



Benefits of CMAR for the I-17 Cordes Junction Traffic Interchange Project

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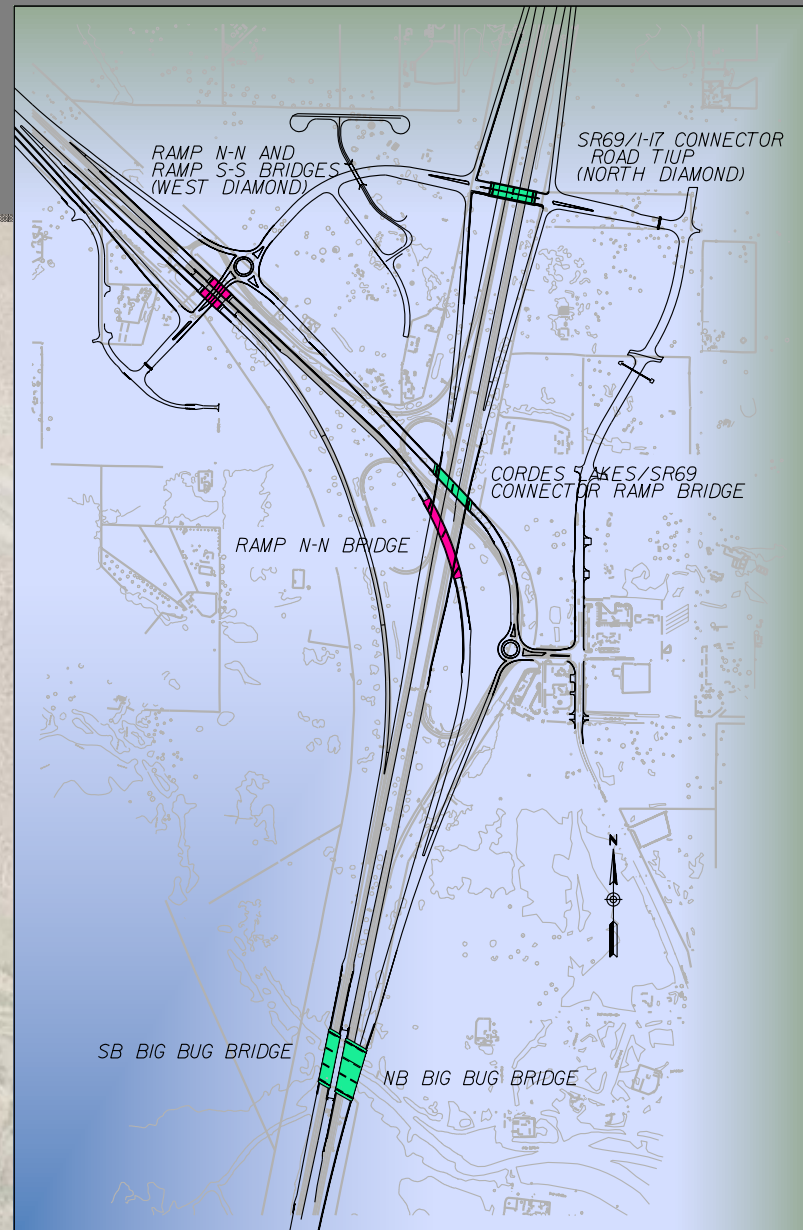
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Cordes Junction TI

