Coreslab Structures (Kansas)

Short Span Prestressed Bridges

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Who or what is Coreslab Structures(Kansas)?

Who is Terry Fleck?

Discussion Items:

- Precast vs. Cast-In-Place Concrete
- Prestressed Concrete Beam Sections
- Abutments
- Bridge Rail
- General Information

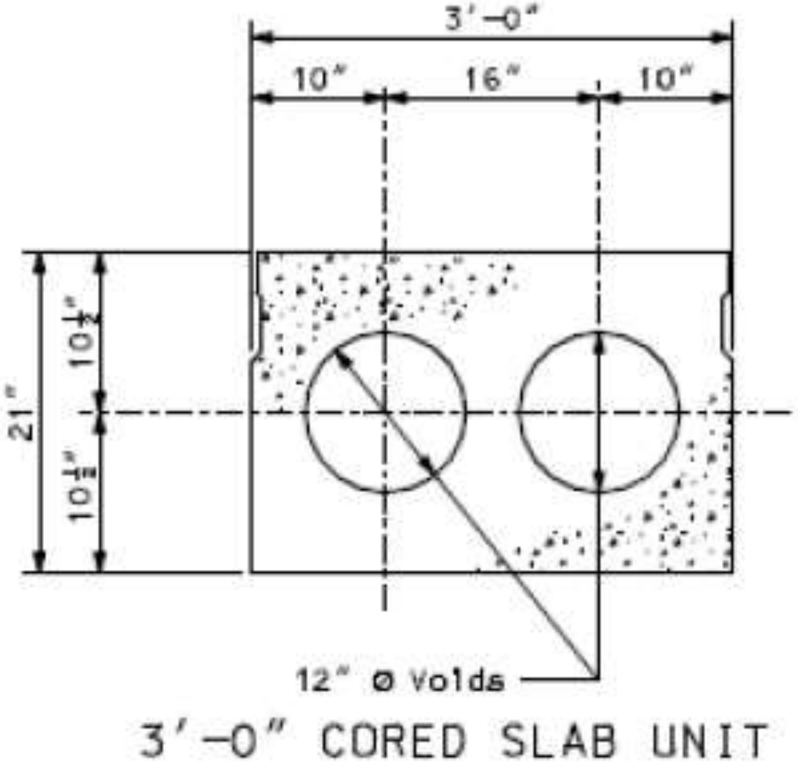
Precast vs. Cast-In-Place Concrete

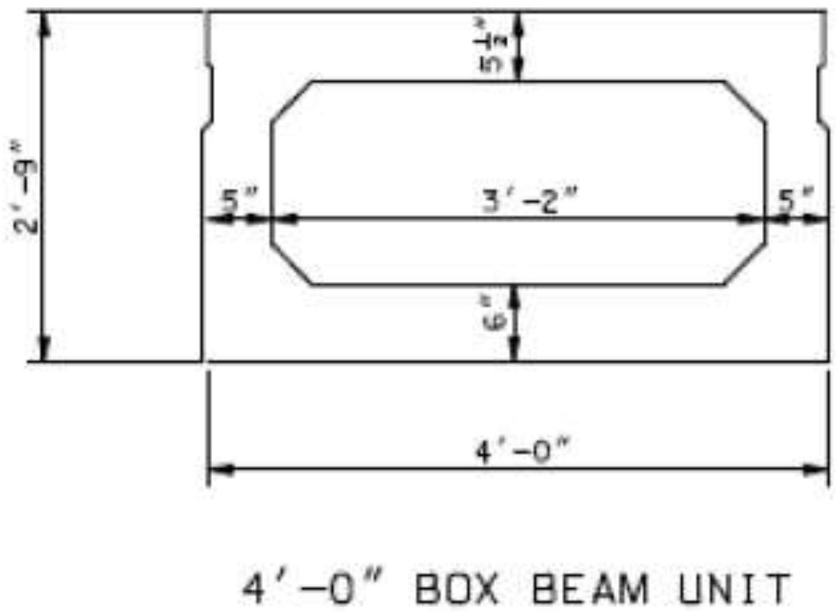
- Concrete Quality
- Construction Time
- Equipment
- Cost

Prestressed Concrete Beam Sections (Short Spans):

