

Scoping Letter

Queen Creek Bridge Replacement

Structure No. 8440
Queen Valley, Arizona
South El Camino Viejo

February 2019

Prepared For:



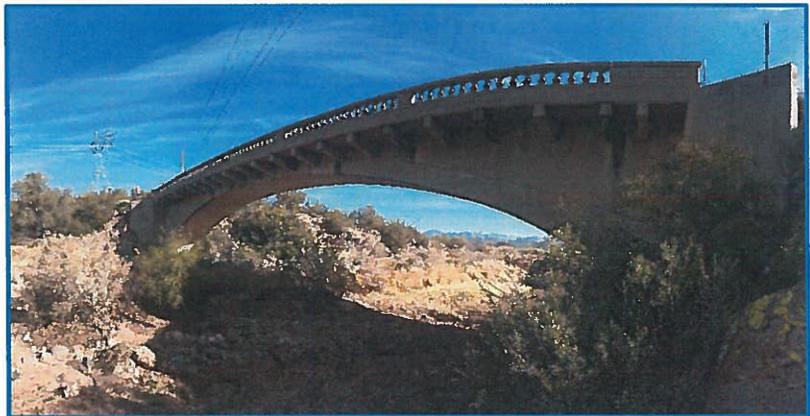
PINAL • COUNTY
wide open opportunity

Pinal County Department of Public Works
31 N. Pinal Street
Florence, AZ 85132

Prepared By:



*Structural
Grace, Inc*



EXPIRES: 09/30/2020

INTRODUCTION

The Queen Creek Bridge Replacement Project is located on South El Camino Viejo in Queen Valley, Arizona. The roadway is classified as a minor collector and carries roughly 1200 vehicles per day. The project will begin just north of West Scissor Tail Place and end just south of West Silver King Road, roughly 250 feet on both sides of the bridge, respectively. The approximate cost for the project is \$1,467,800 and will be financed through a combination of Surface Transportation Block Grant (STBG) funding and local Pinal County funding. Project development is expected to start in January of 2020 and be completed by December of 2020. Construction is anticipated to commence in fiscal year 2021. ADOT will bid and administer the project through the Off-System Bridge Program.

BACKGROUND DATA

The existing Queen Creek Bridge was constructed in 1920. It is a single-span reinforced concrete arch founded on solid rock. It carries one 9'-7" lane in each direction and has a clear roadway width of 19'-2". It is currently posted at 15 tons and serves as one of only two paved roadways into Queen Valley. It has a sufficiency rating of 39.6 and classified as Structurally Deficient. The evaluation of replacement alternatives contained herein is the only project development regarding its replacement completed to date.

PROJECT SCOPE

The scope of this project is to replace the existing Queen Creek Bridge and the associated approach roadway portions on either side of the bridge. The project is roughly 0.10 miles in length along South El Camino Viejo and no changes to the Queen Creek waterway or the existing roadway profile are anticipated. A consultant team, including the roadway, traffic, structural, geotechnical, drainage and environmental disciplines will be required to complete the project assessment, preliminary plans and final plans, specifications and estimates in coordination with ADOT and Pinal County reviewers. The project design and post-design process will be administered by ADOT. The final design and post-design cost of the project will be financed through federal (STBG) and local Pinal County funds.

The lowest responsive bidder will be responsible for demolishing the existing structure, reconstructing the new bridge per the project plans, reconstructing a short portion of the approach roadway and maintaining traffic. The construction cost of the project will be financed through federal (STBG) and local Pinal County funds.

PROJECT DEVELOPMENT CONSIDERATIONS

1. Environmental requirements
 - a. Species Investigation – A Biological Evaluation Short Form (BESF) will be prepared to determine the effects of the project on wildlife and plant species.
 - b. Wetland and Riparian Areas – Will be evaluated as part of the BESF

- c. Flood Plain Encroachment – Not anticipated as the waterway opening will be equal to or greater than the existing condition.
- d. Section 401/404 – A Jurisdictional Delineation and Section 404 Regional General Permit 96 will be submitted concurrently.
- e. Section 4 (f) Impacts – Not anticipated due to the nature of replacing an existing structure with minimal harm.
- f. Potential Contaminants – A Preliminary Initial Site Assessment (PISA) will be prepared for the site.
- g. Social or economic impacts – Minimal impacts anticipated as access is not eliminated, but a detour will be required during construction.
- h. Cultural Resources Investigation – A Class I records search and a Class III cultural resources survey will be conducted.
- i. Scenic or Historic Route – Historic American Engineering Record (HAER) Level II Documentation will be provided.

2. Construction Contract Method

It is anticipated that the construction contract will be awarded to the lowest responsive bidder.

3. Geotechnical and Drainage Requirements

A drainage study and scour analysis will be required, however the effects of the Queen Creek flows are not anticipated to be severe due to the presence of the Whitlow Dam upstream. According to the bridge as-builts, the existing bridge abutments are founded on solid rock. Stub abutments founded on short rock sockets are anticipated to provide a sufficient foundation for the new bridge, but may change depending on the results of the drainage study, scour analysis and geotechnical evaluation.

4. Critical Outside Agency Involvement

The existing bridge is eligible for the National Register of Historic Places (NRHP) which will require coordination with the State Historic Preservation Office (SHPO). Close coordination with the Bureau of Land Management (BLM) will also be required as the existing right-of-way is disputed by the BLM and could potentially affect the clearance of temporary construction easements. There are no known utilities supported by the bridge, but an overhead powerline crosses over the bridge. Other utilities known to be in the area include:

Utility	Facility	Contact	Phone Number
CTLQL - CenturyLink	Coaxial, Fiber	USIC Dispatch Center	(800) 778 - 9140
ADOT - Tucson	Culvert, Storm Drain	Justin Newby	(928) 200 - 9689
MediaCom – Apache Junction	CATV	David Pierson	(602) 751 - 5610
Queen Valley Water District	Water	Cecil Fendley	(520) 463 - 2780
Salt River Project – Pinal County	Communication, Electric, Fiber	SRP Blue Stake	(602) 236 - 8026

5. Right-of-Way Requirements

Currently, Pinal County has an unofficial document that states that ADOT abandoned the roadway and associated land to Pinal County, however the Bureau of Land Management does not recognize the abandonment. Pinal County is currently working to obtain the right-of-way for the project, but also expects that a temporary construction easement will be required on each side of the bridge.

6. Utility Relocation Requirements

Although no utility relocations are anticipated, there are live powerlines that cross the bridge, roughly 20 feet above the existing roadway profile. In addition, there is a solar powered flow gauge mounted to the existing bridge wingwall, which will likely have to be relocated to the new bridge wingwall at the County's expense.

7. Traffic Requirements

Minimal traffic control plans will be required for this project. The bridge and roadway will have to be closed during construction. There is no pedestrian traffic over the bridge.

8. Seasonal Considerations

Since the bridge spans over a waterway, consideration should be given to minimize bridge construction during the monsoon season, if possible. There are no other known seasonal restrictions at this time, however the environmental studies and surveys may identify such restrictions.

9. Design Criteria

This project will be designed in accordance with AASHTO and the ADOT Bridge Design Guidelines.

OTHER REQUIREMENTS

The Queen Creek Bridge Replacement Project will be financed through a combination of Surface Transportation Block Grant (STBG) funding and local Pinal County funding. The desired bid advertisement date is December 2020 with the award three months after the bid advertisement. The project will be developed by a consultant team, administered by ADOT in coordination with Pinal County.

ESTIMATED COST

As part of this scoping letter, three single-span alternatives were evaluated; a precast pre-stressed concrete girder bridge, a cast-in-place post-tensioned girder bridge, and a reinforced concrete arch.

Alternative 1 consists of a new AASHTO Type Super VI precast pre-stressed concrete girder superstructure supported by stub abutments founded on spread footings. The span length is 145'-0" and the overall bridge length is 150'-0". It carries one 11'-0" lane with a 2'-0" shoulder in each direction, contained by 34" F-Shape Bridge Concrete Barriers on each side. The clear roadway width is 26'-0" and the overall bridge width is 28'-10". The girder spacing is 10'-0" with 4'-5" overhangs and an 8 ½" concrete deck. The superstructure depth is approximately 7'-5", which is deeper than the existing structure and reduces the minimum vertical clearance to the waterway below by about 3'-7". This reduced clearance may or may not affect the hydraulic and scour analysis.

Alternative 1 is easily constructed by local contractors and has the lowest construction duration due to the prefabricated elements. One significant concern with this alternative is the access for cranes and the erection of girders with the presence of the overhead powerlines. The construction cost for this alternative, also found in Appendix A, is approximately \$945,601.

Alternative 2 consists of a new dual cell cast-in-place post-tensioned concrete girder superstructure supported by stub abutments founded on spread footings. The span length is 145'-0" and the overall bridge length is 150'-0". It carries one 11'-0" lane with a 2'-0" shoulder in each direction, contained by 34" F-Shape Bridge Concrete Barriers on each side. The clear roadway width is 26'-0" and the overall bridge width is 28'-10". The superstructure depth is approximately 6'-0" at the ends of the bridge and 4'-0" at the center of the bridge, providing a slight and aesthetically appealing parabolic shape. This structure is roughly the same depth as the existing structure thereby maintaining the existing waterway opening.

Alternative 2 is easily constructed by local contractors and is generally considered more aesthetically pleasing than Alternative 1. One significant concern with this alternative is the presence of formwork or soffit fill within the waterway. The construction cost for this alternative, also found in Appendix A, is approximately \$952,932.

