

IOWA ACCELERATED BRIDGE CONSTRUCTION (ABC)

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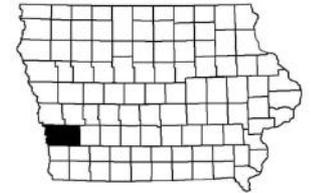
Iowa's ABC Experience

- 11 Demonstration projects constructed to date
 - Focus on a variety of PBES
 - Focus on I/D contracting
 - Grants – IBRC, IBRD, SHRP2 R04, HfL
- 3 Projects currently in Final Design
- 3 Projects currently in Preliminary Design

Key Projects-Overview

- Keg Creek Bridge – 2011
- Massena Bridge – 2013
- Silver Creek Bridge – 2015, Under Construction

Keg Creek Bridge – Modular Units



Keg Creek Bridge

Name	Keg Creek
Location	US 6 over Keg Creek
Year Constructed	2011
Owner	Iowa DOT
Engineer	HNTB Corporation
Bridge Type	Rolled Steel I Girder
Size	204'-6 x 44'-0
Spans	67'-3, 70'-0, 67'-3
ABC Technologies	Precast Abutment Footing
	Precast Wingwalls
	Precast Pier Caps
	Precast Pier Columns
	Modular Units
	UHPC Joints
	Grouted Splice Couplers
Total Project Bid	\$2,658,823.35
Bridge Unit Cost*	\$161/SF
ABC Contract Period	14 day critical closure w/ \$22,000/day I/D
Grant	SHRP2 R04
*Traditional unit cost at this time for I Girder = \$90/SF	

Keg Creek Bridge



Keg Creek Bridge



Keg Creek Bridge



Keg Creek Bridge



Keg Creek Bridge

- Lessons Learned

- Grouted splice couplers are promising – template is critical.
- Modular unit deck reinforcing congestion.
- Semi-integral abutment overhanging backwall detail needs improvement.
- Special consideration UHPC placement.
- Survey errors! Not just an ABC issue.
- Inspector communication, training and project demands.

Massena Bridge – Lateral Slide



Massena Bridge

Name	Massena Lateral Slide
Location	IA 92 over Small Stream
Year Constructed	2013
Owner	Iowa DOT
Engineer	Iowa DOT
Bridge Type	PPCB
Size	120'-0 x 44'-0
Span	120'
Key ABC Technologies	Slide-In Bridge Construction (SIBC)
	Precast Wingwalls
	Precast Abutment Footing
Total Project Bid	\$1,346,647.90
Bridge Unit Cost*	\$112/SF
ABC Contract Period	9 day critical closure w/ \$10,000/day I/D
Grant	HfL
*Traditional unit cost at this time for PPCB = \$85/SF	

