

- GENERAL NOTES:**
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 - SEE SHEET A3.1 FOR TYPICAL SECTIONS.
 - BC = BACK OF CURB.
 - SEE LANDSCAPE PLANS FOR BUFFER AND MEDIAN DETAILS.

LEGEND

- 80** PARCEL NO. - REFER TO GEOMETRY PLAN SHEETS
- 0001** PROP. STORM STRUCTURE NO.
- 0** PROP. STORM MANHOLE
- 0** PROP. RCP STORM PIPE
- 0** PROP. CB-2B OR PCB-2
- 0** EXISTING STORM STRUCTURE NO.
- 4** PROP. SANITARY STRUCTURE NO.
- 1005** EXISTING SANITARY STRUCTURE NO.
- 1** VDOT STD. CG-12 TYPE A PEDESTRIAN CURB RAMP
- 2** VDOT STD. CG-12 TYPE B PEDESTRIAN CURB RAMP
- 3** ARL. CO. STD. C-2 CURB AND GUTTER
- 4** ARL. CO. STD. C-3 CURB
- 5** ARL. CO. STD. CONCRETE VALLEY GUTTER
- 6** ARL. CO. STD. CONC. COMMERCIAL ENTRANCE
- 7** ARL. CO. STD. CONC. RESIDENTIAL ENTRANCE
- 8** VDOT STD. RW-3 RET. WALL WITH HANDRAIL
- 9** VDOT STD. RW-3 RET. WALL NO HANDRAIL
- 10** CONCRETE STEPS WITH HANDRAIL
- 11** ARL. CO. STD. 9.5" RAISED CURBSIDE TRANSIT STOP

- PROP. FULL DEPTH PAVEMENT**
- PROP. FULL DEPTH PAVEMENT (PRIVATE)**
- PROP. MILL & OVERLAY**
- PROP. BUS PAD**
- PROP. TRUNCATED DOMES**
- PROP. CONCRETE SIDEWALK**
- PROP. CONCRETE ENTRANCE**
- PROP. VDOT STD. RW-3**
- PROP. FENCE/ HANDRAIL**
- LIMITS OF DISTURBANCE**
- PROPOSED GAS LINE AS DONE BY WGL**

ARLINGTON VIRGINIA

DEPARTMENT OF ENVIRONMENTAL SERVICES

Facilities & Engineering Division
Engineering Bureau
2100 Clarendon Boulevard, Suite 813
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Seal

COMMONWEALTH OF VIRGINIA
MICHAEL R. ALBRIGHT
Lic. No. 46643
10/28/2021
PROFESSIONAL ENGINEER

Approvals _____ Date _____

Design Team Engineer Supervisor _____

Construction Management Supervisor _____

Water, Sewer, Streets Bureau Chief _____

Transportation Director _____

Project Manager _____

Revisions	Date

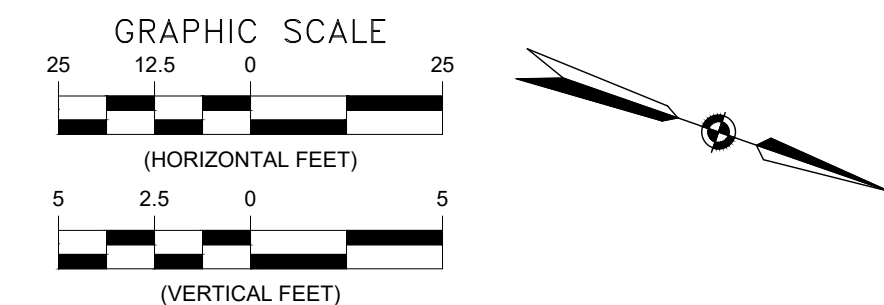
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Drawn: EJD
Checked: MRA
Miss Utility Transmittal #:

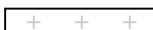
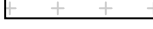





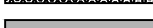



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Plotted: October 28, 2021
Plotted by: Patrick.Husted

ARLINGTON COUNTY, VIRGINIA
DEPARTMENT OF ENVIRONMENTAL SERVICES

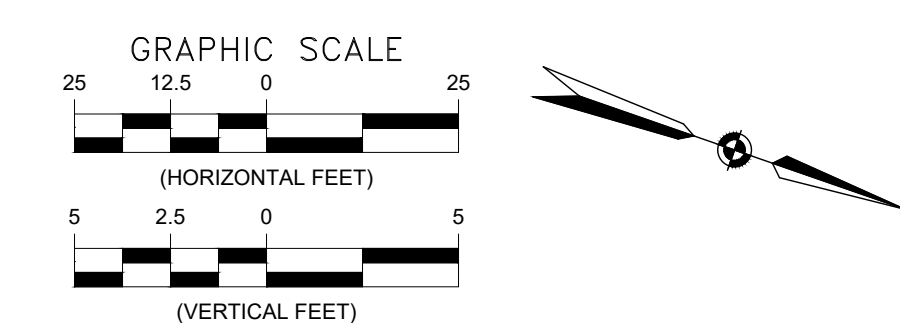
ROADWAY PLAN AND PROFILE
COLUMBIA PIKE - ROUTE 244
COLUMBIA PIKE - MULTIMODAL STREET IMPROVEMENTS
SEGMENT A
S. OAK STREET STA. 100+00 TO STA. 102+00

SCALE: HOR. 1" = 25' VERT. 1" = 5' SHEET: A10.3 of A10.5



- | | |
|---|-------------------------------------|
|  | PROP. FULL DEPTH PAVEMENT |
|  | PROP. FULL DEPTH PAVEMENT (PRIVATE) |
|  | PROP. MILL & OVERLAY |
|  | PROP. BUS PAD |
|  | PROP. TRUNCATED DOMES |
|  | PROP. CONCRETE SIDEWALK |
|  | PROP. CONCRETE ENTRANCE |
|  | PROP. VDOT STD. RW-3 |
|  | PROP. FENCE/ HANDRAIL |
|  | LIMITS OF DISTURBANCE |
|  | PROPOSED GAS LINE AS DONE BY WGL |

SCALE:	HOR. 1" = 25' VERT. 1" = 5'	SHEET:	A10.4 of A10.5
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- 0 PROP. STORM MANHOLE
- PROP. RCP STORM PIPE
- 0-2 PROP. CB-2B OR PCB-2
- 0-10 EXISTING STORM STRUCTURE NO.
- 4 PROP. SANITARY STRUCTURE NO.
- 10-105 EXISTING SANITARY STRUCTURE NO.
- 1 VDOT STD. CG-12 TYPE A PEDESTRIAN CURB RAMP
- 2 VDOT STD. CG-12 TYPE B PEDESTRIAN CURB RAMP
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- PROP. FENCE/ HANDRAIL
- LIMITS OF DISTURBANCE
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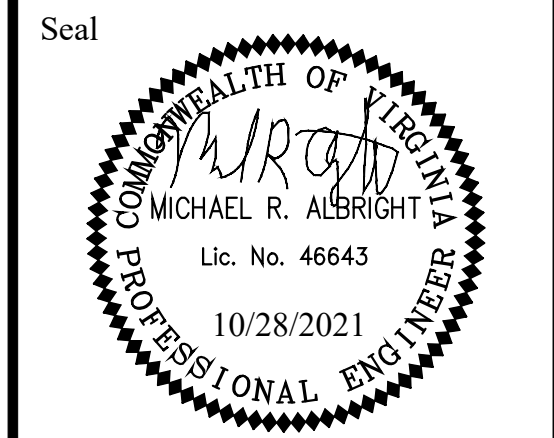


