

# HY-8 Culvert Analysis Report

## Crossing Discharge Data

Discharge Selection Method: User Defined

## Site Data - Existing Culvert

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 0.58 ft

Outlet Station: 139.15 ft

Outlet Elevation: -0.53 ft

Number of Barrels: 1

## Culvert Data Summary - Existing Culvert

Barrel Shape: User Defined

Barrel Span: 15.00 ft

Barrel Rise: 15.00 ft

Barrel Material: Corrugated Metal Riveted or Welded

Embedment: 0.00 in

Barrel Manning's n: 0.0240 (top and sides)

Manning's n: 0.0350 (bottom)

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

## Tailwater Channel Data - Existing Culvert

Tailwater Channel Option: Enter Rating Curve

Channel Invert Elevation: -3.00 ft

## Roadway Data for Crossing: Existing Culvert

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 50.00 ft

Crest Elevation: 28.00 ft

Roadway Surface: Paved

Roadway Top Width: 36.00 ft

Table 1 - Summary of Culvert Flows at Crossing: Existing Culvert

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	Existing Culvert Discharge (cfs)	Roadway Discharge (cfs)	Iterations
6.12	Q1.1	78.80	78.80	0.00	1
14.64	Q10	323.20	323.20	0.00	1
17.51	Q25	424.20	424.20	0.00	1
19.52	Q50	494.30	494.30	0.00	1
22.04	Q100	579.00	579.00	0.00	1
28.11	Q500	779.50	773.74	5.35	3
28.00	Overtopping	770.24	770.24	0.00	Overtopping

Table 2 - Culvert Summary Table: Existing Culvert

Discharge Names	Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
Q1.1	78.80	78.80	6.12	2.419	5.539	3-M1t	2.201	1.847	6.580	9.050	1.077	0.000
Q10	323.20	323.20	14.64	4.880	14.057	3-M1f	4.448	3.789	15.000	17.500	1.863	0.000
Q25	424.20	424.20	17.51	5.630	16.929	4-FFf	5.146	4.340	15.000	20.274	2.445	0.000
Q50	494.30	494.30	19.52	6.109	18.938	4-FFf	5.599	4.690	15.000	22.200	2.849	0.000
Q100	579.00	579.00	22.04	6.654	21.456	4-FFf	6.120	5.095	15.000	24.600	3.337	0.000
Q500	779.50	773.74	28.11	7.889	27.699	4-FFf	7.227	5.944	15.000	30.331	4.459	0.000

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Straight Culvert

Inlet Elevation (invert): 0.58 ft,    Outlet Elevation (invert): -0.53 ft

Culvert Length: 139.15 ft,    Culvert Slope: 0.0080

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Table 3 - Downstream Channel Rating Curve (Crossing: Existing Culvert)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)
78.80	6.05	6.05	0.00
323.20	14.50	14.50	0.00
494.30	19.20	19.20	0.00
579.00	21.60	21.60	0.00
779.50	27.50	27.50	0.00