

Save: Tuesday, December 13, 2022 5:04:51 PM DWG:LOAN Plotted Friday, March 24, 2023 3:08:40 PM David Woolson

DESIGNED BY: VHB, (804)343-7100

# CITY OF RICHMOND, VIRGINIA

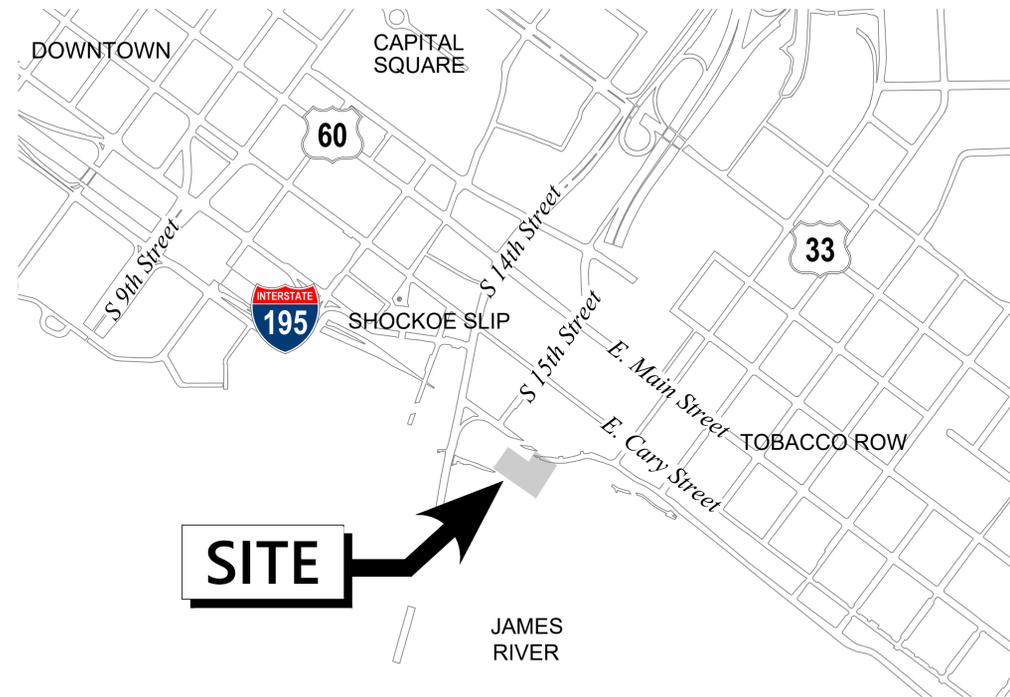
## DEPARTMENT OF PUBLIC WORKS

### TRANSPORTATION ENGINEERING DIVISION



## Canal Walk Improvements Phase 2

### CITY PROJECT NO. \_\_\_\_\_ UPC 113492



OWNER:  
CITY OF RICHMOND  
DEPT. OF PUBLIC WORKS  
CITY HALL, RM 707, RICHMOND, VA

#### NOTES:

- SEE SHEET 1A FOR INDEX OF SHEETS.
- DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE CITY OF RICHMOND.
- FOR THIS PRELIMINARY PLAN SUBMISSION THE PROJECT BASE MAPPING WAS OBTAINED FROM A PRELIMINARY/DRAFT SURVEY WHICH WAS NOT COMPLETE VERIFIED PRIOR TO THE DEVELOPMENT OF THESE PLANS. AS WELL AS, UTILITIES LOCATED BY ACCUMARK

LOCATION MAP  
NTS  
July 2022

**50% Plans  
NOT FOR  
CONSTRUCTION**

CITY OF RICHMOND	
APPROVED FOR CONSTRUCTION	
DATE	SURVEYS SUPERINTENDENT
DATE	PROJECT MANAGER
DATE	MAINTENANCE ENGINEER
DATE	CITY TRANSPORTATION ENGINEER
DATE	CAPITAL PROJECTS ADMINISTRATOR
DATE	CITY ENGINEER
DATE	DIRECTOR OF PUBLIC WORKS

#### REVISIONS

NO.	DATE	COMMENTS



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

**DRAWING NO: O-28**

PROJECT	SHEET NO.
	1

## INDEX OF SHEETS

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* NOT INCLUDED IN THIS SUBMISSION	

JULY 2022  
 THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION

### NOTES

1. Lot dimensions in parentheses are from deed.
2. Property owners correct as of \_\_\_\_ , 20\_\_
3. Ordinance Number \_\_\_\_\_
4. Adopted \_\_\_\_\_
5. Accepted \_\_\_\_\_

### Existing Legend

- Storm Sewer
- Sanitary Sewer
- Gas Line
- Electric Line
- Overhead Utility
- Telephone/Telegraph
- Water Line
- Property Line
- Storm Basin
- Storm or Sanitary Manhole
- Fire Hydrant / Valve

### Proposed Legend

- Water Meter
- Existing Curb Cut Ramp
- Gas Meter / Valve
- Fence
- Power/Light Pole
- Guy Anchor
- Tree

### Proposed Legend

- Sanitary Sewer
- Storm Sewer
- Storm (San) Manhole
- Basin
- Curb Cut Ramp
- Decorative Light
- Conduit
- Conduit (Excavated)



### Technical

- Surveys Superintendent
- Project Manager
- Maintenance Engineer
- City Traffic Engineer

### Administrative

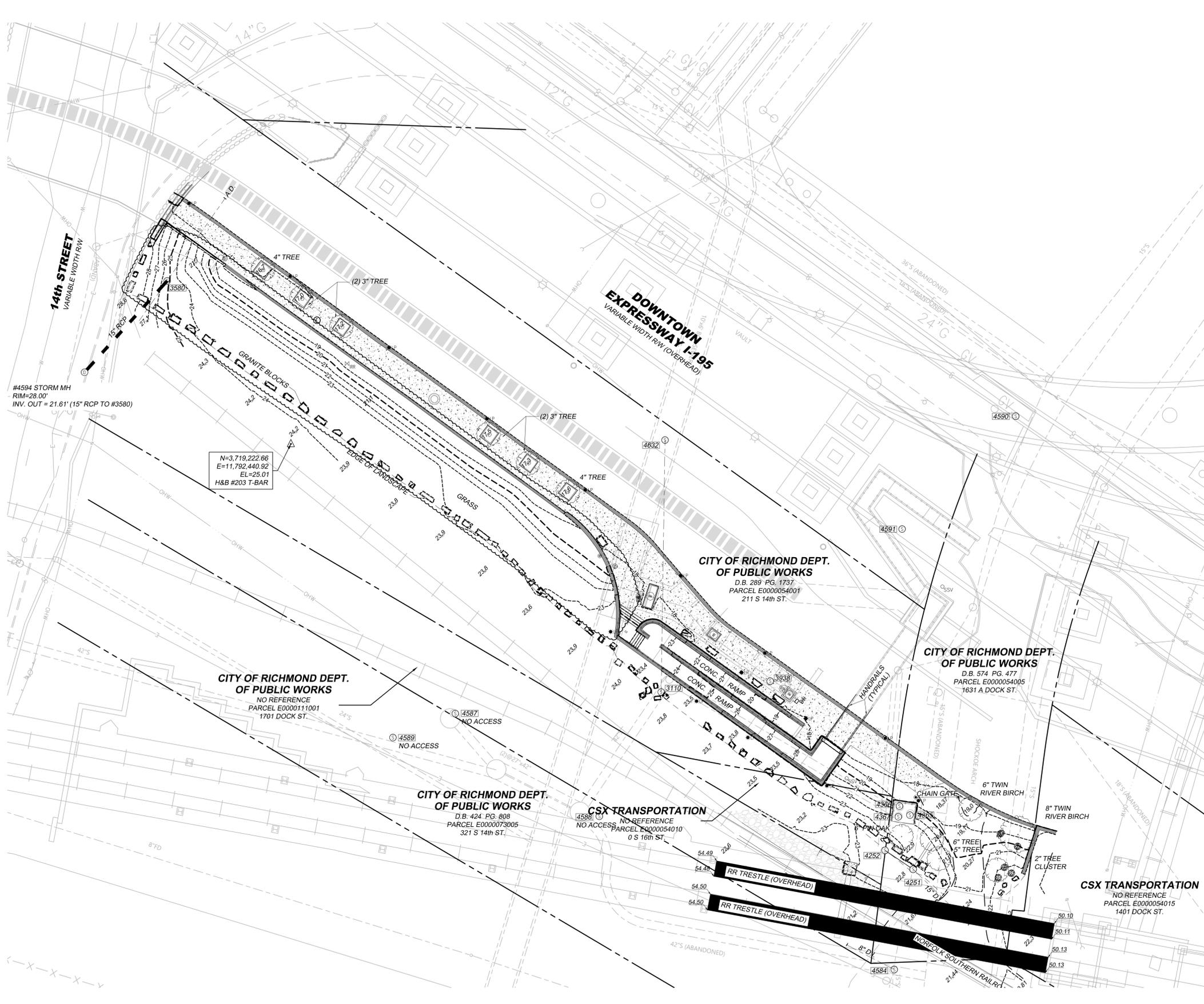
- Capital Project Administrator
- City Engineer
- Director of Public Works



## CANAL IMPROVEMENTS PHASE 2 SHEET INDEX

AUTHORITY: CITY OF RICHMOND, DPW		DESIGN BY:	REVIEWED BY:	FIELD NOTES	SCALE	DATE	PROJECT	DRAWING NO.
		DRAWN BY:				July, 2022	SHEET 1A	0-28
		CHECKED BY:						

DEPARTMENT OF PUBLIC WORKS  
 RICHMOND, VIRGINIA



**LEGEND**

- ▲ TRAVERSE POINT
- BOLLARD
- FENCE POST
- SIGN
- TRASH CAN
- ELECTRIC BOX / CABINET
- ELECTRIC HAND HOLE
- ELECTRIC METER
- ELECTRIC METER
- ELECTRIC OUTLET
- LIGHT POST
- HVAC EQUIPMENT
- SANITARY SEWER CLEANOUT
- SANITARY SEWER MANHOLE
- STORM SEWER GRATE
- STORM SEWER MANHOLE
- TELEPHONE HANDHOLE
- TELEPHONE MANHOLE
- TELEPHONE PEDISTAL
- FIRE DEPARTMENT CONNECTION
- FIRE HYDRANT
- HOSE BIB / SPIGOT
- IRRIGATION
- IRRIGATION VALVE
- WATER VALVE
- WATER VAULT
- DECIDUOUS TREE
- EVERGREEN TREE
- SHRUB
- ASPHALT PAVEMENT
- - - BUILDING OUTLINE
- - - FENCE
- - - INDEX CONTOURS
- - - INTERMEDIATE CONTOURS
- - - LANDSCAPE EDGE
- - - STORM SEWER
- - - SANITARY SEWER
- - - TOE OF SLOPE
- - - TOP OF SLOPE
- - - TREELINE
- ASPHALT PAVEMENT
- BRICK WALKWAY
- COBBLESTONE PAVEMENT