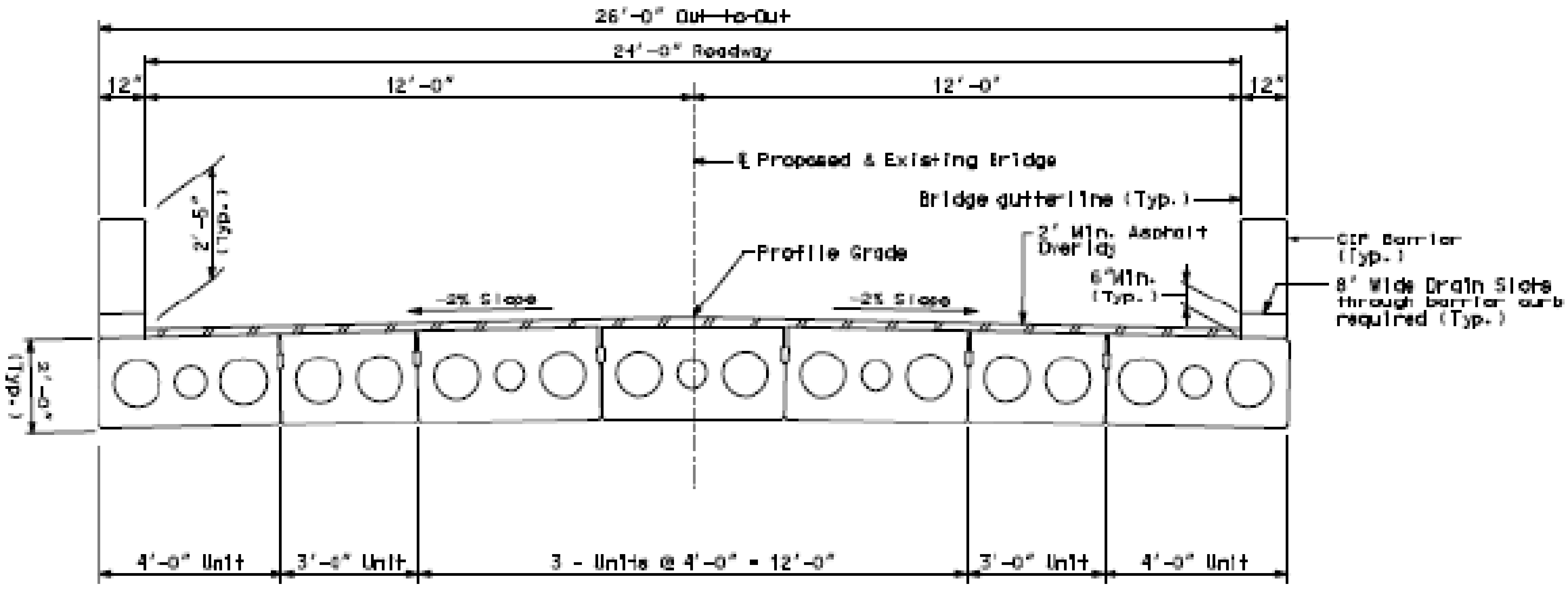
- Kansas K2 or K3 Sections
  - Traditional beams with conventional cast-in-place slab or concrete deck panels with slab and single layer rebar
- Kansas Inverted T Sections
  - Easy forming cast-in-place slab with single rebar layer
- Slab Sections
  - Voided or solid sections placed adjacent to each other or can be spread with a cast-in-place slab
- Box Sections
  - Also placed adjacent to each other or spread with a cast-in-place slab

