument Signage

N.T.S. Source: City of Richmond



Concrete Footer for Signage

N.T.S. Source: VHB 06/08 LD_170

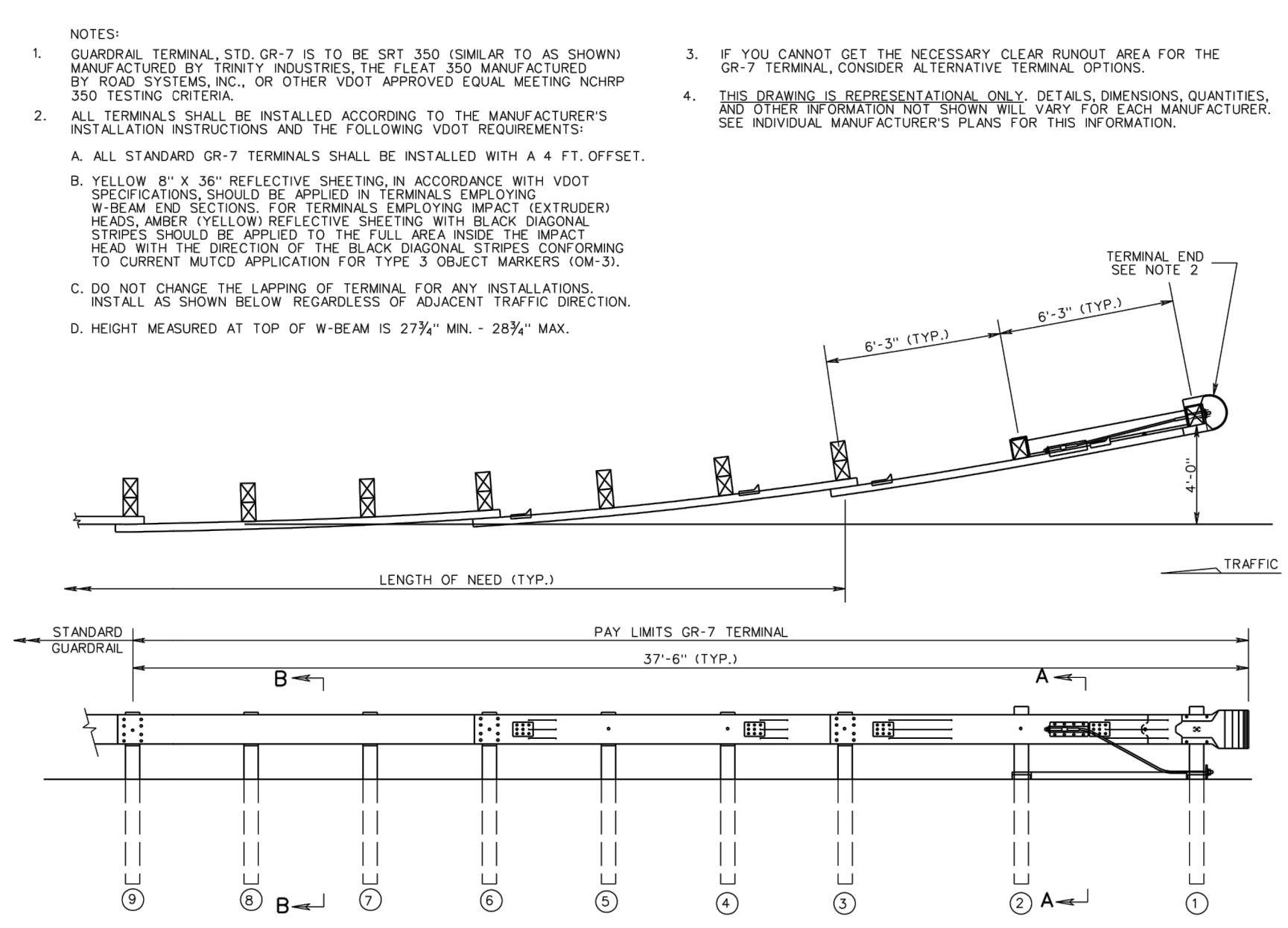


NOTES:
GUARDRAIL LOCATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY AND CAN BE ADJUSTED DURING CONSTRUCTION IF AND AS DIRECTED BY THE ENGINEER.
FOR DETAILS OF POST AND BLOCKOUTS SEE SHEET NO. 501.05.
FOR DETAILS OF RAIL ELEMENT, RAIL SPLICE JOINT, AND ASSOCIATED HARDWARE SEE SHEET NOS. 501.01 AND 501.02.
RAIL ELEMENTS ARE FURNISHED SHAP CURVED FOR RADI BETWEEN 5 FEET AND 150 FEET.
ALL GUARDRAIL POSTS SHALL BE SET PLUMB. POST SHALL NOT BE SET WITH A VARIATION OF MORE THAN 1/2" PER FOOT FROM VERTICAL. W-BEAM BLOCKOUTS, AND POSTS SHALL BE SET AND ALIGNED WITHOUT ALTERATION OR FORCE, AS PER SECTION 505 OF THE SPECIFICATIONS.
ALL GR-2 AND GR-2A RAIL SHALL BE MAINTAINED AT A HEIGHT OF 27 3/4" MIN - 28 3/4" MAX AS MEASURED PER STANDARD GR-NS.
ALL W-BEAM RAILS SHALL BE LAPPED IN THE DIRECTION OF VEHICULAR TRAVEL FOR THE FINISHED ROADWAY.
THE OPTIONAL GR-2A METHODS OF NESTING THE RAIL OR USE OF AN ADDITIONAL RAIL ON THE BACK OF THE POST FOR STANDARD GR-2A SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

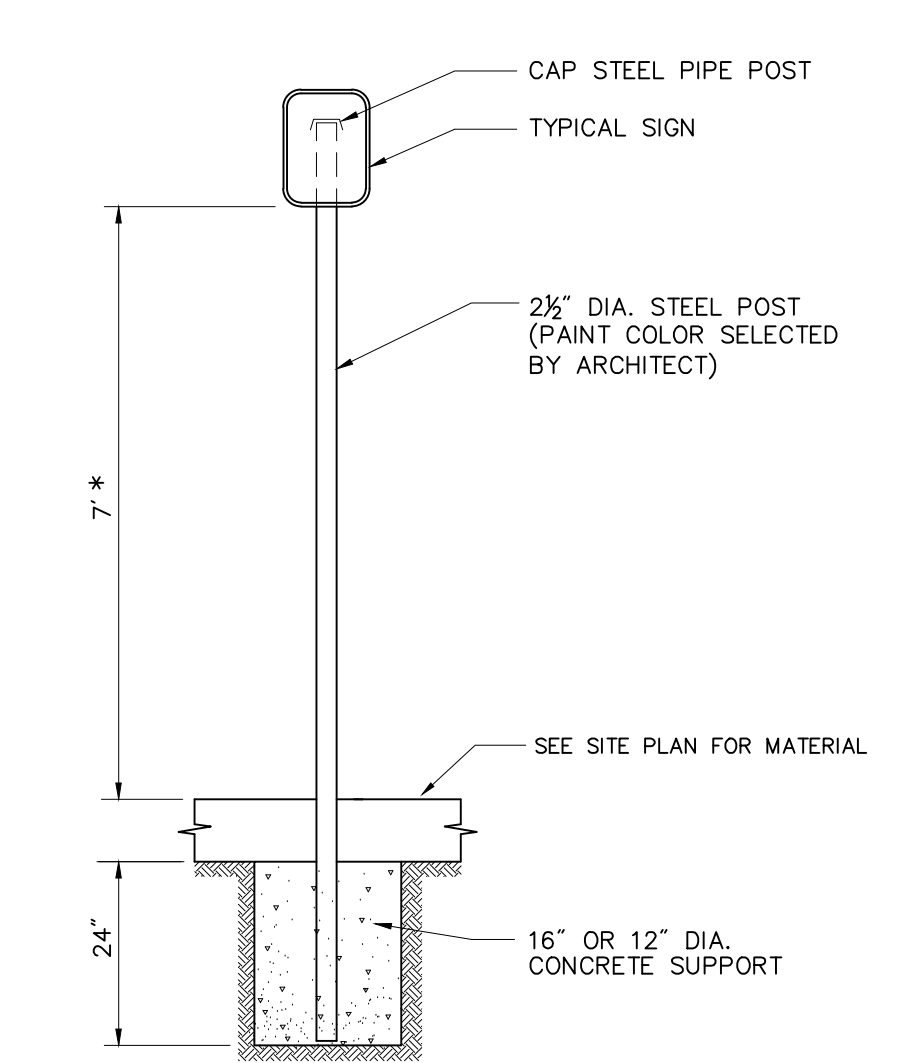
* OPTIONAL GR-2A METHOD USING NESTED RAIL
* OPTIONAL GR-2A METHOD USING ADDITIONAL RAIL ON BACK OF POST
* WHEN NESTED RAIL OR ADDITIONAL RAIL IS PLACED ON BACK OF POST FOR GR-2A THE POST SPACING WILL BE 6'-3"

DESIGN SPEED	FLARE RATES	
	INSIDE SHY LINE	BEYOND SHY LINE
MPH	SHY LINE FLARE RATE	FLARE RATE
70	5' 30:1	15:1 *
60	8' 26:1	14:1 *
50	6.5' 21:1	10:1 *
40	5' 16:1	8:1 *
30	4' 13:1	7:1 *

* SUGGESTED MAXIMUM FLARE RATE FOR SEM-RIGID BARRIER SYSTEMS.



GR-7 Breakaway Cable Terminal
N.T.S. Source: VDOT 07/12 501.11



* THIS DIMENSION SHALL BE A MINIMUM OF 5' FOR ACCESSIBLE SIGNAGE.

Sign Post - Type 'A'
N.T.S. Source: VHB 01/12 LD_701

Intermediate Terminal Phase 2 - Public Access
3101 Wharf Street
Richmond, Virginia

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Sheet _____ of _____

C6.02

JOHN P. BARTY
Lic. No. 039452
6/22/18
PROFESSIONAL ENGINEER

Project Number 33965.20

LANDSCAPE NOTES

- ALL PROPOSED PLANTING LOCATIONS SHALL BE STAKED AS SHOWN ON THE PLANS FOR FIELD REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- CONTRACTOR SHALL VERIFY LOCATIONS OF ALL BELOW GRADE AND ABOVE GROUND UTILITIES AND NOTIFY OWNERS REPRESENTATIVE OF CONFLICTS.
- NO PLANT MATERIALS SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA. CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE OF ANY CONFLICT.
- A 3-INCH DEEP MULCH PER SPECIFICATION SHALL BE INSTALLED UNDER ALL TREES AND SHRUBS, AND IN ALL PLANTING BEDS, UNLESS OTHERWISE INDICATED ON THE PLANS, OR AS DIRECTED BY OWNER'S REPRESENTATIVE.
- ALL TREES SHALL BE BALLED AND BURLAPPED, UNLESS OTHERWISE NOTED IN THE DRAWINGS, OR APPROVED BY THE OWNER'S REPRESENTATIVE.
- FINAL QUANTITY FOR EACH PLANT TYPE SHALL BE AS GRAPHICALLY SHOWN ON THE PLAN. THIS NUMBER SHALL TAKE PRECEDENCE IN CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND ON THE PLAN. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLANT LIST AND PLANT LABELS PRIOR TO BIDDING.
- ANY PROPOSED PLANT SUBSTITUTIONS MUST BE REVIEWED AND APPROVED IN WRITING BY THE A/E OR OWNER'S REPRESENTATIVE.
- ALL PLANT MATERIALS INSTALLED SHALL MEET THE SPECIFICATIONS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN AND CONTRACT DOCUMENTS.
- ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.
- AREAS DESIGNATED "TOPSOIL & SEED" SHALL RECEIVE MINIMUM 6" OF TOPSOIL AND SPECIFIED SEED MIX. LAWNS OVER 2:1 SLOPE SHALL BE PROTECTED WITH EROSION CONTROL FABRIC.
- ALL DISTURBED AREAS NOT OTHERWISE NOTED ON CONTRACT DOCUMENTS SHALL BE LOAM AND SEEDED OR MULCHED AS DIRECTED BY OWNER'S REPRESENTATIVE.

PLANT MAINTENANCE NOTES

- CONTRACTOR SHALL PROVIDE COMPLETE MAINTENANCE OF THE LAWNS AND PLANTINGS. NO IRRIGATION IS PROPOSED FOR THIS SITE. THE CONTRACTOR SHALL SUPPLY SUPPLEMENTAL WATERING FOR NEW LAWNS AND PLANTINGS DURING THE ONE YEAR PLANT GUARANTEE PERIOD.
- CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT FOR THE COMPLETE LANDSCAPE MAINTENANCE WORK. WATER SHALL BE PROVIDED BY THE CONTRACTOR.
- WATERING SHALL BE REQUIRED DURING THE GROWING SEASON, WHEN NATURAL RAINFALL IS BELOW ONE INCH PER WEEK.
- WATER SHALL BE APPLIED IN SUFFICIENT QUANTITY TO THOROUGHLY SATURATE THE SOIL IN THE ROOT ZONE OF EACH PLANT.
- CONTRACTOR SHALL REPLACE DEAD OR DYING PLANTS AT THE END OF THE ONE YEAR GUARANTEE PERIOD. CONTRACTOR SHALL TURN OVER MAINTENANCE TO THE FACILITY MAINTENANCE STAFF AT THAT TIME.

DIAGRAM A

TREES WHICH ARE 2'-3" CAL. MUST HAVE TWO (2) 36" STAKES.

TREES WHICH ARE 1'-1 1/2" CAL. MUST HAVE TWO (2) 24" STAKES.

