

Owner/Developer:

**COMMUNITY PRESERVATION AND
DEVELOPMENT CORPORATION**

413 STUART CIRCLE, SUITE 323
RICHMOND, VA 23220

Architect:

TORTI GALLAS + PARTNERS

Landscape Design:

CITE DESIGN

Civil Engineering:

RUMMER, KLEPPER, & KAHL, LLP



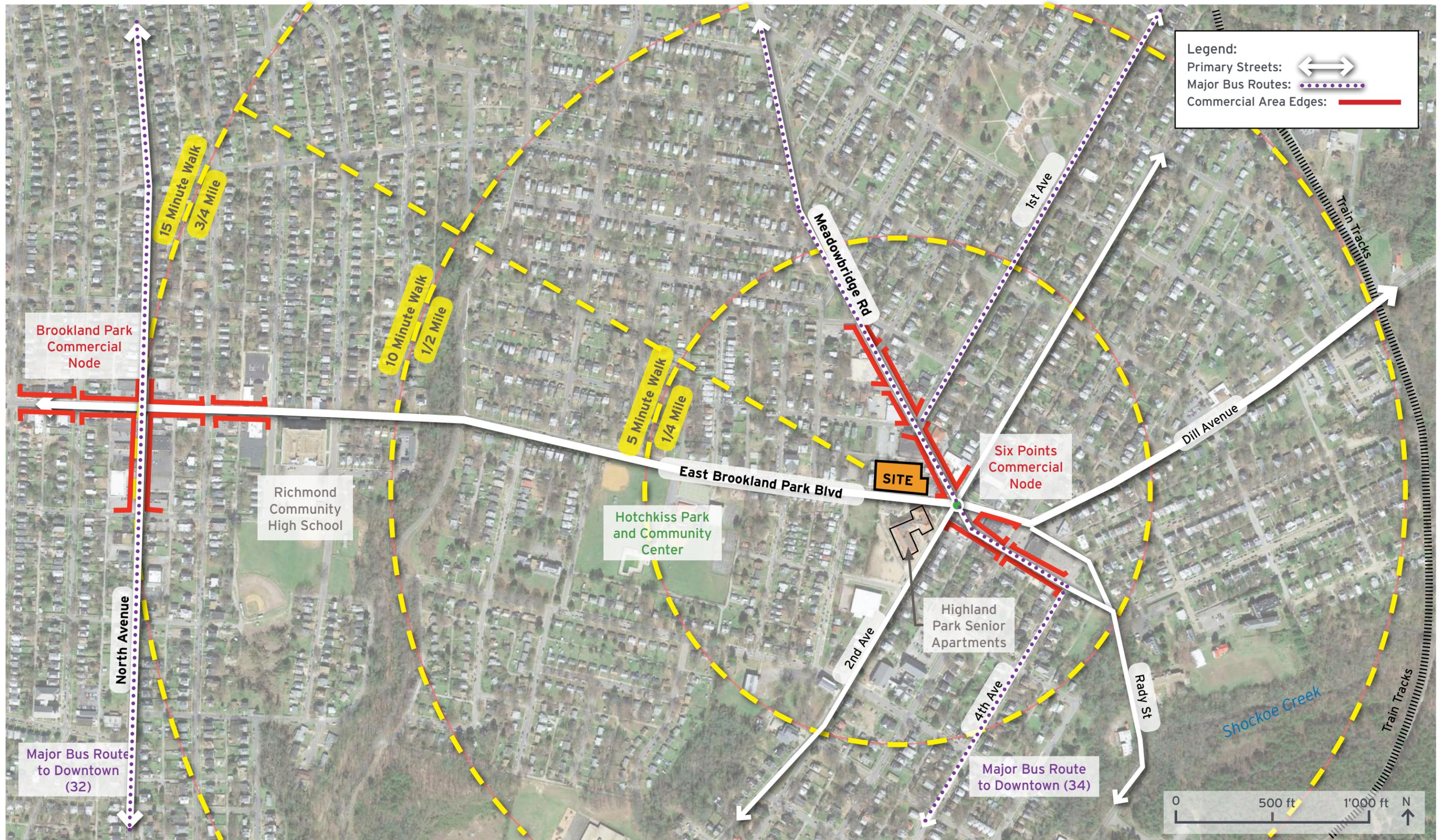
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January 16th, 2018

**1224 EAST BROOKLAND
PARK BOULEVARD
SPECIAL USE PERMIT APPLICATION
RE-SUBMISSION PACKAGE
CITY OF RICHMOND, VIRGINIA**

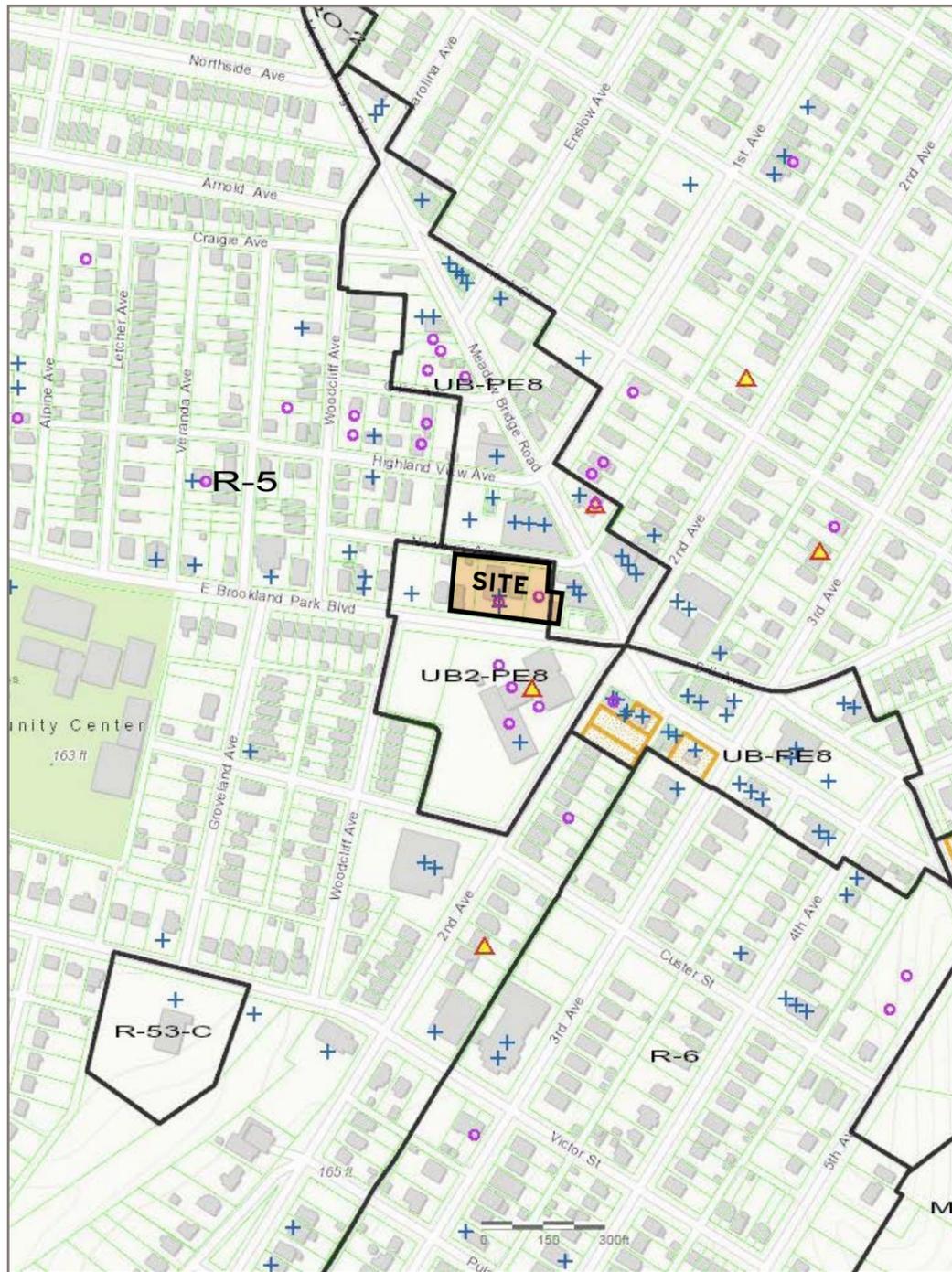


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 LANDSCAPE DESIGN: CITE DESIGN
 CIVIL ENGINEERING: RK&K

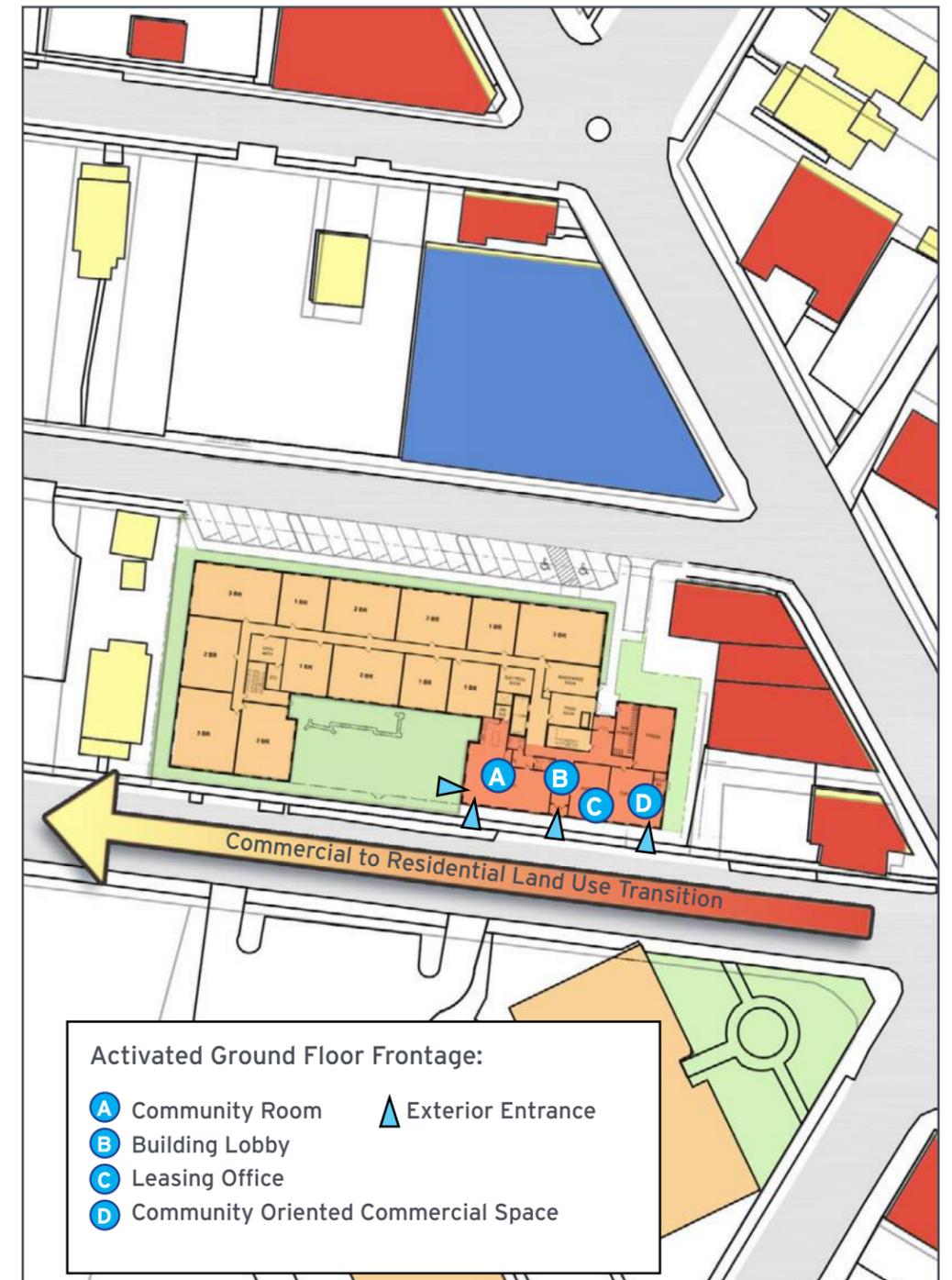
Neighborhood Analysis Diagram
1224 EAST BROOKLAND PARK BLVD: SUP APPLICATION



City Zoning Map with site highlighted



Land Use Analysis Diagram highlighting commercial corridor along Meadowbridge Road and southeastern portion of East Brookland Park Blvd



Proposed land use analysis diagrams showing proposed non-residential use location and the transition from the commercial corridor to residential land use.



1. Site edge along East Brookland Park Blvd looking east



2. Site edge along East Brookland Park Blvd looking west



3. Site edge and street conditions along Newbury Ave, looking southwest



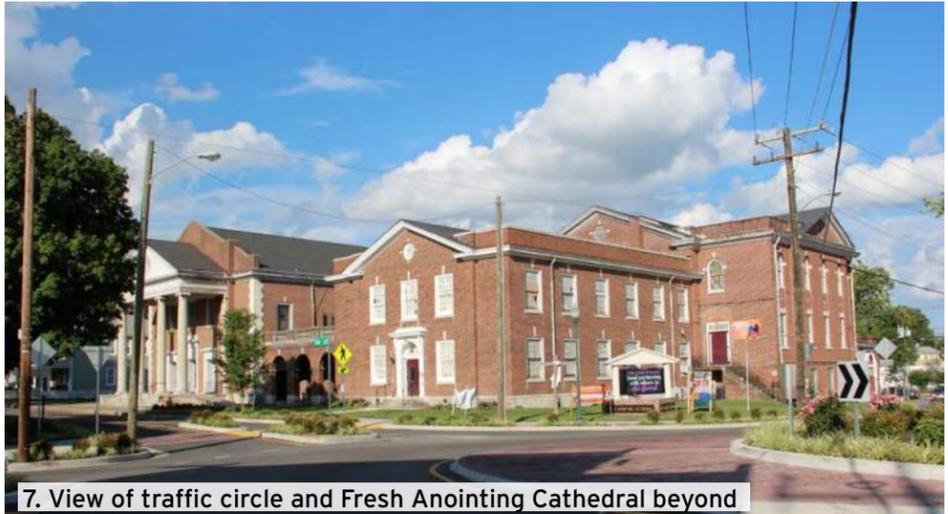
4. View of site fronting East Brookland Park Blvd, looking northwest



5. Newbury Ave view with neighboring rear lot conditions, looking east



6. Highland Park Senior Apartments



7. View of traffic circle and Fresh Anointing Cathedral beyond



8. View of nearby Richmond Community High School, along East Brookland Park Blvd



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Site Analysis
1224 EAST BROOKLAND PARK BLVD: SUP APPLICATION



Parking	
Off Street	19
On Street (Parallel)	12
Total	31
Ratio to Total Units	0.41

Ground Floor Non-Residential Area (GSF)	4,400
Total Ground Floor Area (GSF)	20,270
Non-Residential % of Ground Floor	22%
Total Gross Floor Area (GSF)	81,043

Floors	1 Bedroom	2 Bedroom	3 Bedroom	Totals
1st Fl (Ground Level)	5	5	3	13
2nd Floor	12	6	3	21
3rd Floor	12	6	3	21
4th Floor	12	6	3	21
Totals	41	23	12	76
Unit Percentages	53.9%	30.3%	15.8%	100.0%

Height	
14	1st
10.75	2nd
10.75	3rd
10.75	4th

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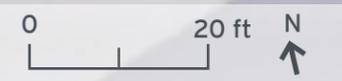


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Ground Floor Plan
1224 EAST BROOKLAND PARK BLVD: SUP APPLICATION



Floors	1 Bedroom	2 Bedroom	3 Bedroom	Totals
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Height	
14	1st
10.75	2nd
10.75	3rd
10.75	4th



Key Plan



Elevator Penthouse Beyond

51'-0"
10'-8"
10'-8"
10'-8"
14'-0"



SOUTH FRONT ELEVATION: EAST BROOKLAND PARK BLVD

Key Plan

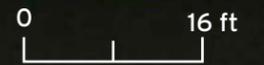


Elevator Penthouse Beyond

51'-0"
10'-8"
10'-8"
10'-8"
14'-0"



NORTH REAR ELEVATION: NEWBURY AVE



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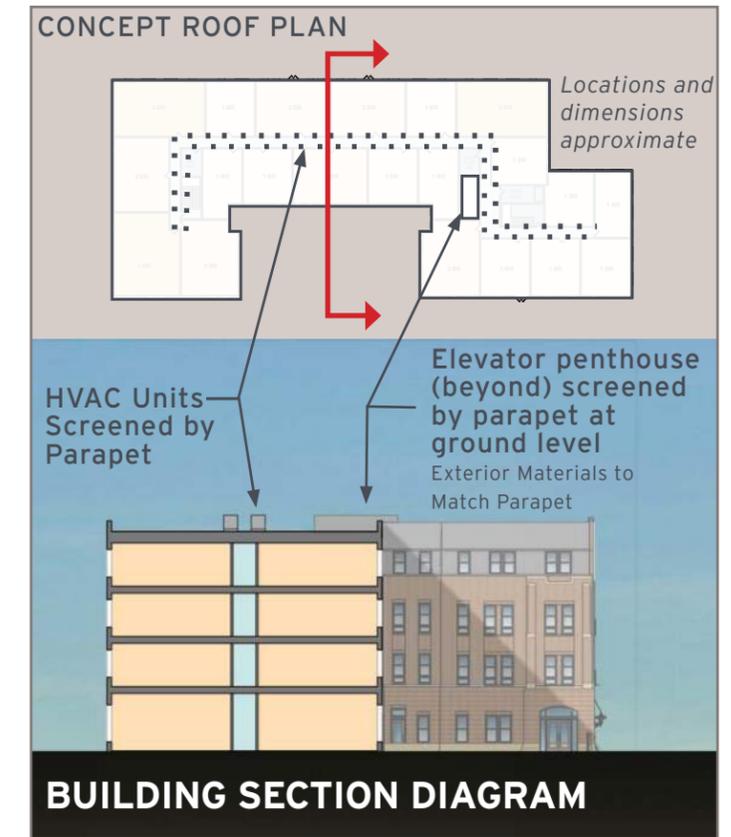
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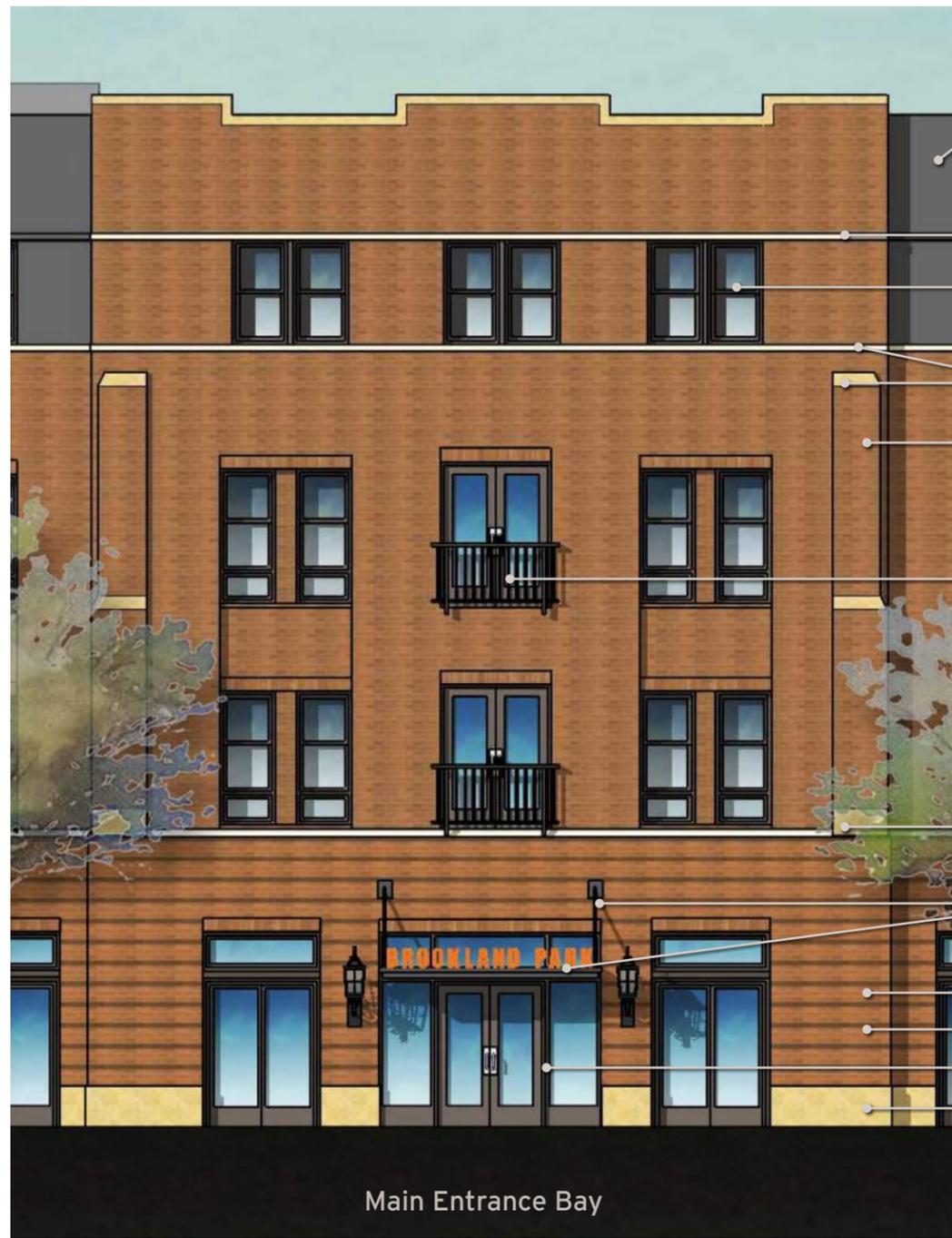
EAST ELEVATION