Prestressed Concrete Beam Sections



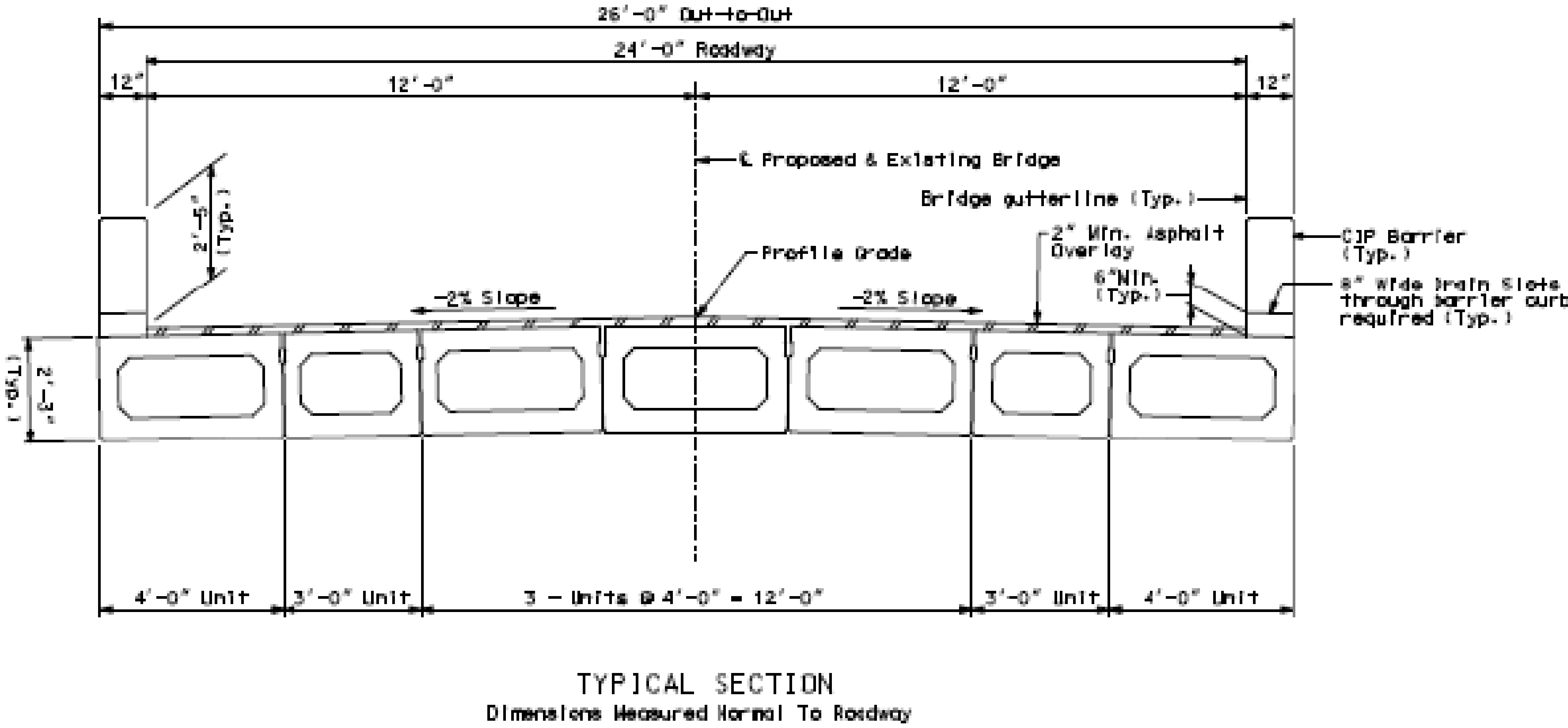


MoDOT constructed 196 adjacent cored slab and 116 adjacent box beam bridges during Safe and Sound Bridge Program



TYPICAL SECTION

Wearing surface is an asphalt overlay with waterproofing membrane but can use concrete overlay, polymer overlay or no additional overlay