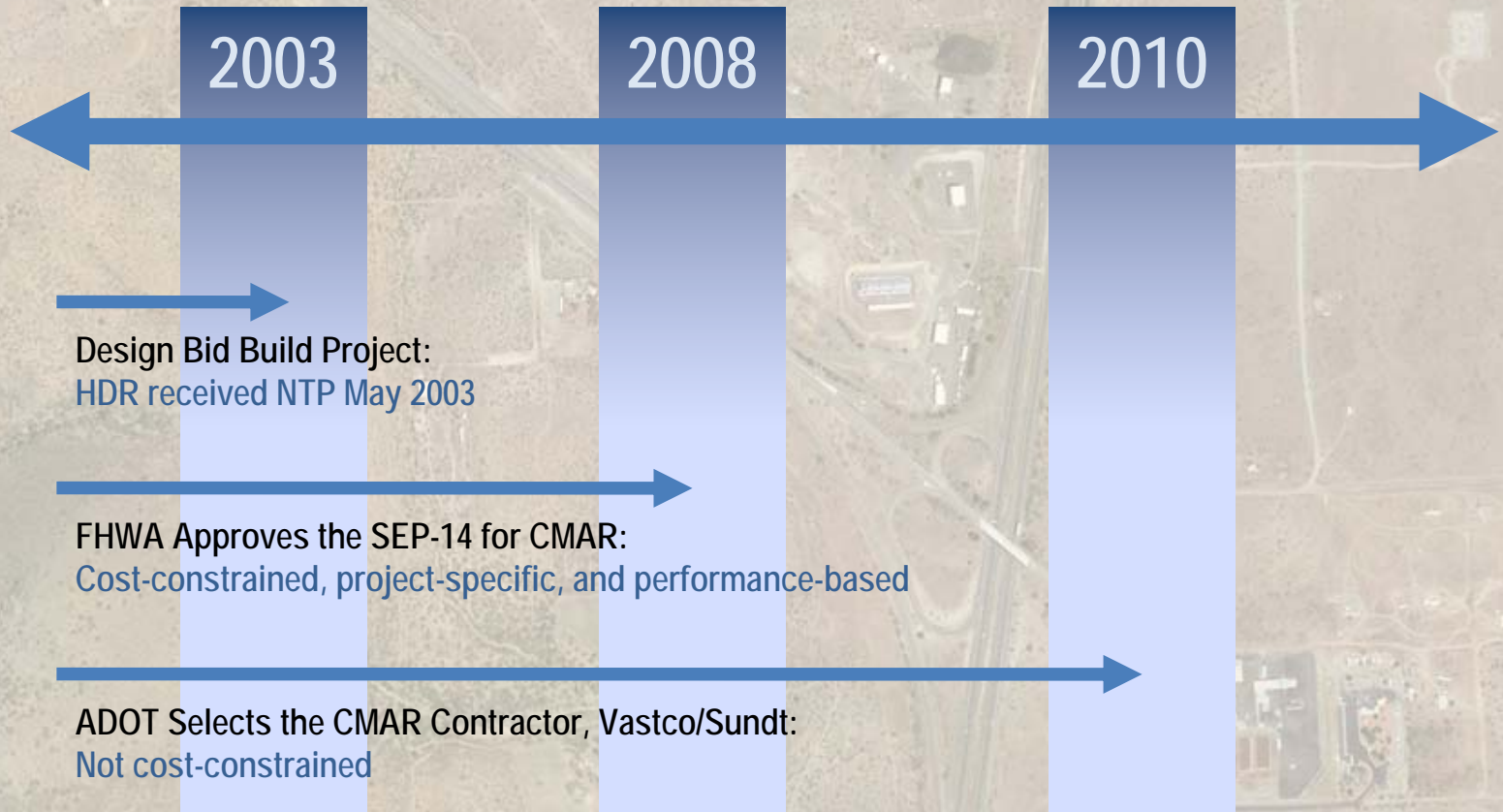
- I-17/SR69 is a reconstruction project of an existing interchange
- Includes construction of seven new bridges and removal of three existing bridges
 - Four new AASHTO Girder and Three PT Box Girder



Cordes Junction Timeline

- Project Originally began as a design, bid build project with HDR receiving NTP in March 2003
- FHWA approved the SEP-14 for the CMAR in May 2008
- ADOT selected the CMAR Contractor Feb 24, 2010
- CMAR Kick-Off Meeting held April 8, 2010
- FHWA NTP for the CMAR Design: June 8, 2010

Cordes Junction Timeline



What is SEP-14?

