PLANNING COST ESTIMATE

SAN JACINTO RIVER STAGE 3

JANUARY 9, 2017

SUMMARY OF ALTERNATIVE COSTS AND IMPACTS

SUMMARY OF MODELING COSTS AND IMPACTS *PLANNING LEVEL ESTIMATE JANUARY 9, 2017*			
MODEL #	***SCENARIO***	***COST***	***Footprint (Ac)***
1	ENHANCED ENVIRONMENTAL	$18,516,000	277
2	DEVELOPMENT	$94,788,000 - $102,627,000	1649 - 1799
3	TRANSPORTATION	$94,788,000 - $102,627,000	884 - 1034
4	MSHCP	$79,489,000	598
5	COST EFFECTIVE	$16,838,000	214
6	HYBRID 1	$100,916,000	1772
7	HYBRID 2	$10,986,000	140
8	HYBRID 3	$72,289,000	561
9	HYBRID 4	$72,289,000	1332
10	HYBRID 4 (PHASE 1)	$33,875,000	147 - 149
11	HYBRID 4 (PHASE 2)	$38,414,000	1127

MODEL 1: ENHANCED ENVIRONMENTAL ALTERNATIVE *PLANNING LEVEL ESTIMATE JANUARY 9, 2017*			
ELEMENT	***DESCRIPTION***	***COST***	***Footprint (Ac)***
1AC	Ramona Embankment Protection	$4,645,000	70
2B	Existing Condition Upstream of I-215 (No expanded volume)	---	---
3A	Ramona Embankment Protection – no berms downstream	$10,604,000	163
4C	10-foot Low Flow Channel	$2,214,000	33
5C	Low Flow Channel with Short Span Bridge	$1,053,000	11
		TOTAL COST	$18,516,000
		CONSTRUCTION FOOTPRINT ACRES	*277*

MODEL 2: DEVELOPMENT ALTERNATIVE *PLANNING LEVEL ESTIMATE JANUARY 9, 2017*			
ELEMENT	***DESCRIPTION***	***COST***	***Footprint (Ac)***
1BC	Ramona Embankment Protection	$4,969,000	77
2A1 or 2A2	Existing Condition Upstream of I-215 (Alternative 1 or 2)	$13,588,000 - $21,427,000	260 - 410
3B1 or 3B2	Ramona Embankment Protection – no berms downstream	$10,604,000	928
4B	1,000-foot Channel	$63,187,000	353
5B	Ethanac Grading, Low Flow Channel & Short Span Bridge	$2,440,000	31
		TOTAL COST	$94,788,000 - $102,627,000
		CONSTRUCTION FOOTPRINT ACRES	*1649 - 1799*

MODEL 3: TRANSPORTATION ALTERNATIVE *PLANNING LEVEL ESTIMATE JANUARY 9, 2017*			
ELEMENT	***DESCRIPTION***	***COST***	***Footprint (Ac)***
1BC	Ramona Embankment Protection	$4,969,000	77
2A1 OR 2A2	Existing Condition Upstream of I-215 (Alternative 1 or 2)	$13,588,000 - $21,427,000	260 - 410
3A	Ramona Embankment Protection – no berms downstream	$10,604,000	163
4B	1,000-foot Channel	$63,187,000	353
5B	Ethanac Grading, Low Flow Channel & Short Span Bridge	$2,440,000	31
		TOTAL COST	$94,788,000 - $102,627,000
		CONSTRUCTION FOOTPRINT ACRES	*884 - 1034*

MODEL 4: MSHCP ALTERNATIVE *PLANNING LEVEL ESTIMATE JANUARY 9, 2017*			
ELEMENT	***DESCRIPTION***	***COST***	***Footprint (Ac)***
1AC	Ramona Embankment Protection	$4,645,000	70
2B	Existing Condition Upstream of I-215 (No expanded volume)	---	---
3A	Ramona Embankment Protection – no berms downstream	$10,604,000	163
4B	1,000-foot Channel	$63,187,000	353
5D	Low Flow Channel with Full Span Bridge	$1,053,000	12
		TOTAL COST	$79,489,000
		CONSTRUCTION FOOTPRINT ACRES	*598*

MODEL 5: COST-EFFECTIVE ALTERNATIVE *PLANNING LEVEL ESTIMATE JANUARY 9, 2017*			
ELEMENT	***DESCRIPTION***	***COST***	***Footprint (Ac)***
1A	Ramona Embankment Protection	$2,967,000	7
2B	Existing Condition Upstream of I-215 (No expanded volume)	---	---
3A	Ramona Embankment Protection – no berms downstream	$10,604,000	163
4C	10-foot Low Flow Channel	$2,214,000	33
5C	Low Flow Channel with Short Span Bridge	$1,053,000	11
		TOTAL COST	$16,838,000
		CONSTRUCTION FOOTPRINT ACRES	*214*

MODEL 6: HYBRID 1 ALTERNATIVE *PLANNING LEVEL ESTIMATE JANUARY 9, 2017*			
ELEMENT	***DESCRIPTION***	***COST***	***Footprint (Ac)***
1AC	Ramona Embankment Protection	$4,645,000	70
2A2	Expanded Volume Upstream of I-215 (Alternative 2)	$21,427,000	410
3B1 or 3B2	Ramona Embankment Protection – no berms downstream	$10,604,000	928
4B	1,000-foot Channel	$63,187,000	353
5C	Low Flow Channel with Short Span Bridge	$1,053,000	11
		TOTAL COST	$100,916,000
		CONSTRUCTION FOOTPRINT ACRES	*1772*

MODEL 7: HYBRID 2 ALTERNATIVE *PLANNING LEVEL ESTIMATE JANUARY 9, 2017*			
ELEMENT	***DESCRIPTION***	***COST***	***Footprint (Ac)***
1A	Ramona Embankment Protection	$2,967,000	7
2B	Existing Condition Upstream of I-215 (No expanded volume)	---	---
3ANL	Ramona Embankment Protection – no berms downstream	$8,019,000	133
4D	No Grading	---	---
5E1 OR 5E2	No Grading at Ethanac With or Without Bridge (outreach element)	---	0 - 1
		TOTAL COST	$10,986,000
		CONSTRUCTION FOOTPRINT ACRES	*140*

MODEL 8: HYBRID 3 ALTERNATIVE *PLANNING LEVEL ESTIMATE JANUARY 9, 2017*			
ELEMENT	***DESCRIPTION***	***COST***	***Footprint (Ac)***
1A	Ramona Embankment Protection	$2,967,000	7
2B	Existing Condition Upstream of I-215 (No expanded volume)	---	---
3AF	Ramona Embankment Protection – no berms downstream	$14,962,000	187
4E	Terraced Channel	$44,528,000	358
5F1 OR 5F2	No Grading at Ethanac, 10-foot Pipe, With or Without Bridge	$9,832,000	9
		TOTAL COST	$72,289,000
		CONSTRUCTION FOOTPRINT ACRES	*561*

MODEL 9: HYBRID 4 ALTERNATIVE (ULTIMATE CONDITION) *PLANNING LEVEL ESTIMATE JANUARY 9, 2017*			
ELEMENT	***DESCRIPTION***	***COST***	***Footprint (Ac)***
1A	Ramona Embankment Protection	$2,967,000	7
2B	Existing Condition Upstream of I-215 (No expanded volume)	---	---
3B1F OR 3B2F	Ramona Embankment Protection – no berms downstream	$14,962,000	958
4E	Terraced Channel	$44,528,000	358
5F1 OR 5F2	No Grading at Ethanac, 10-foot Pipe, With or Without Bridge	$9,832,000	9
		TOTAL COST	$72,289,000
		CONSTRUCTION FOOTPRINT ACRES	*1332*

MODEL 9: HYBRID 4 ALTERNATIVE (PHASE 1) *PLANNING LEVEL ESTIMATE JANUARY 9, 2017*			
ELEMENT	***DESCRIPTION***	***COST***	***Footprint (Ac)***
1A	Ramona Embankment Protection	$2,967,000	7
2B	Existing Condition Upstream of I-215 (No expanded volume)	---	---
3B1F OR 3B2F (PHASE 1)	Flow Control Structure at I-215 with Flared PVSD, Fill and/or Berm (PHASE 1)	$12,686,000	112
4E (PHASE 1)	Terraced Channel (PHASE 1)	$8,390,000	77
5F1 OR 5F2	No Grading at Ethanac, 10-foot Pipe, With or Without Bridge	$9,832,000	9
		TOTAL COST	$33,875,000
		CONSTRUCTION FOOTPRINT ACRES	*147 - 149*

MODEL 9: HYBRID 4 ALTERNATIVE (PHASE 2) *PLANNING LEVEL ESTIMATE JANUARY 9, 2017*			
ELEMENT	***DESCRIPTION***	***COST***	***Footprint (Ac)***
1A	Ramona Embankment Protection	---	---
2B	Existing Condition Upstream of I-215 (No expanded volume)	---	---
3B1F OR 3B2F (PHASE 2)	Flow Control Structure at I-215 with Flared PVSD, Fill and/or Berm (PHASE 2)	$2,276,000	846
4E (PHASE 2)	Terraced Channel (PHASE 2)	$36,138,000	281
5F1 OR 5F2	No Grading at Ethanac, 10-foot Pipe, With or Without Bridge	---	---
		TOTAL COST	$38,414,000
		CONSTRUCTION FOOTPRINT ACRES	*1127*

SUMMARY OF ELEMENT COSTS AND IMPACTS

SUMMARY OF ELEMENT COSTS AND IMPACTS			
WORKING ESTIMATE JANUARY 9, 2016			
Element No.	Element Name	Element Cost	Construction Footprint (Acres)
1A	Ramona Embankment Protection	$2,967,000	7
1B	Ramona Flow Control – standalone berm and flow control structure	$3,291,000	14
1AC	Ramona Embankment Protection – no berms downstream	$4,645,000	70
1BC	Ramona Flow Control – standalone berm, flow control structure, and no berms downstream	$4,969,000	77
2A1	Expanded Volume Upstream of I-215 (Alternative 1)	$13,588,000	260
2A2	Expanded Volume Upstream of I-215 (Alternative 2)	$21,427,000	410
2A1 or 2A2	Existing Condition Upstream of I-215 (Alternative 1 or 2)	$13,588,000 - $21,427,000	260 - 410
2B	Existing Condition Upstream of I-215 (No expanded volume)	---	---
3A	Flow Control Structure at I-215 and PVSD Low Flow Channel	$10,604,000	163
3AF	Flow Control Structure at I-215 with Flared PVSD	$14,962,000	187
3ANL	Flow Control Structure at I-215 with No Lowering of PVSD	$8,019,000	133
3B1	Flow Control Structure at I-215 & Fill	$10,604,000	928
3B2	Flow Control Structure at I-215 with PVSD Berm	$10,604,000	928
3B1 or 3B2	Flow Control Structure at I-215 & Fill / PVSD Berm	$10,604,000	928
3B1F	Flow Control Structure at I-215 with Flared PVSD and Fill	$14,962,000	958
3B2F	Flow Control Structure at I-215 with Flared PVSD, Fill and Berm	$14,962,000	958
3B1F OR 3B2F	Flow Control Structure at I-215 with Flared PVSD, Fill and/or Berm	$14,962,000	958
3B1F OR 3B2F (PHASE 1)	Flow Control Structure at I-215 with Flared PVSD, Fill and/or Berm (PHASE 1)	$12,686,000	112
3B1F OR 3B2F (PHASE 2)	Flow Control Structure at I-215 with Flared PVSD, Fill and/or Berm (PHASE 2)	$2,276,000	846
4A	Remove berms	$1,706,000	119
4B	1,000-foot Channel	$63,187,000	353
4C	10-foot Low Flow Channel	$2,214,000	33
4D	No Grading	---	---
4E	Terraced Channel	$44,528,000	358
4E (PHASE 1)	Terraced Channel (PHASE 1)	$8,390,000	77
4E (PHASE 2)	Terraced Channel (PHASE 2)	$36,138,000	281
5B	Ethanac Grading, Low Flow Channel & Short Span Bridge	$2,440,000	31
5C	Low Flow Channel with Short Span Bridge	$1,053,000	11
5D	Low Flow Channel with Full Span Bridge	$1,053,000	12
5E1	No Grading at Ethanac Without Bridge (outreach element)	---	---
5E2	No Grading at Ethanac With Bridge (outreach element)	---	1
5E1 OR 5E2	No Grading at Ethanac With or Without Bridge (outreach element)	---	0 - 1
5F1	No Grading at Ethanac, 10-foot Pipe, No Bridge	$9,832,000	9
5F2	No Grading at Ethanac, 10-foot Pipe, With Bridge	$9,832,000	9
5F1 OR 5F2	No Grading at Ethanac, 10-foot Pipe, With or Without Bridge	$9,832,000	9

ELEMENT 1A: RAMONA EMBANKMENT PROTECTION

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 1A Ramona Embankment Protection

PROJECT NAME

CONSTRUCTION COST	$	2,214,549
PLUS 22% LUMP SUM ITEMS	+	487,201
PLUS 12% CONTINGENCY	+	265,746
SUBTOTAL	=	2,967,495
RIGHT-OF-WAY	+	0
TOTAL	**$**	**2,967,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

-Ramona Expressway Embankment Protection Across Floodplain

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 1A Ramona Embankment Protection

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY		b > 8	$6.60	
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY	24890	EXC > FILL	$3.25	$80,893
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY	3770	b > 8[1]	$380.00	$1,432,600
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]	7778		$80.00	$622,240
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				$78,816
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$2,214,549
LUMP SUM ITEMS (22%)[6]	$487,201
CONTINGENCIES (12%)[7]	$265,746
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$694,482
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$3,661,977
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$3,661,977**

PROJECT DESCRIPTION: Element 1A Ramona Embankment Protection

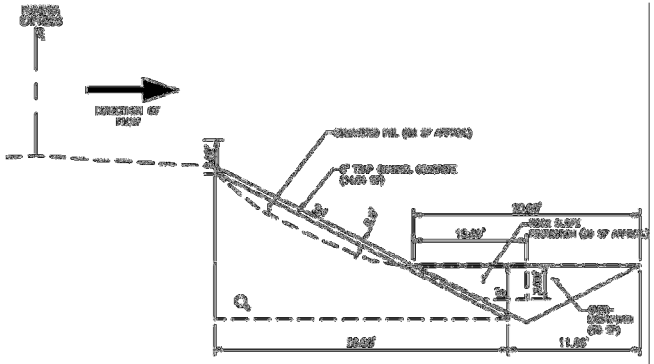
STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

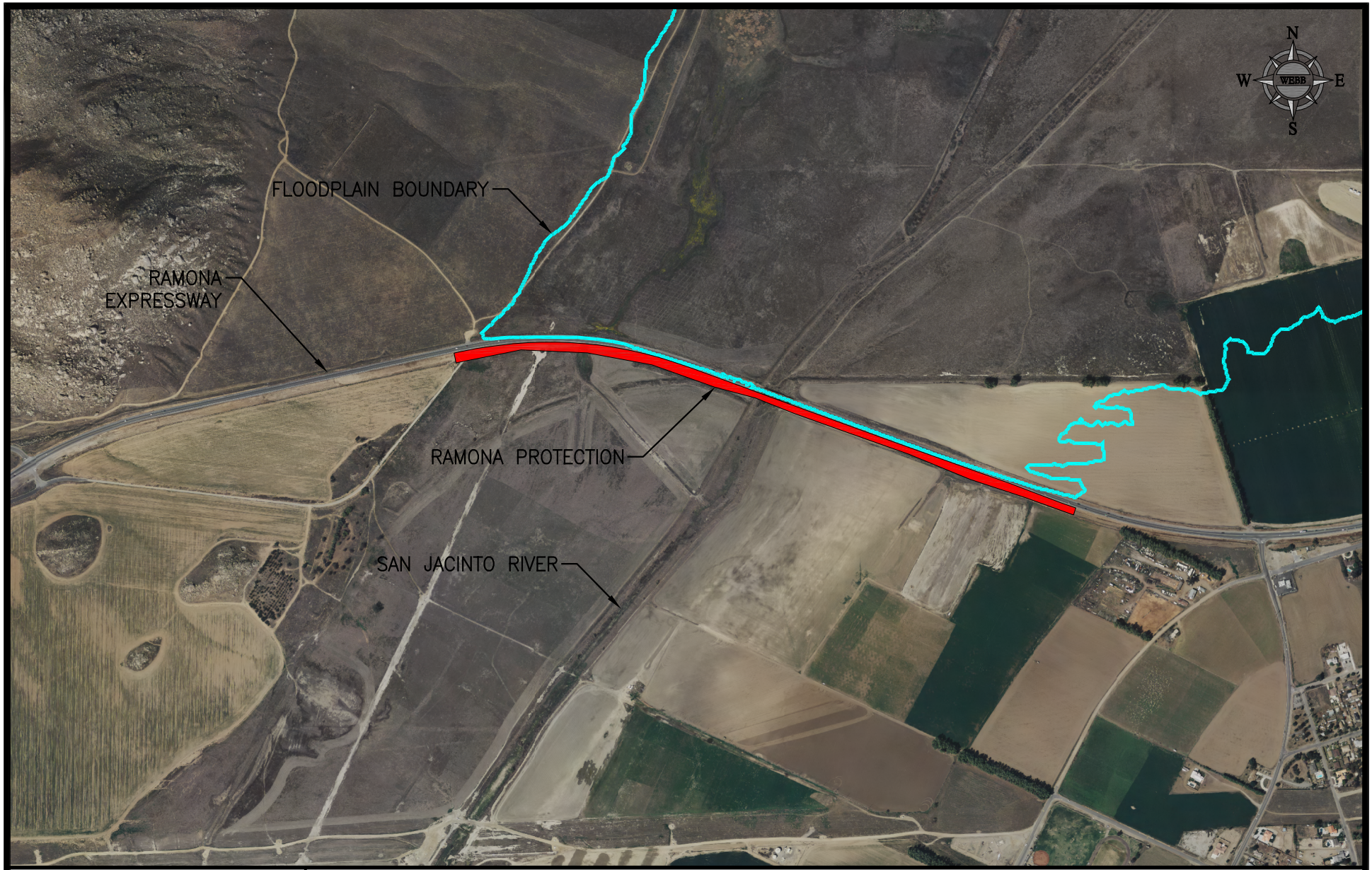
MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
OVER-EXCAVATION	19704	CY	$4	$78,816
		MISCELLANEOUS TOTAL		$78,816

ELEMENT 1A: RAMONA PROTECTION									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	TRAP CHANNEL CONCRETE (B>8)	7000	---	0.5	14.54	101780	3770	---	---
2	ROCK SLOPE PROTECTION	7000	---	---	30.00	210000	7778	---	---
3	COMPACTED FILL (EXC > FILL)	7000	---	---	20.00	140000	5186	---	---
4	*OVEREXCAVATION (1)	7000	26	1.0	26.00	182000	6741	182000	5
5	*OVEREXCAVATION (1)	7000	11.7	---	50.00	350000	12963	81620	2
6	COMPACTED FILL (EXC > FILL)	7000	---	---	---	---	19704	---	---
1) CONCRETE LINING FOR 7000 LF BERM ALONG RAMONA EXPRESSWAY ACROSS SJR FLOODPLAIN									
2) ROCK SLOPE PROTECTION PLACED AT FOOT OF BERM									
3) COMPACTED FILL TO BE PLACED BELOW CONCRETE LINER									
4) 1 FOOT OF OVEREXCAVATION BELOW CONCRETE LINER TO PREPARE GROUND									
5) OVER-EXCAVATION REQUIRED TO ACHIEVE TOEDOWN FOR CONCRETE LINER									
6) COMPACTED FILL TO REPLACE MATERIAL REMOVED BY OVEREXCAVATION									



ALTERNATIVE 1A:
RAMONA PROTECTION



LOCATION:	1A: RAMONA PROTECTION	DESIGNED: DESIGNER
ADDRESS:	ALBERT A. WEBB ASSOCIATES ENGINEERING CONSULTANTS 3788 McCRAY STREET RIVERSIDE CA. 92506 PH. (951) 686-1070 FAX (951) 788-1256	CHECKED: CHECKER DATE: DATE SCALE: SCALE

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ELEMENT 1B: RAMONA FLOW CONTROL – STANDALONE BERM AND FLOW CONTROL STRUCTURE

RCFC & WCD
2016

Jan 9 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 1B Ramona Flow Control - Standalone Berm and Flow Control

PROJECT NAME

CONSTRUCTION COST	$	2,456,088
PLUS 22% LUMP SUM ITEMS	+	540,339
PLUS 12% CONTINGENCY	+	294,731
SUBTOTAL	=	3,291,158
RIGHT-OF-WAY	+	0
TOTAL	**$**	**3,291,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

	PROJECT LENGTH	RESPONSIBLE SECTION
	00 + 00	CONSULTANT PROJEC

ENGR. INT.

