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General Notes:

The J24S-25 Bridge Standards, if properly used, provide the structural plans necessary to construct 24'-0" roadway single span concrete slab bridges with lengths of 20'-0", 30'-0", 40'-0" or 50'-0".

These bridges may be built on a 0, 15, 30 or 45 degree skew (Integral abutments) and 0 or 15 degree skew (high abutments). These plans show the bridges skewed in one direction, but all dimensions and details would be the same for the opposite skew.

These standards with 24'-0" roadway are detailed with the option of concrete open rail (MASH TL-4) or side-mounted W-Beam guardrail (MASH TL-3).

These bridges are designed for HL93 loading plus 20 lb per sq ft of roadway for future wearing surface or gravel. Control of cracking by distribution of reinforcement for slab design based on Class 2 exposure (severe) for top bars and Class 1 exposure (normal) for bottom bars.

The slab as shown includes ½ inch integral wearing surface.

The abutments for these bridges are built integral with the superstructure. Therefore, it is important that a proper joint for expansion be provided between the bridge and approach paving, when approach paving is needed.

- The abutment design utilized on these bridges restricts their use in the following manner:
1. These bridges are not to be used when point bearing for the abutment steel piling would be obtained on rock at a distance less than 27ft from the bottom of footing without special analysis.
  2. For high abutments, the sheet pile shall be driven to full penetration (minimum embedment depth) as shown in the abutment details. Special analysis is required if lesser embedment is achieved due to stiff soils or rock.

It is recommended that the epoxy-coated reinforcing option be used if it is anticipated that the bridge deck and/or the bridge approaches will be chemically treated for the removal of ice or snow.

If epoxy-coated bars are used in the deck, then all bars used in the abutment and barrier rails shall be epoxy coated.

Keyway dimensions shown on the plans are based on nominal dimensions unless stated otherwise. In addition, the bevel used on the keyway shall be limited to a maximum of 10 degrees from vertical.

These bridge plans label all reinforcing steel with English notation (5a1 is ½ inch diameter bar). English reinforcing steel received in the field may display the following "bar designation". The "bar designation" is the stamped impression on the reinforcing bars, and is equivalent to the bar diameter in millimeters.

English Size	3	4	5	6	7	8	9	10	11
Bar Designation	10	13	16	19	22	25	29	32	36

All reinforcing bars and bars noted as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.



Specifications:

Design: AASHTO LRFD, 9th Ed., Series of 2020, except as noted in the current Iowa Bridge Design Manual.  
Construction: Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2023, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provision shall apply to construction work on this project.

Design Stresses:

Design stresses for the following materials are in accordance with the AASHTO LRFD Bridge Design Specifications, 9th Ed., Series of 2020, except as noted in the current Iowa Bridge Design Manual.  
Reinforcing steel in accordance with LRFD AASHTO Section 5, Grade 60 for epoxy and non-coated, and Grade 60 or 75 for stainless.  
Concrete in accordance with LRFD AASHTO Section 5,  $f'_c = 4.0$  ksi.  
Structural steel in accordance with LRFD AASHTO Section 6. ASTM A709 Grade 36 or Grade 50 (AASHTO M270 Grade 36 or Grade 50).

Shop Drawing Submittals	
Shop drawings shall be submitted for the following items shown in the table below. (Note additional shop drawings may be required in accordance with Article 1105.03 of the Standard Specifications.)	
Submittal requirements for shop drawings should be in accordance with 1105.03 of the Standard Specifications for Highway and Bridge Construction of the Iowa Department of Transportation.	
1	Sheet piling, ties, walers, as per steel sheet piling notes (if applicable)
2	W-Beam guardrail posts (if applicable)

Latest Revision Date	 Approved by Bridge Engineer	 Standard Design - 24'-0" Roadway, Single Span Bridge	
		<b>Single Span Concrete Slab Bridges</b>	
		July, 2025	
		Index and General Notes	<b>J24S-01-25</b>