**SANITARY SEWER**

- #3110 SANITARY MH  
RIM=23.61'  
FULL OF WATER  
TOP OF WATER = 12.71'  
BOTTOM OF STRUCTURE = 8.51'
- #3580 SANITARY MH  
RIM=25.21'  
INV. IN = 17.91' (15" RCP FROM #4594)  
FULL OF WATER  
TOP OF WATER = 15.91'  
BOTTOM OF STRUCTURE = 13.67'  
OUTLET PIPE NOT VISIBLE
- #3938 SANITARY MH  
RIM=17.86'  
FULL OF WATER  
TOP OF WATER = 15.86'  
BOTTOM OF STRUCTURE = 8.10'
- #4251 SANITARY MH  
RIM=22.91'  
INV. IN = 13.46' (12" D.I. FROM A.D.)  
INV. IN = 3.19' (12" D.I. FROM A.D.)  
INV. IN = 1.66' (15" D.I. FROM #4252)  
INV. OUT = 1.65' (15" D.I. TO A.D.)
- #4252 SANITARY MH  
RIM=22.73'  
FULL OF WATER  
TOP OF WATER = 3.19'  
BOTTOM OF STRUCTURE = 1.69'
- #4365 SANITARY MH  
RIM=22.93'  
TRASH RACK BOLTED SHUT.  
NO ACCESS
- #4366 SANITARY MH  
RIM=22.93'  
TRASH RACK BOLTED SHUT.  
NO ACCESS
- #4367 SANITARY MH  
RIM=22.92'  
TRASH RACK BOLTED SHUT.  
NO ACCESS
- #4584 SANITARY MH  
RIM=22.27'  
INV. IN = 16.77' (8" D.I. FROM A.D.)  
FULL OF WATER  
TOP OF WATER = 2.32  
BOTTOM OF STRUCTURE = -3.08
- #4585 SANITARY MH  
RIM=22.59'  
BOLTED SHUT. NO ACCESS.
- #4587 SANITARY MH  
RIM=25.92'  
BOLTED SHUT. NO ACCESS.
- #4588 SANITARY MH  
RIM=26.21'  
FULL OF WATER  
TOP OF WATER = 12.81'  
BOTTOM OF STRUCTURE = 1.21'
- #4589 SANITARY MH  
RIM=26.58'  
BOLTED SHUT. NO ACCESS.
- #4590 SANITARY MH  
RIM=20.42'  
INACCESSIBLE
- #4591 SANITARY MH  
RIM=24.74'  
BOTTOM OF STRUCTURE = 3.11'
- #4632 SANITARY MH  
RIM=17.92'  
ON PIPES VISIBLE  
C/L STRUCTURE = 5.84'

INFORMATION SHOWN GRAYED BACK IS BASED ON GIS DATA. THESE FEATURES ARE NOT WARRANTED TO BE ACCURATELY LOCATED AND ARE SHOWN FOR REFERENCE. IT IS NOT WARRANTED THAT ALL UNDERGROUND UTILITIES OR INFORMATION OF RECORD ARE SHOWN ON THIS PLAN

JULY 2022  
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**NOTES**

1. Lot dimensions in parentheses are from deed.
2. Property owners correct as of \_\_\_/\_\_\_/20\_\_
3. Ordinance Number \_\_\_\_\_
4. Adopted \_\_\_\_\_
5. Accepted \_\_\_\_\_

**REFERENCES**

REFERENCES	REVISIONS

Existing Legend	Proposed Legend
Storm Sewer	Sanitary Sewer
Sanitary Sewer	Storm Sewer
Gas Line	Storm (San) Manhole
Electric Line	Basin
Overhead Utility	Carb Car Ramp
Telephone/Telegraph	Decorative Light
Water Line	Conduit
Property Line	Conduit (Easement)
Storm Basin	
Storm of Sanitary Manhole	
Fire Hydrant / Valve	

DEPARTMENT OF PUBLIC WORKS  
RICHMOND, VIRGINIA

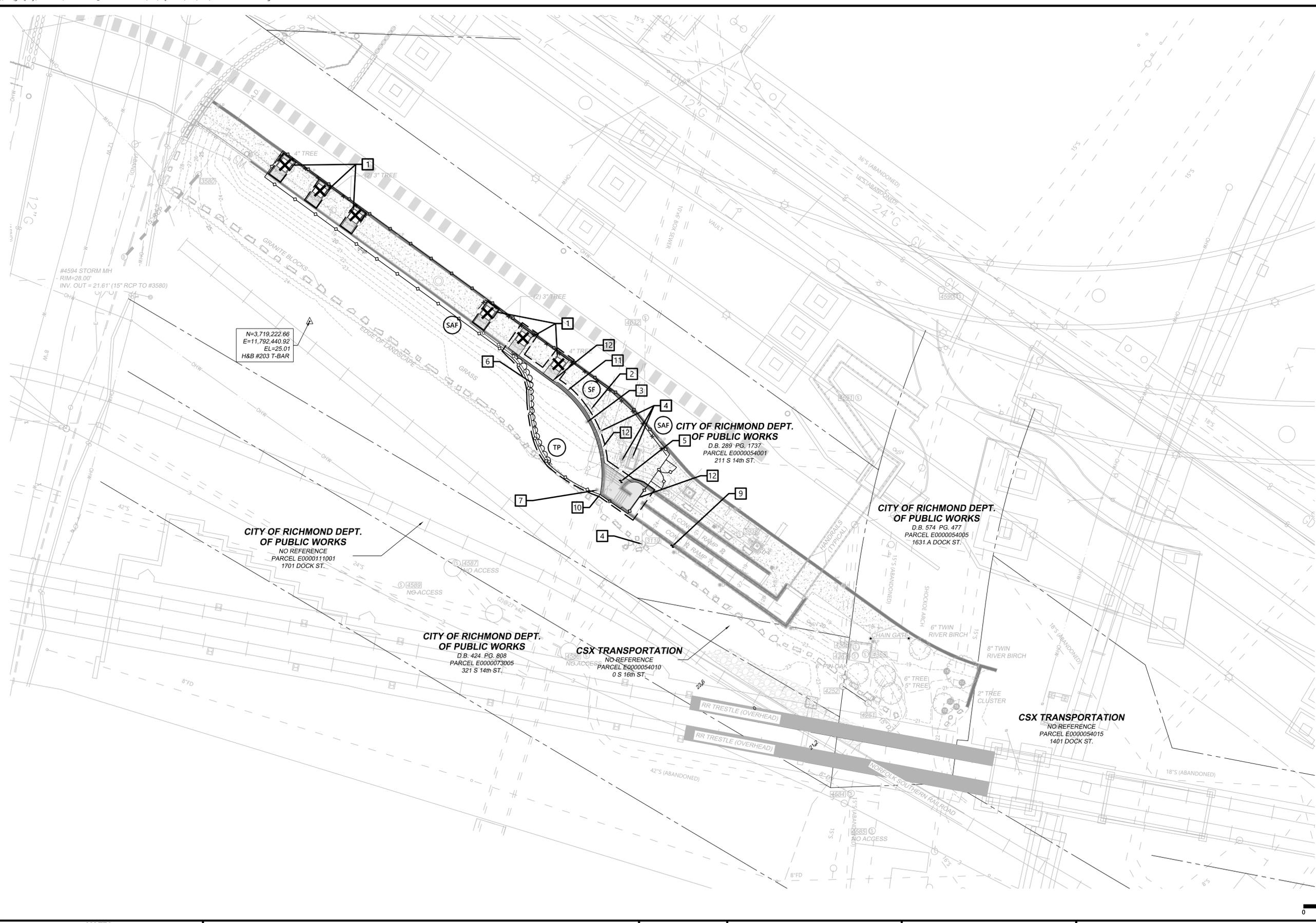
Technical	Administrative
Surveys Superintendent	Capital Project Administrator
Project Manager	City Engineer
Maintenance Engineer	Director of Public Works
City Traffic Engineer	

**CANAL IMPROVEMENTS  
PHASE 2  
EXISTING CONDITIONS**

DESIGN BY:	REVIEWED BY:	FIELD NOTES	SCALE	DATE	PROJECT	DRAWING NO.
CHECKED BY:				July, 2022	SHEET 1B	0-28

AUTHORITY: CITY OF RICHMOND, DPW

Saved Thursday, September 8, 2022 1:56:46 PM DWOLSON Plotted Friday, March 24, 2023 3:10:48 PM David Woodson



**Demolition Legend**

- DEMO ALL PAVEMENT AND ASSOCIATED BASE MATERIAL (RIGID OR FLEXIBLE) AND HARDSCAPING WITHIN LIMITS OF WORK UNLESS OTHERWISE NOTED ON PLANS.
- LIMITS OF CLEARING
- UTILITIES TO BE REMOVED
- LIMITS OF WORK
- TREES, UTILITY POLES, AND OTHER STRUCTURES TO BE REMOVED

- 1** REMOVE TREE & ASSOCIATED LANDSCAPE ISLAND
- 2** REMOVE & REPLACE SEAT ROCK TO FACILITATE CONSTRUCTION
- 3** RELOCATE EXISTING TRASH BIN
- 4** STRUCTURE TO REMAIN AND BE PROTECTED
- 5** STAIRCASE TO BE DEMOLISHED
- 6** LIMITS OF CLEARING (TYP.)
- 7** RELOCATE EXISTING LIGHT POLE
- 8** STAIRCASE TO BE DEMOLISHED
- 9** EXISTING ADA RAMP TO REMAIN
- 10** REMOVE PORTION OF WALL
- 11** REMOVE PORTION OF GRANITE CURB
- 12** EXISTING SIDEWALK TO BE SAWCUT AT NEAREST JOINT AND REPLACED WHERE NECESSARY