PROJECT DESCRIPTION:

- RAMONA FLOW CONTROL STRUCTURE
- RAMONA FLOW CONTROL STRUCTURE BERM

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 1B Ramona Flow Control - Standalone Berm and Flow Control

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY		b > 8	$6.60	
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY	155301	EXC > FILL	$3.25	$504,728
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY	3240	b > 8[1]	$380.00	$1,231,200
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY	532	L > 150	$590.00	$313,880
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]	489		$80.00	$39,120
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				$367,160
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$2,456,088
LUMP SUM ITEMS (22%)[6]	$540,339
CONTINGENCIES (12%)[7]	$294,731
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$770,229
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$4,061,388
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
Jan 9 2017		**$4,061,388**

PROJECT DESCRIPTION: Element 1B Ramona Flow Control - Standalone Berm and Flow Control

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

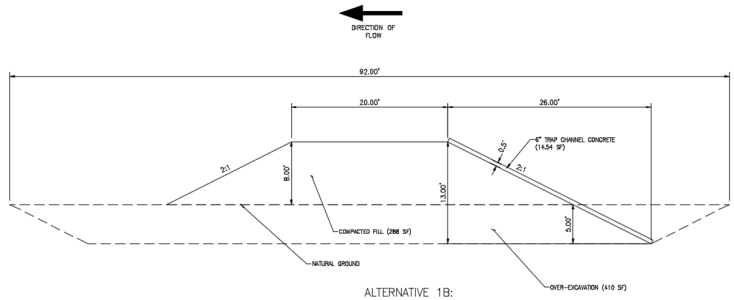
INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

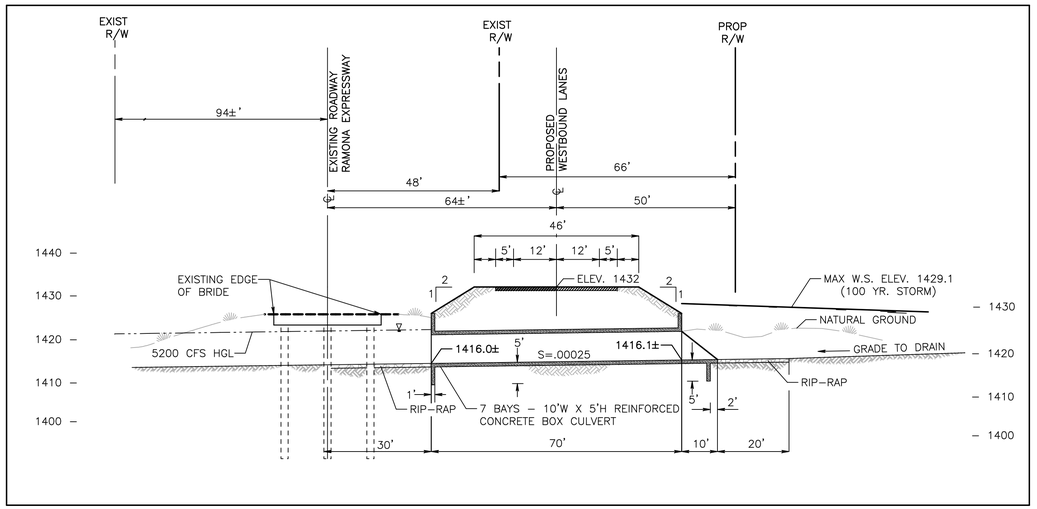
ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
OVER-EXCAVATION	91790	CY	$4	$367,160
			MISCELLANEOUS TOTAL	$367,160

ELEMENT 1B: RAMONA FLOW CONTROL STRUCTURE									
NO.	*DESCRIPTION*	*NO. BAYS*	*WIDTH (FT)*	*HEIGHT (FT)*	*LENGTH (FT)*	*WALL THICKNESS (FT)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
1	R.C.B. CONCRETE (INCLUDING STEEL)	7	10	5.0	70.0	0.83	12250	454	---
2	R.C.B. CONCRETE (INCLUDING STEEL)	---	---	---	---	0.83	2100	78	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*DEPTH (FT)*			*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
3	ROCK SLOPE PROTECTION	110	40	3.0	---	---	13200	489	---
4	OVER-EXCAVATION	70	70	1.0		---	4900	181	0.3
5	OVER-EXCAVATION	110	40	3.0			13200	489	
6	COMPACTED FILL (EXC > FILL)	---	---	---	---	---	4900	181	---
1) CONCRETE REINFORCED BOX CULVERT BASED ON ALT 5 CONFIGUATION AND CALTRANS D83A									
2) CONCRETE REINFORCED BOX CULVERT BASED ON ALT 5 CONFIGUATION									
3) RIPRAP AT UPSTREAM AND DOWNSTREAM ENDS OF BOX CULVERTS BASED ON ALT 5 CONFIGURATION									
4) OVER-EXCAVATION BELOW R.C.B CELLS									
5) OVER-EXCAVATION BELOW ROCK SLOPE PROTECTION									
6) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL									

ELEMENT 1B: RAMONA FLOW CONTROL BERM									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (SF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	6000	8	20	2.0	1728000	64000	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	TRAP CHANNEL CONCRETE (B>8)	6000	---	0.5	14.54	87240	3240	---	---
3	OVER-EXCAVATION	6000	92	---	410.0	2460000	91120	552000	13
4	COMPACTED FILL (EXC > FILL)	6000	92	---	410.0	2460000	91120	----	---
1) COMPACTED FILL REQUIRED TO CONSTRUCT 6000 LF BERM ALONG RAMONA EXPRESSWAY ACROSS SJR FLOODPLAIN									
2) CONCRETE LINER FOR BERM									
3) OVER-EXCAVATION FOR BERM									
4) COMPACTED FILL TO REPLACE MATERIAL REMOVED BY OVER-EXCAVATION									

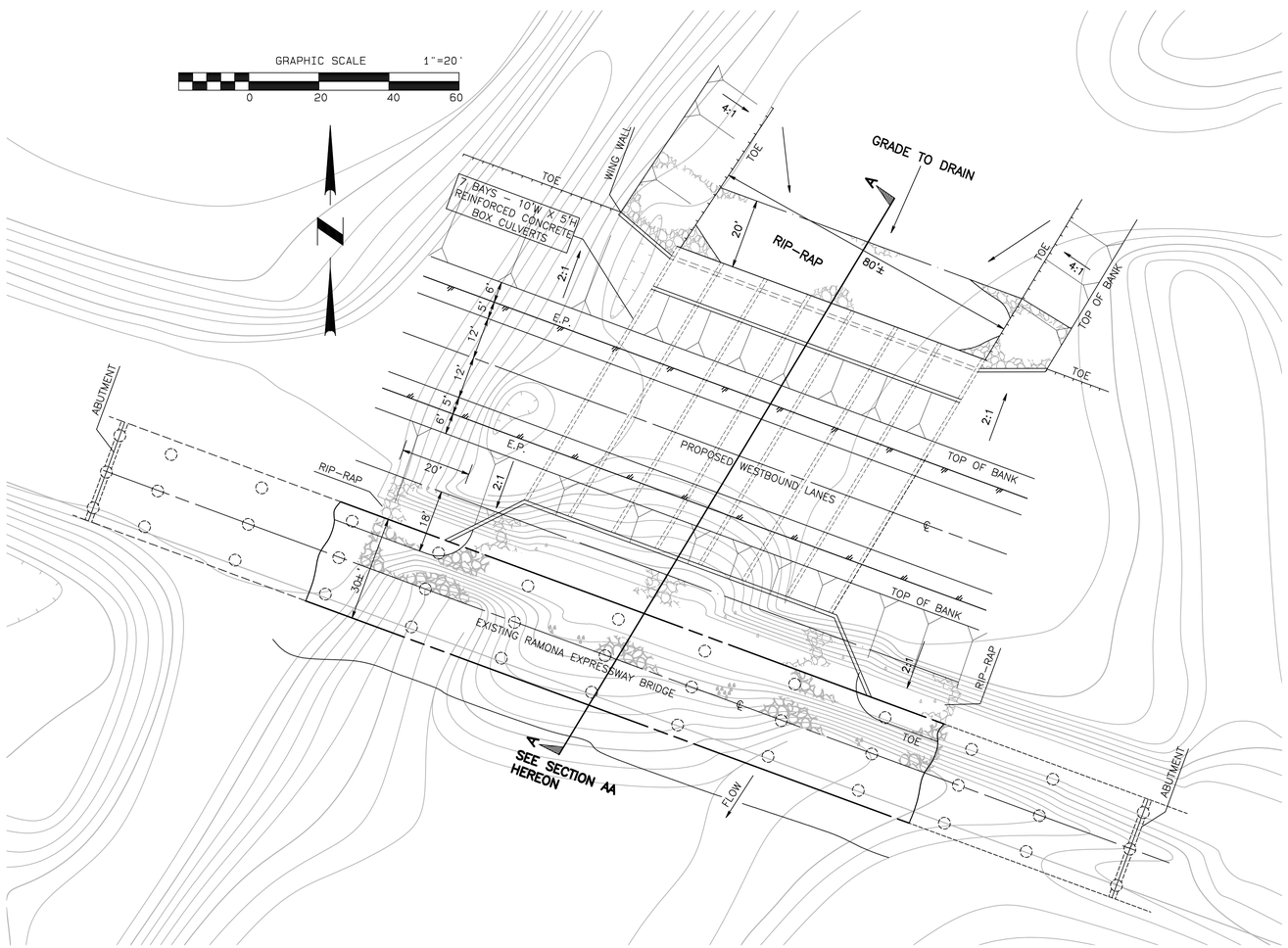


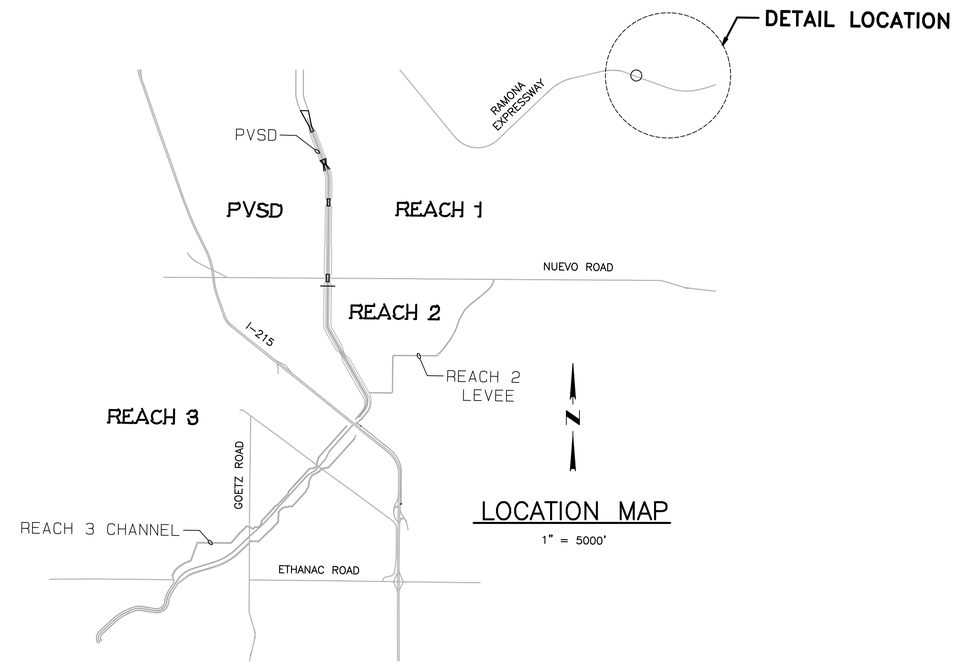
ALTERNATIVE 1B:
FLOW CONTROL
BERM



SECTION A-A

NTS





LOCATION MAP

1" = 5000'

REVISIONS	DATE	BY

RAMONA EXPRESSWAY

FLOW CONTROL STRUCTURE ALT 5

SCALE	ALBERT A. WEBB ASSOCIATES	CIVIL ENGINEERS 3788 McCRAY ST. RIVERSIDE CA. 92506 (951) 686-1070	W.O. 03-461
DATE			SHEET 1
DESIGNED			OF 1 SHEETS
CHECKED			
PLN CK REF:	FILE: G:\2003\03-0461\DwgPro\Ramona Crossing.pro PLOT DATE: 6/24/2015		DWG. NO. 03-461
F.B.			

ELEMENT 1AC: RAMONA EMBANKMENT PROTECTION – NO BERMS DOWNSTREAM

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 1AC Ramona Embankment Protection - No Berms DS

PROJECT NAME

CONSTRUCTION COST	$	3,466,529
PLUS 22% LUMP SUM ITEMS	+	762,636
PLUS 12% CONTINGENCY	+	415,983
SUBTOTAL	=	4,645,149
RIGHT-OF-WAY	+	0
TOTAL	**$**	**4,645,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- Ramona Expressway Embankment Protection Across Floodplain
- Removal of downstream Agricultural Berms

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 1AC Ramona Embankment Protection - No Berms DS

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	189694	b > 8	$6.60	$1,251,980
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY	24890	EXC > FILL	$3.25	$80,893
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY	3770	b > 8[1]	$380.00	$1,432,600
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]	7778		$80.00	$622,240
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				$78,816
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$3,466,529
LUMP SUM ITEMS (22%)[6]	$762,636
CONTINGENCIES (12%)[7]	$415,983
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$1,087,103
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$5,732,252
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$5,732,252**

PROJECT DESCRIPTION: Element 1AC Ramona Embankment Protection - Northern Reach

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

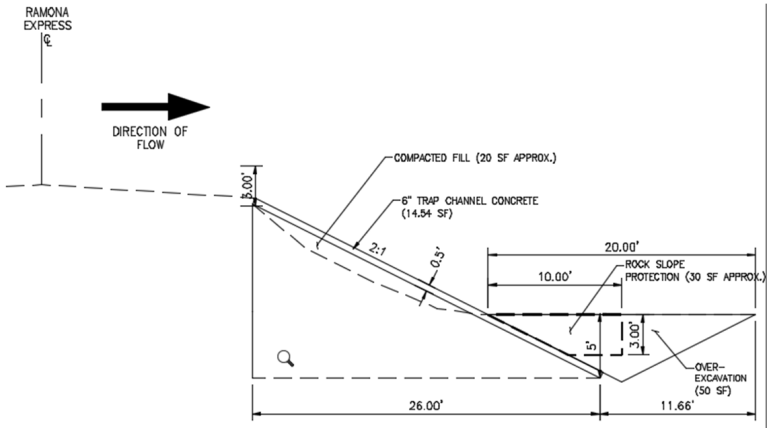
ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
OVER-EXCAVATION	19704	CY	$4	$78,816
		MISCELLANEOUS TOTAL		$78,816

ELEMENT 1AC: RAMONA PROTECTION									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	TRAP CHANNEL CONCRETE (B>8)	7000	---	0.5	14.54	101780	3770	---	---
2	ROCK SLOPE PROTECTION	7000	---	---	30.00	210000	7778	---	---
3	COMPACTED FILL (EXC > FILL)	7000	---	---	20.00	140000	5186	---	---
4	*OVEREXCAVATION (1)	7000	26	1.0	26.00	182000	6741	182000	5
5	**OVEREXCAVATION (2)	7000	11.7	---	50.00	350000	12963	81620	2
6	COMPACTED FILL (EXC > FILL)	7000	---	---	---	---	19704	---	---
1) CONCRETE LINING FOR 7000 LF BERM ALONG RAMONA EXPRESSWAY ACROSS SJR FLOODPLAIN									
2) ROCK SLOPE PROTECTION PLACED AT FOOT OF BERM									
3) COMPACTED FILL TO BE PLACED BELOW CONCRETE LINER									
4) 1 FOOT OF OVEREXCAVATION BELOW CONCRETE LINER TO PREPARE GROUND									
5) OVER-EXCAVATION REQUIRED TO ACHIEVE TOEDOWN FOR CONCRETE LINER									
6) COMPACTED FILL TO REPLACE MATERIAL REMOVED BY OVEREXCAVATION									

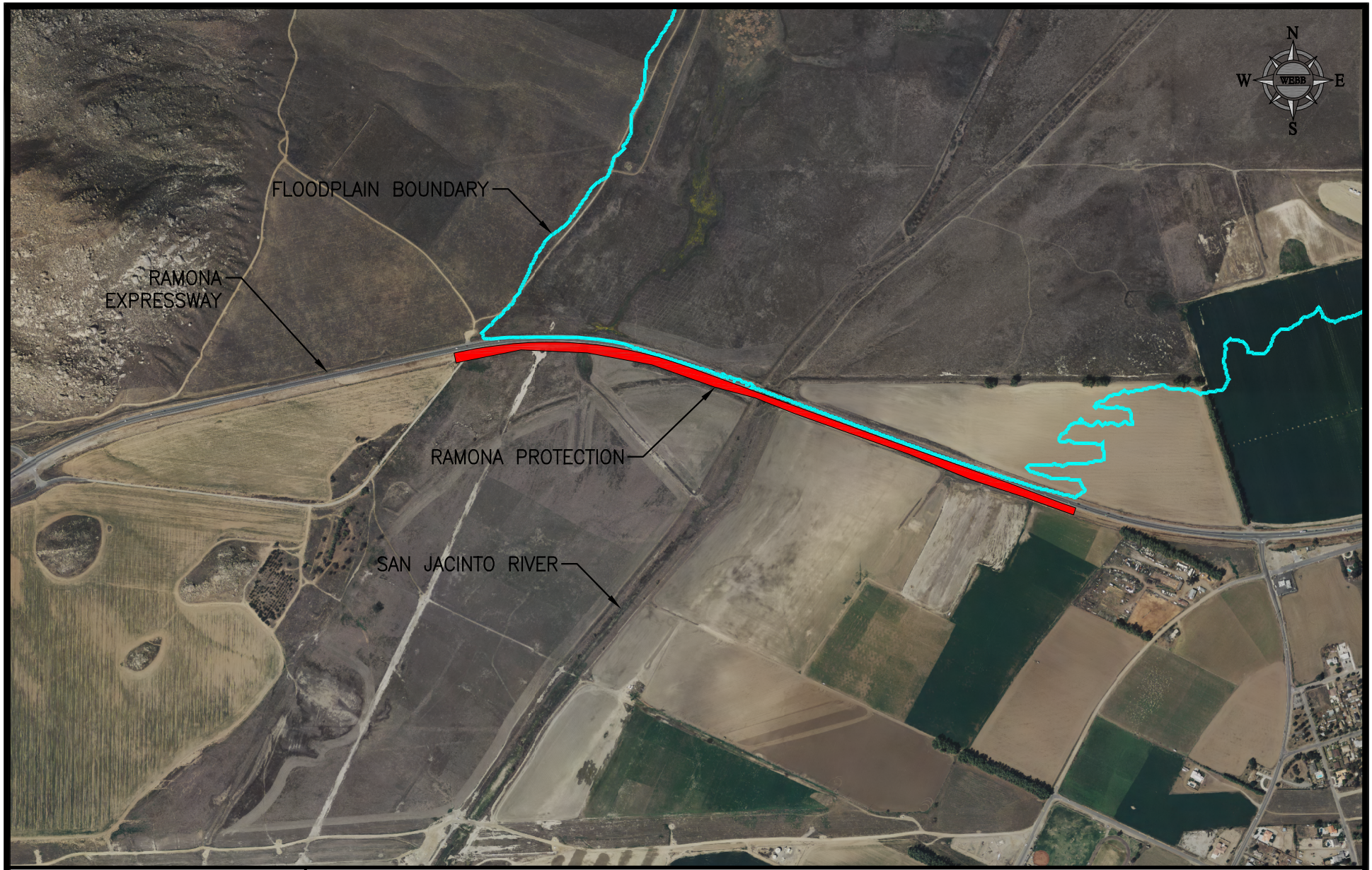
ELEMENT 1AC: REMOVAL OF BERMS		
LENGTH 1	17240	FT
X.S. AREA 1	225	SF
LENGTH 2	16570	FT
X.S. AREA 2	75	SF
TRAP CHANNEL EXCAVATION (CY)		***189694***

Length 1 = Ramona to Nuevo on western bank

Length 2 = Ramona to Nuevo on eastern



ALTERNATIVE 1A:
RAMONA PROTECTION



LOCATION:	1A: RAMONA PROTECTION	DESIGNED: DESIGNER
ADDRESS:	ALBERT A. WEBB ASSOCIATES ENGINEERING CONSULTANTS 3788 McCRAY STREET RIVERSIDE CA. 92506 PH. (951) 686-1070 FAX (951) 788-1256	CHECKED: CHECKER DATE: DATE SCALE: SCALE

G:\2016\16-0085\Quantities & Analysis\Earthwork Analysis\1A.dwg, 9/15/2016 5:12:28 PM, Bluebeam PDF.pc3

ELEMENT 1BC: RAMONA FLOW CONTROL – STANDALONE BERM, FLOW CONTROL STRUCTURE, AND NO BERMS DOWNSTREAM

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

:lement 1BC Ramona Flow Control - Standalone Berm, and No Berms D:

PROJECT NAME

CONSTRUCTION COST	$	3,708,069
PLUS 22% LUMP SUM ITEMS	+	815,775
PLUS 12% CONTINGENCY	+	444,968
SUBTOTAL	=	4,968,812
RIGHT-OF-WAY	+	0
TOTAL	**$**	**4,969,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- RAMONA FLOW CONTROL STRUCTURE
- RAMONA FLOW CONTROL BERM
- REMOVE BERMS FROM RAMONA TO NUEVO ALONG SJR

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 1BC Ramona Flow Control - Standalone Berm, and No Berms DS

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	189694	b > 8	$6.60	$1,251,980
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY	155301	EXC > FILL	$3.25	$504,728
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY	3240	b > 8[1]	$380.00	$1,231,200
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY	532	L > 150	$590.00	$313,880
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]	489		$80.00	$39,120
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				$367,160
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$3,708,069
LUMP SUM ITEMS (22%)[6]	$815,775
CONTINGENCIES (12%)[7]	$444,968
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$1,162,850
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$6,131,662
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$6,131,662**

PROJECT DESCRIPTION: Element 1BC Ramona Flow Control - Standalone Berm, and No Berms D

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

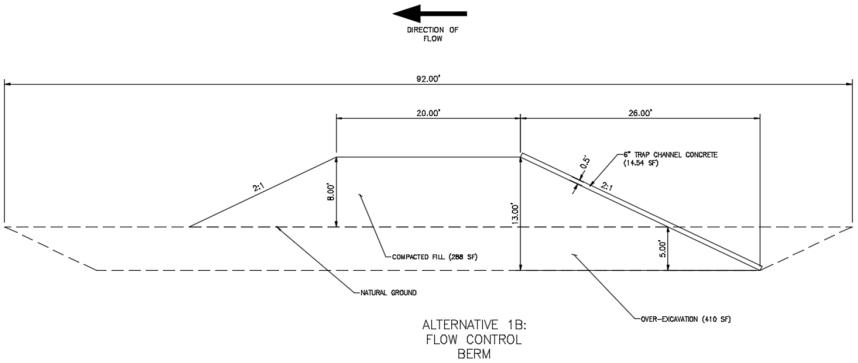
INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
OVER-EXCAVATION	91790	CY	$4	$367,160
			MISCELLANEOUS TOTAL	$367,160

ELEMENT 1BC: REMOVAL OF BERMS		
LENGTH 1	17240	FT
X.S. AREA 1	225	SF
LENGTH 2	16570	FT
X.S. AREA 2	75	SF
TRAP CHANNEL EXCAVATION (CY)		***189694***

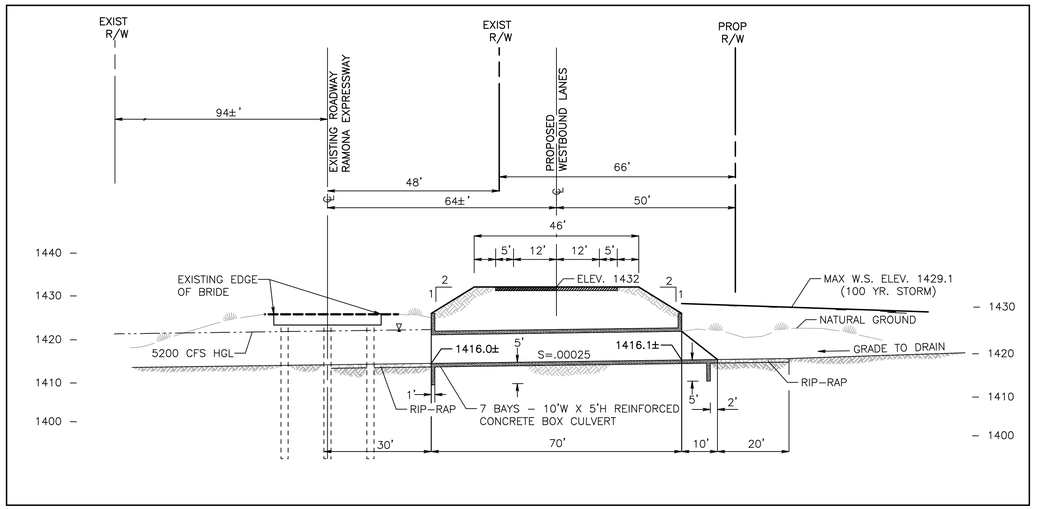
Length 1 = Ramona to Nuevo on western bank
Length 2 = Ramona to Nuevo on eastern
Length 3 = Nuevo to PVSD / SJR confluence
Length 4 = Nuevo to PVSD / SJR confluence



