

SITE PLAN

SOUTH RIDGE CHURCH, LLC.

STAFFORD INDUSTRIAL PARK PARCEL 8

T.M. # 44-119L - AP#20153537

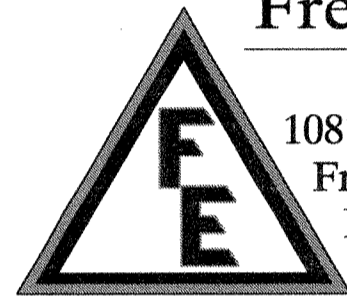
FALMOUTH-HARTWOOD MAGISTERIAL DISTRICT, STAFFORD COUNTY, VIRGINIA

OWNER / APPLICANT:

SOUTH RIDGE CHURCH INC.
C/O: JEFF GEYER
428 HARTWOOD ROAD
FREDERICKSBURG, VA 22407
PHONE: 469-713-7970

ENGINEER:

Freeland Engineering, PC

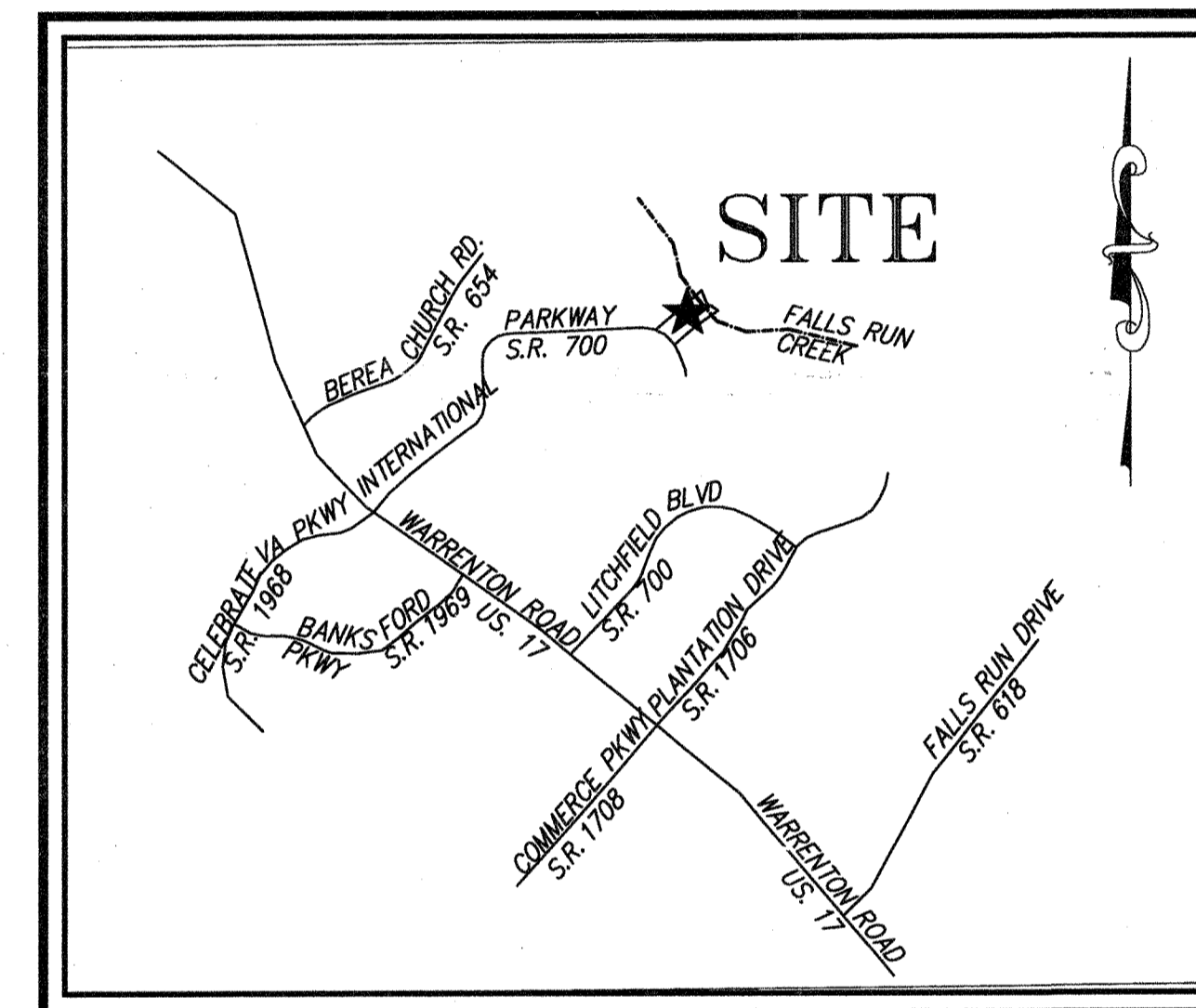


10814 Courthouse Road
Fredericksburg, Virginia 22408
Phone: 540.898.3092 Fax: 877.658.7735
www.FreelandEngineeringPC.com

SITE DATA:

OWNER: SOUTH RIDGE CHURCH, INC.
APPLICANT: JEFFREY GEYER
ADDRESS: 428 HARTWOOD ROAD, FREDERICKSBURG, VA 22406
PHONE: 469-713-7970
PLAN PREPARER: FREELAND ENGINEERING, PC
ADDRESS: 10814 COURTHOUSE ROAD, FREDERICKSBURG, VA 22408
PHONE: 540-898-3092
TAX MAP: 44-119L
PARCEL AREA: 2,453.8 AC. = 106,887.5 S.F.
PROPOSED BUILDING: 11,123 S.F.
ZONING DISTRICT: M-1 (LIGHT INDUSTRIAL)/ CUP RESOLUTION# R21-93
SETBACKS: FRONT: 40' SIDE: 15' REAR: 40'
MAX BLDG HEIGHT: 31' 0" < 35' MAXIMUM ALLOWED
CURRENT USE: VACANT
PROPOSED USE: CHURCH BUILDING
SITE ADDRESS: 2012 INTERNATIONAL PARKWAY, FREDERICKSBURG, VA 22406
FLOODPLAIN ON SITE: Y
FIRM #: 5101540182E (DATED: 02/04/2005)
ZONE: 'AE' & 'X'
WETLANDS ON SITE: SOURCE: Y PERMIT REQUIRED: Y
RPA ON SITE: Y
HUCS: RA46
WATERSHED NAME: RAPPAHANNOCK RIVER-HAZEL RUN
FLOOR AREA RATIO: STRUCTURE AREA = 11,123 = 0.10 < 0.50
LOT AREA = 106,887.5
MAX. FLOOR RATIO: 0.50
IMPERVIOUS SURFACES: STRUCTURES = 11,123 S.F.
DRIVEWAY, S/W = 4,697 S.F.
PARKING LOT = 35,480 S.F.
TOTAL IMP. AREA = 51,300 S.F.
IMPERVIOUS SURFACE RATIO: IMPERVIOUS AREA = 51,300 S.F. = 0.48
SITE AREA = 106,887.5
REQUIRED RATIO SHOULD NOT EXCEED 0.70
OPEN SPACE RATIO: 106,887.5 - 51,300 = 55,587.5 S.F. = 1.27 ACRES = 1.27/2.45 = 0.52 OF ALL AREA
REQUIRED OPEN SPACE RATIO: 0.20
DISTURBED AREA: 75,359 S.F. OR 1.735 AC.
PARKING REQUIRED: 3 SPACE PER 10 SEATS AT THE CHURCH AUDITORIUM/120 SEATS
REQUIRED SPACES = 36 REQUIRED SPACES
1 HANDICAP SPACE REQUIRED PER 25 SPACES --> 2 HANDICAP SPACES REQUIRED
PARKING SPACES PROVIDED: 41 REGULAR SPACES + 2 HANDICAP PROVIDED = 43 SPACES
LOADING SPACES REQUIRED: 1- 12'x24' SPACE REQUIRED FOR ALL USES
LOADING SPACES PROVIDED: 1- 20'x27' LOADING SPACE PROVIDED
MOST VEHICLE TRIP/DAY GENERATED ON SUNDAYS FOR PRAYER: AS PER ITE TRIP GENERATION, 10TH EDITION ITE NO. 560
CHURCH (SUNDAY/SUNDAY PEAK) = 120 SEATS X 1.21 = 146 ADT
NOTE: ANY AND ALL ASPHALT, CONCRETE OR OTHER DRIVING SURFACES, WHERE NEW OR REPLACED MUST BE ABLE TO SUPPORT A TOTAL IMPOSED LOAD OF FIRE APPARATUS WEIGHING AT LEAST 75,000 LBS.

SHEET	DESCRIPTION
1	COVER SHEET
2	EXISTING CONDITIONS
3	SITE PLAN
4	GRADING PLAN
5	POST DEVELOPMENT DRAINAGE DIVIDE
6	STORM SEWER ANALYSIS PLAN & PROFILE
7	STORM SEWER ANALYSIS PLAN & PROFILE
8	WATERLINE & FIRE LANE
9	E&S PHASE I
10	E&S PHASE II
11	E&S NOTES & DETAILS
12	E&S STANDARDS & WATER AND SEWER CONST. NOTES
13	PRE & POST SOUTH RIDGE CHURCH DEVELOPMENT DRAINAGE
14	PRE DEVELOPMENT STAFFORD INDUSTRIAL PARK HYDROGRAHG
15	POST DEVELOPMENT STAFFORD INDUSTRIAL PARK ROUTING
16	ORIGINAL DESIGN POST DEVELOPMENT ROUTING
17	COMBINED PEAK FLOWS & ROUTING HYDROGRAPHS
18	VRRM & SOILS MAP
19	LANDSCAPING PLAN DIMENSIONS
20	LANDSCAPING PLAN
21	LANDSCAPING NOTES & DETAILS
22	NOTES, DETAILS & PROFILE
23	DOCUMENTS, NOTES & DETAILS
24	TRAFFIC CONTROL
25	SIGHT DISTANCE
26	GEOTECHNICAL RECOMMENDATIONS
27	EASEMENT PLAN
SPF-28	PHOTOMETRICS
SPF-1-29	LIGHTING FIXTURES & DETAIL
30	RPA MITIGATION PLAN
31	EASEMENTS & DOCUMENTS



STAFFORD COUNTY, VIRGINIA
VICINITY MAP
SCALE: 1"=2000'



PLAN DATE: OCTOBER 26, 2020
PLAN REVISED: APRIL 16, 2021
PLAN REVISED: MAY 30, 2021
PLAN REVISED: AUGUST 18, 2021

CERTIFICATE OF TITLE:

I HEREBY CERTIFY THAT THE 2.45 ACRES OF LAND SHOWN HEREON AS TM 44-119L NOW OWNED BY SOUTH RIDGE CHURCH, LLC, AS RECORDED AMONG THE LAND RECORDS OF STAFFORD COUNTY, VIRGINIA AT INSTRUMENT NO. 060005518

RAYMOND P. FREELAND, PE 9/10/2021
DATE

RESPONSIBLE LAND DISTURBER NOTE:

UNTIL FURTHER NOTICE, THE LAND DISTURBER FOR THIS PROJECT IS:
NAME: JEFF GEYER C/O SOUTH RIDGE CHURCH INC.
TEL #: 469-713-7079
EMAIL: jeff.geyer@southridge.us

RESOURCE PROTECTION AREA (RPA) NOTE:

PART OF THE SITE IS LOCATED IN THE RPA AND THE 100 YR-AE FLOOD ZONE

GENERAL NOTES:

NOTICE TO CONTRACTORS AND OWNERS! Certification of storm sewers, stormwater conveyance channels, stormwater management ponds, bioretention structures, etc. shall be provided to Stafford County prior to release of related securities. The certification shall be in accordance with Stafford County's Stormwater Management Design Manual. PRIOR TO STARTING CONSTRUCTION, the contractor must consult with the certifying professionals (including geotechnical engineers) who will provide the certifications of these measures. This certification includes all aspects of design and construction and must be accompanied by as-built plans and, where applicable, a geotechnical inspections report.

The approval of this plan does not guarantee that sewer and/or water capacity is available by a certain date. Capacity for this project, if and when available, will not be reserved until construction, inspection, availability and pro-rata fees are paid and the property is connected to the public sewer and/or water system. Reservation of capacity will be subject to the County's police powers to restrict use when required by the public health, safety or welfare.

FIRE FLOW NOTE:

BASED ON MODELED RESULTS REPRESENTING ACTUAL EXISTING CONDITIONS AND IN ACCORDANCE WITH SECTION 2.1.5 OF SCWSS, THE TOTAL FLOW AVAILABLE FOR THIS SITE HAS BEEN CALCULATED TO BE 2500 GPM AT THE RESIDUAL PRESSURE OF 20 PSI, WHERE MULTIPLE HYDRANTS ARE USED TO ACHIEVE FIRE FLOW, THE CUMULATIVE FLOW IS CALCULATED WITH ALL HYDRANTS FLOWING SIMULTANEOUSLY

WATER METER NOTE:

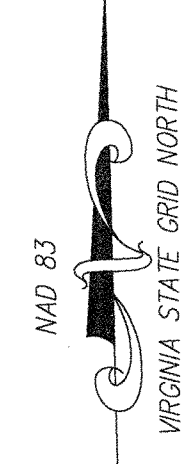
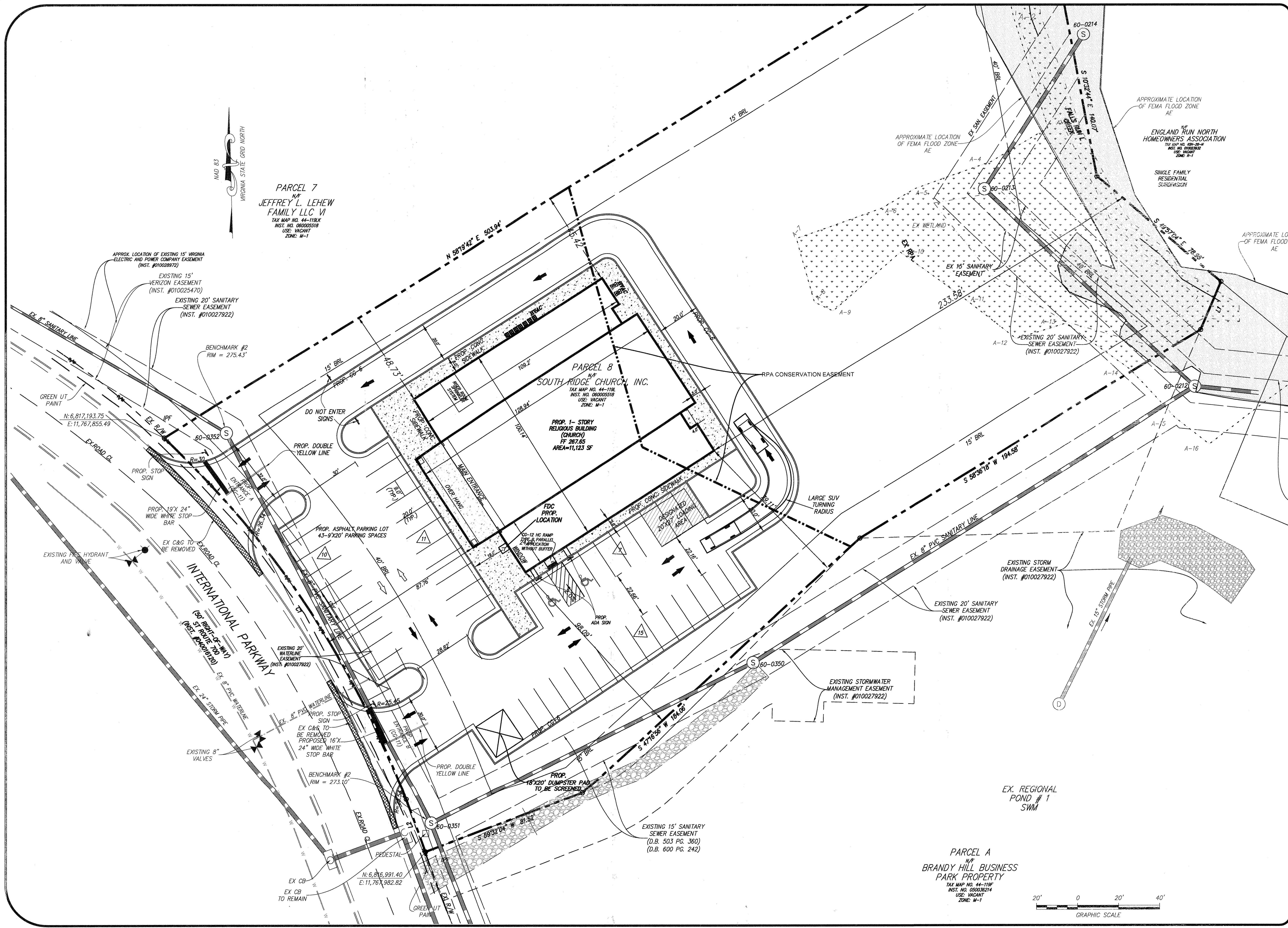
FALL RUN SEWER SHED: \$5.23 X 875 GPD = \$4,576.25 BERA
PRESSURE ZONE: \$3.56 X 875 GPD = \$3,115.00 PRO-RATA FEES ARE IN ADDITION TO AVAILABILITY FEES

GENERAL NOTE:

PROPOSED RETAINING WALLS REQUIRE A SEPARATE BUILDING PERMIT AND IS NOT REQUIRED TO BE CONSTRUCTED WITH THIS PLAN, EVEN IF DESIGNED BY OTHERS

APPROVAL BLOCK

	9/26/21
FIRE MARSHAL	DATE
	9/22/21
UTILITIES	DATE
	9/15/21
E&S, STORM WATER MANAGEMENT	DATE
	9/13/2021
VIRGINIA DEPARTMENT OF TRANSPORTATION	DATE
	9/22/2021
PLANNING DEPARTMENT	DATE



PARCEL 7
 N/F
JEFFREY L. LEHEW
FAMILY LLC VI
 TAX MAP NO. 44-119LX
 INST. NO. 06002518
 USE: VACANT
 ZONE: M-1

PARCEL 8
 N/F
SOUTH RIDGE CHURCH, INC.
 TAX MAP NO. 44-119L
 INST. NO. 06002518
 USE: VACANT
 ZONE: M-1
PROP. 1-STORY RELIGIOUS BUILDING (CHURCH)
 FF 267.65
 AREA=11,123 SF

PARCEL A
 N/F
BRANDY HILL BUSINESS PARK PROPERTY
 TAX MAP NO. 44-119F
 INST. NO. 050036214
 USE: VACANT
 ZONE: M-1



REVISION	DATE	REVISION PER COUNTY COMMENTS
	05/30/2021	

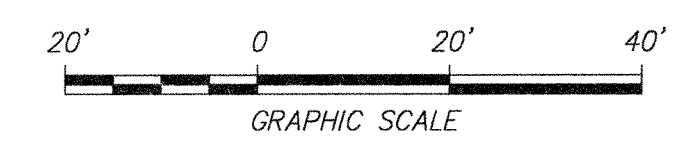
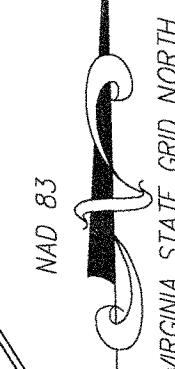
Freeland Engineering, PC
 rfreeland@freelandengineeringpc.com
 10814 Courthouse Road
 Fredericksburg, Virginia 22408
 Phone: 540.898.3092
 Fax: 877.658.7735
 www.freelandengineeringpc.com

SITE PLAN
SOUTH RIDGE CHURCH
TM # 44-119L
 GEORGE WASHINGTON DISTRICT
 STAFFORD COUNTY, VIRGINIA

County Plan Number:
 AP #201535337

Drawn By: SAR
 Designed By: SAR
 Checked By: RPF

Date: 02/14/2021
 Scale: 1" = 20'
 Sheet: 3 of 31
 PROJECT # 4762



REVISION	DATE	REVISED PER	COMMENTS
	05/20/2021		

Freeland Engineering, PC
 rfreeland@freelandengineering.com
 10814 Courthouse Road
 Fredericksburg, Virginia 22408
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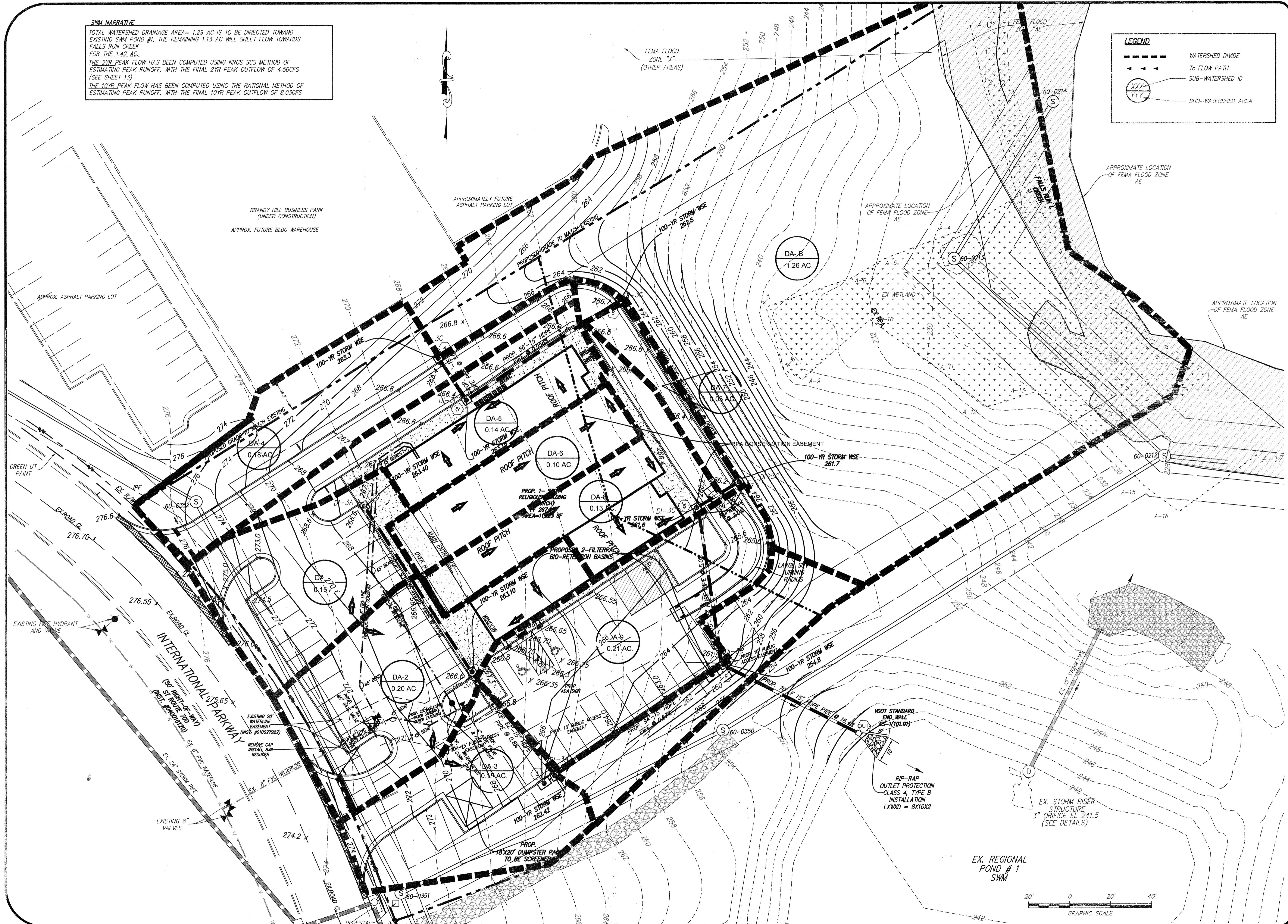
GRADING PLAN
SOUTH RIDGE CHURCH
T.M.# 44-119L
 GEORGE WASHINGTON DISTRICT
 STAFFORD COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
 RAYMOND P. FREELAND
 Lic. No. 040752
 9/10/2021
 PROFESSIONAL ENGINEER
 SEAL

County Plan Number:
 AP# 20153537
 Drawn By: SAR
 Designed By: SAR
 Checked By: RPF
 Date: 02/14/2021
 Scale: 1"=20'
 Sheet: 4 of 31
 PROJECT # 4762

SWM NARRATIVE

TOTAL WATERSHED DRAINAGE AREA= 1.29 AC IS TO BE DIRECTED TOWARD EXISTING SWM POND #1, THE REMAINING 1.13 AC WILL SHEET FLOW TOWARDS FALLS RUN CREEK FOR THE 1.42 AC.
 THE 2YR PEAK FLOW HAS BEEN COMPUTED USING NRCS SCS METHOD OF ESTIMATING PEAK RUNOFF, WITH THE FINAL 2YR PEAK OUTFLOW OF 4.56CFS (SEE SHEET 13)
 THE 10YR PEAK FLOW HAS BEEN COMPUTED USING THE RATIONAL METHOD OF ESTIMATING PEAK RUNOFF, WITH THE FINAL 10YR PEAK OUTFLOW OF 8.03CFS



LEGEND

- WATERSHED DIVIDE
- TO FLOW PATH
- XXX-YYY SUB-WATERSHED ID
- SUB-WATERSHED AREA

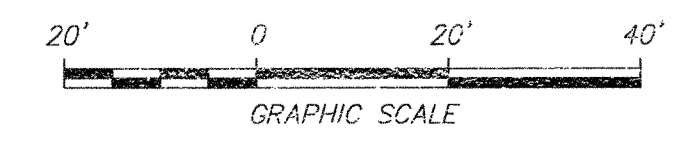
Freeland Engineering, PC
 rfreeland@freelandengineeringpc.com
 10814 Courthouse Road
 Fredericksburg, Virginia 22408
 Phone: 540.898.3092
 Fax: 877.658.7735
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POST DEVELT STORM SEWER & DRAINAGE DIVIDE
SOUTH RIDGE CHURCH
 T.M. 44-119L
 GEORGE WASHINGTON DISTRICT
 STAFFORD COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
 RAYMOND P. FREELAND
 Lic. No. 040752
 09/10/2021
 PROFESSIONAL ENGINEER
 SEAL

County Plan Number:
 AP# 20153537

Drawn By: SAR
 Designed By: SAR
 Checked By: RPF
 Date: 09/29/2020
 Scale: 1" = 20'
 Sheet: 5 of 31
 PROJECT # 4762



PROPOSED STORM SEWER COMPUTATIONS FOR THE 10 YR STORM EVENT:

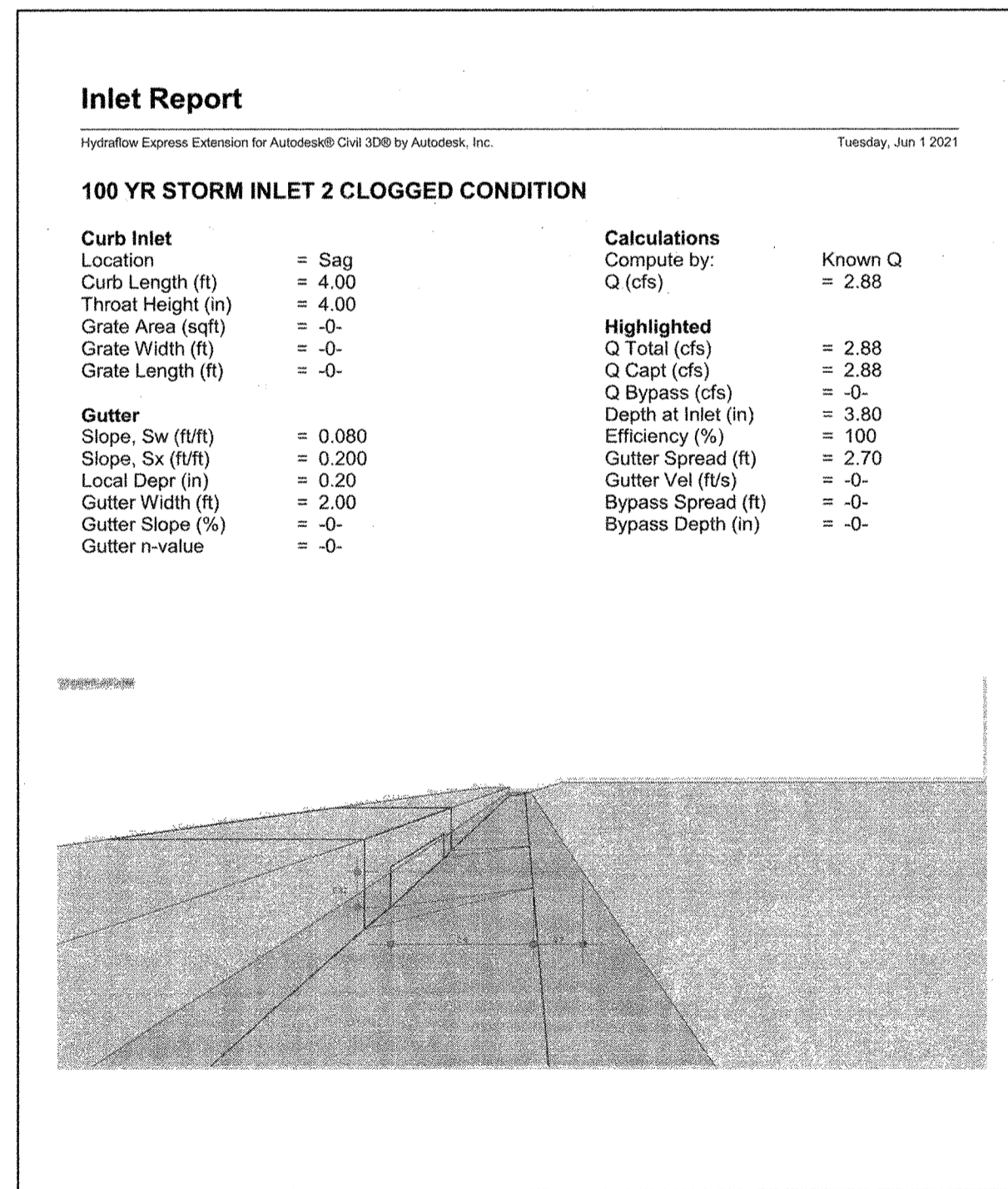
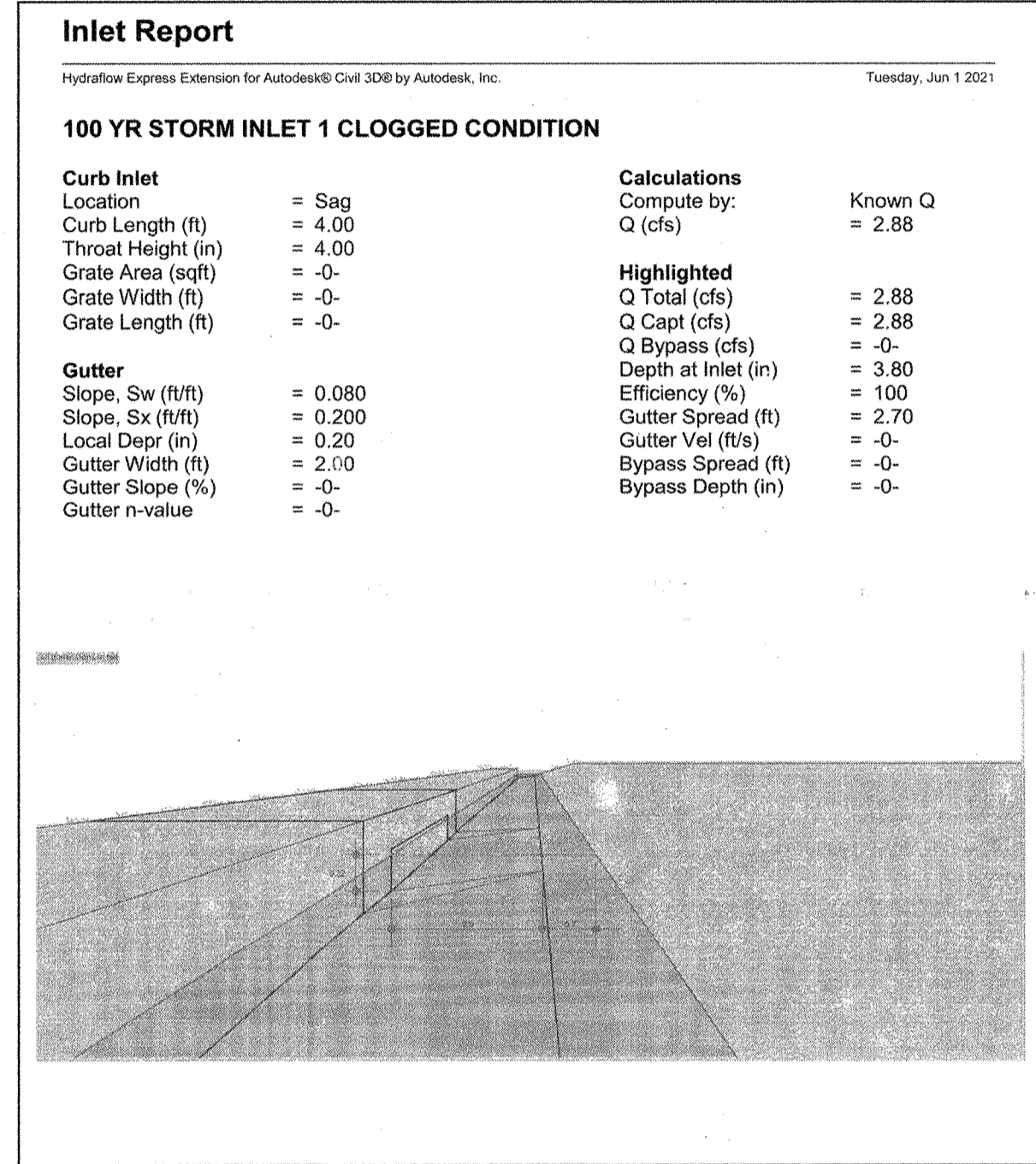
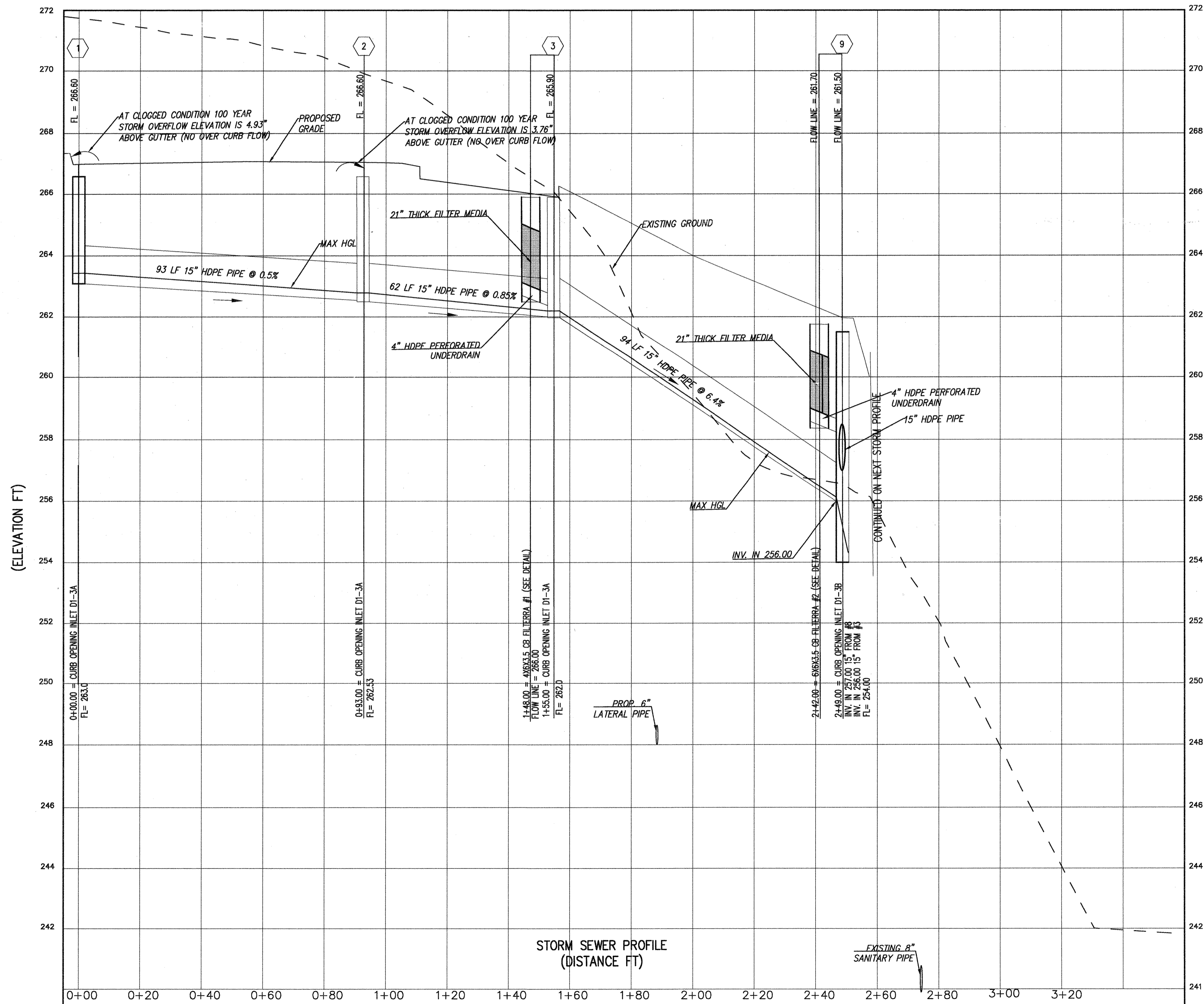
FROM POINT	TO POINT	AREA DRAIN "A" ACRES	RUN-OFF COEF. C	CA ACC.	CA ACC.	INLET TIME MIN-UTES	RAIN-FALL IN./HR.	RUNOFF Q cfs ACCUM-ULATED	DIA. IN.	LENGTH FT.	INVERT ELEVATIONS UPPER END LOWER END	SLOPE FT./FT.	CAPA-CITY C.F.S.	MAX. VEL. F.P.S.	HGL ELEV. FT.	HEIGHT OF INLET FT.	RUNOFF Q 100 YR 8.75 IN/HR		
1	2	0.15	0.95	0.14	0.14	5	6.78	0.95	15	93	263.00 262.53	0.005	2.98	2.43	263.30	3.60	1.22		
2	3	0.20	0.95	0.19	0.33	5	6.78	2.23	15	62	262.53 262.00	0.0085	3.89	3.17	262.83	4.07	2.88		
3	9	0.15	0.95	0.14	0.47	5	6.78	3.18	15	94	262.00 256.00	0.064	10.65	8.6	262.40	3.9	4.10		
4	5	0.18	0.95	0.17	0.17	5	6.78	1.15	15	20	262.80 262.80	0.01	4.20	3.43	263.10	3.6	1.49		
5	6	0.14	0.95	0.13	0.3	5	6.78	2.03	15	86	262.60 261.90	0.0081	3.70	3.07	262.90	3.8	2.62		
6	7	0.01	0.95	0.01	0.31	5	6.78	2.10	15	102	261.90 261.20	0.0068	3.47	2.83	262.20	4.80	2.71		
7	8	0.03	0.95	0.03	0.34	5	6.78	2.30	15	20	261.20 260.80	0.02	5.94	4.86	261.30	5.00	2.97		
8	9	0.13	0.95	0.12	0.46	5	6.78	3.12	15	75	260.80 254.00	0.05	9.42	7.68	261.30	5.40	4.03		
9	OUT	0.21	0.95	0.20	0.66	5	6.78	4.47	15	70	254.00 242.50	0.164	17.05	13.90	254.20	7.50	5.77		
								7.65											9.83

NOTE:
1. TIME OF CONCENTRATION ASSUMED TO BE 5 MINS.