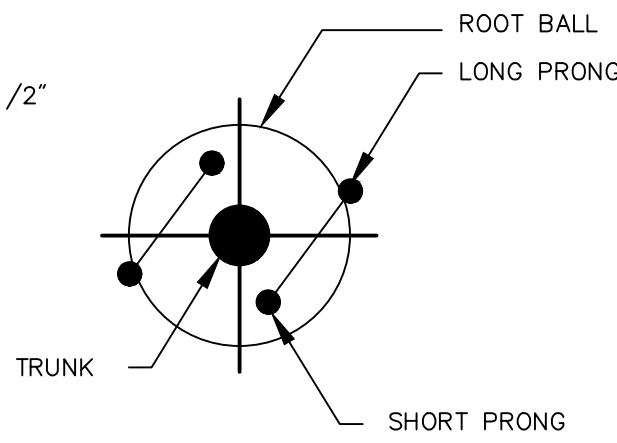
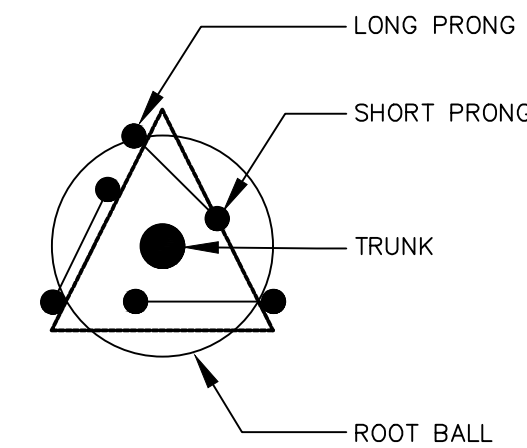


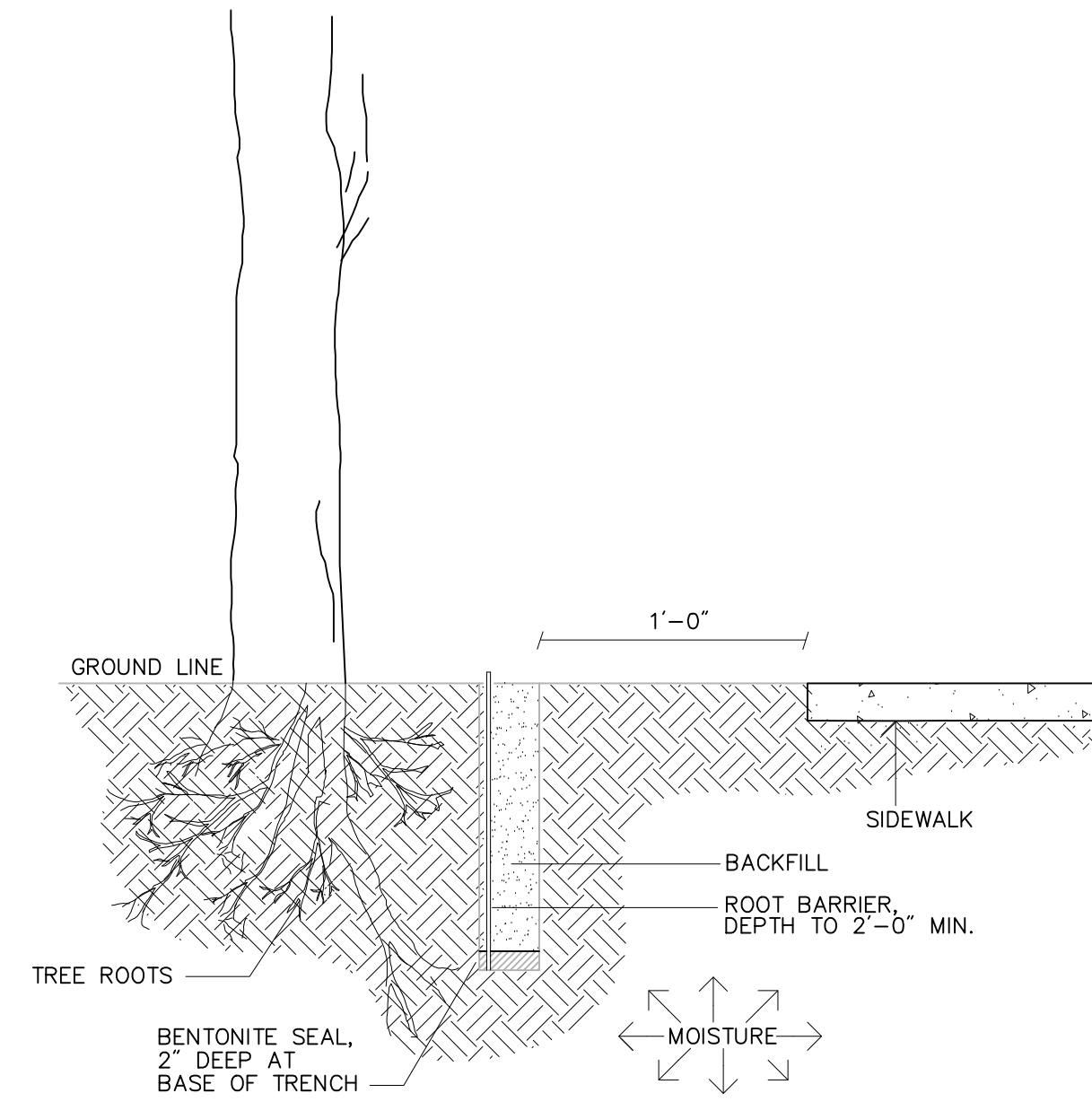
DIAGRAM B

TREES WHICH ARE 3 1/2'-4 1/2" CAL. MUST HAVE THREE (3) 42" STAKES.



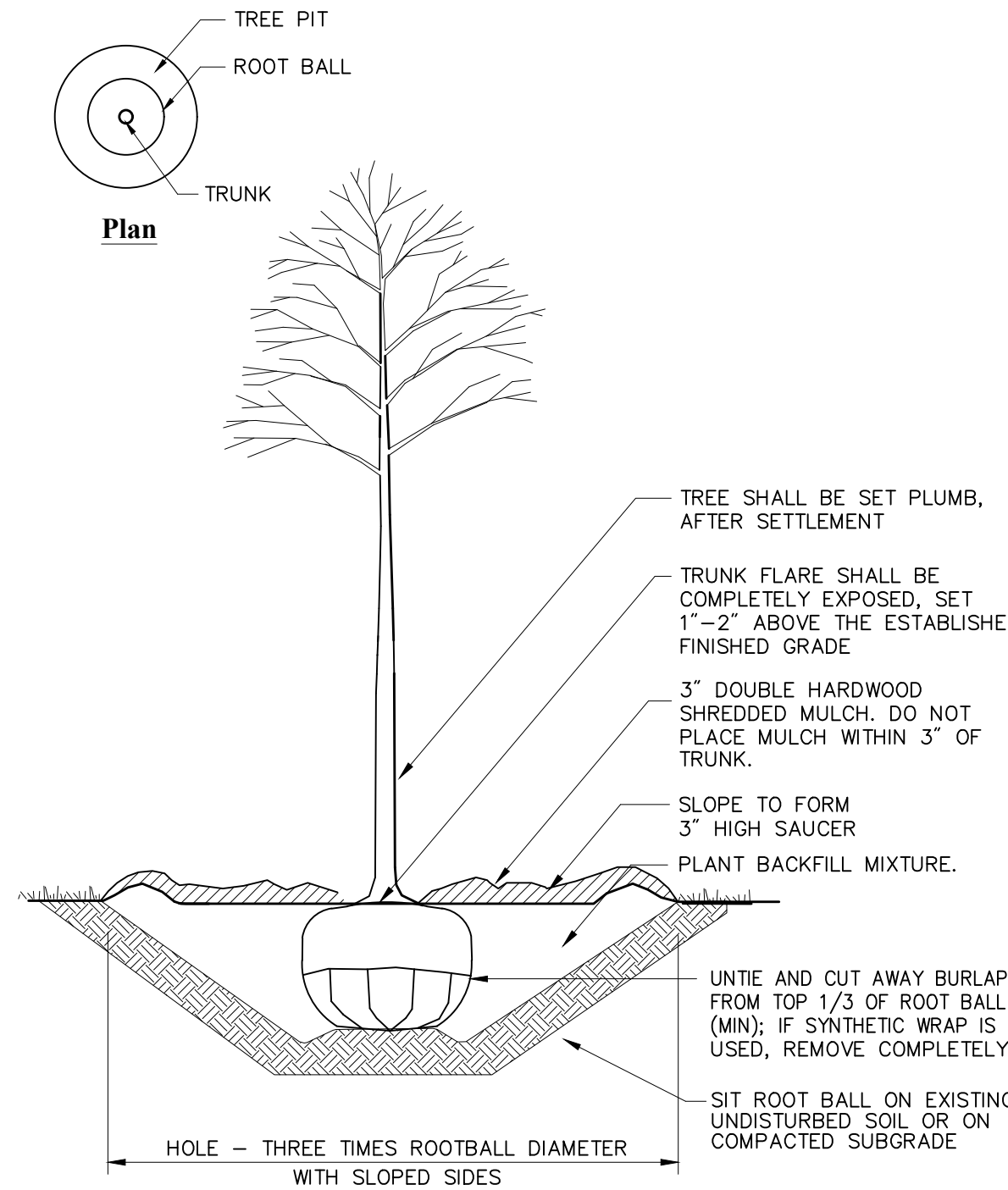
Below-Grade Tree Stabilizing System Detail

N.T.S. Source: VHB 11/12



Root Barrier Detail

N.T.S. Source: VHB 10/12

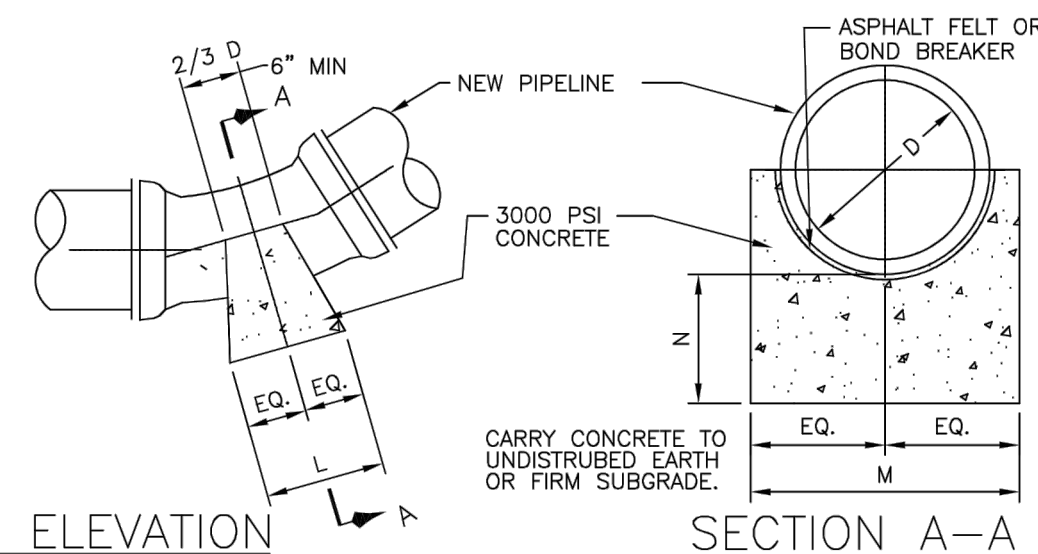


Tree Planting

N.T.S. Source: VHB 1/10 LD_602

PIPE SIZE	THICKNESS OF PIPE (SEE NOTE 2)	TRENCH WIDTH (FT)	CY PER FT OF DEPTH PER FT OF LENGTH
6"	0.180	2.75	0.100
8"	0.240	2.75	0.100
12"	0.300	2.75	0.100
15"	0.360	2.79	0.103
18"	0.437	3.08	0.114

PIPE SIZE	THICKNESS OF PIPE (SEE NOTE 2)	TRENCH WIDTH (FT)	CY PER FT OF DEPTH PER FT OF LENGTH
6"	0.180	3.00	0.110
8"	0.240	3.00	0.110
12"	0.300	3.17	0.117
15"	0.360	3.46	0.128
18"	0.437	3.75	0.139

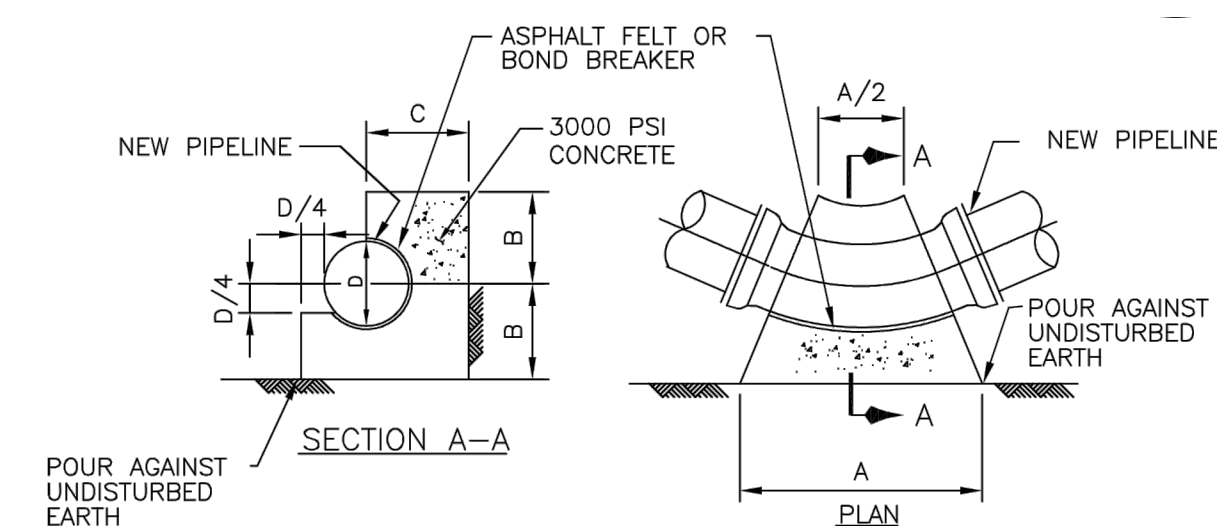


PIPE SIZE	11 1/4" BEND			22 1/2" BEND			45° BEND		
	L	M	N	L	M	N	L	M	N
4"	6"	1'-0"	8"	8"	1'-0"	8"	1'-1"	1'-2"	8"
6"	6"	1'-2"	8"	10"	1'-2"	8"	1'-2"	1'-2"	8"
8"	8"	1'-4"	8"	11"	1'-4"	8"	1'-9"	1'-4"	8"
10"	8"	1'-6"	8"	1'-3"	1'-6"	9"	2'-5"	1'-6"	1'-0"
12"	8"	2'-0"	8"	1'-4"	2'-0"	9"	2'-8"	2'-0"	1'-2"
16"	1'-1"	2'-4"	9"	2'-1"	2'-4"	1'-0"	4'-0"	2'-4"	1'-6"
18"	1'-5"	2'-8"	10"	2'-9"	2'-8"	1'-2"	5'-6"	2'-8"	2'-0"
20"	1'-5"	2'-8"	10"	2'-9"	2'-8"	1'-2"	5'-6"	2'-8"	2'-0"
24"	1'-10"	3'-0"	1'-0"	3'-7"	3'-0"	1'-4"	6'-0"	3'-6"	2'-6"

- NOTES:
- BLOCKING DIMENSIONS SHOWN ARE MINIMUMS.
 - BLOCKING DIMENSIONS ARE BASED ON A STATIC PRESSURE OF 150 PSI AND AN ALLOWABLE SOIL BEARING CAPACITY OF 2000 PSF.
 - WHERE SOIL BEARING CAPACITY IS LESS THAN 2000 PSF, SUBMIT BLOCKING DESIGN CALCULATIONS.
 - THRUST BLOCKS FOR LOWER VERTICAL BENDS MAY BE DELETED WITH RESTRAINED JOINTS. THE ENGINEER SHALL CALCULATE LENGTH OF RESTRAINED SECTION.

