

# Camino Cielo Bridge Replacement Alternatives Evaluation Memorandum



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## 1.0 Project History

Matilija Dam was constructed in 1947 for flood protection and to provide a local water supply. By 1999, due to sediment accumulation, the dam was not serving either purpose and stakeholders convened to discuss the viability of removing the dam and restoring the ecosystem.

The existing bridge is located approximately a mile downstream of the Matilija Dam. The bridge consists of a 3-cell reinforced concrete box culvert across the Ventura River (the Ventura River is generally considered to begin at the confluence of Matilija Creek and North Fork Matilija Creek approximately ¼ mile upstream of the bridge). The structure is inadequate to convey large storms, and currently the bridge overtops and requires repairs and maintenance after each major storm.

The Ventura County Watershed Protection District desires to replace the existing Camino Cielo Bridge as part of the Matilija Dam Ecosystem Restoration Project. The new bridge will need to convey sediment currently locked behind the dam, as well as stormwater. The new bridge will also provide unimpeded passage of steelhead trout.

Exhibits for each of the alternatives can be found in Appendix A.

## 2.0 Alternatives Description

### 2.1 Alternative 1

This alternative uses the existing connection of Matilija Hot Springs Road to SR-33. It will utilize the existing arch bridge (Br. No. 52C0201) on Matilija Hot Springs Road at the north end of the project. A new bridge will be constructed across Matilija Creek to connect Matilija Hot Springs Road. The road will continue up and around the north side of the hill to the east side of the hill. The road will then continue through an orchard to connect to the exist Camino Cielo Road providing access to the homes and agricultural farms on the south side of Matilija Creek/Ventura River. A new access road/driveway will be constructed which loops around under the bridge to provide access to the Auric residence.

The current design assumes retaining walls will be used where side hill cuts are needed to place the road thru private property. A combination of retaining walls and cut/fill may ultimately be used. Guard rail or barriers will be placed on the outboard side at the retaining wall on top of fill.

Providing access from the top of the hill to the lower areas (Kehoe property) requires improvements at the lower intersection as it currently does not provide adequate turning radius. A retaining wall will need to be added to allow sufficient radius while providing adequate grade.

The existing lower Camino Cielo road will be abandoned, along with the existing crossing.

The SR-33 access at the existing crossing will need to be maintained to provide access to the residents between the river and SR-33.

### 2.2 Alternatives 2A and 2B

This alternative will only slightly modify the alignment of Camino Cielo Road while maintaining the current property accesses. For Alternative 2A a new bridge will be constructed just upstream of the existing crossing. This will move the road further away from the Bell resident currently reconstructing their home on the parcel downstream of the crossing. The intent of Alternative 2A is to not impact the connection to SR-33. For Alternative 2B the new bridge will be even further north, moving the connection to SR-33 to the apex of the curve, improving sight distance when accessing SR-33.

For Alternatives 2A and 2B the new bridge will need to be approximately 5' deep in order to minimize columns in the river (it is desirable to minimize the supports due to the large boulders that have the potential to move during storm events and impact the supports in the channel). The profile grade of the new crossing is set to conform at SR-33 and quickly climb to clear to the 100-year water surface elevation (WSE). Both alternatives include a second bridge coming off the river bridge, denoted as a Direct Access Ramp (DAR), which provides access to the Auric property. This bridge connects to the driveway which is below the 100-year WSE so a portion of the bridge is below the 100-yr WSE. The driveway to these parcels will be maintained but not improved.

At the west abutment, substantial rock removal is needed to extend the bridge and abutment touchdown as far into the cliff as possible to avoid constricting the river, since this location is already the choke point of the river.

The road along the river was designed to be above the 100- year storm event. To adequately raise the road above the river channel retaining walls and significant scour mitigation measures are needed, which consist of rock slope protection at the base of the wall. Fill slopes are not a viable option since they would encroach into the floodplain. Above the road, soil nail walls retain the cut slope.

### 2.3 Alternative 3

This alternative consists of constructing a new access from SR-33 through the water district parcel approximately 2000 feet downstream of the existing crossing. Coordination with Caltrans will be required to obtain approval of the connection to SR-33. Note, there is an existing connection for the water district driveway, but it is an unimproved dirt access road.

A very long bridge will be designed to clear the river, the floodplain and the drainage channel flowing in from the west under SR-33.

To connect the new bridge to the existing Camino Cielo Road, a new road will be constructed. Due to the large elevation differential, the abutment was kept high and was pushed south to allow more distance to lessen the grade. The maximum grade for this road will be 11%.

The access to the Kehoe parcel requires improvements at the lower intersection as it currently does not provide adequate turning radius. A retaining wall will need to be added to allow sufficient radius while providing adequate grade.

The current access to the Auric property will be abandoned in order to remove the existing road along the river which requires constant maintenance during the winter and a new access created. The new access will be developed from Matilija Hot Springs. It will utilize the existing arch bridge (Br. No. 52C0201) on Matilija Hot Springs Road at the north end of the project. A single lane bridge will be constructed across Matilija Creek to connect to the Auric property.

## 3.0 Evaluation Criteria

Each alternative will be evaluated based on the criteria outlined below. Each criterion will be assigned a score from 1 to 5, with a 1 as negative and 5 as positive.



### 3.1 Design

Design considerations include design speeds, vertical and horizontal curves required, sight distance, and design exceptions required.

- Does the design meet the minimum standards required by the County and or Caltrans? Are design exceptions needed?
- Vertical grades and horizontal curves required.

### 3.2 Right of Way

The project is being funded with various sources, including state funds. Therefore, the County cannot utilize eminent domain to acquire the needed ROW. The design selected therefore must be acceptable to the land owners in order to have willing sellers.

- Number of parcels impacted. The greater number impacted will increase the likelihood of an owner objecting to the project and alignment.
- Estimated feasibility of obtaining the right of way from the land owner.
- Location of impacts. Does the proposed take bisect the property or is along a property line?
- Caltrans impacts. Impacts to SR-33 will require an encroachment permit from Caltrans. Significant impacts will require more coordination with Caltrans and increase costs.

### 3.3 Hydraulics

- Sediment transport. The project needs to account for short term sediment transport.
- Flow conveyance. Ability to convey of 100-year storm without design exceptions, and will the design create a backwater which could impact homes or facilities.
- Scour potential. Alternatives with abutments and piers in or near the channel will be more susceptible to scour.

### 3.4 Environmental Impacts

- Fish passage. A primary purpose of the project is to reestablish fish passage. Each alternative will be evaluated for permanent impacts to long term migration patterns, since the reach does not currently support fish.
- Impacts to oak trees.
- Temporary construction impacts.

### 3.5 Economics

- Construction costs, including bridge, retaining walls, road, and SR-33 impacts.
- Environmental mitigation costs. Alternatives which require working in the channel and removal of trees may require mitigation, and may also require new environmental documentation.
- Right of Way costs. Estimated cost of right of way to be acquired.

- Maintenance costs. Alternative which require rock slope protection or roads along the river may require long term maintenance, similar to efforts currently ongoing, to reestablish access after large storms.

### 3.6 Resident Impacts

- Construction impacts
- Permanent access route. Resident acceptance of alternative routes was evaluated during the public meeting.



## 4.0 Alternative Evaluation

### 4.1 Alternative 1 Evaluation

Criteria	Evaluation	Score
<b>Design</b>		
Meets current County and Caltrans design standards	<p>Site distance along SR-33 is slightly limited to the south at the intersection. The arch bridge barriers need to be brought up to standards.</p> <p>Potential upgrades to the arch bridge must be determined. A preliminary look at existing information indicates the bridge is in good condition with a Sufficiency Rating of 91.4 in 2016. The scour condition is a 5, meaning "Bridge foundations determined to be stable for calculated scour." However, the bridge rail will need to be upgraded. This will likely require environmental review, including cultural evaluation even though it is currently listed as a 5, "Bridge not eligible for NRHP" in the Caltrans Historical Significance logs.</p>	4
Vertical and Horizontal alignment	<p>The selected route is a fairly steep climb from Matilija Hot Springs Road to the top of the hill. The road width is 20 feet with a maximum grade of 9%. The Auric and Kehoe access roads are 10 feet wide with a maximum grade of 12%.</p> <p>The minimum design speed is 25 mph for Camino Cielo road and 15 mph at the driveways/accesses.</p>	2
<b>Right of Way</b>		
Number of parcels impacted	6 partial parcel acquisitions: Auric(3), Jacobs(1), Brokaw(1), Kehoe (1)	1
Feasibility of obtaining needed ROW	Negative response to this alternative at public meeting.	1
Location of impacts	The new road alignment bisects the Auric property. In the Jacobs property, the alignment is on existing private orchard road for approximately 200 feet and will require the removal of trees. This	1

