Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	501	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

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999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORCED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-8	35A	a										0.98	6.71												HOT MIX ASPHALT CONCRETE DRAIN	127.00 Rt "A" 462+46.84
D-8	35A	b													1										REMOVE ACOD	88.32 Rt "A" 462+43.04
D-7	36	a																							JUNCTION STRUCTURE	26.65 Rt "A" 454+01.33
D-7	36	b		S																			6.6		24" RCP	
D-7	36	c																					7.8		GD-1 INLET	26.69 Rt "A" 454+08.33
D-7	36	d		S																				5.2	24" RCP	
D-7	36	e																					6.4		GD-1 INLET	26.64 Rt "A" 454+15.21
D-7	37	a																							EARTHEN SWALE	
D-7	37	b								3.9	1.1														ROCK SLOPE PROTECTION FABRIC	
D-7	37	c																							BOX CULVERT WINGWALL	190.05 Lt "A" 454+29.47
D-7	37	d																							4' x 2' RCB	
D-7	37	e																							JUNCTION STRUCTURE	125.97 Lt "A" 453+99.81
D-7	37	f																					11.0		GD-1 INLET	31.00 Lt "A" 453+99.52
D-7	37	g																							CONCRETE BULKHEAD	105.29 Rt "A" 453+99.05
D-7	37	h																1.8							REMOVE HEADWALL	125.97 Lt "A" 453+99.81
D-7	37	i																1.8							REMOVE HEADWALL	105.29 Rt "A" 453+99.05
D-7	37	j												2											REMOVE DI	
										3.9	1.1	0.98	6.7	2	1			3.6				25.2	11.8	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-44

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:33

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trmikesl
DGN FILE => c07163id044.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	502	1929

REGISTERED CIVIL ENGINEER — DATE 8/10/09

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	(N) GRATES TYPE 36R	(N) GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-7	38	a							191.0	8.8													BIOSWALE	
D-7	38	b																					ROCK SLOPE PROTECTION FABRIC	
D-7	38	c																					18" FLARED END SECTION	165.87 Lt "A-2" 18+92.06
D-7	38	d																		160			18" RCP	
D-7	38	e	2.1									2			634								GD-1 INLET	32.57 Lt "A-2" 22+06.68
D-7	38	f	4.9																				CONCRETE ENCASEMENT	
D-7	38	g																		102			18" RCP	
D-7	38	h	2.3									2			634								GD-1 INLET	32.52 Lt "A-2" 20+99.33
D-6	38	i																		102			18" RCP	
D-7	38	j	3.5																				CONCRETE ENCASEMENT	
D-6	38	k	2.3									2			634								GD-1 INLET	32.36 Lt "A-2" 19+92.41
D-7	38A	a							175														BIOSWALE	
			15.1						366.0	8.8		6			1902					364			SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-45

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON — CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:33

BORDER LAST REVISED 8/1/2008 — RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 — USERNAME => trmikesl — DGN FILE => c07163id045.dgn — CU 12235 — EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	503	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	PIPE JOINT CLASSIFICATION (N)	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	REMOVE ACOD (N)	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	REMOVE EARTHEN SWALE (N)	HEIGHT OF INLET (N)	MAXIMUM COVER (N)	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-7	38	a																						BIOSWALE	
D-7	38	b								3.4	0.95													ROCK SLOPE PROTECTION FABRIC	
D-7	38	c							1															18" FLARED END SECTION	165.87 Lt "A-2" 18+92.06
D-7	38	d		S																			3.3	18" RCP	
D-7	38	e																				4.5		GD-1 INLET	32.57 Lt "A-2" 22+06.68
D-7	38	f																						CONCRETE ENCASEMENT	
D-7	38	g		S																			3.4	18" RCP	
D-7	38	h																				5.1		GD-1 INLET	32.52 Lt "A-2" 20+99.33
D-6	38	i		S																			3.6	18" RCP	
D-7	38	j																						CONCRETE ENCASEMENT	
D-6	38	k																				5.2		GD-1 INLET	32.36 Lt "A-2" 19+92.41
D-7	38A	a																						BIOSWALE	
									1	3.4	1.0											14.8	10.3	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-46

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:33

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	504	1929

REGISTERED CIVIL ENGINEER — DATE 8/10/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES			Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	TYPE 24-12 EA	TYPE 36R EA	COMBINATION CATCH BASIN EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-7	39	a	2.8																				CONCRETE HEADWALL	208.92 Rt "A" 453+87.78
D-7	39	b																					48" RCP	
D-7	39	c																					ROCK SLOPE PROTECTION FABRIC	
D-7	40	a	2.0																				JUNCTION STRUCTURE	149.53 Rt "A" 457+51.89
D-7	40	b																			41		24" RCP	
D-7	40	c	4.6																				CONCRETE ENCASEMENT	
D-7	40	d	0.9																				CONCRETE COLLAR	109.23 Rt "A" 457+50.89
D-7	40	e	0.9																				CONCRETE COLLAR	2.20 Rt "A" 457+49.63
D-7	40	f																			33		24" RCP	
D-7	40	g	2.3									2			634								GD-1 INLET	32.30 Lt "A" 457+50.72
D-7	40	h																					REMOVE HEADWALL	109.23 Rt "A" 457+50.89
D-7	40	i																					REMOVE DI	2.20 Rt "A" 457+49.63
D-7	41	a	0.3																				JUNCTION STRUCTURE	2.30 Lt "A" 454+01.38
D-7	41	b																			7		24" RCP	
D-7	41	c	3.3									2			634								GD-1 INLET	2.30 Lt "A" 454+10.00
D-7	41	d																			35		24" RCP	
D-7	41	e	2.8									2			634								GD-1 INLET	2.30 Lt "A" 454+50.00
			20.0									6			1902						116		SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-47