ALTERNATIVE 1B:
FLOW CONTROL
BERM

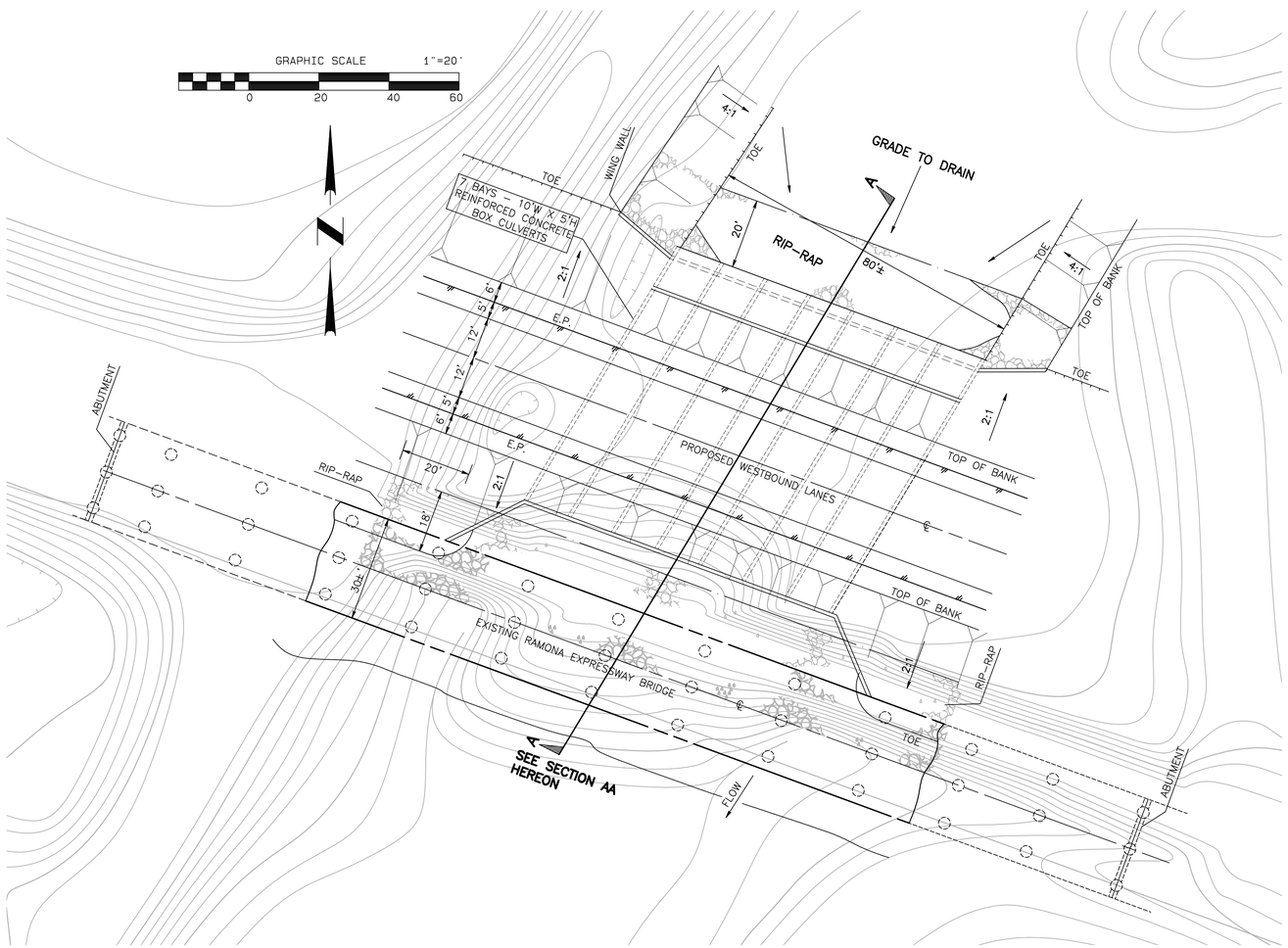
ELEMENT 1BC: RAMONA FLOW CONTROL STRUCTURE									
NO.	*DESCRIPTION*	*NO. BAYS*	*WIDTH (FT)*	*HEIGHT (FT)*	*LENGTH (FT)*	*WALL THICKNESS (FT)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
1	*R.C.B. CONCRETE (INCLUDING STEEL)	7	10	5.0	70.0	0.83	12250	454	---
2	**R.C.B. CONCRETE (INCLUDING STEEL)	---	---	---	---	0.83	2100	78	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*DEPTH (FT)*			*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
3	ROCK SLOPE PROTECTION	110	40	3.0	---	---	13200	489	---
4	OVER-EXCAVATION	70	70	1.0		---	4900	181	0.3
5	OVER-EXCAVATION	110	40	3.0			13200	489	
6	COMPACTED FILL (EXC > FILL)	---	---	---	---	---	4900	181	---
1) CONCRETE REINFORCED BOX CULVERT BASED ON ALT 5 CONFIGUATION AND CALTRANS D83A									
2) CONCRETE REINFORCED BOX CULVERT BASED ON ALT 5 CONFIGUATION									
3) RIPRAP AT UPSTREAM AND DOWNSTREAM ENDS OF BOX CULVERTS BASED ON ALT 5 CONFIGURATION									
4) OVER-EXCAVATION BELOW R.C.B CELLS									
5) OVER-EXCAVATION BELOW ROCK SLOPE PROTECTION									
6) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL									

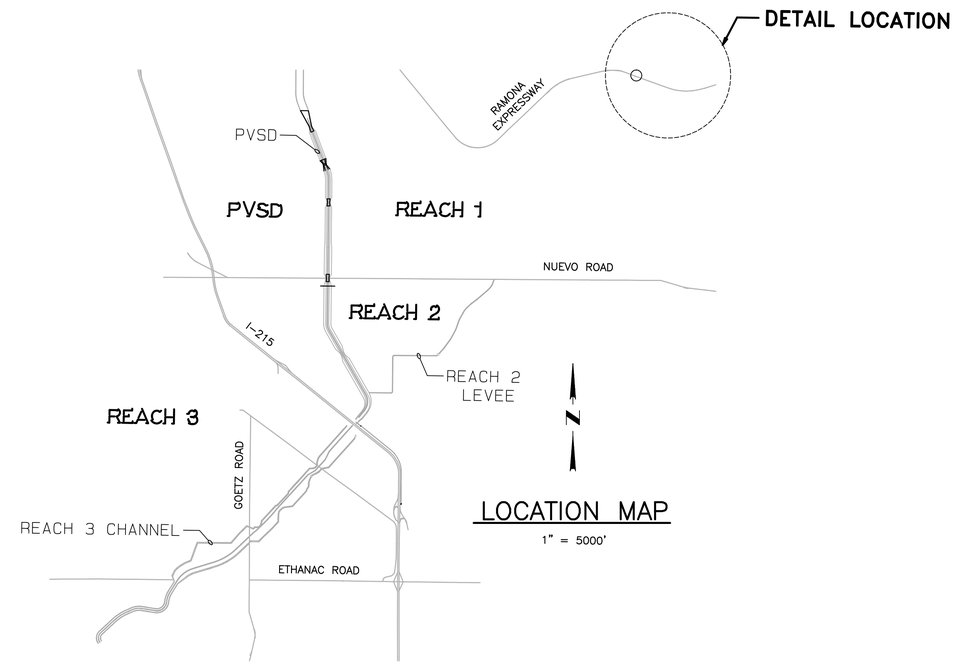
ELEMENT 1BC: RAMONA FLOW CONTROL BERM									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (SF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	6000	8	20	2.0	1728000	64000	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	TRAP CHANNEL CONCRETE (B>8)	6000	---	0.5	14.54	87240	3240	---	---
3	OVER-EXCAVATION	6000	92	---	410.0	2460000	91120	552000	13
4	COMPACTED FILL (EXC > FILL)	6000	92	---	410.0	2460000	91120	----	---
1) COMPACTED FILL REQUIRED TO CONSTRUCT 6000 LF BERM ALONG RAMONA EXPRESSWAY ACROSS SJR FLOODPLAIN									
2) CONCRETE LINER FOR BERM									
3) OVER-EXCAVATION FOR BERM									
4) COMPACTED FILL TO REPLACE MATERIAL REMOVED BY OVER-EXCAVATION									



SECTION A-A

NTS





LOCATION MAP

1" = 5000'

REVISIONS	DATE	BY

RAMONA EXPRESSWAY

FLOW CONTROL STRUCTURE ALT 5

SCALE	ALBERT A. WEBB ASSOCIATES	CIVIL ENGINEERS 3788 McCRAY ST. RIVERSIDE CA. 92506 (951) 686-1070	W.O. 03-461
DATE			SHEET 1
DESIGNED			OF 1 SHEETS
CHECKED			
PLN CK REF:	FILE: G:\2003\03-0461\DwgPro\Ramona Crossing.pro PLOT DATE: 6/24/2015		DWG. NO. 03-461
F.B.			

ELEMENT 2A1: EXPANDED VOLUME UPSTREAM OF I-215 (ALTERNATIVE 1)

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 2A1 Expanded Volume Upstream of I-215 (Alternative 1)

PROJECT NAME

CONSTRUCTION COST	$	10,140,326
PLUS 22% LUMP SUM ITEMS	+	2,230,872
PLUS 12% CONTINGENCY	+	1,216,839
SUBTOTAL	=	13,588,037
RIGHT-OF-WAY	+	0
TOTAL	**$**	**13,588,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- EXCAVATION FOR EXPANDED VOLUME ON PARK WEST AND NEW PERRIS PROPERTIES

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 2A1 Expanded Volume Upstream of I-215 (Alternative 1)

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	1536413	b > 8	$6.60	$10,140,326
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]			$80.00	
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$10,140,326
LUMP SUM ITEMS (22%)[6]	$2,230,872
CONTINGENCIES (12%)[7]	$1,216,839
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$3,180,006
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$16,768,043
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$16,768,043**

PROJECT DESCRIPTION: Element 2A1 Expanded Volume Upstream of I-215 (Alternative 1)

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

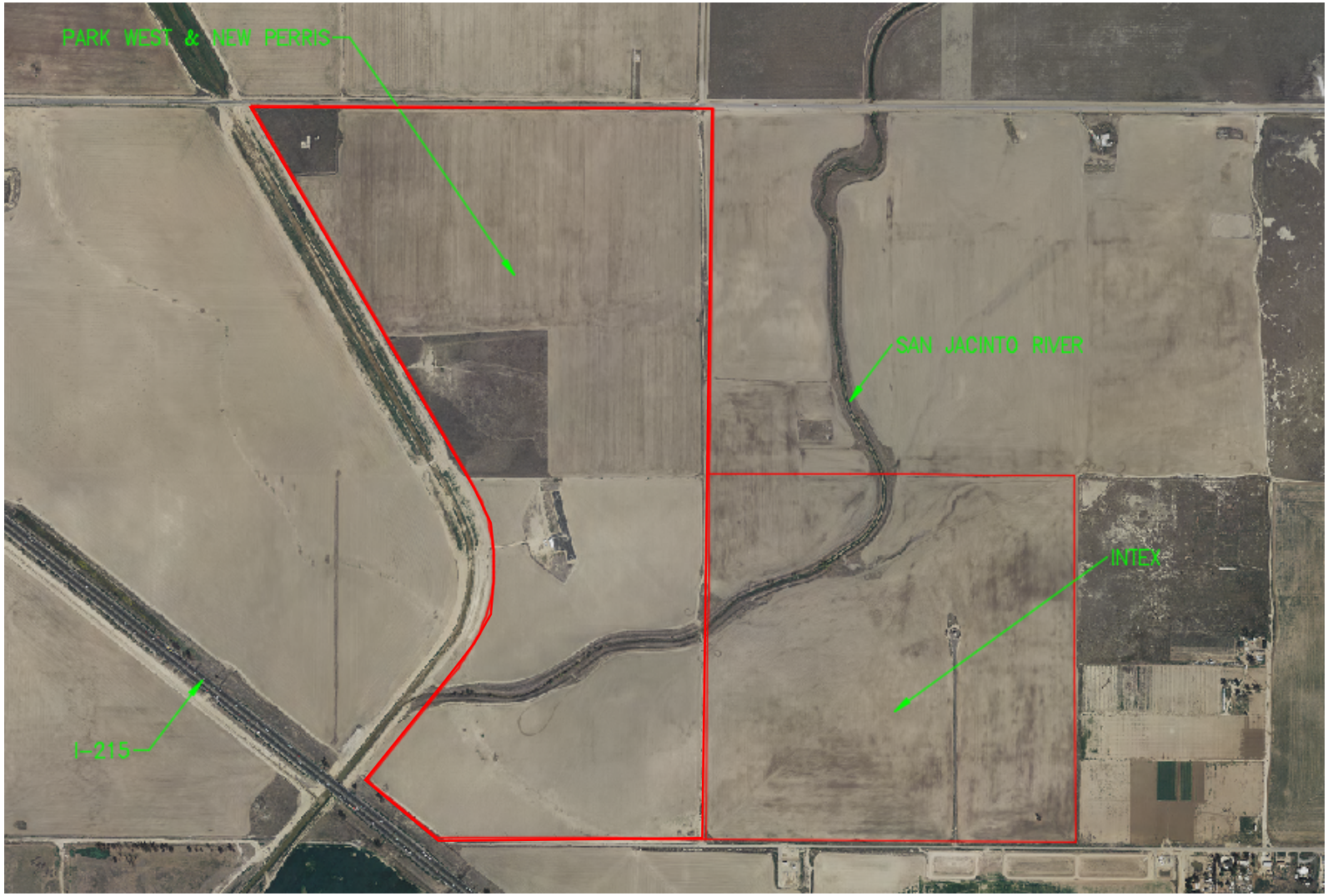
ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
		MISCELLANEOUS TOTAL		

ELEMENT 2A1: EXPANDED VOLUME (ALT 1)					
NO	***DESCRIPTION***	***EXCAVATION (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	1536413	11027350	3.8	260

1) THIS ELEMENT CONSISTS OF GRADING THE PARK WEST AND NEW PERRIS PROPERTIES IMMEDIATELY UPSTREAM OF THE SJR / PVSD CONFLUENCE. THE GRADING SHALL PRESERVE THE EXISTING SJR THALWEG WHILE CREATING A 0.1% SLOPE INTO THE SJR CHANNEL. AT THE EDGE OF THE PROPERTY THE GRADING WILL TIE INTO EXISTING GROUND WITH A 4:1 SLOPE

ALTERNATIVE 2A1: EXPANDED VOLUME (ALT 1)					
NO	***DESCRIPTION***	***EXCAVATION (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	PARK WEST & NEW PERRIS EXCAVATION	1536413	11027350	3.8	260

1) THIS ELEMENT CONSISTS OF GRADING THE PARK WEST AND NEW PERRIS PROPERTIES IMMEDIATELY UPSTREAM OF THE SJR / PVSD CONFLUENCE. THE GRADING SHALL PRESERVE THE EXISTING SJR THALWEG WHILE CREATING A 0.1% SLOPE INTO THE SJR CHANNEL. AT THE EDGE OF THE PROPERTY THE GRADING WILL TIE INTO EXISTING GROUND WITH A 4:1 SLOPE



ELEMENT 2A2: EXPANDED VOLUME UPSTREAM OF I-215 (ALTERNATIVE 2)

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 2A2 Expanded Volume Upstream of I-215 (Alternative 2)

PROJECT NAME

CONSTRUCTION COST	$	15,990,163
PLUS 22% LUMP SUM ITEMS	+	3,517,836
PLUS 12% CONTINGENCY	+	1,918,820
SUBTOTAL	=	21,426,819
RIGHT-OF-WAY	+	0
TOTAL	**$**	**21,427,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- EXCAVATION FOR EXPANDED VOLUME ON PARK WEST, NEW PERRIS, AND INTEX PROPERTIES

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 2A2 Expanded Volume Upstream of I-215 (Alternative 2)

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	2422752	b > 8	$6.60	$15,990,163
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]			$80.00	
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$15,990,163
LUMP SUM ITEMS (22%)[6]	$3,517,836
CONTINGENCIES (12%)[7]	$1,918,820
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$5,014,515
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$26,441,334
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$26,441,334**

PROJECT DESCRIPTION: Element 2A2 Expanded Volume Upstream of I-215 (Alternative 2)

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

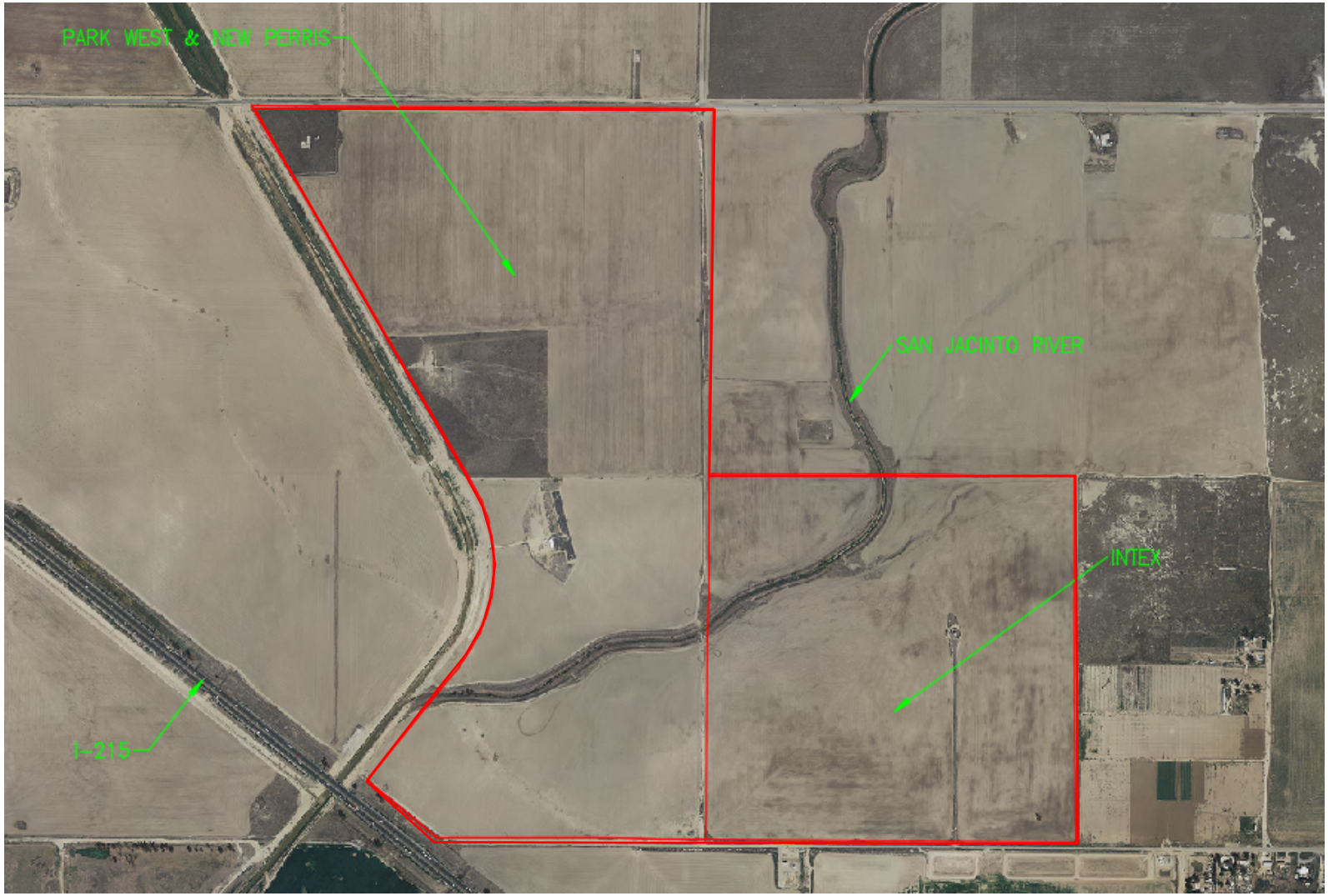
MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
		MISCELLANEOUS TOTAL		

ELEMENT 2A2: EXPANDED VOLUME (ALT 2)					
NO	***DESCRIPTION***	***EXCAVATION (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	2422752	17632322	3.7	410
1) THIS ELEMENT CONSISTS OF GRADING THE PARK WEST, NEW PERRIS, & INTEX PROPERTIES IMMEDIATELY UPSTREAM OF THE SJR / PVSD CONFLUENCE. THE GRADING SHALL PRESERVE THE EXISTING SJR THALWEG WHILE CREATING A 0.1% SLOPE INTO THE SJR CHANNEL. AT THE EDGE OF THE PROPERTY THE GRADING WILL TIE INTO EXISTING GROUND WITH A 4:1 SLOPE					

ALTERNATIVE 2A1: EXPANDED VOLUME (ALT 1)					
NO	***DESCRIPTION***	***EXCAVATION (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	PARK WEST & NEW PERRIS EXCAVATION	1536413	11027350	3.8	260

1) THIS ELEMENT CONSISTS OF GRADING THE PARK WEST AND NEW PERRIS PROPERTIES IMMEDIATELY UPSTREAM OF THE SJR / PVSD CONFLUENCE. THE GRADING SHALL PRESERVE THE EXISTING SJR THALWEG WHILE CREATING A 0.1% SLOPE INTO THE SJR CHANNEL. AT THE EDGE OF THE PROPERTY THE GRADING WILL TIE INTO EXISTING GROUND WITH A 4:1 SLOPE



ELEMENT 3A: FLOW CONTROL STRUCTURE AT I-215 AND PVSD LOW FLOW CHANNEL

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 3A Flow Control Structure at I-215 and PVSD Low Flow Ch.

PROJECT NAME

CONSTRUCTION COST	$	7,913,785
PLUS 22% LUMP SUM ITEMS	+	1,741,033
PLUS 12% CONTINGENCY	+	949,654
SUBTOTAL	=	10,604,473
RIGHT-OF-WAY	+	0
TOTAL	**$**	**10,604,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- I-215 FLOW CONTROL STRUCTURE
- FLOW CONTROL STRUCTURE EAST BERM
- FLOW CONTROL STRUCTURE WEST BERM
- PERRIS VALLEY STORM WIDENING AND LOW FLOW

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 3A Flow Control Structure at I-215 and PVSD Low Flow Ch.

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	696342	b > 8	$6.60	$4,595,857
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY	271397	EXC > FILL	$3.25	$882,040
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY	3923	b > 8[1]	$380.00	$1,490,740
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF	396000		$0.40	$158,400
ROCK SLOPE PROTECTION[4]	CY[2]	643		$80.00	$51,440
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				$735,308
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$7,913,785
LUMP SUM ITEMS (22%)[6]	$1,741,033
CONTINGENCIES (12%)[7]	$949,654
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$2,481,763
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$13,086,236
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$13,086,236**

PROJECT DESCRIPTION: Element 3A Flow Control Structure at I-215 and PVSD Low Flow Ch.