Note grouted keyways or pockets at tops of sections

			Span Length																		
			30'	35'	40'	45'	50'	55'	60'	65'	70'	75'	80'	85'	90'	95'	100'	105'	110'	115'	120'
Adjacent Beam Design	Skew	-30	21" Cored Slab							24" Cored Slab			27" Box Beam			33" Box Beam			39" Box Beam		
		-20	21" Cored Slab							24" Cored Slab			27" Box Beam			33" Box Beam			39" Box Beam		
		-10	21" Cored Slab							24" Cored Slab			27" Box Beam			33" Box Beam			39" Box Beam		
		0	21" Cored Slab							24" Cored Slab			27" Box Beam			33" Box Beam			39" Box Beam		
		10	21" Cored Slab							24" Cored Slab			27" Box Beam			33" Box Beam			39" Box Beam		
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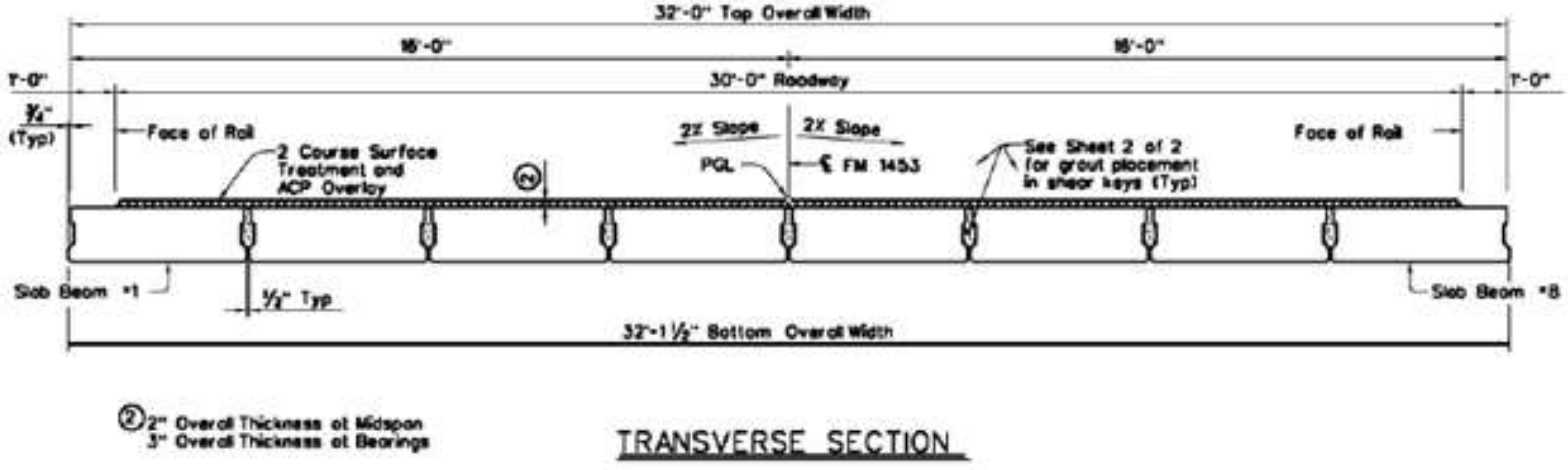
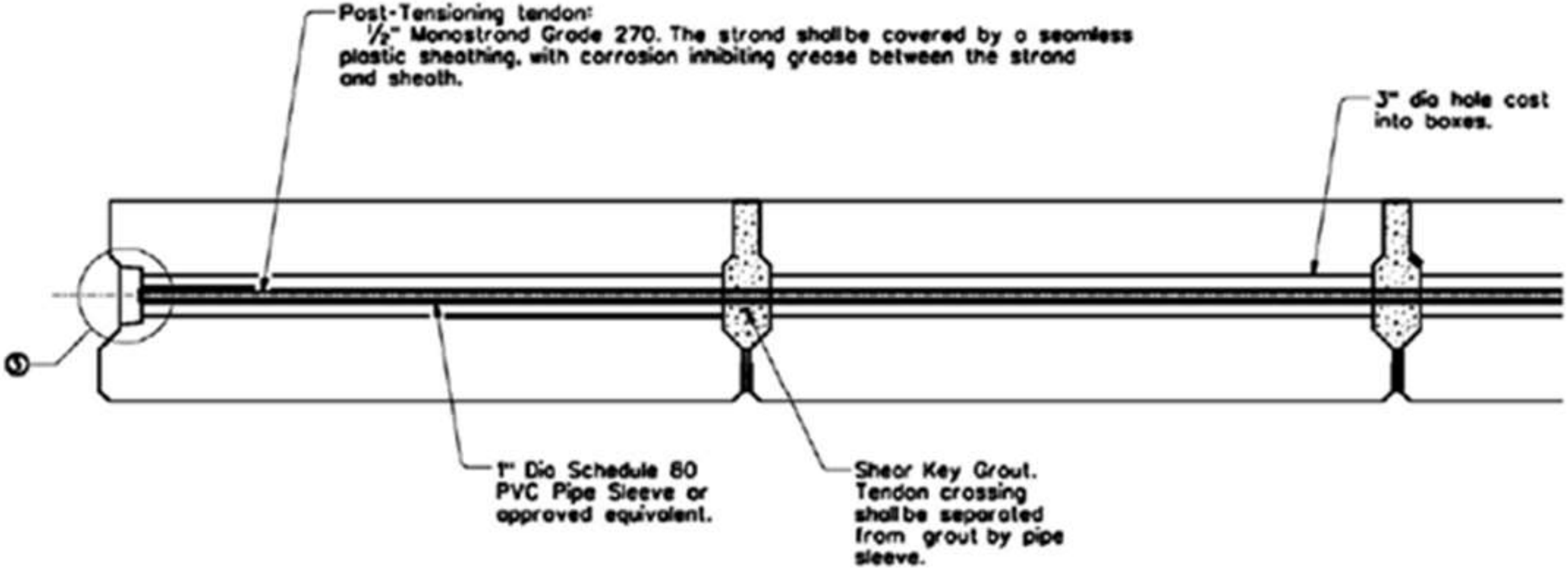
		30	21" Cored Slab							24" Cored Slab			27" Box Beam			33" Box Beam			39" Box Beam		