- **Special Experimental Projects No. 14 – Alternative Contracting**
 - Since 1990, FHWA has allowed the State DOTs to evaluate non-traditional contracting techniques
 - The objective is to evaluate project specific innovative contracting practices that have the potential to reduce the life cycle cost of projects while at the same time maintain product quality

What is CMAR?

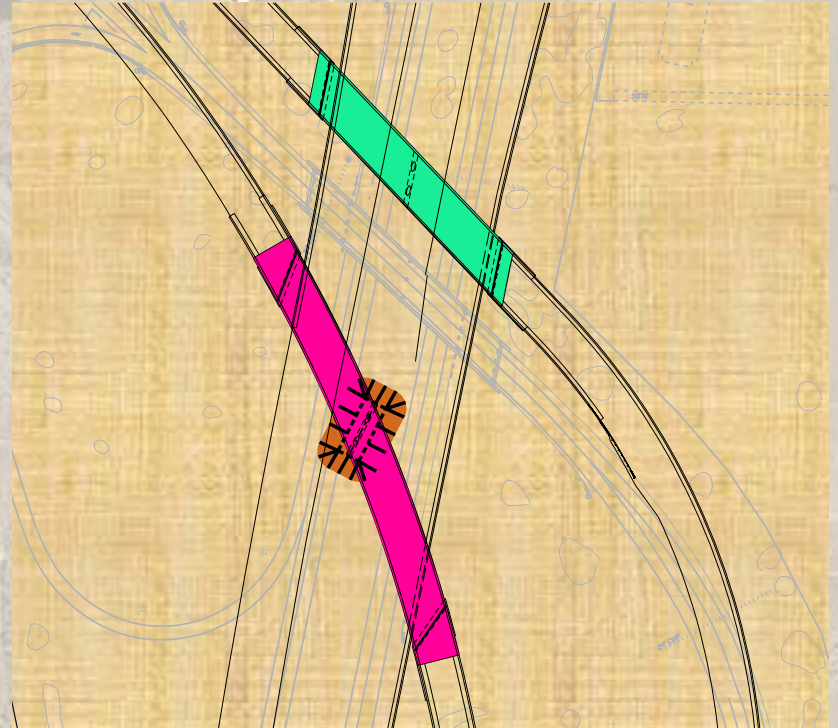
- Contracting Agency selects a Construction Manager on the basis of past performance or qualifications to provide:
 - Construction Expertise
 - Contract Management
 - Advice to the owner regarding constructability, pricing, scheduling, staging, value engineering and other areas related to the construction of the project

Responsibilities of the Construction Manager

- Act as a consultant to the Owner in the development and design phases
- Agree to a “Guaranteed Maximum Price” (GMP) for construction
- Once the GMP is established, function as a general contractor and is responsible for completing the work on schedule at the guaranteed price