PROPOSED CURB INLET OPENING COMPUTATIONS FOR THE 10 YR STORM EVENT:

INLET ID	CURB THROAT LENGTH FT.	MAX RIM ELEV. FT.	CATCH BASIN INVERT ELEV. FT.	PEAK LATERAL FLOW CFS	PEAK FLOW INTERCEPTED CFS	PEAK FLOW BYPASSING CFS	INLET EFFICIENCY (PERCENT)	MAX GUTTER SPREAD FT.	MAX GUTTER WATER DEPTH FT.
1	4	266.80	263.00	0.95	0.95	0.00	99.09	5.10	0.24
2	4	266.60	262.53	1.29	1.29	0.00	99.09	6.88	0.22
3	4	265.90	262.00	0.9	1.23	0.00	99.09	7.54	0.23
4	4	266.40	262.80	1.15	0.70	0.00	99.09	5.43	0.19
5	4	266.40	262.60	0.88	0.85	0.00	99.09	6.34	0.21
6	4	266.70	261.90	0.07	0.61	0.00	99.09	4.90	0.18
7	4	266.20	261.20	0.20	0.22	0.00	99.09	1.84	0.07
8	4	266.20	260.80	0.88	0.52	0.36	67.09	2.67	0.11
9	6	261.50	254.00	1.33	1.69	0.00	99.09	6.86	0.21

NOTE:
1. ALL CURB OPENINGS ARE VDOT TYPE D1-3A AND D1-3B.



Inlet Report
HydrFlow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Jun 1 2021

100 YR STORM INLET 1 CLOGGED CONDITION

Curb Inlet	Location = Sag	Calculations	Compute by: Known Q
Curb Length (ft)	= 4.00	Q (cfs)	= 2.88
Throat Height (in)	= 4.00	Highlighted	
Grate Area (sqft)	= -0-	Q Total (cfs)	= 2.88
Grate Width (ft)	= -0-	Q Capt (cfs)	= 2.88
Grate Length (ft)	= -0-	Q Bypass (cfs)	= -0-
Gutter		Depth at Inlet (in)	= 3.80
Slope, Sw (ft/ft)	= 0.080	Efficiency (%)	= 100
Slope, Sx (ft/ft)	= 0.200	Gutter Spread (ft)	= 2.70
Local Depr (in)	= 0.20	Gutter Vel (ft/s)	= -0-
Gutter Width (ft)	= 2.00	Bypass Spread (ft)	= -0-
Gutter Slope (%)	= -0-	Bypass Depth (in)	= -0-
Gutter n-value	= -0-		

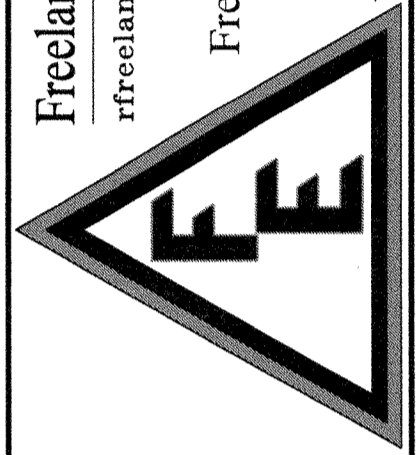
Inlet Report
HydrFlow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Jun 1 2021

100 YR STORM INLET 2 CLOGGED CONDITION

Curb Inlet	Location = Sag	Calculations	Compute by: Known Q
Curb Length (ft)	= 4.00	Q (cfs)	= 2.88
Throat Height (in)	= 4.00	Highlighted	
Grate Area (sqft)	= -0-	Q Total (cfs)	= 2.88
Grate Width (ft)	= -0-	Q Capt (cfs)	= 2.88
Grate Length (ft)	= -0-	Q Bypass (cfs)	= -0-
Gutter		Depth at Inlet (in)	= 3.80
Slope, Sw (ft/ft)	= 0.080	Efficiency (%)	= 100
Slope, Sx (ft/ft)	= 0.200	Gutter Spread (ft)	= 2.70
Local Depr (in)	= 0.20	Gutter Vel (ft/s)	= -0-
Gutter Width (ft)	= 2.00	Bypass Spread (ft)	= -0-
Gutter Slope (%)	= -0-	Bypass Depth (in)	= -0-
Gutter n-value	= -0-		

REVISION
DATE

Freeland Engineering, PC
rfreeland@freelandengineeringpc.com
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Phone: 540.898.3092
Fax: 877.658.7735
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STORM SEWER PROFILE AND CAPACITY CALCULATION

SOUTH RIDGE CHURCH

FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA



County Plan Number:
Drawn By: SAR
Designed By: SAR
Checked By: RPF
Date: 09/29/2020
Scale: 1" = 20'
Sheet: 6 of 31

PROPOSED STORM SEWER COMPUTATIONS FOR THE 10 YR STORM EVENT:

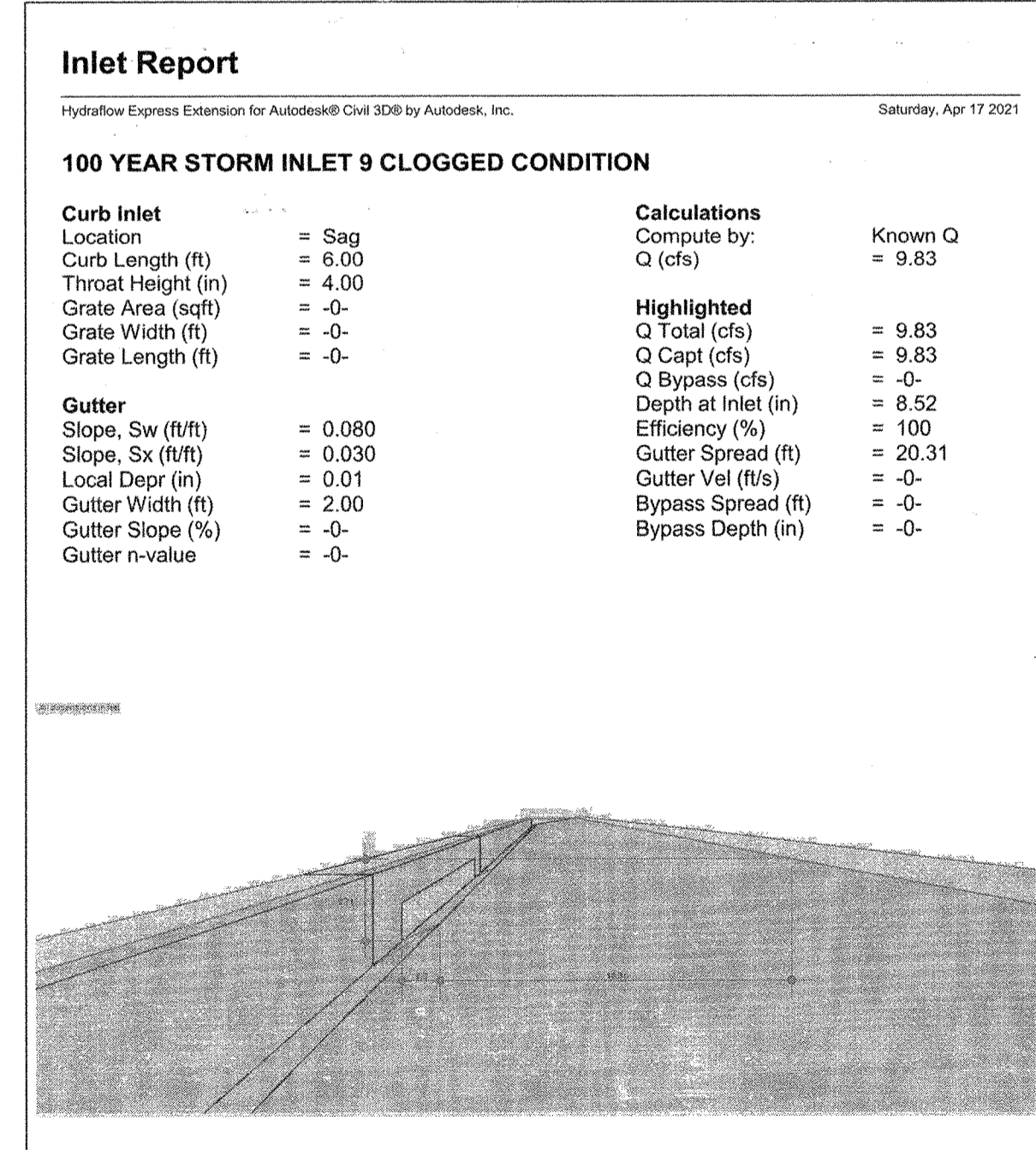
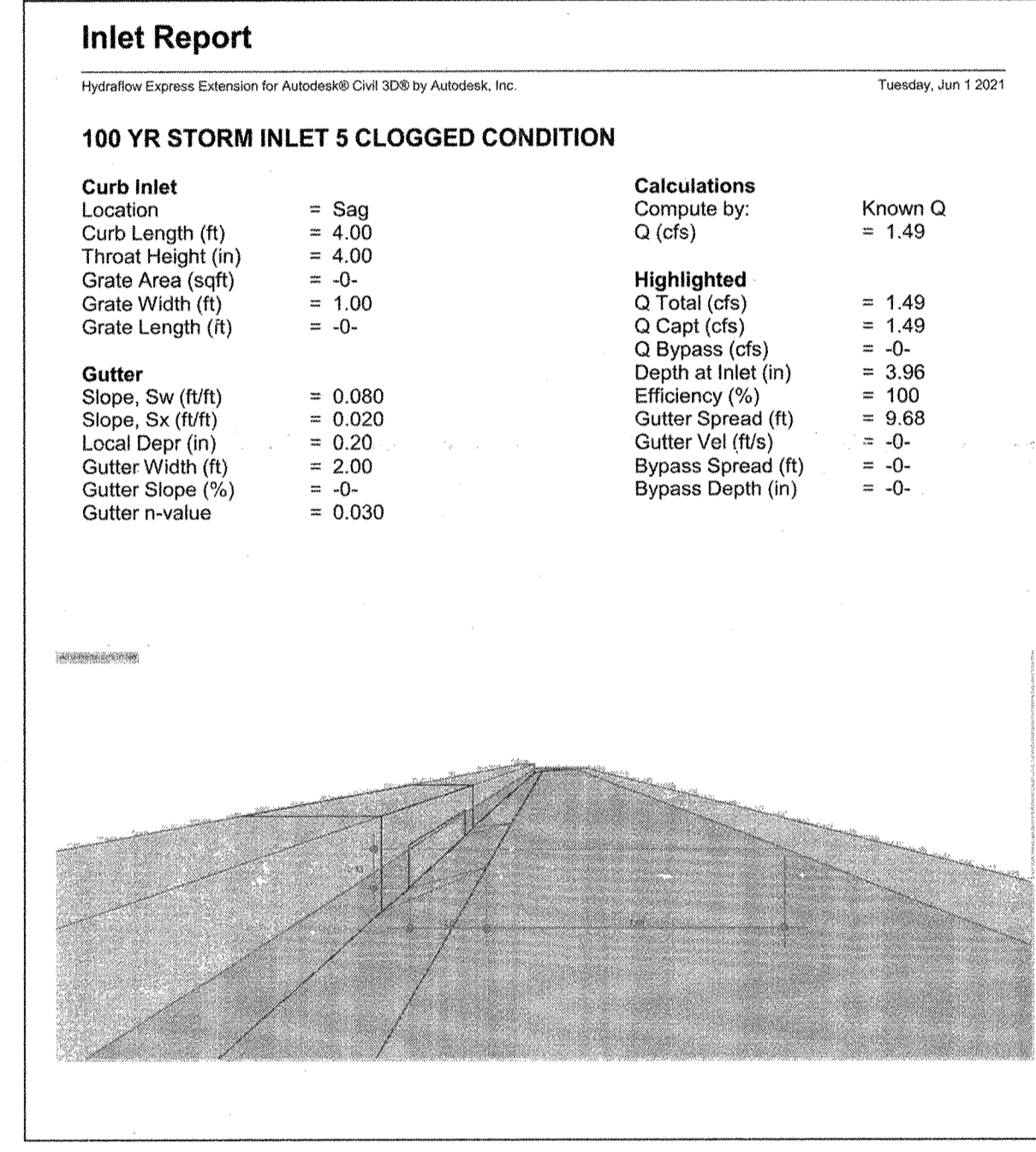
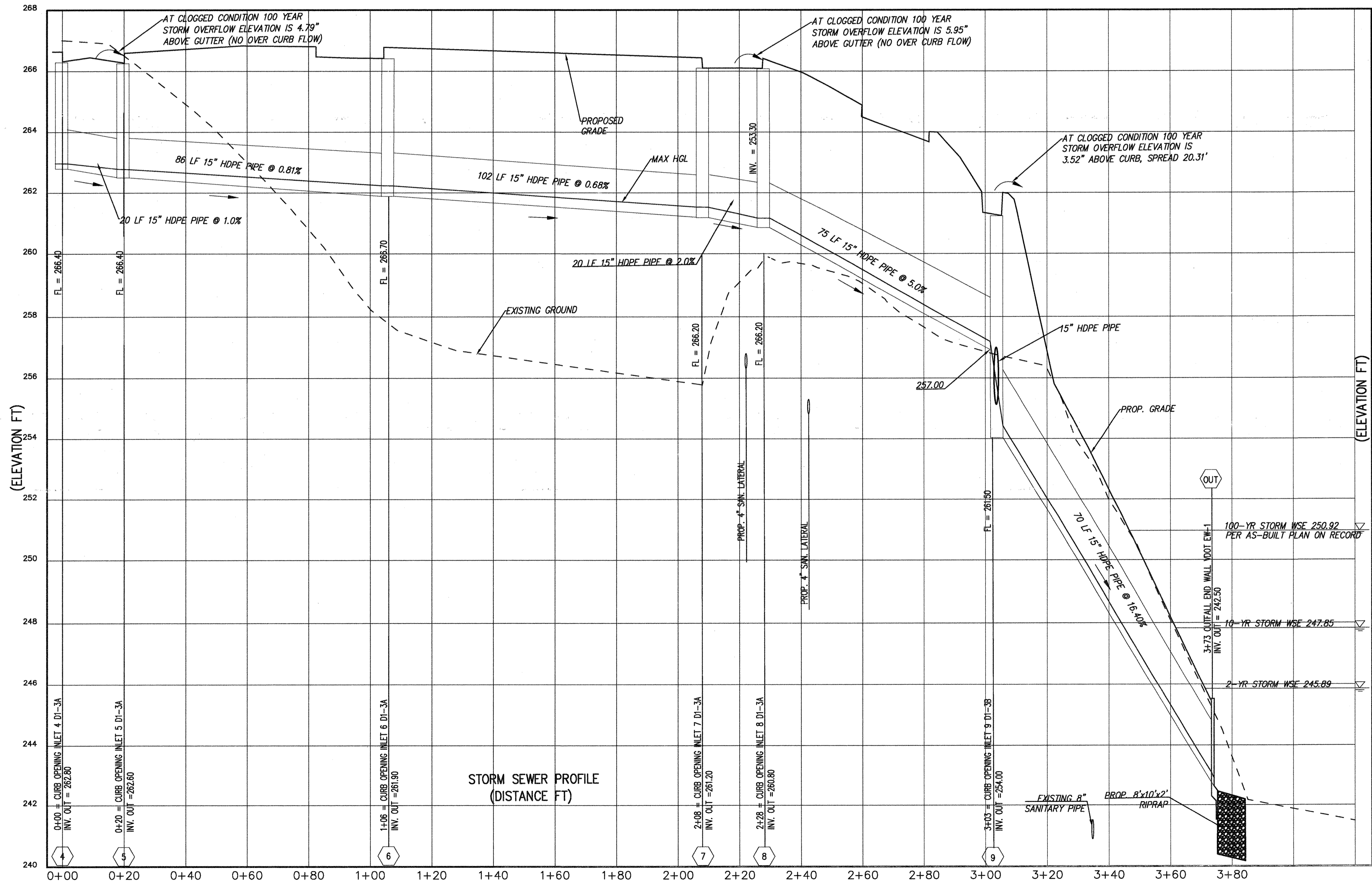
FROM POINT	TO POINT	AREA DRAIN, "A" ACRES	RUN-OFF COEF. C	CA	CA ACC.	INLET TIME MIN-UTES	RAIN-FALL IN./HR.	RUNOFF Q ACCUM-ULATED cfs	DIA. IN.	LENGTH FT.	UPPER END ELEVATIONS	LOWER END ELEVATIONS	SLOPE FT./FT.	CAPA-CITY C.F.S.	MAX. VEL. F.P.S.	HGL ELEV. FT.	HEIGHT OF INLET FT.	RUNOFF Q 100 YR 8.75 IN./HR	
1	2	0.15	0.95	0.14	0.14	5	6.78	0.95	15	93	263.00	262.53	0.005	2.98	2.43	263.30	3.60	1.22	
2	3	0.20	0.95	0.19	0.33	5	6.78	2.23	15	62	262.53	262.00	0.0085	3.89	3.17	262.83	4.07	2.88	
3	9	0.15	0.95	0.14	0.47	5	6.78	3.18	15	94	262.00	256.00	0.064	10.65	8.6	262.40	3.9	4.10	
4	5	0.18	0.95	0.17	0.17	5	6.78	1.15	15	20	262.80	262.60	0.01	4.20	3.43	263.10	3.6	1.49	
5	6	0.14	0.95	0.13	0.3	5	6.78	2.03	15	86	262.60	261.90	0.0081	3.70	3.07	262.90	3.8	2.62	
6	7	0.01	0.95	0.01	0.31	5	6.78	2.10	15	102	261.90	261.20	0.0068	3.47	2.83	262.20	4.80	2.71	
7	8	0.03	0.95	0.03	0.34	5	6.78	2.30	15	20	261.20	260.80	0.02	5.94	4.86	261.30	5.00	2.97	
8	9	0.13	0.95	0.12	0.46	5	6.78	3.12	15	75	260.80	254.00	0.05	9.42	7.68	261.30	5.40	4.03	
9	OUT	0.21	0.95	0.20	0.66	5	6.78	4.47	15	70	254.00	242.50	0.164	17.05	13.90	254.20	7.50	5.77	
								7.65											9.83

NOTE:
1. TIME OF CONCENTRATION ASSUMED TO BE 5 MINS.

PROPOSED CURB INLET OPENING COMPUTATIONS FOR THE 10 YR STORM EVENT:

INLET ID	CURB THROAT LENGTH FT.	MAX RIM ELEV. FT.	CATCH BASIN INVERT ELEV. FT.	PEAK LATERAL FLOW CFS	PEAK FLOW INTERCEPTED CFS	PEAK FLOW BYPASSING CFS	INLET EFFICIENCY (PERCENT)	MAX GUTTER SPREAD FT.	MAX GUTTER WATER DEPTH FT.
1	4	266.80	263.00	0.95	0.95	0.00	99.09	5.10	0.24
2	4	266.60	262.53	1.29	1.29	0.00	99.09	6.88	0.22
3	4	265.90	262.00	0.9	1.23	0.00	99.09	7.54	0.23
4	4	266.40	262.80	1.15	0.70	0.00	99.09	5.43	0.19
5	4	266.40	262.60	0.88	0.85	0.00	99.09	6.34	0.21
6	4	266.70	261.90	0.07	0.61	0.00	99.09	4.90	0.18
7	4	266.20	261.20	0.20	0.22	0.00	99.09	1.84	0.07
8	4	266.20	260.80	0.88	0.52	0.36	67.09	2.67	0.11
9	6	261.50	254.00	1.33	1.69	0.00	99.09	6.86	0.21

NOTE:
1. ALL CURB OPENINGS ARE VDOT TYPE D1-3A OR D1-3B.



Inlet Report
Hydroflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Jun 17 2021

100 YR STORM INLET 5 CLOGGED CONDITION

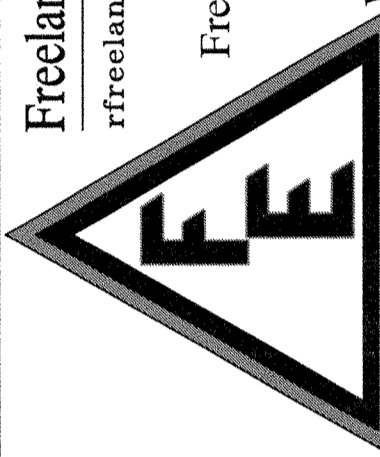
Curb Inlet	Location = Sag	Calculations	Compute by: Known Q
Curb Length (ft)	= 4.00	Q (cfs)	= 1.49
Throat Height (in)	= 4.00	Highlighted	
Grate Area (sqft)	= -0-	Q Total (cfs)	= 1.49
Grate Width (ft)	= 1.00	Q Capt (cfs)	= 1.49
Grate Length (ft)	= -0-	Q Bypass (cfs)	= -0-
Gutter		Depth at Inlet (in)	= 9.86
Slope, Sw (ft/ft)	= 0.080	Efficiency (%)	= 100
Slope, Sx (ft/ft)	= 0.020	Gutter Spread (ft)	= 9.68
Local Depr (in)	= 0.20	Gutter Vel (ft/s)	= -0-
Gutter Width (ft)	= 2.00	Bypass Spread (ft)	= -0-
Gutter Slope (%)	= -0-	Bypass Depth (in)	= -0-
Gutter n-value	= 0.030		

Inlet Report
Hydroflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Saturday, Apr 17 2021

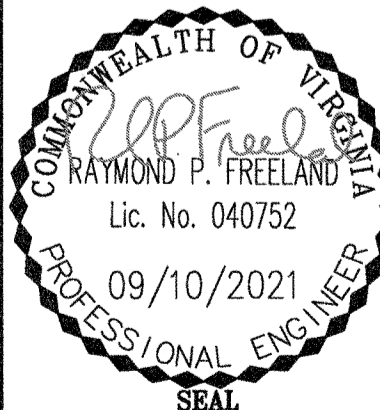
100 YEAR STORM INLET 9 CLOGGED CONDITION

Curb Inlet	Location = Sag	Calculations	Compute by: Known Q
Curb Length (ft)	= 6.00	Q (cfs)	= 9.83
Throat Height (in)	= 4.00	Highlighted	
Grate Area (sqft)	= -0-	Q Total (cfs)	= 9.83
Grate Width (ft)	= -0-	Q Bypass (cfs)	= -0-
Grate Length (ft)	= -0-	Depth at Inlet (in)	= 8.52
Gutter		Efficiency (%)	= 100
Slope, Sw (ft/ft)	= 0.080	Gutter Spread (ft)	= 20.31
Slope, Sx (ft/ft)	= 0.030	Gutter Vel (ft/s)	= -0-
Local Depr (in)	= 0.01	Bypass Spread (ft)	= -0-
Gutter Width (ft)	= 2.00	Bypass Depth (in)	= -0-
Gutter Slope (%)	= -0-		
Gutter n-value	= -0-		

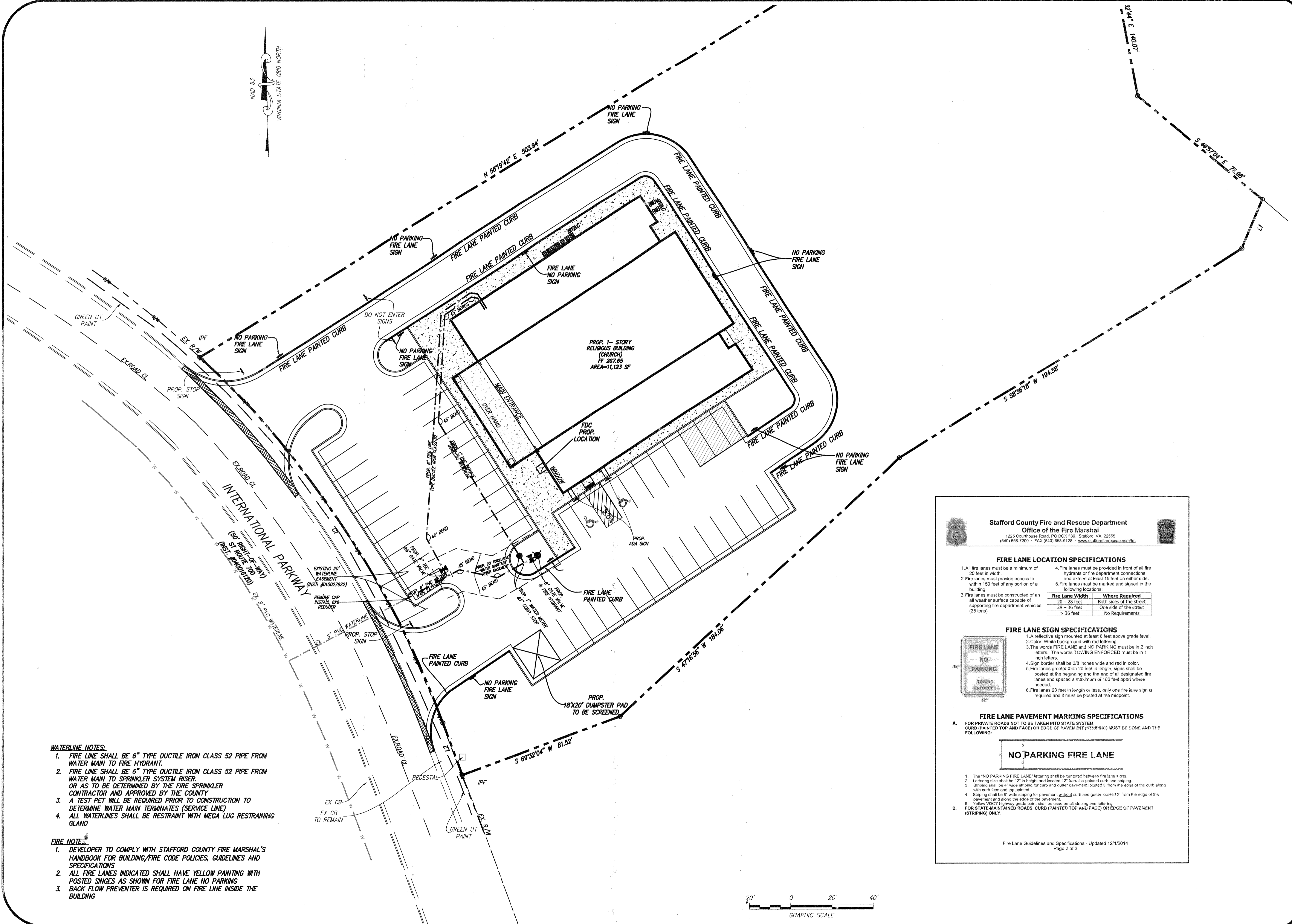
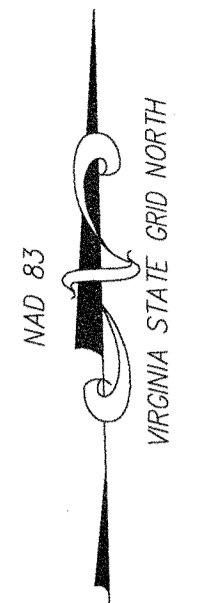
REVISION
 DATE
 05/30/2021
 REVISED PER COUNTY COMMENTS
Freeland Engineering, PC
 rfreeland@freelandengineeringpc.com
 10814 Courthouse Road
 Fredericksburg, Virginia 22408
 Phone: 540.898.3092
 Fax: 877.658.7735
 www.freelandengineeringpc.com



STORM SEWER PROFILE & CAPACITY CALCULATION
SOUTH RIDGE CHURCH
T.M. 44-119L
 GEORGE WASHINGTON DISTRICT
 STAFFORD COUNTY, VIRGINIA



County Plan Number:
 AP# 20153537
 Drawn By: IEM
 Designed By: IEM
 Checked By: RPF
 Date: 09/29/2020
 Scale: 1"=20'
 Sheet: 7 of 31
 PROJECT # 4762



- WATERLINE NOTES:**
1. FIRE LINE SHALL BE 6" TYPE DUCTILE IRON CLASS 52 PIPE FROM WATER MAIN TO FIRE HYDRANT.
 2. FIRE LINE SHALL BE 6" TYPE DUCTILE IRON CLASS 52 PIPE FROM WATER MAIN TO SPRINKLER SYSTEM RISER OR AS TO BE DETERMINED BY THE FIRE SPRINKLER CONTRACTOR AND APPROVED BY THE COUNTY.
 3. A TEST PET WILL BE REQUIRED PRIOR TO CONSTRUCTION TO DETERMINE WATER MAIN TERMINATES (SERVICE LINE)
 4. ALL WATERLINES SHALL BE RESTRAINT WITH MEGA LUG RESTRAINING GLAND
- FIRE NOTE:**
1. DEVELOPER TO COMPLY WITH STAFFORD COUNTY FIRE MARSHAL'S HANDBOOK FOR BUILDING/FIRE CODE POLICIES, GUIDELINES AND SPECIFICATIONS
 2. ALL FIRE LANES INDICATED SHALL HAVE YELLOW PAINTING WITH POSTED SIGNS AS SHOWN FOR FIRE LANE NO PARKING
 3. BACK FLOW PREVENTER IS REQUIRED ON FIRE LINE INSIDE THE BUILDING

Stafford County Fire and Rescue Department
Office of the Fire Marshal
 1225 Courthouse Road, PO Box 1328, Stafford, VA 22656
 (540) 658-7200 • FAX (540) 658-9128 • www.staffordfire.com

FIRE LANE LOCATION SPECIFICATIONS

1. All fire lanes must be a minimum of 20 feet in width.
2. Fire lanes must provide access to within 150 feet of any portion of a building.
3. Fire lanes must be constructed of an all weather surface capable of supporting fire department vehicles (35 tons)
4. Fire lanes must be provided in front of all fire hydrants or fire department connections and extend at least 15 feet on either side.
5. Fire lanes must be marked and signed in the following locations:

Fire Lane Width	Where Required
20 - 28 feet	Both sides of the street
28 - 36 feet	One side of the street
> 36 feet	No Requirements

FIRE LANE SIGN SPECIFICATIONS

1. A reflective sign mounted at least 6 feet above grade level.
2. Color: White background with red lettering.
3. The words FIRE LANE and NO PARKING must be in 2 inch letters. The words TOWING ENFORCED must be in 1 inch letters.
4. Sign border shall be 3/8 inches wide and red in color.
5. Fire lanes greater than 10 feet in length, signs shall be posted at the beginning and the end of all designated fire lanes and spaced a maximum of 100 feet apart where needed.
6. Fire lanes 20 feet in length or less, only one fire lane sign is required and it must be posted at the midpoint.

FIRE LANE PAVEMENT MARKING SPECIFICATIONS

A. FOR PRIVATE ROADS NOT TO BE TAKEN INTO STATE SYSTEM CURB (PAINTED TOP AND FACE) OR EDGE OF PAVEMENT (STRIPING) MUST BE DONE AND THE FOLLOWING:

1. The "NO PARKING FIRE LANE" lettering shall be centered between fire lane signs.
2. Lettering size shall be 12" in height and located 12" from the painted curb and striping.
3. Striping shall be 4" wide striping for curb and gutter pavement located 3" from the edge of the curb along with curb face and top painted.
4. Striping shall be 6" wide striping for pavement between curb and gutter located 3" from the edge of the pavement and along the edge of the pavement.
5. Yellow VDOT highway grade paint shall be used on all striping and lettering.

B. FOR STATE-MAINTAINED ROADS, CURB (PAINTED TOP AND FACE) OR EDGE OF PAVEMENT (STRIPING) ONLY.

Fire Lane Guidelines and Specifications - Updated 12/1/2014
 Page 2 of 2



REVISION
 REVISED PER COUNTY COMMENTS

DATE
 05/30/2021

Freeland Engineering, PC
 rfreeland@freelandengineering.com
 10814 Courthouse Road
 Fredericksburg, Virginia 22408
 Phone: 540.898.3092
 Fax: 877.658.7735
 www.freelandengineering.com

WTARELINE & FIRE LANE PLAN
 SOUTH RIDGE CHURCH
 T.M. 44-119L
 GEORGE WASHINGTON DISTRICT
 STAFFORD COUNTY, VIRGINIA

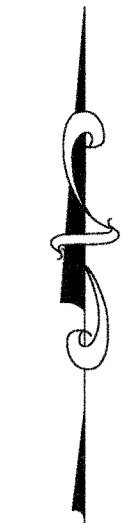
COMMONWEALTH OF VIRGINIA
 RAYMOND P. FREELAND
 Lic. No. 040752
 09/10/2021
 PROFESSIONAL ENGINEER
 SEAL

County Plan Number:
 AP# 20153537

Drawn By: IEM
 Designed By: IEM
 Checked By: RPF

Date: 09/29/2020
 Scale: 1" = 20'

Sheet: 8 of 31
 PROJECT # 4762



PARCEL 7
N/F
JEFFREY L. LEHEW
FAMILY LLC VI
TAX MAP NO. 44-119L
INST. NO. 00002518
USE: VACANT
ZONE: M-1

PARCEL 8
0.95,887 S.F.
2.4538 ACRES

ENGLAND RUN NORTH
HOMEOWNERS ASSOCIATION
TAX MAP NO. 43B-26-N
INST. NO. 00002518
USE: VACANT
ZONE: M-1

PARCEL 8
N/F
SOUTH RIDGE CHURCH, INC.
TAX MAP NO. 44-119L
INST. NO. 00002518
USE: VACANT
ZONE: M-1

PARCEL A
N/F
BRANDY HILL BUSINESS
PARK PROPERTY
TAX MAP NO. 44-119L
INST. NO. 00002518
USE: VACANT
ZONE: M-1

APPROX. LOCATION OF EXISTING 15' VIRGINIA
ELECTRIC AND POWER COMPANY EASEMENT
(INST. #010028972)

EXISTING 20' SANITARY
SEWER EASEMENT
(INST. #010027922)

EXISTING 15' VERIZON EASEMENT
(INST. #010025470)

BENCHMARK #2
RIM = 275.43'

N: 6,817,193.75
E: 11,767,855.49

EXISTING FIRE HYDRANT
AND VALVE

INLET PROTECTION

APPROX. LOC.
OF EXISTING 15' VERIZON EASEMENT
(INST. #010025470)

FLOW LINES TO HAVE
SOIL STABILIZATION BLANKET
(SEE DETAIL)

EXISTING STORMWATER
MANAGEMENT EASEMENT
(INST. #010027922)

EXISTING STORM
DRAINAGE EASEMENT
(INST. #010027922)

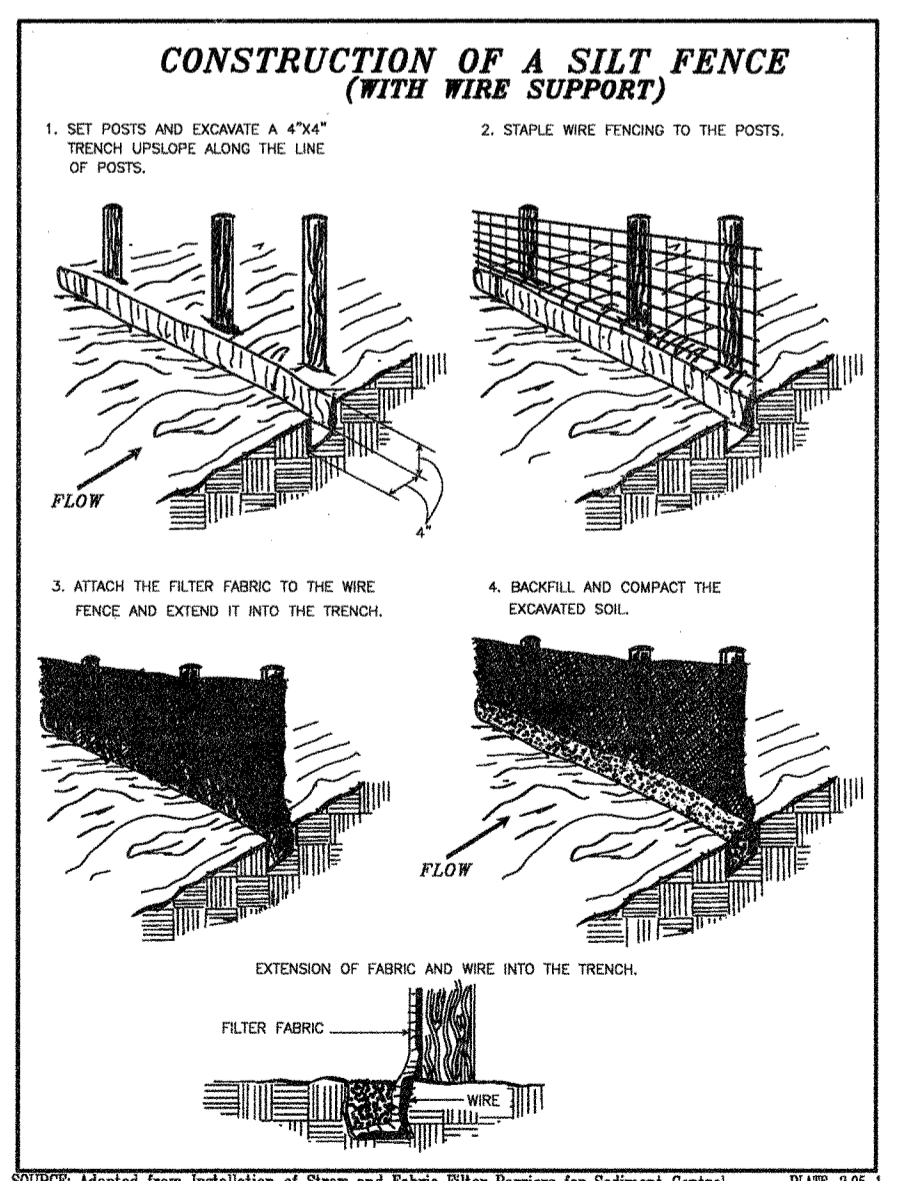
EXISTING 20' SANITARY
SEWER EASEMENT
(INST. #010027922)

EXISTING 15' SANITARY
SEWER EASEMENT
(D.B. 503 PG. 360)
(D.B. 600 PG. 242)

EXISTING 12.50' SANITARY SEWER
EASEMENT (INST. #010027922)

LEGEND

- (TS) TEMPORARY SEEDING
- (SF) SUPER SILT FENCE
- (IP) INLET PROTECTION
- (DD) TEMPORARY DIVERSION DIKE
- (CE) CONSTRUCTION ENTRANCE
- (SF) SILT FENCE



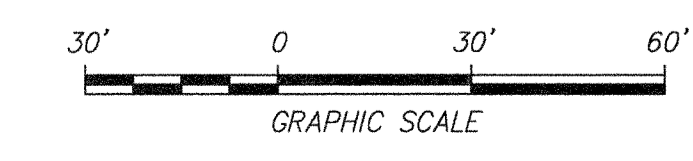
NOTE:
IF THE ENTIRE SITE WILL NOT BE PERMANENTLY STABILIZED BEFORE DECEMBER 1, THE RESPONSIBLE LAND DISTURBER SHALL CONTACT THE COUNTY EROSION AND SEDIMENT CONTROL STAFF TO SCHEDULE A PRE-WINTER MEETING THAT SHALL OCCUR BEFORE OCTOBER 1.