Typical Section Slab Girder



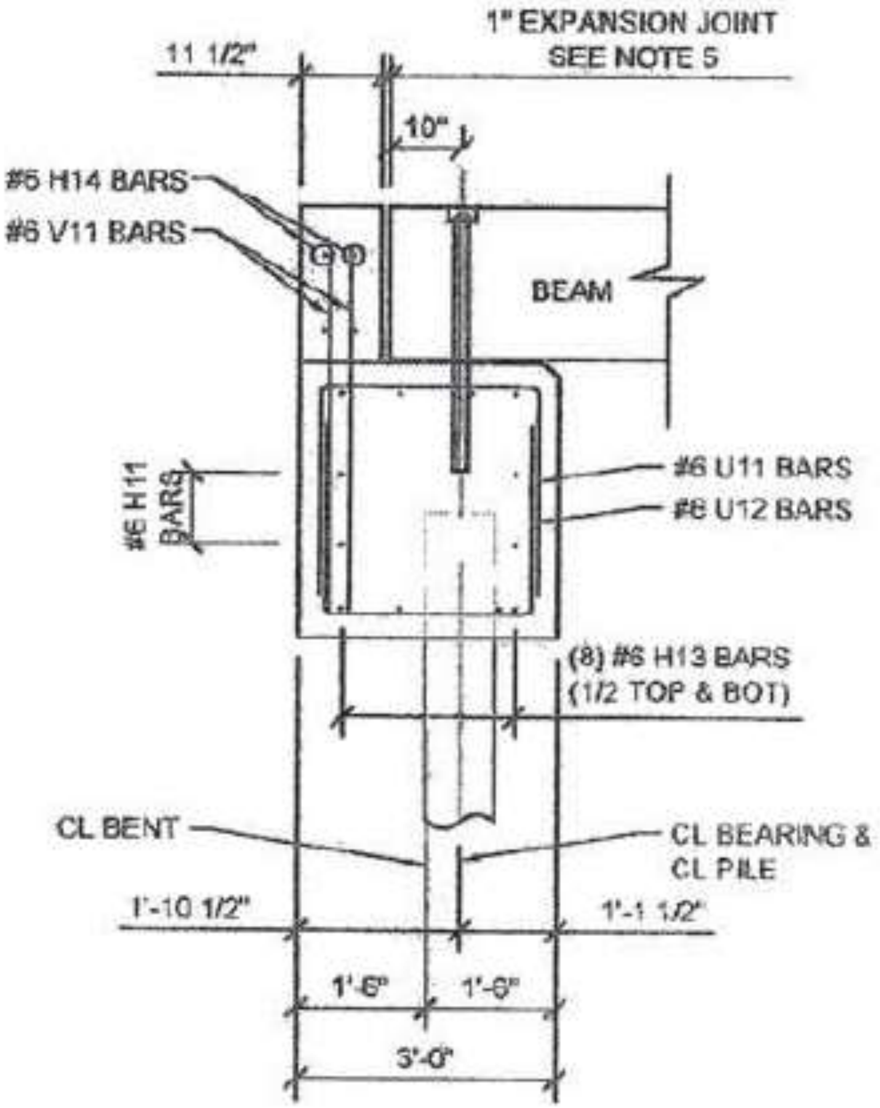
Example of another State's solid slab section also utilizing an asphalt wearing surface



