

STRUCTURAL DRAWINGS AND DETAILS
Instructional Memorandum 702-AS
Approach Slabs
June 26, 2024

General

The approach slab structural drawings and details are available for slabs supported on grade or sleeper slabs for the standard 34-foot roadway width. The standard drawings include details of the MASH Barrier Parapet along each side approach slab, sleeper slab support, and alternative approach slab details to be used with specific bridge types and approach roadway types. The standards are available for a no skew condition.

Design Criteria and Assumptions

Design Specifications: AASHTO LRFD Bridge Design Specifications, 9th Edition | 2020
(herein referred to as BDS)

Live Load: AASHTO HL-93 Loading

The reinforced concrete approach slab was designed according to the provisions of BDS Article 4.6.2.3 for an equivalent strip width of longitudinal strips per lane for both shear and moment. The design included the following assumptions:

- Final 28-day concrete strength is 4.0 ksi
- Unit weight of reinforced concrete is 150 pcf
- Unit weight of asphalt wearing surface is 140 pcf for design of slab without sleeper slab
- Asphalt wearing surface loading without sleeper slab based on 2-inch asphalt thickness
- Future wearing surface loading is 15 psf
- Reinforcement yield strength is 60 ksi
- 34'-0" clear roadway width, 36'-3" total slab width
- 20-foot standard approach slab length
- MASH Barrier Parapet load is uniformly distributed across the entire approach slab width
- The soil support below the approach slab was neglected and the approach slab was considered to be a simply supported, one-way slab
- Positive moment analysis based on center of theoretical supports (20-ft – $\frac{1}{2}$ * (8" pavement ledge width) – $\frac{1}{2}$ * (12" assumed end support)) = 19' - 2"
- Negative moment design of longitudinal reinforcement assumes 8-feet of unsupported slab length.
- The sleeper slab spans over settled fill (Assumed 5-foot clear span).



Instructions to Designer

The Engineer must determine if the standard design and details for the approach slabs are adequate for project specific use. At a minimum, consider the following items:

- Determine if the end of the approach slab requires a sleeper slab support.
- Confirm the roadway width and skew needed for the project. Revise the detailing of the standard approach slab as necessary for project-specific use.
- If an end span type other than a beam/girder superstructure is present, update “Section B-B” as appropriate using the details from the “Approach Slab Details, Supplemental” sheet.
- For cored slab and box beam end spans, remove the “Deflection Joint Detail” and associated notes. The deflection joint details for these superstructure types are included on the “General Details” sheet.
- For cored slab and box beam end spans, replace “Section A-A” with “Section A-A” from the “Approach Slab Details, Supplemental” sheet.
- Wherever “X” or “#” is used, replace with project specific values.
- Verify that sidewalk accommodation is not a project requirement. If the bridge needs to be designed to accommodate sidewalks, a redesign of the approach slab will be required.
- For approach slabs supported by sleeper slabs, verify that the compression seal expansion joint is appropriate to accommodate the design movement.
- For approach slabs adjacent to rigid concrete pavements, incorporate the “Expansion Joint Detail” that is provided on the “Approach Slab Details, Supplemental” sheet.
- For projects that require sleeper slabs, include the “Compression Seal Expansion Joint Details” sheet in the project plans and include the Special Provision for Geotextile for Drainage Filtration in the contract proposal.



Applicable Drawings

DGN File Name	Drawing Number	Sheet Title
702-APP_SLABS	702-AS.R34.01	Approach Slab, (34' Roadway)
	702-AS.R34.02	Approach Slab with Sleeper Slab, (34' Roadway)
	702-AS.SSDTLS.R34.01	Approach Slab with Sleeper Slab – Notes and Details, (34' Roadway)
	702-AS.MBP.DTLS.01	Approach Slab Barrier Parapet Details
	702-AS.DTLS.SUP.01	Approach Slab Details, Supplemental

Plan Sheet Sequence

Below are two examples that illustrate the Department's recommended sequencing of the approach slab plans.

<i>Approach Slab Without Sleeper Slab</i>	
Drawing Number	Sheet Title
702-AS.R34.01	Approach Slab, (34' Roadway)
702-AS.MBP.DTLS.01	Approach Slab Barrier Parapet Details

<i>Approach Slab with Sleeper Slab</i>	
Drawing Number	Sheet Title
702-AS.R34.02	Approach Slab with Sleeper Slab, (34' Roadway)
702-AS.SSDTLS.R34.01	Approach Slab with Sleeper Slab – Notes and Details, (34' Roadway)
702-AS.MBP.DTLS.01	Approach Slab Barrier Parapet Details