Blocking Detail

N.T.S. Source: City of Richmond DPU 6/29/04 M-8

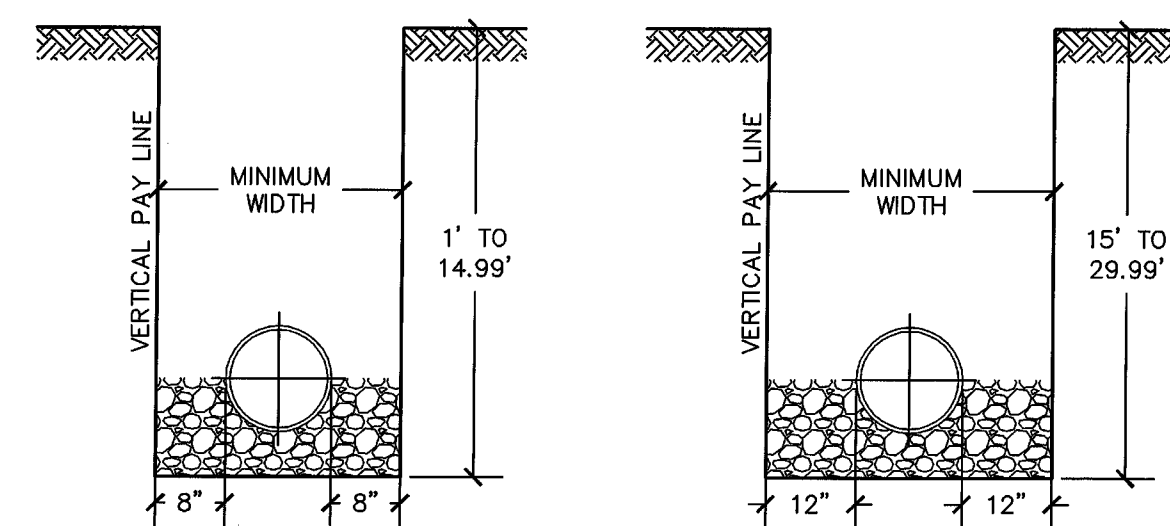


BEND	DIM.	BUTTRESS FOR HORIZONTAL BENDS DIAMETER (D)								
		4"	6"	8"	10"	12"	16"	18"	20"	24"
11 1/4"	A	6"	8"	8"	1'-1"	1'-4"	1'-9"	1'-9"	1'-9"	2'-0"
	B	6"	7"	8"	9"	10"	1'-0"	1'-3"	1'-6"	1'-6"
	C	6"	7"	7"	8"	9"	10"	1'-0"	1'-0"	1'-0"
22 1/2"	A	8"	10"	1'-4"	1'-7"	2'-0"	2'-6"	3'-3"	3'-3"	3'-9"
	B	6"	7"	8"	10"	10"	1'-0"	1'-3"	1'-6"	1'-6"
	C	7"	8"	9"	10"	1'-0"	1'-3"	1'-6"	1'-6"	1'-6"
45°	A	1'-1"	1'-4"	2'-0"	2'-6"	3'-3"	4'-3"	6'-0"	6'-0"	7'-0"
	B	6"	7"	8"	10"	11"	1'-3"	1'-3"	1'-6"	1'-8"
	C	7"	8"	9"	10"	1'-0"	1'-3"	1'-4"	1'-9"	1'-9"
90°	A	1'-10"	2'-3"	3'-3"	3'-9"	5'-0"	6'-0"	8'-0"	8'-0"	9'-9"
	B	7"	8"	9"	1'-0"	1'-0"	1'-4"	1'-8"	2'-0"	2'-0"
	C	1'-0"	1'-6"	1'-6"	1'-6"	1'-6"	1'-9"	1'-9"	2'-0"	2'-0"

- NOTES:
- BLOCKING DIMENSIONS SHOWN ARE MINIMUMS.
 - BLOCKING DIMENSIONS ARE BASED ON A STATIC PRESSURE OF 150 PSI AND AN ALLOWABLE SOIL BEARING CAPACITY OF 2000 PSF.
 - WHERE SOIL BEARING CAPACITY IS LESS THAN 2000 PSF, SUBMIT BLOCKING DESIGN CALCULATIONS.
 - THRUST BLOCKS FOR HORIZONTAL BENDS MAY BE DELETED WITH RESTRAINED JOINTS. THE ENGINEER SHALL CALCULATE LENGTH OF RESTRAINED SECTION.

Buttress for Horizontal Bends

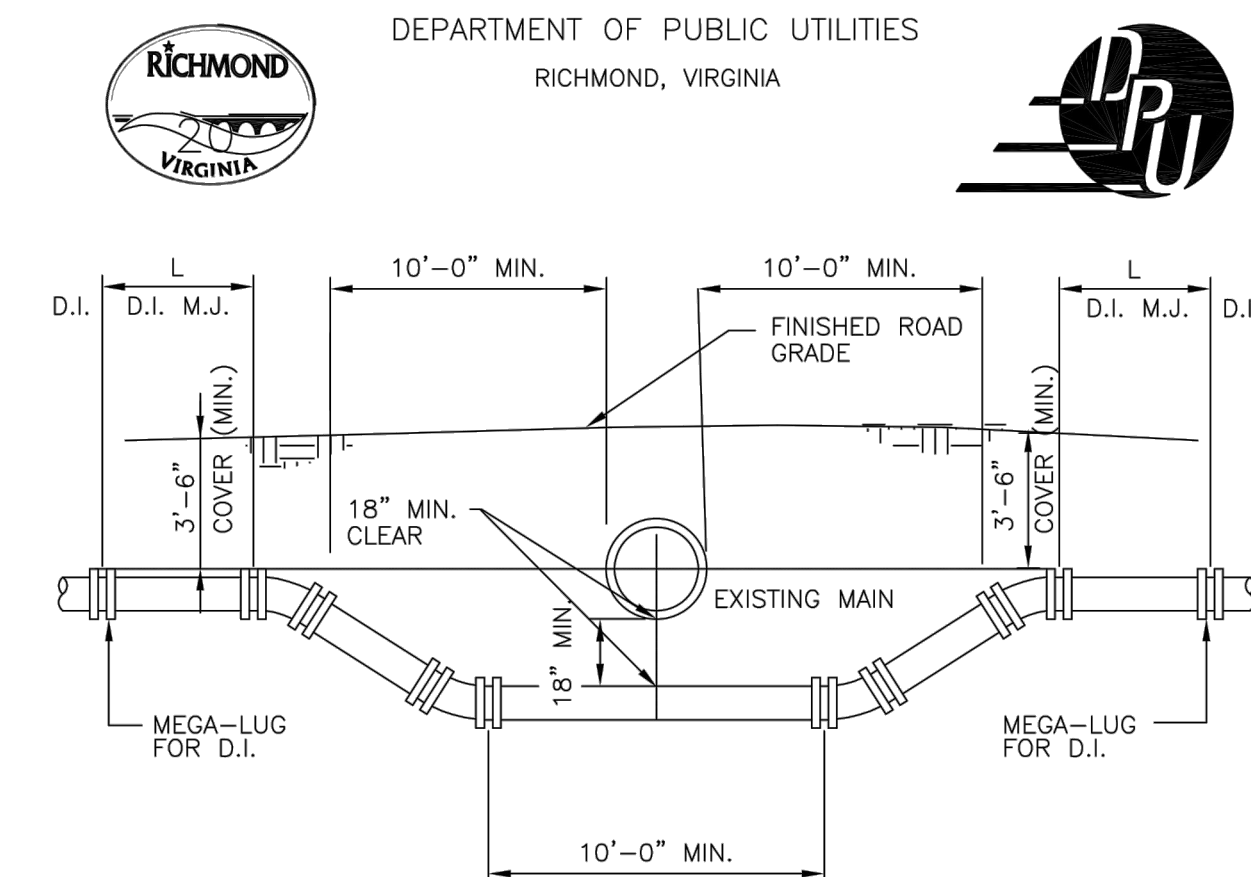
N.T.S. Source: City of Richmond DPU 6/28/04 M-5



- NOTES:
- ALLOWABLE EXCAVATIONS ARE IN CUBIC YARDS PER FT. OF DEPTH PER FT. OF LENGTH.
 - DIMENSIONS ALLOWED FOR SEWER EXCAVATIONS FOR SDR 35 PVC.
 - FOR DEPTHS GREATER THAN 30' CONTACT THE TECHNICAL SERVICES DIVISION OF DPU FOR ALLOWABLE EXCAVATIONS.

Pipeline Excavation

N.T.S. Source: City of Richmond - Department of Public Utilities 02/09 P-1A



- NOTES:
- LOWERED SECTION TO BE OF DUCTILE IRON MECHANICAL JOINT PIPE WITH RESTRAINED JOINTS AT ANY INCLUDED JOINTS. THE ENGINEER SHALL CALCULATE LENGTH (L) OF RESTRAINED SECTION.
 - THRUST BLOCKS FOR VERTICAL BENDS MAY BE DELETED WITH RESTRAINED JOINTS.
 - VERTICAL BENDS MAY BE ELIMINATED BY USING JOINT DEFLECTIONS. JOINT DEFLECTIONS SHALL NOT EXCEED 1/2 MANUFACTURERS RECOMMENDED DEFLECTION.

Waterline Adjustment for Existing Utility

N.T.S. Source: City of Richmond DPU 06/04 M-13

Intermediate Terminal Phase 2 - Public Access
3101 Wharf Street
Richmond, Virginia