Alternative 3 consists of a new dual cell cast-in-place reinforced concrete arch supported on spread footings founded on rock. The span length is 120'-0" and the overall bridge length is 130'-0". It carries one 11'-0" lane with a 2'-0" shoulder in each direction, contained by 34" F-Shape Bridge Concrete Barriers on each side. The clear roadway width is 26'-0" and the overall bridge width is 28'-10". The superstructure depth is approximately 4'-0" at the center of the bridge and transitions into full-height abutments, providing a similar, but not exact shape and look as the existing bridge. This structure is roughly the same depth and length as the existing structure thereby maintaining the existing waterway opening.

Alternative 3 is easily constructed by local contractors and is generally considered more aesthetically pleasing than the other alternatives. One significant concern with this alternative is the presence of formwork or soffit fill within the waterway. The construction cost for this alternative, also found in Appendix A, is approximately \$1,309,905.

Based on the known information at the time of this evaluation, Alternative 2 is the preferred alternative. This alternative maintains the existing waterway opening and does not require large cranes to construct. Although, falsework within the waterway is a concern, it can be mitigated by the Whitlow Dam facility upstream and avoiding construction during the monsoon season. This alternative is considered to be aesthetically appealing and will require minimal future maintenance. The total cost for Alternative 2 is \$1,467,800.

Each of the three alternatives discussed above have the same following costs:

Preliminary Engineering: The site survey and scoping document is complete, however the environmental determination and hazardous materials assessment remain and will be funded with local funds. The cost estimate for these remaining items is roughly \$31,500.

Right-of-Way and Utility Relocation: These items will be completed and paid for by Pinal County.

ADOT Review Fees: These costs are paid for by Pinal County and are anticipated to be roughly \$30,000.

ITEMIZED ESTIMATE

Below is an itemized design and construction cost estimate for the preferred alternative is included in Appendix B.

LOCATION AND VICINITY MAP

For more information regarding the location and vicinity of the bridge in Queen Valley, see Figure 1 and Figure 2, respectively.

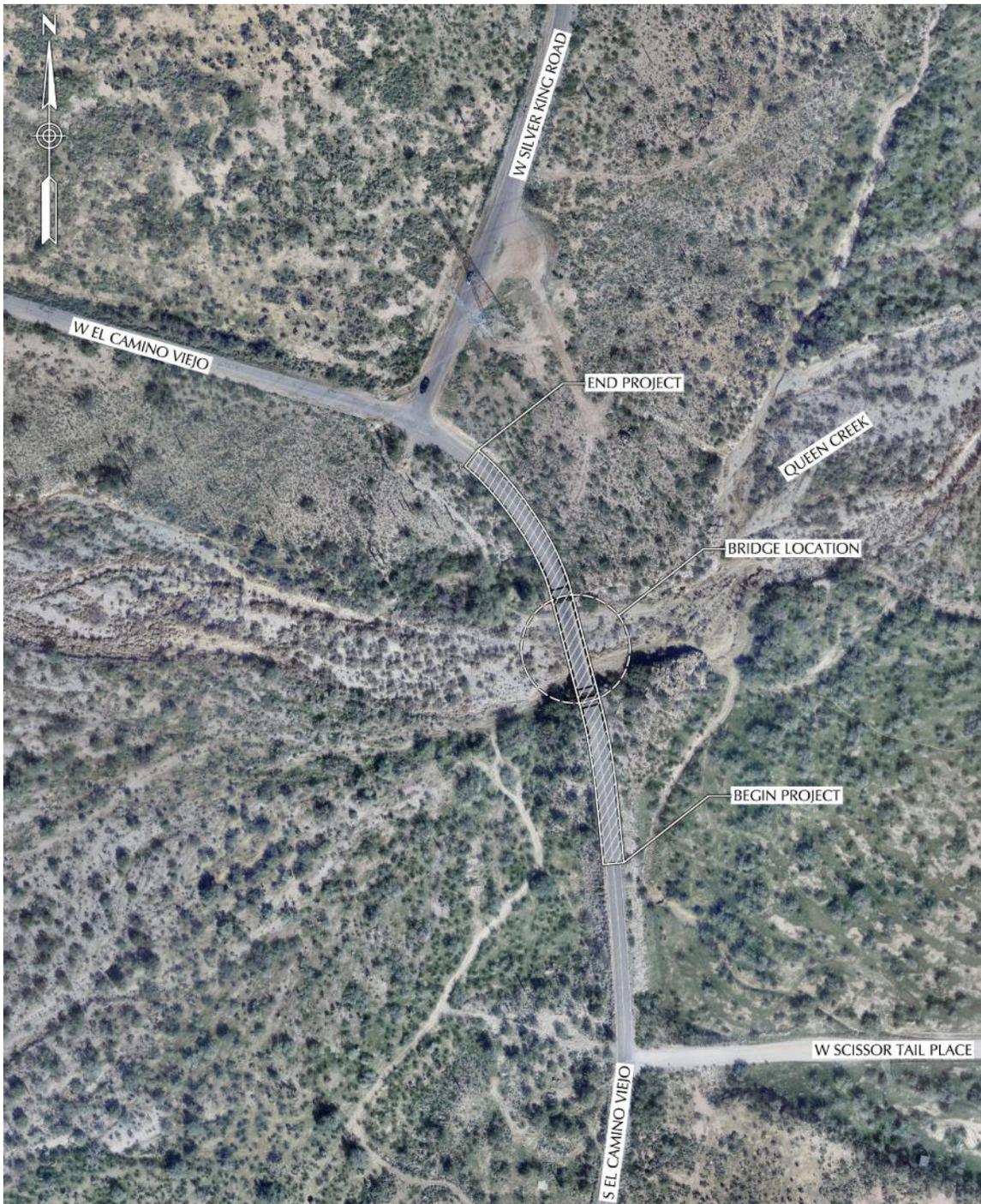


Figure 2: Project Vicinity Map

SCHEDULE

Activity / Deliverable	Tentative Completion Date
Project Initiation	July 2019
Develop IGA	September 2019
Environmental Determination	November 2019
Kickoff Meeting	January 2020
Stage II Development, Environmental Approval & Initial Bridge Selection Report	March 2020
Stage II Review	April 2020
Stage III Development, Geotechnical Report & Environmental Clearance	June 2020
Stage III Review	July 2020
Stage IV Development, Final Bridge Selection Report, ROW/Utility Clearances	September 2020
Stage IV Review	October 2020
Stage V Development PS&E	December 2020
PS&E Review	December 2020
Bid Advertisement and Award	March 2021
Construction and Final Acceptance	June 2022

PRELIMINARY PLANS (15%)

The plan, elevation and typical section for each alternative evaluated is provided in Appendix C.

Appendix A

Cost Estimates

LUMP SUM STRUCTURE ITEMS					
ITEM NUMBER	DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
2020002	REMOVE BRIDGE	L.SUM	\$75,000.00	1	\$75,000
2030501	STRUCTURAL EXCAVATION	CU.YD.	\$100.00	500	\$50,000
2030506	STRUCTURE BACKFILL	CU.YD.	\$60.00	150	\$9,000
6010003	STRUCTURAL CONCRETE (CLASS S) (F'C = 3,500)	CU.YD.	\$650.00	137	\$88,790
6010005	STRUCTURAL CONCRETE (CLASS S) (F'C = 4,500)	CU.YD.	\$750.00	150	\$112,604
6011140	F-SHAPE BRIDGE CONCRETE BARRIER AND TRANSITION (34")	L.FT.	\$150.00	360	\$54,000
6011348	DECK JOINT ASSEMBLY (4X4 COMPRESSION SEAL)	L.FT.	\$325.00	29	\$9,425
6011371	APPROACH SLAB (SD 2.01)	SQ.FT.	\$25.00	870	\$21,750
6014973	PRECAST, P/S MEMBER (SUPER VI MOD)	L.FT.	\$450.00	440	\$197,775
6015101	RESTRAINERS, VERTICAL EARTHQUAKE (FIXED)	EACH	\$150.00	6	\$900
6015102	RESTRAINERS, VERTICAL EARTHQUAKE (EXPANSION)	EACH	\$250.00	6	\$1,500
6050002	REINFORCING STEEL	LB.	\$1.25	52,561	\$65,701
9050430	THRIE-BEAM GUARD RAIL TRANSITION SYSTEM	EACH	\$3,500.00	4	\$14,000
SUBTOTAL:					\$700,445
CONTINGENCY: 5%					\$35,022
TOTAL COST:					\$735,467
TOTAL COST/SF:					\$170.05

OTHER ITEMS					
ITEM NUMBER	DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
	QUALITY CONTROL			2%	\$14,009
	WATER SUPPLY/DUST PALLATIVE			1%	\$7,004
	MOBILIZATION			10%	\$70,045
	CONSTRUCTION SURVEY			2%	\$14,009
	CONSTRUCTION ENGINEERING			15%	\$105,067
SUBTOTAL:					\$210,134
TOTAL COST:					\$210,134
TOTAL COST/SF:					\$48.59

ALTERNATIVE 1 TOTAL COST			
SUBTOTAL:			\$910,579
CONTINGENCY: 5%			\$35,022
TOTAL COST:			\$945,601
TOTAL COST/SF:			\$218.64

Structure Name: **Queen Creek Bridge (#8440)**
 Superstructure Type: **Precast, P/S AASHTO Girders**
 Substructure Type: **Stub Abutments**
 Foundation Type: **Spread Footing**
 No. of Spans: **1**
 Span Lengths (ft): **145.00**
 Skew (deg): **0**

Total Length (ft): **150.00**
 Avg. Width (Out to Out) (ft): **28.83**
 Area (sq ft): **4325**