TABLE 3.32-D
SITE SPECIFIC SEEDING MIXTURES FOR PIEDMONT AREA

Minimum Care Lawn	Total Lbs. Per Acre
Commercial or Residential	175-200 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	95-100%
- Improved Perennial Ryegrass	0-5%
- Kentucky Bluegrass	0-5%
High-Maintenance Lawn	200-250 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	100%
General Slope (3:1 or less)	
- Kentucky 31 Fescue	125 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
- Crownvetch **	150 lbs.
Low-Maintenance Slope (Steeper than 3:1)	
- Kentucky 31 Fescue	108 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
- Crownvetch **	150 lbs.

* Use seasonal nurse crop in accordance with seeding dates as stated below:
 February 16th through April Annual Rye
 May 1st through August 15th Foxtail Millet
 August 16th through October Annual Rye
 November through February 15th Winter Rye

** Substitute Sericea lespedeza for Crownvetch east of Farmville, Va. (May through September use hulled Sericea; all other periods, use unhulled Sericea). If Flatpea is used in lieu of Crownvetch, increase rate to 30 lbs./acre. All legume seed must be properly inoculated. Weeping Lovegrass may be added to any slope or low-maintenance mix during warmer seeding periods; add 10-20 lbs./acre in mixes.



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EROSION & SEDIMENT CONTROL - PHASE I

SOUTH RIDGE CHURCH

T.M. 44-119L
GEORGE WASHINGTON DISTRICT
STAFFORD COUNTY, VIRGINIA

REVISION
DATE 05/30/2021
REVISED PER COUNTY COMMENTS

SEAL
COMMONWEALTH OF VIRGINIA
RAYMOND P. FREELAND
Lic. No. 040752
09/10/2021
PROFESSIONAL ENGINEER

County Plan Number:
AP# 201535337

Drawn By: SAR
Designed By: SAR
Checked By: RPF

Date: 09/29/2020
Scale: 1" = 30'

Sheet: 9 of 31
PROJECT # 4762

STD LEGEND	
3.07-8	INLET PROTECTION
3.38	BLANKET AND MATTING (SEE CURB # 2 (R))
PS	PERMANENT SEIZING
LOC	LIMITS OF CONSTRUCTION

BRANDY HILL BUSINESS PARK (UNDER CONSTRUCTION)
 APPROX. FUTURE BLDG WAREHOUSE
PARCEL 7
 N/F
JEFFREY L. LEHEW FAMILY LLC VI
 TAX MAP NO. 44-119LX
 INST. NO. 00003518
 USE: VACANT
 ZONE: M-1

PROPOSED
 GEOGRID AND MATTING TO
 STABILIZE THE PROPOSED 1.5:1
 FILL SLOPE AND ALLOW FOR
 VEGETATION GROWTH
 (REFER TO GEOTECH REPORT &
 RPA MITIGATION PLAN)

APPROXIMATELY FUTURE
 ASPHALT PARKING LOT

PROPOSED
 1.5:1 FILL SLOPE
 (SOIL STABILIZATION
 BLANKET/MATTING)

APPROXIMATE LOCATION
 OF FEMA FLOOD ZONE
 AE

APPROXIMATE LOCATION
 OF FEMA FLOOD ZONE
 AE
 ENGLAND RUN NORTH
 HOMEOWNERS ASSOCIATION
 142 MAP NO. 409-28-A
 FILE NO. 00000002
 USE: VACANT
 ZONE: R-1

PROPOSED
 2.5:1 CUT SLOPE
 (SEE DETAIL ON SURFACE
 ROUGHING)

LIMITS OF
 DISTURBANCE

PROPOSED
 1.5:1 FILL SLOPE
 (REFER TO GEOTECH REPORT)

LIMITS OF
 DISTURBANCE

PARCEL 8
 N/F
SOUTH RIDGE CHURCH, INC.
 TAX MAP NO. 44-119L
 INST. NO. 00003518
 USE: VACANT
 ZONE: M-1

PROP. 1-STORY
 RELIGIOUS BUILDING
 (CHURCH)
 FT 287,851
 AREA=11,123 SF

PROPOSED 2-FILTERRA
 BIO-RETENTION BASINS

EXISTING 20' SANITARY
 SEWER EASEMENT
 (INST. #010027922)

EXISTING STORM
 DRAINAGE EASEMENT
 (INST. #010027922)

EXISTING 20' SANITARY
 SEWER EASEMENT
 (INST. #010027922)

EX. STORM RISER
 STRUCTURE
 3" ORIFICE EL 241.5
 (SEE DETAILS)

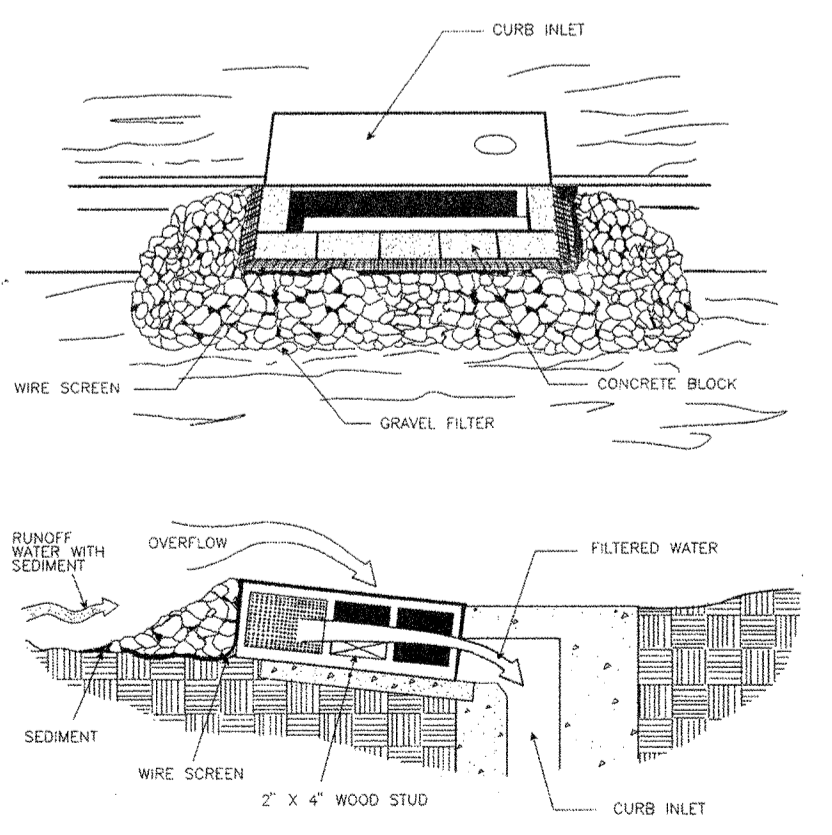
PARCEL A
 N/F
**BRANDY HILL BUSINESS
 PARK PROPERTY**
 TAX MAP NO. 44-119F
 INST. NO. 000030214
 USE: VACANT
 ZONE: M-1

APPROX. LOCATION OF EXISTING 15' VIRGINIA
 ELECTRIC AND POWER COMPANY EASEMENT
 (INST. #010028972)

Maintenance

- The structure shall be inspected after each rain and repairs made as needed.
- Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
- Structures shall be removed and the area stabilized when the remaining drainage area has been properly stabilized.

**BLOCK & GRAVEL CURB INLET
 SEDIMENT FILTER**



SPECIAL APPLICATION
 THIS METHOD OF INLET PROTECTION IS APPLICABLE AT
 CURB INLETS WHERE AN OVERFLOW CAPABILITY IS NECESSARY
 TO PREVENT EXCESSIVE PONDING IN FRONT OF THE STRUCTURE.

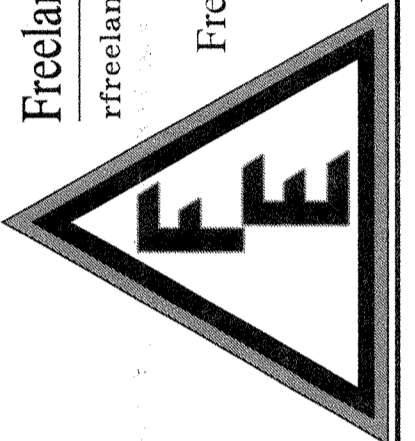
* GRAVEL SHALL BE VDOT #3, #357 OR #5 COARSE AGGREGATE

Source: Va. DSWC
 Plate 3.07-8



REVISION	DATE	REVISION PER COUNTY COMMENTS
	05/30/2021	

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 rfreeland@freelandengineering.com
 10814 Courthouse Road
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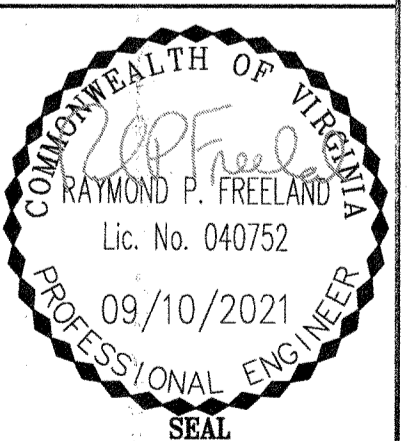


EROSION & SEDIMENT CONTROL - PHASE II

SOUTH RIDGE CHURCH

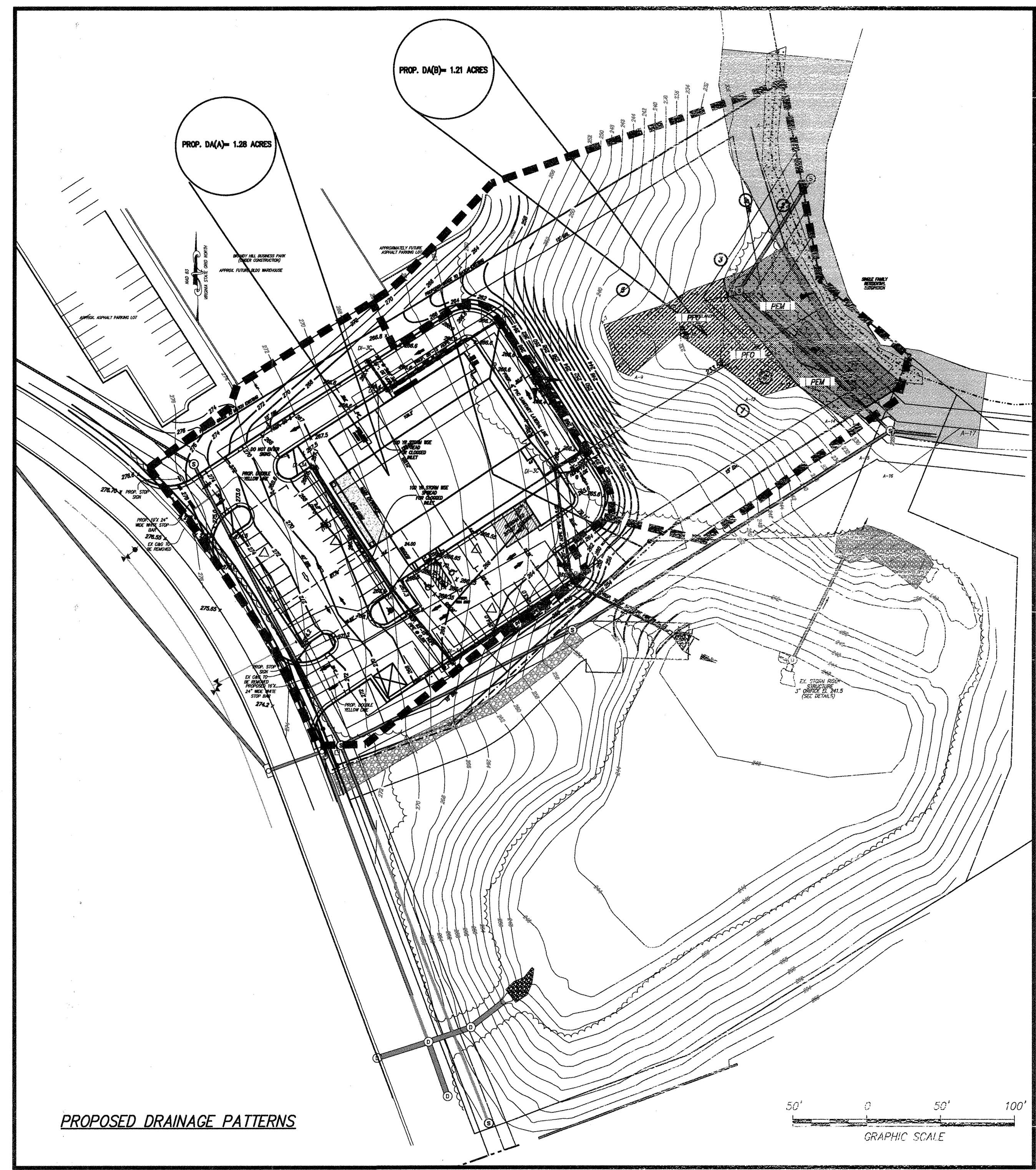
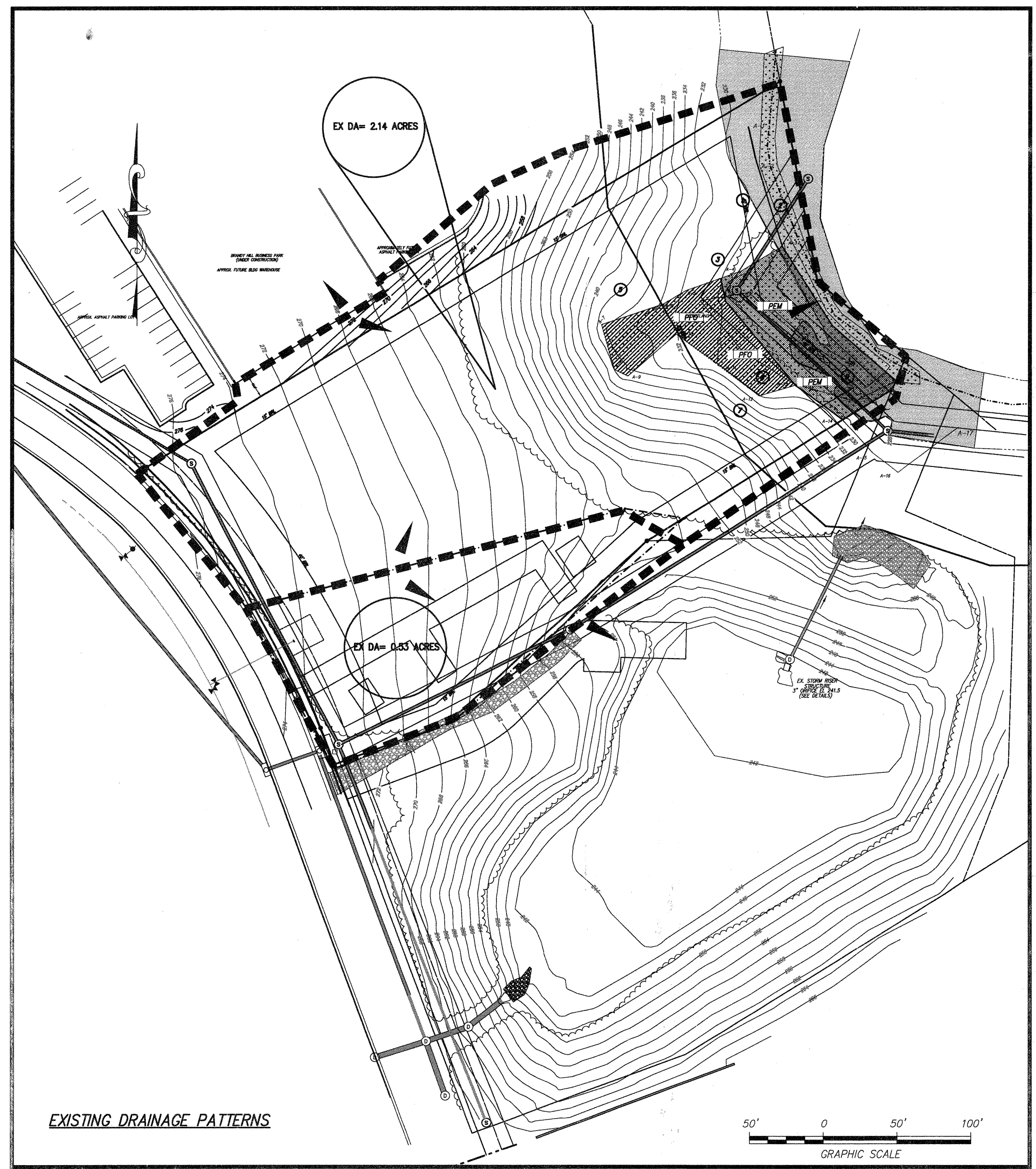
T.M. 44-119L

GEORGE WASHINGTON DISTRICT
 STAFFORD COUNTY, VIRGINIA



County Plan Number:	AP# 20153537
Drawn By:	SAR
Designed By:	SAR
Checked By:	RPF
Date:	09/29/2020
Scale:	1"=20'
Sheet:	10 of 31

PROJECT # 4762

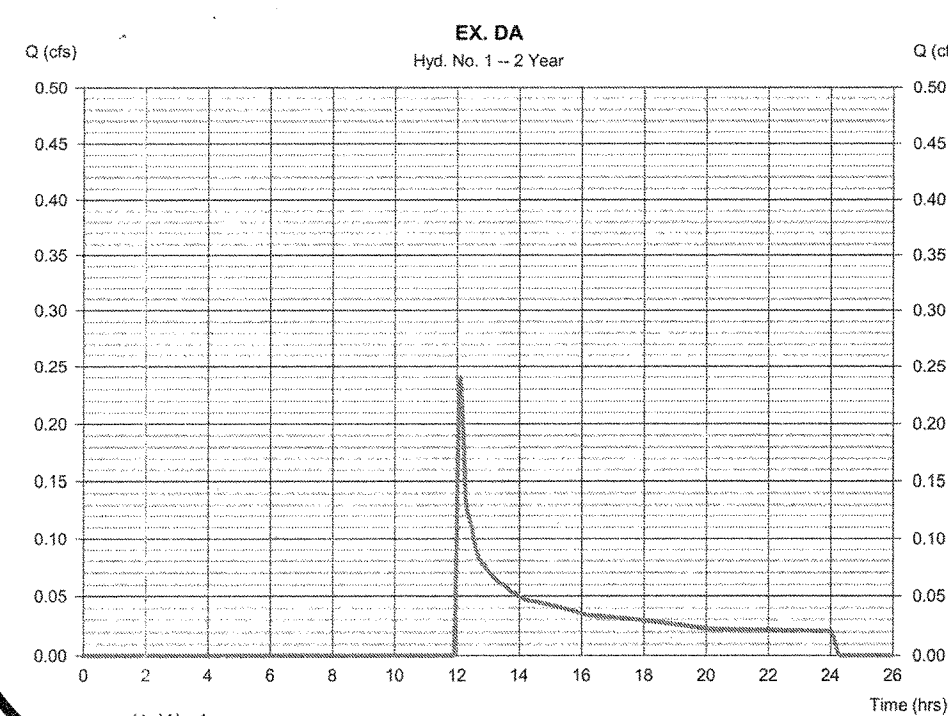


Hydrograph Report

Hydrograph Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 02/23/2021

Hyd. No. 1
EX. DA

Hydrograph type = SCS Runoff	Peak discharge = 0.240 cfs
Storm frequency = 2 yrs	Time to peak = 12.10 hrs
Time interval = 1 min	Hyd. volume = 1.719 cuft
Drainage area = 2.140 ac	Curve number = 55
Basin Slope = 0.0 %	Hydraulic length = 0 ft
Tc method = User	Time of conc. (Tc) = 12.00 min
Total precip. = 3.11 in	Distribution = Type II
Storm duration = 24 hrs	Shape factor = 484

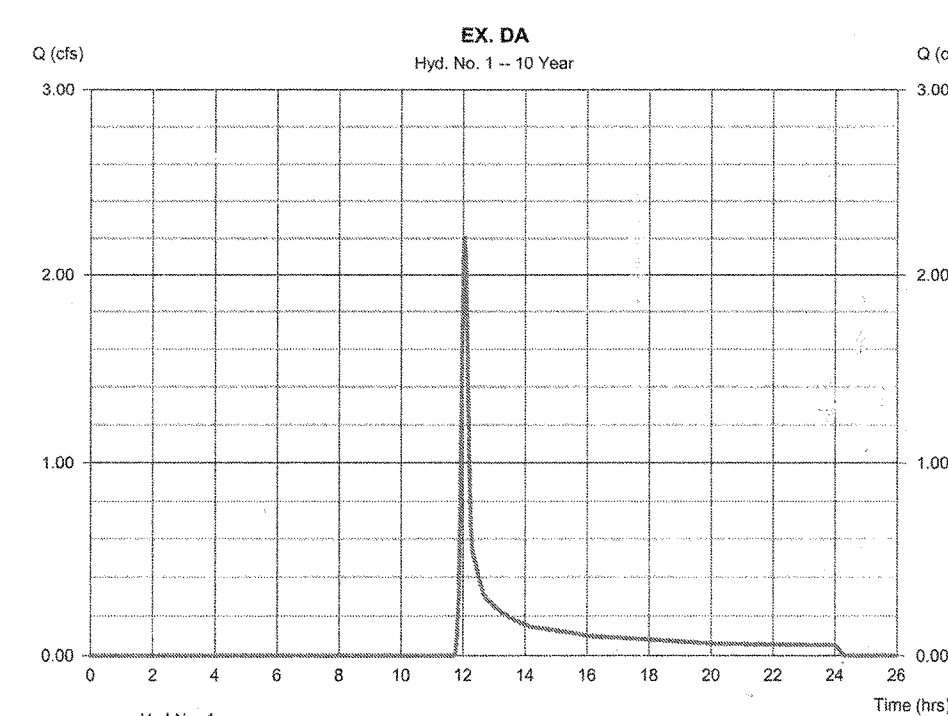


Hydrograph Report

Hydrograph Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 02/23/2021

Hyd. No. 1
EX. DA

Hydrograph type = SCS Runoff	Peak discharge = 2.201 cfs
Storm frequency = 10 yrs	Time to peak = 12.03 hrs
Time interval = 1 min	Hyd. volume = 6.706 cuft
Drainage area = 2.140 ac	Curve number = 55
Basin Slope = 0.0 %	Hydraulic length = 0 ft
Tc method = User	Time of conc. (Tc) = 12.00 min
Total precip. = 4.79 in	Distribution = Type II
Storm duration = 24 hrs	Shape factor = 484

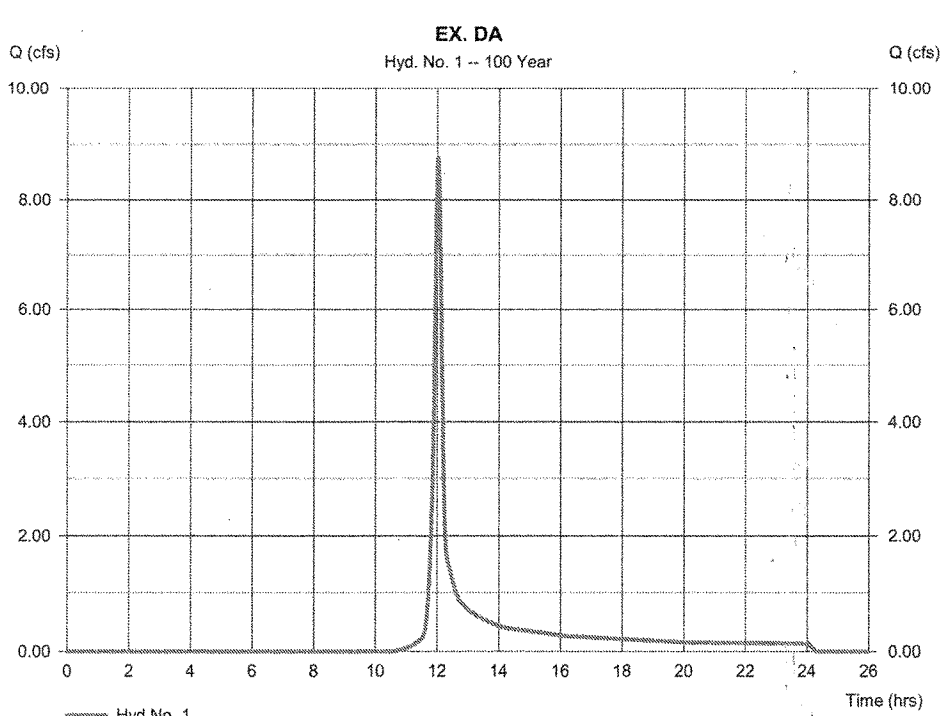


Hydrograph Report

Hydrograph Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 02/23/2021

Hyd. No. 1
EX. DA

Hydrograph type = SCS Runoff	Peak discharge = 8.788 cfs
Storm frequency = 100 yrs	Time to peak = 12.03 hrs
Time interval = 1 min	Hyd. volume = 22.563 cuft
Drainage area = 2.140 ac	Curve number = 55
Basin Slope = 0.0 %	Hydraulic length = 0 ft
Tc method = User	Time of conc. (Tc) = 12.00 min
Total precip. = 8.24 in	Distribution = Type II
Storm duration = 24 hrs	Shape factor = 484

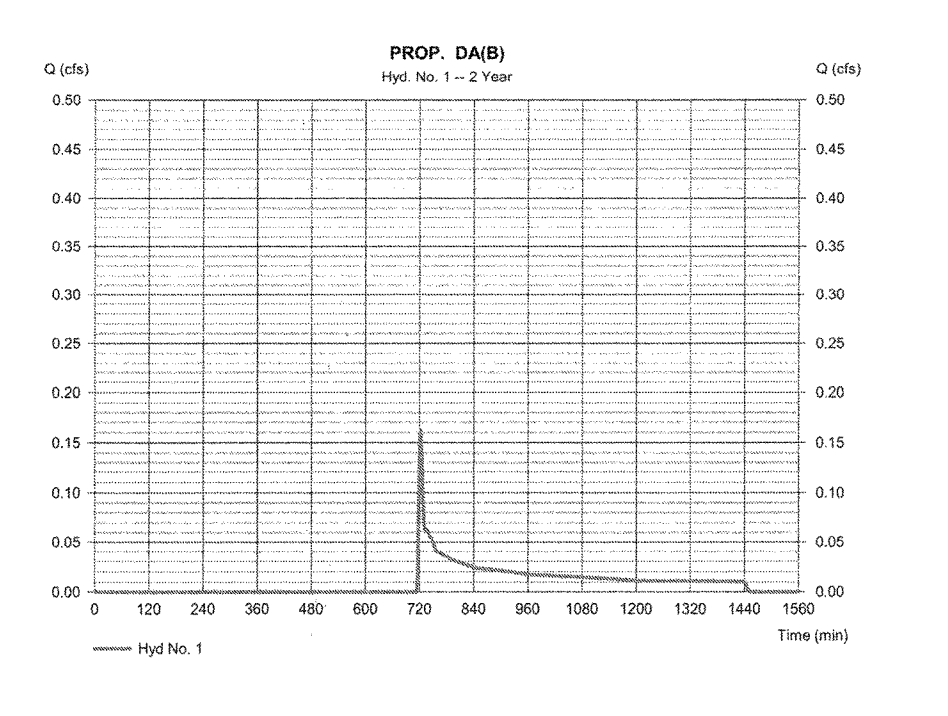


Hydrograph Report

Hydrograph Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Wednesday, 02/24/2021

Hyd. No. 1
PROP. DA(B)

Hydrograph type = SCS Runoff	Peak discharge = 0.163 cfs
Storm frequency = 2 yrs	Time to peak = 7.22 min
Time interval = 1 min	Hyd. volume = 859 cuft
Drainage area = 1.080 ac	Curve number = 55
Basin Slope = 0.0 %	Hydraulic length = 0 ft
Tc method = User	Time of conc. (Tc) = 7.00 min
Total precip. = 3.11 in	Distribution = Type II
Storm duration = 24 hrs	Shape factor = 484

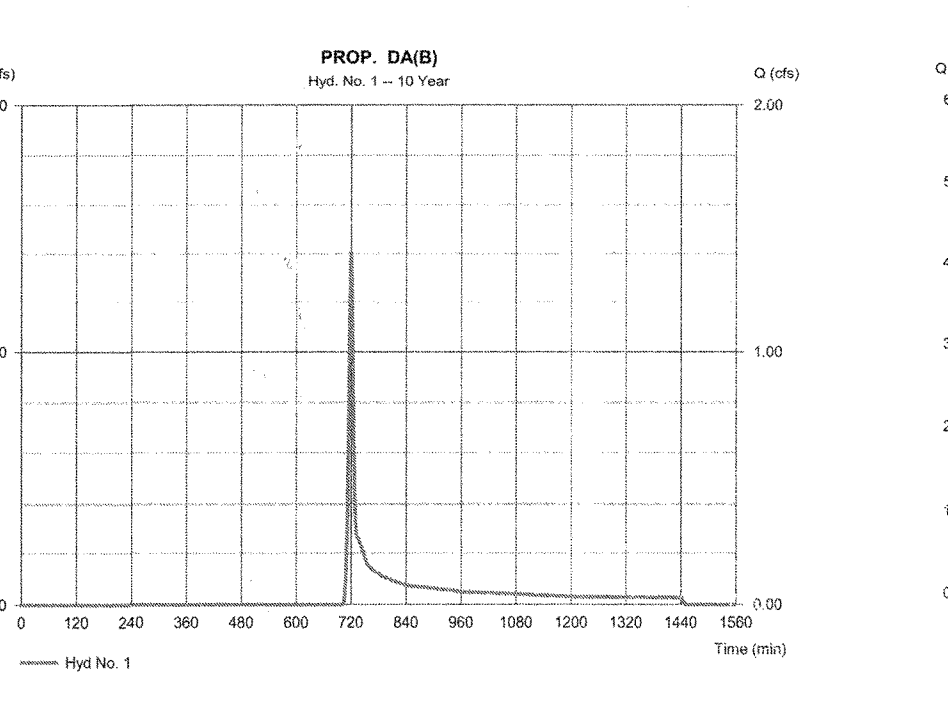


Hydrograph Report

Hydrograph Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Wednesday, 02/24/2021

Hyd. No. 1
PROP. DA(B)

Hydrograph type = SCS Runoff	Peak discharge = 1.397 cfs
Storm frequency = 10 yrs	Time to peak = 7.19 min
Time interval = 1 min	Hyd. volume = 3,354 cuft
Drainage area = 1.080 ac	Curve number = 55
Basin Slope = 0.0 %	Hydraulic length = 0 ft
Tc method = User	Time of conc. (Tc) = 7.00 min
Total precip. = 4.79 in	Distribution = Type II
Storm duration = 24 hrs	Shape factor = 484

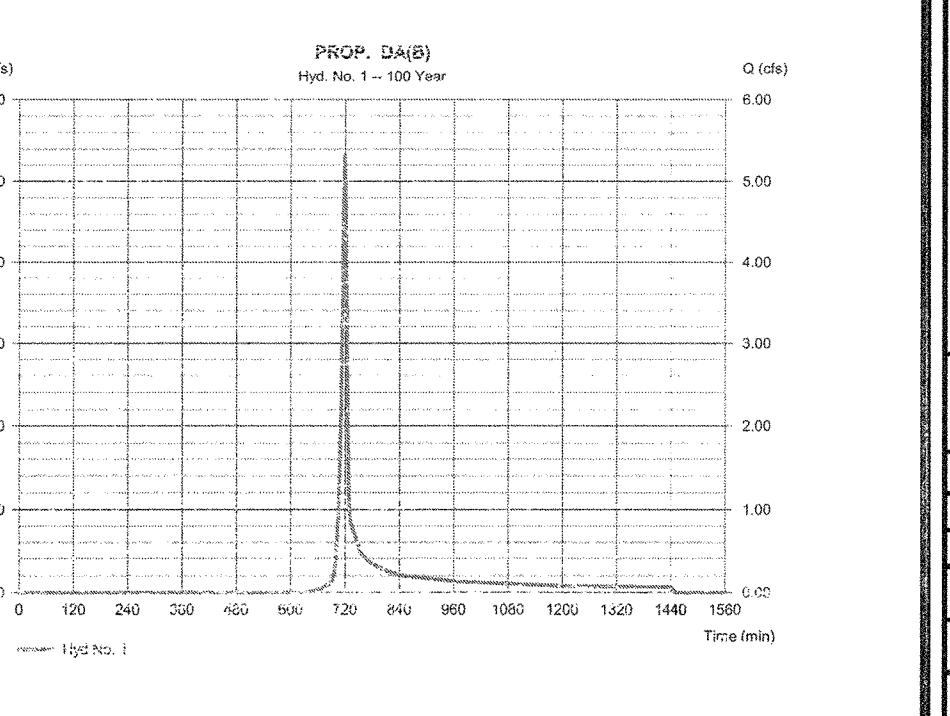


Hydrograph Report

Hydrograph Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Wednesday, 02/24/2021

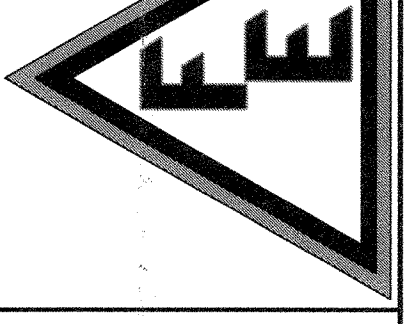
Hyd. No. 1
PROP. DA(B)

Hydrograph type = SCS Runoff	Peak discharge = 6.328 cfs
Storm frequency = 100 yrs	Time to peak = 7.19 min
Time interval = 1 min	Hyd. volume = 15,274 cuft
Drainage area = 1.080 ac	Curve number = 55
Basin Slope = 0.0 %	Hydraulic length = 0 ft
Tc method = User	Time of conc. (Tc) = 7.00 min
Total precip. = 8.24 in	Distribution = Type II
Storm duration = 24 hrs	Shape factor = 484

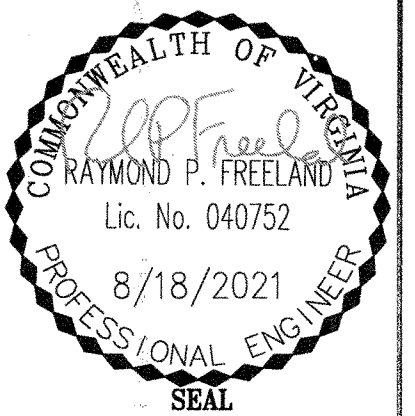


REVISION	DATE	REVISED PER COUNTY COMMENTS
	05/20/2021	

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 10814 Courthouse Road
 Fredericksburg, Virginia 22408
 Phone: 540.898.3092
 Fax: 877.658.7735
 www.freelandengineeringpc.com



PRE-POST DEVELOPMENT DRAINAGE PATTERNS
 SOUTH RIDGE CHURCH
 T.M. 44-119L
 GEORGE WASHINGTON DISTRICT
 STAFFORD COUNTY, VIRGINIA



County Plan Number:
 AP# 20153537
 Drawn By: SAR
 Designed By: SAR
 Checked By: RPF
 Date: 2/7/2021
 Scale: 1" = 50'
 Sheet: 13 of 31
 PROJECT # 4762

EXISTING CONDITIONS PEAK FLOW COMPUTATIONS PRIOR TO STAFFORD INDUSTRIAL PARK SUBDIVISION
EXISTING PEAK FLOW FOR THE 2,10, 100 YR STORM EVENT

CURVE NUMBER DETERMINATION:

THE PRE DEVELOPMENT SITE CONDITION MAINLY WOODS WITH BRUSH TREES AND WEED WITH SOME PASTURE AREAS WITH SLOPES VARIES FROM 2-18% > 75% GOOD VEGETATION COVER WITH SOIL GROUPS OF A MIX BETWEEN SOIL B, C, AND D THEREFORE, CN ESTIMATED TO = 65, Tc = 22.1 MIN. SEE COMPUTATION WORKSHEET

TR55 Tc Worksheet

Hydroflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No. 1
EX. DA

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.15	0.011	0.011	
Flow length (ft)	= 220.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.11	0.00	0.00	
Land slope (%)	= 2.00	0.00	0.00	
Travel Time (min)	= 18.68	+ 0.00	+ 0.00	= 18.68
Shallow Concentrated Flow				
Flow length (ft)	= 600.00	0.00	0.00	
Watercourse slope (%)	= 7.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 4.27	0.00	0.00	
Travel Time (min)	= 3.12	+ 0.00	+ 0.00	= 3.12
Channel Flow				
X sectional flow area (sqft)	= 12.50	0.00	0.00	
Wetted perimeter (ft)	= 10.00	0.00	0.00	
Channel slope (%)	= 12.00	0.00	0.00	
Manning's n-value	= 0.025	0.015	0.015	
Velocity (ft/s)	= 23.98	0.00	0.00	
Flow length (ft)	= (0)/400.0	0.0	0.0	
Travel Time (min)	= 0.28	+ 0.00	+ 0.00	= 0.28
Total Travel Time, Tc				22.10 min

RAIN FALL INTENSITY ATLAS 14 PRECIPITATION STAFFORD COUNTY

2-YR = 3.11 IN/HR
10-YR = 4.79 IN/HR
100-YR = 8.75 IN/HR

Hydrograph Report

Hydroflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No. 1
ENTIRE (DA) STAFFORD INDUSTRIAL PARK

Hydrograph type	= SCS Runoff	Peak discharge	= 8.852 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.15 hrs
Time interval	= 1 min	Hyd. volume	= 39.412 cuf ft
Drainage area	= 19.860 ac	Curve number	= 65
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 22.10 min
Total precip.	= 3.11 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Report

Hydroflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No. 1
ENTIRE (DA) STAFFORD INDUSTRIAL PARK

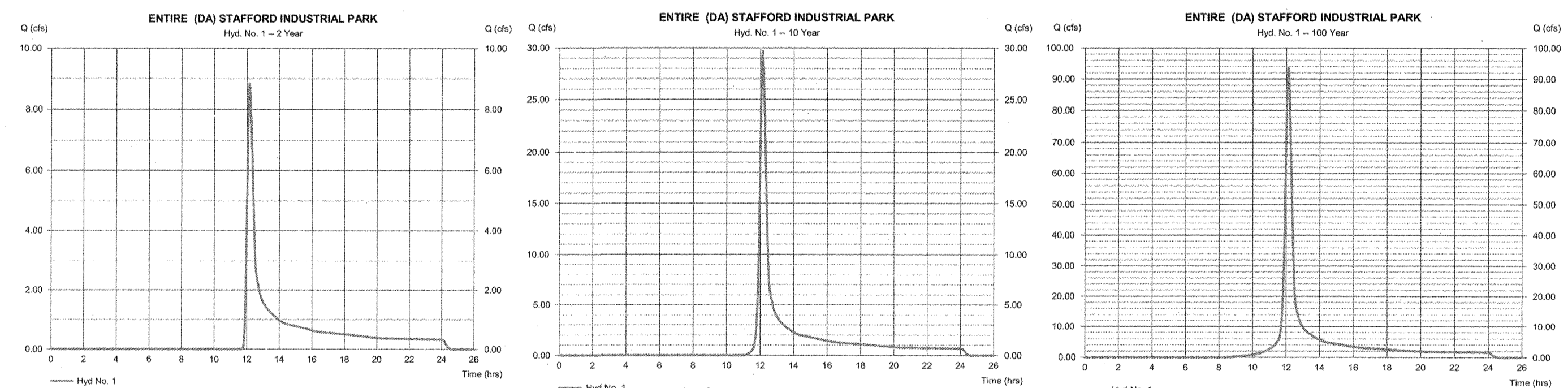
Hydrograph type	= SCS Runoff	Peak discharge	= 29.89 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.13 hrs
Time interval	= 1 min	Hyd. volume	= 107.184 cuf ft
Drainage area	= 19.860 ac	Curve number	= 65
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 22.10 min
Total precip.	= 4.79 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Report

Hydroflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No. 1
ENTIRE (DA) STAFFORD INDUSTRIAL PARK

Hydrograph type	= SCS Runoff	Peak discharge	= 93.79 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.12 hrs
Time interval	= 1 min	Hyd. volume	= 316.910 cuf ft
Drainage area	= 19.860 ac	Curve number	= 65
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 22.10 min
Total precip.	= 8.75 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



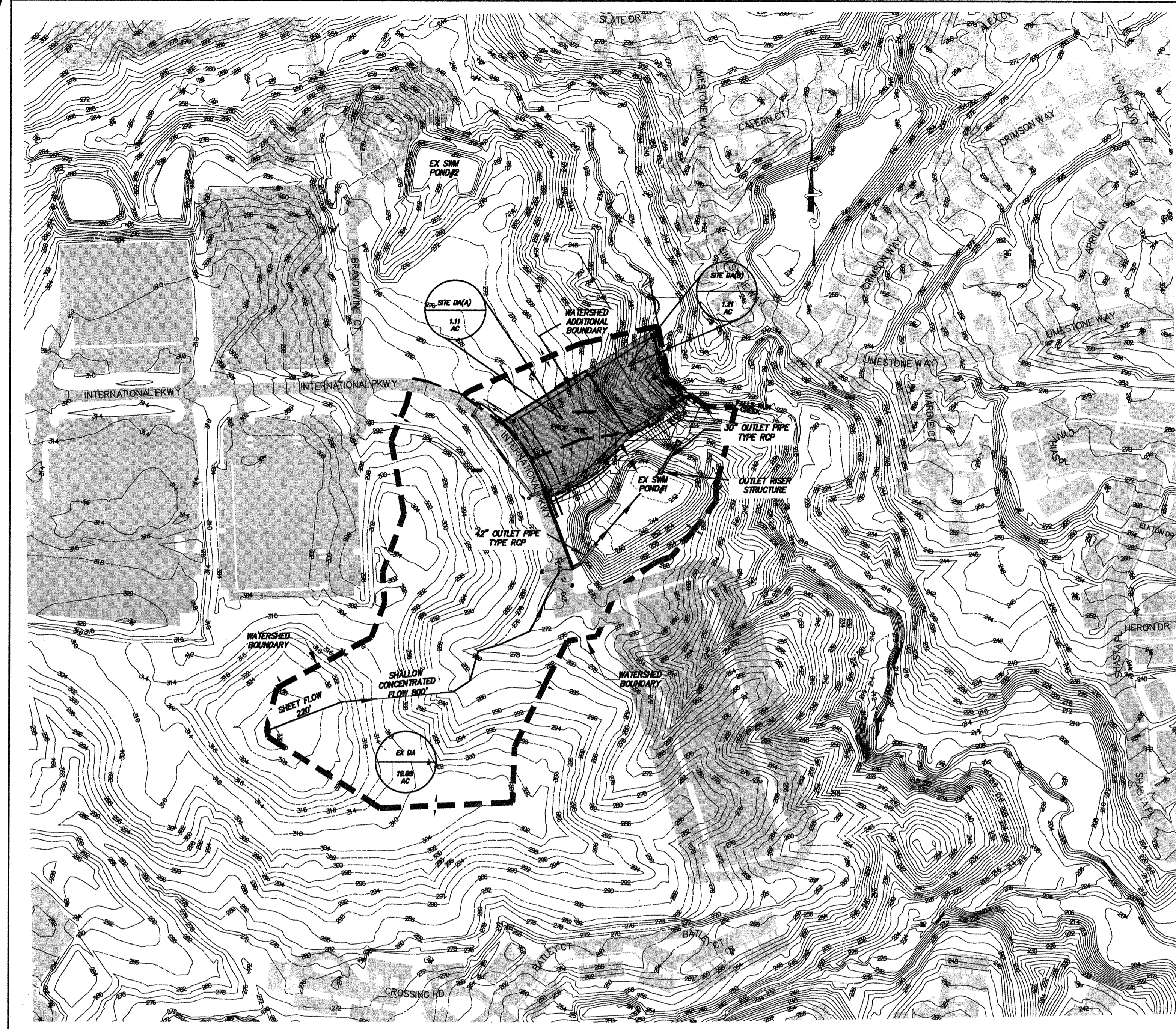
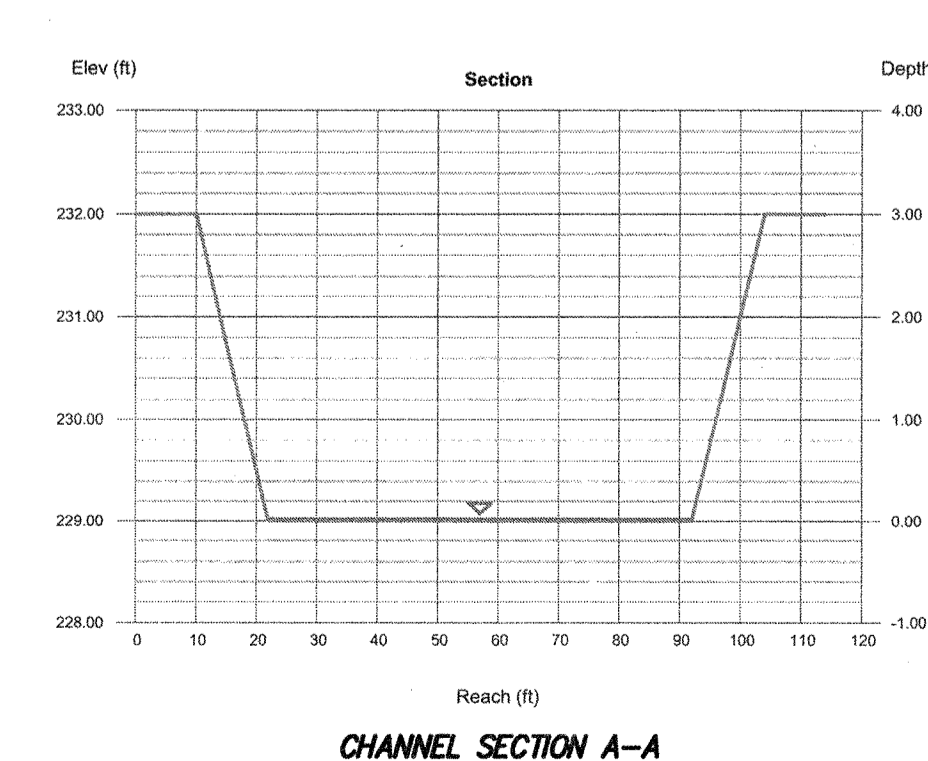
Channel Report

Hydroflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

SOUTH RIDGE CHURCH SECTION A-A

Trapezoidal		Highlighted	= 0.02
Bottom Width (ft)	= 70.00	Depth (ft)	= 0.77
Slope Slopes (z:1)	= 4:00, 4:00	Q (cfs)	= 1.40
Total Depth (ft)	= 3.00	Area (sqft)	= 0.55
Invert Elev (ft)	= 229.00	Velocity (ft/s)	= 70.16
Slope (%)	= 6.60	Wetted Perim (ft)	= 0.02
N-Value	= 0.024	Crit Depth, Yc (ft)	= 75.16
		EGL (ft)	= 0.02

Calculations Compute by: Known Q = 0.77



THIS DRAINAGE MAP IS DEVELOPED FROM STAFFORD COUNTY GIS
200' 0 200' 400'
GRAPHIC SCALE

PROJECT & STORMWATER MANAGEMENT WATER QUANTITY NARRATIVE:

THE SITE HAS A LOT SIZE OF 2.45 AC. THE LOT IS CURRENTLY VACANT AND CONSISTS MAINLY OF OPEN SPACE WITH PASTURE & NATIVE TREES WITH GROUND SLOPES AVERAGING BETWEEN 2-18%. THE PROPERTY IS BOUNDED BY INTERNATIONAL PARKWAY, FROM THE SOUTH WEST, BRANDY HILL BUSINESS PARK PROPERTY FROM THE SOUTH EAST AND THE ENGLAND RUN HOMEOWNERS ASSOCIATION ON THE NORTH-EAST.

THE PROPERTY IS MAINLY TO BE DEVELOPED INTO A PLACE OF RELIGIOUS WORSHIP WITH TWO PAVED ENTRANCES AND A PAVED PARKING LOT.

RUNOFF FROM THE EXISTING SITE DRAINS DIRECTLY INTO FALLS RUN CREEK, BUT PROPOSED DEVELOPMENT PARKING LOT AREA WITH 1.42 AC WILL BE DIRECTED TO DRAIN INTO A THE NEAR SWM POND#1 AND ULTIMATELY INTO FALLS RUN CREEK. THE REMAINING 1.21 AC DA-B WILL REMAIN TO FLOW DIRECTLY INTO FALLS RUN AS OVERLAND SHEET FLOW.

THE PEAK FLOW RATE FOR THE 2, 10, 100 YEAR-24 HOUR STORM EVENTS WERE COMPUTED USING THE SCS-24 HR METHODOLOGY IN THE AUTODESK HYDROGRAPH HYDRAFLOW PROGRAM TO DETERMINE THE PEAK DISCHARGE AND ROUTING COMPUTATIONS. WE HAVE USED DATA FOR THE SIZE OF THE POND AND OUTLET STRUCTURE FROM AN AS-BUILT CONDUCTED IN 1/2/2002 FOR THE STAFFORD INDUSTRIAL PARK SECTION 3. JUST TO BE NOTED THAT THE METHODS USED IN THE AS-BUILT WERE BASED ON THE OLDER VERSION HYDROLOGY MODEL POND-2 VERSION 5.2 S/N THAT IS NO LONGER USED.

THE PEAK FLOW FROM THE PROPOSED PARKING LOT IS PROPOSED TO BE DIRECTED TOWARDS THE SWM POND # 1 THROUGH A STORM PIPE SYSTEM TO MEET THE WATER QUANTITY REQUIREMENTS. THE EXISTING POND THEN RELEASES THE POST DEVELOPMENT PEAK FLOW INTO FALLS RUN CREEK. OUR CALCULATIONS SHOW THAT THE EXISTING SWM POND #1 HAS THE CAPACITY TO HANDLE THE PROPOSED RUNOFF FROM THE SOUTH RIDGE CHURCH BUILDING AND PARKING LOT. THERE WILL BE AN INCREASE OF THE PEAK FLOW FROM THE OUTLET STRUCTURE AND SMALL INCREASE IN THE WSE FOR ALL STORM EVENTS REFER TO THE PROVIDED HYDROFLOW AND ROUTING COMPUTATIONS ON THE FOLLOWING SHEETS AND TABLE. PEAK FLOWS FOR THE COMBINED POST DEVELOPMENT OF STAFFORD INDUSTRIAL PARK AND POST DEVELOPMENT OF SOUTH RIDGE CHURCH ARE FOUND TO BE LESS THAN THE PRE-DEVELOPMENT OF STAFFORD INDUSTRIAL PARK SECTION 3 AT DISCHARGE POINT. AND AS FOR THE WATER SURFACE ELEVATION IN THE EXISTING POND#1, IT HAS INCREASED SLIGHTLY BUT REMAINS BELOW THE POND BANKS. AS FOR THE REMAINING DA-B OF 1.08 AC OF THE SOUTH RIDGE WATERSHED, IT WILL REMAIN AS OPEN SPACE WITH PROPOSED SLOPE OF 1.5:1 WILL CONTINUE TO SHEET FLOW TOWARDS FALLS RUN CREEK. REFER TO THE FLOW DEPTH COMPUTATIONS AT CROSS SECTION A-A WITH FLOW DEPTH OF 0.02' OR 0.24".

IN CONCLUSION, SINCE THE PROPOSED FLOW FROM THE SOUTH RIDGE CHURCH HAS BEEN EITHER RELEASED INTO A MANMADE STORMWATER CONVEYANCE SYSTEMS (CONCENTRATED FLOW, THEN INTO AN ADEQUATE EXISTING SWM POND # 1 WHICH PEAK FLOW REMAIN BELOW THE PRE DEVELOPMENT OR SHEET FLOW WITH SHALLOW DEPTH OF 0.24" FOR THE REMAINING AREA AT CROSS SECTION A-A WITH OVERALL PEAK FLOW OF LESS THAN THE PRE DEVELOPMENT, THE DESIGN ENGINEER BELIEVE THAT THE REQUIREMENT IN ACCORDANCE WITH THE CODE 9VA25-870.66.B&C FOR CHANNEL AND FLOOD PROTECTION HAS BEEN MET.

PRE VS. POST- DEVELOPMENT RUNOFF FOR THE 2, 10 AND 100 YR STORM EVENT AT DISCHARGE POINT AFTER ROUTING THROUGH EX SWM POND#1

STORM EVENT	PRE-DEVELOPMENT PEAK FLOW (CFS) PRIOR TO STAFFORD INDUSTRIAL PARK	POST-DEVELOPMENT PEAK FLOW (CFS) FOR STAFFORD INDUSTRIAL PARK SUBDIVISION (FROM 2002 AS-BUILT PLAN)	POST-DEVELOPMENT PEAK FLOW (CFS) FOR STAFFORD INDUSTRIAL PARK SUBDIVISION (PER CURRENT DESIGN)	POST-DEVELOPMENT PEAK FLOW (CFS) COMBINED WITH SOUTH RIDGE CHURCH SECTION 3	POST VS. PRE
2-YR	8.83	8.47	2.89	4.2	POST < PRE
10-YR	29.89	29.24	11.27	13.9	POST < PRE
100-YR	93.79	45.84	60.58	71.44	POST < PRE

WATER SURFACE ELEVATION IMPACT FOR THE 2, 10, 100 YEAR STORM IN EX. SWM POND#1 FOR THE PRE VS. POST- DEVELOPMENT OF SOUTH RIDGE CHURCH COMBINED

STORM EVENT	PRE-DEVELOPMENT OF SOUTH RIDGE STAFFORD INDUSTRIAL PARK SEC. 3 (CURRENT DESIGN ANALYSIS)	POST-DEVELOPMENT OF SOUTH RIDGE STAFFORD INDUSTRIAL PARK SEC. 3 (AS- BUILT PLAN)	POST-DEVELOPMENT OF STAFFORD INDUSTRIAL PARK W/ SOUTH RIDGE CHURCH (CURRENT DESIGN ANALYSIS)
2-YR	244.8	245.89	245.07
10-YR	246.18	247.85	246.52
100-YR	248.69	250.92	248.99

REVISION
REVISED PER COUNTY COMMENTS

DATE
05/30/2021

Freeland Engineering, PC
rfreeland@freelandengineering.com
10814 Courthouse Road
Fredericksburg, Virginia 22408
Phone: 540.898.3092
Fax: 577.658.7735
www.FreelandEngineeringPC.com

PRE-DEV. ANALYSIS (STAFFORD INDUSTRIAL PARK)

SOUTH RIDGE CHURCH

T.M. 44-119L

GEORGE WASHINGTON DISTRICT
STAFFORD COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
RAYMOND P. FREELAND
Lic. No. 040752
08/18/2021
PROFESSIONAL ENGINEER
SEAL

County Plan Number:
AP# 20153537

Drawn By: SAR
Designed By: SAR
Checked By: RPF

Date: 09/29/2020
Scale: 1"=100'

Sheet: 14 of 31
PROJECT # 4762

AS PER STAFFORD INDUSTRIAL PARK SUBDIVISION AS-BUILT PLANS
 PEAK FLOW CALCULATION FOR THE 2, 10, AND 100YR-24HR STORM FLOOD IMPACT AT POINT OF DISCHARGE
 AND ROUTING THROUGH EXISTING POND #1

2-YEAR

PEAK FLOW CALCULATION FOR THE 2-YEAR STORM FLOOD IMPACT AT POINT OF DISCHARGE AND ROUTING THROUGH EXISTING POND #1

PEAK FLOW CALCULATION FOR THE 2-YEAR STORM FLOOD IMPACT AT POINT OF DISCHARGE AND ROUTING THROUGH EXISTING POND #1

PEAK FLOW CALCULATION FOR THE 2-YEAR STORM FLOOD IMPACT AT POINT OF DISCHARGE AND ROUTING THROUGH EXISTING POND #1

10-YEAR

PEAK FLOW CALCULATION FOR THE 10-YEAR STORM FLOOD IMPACT AT POINT OF DISCHARGE AND ROUTING THROUGH EXISTING POND #1

PEAK FLOW CALCULATION FOR THE 10-YEAR STORM FLOOD IMPACT AT POINT OF DISCHARGE AND ROUTING THROUGH EXISTING POND #1

PEAK FLOW CALCULATION FOR THE 10-YEAR STORM FLOOD IMPACT AT POINT OF DISCHARGE AND ROUTING THROUGH EXISTING POND #1

100-YEAR (EMERGENCY SPILLWAY ONLY)

PEAK FLOW CALCULATION FOR THE 100-YEAR STORM FLOOD IMPACT AT POINT OF DISCHARGE AND ROUTING THROUGH EXISTING POND #1

PEAK FLOW CALCULATION FOR THE 100-YEAR STORM FLOOD IMPACT AT POINT OF DISCHARGE AND ROUTING THROUGH EXISTING POND #1

PEAK FLOW CALCULATION FOR THE 100-YEAR STORM FLOOD IMPACT AT POINT OF DISCHARGE AND ROUTING THROUGH EXISTING POND #1

AS-BUILT DIMENSIONS MATCH DESIGN DIMENSIONS, AS SHOWN HERE, UNLESS OTHERWISE MARKED.

BMP EXTENDED DRAWDOWN DEVICE
 NOT TO SCALE

MODIFIED PRE-CAST MANHOLE RISER DETAIL
 NOT TO SCALE

SPILLWAY CROSS-SECTION "A-A"
 N.T.S.

SPILLWAY CROSS-SECTION "B-B"
 N.T.S.

CONTROL SECTION
 N.T.S.

POND #1 OUTFALL PIPE
 SCALE: 1" = 8' (H), 1" = 8' (V)

DATE: 05/20/2021

REVISION: REVISED PER COUNTY COMMENTS

Freeland Engineering, PC
 rfreeland@freelandengineering.com
 10814 Courthouse Road
 Fredericksburg, Virginia 22408
 Phone: 540.898.3092
 Fax: 877.658.7735
 www.freelandengineering.com

DATE: 05/20/2021

REVISION: REVISED PER COUNTY COMMENTS

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ORIGINAL DESIGN POST PEAK FLOW Routed THROUGH

POND #1

STAFFORD INDUSTRIAL PARK

GEORGE WASHINGTON DISTRICT
 STAFFORD COUNTY, VIRGINIA

AS-BUILT STORMWATER MANAGEMENT COMPUTATIONS & DETAILS (POND #1)

STAFFORD INDUSTRIAL PARK SUBDIVISION CONSTRUCTION PLAN

FALMOUTH-SARTWOOD DISTRICT STAFFORD COUNTY, VIRGINIA

SCALE: AS SHOWN

DATE: 01/02/00

DESIGN: J.S. DRAYNE, RVT/PE

CHECKED: [Signature]

SHEET No. 11 of 13

C-4368

COMMONWEALTH OF VIRGINIA

RAYMOND P. FREELAND

Lic. No. 040752

08/18/2021

PROFESSIONAL ENGINEER

SEAL

County Plan Number: AP# 20153537

Drawn By: SAR

Designed By: SAR

Checked By: RPF

Date: 09/29/2020

Scale: N/A

Sheet: 16 of 31

PROJECT # 4762



MAP LEGEND		MAP INFORMATION	
Area of Interest (AOI)	Area of Interest (AOI)	C	Soil
Soils	Soils	CD	Soil
Water Features	Water Features	D	Soil
Streams and Canals	Streams and Canals	Not rated or not available	Soil
Transportation	Transportation		
Roads	Roads		
Interstate Highways	Interstate Highways		
US Routes	US Routes		
Major Roads	Major Roads		
Local Roads	Local Roads		
Background	Background		
Aerial Photography	Aerial Photography		

Natural Resources Conservation Service Web Soil Survey National Cooperative Soil Survey 4/15/2020 Page 2 of 4

Riverbanks VA, LLC
John H. Morris, IV, Manager
 VIRGINIA COMMONWEALTH BANK PROFESSIONAL BUILDING
 15648 KINGS HIGHWAY
 P.O. BOX 370
 MONTROSS, VIRGINIA 22576-0370

Telephone: Office (804) 493-0888 Cell (804) 445-5337
 Facsimile (804) 493-0999 jh.morris@vcombank.com

Jeff Geyer
 Via email jeff.geyer@southridge.us

Rappacat Nutrient Bank - Credit Pricing
 Riverbanks VA, LLC

Project Reference: 2020 International Parkway, Fredericksburg, VA; South Ridge Church

Attention: **Jeff Geyer**

This letter serves to confirm Nutrient Credit pricing at the **Rappacat Nutrient Bank** and is valid for ninety (90) days as of the date of this correspondence.

The total purchase price extended to your project is:
-1.02 pounds of Phosphorus Credits = \$24,000.00

Feel free to contact me if you require further assistance.

Jackie Morris, Manager
 Jackie Morris
 Manager
 Riverbanks VA, LLC
 804 445 5337

PROJECT & STORMWATER MANAGEMENT WATER QUALITY NARRATIVE:
 THE OWNER OF THE PROJECT INTENDS TO PURCHASE NUTRIENT CREDIT FROM AN AVAILABLE NUTRIENT BANK TO OFFSET THE TP LOAD REDUCTION REQUIRED OF 2.85 LB/YR

PROJECT & STORMWATER MANAGEMENT WATER QUANTITY NARRATIVE:
 THE OWNER OF THE PROJECT INTENDS TO UTILIZE THE REGIONAL POND#1 FOR THE STORM WATER MANAGEMENT WATER QUANTITY PURPOSES. REFER TO THE APPROVAL LETTER ON THIS SHEET BY THE BOARD MEMBERS OF THE BRANDY HILL BUSINESS PARK FOR SUCH USAGE.

ENVIRONMENTAL NOTE:
 PROOF OF ALL NECESSARY FEDERAL, STATE, AND LOCAL ENVIRONMENTAL PERMITS MUST BE SUBMITTED TO PLANNING DEPARTMENT PRIOR TO APPROVAL OF CONSTRUCTION PLANS AND/OR GRADING PLANS.

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

2011 BMP Standards and Specifications 2013 Draft BMP Standards and Specifications

Project Name: SOUTH RIDGE CHURCH
 Date: 6/16/2021

BMP Design Specifications List: 2013 Draft Stds & Specs

Site Information

Post-Development Project (Treatment Volume and Loads)

Land Cover (acres)	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) - undisturbed, protected forest/open space or reforested land		1.21			1.21
Managed Turf (acres) - disturbed, graded for yards or other turf to be mowed/managed		0.34	0.10		0.44
Impervious Cover (acres)		0.45	0.35		0.80
					2.45

Constants		Runoff Coefficients (Rv)			
Annual Rainfall (inches)	43				
Target Rainfall Event (inches)	1.00				
Total Phosphorus (TP) EMC (mg/L)	0.26				
Total Nitrogen (TN) EMC (mg/L)	1.86				
Target TP Load (lb/acre/yr)	0.41				
Pj (unitless correction factor)	0.90				

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr) 1.02

LAND COVER SUMMARY -- POST DEVELOPMENT		Treatment Volume and Nutrient Loads	
Forest/Open Space Cover (acres)	1.21	Treatment Volume (acre-ft)	0.0739
Weighted Rv (forest)	0.03	Treatment Volume (cubic feet)	3,217
% Forest	49%	TP Load (lb/yr)	2.02
Managed Turf Cover (acres)	0.44	TN Load (lb/yr)	14.46
Weighted Rv (turf)	0.20		
% Managed Turf	18%		
Impervious Cover (acres)	0.80		
Rv (impervious)	0.95		
% Impervious	33%		
Site Area (acres)	2.45		
Site Rv	0.36		

Cynthia Brown
 RE: External Request for Stafford Industrial Park and Brandy Hill Business Park
 To: Jeff Geyer

Good morning Jeff,

The Board Members of the Brandy Hill Business Park Association has in agreement with South Ridge Church performing the necessary grading work for the sewer abate encroachment and bring into the Pond as per the approved plans by Stafford County in 2011.

If you have any questions, please do not hesitate to contact me at 301-643-0350.

Best regards,
 Cynthia Brown
 Real Estate Manager
 Brandy Hill Investment Properties
 14145 Brandy Hill Road
 Brandywine, MD 20813
 Phone: 301-643-0350
 Cell: 301-643-0350
 Fax: 301-780-7463

REVISION

DATE	REVISED PER	COUNTY COMMENTS
05/30/2021		

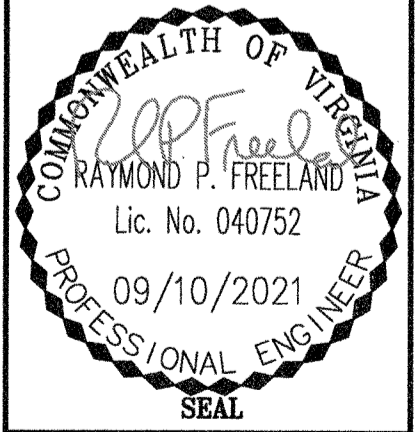
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VRRM & SOILS MAP

SOUTH RIDGE CHURCH

T.M. 44-119L

GEORGE WASHINGTON DISTRICT
 STAFFORD COUNTY, VIRGINIA



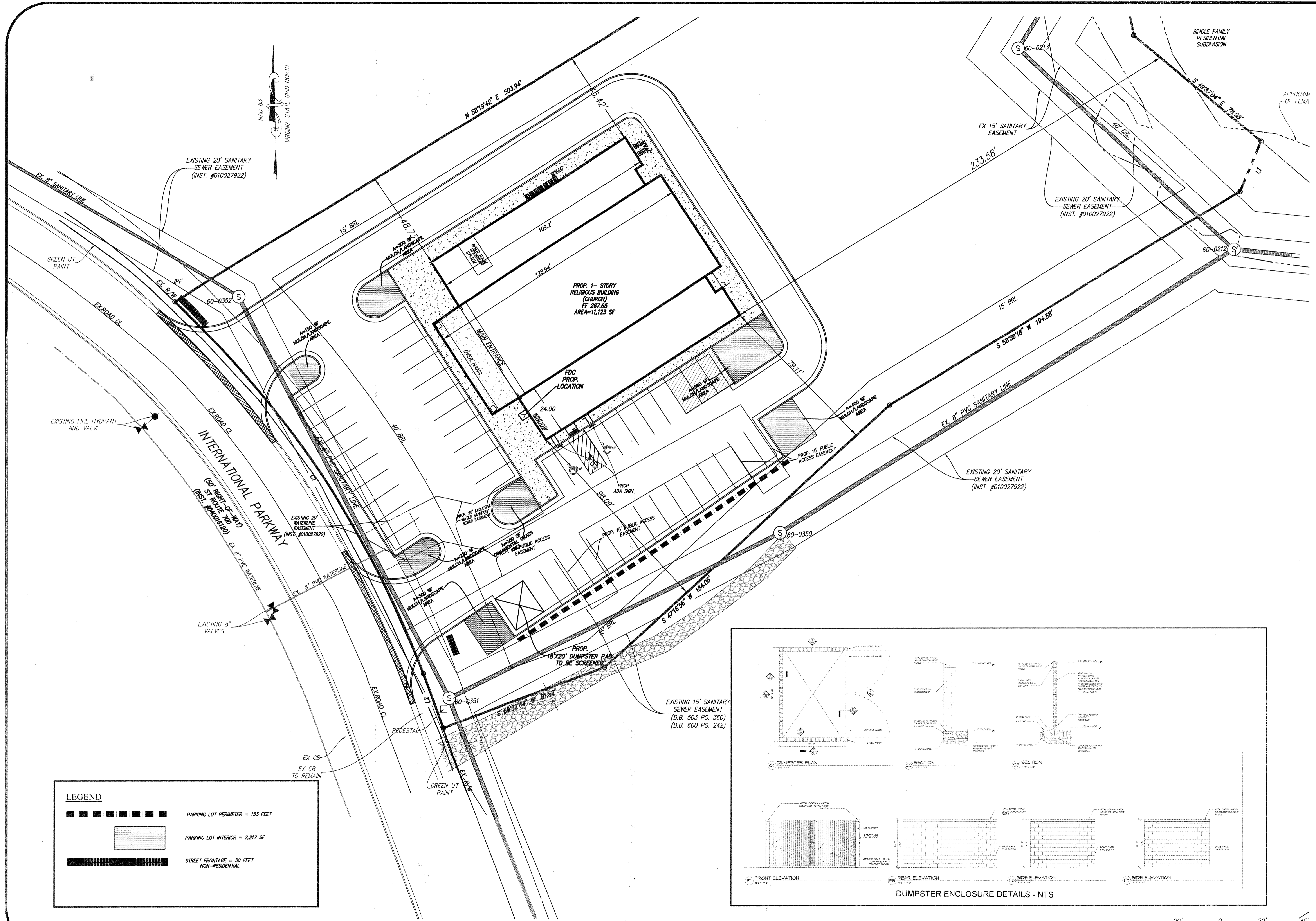
County Plan Number:
 AP# 20153537

Drawn By: SAR
 Designed By: SAR
 Checked By: RPF

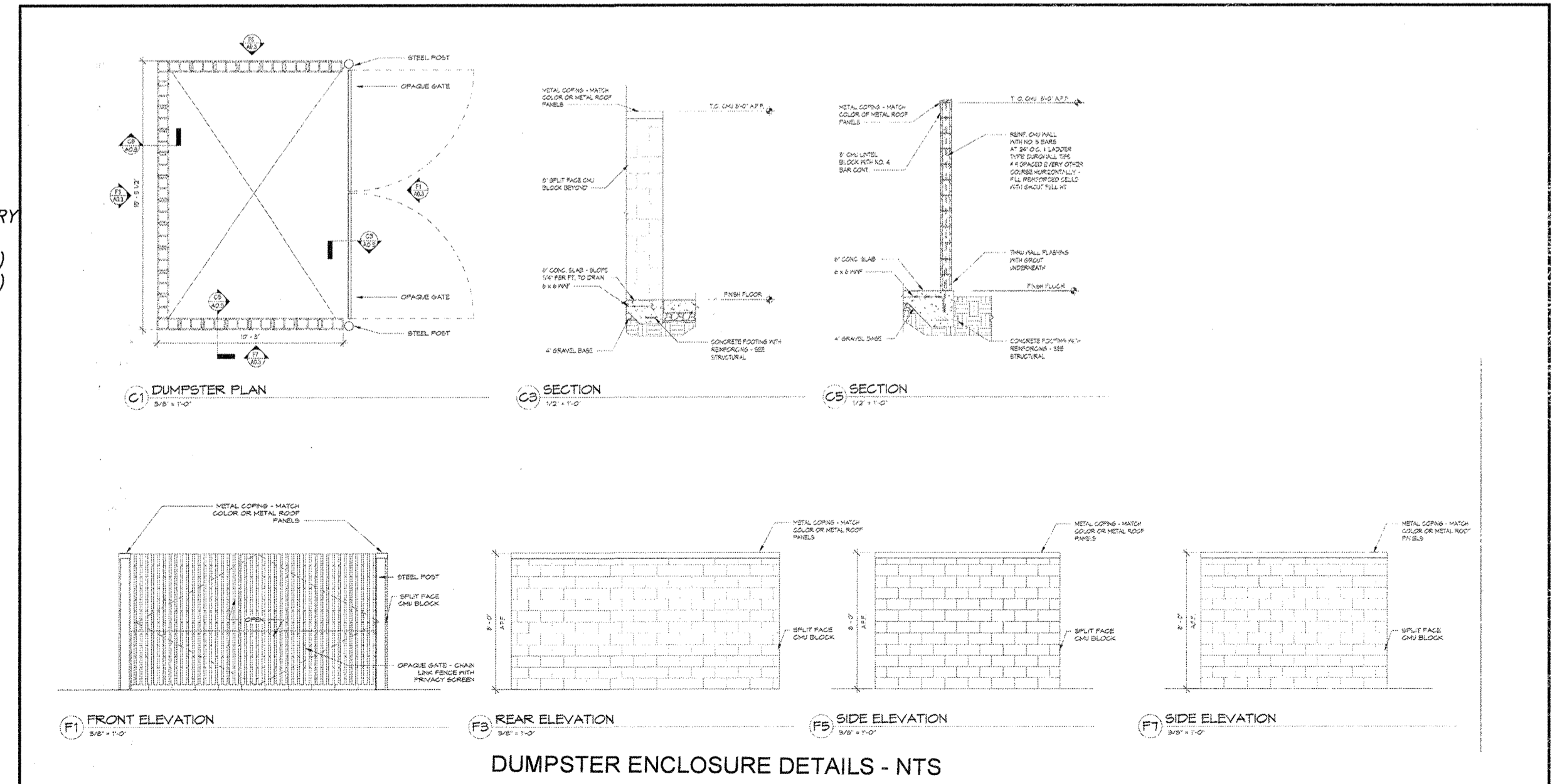
Date: 09/29/2020

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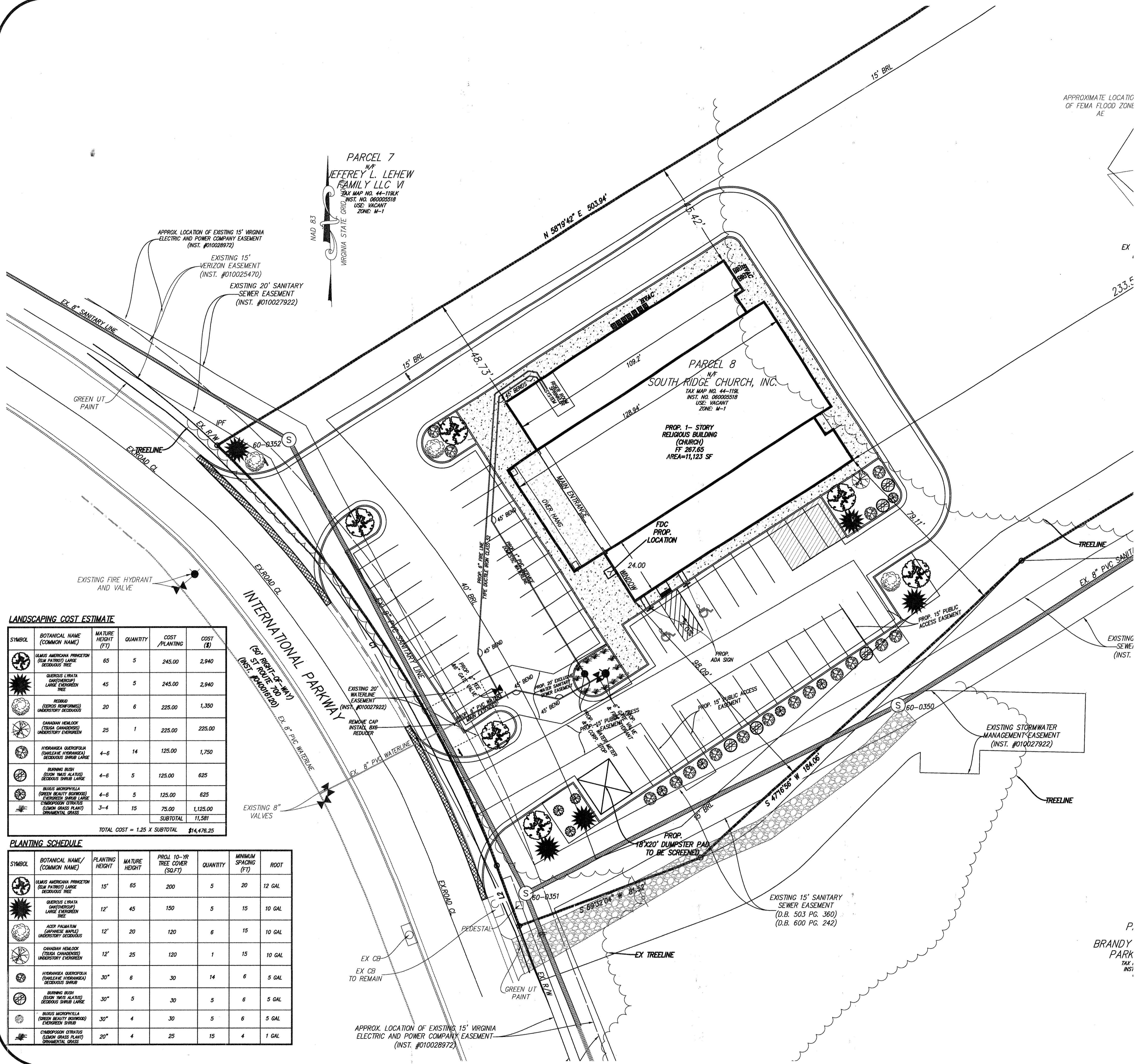
Sheet: 18 of 31
 PROJECT # 4762



LEGEND	
	PARKING LOT PERIMETER = 153 FEET
	PARKING LOT INTERIOR = 2,217 SF
	STREET FRONTAGE = 30 FEET NON-RESIDENTIAL



REVISION	REVISED PER COUNTY COMMENTS
DATE	05/20/2021
Freeland Engineering, PC rfreetland@freelandengineeringPC.com 10814 Courthouse Road Fredericksburg, Virginia 22408 Phone: 540.898.3092 Fax: 877.658.7735 www.FreelandEngineeringPC.com	
LANDSCAPE AREAS SOUTH RIDGE CHURCH T.M. # 44-119L GEORGE WASHINGTON DISTRICT STAFFORD COUNTY, VIRGINIA	
County Plan Number: AP# 20153537	
Drawn By:	SAR
Designed By:	SAR
Checked By:	RPF
Date:	02/14/2021
Scale:	1"=20'
Sheet:	19 of 31
PROJECT # 4762	



PARCEL 7
N/F
JEFFREY L. LEHEW
FAMILY LLC VI
TAX MAP NO. 44-118LK
INST. NO. 060005518
USE: VACANT
ZONE: M-1

PARCEL 8
N/F
SOUTH RIDGE CHURCH, INC.
TAX MAP NO. 44-119L
INST. NO. 060005518
USE: VACANT
ZONE: M-1

APPROX. LOCATION OF EXISTING 15' VIRGINIA
ELECTRIC AND POWER COMPANY EASEMENT
(INST. #010028972)

EXISTING 15' VERIZON EASEMENT
(INST. #010025470)

EXISTING 20' SANITARY
SEWER EASEMENT
(INST. #010027922)

APPROXIMATE LOCATI
OF FEMA FLOOD ZONE
AE

LANDSCAPING COST ESTIMATE

SYMBOL	BOTANICAL NAME (COMMON NAME)	MATURE HEIGHT (FT)	QUANTITY	COST PLANTING	COST (\$)
	QUERCUS LYRATA (SHADOWERUP) LARGE DECIDUOUS TREE	65	5	245.00	2,940
	QUERCUS LYRATA (SHADOWERUP) LARGE EVERGREEN TREE	45	5	245.00	2,940
	REMOB (ZEBRA BROWNSHIRT) UNDERSTORY DECIDUOUS	20	6	225.00	1,350
	CHAMAECYPARIS (TSAGA CAMARGOSIS) UNDERSTORY EVERGREEN	25	1	225.00	225.00
	HYDRANGEA QUERCIFOLIA (OAKLEAF HYDRANGEA) DECIDUOUS SHRUB LARGE	4-6	14	125.00	1,750
	BURNING BUSH (EUON 'MUS ALATUS') DECIDUOUS SHRUB LARGE	4-6	5	125.00	625
	BIOTA ORIENTALIS (GREEN BEAUTY BOWWOOD) UNDERSTORY SHRUB LARGE	4-6	5	125.00	625
	ORNITHOGLOSSUM (LAWN GRASS PLANT) ORNAMENTAL GRASS	3-4	15	75.00	1,125.00
SUBTOTAL				11,581	
TOTAL COST = 1.25 X SUBTOTAL					\$14,476.25

PLANTING SCHEDULE

SYMBOL	BOTANICAL NAME/ (COMMON NAME)	PLANTING HEIGHT	MATURE HEIGHT	PROL. 10-YR TREE COVER (SQ.FT)	QUANTITY	MINIMUM SPACING (FT)	ROOT
	QUERCUS LYRATA (SHADOWERUP) LARGE DECIDUOUS TREE	15'	65	200	5	20	12 GAL
	QUERCUS LYRATA (SHADOWERUP) LARGE EVERGREEN TREE	12'	45	150	5	15	10 GAL
	ACER PALMATUM (JAPANESE MAPLE) UNDERSTORY DECIDUOUS	12'	20	120	6	15	10 GAL
	CHAMAECYPARIS (TSAGA CAMARGOSIS) UNDERSTORY EVERGREEN	12'	25	120	1	15	10 GAL
	HYDRANGEA QUERCIFOLIA (OAKLEAF HYDRANGEA) DECIDUOUS SHRUB	30"	6	30	14	6	5 GAL
	BURNING BUSH (EUON 'MUS ALATUS') DECIDUOUS SHRUB LARGE	30"	5	30	5	6	5 GAL
	BIOTA ORIENTALIS (GREEN BEAUTY BOWWOOD) UNDERSTORY SHRUB	30"	4	30	5	6	5 GAL
	ORNITHOGLOSSUM (LAWN GRASS PLANT) ORNAMENTAL GRASS	20"	4	25	15	4	1 GAL

LANDSCAPING SCHEDULE:

SCHEDULE FOR SECTION 120.1
PARKING LOT, INTERIOR

VARIABLES:
1. TOTAL SQUARE FOOTAGE OF PARKING LOT: 20,028 SQ. FEET
2. MINIMUM PLANTING AREA REQUIRED: (1% X 0.05) = 1,001 SQ. FEET
3. ADDITIONAL SQUARE FOOTAGE REQUIRED TO MEET LANDSCAPE ISLAND SPACING/PLACEMENT: 0 SQ. FEET
4. AMOUNT OF PLANTING AREA UTILIZING IMP: 0 SQ. FEET

5. TOTAL PLANTING AREA REQUIRED: (#2 + #3) = #4* = 1,001 SQ. FEET

6. TOTAL PLANT UNITS REQUIRED: (#5 / 150) X 12 = 81 P.U.
6A. TOTAL TREES REQUIRED: (#5 / 150) = 6.2 = 7 TREES (MINIMUM 1 TREE / 150 SQ. FT. PLANTING AREA)

CALCULATION OF INDIVIDUALS: (PERCENTAGES ARE EXPRESSED IN DECIMAL FORMAT)
A. NUMBER OF PROPOSED LARGE DECIDUOUS TREES: .5 (PLANTS) X 10 = .50 P.U.
B. NUMBER OF PROPOSED LARGE EVERGREEN TREES: .3 (PLANTS) X 10 = .30 P.U.
C. NUMBER OF PROPOSED UNDERSTORY TREES: 2 (PLANTS)

1) NUMBER OF DECIDUOUS UNDERSTORY TREES REQUIRED: (C X 0.6) = 2 = 2 (PLANTS) X 7 = 14 P.U.
2) NUMBER OF EVERGREEN UNDERSTORY TREES REQUIRED: (C X 0.2) = 1 = 1 (PLANTS) X 7 = 7 P.U.