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:33

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id047.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	505	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORCED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-7	39	a																						CONCRETE HEADWALL	208.92 Rt "A" 453+87.78
D-7	39	b	17	W	17																		3.8	48" RCP	
D-7	39	c								52.6	14.90													ROCK SLOPE PROTECTION FABRIC	
D-7	40	a																						JUNCTION STRUCTURE	149.53 Rt "A" 457+51.89
D-7	40	b		S																			1.4	24" RCP	
D-7	40	c																						CONCRETE ENCASEMENT	
D-7	40	d																						CONCRETE COLLAR	109.23 Rt "A" 457+50.89
D-7	40	e																						CONCRETE COLLAR	2.20 Rt "A" 457+49.63
D-7	40	f		S																			11.4	24" RCP	
D-7	40	g																				5.3		GD-1 INLET	32.30 Lt "A" 457+50.72
D-7	40	h																1.2						REMOVE HEADWALL	109.23 Rt "A" 457+50.89
D-7	40	i												2										REMOVE DI	2.20 Rt "A" 457+49.63
D-7	41	a																						JUNCTION STRUCTURE	2.30 Lt "A" 454+01.38
D-7	41	b		S																			7.4	24" RCP	
D-7	41	c																				8.2		GD-1 INLET	2.30 Lt "A" 454+10.00
D-7	41	d		S																			5.3	24" RCP	
D-7	41	e																				6.8		GD-1 INLET	2.30 Lt "A" 454+50.00
			17		17					52.6	14.9			2				1.2				20.3	29.3	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-48

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:34

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trmikesl
DGN FILE => c07163id048.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	506	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA No. C70332 Exp. 09/30/10 CIVIL — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

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999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES			Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
												TYPE 24-12	TYPE 36R	COMBINATION CATCH BASIN										
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-8	42	a	1.8									2			634								GD-1 INLET	125.69 Rt "A" 464+50.00
D-8	42	b																			136		24" RCP	
D-8	42	c	36.7																				CONCRETE ENCASEMENT	
D-8	42	d	2.7									2			634								GD-1 INLET	125.70 Rt "A" 465+95.18
D-8	42	e																			16		24" RCP	
D-8	42	f	0.9																				JUNCTION STRUCTURE	144.95 Rt "A" 466+00.00
D-8	43	a																					ROCK SLOPE PROTECTION FABRIC	
D-8	43	b																					24" FLARED END SECTION	90.18 Rt "B-2" 50+82.73
D-8	43	c																			69		24" RCP	
D-8	43	d	0.9																				CONCRETE COLLAR	21.53 Lt "B-2" 50+81.58
D-8	43	e	2.5									2			634								GD-1 INLET	32.24 Lt "A" 460+74.73
D-8	43	f																					REMOVE 24" RCP	
D-8	43	g																					REMOVE DI	2.25 Lt "A" 460+74.80
D-8	43	h																					REMOVE 24" RCP	
D-8	43	j																					REMOVE DI	2.03 Rt "A" 460+74.70
			45.5									6			1902						220		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-49

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION: DATE PLOTTED => 03-FEB-2010 08-10-09 TIME PLOTTED => 10:34

BORDER LAST REVISED 8/1/2008 — RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 — USERNAME => trmikesl DGN FILE => c07163id049.dgn — CU 12235 — EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	507	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-8	42	a																				3.6		GD-1 INLET	125.69 Rt "A" 464+50.00
D-8	42	b		S																			3.5	24" RCP	
D-8	42	c																						CONCRETE ENCASEMENT	
D-8	42	d																				6.4		GD-1 INLET	125.70 Rt "A" 465+95.18
D-8	42	e		W	5																		4.2	24" RCP	
D-8	42	f																						JUNCTION STRUCTURE	144.95 Rt "A" 466+00.00
D-8	43	a								4.8	1.37													ROCK SLOPE PROTECTION FABRIC	
D-8	43	b							1															24" FLARED END SECTION	90.18 Rt "B-2" 50+82.73
D-8	43	c		S																			12.0	24" RCP	
D-8	43	d																						CONCRETE COLLAR	21.53 Lt "B-2" 50+81.58
D-8	43	e																				5.7		GD-1 INLET	32.24 Lt "A" 460+74.73
D-8	43	f														29								REMOVE 24" RCP	
D-8	43	g												1										REMOVE DI	2.25 Lt "A" 460+74.80
D-8	43	h														2								REMOVE 24" RCP	
D-8	43	j												1										REMOVE DI	2.03 Rt "A" 460+74.70
					5				1	4.8	1.4			2		31.0						15.7	19.7	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-50

REVISED BY: DUC TRAN
DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:34

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id050.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	508	1929

8/10/09
REGISTERED CIVIL ENGINEER DATE

JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES			Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	TYPE 24-12 EA	TYPE 36R EA	COMBINATION CATCH BASIN EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-8	44	a																					REMOVE DI	87.12 Rt "A" 463+91.57
D-8	44A	a	0.3																				JUNCTION STRUCTURE	27.69 Rt "A" 463+79.11
D-8	44A	b	3.9																		22		24" RCP	
D-8	44A	c	2.3									2			634								GD-1 INLET	27.70 Rt "A" 463+55.00
D-8	44B	a	0.3																				JUNCTION STRUCTURE	27.70 Rt "A" 463+97.39
D-8	44B	b																			30		24" RCP	
D-8	44B	c	2.3									2			634								GD-1 INLET	27.70 Rt "A" 464+30.44
D-8	45	a	0.9																				JUNCTION STRUCTURE	114.25 Rt "A" 464+02.60
D-8	45	b																				304	36" RCP	
D-8	45	c	2.1																				CONCRETE HEADWALL	165.76 Rt "A" 467+22.42
D-8	45	d																					REMOVE 36" CMP	
D-8	45	e																					REMOVE HEADWALL	132.56 Rt "A" 465+34.96
D-8	45	f																					REMOVE CONCRETE CHANNEL	
			12.1									4			1268						52	304	SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-51