LUMP SUM STRUCTURE ITEMS					
ITEM NUMBER	DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
2020002	REMOVE BRIDGE	L.SUM	\$75,000.00	1	\$75,000
2030501	STRUCTURAL EXCAVATION	CU.YD.	\$100.00	500	\$50,000
2030506	STRUCTURE BACKFILL	CU.YD.	\$60.00	150	\$9,000
6010003	STRUCTURAL CONCRETE (CLASS S) (F'C = 3,500)	CU.YD.	\$650.00	99	\$64,350
6010006	STRUCTURAL CONCRETE (CLASS S) (F'C = 5,000)	CU.YD.	\$850.00	281	\$238,850
6011140	F-SHAPE BRIDGE CONCRETE BARRIER AND TRANSITION (34")	L.FT.	\$150.00	360	\$54,000
6011348	DECK JOINT ASSEMBLY (4X4 COMPRESSION SEAL)	L.FT.	\$325.00	58	\$18,850
6011371	APPROACH SLAB (SD 2.01)	SQ.FT.	\$25.00	870	\$21,750
6015101	RESTRAINERS, VERTICAL EARTHQUAKE (FIXED)	EACH	\$150.00	6	\$900
6015102	RESTRAINERS, VERTICAL EARTHQUAKE (EXPANSION)	EACH	\$250.00	6	\$1,500
6020001	PRESTRESSING CAST-IN-PLACE CONCRETE- STA (12+50)	L.SUM	\$56,250	1	\$56,250
6050002	REINFORCING STEEL	LB.	\$1.25	81,140	\$101,425
9050430	THRIE-BEAM GUARD RAIL TRANSITION SYSTEM	EACH	\$3,500.00	4	\$14,000
				SUBTOTAL:	\$705,875
				CONTINGENCY: 5%	\$35,294
				TOTAL COST:	\$741,169
				TOTAL COST/SF:	\$171.37

OTHER ITEMS					
ITEM NUMBER	DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
	QUALITY CONTROL			2%	\$14,118
	WATER SUPPLY/DUST PALLATIVE			1%	\$7,059
	MOBILIZATION			10%	\$70,588
	CONSTRUCTION SURVEY			2%	\$14,118
	CONSTRUCTION ENGINEERING			15%	\$105,881
				SUBTOTAL:	\$211,763
				TOTAL COST:	\$211,763
				TOTAL COST/SF:	\$48.96

ALTERNATIVE 2 TOTAL COST				
			SUBTOTAL:	\$917,638
			CONTINGENCY: 5%	\$35,294
			TOTAL COST:	\$952,932
			TOTAL COST/SF:	\$220.33

Structure Name: **Queen Creek Bridge (#8440)**
 Superstructure Type: **CIP PT Box Girder**
 Substructure Type: **Stub Abutments**
 Foundation Type: **Spread Footing**
 No. of Spans: **1**
 Span Lengths (ft): **145.00**
 Skew (deg): **0**

Total Length (ft): **150.00**
 Avg. Width (Out to Out) (ft): **28.83**
 Area (sq ft): **4325**

LUMP SUM STRUCTURE ITEMS					
ITEM NUMBER	DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
2020002	REMOVE BRIDGE	L.SUM	\$75,000.00	1	\$75,000
2030501	STRUCTURAL EXCAVATION	CU.YD.	\$100.00	400	\$40,000
2030506	STRUCTURE BACKFILL	CU.YD.	\$60.00	300	\$18,000
6010006	STRUCTURAL CONCRETE (CLASS S) (F'C = 5,000)	CU.YD.	\$850.00	632	\$537,200
6011140	F-SHAPE BRIDGE CONCRETE BARRIER AND TRANSITION (34")	L.FT.	\$150.00	320	\$48,000
6011348	DECK JOINT ASSEMBLY (4X4 COMPRESSION SEAL)	L.FT.	\$325.00	58	\$18,850
6011371	APPROACH SLAB (SD 2.01)	SQ.FT.	\$25.00	870	\$21,750
6050002	REINFORCING STEEL	LB.	\$1.25	158,000	\$197,500
9050430	THRIE-BEAM GUARD RAIL TRANSITION SYSTEM	EACH	\$3,500.00	4	\$14,000
SUBTOTAL:					\$970,300
				CONTINGENCY: 5%	\$48,515
TOTAL COST:					\$1,018,815
TOTAL COST/SF:					\$271.81

OTHER ITEMS					
ITEM NUMBER	DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
	QUALITY CONTROL			2%	\$19,406
	WATER SUPPLY/DUST PALLATIVE			1%	\$9,703
	MOBILIZATION			10%	\$97,030
	CONSTRUCTION SURVEY			2%	\$19,406
	CONSTRUCTION ENGINEERING			15%	\$145,545
SUBTOTAL:					\$291,090
TOTAL COST:					\$291,090
TOTAL COST/SF:					\$77.66

ALTERNATIVE 3 TOTAL COST		
SUBTOTAL:		\$1,261,390
CONTINGENCY: 5%		\$48,515
TOTAL COST:		\$1,309,905
TOTAL COST/SF:		\$349.47

Structure Name: **Queen Creek Bridge (#8440)**
 Superstructure Type: **CIP Reinforced Concrete Arch**
 Substructure Type: **Integral Abutments**
 Foundation Type: **Spread Footing**
 No. of Spans: **1**
 Span Lengths (ft): **120.00**
 Skew (deg): **0**

Total Length (ft): **130.00**
 Avg. Width (Out to Out) (ft): **28.83**
 Area (sq ft): **3748**

Appendix B

Preferred Alternative
Total Cost Estimate

Estimated Project Costs

INSTRUCTIONS: List all items necessary to develop and construct your project. The applicant is responsible for verifying all costs and their accuracy. Construction cost overruns will be the responsibility of the sponsoring agency.

Enter values into GREEN CELLS.

The program will automatically calculate the Totals and Federal Share at 94.3%

LOCAL PROJECTS: Please note that the Stage I Costs shown below are to be funded by the sponsoring agency and are not eligible for Federal Reimbursement.

ITEM DESCRIPTION	UNIT	QUAN.	UNIT PRICE	TOTAL	FEDERAL FUNDS @ 94.3%	SPONSOR MATCHING FUNDS @ 5.7%
STAGE 1 – SCOPING (15% Preliminary Design)						
SCOPING COSTS						
Costs cannot be applied toward the federal participation or local match						
SITE TOPOGRAPHIC SURVEY (2%-5% of constr. cost) (Enter \$0 in Unit Price column if none required)	LS	1	\$0.00	\$0.00		
SCOPING DOCUMENT (Scoping Letter, Project Assessment or DCR)	LS	1	\$0.00	\$0.00		
ENVIRONMENTAL DETERMINATION (Including technical supporting documents)	LS	1	\$27,000.00	\$27,000.00		
HAZARDOUS MATERIALS ASSESSMENT Including heavy metals & asbestos (If an assessment is necessary, anticipate \$1,500. Enter \$0 in Unit Price column if none required)	LS	1	\$4,500.00	\$4,500.00		
SUBTOTAL – PROJECT SCOPING COSTS				\$ 31,500	\$29,705	\$1,796

STAGES II, III, IV - DESIGN (30%, 60%, 95%-100% Design)

DESIGN COSTS

Note: The use of federal funds for design is optional and subject to authorization. Design should not go beyond Stage II (30%) without environmental approval.

PS&E's - Plans, Special Provisions, Cost Estimates & Schedules (10%-20% of construction cost.) (Shall be refunded if project is not constructed)	LS	1	\$270,000.00	\$270,000.00		
GEOTECHNICAL INVESTIGATION (If a report is necessary, anticipate 5% of construction cost) Includes testing, Geotech Report, Materials & Pavement Design Report) Enter \$0 in Unit Price column if none required.	LS	1	\$50,000.00	\$50,000.00		
DRAINAGE REPORT (If a report is necessary, anticipate 5% of construction cost) Enter \$0 in Unit Price column if none required)	LS	1	\$30,000.00	\$30,000.00		
STORM WATER POLLUTION PREVENTION PLAN (Required if there is over 1 acre of total disturbance, 1% of construction cost) Enter \$0 in Unit Price column if none required.	LS	1	\$10,000.00	\$10,000.00		
SUBTOTAL – PROJECT DESIGN COSTS				\$ 360,000	\$339,480	\$20,520
Federal Funds for design are calculated at 94.3% of the total design cost. If requesting less than 94.3% Federal Funds for design, enter new total or 0 in the Federal column.						