BUILDING SECTION DIAGRAM



WEST ELEVATION



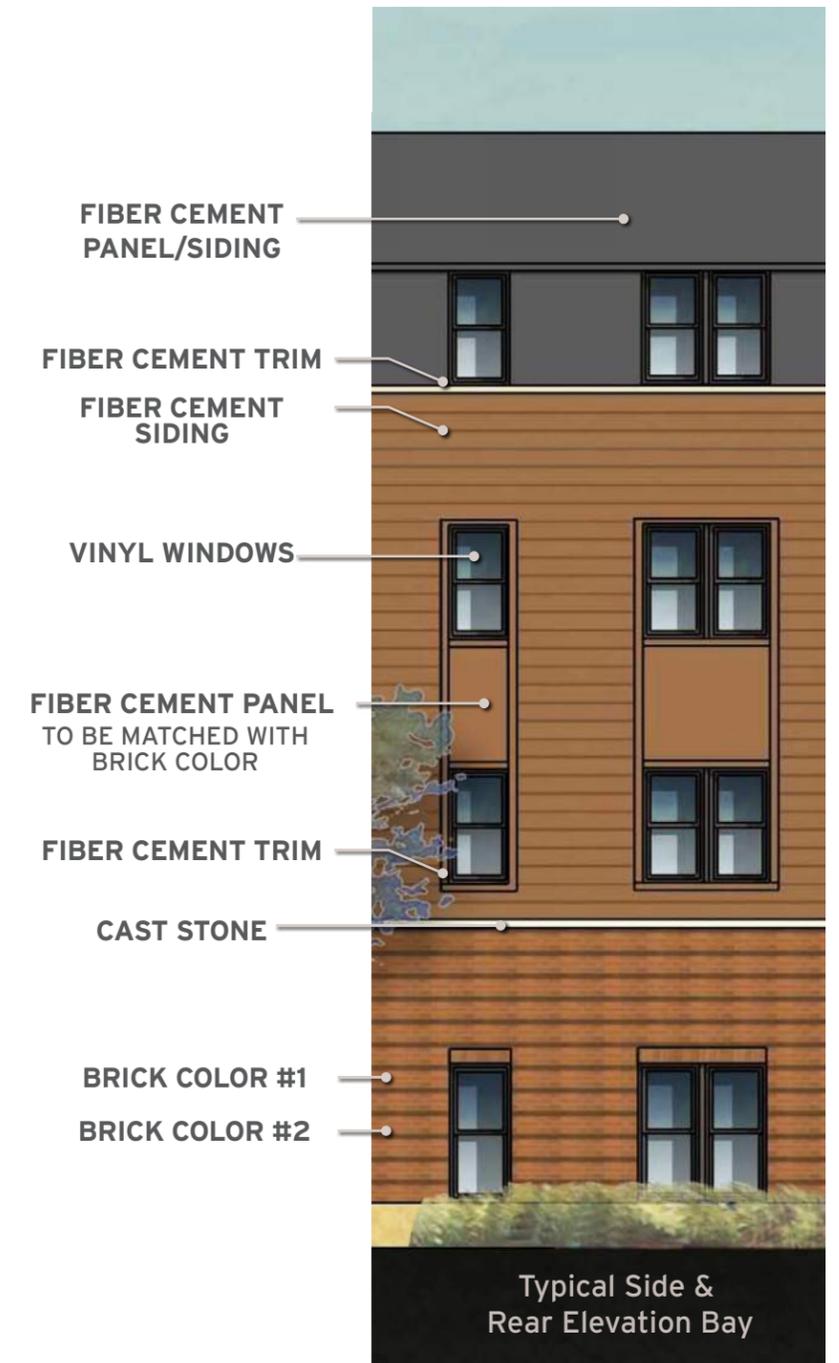
Main Entrance Bay

- FIBER CEMENT PANEL/SIDING
- FIBER CEMENT TRIM
- CAST STONE
- VINYL WINDOWS
- CAST STONE CAPS
- BRICK COLOR #1
- METAL RAILING
- CAST STONE
- METAL CANOPY
- BRICK COLOR #1
- BRICK COLOR #2
- METAL DOORS
- CAST STONE

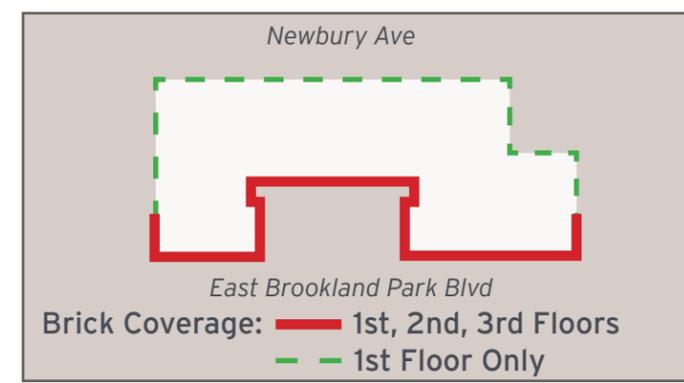
Note: Dryer vents and any exterior downspouts will match color of material in which it sits



Typical Front Elevation Bay



Typical Side & Rear Elevation Bay





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View Down East Brookland Park Blvd
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View of Courtyard Showing Preservation of Church Structure
1224 EAST BROOKLAND PARK BLVD: SUP APPLICATION



Shockoe Bottom, Richmond



Lanier Heights, Washington DC



Nehemiah Site, Richmond



Richmond Springfield School



Arthur Capper Senior Housing



Barrington

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Signage and Awning Concept Details
 1224 EAST BROOKLAND PARK BLVD: SUP APPLICATION

OVERALL LANDSCAPE CONCEPT



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Overall Landscape Concept

1224 EAST BROOKLAND PARK BLVD: SUP APPLICATION

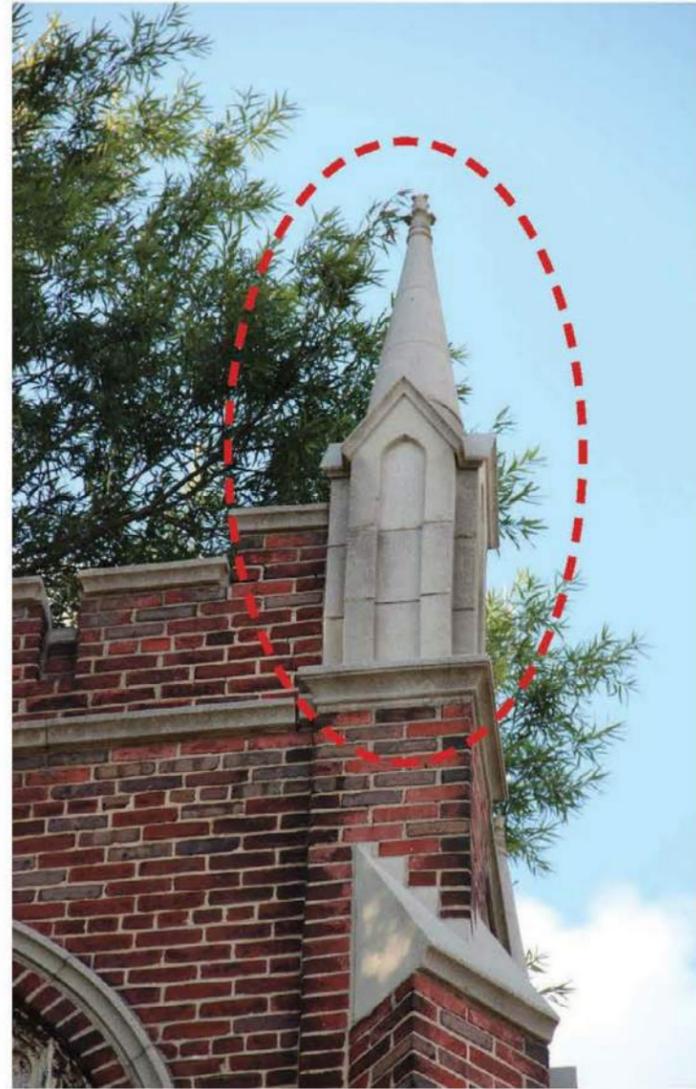
COURTYARD CONCEPT



- (A) PRESERVED CHURCH FOCAL FEATURE (portion of church outline preserved)
- (B) FOCAL GATE
- (C) BRICK COLUMNS & FENCE (typ.)
- (D) STEPPING STONES
- (E) BENCH (typ.)
- (F) PATIO W/ MOVABLE FURNITURE (tables, chairs, umbrellas)
- (G) STRING LIGHTS (typ.)
- (H) GRILLING AREA (2 GRILLS)
- (I) LOW EVERGREEN SHRUB (typ.)
- (J) ENTRY PATHWAY w/ SPECIALTY PAVING
- (K) MULTI-PURPOSE LAWN
- (L) MOVABLE CHAIRS (typ.)
- (M) LOW EVERGREEN GROUNDCOVER (typ.)
- (N) INTERPRETIVE SIGN (typ.)
- (O) CHALET STONE
- (P) UPLIGHTS FOR CHURCH FOCAL FEATURE - SOFT RUIN ACCENT LIGHT (typ.)
- (Q) BOLLARD LIGHT (typ.)



1224 EAST BROOKLAND PARK BLVD
COURTYARD INSPIRATION IMAGES



Ⓐ RECLAIMED ARCHITECTURAL ELEMENTS SAVED FROM THE CHURCH



Ⓚ Ⓛ MULTI-PURPOSE LAWN w/ MOVABLE CHAIRS

1224 EAST BROOKLAND PARK BLVD
COURTYARD INSPIRATION IMAGES



Ⓕ Ⓖ Ⓕ PATIO W/ MOVABLE FURNITURE, STRING LIGHTS, & GRILLS

1224 EAST BROOKLAND PARK BLVD
COURTYARD INSPIRATION IMAGES



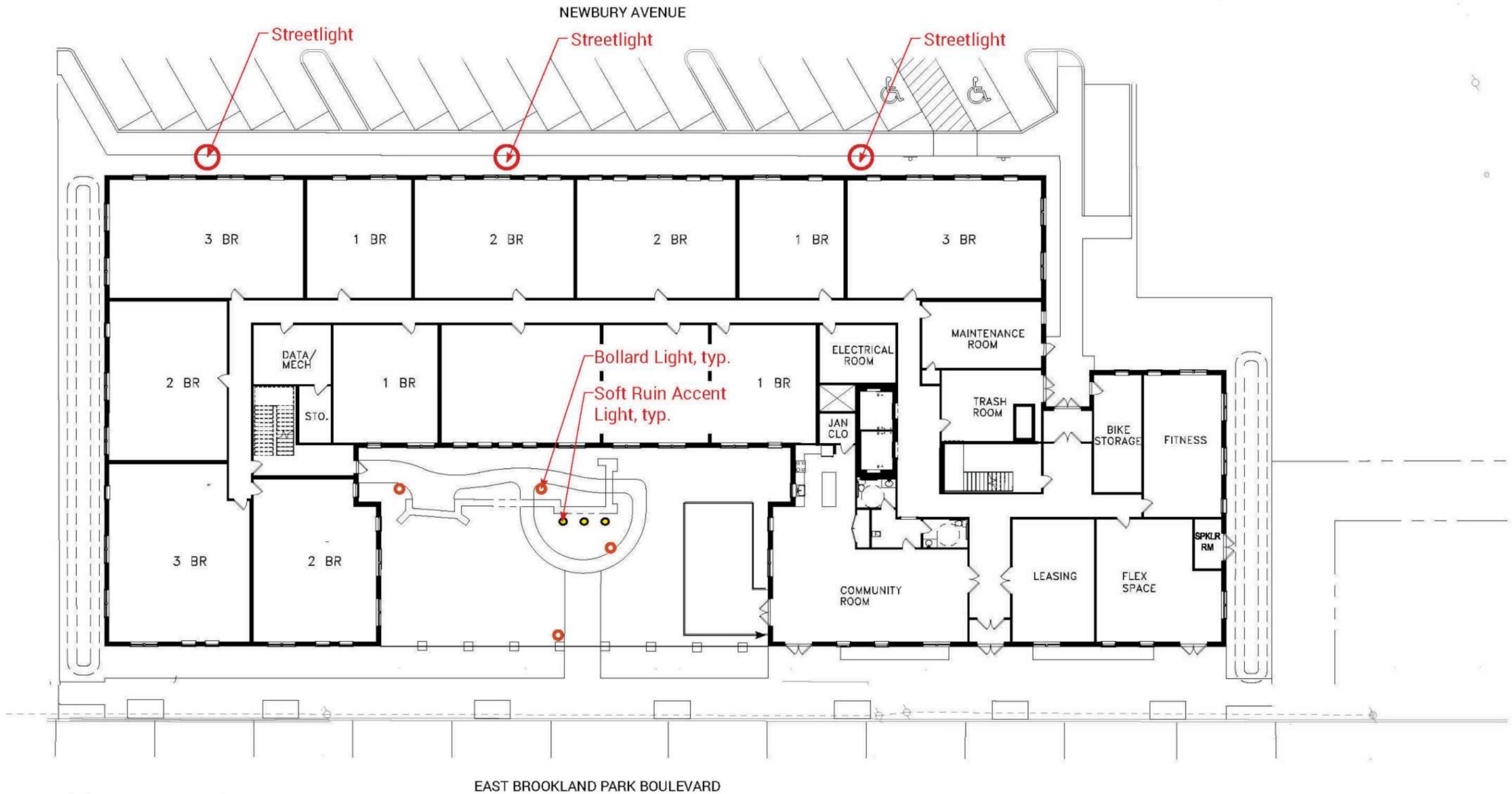
© BRICK COLUMNS & FENCE (typ.)



Ⓑ FOCAL GATE

1224 EAST BROOKLAND PARK BLVD

OVERALL LIGHTING PLAN

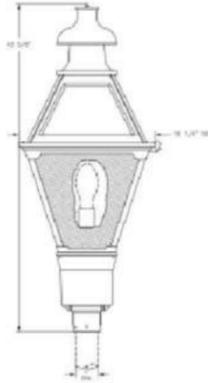


1224 EAST BROOKLAND PARK BLVD

LIGHTING DETAILS

Charleston (1237) Specification Sheet

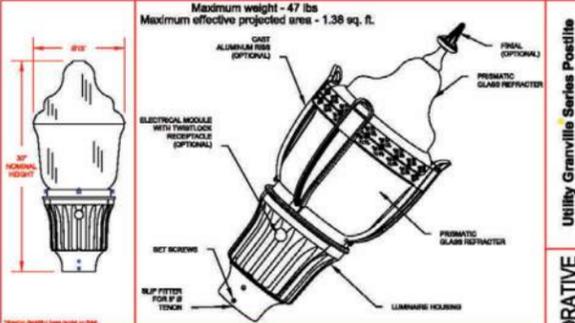
Project Name:	Location:	MFG: Philips Lighting
Fixture Type:	Catalog No.:	Qty:



Ordering Guide
Example: 1237 ABS A D H E B B

Prefix Code	1237	Charleston
Finish	ABS	Antique Brass
ACP	Antique Copper	
ASD	Antique Steel	
ASB	Antique Silver	
BLK	Black	
BRN	Bronze	
BRZ	Bronze	
FGH	Forest Green	
GRA	Grass	
WH	White	
WSP	Weathered Bronze	
WST	White	
Prism/Glass	A	Clear Acrylic
C	Clear Polycarbonate	
D	Clear Polycarbonate	
E	Clear Textured Acrylic	
F	Clear Polycarbonate	
G	Clear Polycarbonate	
Socket	D	Medium Base
E	LED	
Wetproofing	H	High Pressure Sodium
I	Induction	
J	LED	
Voltage	F	120V
G	240V	
H	277V	
Distribution	C	8' Type III
D	8' Type IV	
E	8' Type V	
F	8' Type VI	
G	8' Type VII	
H	8' Type VIII	
I	8' Type IX	
J	8' Type X	
K	8' Type XI	
L	8' Type XII	
M	8' Type XIII	
N	8' Type XIV	
O	8' Type XV	
P	8' Type XVI	
Q	8' Type XVII	
R	8' Type XVIII	
S	8' Type XIX	
T	8' Type XX	
U	8' Type XXI	
V	8' Type XXII	
W	8' Type XXIII	
X	8' Type XXIV	
Y	8' Type XXV	
Z	8' Type XXVI	
Photocell	B	Button Type

City of Richmond standard street light - Option 1



Maximum weight - 47 lbs
Maximum effective projected area - 1.38 sq. ft.

ORDERING INFORMATION:

OVV	TSAPP	2M	3M	4M	5M	6M	7M	8M	9M	10M	11M	12M
OVV = 120V VOLT (E.C.G.L.)	TSAPP = 120V VOLT (E.C.G.L.)	2M = 2M VOLT (E.C.G.L.)	3M = 3M VOLT (E.C.G.L.)	4M = 4M VOLT (E.C.G.L.)	5M = 5M VOLT (E.C.G.L.)	6M = 6M VOLT (E.C.G.L.)	7M = 7M VOLT (E.C.G.L.)	8M = 8M VOLT (E.C.G.L.)	9M = 9M VOLT (E.C.G.L.)	10M = 10M VOLT (E.C.G.L.)	11M = 11M VOLT (E.C.G.L.)	12M = 12M VOLT (E.C.G.L.)