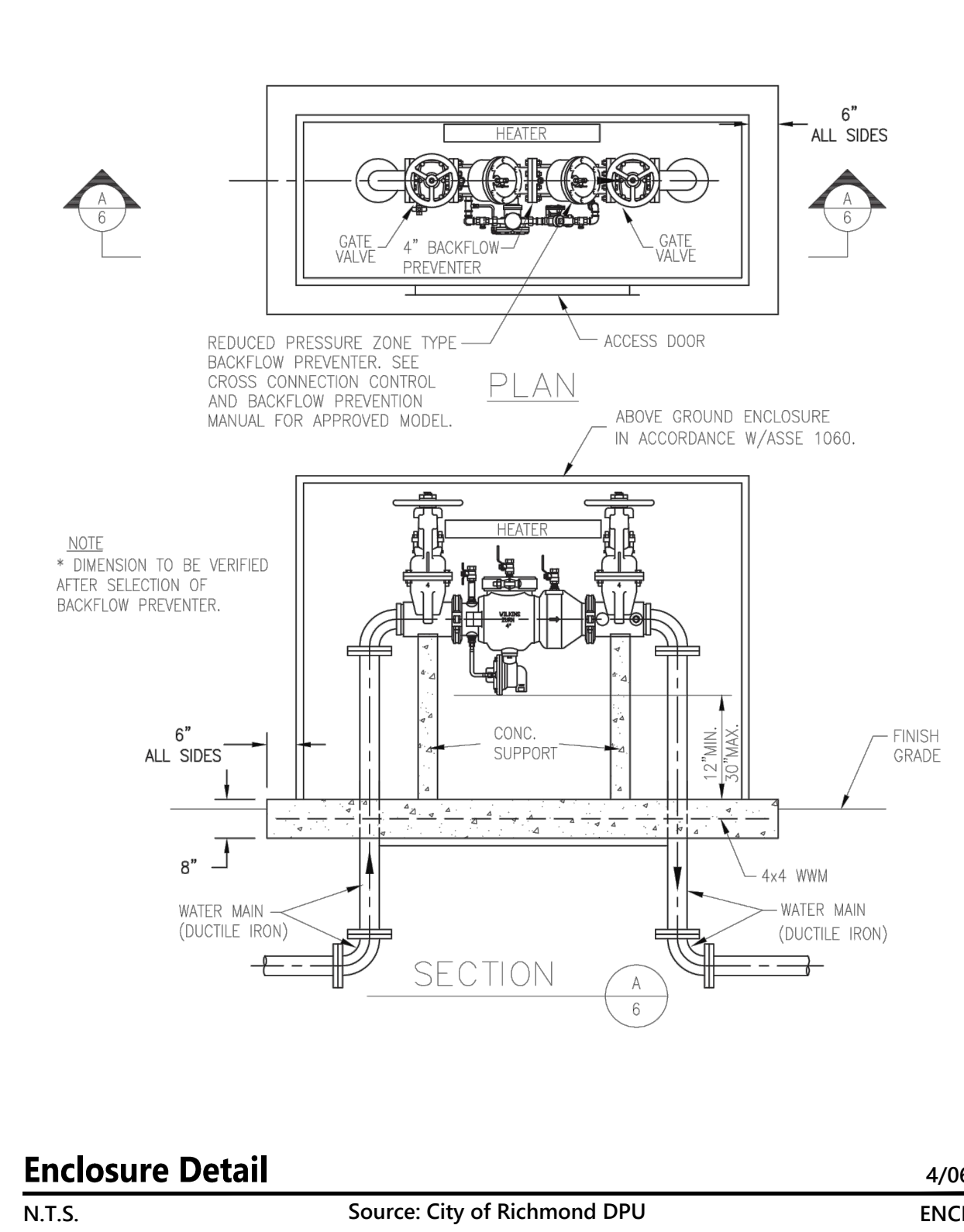
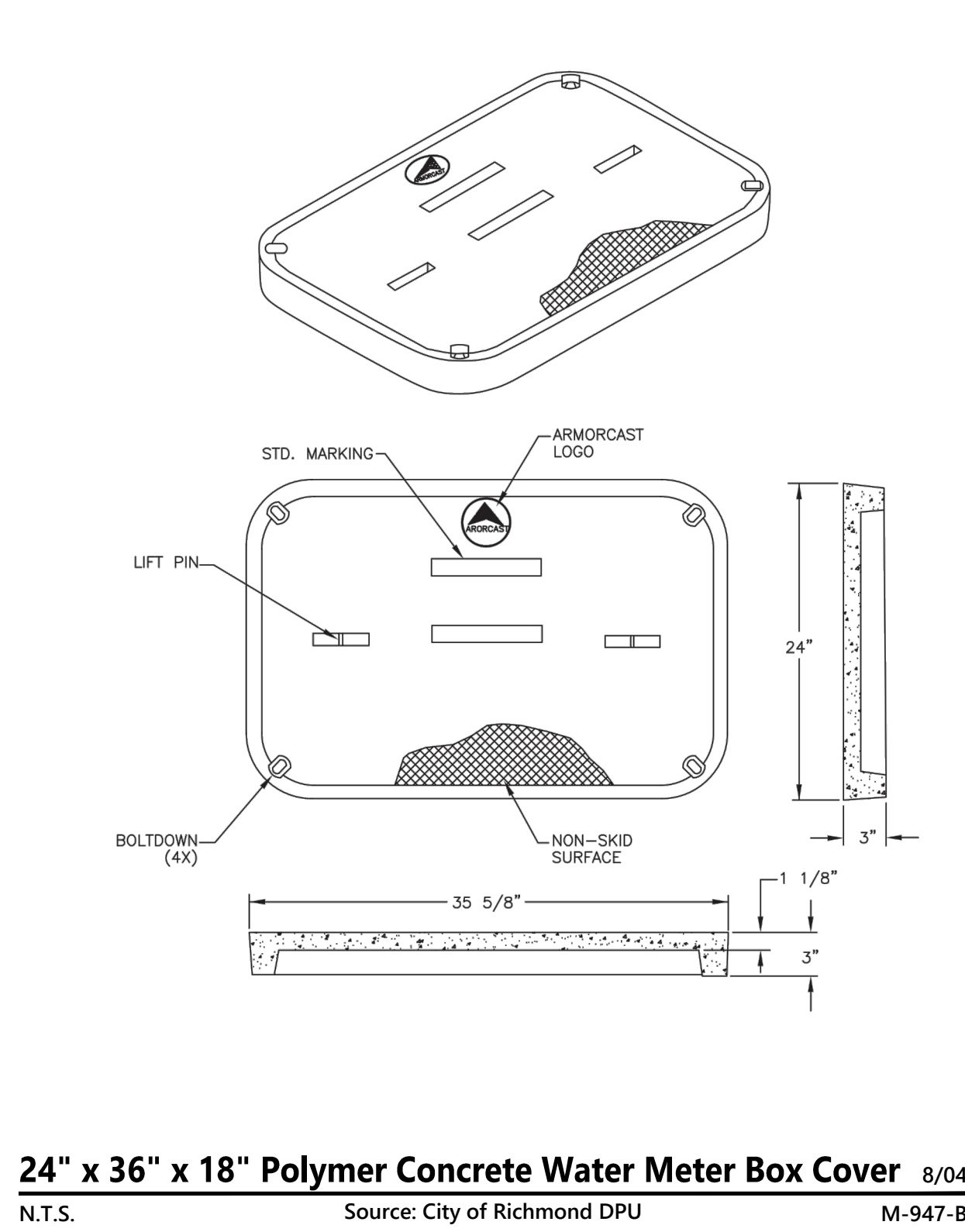
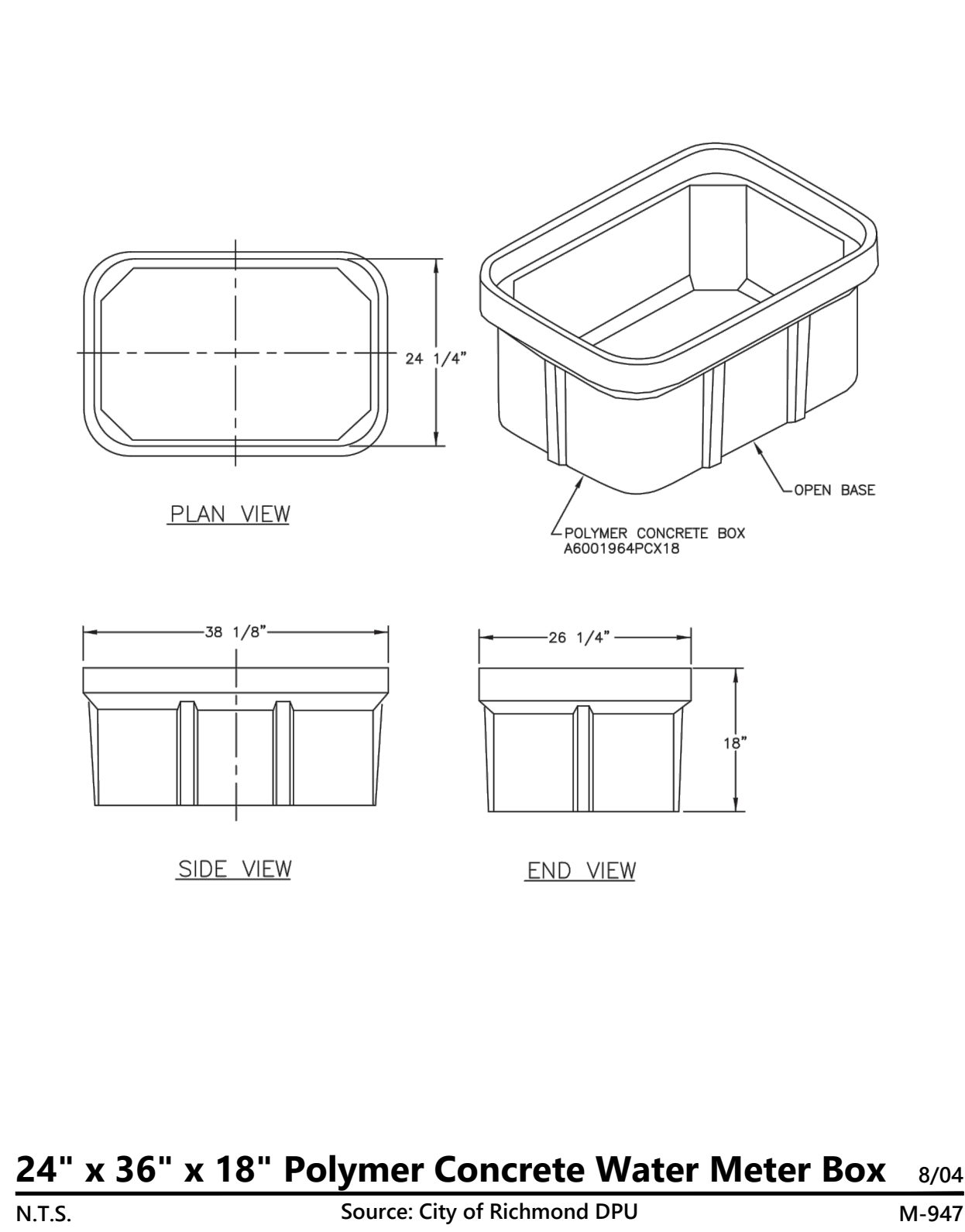
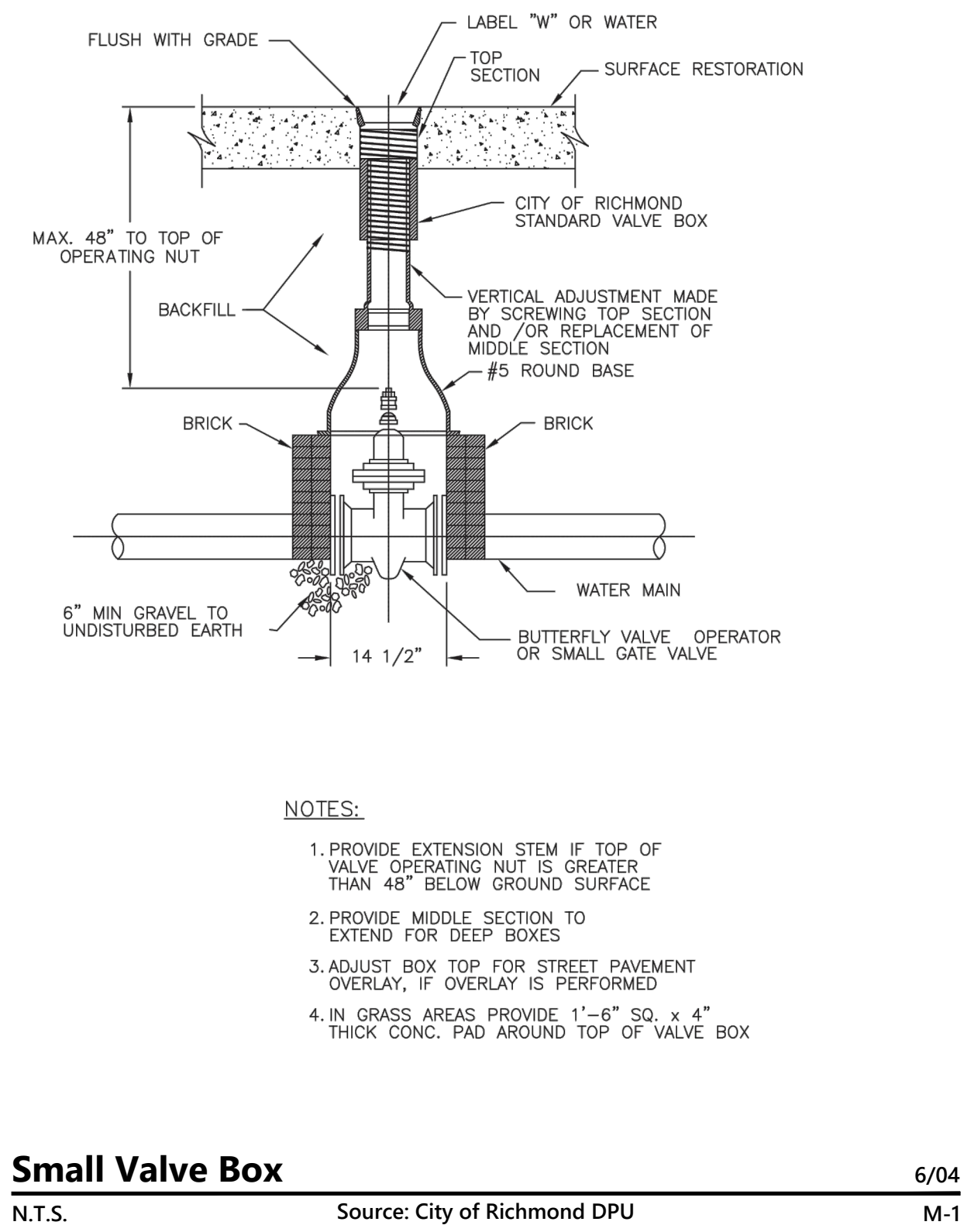
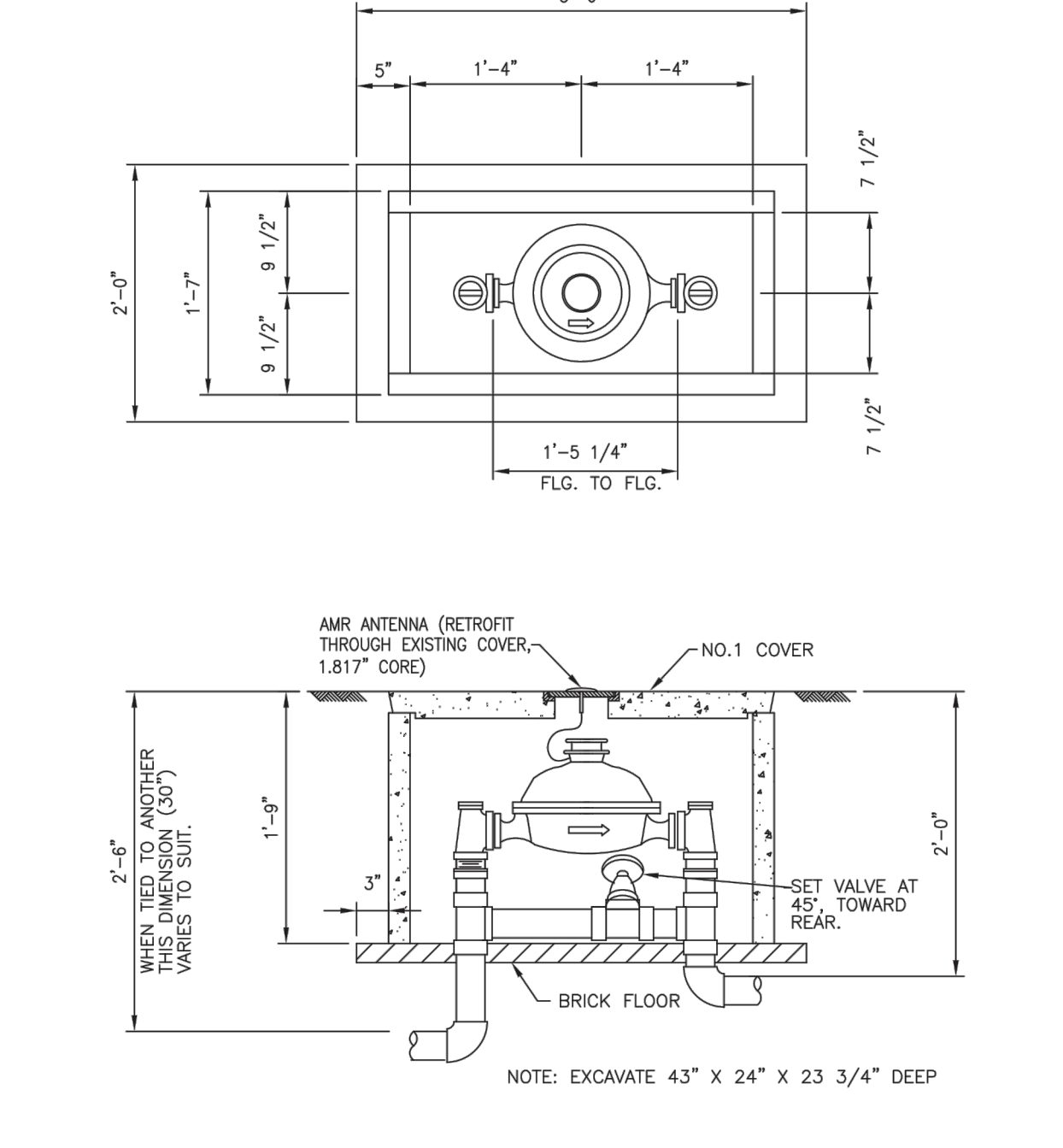
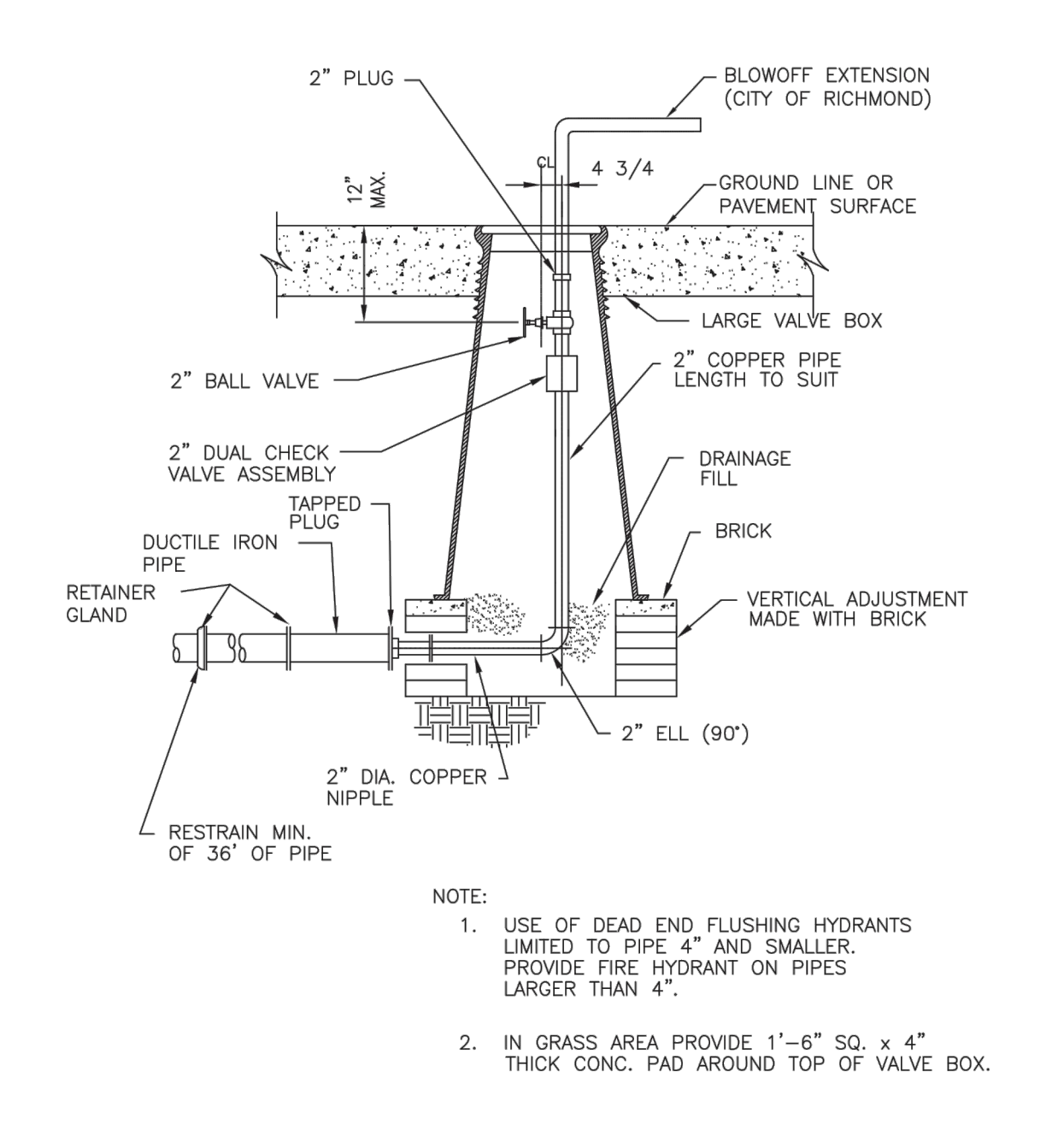
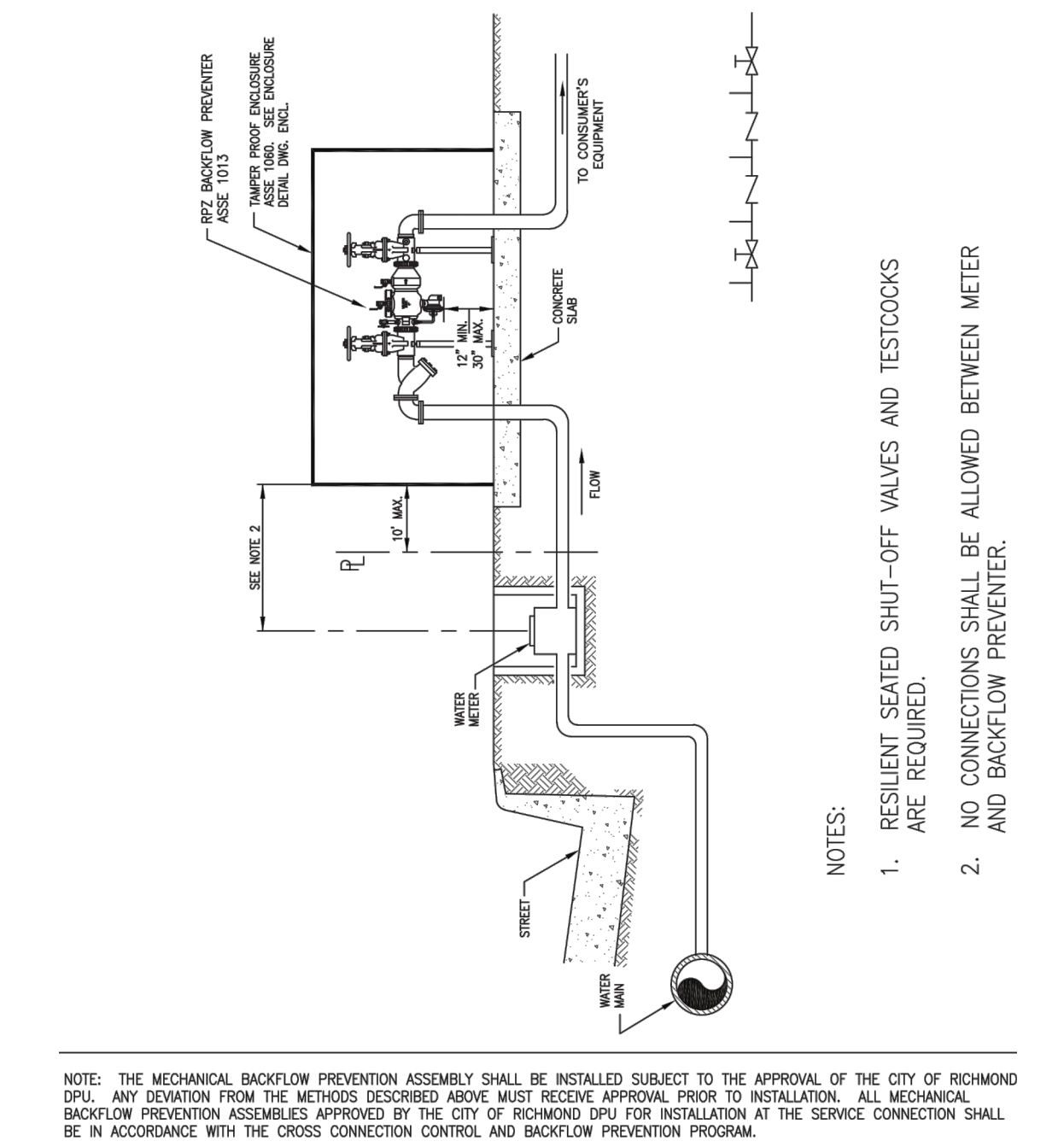
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Project Number: 33965.20