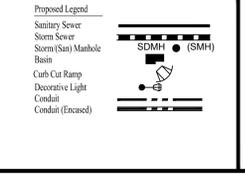
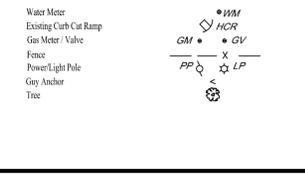
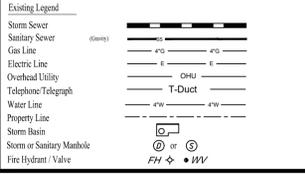
**Erosion Control Legend**

- LIMITS OF WORK
- 3.01 - SAFETY FENCE
- 3.02 - CONSTRUCTION ENTRANCE
- 3.05 - SILT FENCE
- 3.07 - INLET PROTECTION
- 3.31 - TEMPORARY SEEDING
- 3.32 - PERMANENT SEEDING
- 3.38 - TREE PROTECTION

**NOTES**

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3. Ordinance Number \_\_\_\_\_
4. Adopted \_\_\_\_\_
5. Accepted \_\_\_\_\_

**REFERENCES**      **REVISIONS**



Technical	Administrative
Surveys Superintendent	Capital Project Administrator
Project Manager	City Engineer
Maintenance Engineer	Director of Public Works
City Traffic Engineer	
DEPARTMENT OF PUBLIC WORKS RICHMOND, VIRGINIA	

AUTHORITY: CITY OF RICHMOND, DPW

DESIGN BY: \_\_\_\_\_ REVIEWED BY: \_\_\_\_\_

DRAWN BY: \_\_\_\_\_ FIELD NOTES: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_

**CANAL IMPROVEMENTS**

**PHASE 2**

**PLAN SHEET**

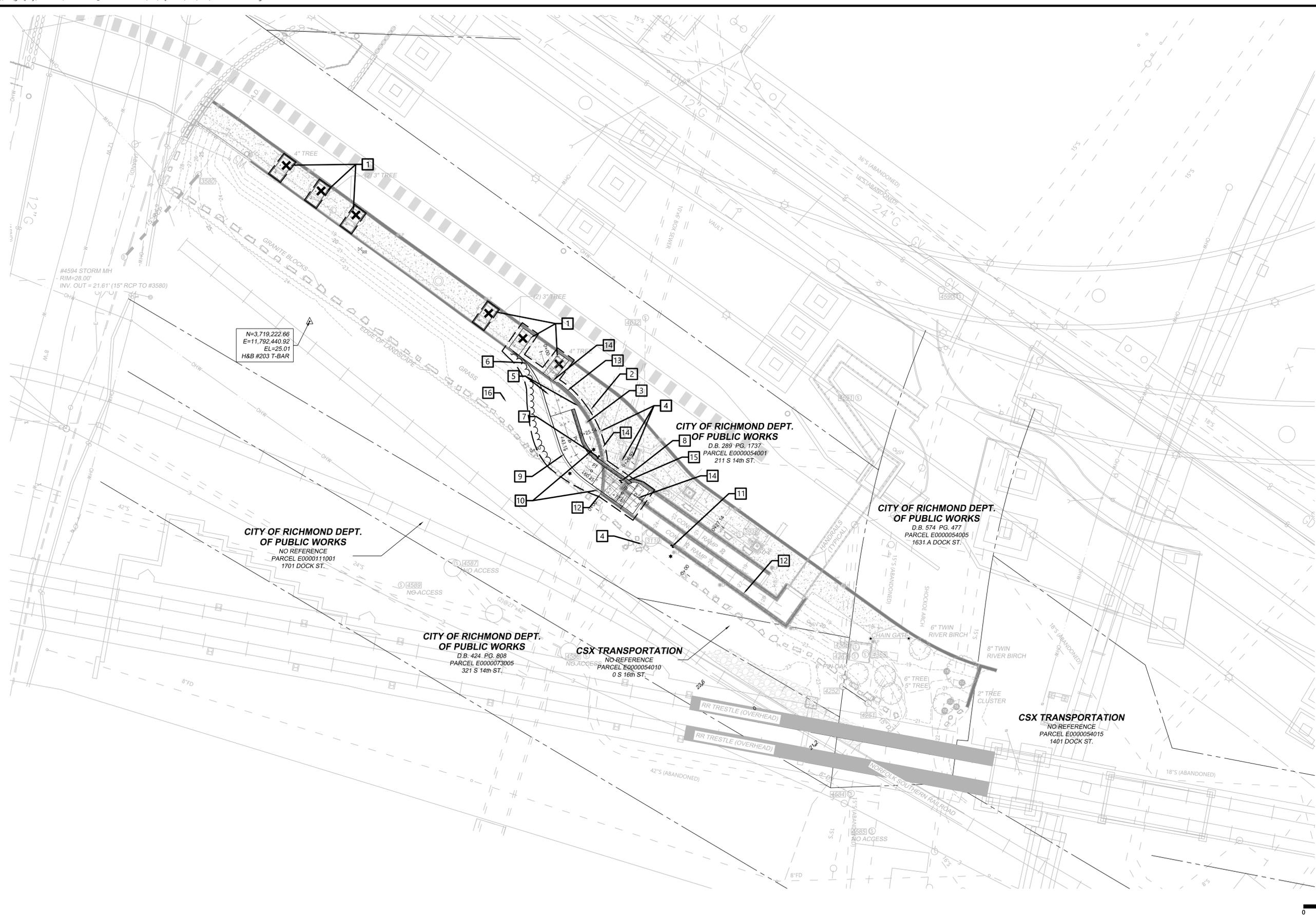
JULY 2022

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0-28







- ### Legend
- DENOTES HARDSCAPE DEMOLITION
  - DENOTES CONCRETE SIDEWALK
  - 1** REMOVE TREE & ASSOCIATED LANDSCAPE ISLAND
  - 2** REMOVE & REPLACE SEAT ROCK TO FACILITATE CONSTRUCTION
  - 3** RELOCATE EXISTING TRASH BIN
  - 4** STRUCTURE TO REMAIN AND BE PROTECTED
  - 5** GRANITE CURB (TYP.)
  - 6** TIE TO EXISTING CURB
  - 7** CONCRETE SIDEWALK (TYP.)
  - 8** STAIRCASE TO BE DEMOLISHED
  - 9** 10' WIDE PATH
  - 10** RELOCATE EXISTING LIGHT POLE
  - 11** EXISTING ADA RAMP TO REMAIN
  - 12** REMOVE PORTION OF WALL
  - 13** REMOVE PORTION OF GRANITE CURB
  - 14** EXISTING SIDEWALK TO BE SAWCUT AT NEAREST JOINT AND REPLACED WHERE NECESSARY
  - 15** TIE TO EXISTING WALL

N=3,719,222.66  
E=11,792,440.92  
EL=25.01  
H&B #203 T-BAR

**CITY OF RICHMOND DEPT. OF PUBLIC WORKS**  
NO REFERENCE  
PARCEL E0000111001  
1701 DOCK ST.

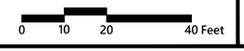
**CITY OF RICHMOND DEPT. OF PUBLIC WORKS**  
D.B. 424 PG. 808  
PARCEL E0000073005  
321 S 14th ST.

**CSX TRANSPORTATION**  
NO REFERENCE  
PARCEL E0000054010  
0 S 16th ST.

**CITY OF RICHMOND DEPT. OF PUBLIC WORKS**  
D.B. 289 PG. 1737  
PARCEL E0000054001  
211 S 14th ST.

**CITY OF RICHMOND DEPT. OF PUBLIC WORKS**  
D.B. 574 PG. 477  
PARCEL E0000054005  
1631 A DOCK ST.

**CSX TRANSPORTATION**  
NO REFERENCE  
PARCEL E0000054015  
1401 DOCK ST.



JULY 2022  
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4. Adopted \_\_\_\_\_
5. Accepted \_\_\_\_\_

REFERENCES	REVISIONS

#### Existing Legend

<ul style="list-style-type: none"> <li>Storm Sewer</li> <li>Sanitary Sewer</li> <li>Gas Line</li> <li>Electric Line</li> <li>Overhead Utility</li> <li>Telephone/Telegraph</li> <li>Water Line</li> <li>Property Line</li> <li>Storm Basin</li> <li>Storm or Sanitary Manhole</li> <li>Fire Hydrant / Valve</li> </ul>	<ul style="list-style-type: none"> <li>Water Meter</li> <li>Existing Curb Cut Ramp</li> <li>Gas Meter / Valve</li> <li>Fence</li> <li>Power/Light Pole</li> <li>Guy Anchor</li> <li>Tree</li> </ul>
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#### Proposed Legend