REVISED BY: DUC TRAN
DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:41

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id051.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	509	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	PIPE JOINT CLASSIFICATION (N)	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	REMOVE ACOD (N)	REMOVE CULVERT	REMOVE REINFORCED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	REMOVE EARTHEN SWALE (N)	HEIGHT OF INLET (N)	MAXIMUM COVER (N)	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-8	44	a												2											REMOVE DI	87.12 Rt "A" 463+91.57
D-8	44A	a																							JUNCTION STRUCTURE	27.69 Rt "A" 463+79.11
D-8	44A	b		W	6																			12.3	24" RCP	
D-8	44A	c																					5.0		GD-1 INLET	27.70 Rt "A" 463+55.00
D-8	44B	a																							JUNCTION STRUCTURE	27.70 Rt "A" 463+97.39
D-8	44B	b		W	8																		5.2	12.4	24" RCP	
D-8	44B	c																							GD-1 INLET	27.70 Rt "A" 464+30.44
D-8	45	a																							JUNCTION STRUCTURE	114.25 Rt "A" 464+02.60
D-8	45	b		W	304																			7.2	36" RCP	
D-8	45	c																							CONCRETE HEADWALL	165.76 Rt "A" 467+22.42
D-8	45	d														128									REMOVE 36" CMP	
D-8	45	e																2.1							REMOVE HEADWALL	132.56 Rt "A" 465+34.96
D-8	45	f																	225						REMOVE CONCRETE CHANNEL	
					318									2		128.0		2.1	225				10.2	31.9	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-52

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:41

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trmikesl
DGN FILE => c07163id052.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	510	1929

REGISTERED CIVIL ENGINEER — DATE 8/10/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	GRATES TYPE 36R	GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-8	46	a				1.2				4.5													CONCRETE CHANNEL	
D-8	46	b	1.2																				CONCRETE HEADWALL	168.17 R+ "A" 468+39.26
D-8	46	c																			44		24" RCP	
D-8	46	d	2.6									2			634								GD-1 INLET	123.24 R+ "A" 468+46.88
D-8	46	e																			42		24" RCP	
D-8	46	f	8.7																				CONCRETE ENCASEMENT	
D-8	46	g	0.9																				CONCRETE COLLAR	78.13 R+ "A" 468+50.48
D-8	46	h	0.9																				CONCRETE COLLAR	0.03 L+ "A" 468+49.61
D-8	46	i																			25		24" RCP	
D-8	46	j	1.9									2			634								GD-1 INLET	30.51 L+ "A" 468+49.41
D-8	46	k																					REMOVE DI	0.03 L+ "A" 468+49.61
D-8	46	l																					REMOVE DI	87.17 R+ "A" 468+49.41
D-8	46	m																					REMOVE HEADWALL	103.96 R+ "A" 468+49.58
D-8	46	n																					REMOVE CONCRETE CHANNEL	
			16.2			1.2				4.5		4			1268						111		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-53

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION: DATE PLOTTED => 03-FEB-2010 — 08-10-09 TIME PLOTTED => 10:41

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id053.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	511	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-8	46	a																						CONCRETE CHANNEL	
D-8	46	b																						CONCRETE HEADWALL	168.17 Rt "A" 468+39.26
D-8	46	c		S																			3.7	24" RCP	
D-8	46	d																					6.1	GD-1 INLET	123.24 Rt "A" 468+46.88
D-8	46	e		S																			5.3	24" RCP	
D-8	46	f																						CONCRETE ENCASEMENT	
D-8	46	g																						CONCRETE COLLAR	78.13 Rt "A" 468+50.48
D-8	46	h																						CONCRETE COLLAR	0.03 Lt "A" 468+49.61
D-8	46	i		S																			3.5	24" RCP	
D-8	46	j																					3.8	GD-1 INLET	30.51 Lt "A" 468+49.41
D-8	46	k												2										REMOVE DI	0.03 Lt "A" 468+49.61
D-8	46	l												1										REMOVE DI	87.17 Rt "A" 468+49.41
D-8	46	m																1.2						REMOVE HEADWALL	103.96 Rt "A" 468+49.58
D-8	46	n																	72					REMOVE CONCRETE CHANNEL	
														3				1.2	72			9.9	12.5	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-54

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:41

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	512	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

JENNIFER BROOKE RIVERA No. C70332 Exp. 09/30/10 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	GRATES TYPE 36R	GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-8	46A	a						140															GRATED LINE DRAIN	
D-8	46A	b	1.6									2			634								GD-1 INLET	
D-8	46A	c																					24" RCP	
D-8	46A	d	28.0																				CONCRETE ENCASEMENT	
D-8	47	a							60	48.9													BIOSWALE	
D-8	47	b																					ROCK SLOPE PROTECTION FABRIC	
D-8	47	c				32.9				84.6													CONCRETE CHANNEL	
D-8	47	d																					REMOVE CONCRETE CHANNEL	
D-8	47	e																					REMOVE CONCRETE CHANNEL	
D-8	47A	a				0.6				1.9													CONCRETE CHANNEL	
D-8	47A	b	1.2																				CONCRETE HEADWALL	88.28 L† "B-2" 56+52.13
D-8	47A	c																			92		24" RCP	
D-8	47A	d	2.9									2			634								GD-1 INLET	3.62 R† "B-2" 56+67.59
D-8	47A	e																			24		24" RCP	
D-8	47A	f	2.6									2			634								GD-1 INLET	3.70 R† "B-2" 56+37.36
D-8	47A	g																			26		24" RCP	
D-8	47A	h	2.5									2			634								GD-1 INLET	3.70 R† "B-2" 56+07.80
			38.8			33.5		140	60.0	135.4		8			2536						142		SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-55

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION DATE PLOTTED => 03-FEB-2010 08-10-09 TIME PLOTTED => 10:41

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	513	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

