



Using SHRP2 Technologies to Achieve Success - California's Approach to Implementation

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U.S. Department of Transportation
Federal Highway Administration



Role of California Department of Transportation

Lead Adopter for SHRP2 Renewal Solution

- Innovative Bridge Designs for Rapid Renewal



Innovative Bridge Designs: Economical Prefabrication of Bridges

- Standardized design concepts
- Small-to-medium sized bridges
- No special cranes or equipment needed
- Toolkit (R04) includes:
 - Standard design plans & details
 - Design examples
 - Design specifications
 - Construction specifications
 - Training materials



Bridge installation over Keg Creek, Iowa.

Implementation Assistance Criteria For Bridge Design Solutions

- Small- to medium-span structure
- Prefabricated Bridge Elements and Systems (PBES) identified as an appropriate construction method
- Let for construction by May 2014
- Repeatable techniques that could lead to standardized detailing
- No special equipment for construction needed

Fort Goff Creek Bridge

Fort Goff Creek Bridge



Challenges:

- Project in severe climate area
- Freeze-thaw cycles and heavy salting
- Batch plant located 90 minutes away from site

Fort Goff Creek Bridge

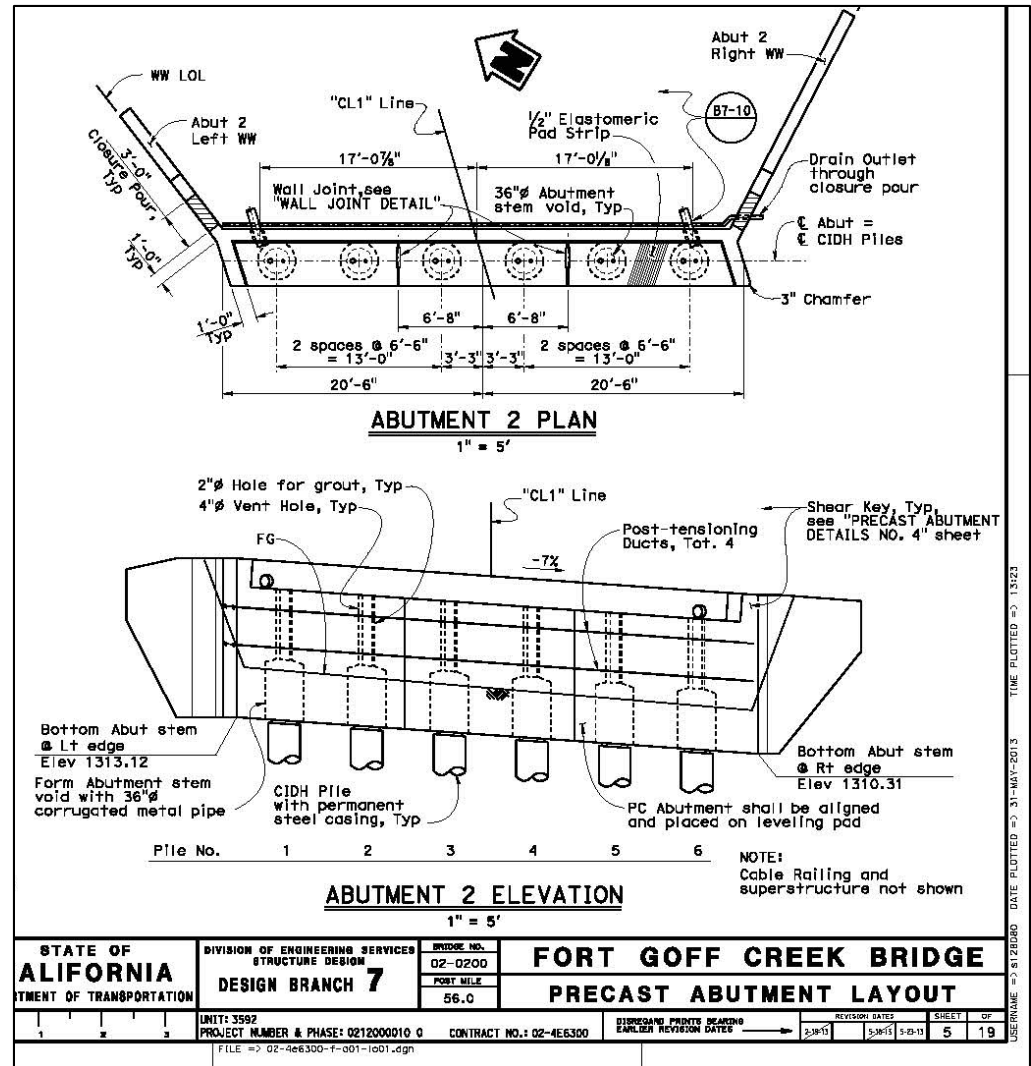


- Streambed restoration project to provide fish passage
- Replace 60-year-old culvert with 60' long single span bridge
- Temporary detour under one-way traffic control