ITEM DESCRIPTION	UNIT	QUAN.	UNIT PRICE	TOTAL	FEDERAL FUNDS @ 94.3%	SPONSOR MATCHING FUNDS @ 5.7%
STAGE V – CONSTRUCTION						
SITE ACQUISITION & HARDSCAPE CONSTRUCTION						
RIGHT-OF-WAY ACQUISITION (if necessary)	LS	1	\$0.00	\$0.00	\$0.00	\$0.00
INSTALLATION OF STORMWATER POLLUTION PREVENTION MEASURES (If over 1 acre of disturbance, 5% of constr. costs) Enter \$0 in Unit Price column if area of disturbance is less than one acre.	LS	1	\$50,000.00	\$50,000.00	\$47,150.00	\$2,850.00
SITE PREPARATION (Clearing and grubbing, plant salvage)	LS	1	\$10,000.00	\$10,000.00	\$9,430.00	\$570.00
DEMOLITION						
Sawcut	LF	50	\$20.00	\$1,000.00	\$943.00	\$57.00
Remove Structures and Obstructions	LS	1	\$75,000.00	\$75,000.00	\$70,725.00	\$4,275.00
Remove Fencing	LF	0	\$0.00	\$0.00	\$0.00	\$0.00
Remove Structural Concrete		0	\$0.00	\$0.00	\$0.00	\$0.00
Remove Asphaltic Concrete Pavement	CY	100	\$20.00	\$2,000.00	\$1,886.00	\$114.00
Remove Concrete Sidewalks, Slabs		0	\$0.00	\$0.00	\$0.00	\$0.00
HAZARDOUS MATERIALS ABATEMENT (If applicable; include heavy metals & asbestos; 5% of construction cost) Enter \$0 in Unit Price column if none required.	LS	1	\$0.00	\$0.00	\$0.00	\$0.00
UTILITY RELOCATION (If necessary) Only the cost of utilities needing relocation as a direct result of the enhancement project are eligible for federal reimbursement. Because of the costs involved, the undergrounding of overhead utilities is not eligible	LS	1	\$0.00	\$0.00	\$0.00	\$0.00
RETAINING WALL (Concrete; SF of face above the footing)	SFF	0	\$0.00	\$0.00	\$0.00	\$0.00
SUBTOTAL - SITE ACQUISITION & HARDSCAPE CONSTRUCTION				\$ 138,000	\$130,134	\$7,866
OTHER CONSTRUCTION ITEMS (List line items)						
New Bridge (Alternative 2)	Each	1	\$662,419.00	\$662,419.00	\$624,661.12	\$37,757.88
				\$0.00	\$0.00	\$0.00
				\$0.00	\$0.00	\$0.00
				\$0.00	\$0.00	\$0.00
				\$0.00	\$0.00	\$0.00
				\$0.00	\$0.00	\$0.00
				\$0.00	\$0.00	\$0.00
SUBTOTAL - OTHER CONSTRUCTION LINE ITEMS				\$ 662,419	\$624,661	\$37,758
MOBILIZATION AND ADMINISTRATION COSTS						
CONTRACTOR MOBILIZATION (Typically 8% of construction cost)	LS	1	\$70,588.00	\$70,588.00	\$66,564.48	\$4,023.52
TRAFFIC CONTROL (0-8% of construction cost)	LS	1	\$20,000.00	\$20,000.00	\$18,860.00	\$1,140.00
CONSTRUCTION SURVEY & LAYOUT (Typically 1% of construction cost)	LS	1	\$14,118.00	\$14,118.00	\$13,313.27	\$804.73
CONSTRUCTION CONTINGENCIES (Typically 5% of construction cost)	LS	1	\$35,294.00	\$35,294.00	\$33,282.24	\$2,011.76
CONSTRUCTION ADMINISTRATION (Averaging 18% of construction cost)	LS	1	\$105,881.00	\$105,881.00	\$99,845.78	\$6,035.22
SUBTOTAL – MOBILIZATION & ADMINISTRATION COSTS				\$ 245,881	\$231,865.78	\$14,015.22

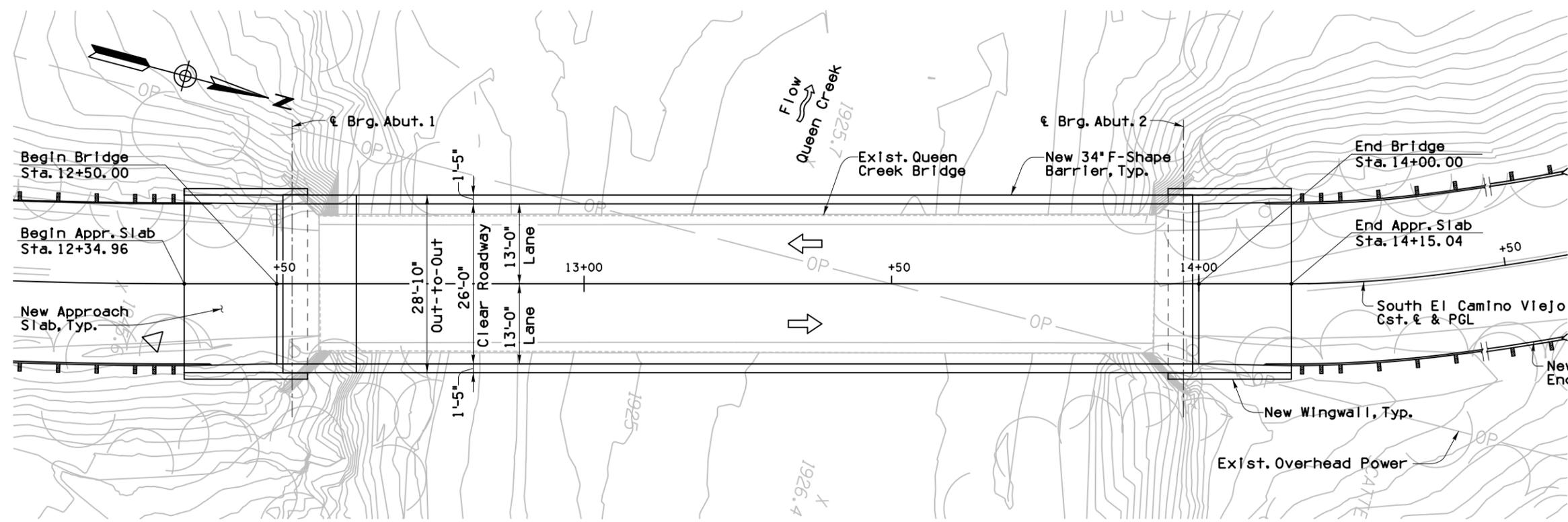
ITEM DESCRIPTION	UNIT	QUAN.	UNIT PRICE	TOTAL	FEDERAL FUNDS @ 94.3%	SPONSOR MATCHING FUNDS @ 5.7%	
TOTAL STAGE V COSTS (CONSTRUCTION) (Enter this amount in Box A below.)				\$ 1,046,300	\$986,660.90	\$59,639.10	
ADOT REVIEW FEES (Cannot be applied to the federal participation or the local match. On local Certification Acceptance or Self-administration projects, change to \$3,000)	LS	1	\$30,000.00	\$30,000.00	NO ENTRY		
TOTAL PROJECT COST (All <u>subtotals</u> + ADOT review fee)				\$ 1,467,800	NO ENTRY		
SUMMARY OF FEDERAL AND LOCAL FUNDS							
TOTAL STAGE V COSTS (CONSTRUCTION) FROM THE ESTIMATE ABOVE, AND DESIGN COSTS IF REQUESTING FEDERAL FUNDS FOR DESIGN. Include design costs (Stages II thru IV) if federal funds are requested for design as shown under Design Costs in the federal column above.						BOX A	\$ 1,406,300
TOTAL FEDERAL FUNDS CAPPED @ 94.3% (.943 x amount shown in Box A above). <i>Note: For local projects, the maximum federal funds that can be requested is \$500,000 (\$1,000,000 for state projects).</i>						BOX B	\$ 1,000,000
TOTAL SPONSOR MATCHING FUNDS (.057 x cost shown in Box A above). <i>Note: The maximum amount that should be shown on this line is \$30,223 for local projects (\$60,445 for state projects).</i>						BOX C	\$ 60,445
TOTAL SPONSOR ADDITIONAL FUNDS (OVERMATCH). Enter the amount in Box A in excess, if any, of \$530,223 for local projects or \$1,060,445 for state projects.						BOX D	\$ 345,855
TOTAL SPONSOR FUNDS (Sum of Box C and Box D).						BOX E	\$ 406,300

Appendix C

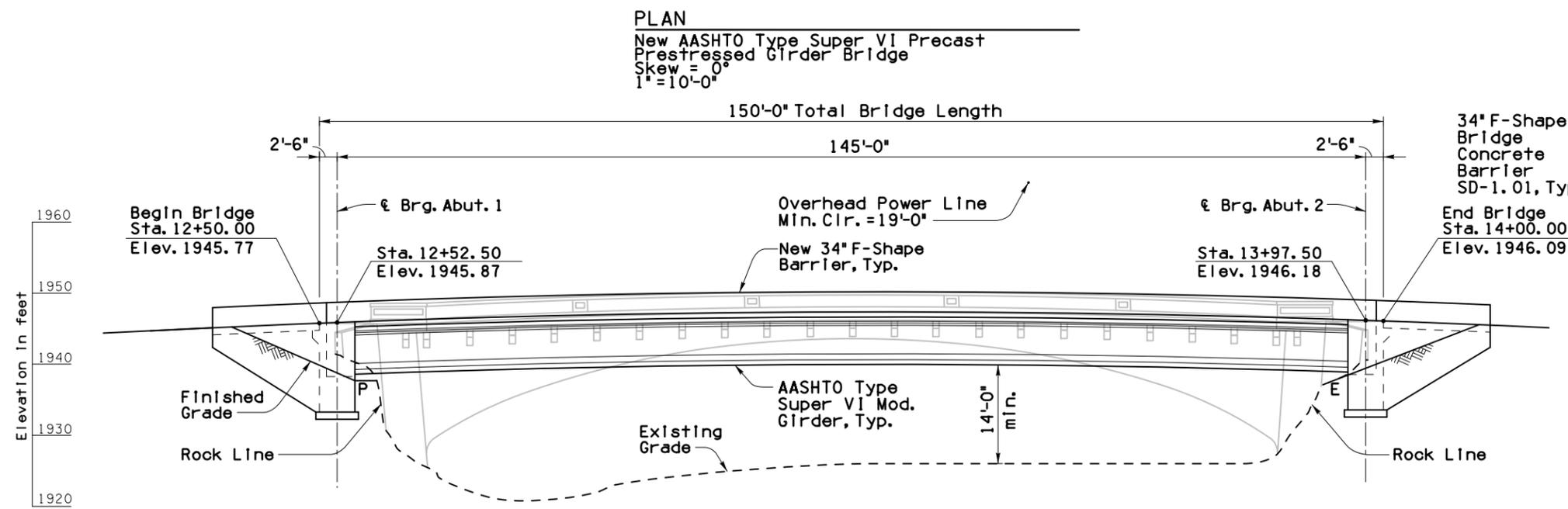
Preliminary Bridge Plans

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	XXX-X(XXX)X			

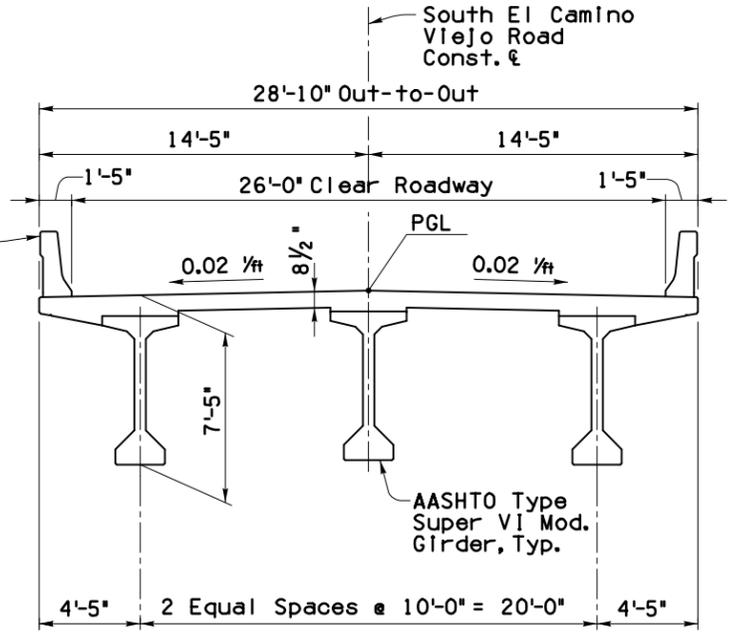
XXX XX XXX



PLAN
New AASHTO Type Super VI Precast Prestressed Girder Bridge
Skew = 0°
1" = 10'-0"