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999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE (N)	PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY (N)	REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	REMOVE EARTHEN SWALE (N)	HEIGHT OF INLET (N)	MAXIMUM COVER (N)	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-8	46A	a																						GRATED LINE DRAIN	
D-8	46A	b																				3.0		GD-1 INLET	
D-8	46A	c																					2.0	24" RCP	
D-8	46A	d																						CONCRETE ENCASEMENT	
D-8	47	a																						BIOSWALE	
D-8	47	b								29.7	8.42													ROCK SLOPE PROTECTION FABRIC	
D-8	47	c																						CONCRETE CHANNEL	
D-8	47	d																		16				REMOVE CONCRETE CHANNEL	
D-8	47	e																		265				REMOVE CONCRETE CHANNEL	
D-8	47A	a																						CONCRETE CHANNEL	
D-8	47A	b																						CONCRETE HEADWALL	88.28 Lt "B-2" 56+52.13
D-8	47A	c		S																			7.4	24" RCP	
D-8	47A	d																				6.9		GD-1 INLET	3.62 Rt "B-2" 56+67.59
D-8	47A	e		S																			4.0	24" RCP	
D-8	47A	f																				6.2		GD-1 INLET	3.70 Rt "B-2" 56+37.36
D-8	47A	g		S																			3.3	24" RCP	
D-8	47A	h																				5.6		GD-1 INLET	3.70 Rt "B-2" 56+07.80
										29.7	8.4								281			21.7	16.7	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-56

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON — CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION — DATE PLOTTED => 03-FEB-2010 — TIME PLOTTED => 10:41
08-10-09

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id056.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	514	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

JENNIFER BROOKE RIVERA No. C70332 Exp. 09/30/10 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE) CY	CLASS 1 CONCRETE (BIXBY CHANNEL) CY	STRUCTURAL CONCRETE (BOX CULVERT) CY	CONCRETE (DITCH LINING) CY	CLASS 3 AGGREGATE BASE CY	GRATED LINE DRAIN LF	(N) BIOSWALE LF	DITCH EXCAVATION CY	(N) BIOSTRIP SF	(N) GRATES TYPE 24-12 EA	(N) GRATES TYPE 36R EA	(N) GRATES COMBINATION CATCH BASIN EA	Misc IRON & STEEL ** LB	BAR REINFORCING STEEL (CHANNEL) LB	BAR REINFORCING STEEL (BOX CULVERT) LB	(N) STRUCTURAL BACKFILL CY	12" CSP (0.079" THICK) LF	18" REINFORCED Conc PIPE LF	24" REINFORCED Conc PIPE LF	36" REINFORCED Conc PIPE LF	DESCRIPTION	STATION
D-8	48	a						84															GRATED LINE DRAIN	
D-8	48	b	1.7									2			634								GD-1 INLET	106.96 Lt "A" 470+57.14
D-8	48	c																			107		24" RCP	
D-9	48	d	28.8																				CONCRETE ENCASEMENT	
D-9	48	e	1.7									2			634								GD-1 INLET	103.82 Lt "A" 471+71.19
D-9	48	f																			149		24" RCP	
D-9	48	g	40.3																				CONCRETE ENCASEMENT	
D-9	48	h	1.7									2			634								GD-1 INLET	99.55 Lt "A" 473+24.70
D-9	48	i																			28		24" RCP	
D-9	48	j	7.1																				CONCRETE ENCASEMENT	
D-9	48	k	0.9																				CONCRETE COLLAR	75.76 Lt "A" 473+24.88
D-9	48	l																					REMOVE DI	75.76 Lt "A" 473+24.88
D-9	48A	a																					HOT MIX ASPHALT CONCRETE DRAIN	127.00 Rt "A" 462+46.84
D-9	48A	b																					REMOVE CMP OVERDRAIN	24.00 Rt "C-2" 12+42.90
D-9	48B	a																					HOT MIX ASPHALT CONCRETE DRAIN	127.00 Rt "A" 462+46.84
D-9	48B	b																					REMOVE CMP OVERDRAIN	24.00 Rt "C-2" 12+42.90
			82.2					84				6			1902						284		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-57

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION: DATE PLOTTED => 03-FEB-2010 08-10-09 TIME PLOTTED => 10:42

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id057.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	515	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-8	48	a																						GRATED LINE DRAIN	
D-8	48	b																					3.3		GD-1 INLET	106.96 Lt "A" 470+57.14
D-8	48	c		S																				1.0	24" RCP	
D-9	48	d																							CONCRETE ENCASEMENT	
D-9	48	e																					3.3		GD-1 INLET	103.82 Lt "A" 471+71.19
D-9	48	f		S																				1.0	24" RCP	
D-9	48	g																							CONCRETE ENCASEMENT	
D-9	48	h																					3.3		GD-1 INLET	99.55 Lt "A" 473+24.70
D-9	48	i		S																				2.0	24" RCP	
D-9	48	j																							CONCRETE ENCASEMENT	
D-9	48	k																							CONCRETE COLLAR	75.76 Lt "A" 473+24.88
D-9	48	l													1										REMOVE DI	75.76 Lt "A" 473+24.88
D-9	48A	a										3.34	22.84												HOT MIX ASPHALT CONCRETE DRAIN	127.00 Rt "A" 462+46.84
D-9	48A	b													1										REMOVE CMP OVERDRAIN	24.00 Rt "C-2" 12+42.90
D-9	48B	a										3.06	20.93												HOT MIX ASPHALT CONCRETE DRAIN	127.00 Rt "A" 462+46.84
D-9	48B	b													1										REMOVE CMP OVERDRAIN	24.00 Rt "C-2" 12+42.90
												6.40	43.8	1	2							9.9	4.0	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-58

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION: DATE PLOTTED => 03-FEB-2010 — 08-10-09 TIME PLOTTED => 10:42

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id058.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	516	1929