POST-TENSIONING DETAIL

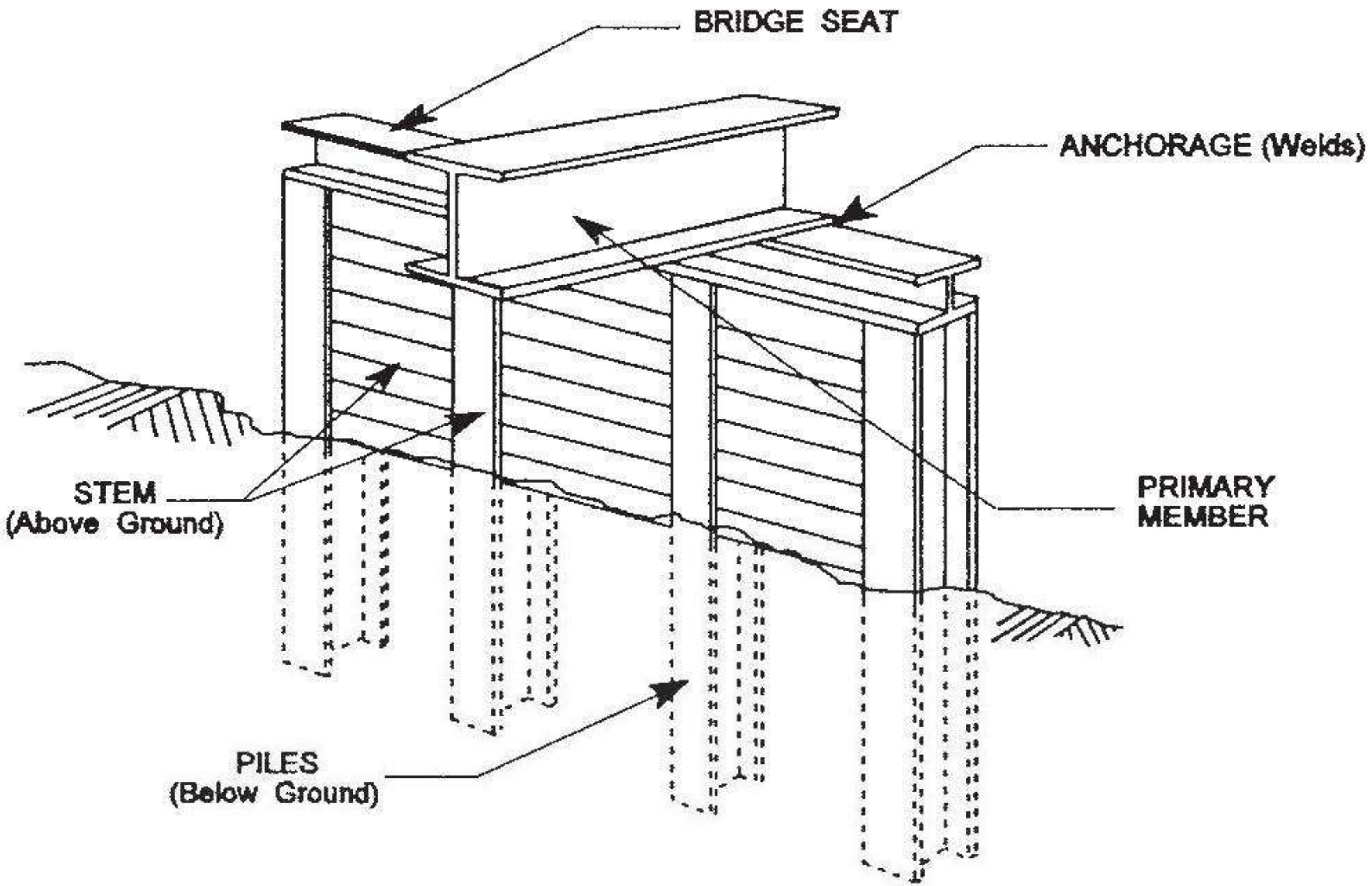
Abutment Types:

- Cast-In-Place Concrete
  - Supported on pile foundation
- Precast Concrete
  - Also supported on pile foundation
- Soldier Pile
  - Concrete cap with concrete panels between the piling