<ul style="list-style-type: none"> <li>Sanitary Sewer</li> <li>Storm Sewer</li> <li>Storm (San) Manhole</li> <li>Basin</li> <li>Curb Cut Ramp</li> <li>Decorative Light</li> <li>Conduit</li> <li>Conduit (Easement)</li> </ul>	<ul style="list-style-type: none"> <li>WM</li> <li>HCR</li> <li>GM</li> <li>GV</li> <li>PP</li> <li>LP</li> <li>SDMH</li> <li>SMH</li> </ul>
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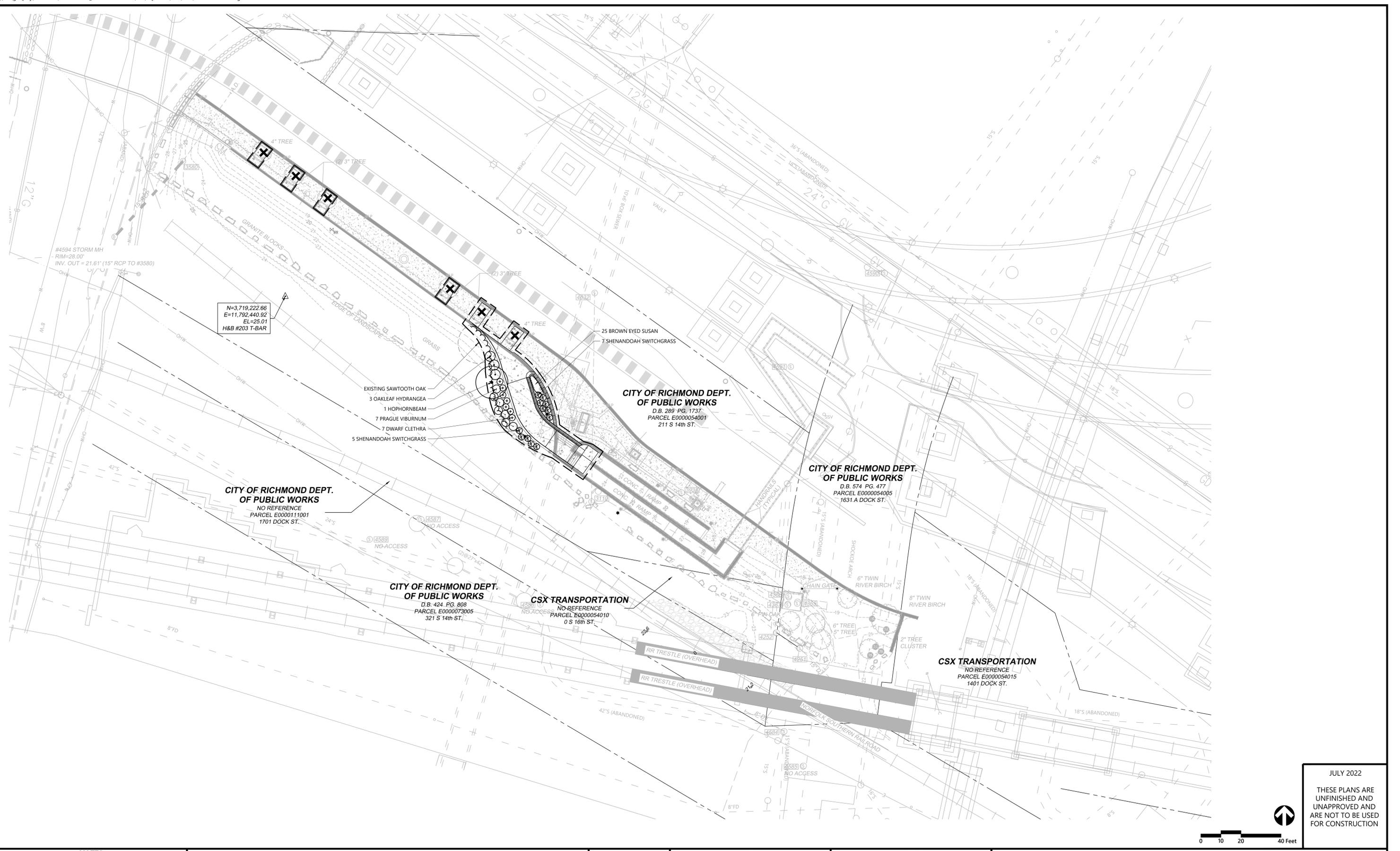
#### Richmond Virginia Logo

Technical Surveys Superintendent Project Manager Maintenance Engineer City Traffic Engineer	Administrative Capital Project Administrator City Engineer Director of Public Works
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**DEPARTMENT OF PUBLIC WORKS**  
RICHMOND, VIRGINIA

AUTHORITY: CITY OF RICHMOND, DPW

CANAL IMPROVEMENTS		PHASE 2		PLAN SHEET	
DESIGN BY:	REVIEWED BY:	FIELD NOTES	SCALE	DATE	PROJECT
CHECKED BY:				July, 2022	SHEET 3
					DRAWING NO. 0-28



**NOTES**

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3. Ordinance Number \_\_\_\_\_
4. Adopted \_\_\_\_\_
5. Accepted \_\_\_\_\_

REFERENCES	REVISIONS

**Existing Legend**

Storm Sewer	(Symbol)
Sanitary Sewer	(Symbol)
Gas Line	(Symbol)
Electric Line	(Symbol)
Overhead Utility	(Symbol)
Telephone/Telegraph	(Symbol)
Water Line	(Symbol)
Property Line	(Symbol)
Storm Basin	(Symbol)
Storm or Sanitary Manhole	(Symbol)
Fire Hydrant / Valve	(Symbol)

**Water Meter**

Existing Curb Cut Ramp

Gas Meter / Valve

Power/Light Pole

Guy Anchor

Tree

**Proposed Legend**

Sanitary Sewer	(Symbol)
Storm Sewer	(Symbol)
Storm (San) Manhole	(Symbol)
Basin	(Symbol)
Curb Cut Ramp	(Symbol)
Decorative Light	(Symbol)
Conduit	(Symbol)
Conduit (Easement)	(Symbol)



Technical	Administrative
Surveys Superintendent	Capital Project Administrator
Project Manager	City Engineer
Maintenance Engineer	Director of Public Works
City Traffic Engineer	

DEPARTMENT OF PUBLIC WORKS  
RICHMOND, VIRGINIA

vhb

AUTHORITY: CITY OF RICHMOND, DPW

DESIGN BY: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_

**CANAL IMPROVEMENTS  
PHASE 2  
PLANTING PLAN**

SCALE	DATE	PROJECT SHEET	DRAWING NO.
0 10 20 40 Feet	July, 2022	4A	0-28

JULY 2022

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### Tree Protection

- EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY CONSTRUCTION FENCE. ERECT FENCE AT EDGE OF THE TREE DRIPLINE PRIOR TO START OF CONSTRUCTION.
- CONTRACTOR SHALL NOT OPERATE VEHICLES WITHIN THE TREE PROTECTION AREA. CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS, OR DISPOSE OF ANY WASTE MATERIALS, WITHIN THE TREE PROTECTION AREA.
- DAMAGE TO EXISTING TREES CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY A CERTIFIED ARBORIST AT THE CONTRACTOR'S EXPENSE.
- TREES SHALL BE PRESERVED TO MEET ANY PART OF THE LANDSCAPING REQUIREMENTS AND WILL BE PROTECTED DURING CLEARING, GRADING, AND CONSTRUCTION. TREE PROTECTION FENCING SHALL BE PLACED AT THE DRIP LINES OF THE TREES WITH DETAILS TO INCLUDE SIGNAGE STATING THAT "THERE IS TO BE NO STORAGE OF MATERIALS, VEHICLES, OR EQUIPMENT BEYOND THE FENCING". TREE PROTECTION FENCING SHALL BE INSTALLED AND INSPECTED PRIOR TO INITIAL LAND DISTURBANCE.

### Plant Maintenance Notes

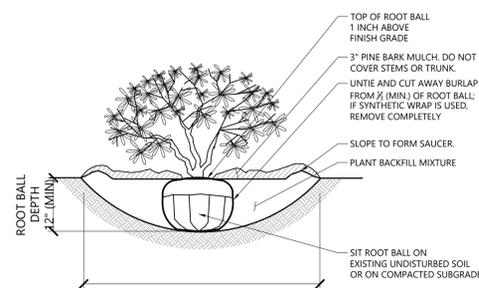
- CONTRACTOR SHALL PROVIDE COMPLETE MAINTENANCE OF THE LAWN AND PLANTINGS. NO IRRIGATION IS PROPOSED FOR THIS SITE. THE CONTRACTOR SHALL SUPPLY SUPPLEMENTAL WATERING FOR NEW LAWN AND PLANTINGS DURING THE ONE YEAR PLANT GUARANTEE PERIOD.
- CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT FOR 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.

### Planting Notes

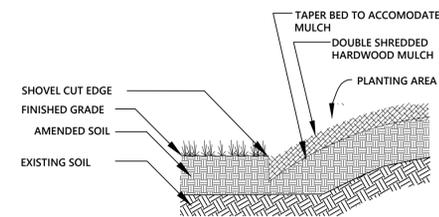
- ALL PROPOSED PLANTING LOCATIONS SHALL BE STAKED AS SHOWN ON THE PLANS FOR FIELD REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- CONTRACTOR SHALL VERIFY LOCATIONS OF ALL BELOW GRADE AND ABOVE GROUND UTILITIES AND NOTIFY OWNER'S REPRESENTATIVE OF CONFLICTS.
- NO PLANT MATERIALS 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 SPECIFICATION, 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 BY LANDSCAPE ARCHITECT AND APPROVED IN WRITING BY THE 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.
- THIS PLAN IS INTENDED FOR PLANTING PURPOSES. REFER TO SITE / CIVIL DRAWINGS FOR ALL OTHER SITE CONSTRUCTION INFORMATION.

### Plant List

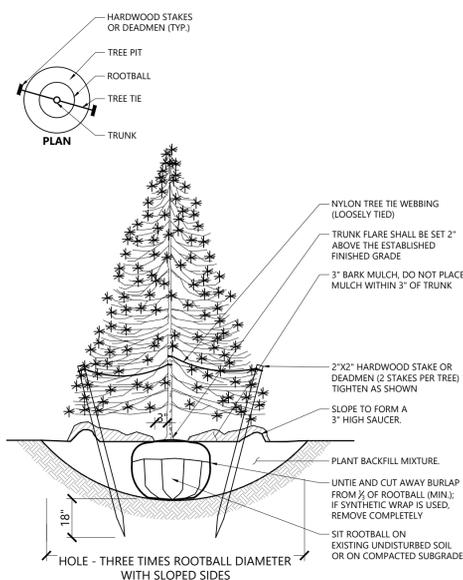
Key	Qty.	Botanical Name	Common Name	Size
	3	HYDRANGEA QUERCIFOLIA	OAKLEAF HYDRANGEA	6'-8"
	1	Ostrya virginiana	AMERICAN HOPHORNBEAM	2.5" CALIPER
	7	Viburnum x pragnense	PRAGUE VIBURNUM	24-36" HT.
	7	Clethra alnifolia 'SUGARTINA'	DWARF SUMMERSWEET	18" HT/SPRD MIN.
	12	Panicum virgatum 'SHENANDOAH'	SHENANDOAH SWITCHGRASS	18" HT/SPRD MIN.
	25	Rudbeckia hirta	BLACK EYED SUSAN	12" O.C., 18" HT/SPRD MIN.