Criteria	Evaluation	Score
	<p>route forces all traffic accessing the area to pass in front of several residences that currently have none to very minor traffic.</p> <p>The Kehoe and Brokaw properties are impacted along the border of the properties to realign the road to provide better access for the Kehoe property.</p>	
Caltrans impacts	Utilizes current Caltrans connection. Caltrans acceptance of utilizing Matilija Hot Springs Road for highway access may need to be requested. However, it is a current access, so may not be an issue and Caltrans may not have input. Existing connection at Camino Cielo Road will be maintained for Bell and Epstein.	3
<b>Hydraulics</b>		
Sediment transport	Provides unimpeded flow of the sediment. The bridge spans the 100-year storm with no columns in the water.	5
Flow conveyance	The bridge spans the 100-year storm with no columns in the water.	5
Scour potential	Camino Cielo road is above the scour elevation, minimizing any scour issues	5
<b>Environmental Impacts</b>		
Fish passage	Fish passage is unimpeded	5
Impacts to oak trees	Impacts to oak trees was minimized by utilizing retaining walls. However, the road along the hill will be passing adjacent to and in oak tree stands.	2
Temporary construction impacts	The bridge is outside of the water so there will be no temporary impacts to the fish due to bridge construction as the falsework will be outside the wet channel. Construction of the Auric Access road will require encroachment into the river bank.	3
<b>Economics</b>		
Construction and Design costs	\$16,600,000	5
Environmental mitigation costs	TBD	
Right of Way costs	TBD	
Maintenance costs	Rock slope protection for the Kehoe property will need to be maintained.	4
<b>Resident Impacts</b>		
Construction impacts	The existing road will remain in service during construction minimizing impacts to residents. Only the new turn for the Kehoe	3

Criteria	Evaluation	Score
	Access road construction will impact the existing road. Construction will impact existing orchards.	
Permanent access route	Provides a new access to the area. Access to the residents at the top of the hill is similar in length, while the access to Kehoe is significantly longer.	3

#### 4.2 Alternative 2A&2B Evaluation

Criteria	Evaluation	Score
<b>Design</b>		
Meets current County and Caltrans design standards	2A: Site distance along SR-33 is limited at the intersection. 2B: Site distance along SR-33 is met	2 5
Vertical and Horizontal alignment	The road width is 20 feet with maximum profile grade of 4.5% along the new profile. The grade increases to almost 9% at the conform to match the existing road grade.  The minimum design speed is 25 mph for Camino Cielo road and 15 mph at the driveways/accesses.  Shifts the current Camino Cielo road alignment to the west at the bridge and to the south beyond the bridge.	5
<b>Right of Way</b>		
Number of parcels impacted	3 partial parcel acquisitions: Epstein(1), Auric(1), Brokaw(1), appear to be cooperative owners	4
Feasibility of obtaining needed ROW	At the public meeting, this was the only Alternative the residents liked.	5
Location of impacts	The three impacted properties are impacted near the existing location of the road.	5
Caltrans impacts	2A: Existing Caltrans connection not expected to be significantly impacted, minimizing Caltrans involvement  2B: Shifts Caltrans connection, but improves site distance, Caltrans coordination and approval required	4 3
<b>Hydraulics</b>		
Sediment transport	Allows for the flow of the sediment. The bridge spans the 100-year storm with a single column in the water.	4
Flow conveyance	The bridge superstructure is just within the 100-year storm event. A backwater situation is created (extending up to 1000 feet upstream) for the 100-year event.	2



Criteria	Evaluation	Score
Scour potential	Abutments are within the 100-year flow. Abutments will be protected with rock slope protection to minimize scour concerns.	2
<b>Environmental Impacts</b>		
Fish passage	Fish passage is unimpeded.	4
Impacts to oak trees	Minimal impacts to trees along new alignment.	4
Temporary construction impacts	Impacts to river to construct new bridge.	3
<b>Economics</b>		
Construction and Design costs	Alt 2A: \$21,500,000/ Alt 2B: \$19,100,000	4
Environmental mitigation costs	TBD	
Right of Way costs	TBD	
Maintenance costs	Rock slope protection for the bridge and road along the river will need to be maintained.	2
<b>Resident Impacts</b>		
Construction impacts	Existing bridge will remain in use during construction. Potential significant impacts to Auric driveway during rock removal. Impacts to residents during construction of retaining walls and re-aligned road.	3
Permanent access route	Maintains the existing traffic route.	5

#### 4.3 Alternative 3 Evaluation

Criteria	Evaluation	Score
<b>Design</b>		
Meets current County and Caltrans design standards	Caltrans site distance requirements along SR-33 are met.	5
Vertical and Horizontal alignment	Maximum profile grade is 5.5% on Camino Cielo road crossing the river. Once the river is crossed the grade increases to 11% to access the top of the hill.  Creates new alignment with a more direct route to the top of the hill.	4

Criteria	Evaluation	Score
	The minimum design speed is 25 mph for Camino Cielo road and 15 mph at the driveways/accesses.	
<b>Right of Way</b>		
Number of parcels impacted	6 partial parcel acquisitions: Meiners Oaks Co Water District(1), Ford(1), Haase(1), Auric(1), Brokaw(1), Kehoe (1). Some of the owners indicated opposition to this alignment at the Public Meeting.	1
Feasibility of obtaining needed ROW	Negative response to this alternative at public meeting due to impacts to packing plant and proximity to the Cozy Dell trailhead. Residents concerned with parking and traffic.	1
Location of impacts	Camino Cielo road is aligned along the border of the impacted properties or near the existing road. The only exception is the orchard road on the Haase property.  The Auric access is a direct access over the creek to the road on the Auric property.	2
Caltrans impacts	A new access to SR-33 is required. The existing access must be maintained to maintain access to the Bell and Epstein properties.	1
<b>Hydraulics</b>		
Sediment transport	The long bridge and wide channel allow for the sediment transport.	4
Flow conveyance	Allows for unimpeded flow of the 100-year storm. However, a backwater situation is created (extending up to 500 feet upstream) for the 100-year event. No structures or facilities exist within the impacted zone.	3
Scour potential	Abutments are located outside of the 100-year storm flows to minimized scour impacts	3
<b>Environmental Impacts</b>		
Fish passage	Columns are not located in the low flow channel but are located within the floodplain.	4
Impacts to oak trees	Potential to impact oak trees was minimized by utilizing retaining walls along the new Camino Cielo road alignment.	4
Temporary construction impacts	Impacts to the floodplain riparian area during bridge construction.	3
<b>Economics</b>		
Construction and Design costs	\$20,000,000. Includes second bridge to maintain Auric access	1
Environmental mitigation costs	TBD	

Criteria	Evaluation	Score
Right of Way costs	TBD	
Maintenance costs	Rock slope protection for the Kehoe property will need to be maintained.	4
<b>Resident Impacts</b>		
Construction impacts	The existing road will remain in service during construction minimizing impacts to residents. Only the new turn for the Kehoe Access road will be within the existing road.	5
Permanent access route	Provides a new access to the area. Access to most residents is more direct and convenient off SR-33. The access to the Auric property is significantly longer and requires a separate bridge.	4

#### 4.3 Weighting factors

Weighting factors are utilized to give more weight to the various criteria based on importance. Each category is assigned a weighting factor based on its importance. The weighting factor is then divided among the sub tasks also based on relative significance. This ensured a task is not given more or less weight due to the number of subtasks.