Note dowels used to tie beams to abutment cap

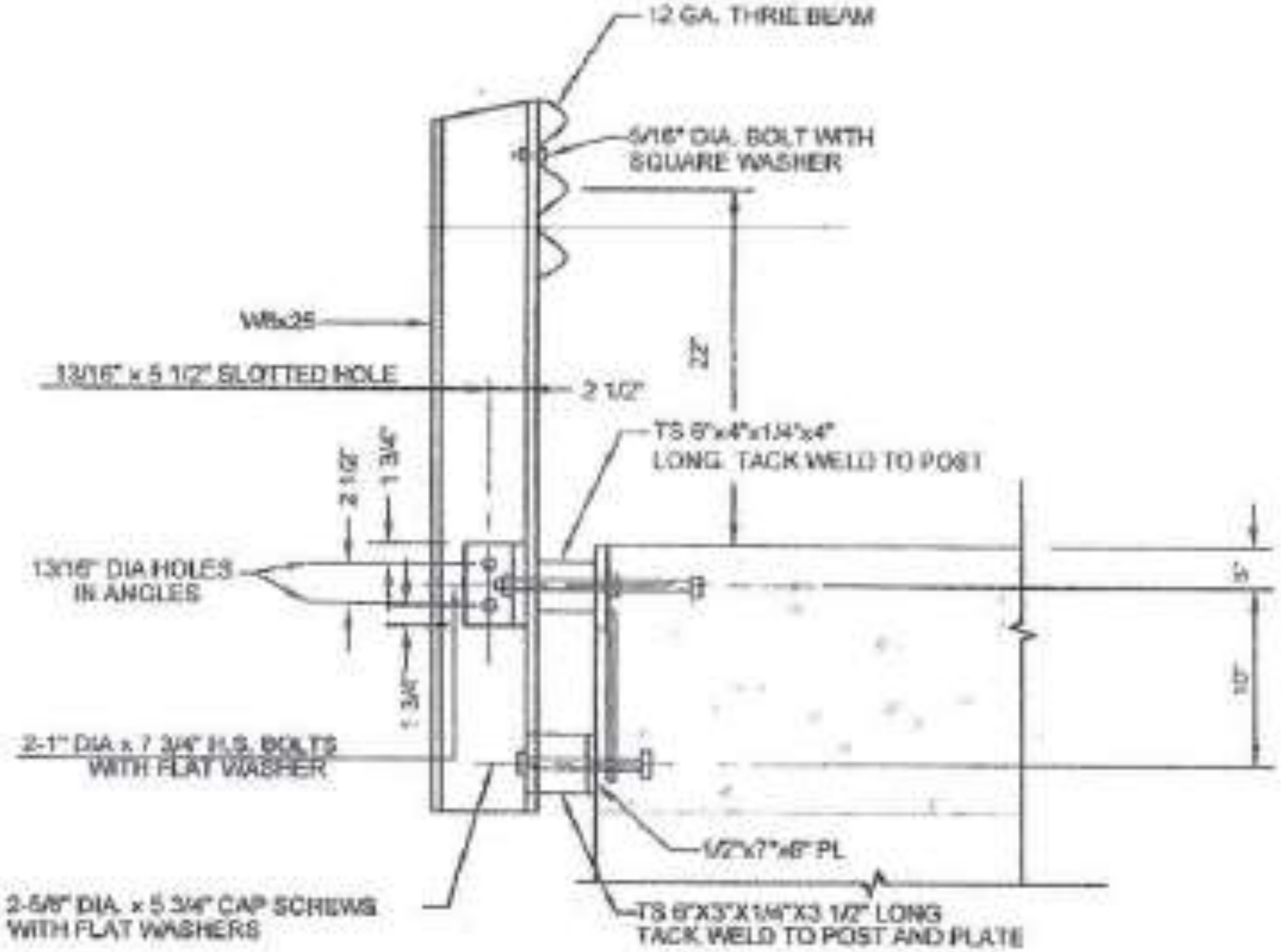
Can also cast voids in the cap and place grout to secure cap to the piling



TYPICAL SOLDIER PILE ABUTMENT
(Wingwalls not Shown)

Bridge Rail:

- Cast-In-Place
  - Corral Rail
  - F-Shape Barrier (High Traffic)
- Metal Rail
  - Normal guardrail (thrie beam) or other post and beam types
- Combination
  - Concrete parapet with metal rail



SECTION AT RAIL

General Information:

- Design and Load Rating – not provided by Coreslab
- Geology Investigation – recommended
- Standards – not currently available in Kansas
- Contractor's – work with all across state
- Material Only – will furnish to state or local authority
- Geographical Area – Eastern Kansas and KC area
- Lead Time – Minimum 60 days
- Contact – Terry Fleck

Questions?