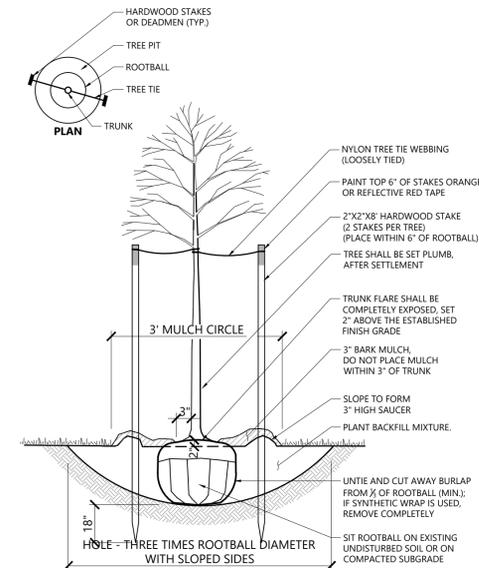
**Shrub Planting** 1/16  
 N.T.S. Source: VHB REV LD\_600



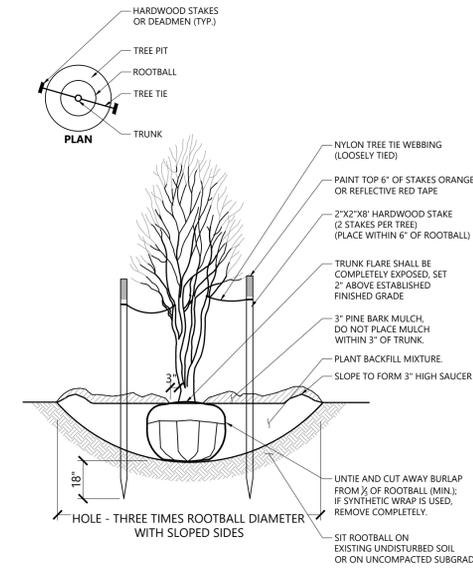
**Shovel Cut Edging Detail** 7/15  
 N.T.S. Source: VHB



**Evergreen Tree Planting** 9/21  
 N.T.S. Source: VHB REV LD\_604



**Tree Planting (For Trees Under 4" Caliper)** 9/21  
 N.T.S. Source: VHB REV LD\_602



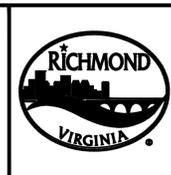
**Multistem Tree Planting** 9/21  
 N.T.S. Source: VHB REV LD\_606

JULY 2022  
 THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION

NOTES	REVISIONS						
1. Lot dimensions in parentheses are from deed. 2. Property owners correct as of ___/___/20__ 3. Ordinance Number _____ 4. Adopted _____ 5. Accepted _____	<table border="1"> <tr> <td>Storm Basin</td> <td></td> </tr> <tr> <td>Storm or Sanitary Manhole</td> <td></td> </tr> <tr> <td>Fire Hydrant / Valve</td> <td></td> </tr> </table>	Storm Basin		Storm or Sanitary Manhole		Fire Hydrant / Valve	
Storm Basin							
Storm or Sanitary Manhole							
Fire Hydrant / Valve							

Existing Legend	Proposed Legend
Storm Sewer	Sanitary Sewer
Sanitary Sewer	Existing Curb Cut Ramp
Gas Meter / Valve	Gas Meter / Valve
Electric Line	Fence
Overhead Utility	Power/Light Pole
Telephone/Telegraph	Guy Anchor
Water Line	Tree
Property Line	

Technical	Administrative
Surveys Superintendent	Capital Project Administrator
Project Manager	City Engineer
Maintenance Engineer	Director of Public Works
City Traffic Engineer	



DEPARTMENT OF PUBLIC WORKS RICHMOND, VIRGINIA	
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<b>vhb</b>		<b>CANAL IMPROVEMENTS PHASE 2 PLANTING SCHEDULE, NOTES, AND DETAILS</b>	
DESIGN BY:	REVIEWED BY:	FIELD NOTES	SCALE
DRAWN BY:		DATE	PROJECT
CHECKED BY:		July, 2022	SHEET
			4B
			DRAWING NO.
			0-28



### Minimum Standards

AN EROSION AND SEDIMENT CONTROL PROGRAM ADOPTED BY A DISTRICT OR LOCALITY MUST BE CONSISTENT WITH THE FOLLOWING CRITERIA, TECHNIQUES AND METHODS:

- PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
- DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
- A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.
- SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.
- STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
- SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.
  - THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.
  - SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A TWENTY-FIVE YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.
- CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.
- CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
- WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
- ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
- BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
- WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFEEDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.
- WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
- ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.
- THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.
- UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
  - NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
  - EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
  - EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
  - MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
  - RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THIS CHAPTER.
  - APPLICABLE SAFETY REQUIREMENTS SHALL BE COMPLIED WITH.
- WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE, WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE. THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.
- ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
- PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA. STREAM RESTORATION AND RELOCATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS THAT ARE NOT MAN-MADE CHANNELS AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS.
  - CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.
  - ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
    - THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION; OR
    - (a) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS; AND
    - (b) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND
    - (c) PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.
  - IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
    - IMPROVE THE CHANNEL TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL, BED OR BANKS; OR
    - IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES; OR
    - DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR
    - PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE PLAN-APPROVING AUTHORITY TO PREVENT DOWNSTREAM EROSION.

- THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
- ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE SUBJECT PARCEL.
- IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION HE SHALL OBTAIN APPROVAL FROM THE LOCALITY OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.
- OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.
- ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
- INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.
- IN APPLYING THE STORMWATER RUNOFF CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.
- ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.
- ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO: (i) DETAIN THE WATER QUALITY VOLUME AND TO RELEASE IT OVER 48 HOURS; (ii) DETAIN AND RELEASE OVER A 24-HOUR PERIOD THE EXPECTED RAINFALL RESULTING FROM THE ONE YEAR, 24-HOUR STORM; AND (iii) REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1.5, 2, AND 10-YEAR, 24-HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM THE SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIFICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 62.1-44.1534 OR 62.1-44.1565 OF THE ACT.
- FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 62.1-44.1552 A OF THE ACT AND THIS SUBSEQUENT SECTION SHALL BE SATISFIED BY THE COMPLIANCE OF THE WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 62.1-44.1524 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND-DISTURBING ACTIVITIES ARE IN ACCORDANCE WITH § 62.1-44.1534-870-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMPP) REGULATIONS.
- COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN § 62.1-44.1534-870-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMPP) REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF SUBDIVISION 19 OF THIS SUBSECTION.

### Erosion Control Construction Narrative Project Description and Schedule

THE PROJECT PROPOSES TO PROVIDE A SHARED USE PATH THAT PROVIDES BIKE AND ADA ACCESS TO THE CANAL FROM VIRGINIA STREET. UTILITY RELOCATION AND LANDSCAPING WILL ALSO BE INCLUDED IN THIS PROJECT.

THE SITE IS LOCATED IN RICHMOND, VIRGINIA, AND IS BOUND BY NORTH BY THE SOUTH SIDE OF THE CANAL WALK, VIRGINIA STREET TO THE EAST, AND E BYRD STREET TO THE SOUTH.

OTHER IMPROVEMENTS INCLUDE UTILITY CONNECTIONS AND LOCATIONS AND SIGNIFICANT LANDSCAPE IMPROVEMENTS. THE PROPOSED SITE DISTURBED AREA IS 0.29 ACRES.

CONSTRUCTION IS ANTICIPATED TO BEGIN IN SPRING 2023 AND LAST FOR 9 MONTHS.

### Objective of the Erosion and Sediment Control Plan

THE OBJECTIVE OF THIS EROSION AND SEDIMENT CONTROL PLAN IS TO ESTABLISH SPECIFIC GUIDELINES FOR CONTROLLING SOIL EROSION AND SEDIMENTATION DURING AND AFTER THE CLEARING, GRUBBING, AND EARTHWORK ASSOCIATED WITH PREPARATION OF THE SITE FOR BUILDING CONSTRUCTION. MOREOVER, THIS PLAN SPECIFIES THE CONTROL MEASURES THAT WILL BE EMPLOYED TO PROVIDE A PRACTICAL AND WORKABLE MEANS OF MINIMIZING DETRIMENTAL IMPACTS TO SOILS AND WATER RESOURCES AS A RESULT OF THE CONSTRUCTION ACTIVITIES. ALL MEASURES ARE DESIGNED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THIRD EDITION, 1992.

### Existing Conditions / General Description

THE SITE ON WHICH THE PROPOSED DEVELOPMENT WILL OCCUR IS CLASSIFIED AS URBAN LAND AND HAS BEEN PREVIOUSLY DEVELOPED. THE MAJORITY OF THE SITE CONSISTS OF LANDSCAPED AREA. THE FEW EXISTING TREES ON THE SITE WILL BE REMOVED.

TOPOGRAPHY OF THE SITE RANGES FROM A HIGH ELEVATION OF 28' ON THE SOUTH SIDE OF THE SITE TO A LOW ELEVATION OF 17' ALONG THE CANAL WALK. SLOPES ARE RANGING FROM 4%-8%. HOWEVER, THERE IS A STEEP HILL THAT SLOPES 2.5:1 TOWARDS THE SEAT WALL THE RUNS ALONG CANAL WALK. WATER DRAINS FROM THE SOUTH SIDE OF THE PROPERTY TO THE NORTH SIDE OF THE PROPERTY.

ALL STORMWATER RUNOFF ON SITE EVENTUALLY DRAINS TO EITHER THE CITY OF RICHMOND'S COMBINED SEWER SYSTEM, OR THE CITY CANAL.

### Clearing and Grubbing

THIS SITE REQUIRES CLEARING AND GRUBBING. THE LIMITS OF WHICH ARE SHOWN ON THE EROSION CONTROL AND DEMOLITION PLANS. THIS LIMIT WAS ESTABLISHED OUTSIDE THE AREAS TO BE GRADED AND OUTSIDE OF ANY AREAS DESIGNATED AS TREE PROTECTION AREAS. ANY DEMOLISHED MATERIALS WILL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY AT A CERTIFIED LANDFILL OR RECYCLED. EXCAVATED SOIL WILL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY AT A CERTIFIED LANDFILL. NO ON-SITE STOCKPILING IS ANTICIPATED AT THIS TIME.