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

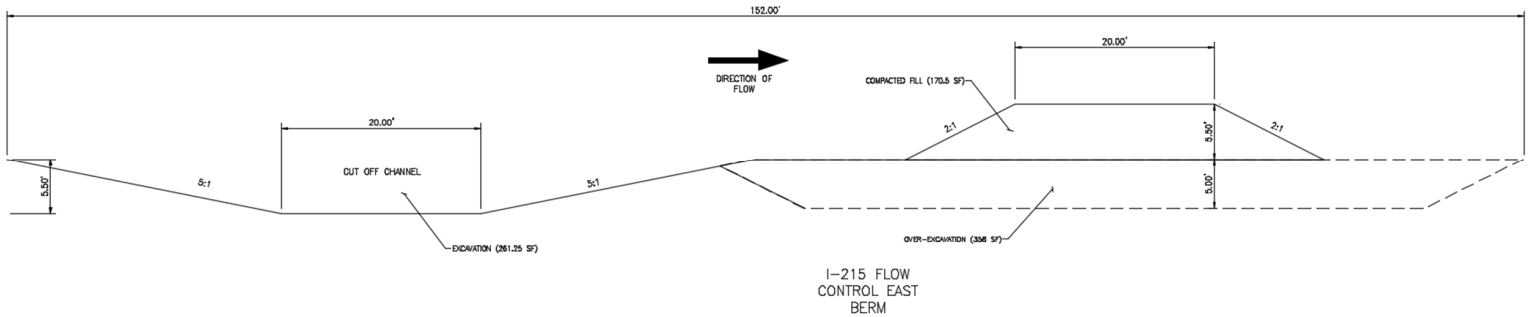
MISCELLANEOUS COSTS

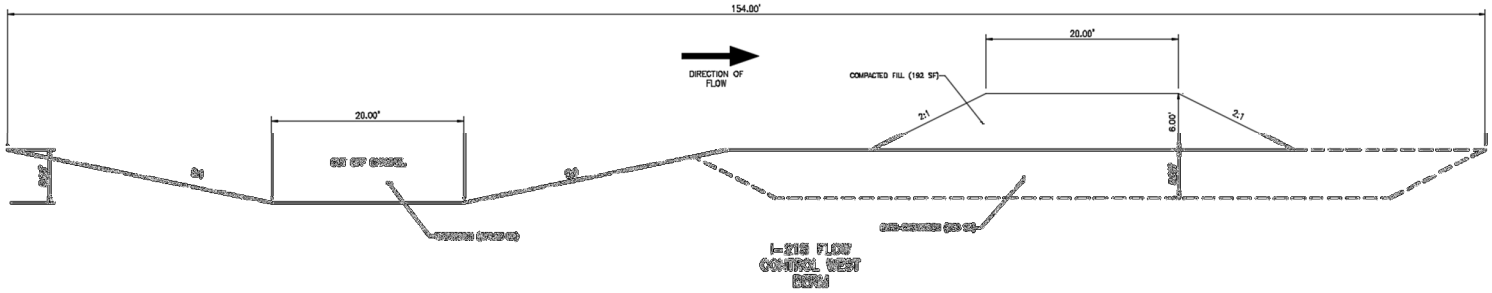
ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Over Excavation	183827	C.Y.	$4	$735,308
			MISCELLANEOUS TOTAL	$735,308

ELEMENT 3A: I-215 FLOW CONTROL STRUCTURE							
NO.	*DESCRIPTION*	*CONCRETE AREA (SF)*	*CONCRETE DEPTH (FT)*		*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
1	TRAP CHANNEL CONCRETE	158863	0.67		105909	3923	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*DEPTH (FT)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
2	ROCK SLOPE PROTECTION	434	10	4.0	17360	643	---
NO.	*DESCRIPTION*	*AREA*	*DEPTH*		*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
3	OVER-EXCAVATION	158863	1		158863	5884	4
4	OVER-EXCAVATION	4340	4		17360	643	1
5	COMPACTED FILL (EXC > FILL)	158863	1		158863	5884	---
1) CONCRETE LINING FOR FLOW CONTROL STRUCTURE AS SHOWN IN PRELIMINARY DETAILS I-215 FLOW CONTROL STRUCTURE ALT 5							
2) RIPRAP INSTALLED AT DOWNSTREAM END OF FLOW CONTROL SHOWN IN PRELIMINARY DETAILS I-215 FLOW CONTORL STRUCTURE ALT 5							
3) OVER-EXCAVATION FOR CONCRETE LININING							
4) OVER-EXCAVATION TO ALLOW FOR 4' THICK RIPRAP							
5) COMPACTED FILL TO REPLACE OVER-EXCAVATION UNDER CONCRETE LINING							

ELEMENT 3A: I-215 FLOW CONTROL EAST BERM									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	7100	5.5	20	2.0	1210550	44835	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	OVER-EXCAVATION	7100	92	---	358.0	2541800	94150	653200	15
3	COMPACTED FILL (EXC > FILL)	7100	92	---	358.0	2541800	94150	----	---
4	TRAP CHANNEL EXCAVATION	7100	60	---	261.3	1854875	68700	426000	10
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*AREA (SF)*					
5	CLASS 2 BASE (3" THICK)	7100	30	213000					
1) COMPACTED FILL REQUIRED FOR 9300 LF BERM PARALLEL TO I-215 AND EAST OF THE FLOW CONTROL STRUCTURE									
2) OVER-EXCAVATION FOR BERM									
3) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL BELOW BERM									
4) EXCAVATION FOR CUT OFF CHANNEL									
5) AGGREGATE BASE FOR ACCESS ROAD BETWEEN BERM AND CUTOFF CHANNEL									

ELEMENT 3A: I-215 FLOW CONTROL WEST BERM									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	6100	6.0	20	2.0	1171200	43378	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	OVER-EXCAVATION	6100	92	---	368.0	2244800	83150	561200	13
3	COMPACTED FILL (EXC > FILL)	6100	92	---	368.0	2244800	83150	----	---
4	TRAP CHANNEL EXCAVATION	6100	71.4	---	261.3	1593625	59030	435540	10
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*AREA (SF)*					
5	CLASS 2 BASE (3" THICK)	6100	30	183000					
1) COMPACTED FILL REQUIRED FOR 5500 LF BERM PARALLEL TO I-215 AND WEST OF THE FLOW CONTROL STRUCTURE									
2) OVER-EXCAVATION FOR BERM									
3) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL BELOW BERM									
4) EXCAVATION FOR CUT OFF CHANNEL									
5) AGGREGATE BASE BETWEEN BERM AND CUTOFF CHANNEL									





ELEMENT 3A.4; PERRIS VALLEY STORM DRAIN (EXC.)					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	568612	4514518	3.4	110
1) EXCAVATION SHALL BE USED TO CREATE A TRAPEZOIDAL CHANNEL WITH A NESTED TRAPEZOIDAL PILOT CHANNEL. THE PILOT CHANNEL SHALL BE 5' DEEP WITH A 16' BOTTOM WIDTH AND 4:1 SIDE SLOPES. THE MAIN CHANNEL SHALL BE 220' WIDE AT ITS BASE AND DAYLIGHT TO EXISTING GROUND USING 4:1 SIDE SLOPES ON EACH SIDE					

LOCATION:	PERRIS VALLEY STORM DRAIN (EXC.)	DESIGNED: DESIGNER
ADDRESS:	ALBERT A. WEBB ASSOCIATES ENGINEERING CONSULTANTS 3788 McCRAY STREET RIVERSIDE CA. 92506 PH. (951) 686-1070 FAX (951) 788-1256	CHECKED: CHECKER DATE: DATE SCALE: SCALE

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ELEMENT 3AF: FLOW CONTROL STRUCTURE AT I-215 WITH FLARED PVSD

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 3AF Flow Control Structure at I-215 with Flared PVSD

PROJECT NAME

CONSTRUCTION COST	$	11,165,694
PLUS 22% LUMP SUM ITEMS	+	2,456,453
PLUS 12% CONTINGENCY	+	1,339,883
SUBTOTAL	=	14,962,030
RIGHT-OF-WAY	+	0
TOTAL	**$**	**14,962,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- I-215 FLOW CONTROL STRUCTURE
- FLOW CONTROL STRUCTURE EAST BERM
- FLOW CONTROL STRUCTURE WEST BERM
- AUXILLIARY CULVERT EXTENSIONS
- PERRIS VALLEY STORM DRAIN WIDENING AND LOWER WITH FLARE AT I-215

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 3AF Flow Control Structure at I-215 with Flared PVSD

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	952860	b > 8	$6.60	$6,288,876
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY	305197	EXC > FILL	$3.25	$991,890
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY	3923	b > 8[1]	$380.00	$1,490,740
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY	2456	L > 150	$590.00	$1,449,040
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF	396000		$0.40	$158,400
ROCK SLOPE PROTECTION[4]	CY[2]	643		$80.00	$51,440
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				$735,308
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$11,165,694
LUMP SUM ITEMS (22%)[6]	$2,456,453
CONTINGENCIES (12%)[7]	$1,339,883
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$3,501,562
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$18,463,592
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$18,463,592**

PROJECT DESCRIPTION: Element 3AF Flow Control Structure at I-215 with Flared PVSD

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

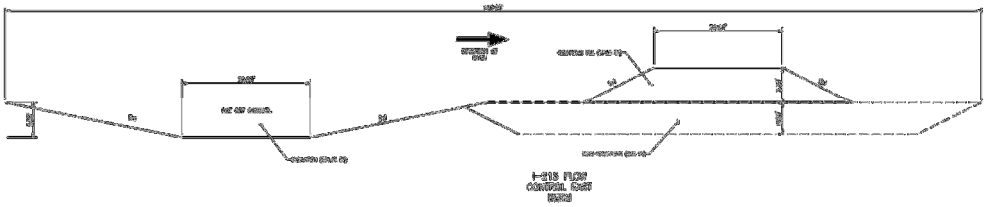
MISCELLANEOUS COSTS

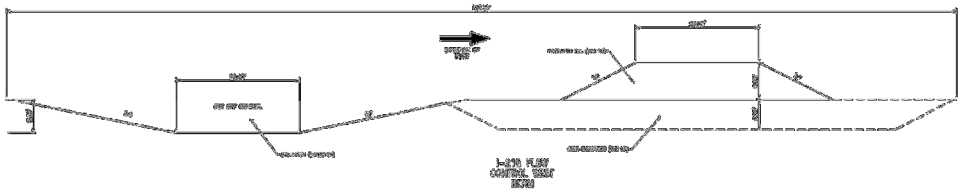
ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
OVER-EXCAVATION	183827	C.Y.	$4	$735,308
		MISCELLANEOUS TOTAL		$735,308

ELEMENT 3AF: I-215 FLOW CONTROL STRUCTURE							
NO.	*DESCRIPTION*	*CONCRETE AREA (SF)*	*CONCRETE DEPTH (FT)*		*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
1	TRAP CHANNEL CONCRETE	158863	0.67		105909	3923	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*DEPTH (FT)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
2	ROCK SLOPE PROTECTION	434	10	4.0	17360	643	---
NO.	*DESCRIPTION*	*AREA*	*DEPTH*		*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
3	OVER-EXCAVATION	158863	1		158863	5884	4
4	OVER-EXCAVATION	4340	4		17360	643	1
5	COMPACTED FILL (EXC > FILL)	158863	1		158863	5884	---
1) CONCRETE LINING FOR FLOW CONTROL STRUCTURE AS SHOWN IN PRELIMINARY DETAILS I-215 FLOW CONTROL STRUCTURE ALT 5							
2) RIPRAP INSTALLED AT DOWNSTREAM END OF FLOW CONTROL SHOWN IN PRELIMINARY DETAILS I-215 FLOW CONTORL STRUCTURE ALT 5							
3) OVER-EXCAVATION FOR CONCRETE LININING							
4) OVER-EXCAVATION TO ALLOW FOR 4' THICK RIPRAP							
5) COMPACTED FILL TO REPLACE OVER-EXCAVATION UNDER CONCRETE LINING							

ELEMENT 3AF: I-215 FLOW CONTROL EAST BERM									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	7100	5.5	20	2.0	1210550	44835	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	OVER-EXCAVATION	7100	92	---	358.0	2541800	94150	653200	15
3	COMPACTED FILL (EXC > FILL)	7100	92	---	358.0	2541800	94150	----	---
4	TRAP CHANNEL EXCAVATION	7100	60	---	261.3	1854875	68700	426000	10
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*AREA (SF)*					
5	CLASS 2 BASE (3" THICK)	7100	30	213000					
1) COMPACTED FILL REQUIRED FOR 9300 LF BERM PARALLEL TO I-215 AND EAST OF THE FLOW CONTROL STRUCTURE									
2) OVER-EXCAVATION FOR BERM									
3) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL BELOW BERM									
4) EXCAVATION FOR CUT OFF CHANNEL									
5) AGGREGATE BASE FOR ACCESS ROAD ON EITHER SIDE OF LEVEE									

ELEMENT 3AF: I-215 FLOW CONTROL WEST BERM									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	6100	6.0	20	2.0	1171200	43378	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	OVER-EXCAVATION	6100	92	---	368.0	2244800	83150	561200	13
3	COMPACTED FILL (EXC > FILL)	6100	92	---	368.0	2244800	83150	----	---
4	TRAP CHANNEL EXCAVATION	6100	71.4	---	261.3	1593625	59030	435540	10
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*AREA (SF)*					
5	CLASS 2 BASE (3" THICK)	6100	30	183000					
1) COMPACTED FILL REQUIRED FOR 5500 LF BERM PARALLEL TO I-215 AND WEST OF THE FLOW CONTROL STRUCTURE									
2) OVER-EXCAVATION FOR BERM									
3) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL BELOW BERM									
4) EXCAVATION FOR CUT OFF CHANNEL									
5) AGGREGATE BASE FOR ACCESS ROAD ON EITHER SIDE OF LEVEE									





ELEMENT 3AF; AUXILLIARY CULVERT EXTENSIONS							
NO	***DESCRIPTION***	***LENGTH (FT)***	***HEIGHT (FT)***	***WIDTH (FT)***	***THICKNESS (FT)***	**VOLUME (CY)**	**FOOTPRINT (AC)**
1	R.C.B. CONCRETE (INCLUDING STEEL)	1170	7	10.0	1	1473	---
1	R.C.B. CONCRETE (INCLUDING STEEL)	390	7	27.0	1	982	---
1	COMPACTED FILL	---	---	---	---	33800	4
1) EXTENSION OF 6 CONCRETE BOX CULVERTS RUNNING BELOW I-215, LENGTH SHOWN IS SUM OF ALL 6 INDIVIDUAL LENGTHS							
2) EXTENSION OF 2 CONCRETE BOX CULVERTS RUNNING BELOW I-215. LENGTH SHOWN IS SUM OF BOTH INDIVIDUAL LENGTHS							
3) COMPACTED FILL TO COVER CULVERT EXTENSIONS BETWEEN I-215 AND THE FLOW CONTROL LEVEES							

ELEMENT 3AF; PERRIS VALLEY STORM DRAIN (EXC.)					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	825130	5404422	4.1	130
1) EXCAVATION SHALL BE USED TO CREATE A TRAPEZOIDAL CHANNEL WITH A NESTED TRAPEZOIDAL PILOT CHANNEL. THE PILOT CHANNEL SHALL BE 6' DEEP WITH A 16' BOTTOM WIDTH AND 4:1 SIDE SLOPES. THE MAIN CHANNEL SHALL BE 220' WIDE AT ITS BASE AND DAYLIGHT TO EXISTING GROUND USING 5:1 SIDE SLOPES ON EACH SIDE. JUST BEFORE I-215 THE CHANNEL SHALL FLAIR OUT TO APPROXIMATELY 3000LF IN WIDTH TO ALLOW DRAINAGE THROUGH AUXILLIARY CUVLERTS RUNNING BELOW I-215					

ELEMENT 3ANL: FLOW CONTROL STRUCTURE AT I-215 WITH FLARED PVSD

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 3ANL Flow Control Structure at I-215 with No Lowering of PVSD

PROJECT NAME

CONSTRUCTION COST	$	5,984,242
PLUS 22% LUMP SUM ITEMS	+	1,316,533
PLUS 12% CONTINGENCY	+	718,109
SUBTOTAL	=	8,018,885
RIGHT-OF-WAY	+	0
TOTAL	**$**	**8,019,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- I-215 FLOW CONTROL STRUCTURE
- FLOW CONTROL STRUCTURE EAST BERM
- FLOW CONTROL STRUCTURE WEST BERM
- PERRIS VALLEY STORM DRAIN WIDENING (MAINTAIN EXISTING INVERT)

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 3ANL Flow Control Structure at I-215 with No Lowering of PVSD

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	403987	b > 8	$6.60	$2,666,314
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY	271397	EXC > FILL	$3.25	$882,040
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY	3923	b > 8[1]	$380.00	$1,490,740
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF	396000		$0.40	$158,400
ROCK SLOPE PROTECTION[4]	CY[2]	643		$80.00	$51,440
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				$735,308
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$5,984,242
LUMP SUM ITEMS (22%)[6]	$1,316,533
CONTINGENCIES (12%)[7]	$718,109
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$1,876,658
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$9,895,543
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	**$9,895,543**
01/09/17		

PROJECT DESCRIPTION: Element 3ANL Flow Control Structure at I-215 with No Lowering of PVSD

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

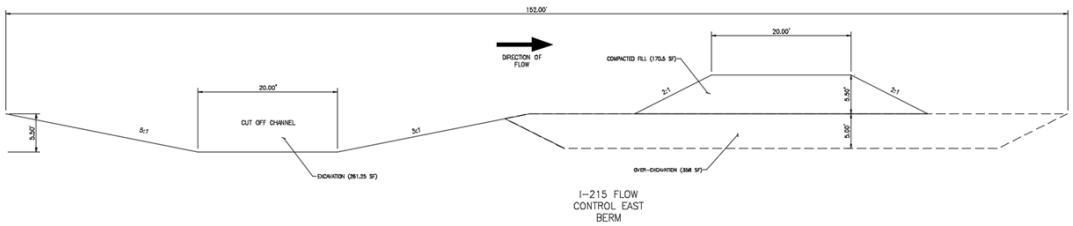
MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Over Excavation	183827	C.Y.	$4	$735,308
			MISCELLANEOUS TOTAL	$735,308

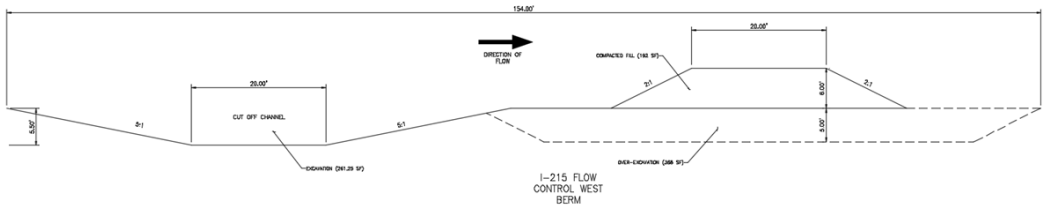
ELEMENT 3ANL: I-215 FLOW CONTROL STRUCTURE							
NO.	*DESCRIPTION*	*CONCRETE AREA (SF)*	*CONCRETE DEPTH (FT)*		*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
1	TRAP CHANNEL CONCRETE	158863	0.67		105909	3923	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*DEPTH (FT)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
2	ROCK SLOPE PROTECTION	434	10	4.0	17360	643	---
NO.	*DESCRIPTION*	*AREA*	*DEPTH*		*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
3	OVER-EXCAVATION	158863	1		158863	5884	4
4	OVER-EXCAVATION	4340	4		17360	643	1
5	COMPACTED FILL (EXC > FILL)	158863	1		158863	5884	---
1) CONCRETE LINING FOR FLOW CONTROL STRUCTURE AS SHOWN IN PRELIMINARY DETAILS I-215 FLOW CONTROL STRUCTURE ALT 5							
2) RIPRAP INSTALLED AT DOWNSTREAM END OF FLOW CONTROL SHOWN IN PRELIMINARY DETAILS I-215 FLOW CONTORL STRUCTURE ALT 5							
3) OVER-EXCAVATION FOR CONCRETE LININING							
4) OVER-EXCAVATION TO ALLOW FOR 4' THICK RIPRAP							
5) COMPACTED FILL TO REPLACE OVER-EXCAVATION UNDER CONCRETE LINING							

ELEMENT 3ANL: I-215 FLOW CONTROL EAST BERM									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	7100	5.5	20	2.0	1210550	44835	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	OVER-EXCAVATION	7100	92	---	358.0	2541800	94150	653200	15
3	COMPACTED FILL (EXC > FILL)	7100	92	---	358.0	2541800	94150	----	---
4	TRAP CHANNEL EXCAVATION	7100	60	---	261.3	1854875	68700	426000	10
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*AREA (SF)*					
5	CLASS 2 BASE (3" THICK)	7100	30	213000					
1) COMPACTED FILL REQUIRED FOR 9300 LF BERM PARALLEL TO I-215 AND EAST OF THE FLOW CONTROL STRUCTURE									
2) OVER-EXCAVATION FOR BERM									
3) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL BELOW BERM									
4) EXCAVATION FOR CUT OFF CHANNEL									
5) AGGREGATE BASE FOR ACCESS ROAD ON EITHER SIDE OF LEVEE									

ELEMENT 3ANL: I-215 FLOW CONTROL WEST BERM									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	6100	6.0	20	2.0	1171200	43378	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	OVER-EXCAVATION	6100	92	---	368.0	2244800	83150	561200	13
3	COMPACTED FILL (EXC > FILL)	6100	92	---	368.0	2244800	83150	----	---
4	TRAP CHANNEL EXCAVATION	6100	71.4	---	261.3	1593625	59030	435540	10
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*AREA (SF)*					
5	CLASS 2 BASE (3" THICK)	6100	30	183000					
1) COMPACTED FILL REQUIRED FOR 5500 LF BERM PARALLEL TO I-215 AND WEST OF THE FLOW CONTROL STRUCTURE									
2) OVER-EXCAVATION FOR BERM									
3) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL BELOW BERM									
4) EXCAVATION FOR CUT OFF CHANNEL									
5) AGGREGATE BASE FOR ACCESS ROAD ON EITHER SIDE OF LEVEE									



I-215 FLOW CONTROL EAST BERM



ELEMENT 3ANL; PERRIS VALLEY STORM DRAIN (EXC.)					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	276257	3128371	2.4	80
1) WIDENING OF THE PERRIS VALLEY STORM DRAIN TO APPROXIMATELY 165 LF, THEN DAYLIGHTING WHILE MAINTAINING THE EXISTING					

LOCATION:	PERRIS VALLEY STORM DRAIN (EXC.)	DESIGNED: DESIGNER
ADDRESS:	ALBERT A. WEBB ASSOCIATES ENGINEERING CONSULTANTS 3788 McCRAY STREET RIVERSIDE CA. 92506 PH. (951) 686-1070 FAX (951) 788-1256	CHECKED: CHECKER DATE: DATE SCALE: SCALE

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ELEMENT 3B1: FLOW CONTROL STRUCTURE AT I-215 & FILL

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 3B1 Flow Control Structure at I-215 and Fill

PROJECT NAME

CONSTRUCTION COST	$	7,913,785
PLUS 22% LUMP SUM ITEMS	+	1,741,033
PLUS 12% CONTINGENCY	+	949,654
SUBTOTAL	=	10,604,473
RIGHT-OF-WAY	+	0
TOTAL	**$**	**10,604,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- I-215 FLOW CONTROL STRUCTURE
- FLOW CONTROL STRUCTURE EAST BERM
- FLOW CONTROL STRUCTURE WEST BERM
- PERRIS VALLEY STORM DRAIN WIDENING AND LOW FLOW

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 3B1 Flow Control Structure at I-215 and Fill

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	696342	b > 8	$6.60	$4,595,857
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY	271397	EXC > FILL	$3.25	$882,040
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY	3923	b > 8[1]	$380.00	$1,490,740
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF	396000		$0.40	$158,400
ROCK SLOPE PROTECTION[4]	CY[2]	643		$80.00	$51,440
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				$735,308
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$7,913,785
LUMP SUM ITEMS (22%)[6]	$1,741,033
CONTINGENCIES (12%)[7]	$949,654
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$2,481,763
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$13,086,236
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$13,086,236**

PROJECT DESCRIPTION: Element 3B1 Flow Control Structure at I-215 and Fill

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

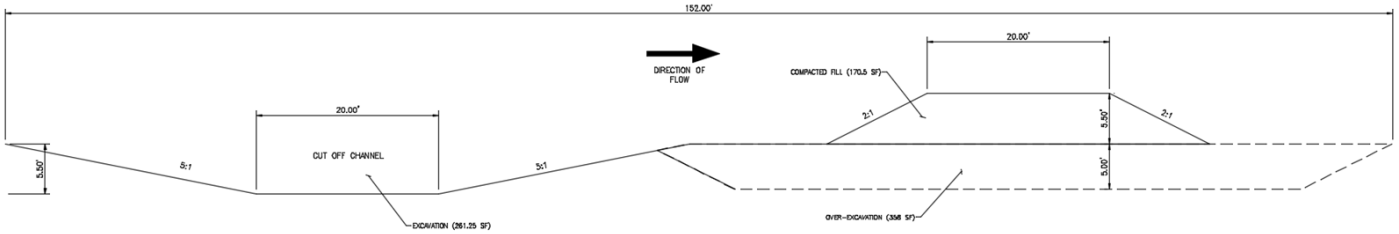
MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
OVER-EXCAVATION	183827	C.Y.	$4	$735,308
		MISCELLANEOUS TOTAL		$735,308

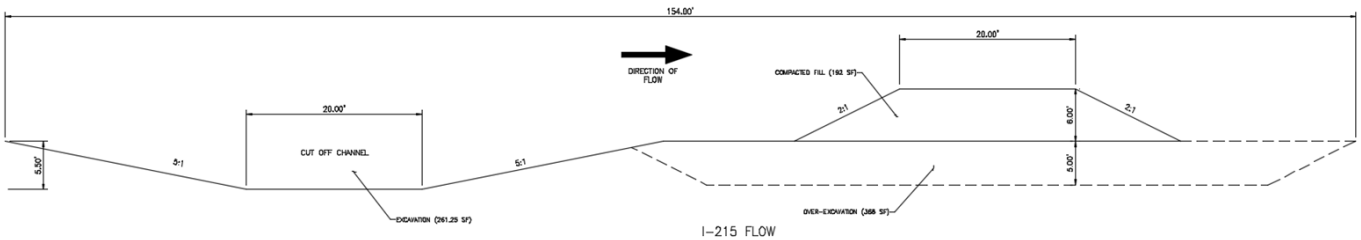
ELEMENT 3B1: I-215 FLOW CONTROL STRUCTURE							
NO.	*DESCRIPTION*	*CONCRETE AREA (SF)*	*CONCRETE DEPTH (FT)*		*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
1	TRAP CHANNEL CONCRETE	158863	0.67		105909	3923	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*DEPTH (FT)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
2	ROCK SLOPE PROTECTION	434	10	4.0	17360	643	---
NO.	*DESCRIPTION*	*AREA*	*DEPTH*		*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
3	OVER-EXCAVATION	158863	1		158863	5884	4
4	OVER-EXCAVATION	4340	4		17360	643	0
5	COMPACTED FILL (EXC > FILL)	158863	1		158863	5884	---
1) CONCRETE LINING FOR FLOW CONTROL STRUCTURE AS SHOWN IN PRELIMINARY DETAILS I-215 FLOW CONTROL STRUCTURE ALT 5							
2) RIPRAP INSTALLED AT DOWNSTREAM END OF FLOW CONTROL SHOWN IN PRELIMINARY DETAILS I-215 FLOW CONTORL STRUCTURE ALT 5							
3) OVER-EXCAVATION FOR CONCRETE LININING							
4) OVER-EXCAVATION TO ALLOW FOR 4' THICK RIPRAP							
5) COMPACTED FILL TO REPLACE OVER-EXCAVATION UNDER CONCRETE LINING							