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Approvals Date

Design Team Engineer Supervisor

Construction Management Supervisor

Water, Sewer, Streets Bureau Chief

Transportation Director

Project Manager

Revisions	Date

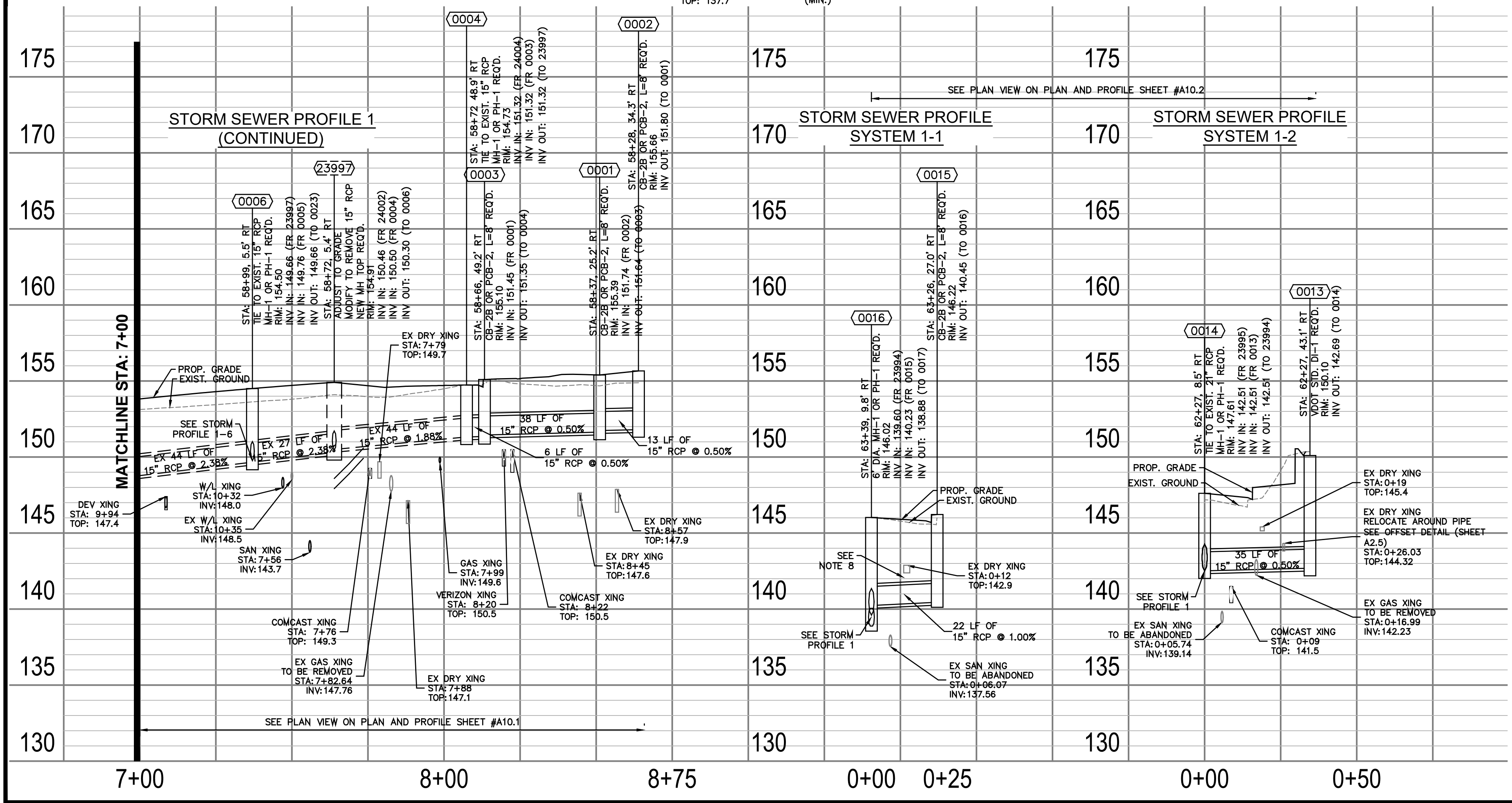
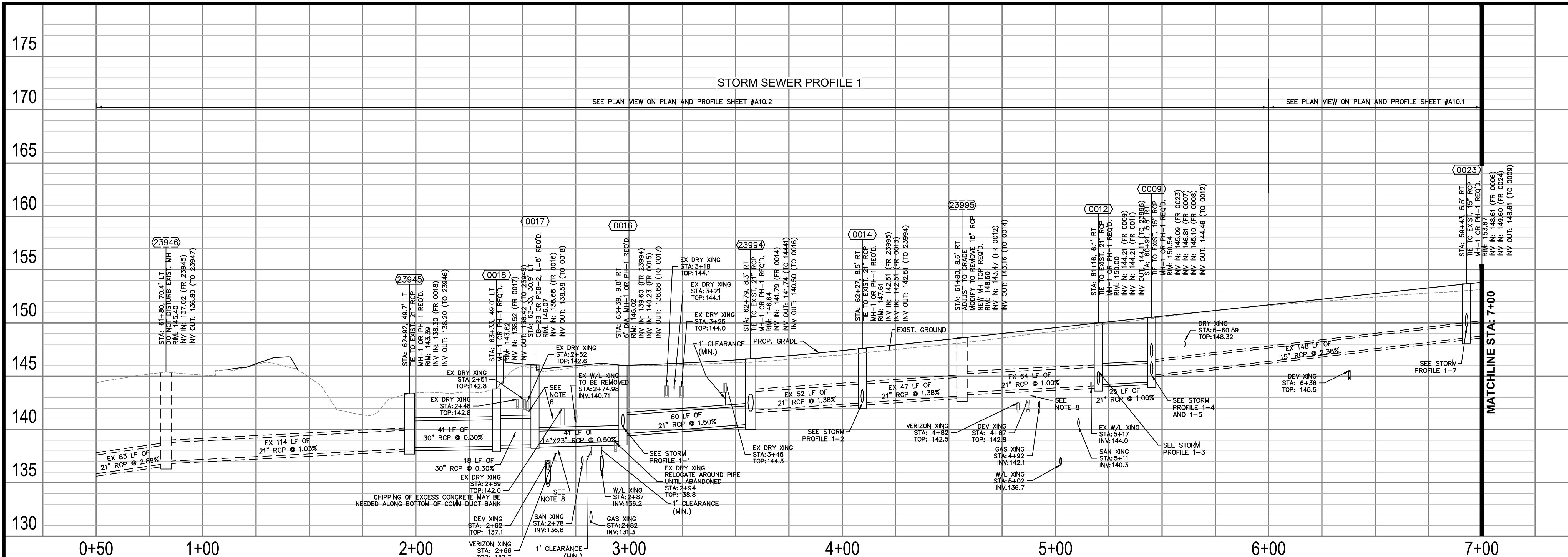
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Drawn: EJD
Checked: MRA
Miss Utility Transmittal #:

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Plotted: October 28, 2021
Plotted by: Patrick.Husted

ARLINGTON COUNTY, VIRGINIA
DEPARTMENT OF ENVIRONMENTAL SERVICES

ROADWAY PLAN AND PROFILE
COLUMBIA PIKE - ROUTE 244
COLUMBIA PIKE - MULTIMODAL STREET IMPROVEMENTS
SEGMENT A
S. ORME STREET STA. 100+00 TO STA. 102+00

SCALE: HOR. 1" = 25' VERT. 1" = 5' SHEET: A10.5 of A10.5



FOR STORM CONST. ONLY

NOTES:

1. PROFILE STATIONING ALONG CENTERLINE OF PIPE
2. SEE SERIES 10 FOR FULL UTILITY NETWORK PLAN VIEWS.
3. WATERLINE TO BE INSTALLED, TESTED, AND PUT INTO SERVICE PRIOR TO STORM AND SANITARY PIPE INSTALLATION. CONTRACTOR TO CONFIRM EXISTING WATERLINE IS DECOMMISSIONED PRIOR TO REMOVAL. DESIGN ASSUMES THAT THE PROPOSED WATERLINE IS GENERALLY INSTALLED PRIOR TO OTHER UTILITIES TO MITIGATE CONFLICTS.
4. CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE THROUGHOUT THE PROJECT LIMITS TO THE EXTENT POSSIBLE AT ALL TIMES. STORM SEWER SHALL BE INSTALLED AND SEQUENCED TO MINIMIZE DOWN TIME REQUIRED FOR TIE-IN OR CUT-OVER OPERATIONS. SHOULD PUMP-AROUNDS BE REQUIRED TO COMPLETE STORM SEWER INSTALLATIONS, THEY WILL BE INCIDENTAL TO THE COST OF STORM PIPE AND STRUCTURE INSTALLATION.
5. CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES ADJACENT TO OR CROSSING PROPOSED STORM SEWER PIPE AND STRUCTURES PRIOR TO INSTALLATION.
6. OFFSET OF EXIST. FIBER LINE AND LIGHTING LINE MAY BE REQUIRED FOR PROPOSED IMPROVEMENTS. SEE DETAIL SHEET A2.5.
7. WASHINGTON GAS PROPOSED LINES ARE SHOWN FOR REFERENCE ONLY AND ARE TO BE INSTALLED BY OTHERS. REFERENCE WR #3091840 OR EXCAVATION #EXCV21-01093 FOR DETAILS.
8. WHERE MINIMUM VERTICAL CLEARANCES BETWEEN UTILITIES CANNOT BE MET, CONTRACTOR TO INSTALL CONCRETE PIERS AND/OR REINFORCED CONCRETE CRADLE PER ARLINGTON COUNTY STANDARD DRAWING M-7.0

PROFILE VIEW LEGEND

== == == == EXISTING PIPE/STRUCTURE TO REMAIN

== == == == PROPOSED PIPE/STRUCTURE

ARLINGTON VIRGINIA

DEPARTMENT OF ENVIRONMENTAL SERVICES

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Seal

Approvals _____ Date _____

Design Team Engineer Supervisor _____

Construction Management Supervisor _____

Water, Sewer, Streets Bureau Chief _____

Transportation Director _____

Project Manager _____

Revisions	Date

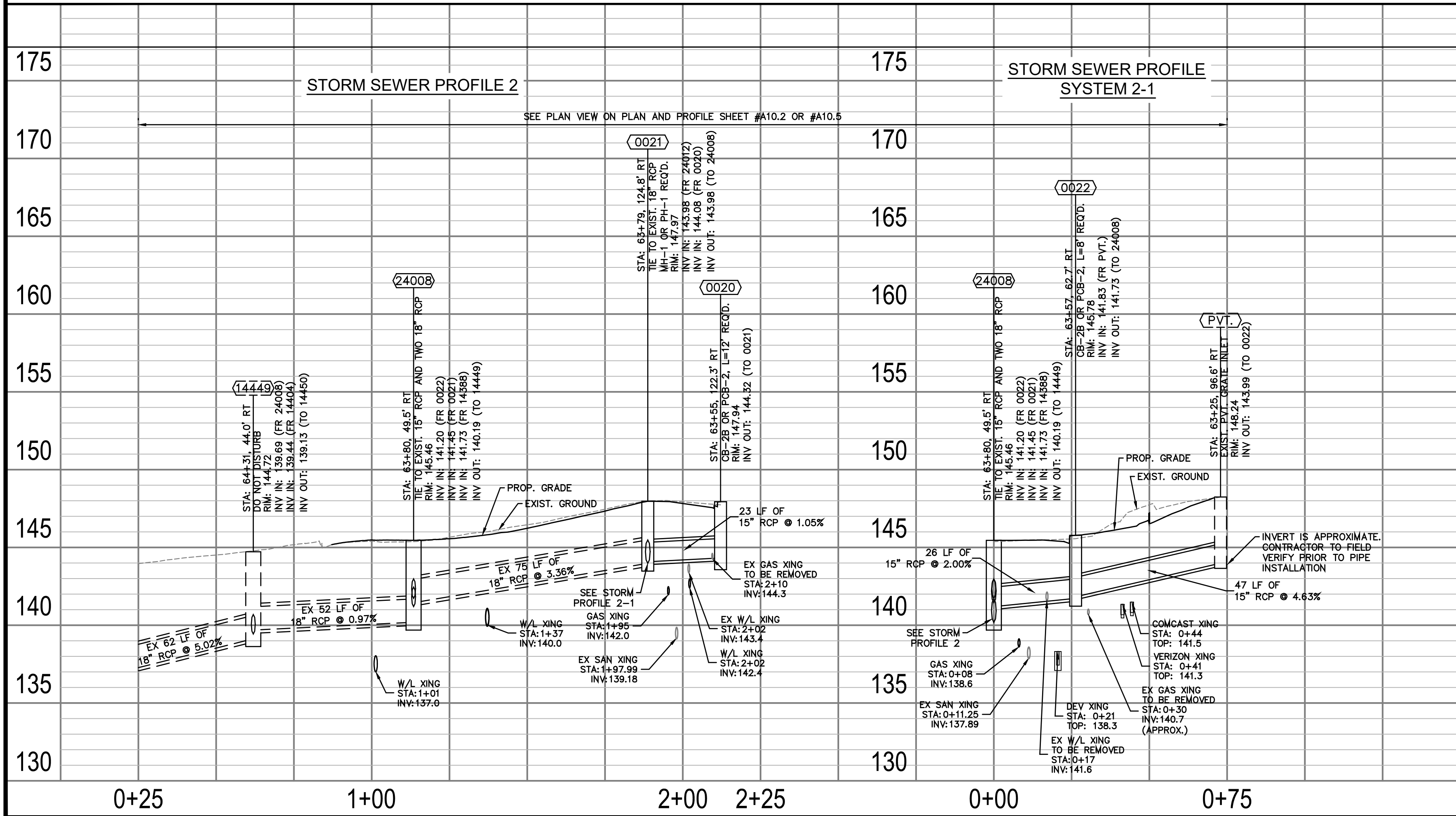
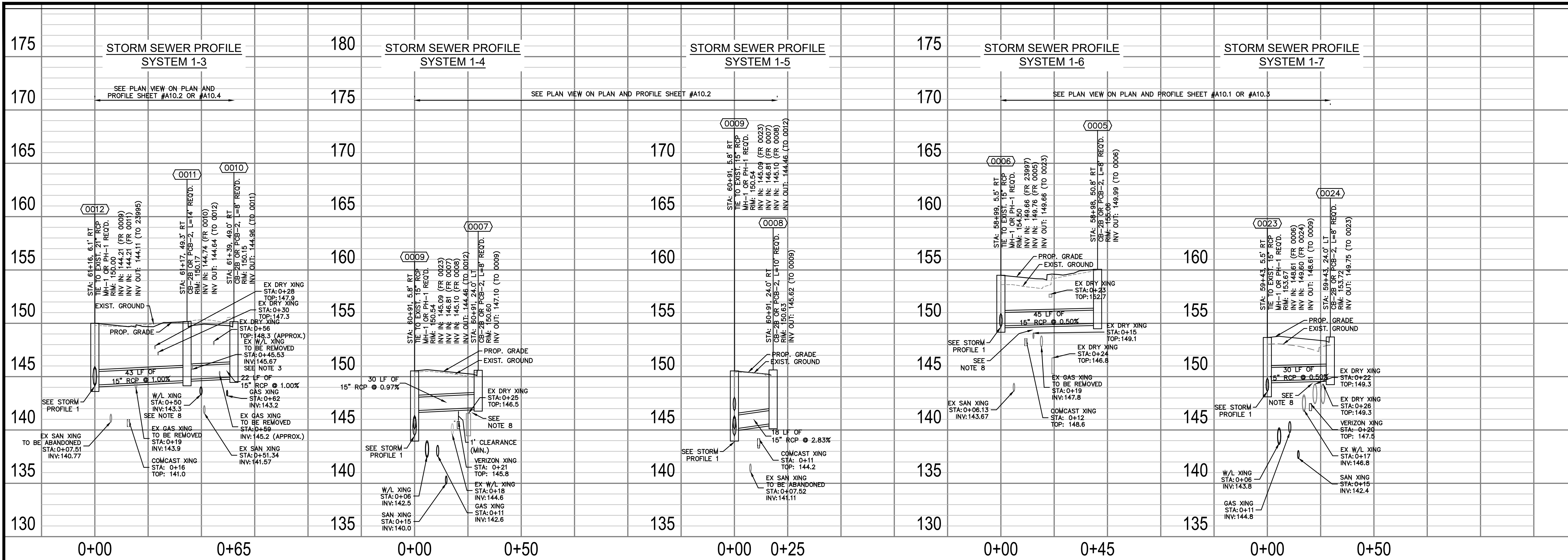
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Drawn: AAA
Checked: MRA
Miss Utility Transmittal #:

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Plotted: October 28, 2021
Plotted by: Patrick.Husted

ARLINGTON COUNTY, VIRGINIA
DEPARTMENT OF ENVIRONMENTAL SERVICES

**STORM PROFILES
COLUMBIA PIKE - ROUTE 244
COLUMBIA PIKE - MULTIMODAL STREET IMPROVEMENTS
SEGMENT A**

SCALE: HOR. 1" = 25' VERT. 1" = 5' SHEET: A11.1 of A11.7



FOR STORM CONST. ONLY

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PROFILE VIEW LEGEND

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===== PROPOSED PIPE/STRUCTURE

ARLINGTON COUNTY, VIRGINIA
DEPARTMENT OF ENVIRONMENTAL SERVICES

STORM PROFILES
COLUMBIA PIKE - ROUTE 244
COLUMBIA PIKE - MULTIMODAL STREET IMPROVEMENTS
SEGMENT A

SCALE: HOR. 1" = 25' VERT. 1" = 5' SHEET: A11.2 of A11.7

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MICHAEL R. ALBRIGHT
Lic. No. 46643
10/28/2021
PROFESSIONAL ENGINEER

Approvals Date

Design Team Engineer Supervisor

Construction Management Supervisor

Water, Sewer, Streets Bureau Chief

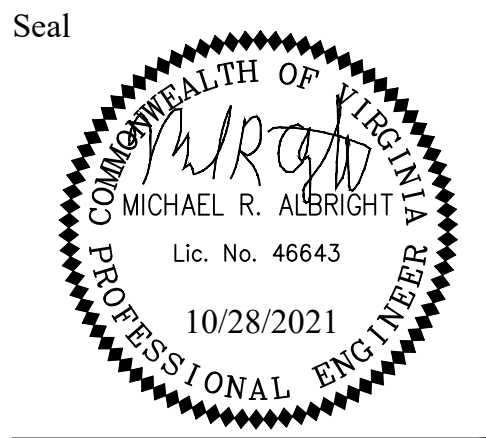
Transportation Director

Project Manager

Revisions Date

Designed: DCD
Drawn: AAA
Checked: MRA
Miss Utility Transmittal #:

Filename: 010073-A-STORM PROFILES.dwg
Path: Z:\NVA_RDP\NVA1000073 Columbia Pike Multimodal Production Task
Design Sheets
Plotted: October 28, 2021
Plotted by: patrick.husted



Approvals

Date

Design Team Engineer Supervisor

Construction Management Supervisor

Water, Sewer, Streets Bureau Chief

Transportation Director

Project Manager

Revisions	Date

Designed: DCD

Drawn: DCD

Checked: MRA

Miss Utility Transmittal #:

Filename: 010073-A-STORMWATER CALCULATIONS

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Plotted: October 28, 2021

Plotted by: Patrick.Husted

LD-204 Stormwater Inlet Computations

LD-204
Rev. 6-85

PROJECT #: 110010073

PROJECT: Columbia Pike - Segment A

DATE: March 31, 2021

DESIGNED/CHECKED: Derik Doughty, P.E./Mike Albright, P.E

SHEET 1 OF 1

NUMBER	INLET		STATION	DRAINAGE AREA (AC)	C	CA	sum CA	I (IN/HR)	Q INCR (CFS)	Q _b , CARRYOVER (CFS)	Q _T , GUTTER FLOW (CFS)	S ₁ , GUTTER SLOPE (FT/FT)	S _x , CROSS SLOPE (FT/FT)	T, SPREAD (FT)	W (FT)	W/T	S _w , (FT/FT)	S _w /S _x	E ₀	a = 12W/(S _w - S _x)+Local Depression	S' _w = a/(12w)	S _e = S _x + S' _w (E ₀), (FT/FT)	COMPUTED LENGTH, L _T , (FT)	L, SPECIFIED LENGTH (FT)	L/L _T	E	Q _i , INTERCEPTED (CFS)	Q _b , CARRYOVER (CFS)	d (FT)	h (FT)	d/h	T, SPREAD @ SAG (FT)
	TYPE	LENGTH (FT)																														
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)
INLETS - ON GRADE																																
0001	Proposed	8	58+37	0.06	0.85	0.051	0.051	4.0	0.204	0.000	0.204	0.0080	0.0200	2.13	1.5	0.70	0.0833	4.17	0.99	3.14	0.174	0.193	3	8	2.67	1.00	0.20	0.00	0.14			
0003	Proposed	8	58+66	0.17	0.62	0.105	0.105	4.0	0.422	0.000	0.422	0.0066	0.0129	5.40	1.5	0.28	0.0833	6.46	0.81	3.27	0.182	0.159	4	8	2.00	1.00	0.42	0.00	0.18			
0002	Proposed	8	58+28	0.22	0.73	0.161	0.161	4.0	0.642	0.000	0.642	0.0258	0.0050	7.96	1.5	0.19	0.0833	16.67	0.80	3.41	0.189	0.157	7	8	1.14	1.00	0.64	0.00	0.16			
0005	Proposed	8	58+98	0.17	0.73	0.124	0.124	4.0	0.496	0.000	0.496	0.0147	0.0268	4.18	1.0	0.24	0.0268	1.00	0.52	1.00	0.083	0.070	8	8	1.00	1.00	0.50	0.00	0.11			
0007	Proposed	8	60+91	0.12	0.78	0.094	0.094	4.0	0.374	0.000	0.374	0.0212	0.0200	2.42	1.5	0.62	0.0833	4.17	0.98	3.14	0.174	0.191	5	8	1.60	1.00	0.37	0.00	0.14			
0008	Proposed	10	60+91	0.52	0.88	0.458	0.458	4.0	1.830	0.000	1.830	0.0212	0.0200	6.77	1.5	0.22	0.0833	4.17	0.63	3.14	0.174	0.130	11	10	0.91	0.99	1.81	0.02	0.23			
0010	Proposed	8	61+39	0.30	0.62	0.186	0.186	4.0	0.744	0.000	0.744	0.0330	0.0114	4.88	1.5	0.31	0.0833	7.31	0.86	3.29	0.183	0.169	7	8	1.14	1.00	0.74	0.00	0.16			
0011	Proposed	14	61+17	0.91	0.60	0.546	0.546	4.0	2.184	0.000	2.184	0.0208	0.0127	9.77	1.5	0.15	0.0833	6.56	0.52	3.27	0.182	0.107	13	14	1.08	1.00	2.18	0.00	0.23			
0015	Proposed	8	63+26	0.24	0.73	0.175	0.175	4.0	0.701	0.024	0.725	0.0088	0.0200	5.30	1.5	0.28	0.0833	4.17	0.75	3.14	0.174	0.151	5	8	1.60	1.00	0.73	0.00	0.20			
0017	Proposed	8	63+33	0.23	0.78	0.179	0.179	4.0	0.718	0.000	0.718	0.0079	0.0200	5.42	1.5	0.28	0.0833	4.17	0.74	3.14	0.174	0.149	5	8	1.60	1.00	0.72	0.00	0.20			
0020	Proposed	12	63+55	1.65	0.60	0.990	0.990	4.0	3.960	0.000	3.960	0.0469	0.0359	5.69	1.5	0.26	0.0833	2.32	0.63	2.85	0.159	0.136	18	12	0.67	0.86	3.41	0.55	0.28			
0022	Proposed	8	63+57	0.24	0.81	0.194	0.194	4.0	0.778	0.548	1.326	0.0054	0.0330	5.94	1.5	0.25	0.0833	2.53	0.62	2.91	0.161	0.134	6	8	1.33	1.00	1.33	0.00	0.27			
0024	Proposed	8	59+43	0.15	0.78	0.117	0.117	4.0	0.468	0.000	0.468	0.0208	0.0261	2.67	1.5	0.56	0.0833	3.19	0.96	3.03	0.168	0.188	5	8	1.60	1.00	0.47	0.00	0.16			
40809	Existing	10	71+59	0.51	0.90	0.459	0.459	4.0	1.836	0.000	1.836	0.0472	0.0306	4.36	2	0.34	0.0833	2.72	0.78	2.95	0.164	0.158	12	10	0.83	0.96	1.76	0.07	0.21			
40825	Existing	8	68+87	0.12	0.90	0.108	0.108	4.0	0.432	0.000	0.432	0.0133	0.0190	5.01	1	0.20	0.0190	1.00	0.45	1.00	0.083	0.056	9	8	0.89	0.98	0.42	0.01	0.10			