### Adjacent Site

THE SITE IS BOUND TO THE SOUTH BY PUBLIC RIGHT OF WAY FOR BROAD STREET. IT IS BOUND TO THE WEST BY PUBLIC RIGHT OF WAY FOR TERMINAL PLACE. TO THE NORTHWEST IS PRIVATE PROPERTY FOR THE CHILDREN'S MUSEUM OF RICHMOND. THE REST OF THE SITE, TO THE NORTH AND EAST, IS THE REST OF THE SCIENCE MUSEUM OF VIRGINIA PROPERTY, ULTIMATELY BOUND TO THE EAST BY DMV DRIVE, AND OTHER PROPERTIES, ALSO OWNED BY THE COMMONWEALTH OF VIRGINIA, TO THE NORTH.

### Off-Site Areas

OFF-SITE LAND DISTURBANCE WILL BE REQUIRED WITHIN THE CITY OF RICHMOND PUBLIC RIGHT OF WAY. OTHER OFF-SITE LAND DISTURBANCE WILL BE LIMITED TO THE LOCATION WHERE TOPSOIL AND OTHER WASTE MATERIALS ARE LEGALLY DISPOSED OF AT A LEGAL LANDFILL OR AS DESCRIBED WITHIN PROJECT SUSTAINABILITY SPECIFICATIONS.

CONTRACTOR TO ENSURE ALL WASTE FROM THE PROJECT IS PROPERLY DISPOSED OF AT AN APPROVED SITE WHICH HAS ALL THE NECESSARY PERMITS. NO OFF-SITE AREAS CAN BE USED WITHOUT PRIOR APPROVAL OF THE DEQ PLAN REVIEWER OR DEQ INSPECTOR. TO ENSURE THESE ARE PROPERLY PERMITTED, REVIEW AND APPROVAL OF OFF-SITE AREAS BY DEQ MAY REQUIRE ADDITIONAL PERMITS AND MAY IMPACT CONSTRUCTION TIMELINES.

### Soils

THE US DEPARTMENT OF AGRICULTURE'S NATURAL RESOURCES CONSERVATION SERVICE SOILS MAP SHOWS THE SITE'S SOIL TYPE TO BE AS FOLLOWS:

- 41: URBAN LAND, 0-2% SLOPES, 100% SITE COVERAGE

### Critical Areas

THERE IS A STEEP SLOPE TOWARDS THE NORTH SIDE OF THE SITE DRAINING TOWARDS THE CANAL AT 2.5:1.

ACCORDING TO THE U.S. FEDERAL EMERGENCY MANAGEMENT (FEMA) FLOOD INSURANCE RATE MAP, THERE ARE FEMA FLOODPLAINS ON THE PROPOSED SITE. FEMA LISTS THE SITE AS AN AREA WITH REDUCED FLOOD RISK DUE TO LEVEE, ZONE X, PANEL 5101290041E, EFFECTIVE DATE 07/16/2014. THE CITY OF RICHMOND FLOOD PLAN MAP LISTS THE SITE AS WITHIN A 500-YEAR FLOODPLAIN.

THERE ARE NO WETLANDS LOCATED WITHIN THE LIMITS OF THIS SITE. THE CANAL ITSELF IS CONSIDERED A WETLAND, PER THE U.S. FISH & WILDLIFE SERVICE'S NATIONAL WETLANDS INVENTORY. HOWEVER, IT IS OUTSIDE THE LIMITS OF THIS PROJECT AND WILL NOT BE DISTURBED.

### Permanet Stabilization

ALL NON-IMPERVIOUS AREAS REFINISHING SHALL BE PERMANENTLY SEEDED PER VESCH STANDARDS AND SPECIFICATIONS OR THE LANDSCAPE PLAN SPECIFICATION.

### Erosion and Sediment Control Measures

ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH), THIRD EDITION, 1992.

SAFETY FENCE - STANDARD 3.01  
THE SAFETY OF THE PUBLIC MUST ALWAYS BE CONSIDERED AT BOTH THE PLANNING AND IMPLEMENTATION PHASES OF A LAND-DISTURBING ACTIVITY. IF THERE IS ANY QUESTION CONCERNING THE RISK OF A PARTICULAR EROSION CONTROL MEASURE TO THE GENERAL PUBLIC, AN APPROPRIATE SAFETY FENCE SHOULD BE INSTALLED TO PREVENT UNDESIRE ACCESS. PROPERLY DESIGNED AND INSTALLED SAFETY FENCES PREVENT THE TRESPASSING OF PEOPLE INTO POTENTIALLY DANGEROUS AREAS. THE INSTALLATION OF THESE FENCES WILL PROTECT PEOPLE FROM HAZARDS AND THE OWNER FROM POSSIBLE LITIGATION.

CONSTRUCTION ENTRANCE - STANDARD 3.02  
POINTS OF VEHICULAR INGRESS AND EGRESS SHALL HAVE A STABILIZED STONE PAD WITH A FILTER FABRIC UNDERLINER TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO PAVED PUBLIC ROADS BY MOTOR VEHICLES OR RUNOFF FROM THE CONSTRUCTION SITE.

SILT FENCE - STANDARD 3.05  
SILT FENCE IS INSTALLED TO INTERCEPT AND DETAIN SMALL AMOUNTS OF SEDIMENT FROM DISTURBED AREAS DURING CONSTRUCTION OPERATIONS IN ORDER TO PREVENT SEDIMENT FROM LEAVING THE SITE. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. CLOSE ATTENTION SHOULD BE PAID TO THE REPAIR OF DAMAGED SILT FENCE RESULTING FROM END RUNS AND UNDERCUTTING. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED, AND SEEDED. ALL SILT FENCE SHALL BE INSTALLED IN ACCORDANCE WITH VESCH STANDARDS AND SPECIFICATION 3.05.

INLET PROTECTION - STANDARD 3.07  
INLET PROTECTION IS INSTALLED AT STORM SEWER INLETS PRIOR TO CLEARING OF THE UPSTREAM AREAS TO PREVENT SEDIMENT FROM ENTERING THE SEWER SYSTEM AND LEAVING THE SITE. INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE PROJECT SITE IS FULLY STABILIZED. ALL INLET PROTECTION SHALL BE INSTALLED IN ACCORDANCE WITH VESCH STANDARD AND SPECIFICATION 3.07.

VEGETATIVE PRACTICES  
ALL DISTURBED AREAS SHALL BE SOODED OR SEEDED WITH FAST-GERMINATING, TEMPORARY VEGETATION IMMEDIATELY FOLLOWING GRADING OR WHERE EXPOSED SOIL SURFACES WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF TIME EXCEEDING 14 DAYS. REFER TO THE VESCH FOR APPROPRIATE SEED MIXTURE DEPENDENT ON LOCATION AND TIME OF YEAR.

### Maintenance of Erosion and Sediment Control Facilities

ALL MAINTENANCE OF TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL FACILITIES SHALL BE CARRIED OUT IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS (§ 62.1-44.1534-870-40). DURING THE PERIOD THAT THE PROJECT SITE IS UNDER CONSTRUCTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE OF THE EROSION AND SEDIMENT CONTROL FACILITIES. THE CONTRACTOR WILL INSPECT EROSION AND SEDIMENT CONTROL FACILITIES ON A REGULAR BASIS, ESPECIALLY AFTER PERIODS OF HEAVY RAINFALL. ANY DAMAGE DISCOVERED WILL BE REPAIRED PROMPTLY BY THE CONTRACTOR. FURTHERMORE, A READILY AVAILABLE SUPPLY OF EROSION AND SEDIMENT CONTROL MATERIALS WILL BE MAINTAINED BY THE CONTRACTOR AT ALL TIMES.

- SAFETY FENCE - FENCES SHALL BE CHECKED REGULARLY FOR WEATHER-RELATED OR OTHER DAMAGE. ANY NECESSARY REPAIRS MUST BE MADE IMMEDIATELY. CARE SHOULD BE TAKEN TO SECURE ALL ACCESS POINTS (GATES) AT THE END OF EACH WORKING DAY. LOCKING DEVICES MUST BE REPAIRED OR REPLACES AS NECESSARY.
- CONSTRUCTION ENTRANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS OF WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING AND REWORKING OF EXISTING STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT.
- SILT FENCE - SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER. CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED SILT FENCE RESULTING FROM END RUNS AND UNDERCUTTING.
- INLET PROTECTION - THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NECESSARY. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.

### Pumping of Stormwater

SHOULD IT BE NECESSARY TO PUMP STORMWATER DURING CONSTRUCTION BECAUSE THE GRADING WILL NOT ALLOW FOR GRAVITY FLOW, THEN THE PUMPED STORMWATER MUST BE FILTERED THROUGH A SILT SACK, OR SIMILAR SEDIMENT TRAPPING DEVICE, BEFORE OUTLETING INTO THE ADJACENT STORM SEWER SYSTEM.

### Stormwater Management Runoff

DURING CLEARING, GRUBBING, AND THROUGHOUT CONSTRUCTION, STORMWATER RUNOFF WILL SHEET FLOW TO EXISTING OR PROPOSED STORMWATER INLETS, WITH INLET PROTECTION, AND OTHER PERMITTER CONTROLS SUCH AS SILT FENCE. THROUGH THESE MEASURES, THE RUNOFF WILL BE FILTERED PRIOR TO RELEASE INTO THE EXISTING STORM SEWER SYSTEM.

### Tree Protection

TREE PROTECTION IS USED TO PROTECT DESIRABLE TREES FROM MECHANICAL AND OTHER INJURY DURING LAND DISTURBING AND CONSTRUCTION ACTIVITY. IN SPITE OF PRECAUTIONS, SOME DAMAGE TO PROTECTED TREES MAY OCCUR. IN SUCH CASES, THE FOLLOWING MAINTENANCE GUIDELINES SHOULD BE FOLLOWED:

- SOIL AERATION - THE GROUND SHALL BE AERATED IF THE SOIL BECOMES COMPACTED OVER THE ROOT ZONE.
- REPAIR OF DAMAGE.
- FERTILIZATION - BROADLEAF TREES THAT HAVE BEEN STRESSED OR DAMAGED SHALL RECEIVE A HEAVY APPLICATION OF FERTILIZER TO AID THEIR RECOVERY.