## 5.0 Alternatives Evaluation Matrix

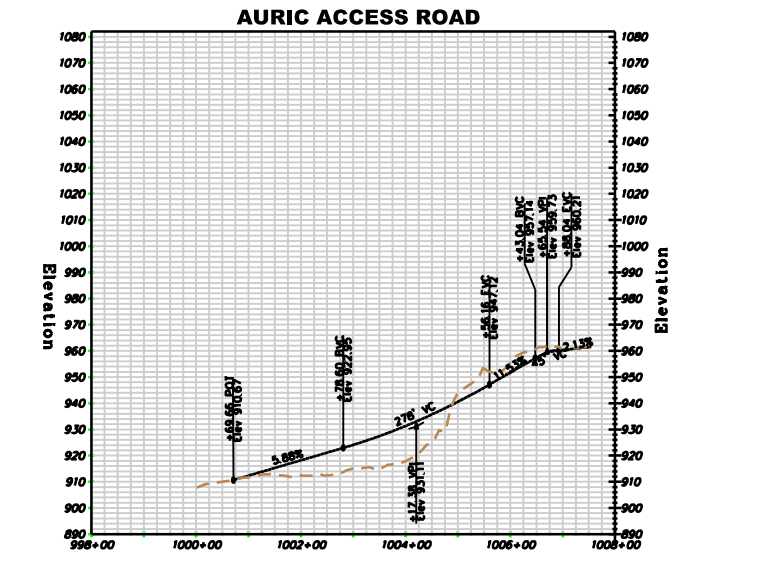
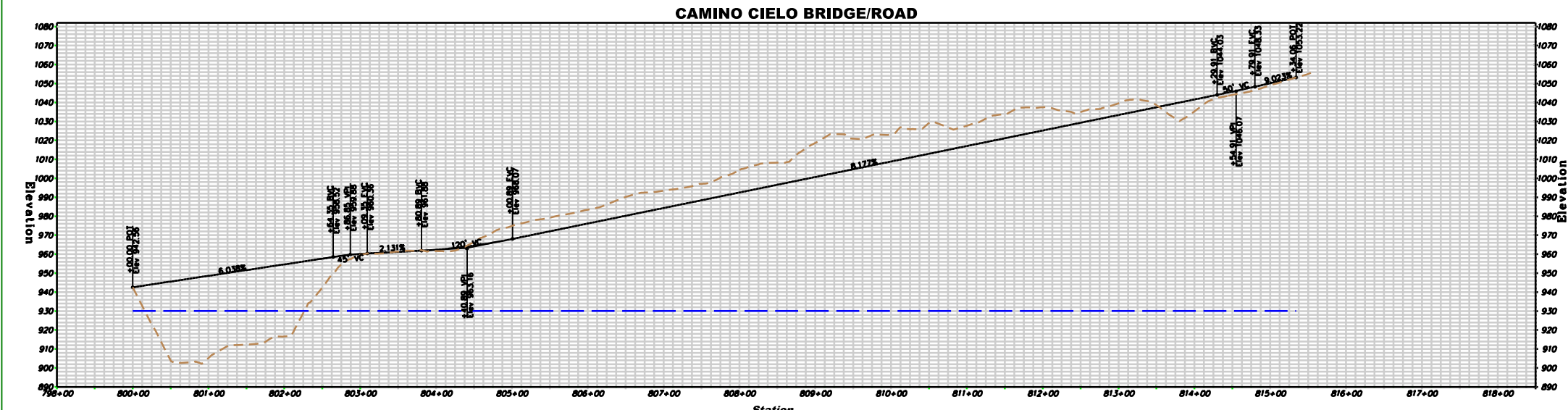
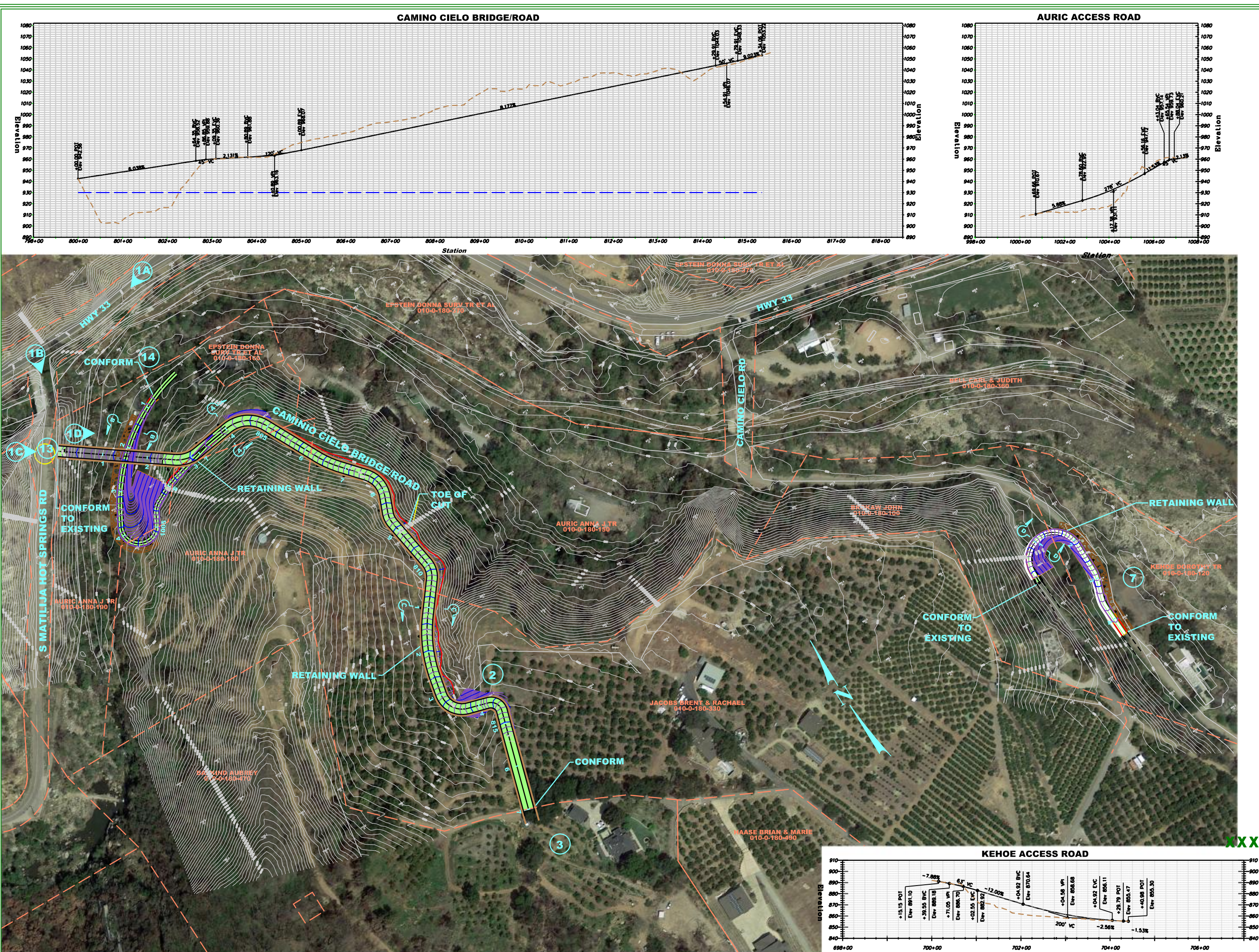
Criteria	Weighting Factor	Alternative 1		Alternative 2A		Alternative 2B		Alternative 3	
		Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
<b>Design</b>	10								
Meets current County and Caltrans design standards	6	4	24	2	12	5	30	5	30
Vertical and Horizontal alignment	4	2	8	5	20	5	20	4	16
<b>Right of Way</b>	20								
Number of parcels impacted	5	1	5	4	20	4	20	1	5
Feasibility of obtaining needed ROW	10	1	10	5	50	5	50	1	10
Location of impacts	3	1	3	5	15	5	15	2	6
Caltrans impacts	2	3	6	4	8	3	6	1	2
<b>Hydraulics</b>	9								
Sediment transport	3	5	15	4	12	4	12	4	12
Flow conveyance	3	5	15	2	6	2	6	3	9
Scour potential	3	5	15	2	6	2	6	3	9
<b>Environmental Impacts</b>	13								
Fish passage	10	5	50	4	40	4	40	4	40
Impacts to oak trees	2	2	4	4	8	4	8	4	8
Temporary construction impacts	1	3	3	3	3	3	3	3	3
<b>Economics</b>	10								
Construction costs	5	5	25	2	10	4	20	3	15
Environmental mitigation costs	1		TBD		TBD		TBD		TBD
Right of Way costs	3		TBD		TBD		TBD		TBD
Maintenance costs	1	4	4	2	2	2	2	4	4
<b>Resident Impacts</b>	4								
Construction impacts	1	3	3	3	3	3	3	5	5
Permanent access route	3	3	9	5	15	5	15	4	12
<b>TOTAL</b>			199		230		256		186



### 5.1 Conclusion

Based on assigned scores and weighting factors, either Alternative 2A or 2B is the preferred alternative. Alternative 2A minimizes impacts to the Epstein property, while Alternative 2B has significant impacts to the Epstein property. Additionally, the property owners objected to alternatives 1 and 3, making Alternatives 2A and 2B the only viable alternatives due to the right of way requirements.



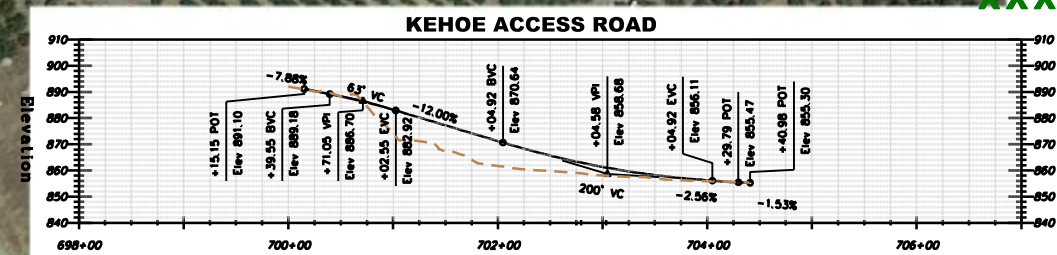
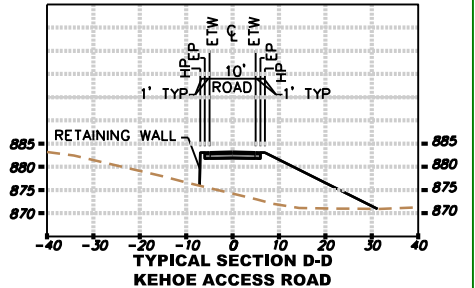
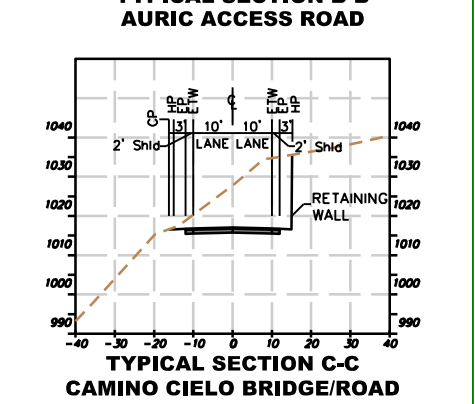
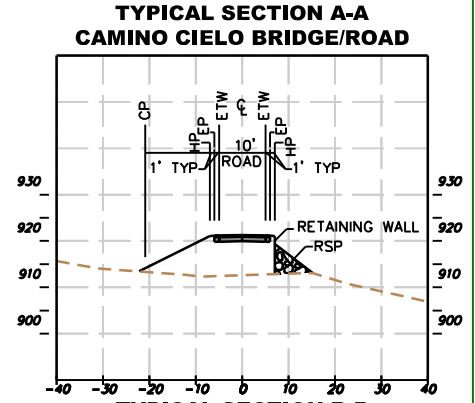
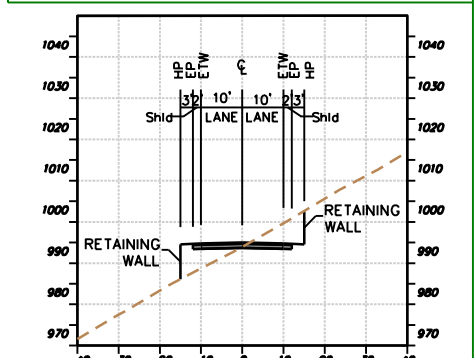