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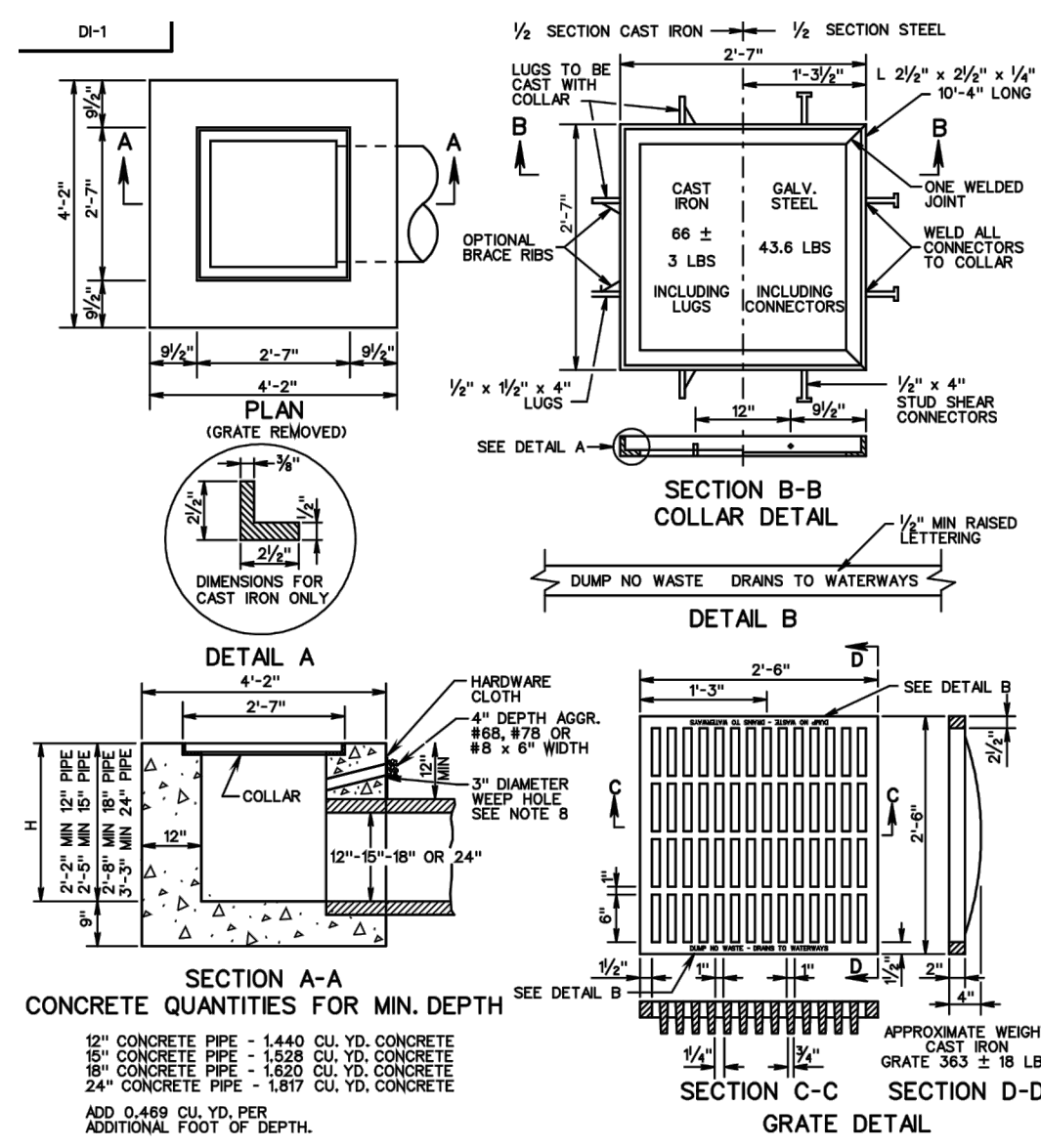
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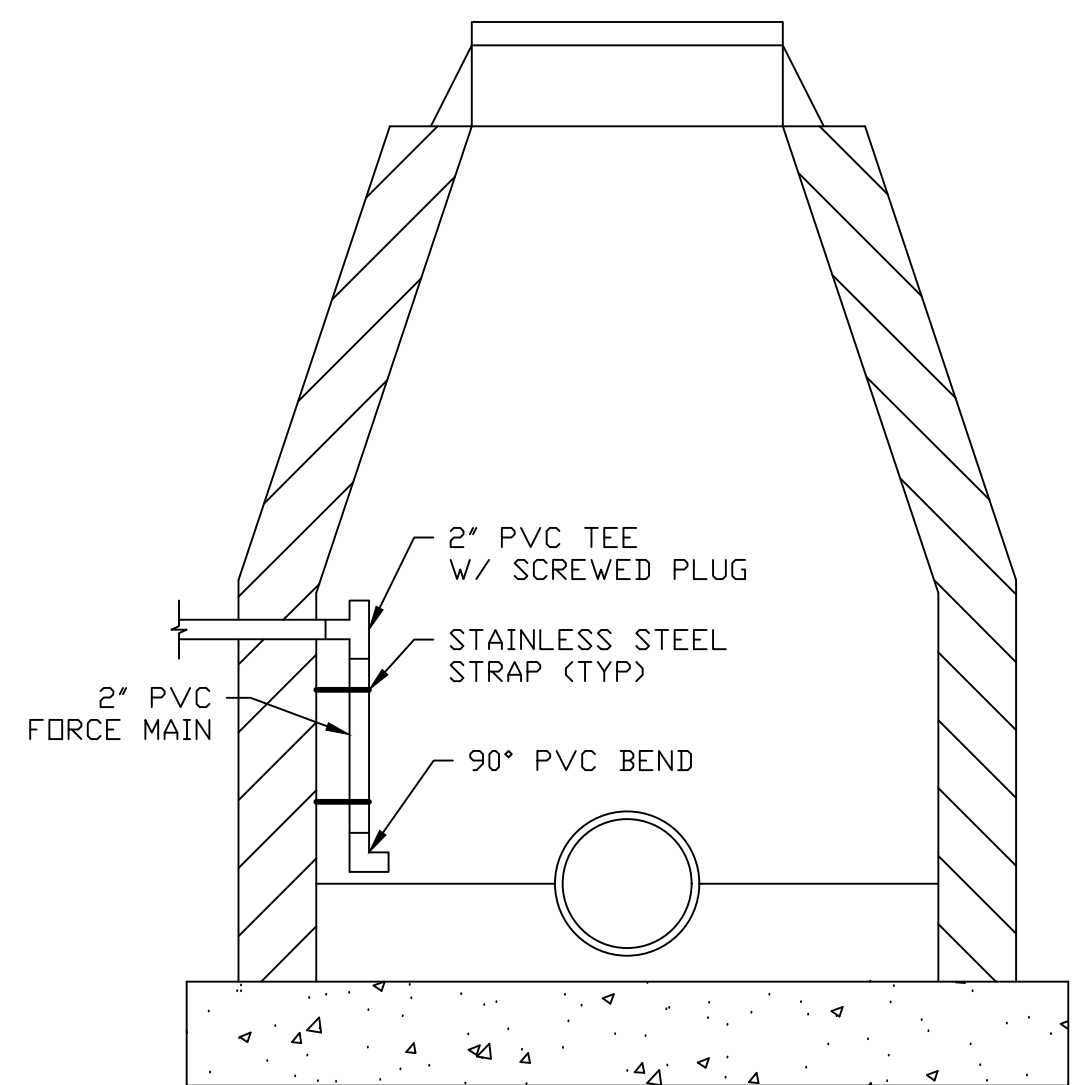


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- NOTES**
- DEPTH OF INLET (DI) TO BE SHOWN ON PLANS FOR DEPTH GREATER THAN 10' USE STANDARD DI-1A
 - THE "H" DIMENSION SHOWN ON THE STANDARDS AND SPECIFIED ON THE PLANS WILL BE WEASURED FROM THE INVERT OF THE DUTILE PIPE TO THE TOP OF THE STRUCTURE PLAN "H" DIMENSIONS ARE APPROXIMATE ONLY. FOR EXACT DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FROM FIELD CONDITIONS.
 - WHEN SPECIFIED ON THE PLANS THE INVERT IS TO BE SHOWN IN ACCORDANCE WITH STANDARD I-1. THE COST OF FORMING AND FINISHING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
 - IN THE EVENT THE INVERT OF THE DUTILE PIPE IS HIGHER THAN THE INVERT OF THE STRUCTURE THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH SLOTTED MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE. THE COST OF FORMING AND FINISHING ALL MATERIALS INCIDENTAL TO INLET SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
 - STEPS ARE TO BE PROVIDED WHEN H IS 4'-0" OR GREATER. FOR DETAILS SEE STANDARD ST-1.
 - THIS ITEM MAY BE PRECAST OR CAST-IN-PLACE.
 - 8.4 X 8" SMOOTH DOWELS AT APPROXIMATELY 8" C-TO BE PLACED IN ALL AREAS ADJACENT TO REINFORCING TO PREVENT SETTLEMENT IN LEAD OF DOWELS. 2" X 2" DOWELS MAY BE PROVIDED. SEE STANDARD I-D-3, 4 FOR ALTERNATE DESIGN.
 - 3" DIAMETER WEEP HOLE WITH 12"x12" PLASTIC HARDWARE CLOTH (1/2" MESH) OR GALVANIZED STEEL WIRE MESH MINIMUM 3/8" DIAMETER CLOTH NUMBER 4 MESH HARDWARE CLOTH ANCHORED FIRMLY TO THE OUTSIDE OF THE STRUCTURE.
 - CAST IN PLACE CONCRETE IS TO BE CLASS AS 3000 PSI. PRECAST CONCRETE IS TO BE 4000 PSI.
 - ANY ALTERNATE METHODS OF REINFORCEMENT TO BE APPROVED BY THE ENGINEER. LETTERING IS REQUIRED ON ALL DI-1 LUGS AS SHOWN HEREON.
 - DUMP NO WASTE DRAINS TO WATERWAY LETTERING IS REQUIRED ON ALL DI-1 LUGS AS SHOWN HEREON.

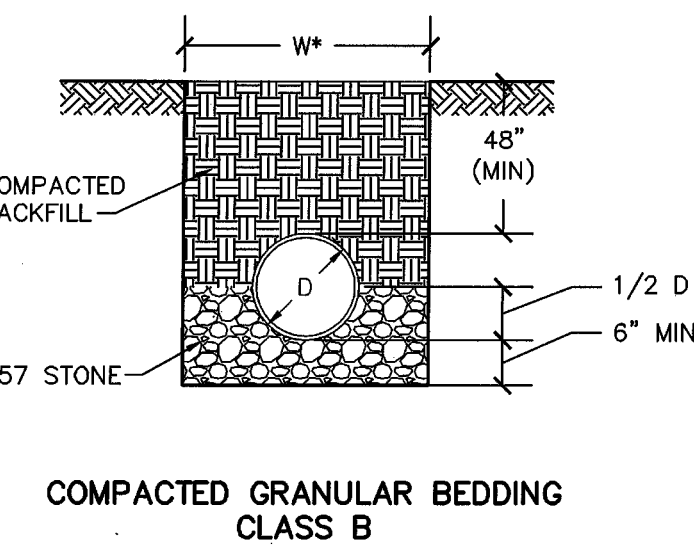


Standard Drop Inlet

7/16
N.T.S. Source: VDOT 104.01

Interior Drop Manhole Connection

N.T.S. Source: VHB

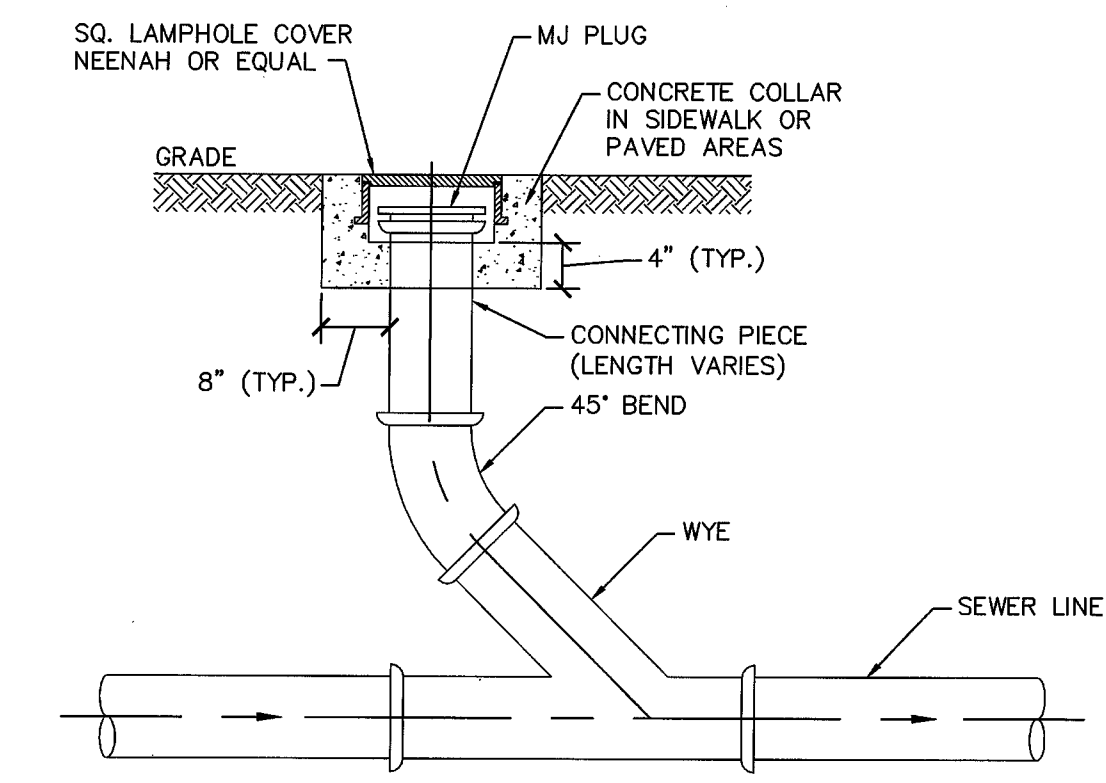


COMPACTED GRANULAR BEDDING CLASS B

- NOTES:**
- * FOR "W" SEE DETAILS P-1A AND P-1B.
 - USE CLASS B COMPACTED GRANULAR BEDDING UNLESS OTHERWISE DIRECTED BY DPU TECHNICAL SERVICES DIVISION.
 - TRENCH, BACKFILL AND STREET RESTORATION SHALL BE IN ACCORDANCE WITH CITY OF RICHMOND DEPARTMENT OF PUBLIC WORKS AND/OR VDOT REQUIREMENTS.
 - DI PIPE IS REQUIRED IN AREAS WITH LESS THAN 48" OF COVER.