ALL TREE PROTECTION SHALL BE INSTALLED IN ACCORDANCE WITH VESCH STANDARD AND SPECIFICATION 3.38. IF THE SOIL BECOMES COMPACTED OVER THE ROOT ZONE OF ANY TREE, THE GROUND SHALL BE AERATED BY PUNCHING HOLES WITH AN IRON BAR. BROADLEAF TREES THAT HAVE BEEN STRESSED OR DAMAGED SHALL RECEIVE A HEAVY APPLICATION OF FERTILIZER TO AID THEIR RECOVERY.

ALL TREE PROTECTION AREAS SHALL HAVE 4 FOOT HIGH FENCING WITH MINIMUM 4 INCH SPACING. IN ENGLISH AND SPANISH, RESTRICTING ACCESS TO FENCED AREAS. CONTRACTOR IS RESPONSIBLE FOR RESTRICTING ACCESS TO FENCED AREAS.

### Final Site Cleanup

NO EROSION AND SEDIMENT CONTROL MEASURES CAN BE REMOVED WITHOUT APPROVAL OF THE ENVIRONMENTAL INSPECTOR FOR THE PROJECT. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES WILL BE REMOVED ONLY WHEN ALL PREVIOUSLY DENUDED AREAS PROTECTED BY DEVICES HAVE BECOME STABILIZED. THE STONE AND/OR ROCK USED AT CONSTRUCTION ENTRANCES AND ANY OTHER LOCATION ON THE SITE WILL BE REMOVED AND DISPOSED OF IN THE APPROPRIATE MANNER. THE SILT FENCES USED ALONG THE LIMITS OF WORK WILL BE REMOVED IF VEGETATIVE COVER AND SLOPE STABILITY HAVE BEEN ATTAINED.

### City of Richmond Erosion and Sediment Control Notes

- PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
- EXCESS EXCAVATION DISPOSED OF OFF THE SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.
- EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED IN ACCORDANCE WITH VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND SHALL BE PLACED PRIOR TO OR AS THE FIRST STEP OF THE LAND DISTURBING ACTIVITY.
- EROSION AND SEDIMENT CONTROL SHALL BE MAINTAINED SO THAT THE SEDIMENT CARRYING RUNOFF FROM THE SITE WILL NOT ENTER STORM DRAINAGE FACILITIES.
- EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED UNTIL THE DISTURBED AREA IS STABILIZED.
- PROPERTIES ADJOINING THE SITE SHALL BE KEPT CLEAN OF MUD OR SILT CARRIED FROM THE SITE BY VEHICULAR TRAFFIC OR RUNOFF.
- THE DISPOSAL OF WASTE MATERIALS REMOVED FROM EROSION AND SEDIMENT CONTROL FACILITIES AND THE DISPOSAL OF THESE FACILITIES SHALL BE IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.
- STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
- DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.

### General Erosion and Sediment Control Notes

- UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS 91AC25-840 EROSION AND SEDIMENT CONTROL REGULATIONS.
- THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.
- ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.
- A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
- PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
- THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.
- ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
- DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
- THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
- THE CONTRACTOR IS RESPONSIBLE FOR THE DAILY REMOVAL OF SEDIMENT THAT HAS BEEN TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE.
- SEEDING OPERATIONS SHALL BE INITIATED WITHIN 7 DAYS AFTER REACHING FINAL GRADE OR UPON SUSPENSION OF GRADING OPERATIONS FOR ANTICIPATED DURATION OF GREATER THAN 14 DAYS OR UPON COMPLETION OF GRADING OPERATIONS FOR A SPECIFIC AREA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING SURFACE AND AIR MOVEMENT OF DUST FROM EXPOSED SOILS WHICH MAY PRESENT HEALTH HAZARDS, TRAFFIC SAFETY PROBLEMS, OR HARM ANIMAL OR PLANT LIFE.
- THIS PROJECT IS NOT SUBJECT TO THE VIRGINIA STORMWATER MANAGEMENT PROGRAM PERMIT (VSMPP). DISTURBANCE IS LOCATED ENTIRELY WITHIN THE CITY OF RICHMOND COMBINED SEWER OVERFLOW (CSO). SEE <http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/VSMPPPermits.aspx> FOR MORE INFORMATION.

### Sequence of Construction

THE FOLLOWING OUTLINES THE GENERAL CONSTRUCTION SEQUENCE THAT WILL BE EMPLOYED DURING THE SITE CONSTRUCTION STAGE:

- A PRE-CONSTRUCTION MEETING MUST TAKE PLACE PRIOR TO ANY LAND DISTURBING ACTIVITIES. THE OWNER'S REPRESENTATIVE, ENGINEER, EROSION CONTROL INSPECTOR, AND CONTRACTOR MUST BE PRESENT AT THIS MEETING. THE SITE WORK CONTRACTOR SHALL GIVE THE DEQ INSPECTOR TWO WORKING DAYS NOTIFICATION.
- A CERTIFIED RESPONSIBLE LAND DISTURBER (RLD) IS REQUIRED DURING ALL STAGES OF CONSTRUCTION. FROM THE INITIAL LAND DISTURBANCE THROUGH FINAL SITE STABILIZATION, THE NAME OF THE PROJECT RLD MUST BE PROVIDED BEFORE ANY LAND DISTURBANCE MAY BEGIN.
- THE SITE CONTRACTOR WILL BE RESPONSIBLE FOR SCHEDULING AND CONDUCTING ALL NECESSARY INSPECTIONS WITH THE APPROPRIATE LOCAL AND STATE OFFICIALS. COORDINATION WITH THE APPROPRIATE ENTITIES WILL BE EXECUTED BY THE CONTRACTOR.
- PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT. THE SITE WORK CONTRACTOR SHALL GIVE THE EROSION AND SEDIMENT CONTROL INSPECTOR 1 WEEK NOTIFICATION PRIOR TO COMMENCING WORK.
- DURING PHASE I EROSION AND SEDIMENT CONTROL WORK, THE CONTRACTOR SHALL INSTALL PERIMETER CONTROLS SUCH AS SILT FENCING, SAFETY FENCING, CONSTRUCTION ENTRANCES, LAY DOWN AREAS, AND INLET PROTECTION AS SHOWN ON THE EROSION CONTROL PLAN. LAND DISTURBANCE WITHIN THE LIMITS OF DISTURBANCE MAY NOT OCCUR UNTIL THE INITIAL ESC MEASURES INSTALLATION HAS BEEN APPROVED BY THE ENVIRONMENTAL INSPECTOR.
- CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES, AND REMOVE SEDIMENT THEREFROM ON A WEEKLY BASIS AND WITHIN 12 HOURS AFTER EACH STORM EVENT AND DISPOSE OF THE SEDIMENTS IN AN UPLAND AREA SUCH THAT THEY DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS. CONTRACTOR IS FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
- ANY TREES OUTSIDE THE LIMIT OF DISTURBANCE ARE TO REMAIN.
- DEMOLITION OF THE SITE HARDSCAPE AND UTILITIES MAY BEGIN AFTER PHASE I EROSION CONTROL MEASURES ARE INSTALLED AND APPROVED BY THE INSPECTOR.
- UPON COMPLETION OF SITE DEMOLITION, ROUGH GRADING OPERATIONS MAY COMMENCE. DEWATERING DEVICES TO BE INSTALLED AS NECESSARY TO REMOVE TRAPPED WATER FROM THE EXCAVATED AREA. REFER TO THE PUMPING OF STORMWATER NOTE ON WITH THE EROSION CONTROL DETAILS.
- CONTRACTOR SHALL PROVIDE SURFACE DRAINAGE FROM GRADING OPERATIONS TO ADJACENT STORM SEWER STRUCTURES IF POSSIBLE. INLET PROTECTION SHALL BE PROVIDED FOR ALL DOWNSTREAM STRUCTURES AND INSPECTED AND MAINTAINED ON A WEEKLY BASIS.
- INSTALL SITE WALLS AND BEGIN FINE GRADING OF THE SITE.
- INSTALL SITE HARDSCAPE AND SITE LIGHTING.
- STABILIZE ALL AREAS AS REQUIRED IN PLANS AND SPECIFICATIONS.
- APPLY TEMPORARY SEEDING WITHIN 7 DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR PERIODS LONGER THAN 14 DAYS. APPLY PERMANENT SEEDING TO AREAS THAT WILL REMAIN DORMANT FOR MORE THAN 1 YEAR.
- ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL REMAIN IN OPERATION AND MAINTAINED UNTIL CONSTRUCTION OPERATIONS ARE COMPLETE. TEMPORARY ESC MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER THEY ARE NO LONGER NEEDED. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM SITE PAVEMENTS AND SEWER SYSTEMS.