Massena Bridge



Massena Bridge



Massena Bridge



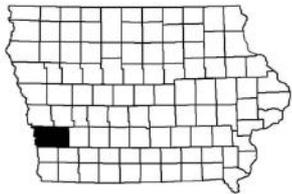
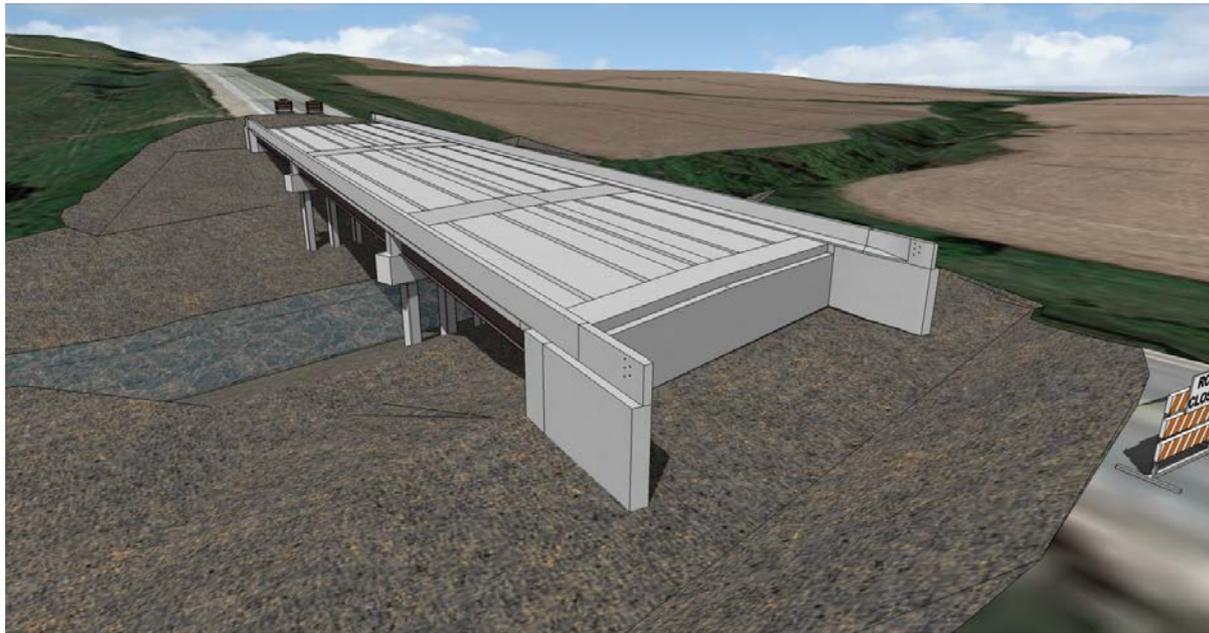
Massena Bridge

- Lessons Learned
 - Let ABC projects in the fall.
 - I/D time increment – days v. hours.
 - For the abutment footing let with a C.I.P. and precast concrete alternate.
 - Pile size considerations HP14x117.
 - Pile driving acceptance criteria.

