

PRELIMINARY DESIGN PLAN CHECKLIST - BRIDGE

Date: 1-1-2014

County: _____ Design No.: _____ Check By: _____ Date: _____

Project Location: _____ Consultant: _____

GENERAL

Title Block

- ___ "Design For (xx Skew) (RA)(LA)"
- ___ Structure Type and Size and Beam Type (Ex.: "304'-0 x 40'-0 Prestressed Pretentioned Concrete Beam Bridge")
- ___ For bridge with multi-project staging, the structure width listed should be the width of the current stage plus all previously completed stages. (Ex.: if stage 1 construction is 20 ft. and stage 2 construction is 30 ft., the first project title block should show 20 ft. and the second project title block should show 50 ft.) Show text: Stage 1, Stage 2 as-needed
- ___ Span Description (Ex "101'-0 End Spans", "102'-0 Center Span")
For bridge on horizontal curve, show 'Radius = xxxx'
- ___ Station of bridge at center of bridge (offset needed for duals)
- ___ Current TSL Date (Ex.: "December 2010")
- ___ County
- ___ "Iowa Department of Transportation - Highway Division"
- ___ "Design Sht. No. x of x", "File No.", "Design No."
- ___ Situation Plan

Location

- ___ Location: Road over road/stream
- ___ Federal Railroad Administration Identification No. (FRA) and Iowa crossing number
- ___ Township/Range (Ex.: "R-2W", "T-87N")
- ___ Section (Ex.: "36")
- ___ Latitude/Longitude at station of bridge at center of bridge (Ex. : "12.345678/-12.345678")
- ___ County
- ___ Bridge Maintenance Number - Show if known
- ___ FHWA No.: New number shall be provided and shown

Traffic Estimate

- ___ Traffic data shown

Vertical Profile Data

- ___ Vertical curve data - include sta/elev of g1/q2 end points

Horizontal Profile Data

- ___ Horizontal curve data

Vertical Clearance Table

- ___ Include station/offsets/elevation (mainline/sideroad/overhead/underpass), deck thickness, haunch, beam depth, vertical clearance. Submit data if on super elevation

Utilities List Block

- ___ Utilities - add legend table and label each for all utilities shown on plan sheet

Recoverable Berm Location Table

- ___ Recoverable berm location table - show if necessary

Berm Slope Location Table

- ___ Berm slope location table

Hydrology & Hydraulic Data

- ___ Hydraulic data table - see data cell for appropriate application

Berm Slope Armoring

- ___ Provide typical section showing embedded vs. non-embedded and table showing quantities for revetment, erosion stone, engineering fabric and class 10 excavation. Show and label 'grading surface'

Ground Control Grading

- ___ Provide coordinates if applicable

Signature Block

- ___ Consultant PE signature for Hydrology & Hydraulics - bridge over water/new RCB (does not include extensions)

Staging

- ___ Staging sequence details if required

Railroad Bridges

- ___ Show macadam stone protection
- ___ Minimum horizontal clearance dimension to pier
- ___ Crashwall ~~if~~ For RR overpass (provide heavy construction pier if center track to face column is less than 25'50")
- ___ Show fence if required
- ___ Add note stating fence type (curved - sidewalk/trail or straight - shoulder only)
- ___ UP/BNSF RR bridge - use 3'-8 barrier rail
- ___ UP/BNSF RR bridge - assume 10:1 transition for barrier rail, as taller rail is required
- ___ UP/BNSF RR bridges - do not add fence on bridge barrier rail unless required
- ___ UP/BNSF RR bridge - include standard sheet 1067

Notes (include as-needed)