ELEMENT 3B1: I-215 FLOW CONTROL EAST BERM									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	7100	5.5	20	2.0	1210550	44835	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	OVER-EXCAVATION	7100	92	---	358.0	2541800	94150		9
3	COMPACTED FILL (EXC > FILL)	7100	92	---	358.0	2541800	94150	----	---
4	TRAP CHANNEL EXCAVATION	7100	60	---	261.3	1854875	68700		10
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*AREA (SF)*					
5	CLASS 2 BASE (3" THICK)	7100	30	213000					
1) COMPACTED FILL REQUIRED FOR 9300 LF BERM PARALLEL TO I-215 AND EAST OF THE FLOW CONTROL STRUCTURE									
2) OVER-EXCAVATION FOR BERM									
3) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL BELOW BERM									
4) EXCAVATION FOR CUT OFF CHANNEL									
5) AGGREGATE BASE FOR ACCESS ROAD ON EITHER SIDE OF LEVEE									

ELEMENT 3B1: I-215 FLOW CONTROL WEST BERM									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	6100	6.0	20	2.0	1171200	43378	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	OVER-EXCAVATION	6100	92	---	368.0	2244800	83150		9
3	COMPACTED FILL (EXC > FILL)	6100	92	---	368.0	2244800	83150	----	---
4	TRAP CHANNEL EXCAVATION	6100	71.4	---	261.3	1593625	59030		10
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*AREA (SF)*					
5	CLASS 2 BASE (3" THICK)	6100	30	183000					
1) COMPACTED FILL REQUIRED FOR 5500 LF BERM PARALLEL TO I-215 AND WEST OF THE FLOW CONTROL STRUCTURE									
2) OVER-EXCAVATION FOR BERM									
3) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL BELOW BERM									
4) EXCAVATION FOR CUT OFF CHANNEL									
5) AGGREGATE BASE FOR ACCESS ROAD ON EITHER SIDE OF LEVEE									



I–215 FLOW CONTROL EAST BERM



I–215 FLOW CONTROL WEST BERM

ELEMENT 3B1; PERRIS VALLEY STORM DRAIN (EXC.)					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	568612	4514518	3.4	90
1) EXCAVATION SHALL BE USED TO CREATE A TRAPEZOIDAL CHANNEL WITH A NESTED TRAPEZOIDAL PILOT CHANNEL. THE PILOT CHANNEL SHALL BE 6' DEEP WITH A 16' BOTTOM WIDTH AND 4:1 SIDE SLOPES. THE MAIN CHANNEL SHALL BE 220' WIDE AT ITS BASE AND DAYLIGHT TO EXISTING GROUND USING 5:1 SIDE SLOPES ON EACH SIDE. JUST BEFORE I-215 THE CHANNEL SHALL FLAIR OUT TO APPROXIMATELY 3000LF IN WIDTH TO ALLOW DRAINAGE THROUGH AUXILLIARY CUVLERTS RUNNING BELOW I-215					

ELEMENT 3B1; FUTURE DEVELOPMENT CONSTRUCTION FOOTPRINT		
NO	DESCRIPTION	ACRES
1	NEW PERRIS FILL	300
2	NORTH NEW PERRIS FILL	36
3	PARK WEST FILL	460
1) PROPOSED NEW PERRIS FILL		
2) PROPOSED NORTH NEW PERRIS FILL		
3) PROPOSED PARK WEST FILL		

LOCATION:	PERRIS VALLEY STORM DRAIN (EXC.)	DESIGNED: DESIGNER
ADDRESS:	ALBERT A. WEBB ASSOCIATES ENGINEERING CONSULTANTS 3788 McCRAY STREET RIVERSIDE CA. 92506 PH. (951) 686-1070 FAX (951) 788-1256	CHECKED: CHECKER DATE: DATE SCALE: SCALE

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ELEMENT 3B1F: FLOW CONTROL STRUCTURE AT I-215 & FILL

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 3B1F Flow Control Structure at I-215 with Flared PVSD and Fill

PROJECT NAME

CONSTRUCTION COST	$	11,165,694
PLUS 22% LUMP SUM ITEMS	+	2,456,453
PLUS 12% CONTINGENCY	+	1,339,883
SUBTOTAL	=	14,962,030
RIGHT-OF-WAY	+	0
TOTAL	**$**	**14,962,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- I-215 FLOW CONTROL STRUCTURE
- FLOW CONTROL STRUCTURE EAST BERM
- FLOW CONTROL STRUCTURE WEST BERM
- PERRIS VALLEY STORM DRAIN WIDENING, LOW FLOW, AND FLARING AT I-215

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 3B1F Flow Control Structure at I-215 with Flared PVSD and Fill

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	952860	b > 8	$6.60	$6,288,876
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY	305197	EXC > FILL	$3.25	$991,890
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY	3923	b > 8[1]	$380.00	$1,490,740
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY	2456	L > 150	$590.00	$1,449,040
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF	396000		$0.40	$158,400
ROCK SLOPE PROTECTION[4]	CY[2]	643		$80.00	$51,440
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				$735,308
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$11,165,694
LUMP SUM ITEMS (22%)[6]	$2,456,453
CONTINGENCIES (12%)[7]	$1,339,883
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$3,501,562
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$18,463,592
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$18,463,592**

PROJECT DESCRIPTION: Element 3B1F Flow Control Structure at I-215 with Flared PVSD and Fill

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
OVER-EXCAVATION	183827	C.Y.	$4	$735,308
		MISCELLANEOUS TOTAL		$735,308

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 3B1F OR 3B2F PHASE 1

PROJECT NAME

CONSTRUCTION COST	$	9,467,072
PLUS 22% LUMP SUM ITEMS	+	2,082,756
PLUS 12% CONTINGENCY	+	1,136,049
SUBTOTAL	=	12,685,877
RIGHT-OF-WAY	+	0
TOTAL	**$**	**12,686,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- I-215 FLOW CONTROL STRUCTURE
- FLOW CONTROL STRUCTURE EAST BERM
- FLOW CONTROL STRUCTURE WEST BERM
- PERRIS VALLEY STORM DRAIN WIDENING, LOW FLOW, AND FLARING AT I-215

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 3B1F OR 3B2F PHASE 1

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	695493	b > 8	$6.60	$4,590,254
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY	305197	EXC > FILL	$3.25	$991,890
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY	3923	b > 8[1]	$380.00	$1,490,740
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY	2456	L > 150	$590.00	$1,449,040
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF	396000		$0.40	$158,400
ROCK SLOPE PROTECTION[4]	CY[2]	643		$80.00	$51,440
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				$735,308
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$9,467,072
LUMP SUM ITEMS (22%)[6]	$2,082,756
CONTINGENCIES (12%)[7]	$1,136,049
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$2,968,874
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$15,654,750
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$15,654,750**

PROJECT DESCRIPTION: Element 3B1F OR 3B2F PHASE 1

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
OVER-EXCAVATION	183827	C.Y.	$4	$735,308
		MISCELLANEOUS TOTAL		$735,308

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 3B1F OR 3B2F PHASE 2

PROJECT NAME

CONSTRUCTION COST	$	1,698,622
PLUS 22% LUMP SUM ITEMS	+	373,697
PLUS 12% CONTINGENCY	+	203,835
SUBTOTAL	=	2,276,154
RIGHT-OF-WAY	+	0
TOTAL	**$**	**2,276,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

	PROJECT LENGTH	RESPONSIBLE SECTION
	00 + 00	CONSULTANT PROJEC

ENGR. INT.

PROJECT DESCRIPTION:

- I-215 FLOW CONTROL STRUCTURE
- FLOW CONTROL STRUCTURE EAST BERM
- FLOW CONTROL STRUCTURE WEST BERM
- PERRIS VALLEY STORM DRAIN WIDENING, LOW FLOW, AND FLARING AT I-215

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 3B1F OR 3B2F PHASE 2

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	257367	b > 8	$6.60	$1,698,622
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]			$80.00	
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$1,698,622
LUMP SUM ITEMS (22%)[6]	$373,697
CONTINGENCIES (12%)[7]	$203,835
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$532,688
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$2,808,842
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$2,808,842**

PROJECT DESCRIPTION: Element 3B1F OR 3B2F PHASE 2

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

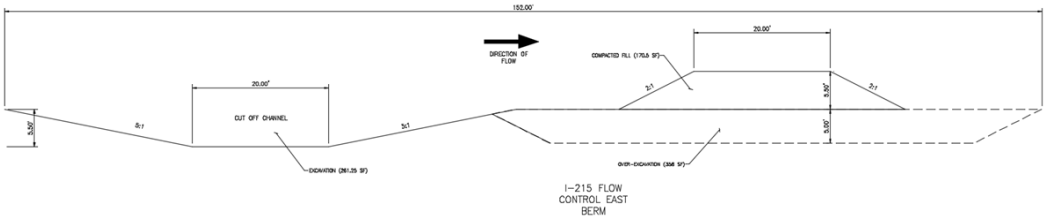
MISCELLANEOUS COSTS

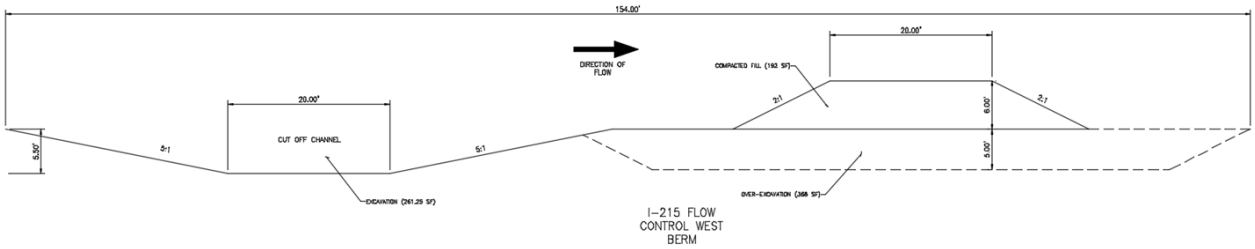
ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
		MISCELLANEOUS TOTAL		

ELEMENT 3B1F: I-215 FLOW CONTROL STRUCTURE (PHASE 1)							
NO.	*DESCRIPTION*	*CONCRETE AREA (SF)*	*CONCRETE DEPTH (FT)*		*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
1	TRAP CHANNEL CONCRETE	158863	0.67		105909	3923	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*DEPTH (FT)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
2	ROCK SLOPE PROTECTION	434	10	4.0	17360	643	---
NO.	*DESCRIPTION*	*AREA*	*DEPTH*		*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
3	OVER-EXCAVATION	158863	1		158863	5884	4
4	OVER-EXCAVATION	4340	4		17360	643	---
5	COMPACTED FILL (EXC > FILL)	158863	1		158863	5884	---
1) CONCRETE LINING FOR FLOW CONTROL STRUCTURE AS SHOWN IN PRELIMINARY DETAILS I-215 FLOW CONTROL STRUCTURE ALT 5							
2) RIPRAP INSTALLED AT DOWNSTREAM END OF FLOW CONTROL SHOWN IN PRELIMINARY DETAILS I-215 FLOW CONTORL STRUCTURE ALT 5							
3) OVER-EXCAVATION FOR CONCRETE LININING							
4) OVER-EXCAVATION TO ALLOW FOR 4' THICK RIPRAP							
5) COMPACTED FILL TO REPLACE OVER-EXCAVATION UNDER CONCRETE LINING							

ELEMENT 3B1F: I-215 FLOW CONTROL EAST BERM (PHASE 1)									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	7100	5.5	20	2.0	1210550	44835	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	OVER-EXCAVATION	7100	92	---	358.0	2541800	94150		9
3	COMPACTED FILL (EXC > FILL)	7100	92	---	358.0	2541800	94150	----	---
4	TRAP CHANNEL EXCAVATION	7100	60	---	261.3	1854875	68700		10
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*AREA (SF)*					
5	CLASS 2 BASE (3" THICK)	7100	30	213000					
1) COMPACTED FILL REQUIRED FOR 9300 LF BERM PARALLEL TO I-215 AND EAST OF THE FLOW CONTROL STRUCTURE									
2) OVER-EXCAVATION FOR BERM									
3) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL BELOW BERM									
4) EXCAVATION FOR CUT OFF CHANNEL									
5) AGGREGATE BASE FOR ACCESS ROAD ON EITHER SIDE OF LEVEE									

ELEMENT 3B1F: I-215 FLOW CONTROL WEST BERM (PHASE 1)									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	6100	6.0	20	2.0	1171200	43378	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	OVER-EXCAVATION	6100	92	---	368.0	2244800	83150		9
3	COMPACTED FILL (EXC > FILL)	6100	92	---	368.0	2244800	83150	----	---
4	TRAP CHANNEL EXCAVATION	6100	71.4	---	261.3	1593625	59030		10
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*AREA (SF)*					
5	CLASS 2 BASE (3" THICK)	6100	30	183000					
1) COMPACTED FILL REQUIRED FOR 5500 LF BERM PARALLEL TO I-215 AND WEST OF THE FLOW CONTROL STRUCTURE									
2) OVER-EXCAVATION FOR BERM									
3) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL BELOW BERM									
4) EXCAVATION FOR CUT OFF CHANNEL									
5) AGGREGATE BASE FOR ACCESS ROAD ON EITHER SIDE OF LEVEE									





ELEMENT 3B1F; PERRIS VALLEY STORM DRAIN EXCAVATION (PHASE 1)					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	567763	3049200	5.0	70
1) PARTIAL EXCAVATION OF PERRIS VALLEY CHANNEL TO ESTABLISH INVERT ELEVATION. PARTIAL CHANNEL SHALL HAVE 16' BOTTOM WIDTH AND 2:1 SIDE SLOPES. JUST BEFORE I-215 THE CHANNEL SHALL FLAIR OUT TO APPROXIMATELY 3000LF IN WIDTH TO ALLOW DRAINAGE THROUGH AUXILLIARY CUVLERTS RUNNING BELOW I-215					

ELEMENT 3B1F; AUXILLIARY CULVERT EXTENSIONS (PHASE 1)							
NO	***DESCRIPTION***	***LENGTH (FT)***	***HEIGHT (FT)***	***WIDTH (FT)***	***THICKNESS (FT)***	**VOLUME (CY)**	**FOOTPRINT (AC)**
1	R.C.B. CONCRETE (INCLUDING STEEL)	1170	7	10.0	1	1473	---
1	R.C.B. CONCRETE (INCLUDING STEEL)	390	7	27.0	1	982	---
1	COMPACTED FILL	---	---	---	---	33800	---
1) EXTENSION OF 6 CONCRETE BOX CULVERTS RUNNING BELOW I-215, LENGTH SHOWN IS SUM OF ALL 6 INDIVIDUAL LENGTHS							
2) EXTENSION OF 2 CONCRETE BOX CULVERTS RUNNING BELOW I-215. LENGTH SHOWN IS SUM OF BOTH INDIVIDUAL LENGTHS							
3) COMPACTED FILL TO COVER CULVERT EXTENSIONS BETWEEN I-215 AND THE FLOW CONTROL LEVEES							

ELEMENT 3B1F; PERRIS VALLEY STORM DRAIN EXCAVATION (PHASE 2)					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	257367	2178000	3.2	50
1) FULL EXCAVATION AND WIDENING OF PERRIS VALLEY CHANNEL TO ESTABLISH INVERT ELEVATION. PARTIAL CHANNEL SHALL HAVE 16' BOTTOM WIDTH AND MULTIPLE GRADE BRAKES AS SHOWN IN THE PLANS FOR THE PREFERRED ALTERNATIVE PHASE 2. THE QUANTITES AND CONSTRUCTION FOOTPRINTS ALREADY COUNTED IN THE FIRST PHASE ARE NOT INCLUDED IN THIS PHASE.					

ELEMENT 3B1F; FUTURE DEVELOPMENT CONSTRUCTION FOOTPRINT		
NO	DESCRIPTION	ACRES
1	New Perris Fill	300
2	North New Perris Fill	36
3	Park West Fill	460
1) PROPOSED NEW PERRIS FILL		
2) PROPOSED NORTH NEW PERRIS FILL		
3) PROPOSED PARK WEST FILL		

ELEMENT 3B2: FLOW CONTROL STRUCTURE AT I-215 WITH PVSD BERM

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

EL. 3B2 FLOW CONTROL STR. AT I-215 W/ PVSD BERM

PROJECT NAME

CONSTRUCTION COST	$	7,913,785
PLUS 22% LUMP SUM ITEMS	+	1,741,033
PLUS 12% CONTINGENCY	+	949,654
SUBTOTAL	=	10,604,473
RIGHT-OF-WAY	+	0
TOTAL	**$**	**10,604,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- I-215 FLOW CONTROL STRUCTURE
- EAST FLOW CONTROL STRUCTURE BERM
- WEST FLOW CONTROL STRUCTURE BERM
- PERRIS VALLEY STORM DRAIN WIDENING AND LOW FLOW

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: EL. 3B2 FLOW CONTROL STR. AT I-215 W/ PVSD BERM

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	696342	b > 8	$6.60	$4,595,857
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY	271397	EXC > FILL	$3.25	$882,040
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY	3923	b > 8[1]	$380.00	$1,490,740
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF	396000		$0.40	$158,400
ROCK SLOPE PROTECTION[4]	CY[2]	643		$80.00	$51,440
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				$735,308
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$7,913,785
LUMP SUM ITEMS (22%)[6]	$1,741,033
CONTINGENCIES (12%)[7]	$949,654
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$2,481,763
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$13,086,236
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$13,086,236**

PROJECT DESCRIPTION: EL. 3B2 FLOW CONTROL STR. AT I-215 W/ PVSD BERM

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

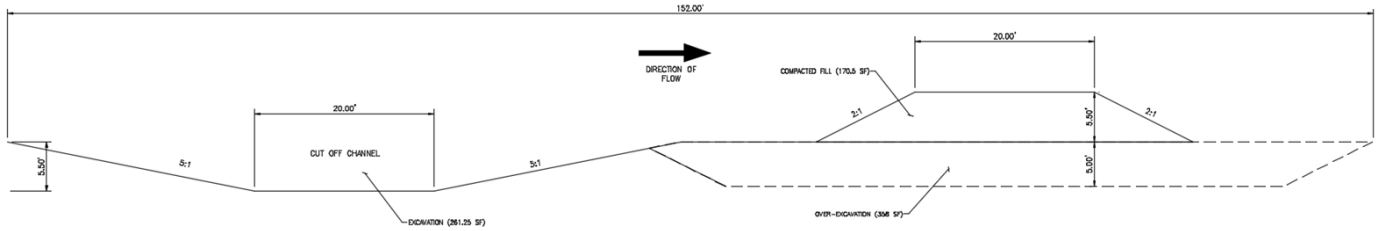
MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
OVER-EXCAVATION	183827	C.Y.	$4	$735,308
		MISCELLANEOUS TOTAL		$735,308

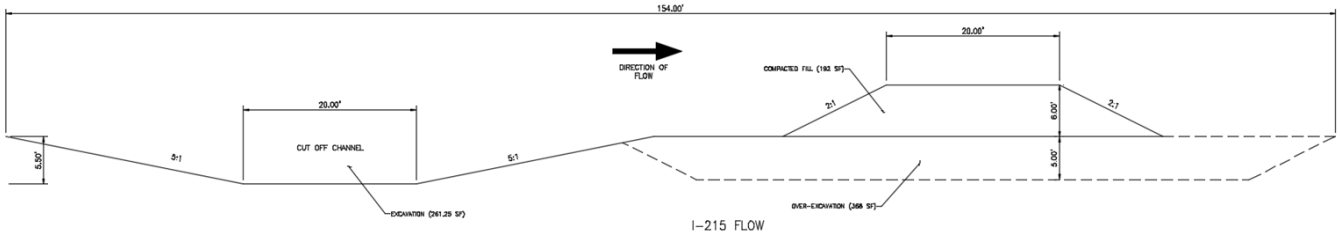
ELEMENT 3B2: I-215 FLOW CONTROL STRUCTURE							
NO.	*DESCRIPTION*	*CONCRETE AREA (SF)*	*CONCRETE DEPTH (FT)*		*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
1	TRAP CHANNEL CONCRETE	158863	0.67		105909	3923	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*DEPTH (FT)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
2	ROCK SLOPE PROTECTION	434	10	4.0	17360	643	---
NO.	*DESCRIPTION*	*AREA*	*DEPTH*		*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
3	OVER-EXCAVATION	158863	1		158863	5884	4
4	OVER-EXCAVATION	4340	4		17360	643	0
5	COMPACTED FILL (EXC > FILL)	158863	1		158863	5884	---
1) CONCRETE LINING FOR FLOW CONTROL STRUCTURE AS SHOWN IN PRELIMINARY DETAILS I-215 FLOW CONTROL STRUCTURE ALT 5							
2) RIPRAP INSTALLED AT DOWNSTREAM END OF FLOW CONTROL SHOWN IN PRELIMINARY DETAILS I-215 FLOW CONTORL STRUCTURE ALT 5							
3) OVER-EXCAVATION FOR CONCRETE LININING							
4) OVER-EXCAVATION TO ALLOW FOR 4' THICK RIPRAP							
5) COMPACTED FILL TO REPLACE OVER-EXCAVATION UNDER CONCRETE LINING							

ELEMENT 3B2: I-215 FLOW CONTROL EAST BERM									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	7100	5.5	20	2.0	1210550	44835	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	OVER-EXCAVATION	7100	92	---	358.0	2541800	94150	653200	9
3	COMPACTED FILL (EXC > FILL)	7100	92	---	358.0	2541800	94150	----	---
4	TRAP CHANNEL EXCAVATION	7100	60	---	261.3	1854875	68700	426000	10
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*AREA (SF)*					
5	CLASS 2 BASE (3" THICK)	7100	30	213000					
1) COMPACTED FILL REQUIRED FOR 9300 LF BERM PARALLEL TO I-215 AND EAST OF THE FLOW CONTROL STRUCTURE									
2) OVER-EXCAVATION FOR BERM									
3) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL BELOW BERM									
4) EXCAVATION FOR CUT OFF CHANNEL									
5) AGGREGATE BASE FOR ACCESS ROAD ON EITHER SIDE OF LEVEE									

ELEMENT 3B2: I-215 FLOW CONTROL WEST BERM									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	6100	6.0	20	2.0	1171200	43378	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	OVER-EXCAVATION	6100	92	---	368.0	2244800	83150	561200	9
3	COMPACTED FILL (EXC > FILL)	6100	92	---	368.0	2244800	83150	----	---
4	TRAP CHANNEL EXCAVATION	6100	71.4	---	261.3	1593625	59030	435540	10
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*AREA (SF)*					
5	CLASS 2 BASE (3" THICK)	6100	30	183000					
1) COMPACTED FILL REQUIRED FOR 5500 LF BERM PARALLEL TO I-215 AND WEST OF THE FLOW CONTROL STRUCTURE									
2) OVER-EXCAVATION FOR BERM									
3) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL BELOW BERM									
4) EXCAVATION FOR CUT OFF CHANNEL									
5) AGGREGATE BASE FOR ACCESS ROAD ON EITHER SIDE OF LEVEE									



