

PRELIMINARY DESIGN CHECKLIST – PIPE CULVERT

Date: 8-1-2021

County: _____ Check By: _____ Date: _____

Project Location: _____ Consultant: _____

GENERAL

- ___ Abbreviations - Use as needed. Reference [BDM 13.1.4]
- ___ Bench Mark – Use coordinates/description per plan set
- ___ Hydraulic Data table - include Drainage Area, Q_{50} cfs.
- ___ Location table
- ___ Title Block – Diameter x Length including pipe type
- ___ Skew angle – same as shown in plan view
- ___ Project number and file number
- ___ Scale bar
- ___ North arrow
- ___ Culvert staging details: denote how drainage accounted for between stages
- ___ NOTES: use as needed
- ___ Structural Design: if required due to use of flume, drop inlet, scour floor, etc., use RCB plan development format/checklist. Design number is required.
- ___ Use Class B bedding for all roadway pipe applications
- ___ Use Class C bedding for temporary, entrance, levee or dike pipe applications

PLAN VIEW

- ___ Label "Plat Plan"
- ___ Ground elevations, contours, and topography. Label contour elevations
- ___ Existing utilities: as noted in CAD from survey
- ___ Existing structures: include general description
- ___ Proposed length: include dimensions as-needed from culvert typicals, e.g., lengths left and right, total length, dimensions A, B, C, etc.
- ___ Proposed station on road construction centerline
- ___ Skew angle of culvert to roadway. A whole degree skew is preferred.
- ___ Skew angle of extension to existing pipe, if other than 0 degrees
- ___ Proposed lane and shoulder widths
- ___ Show proposed roadway embankment and ditch grading. Verify with Road Design.
- ___ Label centerline culvert/road construction
- ___ Label stationing on at least two "tic" marks in the plan view
- ___ Drainage: show direction of flow
- ___ Check that all text and dimensioning is legible and not placed on top of other text or features
- ___ Trenchless construction: use concrete pipe unless dictated by clearance or construction schedule. Use

current specification directives

- ___ Do not show revetment at pipe inlet/outlet – to be provided by Road Design

LONGITUDINAL SECTION

- ___ Roadway section drawn perpendicular to road
- ___ Projection along centerline of culvert (true length not shown for skewed culverts)
- ___ Existing ground line and proposed grade line shown and labeled
- ___ Show existing structure(s)
- ___ Proposed flow-lines at inlet, outlet, or other breaks as needed from culvert typicals
- ___ Label degree of elbows used (1201, 1501, etc.)
- ___ Label roadway fore-slope used (e.g., 6:1, 3.5:1)
- ___ Profile grade elevation at intersection of culvert and road centerline
- ___ Q 'Design' water surface elevation (per data block)
- ___ Show maximum fill height and location.
- ___ If fill height greater than Road Standard Plan RF-31 Class B bedding charts, use PipePac for special design

CADD Checklist

Refer to: [Preliminary Bridge - Electronic Deliverables](#)

- ___ Verify Iowa Regional Coordinate System is correct for this project site.
- ___ Correct ProjectWise folder structure is being used.
- ___ The B2_Submittal folder contains the finalized pdf Pipe Plat files
- ___ The B2 Submittal folder contains preliminary Table 104-3 pipe tabulations in Excel and pdf file format.
- ___ The finalized STR .dgn file resides in the BRPrelim root folder and marked as Final Status.
- ___ The correct STR .dgn file naming convention is used.
- ___ The correct model naming conventions are being followed.
- ___ The proposed pipe culvert is drawn accurately in the STR_PRELIM_PIPES model.
- ___ The correct level and element symbology are being followed. Use brg levels with ByLevel symbology where possible.
- ___ The PLANBASE and STR_PRELIM models are being used as described in the Electronic Deliverables document.