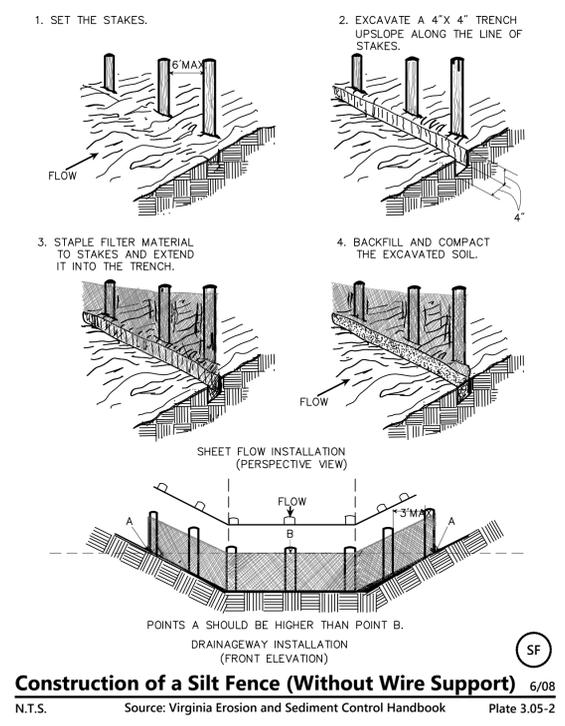
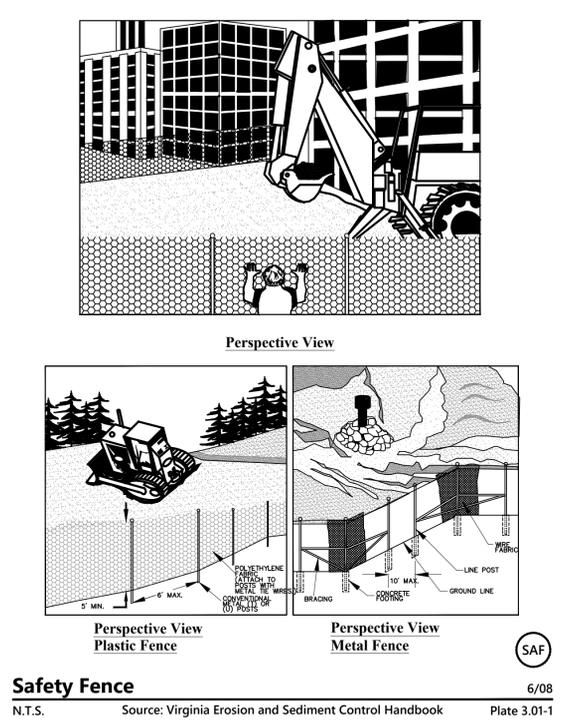
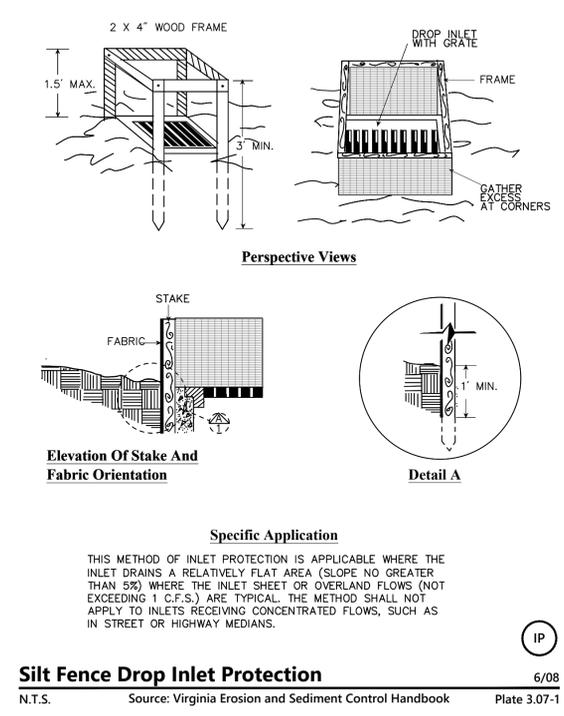
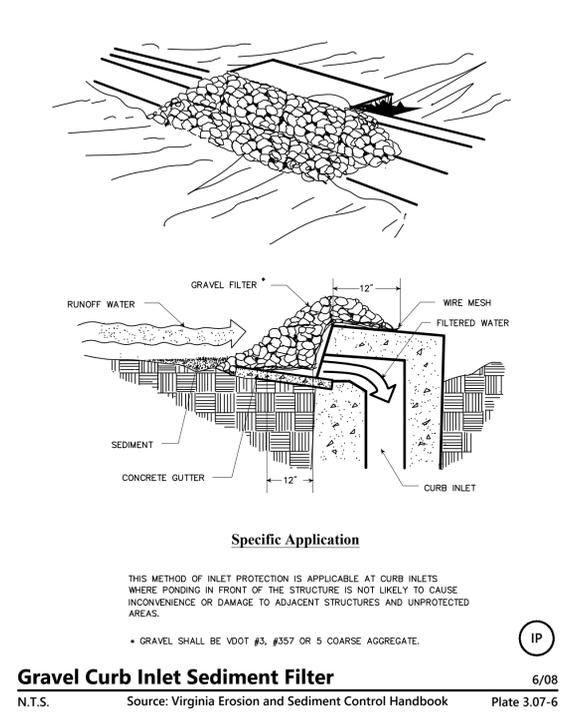
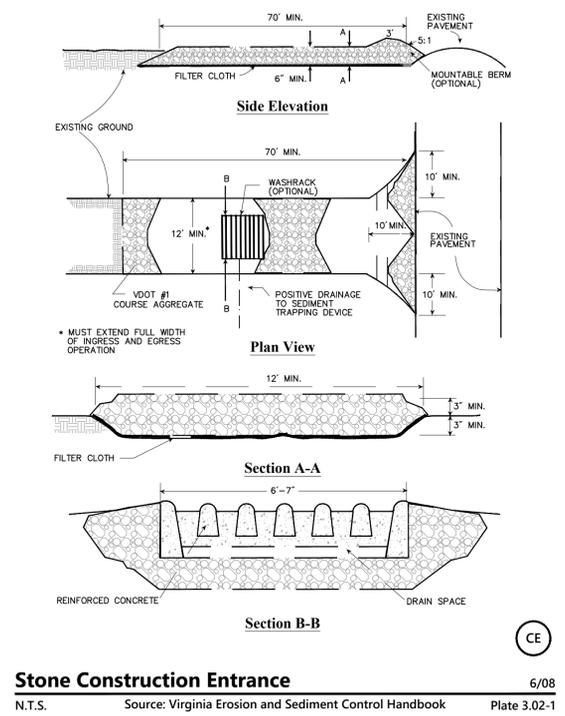
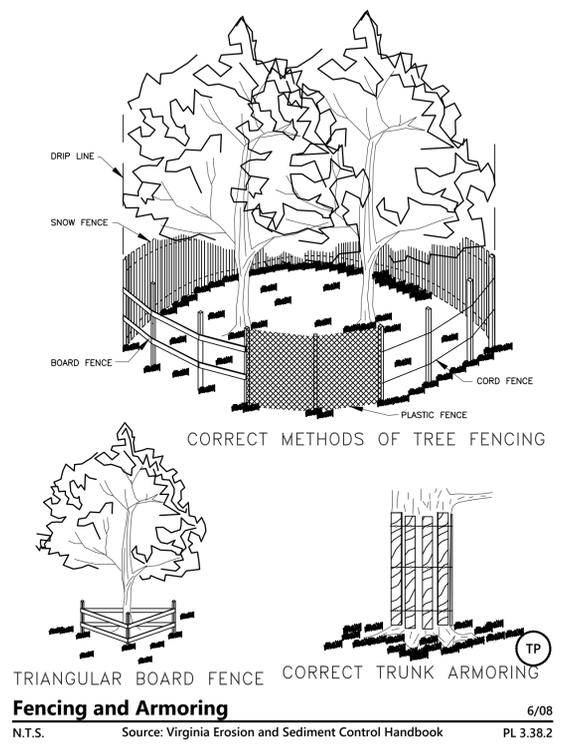
JULY 2022

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION

NOTES	
1. Lot dimensions in parentheses are from deed.	
2. Property owners correct as of _____, 20__.	
3. Ordinance Number _____	
4. Adopted _____	
5. Accepted _____	
REFERENCES	REVISIONS

Existing Legend
Storm Sewer
Sanitary Sewer
Gas Line
Electric Line
Overhead Utility
Telephone/Telegraph
Water Line

Saved Wednesday, September 7, 2022, 4:35:53 PM DWGLOADER Plotted Friday, March 24, 2023, 3:15:35 PM David Woodson



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

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 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/sw/eds.htm#pubs>

**TABLE 3.31-C**  
**TEMPORARY SEEDING PLANT MATERIALS, SEEDING RATES, AND DATES**

SPECIES	SEEDING RATE	NORTH*		SOUTH*		PLANT CHARACTERISTICS
		APR	MAY	APR	MAY	
GRASS (Avena sativa)	3 lb. (up to 100 lbs. not less than 50 lbs.)	X	X	X	X	Use spring varieties (e.g., N404)
RYE (Secale cereale)	3 lb. (up to 110 lbs. not less than 50 lbs.)	X	X	X	X	Use for late fall seedings; winter cover. Tolerates cold and frost.
GERMAN MILLET (Sorghum intrans)	50 lbs.	approx. 1-3%	X	X	X	Warm season annual. Dies at first frost. May be added to winter mixes.
ANNUAL RYEGRASS (Lolium multi-florum)	40 lbs.	15% max	X	X	X	May be added in mixes. Will grow out of most stands.
WEEPING LOVEGRASS (Eragrostis ciliaris)	15 lbs.	5% max	X	X	X	Warm season perennial. May handle tolerance but, dry slopes and acid, infertile soils. May be added to mixes.
KOREAN LESPEDEZA (Lespedeza stipularis)	25 lbs.	approx. 1-5%	X	X	X	Warm season annual legume. Tolerates acid soils. May be added to mixes.

\* Northern Piedmont and Mountain region. See Plates 3.22-1 and 3.22-2.  
\* Southern Piedmont and Coastal Plain.  
\* May be used as a cover crop with spring seedings.  
\* May be used as a cover crop with fall seedings.  
\* X May be planted between these dates.  
\* May not be planted between these dates.

**Temporary Seeding Specifications** 6/03  
N.T.S. Source: Virginia Erosion and Sediment Control Handbook 3.31

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

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

**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/sw/eds.htm#pubs>

**Permanent Seeding Specifications** 06/03  
N.T.S. Source: Virginia Erosion and Sediment Control Handbook 3.32

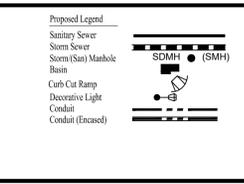
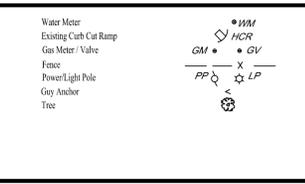
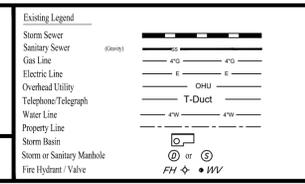
JULY 2022

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**NOTES**

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- Ordinance Number \_\_\_\_\_
- Adopted \_\_\_\_\_
- Accepted \_\_\_\_\_

**REFERENCES**



Technical	Administrative
Surveys Superintendent	Capital Project Administrator
Project Manager	City Engineer
Maintenance Engineer	Director of Public Works
City Traffic Engineer	

DEPARTMENT OF PUBLIC WORKS  
RICHMOND, VIRGINIA

**CANAL IMPROVEMENTS**  
**PHASE 2**  
**EROSION CONTROL**  
**NOTES & DETAILS**

Authority: CITY OF RICHMOND, DPW

DESIGN BY: \_\_\_\_\_ REVIEWED BY: \_\_\_\_\_ FIELD NOTES: \_\_\_\_\_ SCALE: \_\_\_\_\_ DATE: July, 2022 PROJECT SHEET: 6B DRAWING NO.: 0-28