OPTIONS:

- 01 - HEMA TRIPLE LOCK PHOTOCONTROL (RECEPTACLE ONLY)
- 02 - PROTECTED STARTER FOR HPS UNITS ONLY
- 03 - HEMA TRIPLE LOCK AND PROTECTED STARTER FOR HPS UNITS ONLY
- 04 - FULL COVER (COVER THE HEMA TRIPLE LOCK AND PROTECTED STARTER)
- 05 - HEMA TRIPLE LOCK AND PROTECTED STARTER FOR HPS UNITS ONLY
- 06 - HEMA TRIPLE LOCK AND PROTECTED STARTER FOR HPS UNITS ONLY
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- 99 - HEMA TRIPLE LOCK AND PROTECTED STARTER FOR HPS UNITS ONLY
- 100 - HEMA TRIPLE LOCK AND PROTECTED STARTER FOR HPS UNITS ONLY

ACCESSORIES:

- 01 - 8' TYPE III PHOTOCONTROL (RECEPTACLE ONLY)
- 02 - 8' TYPE IV PHOTOCONTROL (RECEPTACLE ONLY)
- 03 - 8' TYPE V PHOTOCONTROL (RECEPTACLE ONLY)
- 04 - 8' TYPE VI PHOTOCONTROL (RECEPTACLE ONLY)
- 05 - 8' TYPE VII PHOTOCONTROL (RECEPTACLE ONLY)
- 06 - 8' TYPE VIII PHOTOCONTROL (RECEPTACLE ONLY)
- 07 - 8' TYPE IX PHOTOCONTROL (RECEPTACLE ONLY)
- 08 - 8' TYPE X PHOTOCONTROL (RECEPTACLE ONLY)
- 09 - 8' TYPE XI PHOTOCONTROL (RECEPTACLE ONLY)
- 10 - 8' TYPE XII PHOTOCONTROL (RECEPTACLE ONLY)
- 11 - 8' TYPE XIII PHOTOCONTROL (RECEPTACLE ONLY)
- 12 - 8' TYPE XIV PHOTOCONTROL (RECEPTACLE ONLY)
- 13 - 8' TYPE XV PHOTOCONTROL (RECEPTACLE ONLY)
- 14 - 8' TYPE XVI PHOTOCONTROL (RECEPTACLE ONLY)
- 15 - 8' TYPE XVII PHOTOCONTROL (RECEPTACLE ONLY)
- 16 - 8' TYPE XVIII PHOTOCONTROL (RECEPTACLE ONLY)
- 17 - 8' TYPE XIX PHOTOCONTROL (RECEPTACLE ONLY)
- 18 - 8' TYPE XX PHOTOCONTROL (RECEPTACLE ONLY)
- 19 - 8' TYPE XXI PHOTOCONTROL (RECEPTACLE ONLY)
- 20 - 8' TYPE XXII PHOTOCONTROL (RECEPTACLE ONLY)
- 21 - 8' TYPE XXIII PHOTOCONTROL (RECEPTACLE ONLY)
- 22 - 8' TYPE XXIV PHOTOCONTROL (RECEPTACLE ONLY)
- 23 - 8' TYPE XXV PHOTOCONTROL (RECEPTACLE ONLY)
- 24 - 8' TYPE XXVI PHOTOCONTROL (RECEPTACLE ONLY)
- 25 - 8' TYPE XXVII PHOTOCONTROL (RECEPTACLE ONLY)
- 26 - 8' TYPE XXVIII PHOTOCONTROL (RECEPTACLE ONLY)
- 27 - 8' TYPE XXIX PHOTOCONTROL (RECEPTACLE ONLY)
- 28 - 8' TYPE XXX PHOTOCONTROL (RECEPTACLE ONLY)
- 29 - 8' TYPE XXXI PHOTOCONTROL (RECEPTACLE ONLY)
- 30 - 8' TYPE XXXII PHOTOCONTROL (RECEPTACLE ONLY)
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- 33 - 8' TYPE XXXV PHOTOCONTROL (RECEPTACLE ONLY)
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- 37 - 8' TYPE XXXIX PHOTOCONTROL (RECEPTACLE ONLY)
- 38 - 8' TYPE XXXX PHOTOCONTROL (RECEPTACLE ONLY)
- 39 - 8' TYPE XXXXI PHOTOCONTROL (RECEPTACLE ONLY)
- 40 - 8' TYPE XXXXII PHOTOCONTROL (RECEPTACLE ONLY)
- 41 - 8' TYPE XXXXIII PHOTOCONTROL (RECEPTACLE ONLY)
- 42 - 8' TYPE XXXXIV PHOTOCONTROL (RECEPTACLE ONLY)
- 43 - 8' TYPE XXXXV PHOTOCONTROL (RECEPTACLE ONLY)
- 44 - 8' TYPE XXXXVI PHOTOCONTROL (RECEPTACLE ONLY)
- 45 - 8' TYPE XXXXVII PHOTOCONTROL (RECEPTACLE ONLY)
- 46 - 8' TYPE XXXXVIII PHOTOCONTROL (RECEPTACLE ONLY)
- 47 - 8' TYPE XXXXIX PHOTOCONTROL (RECEPTACLE ONLY)
- 48 - 8' TYPE XXXXX PHOTOCONTROL (RECEPTACLE ONLY)
- 49 - 8' TYPE XXXXXI PHOTOCONTROL (RECEPTACLE ONLY)
- 50 - 8' TYPE XXXXXII PHOTOCONTROL (RECEPTACLE ONLY)
- 51 - 8' TYPE XXXXXIII PHOTOCONTROL (RECEPTACLE ONLY)
- 52 - 8' TYPE XXXXXIV PHOTOCONTROL (RECEPTACLE ONLY)
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- 62 - 8' TYPE XXXXXXIV PHOTOCONTROL (RECEPTACLE ONLY)
- 63 - 8' TYPE XXXXXXV PHOTOCONTROL (RECEPTACLE ONLY)
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- 67 - 8' TYPE XXXXXXIX PHOTOCONTROL (RECEPTACLE ONLY)
- 68 - 8' TYPE XXXXXXI PHOTOCONTROL (RECEPTACLE ONLY)
- 69 - 8' TYPE XXXXXXII PHOTOCONTROL (RECEPTACLE ONLY)
- 70 - 8' TYPE XXXXXXIII PHOTOCONTROL (RECEPTACLE ONLY)
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- 72 - 8' TYPE XXXXXXV PHOTOCONTROL (RECEPTACLE ONLY)
- 73 - 8' TYPE XXXXXXVI PHOTOCONTROL (RECEPTACLE ONLY)
- 74 - 8' TYPE XXXXXXVII PHOTOCONTROL (RECEPTACLE ONLY)
- 75 - 8' TYPE XXXXXXVIII PHOTOCONTROL (RECEPTACLE ONLY)
- 76 - 8' TYPE XXXXXXIX PHOTOCONTROL (RECEPTACLE ONLY)
- 77 - 8' TYPE XXXXXXI PHOTOCONTROL (RECEPTACLE ONLY)
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- 79 - 8' TYPE XXXXXXIII PHOTOCONTROL (RECEPTACLE ONLY)
- 80 - 8' TYPE XXXXXXIV PHOTOCONTROL (RECEPTACLE ONLY)
- 81 - 8' TYPE XXXXXXV PHOTOCONTROL (RECEPTACLE ONLY)
- 82 - 8' TYPE XXXXXXVI PHOTOCONTROL (RECEPTACLE ONLY)
- 83 - 8' TYPE XXXXXXVII PHOTOCONTROL (RECEPTACLE ONLY)
- 84 - 8' TYPE XXXXXXVIII PHOTOCONTROL (RECEPTACLE ONLY)
- 85 - 8' TYPE XXXXXXIX PHOTOCONTROL (RECEPTACLE ONLY)
- 86 - 8' TYPE XXXXXXI PHOTOCONTROL (RECEPTACLE ONLY)
- 87 - 8' TYPE XXXXXXII PHOTOCONTROL (RECEPTACLE ONLY)
- 88 - 8' TYPE XXXXXXIII PHOTOCONTROL (RECEPTACLE ONLY)
- 89 - 8' TYPE XXXXXXIV PHOTOCONTROL (RECEPTACLE ONLY)
- 90 - 8' TYPE XXXXXXV PHOTOCONTROL (RECEPTACLE ONLY)
- 91 - 8' TYPE XXXXXXVI PHOTOCONTROL (RECEPTACLE ONLY)
- 92 - 8' TYPE XXXXXXVII PHOTOCONTROL (RECEPTACLE ONLY)
- 93 - 8' TYPE XXXXXXVIII PHOTOCONTROL (RECEPTACLE ONLY)
- 94 - 8' TYPE XXXXXXIX PHOTOCONTROL (RECEPTACLE ONLY)
- 95 - 8' TYPE XXXXXXI PHOTOCONTROL (RECEPTACLE ONLY)
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- 98 - 8' TYPE XXXXXXIV PHOTOCONTROL (RECEPTACLE ONLY)
- 99 - 8' TYPE XXXXXXV PHOTOCONTROL (RECEPTACLE ONLY)
- 100 - 8' TYPE XXXXXXVI PHOTOCONTROL (RECEPTACLE ONLY)

City of Richmond standard street light - Option 2

KHA SLIM 36" LED

Wet location

Body and top manufactured in AISI 316 stainless steel for marine applications, or extruded aluminum finished polyester painted iron grey or Textured black.

-Double reflector optical system for downward light distribution below horizontal and zero upward light pollution. High efficiency comfortable glare free light is provided through indirect light distribution and the upper faceted reflector. The high performance reflector system is designed to provide an efficient light distribution based on height and area to be illuminated.

-Integral driver and available in 3000, 4000 or 5000 degrees kelvin

-UV stabilised high-tech technopolymer impact resistant lamp cover (PC-HT).

-Reflector in high purity aluminum provides comfortable low glare light control and avoids back reflection onto lamp for improved longevity.

-Technopolymer control gear housing.

-Complete with polyamide connection box complete with M16 x 1.5 anti-tearing IP68 gland suitable for ø 5-10 mm cables.

-Electronic control gear for 120-277 V, 50/60 Hz supply.

-Anti-ageing silicone gaskets.

-Stainless steel external screws.

SOCKET	POWER (W)	FINISH	IP	BEHM	OPT. THER.	OPT. FILM	OUTPUT (LM)	LIFETIME (H)	CHG.	H	WGTG	CODE
LED	14 W	IRON GRAY	IP 66	3000	C/EW	-	276 lm	30000 h	-	-	-	076416
LED	14 W	IRON GRAY	IP 66	4000	C/EW	-	293 lm	30000 h	-	-	-	076419
LED	14 W	IRON GRAY	IP 66	5000	C/EW	-	319 lm	30000 h	-	-	-	076422
LED	14 W	STAINLESS STEEL	IP 66	3000	C/EW	-	276 lm	30000 h	-	-	-	076417
LED	14 W	STAINLESS STEEL	IP 66	4000	C/EW	-	293 lm	30000 h	-	-	-	076420
LED	14 W	STAINLESS STEEL	IP 66	5000	C/EW	-	319 lm	30000 h	-	-	-	076423
LED	14 W	TEXTURED BLACK	IP 66	3000	C/EW	-	276 lm	30000 h	-	-	-	076415
LED	14 W	TEXTURED BLACK	IP 66	4000	C/EW	-	293 lm	30000 h	-	-	-	076418
LED	14 W	TEXTURED BLACK	IP 66	5000	C/EW	-	319 lm	30000 h	-	-	-	076421

Illuminated bollard

SITE STATISTICS:

EX. ZONING: UB2-PE8 (ORD. 2015-202-197)
 S.U.P:
 TAX MAP #: N0000987006, 007, 009, 011
 ADDRESS: 1228, 1226, 1224, 1218 EAST BROOKLAND PARK BOULEVARD
 TOTAL LAND AREA: 0.79 ACRES (34,412 SF)
 MEAN SITE ELEVATION: 168.0 FEET
 PROPOSED USE:
 RESIDENTIAL: 76 UNITS
 SQUARE FOOTAGE: 81,043 SF
 HEIGHT: 51 FEET
 PARKING PROVIDED: 31 SPACES (INCL. 2 HC)
 1 LOADING SPACE
 SANITARY SEWER: CITY OF RICHMOND
 (COMBINED SEWER/STORM (CSS) ALONG E. BROOKLAND PARK BLVD)
 WATER SOURCE: CITY OF RICHMOND
 (10" ALONG EAST BROOKLAND PARK BLVD)
 STORM WATER/BMP:
 CHES. BAY AREA: ENHANCED LANDSCAPE WITH GRASSED SWALES, SITE IS LESS THAN 1%
 OF CONTRIBUTING DRAINAGE AREA AT CONNECTION TO EXISTING 54" COMBINED
 SEWER/STORM CONVEYANCE.
 CITY WATERSHED: SHOCKOE CREEK
 F.I.R.M. FLOOD AREA: ZONE X ("MINIMAL FLOODING RISK")
 (PER FIRM 5101290033D (APRIL 2, 2009))

1224 EAST BROOKLAND PARK BOULEVARD

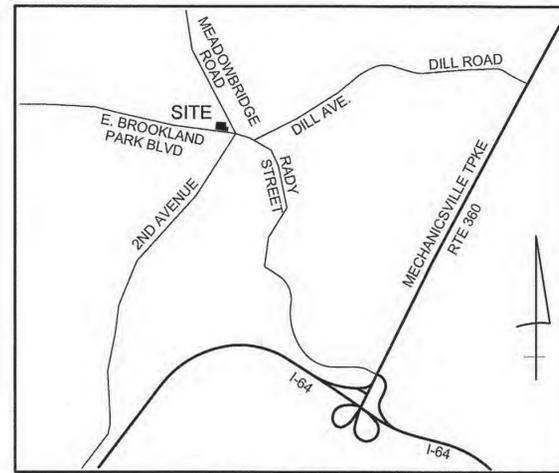
CITY OF RICHMOND, VIRGINIA SPECIAL USE PERMIT

COORDINATION NOTE:
 CONTACT: DOUG MAWBY, RIGHT OF WAY MANAGEMENT, DPW
 (FOR COORDINATION OF ANY WORK OCCURRING WITHIN THE
 CITY R/W)
 PHONE #: (804) 646-0110
 EMAIL: DOUG.MAWBY@RICHMONDGOV.COM

SHEET INDEX

CIVIL SITE:

SHEET NO.	TITLE
C-01	COVER SHEET
C-02	STANDARD NOTES & DETAILS
C-03	EROSION & SEDIMENT NOTES & DETAILS
C-04	EXISTING CONDITIONS & EROSION & SEDIMENT CONTROL PLAN
C-05	DEMOLITION PLAN
C-06	LAYOUT PLAN
C-07	UTILITY PLAN
C-08	DRAINAGE PLAN
C-09	MAINTENANCE OF TRAFFIC
C-10	MAINTENANCE OF TRAFFIC
C-11	PRE/POST DRAINAGE AREA MAPS, CALCULATIONS, & DETAILS
C-12	DRAINAGE ANALYSIS



VICINITY MAP
1" = 4,000'

OWNER DEVELOPER:
 COMMUNITY PRESERVATION AND
 DEVELOPMENT CORP.
 413 STUART CIRCLE, SUITE 323
 RICHMOND, VA 23220

ARCHITECT:
 TORTI GALLAS + PARTNERS
 ATTN: MR. BRIAN TOMAINO, AICP
 1300 SPRING STREET, 4TH FLOOR
 SILVER SPRING, MD 20910
 PHONE #: (301) 588-4800
 EMAIL: BTOMAINO@TORTIGALLAS.COM

SURVEYOR:
 H & B
 612 HULL STREET, SUITE 101B
 RICHMOND, VA 23224
 ATTN: MS. ALISON HANSON, CLS 2617
 PHONE #: (804) 330-3781

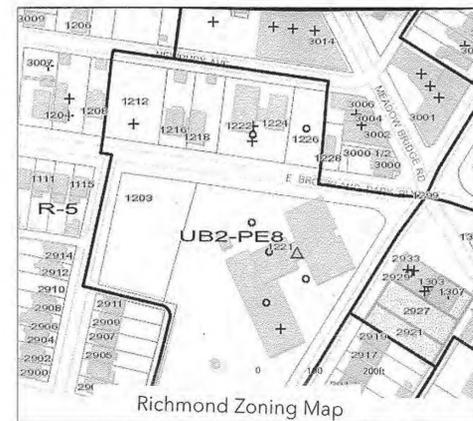
ENGINEER:
 RUMMEL, KLEPPER & KAHL, LLP
 2100 EAST CARY STREET, SUITE 309
 RICHMOND, VA 23223
 ATTN: NATHAN RASNICK, P.E.
 PHONE #: (804) 782-1903
 EMAIL: NRASNICK@RKK.COM

UTILITY INFORMATION

GAS:
 CITY OF RICHMOND
 DEPARTMENT OF PUBLIC UTILITIES
 ENERGY SERVICES DIVISION
 400 JEFFERSON DAVIS HIGHWAY
 RICHMOND, VA 23224
 PHONE: (804) 646-8544
 FAX: (804) 646-5131

WATER/SEWER/STORM:
 CITY OF RICHMOND
 DEPARTMENT OF PUBLIC UTILITIES
 900 E. BROAD STREET, RM 115
 RICHMOND, VA 23219
 PHONE: (804) 646-7000

POWER:
 DOMINION VIRGINIA POWER
 14500 MIDLOTHIAN TURNPIKE
 MIDLOTHIAN, VA 23113
 PHONE: (804) 379-4873



BEFORE YOU DIG CALL
 811
 PROTECT YOURSELF. GIVE THREE
 WORKING DAYS NOTICE

LEGEND

PROPOSED

- ASPHALT PAVEMENT
- DRAINAGE STRUCTURE NUMBER
- PROPOSED FINISHED GRADE CONTOUR ELEVATION
- DENOTES EDGE OF PAVEMENT
- DENOTES TOP OF CURB

EXISTING

- PAVEMENT
- PROPERTY LINE
- SANITARY/STORM SEWER
- WATER LINE
- POWER LINE } UG DENOTES UNDERGROUND
OH DENOTES OVERHEAD
- TELEPHONE LINE
- GAS LINE
- CULVERT OR STORM SEWER PIPE
- FIRE HYDRANT
- BENCHMARK LOCATION
- EXISTING CONTOUR ELEVATION

PLAN REVISIONS:
 (1) 12/20/2017 - REVISED PER CITY COMMENTS
 DATED 10/26/2017.

SHEET	C-01	SCALE	N.T.S.
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1224 EAST BROOKLAND PARK BOULEVARD
 CITY OF RICHMOND, VIRGINIA
 COVER SHEET

DATE: 07/31/2017
 ENGINEER: MMM
 CHECKED: SNR
 CAD: T.JR
 JOB#: 17162

COMMONWEALTH OF VIRGINIA
 M.A.M. WILLS III
 L.C. No. 198890
 PROFESSIONAL SEAL

2100 EAST CARY STREET, SUITE 309
 RICHMOND, VIRGINIA 23223
 (P) 804 782-1903 (F) 804 782-2142

RK&K
 Engineers/Construction Management/Planning/Educators

RUMMEL, KLEPPER & KAHL, LLP

CONSTRUCTION NOTES:

ATTENTION: Utility "Work in the Streets" permits FROM: Department of Public Works-Division of Right of Way Management - Office of the Permits Engineer

1. All cuts in the streets and sidewalks shall be performed under a Permit and monitored by the permit inspector.
2. Work shall not commence until the permit inspector has been notified, a pre-construction conference held and Miss Utility clears.
3. Cuts shall be as clean and straight as possible, with no outline dimensions less than 3 feet without special approval of the department's inspector.
4. The details of trenching cuts for utility strips must be shown in a typical section on the drawings or provided in a submittal with construction notes specifying widths, depths, methods, materials, compaction requirements and pavement restoration of abiding by the DPW attachment standard.
5. All asphalt pavement restoration thickness shall be 1 1/2 times the existing section or a minimum of 8 inches whichever is greater. See the DPW trench restoration illustration for the typical conformance standards.
6. The final restoration on open trench cuts requires the disturbed asphalt pavement zone to be a square pointed off and straight line. The area of pavement restoration is to be fully enveloped by the final surface course repairs.
7. The adjoining surface/top course layer is to be over-milled a minimum depth of 1.25 inches or more, a minimum distance of one foot beyond each side of the trench wall. This step out is to occur along the entire trench line run and/or squared pointed area. Cuts involving continuous network runs, which exceed 350 feet in length or typically over one full city block, will be considered multiple block cuts. On multiple block cut zones, the over milling of the trench line and adjoining surface course layer must be done with typical high production roadway cold planning equipment. In multiple block restoration cases, where the high production cold planner is required, final paving shall be done by a high production highway paver.
8. Contractor must provide and coordinate the necessary Geotechnical Services from a qualified firm to insure compaction approval. Approval of in-place material must be followed up with a written summary report. Compaction requirements will be reviewed for approval by the Permits Engineer or his representative.
9. All disturbed sidewalk and curb shall be repaired and replaced in accordance with City Standards.
10. All utility cuts are to be examined and approved by the appropriate utility inspector/representative.
11. All encroachments must be satisfied by ordinance.
12. Contractor to coordinate with the City of Richmond DPW 48 hours in advance of closing the City Docks parking lot to general vehicular traffic. All traffic closures shall be in compliance with the Virginia Work Area Protection Manual (VWAPM), 2011 Editions.