**CAMINO CIELO  
BRIDGE REPLACEMENT  
PROJECT**

PROJECT

**PRELIMINARY PLAN**

**LEGEND:**  
ROCK SLOPE PROTECTION (RSP)   
PROPOSED BRIDGE   
RETAINING WALL



**ALTERNATIVE #1**

DATE: JANUARY 2020 | SCALE: VARIES

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CAMINO CIELO  
BRIDGE REPLACEMENT  
PROJECT

PROJECT

PRELIMINARY PLAN

LEGEND:

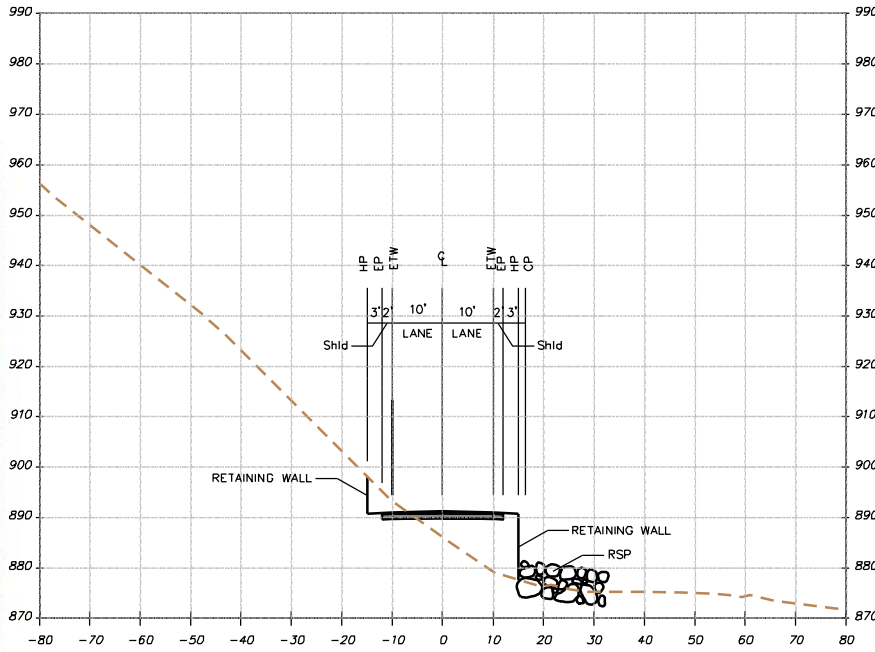
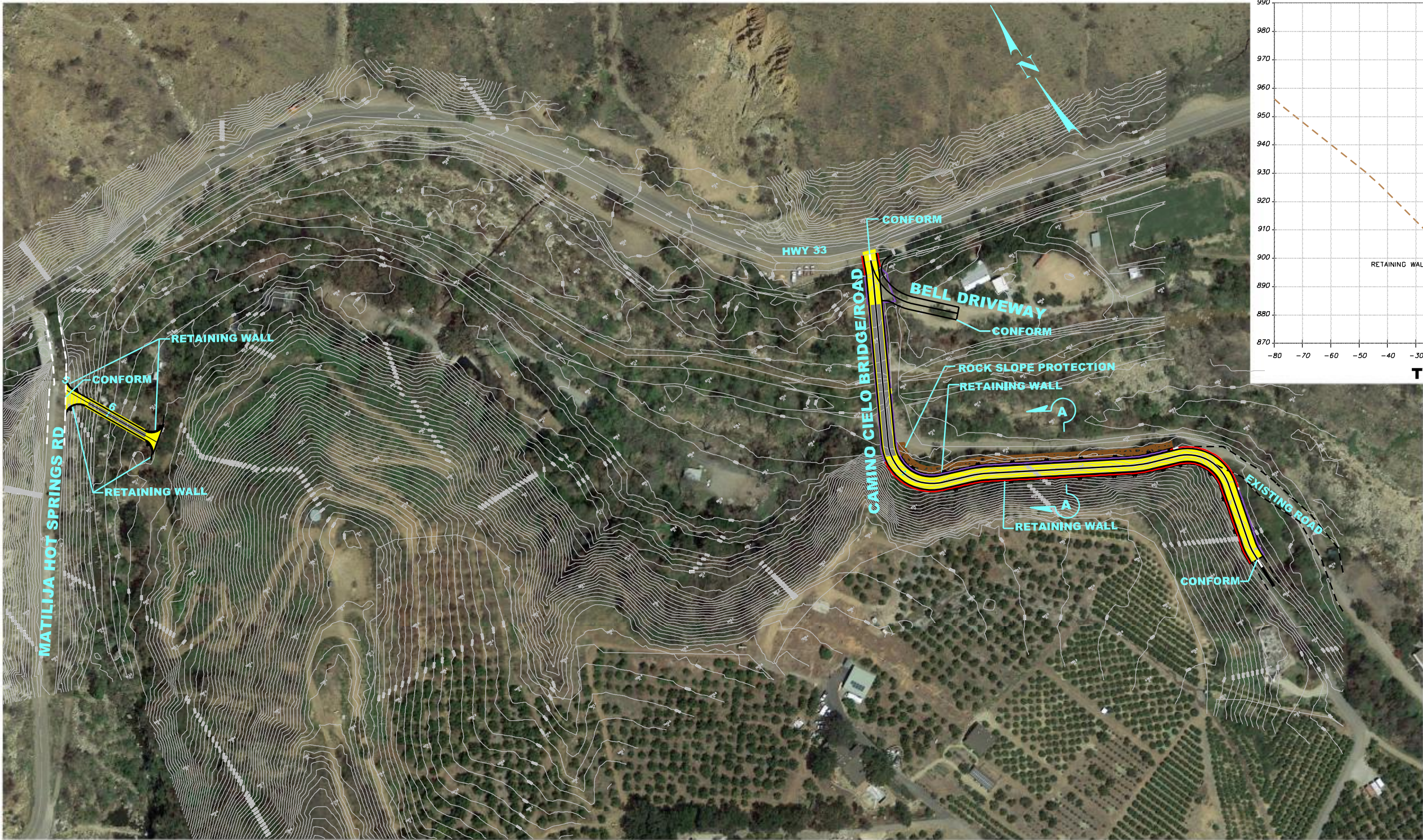
ROCK SLOPE PROTECTION (RSP)



PROPOSED BRIDGE



RETAINING WALL



TYPICAL SECTION A-A

Note: For profile see 35% plans.

ALTERNATIVE #2A

DATE: FEBRUARY 2020

SCALE: VARIES

PREPARED BY:



FILE ABBREV



PROJECT

## PRELIMINARY PLAN

**LEGEND:**

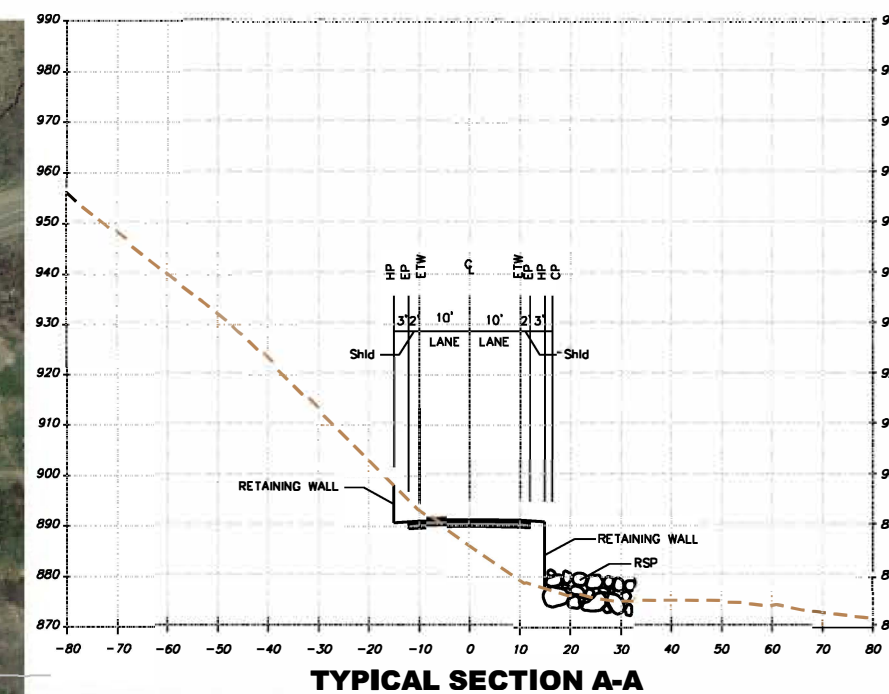
## ROCK SLOPE PROTECTION (RSP)



### PROPOSED BRIDGE



## RETAINING WALL



Note: For profile see 35% plans.