Google: Massena Iowa DOT

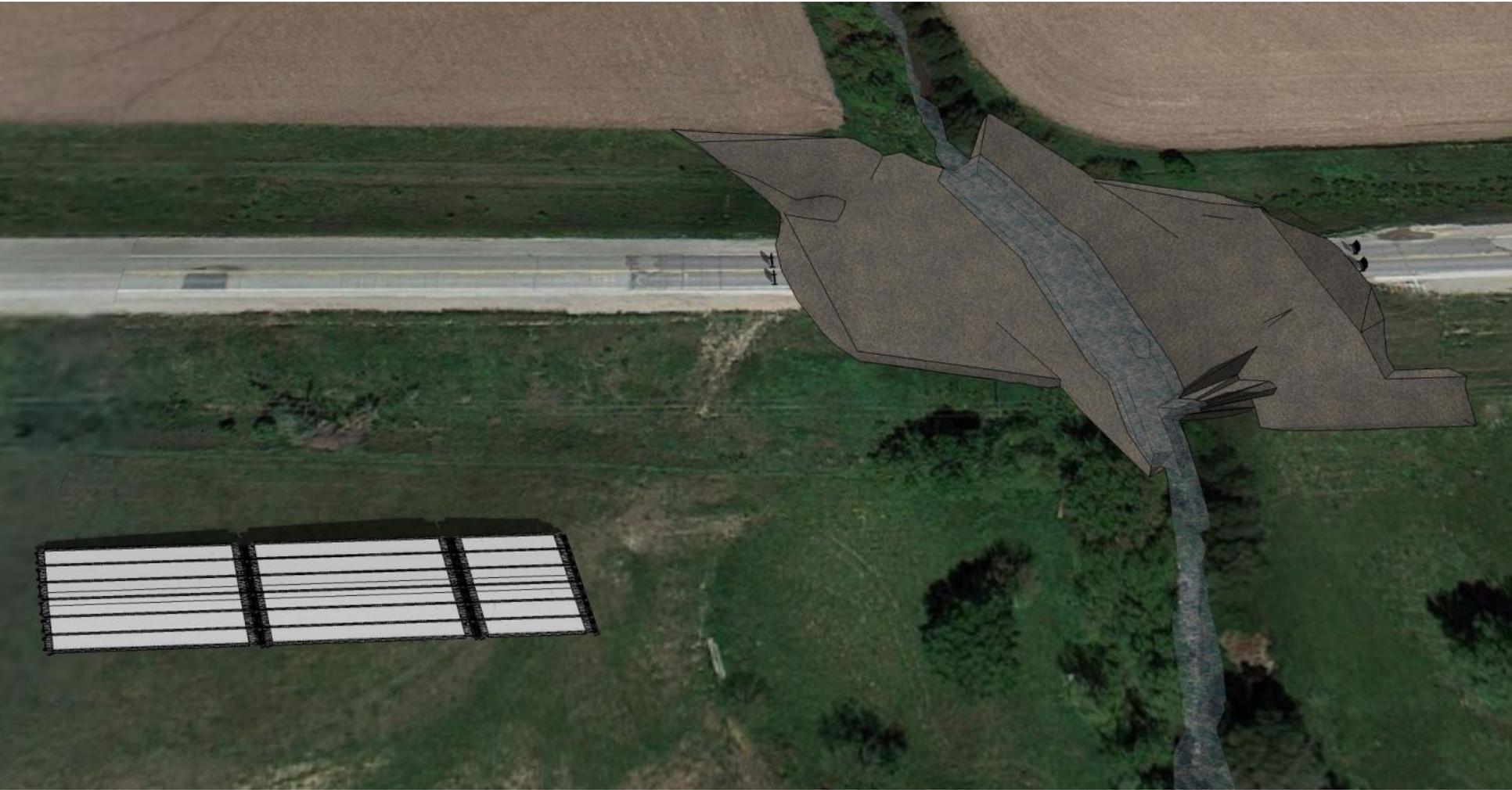
The screenshot shows a web browser window displaying the Iowa Department of Transportation website. The address bar shows the URL www.iowadot.gov/MassenaBridge/index.html. The page header includes the text "Iowa Department of TRANSPORTATION" and a navigation menu with "INDEX" and an alphabetical list (A-Z). Below the header is a large banner image of a bridge. The main content area is titled "Massena Lateral Bridge Slide" and features a sidebar with navigation links: "Massena bridge project home", "Project information", "Detour information", and "Contract documents". The "About the project" section contains the following text: "This project consists of replacing the existing bridge to increase structural capacity, improve roadway conditions, and enhance safety by providing a wider roadway. Construction zone safety will be greatly improved due to the introduction of innovative accelerated bridge construction (ABC) methods. Traffic will be detoured for nine days." Below this, it states: "The replacement structure will be a single span 120' x 44' bridge with precast abutment footings, precast wingwalls and a precast superstructure fabricated adjacent to the existing bridge and moved into position by lateral slide." To the right of the text is a "Project location" map showing the bridge's location on a road. Below the text is a video player titled "Massena Lateral Bridge Slide" with a play button and a timestamp of 04:15. The video player shows a 3D rendering of the bridge structure with yellow arrows pointing to "position PTFE sliding pads ahead of bridge". The Windows taskbar at the bottom shows the system clock as 12:52 PM on 8/7/2013.