Proposed Storm Drain Design Calculations										Project: Columbia Pike - Segment A								
VDOT LD-229										Client: Arlington County								
Kimley»Horn										Project Number: 110010073								
										Date: 3/31/2021								
Designed By/Checked: Derik Doughty, P.E. / Mike Albright, P.E.																		
FROM POINT	TO POINT	DRAINAGE AREA	RUNOFF COEFFICIENT	CA		INLET TIME	RAINFALL	RUNOFF	INVERT ELEVATIONS		LENGTH	SLOPE	SIZE	PIPE CAPACITY	Q / Q _r	VELOCITY	FLOW TIME	
				inlet	accum				upper end	lower end							incr	accum
		acres	C			min	in/hr	cfs	ft	ft	ft	%	in	cfs	%	fps	min	
0015	0016	0.24	0.73	0.18	0.18	5.00	6.79	1.20	140.45	140.23	22	1.00%	15	6.46	19%	4.02	0.09	5.00
0010	0011	0.30	0.62	0.19	0.19	5.00	6.79	1.27	144.96	144.74	22	1.00%	15	6.46	20%	4.09	0.09	5.00
0011	0012	0.91	0.60	0.55	0.73	5.00	6.76	4.99	144.64	144.21	43	1.00%	15	6.45	77%	5.80	0.12	5.09
0007	0009	0.12	0.78	0.09	0.09	5.00	6.79	0.64	147.10	146.81	30	1.00%	15	6.35	10%	3.32	0.15	5.00
0008	0009	0.52	0.88	0.46	0.46	5.00	6.79	3.13	145.62	145.10	18	2.80%	15	10.87	29%	7.66	0.04	5.00
0024	0023	0.15	0.78	0.12	0.12	0.00	6.79	0.80	149.75	149.60	30	0.50%	15	4.61	17%	2.82	0.18	0.00
0005	0006	0.17	0.73	0.12	0.12	5.00	6.79	0.85	149.99	149.76	45	0.50%	15	4.57	19%	2.85	0.27	5.00
0002	0001	0.22	0.73	0.16	0.16	5.00	6.79	1.10	151.80	151.74	13	0.50%	15	4.57	24%	3.06	0.07	5.00
0001	0003	0.06	0.85	0.05	0.21	5.00	6.77	1.44	151.64	151.45	38	0.50%	15	4.58	31%	3.30	0.19	5.07
0003	0004	0.17	0.62	0.11	0.32	5.00	6.70	2.14	151.35	151.32	6	0.50%	15	4.54	47%	3.64	0.03	5.26
0004	23997	(N/A)	(N/A)	0.00	0.32	0.00	6.69	2.14	151.32	150.50	44	1.90%	15	8.86	24%	5.94	0.12	5.29
23997	0006	(N/A)	(N/A)	0.00	0.32	0.00	6.65	2.13	150.30	149.66	27	2.40%	15	9.96	21%	6.45	0.07	5.41
0006	0023	(N/A)	(N/A)	0.00	0.44	0.00	6.63	2.95	149.66	148.61	44	2.40%	15	9.96	30%	7.07	0.10	5.48
0023	0009	(N/A)	(N/A)	0.00	0.56	0.00	6.60	3.71	148.60	145.09	148	2.40%	15	9.95	37%	7.52	0.33	5.58
0009	0012	(N/A)	(N/A)	0.00	1.11	0.00	6.49	7.26	144.46	144.21	25	1.00%	21	15.87	46%	6.45	0.07	5.91
0012	23995	(N/A)	(N/A)	0.00	1.84	0.00	6.47	12.01	144.11	143.47	64	1.00%	21	15.84	76%	7.24	0.15	5.98
23995	0014	(N/A)	(N/A)	0.00	1.84	0.00	6.43	11.93	143.16	142.51	47	1.40%	21	18.63	64%	8.22	0.10	6.12
0013	0014	0.25	0.73	0.18	0.18	5.00	6.79	1.25	142.69	142.51	35	0.50%	15	4.57	27%	1.02	0.16	5.00
0014	23994	(N/A)	(N/A)	0.00	2.02	0.00	6.40	13.06	142.51	141.79	52	1.40%	21	18.63	70%	8.38	0.10	6.22
23994	0016	(N/A)	(N/A)	0.00	2.02	0.00	6.37	12.99	140.50	139.60	60	1.50%	21	19.40	67%	8.64	0.12	6.32
0016	0017	(N/A)	(N/A)	0.00	2.20	0.00	6.34	14.04	138.88	138.68	41	0.50%	14x23	7.16	196%	8.00	0.17	6.44
0017	0018	0.23	0.78	0.18	2.38	5.00	6.31	15.13	138.58	138.52	18	0.30%	30	22.43	67%	4.90	0.06	6.52
0018	23945	(N/A)	(N/A)	0.00	2.38	0.00	6.29	15.09	138.42	138.30	41	0.30%	30	22.48	67%	4.91	0.14	6.59
23945	23946	(N/A)	(N/A)	0.00	2.38	0.00	6.25	14.99	138.20	137.02	114	1.00%	21	16.10	93%	7.61	0.25	6.72
23946	23947	(N/A)	(N/A)	0.00	2.38	0.00	6.18	14.83	136.80	134.41	83	2.90%	21	26.92	55%	11.46	0.12	6.97
14404	14449	0.33	0.80	0.26	0.26	5.00	6.79	1.81	141.69	139.44	45	5.00%	15	14.49	12%	8.05	0.09	5.00
0020	0021	1.65	0.60	0.99	0.99	8.00	5.92	5.90	144.33	144.08	23	1.10%	15	6.67	88%	4.81	0.07	8.00
0021	24008	0.83	0.60	0.50	1.49	5.00	5.90	8.84	143.98	141.45	75	3.40%	18	19.25	46%	10.67	0.12	8.08
0022	24008	0.24	0.81	0.19	0.19	5.00	6.79	1.33	141.73	141.20	26	2.00%	15	9.13	15%	5.31	0.08	5.00
24008	14449	(N/A)	(N/A)	0.00	1.68	0.00	5.87	9.95	140.19	139.69	52	1.00%	18	10.35	96%	6.67	0.13	8.20
14449	14450	(N/A)	(N/A)	0.00	1.95	0.00	5.84	11.45	139.13	136.02	62	5.00%	18	23.52	49%	13.23	0.08	8.33
14450	14476	(N/A)	(N/A)	0.00	1.95	0.00	5.82	11.42	135.57	130.56	76	6.60%	18	26.94	42%	14.61	0.09	8.41

NOTE:
1. MANHOLES DO NOT HAVE AN INLET AREA OR RUNOFF COEFFICIENT (LABELED "N/A" IN CALCULATION TABLE).
2. INLETS THAT HAVE MORE THAN ONE DRAINAGE AREA (SUMPS OR OFFSITE RUNOFF) ARE LABELED WITH A "N/A" RUNOFF COEFFICIENT. THE WEIGHTED RUNOFF COEFFICIENT IS INCLUDED IN THE SYSTEM CA.



ARLINGTON
VIRGINIA

DEPARTMENT OF
ENVIRONMENTAL SERVICES

Facilities & Engineering Division
Engineering Bureau
2100 Clarendon Boulevard, Suite 813
Arlington, VA 22201
Phone: 703.228.3629
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11400 Commerce Park Drive, Suite 400
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Fax: 703-874-1500

Seal



Approvals

Date

Design Team Engineer Supervisor

Construction Management Supervisor

Water, Sewer, Streets Bureau Chief

Transportation Director

Project Manager

Revisions

Date

Designed: DCD
Drawn: DCD
Checked: MRA
Miss Utility Transmittal #:

Filename: 010073-A-STORMWATER CALCULATIONS
Path: \\s:\na\KPR\110010073\stormha_pike_multimodal\production\c
Plotted: October 28, 2021
Plotted by: Patrick.Husted

ARLINGTON COUNTY, VIRGINIA
DEPARTMENT OF ENVIRONMENTAL SERVICES

STORMWATER CALCULATIONS
COLUMBIA PIKE - ROUTE 244
COLUMBIA PIKE - MULTIMODAL STREET IMPROVEMENTS
SEGMENT A
S. OAK ST. TO S. ORME ST.

