HY-8 Culvert Analysis Report

Crossing Discharge Data

Discharge Selection Method: User Defined

Site Data - Concrete Box

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 366.96 ft

Outlet Station: 90.00 ft

Outlet Elevation: 366.04 ft

Number of Barrels: 1

Culvert Data Summary - Concrete Box

Barrel Shape: Concrete Box

Barrel Span: 15.00 ft

Barrel Rise: 12.00 ft

Barrel Material: Concrete

Embedment: 2.00 in

Barrel Manning's n: 0.0120 (top and sides)

Manning's n: 0.0360 (bottom)

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Tailwater Channel Data - Proposed

Tailwater Channel Option: Enter Rating Curve

Channel Invert Elevation: 368.90 ft

Roadway Data for Crossing: Proposed

Roadway Profile Shape: Irregular Roadway Shape (coordinates)

Irregular Roadway Cross-Section:

Coord No.	Station (ft)	Elevation (ft)
0	0.00	382.00
1	100.00	382.00
2	147.20	383.00
3	189.90	384.00
4	220.60	385.00

Roadway Surface: Paved

Roadway Top Width: 22.90 ft

Table 1 - Summary of Culvert Flows at Crossing: Proposed

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	7.10	7.10	378.81	0.271	11.685	3-M1f	0.247	0.182	11.833	9.912	0.040	0.000
Q10	23.70	23.70	381.00	0.624	13.874	4-FFf	0.552	0.418	11.833	12.100	0.134	0.000
Q25	30.90	30.90	382.10	0.745	14.974	4-FFf	0.654	0.501	11.833	13.200	0.174	0.000
Q50	34.30	32.60	382.54	0.772	15.874	4-FFf	0.675	0.520	11.833	14.100	0.184	0.000
Q100	40.10	40.10	384.20	0.886	17.075	4-FFf	0.767	0.598	11.833	15.300	0.226	0.000
Q500	51.30	41.66	384.50	0.909	19.625	4-FFf	0.786	0.614	11.833	15.655	0.235	0.000

Table 2 - Culvert Summary Table: Concrete Box

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	Concrete Box Discharge (cfs)	Roadway Discharge (cfs)	Iterations
378.81	Q1.1	7.10	7.10	0.00	1
381.00	Q10	23.70	23.70	0.00	1
382.10	Q25	30.90	30.90	3.27	3
382.54	Q50	34.30	32.60	0.00	100
384.20	Q100	40.10	40.10	9.64	3
384.50	Q500	51.30	41.66	0.00	33
382.00	Overtopping	30.24	30.24	0.00	Overtopping

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Straight Culvert

Inlet Elevation (invert): 367.13 ft, Outlet Elevation (invert): 366.21 ft

Culvert Length: 90.00 ft, Culvert Slope: 0.0102

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Table 3 - Downstream Channel Rating Curve (Crossing: Proposed)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)
0.94	378.00	378.00	0.00
23.70	381.00	381.00	0.00
30.90	382.10	382.10	0.00
34.30	383.00	383.00	0.00
40.10	384.20	384.20	0.00
51.30	386.75	386.75	0.00