ELEVATION
1" = 10'-0"



TYPICAL SECTION
1/4" = 1'-0"

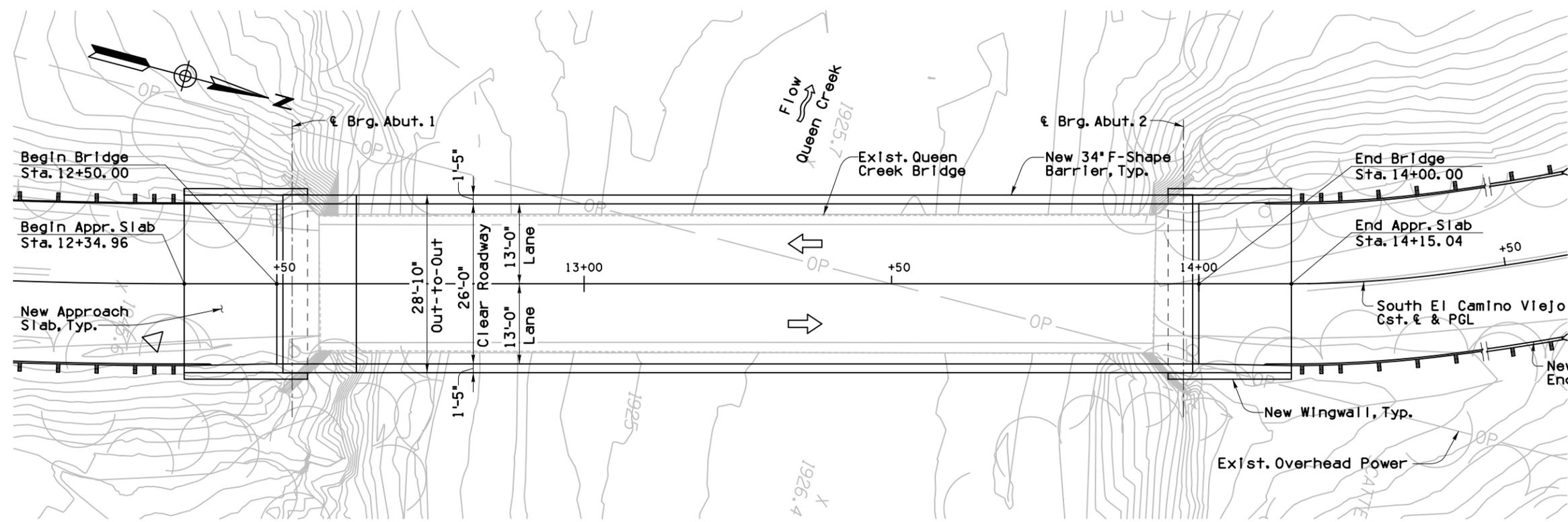
CAUTION
Overhead Powerlines

DESIGN	JKR	DATE	02-19	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP	PRELIMINARY STAGE I Review NOT FOR CONSTRUCTION OR RECORDING DWG. NO. S-1.01
DRAWN	JHS, M.JL	DATE	02-19		
CHECKED	NJP	DATE	02-19		
				Sta. 12+ GENERAL PLAN, ELEVATION & TYPICAL SECTION - ALT. 1	S EL CAMINO VIEJO BRIDGE OVER QUEEN CREEK
XXX	XXX.XX	XXXXX	STRUCTURE NO.		
TRACS NO. XXXXX XXX				XXX-X(XXX)X	OF

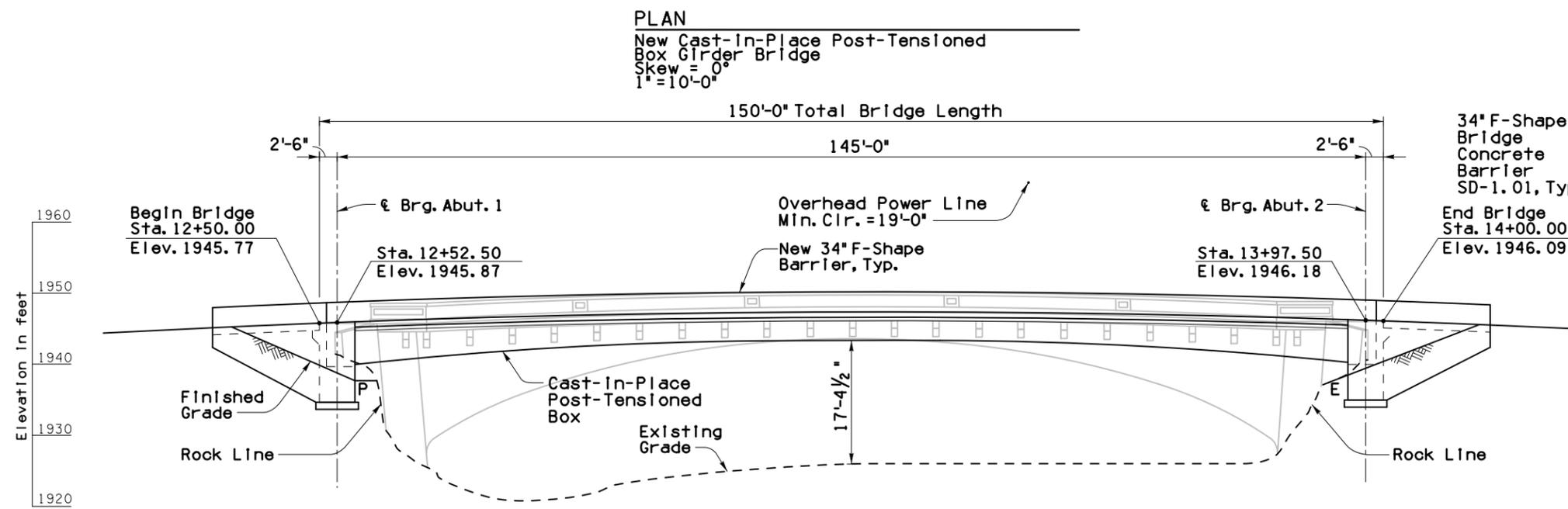
DATE: LOCATION: REVISIONS: FINISHED PLANS: SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	XXX-X(XXX)X			

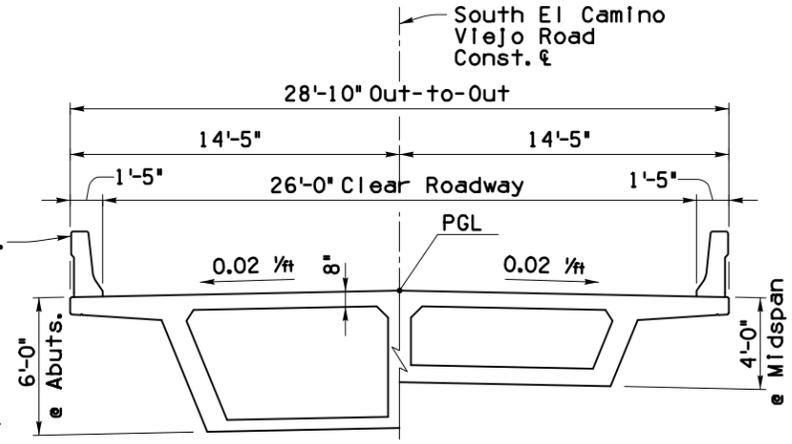
XXX XX XXX



PLAN
 New Cast-In-Place Post-Tensioned
 Box Girder Bridge
 Skew = 0°
 1" = 10'-0"



ELEVATION
 1" = 10'-0"



TYPICAL SECTION
 1/4" = 1'-0"