PAVEMENT DESIGN
Designs for "residential subdivisions" and "non-residential" Road Pavements

1. Residential- the required design thickness of the aggregate base (6", 21A), base course asphalt (3.5", BM-25.0) and surface course asphalt (2", SM-9.5) are shown in the street standards illustrations. Pavement section design thickness is based on a CBR value of ten and may be increased or decreased as allowed by the standards. It shall not be decrease below the City of Richmond's minimum design standard of 6 inches of 21A aggregate base, 2 inches of SM-9.5 base course asphalt and 1.5 inches of SM-9.5 surface/top course asphalt.
2. Alternate equivalent pavement sections may be substituted for those called for in standards. The approval procedures call for a qualified pavement engineer to reference and follow the established Virginia Department of Transportation guidelines in their pamphlet entitled, "Pavement Design Guide for Subdivision and Secondary Roads", year 2000 edition, as amended. Alternate pavement sections must be pre-approved by the Department of Public Works, Right of Way Manager. Note the minimum City of Richmond residential pavement section described above.
3. Non-residential street pavement sections must meet the minimum design thickness of 8 inches of 21A base aggregate, 6 inches BM-25.0 base course asphalt and 2 inches of SM-9.5 surface course asphalt. Any required reductions in this design must be fully supported by a comprehensive engineering analysis.
4. No reductions in the minimum pavement section design thickness (8 inches 21A base aggregate, 6 inches BM-25.0 base course asphalt and 2 inches of SM-9.5 surface course asphalt) will be considered in the downtown, arterial streets, major collectors and/or any other major connection streets.
5. As per direction of the Permits Engineer, right of Way Manager or the Director, the public works permitting requirements may designate specific anti-rutting types of asphalt mix designs requirements (i.e. SM-9.5A/SM-9.5D) that will better suit problem conditions and/or better serve locations with certain types and volumes of traffic.

6. The details of trenching cuts for utility strips must be shown in a typical section on the drawings or provided in a submittal with construction notes specifying widths, depths, methods, materials, compaction requirements and pavement restoration of abiding by the DPW attachment standard.
7. All asphalt pavement restoration thickness shall be 1 1/2 times the existing section or a minimum of 8 inches whichever is greater. See the DPW trench restoration illustration for the typical conformance standards.
8. The final restoration on open trench cuts requires the disturbed asphalt pavement zone to be a square pointed off and straight line. The area of pavement restoration is to be fully enveloped by the final surface course repairs.
9. The adjoining surface/top course layer is to be over-milled a minimum depth of 1.25 inches or more, a minimum distance of one foot beyond each side of the trench wall. This step out is to occur along the entire trench line run and/or squared pointed area. Cuts involving continuous network runs, which exceed 350 feet in length or typically over one full city block, will be considered multiple block cuts. On multiple block cut zones, the over milling of the trench line and adjoining surface course layer must be done with typical high production roadway cold planning equipment. In multiple block restoration cases, where the high production cold planner is required, final paving shall be done by a high production highway paver.
10. Contractor must provide and coordinate the necessary Geotechnical Services from a qualified firm to insure compaction approval. Approval of in-place material must be followed up with a written summary report. Compaction requirements will be reviewed for approval by the Permits Engineer or his representative.
11. All disturbed sidewalk and curb shall be repaired and replaced in accordance with City Standards.
12. All utility cuts are to be examined and approved by the appropriate utility inspector/representative.
13. All encroachments must be satisfied by ordinance.
14. Contractor to coordinate with the City of Richmond DPW 48 hours in advance of closing the City Docks parking lot to general vehicular traffic. All traffic closures shall be in compliance with the Virginia Work Area Protection Manual (VWAPM), 2011 Editions.

15. Mechanical joint long solid sleeves shall be used for all connections to existing water mains.
16. Couplings for connections to existing sanitary sewer laterals shall be ferro-c or equal.
17. Based on city records, existing sanitary sewer laterals are assumed to be 6 inch within the right-of-way and 4 inch on private property.

18. Conduit is to be 2" (inch) schedule 40 PVC.
19. All street and alley crossings are to be concrete encased, with a minimum of 4" of encasement on top, and 2" on the sides, and bottom.
20. Single runs of 2" schedule 40 PVC from pole base to pole base unless otherwise noted.
21. No runs over 300' (ft) without a secondary enclosure.
22. Conduit minimum depth of 36".
23. No one shall enter DPU manhole/ secondary enclosure without a DPU inspector present.

24. The contractor shall not operate any existing valves unless directed by owner.
25. The city does not guarantee a 100% percent shutdown of its existing water mains. The contractor shall provide all plugs and dewatering equipment necessary to perform the work.
26. Couplings for connections to existing sanitary sewer laterals shall be ferro-c or equal.
27. Based on city records, existing sanitary sewer laterals are assumed to be 6 inch within the right-of-way and 4 inch on private property.

28. The contractor shall request valve operation by the owner's force no less than 48 hours in advance or as specified by the permit process. The contractor shall not operate any existing valves unless directed by owner.
29. The city does not guarantee a 100% percent shutdown of its existing water mains. The contractor shall provide all plugs and dewatering equipment necessary to perform the work.
30. Couplings for connections to existing sanitary sewer laterals shall be ferro-c or equal.
31. Based on city records, existing sanitary sewer laterals are assumed to be 6 inch within the right-of-way and 4 inch on private property.

32. The contractor shall request valve operation by the owner's force no less than 48 hours in advance or as specified by the permit process. The contractor shall not operate any existing valves unless directed by owner.
33. The city does not guarantee a 100% percent shutdown of its existing water mains. The contractor shall provide all plugs and dewatering equipment necessary to perform the work.
34. Couplings for connections to existing sanitary sewer laterals shall be ferro-c or equal.
35. Based on city records, existing sanitary sewer laterals are assumed to be 6 inch within the right-of-way and 4 inch on private property.

36. The contractor shall request valve operation by the owner's force no less than 48 hours in advance or as specified by the permit process. The contractor shall not operate any existing valves unless directed by owner.
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38. Couplings for connections to existing sanitary sewer laterals shall be ferro-c or equal.
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44. The contractor shall request valve operation by the owner's force no less than 48 hours in advance or as specified by the permit process. The contractor shall not operate any existing valves unless directed by owner.
45. The city does not guarantee a 100% percent shutdown of its existing water mains. The contractor shall provide all plugs and dewatering equipment necessary to perform the work.
46. Couplings for connections to existing sanitary sewer laterals shall be ferro-c or equal.
47. Based on city records, existing sanitary sewer laterals are assumed to be 6 inch within the right-of-way and 4 inch on private property.

RESIDENTIAL STREET PAVEMENT SECTIONS

1. Alternate equivalent pavement sections may be substituted for the City Standard Pavement Section Design when proper methods of subgrade soils analysis are conducted and with the approval of the Director.
2. CBR sampling of the subgrade soils for final pavement design must be coordinated by the owner, through the geotechnical engineer and verified by the assigned site inspector during the construction phase.

Test for Final Pavement design shall be conducted on a approved reveal of the subgrade. These test shall be made at each intersection, changes in subgrade soils, and at a maximum of two (2) CBR samples will be required for any cul-de-sac or dead end street less than 500 in length.

Test spacing and methods must follow the approved guidelines set forth and/or as recommended by the geotechnical engineer.

The Final Alternate Equivalent Pavement design must be submitted to the DPW Right of Way Manager for approval. The submission will be accompanied by the supporting geotechnical report an designed by a pavement engineer.

DPU UTILITY NOTES:

1. The contractor shall notify the appropriate city department prior to making any utility adjustments or performing other work within the right-of-way.
2. Unless otherwise noted, all gas and water utility materials and construction methods shall be in accordance with the standards specification for gas and water systems construction and maintenance DPU no. 1-92, latest edition. The City of Richmond's sewer specifications and the latest editions of the Virginia Department of Health Waterworks Regulations, and Proposed Sewage Collection and Treatment Regulation.
3. Locations of existing utilities across or along the line of the proposed work are shown only in an approximate location on the plans. Contractor shall locate all underground lines and structures as necessary. Contractor shall call "Miss Utility" @ 1-800-522-7001 prior to construction and is responsible for any damage to underground lines or structures. City DPU will be notified of any inconsistencies.
4. Gate valves shall be U.S. pipe, metrol 250, open right (clockwise), with mechanical joint end fittings, non-rising system.
5. Fire hydrants shall be U.S. pipe, metropol 250, open right (clockwise) with 4 1/2" valve opening.
6. All fire hydrants and valves boxes designated to be removed shall be salvaged and delivered to the Department of Utilities at 400 Jefferson Davis Highway.
7. All gas and water services and sewer connections shall be renewed as directed by the City of Richmond, Department of Public Utilities Engineer.
8. Contractor is responsible for obtaining and paying for all permits.
9. Datum for all elevations shown is National Geodetic Survey, (year affiliation)
10. Minimum depth of cover for gas and water mains is 42 inches.
11. Water mains shall be ductile iron, double coat cement lined as manufactured by U.S. pipe, or equal. Pipe class shall be as follows:

Dia. (inches)	Special Class
3	52
4	53
6	52
8	52
10	51
12 and Larger	51

12. The city will inspect all gas, water and sanitary sewer mains, connections and appurtenance to insure that the materials and construction methods are in accordance with the approved plans, specification and standards. All other lines and connection will be inspected and approved by the Department of Building Inspectors.
13. The contractor shall request valve operation by the owner's force no less than 48 hours in advance or as specified by the permit process. The contractor shall not operate any existing valves unless directed by owner.
14. The city does not guarantee a 100% percent shutdown of its existing water mains. The contractor shall provide all plugs and dewatering equipment necessary to perform the work.
15. Mechanical joint long solid sleeves shall be used for all connections to existing water mains.
16. Couplings for connections to existing sanitary sewer laterals shall be ferro-c or equal.
17. Based on city records, existing sanitary sewer laterals are assumed to be 6 inch within the right-of-way and 4 inch on private property.

18. Conduit is to be 2" (inch) schedule 40 PVC.
19. All street and alley crossings are to be concrete encased, with a minimum of 4" of encasement on top, and 2" on the sides, and bottom.
20. Single runs of 2" schedule 40 PVC from pole base to pole base unless otherwise noted.
21. No runs over 300' (ft) without a secondary enclosure.
22. Conduit minimum depth of 36".
23. No one shall enter DPU manhole/ secondary enclosure without a DPU inspector present.

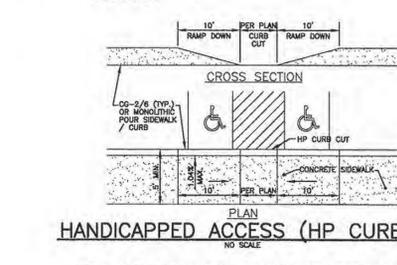
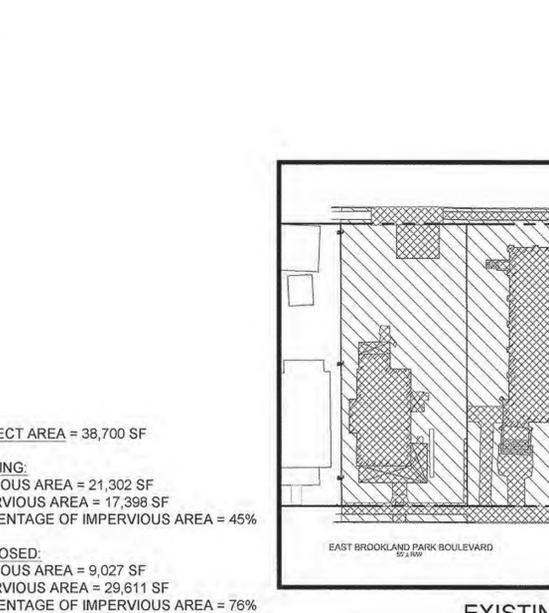
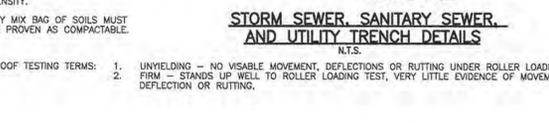
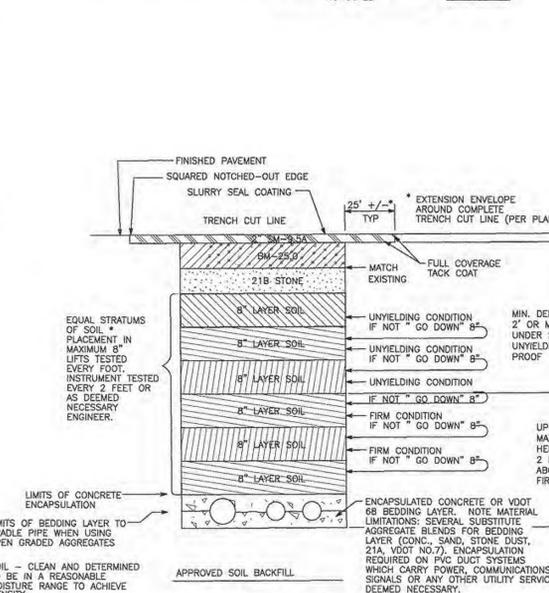
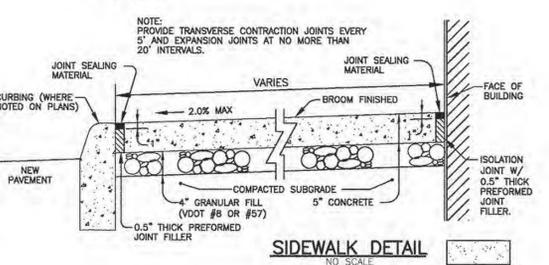
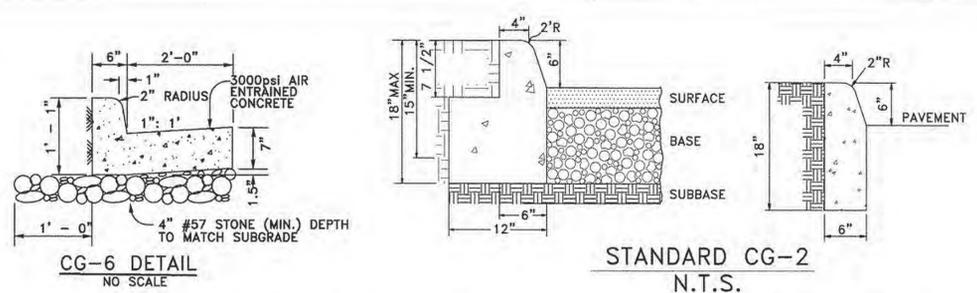
24. The contractor shall request valve operation by the owner's force no less than 48 hours in advance or as specified by the permit process. The contractor shall not operate any existing valves unless directed by owner.
25. The city does not guarantee a 100% percent shutdown of its existing water mains. The contractor shall provide all plugs and dewatering equipment necessary to perform the work.
26. Couplings for connections to existing sanitary sewer laterals shall be ferro-c or equal.
27. Based on city records, existing sanitary sewer laterals are assumed to be 6 inch within the right-of-way and 4 inch on private property.

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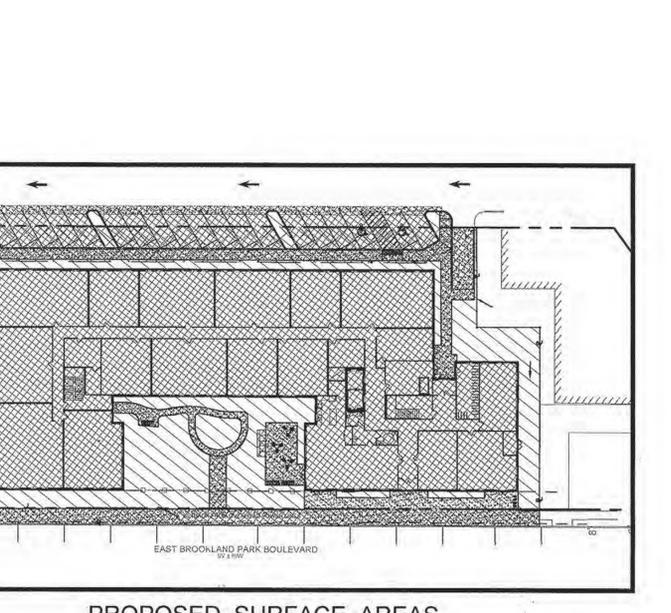
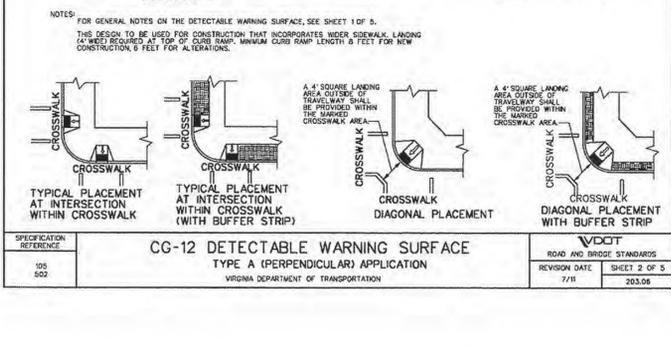
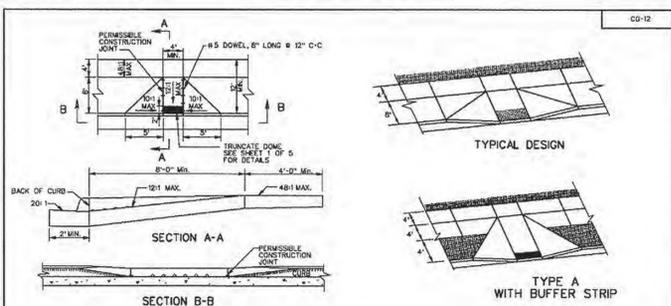
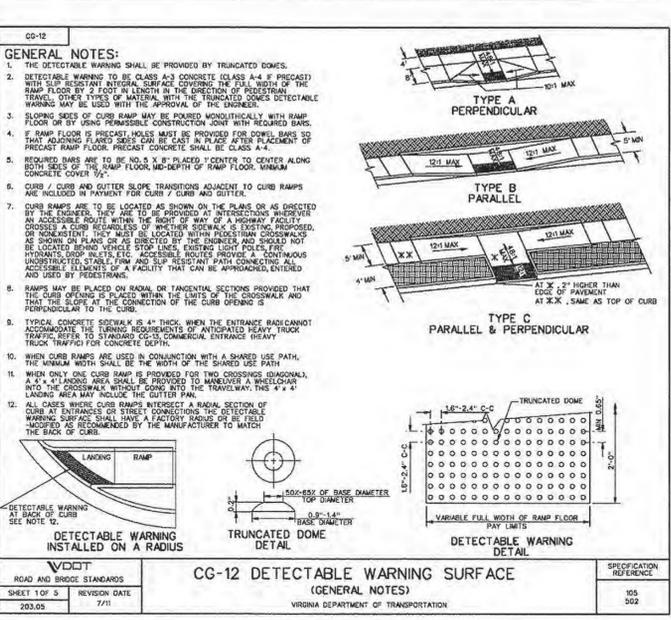
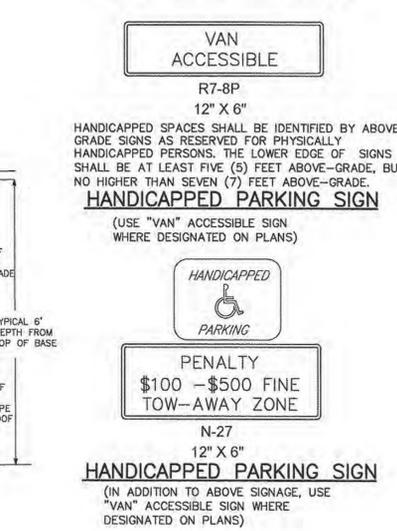
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42. Couplings for connections to existing sanitary sewer laterals shall be ferro-c or equal.
43. Based on city records, existing sanitary sewer laterals are assumed to be 6 inch within the right-of-way and 4 inch on private property.



NOTE: CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN 2% GRADE IN ANY DIRECTION IN PARKING AREA. ALSO, THE MAXIMUM ALLOWABLE CROSS SLOPE OF ANY ACCESSIBLE ROUTE TO BUILDING FROM PARKING AREA IS 2%.



1224 EAST BROOKLAND PARK BOULEVARD
CITY OF RICHMOND, VIRGINIA

DATE: 07/31/2017
ENGINEER: MMM
CHECKED: SNR
CAD: TJR
JOB#: 17162

2100 EAST CARY STREET, SUITE 309
RICHMOND, VIRGINIA 23223
(P) 804 782-1903 (F) 804 782-2142

RUMMEL, KLEPPER & KAHL, LLP

COMMONWEALTH OF VIRGINIA
12/18/17
M.M. MILLS III
LIC. No. 19880
PROFESSIONAL

PLAN REVISIONS:
1. 12/27/2017 08:45 - REVISED PER CITY COMMENTS
DATE: 10/26/2017.