I–215 FLOW CONTROL EAST BERM



I–215 FLOW CONTROL WEST BERM

ELEMENT 3B2; PERRIS VALLEY STORM DRAIN (EXC.)					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	568612	4514518	3.4	90
1) EXCAVATION SHALL BE USED TO CREATE A TRAPEZOIDAL CHANNEL WITH A NESTED TRAPEZOIDAL PILOT CHANNEL. THE PILOT CHANNEL SHALL BE 6' DEEP WITH A 16' BOTTOM WIDTH AND 4:1 SIDE SLOPES. THE MAIN CHANNEL SHALL BE 220' WIDE AT ITS BASE AND DAYLIGHT TO EXISTING GROUND USING 5:1 SIDE SLOPES ON EACH SIDE. JUST BEFORE I-215 THE CHANNEL SHALL FLAIR OUT TO APPROXIMATELY 3000LF IN WIDTH TO ALLOW DRAINAGE THROUGH AUXILLIARY CUVLERTS RUNNING BELOW I-215					

ELEMENT 3B2; FUTURE DEVELOPMENT CONSTRUCTION FOOTPRINT		
NO	DESCRIPTION	ACRES
1	New Perris Berm	300
2	North New Perris Fill	36
3	Park West Fill	460
1) PROPOSED BERM AND FUTURE DEVELOPMENT BEHIND BERM		
2) PROPOSED NORTH NEW PERRIS FILL		
3) PROPOSED PARK WEST FILL		

LOCATION:	PERRIS VALLEY STORM DRAIN (EXC.)	DESIGNED: DESIGNER
ADDRESS:	ALBERT A. WEBB ASSOCIATES ENGINEERING CONSULTANTS 3788 McCRAY STREET RIVERSIDE CA. 92506 PH. (951) 686-1070 FAX (951) 788-1256	CHECKED: CHECKER DATE: DATE SCALE: SCALE

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ELEMENT 3B2F: FLOW CONTROL STRUCTURE AT I-215 WITH FLARED PVSD, FILL AND BERM

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

EL. 3B2F FLOW CNTRL STR. AT I-215 W/ FLARED PVSD & BERM

PROJECT NAME

CONSTRUCTION COST	$	11,165,694
PLUS 22% LUMP SUM ITEMS	+	2,456,453
PLUS 12% CONTINGENCY	+	1,339,883
SUBTOTAL	=	14,962,030
RIGHT-OF-WAY	+	0
TOTAL	**$**	**14,962,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

	PROJECT LENGTH	RESPONSIBLE SECTION
ENGR. INT.	00 + 00	CONSULTANT PROJEC

PROJECT DESCRIPTION:

- I-215 FLOW CONTROL STRUCTURE
- EAST FLOW CONTROL STRUCTURE BERM
- WEST FLOW CONTROL STRUCTURE BERM
- PERRIS VALLEY STORM DRAIN WIDENING, LOW FLOW, & FLARING AT I-215

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: EL. 3B2F FLOW CNTRL STR. AT I-215 W/ FLARED PVSD & BERM

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	952860	b > 8	$6.60	$6,288,876
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY	305197	EXC > FILL	$3.25	$991,890
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY	3923	b > 8[1]	$380.00	$1,490,740
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY	2456	L > 150	$590.00	$1,449,040
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF	396000		$0.40	$158,400
ROCK SLOPE PROTECTION[4]	CY[2]	643		$80.00	$51,440
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				$735,308
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$11,165,694
LUMP SUM ITEMS (22%)[6]	$2,456,453
CONTINGENCIES (12%)[7]	$1,339,883
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$3,501,562
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$18,463,592
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$18,463,592**

PROJECT DESCRIPTION: EL. 3B2F FLOW CNTRL STR. AT I-215 W/ FLARED PVSD & BERM

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
OVER-EXCAVATION	183827	C.Y.	$4	$735,308
		MISCELLANEOUS TOTAL		$735,308

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 3B1F OR 3B2F PHASE 1

PROJECT NAME

CONSTRUCTION COST	$	9,467,072
PLUS 22% LUMP SUM ITEMS	+	2,082,756
PLUS 12% CONTINGENCY	+	1,136,049
SUBTOTAL	=	12,685,877
RIGHT-OF-WAY	+	0
TOTAL	**$**	**12,686,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- I-215 FLOW CONTROL STRUCTURE
- FLOW CONTROL STRUCTURE EAST BERM
- FLOW CONTROL STRUCTURE WEST BERM
- PERRIS VALLEY STORM DRAIN WIDENING, LOW FLOW, AND FLARING AT I-215

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 3B1F OR 3B2F PHASE 1

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	695493	b > 8	$6.60	$4,590,254
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY	305197	EXC > FILL	$3.25	$991,890
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY	3923	b > 8[1]	$380.00	$1,490,740
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY	2456	L > 150	$590.00	$1,449,040
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF	396000		$0.40	$158,400
ROCK SLOPE PROTECTION[4]	CY[2]	643		$80.00	$51,440
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				$735,308
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$9,467,072
LUMP SUM ITEMS (22%)[6]	$2,082,756
CONTINGENCIES (12%)[7]	$1,136,049
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$2,968,874
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$15,654,750
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$15,654,750**

PROJECT DESCRIPTION: Element 3B1F OR 3B2F PHASE 1

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
OVER-EXCAVATION	183827	C.Y.	$4	$735,308
		MISCELLANEOUS TOTAL		$735,308

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 3B1F OR 3B2F PHASE 2

PROJECT NAME

CONSTRUCTION COST	$	1,698,622
PLUS 22% LUMP SUM ITEMS	+	373,697
PLUS 12% CONTINGENCY	+	203,835
SUBTOTAL	=	2,276,154
RIGHT-OF-WAY	+	0
TOTAL	**$**	**2,276,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

	PROJECT LENGTH	RESPONSIBLE SECTION
	00 + 00	CONSULTANT PROJEC

ENGR. INT.

PROJECT DESCRIPTION:

- I-215 FLOW CONTROL STRUCTURE
- FLOW CONTROL STRUCTURE EAST BERM
- FLOW CONTROL STRUCTURE WEST BERM
- PERRIS VALLEY STORM DRAIN WIDENING, LOW FLOW, AND FLARING AT I-215

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 3B1F OR 3B2F PHASE 2

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	257367	b > 8	$6.60	$1,698,622
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]			$80.00	
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$1,698,622
LUMP SUM ITEMS (22%)[6]	$373,697
CONTINGENCIES (12%)[7]	$203,835
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$532,688
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$2,808,842
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$2,808,842**

PROJECT DESCRIPTION: Element 3B1F OR 3B2F PHASE 2

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

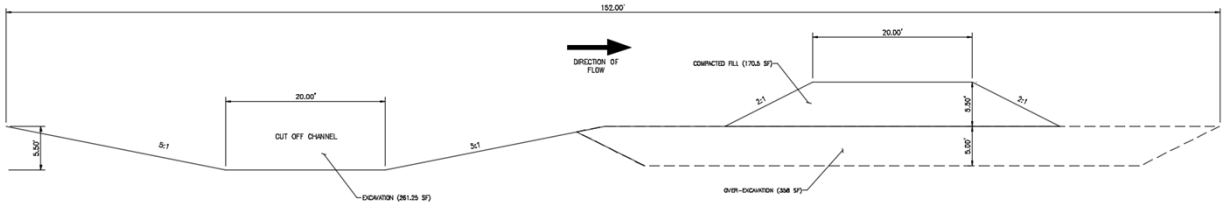
MISCELLANEOUS COSTS

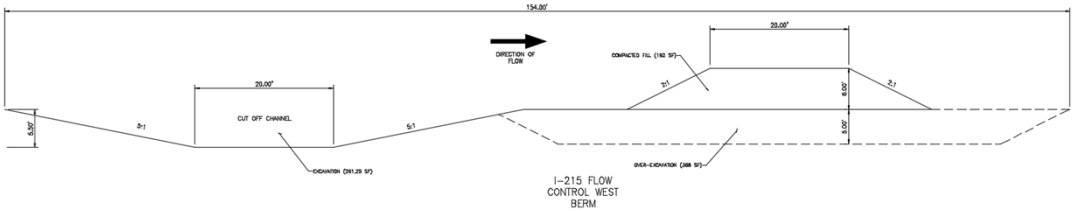
ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
		MISCELLANEOUS TOTAL		

ELEMENT 3B2F: I-215 FLOW CONTROL STRUCTURE (PHASE 1)							
NO.	*DESCRIPTION*	*CONCRETE AREA (SF)*	*CONCRETE DEPTH (FT)*		*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
1	TRAP CHANNEL CONCRETE	158863	0.67		105909	3923	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*DEPTH (FT)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
2	ROCK SLOPE PROTECTION	434	10	4.0	17360	643	---
NO.	*DESCRIPTION*	*AREA*	*DEPTH*		*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (AC)*
3	OVER-EXCAVATION	158863	1		158863	5884	4
4	OVER-EXCAVATION	4340	4		17360	643	0
5	COMPACTED FILL (EXC > FILL)	158863	1		158863	5884	---
1) CONCRETE LINING FOR FLOW CONTROL STRUCTURE AS SHOWN IN PRELIMINARY DETAILS I-215 FLOW CONTROL STRUCTURE ALT 5							
2) RIPRAP INSTALLED AT DOWNSTREAM END OF FLOW CONTROL SHOWN IN PRELIMINARY DETAILS I-215 FLOW CONTORL STRUCTURE ALT 5							
3) OVER-EXCAVATION FOR CONCRETE LININING							
4) OVER-EXCAVATION TO ALLOW FOR 4' THICK RIPRAP							
5) COMPACTED FILL TO REPLACE OVER-EXCAVATION UNDER CONCRETE LINING							

ELEMENT 3B2F: I-215 FLOW CONTROL EAST BERM (PHASE 1)									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	7100	5.5	20	2.0	1210550	44835	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	OVER-EXCAVATION	7100	92	---	358.0	2541800	94150		9
3	COMPACTED FILL (EXC > FILL)	7100	92	---	358.0	2541800	94150	----	---
4	TRAP CHANNEL EXCAVATION	7100	60	---	261.3	1854875	68700		10
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*AREA (SF)*					
5	CLASS 2 BASE (3" THICK)	7100	30	213000					
1) COMPACTED FILL REQUIRED FOR 9300 LF BERM PARALLEL TO I-215 AND EAST OF THE FLOW CONTROL STRUCTURE									
2) OVER-EXCAVATION FOR BERM									
3) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL BELOW BERM									
4) EXCAVATION FOR CUT OFF CHANNEL									
5) AGGREGATE BASE FOR ACCESS ROAD ON EITHER SIDE OF LEVEE									

ELEMENT 3B2F: I-215 FLOW CONTROL WEST BERM (PHASE 1)									
NO.	*DESCRIPTION*	*LENGTH (FT)*	*HEIGHT (FT)*	*TOP WIDTH (FT)*	*SLOPE (H:1)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
1	COMPACTED FILL (EXC > FILL)	6100	6.0	20	2.0	1171200	43378	---	---
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*THICKNESS (FT)*	*AVE. X.S.A (SF)*	*VOLUME (CF)*	*VOLUME (CY)*	*FOOTPRINT (SF)*	*FOOTPRINT (AC)*
2	OVER-EXCAVATION	6100	92	---	368.0	2244800	83150		9
3	COMPACTED FILL (EXC > FILL)	6100	92	---	368.0	2244800	83150	----	---
4	TRAP CHANNEL EXCAVATION	6100	71.4	---	261.3	1593625	59030		10
NO.	*DESCRIPTION*	*LENGTH (FT)*	*WIDTH (FT)*	*AREA (SF)*					
5	CLASS 2 BASE (3" THICK)	6100	30	183000					
1) COMPACTED FILL REQUIRED FOR 5500 LF BERM PARALLEL TO I-215 AND WEST OF THE FLOW CONTROL STRUCTURE									
2) OVER-EXCAVATION FOR BERM									
3) COMPACTED FILL TO REPLACE OVER-EXCAVATED MATERIAL BELOW BERM									
4) EXCAVATION FOR CUT OFF CHANNEL									
5) AGGREGATE BASE FOR ACCESS ROAD ON EITHER SIDE OF LEVEE									





ELEMENT 3B2F; PERRIS VALLEY STORM DRAIN EXCAVATION (PHASE 1)					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	567763	2869625	5.3	70
1) PARTIAL EXCAVATION OF PERRIS VALLEY CHANNEL TO ESTABLISH INVERT ELEVATION. PARTIAL CHANNEL SHALL HAVE 16' BOTTOM WIDTH AND 2:1 SIDE SLOPES. JUST BEFORE I-215 THE CHANNEL SHALL FLAIR OUT TO APPROXIMATELY 3000LF IN WIDTH TO ALLOW DRAINAGE THROUGH AUXILLIARY CUVLERTS RUNNING BELOW I-215					

ELEMENT 3B2F; AUXILLIARY CULVERT EXTENSIONS (PHASE 1)							
NO	***DESCRIPTION***	***LENGTH (FT)***	***HEIGHT (FT)***	***WIDTH (FT)***	***THICKNESS (FT)***	**VOLUME (CY)**	**FOOTPRINT (AC)**
1	R.C.B. CONCRETE (INCLUDING STEEL)	1170	7	10.0	1	1473	---
1	R.C.B. CONCRETE (INCLUDING STEEL)	390	7	27.0	1	982	---
1	COMPACTED FILL	---	---	---	---	33800	---
1) EXTENSION OF 6 CONCRETE BOX CULVERTS RUNNING BELOW I-215, LENGTH SHOWN IS SUM OF ALL 6 INDIVIDUAL LENGTHS							
2) EXTENSION OF 2 CONCRETE BOX CULVERTS RUNNING BELOW I-215. LENGTH SHOWN IS SUM OF BOTH INDIVIDUAL LENGTHS							
3) COMPACTED FILL TO COVER CULVERT EXTENSIONS BETWEEN I-215 AND THE FLOW CONTROL LEVEES							

ELEMENT 3B2F; PERRIS VALLEY STORM DRAIN EXCAVATION (PHASE 2)					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	257367	2267352	3.1	50
1) FULL EXCAVATION AND WIDENING OF PERRIS VALLEY CHANNEL TO ESTABLISH INVERT ELEVATION. PARTIAL CHANNEL SHALL HAVE 16' BOTTOM WIDTH AND MULTIPLE GRADE BRAKES AS SHOWN IN THE PLANS FOR THE PREFERRED ALTERNATIVE PHASE 2. THE QUANTITES AND CONSTRUCTION FOOTPRINTS ALREADY COUNTED IN THE FIRST PHASE ARE NOT INCLUDED IN THIS PHASE.					

ELEMENT 3B2F; FUTURE DEVELOPMENT CONSTRUCTION FOOTPRINT		
NO	DESCRIPTION	ACRES
1	NEW PERRIS BERM	300
2	NORTH NEW PERRIS FILL	36
3	PARK WEST FILL	460
1) PROPOSED BERM AND FUTURE DEVELOPMENT BEHIND BERM		
2) PROPOSED NORTH NEW PERRIS FILL		
3) PROPOSED PARK WEST FILL		

ELEMENT 4B: 1000’ CHANNEL

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

4B 1000-foot Channel

PROJECT NAME

CONSTRUCTION COST	$	47,154,749
PLUS 22% LUMP SUM ITEMS	+	10,374,045
PLUS 12% CONTINGENCY	+	5,658,570
SUBTOTAL	=	63,187,364
RIGHT-OF-WAY	+	0
TOTAL	**$**	**63,187,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- WIDENED CHANNEL FROM ETHANAC TO I-215

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: 4B 1000-foot Channel

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	7144659	b > 8	$6.60	$47,154,749
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]			$80.00	
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$47,154,749
LUMP SUM ITEMS (22%)[6]	$10,374,045
CONTINGENCIES (12%)[7]	$5,658,570
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$14,787,729
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$77,975,094
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$77,975,094**

PROJECT DESCRIPTION: 4B 1000-foot Channel

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

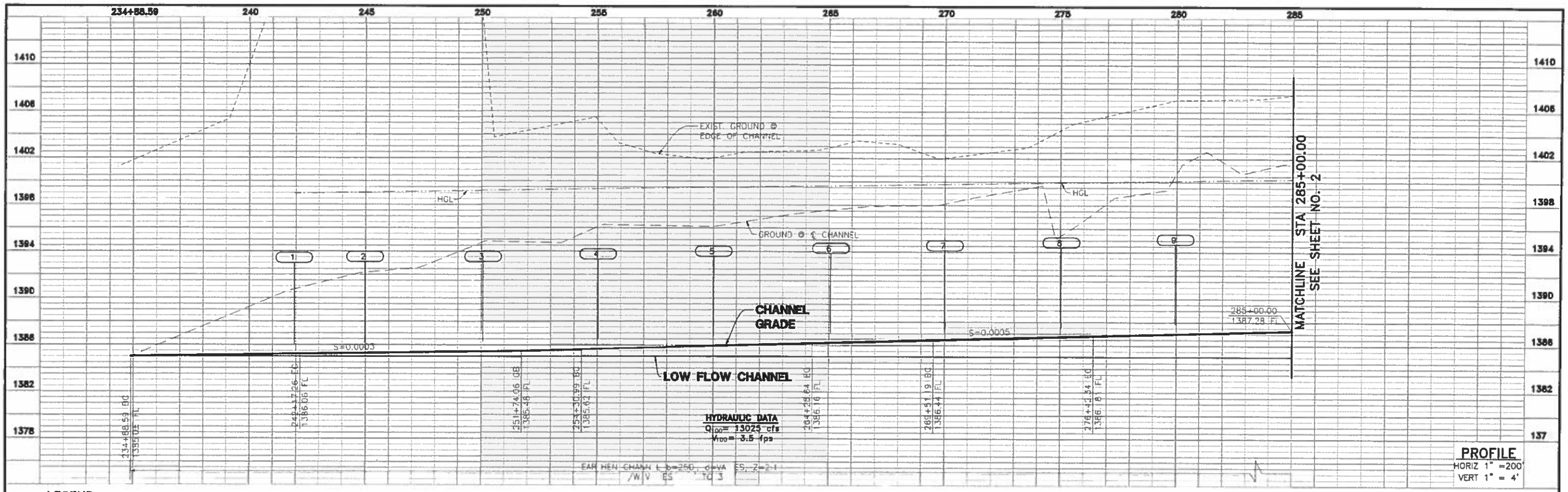
INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
		MISCELLANEOUS TOTAL		

ELEMENT 4B: 1000' CHANNEL EXCAVATION					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	7144659	15159536	12.7	350
1) WIDENED CHANNEL BETWEEN I-215 AND ETHANAC BASED ON ALT 5 CONFIGURATION					

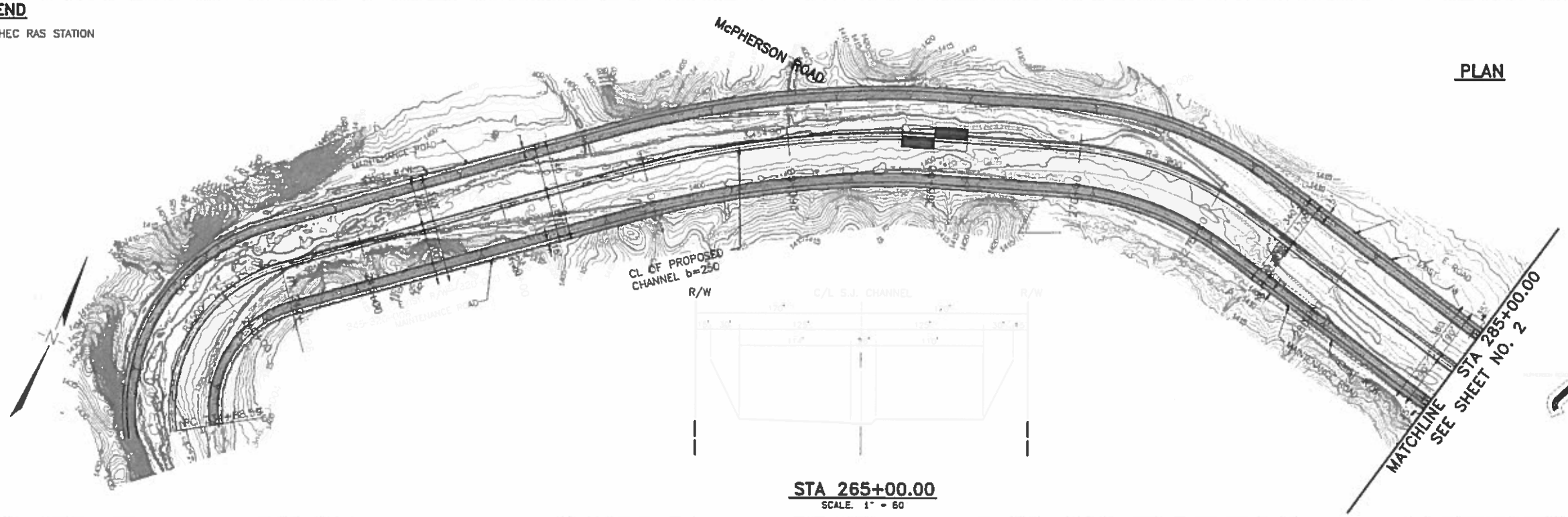
ELEMENT 4B; FUTURE DEVELOPER CONSTRUCTION FOOTPRINT		
NO	DESCRIPTION	ACRES
1	GOETZ BRIDGE	1
2	CASE ROAD	1
3	RAIL BRIDGE AT CASE ROAD	1
1) FUTURE IMPROVEMENTS TO GOETZ ROAD BRIDGE		
1) FUTURE IMPROVEMENTS TO CASE ROAD BRIDGE		
1) FUTURE IMPROVEMENTS TO RAIL ROAD BRIDGE AT CASE		



PROFILE
HORIZ 1" =200'
VERT 1" = 4'

LEGEND

XX HEC RAS STATION



PLAN

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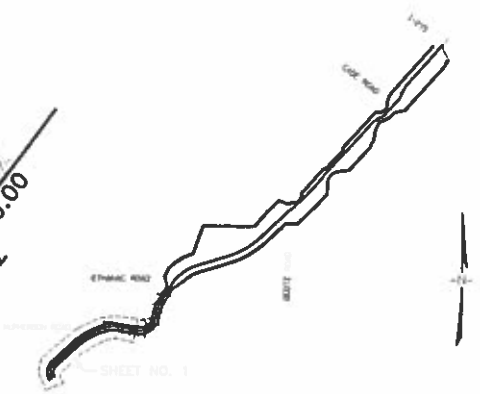

SHEET INDEX MAP

GRAPHIC SCALE 1"=200'
0 200 400 600

UNDERGROUND SERVICE ALERT
CALL: TOLL FREE
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227-2600
TWO WORKING DAYS BEFORE YOU DIG

SAN JACITNO RIVER
REACH 3 WIDE CHANNEL

SEAL

ALBERT A. WEBB ASSOCIATES
3788 McCRAY STREET, RIVERSIDE, CA 92506
PH. (951) 686-1070 FAX (951) 788-1256

APPROVED BY: _____ DATE: _____
R.C.E. NO. C44762 EXP. DATE: 3-31-08
DESIGNED BY:
DRAWN BY: D.V.A.J.
CHECKED BY: SRH

REVISIONS			
REF.	DESCRIPTION	APPR.	DATE

PRELIMINARY PROFILE
SAN JACINTO RIVER
STAGE 3 - WIDE CHANNEL

ALTERNATIVE 5

DRAW XX

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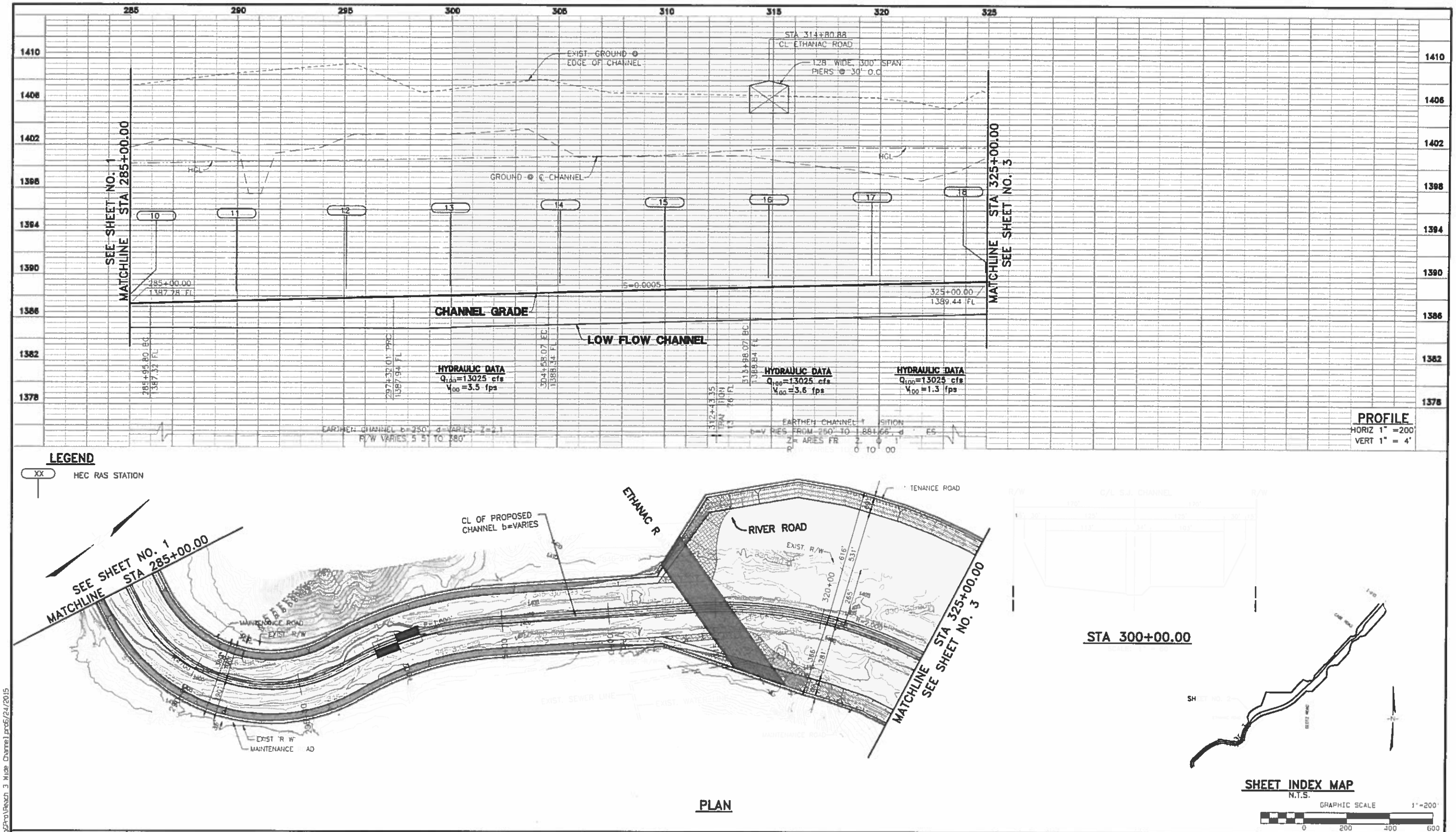

LEGEND

XX — HEC RAS STATION

PLAN

SHEET INDEX MAP
N.T.S.