Benefits of CMAR from the Designer's Standpoint

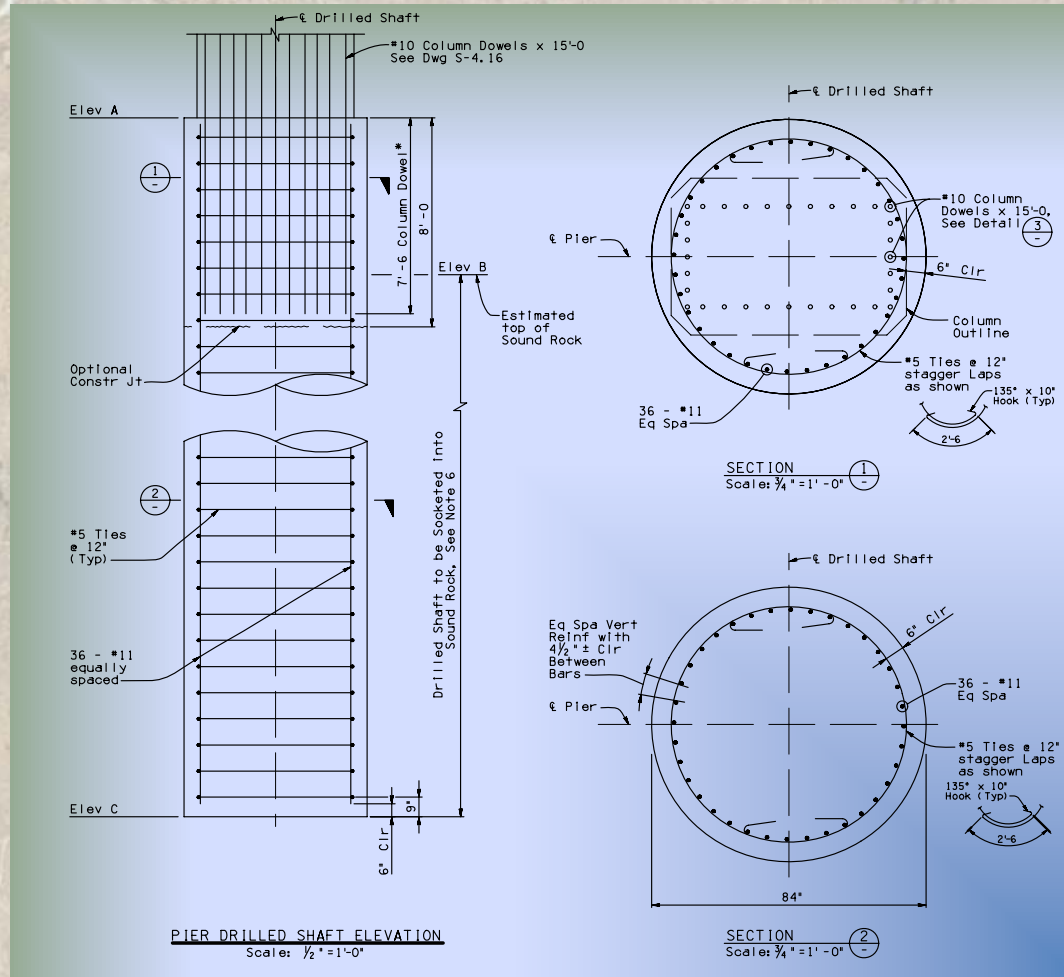
Influences of the selection of bridge type with regards to overall construction phasing and maintenance of traffic



Additional Benefits

- Having the knowledge of the Contractor's means and methods provides excellent opportunity for incorporating construction detailing to help minimize RFIs during construction