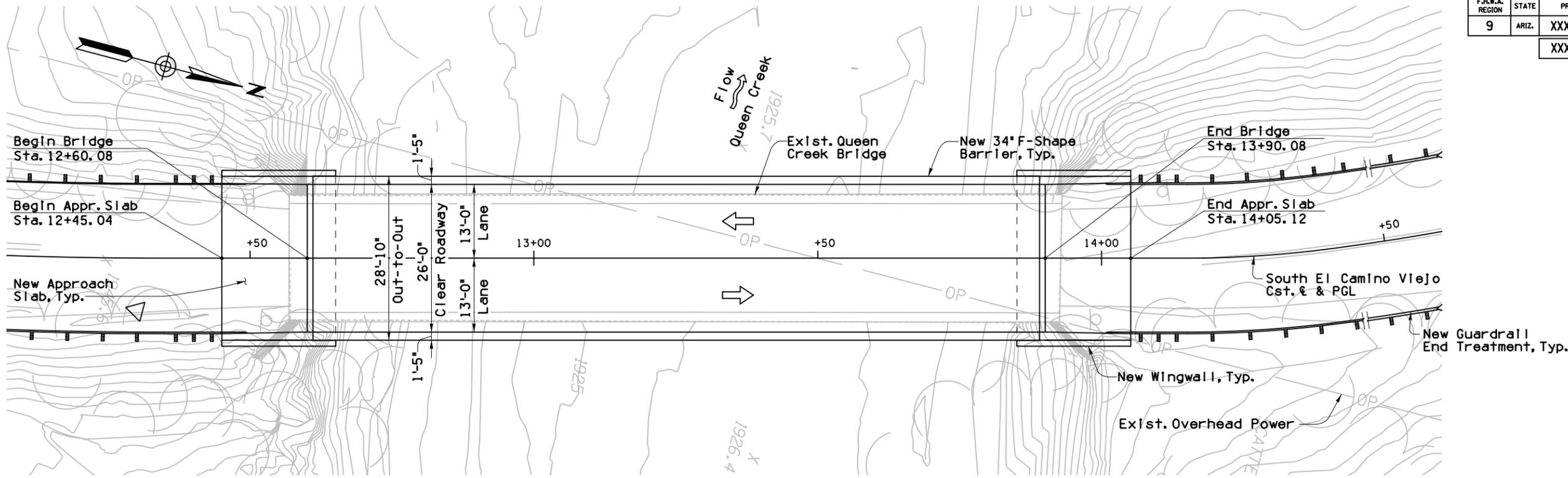
CAUTION
 Overhead Powerlines

DESIGN	JKR	DATE	02-19	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP	PRELIMINARY STAGE I Review NOT FOR CONSTRUCTION OR RECORDING DWG. NO. S-2.01
DRAWN	JHS, M.JL	DATE	02-19		
CHECKED	NJP	DATE	02-19		
				Sta. 12+	GENERAL PLAN, ELEVATION & TYPICAL SECTION - ALT. 2
XXX	XXX.XX	XXXXX	XXX	S EL CAMINO VIEJO BRIDGE OVER QUEEN CREEK	
TRACS NO. XXXXX XXX				XXX-X(XXX)X	OF

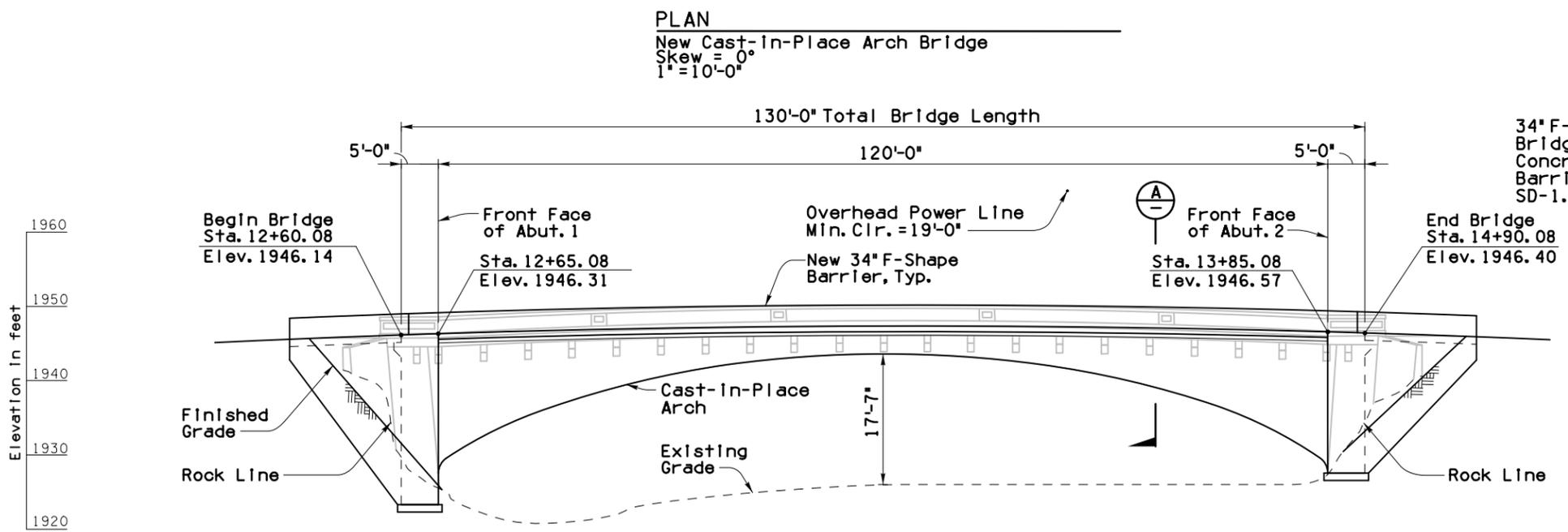
SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	XXX-X(XXX)X			

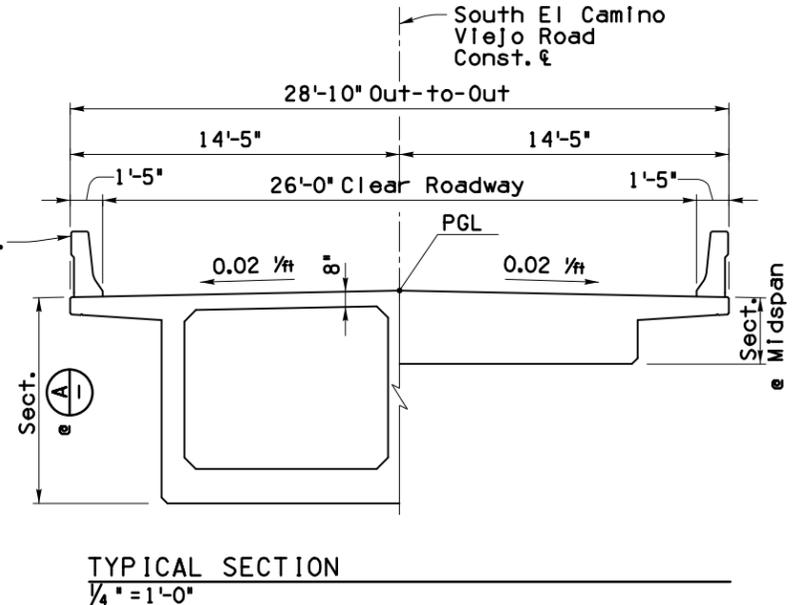
XXX XX XXX



PLAN
 New Cast-In-Place Arch Bridge
 Skew = 0°
 1" = 10'-0"



ELEVATION
 1" = 10'-0"



TYPICAL SECTION
 1/4" = 1'-0"

CAUTION
 Overhead Power Lines

DESIGN	JKR	DATE	02-19	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP	PRELIMINARY STAGE I Review NOT FOR CONSTRUCTION OR RECORDING DWG. NO. S-3.01
DRAWN	JHS, M.JL	DATE	02-19		
CHECKED	NJP	DATE	02-19		
808 N. First Street Phoenix, Arizona 85004 (602) 437-2551				Sta. 12+ GENERAL PLAN, ELEVATION & TYPICAL SECTION - ALT. 3	
XXX	XXX.XX	XXXXX	S EL CAMINO VIEJO BRIDGE OVER QUEEN CREEK		
ROUTE	MILEPOST	STRUCTURE NO.		XXX-X(XXX)X	OF
TRACS NO. XXXXX XXX					

SURVEY NO. FINISHED PLANS- LOCATION- DATE- REVISIONS- FINISHED PLANS- LOCATION- DATE- REVISIONS- FINISHED PLANS- LOCATION- DATE-



OFF-SYSTEM BRIDGE (OSB) PROGRAM APPLICATION

OSB Funding is a set-aside of the Surface Transportation Block Grant (STBG) Program and must follow all federal-aid requirements

GENERAL PROJECT INFORMATION					
SPONSORING AGENCY:	Pinal County Public Works	DATE SUBMITTED:	2/14/19		
CONTACT NAME:	John Rogala	TITLE:	Civil Engineer Technician Sr.		
EMAIL ADDRESS:	John.rogala@pinalcountyz.gov	PHONE #:	520.866.6281		
PROJECT LOCATION	Bridge Name:	Queen Creek Bridge			
	Bridge Structure #:	8440			
	Road Name:	El Camino Viejo			
	County:	Pinal			
	ADOT District:	South Central			
	Starting Location:	250' South of Queen Creek Wash (Queen Valley)			
	Ending Location:	250' North of Queen Creek Wash (Queen Valley)			
	Length (to the 0.1 of a mile):	.1			
BRIDGE IMPROVEMENT	<input type="checkbox"/> Rehabilitation	Bridge Sufficiency Rating	39.6		
	<input checked="" type="checkbox"/> Replacement	Structurally Deficient?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
		Functionally Obsolete?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
			# of Lanes (Before & After):	Before: 2	After: 2
PROJECT INCLUDED IN LOCAL CAPITAL IMPROVEMENT PLAN (CIP)			<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
FEDERAL FUNCTIONAL CLASSIFICATION – (LINK: FEDERAL FUNCTIONAL CLASSIFICATION MAPS) :			Minor Collector		
AVERAGE ANNUAL DAILY TRAFFIC (AADT) COUNT (LINK: AADT COUNTS) :	1209	DATE OF AADT COUNT:	2013		
Crash Data (5 Years):					
PROJECT WORK DESCRIPTION					
Provide a brief work description that describes the work to be performed, existing and/or proposed conditions, its benefits and overall cost estimate.					
PROJECT WORK DESCRIPTION:					
<p>The scope of this project is to replace the aging and structurally deficient Queen Creek Bridge. The existing bridge is a single-span reinforced concrete arch bridge and carries two lanes of traffic over Queen Creek in Queen Valley, AZ. The new bridge will provide a wider clear roadway and will be slightly longer than the existing bridge, but minimal impacts to the approach roadway and profile are anticipated. The benefit of replacing the bridge is increased safety (by bringing the bridge up to current loading and geometric standards) and reduced maintenance costs moving forward. The overall cost estimate is \$1,467,800.</p>					