D. NUMBER OF PROPOSED LARGE SHRUBS: 7 (PLANTS)
1) NUMBER OF DECIDUOUS LARGE SHRUBS REQUIRED: (D X 0.6) = 5 = 5 (PLANTS) X 3 = 15 P.U.
2) NUMBER OF EVERGREEN LARGE SHRUBS REQUIRED: (D X 0.2) = 2 = 2 (PLANTS) X 3 = 6 P.U.

E. NUMBER OF PROPOSED SMALL SHRUBS/ORNAMENTAL GRASSES: 15 (PLANTS)
1) NUMBER OF DECIDUOUS SMALL SHRUBS/ORNAMENTAL GRASSES REQUIRED: (E X 0.8) = 12 (P.U.)
= 12 X 1 P.U. = 12 P.U.
2) NUMBER OF EVERGREEN SMALL SHRUBS REQUIRED: (E X 0.2) = (PLANTS) = 3 P.U.

F. TOTAL PLANT UNITS PROPOSED: 141 P.U.

NOTES:
(1)* REFERS TO CORRESPONDING "VARIABLES" LINE ITEMS.
(2) PLANT UNIT (P.U.) CALCULATION RESULTS SHALL BE ROUNDED UP TO THE NEXT WHOLE NUMBER.
(3) THE "TOTAL PLANT UNITS PROPOSED" SHOWN ON LINE ITEM F FROM THE ABOVE "CALCULATION OF INDIVIDUALS" SHALL BE EQUAL TO OR GREATER THAN LINE ITEM #6 FROM THE ABOVE "VARIABLES".

SCHEDULE FOR SECTION 120.2

PARKING LOT, PERIMETER

VARIABLES:
1. TOTAL LINEAR FEET OF PARKING LOT PERIMETER: 153 FEET
2. LINEAR FEET OF PARKING LOT PERIMETER USED FOR VEHICULAR ACCESS: N/A
3. LINEAR FEET OF PARKING LOT PERIMETER UTILIZING IMP: 0 FEET

4. NET LINEAR FEET OF PARKING LOT PERIMETER: (#1* - #2*) - #3* = 153 FEET

5. TOTAL PLANT UNITS REQUIRED: (#4 / 100) X 35 = 54 P.U.

CALCULATION OF INDIVIDUALS: (PERCENTAGES ARE EXPRESSED IN DECIMAL FORMAT)
A. NUMBER OF PROPOSED LARGE DECIDUOUS TREES: 0 (PLANTS) X 10 = 0 P.U.
B. NUMBER OF PROPOSED LARGE EVERGREEN TREES: 0 (PLANTS) X 10 = 0 P.U.
C. NUMBER OF PROPOSED UNDERSTORY TREES: 0 (PLANTS)
1) NUMBER OF DECIDUOUS UNDERSTORY TREES REQUIRED: (C X 0.8) = 0 = 0 (PLANTS) X 7 = 0 P.U.
2) NUMBER OF EVERGREEN UNDERSTORY TREES REQUIRED: (C X 0.2) = 0 = 0 (PLANTS) X 7 = 0 P.U.

D. NUMBER OF PROPOSED LARGE SHRUBS: 18 (PLANTS)
1) NUMBER OF DECIDUOUS LARGE SHRUBS REQUIRED: (D X 0.6) = 14 (PLANTS) X 3 = 42 P.U.
2) NUMBER OF EVERGREEN LARGE SHRUBS REQUIRED: (D X 0.2) = 4 (PLANTS) X 3 = 12 P.U.

E. NUMBER OF PROPOSED SMALL SHRUBS/ORNAMENTAL GRASSES: 0 (PLANTS)
1) NUMBER OF DECIDUOUS SMALL SHRUBS/ORNAMENTAL GRASSES REQUIRED: (E X 0.8) = (PLANTS)
= 0 P.U.
2) NUMBER OF EVERGREEN SMALL SHRUBS REQUIRED: (E X 0.2) = (PLANTS) = 0 P.U.

F. TOTAL PLANT UNITS PROPOSED: 54 P.U.

NOTES:
(1)* REFERS TO CORRESPONDING "VARIABLES" LINE ITEMS.
(2) PLANT UNIT (P.U.) CALCULATION RESULTS SHALL BE ROUNDED UP TO THE NEXT WHOLE NUMBER.
(3) THE "TOTAL PLANT UNITS PROPOSED" SHOWN ON LINE ITEM F FROM THE ABOVE "CALCULATION OF INDIVIDUALS" SHALL BE EQUAL TO OR GREATER THAN LINE ITEM #5 FROM THE ABOVE "VARIABLES".

Sample Schedule for Section 120.4

Landscaping, Street Trees - NON-RESIDENTIAL

VARIABLES:
1. Total linear feet of street frontage: 242 feet
2. Linear feet of street frontage used for vehicular access: 90 feet
3. Linear feet of street frontage utilizing IMP: 0 feet

4. Net Linear Feet of Street Frontage: (#1* - #2*) - #3* = 152 feet

5. Total Plant Units required: (#4 / 100) X 21 = 32 p.u.

CALCULATION OF INDIVIDUALS: (percentages are expressed in decimal format)
A. Number of Proposed Large Deciduous Trees: 1 (plants) X 10 = 10 p.u.
B. Number of Proposed Large Evergreen Trees: 2 (plants) X 10 = 20 p.u.
C. Number of Proposed Understory Trees: (plants)
1) Number of Deciduous Understory Trees Required: (C X 0.5) = 1 (plants) X 7 = 7 p.u.
2) Number of Evergreen Understory Trees Required: (C X 0.2) = (plants) X 7 = (p.u.)
D. Number of Proposed Large Shrubs:
1) Number of Deciduous Large Shrubs Required: (D X 0.8) = (plants) X 3 = (p.u.)
2) Number of Evergreen Large Shrubs Required: (D X 0.2) = (plants) X 3 = (p.u.)
E. Number of Proposed Small Shrubs/Ornamental Grasses: (plants)
1) Number of Deciduous Small Shrubs/Ornamental Grasses Required: (E X 0.8) = (plants)
= (p.u.)
2) Number of Evergreen Small Shrubs Required: (E X 0.2) = (plants) = (p.u.)
F. Total Plant Units proposed: 37 p.u.

NOTES:
(1)* Refers to corresponding "Variables" line items.
(2) Plant unit (p.u.) calculation results shall be rounded up to the next whole number.
(3) The "Total Plant Units proposed" shown on line item F from the above "Calculation of Individuals" shall be equal to or greater than line item #5 from the above "Variables".



REVISION
REVISED PER COUNTY COMMENTS

DATE
05/30/2021

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10814 Courthouse Road
Fredericksburg, Virginia 22408
Phone: 540.898.3092
Fax: 877.658.7735
www.FreelandEngineeringPC.com

LANDSCAPING PLAN AND SCHEDULE

SOUTH RIDGE CHURCH

T.M. # 44-119L

GEORGE WASHINGTON DISTRICT
STAFFORD COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
RAYMOND P. FREELAND
Lic. No. 040752
09/10/2021
PROFESSIONAL ENGINEER
SEAL

County Plan Number:
AP# 20153537

Drawn By: SAR
Designed By: SAR
Checked By: RPF

Date: 02/14/2021
Scale: 1"=20'

Sheet: 20 of 31
PROJECT # 4762

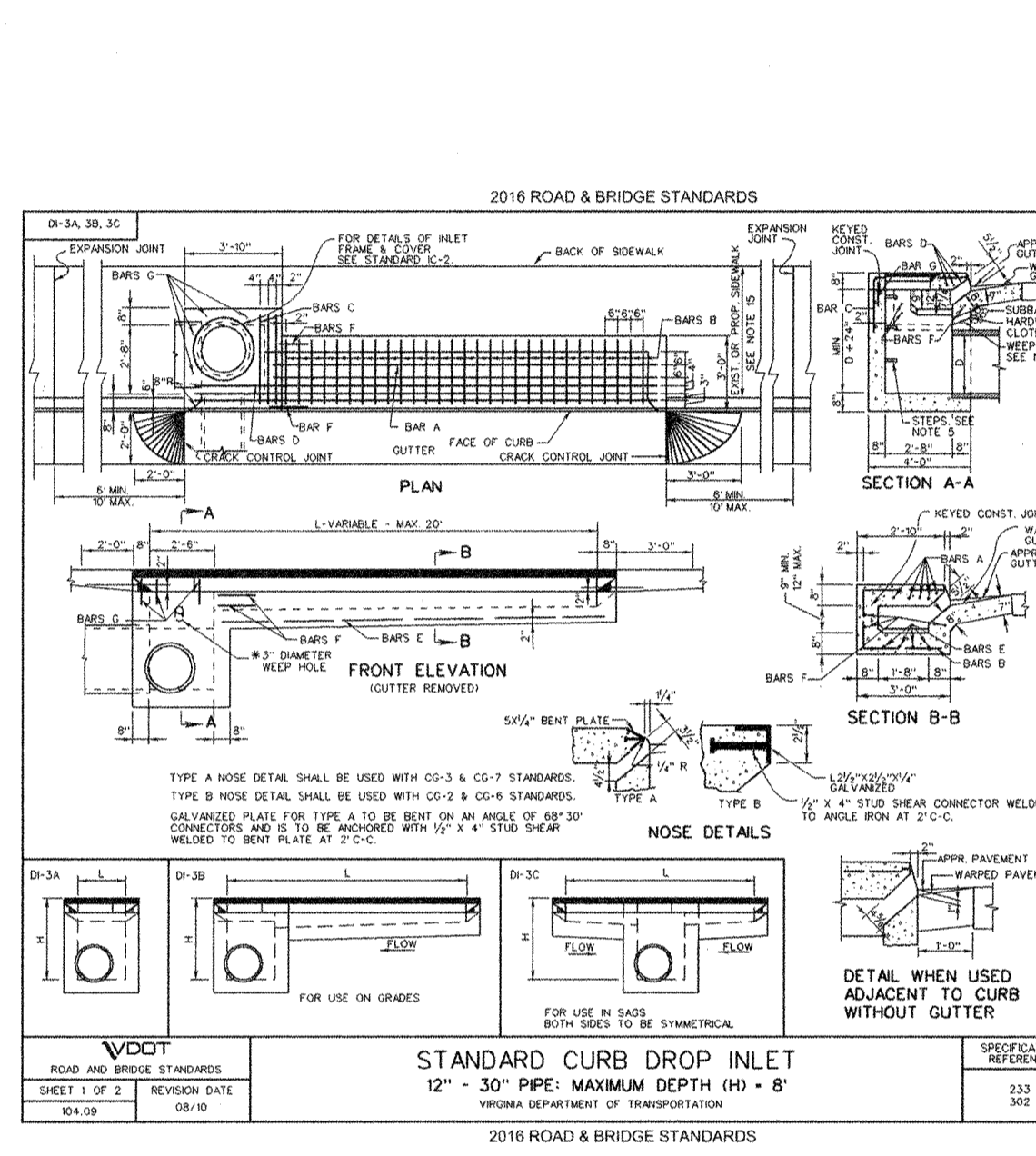
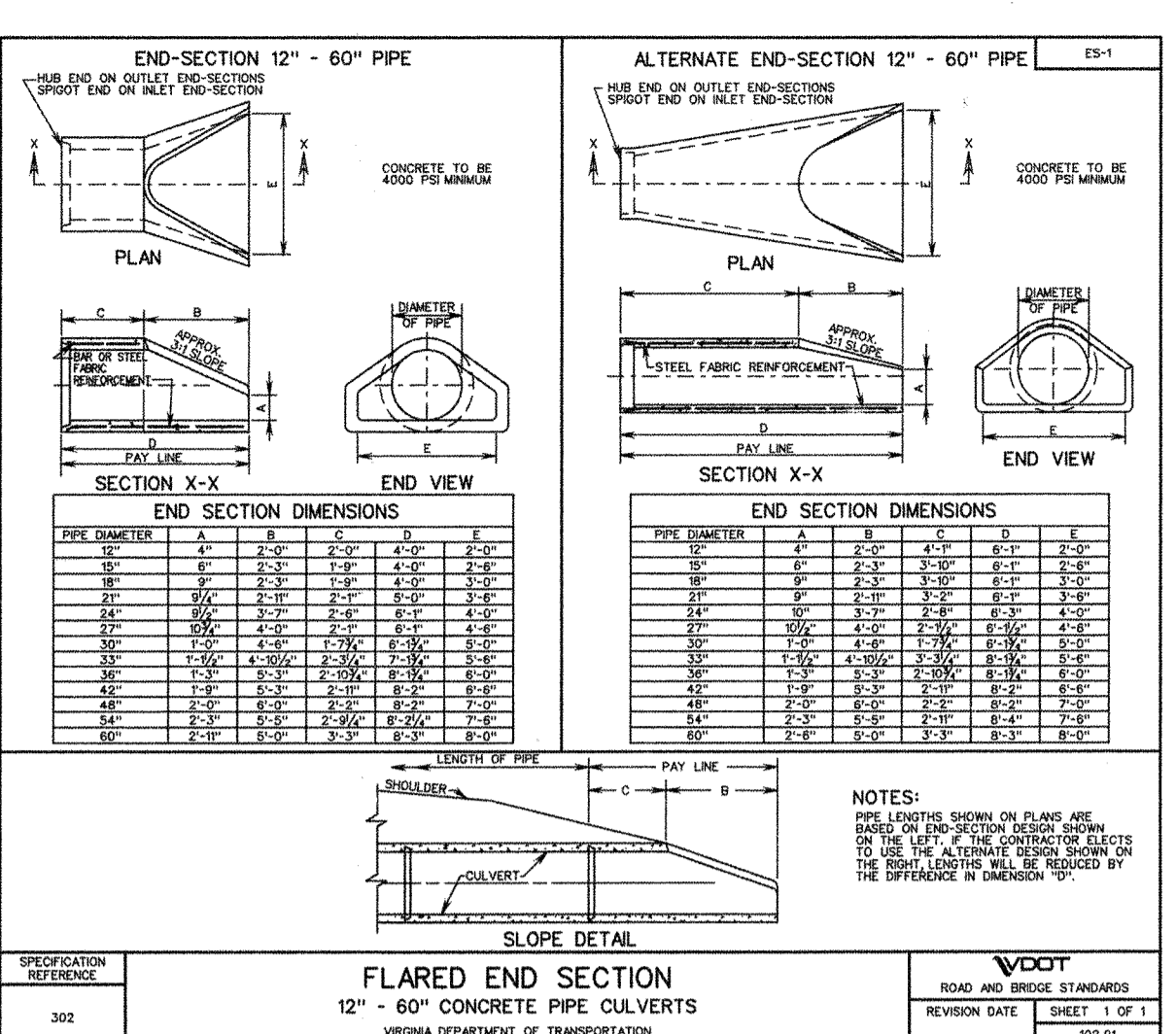
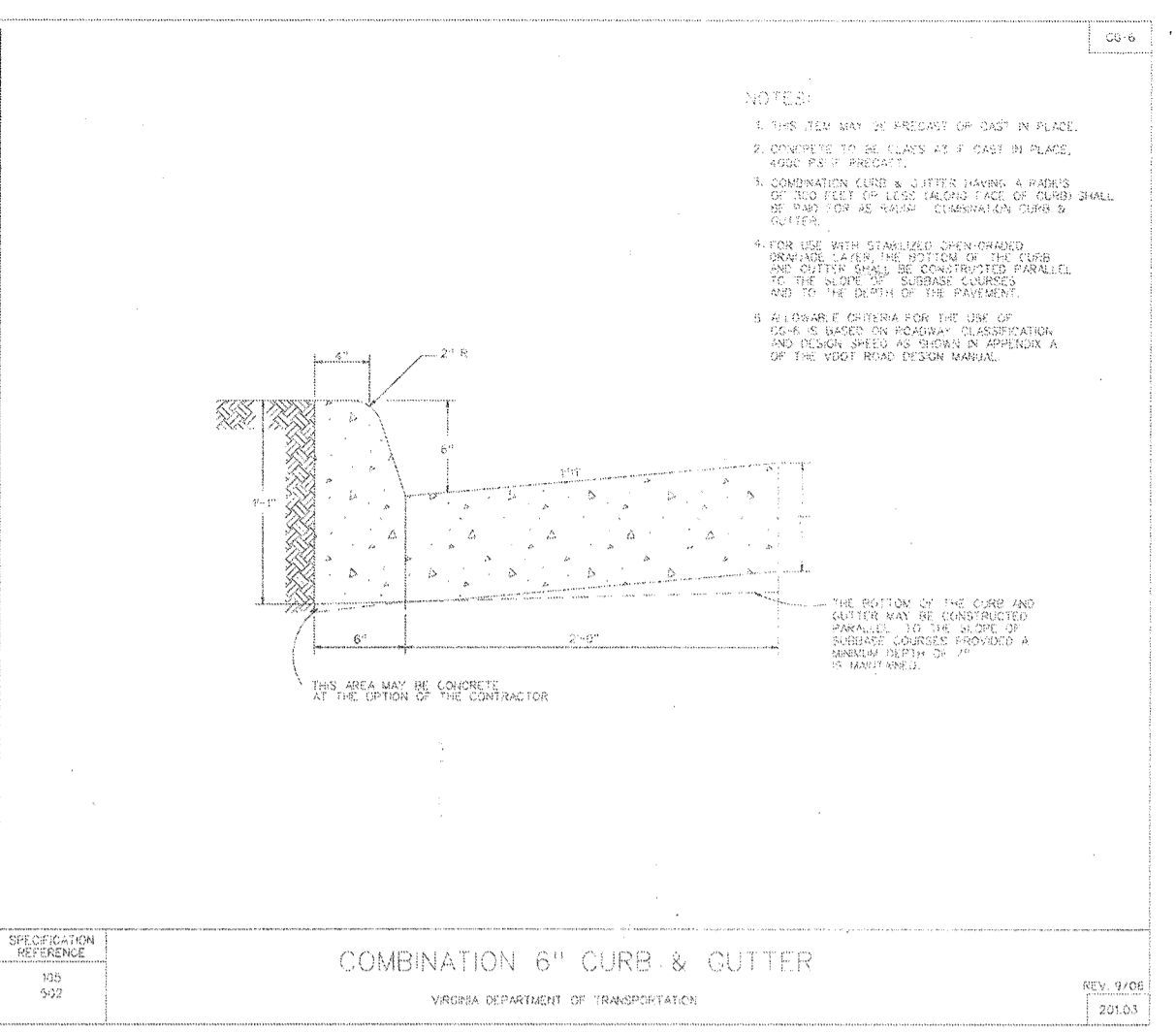
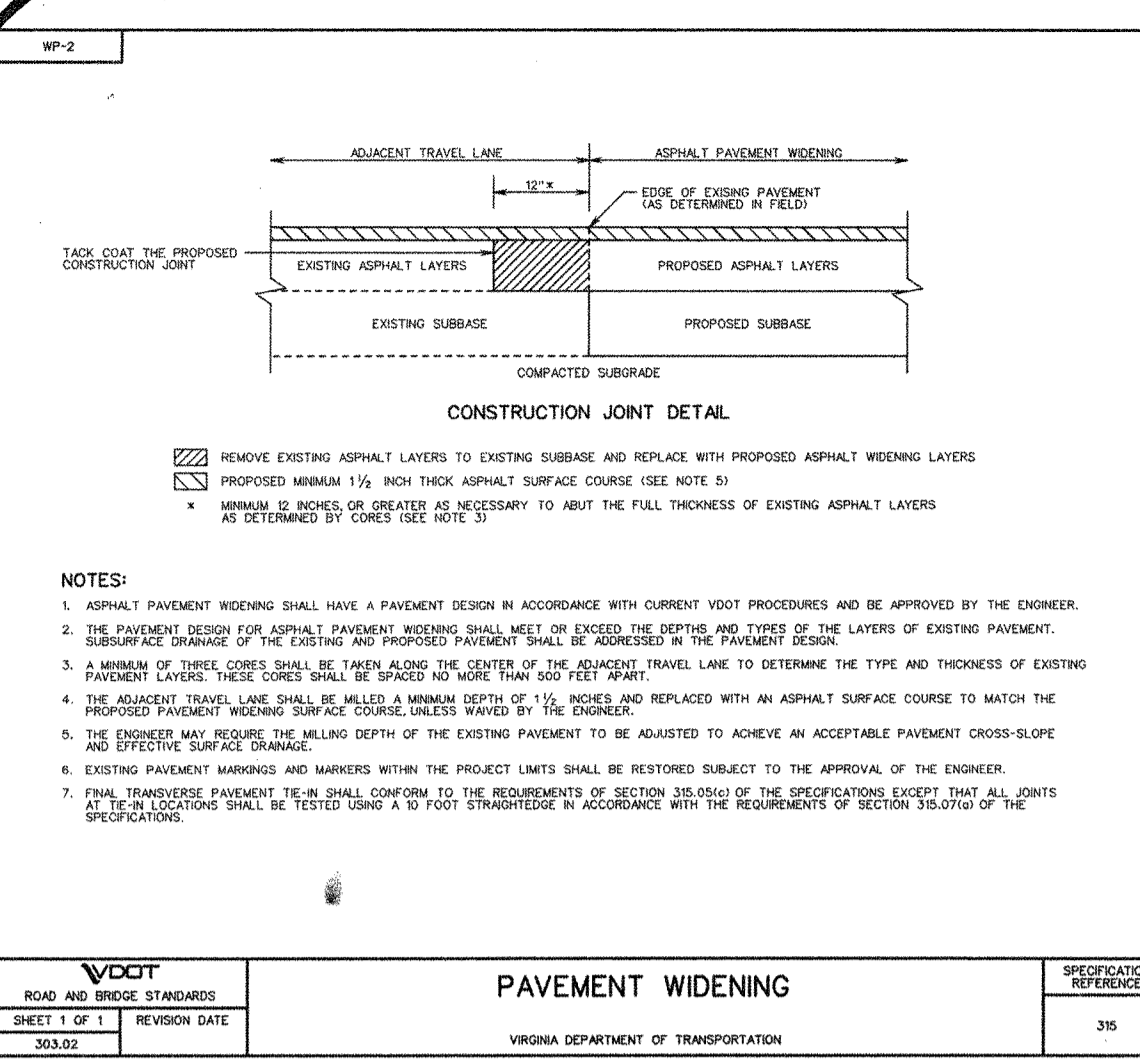
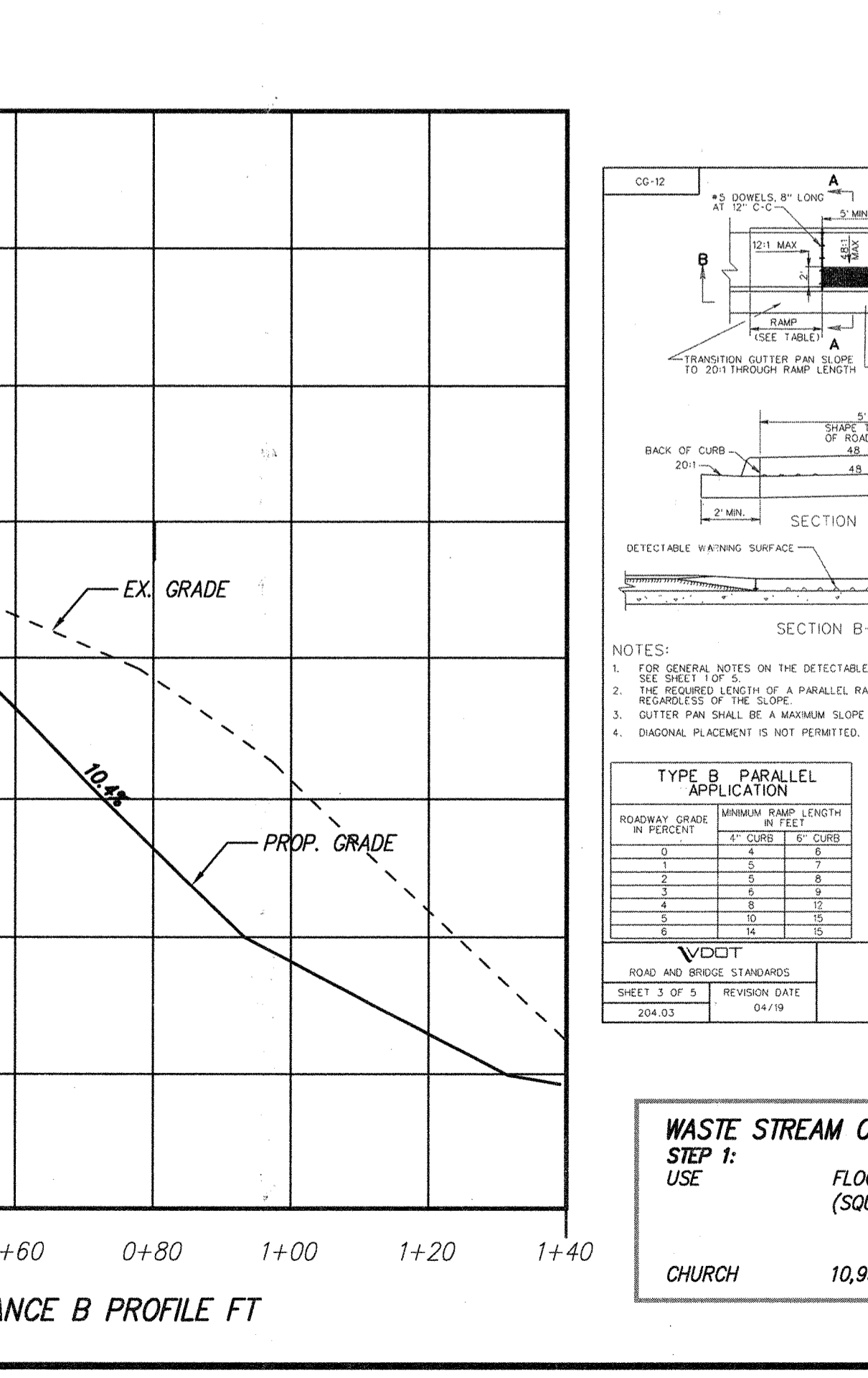
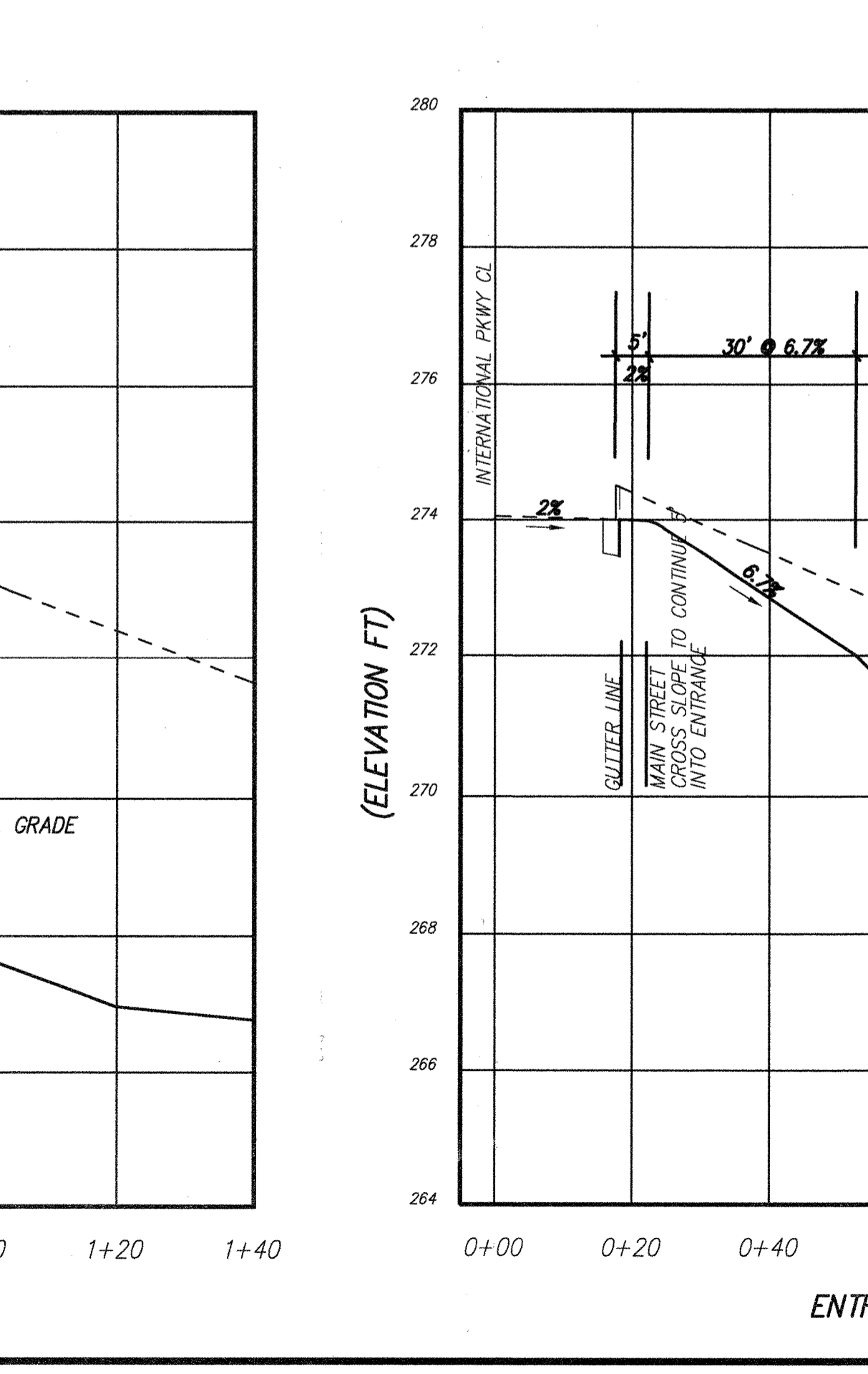
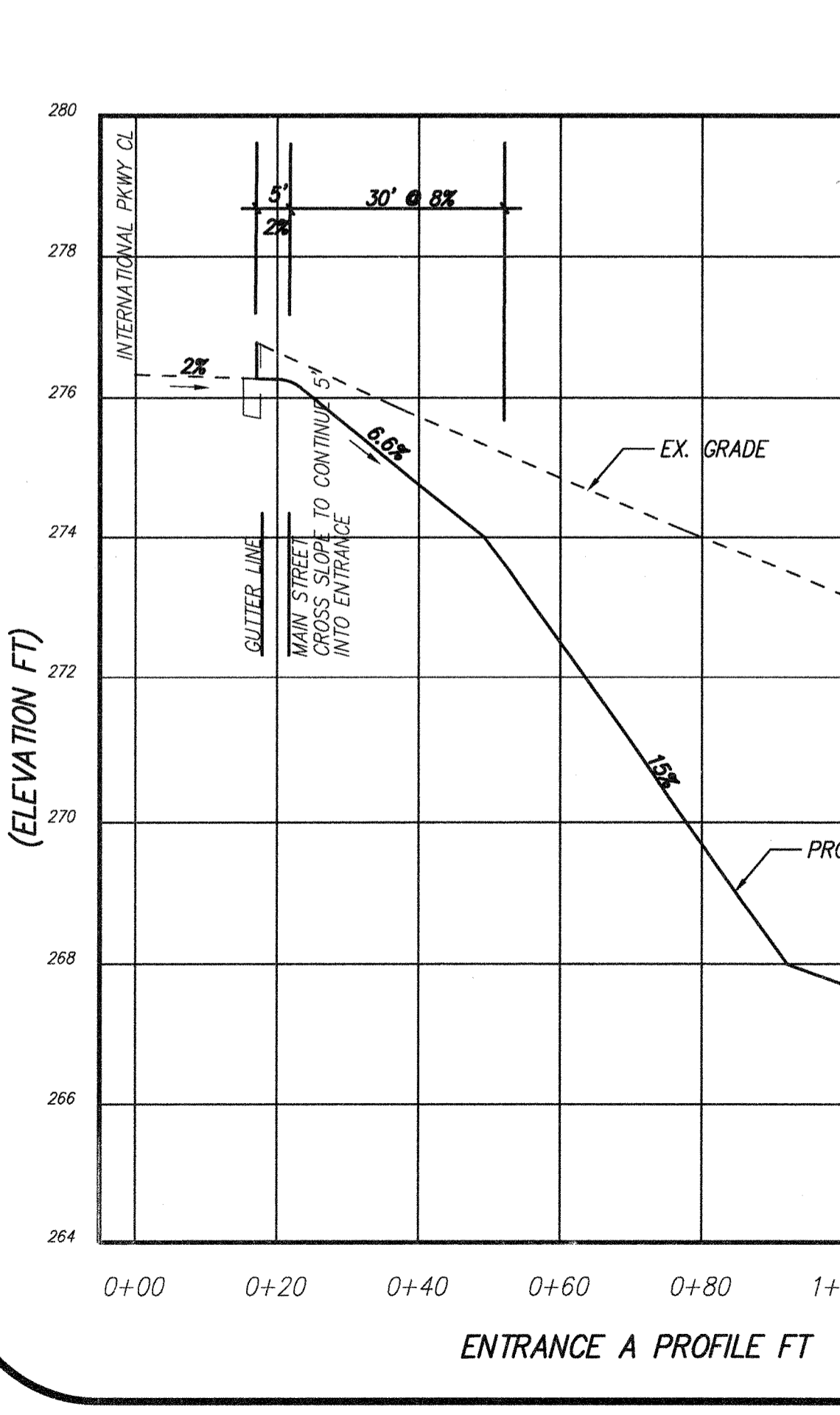
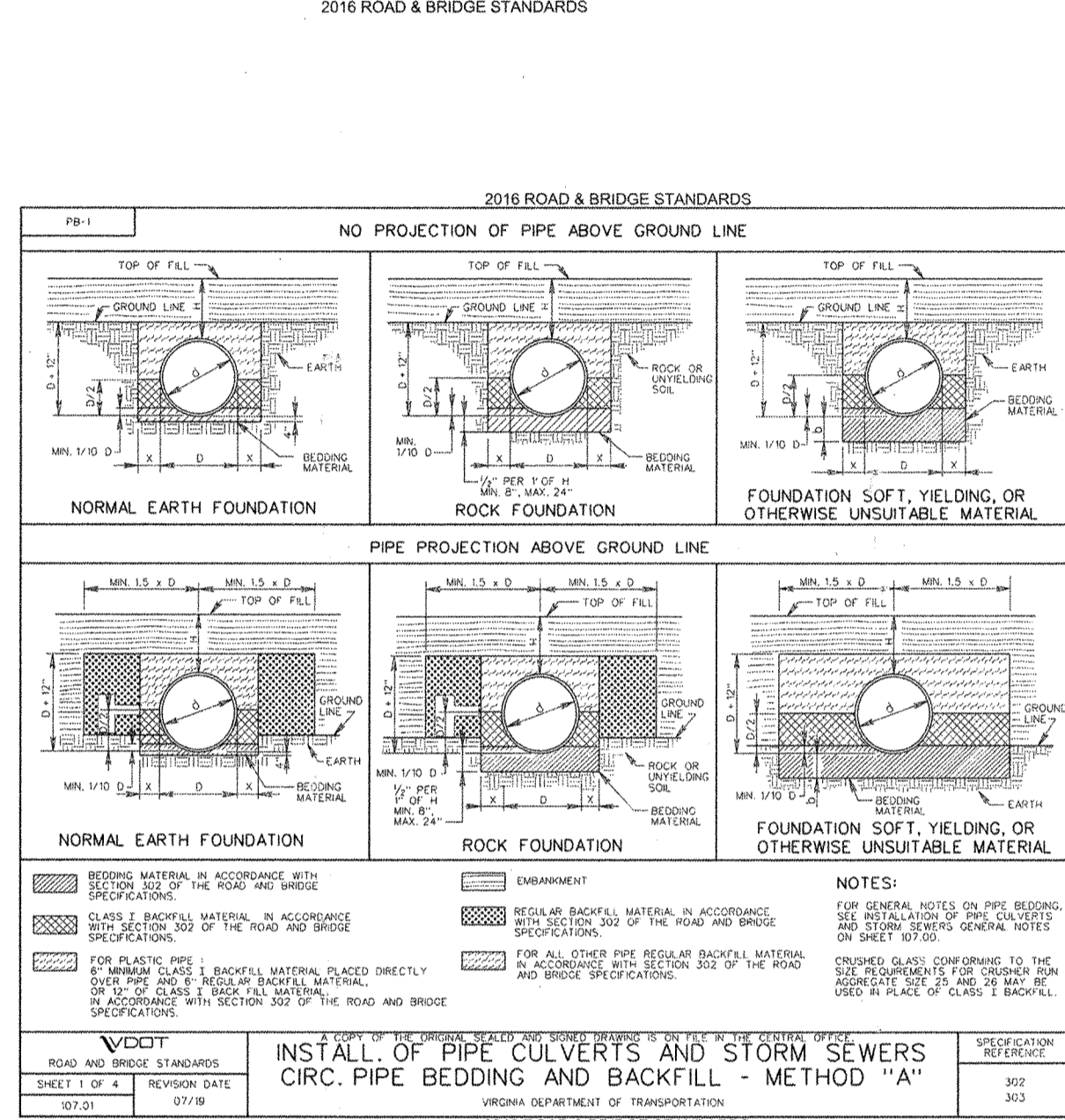