Detailing



Additional Benefits

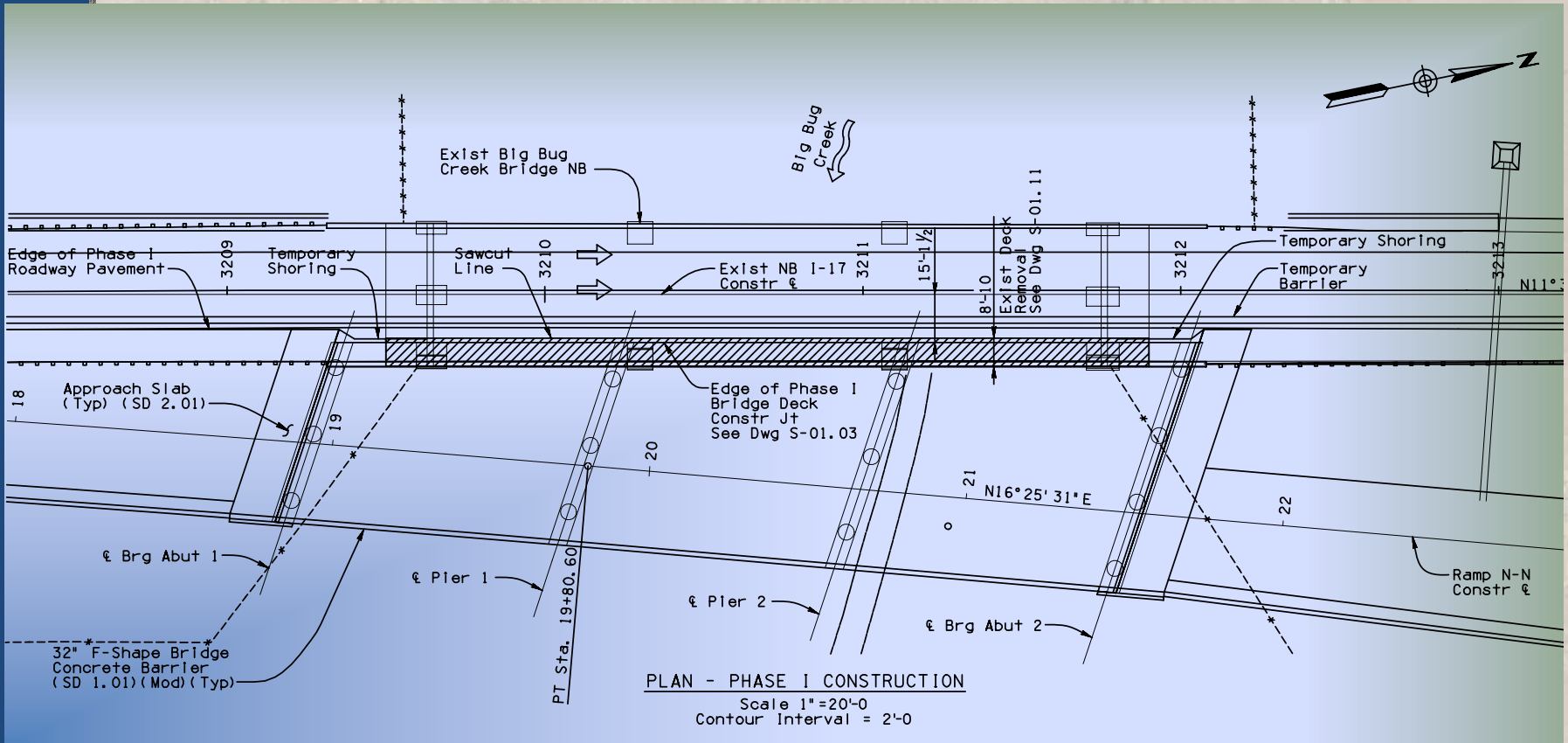
- Addressing Bridge constructability concerns with the Contractor during the design phase
 - Determining access locations for setting girders
 - Determining use of falsework versus construction on embankment fill
 - Investigation of construction access – especially in environmentally sensitive areas