## ALTERNATIVE #2B

DATE: FEBRUARY 2020

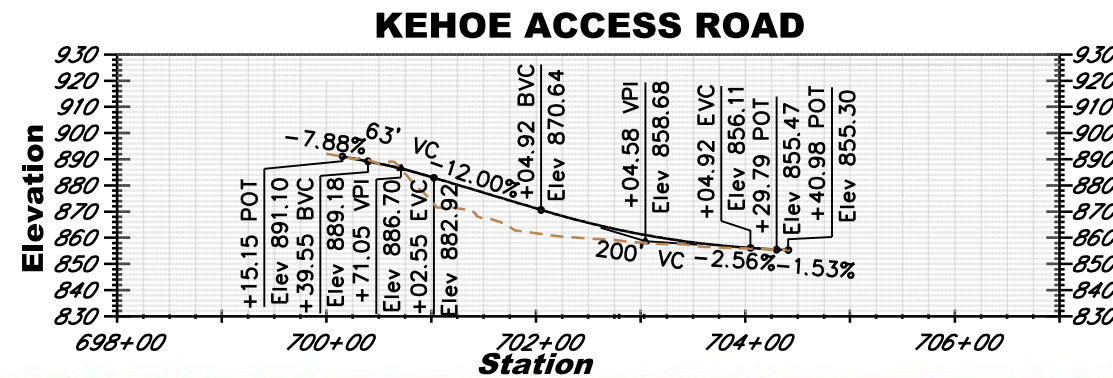
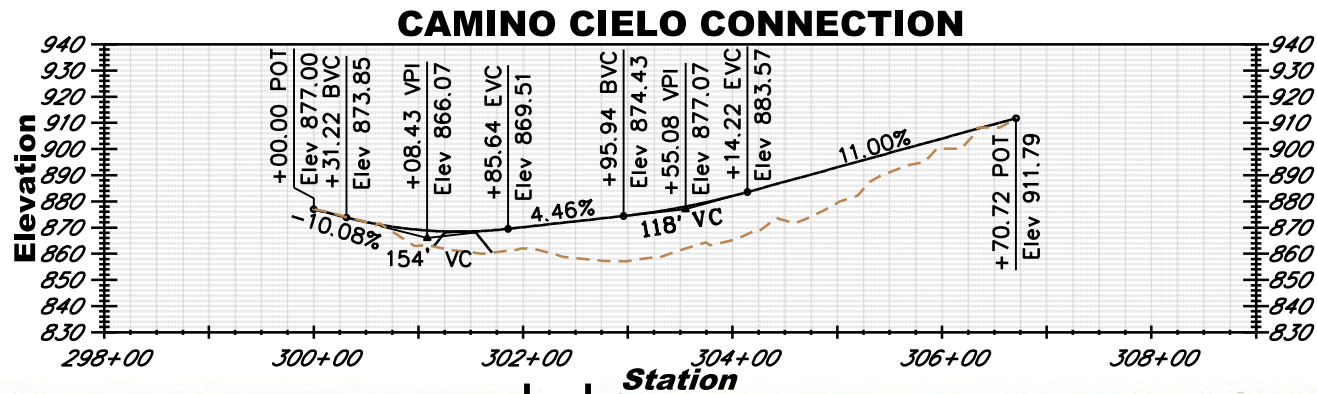
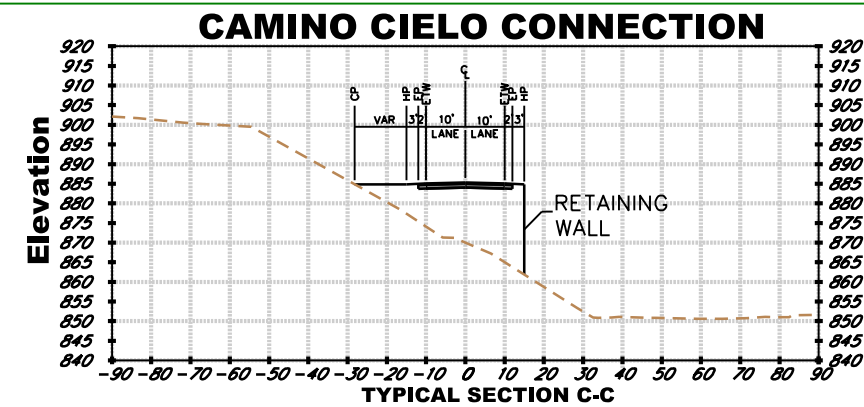
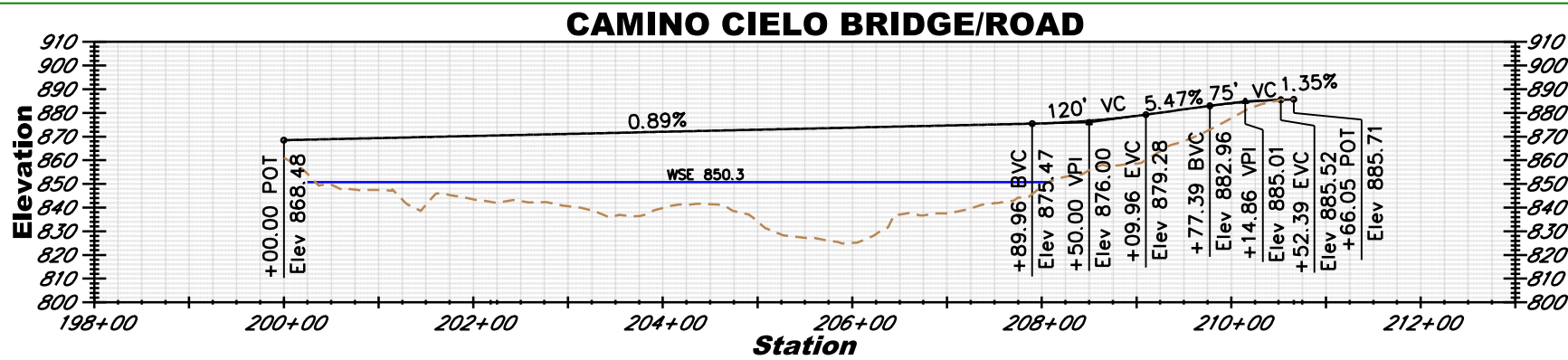
SCALE: VARIES

PREPARED BY:



SF FILE ABBREV





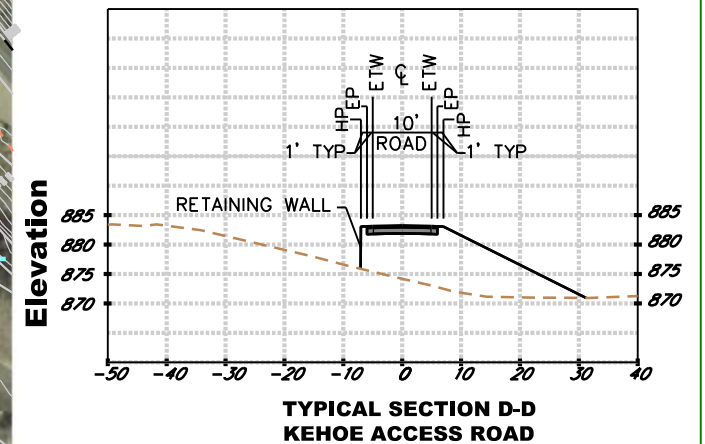
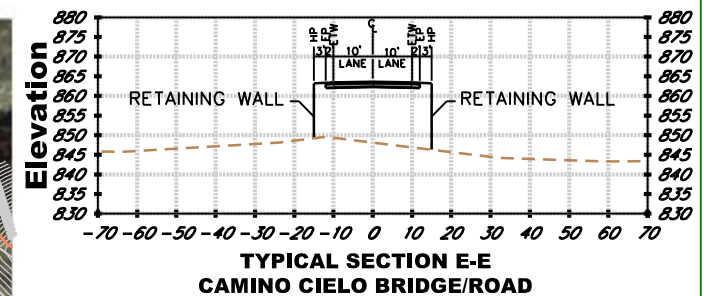
# CAMINO CIELO BRIDGE REPLACEMENT PROJECT