TABLE OF QUANTITIES

TYPE	AREA OF SLOTT	REINFORCING STEEL	REMARKS
D-3A	1.00	1.00	
D-3B	1.00	1.00	
D-3C	1.00	1.00	

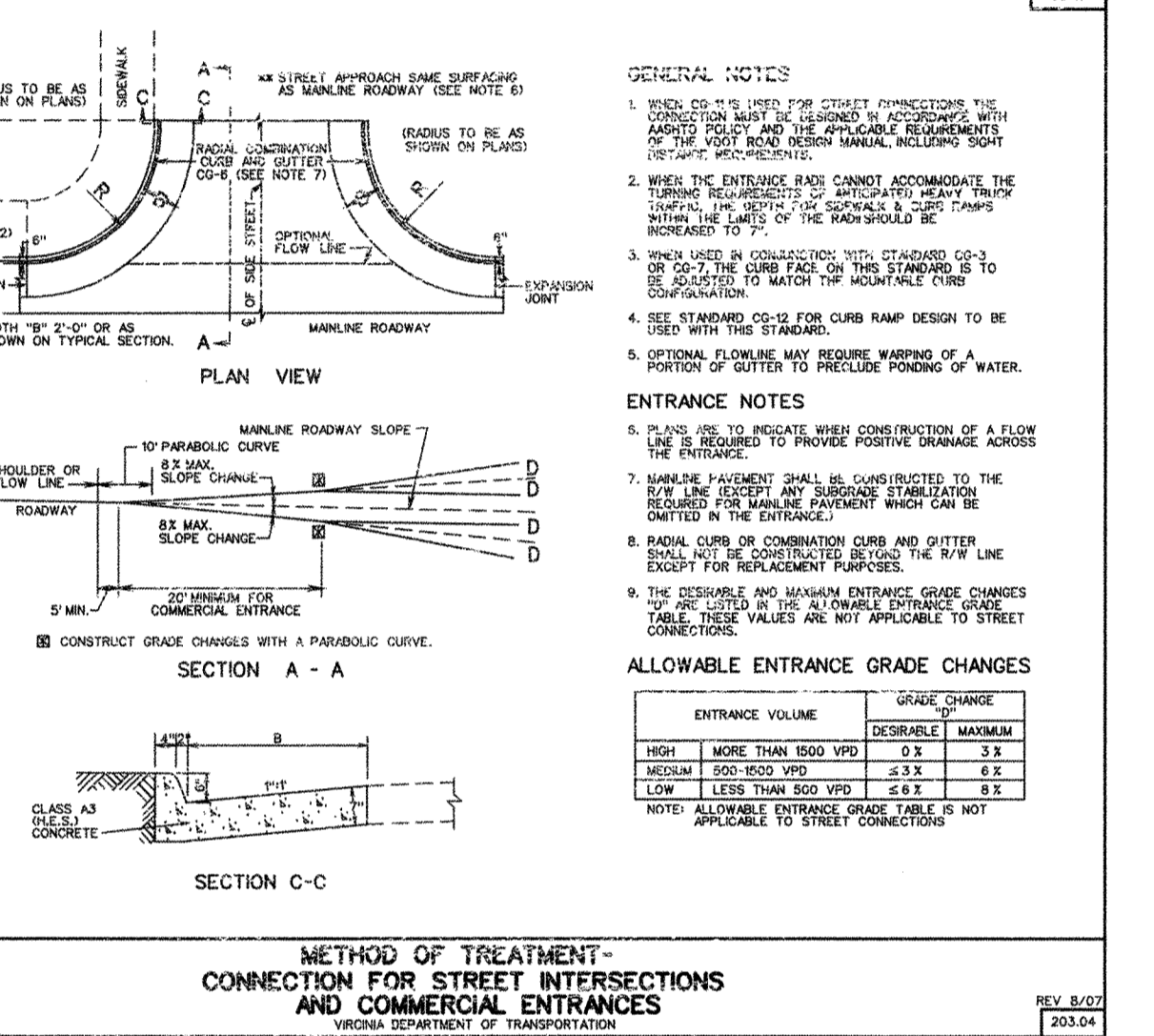
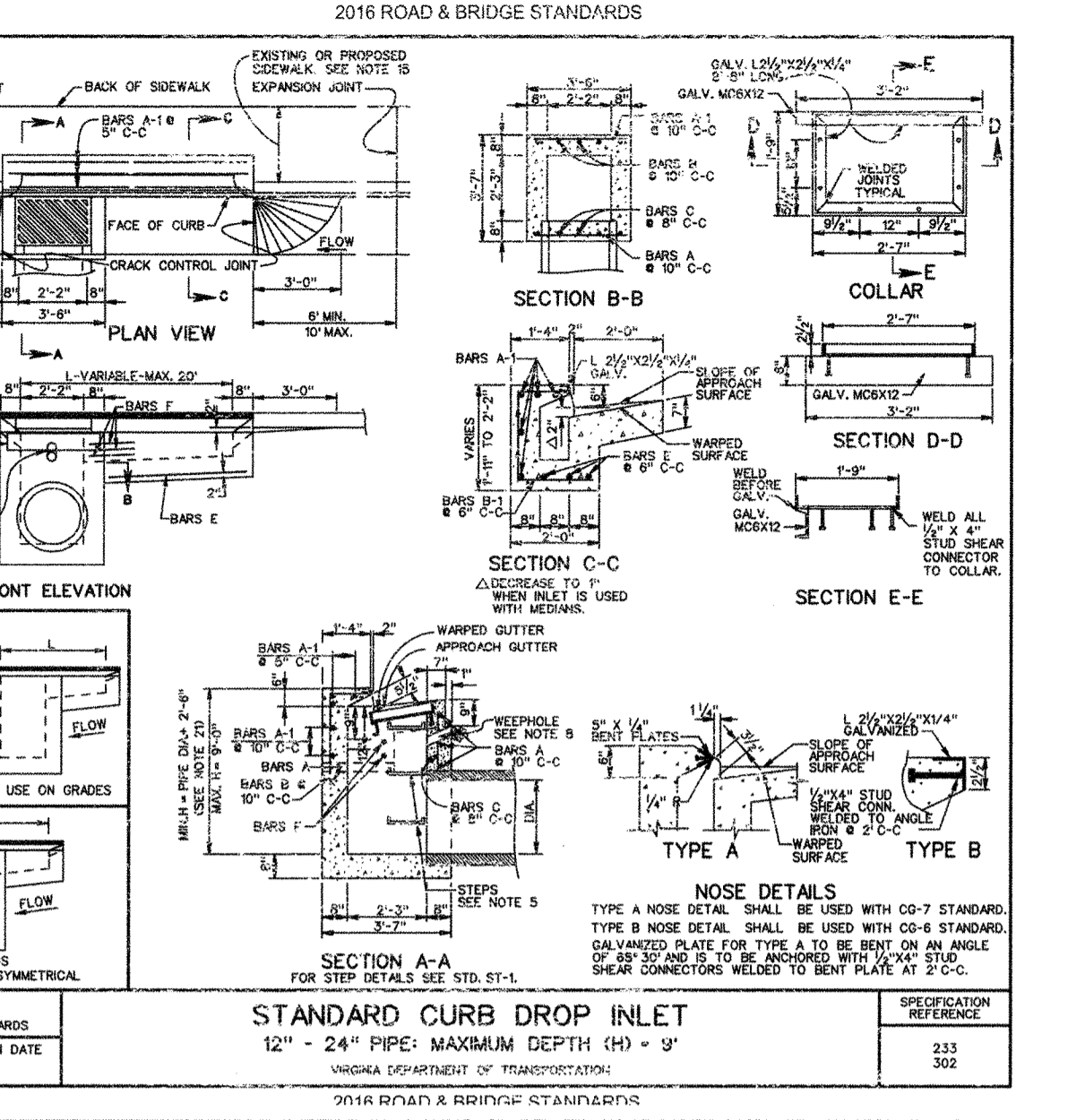
STANDARD CURB DROP INLET 12" - 30" PIPE; MAXIMUM DEPTH (H) = 8"
 VIRGINIA DEPARTMENT OF TRANSPORTATION
 SPECIFICATION REFERENCE: 302
 SHEET 2 OF 2
 REVISION DATE: 03/02



WASTE STREAM CALCULATIONS

STEP 1:

USE	FLOOR AREA (SQ. FEET)	ANNUAL WASTE GENERATION RATE (TONS/SQ FT)	ANNUAL WASTE GENERATION RATE (TONS)
CHURCH	10,935 S.F. x	0.0013	= 14.20 TONS



Part A

Fixture	Fixture Value	Flow	Flow	Flow
Bath	8	x		
Bed and Wash	10	x		
Combination Sink and Tray	3	x		
Dental Unit	1	x		
Dental Laboratory	2	x		
Dishwashing Machine	1	x		
Kitchen Sink	3	x		
Lavatory	7	x		
Laundry Tray	3	x		
Shower Head (Shower Only)	7	x		
Service Sink	3	x		
Urinal	7	x		
Urinal - Pedestal Flush Valve	33	x		
Urinal - Wall Flush Valve	12	x		
Wash Sink (Each Set of Faucets)	4	x		
Water Closet	35	x		
Dishwasher	5	x		
Washing Machine	10	x		
Washing Machine	5	x		
House Connection (Wash Down)	12	x		
House (60 Ft. Wash Down)	10	x		
House (60 Ft. Wash Down)	6	x		
House (60 Ft. Wash Down)	12	x		

Combined Fixture Value Total = 88

Part B

(1) Showers, Downspouts (Verified by County Staff) _____ gpm
 (2) Flood Level _____ gpm
 (3) Irrigation Demand (From Data Supplied by Site Engineer) _____ gpm
 (4) Total Demand _____ gpm
 (5) Meter Size Based on Total Demand (Verified by County Staff) _____ gpm

COUNTRY USE ONLY:
 8 1/2 Meter Size _____ gpm
 10 Meter Size _____ gpm
 12 Meter Size _____ gpm
 15 Meter Size _____ gpm
 20 Meter Size _____ gpm
 24 Meter Size _____ gpm
 30 Meter Size _____ gpm
 36 Meter Size _____ gpm
 42 Meter Size _____ gpm
 48 Meter Size _____ gpm
 54 Meter Size _____ gpm
 60 Meter Size _____ gpm
 72 Meter Size _____ gpm
 84 Meter Size _____ gpm
 96 Meter Size _____ gpm
 108 Meter Size _____ gpm
 120 Meter Size _____ gpm
 132 Meter Size _____ gpm
 144 Meter Size _____ gpm
 156 Meter Size _____ gpm
 168 Meter Size _____ gpm
 180 Meter Size _____ gpm
 192 Meter Size _____ gpm
 210 Meter Size _____ gpm
 228 Meter Size _____ gpm
 240 Meter Size _____ gpm
 252 Meter Size _____ gpm
 264 Meter Size _____ gpm
 276 Meter Size _____ gpm
 288 Meter Size _____ gpm
 300 Meter Size _____ gpm

REVISION: 05/30/2021
 DATE: 05/30/2021
 DATE: 05/30/2021
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Freeland Engineering, PC
 rfreeland@freelandengineeringpc.com
 10814 Courthouse Road
 Fredericksburg, Virginia 22408
 Phone: 540.898.4092
 Fax: 877.658.7735
 www.freelandengineeringpc.com

NOTES, DETAILS & PROFILE
 SOUTH RIDGE CHURCH
 T.M. 44-119L
 GEORGE WASHINGTON DISTRICT
 STAFFORD COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
 RAYMOND P. FREELAND
 Lic. No. 040752
 9/10/2021
 PROFESSIONAL ENGINEER
 SEAL

County Plan Number:
 AP# 20153537
 Drawn By: SAR
 Designed By: SAR
 Checked By: RFP
 Date: 09/29/2020
 Scale: NTS
 Sheet: 22 of 31
 PROJECT # 4762

CUP RESOLUTION DOCUMENTS R21-19

R21-19
Page 2

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gorham, Jr. Government Center, Stafford, Virginia, on the 20th day of April, 2021:

MEMBERS:
Crystal L. Vanech, Chairman Yes
Clay C. Shelton, Vice Chairman Yes
Finshale G. Alden Yes
Mig Helanck Yes
Thomas C. Coe Yes
L. Mark Dudenhofer Yes
Gary F. Schilling Yes

On motion of Mr. Coe, seconded by Ms. Shelton, which carried by a vote of 7 to 0, the following was adopted:

A RESOLUTION APPROVING A CONDITIONAL USE PERMIT (CUP) TO ALLOW A PLACE OF WORSHIP IN THE M-1, LIGHT INDUSTRIAL ZONING DISTRICT ON TAX MAP PARCEL NO. 44-119L, LOCATED WITHIN THE GEORGE WASHINGTON ELECTRIC DISTRICT

WHEREAS, South Ridge Church, Inc. submitted application CUP20153586 (Application) requesting a conditional use permit to allow a place of worship in the M-1 Light Industrial Zoning District on Tax Map Parcel No. 44-119L, located within the George Washington Electric District; and

WHEREAS, the Application was submitted pursuant to Stafford County Code Section 28-35, Table 7.1, which permits this use in the M-1 Zoning District after a CUP is issued by the Board; and

WHEREAS, the Board carefully considered the recommendations of the Planning Commission and staff, and the public testimony, if any, received at the public hearing; and

WHEREAS, the Board has considered the criteria in Stafford County Code Sec. 28-185 and finds that the request meets the standards of the Zoning Ordinance for issuance of a CUP;

R21-19
Page 2

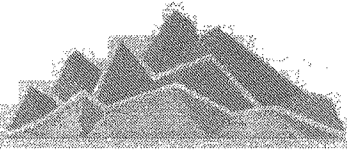
NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the 20th day of April, 2021, that a conditional use permit pursuant to application CUP20153586 (CUP) be and it hereby is approved with the following conditions:

1. This CUP allows a place of worship in the M-1, Light Industrial Zoning District on Tax Map Parcel No. 44-119L (Property), in the location identified on the Generalized Development Plan prepared by Freeland Engineering, P.C., entitled "General Development Plan South Ridge Church, LLC, Stafford Industrial Park, Parcel 8 T.M.#44-119L, George Washington District, Stafford County, Virginia," dated October 26, 2020, as last revised and sealed February 14, 2021 (GDP).
2. Development of the Property shall occur as generally depicted on the GDP. Changes to the location and treatment of improvements depicted on the GDP shall be allowed at the time of site plan review for engineering reasons or to comply with changes to federal, state, or local laws.
3. The structure on the Property shall not exceed 35 feet in height, including a steeple.
4. The capacity of the structure on the Property shall be limited to 11,123 square feet of gross floor area and no more than 120 seats.
5. All building entrances shall be illuminated in accordance with Crime Prevention through Environmental Design (CPTED) principles.
6. This CUP may be revoked for a violation of any of these conditions or any applicable federal, state, or County code, law, ordinance, or regulation.

A Copy, to be:

Freeland Engineering
Frederick J. Freeland
County Administrator

FILED BY:



APR 20, 2021

Joe Valenti
Stafford County Department of Planning & Zoning
1300 Courthouse Road
PO Box 2391
Stafford VA 22555-0391

Dear Mr. Mayor:

In response to CUP approval, this letter is to conform to the conditions approved by the Supervisors on April 20, 2021 (CUP20153586) as an administrative part.

Condition #1: Acknowledgement: The property and building will conform to the GDP and neighboring structures to provide aesthetic to the business park.

Condition #2: Acknowledgement: The building will be no taller than 35 feet as depicted on building plans that has been submitted to Stafford County.

Condition #3: Acknowledgement: This has been captured and submitted in the building plan that has been submitted to Stafford County.

Condition #4: Acknowledgement: This has been captured and submitted in the building plan that has been submitted to Stafford County.

Condition #5: Acknowledgement: This has been captured and submitted in the building plan that has been submitted to Stafford County.

Condition #6: Acknowledgement: This has been captured and submitted in the building plan that has been submitted to Stafford County.

Sincerely,
Jeff Freeland
County Administrator

South Ridge Church
357 Box 116, Stafford, VA 22555

REVISION
05/20/2021
REVISED PER COUNTY COMMENTS

Freeland Engineering, PC
rfreeland@freelandengineeringPC.com
10814 Courthouse Road
Fredericksburg, Virginia 22408
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www.FreelandEngineeringPC.com

DOCUMENTS, NOTES & DETAILS

SOUTH RIDGE CHURCH
T.M. 44-119L
GEORGE WASHINGTON DISTRICT
STAFFORD COUNTY, VIRGINIA

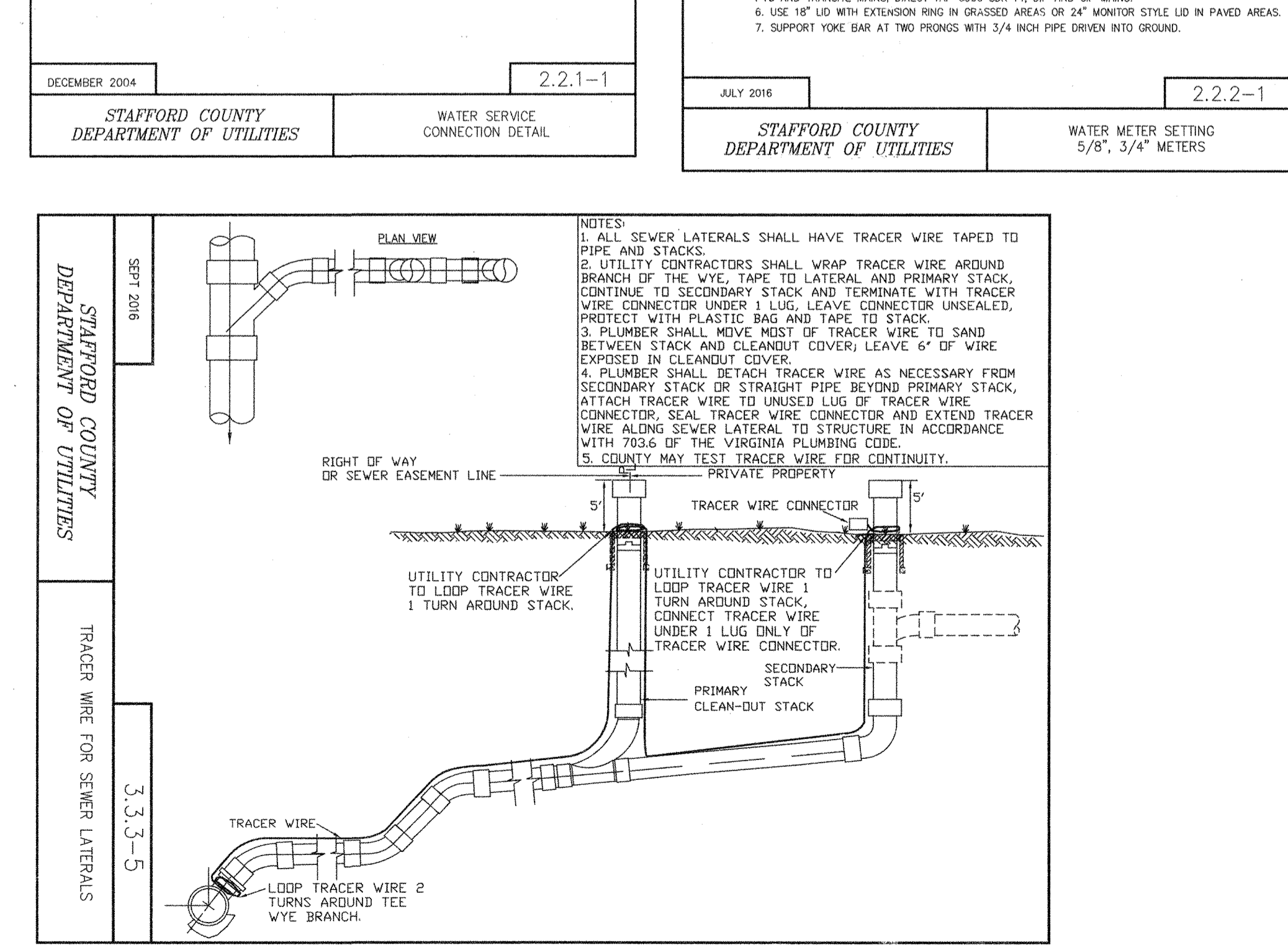
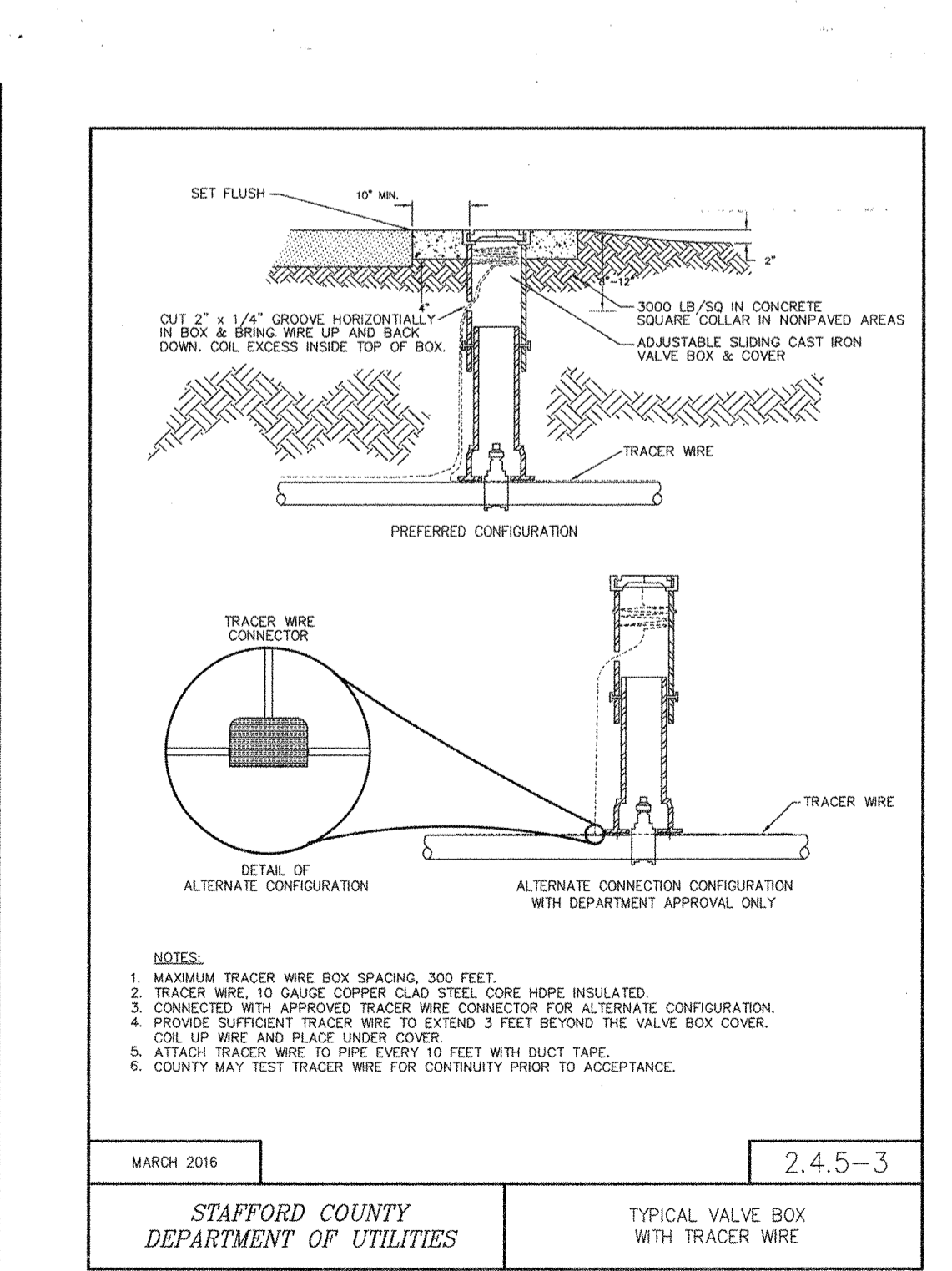
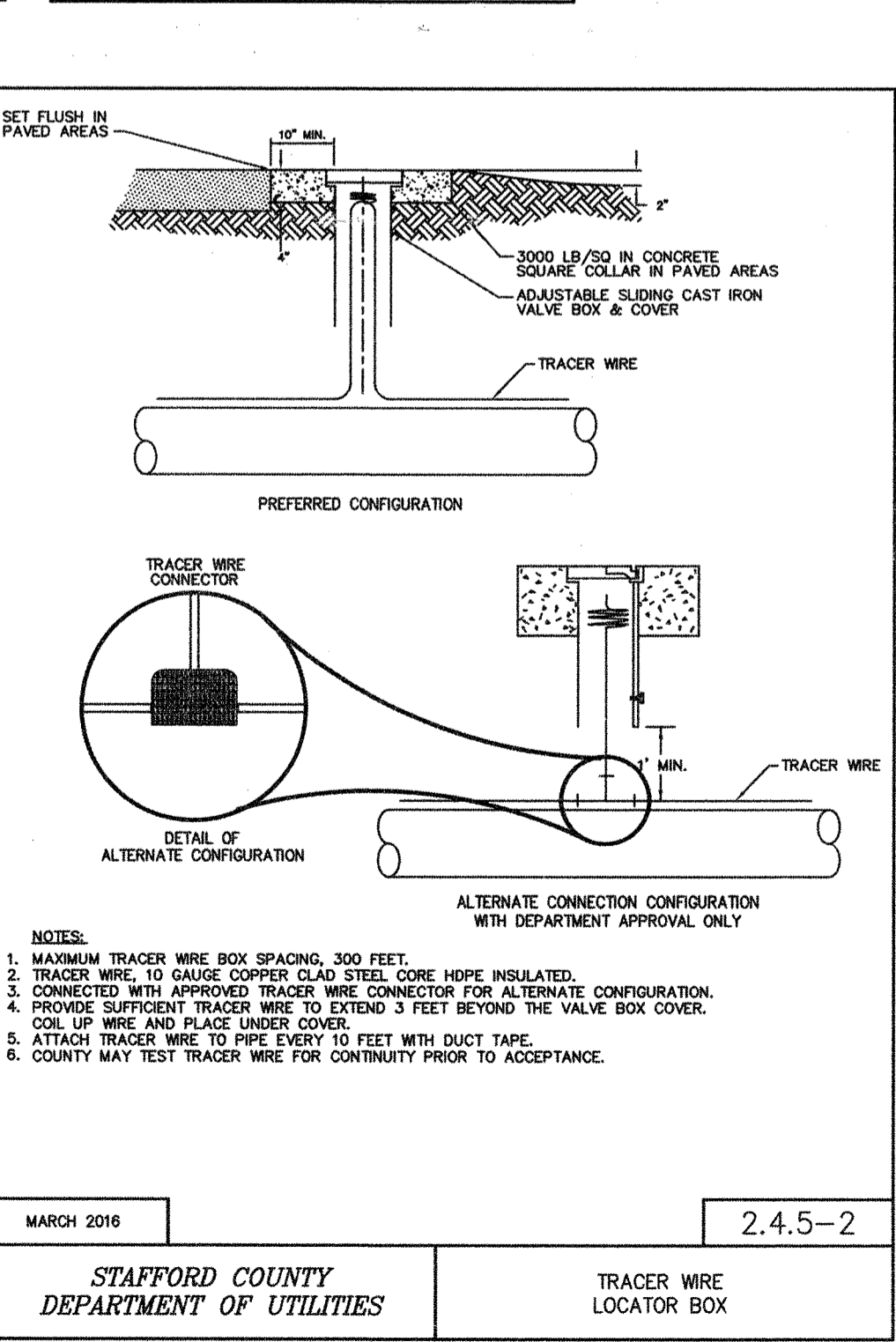
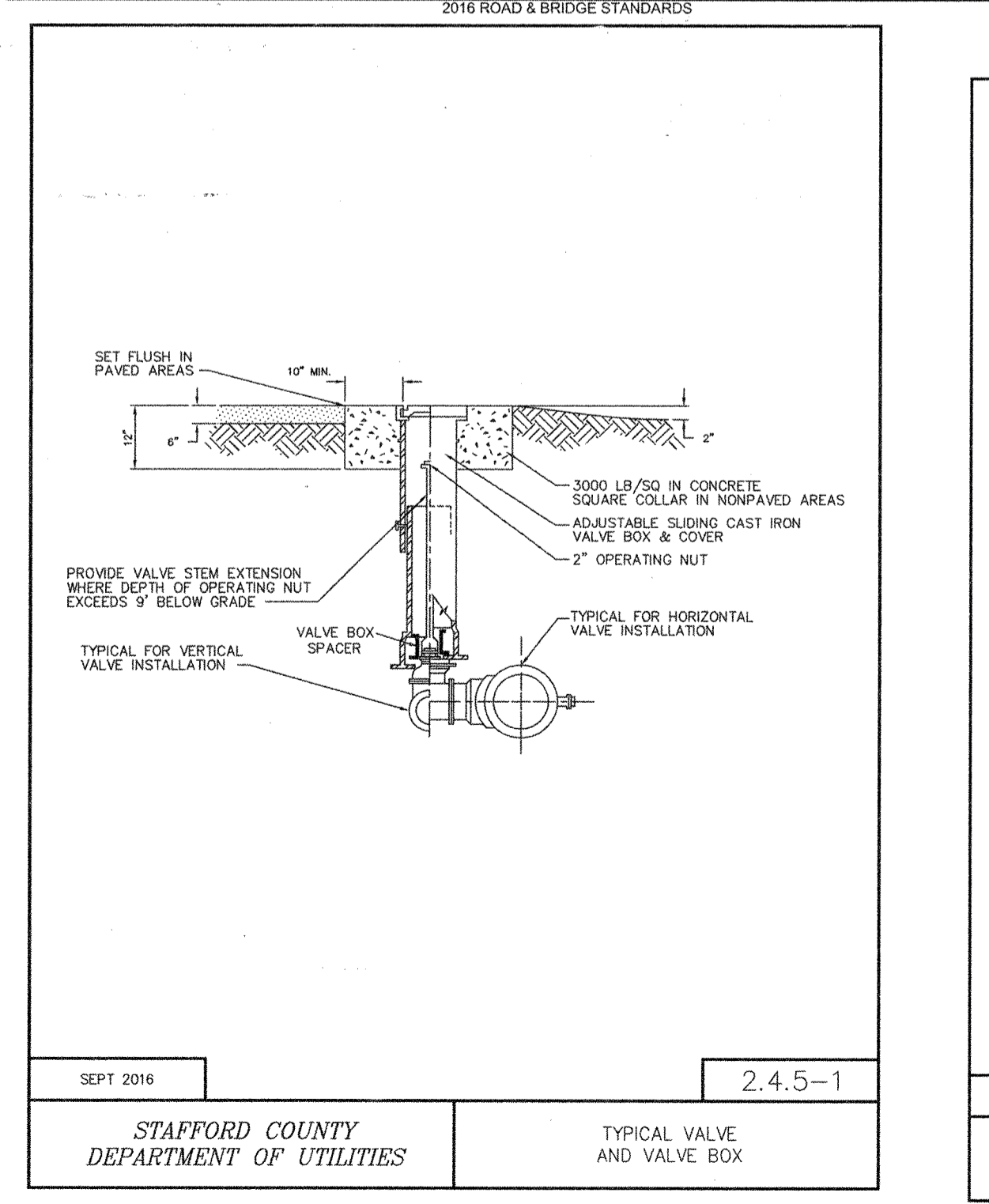
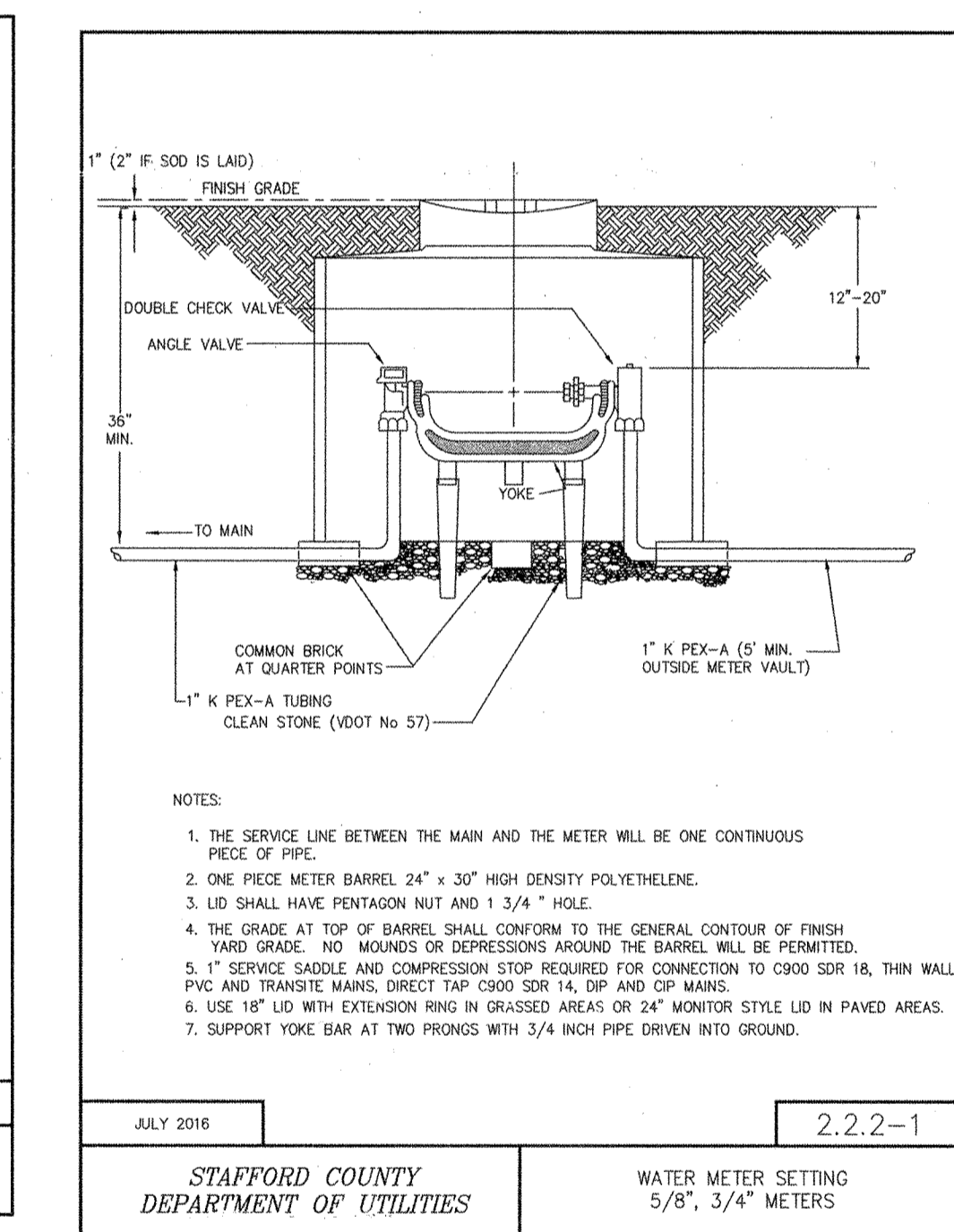
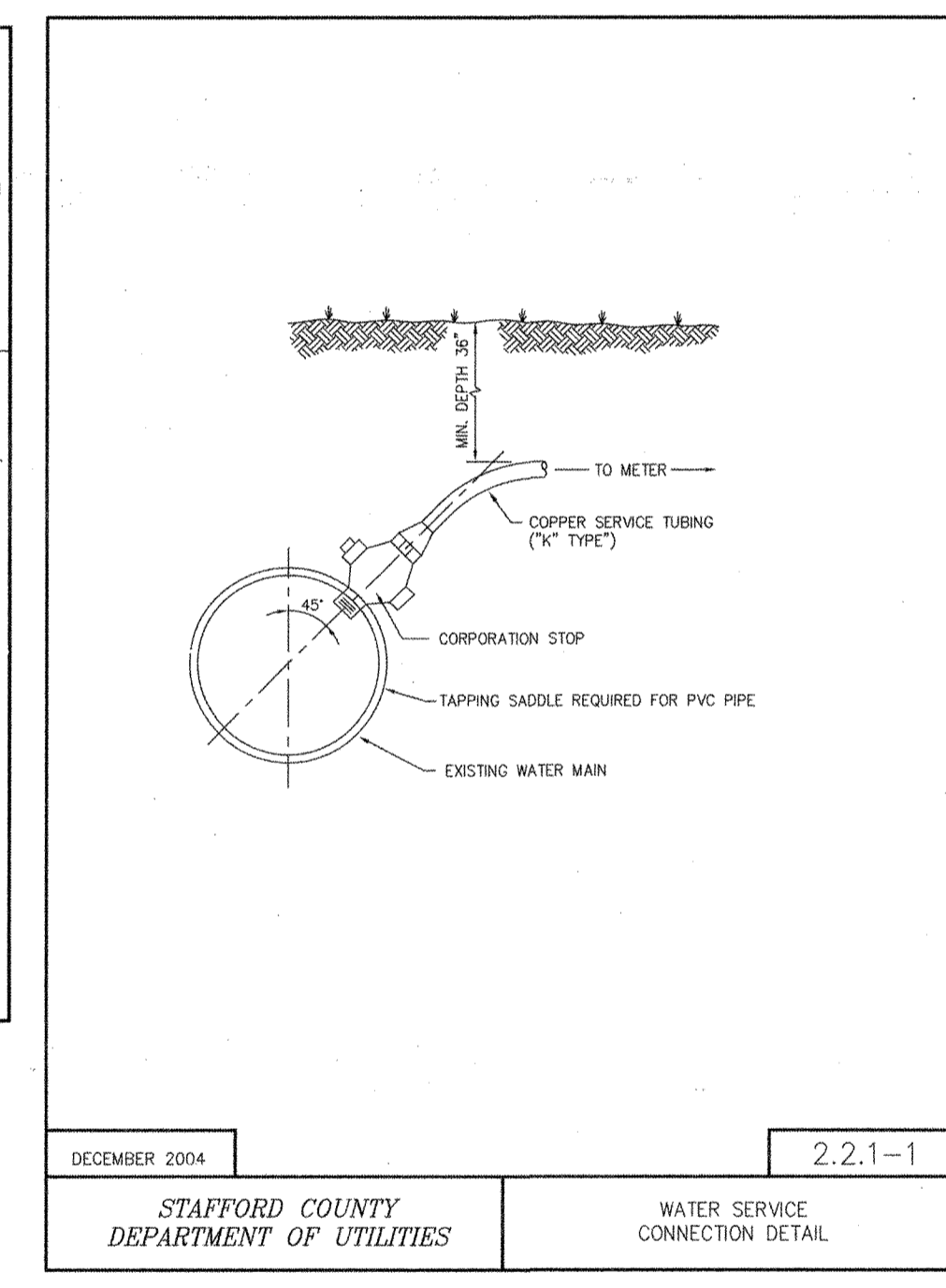
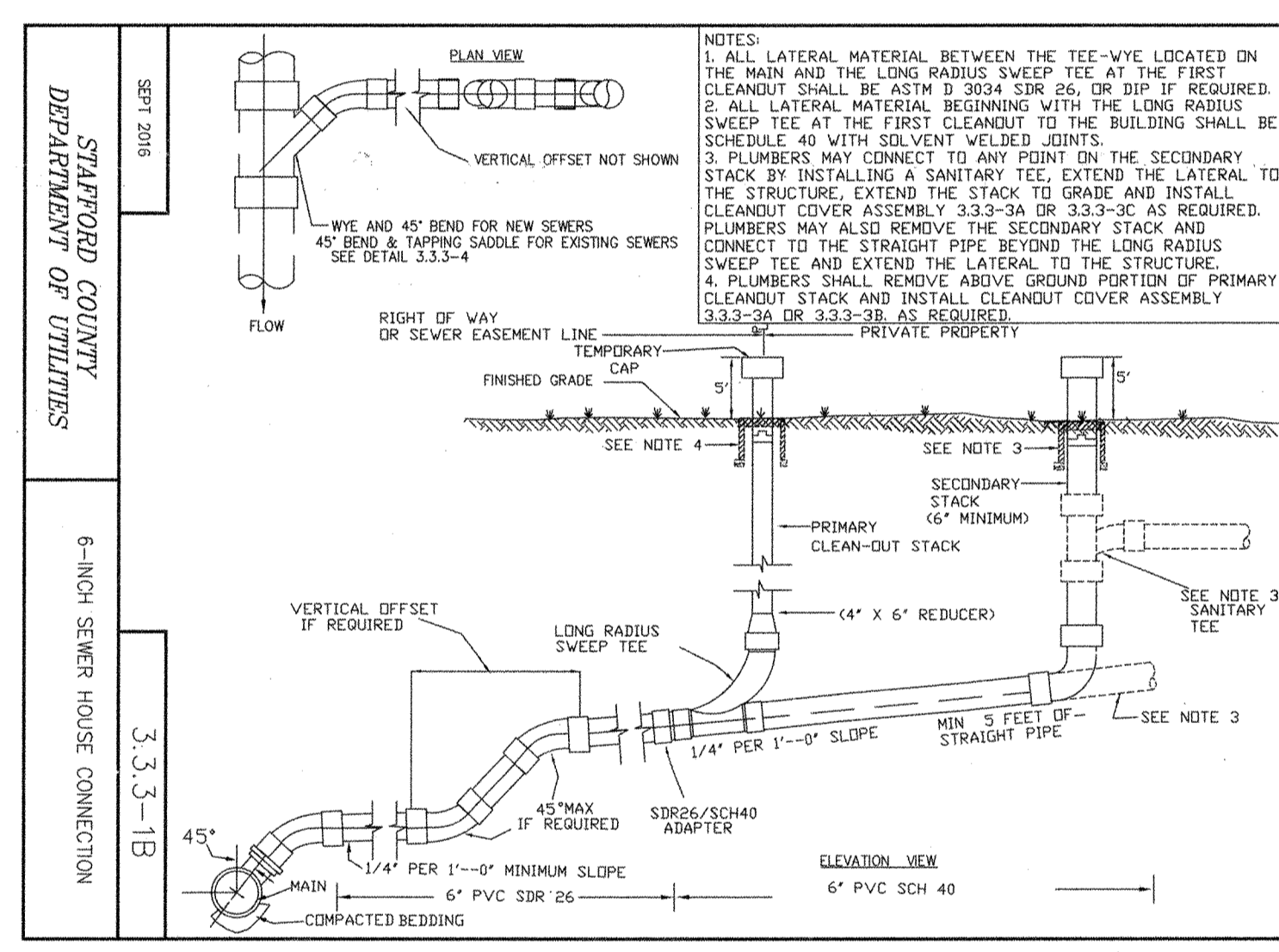
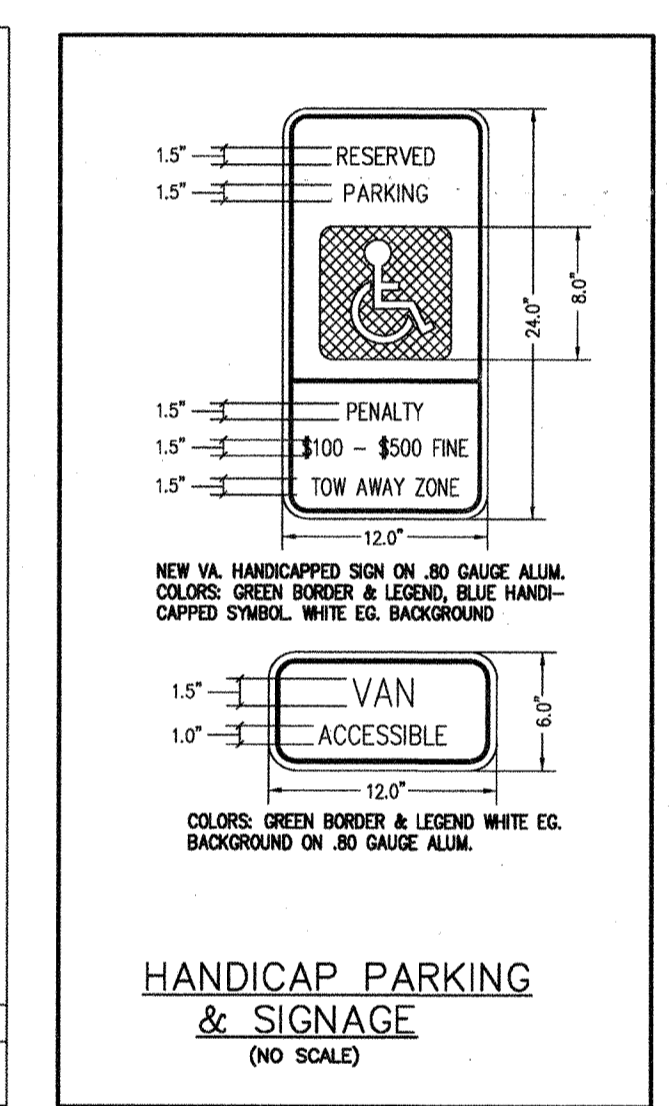
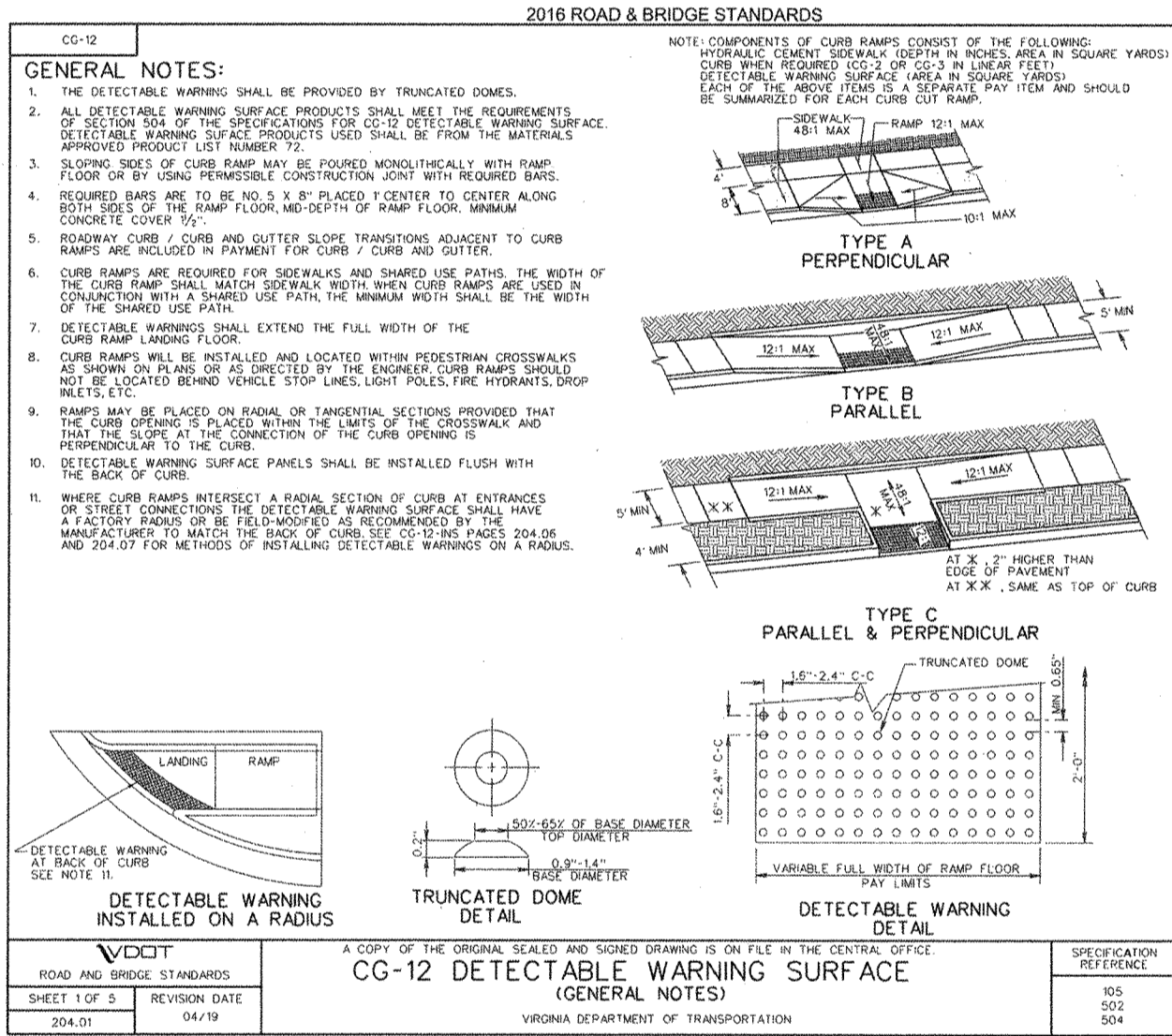
PROFESSIONAL SEAL
RAYMOND P. FREELAND
Lic. No. 040752
9/10/2021