Sewer Bedding

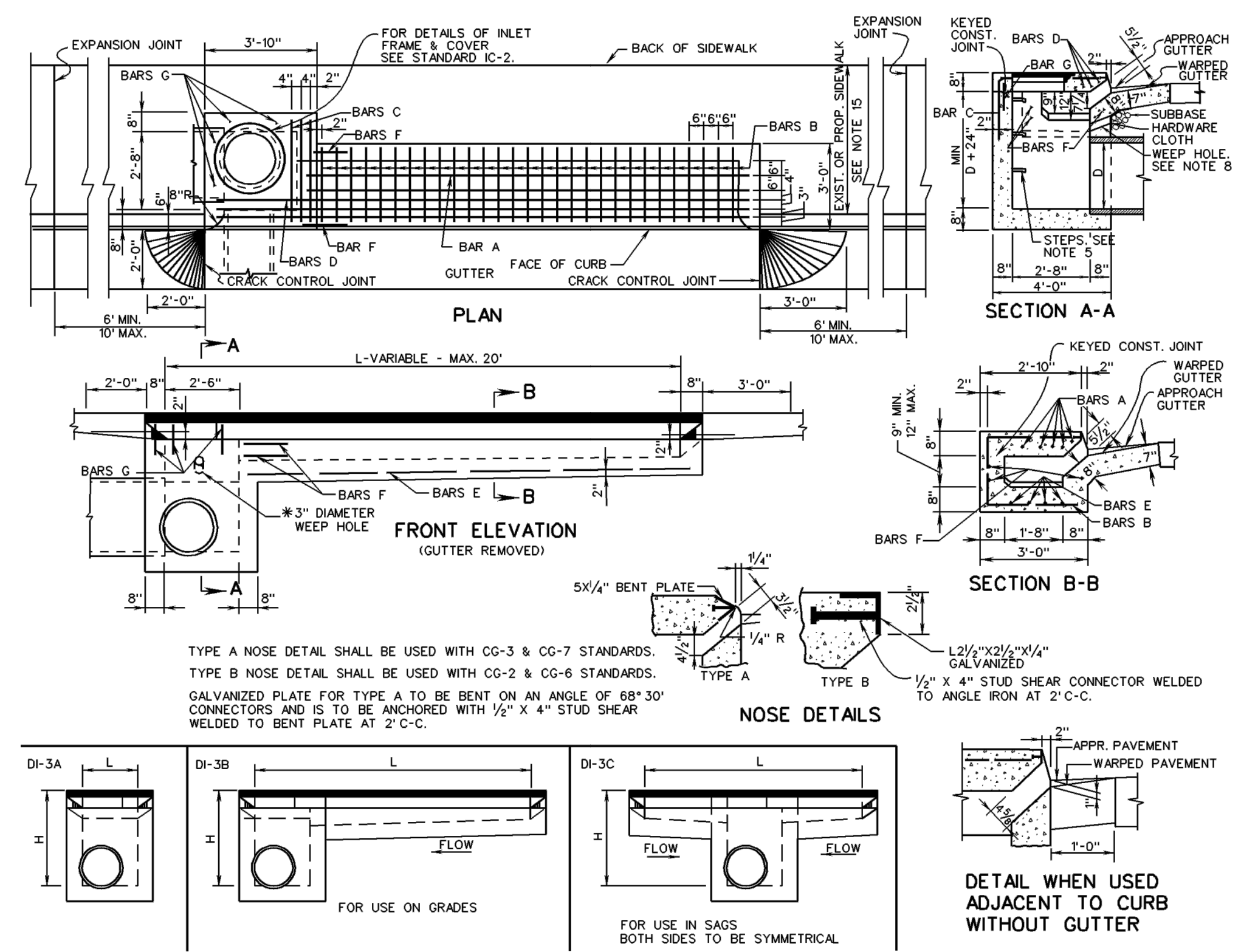
12/09
N.T.S. Source: City of Richmond DPU P-2



- NOTES:**
- CLEANOUT COVER SHALL BE BRASS IN CONCRETE/PAVEMENT OR PLASTIC IN GRASS AREAS.
 - CLEANOUT SHALL BE 6" OR LARGER UNLESS OTHERWISE APPROVED BY DPU DEPUTY DIRECTOR OR DESIGNER.

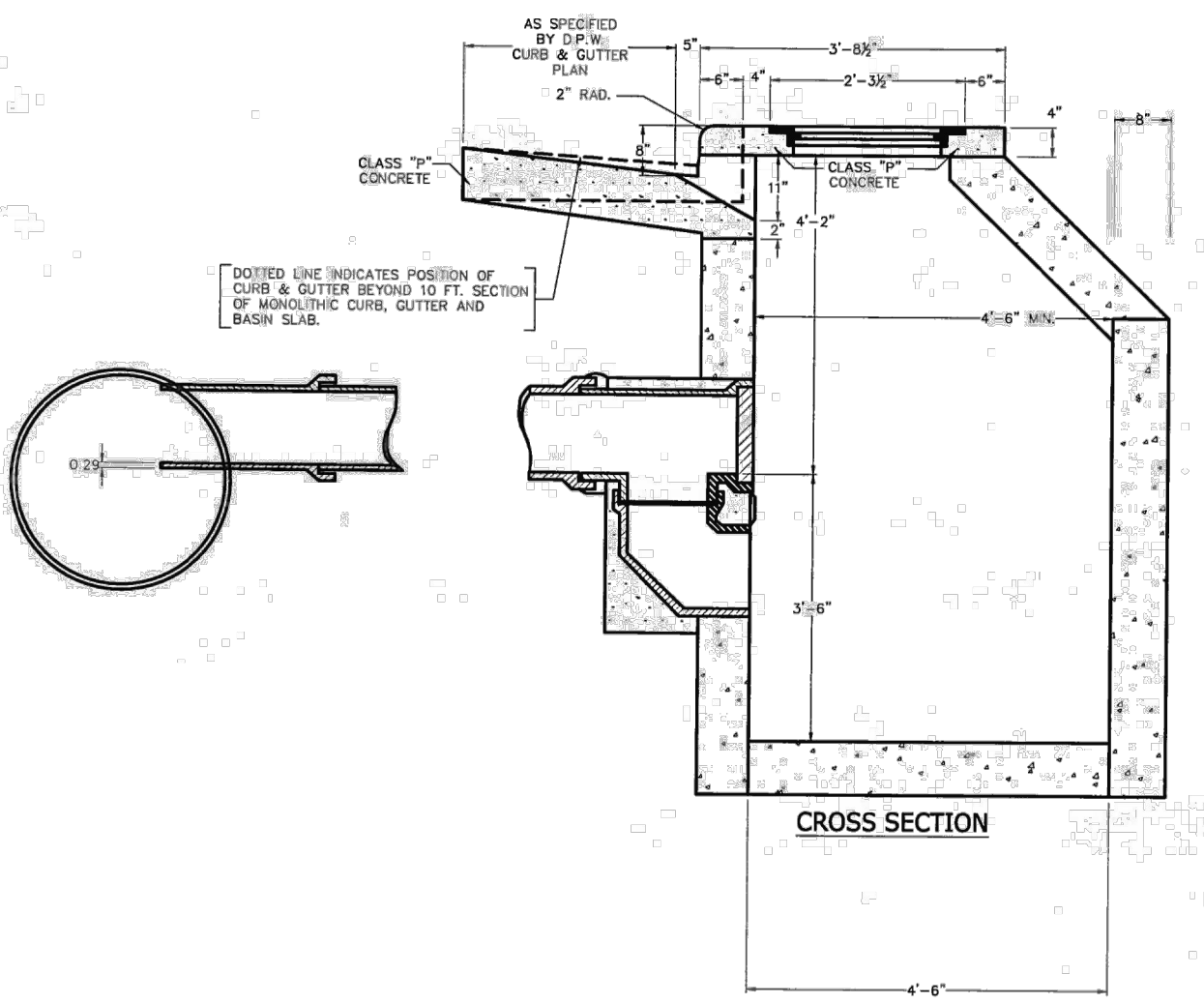
Cleanout Detail

12/09
N.T.S. Source: City of Richmond DPU P-7



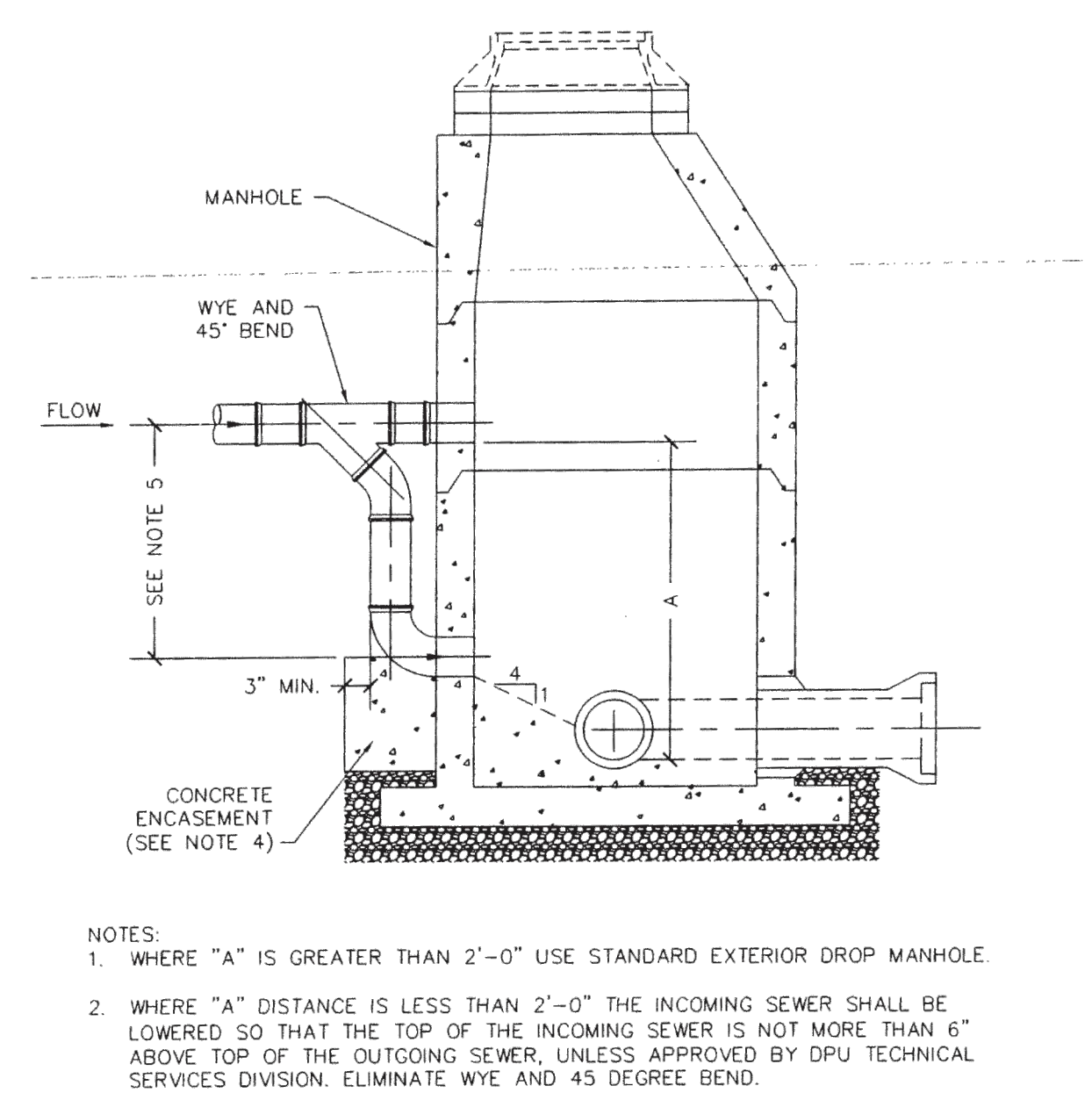
Standard Curb Drop Inlet (12"-30" Pipe - Max. Depth=8") (DI-3)

08/10
N.T.S. Source: VDOT 104.09



Trap Inlet

02/09
N.T.S. Source: City of Richmond DPU H-2



Exterior Drop Manhole Connection

12/09
N.T.S. Source: City of Richmond DPU M-3

Intermediate Terminal Phase 2 - Public Access
3101 Wharf Street
Richmond, Virginia

No.	Revision	Date	Aspd.

Designed by: _____ Checked by: _____
Issued for: _____ Date: _____
Permitting June 22, 2018

Drawing Title
Details
Drawing Number

C6.05
Sheet _____ of _____
Project Number
33965.20

STM-3 Inlet Calc		
Project Description		
Solve For	Efficiency	
Input Data		
Discharge	1.14	R/s
Slope	0.04900	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.08	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	8.00	ft
Local Depression	2.00	in
Local Depression Width	2.00	ft
Results		
Efficiency	93.72	%
Intercepted Flow	1.07	R/s
Bypass Flow	0.07	R/s
Spread	2.47	ft
Depth	0.18	ft
Flow Area	0.19	ft ²
Gutter Depression	0.12	ft
Total Depression	0.29	ft
Velocity	5.95	ft/s
Equivalent Cross Slope	0.16832	ft/ft
Length Factor	0.79	
Total Interception Length	10.19	ft

10 YEAR RETURN FREQUENCY																					
HYDRAULIC GRADE LINE CALCULATIONS																					
STATION	INLET SURFACE ELEV.	OUTLET WATER SURFACE ELEV.	Do	Qo	Lo	So	Hf	Vg	Ho	Qi	Vi	Q/V1	V ² /2g	H1	ANGLE	H ^a	H ^r	1.3HR	0.5HR	FINAL WATER SURFACE ELEV.	RM ELEV.
2	9.82	15'	1.49	76.10	0.05	0.04	9.19	0.33	1.49	5.45	8.11	0.46	0.16	90	0.32	0.81	0.00	0.00	0.85	10.67	20.00
3	16.73	15'	1.49	6.50	0.05	0.00	5.45	0.12	0.00	0.00	0.00	0.00	0.00	90	0.00	0.12	0.00	0.00	0.12	16.85	19.53

STORM SEWER DESIGN																
10 YEAR FREQUENCY																
FROM POINT	TO POINT	DA (ACRES)	C	CA INCR	TC ACCUM	RAINFALL (IN/HR)	RUN-OFF (CFS)	LINE	INVERT UPPER	INVERT LOWER	LENGTH (FEET)	SLOPE	DIAM. (INCHES)	CAPACITY (CFS)	VELOCITY (F.P.S.)	FLOW TIME (MINUTES)
3	2	0.23	0.90	0.21	0.21	5.00	7.07	3	15.86	15.73	6.50	2.00%	15	9.13	5.45	0.02
2	EX-1	0.00	0.90	0.00	0.21	5.02	7.07	2	15.63	8.82	76.10	8.95%	15	19.31	9.19	0.14

Storm Sewer Calcs



Tomorrow's Natural Resources Today

Chesapeake Bay Nutrient Land Trust, LLC.