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- ___ "Non-Standard Abutment Wing Wall"
- ___ "Standard Bridge (Index No.)"
- ___ "TL - # Bridge Railing Proposed" (use for all bridges)
- ___ "2-Span Grading Shown" (see EW 203/204 - 5' offset)
- ___ "Top of bridge deck at centerline roadway is 'x' above (or below) the profile grade to account for deck cross slope and parabolic crown"
- ___ "Top of bridge deck crown 'X' below profile grade"
- ___ "Pier Type – (Frame, T, Pile Bent, Diaphragm, etc)"
- ___ "Pier(s) Note if designed for vehicular collision force"
- ___ "Pier(s) exempt from vehicular collision force design"
- ___ "Beam Type – (BTB, etc.) (AASHTO A, B, etc.) (WPG – include depth)"
- ___ "Provide vent hole in beam"
- ___ "Class (B, E, etc) revetment stone is (embedded or non-embedded)".
- ___ "Note to Final Design: As this project requires a sovereign lands permit, bid item reference notes shall restrict broken concrete as a substitute for revetment." [BDM 3.2.7.5]
- ___ "Bridge aesthetics to be incorporated during final design"

Bridge Cross Section

- ___ Show bridge cross section – fully dimension, show lanes/shoulders/cross slopes/beams etc. (consultants only)

Miscellaneous

- ___ North arrow
- ___ Scale bar
- ___ Benchmark description
- ___ Border: "County", "Project No.", Sht. No. x of x"
- ___ Use current Micro Station CADD level/color schemes as shown on laDOT's web site.

PLAN VIEW

- ___ 'Face to Face of Paving Notches' dimension shown
- ___ Show face of paving notch (where approach pvtm adjoins bridge) as color number 15 in CAD Structures Model
- ___ Proposed span lengths and total bridge length (centerline to centerline pier/abutment)
- ___ Proposed stations along centerline approach roadway at piers/abutments
- ___ Roadway designation(s)
- ___ Typical Approach Roadway Section - dimension lane/shoulder widths and show cross slopes

- ___ Berm slope armoring - Label type (revetment vs erosion stone) and show offset limits from centerline approach roadway
- ___ POT stationing of mainline roadway construction centerline and side-road intersection
- ___ Skew angle – show actual in plan view and design skew in Title Block to nearest degree
- ___ Minimum vertical clearance location
- ___ Minimum horizontal clearance dimension to pier
- ___ Label guardrail – "Guardrail"
- ___ Arrows for direction of traffic
- ___ Dimension variable width bridges at abutments
- ___ Bridge abutment wing wall dimension shown if non-standard length used
- ___ Structures with no side piers – dimension offset
- ___ Ground elevations preferred for bridges, label contours if used
- ___ Existing utilities (fence-lines, tiles); label - fiber optic/gas line/etc
- ___ Existing structures (bridge, culverts); label - type/size/station and design number
- ___ Other proposed structures (bridge, culverts) shown on TSL sheets; label - type/size/station and design number
 - o If structure not part of project (paren) or a tied project, also add 'Not Part Of This Contract' (Use this option for dual bridges, staged bridges unless let together or tied)
 - o If structure part of project (paren) or a tied project with different design number, also add 'See Design ?????'
- ___ Dimension sideroad lane and shoulder widths
- ___ Proposed roadway embankment shaping
- ___ Proposed berm and channel shaping
- ___ Label all centerlines and profile grade lines
- ___ Label stationing on at least two "tic" marks in the plan view
- ___ Stream name and direction of flow
- ___ Check text/dimensioning legible and not placed on top of other details

LONGITUDINAL SECTION

- ___ Bottom of footing elevation
- ___ Slope protection: label type, thickness
- ___ Existing ground line and proposed grade line shown/labeled
- ___ Existing structure – substructure, piling (from as-built plans)
- ___ Berm slope labeled (2.5:1 max, Normal)

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- ___ Vertical clearance – actual location and dimension
- ___ Top of berm elevation at abutments
- ___ Stream bed elevation
- ___ Q 'Design' water surface elevation without backwater
- ___ Scour elevations –Typically use Q200
- ___ Abutment/pier deck elevations along the centerline of approach roadway