REGISTERED CIVIL ENGINEER — DATE 8/10/09

JENNIFER BROOKE RIVERA No. C70332 Exp. 09/30/10 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	(N) GRATES TYPE 36R	(N) GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-9	49	a							65	5.4													BIOSWALE	
D-9	49	b	1.2																				CONCRETE HEADWALL	73.81 R+ "A-3" 43+14.08
D-9	49	c																			42		24" RCP	
D-9	49	d	2.8									2			634								GD-1 INLET	28.82 R+ "A-3" 43+25.55
D-9	49	e																			35		24" RCP	
D-9	49	f	0.9																				CONCRETE COLLAR	4.23 R+ "A-3" 43+24.52
D-9	49	g																					REMOVE DI	2.97 R+ "A-3" 43+24.55
D-9	49	h																					REMOVE 24" RCP	
D-9	49	i																					REMOVE HEADWALL	
D-9	49	j																					REMOVE CONCRETE CHANNEL	
D-9	50	a	0.9																				CONCRETE COLLAR	73.00 L+ "A" 477+99.62
D-9	50	b																			19		24" RCP	
D-9	50	c	4.9																				CONCRETE ENCASEMENT	
D-9	50	d	1.7									2			634								GD-1 INLET	86.30 L+ "A" 477+99.72
D-9	50	e																					REMOVE DI	75.54 L+ "A" 477+99.64
			12.4						65.0	5.4		4			1268						96		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-59

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON — CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010 08-10-09 TIME PLOTTED => 10:42

BORDER LAST REVISED 8/1/2008 — RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 — USERNAME => trmikesl DGN FILE => c07163id059.dgn — CU 12235 — EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	517	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-9	49	a																						BIOSWALE	
D-9	49	b																						CONCRETE HEADWALL	73.81 R† "A-3" 43+14.08
D-9	49	c		S																			6.5	24" RCP	
D-9	49	d																				6.6		GD-1 INLET	28.82 R† "A-3" 43+25.55
D-9	49	e		S																			14.5	24" RCP	
D-9	49	f																						CONCRETE COLLAR	4.23 R† "A-3" 43+24.52
D-9	49	g												1										REMOVE DI	2.97 R† "A-3" 43+24.55
D-9	49	h														14								REMOVE 24" RCP	
D-9	49	i																1.2						REMOVE HEADWALL	
D-9	49	j																	116					REMOVE CONCRETE CHANNEL	
D-9	50	a																						CONCRETE COLLAR	73.00 L† "A" 477+99.62
D-9	50	b		S																			1.3	24" RCP	
D-9	50	c																						CONCRETE ENCASEMENT	
D-9	50	d																				3.2		GD-1 INLET	86.30 L† "A" 477+99.72
D-9	50	e												1										REMOVE DI	75.54 L† "A" 477+99.64
														2		14.0		1.2	116			9.8	22.3	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-60

CALCULATED-DESIGNED BY	RASHOD GIBSON	REVISED BY	DUC TRAN
CHECKED BY	BROOKE RIVERA	DATE REVISED	8/10/09

CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:42

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trmikesl
DGN FILE => c07163id060.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	518	1929

REGISTERED CIVIL ENGINEER — DATE 8/10/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	(N) GRATES TYPE 36R	(N) GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-9	51	a				13.0				39.7													CONCRETE CHANNEL	
D-9	51	b	1.2																				CONCRETE HEADWALL	69.51 Rt "A-3" 48+01.59
D-9	51	c																			36		24" RCP	
D-9	51	d	0.8																				CONCRETE ENCASEMENT	
D-9	51	e	2.2									2			634								GD-1 INLET	32.50 Rt "A-3" 47+98.24
D-9	51	f																			22		24" RCP	
D-9	51	g	5.5																				CONCRETE ENCASEMENT	
D-9	51	h	0.9																				CONCRETE COLLAR	7.35 Rt "A-3" 47+97.55
D-9	51	i																					REMOVE DI	13.30 Rt "A-3" 14+65.87
D-9	51	j																					REMOVE CONCRETE CHANNEL	
D-9	51A	a	1.8									2			634								GD-1 INLET	32.70 Rt "A-3" 44+28.00
D-9	51A	b																			147		24" RCP	
D-9	51A	c	39.8																				CONCRETE ENCASEMENT	
D-9	51A	d	2.1									2			634								GD-1 INLET	32.70 Rt "A-3" 44+80.00
D-9	51A	e																			45		24" RCP	
D-9	51A	f	12.0																				CONCRETE ENCASEMENT	
D-9	51A	g	2.3									2			634								GD-1 INLET	32.70 Rt "A-3" 47+00.25
D-9	51A	h																			92		24" RCP	
D-9	51A	i	24.6																				CONCRETE ENCASEMENT	
D-9	51A	j	2.1									2			634								GD-1 INLET	32.70 Rt "A-3" 46+30.00
D-9	51A	k																			66		24" RCP	
D-9	51A	l	17.5																				CONCRETE ENCASEMENT	
			112.9			13.0				39.7		10			3170						408		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-61

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON — CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:42

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	519	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORCED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-9	51	a																						CONCRETE CHANNEL	
D-9	51	b																						CONCRETE HEADWALL	69.51 Rt "A-3" 48+01.59
D-9	51	c		S																			2.3	24" RCP	
D-9	51	d																						CONCRETE ENCASEMENT	
D-9	51	e																					4.7	GD-1 INLET	32.50 Rt "A-3" 47+98.24
D-9	51	f		S																			2.1	24" RCP	
D-9	51	g																						CONCRETE ENCASEMENT	
D-9	51	h																						CONCRETE COLLAR	7.35 Rt "A-3" 47+97.55
D-9	51	i													1									REMOVE DI	13.30 Rt "A-3" 14+65.87
D-9	51	j																		161				REMOVE CONCRETE CHANNEL	
D-9	51A	a																					3.6	GD-1 INLET	32.70 Rt "A-3" 44+28.00
D-9	51A	b		S																			1.5	24" RCP	
D-9	51A	c																						CONCRETE ENCASEMENT	
D-9	51A	d																					4.4	GD-1 INLET	32.70 Rt "A-3" 44+80.00
D-9	51A	e		S																			2.3	24" RCP	
D-9	51A	f																						CONCRETE ENCASEMENT	
D-9	51A	g																					5.2	GD-1 INLET	32.70 Rt "A-3" 47+00.25
D-9	51A	h		S																			2.9	24" RCP	
D-9	51A	i																						CONCRETE ENCASEMENT	
D-9	51A	j																					4.5	GD-1 INLET	32.70 Rt "A-3" 46+30.00
D-9	51A	k		S																			3.8	24" RCP	
D-9	51A	l																						CONCRETE ENCASEMENT	
															1					161			22.4	14.9	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-62

