



gai consultants

Subject: LOG-CR-FY27 - LOG-117-5.78

Roadway Design Criteria

Calc. by: CMK

Date: 11/16/24

Check by:

PID.: 116483

Sheet 1 of 1

Date:

Culvert LOG-117-5.78 CFN: 1847868

Design Designation		Source			Remarks
Opening Year ADT	8,500				
Design Year ADT (2046)	8,600				
Design Hourly Volume	900				
Directional Distribution, D	56.4%				
Trucks, T24	17%				
Design Speed, DS (mph)	60				
Legal Speed (mph)	55				
Functional Classification, FC	Rural Major Collector				
Curbed?	No				
NHS Project					
	Criterion	Value	Source (L&D Vol 1)	Control Parameter	Remarks
Horizontal Alignment					
	Stopping Sight Distance, SSD (ft)	570	Fig 201-1	DS	
	Passing Sight Distance, PSD (ft)	1000	Fig 201-3	DS	Requires K-Crest = 357’ min
	Intersection Sight Distance, ISD (ft) (left)		Fig 201-5	DS	No intersection present
	Intersection Sight Distance, ISD (ft) (right)		Fig 201-5	DS	No intersection present
	Decision Sight Distance, DSD, stop (ft)	610	Fig 201-6	DS	Urban Stop
	Decision Sight Distance, DSD, change (ft)	990	Fig 201-6	DS	Urban Speed/Path/Direction Change
	Max. C.L. deflection w/out Horz. Curve	0° 55'	Fig 202-1	DS	
	Dist. Between Horz. Deflections (ft)	200’	Fig 202-1	DS	Recommended minimum
	Maximum Degree of Curvature, DC	4°45'	Fig 202-2	DS	Minimum radius = 1206’; Dc = 5729.58/R
	Maximum Dc w/out Superelevation	0°32'	Fig 202-3	DS	Minimum radius = 10,743’; Dc = 5729.58/R
Maximum Dc w/out a Spiral	NA	Fig 202-11	DS		
Vertical Alignment					
	Maximum Vertical Grade	5	Fig 203-1	FC&DS	Level Terrain
	Minimum Vertical Grade	0.00%	Sec 203.2.2		For non-curbed pavement
		0.50%	Sec 203.2.2		For curbed pavement
	Maximum Vertical Grade Break	0.30%	Fig 203-2	DS	
	Min. Dist. Between VC's and Breaks (ft)	100	Fig 203-2	DS	Recommended minimum
	Minimum K value - Crest VC	151	Fig 203-3	DS	SSD = 570’
	Minimum K value - Sag VC	136	Fig 203-6	DS	SSD = 570’
	Minimum VC length (ft)	180	Sec 203.3.3 & 4	DS	Length = 3 x (DS in feet)
Typical Section					
	Number of Lanes	2		Scope	Same as existing
	Minimum Design Level of Service (LOS)	C	Fig 301-1	FC, Locale	Urban & Urbanized
	Minimum Lane Width (ft)	11	Fig 301-2	FC	Same as existing per Scope (10 ft. lanes may be used in constrained environments to help accommodate bicycle and pedestrian traffic)
	Pavement Width Transition	60:1	Sec 301.1.4	DS	L=WS²/60
	Treated Shoulder Width (ft)	4’, Varies	Fig 301-3,4	FC&ADT	Use same as existing
	Graded Shoulder Width (ft) with Barrier	11’, Varies	Fig 301-3,4	FC&ADT	Use same as existing
	" w/out Barrier, Foreslope Steeper than 6:1	10’, Varies	Fig 301-3,4	FC&ADT	Use same as existing
	" w/out Barrier, Foreslope 6:1 or Flatter	8’, Varies	Fig 301-3,4	FC&ADT	Use same as existing
	Minimum Curbed Shoulder Width (Parking)	NA	Fig 301-4		Not a curbed roadway
	Minimum Curbed Shoulder Width (No Parking)	NA	Fig 301-4		Not a curbed roadway
	Shoulder Width Taper	25:1	Sec 301.2.3.2		For decreasing shoulder width
		5:1	Sec 301.2.3.2		For increasing shoulder width
	Guardrail Offset (ft)	8’ Min	Fig 301-3	FC&ADT	8’ min. from traveled lane
	Curve Widening	N/A	Fig 301-5c	FC&DS	Depends on Dc or curve radius
	Clear Zone (ft), foreslope 6:1 or flatter	30	Fig 600-1	DS&ADT	ADT>6,000
	Clear Zone (ft), foreslope 6:1 to 4:1	30	Fig 600-1	DS&ADT	ADT>6,000
	Clear Zone (ft), backslope 6:1 or flatter	27	Fig 600-1	DS&ADT	ADT>6,000
	Clear Zone (ft), backslope 6:1 to 4:1	25	Fig 600-1	DS&ADT	ADT>6,000
Clear Zone (ft), backslope steeper than 4:1	21	Fig 600-1	DS&ADT	ADT>6,000	