COST ESTIMATE & PROJECT PROGRAMMING

Total Project Estimated Cost (includes Design & Construction):		\$1,467,800
<input checked="" type="checkbox"/> DESIGN	FY Program Year:	2020
	Estimated Total Cost for Project Development (Includes ROW, Utilities, Environmental, and ICAP):	\$421,500
	Federal Share (94.3%):	\$339,480
	Local Match (5.7%):	\$20,520
	Additional Local Funding:	\$61,500
	Other Non-Local Funding Sources to be Utilized:	\$
	ADOT Project Delivery Administration (PDA) Fee (\$30,000):	<input type="checkbox"/> Use Federal \$ <input checked="" type="checkbox"/> Use Local \$
<input checked="" type="checkbox"/> CONSTRUCTION	FY Program Year:	2021
	Estimated Total Cost for Project Construction (includes CE, CC, and ICAP):	\$1,046,300
	Federal Share (94.3%):	\$660,520
	Local Match (5.7%):	\$36,480
	Additional Local Funding:	\$349,300
	Other Non-Local Funding Sources to be Utilized:	\$

Any application without the required attachment(s) will not be considered for funding.

- **ATTACH** a detailed scoping document that includes an alternative analysis, project background, scope of work, justification (system prioritization), schedule identifying critical milestones, and detailed cost estimates for Design and Construction phases. *Samples are available on the [ADOT LPA Section Website](#) (LINK), including the ADOT Cost Estimate Tool, Project Scoping Document Guidelines, and Sample Scoping Document based on the ADOT Pre-Design Section format.*
- **ATTACH** a Project Vicinity/Project Location Map
- **ATTACH** a copy of the FHWA Functional Classification Map
- **ATTACH** photographs

BRIDGE PARAMETERS

Provide the following bridge information:

- Overall Condition of the bridge (include items described in the bridge inspection report)
- Vertical Clearance
- Bridge Geometry (lanes, shoulders, clear roadway and other features)
- Load Carrying Capacity
- Age of Bridge
- Weight Restriction (if any)
- Detours if restrictions or service is impacted

- **Overall Condition of the bridge:**
 - Deck (N58) is satisfactory
 - Superstructure (N59) is satisfactory
 - Substructure (N60) is good
 - Structural Evaluation (N67) is intolerable
 - Deck Geometry (N68) is intolerable
 - Waterway Adequacy (N71) equals the desirable
 - Approach Roadway (N72) equals the minimum criteria
 - Scour Critical (N113) rating is stable
- **Vertical Clearance:** roughly 18 feet above Queen Creek at midspan
- **Bridge Geometry:** (2) 9'-7" lanes, no shoulders, 19'-2" clear roadway
- **Load Carrying Capacity:** 15 tons
- **Age of Bridge:** 99 Years Old
- **Weight Restriction:** Posted for 15 tons
- **Detour:** 10 Miles

Describe the agencies top (up to three) priorities of off-system bridges in your inventory. Provide justification as to why the bridge project in this application is the top priority. (Refer to section of Priority Ranking of Candidate Bridges in the Off-System Bridge Program Guidelines.)

Replacing the Queen Creek Bridge (#8440) is currently Pinal County's only priority for off-system bridges. This bridge is 99 years old, has an insufficient roadway width; insufficient load capacity (posted at 15 tons) and is considered Structurally Deficient. With a sufficiency rating of just 39.6, the Queen Creek Bridge is categorized as Group II according to the Off-System Bridge Guidelines. Pinal County does not currently own any Group I category bridges.

OPERATIONAL IMPROVEMENT

How will this bridge project improve the agency's operations?

Are there other operational improvements? If so, what are they and how will this project improve them?

Topics to consider addressing in application:

- Effect on lifecycle
- Maintenance and Repair tasks and frequency
- Annual maintenance and repair costs

With this Project, by replacing this 99 year old bridge it would expand the life cycle by 75+ years which would alleviate any future repairs that might be difficult and costly to achieve due to its age and historic condition. This project would give us the chance to improve the sight visibility angle of the bridge due to the angular approach roadway and the arched deck, thereby improving safety. The current roadway is at 19' which could be widen to give access to two way traffic as well as replace the concrete barriers with some updated to current standards.

COMMUNITY IMPACTS

How important is this bridge crossing and access to the community?

Topics to consider addressing in this application:

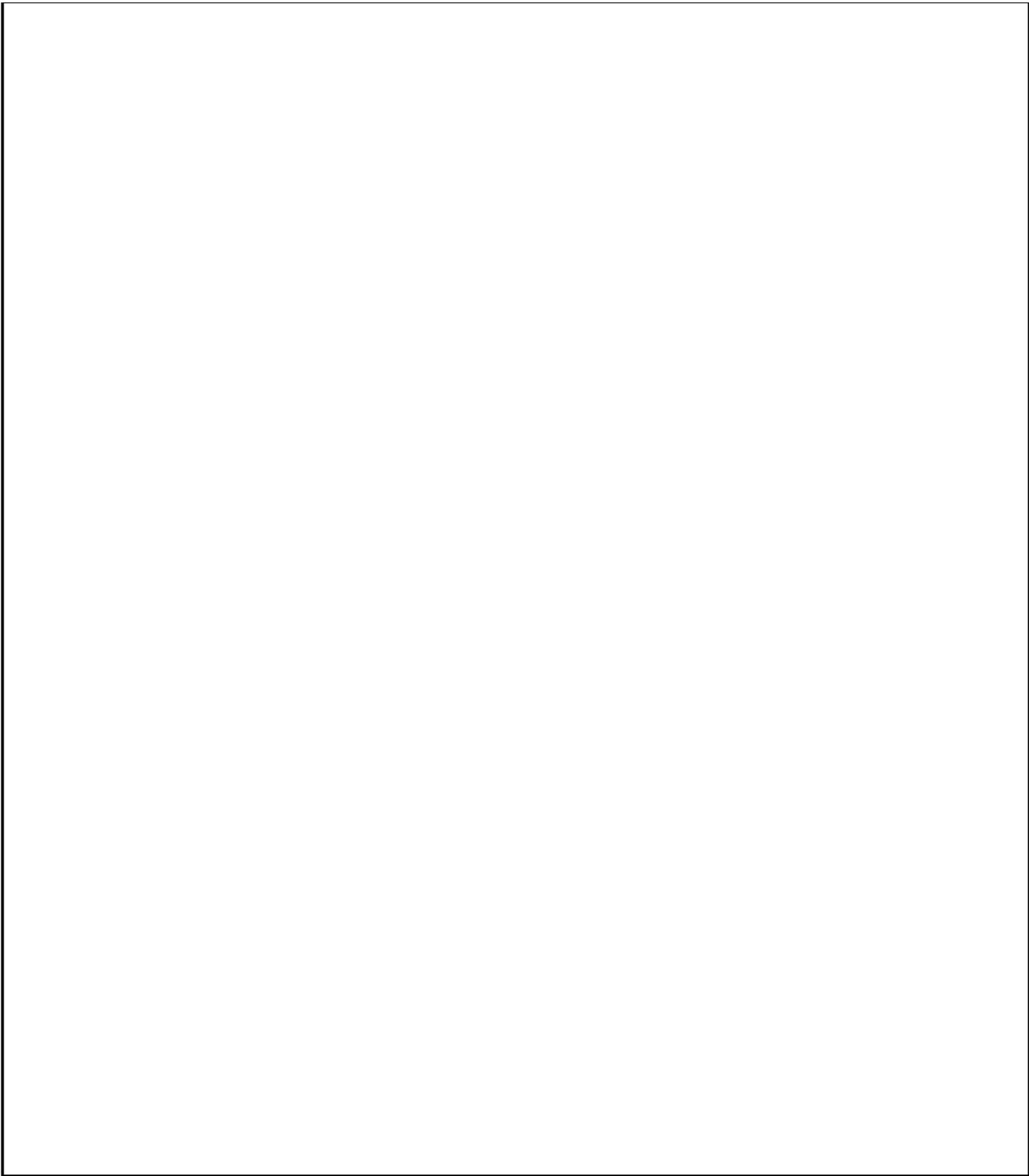
- Emergency Access
- Local Business and Industry Access

- Educational Access
- Other areas important to the community

South El Camino Viejo represents 1 of only 2 paved roadways leading into Queen Valley. Residents will have access to their businesses, schools and homes, however closing South El Camino Viejo during bridge construction will require a roughly 10 mile detour for some residents.

OTHER

This is an opportunity to add project-specific items or unique issues that are not addressed in another category.