SCALE: HOR. N/A VERT. N/A SHEET: A11.4 of A11.7

Proposed Hydraulic Grade Line Calculations															Project: Columbia Pike - Segment A Client: Arlington County Project Number: 110010073 Date: 3/31/2021 Designed By/Checked: Derik Doughy, P.E. / Mike Albright, P.E.							
INLET	DESIGN OUTLET WSE	D _o	Q _o	L _o	S ₁₀	H _i	JUNCTION LOSS										FINAL H	INLET WSE	RIM ELEV	AVAILABLE FREEBOARD		
							V _o	H _o	Q _i	V _i	Q _{V_i}	<div>V_i^2 2g</div>	H _i	Angle	H _A	H _t					1.3 H _t	0.5 H _t
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
14450	131.76	18	11.42	76	0.0420	3.20	14.61	0.83	11.45	7.79	89.20	0.94	0.33	10.56	0.13	1.28	1.28	0.64	3.84	135.60	144.97	9.37
14449	137.22	18	11.45	62	0.0320	1.98	13.23	0.68	9.95	7.39	73.53	0.85	0.30	17.75	0.19	1.16	1.16	0.58	2.56	139.78	144.72	4.94
14404	140.44	15	1.81	45	0.0370	1.65	8.05	0.30	0.00	0.00	0.00	0.00	0.00	0	0.00	0.30	0.39	0.20	1.85	142.29	146.15	3.86
24008	140.89	18	9.95	52	0.0100	0.52	6.67	0.17	8.84	9.62	85.04	1.44	0.50	83.09	0.97	1.64	1.64	0.82	1.34	142.23	145.46	3.23
0022	142.23	15	1.33	26	0.0040	0.11	5.31	0.13	0.00	0.00	0.00	0.00	0.00	0	0.00	0.13	0.17	0.09	0.19	142.42	145.93	3.51
0021	142.65	18	8.84	75	0.0240	1.81	10.67	0.44	5.90	4.81	28.38	0.36	0.13	89.09	0.25	0.82	1.06	0.53	2.34	144.99	147.97	2.98
0020	145.08	15	5.90	23	0.0080	0.19	4.81	0.11	0.00	0.00	0.00	0.00	0.00	0	0.00	0.11	0.14	0.07	0.26	145.34	147.94	2.60
23946	135.81	21	14.83	83	0.0210	1.74	11.46	0.51	14.99	6.40	95.94	0.64	0.22	93.03	0.45	1.19	1.19	0.59	2.33	138.14	145.40	7.26
23945	138.42	21	14.99	114	0.0100	1.14	7.61	0.22	15.09	4.84	73.04	0.36	0.13	9.41	0.04	0.40	0.40	0.20	1.34	139.76	143.39	3.63
0018	140.30	30	15.09	41	0.0030	0.12	4.91	0.09	15.13	4.49	67.93	0.31	0.11	90.97	0.22	0.42	0.42	0.21	0.33	140.63	143.82	3.19
0017	140.63	30	15.13	18	0.0020	0.04	4.90	0.09	14.04	8.00	112.32	0.99	0.35	10.7	0.14	0.58	0.58	0.29	0.32	140.96	146.06	5.10
0016	140.96	14x23	14.04	41	0.0200	0.83	8.00	0.25	12.99	5.40	70.15	0.45	0.16	100.16	0.34	0.74	0.74	0.37	1.20	142.16	146.02	3.86
0015	142.16	15	1.20	22	0.0000	0.00	4.02	0.08	0.00	0.00	0.00	0.00	0.00	0	0.00	0.08	0.10	0.05	0.05	142.20	146.19	3.99
23994	142.16	21	12.99	60	0.0070	0.42	8.64	0.29	13.06	14.15	184.80	3.11	1.09	1.6	0.06	1.44	1.44	0.72	1.14	143.30	146.64	3.34
0014	143.30	21	13.06	52	0.0110	0.58	8.38	0.27	11.93	5.40	64.42	0.45	0.16	89.98	0.32	0.75	0.75	0.37	0.95	144.24	147.61	3.37
0013	144.24	15	1.25	35	0.0000	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.01	0.00	0.00	144.25	150.10	5.85
23995	144.24	21	11.93	47	0.0120	0.56	8.22	0.26	12.01	6.87	82.51	0.73	0.26	2.43	0.02	0.54	0.54	0.27	0.83	145.08	148.60	3.52
0012	145.08	21	12.01	64	0.0090	0.58	7.24	0.20	7.26	3.53	25.63	0.19	0.07	93.49	0.14	0.41	0.41	0.20	0.78	145.86	150.00	4.14
0011	145.86	15	4.99	43	0.0060	0.26	5.80	0.13	1.27	1.07	1.36	0.02	0.01	89.39	0.01	0.15	0.19	0.10	0.36	146.21	150.41	4.20
0010	146.21	15	1.27	22	0.0000	0.00	4.09	0.08	0.00	0.00	0.00	0.00	0.00	0	0.00	0.08	0.10	0.05	0.05	146.26	150.15	3.89
0009	145.86	21	7.26	25	0.0030	0.08	6.45	0.16	3.71	5.51	20.44	0.47	0.17	90.3	0.33	0.66	0.66	0.33	0.40	146.26	150.54	4.28
0008	146.26	15	3.13	18	0.0160	0.29	7.66	0.27	0.00	0.00	0.00	0.00	0.00	0	0.00	0.27	0.36	0.18	0.47	146.73	150.63	3.90
0007	147.81	15	0.64	30	0.0090	0.27	3.32	0.05	0.00	0.00	0.00	0.00	0.00	0	0.00	0.05	0.07	0.03	0.30	148.11	150.60	2.49
0006	150.00	15	2.95	44	0.0170	0.75	7.07	0.19	2.13	2.75	5.86	0.12	0.04	88.23	0.08	0.32	0.32	0.16	0.91	150.90	154.50	3.60
0005	150.90	15	0.85	45	0.0010	0.05	2.85	0.04	0.00	0.00	0.00	0.00	0.00	0	0.00	0.04	0.05	0.02	0.07	150.97	155.06	4.09
23997	150.90	15	2.13	27	0.0210	0.56	6.45	0.16	2.14	4.13	8.84	0.26	0.09	90.39	0.19	0.44	0.44	0.22	0.78	151.69	154.91	3.22
0004	151.69	15	2.14	44	0.0150	0.65	5.94	0.14	2.14	3.09	6.61	0.15	0.05	88.59	0.10	0.29	0.29	0.15	0.80	152.49	154.73	2.24
0003	152.49	15	2.14	6	0.0030	0.02	3.64	0.05	1.44	2.30	3.31	0.08	0.03	40.23	0.04	0.12	0.15	0.08	0.09	152.58	155.10	2.52
0002	152.79	15	1.10	13	0.0040	0.05	3.06	0.04	0.00	0.00	0.00	0.00	0.00	0	0.00	0.04	0.06	0.03	0.08	152.87	155.66	2.79
0001	152.58	15	1.44	38	0.0030	0.11	3.30	0.04	1.10	2.55	2.81	0.10	0.04	85.55	0.07	0.15	0.19	0.10	0.21	152.79	155.39	2.60
0023	146.26	15	3.71	148	0.0220	3.25	7.52	0.22	0.80	6.78	5.42	0.71	0.25	88.69	0.50	0.97	0.97	0.48	3.73	150.00	153.67	3.67
0024	150.60	15	0.80	30	0.0050	0.15	2.82	0.04	0.00	0.00	0.00	0.00	0.00	0	0.00	0.04	0.05	0.02	0.17	150.77	153.72	2.95



DEPARTMENT OF ENVIRONMENTAL SERVICES

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Phone: 703.228.3629
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Phone: 703-674-1500
Fax: 703-674-1500

Seal



Approvals Date

Design Team Engineer Supervisor

Construction Management Supervisor

Water, Sewer, Streets Bureau Chief

Transportation Director

Project Manager

Revisions Date

Designed: DCD
Drawn: DCD
Checked: MRA
Miss Utility Transmittal #:

Filename: 010073-A-STORMWATER CALCULATIONS
Path: C:\N/A_KH08\110010073_schubbs_pike_multimodal_improvements\010073-A-STORMWATER CALCULATIONS\010073-A-STORMWATER CALCULATIONS.dwg
Plotted: October 28, 2021
Plotted by: Patrick.Husted

ARLINGTON COUNTY, VIRGINIA
DEPARTMENT OF ENVIRONMENTAL SERVICES

STORMWATER CALCULATIONS
COLUMBIA PIKE - ROUTE 244
COLUMBIA PIKE - MULTIMODAL STREET IMPROVEMENTS
SEGMENT A
S. OAK ST. TO S. ORME ST.