County Plan Number:
AP# 20153537

Drawn By: SAR
Designed By: SAR
Checked By: RPF
Date: 09/29/2020

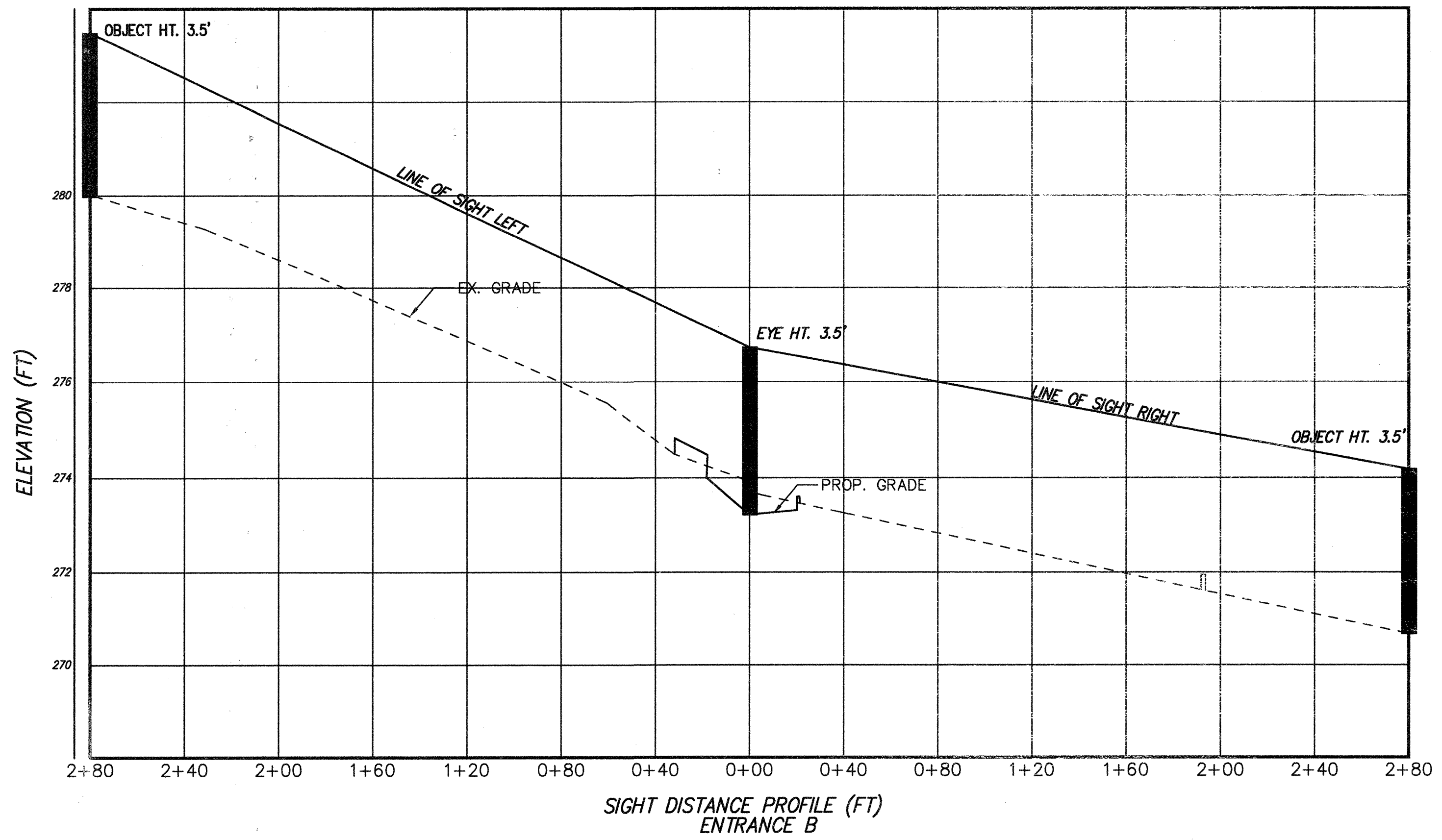
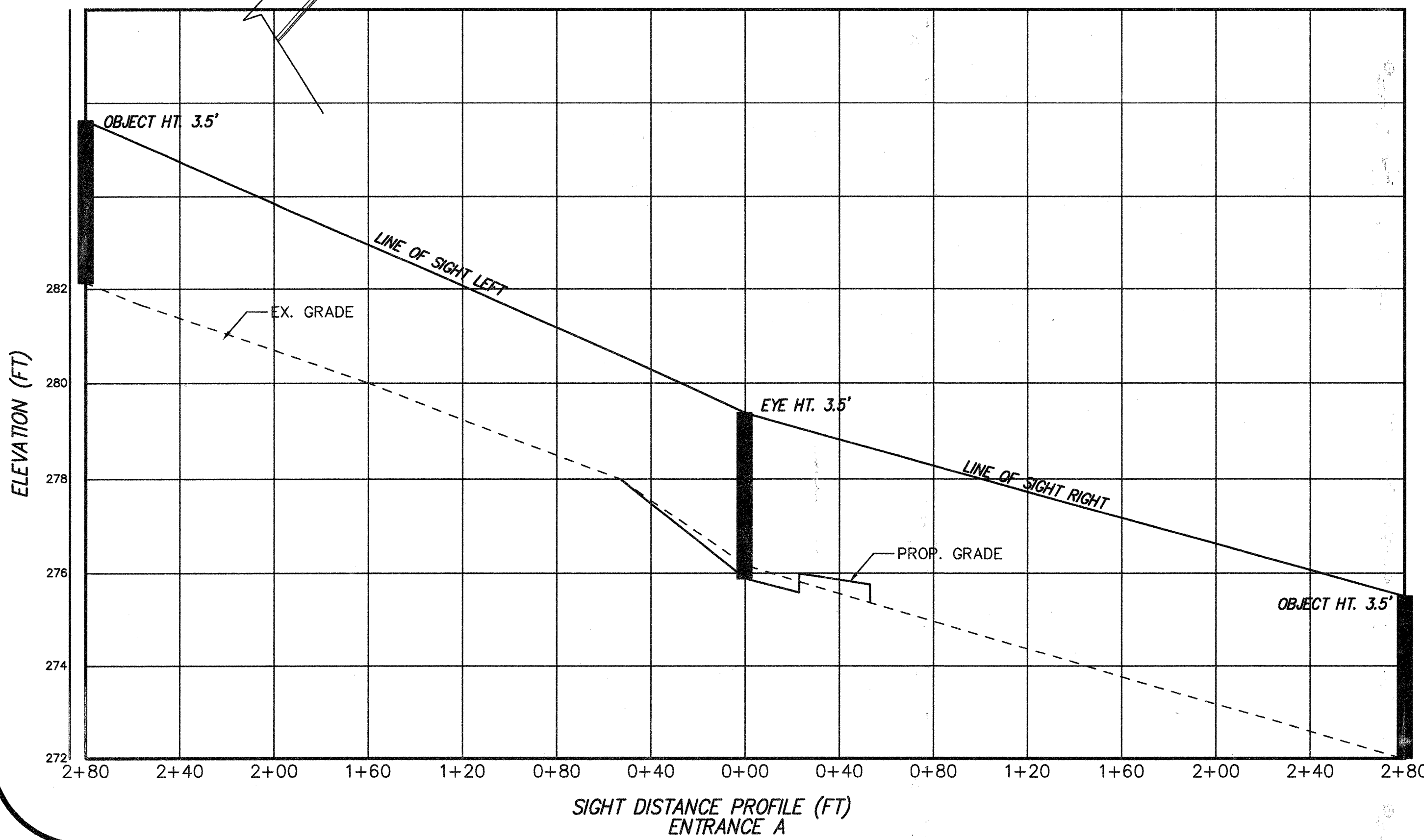
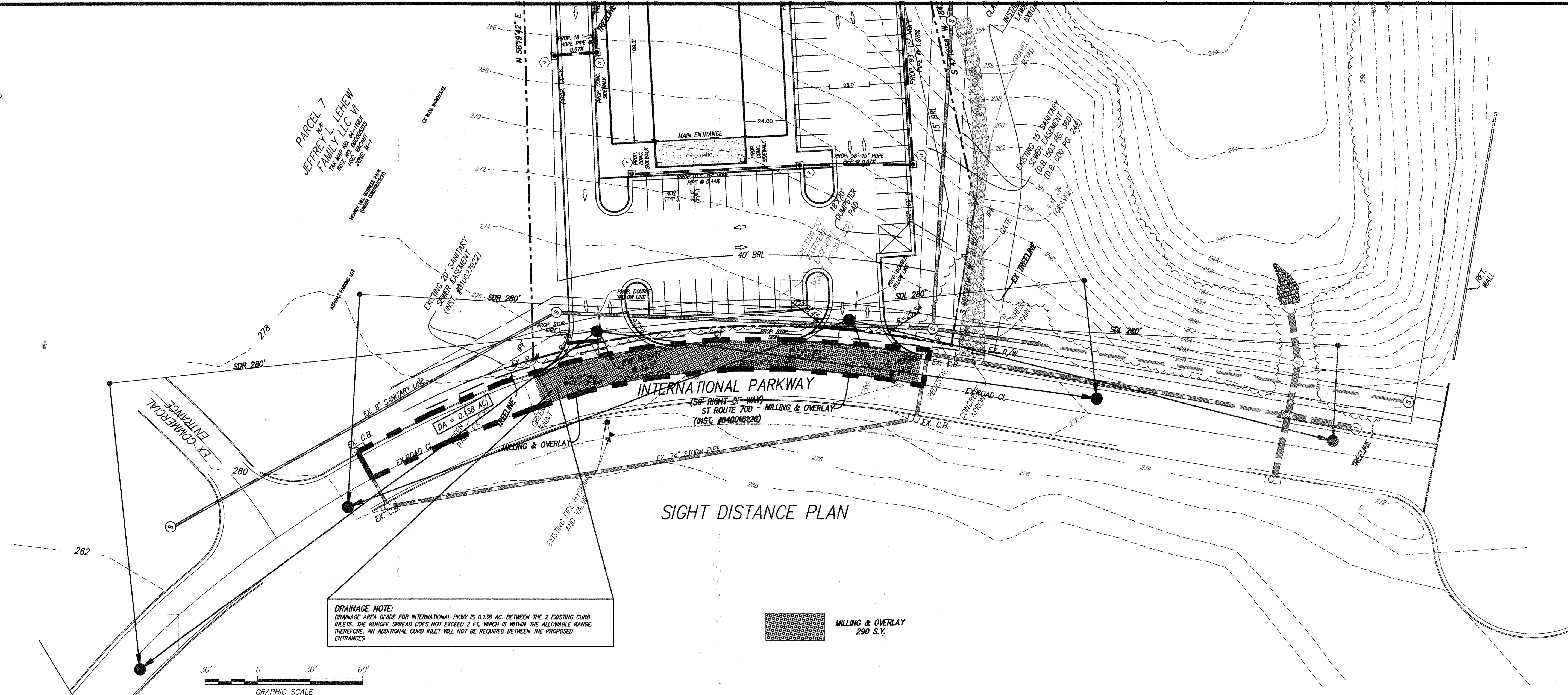
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PROJECT # 4762



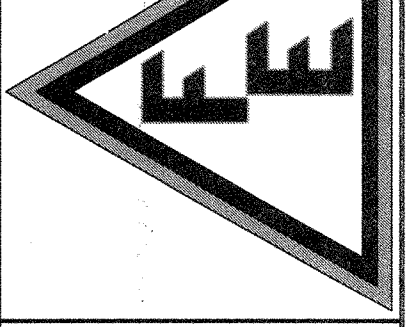


PARCEL 7
JEFFREY W. LEHEW
FAMILY LLC W/
PAVING AND PAVING
CONTRACTORS

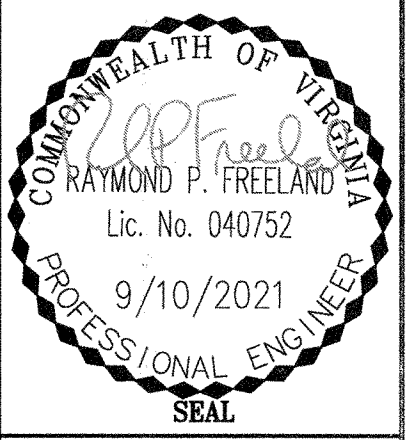


REVISION	DATE	REVISION PER COUNTY COMMENTS
05/30/2021		

Freeland Engineering, PC
rfreeland@freelandengineeringpc.com
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LINE OF SIGHT
SOUTH RIDGE CHURCH
T.M. # 44-119L
GEORGE WASHINGTON DISTRICT
STAFFORD COUNTY, VIRGINIA



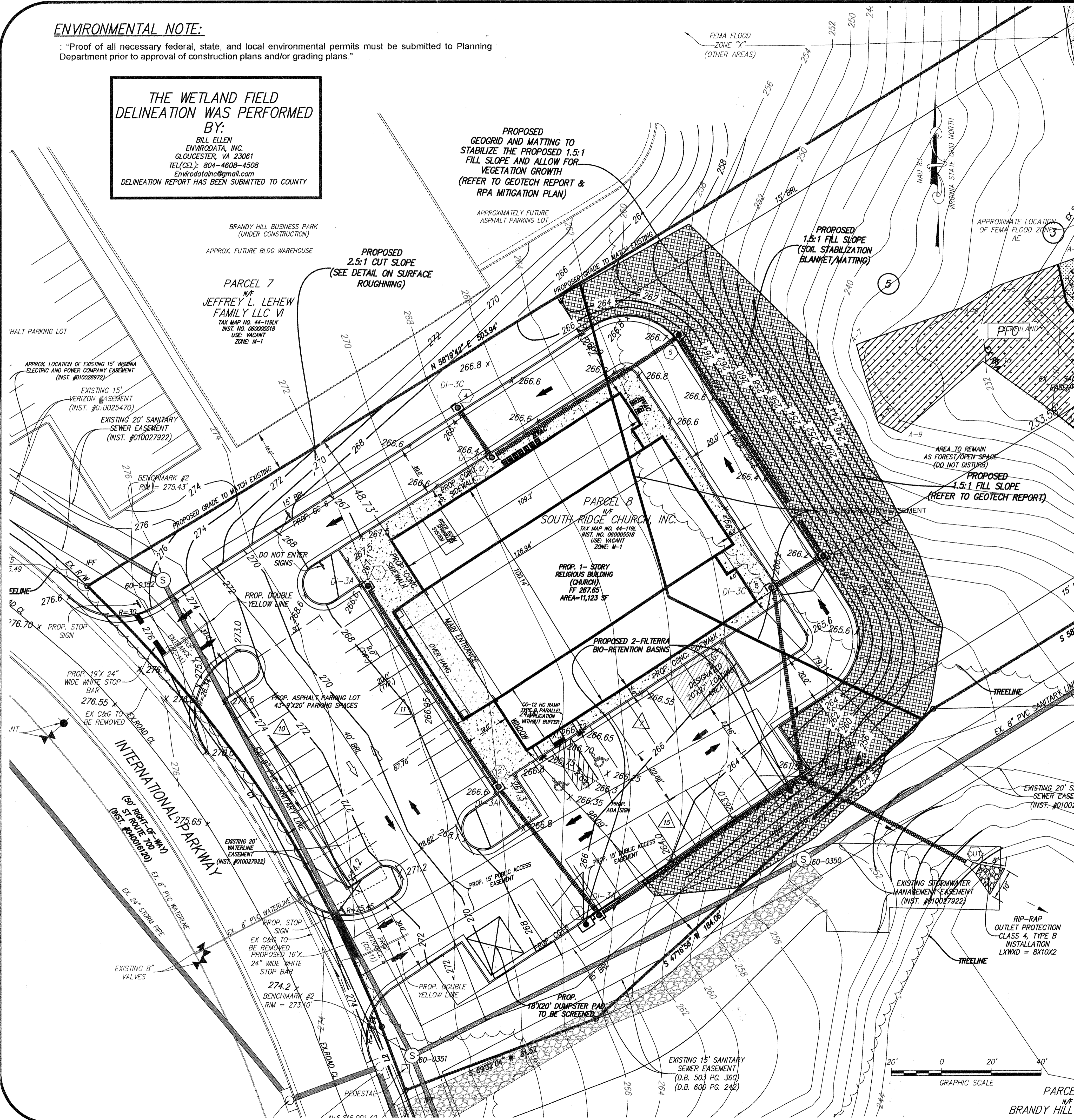
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Drawn By:	SAR
Designed By:	SAR
Checked By:	RPF
Date:	2/7/2021
Scale:	1"=30'
Sheet:	25 of 31
PROJECT #	4762

ENVIRONMENTAL NOTE:

"Proof of all necessary federal, state, and local environmental permits must be submitted to Planning Department prior to approval of construction plans and/or grading plans."

**THE WETLAND FIELD
DELINEATION WAS PERFORMED
BY:**

BILL ELLEN
ENVIRODATA, INC.
GLOUCESTER, VA 23061
TEL(CEL): 804-4608-4508
Envirodatainc@gmail.com
DELINEATION REPORT HAS BEEN SUBMITTED TO COUNTY



March 5, 2021
Revised March 18, 2021

Mr. Jeff Geyer
South Ridge Church
P.O. Box 310
Hartwood, Virginia 22471

Reference: Slope Evaluation
South Ridge Church - Proposed 1.5H:1V Slope
Stafford County, Virginia

As requested, Dominion Engineering Associates, Inc. (DEA) has evaluated the proposed slope at the above-referenced project located along the east parking lot of the South Ridge Church. The original plans were prepared by Freeland Engineering and showed a 2H:1V slope to facilitate grading equipment. Based on the Topographic Basefiles provided by Legacy Engineering and RPA requirements the slope along the east side of the site can be constructed to 1.5H:1V.

DEA performed a slope stability analysis for the critical specific cross-section for the slope next to the parking lot. Soil data from the geotechnical report entitled, "South Ridge Church", dated March 24, 2020, prepared by DEA, and laboratory data was used to model the steep slope conditions. GEOSTASH computer software was used to model a geogrid-reinforced slope (Mirafi 3XT geogrid).

Based on our slope stability evaluation, the reinforced slope which includes geogrid has a factor of safety of approximately 1.3. This factor of safety of 1.3 is considered acceptable. Incorporation of geogrid in the slope also prevents a "scupper" type failure which is a failure near the surface layers of soil moving downslope (typically the upper 2 to 3 ft of soil).

In summary, the proposed slope to be constructed is acceptable with the understanding that the onsite soils are composed to a minimum of 97% per ASTM D698 the Standard Proctor and include geogrid placed at maximum 1 1/2 foot vertical intervals, along with the use of Mirafi 3XT and fertile topsoil as shown on Sheet 6 of the attached Tentative Installation Guidelines. Fertile topsoil should be tested by a certified agricultural laboratory to promote proper vegetation. Erosion at the slope surface can be reduced by developing and maintaining strong vegetation. Vegetation with grass or other plants that grow well in this locality are recommended. The local VDOT office should be contacted for typical hydroseed mixes used in this area.

8511 Indian Hills Court, Suite 202 • Huntersville, Virginia 22407 • Phone: (540) 710-9339
107-A Hanover Avenue • Ashland, Virginia 23045 • 14051 Branson Road • Monks, Virginia 20112

South Ridge Church
Slope Evaluation
Page 2

This letter report has been prepared in accordance with generally acceptable geotechnical engineering practices and no other warranties, either expressed or implied, are made.

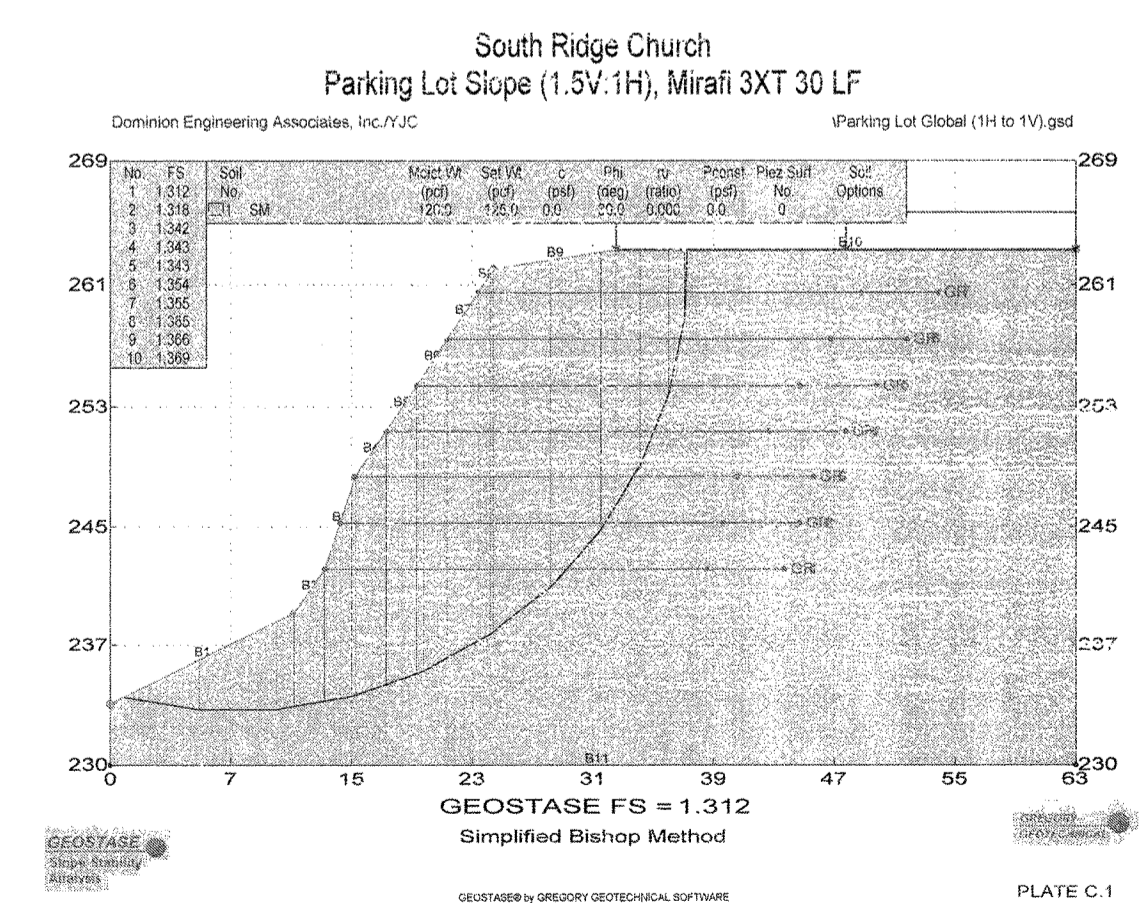
We appreciate the opportunity to be of service to you on this project. If you should have any questions regarding this report, please do not hesitate to contact us.

Respectfully,
Dominion Engineering Associates, Inc.