SHEET C-02
SCALE N.T.S.

STANDARD NOTES & DETAILS

EROSION CONTROL NARRATIVE:

-SITE DESCRIPTION: THIS PROJECT CONSISTS OF THE DEMOLITION OF EXISTING BUILDINGS AND OTHER STRUCTURES ON SITE AND CONSTRUCTION OF AN APARTMENT BUILDING IN THEIR PLACE. THE SITE AT 1224 EAST BROOKLAKH PARK BOULEVARD, RICHMOND, VA AND IS APPROXIMATELY D.79 ACRES. APPROXIMATELY 0.94 ACRES OF LAND WILL BE OBTAINED DURING DEMOLITION / CONSTRUCTION.

-EXISTING SITE CONDITIONS: THE SITE CURRENTLY CONSISTS OF 3 MULTI-STORY BUILDINGS THAT INCLUDE A CHURCH AND TWO RESIDENCES. THE RIGHT-OF-WAY ADJACENT TO THE SITE ARE SERVED BY EXISTING CITY OF RICHMOND COMBINED SEWER SYSTEMS ALONG EAST BROOKLAKH PARK BOULEVARD AND NEWBURY AVENUE. THE EXISTING SITE PRIMARILY SNEET FLOW THE EXISTING RIGHT-OF-WAY WITH THE EXCEPTION OF THE CHURCH ROOF LEAKERS FROM WHICH DISCHARGE DIRECTLY TO THE COMBINED SEWER SYSTEM ALONG EAST BROOKLAKH PARK BOULEVARD.

-ADJACENT AREAS: THE PROJECT IS BOUNDED BY EAST BROOKLAKH PARK BOULEVARD TO THE SOUTH, NEWBURY AVENUE TO THE NORTH, TWO ADJACENT COMMERCIAL BUILDINGS TO THE EAST AND A VACANT LOT TO THE WEST. SURROUNDING DEVELOPMENTS ARE URBAN COMMERCIAL AND/OR URBAN RESIDENTIAL IN NATURE. THE SITE CURRENTLY DISCHARGES TO VARIOUS EXISTING COMBINED SEWER SYSTEMS ALONG EAST BROOKLAKH PARK BOULEVARD AND NEWBURY AVENUE. THE SITE IS DESIGNED TO CONTINUE DRAINING TO THE EXISTING STORM WATER INLETS WITHIN THE RIGHT-OF-WAY. NO ADJACENT AREAS DOWNSTREAM OF THE PROJECT ARE ANTICIPATED TO BE AFFECTED BY THE LAND OBTURBANCE AS THE POST-DEVELOPED FLOWS HAVE BEEN REDUCED TO LESS THAN THE PRE-DEVELOPED FLOWS.

-OFF-SITE AREAS: LAND DISTURBING ACTIVITIES WILL OCCUR WITHIN THE SITE AND THE PUBLIC R/W. THE SITE IS ANTICIPATED TO BALANCE. ANY EXCESS SOIL SHALL BE TEMPORARILY STOCKPILED ON SITE AND HAILED OFF AND DEPOSITED AT A PROPERLY LICENSED LANDFILL OR SOIL DEPOSIT FACILITY/OPERATION.

-CRITICAL AREAS: CRITICAL AREAS OF EROSION AND SEDIMENT CONTROL WILL BE THE SILT FENCING, INLET PROTECTION, CONSTRUCTION LIMITS OF SAFETY FENCE / FENCING, AND CONSTRUCTION ENTRANCES. CONTRACTOR MUST MAINTAIN / INSPECT REGULARLY INLET PROTECTION AND PERIMETER SILT FENCING IN ORDER TO PREVENT SILT / SEDIMENT FROM WASHING DOWNSTREAM DURING LAND OBTURBANCE. CONTRACTOR SHALL ALSO MONITOR CONSTRUCTION TRAFFIC ON EXISTING ROAD SYSTEM TO PREVENT SOIL / SEDIMENT BUILD UP ON EXISTING ROAD SURFACE.

-EROSION AND SEDIMENT CONTROL MEASURES: THE FOLLOWING E&S MEASURES ARE PROPOSED ON-SITE: TEMPORARY SILT FENCE, TREE PROTECTION, CONSTRUCTION ENTRANCE, INLET PROTECTION, TEMPORARY SEEDING & PERMANENT SEEDING. SEE LISTING FOR SYMBOLS USED. SEE PLAN FOR LOCATION OF PROPOSED E&S MEASURES. SEE QUANTITIES TAKE OFF FOR E&S ITEM ESTIMATES.

- SILT FENCE: SILT FENCE SHALL BE INSTALLED DOWN SLOPE OF ANY DISTURBED AREAS WITH A MINIMAL SLOPE TO FILTER SHEET FLOW BEFORE IT LEAVES THE SITE.

- TREE PROTECTION: TREE PROTECTION SHALL BE INSTALLED ALONG THE NORTHERN PROPERTY LINE TO PROTECT EXISTING TREES AND VEGETATION FROM DAMAGE DURING CONSTRUCTION.

- CONSTRUCTION ENTRANCE: A CONSTRUCTION ENTRANCE WITH A WASH RACK SHALL BE INSTALLED TO WASH VEHICLE TIRES BEFORE THE VEHICLES LEAVE THE SITE. COMMERCE ROAD IS THE POTENTIAL ROADWAY IMPACTED.

- INLET PROTECTION: INLET PROTECTION SHALL BE INSTALLED AT ALL EXISTING AND PROPOSED INLETS TO PREVENT THE STORM SEWER SYSTEM FROM BECOMING CLOGGED DURING CONSTRUCTION.

- TEMPORARY SEEDING: TEMPORARY SEEDING SHALL BE COMPLETED FOLLOWING ROUGH GRADING OF THE SITE TO REDUCE EROSION POTENTIAL.

- PERMANENT SEEDING / SOD: PERMANENT SEEDING AND SOD SHALL BE COMPLETED ONCE FINE GRADING IS COMPLETED IN ACCORDANCE WITH THE LANDSCAPE PLAN.

- PERMANENT STABILIZATION: THE SITE WILL BE PERMANENTLY STABILIZED UTILIZING SEEDING / SOD / LANDSCAPING IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENTATION CONTROL HANDBOOK ONCE FINE GRADING IS COMPLETE (SEE ASSOCIATED TABLES). 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 PER MS-7.

-STORMWATER RUN-OFF CONSIDERATIONS: THE OVERALL DRAINAGE PATTERN OF THE SITE WILL REMAIN MOSTLY UNCHANGED FROM PRE TO POST-CONDITIONS. PRE-POST DISCHARGES FROM THE SITE TO THE HAXALL CANAL WILL BE REDUCED. A SUMMARY TABLE OF PRE-POST DISCHARGES IS PROVIDED ON SHEET C-2D.

-CALCULATIONS: PRE AND POST-DEVELOPMENT RUN-OFF CALCULATIONS AND DRAINAGE AREA MAPS ARE LOCATED ON SHEETS C-1B THROUGH C-2O.

-MAINTENANCE: IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL. THE FOLLOWING ITEMS SHALL BE CHECKED IN PARTICULAR:

GENERAL E&S CONTROL NOTES

ES-1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS 9VAC25-840 EROSION AND SEDIMENT CONTROL REGULATIONS.

ES-2. THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE ON WEEK PRIOR TO THE COMMENCEMENT OF LAND OBTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.

ES-3. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.

ES-4. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON SITE AT ALL TIMES.

ES-5. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.

ES-6. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.

ES-7. ALL DISTURBED 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.

ES-8. DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.

ES-9. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RAINFALL-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

SEEDING NOTES

- 1. ALL STABILIZATION/SEEDING WILL BE ACCOMPLISHED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENTATION CONTROL HANDBOOK.
- 2. ANY DISTURBED AREA NOT PAVED, SODDED, OR BUILT UPON, WILL HAVE A VEGETATIVE COVER PRIOR TO FINAL INSPECTION, AND IN THE OPINION OF THE ENVIRONMENTAL ENGINEER, WILL BE MATURE ENOUGH TO CONTROL SOIL EROSION SATISFACTORILY AND SURVIVE SEVERE WEATHER CONDITIONS.
- 3. STREAM DIVERSION AREAS, WATERWAYS, BANKS AND RELATED AREAS WILL BE SEEDED AND MULCHED IMMEDIATELY AFTER WORK IN WATERCOURSE IS COMPLETED. IN NO CASE SHALL WETLAND AREAS BE RESEED WITH ANY SPECIES OF FESCUE.
- 4. WINTERIZATION - ANY DISTURBED AREA NOT PAVED, SODDED OR BUILT UPON BY OCTOBER 15 IS TO BE SEEDED AND MULCHED ON THAT DATE UNLESS WAIVED BY THE ENVIRONMENTAL ENGINEER.
- 5. TEMPORARY SEEDING WILL BE APPLIED WITHIN 7 DAYS TO DENUED AREAS WHICH MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNOBTURBED) FOR LONGER THAN 14 DAYS. FOR TEMPORARY SEEDING USE 50% OF THE RECOMMENDED RATES OF FERTILIZER, LIME AND FULL AMOUNT OF SEED AND MULCH REQUIRED FOR REGULAR SEEDING.
- 6. ELECTRIC POWER, TELEPHONE, AND GAS SUPPLY TRENCHES ARE TO BE COMPACTED, SEEDED AND MULCHED WITHIN 7 DAYS AFTER BACKFILL.
- 7. ALL TEMPORARY EARTH BERMS, DIVERSIONS, AND SILT DAMS ARE TO BE MULCHED AND SEEDED FOR VEGETATIVE COVER IMMEDIATELY AFTER GRADING. STRAW OR HAY MULCH IS REQUIRED. THE SAME APPLIES TO ALL STOCKPILES, ON SITE AS WELL AS SOIL (INTENTIONALLY) TRANSPORTED FROM THE PROJECT SITE.

SEEDING MIXTURES, RATES AND DATES: SOUTHERN PIEDMONT AND COASTAL PLAIN

SITE CONDITIONS	SEEDING MIXTURES	RATES			DATES		
		PER ACRE	PER 1000 ft ²	PER 1000 sq ft	3/1 to 4/15	4/15 to 8/1	8/1 to 10/15
High Maintenance Lawns	1. Tall fescue-90% Kentucky bluegrass-10%	250 lbs.	6 lbs.	X			X
Low Maintenance General Use	2. Tall fescue-50% Lodiina clover-10% Red clover-10% Korean lespedeza-10% Annual ryegrass-20%	80 lbs.	2 lbs.	X	(a,b)	X	
Droughty Area, Sandy Soils	3. Tall fescue-50% Seifonia lespedeza-10% Annual ryegrass-20%	70 lbs.	1/2 lbs.	X	(a)	X	X
Poorly Drained Areas	4. Tall fescue-50% Seifonia lespedeza-20% Annual ryegrass-15% Korean lespedeza-15%	80 lbs.	2 lbs.	X	(a,b)	X	X
	5. Tall fescue-60% Seifonia lespedeza-20% Annual ryegrass-10% Korean lespedeza-10%	80 lbs.	2 lbs.	X	(a,b)	X	X

NOTE: THE PERMANENT SEED TABLE SHOWN ABOVE PROVIDES THE MINIMUM STANDARD FOR EROSION AND SEDIMENT CONTROL REQUIREMENTS PER THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. FINAL LAND COVER REQUIREMENTS WILL BE PROVIDED ON FINAL LANDSCAPE AND HARDSCAPE PLAN.

TEMPORARY SEEDING PLANT MATERIALS, SEEDING RATES, AND DATES

SPECIES	SEEDING RATE	NORTH So SOUTH Sb						PLANT CHARACTERISTICS
		3/1 to 4/30	5/1 to 6/15	6/15 to 8/1	8/1 to 9/1	9/1 to 10/15	10/15 to 11/15	
OATS (Avena sativa)	3 bu. (up to 100 lbs. not less than 50 lbs.)	2 lbs.	X		X			Use spring varieties (e.g., Noble).
RYEGRASS (Secale cereale)	2 bu. (up to 110 lbs. not less than 50 lbs.)	2.5 lbs.	X		X			Use for late fall seedings and winter cover. Tolerates cold and low moisture.
GERMAN MILLET (Setaria italica)	50 lbs.	approx. 1 lb.		X			X	May be added in mixes. Will move out of most stands.
ANNUAL RYEGRASS (Lolium multi-florum)	60 lbs.	1/2 lbs.	X		X	X	X	Lolium RYEGRASS (Lolium multi-florum)
WEEPING LOVEGRASS (Eragrostis curvula)	15 lbs.	1/2 lbs.		X			X	Warm-season perennial. May bunch. Tolerates hot, dry slopes and acid, infertile soils. May be added to mixes.
KOREAN LESPEDEZA (Lespedeza stipulacea)	25 lbs.	approx. 1/2 lbs.	X	X		X	X	Warm season annual legume. Tolerates acid soils. May be added to mixes.

a Northern Piedmont and Mountain region. See Tables 3.22-1 and 3.22-2. b Southern Piedmont and Coastal Plain. c May be used as a cover crop with spring seeding. d May be used as a cover crop with fall seeding. e May be planted between these dates. f May not be planted between these dates.

9VAC25-840-40. MINIMUM STANDARDS:

A VESCP MUST BE CONSISTENT WITH THE FOLLOWING CRITERIA, TECHNIQUES AND METHODS:

- 1. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUED 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 DENUED 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.
- 2. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCK PILES 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.
- 3. A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUED 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.
- 4. 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 UP-SLOPE LAND DISTURBANCE TAKES PLACE.
- 5. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
- 6. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.

A. 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.

B. 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 25-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.

7. 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.

8. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.

9. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.

10. 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.

11. 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.

12. WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.

13. 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.

14. ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.

15. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.

16. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:

- A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
- B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
- C. 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.
- D. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
- E. REESTABLISHMENT SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THIS CHAPTER.
- F. APPLICABLE SAFETY REQUIREMENTS SHALL BE COMPLIED WITH.

17. 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 SWEEPING 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.

18. 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 VESCP 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.

ORGANIC MULCH MATERIALS AND APPLICATION RATES

MULCHES	RATES		NOTES
	Per Acre	Per 1000 sq ft	
Straw or Hay	1/2 - 2 tons (Minimum 2 tons for over winter cover)	70-90 lbs.	Free from weeds and coarse matter. Must be anchored. Spread with mulch blower or by hand.
Fiber Mulch	Minimum 1500 lbs	35 lbs.	Do not use as mulch for winter cover or during hot, dry periods. Apply slurry.
Corn Stalks	4-6 tons	185-275 lbs.	Cut or shredded in 4-6" lengths. Air-dried. Do not use in fine turf areas. Apply with mulch blower or by hand.
Wood Chips	4-6 tons	185-275 lbs.	Free of coarse matter. Air-dried. Treat with 12 lbs nitrogen per ton. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.
Bark Chips or Shredded Bark	50-70 cu. Yds. 1-2 cu. Yds.		Free of coarse matter. Air-dried. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.

* When fiber mulch is the only available mulch during dry periods, straw should be used, apply at a minimum rate of 2000 lbs./acre. Or 45 lbs./1000 sq. ft.

19. PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASED FLOW VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA. STREAM RESTORATION AND RELOCATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS ARE NOT MAN-MADE CHANNELS AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS:

- A. 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.
- B. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:

(1) 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

(2) (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.

(B) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY A NATURAL CHANNEL ANALYSIS 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.

C. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT AS DESCRIBED IN THIS SECTION, THE APPLICANT SHALL:

- (1) IMPROVE THE CHANNELS TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL, THE BED, OR THE BANKS; OR
- (2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES;
- (3) 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 INTO A CHANNEL THAT IS NOT A TWO-YEAR STORM RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR
- (4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE VESCP AUTHORITY TO PREVENT DOWNSTREAM EROSION.

D. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.

E. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE SUBJECT PROJECT.

F. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE VESCP OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITY. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.

G. 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.

H. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.

I. 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.

J. IN APPLYING THESE STORMWATER MANAGEMENT CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.

K. 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.

L. 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 MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 82.1-44.15:54 OR 82.1-44.15:65 OF THE ACT.

M. FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 82.1-44.15:52 A OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 82.1-44.15:24 ET SEQ. OF THE CODE OF VIRGINIA) AND APPROPRIATE REGULATIONS, UNLESS SUCH LAND-DISTURBING ACTIVITIES ARE IN ACCORDANCE WITH 9VAC25-870-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSM) REGULATIONS.

N. COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 9VAC25-870-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSM) REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF SUBDIVISION 19 OF THIS SUBSECTION.

STATUTORY AUTHORITY § 82.1-44.15:22 OF THE CODE OF VIRGINIA.

HISTORICAL NOTES THE FORMER 9VAC25-30-40, DERIVED FROM 9V625-02-00 § 4; EFF. SEPTEMBER 13, 1990; AMENDED, VIRGINIA REGISTER VOLUME 11, ISSUE 11, EFF. MARCH 22, 1995; VOLUME 29, ISSUE 4, EFF. NOVEMBER 21, 2012; AMENDED AND RENUMBERED, VIRGINIA REGISTER VOLUME 32, ISSUE 2, EFF. OCTOBER 23, 2015.

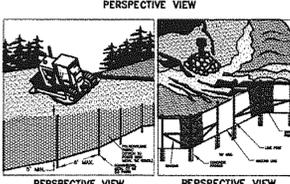
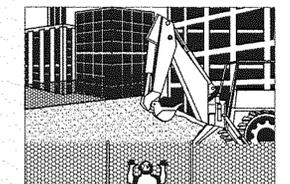
ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS "QUICK REFERENCE FOR ALL REGIONS"

Planting Dates	Species	Rate (lbs./acre)
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (Lolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 - 100
Feb. 16 - Apr. 30	Annual Ryegrass (Lolium multi-florum)	60 - 100
May 1 - Aug. 31	German Millet (Setaria Italica)	50

LIMITING REQUIREMENTS FOR TEMPORARY SITES

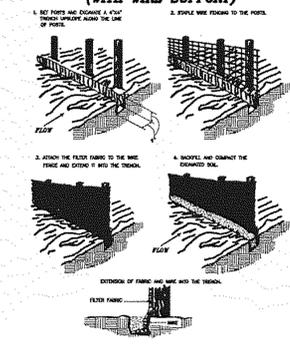
Agricultural Limestone	Recommended Application of Agricultural Limestone
Below 4.2	3 tons per acre
4.2 to 5.2	2 tons per acre
5.2 to 6	1 ton per acre

Source: VA SWCC



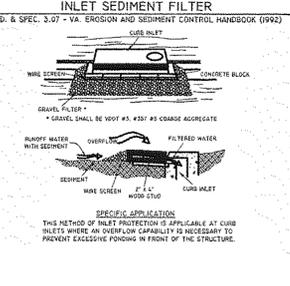
Safety Fence 3-1.1 Silt No. 3-1.1 N.T.S.

CONSTRUCTION OF A SILT FENCE (WITH WIRE SUPPORT)

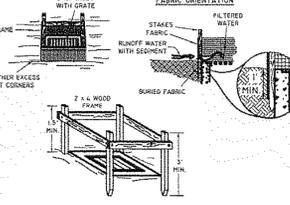


Silt Fence with Wire Support Plan 3-05-1 DCR STD & SPEC N.T.S.

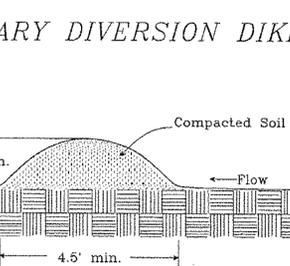
BLOCK AND GRAVEL CURB INLET SEDIMENT FILTER



SILT FENCE DROP INLET PROTECTION STD. & SPEC. 3-07 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (992)



ELEVATION OF STAKE AND FABRIC ORIENTATION



PLAN REVISIONS: 1/17/2017 - REVISED PER CITY COMMENTS DATED 10/26/2017.

