MS-19 Section #1B - 2-Year Analysis

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.01700	ft/ft
Discharge	4.60	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	152.64
0+07	152.43
0+22	152.00
0+28	151.59
0+38	151.00
0+46	150.70
0+50	150.53
0+51	150.50
0+51	150.49
0+52	150.47
0+52	150.46
0+52	150.44
0+52	150.43
0+52	150.43
0+52	150.43
0+52	150.43
0+52	150.43
0+52	150.44
0+52	150.44
0+52	150.44
0+52	150.45
0+53	150.48
0+53	150.49
0+53	150.50
0+53	150.52
0+54	150.51
0+54	150.50

MS-19 Section #1B - 2-Year Analysis

Input Data

Station (ft)	Elevation (ft)
0+54	150.50
0+55	150.50
0+55	150.52
0+56	150.66
0+59	151.00
0+63	151.44
0+69	152.00
0+78	152.35
0+78	152.35
0+78	152.36
0+78	152.36
0+78	152.36
0+85	152.70
0+88	152.85
0+91	153.00
1+03	153.70
1+05	153.79

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	0.41	ft
Elevation Range	150.43 to 153.79 ft	
Flow Area	3.33	ft²
Wetted Perimeter	15.68	ft
Hydraulic Radius	0.21	ft
Top Width	15.65	ft
Normal Depth	0.41	ft
Critical Depth	0.32	ft

MS-19 Section #1B - 2-Year Analysis

Results

Critical Slope	0.06688	ft/ft
Velocity	1.38	ft/s
Velocity Head	0.03	ft
Specific Energy	0.44	ft
Froude Number	0.53	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.41	ft
Critical Depth	0.32	ft
Channel Slope	0.01700	ft/ft
Critical Slope	0.06688	ft/ft

MS-19 Section #1B - 10-Year Analysis

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.01700	ft/ft
Discharge	6.20	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	152.64
0+07	152.43
0+22	152.00
0+28	151.59
0+38	151.00
0+46	150.70
0+50	150.53
0+51	150.50
0+51	150.49
0+52	150.47
0+52	150.46
0+52	150.44
0+52	150.43
0+52	150.43
0+52	150.43
0+52	150.43
0+52	150.43
0+52	150.44
0+52	150.44
0+52	150.44
0+52	150.45
0+53	150.48
0+53	150.49
0+53	150.50
0+53	150.52
0+54	150.51
0+54	150.50

MS-19 Section #1B - 10-Year Analysis

Input Data

Station (ft)	Elevation (ft)
0+54	150.50
0+55	150.50
0+55	150.52
0+56	150.66
0+59	151.00
0+63	151.44
0+69	152.00
0+78	152.35
0+78	152.35
0+78	152.36
0+78	152.36
0+78	152.36
0+85	152.70
0+88	152.85
0+91	153.00
1+03	153.70
1+05	153.79

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	0.46	ft
Elevation Range	150.43 to 153.79 ft	
Flow Area	4.16	ft²
Wetted Perimeter	17.44	ft
Hydraulic Radius	0.24	ft
Top Width	17.40	ft
Normal Depth	0.46	ft
Critical Depth	0.36	ft

MS-19 Section #1B - 10-Year Analysis

Results

Critical Slope	0.06414	ft/ft
Velocity	1.49	ft/s
Velocity Head	0.03	ft
Specific Energy	0.50	ft
Froude Number	0.54	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.46	ft
Critical Depth	0.36	ft
Channel Slope	0.01700	ft/ft
Critical Slope	0.06414	ft/ft

MS-19 Section #1B - 10-Year Cross-Section

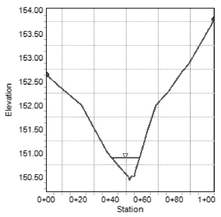
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.01700	ft/ft
Normal Depth	0.46	ft
Discharge	6.20	ft³/s

Cross Section Image



COMMONWEALTH OF VIRGINIA
KEVIN O'MEARA
Lic. No. 049232
6/30/2019
PROFESSIONAL ENGINEER

REVISION DESCRIPTION

DATE

YOUR VISION ACHIEVED THROUGH OURS.

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Site Development | Residential | Infrastructure | Technology

EAST RAMP 3 ACCESS ROAD

HENRICO COUNTY - VIRGINIA

MS-19 SECTION #1B ANALYSIS

JOB NO.
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