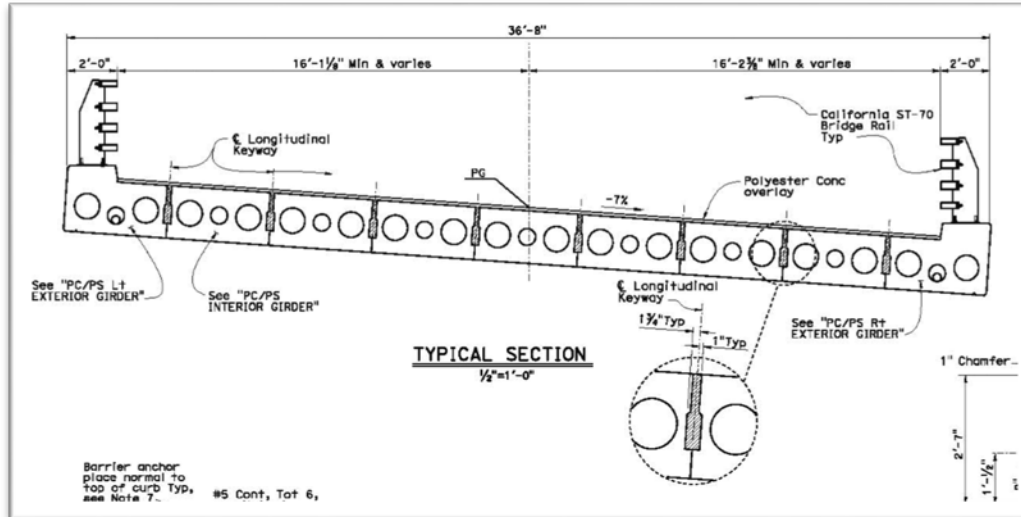
Precast Substructure



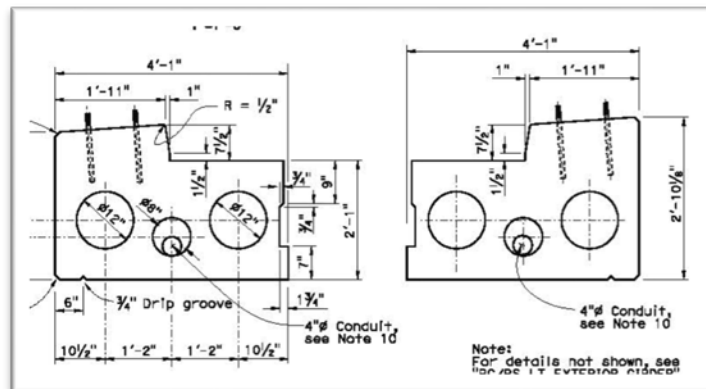
- Single row of piles
- Repeatable elements
- Pick weight under 95K
- Pre-assemble substructure elements prior to shipping
- Fabrication tolerances in specifications



Precast Superstructure



- Repeating elements (PC/PS Voids Slabs)
- Prefabricated bridge rail (California ST-70)
- Rail curb precast on exterior slab elements
- Construction sequence on plans

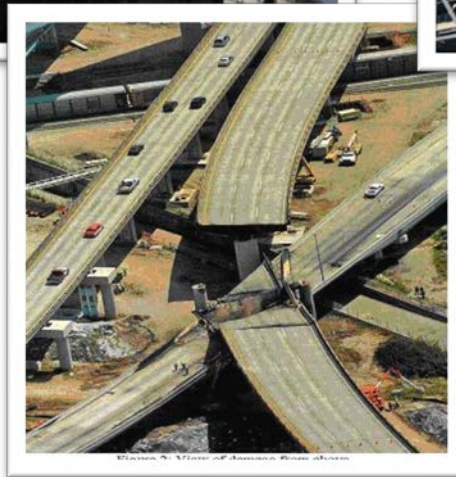


Innovative Bridge Design Applications in California

- **Emergency projects** in which restoring traffic is a top priority. Time is everything.



I-580
Connector
Span
Replacement



- Projects with **constraints that preclude conventional construction methods**



SFOBB Yerba Buena
Island Viaduct
superstructure roll-in

Competitive Alternative to Conventional Methods



Craig Creek
(PBES) 2011



Hardscrabble
Creek
(Roll-In) 2008

Standardize and Document

- **Design and build pilot projects** to work out issues of contract management, constructability, and cost efficient design detailing
- Use **easily accessible details and guidelines**
- Develop **efficient and constructible quality designs**
- Use them on a **variety of projects**: Single and multi-span structures

SHRP2 Value to California

- **Goal:** Mainstream ABC in California
- **Time savings:** Reduce the on site construction days
- **Cost savings:** Use standard designs for many bridges
- **Minimize use of detours:** Deliver projects more rapidly and less intrusively to our travelling public.
- **Advance state of practice:** Add to existing knowledge and experience using accelerated bridge construction
- Opportunity to **share our experiences** with other states

Questions