Silver Creek Bridge – Modular Units

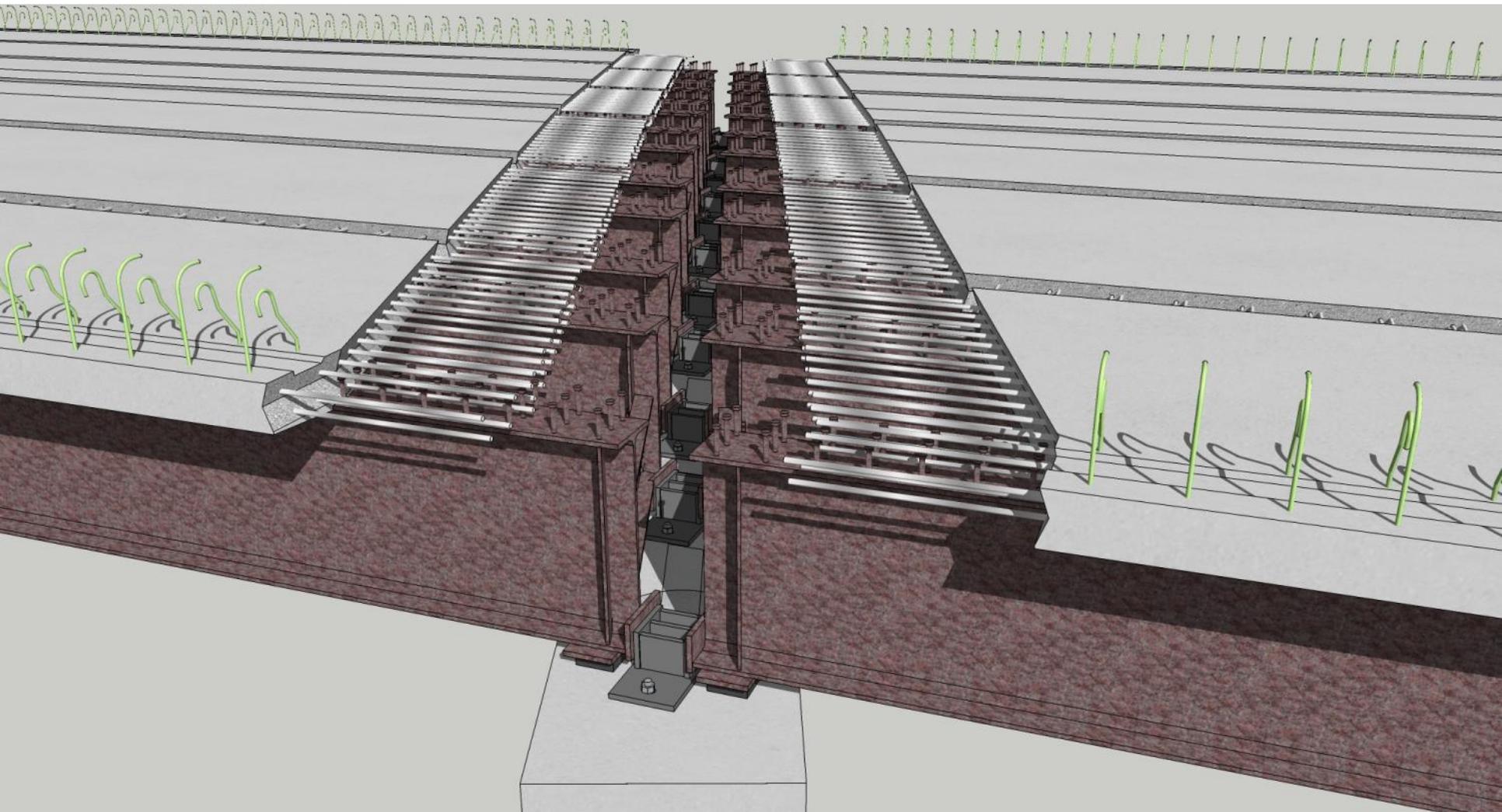


Silver Creek Bridge

Name	Silver Creek
Location	US 92 over Silver Creek
Year Constructed	Under Construction
Owner	Iowa DOT
Engineer	Iowa DOT
Bridge Type	Rolled Steel Beam
Size	234'-0 x 44'-0
Spans	91'-0 - 92'-0 - 51'-0
ABC Technologies	Precast Abutment Footing
	Precast Pier Cap
	Modular Units
	UHPC Joints
	Stainless Steel Deck
Total Bridge Bid	\$3,272,000
Bridge Unit Costs	\$292 / sq. ft.
ABC Contract Period	21 Day Closure
Grant	AID Grant
Unit Cost Steel I Beam = \$105.00 per sq ft.	







Construction Schedule

Single Lane Closure – 40 Working Days

- 8/31/15 Late Start Date
- Working days charged only when single lane closure in place
- Single lane closures will be permitted before and after the critical closure.
- Working days will not be charged during the critical closure.
- \$1,500 per day Liquidated Damages

Critical Road Closure – 21 Calendar Days

- 10/5/15 Estimated Start Date
- \$9,000 per day Incentive/Disincentive

Current Construction



Current Construction



Future ABC in Iowa – Current

- 3 Projects currently in Final Design
- 3 Projects currently in Preliminary Design

Additional Information

<http://www.iowadot.gov/bridge/abc.htm>

Google: Iowa DOT ABC

Thanks.