PROJECT

## PRELIMINARY PLAN

### LEGEND:

- ROCK SLOPE PROTECTION (RSP)
- PROPOSED BRIDGE
- RETAINING WALL

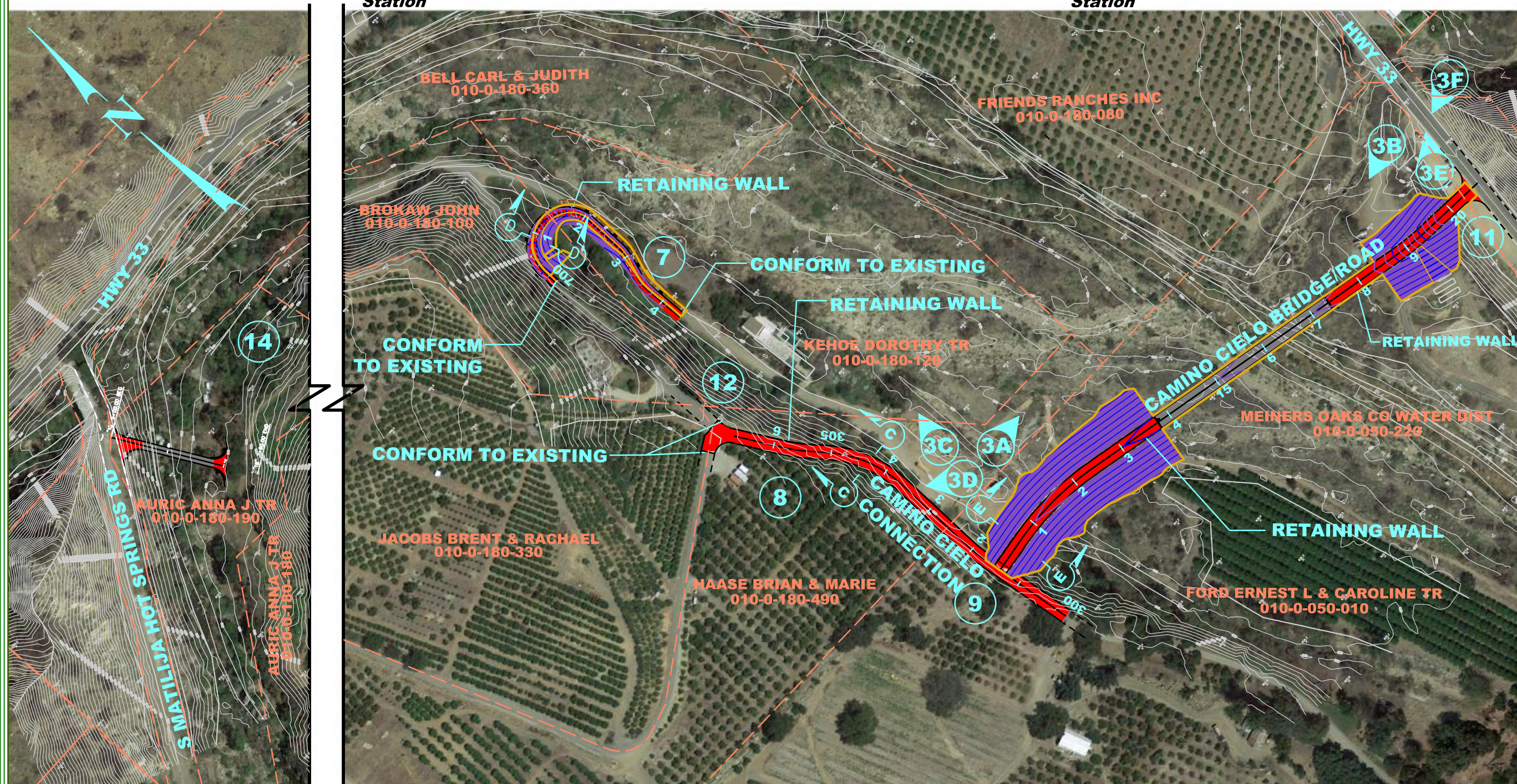


## ALTERNATIVE #3

DATE: JANUARY 2020 SCALE: VARIES

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\$FILEABBREV





**Camino Cielo Bridge Replacement  
Alternative 1  
August 21, 2020**

PROJECT DESCRIPTION/NOTES:				
Construct Camino Cielo RD/Bridge and Access Roads				
ITEM	UNIT	UNIT COST	QUANTITY	COST
<b>CONSTRUCTION</b>				
1 Roadwork	SQFT	\$20	41,600	\$832,000
2 Major Earthwork (export)	CY	\$10	11,100	\$111,000
3 Auric Access	LS			\$1,615,750
3.1 Roadwork	SQFT	\$15	10,300	\$154,500
3.2 Earthwork (export)	CY	\$10	5,500	\$55,000
3.3 Retaining Walls	SQFT	\$125	6,750	\$843,750
3.4 Rock Slope Protection	CY	\$250	2,250	\$562,500
4 Kehoe Access	LS			\$898,750
4.1 Roadwork	SQFT	\$15	6,200	\$93,000
4.2 Earthwork (import)	CY	\$10	1,200	\$12,000
4.3 Retaining Walls	SQFT	\$125	2,850	\$356,250
4.4 Rock Slope Protection	CY	\$250	1,750	\$437,500
Utility Relocations	LS	\$20,000	1	\$20,000
5 Drainage culvert	LS	\$100,000	1	\$100,000
6 Rock Slope Protection	CY	\$250	1,054	\$263,500
7 Construction Staging & Traffic Control	LS	\$30,000	1	\$30,000
8 Arch Bridge Rehabilitation (Barriers, etc.)	LS	\$246,000	1	\$246,000
9 Ventura River Bridge	LS	\$2,573,000	1	\$2,573,000
10 Retaining Walls	SQFT	\$125	25,400	\$3,175,000
1 - 10 Subtotal				\$9,865,000
<b>CONSTRUCTION with MOBILIZATION</b>				
11 Mobilization (10%)	LS			\$1,096,000
11 TOTAL				\$10,961,000
<b>ENGINEERING COSTS</b>				
12 Preliminary & Final Design	LS			\$1,315,000
13 CM, Inspection, & Testing (12%)	LS			\$1,315,000
14 Caltrans Processing	LS	Caltrans Rdwy only		\$50,000
15 Administrative*	LS			\$200,000
12 - 15 Subtotal				\$2,880,000
<b>RIGHT-OF-WAY</b>				
16a ROW Acquisition & Relocation	LS	\$0	1	\$0
16b ROW Sale of Excess	LS	\$0	1	\$0
16c ROW Contract Work	LS	\$0	1	\$0
16 Subtotal				\$0
<b>Environmental</b>				
17 Environmental Mitigation	LS	\$100,000	1	\$100,000
17 Subtotal				\$100,000
<b>TOTAL PROJECT COST</b>				
11 CONSTRUCTION TOTAL				\$9,865,000
12 - 15 ENGINEERING COSTS				\$2,880,000
16 RIGHT-OF-WAY				\$0
17 ENVIRONMENTAL				\$100,000
1 - 14 SUBTOTAL				\$12,845,000
CONTINGENCY - 25% (Const and ROW only)				\$2,466,250
TOTAL PROJECT COST				\$15,311,250
<b>ESCALATED PROJECT COST</b>				
CONSTRUCTION YEAR	2024			
ESCALATED TOTAL PROJECT (2%)	4	Years		\$16,573,389

**NOTES:**

- \* Project Administration includes outside agency overview & permitting
- 1 Preliminary earthwork quantity assumes a site balance (i.e. zero export). Quantity may differ per final design.

**Camino Cielo Bridge Replacement  
Alternative 2A  
August 21, 2020**

PROJECT DESCRIPTION/NOTES:				
Construct Camino Cielo RD/Bridge and Access Roads				
ITEM	UNIT	UNIT COST	QUANTITY	COST
<b>CONSTRUCTION</b>				
1 Roadwork	SQFT	\$20	20,510	\$410,200
2 Major Earthwork (import)	CY	\$10	5,300	\$53,000
3 Auric Access	LS		1	\$1,629,500
3.1 Roadwork	SQFT	\$15	1,300	\$19,500
3.2 Rock Excavation	CY	\$60	25,500	\$1,530,000
3.3 Rock Fall Protection	SQFT	\$4	20,000	\$80,000
3.5 Rock Slope Protection (included in bridge and wall)	CY	\$250	0	\$0
4 Bell Access	LS			\$38,000
4.1 Roadwork	SQFT	\$15	2,200	\$33,000
4.2 Earthwork	CY	\$10	500	\$5,000
4.3 Retaining Wall	SQFT			\$0
5 Rock Excavation	CY	\$60	4,400	\$264,000
6 Rock Fall Protection	SQFT	\$8,000	4	\$32,000
7 Utility Relocations	LS	\$100,000	1	\$100,000
8 Rock Slope Protection (included in bridge and wall)	CY	\$250	0	\$0
9 Construction Staging & Traffic Control	LS	\$100,000	1	\$100,000
10 Ventura River Bridge and DAR	LS	\$6,685,000	1	\$6,685,000
11 Retaining Walls	LS	\$3,827,000	1	\$3,827,000
1 - 11 Subtotal				\$12,842,700
<b>CONSTRUCTION with MOBILIZATION</b>				
12 Mobilization (10%)	LS			\$1,427,000
12 TOTAL				\$14,269,700
<b>ENGINEERING COSTS</b>				
13 Preliminary & Final Design	LS			\$1,712,000
14 CM, Inspection, & Testing (12%)	LS			\$1,712,000
15 Caltrans Processing	LS	Caltrans Rdwy only		\$50,000
16 Administrative*	LS			\$200,000
13 - 16 Subtotal				\$3,674,000
<b>RIGHT-OF-WAY</b>				
17a ROW Acquisition & Relocation	LS	\$0	1	\$0
17b ROW Sale of Excess	LS	\$0	1	\$0
17c ROW Contract Work	LS	\$0	1	\$0
17 Subtotal				\$0
<b>Environmental</b>				
18 Environmental Mitigation	LS	\$100,000	1	\$100,000
18 Subtotal				\$100,000
<b>TOTAL PROJECT COST</b>				
12 CONSTRUCTION TOTAL				\$12,842,700
13 - 16 ENGINEERING COSTS				\$3,674,000
17 RIGHT-OF-WAY				\$0
18 ENVIRONMENTAL				\$100,000
1 - 14 SUBTOTAL				\$16,616,700
CONTINGENCY - 25% (Const and ROW only)				\$3,210,675
TOTAL PROJECT COST				\$19,827,375
<b>ESCALATED PROJECT COST</b>				
CONSTRUCTION YEAR	2024			
ESCALATED TOTAL PROJECT (2%)	4	Years		\$21,461,788

**NOTES:**

- \* Project Administration includes outside agency overview & permitting
- 1 Preliminary earthwork quantity assumes a site balance (i.e. zero export). Quantity may differ per final design.