Big Bug Bridge

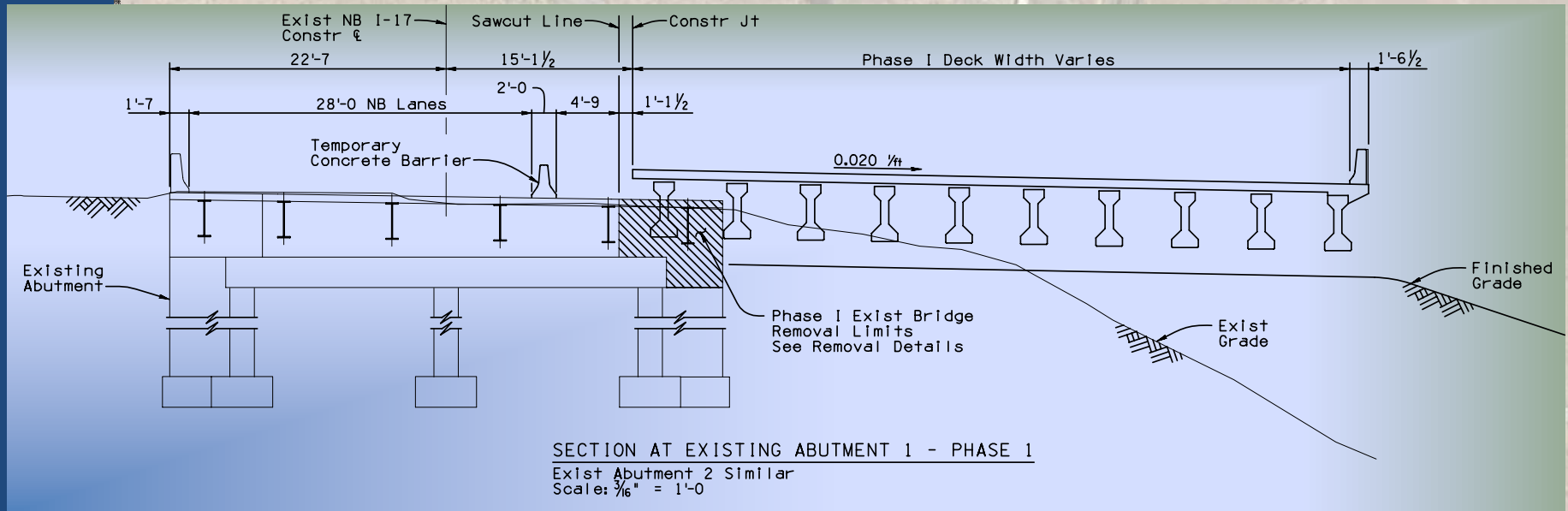
Three-Span Steel Girder Bridge



NB Big Bug Bridge Phasing Plan



NB Big Bug Phasing Section



Additional Benefits

- **Reconciliation of Quantities**
 - Results in a better understanding of what will be included in the lump sum items, which translates to a better overall price

Benefits from the Client's Perspective

- Identifying issues with the development of the contract plans to reduce and eliminate potential change orders in construction.
- GMP submitted by contractor and agreed upon by state, defines a clear budget for construction.
- Additional points pending....

Benefits from the Contractor's Perspective

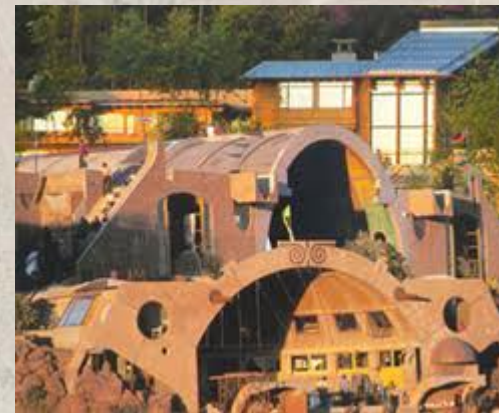
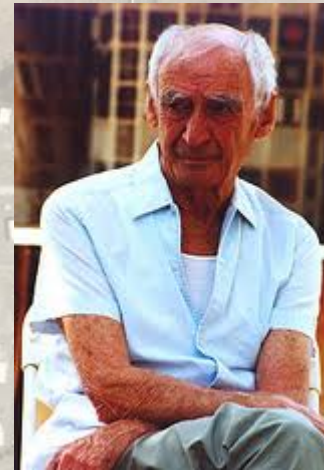
- Developing an early relationship with the designer creates a team environment and results in a better understanding of the project
- Work together with the designer to come up with better options for design that will help with the constructability
- Issues are resolved during the design phase resulting in a better quality product
- VE Options are handled during the design phase