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON — CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION: DATE PLOTTED => 03-FEB-2010 — 08-10-09 TIME PLOTTED => 10:42

BORDER LAST REVISED 8/1/2008 — RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 — USERNAME => trmikesl — DGN FILE => c07163id062.dgn — CU 12235 — EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	520	1929

8/10/09
REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	(N) GRATES TYPE 36R	(N) GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-9	52	a							55	0.7													BIOSWALE	
D-9	52	b	1.2																				CONCRETE HEADWALL	66.84 Rt "A-3" 49+36.92
D-9	52	c																			90		24" RCP	
D-9	52	d	6.3																				CONCRETE ENCASEMENT	
D-9	52	e	2.6									2			634								GD-1 INLET	83.84 Rt "A" 479+24.47
D-9	52	f																			10		24" RCP	
D-9	52	g	0.8																				CONCRETE COLLAR	71.60 Rt "A" 479+30.49
D-9	52	h	1.9									2			634								GD-1 INLET	8.23 Rt "A" 480+39.31
D-9	52	i						12															GRATED LINE DRAIN	
D-9	52	j																					REMOVE DI	2.18 Rt "A" 480+49.67
D-9	52	k																					REMOVE DI	1.87 Lt "A" 480+49.43
D-9	52	l																					REMOVE 24" RCP	
D-9	52	m																					REMOVE DI	75.23 Rt "A" 479+24.44
D-9	52	n																					REMOVE 24" RCP	
D-9	52	o																					REMOVE 24" RCP	
D-9	52	p																					REMOVE HEADWALL	31.19 Rt "A-3" 49+30.49
			12.7					12	55.0	0.7		4			1268						100		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-63

	REVISED BY	DUC TRAN
	DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON	
CHECKED BY	BROOKE RIVERA	

CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:43

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trmikesl
DGN FILE => c07163id063.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	521	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-9	52	a																						BIOSWALE	
D-9	52	b																						CONCRETE HEADWALL	66.84 Rt "A-3" 49+36.92
D-9	52	c		S																			3.8	24" RCP	
D-9	52	d																						CONCRETE ENCASEMENT	
D-9	52	e																					6.0	GD-1 INLET	83.84 Rt "A" 479+24.47
D-9	52	f		S																			3.1	24" RCP	
D-9	52	g																						CONCRETE COLLAR	71.60 Rt "A" 479+30.49
D-9	52	h																					3.7	GD-1 INLET	8.23 Rt "A" 480+39.31
D-9	52	i																						GRATED LINE DRAIN	
D-9	52	j												1										REMOVE DI	2.18 Rt "A" 480+49.67
D-9	52	k												1										REMOVE DI	1.87 Lt "A" 480+49.43
D-9	52	l														5								REMOVE 24" RCP	
D-9	52	m												1										REMOVE DI	75.23 Rt "A" 479+24.44
D-9	52	n														6.5								REMOVE 24" RCP	
D-9	52	o														73								REMOVE 24" RCP	
D-9	52	p																1.2						REMOVE HEADWALL	31.19 Rt "A-3" 49+30.49
														3		84.5		1.2				9.7	6.9	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-64

CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
REVISED BY: DUC TRAN
DATE REVISED: 8/10/09
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:43

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id064.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	522	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	GRATES TYPE 36R	GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-9	52A	a				5.8				17.7													CONCRETE CHANNEL	
D-9	52A	b	1.2																				CONCRETE HEADWALL	67.46 Rt "A-3" 49+89.63
D-9	52A	c																			30		24" RCP	
D-9	52A	d	2.1									2			634								GD-1 INLET	32.42 Rt "A-3" 49+89.78
D-9	52A	e																			43		24" RCP	
D-9	52A	f	11.5																				CONCRETE ENCASEMENT	
D-9	52A	g	1.8									2			634								GD-1 INLET	32.42 Rt "A-3" 50+37.78
D-9	52A	h						4															GRATED LINE DRAIN	
D-9	52A	i						4															GRATED LINE DRAIN	
D-9	52A	j																			43		24" RCP	
D-9	52A	k	11.3																				CONCRETE ENCASEMENT	
D-9	52A	l	1.7									2			634								GD-1 INLET	32.47 Rt "A-3" 50+85.79
D-9	52A	m																					REMOVE CONCRETE CHANNEL	
D-9	52T	a						12															GRATED LINE DRAIN	
			29.6			5.8		20		17.7		6			1902						116		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-65

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON — CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION: DATE PLOTTED => 03-FEB-2010 08-10-09 TIME PLOTTED => 10:43

BORDER LAST REVISED 8/1/2008 — RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 — USERNAME => trmikesl DGN FILE => c07163id065.dgn — CU 12235 — EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	523	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-9	52A	a																						CONCRETE CHANNEL	
D-9	52A	b																						CONCRETE HEADWALL	67.46 Rt "A-3" 49+89.63
D-9	52A	c		S																			2.2	24" RCP	
D-9	52A	d																				4.4		GD-1 INLET	32.42 Rt "A-3" 49+89.78
D-9	52A	e		S																			2.1	24" RCP	
D-9	52A	f																						CONCRETE ENCASEMENT	
D-9	52A	g																				3.7		GD-1 INLET	32.42 Rt "A-3" 50+37.78
D-9	52A	h																						GRATED LINE DRAIN	
D-9	52A	i																						GRATED LINE DRAIN	
D-9	52A	j		S																			2.2	24" RCP	
D-9	52A	k																						CONCRETE ENCASEMENT	
D-9	52A	l																				3.2		GD-1 INLET	32.47 Rt "A-3" 50+85.79
D-9	52A	m																		72				REMOVE CONCRETE CHANNEL	
D-9	52T	a																						GRATED LINE DRAIN	
																				72		11.3	6.5	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-66