GENERAL PLAN ESTIMATE

X

ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE: Camino Cielo Bridge - Alternative 2A

BR. No.:

DISTRICT: 07

TYPE: CIP/PS Conc Box Girder - Main Line and DAR Bridges

RTE:

CU:

CO: Ventura

EA:

PM:

LENGTH: 190.00

WIDTH: 24.00

AREA (SF)= 4,560

DESIGN SECTION: Dokken

# OF STRUCTURES IN PROJECT :

PRICES BY :

EST. NO.

PRICES CHECKED BY :

COST INDEX:

QUANTITIES BY:

DATE: 8/21/2020

DATE: 8/21/2020

	CONTRACT ITEMS		UNIT	QUANTITY	PRICE	AMOUNT
192003	STRUCTURE EXCAVATION (BRIDGE)	F	CY	748	\$ 120.00	\$ 89,760.00
193003	STRUCTURE BACKFILL (BRIDGE)	F	CY	411	\$ 100.00	\$ 41,100.00
490590	48" PERMANENT STEEL CASING		LF	20	\$ 2,300.00	\$ 46,000.00
490591	60" PERMANENT STEEL CASING		LF	20	\$ 2,900.00	\$ 58,000.00
490603	24" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	10600	\$ 300.00	\$ 3,180,000.00
490607	48" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	50	\$ 1,200.00	\$ 60,000.00
490609	60" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	50	\$ 1,400.00	\$ 70,000.00
500001	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	\$ 60,000.00	\$ 60,000.00
510051	STRUCTURAL CONCRETE, BRIDGE FOOTING	F	CY	90	\$ 750.00	\$ 67,500.00
510053	STRUCTURAL CONCRETE, BRIDGE	F	CY	404	\$ 1,100.00	\$ 444,400.00
510054	STRUCTURAL CONCRETE, BRIDGE (POLYMER FIBER)	F	CY	219	\$ 1,000.00	\$ 219,000.00
519093	JOINT SEAL (MR 3")		LF	72	\$ 50.00	\$ 3,600.00
520102	BAR REINFORCING STEEL (BRIDGE)	F	LB	468000	\$ 1.75	\$ 819,000.00
	RETAINING WALL (TYPE 1)	F	SF	6516	\$ 125.00	\$ 814,500.00
	ROCK SLOPE PROTECTION		CY	2030	\$ 250.00	\$ 507,500.00
839741A	CALIFORNIA ST-70SM BRIDGE RAIL	F	LF	1024	\$ 200.00	\$ 204,800.00

ROUTING

1. DES SECTION
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

NOTES:

Escalated Budget Estimate to Midpoint of Construction \*

Escalation Rate per Year

1.5%

Years Beyond Midpoint	Escalated Budget Est.
1	\$9,424,000
2	\$9,565,000
3	\$9,708,000

Years Beyond Midpoint	Escalated Budget Est.
4	\$9,854,000
5	\$10,002,000

\* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.



GENERAL PLAN ESTIMATE

X

ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE: Camino Cielo Retaining Walls

BR. No.:

DISTRICT: 07

TYPE: Type 1 and Soil Nail Retaining Walls

RTE:

CU:

CO: Ventura

EA:

PM:

LENGTH: 190.00

WIDTH: 24.00

AREA (SF)= 4,560

DESIGN SECTION: Dokken

EST. NO.

# OF STRUCTURES IN PROJECT :

COST INDEX:

PRICES BY :

DATE: 8/21/2020

PRICES CHECKED BY :

DATE: 8/21/2020

QUANTITIES BY:

	CONTRACT ITEMS		UNIT	QUANTITY	PRICE	AMOUNT
	RETAINING WALL (TYPE 1)		SF	8610	\$ 125.00	\$ 1,076,250.00
	RETAINING WALL (SOIL NAIL)		SF	17597	\$ 75.00	\$ 1,319,775.00
	ROCK SLOPE PROTECTION		CY	2345	\$ 250.00	\$ 586,278.00
490603	24" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	1400	\$ 300.00	\$ 420,000.00
511035	ARCHITECTURAL TREATMENT	F	SQFT	14242	\$ 5.00	\$ 71,210.00
520102	BAR REINFORCING STEEL (BRIDGE)	F	LB	43103	\$ 1.75	\$ 75,431.00
730040	MINOR CONCRETE (GUTTER) (LF)		LF	672	\$ 150.00	\$ 100,800.00
839521	CABLE RAILING	F	LF	672	\$ 90.00	\$ 60,480.00
839741A	CALIFORNIA ST-70SM BRIDGE RAIL	F	LF	584	\$ 200.00	\$ 116,800.00

ROUTING 1. DES SECTION 2. OFFICE OF BRIDGE DESIGN - NORTH 3. OFFICE OF BRIDGE DESIGN - CENTRAL 4. OFFICE OF BRIDGE DESIGN - SOUTH 5. OFFICE OF BRIDGE DESIGN - WEST 6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA	SUBTOTAL	\$ 3,827,024.00
	MOBILIZATION ( @ 10 % )	\$425,200
	SUBTOTAL BRIDGE ITEMS	\$4,252,224
	CONTINGENCIES (@ 25%)	\$1,063,100
	BRIDGE TOTAL COST	\$5,315,324
	COST PER SQ. FOOT	\$1,165.64
	GRAND TOTAL	\$5,315,324
	BUDGET ESTIMATE AS OF 8/26/20	\$5,315,000

NOTES:

Escalated Budget Estimate to Midpoint of Construction \*

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	\$5,395,000
2	\$5,476,000
3	\$5,558,000

1.5%

Years Beyond Midpoint	Escalated Budget Est.
4	\$5,641,000
5	\$5,726,000

\* Escalated budget estimate is provided for information only, actual construction

**Camino Cielo Bridge Replacement  
Alternative 2B  
August 21, 2020**

PROJECT DESCRIPTION/NOTES:				
Construct Camino Cielo RD/Bridge and Access Roads				
ITEM	UNIT	UNIT COST	QUANTITY	COST
<b>CONSTRUCTION</b>				
1 Roadwork	SQFT	\$20	20,600	\$412,000
2 Major Earthwork (import)	CY	\$10	5,600	\$56,000
3 Auric Access	LS		1	\$1,629,500
3.1 Roadwork	SQFT	\$15	1,300	\$19,500
3.2 Rock Excavation	CY	\$60	25,500	\$1,530,000
3.3 Rock Fall Protection	SQFT	\$4	20,000	\$80,000
3.5 Rock Slope Protection (included in bridge and wall)	CY	\$250	0	\$0
4 Bell Access	LS			\$38,000
4.1 Roadwork	SQFT	\$15	2,200	\$33,000
4.2 Earthwork	CY	\$10	500	\$5,000
4.3 Retaining Wall	SQFT			\$0
5 Rock Excavation	CY	\$60	4,400	\$264,000
6 Rock Fall Protection	SQFT	\$8,000	4	\$32,000
7 Utility Relocations	LS	\$100,000	1	\$100,000
8 Rock Slope Protection (included in bridge and wall)	CY	\$250	0	\$0
9 Construction Staging & Traffic Control	LS	\$100,000	1	\$100,000
10 Ventura River Bridge and DAR	LS	\$5,212,000	1	\$5,212,000
11 Retaining Walls	LS	\$3,827,000	1	\$3,827,000
1 - 11 Subtotal				\$11,374,500
<b>CONSTRUCTION with MOBILIZATION</b>				
12 Mobilization (10%)	LS			\$1,264,000
12 TOTAL				\$12,638,500
<b>ENGINEERING COSTS</b>				
13 Preliminary & Final Design	LS			\$1,517,000
14 CM, Inspection, & Testing (12%)	LS			\$1,517,000
15 Caltrans Processing	LS	Caltrans Rdwy only		\$50,000
16 Administrative*	LS			\$200,000
13 - 16 Subtotal				\$3,284,000
<b>RIGHT-OF-WAY</b>				
17a ROW Acquisition & Relocation	LS	\$0	1	\$0
17b ROW Sale of Excess	LS	\$0	1	\$0
17c ROW Contract Work	LS	\$0	1	\$0
17 Subtotal				\$0
<b>Environmental</b>				
18 Environmental Mitigation	LS	\$100,000	1	\$100,000
18 Subtotal				\$100,000
<b>TOTAL PROJECT COST</b>				
12 CONSTRUCTION TOTAL				\$11,374,500
13 - 16 ENGINEERING COSTS				\$3,284,000
17 RIGHT-OF-WAY				\$0
18 ENVIRONMENTAL				\$100,000
1 - 14 SUBTOTAL				\$14,758,500
CONTINGENCY - 25% (Const and ROW only)				\$2,843,625
TOTAL PROJECT COST				\$17,602,125
<b>ESCALATED PROJECT COST</b>				
CONSTRUCTION YEAR	2024			
ESCALATED TOTAL PROJECT (2%)	4	Years		\$19,053,106

**NOTES:**

- \* Project Administration includes outside agency overview & permitting
- 1 Preliminary earthwork quantity assumes a site balance (i.e. zero export). Quantity may differ per final design.