GRAPHIC SCALE 1"=200'
0 200 400 600

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SAN JACITNO RIVER
REACH 3 WIDE CHANNEL

SEAL

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PH. (951) 686-1070 FAX (951) 788-1256

APPROVED BY: _____ DATE: _____
R.C.E. NO. C44762 EXP. DATE: 3-31-08
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DRAWN BY: D.V.A.J.
CHECKED BY: SRH

REF.	REVISIONS DESCRIPTION	APPR.	DATE

PRELIMINARY PROFILE
SAN JACINTO RIVER
STAGE 3 - WIDE CHANNEL

ALTERNATIVE 5

PROJECT NO. 03-0451
DRAWING NO. XXX
SHEET NO. 2 OF 6

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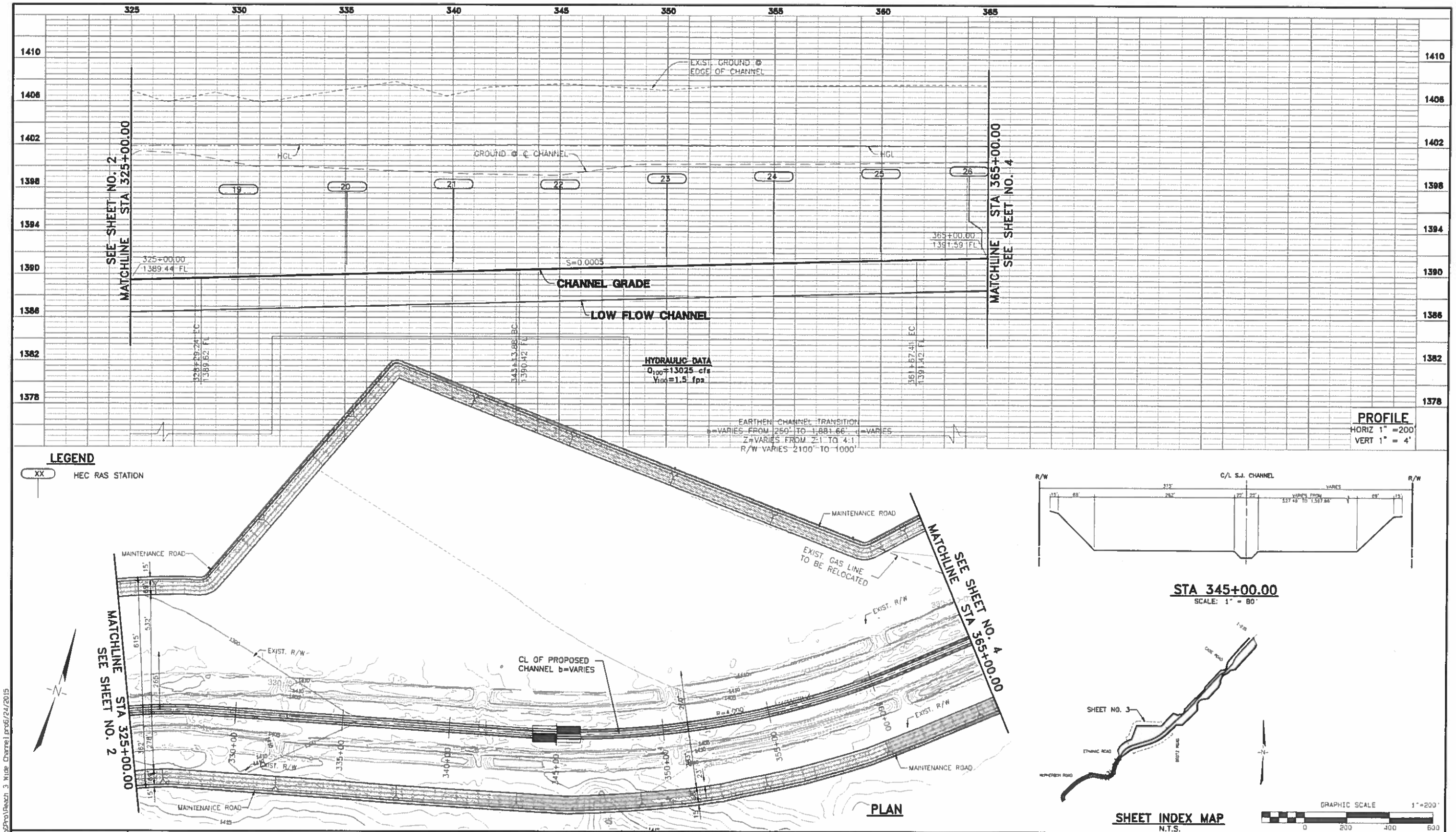

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SAN JACITNO RIVER
REACH 3 WIDE CHANNEL

SEAL

ALBERT A. WEBB ASSOCIATES
3788 McCRAY STREET, RIVERSIDE, CA 92506
PH. (951) 686-1070 FAX (951) 788-1256

APPROVED BY: _____ DATE: _____
R.C.E. NO. C44762 EXP. DATE: 3-31-08
DESIGNED BY:
DRAWN BY: D.V.A.J.
CHECKED BY: SRH

REVISIONS			
REF.	DESCRIPTION	APPR.	DATE

PRELIMINARY PROFILE
SAN JACINTO RIVER
STAGE 3 - WIDE CHANNEL

ALTERNATIVE 5

PROJECT NO. 03-0461
DRAWING NO. XXX
SHEET NO. 3 OF 6

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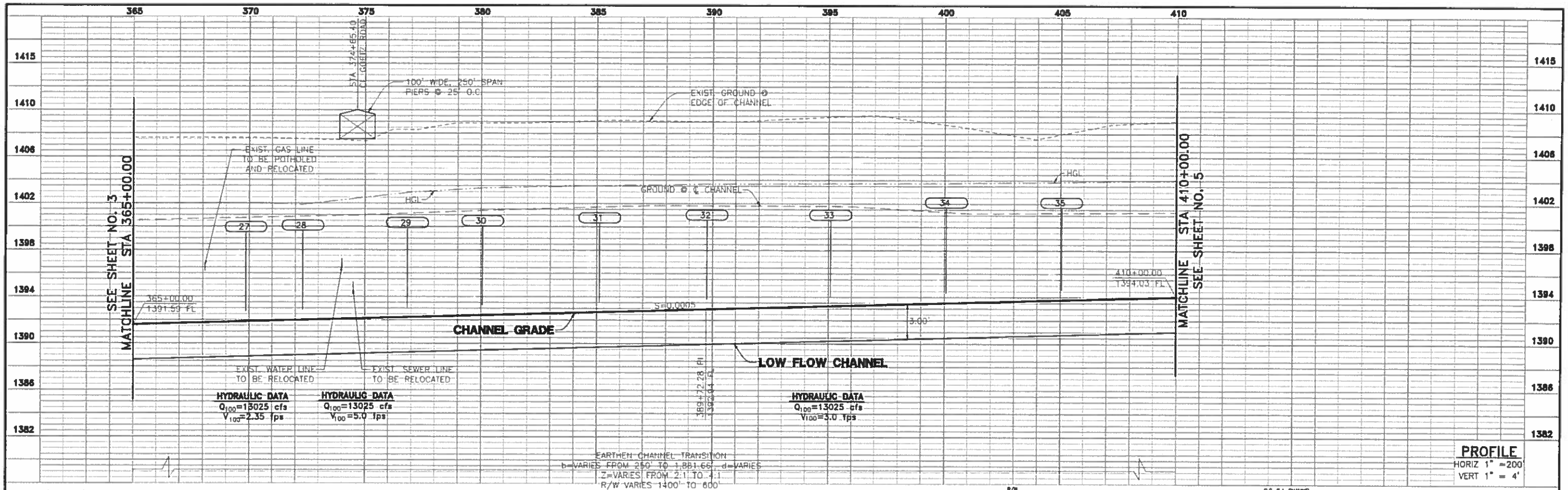
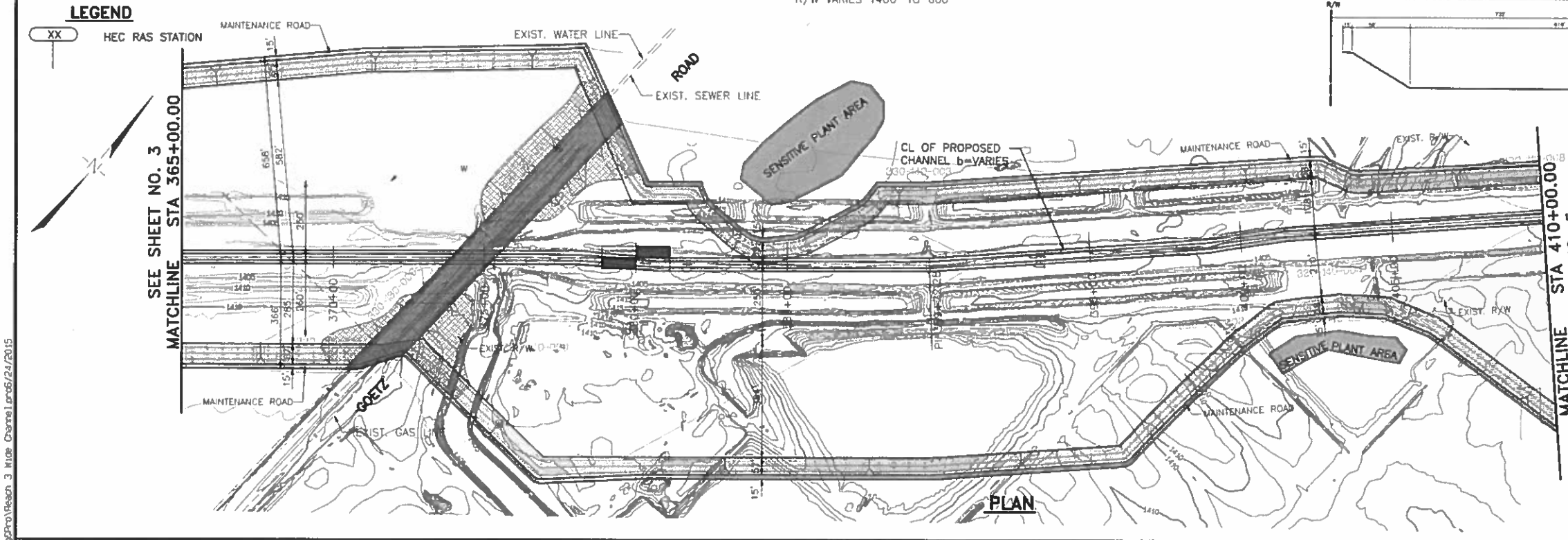
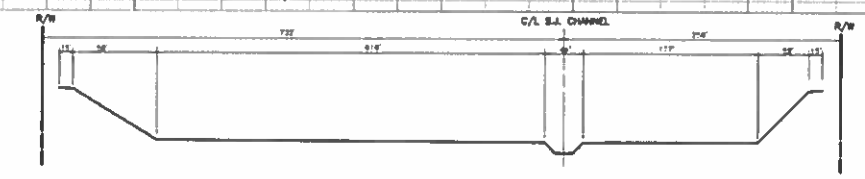


LEGEND

XX HEC RAS STATION





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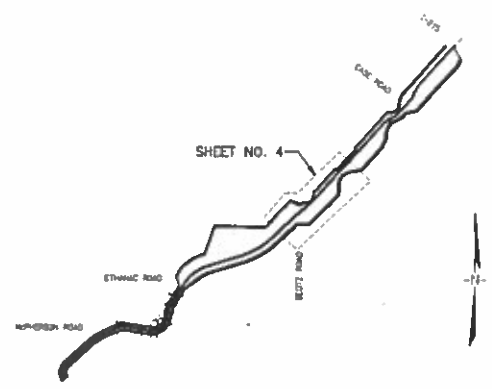

SHEET INDEX MAP
N.T.S.

GRAPHIC SCALE 1"=200'
0 200 400 600

UNDERGROUND SERVICE ALERT
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227-2600
TWO WORKING DAYS BEFORE YOU DIG

SAN JACITNO RIVER
REACH 3 WIDE CHANNEL

SEAL

ALBERT A. WEBB ASSOCIATES
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PH. (951) 686-1070 FAX (951) 788-1256

APPROVED BY: _____ DATE: _____
R.C.E. NO. C44762 EXP. DATE: 3-31-08
DESIGNED BY:
DRAWN BY: D.V.A.J.
CHECKED BY: SRH

REVISIONS			
REF.	DESCRIPTION	APPR.	DATE

PRELIMINARY PROFILE
SAN JACINTO RIVER
STAGE 3 - WIDE CHANNEL

ALTERNATIVE 5

PROJECT NO. 03-0461
DRAWING NO. XXX
SHEET NO. 4 OF 6

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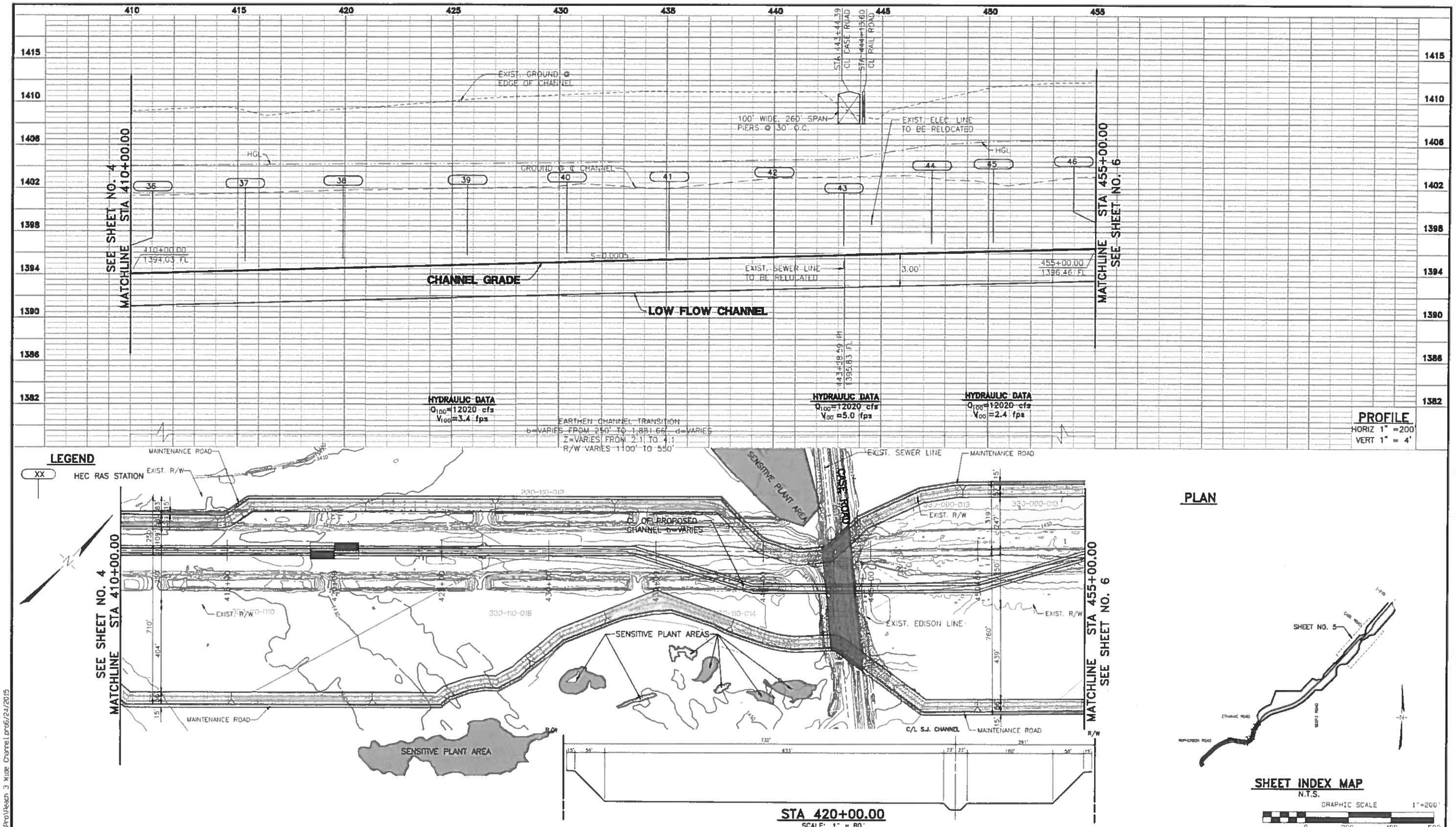

UNDERGROUND SERVICE ALERT
CALL: TOLL FREE
1-800
227-2600
TWO WORKING DAYS BEFORE YOU DIG

SAN JACITNO RIVER
REACH 3 WIDE CHANNEL

SEAL

ALBERT A. WEBB ASSOCIATES
3788 McCRAY STREET, RIVERSIDE, CA 92506
PH. (951) 686-1070 FAX (951) 788-1256

APPROVED BY: _____ DATE: _____
R.C.E. NO. C44762 EXP. DATE: 3-31-08
DESIGNED BY:
DRAWN BY: D.V.A.J
CHECKED BY: SRH

REVISIONS			
REF.	DESCRIPTION	APPR.	DATE

PRELIMINARY PROFILE
SAN JACINTO RIVER
STAGE 3 - WIDE CHANNEL

ALTERNATIVE 5

PROJECT NO. 03-0461
DRAWING NO. XXX
SHEET NO. 5 OF 6

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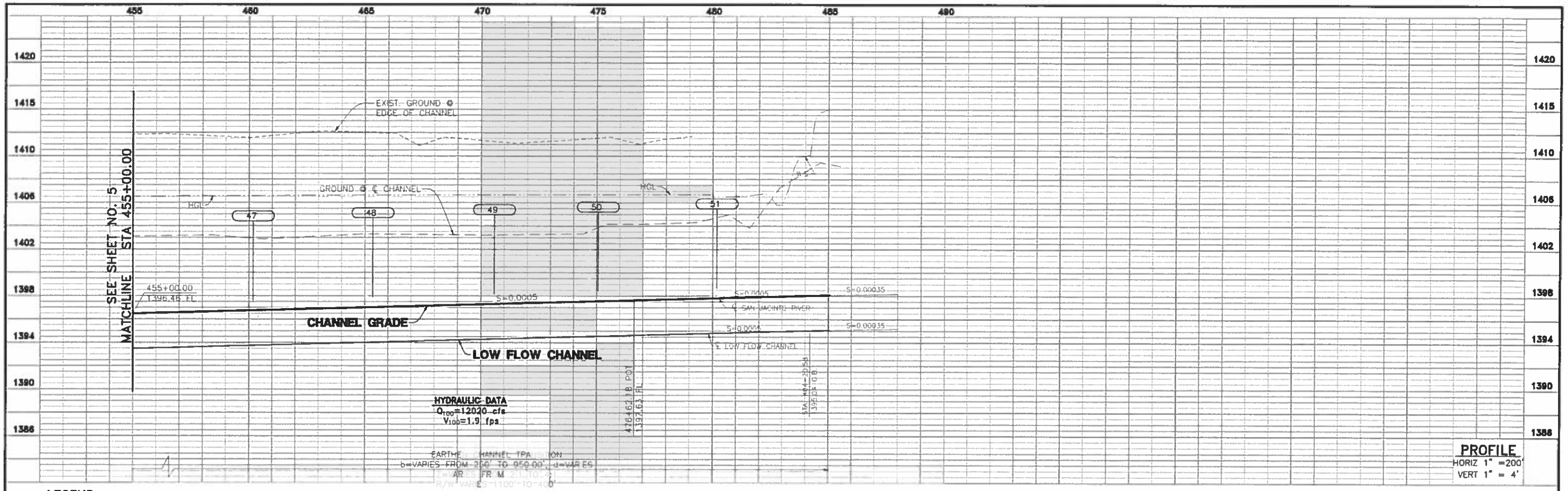
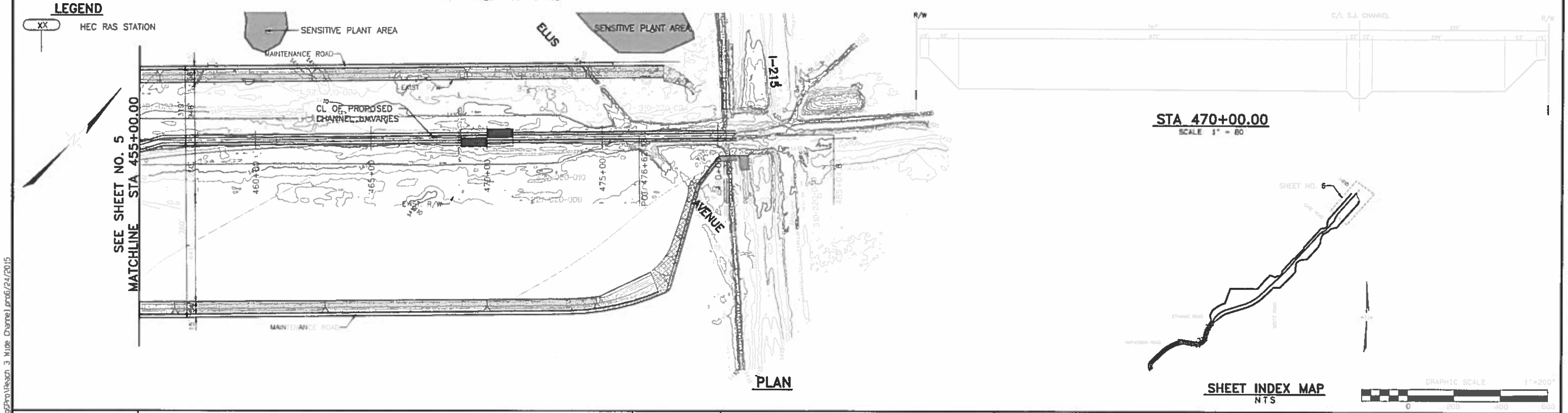