February 2, 2018

VHB
ATTN: Becca Ruiz, PE
115 South 15th Street, Suite 200
Richmond, VA 23219

RE: CBNLT/Cranston's Mill Pond - Nutrient Credit Availability
Chesapeake Bay Nutrient Land Trust, LLC

Project Reference: Intermediate Terminal, City of Richmond

Attention Ms. Ruiz:

This letter is to confirm the availability of authorized Nutrient Credits sufficient to meet your project requirements at our Cranston's Mill Pond facility, which is registered with the Virginia Department of Environmental Quality (DEQ) and the Virginia Department of Conservation and Recreation (DCR). These Nutrient Credits are generated and managed under the terms of the Cranston's Mill Pond Nutrient Reduction Implementation Plan dated April 20, 2010 which was authorized by the Virginia Department of Environmental Quality (DEQ) and the Virginia Department of Conservation and Recreation (DCR) on July 13, 2010.

The Cranston's Mill Pond project has been authorized to provide Nutrient Credits for use in the James River watershed. These Credits are transferable to those entities regulated under DEQ's Stormwater Management Program in accordance with VA Code § 62.1-44.15:35. Currently our Cranston's Mill Pond facility has **329.91** pounds of Phosphorus Credits available and will be able to meet your project's phosphorus requirement of up to **0.20** pounds.

If we can provide further assistance please feel free to contact our office.

Sincerely,

Chesapeake Bay Nutrient Land Trust, LLC

By Its Manager
EarthSource Solutions, Inc.

Scott A. Reed

Scott A. Reed
Vice President

Chesapeake Bay Nutrient Land Trust, LLC • 5735 S. Laburnum Avenue • Richmond, VA 23231 • P: 804.222.5114 • www.cbnlt.com

Chesapeake Bay Nutrient Offset Letter

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

BMP Design Specifications List: 2011 Stds & Specs

Site Summary

Total Rainfall (in):	43
Total Disturbed Acreage:	0.62

Site Land Cover Summary

Pre-ReDevelopment Land Cover (acres)	A Soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	0.00	0.96	0.96	47
Impervious Cover (acres)	0.00	0.00	0.00	1.09	1.09	53
					2.05	100

Post-ReDevelopment Land Cover (acres)

Post-ReDevelopment Land Cover (acres)	A Soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	0.00	1.02	1.02	50
Impervious Cover (acres)	0.00	0.00	0.00	1.03	1.03	50
					2.05	100

Site Tv and Land Cover Nutrient Loads

	Final Post-Development (Post-ReDevelopment & New Impervious)	Post-ReDevelopment	Post-Development (New Impervious)	Adjusted Pre-ReDevelopment
Site Rv	0.60	0.60	--	0.62
Treatment Volume (ft ³)	4,478	4,478	--	4,630
TP Load (lb/yr)	2.81	2.81	--	2.91

Total TP Load Reduction Required (lb/yr)	0.20	0.20	0
------------------------------------------	------	------	---

	Final Post-Development Load (Post-ReDevelopment & New Impervious)	Pre-ReDevelopment
TN Load (lb/yr)	20.13	20.81

Site Compliance Summary

Maximum % Reduction Required Below Pre-Development Load	10%
---------------------------------------------------------	-----

Total Runoff Volume Reduction (ft ³)	0
Total TP Load Reduction Achieved (lb/yr)	0.00
Total TN Load Reduction Achieved (lb/yr)	0.00
Remaining Post Development TP Load (lb/yr)	2.81
Remaining TP Load Reduction Required	0.20

OFFSITE NUTRIENT CREDITS WILL BE PURCHASED TO MEET THE REQUIRED PHOSPHOROUS REMOVAL. REFER TO OFFSITE NUTRIENT CREDIT AVAILABILITY LETTER FOR MORE INFORMATION.

Virginia Runoff Reduction Method - Summary

Chesapeake Bay

TOTAL GROSS SQUARE FOOTAGE AREA	89,069 GSF	2.04 AC
TOTAL LAND AREA COVERED BY BUILDINGS	0 SF	
AMOUNT OF OPEN SPACE*	1.02 AC	49.88%
AMOUNT OF IMPERVIOUS AREA ON SITE	1.03 AC	50.37%
NUMBER OF PARKING SPACES	0 Spaces	
NUMBER OF RESIDENTIAL UNITS	NOT APPLICABLE	
* OPEN SPACE INTERPRETED AS ANY PERVIOUS AREAS.		

Stormwater Management Summary

THIS DEVELOPMENT, AS A LAND DISTURBING ACTIVITY OF GREATER THAN 2,500 SF WITHIN A CHESAPEAKE BAY PRESERVATION AREA, IS SUBJECT TO THE REQUIREMENTS OF THE RICHMOND STORMWATER MANAGEMENT PERMIT (RSMP). THIS WILL PROVIDE COMPLIANCE WITH THE VIRGINIA STORMWATER MANAGEMENT PROGRAM, AS REQUIRED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY.

NO STORMWATER MANAGEMENT FACILITIES WILL BE PROVIDED WITH THIS DEVELOPMENT. COMPLIANCE WITH WATER QUALITY AND WATER QUANTITY TREATMENT REQUIREMENTS FOR RUNOFF IS DESCRIBED BELOW.

Existing Conditions:

THE SITE CURRENTLY CONSISTS OF AN ASPHALT ROADWAY, ASPHALT BIKE TRAIL WITH MINIMAL LANDSCAPING; THE COBBLESTONE TERMINAL DOCK; AND A TURF AREA WITH 3:1 SLOPES. TOPOGRAPHY IN THE DOCK AND TRAIL IS FLAT, WITH SLOPES OF 1% WHILE THE ROAD TOPOGRAPHY IS STEEP UP THE HILL, WITH SLOPES OF APPROXIMATELY 6%.

ALL SLOPES DRAIN TO THE CENTER OF THE SITE, WHERE A SERIES OF DROP INLETS PICK UP THE RUNOFF. IT IS ASSUMED THAT ALL DRAINAGE INTO THESE INLETS IS PART OF THE CITY OF RICHMOND COMBINED SEWER SYSTEM, WHICH ULTIMATELY OUTFALLS TO THE WATER TREATMENT FACILITY.

Water Quality Compliance:

EVEN THOUGH THIS PROJECT DRAINS TO THE CITY OF RICHMOND COMBINED SEWER SYSTEM, WHICH IS TREATED AT THE WATER TREATMENT FACILITY, IT IS ALSO LOCATED WITHIN A CHESAPEAKE BAY PRESERVATION AREA. A SMALL PORTION OF IMPROVEMENTS ARE WITHIN THE RESOURCE PROTECTION AREA (RPA), WHILE THE MAJORITY OF THE SITE IS WITHIN THE RESOURCE MANAGEMENT AREA (RMA). AS SUCH, WATER QUALITY TREATMENT WILL BE REQUIRED.

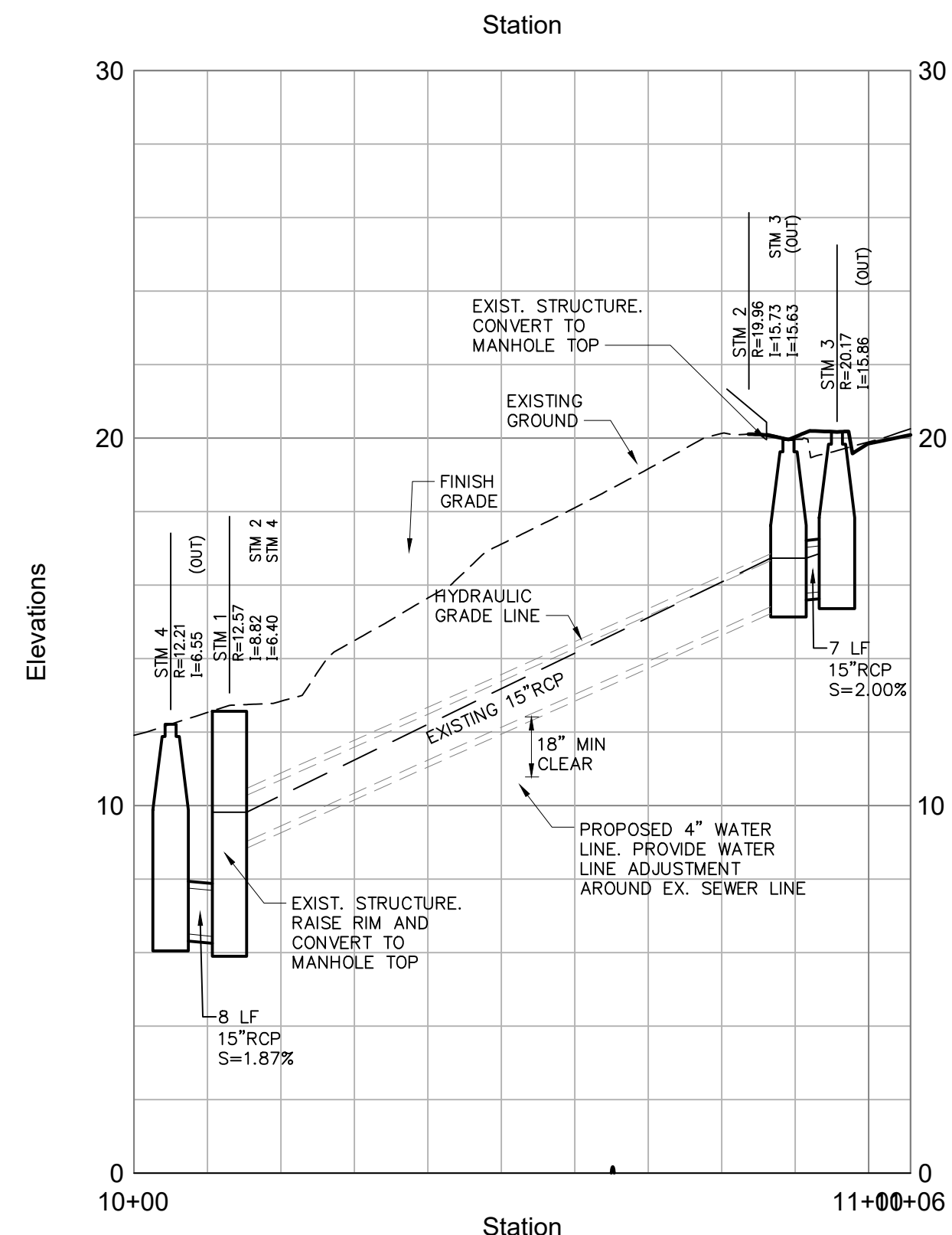
GIVEN THE SITE CONSTRAINTS, INCLUDING STEEP SLOPES, AND LIMITED AREA FOR DEVELOPMENT AROUND THE BIKE TRAIL AND TERMINAL DOCK, NO STORMWATER MANAGEMENT FACILITIES ARE FEASIBLE ON SITE. INSTEAD, OFFSITE NUTRIENT CREDITS WILL BE PURCHASED TO MEET THE WATER QUALITY TREATMENT REQUIREMENTS. REFER TO THE VIRGINIA RUNOFF REDUCTION METHOD SUMMARY AND LETTER OF CREDIT FOR MORE INFORMATION.

Water Quantity Compliance:

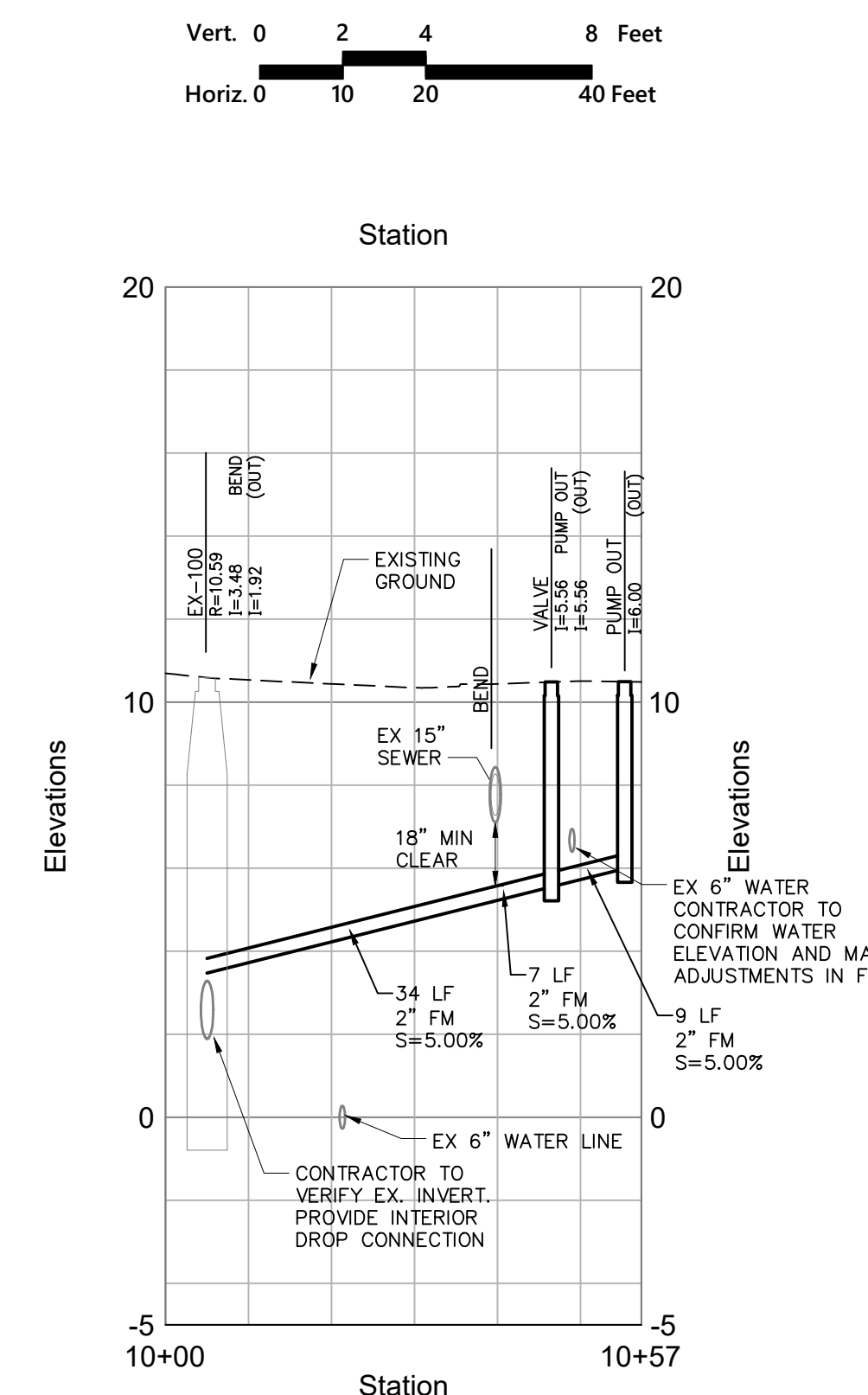
THIS PROJECT OUTFALLS TO THE CITY OF RICHMOND COMBINED SEWER SYSTEM. IT IS REQUIRED THAT NO INCREASE IN FLOW MAY DRAIN TO THE CSO. ALSO, THE DEPARTMENT OF ENVIRONMENTAL QUALITY REQUIRES COMPLIANCE WITH MINIMUM STANDARD 19 (MS-19), WHICH STATES THAT THE POST-DEVELOPMENT PEAK RUNOFF RATE FOR THE 10-YEAR STORM EVENT NOT EXCEED THE PRE-DEVELOPMENT RATE.