SCALE: HOR. N/A VERT. N/A SHEET: A11.5 of A11.7



DEPARTMENT OF ENVIRONMENTAL SERVICES

11/23/2021
APPROVAL DATE

REGISTRATION STATEMENT
(PAGES 2 & 3 OF 3 - CONTINUED FROM SHEET A11.6)

CONSTRUCTION GENERAL PERMIT (VAR10) REGISTRATION STATEMENT 2019

Section III. Offsite Support Activity Location Information. List all offsite support activities to be included under this permit registration. Enter additional areas on a separate page. Offsite areas not included on this registration will need to obtain coverage under a separate VPDES permit.

A. Offsite Activity Name: _____
Address: _____
City and/or County and Zip Code: _____
Latitude and Longitude _____
(6-digit, decimal degrees format): _____

B. Offsite Activity Entrance Location _____
(description, street address and/or _____
latitude/longitude in decimal degrees): _____

Section IV. Site Information.

A. Property Owner Status: FEDERAL ☐ STATE ☐ PUBLIC ☒ PRIVATE ☐

B. Nature of the Construction Activity Description (i.e. commercial, industrial, residential, agricultural, environmental): Transportation infrastructure construction

C. Municipal Separate Storm Sewer System (MS4) _____
name(s) (if the site is discharging to a MS4): Arlington County

D. Acreage totals for all land-disturbing activities to be included under this permit coverage. Report to the nearest one-hundredth of an acre.	E. Estimated Project Dates (MM/DD/YYYY)
Total land area of development (including the entire area to be disturbed as approved in the Stormwater Management Plan):	1.94 acres
Primary estimated area to be disturbed (portions with Erosion and Sediment Control Plan approval only):	1.94 acres
Offsite estimated area to be disturbed (if applicable):	N/A

F. Is this construction activity part of a common plan of development or sale? YES ☒ NO ☐

G. 6th Order Hydrologic Unit Code (HUC) and Receiving Water Name(s). Attach a separate list if needed.

HUC	RECEIVING WATERBODY(S)
020700100103 PL24	Potomac River -- Pimmit Run

Section V. Other Information.

A. A stormwater pollution prevention plan (SWPPP) must be prepared in accordance with the requirements of the General VPDES Permit for Discharges of Stormwater from Construction Activities prior to submitting the Registration Statement. By signing the Registration Statement, the operator is certifying that the SWPPP has been prepared.

B. Has an Erosion and Sediment Control Plan been submitted to the VESC Authority for review? YES ☒ NO ☐
Erosion and Sediment Control Plan Approval Date (for estimated area to be disturbed):- _____

C. Has land disturbance has commenced? YES ☐ NO ☒

D. Annual Standards and Specifications. If this project is utilizing approved Annual Standards and Specifications (AS&S), attach the completed AS&S Entity Form.
AS&S Entity Name (if different from the Operator identified in Section II. A.): _____

CONSTRUCTION GENERAL PERMIT (VAR10) REGISTRATION STATEMENT 2019

Section VI. Certification. A person representing the operator as identified in Section I. A. and meeting the requirements of 9VAC25-880-70. Part III. K must physically sign this certification. A typed signature is not acceptable. Please note that operator is defined in 9VAC25-870-10 as follows:

"Operator" means the owner or operator of any facility or activity subject to the Act and this chapter. In the context of stormwater associated with a large or small construction activity, operator means any person associated with a construction project that meets either of the following two criteria: (i) the person has direct operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications or (ii) the person has day-to-day operational control of those activities at a project that are necessary to ensure compliance with a stormwater pollution prevention plan for the site or other state permit or VSMP authority permit conditions (i.e., they are authorized to direct workers at a site to carry out activities required by the stormwater pollution prevention plan or comply with other permit conditions). In the context of stormwater discharges from Municipal Separate Storm Sewer Systems (MS4s), operator means the operator of the regulated MS4 system.

9VAC25-880-70. Part III. K. Signatory Requirements. Registration Statement. All Registration Statements shall be signed as follows:

a. For a corporation: by a responsible corporate officer. For the purpose of this chapter, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making or decision-making functions for the corporation; or (ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for state permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this chapter, a principal executive officer of a public agency includes: (i) the chief executive officer of the agency or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

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

Printed Name: Michael R. Albright

Signature (signed in ink): _____

Date Signed: _____

Section VII. Submittal Instructions. Submit this form to the VSMP Authority. If the locality is the VSMP Authority, please send your Registration Statement submittal directly to the locality; do NOT send this form to DEQ. A list of local VSMP Authorities is available here: [VSMP Authorities](#).

If DEQ is the VSMP Authority, please send to:

Department of Environmental Quality
Office of Stormwater Management Suite 1400
PO Box 1105
Richmond VA 23218
constructiongp@deq.virginia.gov

If the locality is the VSMP Authority, please send to:

The Local VSMP Authority (insert address below)

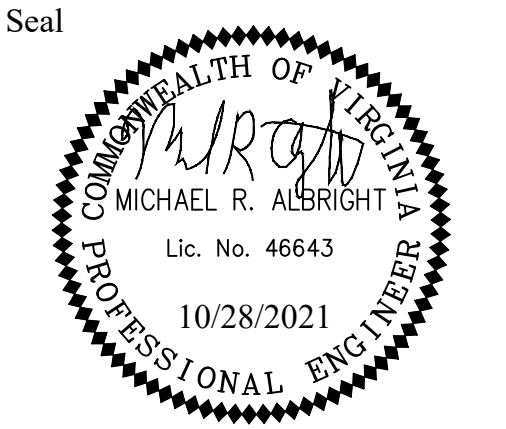
Department of Environmental Services
Development Services Bureau
2100 Clarendon Blvd., Suite 800
Arlington, VA 22201



DEPARTMENT OF ENVIRONMENTAL SERVICES

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Fax: 703-674-1500



Approvals _____ Date _____

Design Team Engineer Supervisor _____

Construction Management Supervisor _____

Water, Sewer, Streets Bureau Chief _____

Transportation Director _____

Project Manager _____

Revisions	Date

Designed: DCD
Drawn: DCD
Checked: MRA
Miss Utility Transmittal #:

Filename: 010073-A-STORMWATER CALCULATIONS
Path: C:\N/A_9308\110010073 stormwa plus multimodal\production\010073-A-STORMWATER CALCULATIONS.dwg
Plotted: October 28, 2021
Plotted by: Patrick.Husted

ARLINGTON COUNTY, VIRGINIA
DEPARTMENT OF ENVIRONMENTAL SERVICES

STORMWATER MANAGEMENT
COLUMBIA PIKE - ROUTE 244
COLUMBIA PIKE - MULTIMODAL STREET IMPROVEMENTS
SEGMENT A
S. OAK ST. TO S. ORME ST.

SCALE: HOR. N/A VERT. N/A SHEET: A11.7 of A11.7