PROFILE
HORIZ 1" =200'
VERT 1" = 4'



PLAN

UNDERGROUND SERVICE ALERT
CALL: TOLL FREE
1-800
227-2600
TWO WORKING DAYS BEFORE YOU DIG

SAN JACITNO RIVER
REACH 3 WIDE CHANNEL

SEAL
REGISTERED PROFESSIONAL ENGINEER
SCOTT S. HILDEBRANDT
NO. C44762
CIVIL
STATE OF CALIFORNIA

ALBERT A. WEBB ASSOCIATES
3788 McCRAY STREET, RIVERSIDE, CA 92506
PH. (951) 686-1070 FAX (951) 788-1256

APPROVED BY: _____ DATE: _____
R.C.E. NO. C44762 EXP. DATE: 3-31-08
DESIGNED BY:
DRAWN BY: D.V.A.J.
CHECKED BY: SRH

REVISIONS			
REF.	DESCRIPTION	APPR.	DATE

PRELIMINARY PROFILE
SAN JACINTO RIVER
STAGE 3 - WIDE CHANNEL

ALTERNATIVE 5

PROJECT NO. 03-0481
DRAWING NO. XXX
SHEET NO. 6 OF 6

G:\2003\03-0481\Dwg\Pro\Design 3 Wide Channel.pro 6/24/2015

ELEMENT 4C: 10’ LOW FLOW CHANNEL

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 4C 10-foot Low Flow Channel

PROJECT NAME

CONSTRUCTION COST	$	1,652,105
PLUS 22% LUMP SUM ITEMS	+	363,463
PLUS 12% CONTINGENCY	+	198,253
SUBTOTAL	=	2,213,821
RIGHT-OF-WAY	+	0
TOTAL	**$**	**2,214,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- LOW FLOW CHANNEL FROM ETHANAC TO I-215

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 4C 10-foot Low Flow Channel

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	250319	b > 8	$6.60	$1,652,105
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]			$80.00	
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$1,652,105
LUMP SUM ITEMS (22%)[6]	$363,463
CONTINGENCIES (12%)[7]	$198,253
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$518,100
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$2,731,921
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$2,731,921**

PROJECT DESCRIPTION: Element 4C 10-foot Low Flow Channel

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
		MISCELLANEOUS TOTAL		

ELEMENT 4C: LOW FLOW CHANNEL EXCAVATION					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	250319	1026681	6.6	30
1) LOW FLOW CHANNEL EXCAVATION FROM ETHANAC ROAD TO I-215. LOW FLOW CHANNEL SHALL BE TRAPEZOIDAL WITH 10' BOTTOM WIDTH AND 2:1 SIDE SLOPES					

ELEMENT 4C; FUTURE DEVELOPER CONSTRUCTION FOOTPRINT		
NO	DESCRIPTION	ACRES
1	GOETZ BRIDGE	1
2	CASE ROAD	1
3	RAIL BRIDGE AT CASE ROAD	1
1) FUTURE IMPROVEMENTS TO GOETZ ROAD BRIDGE		
1) FUTURE IMPROVEMENTS TO CASE ROAD BRIDGE		
1) FUTURE IMPROVEMENTS TO RAIL ROAD BRIDGE AT CASE		

ELEMENT 4D: NO GRADING

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 4E Terraced Channel

PROJECT NAME

CONSTRUCTION COST	$	33,229,667
PLUS 22% LUMP SUM ITEMS	+	7,310,527
PLUS 12% CONTINGENCY	+	3,987,560
SUBTOTAL	=	44,527,754
RIGHT-OF-WAY	+	0
TOTAL	**$**	**44,528,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- Widened Terraced Channel Between Ethanac and I-215

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 4E Terraced Channel

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	5034798	b > 8	$6.60	$33,229,667
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]			$80.00	
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$33,229,667
LUMP SUM ITEMS (22%)[6]	$7,310,527
CONTINGENCIES (12%)[7]	$3,987,560
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$10,420,824
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$54,948,577
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$54,948,577**

PROJECT DESCRIPTION: Element 4E Terraced Channel

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
		MISCELLANEOUS TOTAL		

ELEMENT 4E: TERRACED CHANNEL

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 5B Ethanac Grading, Low Flow Channel, & Short Span Bridge

PROJECT NAME

CONSTRUCTION COST	$	1,820,834
PLUS 22% LUMP SUM ITEMS	+	400,584
PLUS 12% CONTINGENCY	+	218,500
SUBTOTAL	=	2,439,918
RIGHT-OF-WAY	+	0
TOTAL	**$**	**2,440,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

-LOW FLOW CHANNEL FROM RAILROAD CANYON TO 2600 LF DOWNSTREAM OF ETHANAC
-COMPOSITE LOW FLOW/ETHANAC GRADING CHANNEL FROM 2600 LF DOWNSTREAM OF ETHANAC TO ETHANAC

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 5B Ethanac Grading, Low Flow Channel, & Short Span Bridge

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	275884	b > 8	$6.60	$1,820,834
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]			$80.00	
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$1,820,834
LUMP SUM ITEMS (22%)[6]	$400,584
CONTINGENCIES (12%)[7]	$218,500
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$571,014
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$3,010,932
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$3,010,932**

PROJECT DESCRIPTION: Element 5B Ethanac Grading, Low Flow Channel, & Short Span Bridge

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
		MISCELLANEOUS TOTAL		

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 4E Terraced Channel (Phase 1)

PROJECT NAME

CONSTRUCTION COST	$	6,261,367
PLUS 22% LUMP SUM ITEMS	+	1,377,501
PLUS 12% CONTINGENCY	+	751,364
SUBTOTAL	=	8,390,232
RIGHT-OF-WAY	+	0
TOTAL	**$**	**8,390,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

	PROJECT LENGTH	RESPONSIBLE SECTION
	00 + 00	CONSULTANT PROJEC

ENGR. INT.

PROJECT DESCRIPTION:

- Widened Terraced Channel Between Ethanac and I-215

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 4E Terraced Channel (Phase 1)

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	948692	b > 8	$6.60	$6,261,367
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]			$80.00	
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$6,261,367
LUMP SUM ITEMS (22%)[6]	$1,377,501
CONTINGENCIES (12%)[7]	$751,364
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$1,963,565
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$10,353,797
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$10,353,797**

PROJECT DESCRIPTION: Element 4E Terraced Channel (Phase 1)

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
		MISCELLANEOUS TOTAL		

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 4E Terraced Channel (Phase 2)

PROJECT NAME

CONSTRUCTION COST	$	26,968,300
PLUS 22% LUMP SUM ITEMS	+	5,933,026
PLUS 12% CONTINGENCY	+	3,236,196
SUBTOTAL	=	36,137,521
RIGHT-OF-WAY	+	0
TOTAL	**$**	**36,138,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

	PROJECT LENGTH	RESPONSIBLE SECTION
	00 + 00	CONSULTANT PROJEC

ENGR. INT.

PROJECT DESCRIPTION:

- Widened Terraced Channel Between Ethanac and I-215

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 4E Terraced Channel (Phase 2)

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	4086106	b > 8	$6.60	$26,968,300
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]			$80.00	
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$26,968,300
LUMP SUM ITEMS (22%)[6]	$5,933,026
CONTINGENCIES (12%)[7]	$3,236,196
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$8,457,259
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$44,594,780
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$44,594,780**

PROJECT DESCRIPTION: Element 4E Terraced Channel (Phase 2)

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
		MISCELLANEOUS TOTAL		

ELEMENT 4E: TERRACED CHANNEL (PHASE 1)					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	737052			56
2	TRAP CHANNEL EXCAVATION	211640			21
1) PARTIAL COMPLETION OF TERRACED CHANNEL FUNNEL FOR CAPTURING FLOW FROM AUX CULVERTS. THIS PARTIAL FUNNEL SHALL BE APPROXIMATELY 3000' WIDE AT THE I-215 AND QUICKLY TAPER INTO A LOW FLOW CHANNEL WITHIN APPROXIMATLEY 1200 LF					
2) LOW FLOW CHANNEL WITH 10' BOTTOM 2:1 SIDES SLOPES BEGINNING AT THE END OF THE PARTIAL FUNNEL AND CONTINUING DOWNSTREAM TO ETHANAC. THIS PORTION ESTABLISHES THE INVERT FOR THE FUTURE TERRACED CHANNEL BUT DOES NOT DO ANY OF THE WIDENING.					

ELEMENT 4E: TERRACED CHANNEL (PHASE 2)					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	1862948			139
2	TRAP CHANNEL EXCAVATION	2223158			139
1) FULL COMPLETION OF FUNNEL TO CAPTURE FLOW FROM I-215 AUX CULVERTS. FUNNEL SHALL REMAIN 3000' WIDE AT CASE BUT BE EXTENDED DOWN TO CASE ROAD. RATHER THAN TAPER INTO A LOW FLOW CHANNEL IT WILL TAPER INTO THE FULLEY DEVELOPED TERRACED CHANNEL. QUANTITUES FOR PHASE 2 DO NOT INCLUDE MATERIAL ALREADY REMOVED DURING PHASE 1					
2) FULL COMPLETION OF TERRACED CHANNEL BETWEEN CASE ROAD AND ETHANAC ROAD. WHEN COMPLETED THE FULLY DEVELOPED TERRACED CHANNEL SHALL HAVE MULTIPLE TEIRS (SEE PHASE 2 PLANS FOR PREFERRED ALTERNATIVE). WHERE SPACE DOES NOT ALLOW A FULLY DEVELOPED TERRACED CHANNEL I.E. BRIDGES OR EXISTING DEVELOPMENT ON RIVER BANK, THE CHANNEL SHALL BE MODIFIED.					

ELEMENT 4E; FUTURE DEVELOPMENT CONSTRUCTION FOOTPRINT		
NO	***DESCRIPTION***	***ACRES***
1	GOETZ BRIDGE	---
2	CASE ROAD	---
3	RAIL BRIDGE AT CASE ROAD	---
1) FUTURE IMPROVEMENTS TO GOETZ ROAD BRIDGE		
1) FUTURE IMPROVEMENTS TO CASE ROAD BRIDGE		
1) FUTURE IMPROVEMENTS TO RAIL ROAD BRIDGE AT CASE		

ELEMENT 5B: ETHANAC GRADING, LOW FLOW CHANNEL & SHORT SPAN BRIDGE

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 5C Low Flow Channel with Short Span Bridge

PROJECT NAME

CONSTRUCTION COST	$	785,895
PLUS 22% LUMP SUM ITEMS	+	172,897
PLUS 12% CONTINGENCY	+	94,307
SUBTOTAL	=	1,053,099
RIGHT-OF-WAY	+	0
TOTAL	**$**	**1,053,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

-LOW FLOW CHANNEL FROM RAILROAD CANYON TO ETHANAC

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 5C Low Flow Channel with Short Span Bridge

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	119075	b > 8	$6.60	$785,895
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]			$80.00	
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$785,895
LUMP SUM ITEMS (22%)[6]	$172,897
CONTINGENCIES (12%)[7]	$94,307
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$246,457
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$1,299,556
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$1,299,556**

PROJECT DESCRIPTION: Element 5C Low Flow Channel with Short Span Bridge

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
		MISCELLANEOUS TOTAL		

ELEMENT 5B: ETHANAC GRADING & LOW FLOW CHANNEL COMPOSITE					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	275884	1023736	7.3	30

1) LOW FLOW CHANNEL FROM RAILROAD CANYON TO 2600 LF DOWNSTREAM OF ETHANAC ROAD. THIS LOW FLOW CHANNEL SHALL BE TRAPEZOIDAL WITH 10' BOTTOM WIDTH AND 2:1 SIDE SLOPES. THEN TRANSITIONING INTO THE COMPOSITE OF ETHANAC GRADING AS DEFINED IN THE ETHANAC ROAD AND SAN JACITNO RIVER CONCEPTUAL CHANNEL GRADING WITH THE LOW FLOW CHANNEL RUNNING THROUGH THE MIDDLE LIKE A PILOT CHANNEL UP TO ETHANAC ROAD.

ELEMENT 5B; FUTURE DEVELOPMENT CONSTRUCTION FOOTPRINT		
NO	***DESCRIPTION***	***ACRES***
1	ETHANAC BRIDGE	1

1) BRIDGE AT SJR AND ETHANAC BASED ON ETHANAC ROAD
AND BRIDGE OVER SAN JACINTO RIVER GENERAL PLAN WO # 15-0203

ELEMENT 5C: LOW FLOW CHANNEL WITH SHORT SPAN BRIDGE

RCFC & WCD
2016

January 9, 2016 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 5D Low Flow Channel with Full Span Bridge

PROJECT NAME

CONSTRUCTION COST	$	785,895
PLUS 22% LUMP SUM ITEMS	+	172,897
PLUS 12% CONTINGENCY	+	94,307
SUBTOTAL	=	1,053,099
RIGHT-OF-WAY	+	0
TOTAL	**$**	**1,053,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

-LOW FLOW CHANNEL FROM RAILROAD CANYON TO ETHANAC

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 5D Low Flow Channel with Full Span Bridge

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	119075	b > 8	$6.60	$785,895
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]			$80.00	
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$785,895
LUMP SUM ITEMS (22%)[6]	$172,897
CONTINGENCIES (12%)[7]	$94,307
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$246,457
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$1,299,556
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/16		**$1,299,556**

PROJECT DESCRIPTION: Element 5D Low Flow Channel with Full Span Bridge

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
		MISCELLANEOUS TOTAL		

ELEMENT 5C: LOW FLOW CHANNEL					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	119075	428131	7.5	10
1) LOW FLOW CHANNEL FROM RAILROAD CANYON TO ETHANAC ROAD. LOW FLOW CHANNEL SHALL BE TRAPEZOIDAL WITH 10' BOTTOM WIDTH AND 2:1 SIDE SLOPES					

ELEMENT 5C; FUTURE DEVELOPMENT CONSTRUCTION FOOTPRINT		
NO	***DESCRIPTION***	***ACRES***
1	ETHANAC BRIDGE	1
1) BRIDGE AT SJR AND ETHANAC BASED ON ETHANAC ROAD		

ELEMENT 5D: LOW FLOW CHANNEL WITH FULL SPAN BRIDGE

RCFC & WCD
2016

January 9, 2016 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

Element 5D Low Flow Channel with Full Span Bridge

PROJECT NAME

CONSTRUCTION COST	$	785,895
PLUS 22% LUMP SUM ITEMS	+	172,897
PLUS 12% CONTINGENCY	+	94,307
SUBTOTAL	=	1,053,099
RIGHT-OF-WAY	+	0
TOTAL	**$**	**1,053,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

-LOW FLOW CHANNEL FROM RAILROAD CANYON TO ETHANAC

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: Element 5D Low Flow Channel with Full Span Bridge

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY	119075	b > 8	$6.60	$785,895
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]			$80.00	
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$785,895
LUMP SUM ITEMS (22%)[6]	$172,897
CONTINGENCIES (12%)[7]	$94,307
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$246,457
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$1,299,556
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/16		**$1,299,556**

PROJECT DESCRIPTION: Element 5D Low Flow Channel with Full Span Bridge

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
		MISCELLANEOUS TOTAL		

ELEMENT 5D: LOW FLOW CHANNEL					
NO	***DESCRIPTION***	***EXC. (CY)***	***AREA (SF)***	***AVE DEPTH (FT)***	***FOOTPRINT (AC)***
1	TRAP CHANNEL EXCAVATION	119075	428131	7.5	10
1) LOW FLOW CHANNEL FROM RAILROAD CANYON TO ETHANAC ROAD. LOW FLOW CHANNEL SHALL BE TRAPEZOIDAL WITH 10' BOTTOM WIDTH AND 2:1 SIDE SLOPES					

ELEMENT 5D; FUTURE DEVELOPMENT CONSTRUCTION FOOTPRINT		
NO	***DESCRIPTION***	***ACRES***
1	ETHANAC BRIDGE	2
1) BRIDGE AT SJR AND ETHANAC BASED ON ETHANAC ROAD		

ELEMENT 5E2: NO GRADING, WITH BRIDGE

ELEMENT 5E2; FUTURE DEVELOPMENT CONSTRUCTION FOOTPRINT		
NO	***DESCRIPTION***	***ACRES***
1	ETHANAC BRIDGE	2
1) BRIDGE AT SJR AND ETHANAC APPROX 700' TOTAL SPAN		

ELEMENT 5F1: NO GRADING, 10-FOOT PIPE, NO BRIDGE

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

5F1: No Grading at Ethanac, 10-foot Pipe, No Bridge

PROJECT NAME

CONSTRUCTION COST	$	7,337,000
PLUS 22% LUMP SUM ITEMS	+	1,614,140
PLUS 12% CONTINGENCY	+	880,440
SUBTOTAL	=	9,831,580
RIGHT-OF-WAY	+	0
TOTAL	**$**	**9,832,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- No Grading downstream of Ethanac
- 10' Pipe from Ethanac to Railroad
- Inlet/Outlet Structure for Pipe

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: 5F1: No Grading at Ethanac, 10-foot Pipe, No Bridge

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY		b > 8	$6.60	
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]			$80.00	
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				$7,337,000
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$7,337,000
LUMP SUM ITEMS (22%)[6]	$1,614,140
CONTINGENCIES (12%)[7]	$880,440
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$2,300,883
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$12,132,463
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$12,132,463**

PROJECT DESCRIPTION: 5F1: No Grading at Ethanac, 10-foot Pipe, No Bridge

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
10' RCP (Ethanac to RR Canyon)	8315	LF	$850	$7,067,750
RCB SQUASH BOX	175	LF	$750	$131,250
INLET STRUCTURE	1	L.S.	$38,000	$38,000
OUTLET CHANNEL	1	L.S.	$100,000	$100,000
		MISCELLANEOUS TOTAL		$7,337,000

ELEMENT 5F1: 10-PIPE			
NO	***DESCRIPTION***	***LENGTH (LF)***	***FOOTPRINT (AC)***
1	10' RCP	8315	9
2	RCB "SQUASH BOX"	175	---
NO	**DESCRIPTION**	**VOLUME (CY)**	**FOOTPRINT (AC)**
3	INLET STRUCTURE	64	---
4	OUTLET CHANNEL	170	---
1) 10' DIAMETER PIPE FROM JUST UPSTREAM OF ETHANAC TO RAILROAD CANYON			
2) 7' X 10' REINFORCED CONCRETE BOX CULVERT THROUGH SECTION OF 10' PIPE			
3) INLET STRUCTURE CONSISTING OF A CONCRETE HEADWALL			
4) OUTLET STRUCTURE CONSISTING OF A CONCRETE HEADWALL AND CONCRETE RECTANGULAR CHANNEL STARTING AS A 10' X 10' CONCRETE RETANGULAR CHANNEL AND TAPERING VERTICALLY TO 3' IN HEIGHT. THE WALLS OF THE CONCRETE CHANNEL WOULD BE 1' THICK			

ELEMENT 5F2: NO GRADING, 10-FOOT PIPE, WITH BRIDGE

RCFC & WCD
2016

January 9, 2017 Calendar On

DATE

- 2016 - 0085

PROJECT NUMBER

5F2: No Grading at Ethanac, 10-foot Pipe with Bridge

PROJECT NAME

CONSTRUCTION COST	$	7,337,000
PLUS 22% LUMP SUM ITEMS	+	1,614,140
PLUS 12% CONTINGENCY	+	880,440
SUBTOTAL	=	9,831,580
RIGHT-OF-WAY	+	0
TOTAL	**$**	**9,832,000**

DATE OF R/W ESTIMATE

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

CONSULTANT PROJEC

PROJECT DESCRIPTION:

- No Grading Downstream of Ethanac
-10' Pipe from Ethanac to Railroad Canyon
- Inlet/Outlet Structure for Pipe

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2016 COST PROJECT PLANNING COSTS

PROJECT DESCRIPTION: 5F2: No Grading at Ethanac, 10-foot Pipe with Bridge

ITEM	UNIT	QUANTITY	CRITERIA	2015 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY		b > 8	$6.60	
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$590.00	
			L < 150	$820.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$17.60	
CATCH BASINS	LF			$560.00	
MANHOLES (PIPE)	EA		FOR MAINLINE	$6,200.00	
			FOR JUNCTION	$6,500.00	
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$2.50	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]			$80.00	
CONC.-ROCK SLOPE PROTECTION				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	
ENV./ REGULATORY COSTS	LS		MITIGATION / E.A./ ALT STUDY, ETC.		
MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET				$7,337,000
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET				

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.

SUBTOTAL	$7,337,000
LUMP SUM ITEMS (22%)[6]	$1,614,140
CONTINGENCIES (12%)[7]	$880,440
ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES	$2,300,883
SUBTOTAL (AS-BUILT)	
SUBTOTAL	$12,132,463
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 11/25/2015

NAME & DATE	TOTAL	
01/09/17		**$12,132,463**

PROJECT DESCRIPTION: 5F2: No Grading at Ethanac, 10-foot Pipe with Bridge

STORM DRAIN COSTS FOR: **WESTERN DISTRICT**

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
		0 FT				
				STORM DRAIN TOTAL		

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
10' RCP (Ethanac to RR Canyon)	8315	LF	$850	$7,067,750
Bridge at Ethanac (700' X 113.5)	175	SF	$750	$131,250
Inlet Structure	1	LS	$38,000	$38,000
Outlet Channel	1	LS	$100,000	$100,000
		MISCELLANEOUS TOTAL		$7,337,000

ELEMENT 5F1: 10-PIPE			
NO	***DESCRIPTION***	***LENGTH (LF)***	***FOOTPRINT (AC)***
1	10' RCP	8315	9
2	RCB "SQUASH BOX"	175	---
NO	**DESCRIPTION**	**VOLUME (CY)**	**FOOTPRINT (AC)**
3	INLET STRUCTURE	20	---
4	OUTLET CHANNEL	44	---
1) 10' DIAMETER PIPE FROM JUST UPSTREAM OF ETHANAC TO RAILROAD CANYON			
2) 7' X 10' REINFORCED CONCRETE BOX CULVERT THROUGH SECTION OF 10' PIPE			
3) INLET STRUCTURE CONSISTING OF A CONCRETE HEADWALL			
4) OUTLET STRUCTURE CONSISTING OF A CONCRETE HEADWALL AND CONCRETE RECTANGULAR CHANNEL STARTING AS A 10' X 10' CONCRETE RETANGULAR CHANNEL AND TAPERING VERTICALLY TO 3' IN HEIGHT. THE WALLS OF THE CONCRETE CHANNEL WOULD BE 1' THICK			

ELEMENT 5E2; FUTURE DEVELOPMENT CONSTRUCTION FOOTPRINT		
NO	***DESCRIPTION***	***ACRES***
1	ETHANAC BRIDGE	---
1) BRIDGE AT SJR AND ETHANAC APPROX 700' TOTAL SPAN		