COMPLIANCE WITH MS-19 REQUIREMENTS IS MET ON SITE THROUGH A SLIGHT DECREASE IN THE IMPERVIOUS AREA. A SUMMARY OF THE PRE- AND POST-DEVELOPMENT PEAK RUNOFF RATES FOR EACH OUTFALL IS PROVIDED BELOW:

PRE-DEVELOPMENT:
 $Q = C \cdot i \cdot A$
 $C = 0.65$
 $i = 7.07 \text{ in/hr}$
 $A = 2.10 \text{ ac}$
 $Q = 9.65 \text{ CFS}$
 POST-DEVELOPMENT:
 $Q = C \cdot i \cdot A$
 $C = 0.63$
 $i = 7.07 \text{ in/hr}$
 $A = 2.10 \text{ ac}$
 $Q = 9.35 \text{ CFS}$



Proposed Storm Sewer Profile



Proposed Sanitary Force Main

Intermediate Terminal Phase 2 - Public Access

3101 Wharf Street
Richmond, Virginia

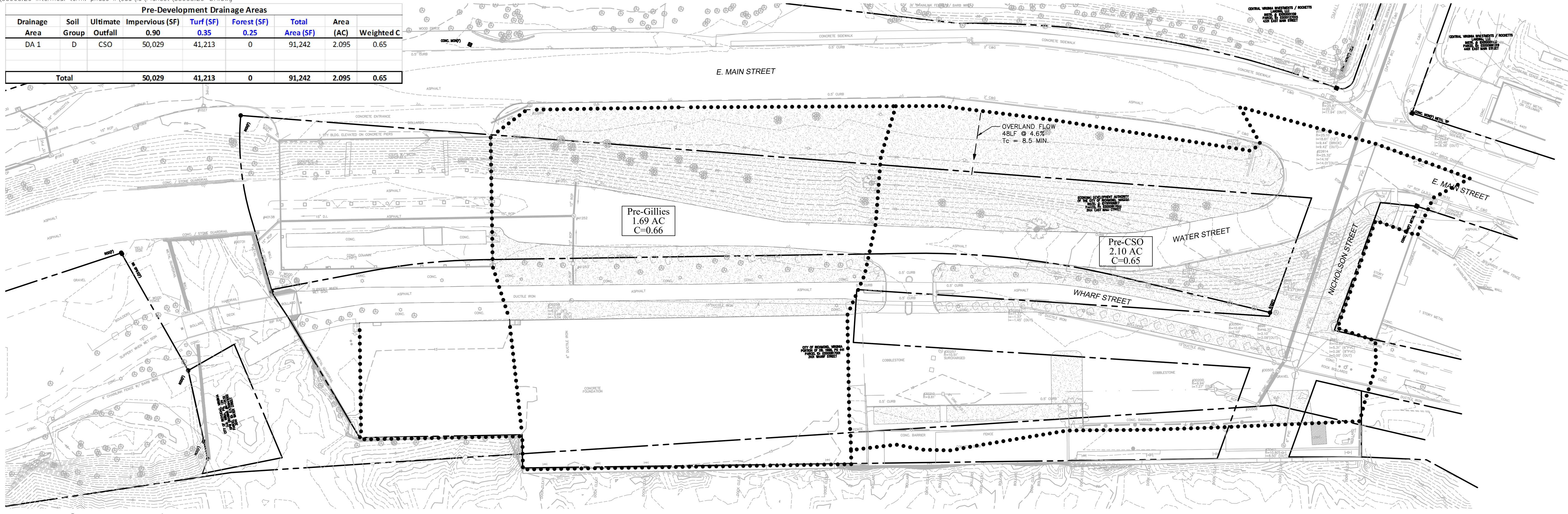
No.	Revision	Date	Aspd.

Designed by: _____ Checked by: _____
 Issued for: _____ Date: _____
Permitting June 22, 2018

Calculations and Profiles

Drawing Number _____
C7.01
 Sheet _____ of _____
 JOHN P. BARTY
 Lic. No. 039452
 6/22/18
 PROFESSIONAL ENGINEER

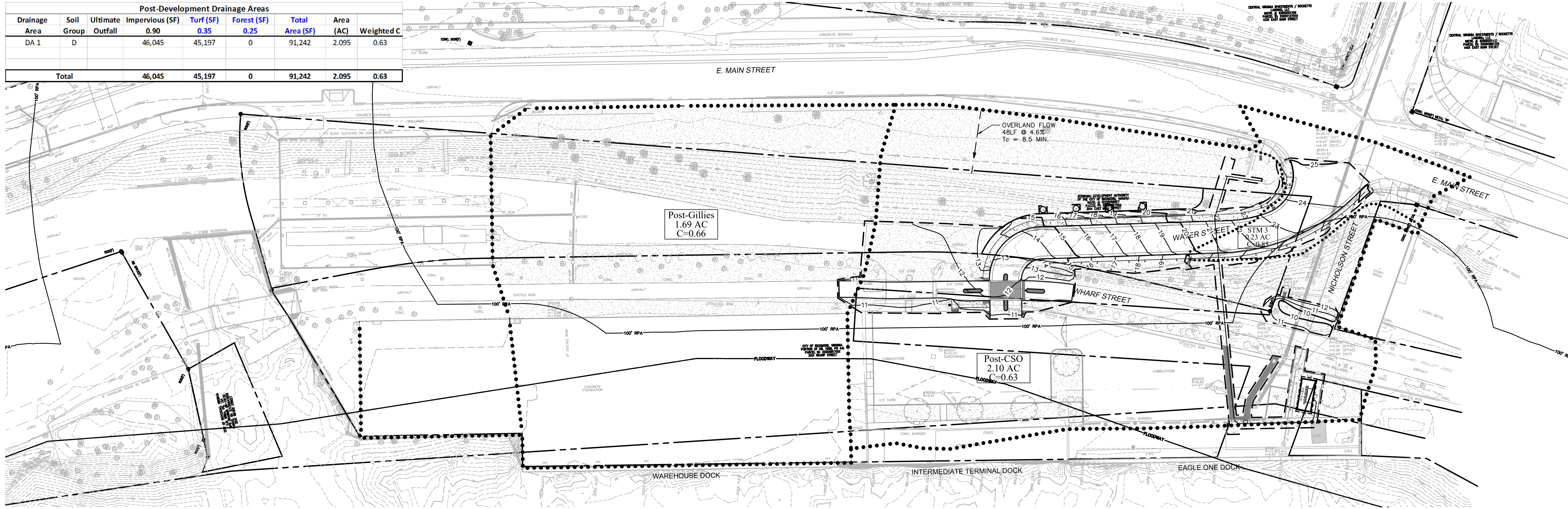
Pre-Development Drainage Areas								
Drainage Area	Soil Group	Ultimate Outfall	Impervious (SF)	Turf (SF)	Forest (SF)	Total Area (SF)	Area (AC)	Weighted C
DA 1	D	CSO	50,029	41,213	0	91,242	2.095	0.65
Total			50,029	41,213	0	91,242	2.095	0.65



Pre-Development Drainage Areas

Scale: 1"=40'

Post-Development Drainage Areas								
Drainage Area	Soil Group	Ultimate Outfall	Impervious (SF)	Turf (SF)	Forest (SF)	Total Area (SF)	Area (AC)	Weighted C
DA 1	D		46,045	45,197	0	91,242	2.095	0.63
Total			46,045	45,197	0	91,242	2.095	0.63



Post-Development Drainage Areas

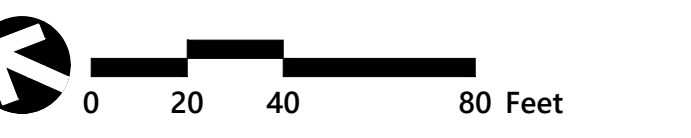
Scale: 1"=40'



115 South 15th Street
Suite 200
Richmond, VA 23219
804.343.7100

Legend

- PERVIOUS AREA
- DRAINAGE DIVIDE
- TIME OF CONCENTRATION FLOW PATH
- DRAINAGE AREA ID
- TOTAL AREA, ACRES
- RUNOFF COEFFICIENT: C-FACTOR



**Intermediate Terminal
Phase 2 - Public Access**
3101 Wharf Street
Richmond, Virginia

No.	Revision	Date	Aspd.

Designed by: _____ Checked by: _____
 Issued for: **Permitting** Date: **June 22, 2018**

Drainage Area Maps

Drawing Number: **C8.01**

Sheet **1** of **1**

RESTROOMS

EASI-SET/EASI-SPAN PRECAST CONCRETE RESTROOMS

Manufactured Locally
Throughout North America

- Weather-Tight
- Fast Installation
- Maintenance Free
- No Footing Needed
- Standard or Custom
- Pre-Engineered
- ADA Compliant
- Cost Effective



Easi-Set Precast Restrooms

The industry leader in transportable concrete buildings provides greater weather-tightness and impact resistance through the patented post-tensioned roof & floor features. Manufactured locally throughout North America.

Secure & Durable

- **Meets current codes:** IBC, ADA, Forest Service Specifications, and local building codes.
- **All precast concrete:** eight-foot roof heights, three-inch thick walls, and four-inch thick roof and floor.
- **No foundation required.**
- **Lifetime roof:** no coating required. Patented post-tensioned technology (concrete under compression).
- **Rugged:** patented design withstands all weather, temperature, impact and seismic conditions.
- **Vandal resistant:** steel-reinforced precast concrete construction, tamper-proof hinges, dead-bolt locks and 18-gauge galvanized steel insulated doors.
- **Maintenance free:** won't rust, warp, corrode, rot, or burn and retains finish without maintenance.
- **Weather-tight:** roof and floor design provides superior water-tight construction.
- **Transportable:** welded precast panel construction



Sierra double restroom with split block finish

Green Friendly

- Concrete is manufactured from local materials
- Restrooms are manufactured locally - less hauling
- Waterless, solar, and electricity-free choices
- All-concrete restrooms are completely sustainable
- Most or all components are recyclable
- Steel reinforcement is recycled material



Post-Tensioned Design

Easi-Set Roof:

Buildings remain intact after the impact of fallen heavy machinery & a mature oak tree.



Restroom Models

A variety of standard models are available: Blue Ridge single (wet or dry, Outback or gabled roof); Sierra double (wet or dry, Outback or gabled roof); and Skyline multi-user (Easi-Span or tapered roof) restrooms. Skyline restrooms can incorporate many applications into one building such as concessions, press boxes, dressing rooms, storage, or showers. Units can be connected side-by-side or stacked creating multi-story building complexes.

Visit precastbuildings.com to view floor plans and specs for all restroom models. Custom models can be built to your specifications to satisfy your unique needs.



Skyline restroom & concession with Easi-Span roof

Roof Styles



Outback® (only Blue Ridge & Sierra)



Tapered (slight front to back pitch)



Gabled (left to right or front to back)



Easi-Span™ (low profile gabled)

Selected Features

Turn-Down Roof:

Prefabricated turn-down protects the roof joint from direct exposure to driving rain and provides a drip edge which prevents moisture penetration, and ensures a watertight interior.



Door and Frame:

- Heavy duty galvanized door and frame
- Easy clean out - hospital stop available to prevent collection of bacteria
- Stainless and fiberglass options available



Entrance Floor:

- Threshold and door sweeps can be eliminated and a flat entrance provided upon request.
- Thresholds and door sweeps provided on standard restrooms.

Improved Radial Post-Tensioned Design:

Provides superior water-tight construction.

Restroom Testimonials

“The design process was flexible & accurate. The purchasing process was simple & accommodating. The delivery was on time with no problems. And, **the product has exceeded our expectations.**”

Staff & patrons have enjoyed having new restroom facilities in our ball field complex. They are functional & easy to maintain. **They are durable & look great.”**

*Therron Dieckmann, Executive Director
Ottawa Recreation Commission*

“In regards to the two ... pre-cast bathroom units we purchased for our parks system, they are **still providing excellent maintenance-free service.”**

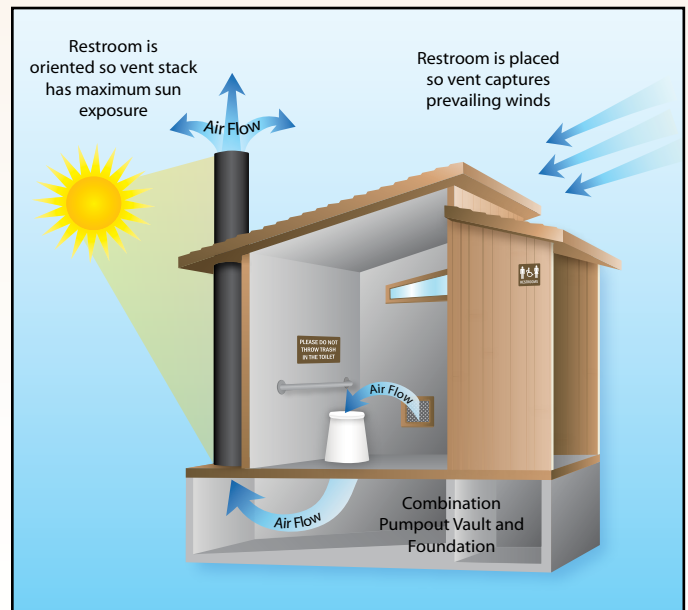
*Randolph Turner, Utilities Superintendent,
Aurora, Indiana*

Wet & Dry Options



Stainless Steel Fixtures

All models can be outfitted with water/sewer hook-up (wet). The Blue Ridge and Sierra models can be configured with a pumpout vault (dry). Dry restrooms feature the FAN™ natural ventilation system.



FAN™ Ventilation Technology (Fresh Air Naturally)

Easy Site Preparation & Installation



Restroom installation with vault



Restroom installation with wet hook ups

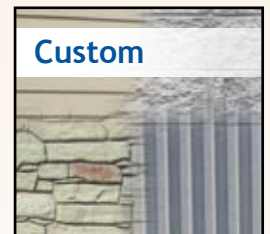
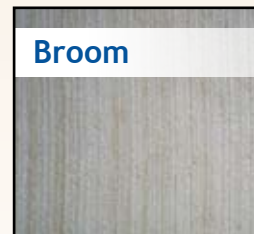
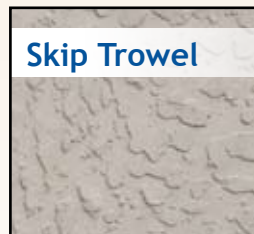
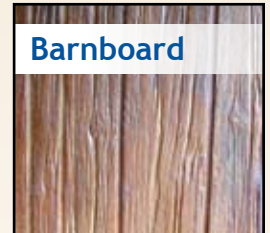
Installed in Hours for a Lifetime of Protection

Easi-Set restrooms are designed to be placed on an engineered crushed stone base that provides adequate support and drainage. Site requirements are attached to all specifications. Pre-assembled buildings can also be set on a poured-in-place slab or a gravel base with openings in the floor for “stub out” pipes or electrical conduit. Field-installed building walls are attached to the slab using expansion anchors. Easi-Set restrooms are designed to be tough and rugged providing years of maintenance-free service.

Finishes

Many finishes and colors are available. With all of the options possible, it is easy to match our buildings to surrounding structures on your building site

Colors and textures of natural materials may vary by region. Additional colors and finishes available.



Manufactured Locally by:



5119 Catlett Road, Midland, VA 22728 • (800) 547-4045 • (540) 439-8911 • fax: (540) 439-2541
www.easiset.com • www.precastbuildings.com • info@easiset.com

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