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON — CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION: DATE PLOTTED => 03-FEB-2010 — 08-10-09 TIME PLOTTED => 10:43

BORDER LAST REVISED 8/1/2008 — RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 — USERNAME => trmikesl — DGN FILE => c07163id066.dgn — CU 12235 — EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	524	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	(N) GRATES TYPE 36R	(N) GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-9	53	a				1				3.5													CONCRETE CHANNEL	
D-9	53	b	1.2																				CONCRETE HEADWALL	66.17 Rt "A-3" 51+83.86
D-9	53	c																			112		24" RCP	
D-9	53	d	1.2																				CONCRETE HEADWALL	27.27 Lt "A-3" 52+44.24
D-9	53	e				7.2				18.2													CONCRETE CHANNEL	
D-9	53	f	1.2																				CONCRETE HEADWALL	107.33 Rt "A" 482+49.68
D-9	53	g																			14		24" RCP	
D-9	53	h	0.9																				CONCRETE COLLAR	95.34 Rt "A" 482+49.58
D-9	53	i																					JUNCTION STRUCTURE	75.25 Rt "A" 482+47.53
D-9	53	j																			25		24" RCP	
D-9	53	k	6.5																				CONCRETE ENCASEMENT	
D-9	53	l	2.0									2			634								GD-1 INLET	75.00 Rt "A" 482+19.98
D-9	53	m																					REMOVE CONCRETE CHANNEL	
D-9	53	n																					REMOVE CONCRETE CHANNEL	
D-9	53	o																					REMOVE HEADWALL	16.78 Lt "A-3" 52+36.31
D-9	53	p																					REMOVE CONCRETE CHANNEL	
D-9	53	q																					REMOVE HEADWALL	96.70 Rt "A" 482+49.44
			13.0			8.6				21.7		2			634						150		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-67

REVISED BY: DUC TRAN
DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:43

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id067.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	525	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-9	53	a																						CONCRETE CHANNEL	
D-9	53	b																						CONCRETE HEADWALL	66.17 Rt "A-3" 51+83.86
D-9	53	c		S																			5.8	24" RCP	
D-9	53	d																						CONCRETE HEADWALL	27.27 Lt "A-3" 52+44.24
D-9	53	e																						CONCRETE CHANNEL	
D-9	53	f																						CONCRETE HEADWALL	107.33 Rt "A" 482+49.68
D-9	53	g		S																			0.8	24" RCP	
D-9	53	h																						CONCRETE COLLAR	95.34 Rt "A" 482+49.58
D-9	53	i																						JUNCTION STRUCTURE	75.25 Rt "A" 482+47.53
D-9	53	j		S																			1.9	24" RCP	
D-9	53	k																						CONCRETE ENCASEMENT	
D-9	53	l																					4.0	GD-1 INLET	75.00 Rt "A" 482+19.98
D-9	53	m																	27					REMOVE CONCRETE CHANNEL	
D-9	53	n																	15					REMOVE CONCRETE CHANNEL	
D-9	53	o																1.2						REMOVE HEADWALL	16.78 Lt "A-3" 52+36.31
D-9	53	p																	10					REMOVE CONCRETE CHANNEL	
D-9	53	q																1.2						REMOVE HEADWALL	96.70 Rt "A" 482+49.44
																		2.4	52			4.0	8.5	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-68

	REVISED BY	DUC TRAN
	DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON	
CHECKED BY	BROOKE RIVERA	

CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	526	1929

REGISTERED CIVIL ENGINEER — DATE 8/10/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE) CY	CLASS 1 CONCRETE (BIXBY CHANNEL) CY	STRUCTURAL CONCRETE (BOX CULVERT) CY	CONCRETE (DITCH LINING) CY	CLASS 3 AGGREGATE BASE CY	GRATED LINE DRAIN LF	(N) BIOSWALE LF	DITCH EXCAVATION CY	(N) BIOSTRIP SF	(N) GRATES TYPE 24-12 EA	GRATES TYPE 36R EA	GRATES COMBINATION CATCH BASIN EA	Misc IRON & STEEL ** LB	BAR REINFORCING STEEL (CHANNEL) LB	BAR REINFORCING STEEL (BOX CULVERT) LB	(N) STRUCTURAL BACKFILL CY	12" CSP (0.079" THICK) LF	18" REINFORCED Conc PIPE LF	24" REINFORCED Conc PIPE LF	36" REINFORCED Conc PIPE LF	DESCRIPTION	STATION
D-9	53A	a							50	7.4													BIOSWALE	
D-9	53B	a							50	8.3													BIOSWALE	
D-9	53C	a																					HMAOD	
D-9	53D	a																					HMAOD	
D-10	54	a				4.8				11.5													CONCRETE CHANNEL	
D-10	54	b	1.2																				CONCRETE HEADWALL	85.88 Rt "C-2" 12+51.13
D-10	54	c	11.6																		66		24" RCP	
D-10	54	d	2.6									2			634								GD-1 INLET	20.58 Rt "C-2" 12+61.74
D-10	54	e																					REMOVE CMP OVERDRAIN	24.00 Rt "C-2" 12+42.90
D-10	54	f																					REMOVE CONCRETE CHANNEL	
D-10	54A	a																					JUNCTION STRUCTURE	70.80 Rt "A" 490+95.96
D-10	54A	b																			155		24" RCP	
D-10	54A	c	2.6									2			634								GD-1 INLET	66.70 Lt "A" 489+31.21
D-10	54A	d																			170		24" RCP	
D-10	54A	e																					JUNCTION STRUCTURE	72.26' Lt "A" 487+50.96
			18.0			4.8			100.0	27.2		4			1268						392		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-69

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION: DATE PLOTTED => 03-FEB-2010 TIME PLOTTED => 10:44
08-10-09

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	527	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