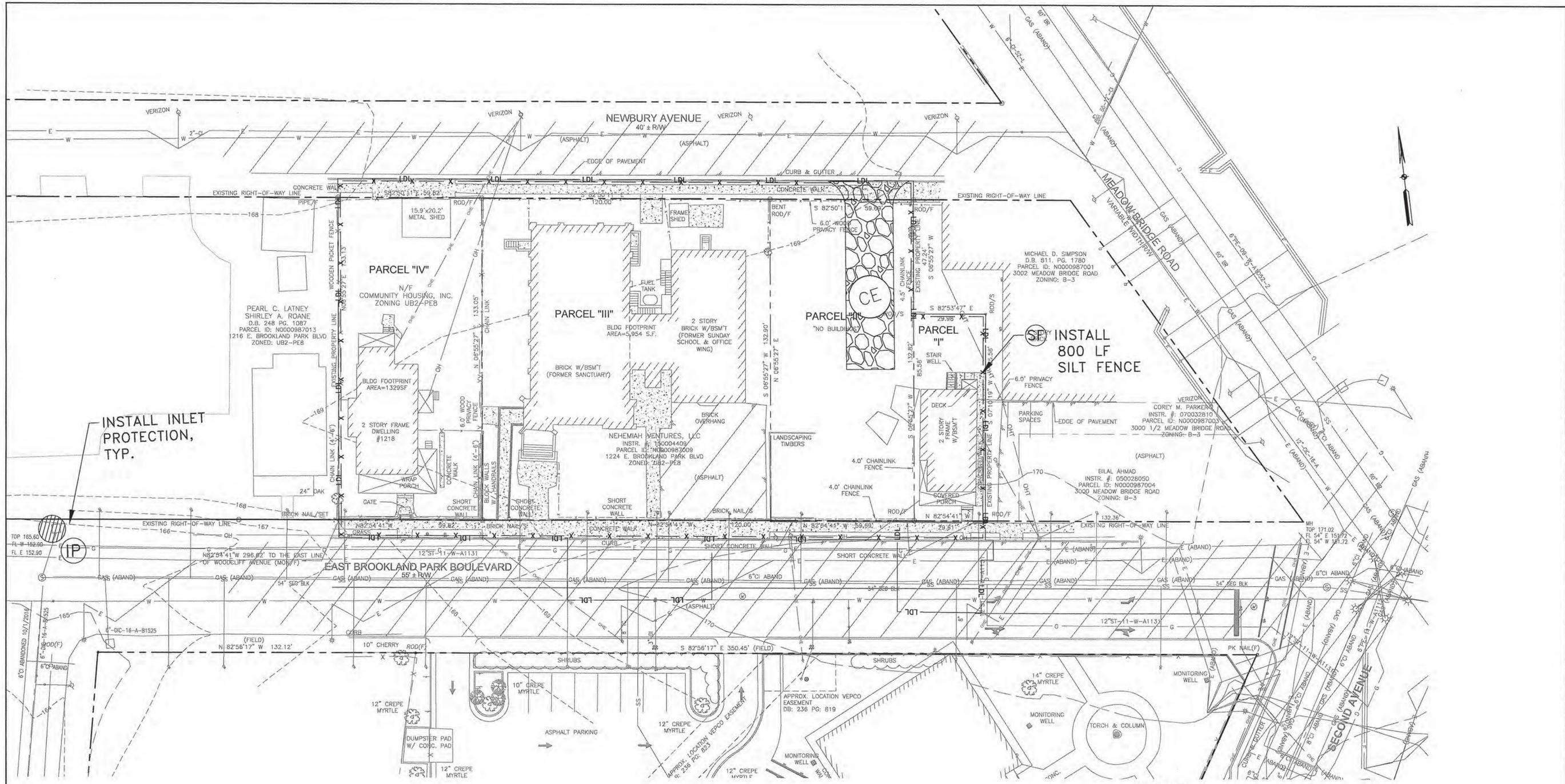
SHEET C-02 SCALE N.T.S.

1224 EAST BROOKLAKH PARK BOULEVARD CITY OF RICHMOND, VIRGINIA EROSION & SEDIMENT CONTROL NOTES & DETAILS

DATE: 07/31/2017 ENGINEER: MMM CHECKED: SNR CAD: TJR JOB#: 17162



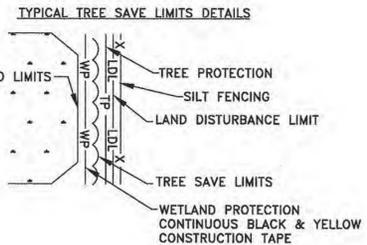
2100 EAST CARY STREET, SUITE 309 RICHMOND, VIRGINIA 23223 (P) 804 782-1903 (F) 804 782-2142 RUMMEL, KLEPPER & KAHL, LLP



SURVEY CONTROL SOURCE:
 SURVEY COMPILED FROM RICHMOND GIS AND
 BY FIELD WORK BY ALISON W. HANSON, H&B
 SURVEYING AND MAPPING, LLC DATED JUNE 25,
 2015.

LEGEND

- LDL — LIMITS OF DISTURBANCE
- (SF) X — SILT FENCE (STD. & SPEC. 3.05)
- (RSF) X — REINFORCED SILT FENCE (STD. & SPEC. 3.05)
- (CE) — CONSTRUCTION ENTRANCE (STD. & SPEC. 3.02)
- (TO) — TOP SOIL (STD. & SPEC. 3.30)
- (RR) — RIPRAP (STD. & SPEC. 3.19)
- (PS) — PERMANENT SEEDING (STD. & SPEC. 3.32)
- (TS) — TEMPORARY SEEDING (STD. & SPEC. 3.31)
- (ST) — SEDIMENT TRAP (STD. & SPEC. 3.13)
- (IP) — INLET PROTECTION (STD. & SPEC. 3.07)
- (DD) — TEMPORARY DIVERSION DIKE (STD & SPEC 3.09)
- (TP) — TREE PROTECTION
- (RWD) — TEMPORARY RIGHT-OF-WAY DIVERSION (STD & SPEC 3.11)
- (CD) — CHECK DAMS (STD. & SPEC. 3.20)
- (OP) — OUTLET PROTECTION (STD. & SPEC. 3.32)



TP, LDL, AND SF RUN COINCIDENT ALONG THE TREE SAVE / CLEARING LIMITS.
 LINework SHOWN SEPARATELY ON PLAN VIEW FOR GRAPHICAL CLARITY AND REPRESENTATION.

SCALE 1" = 20'

FOR CONSTRUCTION DETAILS AND SPECIFICATIONS REFER TO THE "VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK" THIRD EDITION, 1992.

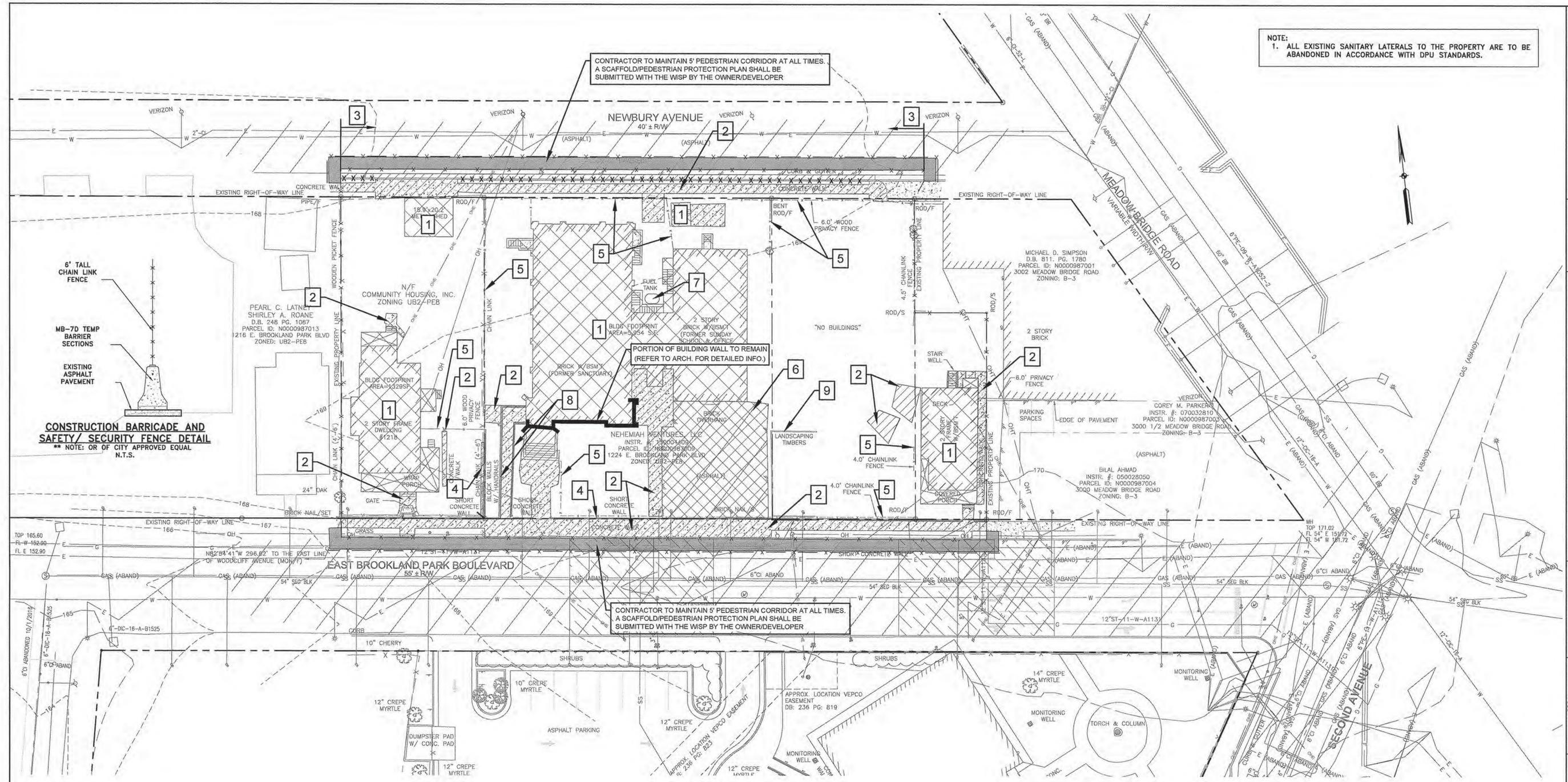
PLAN REVISIONS: 1. 12/20/2017 2. 01/26/2017	SHEET C-04	SCALE 1" = 20'
1224 EAST BROOKLAND PARK BOULEVARD CITY OF RICHMOND, VIRGINIA EXISTING CONDITIONS & EROSION & SEDIMENT CONTROL PLAN		
DATE: 07/31/2017	ENGINEER: MMM	CHECKED: SNR
2100 EAST CARY STREET, SUITE 309 RICHMOND, VIRGINIA 23223 (P) 804 782-1903 (F) 804 782-2142 RUMMEL, KLEPPER & KAHL, LLP <small>Engineers/Construction Managers/Planners/Scientists</small>		
JOB#: 17162 CAD: TJR		

NOTE:
1. ALL EXISTING SANITARY LATERALS TO THE PROPERTY ARE TO BE ABANDONED IN ACCORDANCE WITH DPU STANDARDS.

CONTRACTOR TO MAINTAIN 5' PEDESTRIAN CORRIDOR AT ALL TIMES. A SCAFFOLD/PEDESTRIAN PROTECTION PLAN SHALL BE SUBMITTED WITH THE WSP BY THE OWNER/DEVELOPER

CONTRACTOR TO MAINTAIN 5' PEDESTRIAN CORRIDOR AT ALL TIMES. A SCAFFOLD/PEDESTRIAN PROTECTION PLAN SHALL BE SUBMITTED WITH THE WSP BY THE OWNER/DEVELOPER

CONSTRUCTION BARRICADE AND SAFETY/ SECURITY FENCE DETAIL
** NOTE: OR OF CITY APPROVED EQUAL N.T.S.



DEMOLITION NOTES:

- ALL EXISTING UTILITIES (I.E. WATER SEWER SERVICES, METERS, POWER POLES, STORM SEWER LINES & INLETS, TELEPHONE, GAS, ETC.) NOT USED FOR SERVICE SHALL BE ABANDONED AT THE MAIN. ALL COSTS ASSOCIATED WITH THE ALTERATION OF THE UTILITIES WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR IS TO REVIEW LAYOUT AND GRADING PLANS FOR MORE SPECIFIC INSTRUCTIONS REGARDING DEMOLITION OF THE SITE.
- THE CONTRACTOR SHALL NOT LEAVE ANY OPEN HOLES OR TRENCHES OVERNIGHT WITHIN 10' OF THE EDGE OF THE EXISTING PAVEMENT.
- ADEQUATE PEDESTRIAN PROTECTION SHALL BE PROVIDED.
- ENTRANCES SHALL BE BLOCKED TO TRAFFIC USING STANDARD VIRGINIA WORK AREA PROTECTION DEVICES, SIGNS AND METHODS.
- RELOCATION OF EXISTING ELECTRIC/TELEPHONE SHALL BE STRICTLY COORDINATED WITH DOMINION POWER AND VERIZON OR SPECIFIC PROVIDER A MINIMUM 30 DAYS PRIOR TO ANY CONSTRUCTION/DEMOLITION ACTIVITIES THAT COULD DISTURB ANY POWER/ COMMUNICATION TRANSMISSION.
- CONTRACTOR SHALL OBTAIN ALL REQUIRED DEMOLITION PERMITS AND/OR EROSION CONTROL PERMITS AND PROVIDE ANY "MEANS AND METHODS" REPORTS AND/OR "HAZMAT" REMOVAL TEST/REPORTS PRIOR TO BEGINNING OF WORK.
- CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES, BOTH HORIZONTALLY AND VERTICALLY. CONTRACTOR SHALL COORDINATE THE ABANDONMENT/RELOCATION OF ANY UTILITY WITH THE APPROPRIATE UTILITY COMPANY. EXTREME CAUTION WILL BE TAKEN NEAR ANY "LIVE" UTILITY ESPECIALLY GAS AND ELECTRIC UTILITIES.
- ALL EXISTING UTILITIES TO BE ABANDONED OR REMOVED SHOULD BE ABANDONED IN ACCORDANCE WITH DPU SPECIFICATIONS. ALL UNUSED UTILITY LATERALS AND SERVICES ARE TO BE ABANDONED. CONTRACTOR TO COORDINATE ABANDONMENT WITH DPU.
- EXISTING MANHOLE AND UTILITY STRUCTURES (TOPS/LIDS) SHALL BE RAISED TO FINISHED GRADE AS NEEDED. IT IS NOT THE INTENT OF THIS PLAN INNUMERATE EVERY UTILITY ADJUSTMENT REQUIRED.
- CONTRACTOR MUST OBTAIN A "BARRICADE" AND "WORK IN STREETS" PERMIT FROM THE CITY OF RICHMOND PRIOR TO PLACEMENT OF ANY ELEMENTS OF CONSTRUCTION WITHIN CITY RIGHT-OF-WAY.
- ALL GRANITE CURBING, THAT IS BEING REMOVED IS TO BE RETURNED TO THE CITY OF RICHMOND DPW IN A MANNER SPECIFIED BY THEM. CONTRACTOR SHALL COORDINATE WITH CITY DPW.
- ALL EXISTING SIGNS THAT ARE BEING REMOVED ARE TO BE RETURNED TO THE CITY OF RICHMOND DPW. CONTRACTOR SHALL COORDINATE WITH CITY DPW.

DEMOLITION LEGEND

- | | | | |
|---|--|------------------------|----------------------------|
| 1 | BUILDING ALONG WITH ALL ADJOINING DECK, PATIO, STOOP AND STAIR STRUCTURES SHALL BE REMOVED | [Hatched Box] | MILL & OVERLAY |
| 2 | REMOVE CONCRETE SIDEWALK/SLAB | [Cross-hatched Box] | DEMO ASPHALT |
| 3 | REMOVE CONCRETE CURB/GUTTER | [Diagonal Hatched Box] | DEMO CONC. |
| 4 | REMOVE CONCRETE WALL | [Diagonal Hatched Box] | DEMO BUILDING |
| 5 | REMOVE FENCE | [Solid Grey Box] | PEDESTRIAN PROTECTION AREA |
| 6 | REMOVE ASPHALT | [X X X X] | DEMO ITEM |
| 7 | REMOVE FUEL TANK | [X-X-X] | CONSTRUCTION BARRICADE |
| 8 | REMOVE HANDRAIL/GATE | | |
| 9 | REMOVE LANDSCAPE TIMBERS & GRAVEL | | |

UTILITY INFORMATION

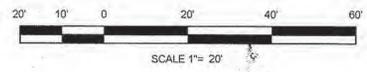
GAS:
CITY OF RICHMOND
DEPARTMENT OF PUBLIC UTILITIES
ENERGY SERVICES DIVISION
400 JEFFERSON DAVIS HIGHWAY
RICHMOND, VA 23224
PHONE: (804) 646-8544
FAX: (804) 646-5131

WATER/SEWER/STORM:
CITY OF RICHMOND
DEPARTMENT OF PUBLIC UTILITIES
900 E. BROAD STREET, RM 115
RICHMOND, VA 23219
PHONE: (804) 646-7000

POWER:
DOMINION ENERGY
14500 MIDLOTHIAN TURNPIKE
MIDLOTHIAN, VA 23113
PHONE: (804) 379-4873



BEFORE YOU DIG CALL "811"
PROTECT YOURSELF, GIVE THREE WORKING DAYS NOTICE



PLAN REVISIONS -
1. 12/20/2017-REVISED PER CITY COMMENTS
DATED 10/26/2017.

SHEET C-05
SCALE 1"=20'

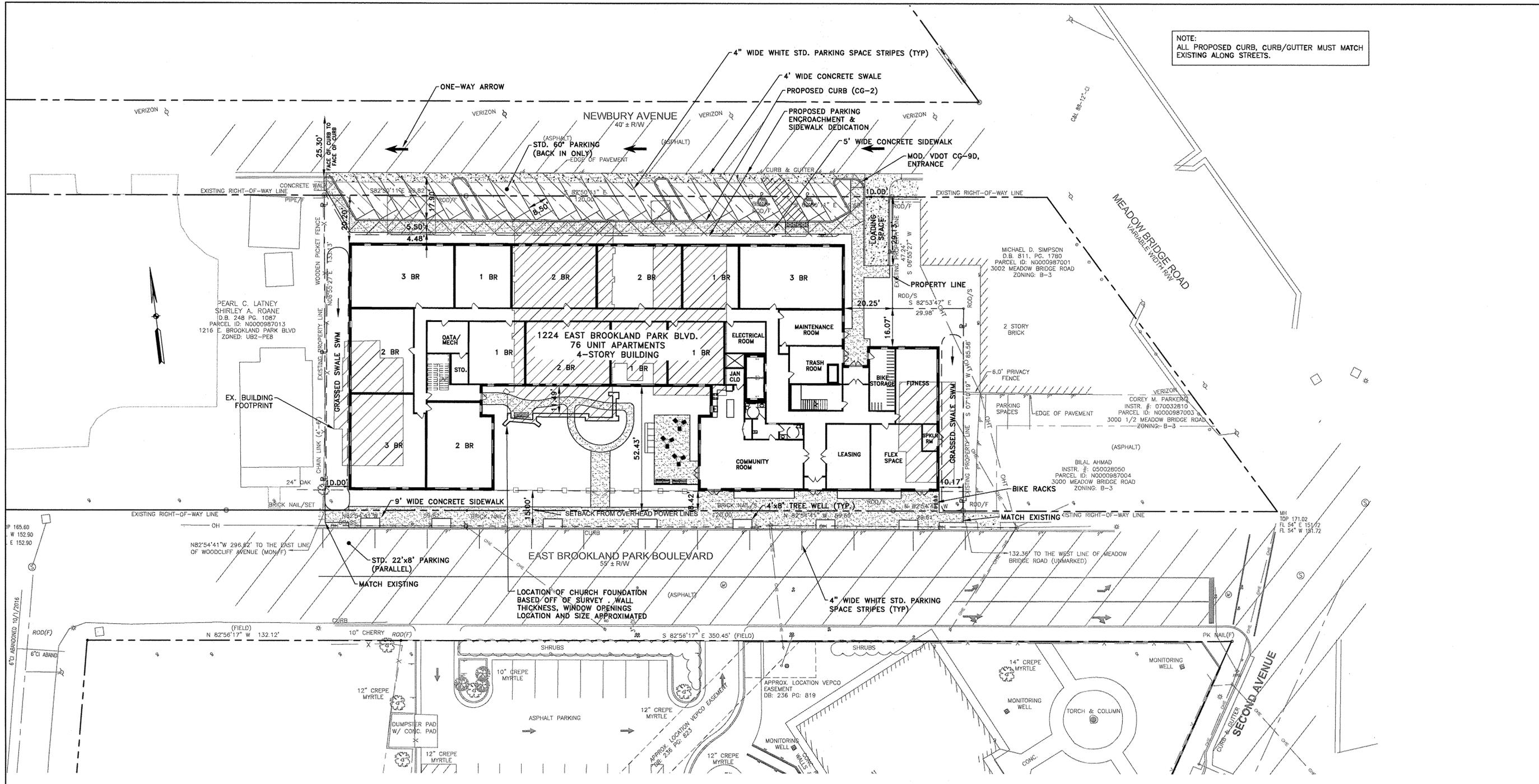
1224 EAST BROOKLAND PARK BOULEVARD
CITY OF RICHMOND, VIRGINIA
DEMOLITION PLAN

DATE: 07/31/2017
ENGINEER: MMM
CHECKED: SNR
CAD: TJR
JOB#: 17162

COMMONWEALTH OF VIRGINIA
12/16/17
M.M. MILLS III
L.C. No. 19860
PROFESSIONAL

2100 EAST CARY STREET, SUITE 309
RICHMOND, VIRGINIA 23223
(P) 804 782-1903 (F) 804 782-2142

RUMMEL, KLEPPER & KAHL, LLP
Engineers/Construction Management Planners/Scientists



NOTE:
ALL PROPOSED CURB, CURB/GUTTER MUST MATCH
EXISTING ALONG STREETS.