Additional Benefits from Contractor's Perspective

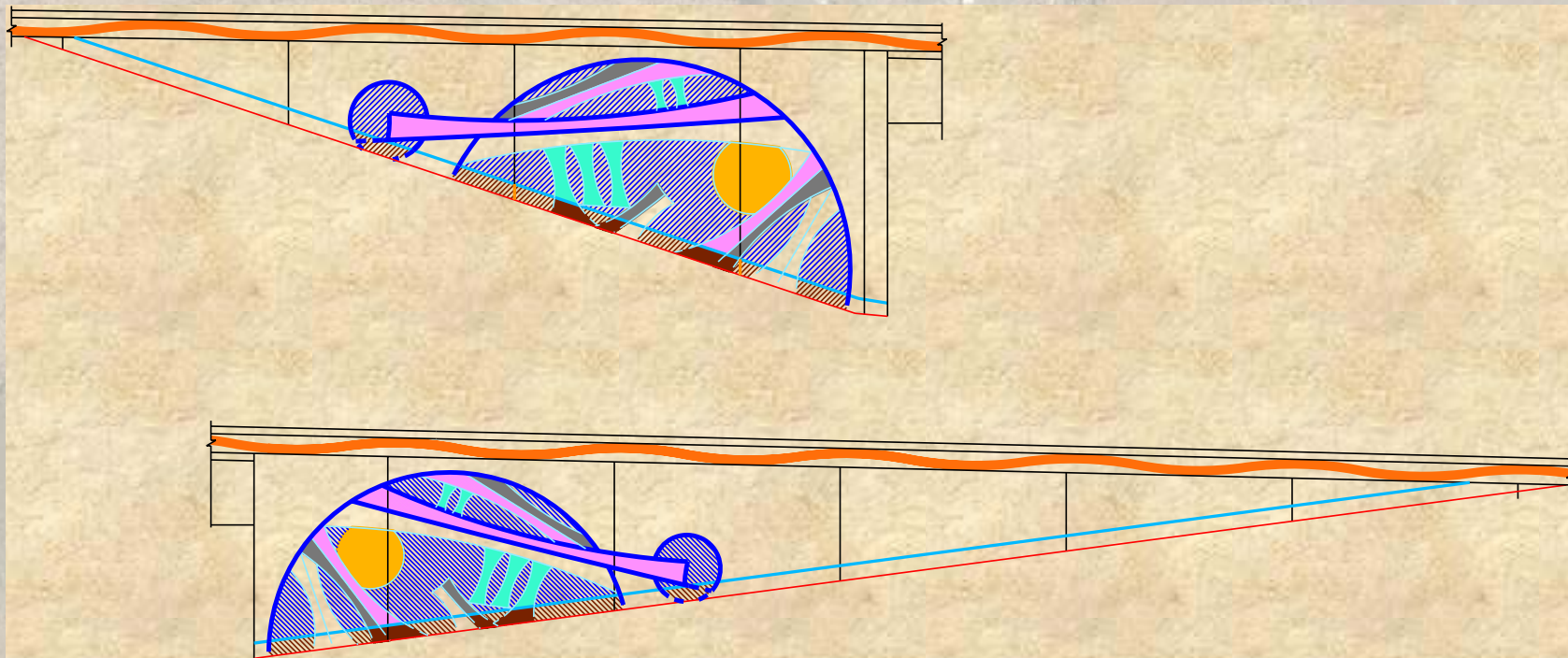
- Having the Contractor's Point of View on the most common problematic issues is an incredible asset.
 - Access, Foundations, Traffic and Dewatering are where most of the problems occur
- Working together will streamline cost, schedule, improve quality and provide for better overall management of the project

Aesthetics

- Worked with the world renowned Architect, Paolo Soleri
- The Aesthetics for this project was a collaborative effort between Soleri and Team
- Had the opportunity to learn the creative side of bridge design



Ramp N-N Aesthetics



Final Result of CMAR

- Improves clarity and understanding for the project team
- Results in a definitive detailed design
- Provides a schedule that provides a road map on how to complete that design at the GMP
- Gives Owner an opportunity to understand the ultimate cost of the project

Byproducts of CMAR Project

- Better Quality
- Enhanced Safety
- Improved Scheduling
- Better understanding of costs
- No Claims or Litigation