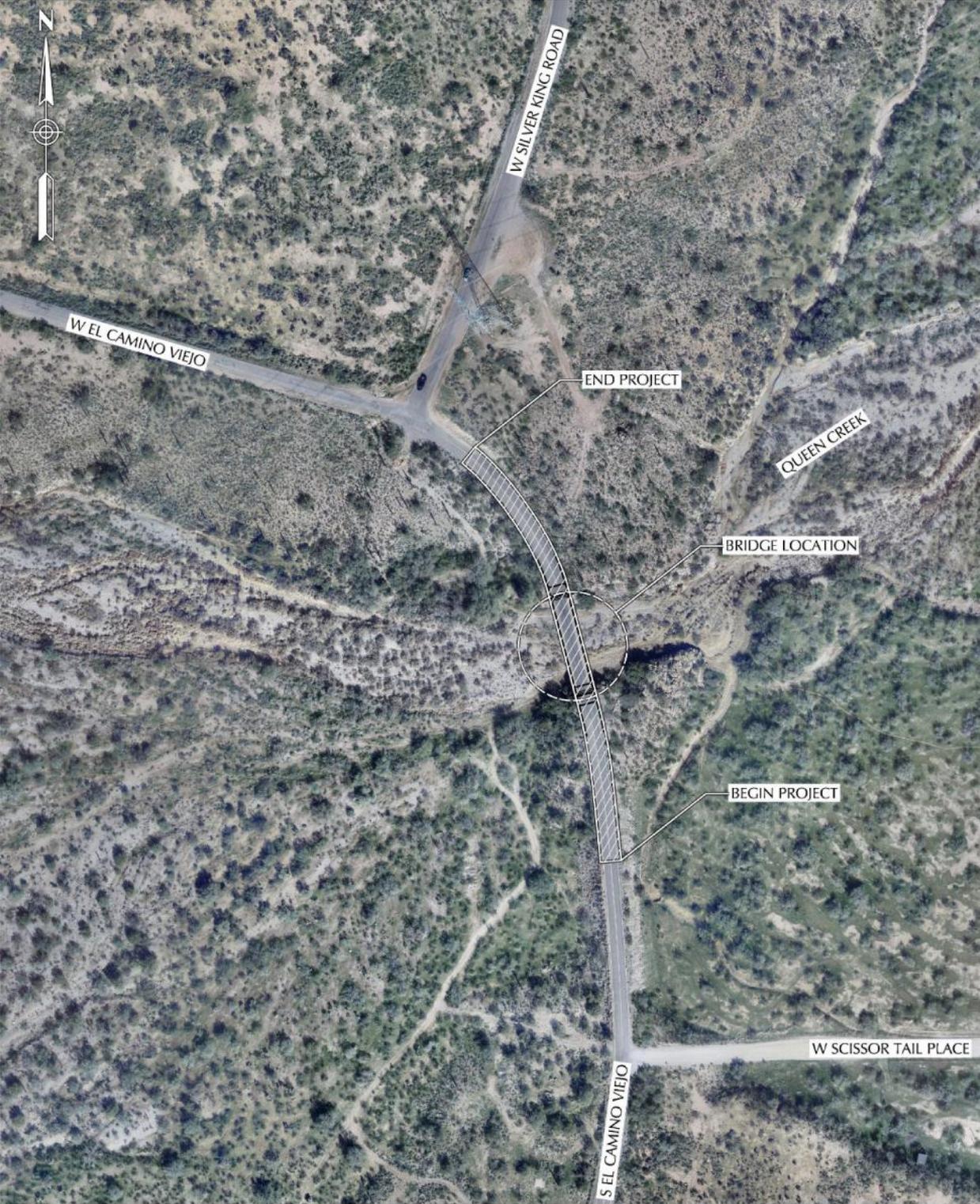
DEVELOPMENT CONSIDERATIONS

Projects that have identified challenges and risks to delivery will encounter fewer hurdles and allow for a project to have fewer complications and provide the best opportunity for a project to be delivered on time and within budget.

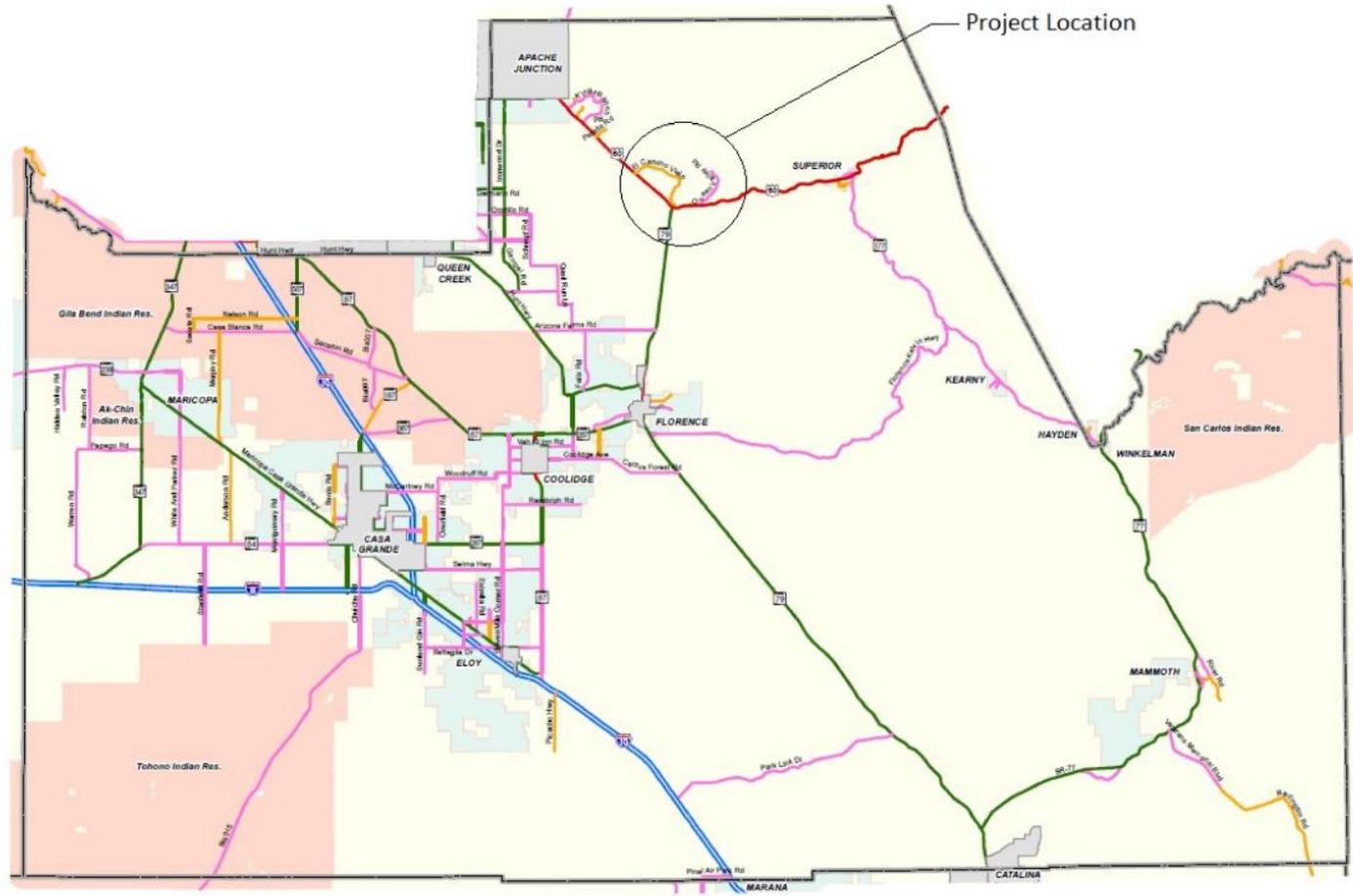
<p>CHALLENGES/RISKS TO DELIVERY AND CONSTRUCTION OF PROJECT</p>	<p>Please describe any challenges that may impact the scope, schedule, budget and/or delivery of this project.</p>	<p>Since geotechnical information is not available at this time, there could be an increased cost associated with the bridge substructure. The other major issues is skyrocketing construction prices. A probably cost is provided at today's estimated costs, however these costs could be significantly higher in 18 months based on the increases we've witnessed in 2018.</p>
<p>ENVIRONMENTAL</p>	<p>Are there any potential environmental impacts or challenges of the project that you can foresee?</p> <p><i>(e.g. endangered species, cultural resources, hazardous materials sites, Section 4(f) properties, Title VI populations, significant community opposition, wetlands that would be affected, etc.)</i></p>	<p>The environmental needs for this project include NEPA (Jurisdictional Delineation & Regional General Permit 96), Categorical Exclusion Checklist Support, Historical Surveys, Cultural Surveys, and Biological Surveys. NBI Item N37 is coded 2, which means the bridge is eligible for the National Register of Historic Places (NRHP). Working with SHPO could present some challenges, but it is not expected to delay the project.</p>
<p>RIGHT-OF-WAY (ROW)</p>	<p>Please describe any ROW items associated with this project.</p> <p><i>(e.g. Will ROW be required? How much ROW? Is the State Land Department involved? Consider Right of Way requirements associated with Traffic Control/Detour Requirements; Access, Construction Area Needs and on-going Maintenance Requirements.</i></p>	<p>New ROW may be required. If so, the new ROW will be purchased by Pinal County prior to the start of construction. Temporary construction easements will be required during construction.</p>
<p>UTILITIES & RAILROAD</p>	<p>Please describe any Utilities and/or Railroad items associated with this project.</p> <p><i>(e.g. Will the project include/require any utility relocation(s) by the project sponsor? What utilities may be impacted? Are there prior rights? If Yes, please explain.)</i></p>	<p>No utilities or railroads are anticipated to be impacted with this project. An overhead powerline does currently cross roughly 19ft above the existing bridge deck. A solar-powered water elevation gauge attached to the existing wingwalls will likely require relocation to the new bridge.</p>



Project Location Map



Project Vicinity Map



Pinal County Functionally Classified Roads



- Interstate
- Freeway
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- City Limits
- Urban Area
- County Boundary
- Native American Areas



Prepared by:
 Arizona Department of Transportation
 Multimodal Planning Division
 Old 3rd Street
 (602) 712-7988
 January 2011



Approved
 FHWA DIVISION OFFICE

FEB 22, 2011



Photo 1: Approach Roadway Looking South



Photo 2: Meter Attached to Wingwall, Looking North



Photo 3: East Bridge Elevation



Photo 4: Bridge Soffit



Photo 5: Bridge Abutment Founded on Rock



Photo 6: Bridge Wingwall Founded on Rock