PLAN REVISIONS:
1) 12/20/2017-REVISED PER CITY COMMENTS
DATED 10/26/2017.

SHEET
C-06

SCALE
1"=20'

1224 EAST BROOKLAND PARK
BOULEVARD
CITY OF RICHMOND, VIRGINIA

LAYOUT PLAN

DATE: 07/31/2017
ENGINEER: MMM
CHECKED: SNR
CAD: T.JR
JOB#: 17162



2100 EAST CARY STREET, SUITE 309
RICHMOND, VIRGINIA 23223
(P) 804 782-1903 (F) 804 782-2142

RK&K
Engineers | Construction Managers | Planners | Scientists

RUMMEL, KLEPPER & KAHL, LLP

LEGEND:

- SIDEWALK DEDICATION: PUBLIC SIDEWALK TO BE DEDICATED TO THE CITY AT THE TIME OF RESUBDIVISION / LOT CONSOLIDATION.
- PARKING ENCROACHMENT: ADMINISTRATIVE ENCROACHMENT TO BE REVIEWED AND APPROVED BY STAFF AT TIME OF DEVELOPMENT.
- EXISTING BUILDING FOOTPRINT
- EXISTING SIDEWALK
- PROPOSED SIDEWALK
- EXISTING ASPHALT

20' 10' 0 20' 40' 60'
SCALE 1"=20'

CITY OF RICHMOND
 FIRE FLOW CALCULATIONS
 ISO (Insurance Service Office)
 METHOD OF CALCULATING NFF (Needed Fire Flow)

ENGINEER: RUMMEL, KLEPPER & KAHL, LLP DATE: 12-11-2017

PROJECT NAME: 1224 EAST BROOKLAND PARK BOULEVARD CALC. BY: MMM

TYPE OF CONSTRUCTION: JOISTED MASONRY
 Class of Construction Coef. = F: 1.0

GROUND FLOOR AREA = 20,250 # of Stories 4
 Total Floor Area = A₁ (effective area) 40,500

FIRE AREA CONSIDERED:
 Construction Factor C₁ = 18(F)(A₁)^{0.5} C₁ = 3,500
 (Rounded to Nearest 250 GPM)

TYPE OF OCCUPANCY: RESIDENTIAL - APARTMENTS
 (Worst Case) Occupancy Factor = O₁: 0.85

EXPOSURE (X) AND COMMUNICATION (P):
 X₁ + P₁ = 0.18+0 X₄ + P₄ = 0.17+0 (X₁ VALUES ARE ZERO BECAUSE HEIGHT OF FACING WALL IS THE SAME AS HEIGHT AS EXP. WALL)
 X₂ + P₂ = 0+0 X₅ + P₅ = _____ (P₁ VALUES ARE ZERO BECAUSE DISTANCE TO EXPOSED BUILDING IS GREATER THAN 50')
 X₃ + P₃ = 0+0 X₆ + P₆ = _____
 (X+P)₁ = 1.0 + Σ(X_i+P_i) = 1.35
 (n = Number of Sides of Subject Building)
 [Max. (X+P) = 1.75]

NEEDED FIRE FLOW
 NFF = (C₁)(O₁)(X+P)₁ NFF = 4,016
 Automatic Sprinklers (Yes X No) _____
 Reduction Factor 50 % x NFF = 2,008
 TOTAL: 2,008
 Required Fire Flow - Rounded (if < 2500 nearest 250) (if > 2500 nearest 500) 2,008 gpm
 * Fire Hydrants Required: 3 HYD

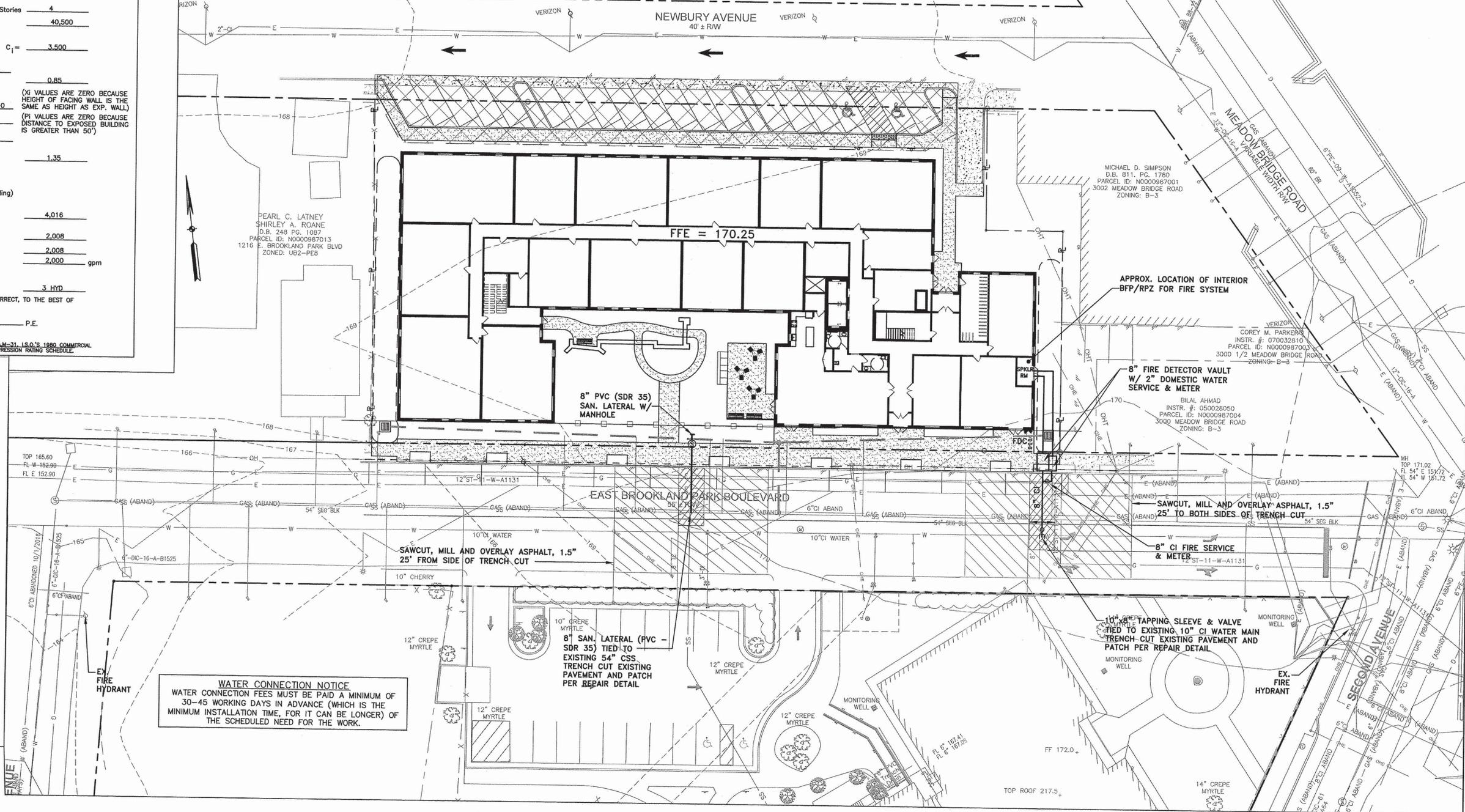
I CERTIFY THAT THE ABOVE INFORMATION IS TRUE AND CORRECT, TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SIGNATURE: _____ P.E.

COMMERCIAL AREA REQUIRES 350 FT. MAXIMUM HOSE LAY.

Reference: NFF CALCULATION PROCEDURE DESCRIBED IN AWWA M-31 I.S.O.'S 1980 COMMERCIAL FIRE RATING SCHEDULE AND I.S.O.'S 1980 FIRE SUPPRESSION RATING SCHEDULE.

NOTES:
 1. ALL SEWER WORK IN THE RIGHT-OF-WAY IS TO BE PERFORMED BY THE DEVELOPER'S CONTRACTOR UNDER DPU INSPECTION UNDER WORK IN STREET PERMIT.
 2. DPU WILL PERFORM ALL WORK WITHIN RIGHT-OF-WAY RELATED TO THE INSTALLATION OF THE WATER SERVICE.
 3. ALL EXISTING SANITARY LATERALS TO THE PROPERTY ARE TO BE ABANDONED IN ACCORDANCE WITH DPU STANDARDS.



WATER CONNECTION NOTICE
 WATER CONNECTION FEES MUST BE PAID A MINIMUM OF 30-45 WORKING DAYS IN ADVANCE (WHICH IS THE MINIMUM INSTALLATION TIME, FOR IT CAN BE LONGER) OF THE SCHEDULED NEED FOR THE WORK.

From: Michael Hopkins <calindormichael@gmail.com>
 Sent: Thursday, December 7, 2017 7:53:57 AM
 To: Matt Engel
 Cc: boromai@ortieallas.com
 Subject: RE: BPP - Flow Results

Below is the city's official reply.

----- Original Message -----
 From: "Schaffio, Dominick - DPU" <Dominick.Schaffio@richmondgov.com>
 To: "mattzins@comcast.net" <mattzins@comcast.net>
 Date: December 7, 2017 at 6:54 AM
 Subject: Flow Test Data

The flow test was done on Dec. 29th 2015 at approx. 10am

E Brookland Park Blvd & Woodcliff Ave - Static: 64 - Residual: 61
 E Brookland Park Blvd & 2nd Ave - Flow: 790

Nick

Dominick F. (Nick) Schaffio Jr.
 Administrative Project Analyst
 City of Richmond Dept. of Public Utilities
 Water Distribution
 500 Jefferson Davis Highway
 Richmond, VA 23224
 804-646-8346

On Nov 30, 2017 9:39 AM, "Matt Engel" <mengelm@pubs.org> wrote:
 2

PLAN REVISIONS -
 1) 12/20/2017 - REVISED PER CITY COMMENTS
 DATED 10/26/2017.

SHEET C-07

SCALE 1"=20'

1224 EAST BROOKLAND PARK BOULEVARD
 CITY OF RICHMOND, VIRGINIA
 UTILITY PLAN

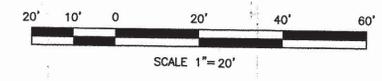
DATE: 07/31/2017
 ENGINEER: MMM
 CHECKED: SNR
 CAD: TJR
 JOB#: 17162

COMMONWEALTH OF VIRGINIA
 12/18/17
 M.M. MILLS III
 LIC. No. 199880
 PROFESSIONAL ENGINEER

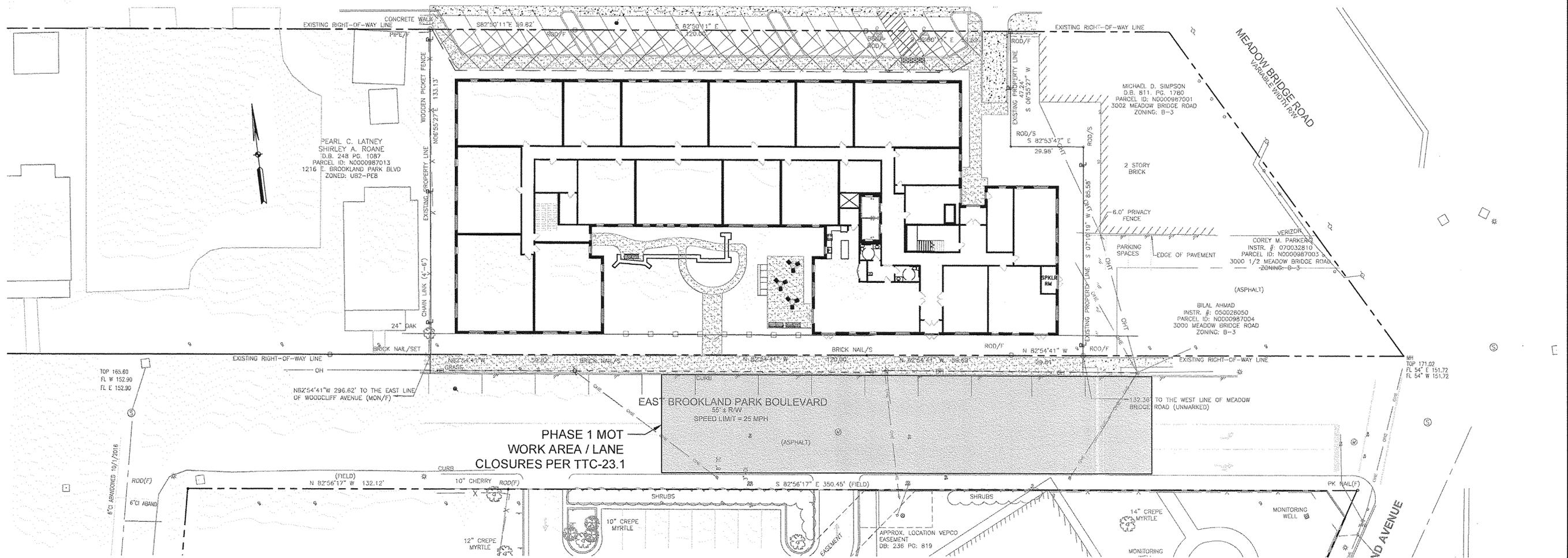
2100 EAST CARY STREET, SUITE 309
 RICHMOND, VIRGINIA 23223
 (P) 804 782-1903 (F) 804 782-2142

RK&K
 Engineers/Construction Managers/Planners/Scientists

RUMMEL, KLEPPER & KAHL, LLP



PHASE 1 MOT



PLAN REVISIONS -
1) 12/20/2017-REVISED PER CITY COMMENTS
DATED 10/26/2017.

SHEET C-09
SCALE 1"=20'

1224 EAST BROOKLAND PARK BOULEVARD
CITY OF RICHMOND, VIRGINIA

MAINTENANCE OF TRAFFIC PLAN

DATE: 07/03/2017
ENGINEER: MMM
CHECKED: SNR
CAD: TJR
JOB#: 17162

Page 6H-14 April 2015

Typical Traffic Control Stationary Operation on a Shoulder (Figure TTC-4.1)

NOTES

- For long-term stationary work (more than 3 days) on a divided highway having a median wider than 10' sign assemblies on both sides of the roadway shall be required as shown (ROAD WORK AHEAD (W21-50R), RIGHT SHOULDER CLOSED AHEAD (W21-50R), RIGHT SHOULDER CLOSED (W21-50R)), even though only one shoulder is being closed. For operations less than 3 days in duration, sign assemblies will only be required on the side where the shoulder is being closed and a RIGHT SHOULDER CLOSED (W21-50R) sign shall be added to that side.
- Sign spacing should be 1100'-1300' for Limited Access highways. For all other roadways, the sign spacing should be 500'-600' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.
- The SHOULDER WORK (W21-51) sign on an intersecting roadway may be omitted, where drivers emerging from that roadway will encounter another advance warning sign prior to this activity area.
- For short duration operations of 60 minutes or less, all signs and channelizing devices may be eliminated if a vehicle with activated high-intensity amber rotating, flashing, or oscillating lights is used.
- Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or oscillating lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, or oscillating lights.
- Taper length (L) and channelizing device spacing shall be as follows:

Speed Limit (mph)	Lane Width (ft)			
	9	10	11	12
25	155	155	115	125
30	155	155	115	125
35	185	205	225	245
40	240	270	295	320
45	405	450	495	540
50	450	500	550	600
55	500	550	605	660
60	540	600	660	720
65	585	660	735	780
70	630	720	770	840

Channelizing Device Spacing

Location	Speed Limit (mph)	
	0-35	36+
Transition Spacing*	20'	40'
Travelway Spacing	40'	80'
Construction Access*	80'	120'

*Spacing may be increased to this distance, but shall not exceed one access per 1/4 mile. On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.

Minimum taper lengths for Limited Access Roadways shall be 1000 feet.

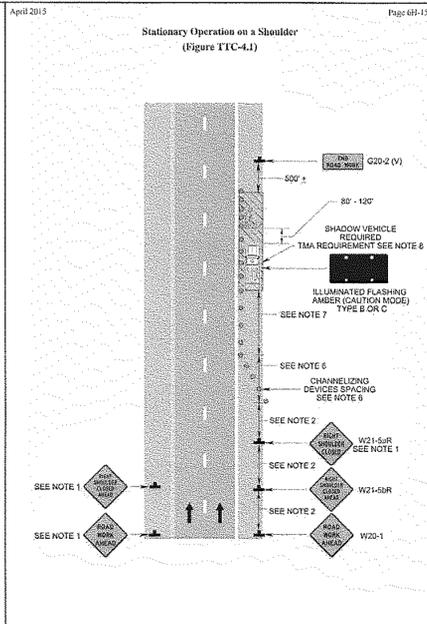
Shoulder Taper = X:L Minimum

7. The buffer space length shall be as shown in Table 6H-3 on Page 6H-5 for the posted speed limit.

8. A truck-mounted attenuator (TMA) shall be used on the shadow vehicle on Limited Access roadways and multi-lane roadways with posted speed limit equal to or greater than 45 mph for operations with a duration greater than 60 minutes.

9. When a side road intersects the highway within the temporary traffic control zone, additional traffic control devices shall be placed as needed.

1. Revision 1 - 01/2015



Page 6H-15 April 2015

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

NOTES

- Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, and 500'-800' where the posted speed limit is greater than 45 mph.
- Core should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the flagger station and transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. Generally speaking, motorists should have a clear line of sight from the graphic flagger symbol sign to the flagger.
- Where Right-of-Way or property conditions prevent the use of 48" x 48" signs, 36" x 36" signs may be used.
- Flagging stations shall be located far enough in advance of the work space to permit approaching traffic to reduce speed and/or stop before passing the work space and allow sufficient distance for flaggers to clear the work zone.
- All flaggers shall be state certified and have their certification card in their possession when performing flagging duties (see Section 6E.01, Qualifications for Flaggers).
- Core spacing shall be based on the posted speed and the values in Table 6H-3 on Page 6H-5.
- A shadow vehicle with at least one high intensity amber rotating, flashing, or oscillating light shall be parked 80'-120' in advance of the first work crew.
- A supplemental flagger may be required in this area to give advance warning of the operation ahead by using the appropriate traffic signs to reaching the flagger station of stopped traffic.
- If the queue of traffic reaches the BE PREPARED TO STOP (W21-51) sign then the sign and the sign shall be removed from the roadway.
- When a highway-rail crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the highway-rail grade crossing, the temporary traffic control zone should be extended so that the transition area precedes the highway-rail crossing (see Figure TTC-26 for additional information on highway-rail crossings).
- At night, flagger stations shall be illuminated, except in emergencies (see Section 6E.08).
- Cones may be eliminated when using a pilot vehicle operation or when the total roadway width is 20 feet or less.
- For low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).

Standard:

- When approved for use, three portable temporary traffic control (PTTC) strips shall be installed across the entire travel lane adjacent to the BE PREPARED TO STOP (W21-51) sign. The portable temporary traffic control strips shall be monitored and adjusted as necessary during the work shift to ensure proper placement on the roadway. When the PTTC are installed, the RUMBLE STRIPS (RUMBLE STRIPS) shall also be utilized.