Yuri J. Chandler, P.E.
Principal Engineer

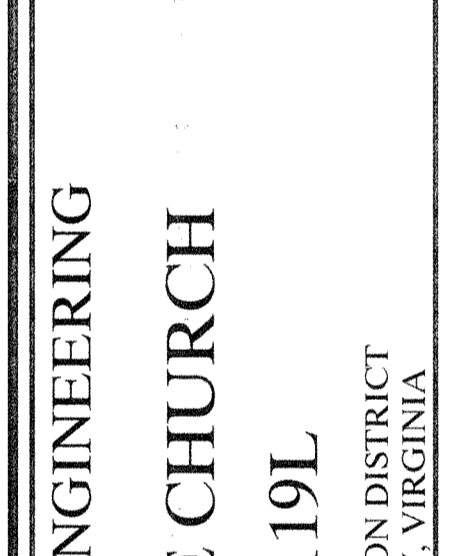
Attachments: Slope Stability Graphic Results (1)
Slope Stability Cross Section (1)
Tentative Installation Guidelines (8)



REFER TO ATTACHED SOIL
REPORT

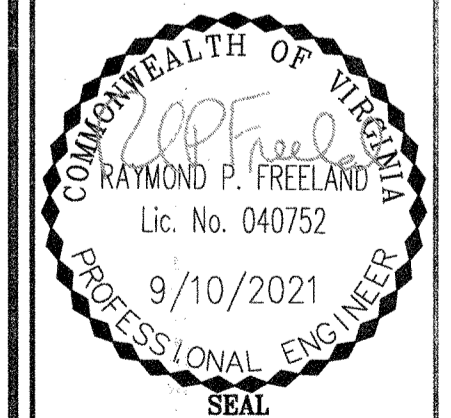
REVISION	DATE	REVISED PER COUNTY COMMENTS
05/20/2021		

Freeland Engineering, PC
rfreeland@freelandengineeringpc.com
10814 Courthouse Road
Fredericksburg, Virginia 22408
Phone: 540.898.3092
Fax: 877.658.7735
www.freelandengineeringpc.com

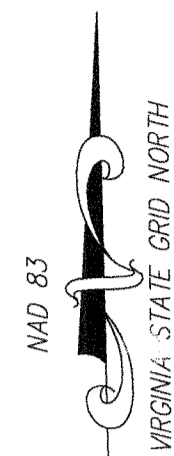


South Ridge Church
Slope Evaluation
Page 2

South Ridge Church
Parking Lot Slope (1.5V:1H), Mirafi 3XT 30 LF
Parking Lot Global (1H to 1V) gsd



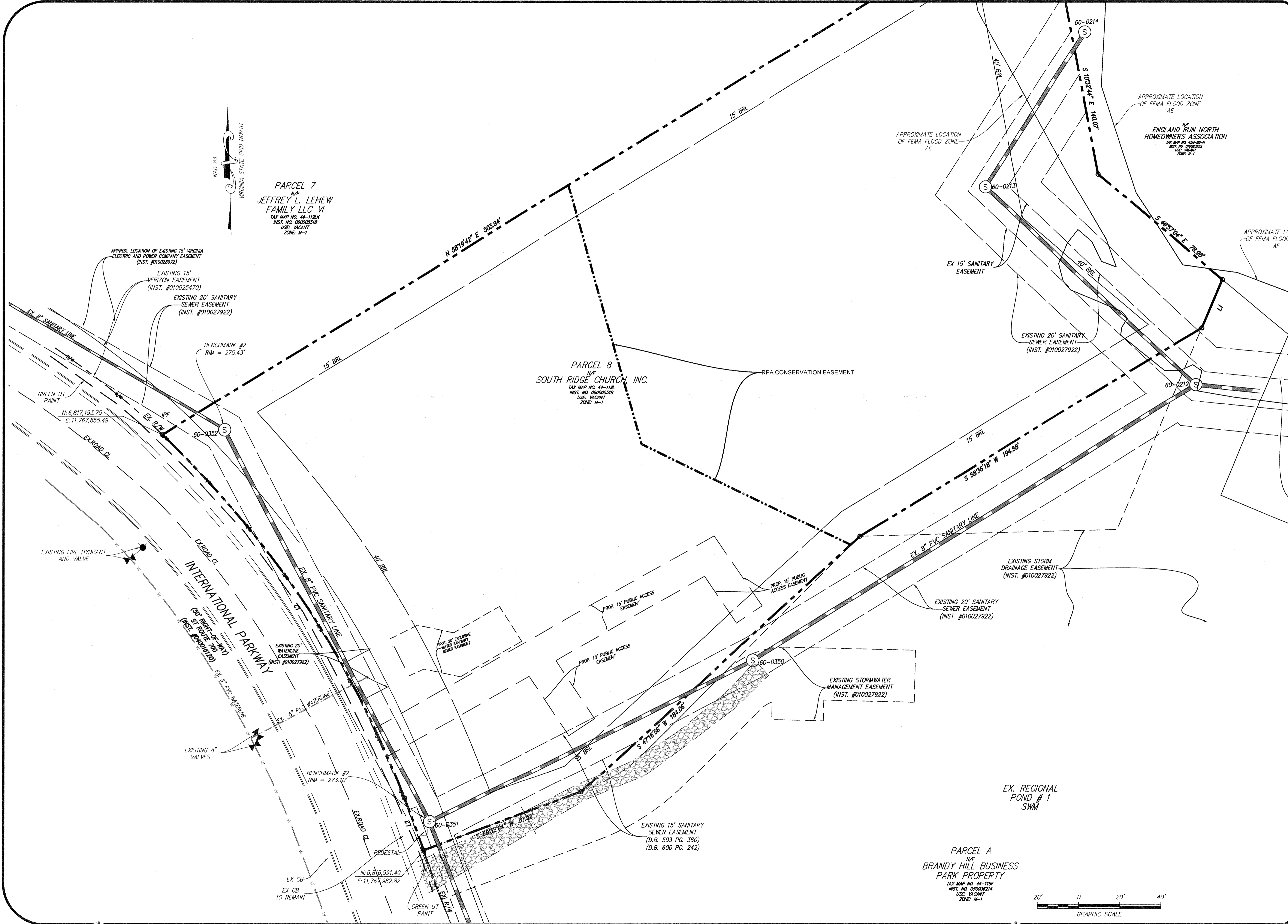
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AP# 20153537
Drawn By: SAR
Designed By: SAR
Checked By: RPF
Date: 7/7/2021
Scale: 1"=20'
Sheet: 26 of 31
PROJECT # 4762



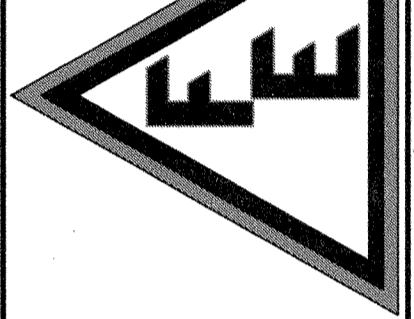
PARCEL 7
M/F
JEFFREY L. LEHEW
FAMILY LLC VI
TAX MAP NO. 44-118LK
INST. NO. 060005518
USE: VACANT
ZONE: M-1

PARCEL 8
M/F
SOUTH RIDGE CHURCH, INC.
TAX MAP NO. 44-118L
INST. NO. 060005518
USE: VACANT
ZONE: M-1

PARCEL A
M/F
BRANDY HILL BUSINESS
PARK PROPERTY
TAX MAP NO. 44-118F
INST. NO. 030035214
USE: VACANT
ZONE: M-1

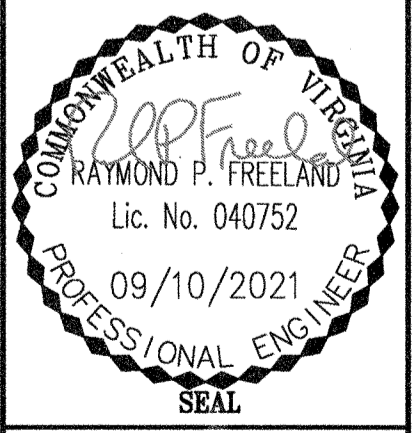


REVISION	DATE	REVISED PER COUNTY COMMENTS
	05/30/2021	



Freeland Engineering, PC
rfreeland@freelandengineeringPC.com
10814 Courthouse Road
Fredericksburg, Virginia 22408
Phone: 540.898.3092
Fax: 877.658.7735
www.FreelandEngineeringPC.com

EASEMENT PLAN
SOUTH RIDGE CHURCH
T.M. 44-119L
GEORGE WASHINGTON DISTRICT
STAFFORD COUNTY, VIRGINIA



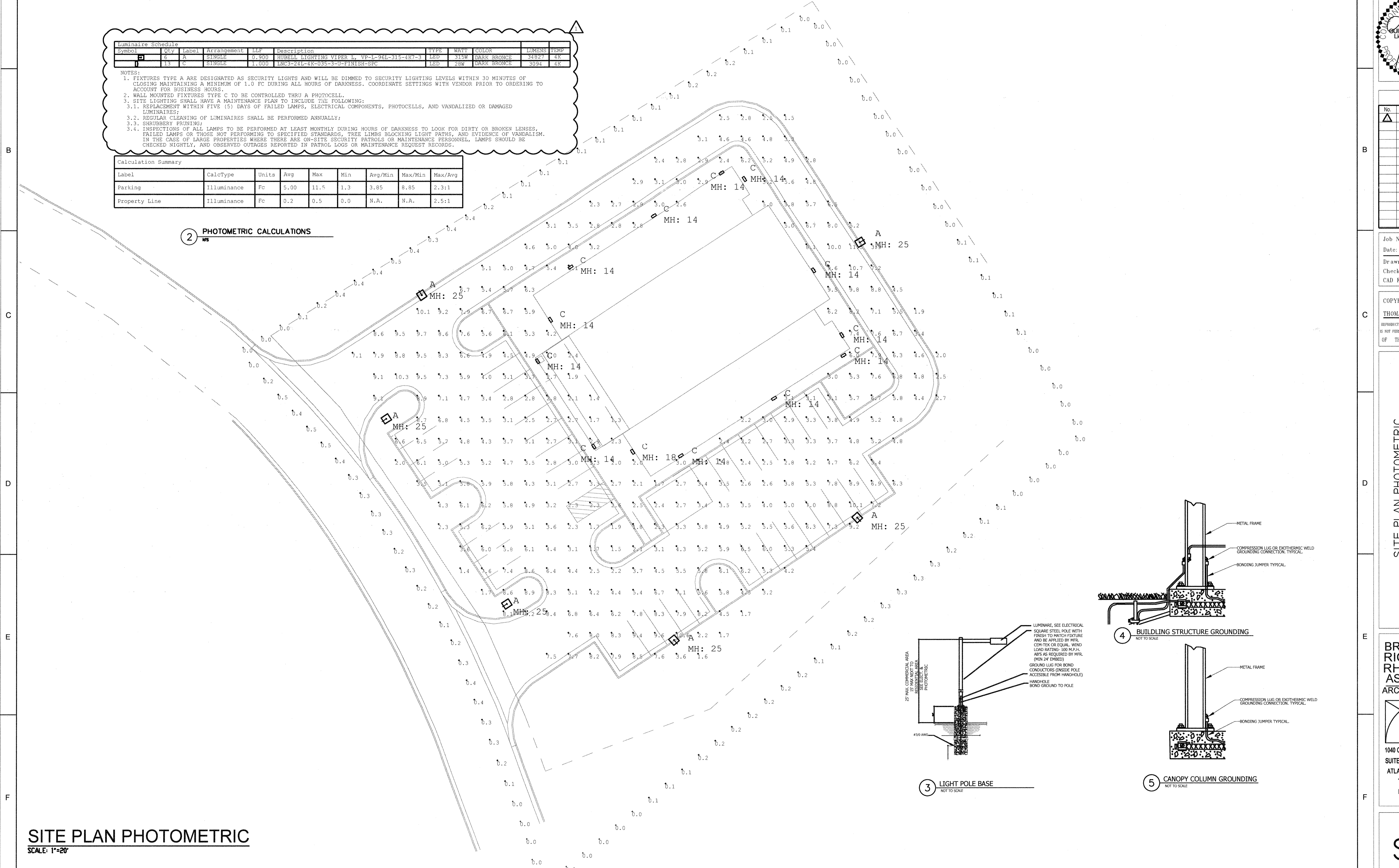
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Drawn By:	SAR
Designed By:	SAR
Checked By:	RPF
Date:	02/14/2021
Scale:	1" = 20'
Sheet:	27 of 31
PROJECT #	4762

Luminaire Schedule										
Symbol	Qty	Label	Arrangement	LLF	Description	Type	Watt	Color	Lumens	FEMP
A	6	A	SINGLE	0.900	HUBBELL LIGHTING VIPER L, VP-L-96L-315-4R7-3	LED	315W	DARK BRONCE	34827	4K
C	13	C	SINGLE	1.000	LMC9-24L-4R-035-3-U-FINISH-SPC	LED	28W	DARK BRONCE	3094	2K

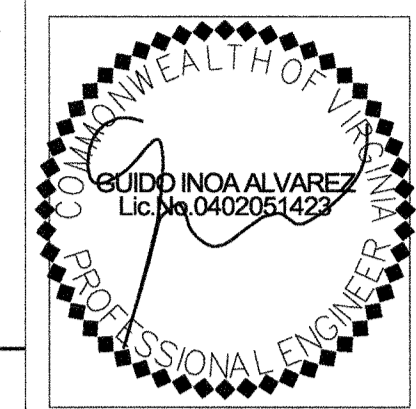
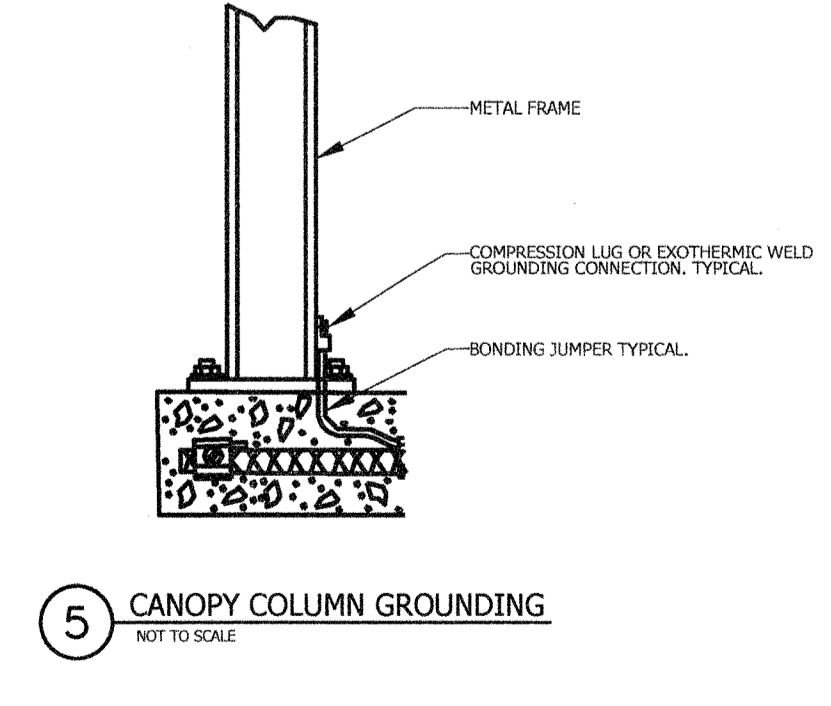
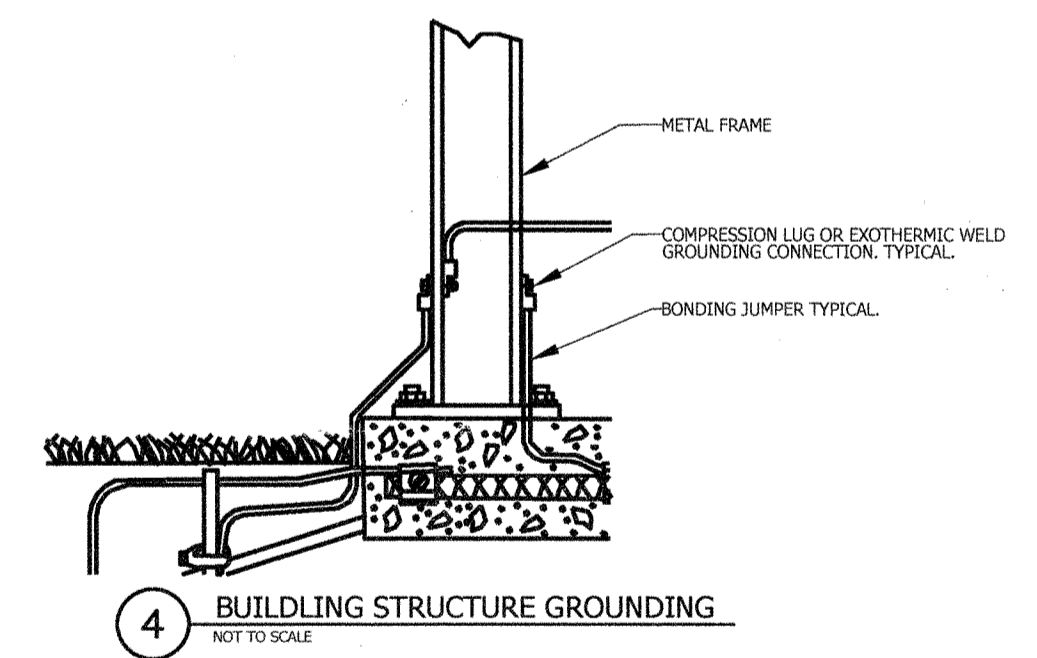
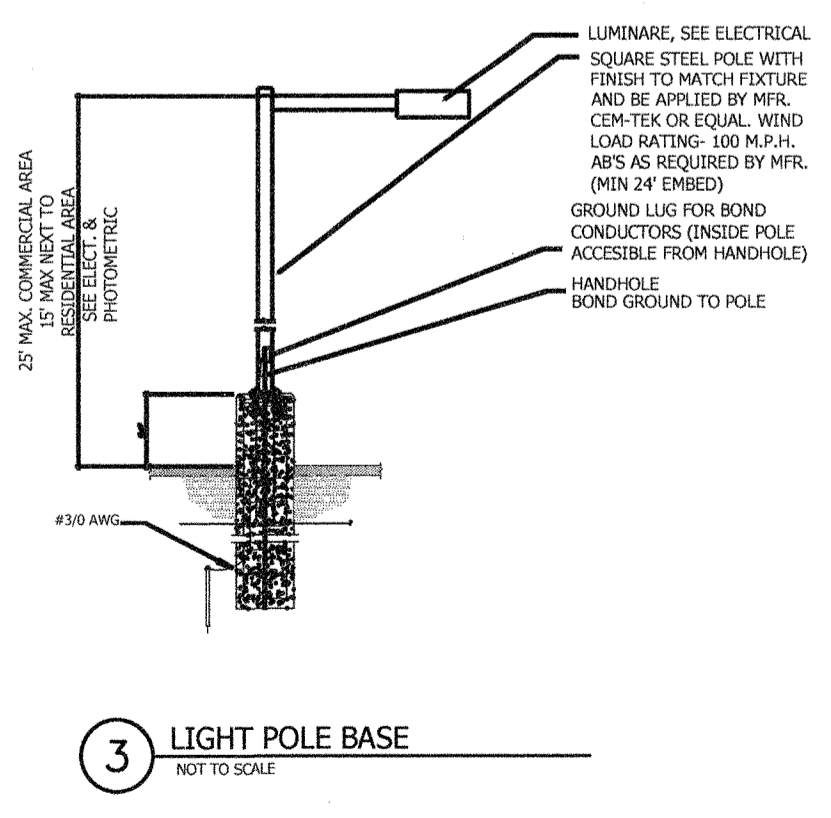
- NOTES:
1. FIXTURES TYPE A ARE DESIGNATED AS SECURITY LIGHTS AND WILL BE DIMMED TO SECURITY LIGHTING LEVELS WITHIN 30 MINUTES OF CLOSING MAINTAINING A MINIMUM OF 1.0 FC DURING ALL HOURS OF DARKNESS. COORDINATE SETTINGS WITH VENDOR PRIOR TO ORDERING TO ACCOUNT FOR BUSINESS HOURS.
 2. WALL MOUNTED FIXTURES TYPE C TO BE CONTROLLED THRU A PHOTOCELL.
 3. SITE LIGHTING SHALL HAVE A MAINTENANCE PLAN TO INCLUDE THE FOLLOWING:
 - 3.1. REPLACEMENT WITHIN FIVE (5) DAYS OF FAILED LAMPS, ELECTRICAL COMPONENTS, PHOTOCELLS, AND VANDALIZED OR DAMAGED LUMINAIRES;
 - 3.2. REGULAR CLEANING OF LUMINAIRES SHALL BE PERFORMED ANNUALLY;
 - 3.3. SHRUBBERY PRUNING;
 - 3.4. INSPECTIONS OF ALL LAMPS TO BE PERFORMED AT LEAST MONTHLY DURING HOURS OF DARKNESS TO LOOK FOR DIRTY OR BROKEN LENSES, FAILED LAMPS OR THOSE NOT PERFORMING TO SPECIFIED STANDARDS, TREE LIMBS BLOCKING LIGHT PATHS, AND EVIDENCE OF VANDALISM. IN THE CASE OF LARGE PROPERTIES WHERE THERE ARE ON-SITE SECURITY PATROLS OR MAINTENANCE PERSONNEL, LAMPS SHOULD BE CHECKED NIGHTLY, AND OBSERVED OUTAGES REPORTED IN PATROL LOGS OR MAINTENANCE REQUEST RECORDS.

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Parking	Illuminance	Fc	5.00	11.5	1.3	3.85	8.85
Property Line	Illuminance	Fc	0.2	0.5	0.0	N.A.	N.A.

2 PHOTOMETRIC CALCULATIONS



SITE PLAN PHOTOMETRIC
SCALE: 1"=20'



REVISIONS		
No.	Description	Date
1	BLOG OFF CORR.	9-8-21

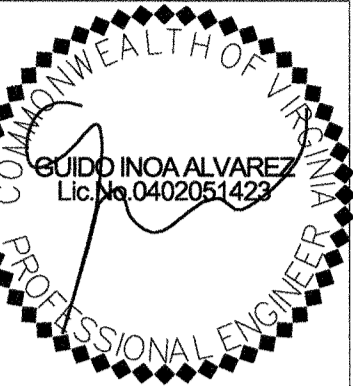
Job Number: 2002-00
Date: 02/12/20
Drawn By: Author
Checked By: TJR
CAD File:

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SITE PLAN PHOTOMETRIC
SOUTHRIDGE
(LOT #) INTERNATIONAL PARKWAY
FREDRICKSBURG, VA 22406

BRADFIELD RICHARDS RHODES & ASSOCIATE ARCHITECTS, Inc.
1040 CROWN POINTE PKWY.
SUITE FIVE HUNDRED FIFTY
ATLANTA, GEORGIA 30338
TEL. 678.990.5656
FAX 678.990.5858

SPF



REVISIONS		
No.	Description	Date
1	ISSUE FOR CONSTRUCTION	9-18-21

Job Number: 2002-00
Date: 02/12/20
Drawn By: Author
Checked By: TIR
CAD File:

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TEL. 678.990.5656
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SPF-1

<p>STRIKE</p> <p>STATUS</p> <p>CONTROL TECHNOLOGY</p> <p>SPECIFICATIONS</p>	<p>ORDERING GUIDE</p> <table border="1"><thead><tr><th>Part No.</th><th>Part Description</th><th>Part No.</th><th>Part Description</th></tr></thead><tbody><tr><td>1000000000</td><td>1000000000</td><td>1000000000</td><td>1000000000</td></tr></tbody></table>	Part No.	Part Description	Part No.	Part Description	1000000000	1000000000	1000000000	1000000000	<p>CONTROLS</p> <p>PERFORMANCE DATA</p> <table border="1"><thead><tr><th>Beam Angle</th><th>Beam Diameter</th><th>Beam Area</th><th>Beam Length</th><th>Beam Volume</th></tr></thead><tbody><tr><td>10°</td><td>1.00m</td><td>0.79m²</td><td>1.00m</td><td>0.79m³</td></tr></tbody></table>	Beam Angle	Beam Diameter	Beam Area	Beam Length	Beam Volume	10°	1.00m	0.79m²	1.00m	0.79m³	<p>DELIVERED LUMENS</p> <table border="1"><thead><tr><th>Beam Angle</th><th>Beam Diameter</th><th>Beam Area</th><th>Beam Length</th><th>Beam Volume</th></tr></thead><tbody><tr><td>10°</td><td>1.00m</td><td>0.79m²</td><td>1.00m</td><td>0.79m³</td></tr></tbody></table>	Beam Angle	Beam Diameter	Beam Area	Beam Length	Beam Volume	10°	1.00m	0.79m²	1.00m	0.79m³	<p>DIMENSIONS</p>
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1 LIGHTING SPECIFICATIONS
NS

LIGHTING SPECS
SCALE: NTS

STD	LEGEND
3.07	INLET PROTECTION
3.36	BLANKET AND MATTING (AEC CUREX II (98))

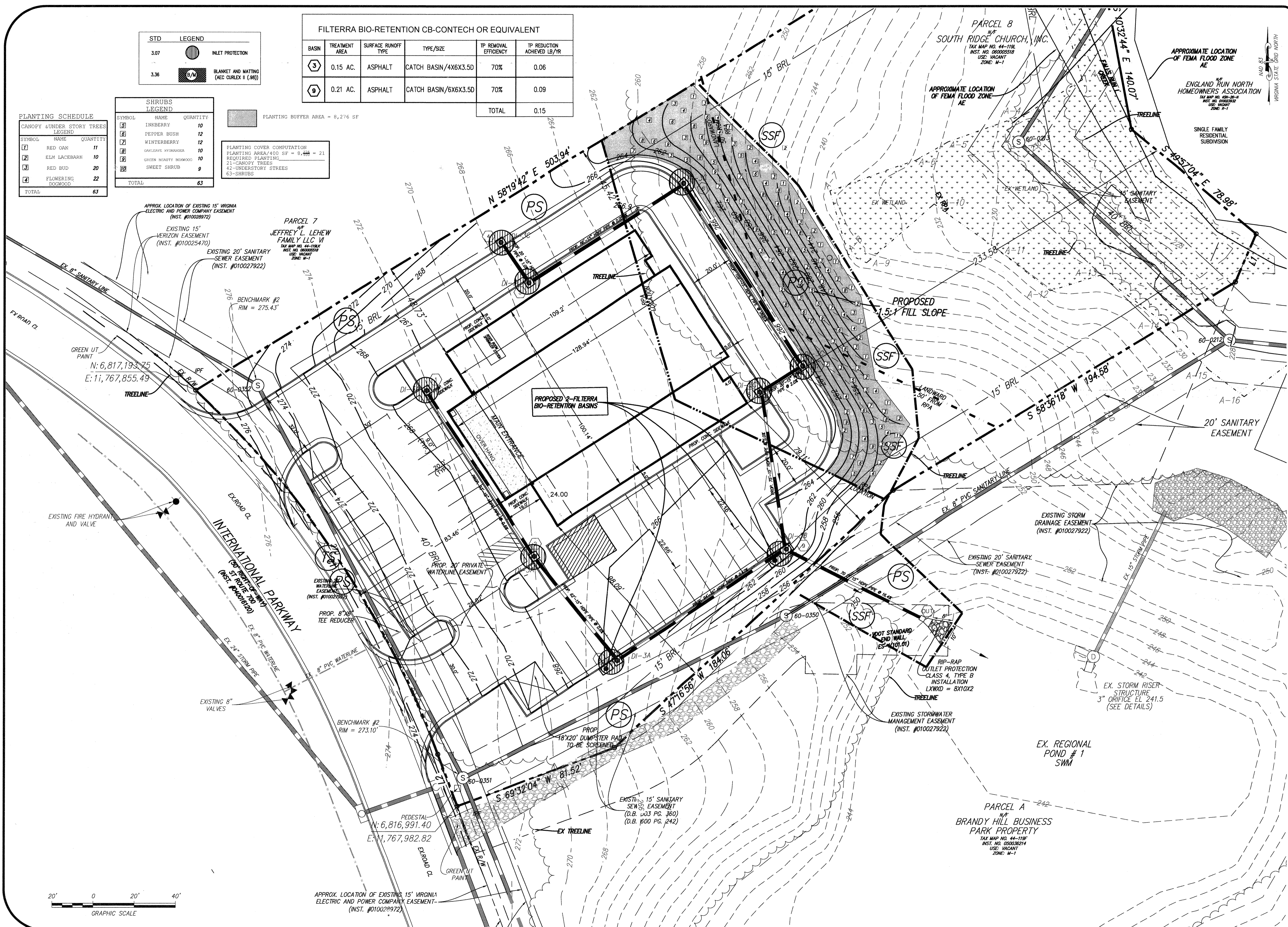
FILTERRA BIO-RETENTION CB-CONTECH OR EQUIVALENT					
BASIN	TREATMENT AREA	SURFACE RUNOFF TYPE	TYPE/SIZE	TP REMOVAL EFFICIENCY	TP REDUCTION ACHIEVED LB/YR
3	0.15 AC.	ASPHALT	CATCH BASIN/4X6X3.5D	70%	0.06
9	0.21 AC.	ASPHALT	CATCH BASIN/6X6X3.5D	70%	0.09
TOTAL				0.15	

PLANTING SCHEDULE		
CANOPY & UNDER STORY TREES LEGEND		
SYMBOL	NAME	QUANTITY
1	RED OAK	11
2	ELM LACEBARK	10
3	RED BUD	20
4	FLOWERING DOGWOOD	22
TOTAL		63

SHRUBS LEGEND		
SYMBOL	NAME	QUANTITY
5	INKBERRY	10
6	PEPPER BUSH	12
7	WINTERBERRY	12
8	CUNILA HYDRANGEA	10
9	GREEN BEAUTY BROOMWOOD	10
10	SWEET SHRUB	9
TOTAL		63

PLANTING BUFFER AREA = 8,276 SF

PLANTING COVER COMPUTATION
 PLANTING AREA/400 SF = 8,276 / 400 = 21
 21-CANOPY TREES
 42-UNDERSTORY TREES
 63-SHRUBS



REVISION	
DATE	
Freeland Engineering, PC rfreeland@freelandengineeringpc.com 10814 Courthouse Road Fredericksburg, Virginia 22408 Phone: 540.898.3092 Fax: 877.658.7735 www.freelandengineeringpc.com	
PROPOSED BMP'S, E&S & MITIGATION SOUTH RIDGE CHURCH T.M.# 44-119L FALMOUTH HARTWOOD MAGISTERIAL DISTRICT STAFFORD COUNTY, VIRGINIA	
County Plan Number:	
Drawn By:	SAR
Designed By:	SAR
Checked By:	RPF
Date:	08/18/2021
Scale:	1"=20'
Sheet: 30 of 31	

OFFSITE CONSERVATION EASEMENT

INST # 210027475

This instrument was prepared by:
Justin R. Coleman, Esq. (VSB# 78379)
Simms Showers, LLP
305 Harrison St. SE, 3rd Floor
Leesburg, VA 20175

Tax Map No. 44-119F

This Deed is exempt from recording taxes under
VA. Code Ann. Sect. 58.1-811(A)(2)

DEED OF DEDICATION OF CONSERVATION EASEMENT

THIS DEED OF DEDICATION OF CONSERVATION EASEMENT ("Deed of Easement") is made effective as of the 11 day of August, 2021, by and between BRANDY HILL BUSINESS PARK PROPERTY OWNERS ASSOCIATION, INC., a Virginia nonstock corporation, hereinafter referred to as the "Owner" (index as Grantor), and SOUTH RIDGE CHURCH, a non-profit Virginia church corporation, hereinafter referred to as the "Church" (index as Grantee).

WITNESSETH:

WHEREAS, Owner is the owner and proprietor of that certain parcel and lot of land and real property (the "Property"), located in the County of Stafford, Virginia, as more particularly described as Tax Map No. 44-119F, the said Owner having acquired title to the Property by Deed recorded as Instrument No. 050636214 among the land records of the County of Stafford, Virginia; and

WHEREAS, Church is the owner and proprietor of that certain adjacent parcel and lot of land and real property (the "Church Property"), located in the County of Stafford, Virginia, as more particularly described as 2012 International Parkway, Fredericksburg, Virginia, 22406, the Church having acquired title to the Church property from Brandywine Corporex Plaza II Limited by Deed recorded as Instrument No. 050009518 among the land records of the County of Stafford, Virginia; and

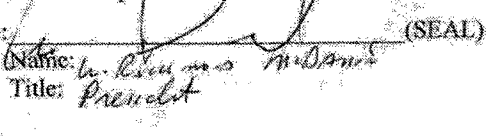
WHEREAS, it is the desire and intent of the Parties to dedicate a certain easement in the location as shown on the plat dated July 26, 2021, entitled "Exhibit Plat Showing a Conservation Easement of TM #44-119F, PM #040000996, Falmouth-Hartwood Magisterial District, Stafford County, Virginia" which is attached hereto and incorporated herein by reference ("Plat").

NOW, THEREFORE, THIS DEED WITNESSETH, that in consideration of the sum of Ten Dollars (\$10.00), cash in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged, the Owner, as shown by its execution hereof, does hereby grant and convey unto the Church, its successors and assigns, agents and contractors, upon portions of the Property the following:

1. A certain Conservation Easement(s) for the purposes of conserving and preserving undisturbed the natural vegetation, topography, habitat and other natural features now existing on and across the Property of Owner, said Property and easement(s) being more particularly bounded and described on the Plat attached hereto and incorporated herein. The easement(s) are subject to the following terms and conditions:
 - a. No use shall be made of, nor shall any improvements be made within, the conservation easement area without prior written authorization of the Owner.
 - b. All existing vegetation in the conservation easement area shall be preserved and protected and no clearing or grading shall be permitted, nor shall the easement area be denuded, defaced or otherwise disturbed without the prior written approval of the appropriate Stafford County (the "County") agency or department.
 - c. In the event of any violation of this conservation easement, the Church shall be solely responsible for the restoration of the conservation easement area to its condition as of the execution of this Deed. Further, the County and its agents shall have the right, but not the obligation, to enter upon the property and restore the conservation easement area to the extent the County may deem necessary. The cost of such restoration by the County shall be reimbursed to the County by the Owner, its successors and assigns, upon demand. However, any additional costs inside the scope of preserving the conservation use area will be maintained by the Church.

2. Owner shall maintain the existing sewer easement and future utility easement for proposed project on the Property only.
This Deed of Easement is with the free consent and made in accordance with the desire of the Owner, being the sole owner and proprietor of the Property, and shall run with title to the Property.

IN WITNESS WHEREOF the Owner has caused this Deed of Easement to be signed as evidenced by the following signature(s) and seal(s).

BRANDY HILL BUSINESS PARK PROPERTY OWNERS ASSOCIATION, INC., a Virginia nonstock corporation
By:  (SEAL)
Title: President

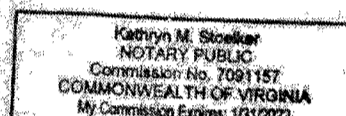
COMMONWEALTH OF VIRGINIA)
CITY/COUNTY OF STAFFORD)

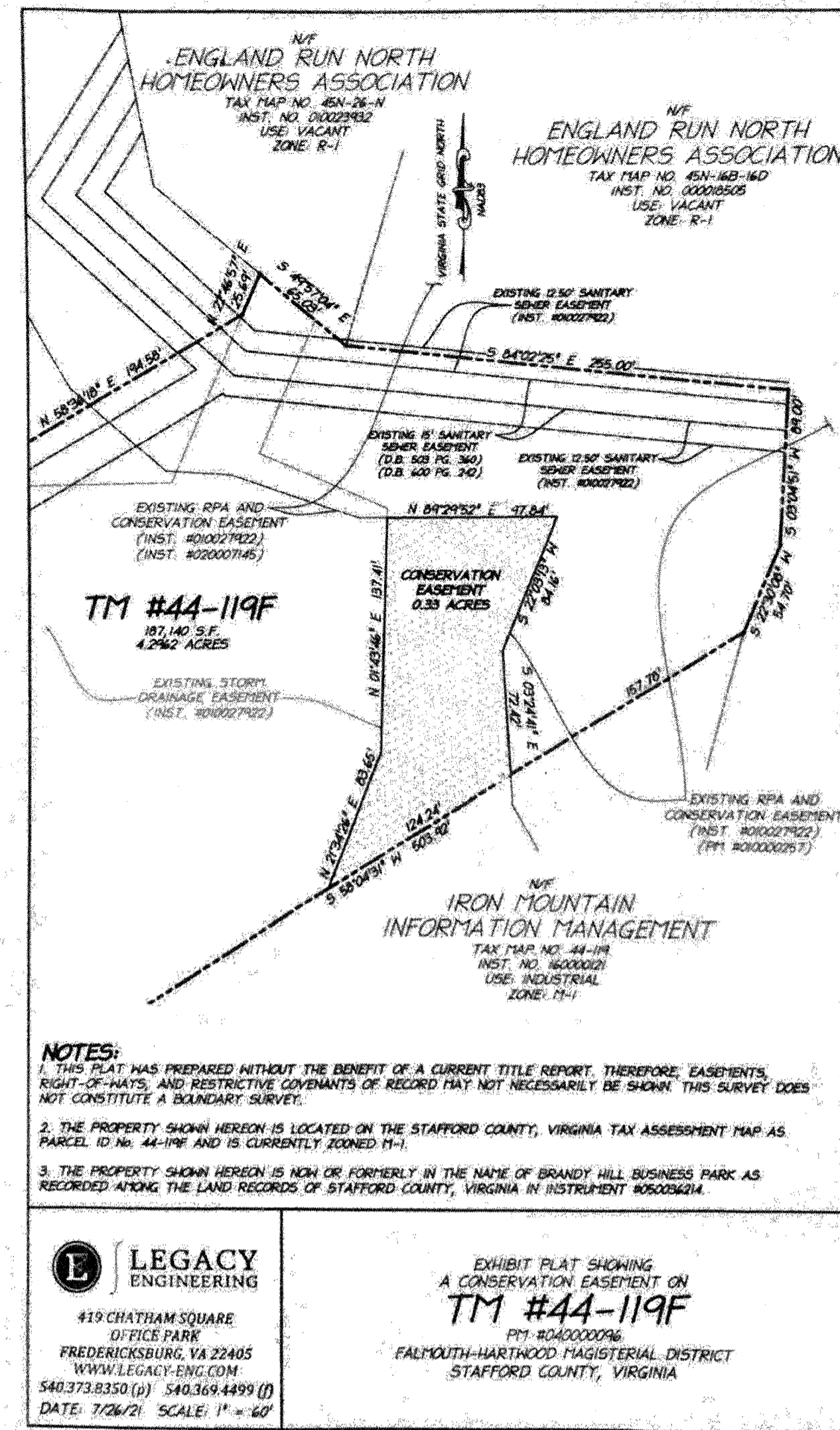
I HEREBY CERTIFY that on August 11, 2021, before me, a Notary Public of the jurisdiction aforesaid, personally appeared Brandy Hill Business Park Property Owners Association, Inc., personally known to me (or satisfactorily proven to be) the person whose name is subscribed to the foregoing Deed and instrument, who acknowledged that he executed the same for the purposes therein contained in his official and authorized capacity as the PRESIDENT of BRANDY HILL BUSINESS PARK PROPERTY OWNERS ASSOCIATION, INC., a Virginia nonstock corporation (the "Owner"), and that he, as such officer and being appointed and authorized so to do, executed the foregoing instrument for the purposes therein contained by signing the name of the Company.

WITNESS my hand and Notarial Seal.


Notary Public

My Commission Expires: 1/31/2022
My Registration Number is: 1091157


Kathryn M. Stouffer
NOTARY PUBLIC
COMMISSION NO. 7091157
COMMONWEALTH OF VIRGINIA
My Commission Expires: 1/31/2022



INTERPARCEL ACCESS EXCEPTION



Board of Supervisors

Cystal L. Varuch, Chairman
Cindy C. Lamb, Vice Chairman
Tasha Allen
Meg Bohmke
Thomas C. Coen
L. Mark Guenther
Gary F. Snellings
Frederick J. Presley
County Administrator

September 9, 2021

Raymond P. Freeland, P.E.
Freeland Engineering, PC
1014 Courthouse Road
Fredericksburg, VA 22408

SUBJECT: 20153537; Southridge Church; Interparcel Access Exception; Tax Map Parcel No. 44-119F

Dear Mr. Freeland:

On July 26, 2021, our office received a request for an exception to the interparcel access requirements for this site. The letter identifies multiple features which make an interparcel connection impractical due to the site's location, lack of stubbed connections provided for adjoining properties, and existing topographic and environmental conditions.

In accordance with Section 28-256(c)(3) of the Zoning Ordinance, "Interparcel access shall be provided to adjacent properties where practical." An exception to the minimum requirements under this section may be granted by the agent to the Board of Supervisors upon written request, and finding that granting such a request would not adversely affect public safety and there is no other reasonable alternative to maintain access on or to the property.

As stated in your letter, this site is bounded to the south by a regional stormwater management pond for the business park, and bounded to the east by a large RPA with an existing conservation easement, both of which preclude interparcel connectivity. In addition, staff has also noted that the site is also bounded by TM 44-119K, which has an approved site plan that does not provide for interparcel connectivity in this area.

Staff has reviewed your request, and based on the information provided, an exception is hereby granted; no additional connections to adjacent parcels will be required.

If you have any further questions, please feel free to contact Amy Taylor or me at (540) 658-8668.

Sincerely,


Jeffrey M. Harvey, AICP
Director of Planning and Zoning

JAH:agt

cc: Andrew Milliken - Fire & Rescue

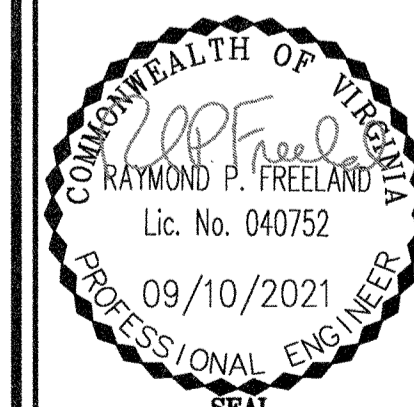
1300 Courthouse Road, P.O. Box 339, Stafford, VA 22555-0339 | Phone: 540.658.8600 | www.staffordcountyva.gov

EASEMENTS AND DOCUMENTS

SOUTH RIDGE CHURCH

T.M. # 44-119F

GEORGE WASHINGTON DISTRICT
STAFFORD COUNTY, VIRGINIA



County Plan Number:
AP# 20153537

Drawn By: SAR

Designed By: SAR

Checked By: RPF

Date: 08/18/2021

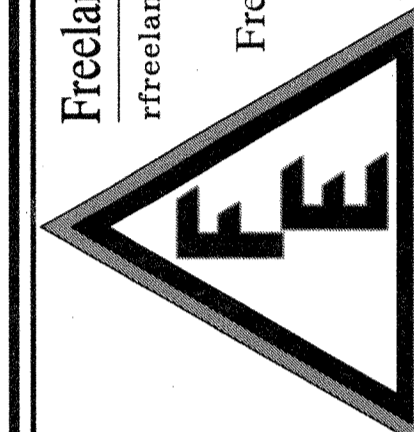
Scale: N/S

Sheet: 31 of 31

PROJECT # 4762

DATE
05/30/2021

Freeland Engineering, PC
rfreeland@freelandengineeringpc.com
10814 Courthouse Road
Fredericksburg, Virginia 22408
Phone: 540.898.3092
Fax: 877.658.7735
www.FreelandEngineeringPC.com



REVISION
REVISED PER COUNTY COMMENTS