GENERAL PLAN ESTIMATE

X

ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE: Camino Cielo Bridge - Alternative 2B

BR. No.:

DISTRICT: 07

TYPE: CIP/PS Conc Box Girder - Main Line and DAR Bridges

RTE:

CU:

CO: Ventura

EA:

PM:

LENGTH: 230.00

WIDTH: 24.00

AREA (SF)= 5,520

DESIGN SECTION: Dokken

# OF STRUCTURES IN PROJECT :

PRICES BY :

EST. NO.

PRICES CHECKED BY :

COST INDEX:

QUANTITIES BY:

DATE: 8/21/2020

DATE: 8/21/2020

	CONTRACT ITEMS		UNIT	QUANTITY	PRICE	AMOUNT
192003	STRUCTURE EXCAVATION (BRIDGE)	F	CY	763	\$ 120.00	\$ 91,560.00
193003	STRUCTURE BACKFILL (BRIDGE)	F	CY	346	\$ 100.00	\$ 34,600.00
490590	48" PERMANENT STEEL CASING		LF	20	\$ 2,300.00	\$ 46,000.00
490591	60" PERMANENT STEEL CASING		LF	20	\$ 2,900.00	\$ 58,000.00
490603	24" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	7500	\$ 300.00	\$ 2,250,000.00
490607	48" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	50	\$ 1,200.00	\$ 60,000.00
490609	60" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	50	\$ 1,400.00	\$ 70,000.00
500001	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	\$ 70,000.00	\$ 70,000.00
510051	STRUCTURAL CONCRETE, BRIDGE FOOTING	F	CY	90	\$ 750.00	\$ 67,500.00
510053	STRUCTURAL CONCRETE, BRIDGE	F	CY	431	\$ 1,100.00	\$ 474,100.00
510054	STRUCTURAL CONCRETE, BRIDGE (POLYMER FIBER)	F	CY	209	\$ 1,000.00	\$ 209,000.00
519093	JOINT SEAL (MR 3")		LF	72	\$ 50.00	\$ 3,600.00
520102	BAR REINFORCING STEEL (BRIDGE)	F	LB	373345	\$ 1.75	\$ 653,354.00
	RETAINING WALL (TYPE 1)	F	SF	4500	\$ 125.00	\$ 562,500.00
	ROCK SLOPE PROTECTION		CY	1507	\$ 250.00	\$ 376,750.00
839741A	CALIFORNIA ST-70SM BRIDGE RAIL	F	LF	926	\$ 200.00	\$ 185,200.00

ROUTING

1. DES SECTION
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

NOTES:

SUBTOTAL	\$ 5,212,164.00
MOBILIZATION ( @ 10 % )	\$579,100
SUBTOTAL BRIDGE ITEMS	\$5,791,264
CONTINGENCIES (@ 25%)	\$1,447,800
GRAND TOTAL	\$7,239,064
BUDGET ESTIMATE AS OF 8/26/20	\$7,239,000

Escalated Budget Estimate to Midpoint of Construction \*

Escalation Rate per Year

1.5%

Years Beyond Midpoint	Escalated Budget Est.
1	\$7,348,000
2	\$7,458,000
3	\$7,570,000

Years Beyond Midpoint	Escalated Budget Est.
4	\$7,684,000
5	\$7,799,000

\* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

GENERAL PLAN ESTIMATE

X

ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE: Camino Cielo Retaining Walls

BR. No.:

DISTRICT: 07

RTE:

TYPE: Type 1 and Soil Nail Retaining Walls

CO: Ventura

CU:

PM:

EA:

LENGTH: 190.00

WIDTH: 24.00

AREA (SF)= 4,560

DESIGN SECTION: Dokken

# OF STRUCTURES IN PROJECT :

PRICES BY :

PRICES CHECKED BY :

QUANTITIES BY:

EST. NO.

COST INDEX:

DATE: 8/21/2020

DATE: 8/21/2020

	CONTRACT ITEMS		UNIT	QUANTITY	PRICE	AMOUNT
	RETAINING WALL (TYPE 1)		SF	8610	\$ 125.00	\$ 1,076,250.00
	RETAINING WALL (SOIL NAIL)		SF	17597	\$ 75.00	\$ 1,319,775.00
	ROCK SLOPE PROTECTION		CY	2345	\$ 250.00	\$ 586,278.00
490603	24" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	1400	\$ 300.00	\$ 420,000.00
511035	ARCHITECTURAL TREATMENT	F	SQFT	14242	\$ 5.00	\$ 71,210.00
520102	BAR REINFORCING STEEL (BRIDGE)	F	LB	43103	\$ 1.75	\$ 75,431.00
730040	MINOR CONCRETE (GUTTER) (LF)		LF	672	\$ 150.00	\$ 100,800.00
839521	CABLE RAILING	F	LF	672	\$ 90.00	\$ 60,480.00
839741A	CALIFORNIA ST-70SM BRIDGE RAIL	F	LF	584	\$ 200.00	\$ 116,800.00

ROUTING 1. DES SECTION 2. OFFICE OF BRIDGE DESIGN - NORTH 3. OFFICE OF BRIDGE DESIGN - CENTRAL 4. OFFICE OF BRIDGE DESIGN - SOUTH 5. OFFICE OF BRIDGE DESIGN - WEST 6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA	SUBTOTAL	\$ 3,827,024.00
	MOBILIZATION ( @ 10 % )	\$425,200
	SUBTOTAL BRIDGE ITEMS	\$4,252,224
	CONTINGENCIES (@ 25%)	\$1,063,100
	BRIDGE TOTAL COST	\$5,315,324
	COST PER SQ. FOOT	\$1,165.64
	GRAND TOTAL	\$5,315,324
	BUDGET ESTIMATE AS OF 8/26/20	\$5,315,000

NOTES:

Escalated Budget Estimate to Midpoint of Construction \*

Escalation Rate per Year

1.5%

Years Beyond Midpoint	Escalated Budget Est.
1	\$5,395,000
2	\$5,476,000
3	\$5,558,000

Years Beyond Midpoint	Escalated Budget Est.
4	\$5,641,000
5	\$5,726,000

\* Escalated budget estimate is provided for information only, actual construction

**Camino Cielo Bridge Replacement**  
**Alternative 3**  
**August 21, 2020**

PROJECT DESCRIPTION/NOTES:				
Construct Camino Cielo RD/Bridge and Access Roads				
ITEM	UNIT	UNIT COST	QUANTITY	COST
<b>CONSTRUCTION</b>				
1 Roadwork	SQFT	\$20.00	41,700	\$834,000
2 Major Earthwork (import)	CY	\$10.00	9,000	\$90,000
3 Auric Access	LS			\$2,874,000
3.1 Roadwork	SQFT	\$15.00	2,500	\$37,500
3.2 Earthwork (export)	CY	\$30.00	0	\$0
3.3 Driveway Bridge	LS	\$2,573,000.00	1	\$2,573,000
3.4 Rock Slope Protection	CY	\$250.00	1,054	\$263,500
4 Kehoe Access	LS			\$886,750
4.1 Roadwork	SQFT	\$15.00	6,200	\$93,000
4.2 Retaining Walls	SQFT	\$125.00	2,850	\$356,250
4.3 Rock Slope Protection	CY	\$250.00	1,750	\$437,500
5 Utility Relocations	LS	\$20,000.00	1	\$20,000
6 Rock Slope Protection	CY	\$250.00	768	\$192,000
7 Construction Staging & Traffic Control	LS	\$30,000.00	1.0	\$30,000
9 Ventura River Bridge	LS	\$4,790,000.00	1	\$4,790,000
10 Retaining Walls	SQFT	\$125.00	17,800	\$2,225,000
1 - 10 Subtotal				\$11,941,750
<b>CONSTRUCTION with MOBILIZATION</b>				
11 Mobilization (10%)	LS			\$1,327,000
12 TOTAL				\$13,268,750
<b>ENGINEERING COSTS</b>				
13 Preliminary & Final Design	LS			\$1,592,000
14 CM, Inspection, & Testing (12%)	LS			\$1,592,000
15 Caltrans Processing	LS	Caltrans Rdwy only		\$50,000
16 Administrative*	LS			\$200,000
13 - 16 Subtotal				\$3,434,000
<b>RIGHT-OF-WAY</b>				
17a ROW Acquisition & Relocation	LS	\$0	1	\$0
17b ROW Sale of Excess	LS	\$0	1	\$0
17c ROW Contract Work	LS	\$0	1	\$0
17 Subtotal				\$0
<b>Environmental</b>				
18 Environmental Mitigation	LS	\$100,000	1	\$100,000
18 Subtotal				\$100,000
<b>TOTAL PROJECT COST</b>				
12 CONSTRUCTION TOTAL				\$11,941,750
13 - 16 ENGINEERING COSTS				\$3,434,000
17 RIGHT-OF-WAY				\$0
18 ENVIRONMENTAL				\$100,000
1 - 14 SUBTOTAL				\$15,475,750
CONTINGENCY - 25% (Const and ROW only)				\$2,985,438
TOTAL PROJECT COST				\$18,461,188
<b>ESCALATED PROJECT COST</b>				
CONSTRUCTION YEAR	2024			
ESCALATED TOTAL PROJECT (2%)	4	Years		\$19,982,984

**NOTES:**

- \* Project Administration includes outside agency overview & permitting
- 1 Preliminary earthwork quantity assumes a site balance (i.e. zero export). Quantity may differ per final design.