Posted Speed

PTTC Spacing (Center to Center)	0-35 mph	36-55 mph
	3 Feet	8 Feet

1. Revision 1 - 01/2015

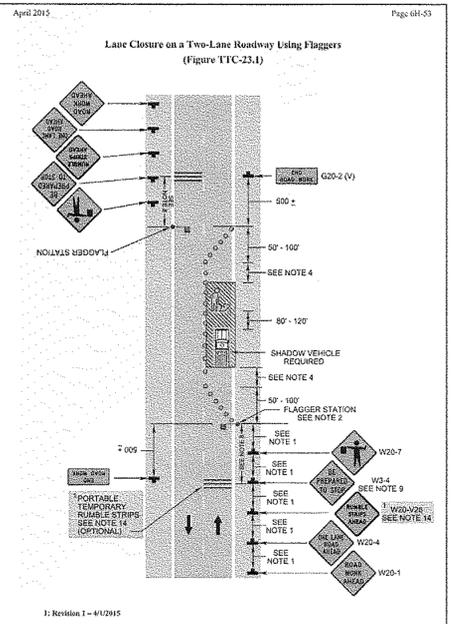


Table 6H-3, Length of the Longitudinal Buffer Space

Posted Speed Limit (mph)	Distance (Feet)
<20	115 - 120
25	155 - 165
30	200 - 210
35	250 - 260
40	305 - 325
45	360 - 380
50	425 - 445
55	500 - 530
60	570 - 600
65	645 - 675
70	730 - 760

1. Revision 1 - 01/2015

Table 6H-4, Channelizing Device Spacing

Location	Posted Speed Limit (mph)	
	0-35	36+
Transition Spacing	20'	40'
Travelway Spacing	40'	80'
Spot Construction Access*	80'	120'

* For easier access by construction vehicles into the work area, spacing of devices may be increased to this distance, but shall not exceed one access per 0.25 mile unless approved by the engineer and documented.

WORK AREA PROTECTION NARRATIVE

- ALL CONSTRUCTION ACTIVITIES WITHIN VDOT RIGHT OF WAY SHALL BE IN ACCORDANCE WITH REVISION 1 OF THE 2D11 VWAPM.
- THE FOLLOWING TTCs APPLY TO THIS PROJECT:
 - TTC 4.1 STATIONARY OPERATION ON A SHOULDER
 - TTC 23.1 LANE CLOSURE ON A TWO-LANE ROADWAY USING FLAGGERS
- THE WORK AREA SHALL BE CLOSED PER VDOT SPECIFICATIONS. ALL WORK TO TAKE PLACE BETWEEN THE HOURS OF 9:00 AM AND 3:00 PM, WITH THE EXCEPTION OF INSTALLING PAVEMENT MARKINGS WHICH CAN OCCUR AT NIGHT.
- INSTALL ALL ADVANCE WARNING SIGNS ON RIGHT AND LEFT SIDES WHEN SPACE PERMITS (MEDIAN IS GREATER THAN 8' ON DIVIDED HIGHWAYS). SIGN SPACING SHALL BE PER REVISION 1 OF THE 2D11 VWAPM.
- PLACE A FLASHING ARROW BOARD AT OR AS CLOSE AS POSSIBLE TO THE BEGINNING OF THE TAPER WHEN REQUIRED.
- WHEN REQUIRED, A TRUCK WITH AT LEAST ONE ROTATING AMBER LIGHT, HIGH INTENSITY AMBER FLASHING LIGHT, OR OSCILLATING LIGHT SHALL BE PARKED 60' TO 120' IN ADVANCE OF THE FIRST WORK CREW.
- ONLY GROUP 1 (36" CONES) OR GROUP 2 (36" DRUMS) CHANNELIZING DEVICES SHALL BE USED. SPACING SHALL BE CONSISTENT WITH THE REQUIREMENTS LISTED IN THE APPROPRIATE TTC.
- FOR REMOVAL OF LANE CLOSURE, BEGIN BY REMOVING CHANNELIZING DEVICES FROM END OF CLOSURE BACK TO THE WIDEST PART OF THE MERGING TAPER. REMOVE DEVICES FROM THE TAPER BY HAND INTO BACKING VEHICLE ON THE SHOULDER. REMOVE ARROW BOARD ONLY AFTER ENSURING ROADWAY IS CLEAR. FINALLY, MOVING WITH THE FLDW OF TRAFFIC, REMOVE ADVANCE WARNING SIGNS BEGINNING WITH "ROAD WORK AHEAD" SIGN AND ENDING WITH "END ROAD WORK" SIGN

NOTE:
THE WORK IS A "TYPE A" PROJECT. THE CONTRACTOR SHALL MEET WORK ZONE SAFETY AND MOBILITY I&M LD-241.5 REQUIREMENTS.

NOTE:
CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF TRAFFIC TO ENSURE QUEUING DOES NOT BACK UP INTO ROUNDABOUT.

SEQUENCE OF CONSTRUCTION

PHASE 1: COMPLETE IN ROAD UTILITY WORK

- CLOSE ONE TRAVEL LANE ALONG EAST BROOKLAND PARK BOULEVARD PER TTC-23.1.
- COMPLETE IN ROAD UTILITY WORK AND PAVEMENT REPAIRS (SAWCUT, MILL AND OVERLAY) WITHIN THE CLOSED PORTION OF ROADWAY.
- ONCE COMPLETED, REMOVE LANE CLOSURE AND REOPEN TRAVEL LANE.
- CLOSE OPPOSITE TRAVEL LANE ALONG EAST BROOKLAND PARK BOULEVARD PER TTC-23.1.
- COMPLETE IN ROAD UTILITY WORK AND PAVEMENT REPAIRS (SAWCUT, MILL AND OVERLAY) WITHIN THE CLOSED PORTION OF ROADWAY.
- ONCE COMPLETED, REMOVE LANE CLOSURE AND REDPEN TRAVEL LANE.

*****REFER TO SHEETS C-D7 AND C-DB FOR UTILITY AND DRAINAGE PLANS.**

PHASE 2: COMPLETE SITE WORK ADJACENT TO EAST BROOKLAND PARK BOULEVARD

- CLOSE WB SHOULDER / ON-STREET PARKING AREA ALONG EAST BROOKLAND PARK BOULEVARD PER TTC-4.1.
- COMPLETE SITE WORK ADJACENT TO EAST BROOKLAND PARK BOULEVARD. SEE SHEET C-D6 FOR LAYOUT PLAN.
- REMOVE SHOULDER CLOSURE AND REDPEN ON-STREET PARKING AREA.

PHASE 3: COMPLETE SITE WORK ADJACENT TO NEWBURY AVENUE

- CLOSE SHOULDER / PORTION OF NEWBURY AVENUE PER TTC-4.1. SEE SHEET C-10 FOR TEMPORARY WIDTHS OF THE WORK AREA AND NEWBURY AVENUE.
- COMPLETE SITE WORK ADJACENT TO NEWBURY AVENUE. SEE SHEET C-D6 FOR LAYOUT PLAN.
- REMOVE SHOULDER CLOSURE, RESTORING NEWBURY AVENUE TO ITS FULL WIDTH.

NOTE: NEWBURY AVENUE FUNCTIONS AS A ONE-WAY WESTBOUND ROAD BEFORE, DURING, AND AFTER PROJECT CONSTRUCTION.

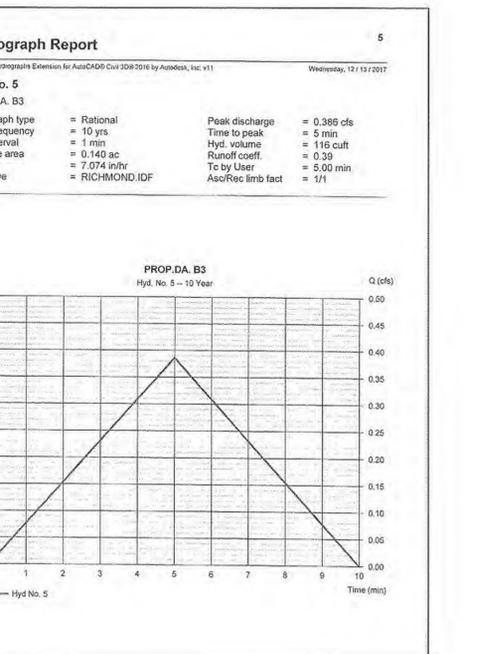
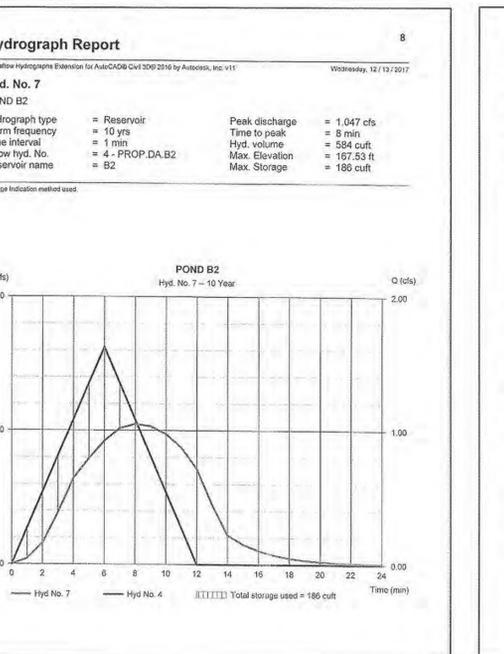
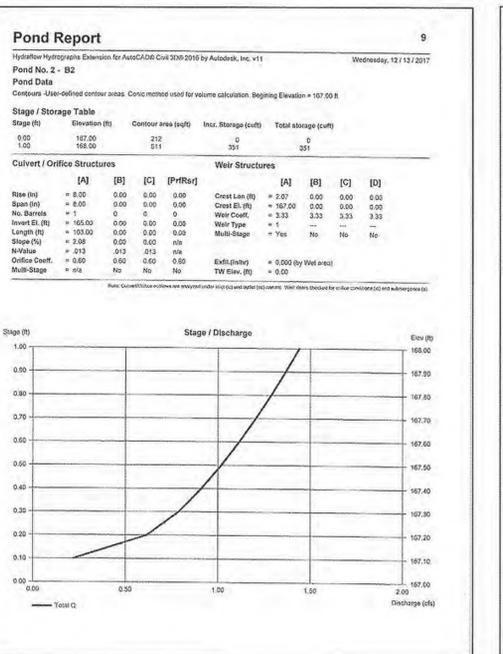
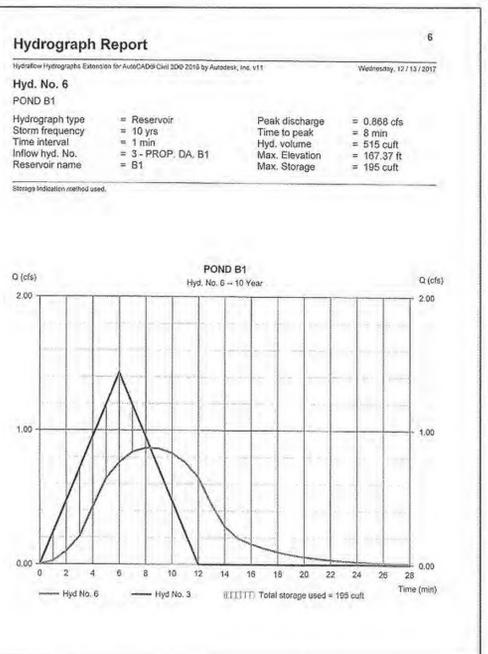
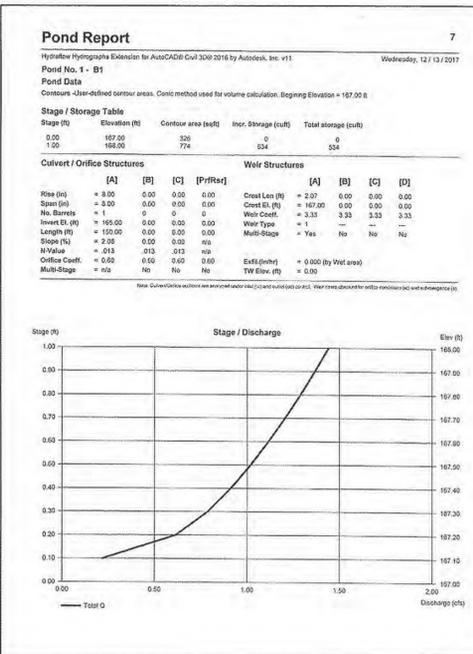
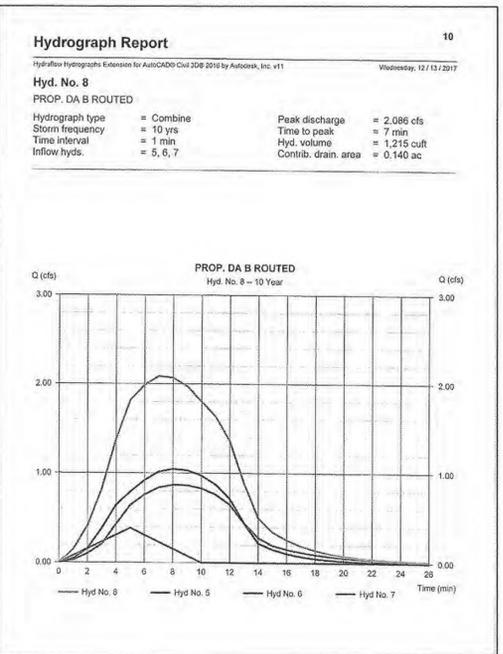
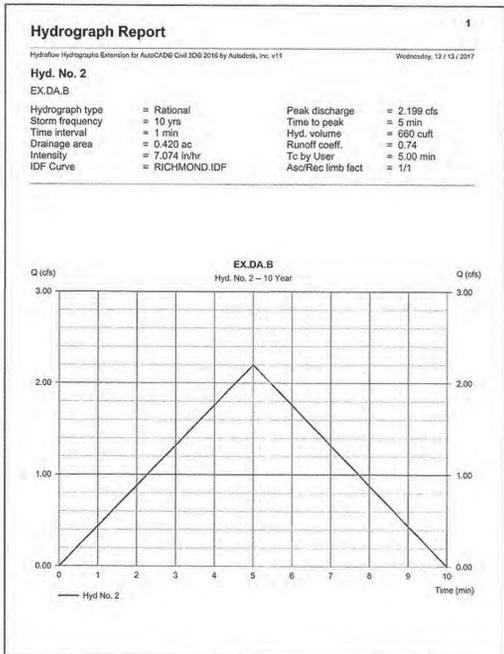
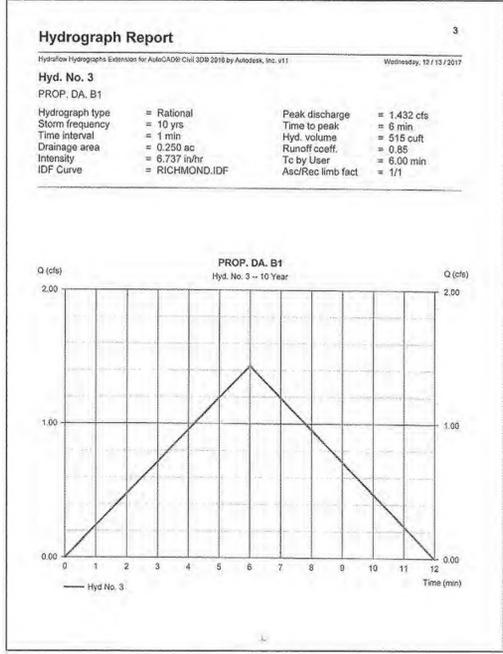
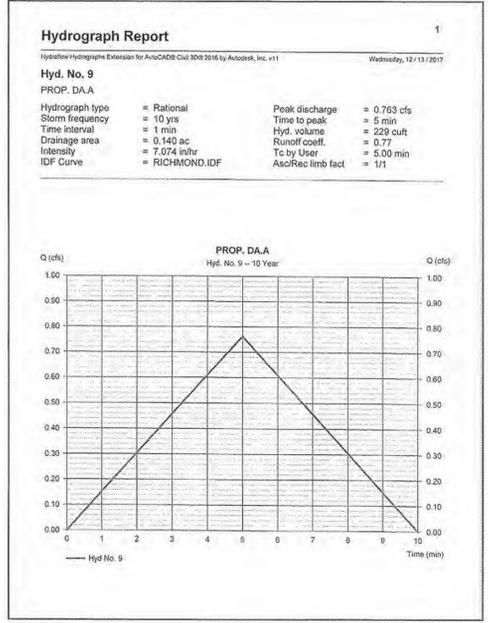
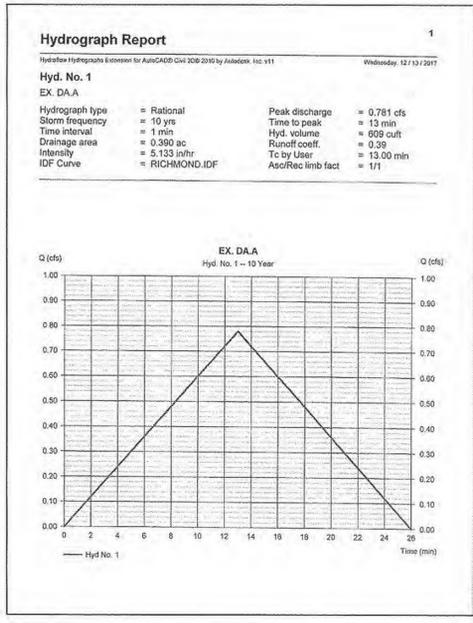
NOTE:

- CONTRACTOR SHALL KEEP EXISTING ROADWAY FREE OF ANY DIRT BUILD-UP AT ALL TIMES.
- DEVELOPER, NOT VDOT, IS RESPONSIBLE FOR ANY RELOCATION OF UTILITIES (O/H DR U/G).
- A CERTIFIED EROSION AND SEDIMENT CONTROL CONTRACTOR MUST BE IN RESPONSIBLE CHARGE OF ALL REGULATED LAND DISTURBING ACTIVITIES WITHIN VDOT RIGHT OF WAY.
- CONTRACTOR TO FIELD VERIFY (CORE) EXIST. FULL DEPTH PAVEMENT FOR FINAL PAVEMENT DESIGN.

2100 EAST CARY STREET, SUITE 309
RICHMOND, VIRGINIA 23223
(P) 804 782-1903 (F) 804 782-2142

RUMMEL, KLEPPER & KAHL, LLP
Engineer/Construction Management/Planner/Estimator

COMMONWEALTH OF VIRGINIA
12/15/17
M.A. MILLS III
L.C. # 1000000000
P.E. # 1000000000



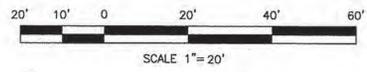
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(IN CSS SYSTEM D.A.A) = 0.781 CFS

PROP. DISCHARGE (NEWBURY AVE.)
(IN CSS SYSTEM D.A.A) = 0.763 CFS

EX. DISCHARGE (E. BROOKLAND PARK BOULEVARD)
(IN CSS SYSTEM D.A.B) = 2.199 CFS

PROP. ROUTED DISCHARGE (E. BROOKLAND PARK BOULEVARD)
(IN CSS SYSTEM D.A.B) = 2.086 CFS

POST 10 YRS RUNOFF < PRE 10 YRS RUNOFF
ACHIEVING 10/10 DETENTION.



PLAN REVISIONS -
1) 12/20/2017 - REVISED PER CITY COMMENTS
DATED 10/26/2017.

SHEET C-12
SCALE N.T.S.

1224 EAST BROOKLAND PARK BOULEVARD
CITY OF RICHMOND, VIRGINIA

DRAINAGE ANALYSIS

DATE: 07/03/2017
ENGINEER: MMM
CHECKED: SNR
CAD: TJR
JOB#: 17162

COMMONWEALTH OF VIRGINIA
M.M. MILLS III
LIC. No. 19880
PROFESSIONAL

2100 EAST CARY STREET, SUITE 309
RICHMOND, VIRGINIA 23223
(P) 804 782-1903 (F) 804 782-2142

RUMMEL, KLEPPER & KAHL, LLP
Engineers | Construction Management | Planning | Scientists