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999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORCED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-9	53A	a																						BIOSWALE	
D-9	53B	a																						BIOSWALE	
D-9	53C	a										1.81	12.37											HMAOD	
D-9	53D	a										2.48	16.94											HMAOD	
D-10	54	a																						CONCRETE CHANNEL	
D-10	54	b																						CONCRETE HEADWALL	85.88 Rt "C-2" 12+51.13
D-10	54	c		S																			5.8	24" RCP	
D-10	54	d																				6.2		GD-1 INLET	20.58 Rt "C-2" 12+61.74
D-10	54	e													1									REMOVE CMP OVERDRAIN	24.00 Rt "C-2" 12+42.90
D-10	54	f																		38				REMOVE CONCRETE CHANNEL	
D-10	54A	a																						JUNCTION STRUCTURE	70.80 Rt "A" 490+95.96
D-10	54A	b		S																			9.2	24" RCP	
D-10	54A	c																				8.4		GD-1 INLET	66.70 Lt "A" 489+31.21
D-10	54A	d		S																			6.1	24" RCP	
D-10	54A	e																						JUNCTION STRUCTURE	72.26' Lt "A" 487+50.96
												4.29	29.3		1					38		14.6	21.1	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-70

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 10:44

BORDER LAST REVISED 8/1/2008 — RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 — USERNAME => trmikesl — DGN FILE => c07163id070.dgn — CU 12235 — EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	528	1929

REGISTERED CIVIL ENGINEER — DATE 8/10/09

JENNIFER BROOKE RIVERA No. C70332 Exp. 09/30/10 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	GRATES TYPE 36R	GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-10	54B	a																					JUNCTION STRUCTURE	3.90′ Rt "A" 487+99.27
D-10	54B	b																			4		24" RCP	
D-10	54B	c	1.1																				CONCRETE ENCASEMENT	
D-10	54B	d	1.8									2			634								GD-1 INLET	6.46 Rt "A" 486+78.99
D-10	54B	e						120															GRATED LINE DRAIN	
D-10	54B	f																					REMOVE DI	3.90′ Rt "A"487+99.27
D-10	54B	g																					REMOVE RCP	
D-9	54C	a								81.8													EARTHEN SWALE	
D-10	54C	a								11.0													EARTHEN SWALE	
D-10	55	a				59				232.4													CONCRETE CHANNEL	
D-10	55	b	0.9																				CONCRETE HEADWALL	63.59 Rt "C-2" 15+48.20
D-10	55	c	5.2																	42			18" RCP	
D-10	55	d	2.7									2			634								GD-1 INLET	20.70 Rt "C-2" 15+49.04
D-10	55	e																		14			18" RCP	
D-10	55	f	2.9									2			634								GD-1 INLET	20.70 Rt "C-2" 15+30.00
D-10	55	g																					REMOVE CMP OVERDRAIN	22.83 Rt "C-2" 15+69.57
			14.4			59.3		120		325.2		6			1902					55	4		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-71

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:16

BORDER LAST REVISED 8/1/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => trmikesl DGN FILE => c07163id071.dgn | CU 12235 | EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	529	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-10	54B	a																						JUNCTION STRUCTURE	3.90' Rt "A" 487+99.27
D-10	54B	b		S																			2.2	24" RCP	
D-10	54B	c																						CONCRETE ENCASEMENT	
D-10	54B	d																				3.4		GD-1 INLET	6.46 Rt "A" 486+78.99
D-10	54B	e																						GRATED LINE DRAIN	
D-10	54B	f												1										REMOVE DI	3.90' Rt "A"487+99.27
D-10	54B	g														4								REMOVE RCP	
D-9	54C	a																						EARTHEN SWALE	
D-10	54C	a																						EARTHEN SWALE	
D-10	55	a																						CONCRETE CHANNEL	
D-10	55	b																						CONCRETE HEADWALL	63.59 Rt "C-2" 15+48.20
D-10	55	c		S																			4.5	18" RCP	
D-10	55	d																				6.3		GD-1 INLET	20.70 Rt "C-2" 15+49.04
D-10	55	e		S																			4.2	18" RCP	
D-10	55	f																				6.9		GD-1 INLET	20.70 Rt "C-2" 15+30.00
D-10	55	g													1									REMOVE CMP OVERDRAIN	22.83 Rt "C-2" 15+69.57
														1	1	4.0						16.6	10.9	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-72

	REVISED BY	DUC TRAN
	DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON	
CHECKED BY	BROOKE RIVERA	

CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:16

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trmikesl
DGN FILE => c07163id072.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	530	1929

8/10/09
REGISTERED CIVIL ENGINEER DATE

JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	(N) GRATES TYPE 36R	(N) GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-10	56	a	2.0																				JUNCTION STRUCTURE	14.00 Lt "C-2" 15+48.00
D-10	56	b																		79			18" RCP	
D-10	56	c	2.6									2			634								GD-1 INLET	26.70 Rt "A-1" 91+52.13
D-10	56	d																		29			18" RCP	
D-10	56	e	2.3									2			634								GD-1 INLET	2.30 Lt "A-1" 91+66.50
D-10	56	f																		64			18" RCP	
D-10	56	g	5.6																				CONCRETE ENCASEMENT	
D-10	56	h	2.3									2			634								GD-1 INLET	1.30 Lt "A-1" 90+98.03
D-10	56	j	4.1									2			634								GD-1 INLET	23.35 Rt "C-1" 25+25.20
D-10	56	j																		69			18" RCP	
D-10	57	a																					HOT MIX ASPHALT OVERSIDE DRAIN	34.30 Rt "C-1" 27+14.83
D-10	57	b																					REMOVE ACOD	14.12 Lt "C-1" 27+00.52
D-10	57A	a				43.3				169.7													CONCRETE CHANNEL	
D-10	57A	b	0.9																				CONCRETE HEADWALL	10.40 Lt "C-2" 17+12.27
D-10	57A	c																			70		18" RCP	
D-10	57A	d	0.3																				JUNCTION STRUCTURE	9.20 Lt "C-2" 17+83.78
D-10	58	a							35	5.2													BIOSWALE	
D-10	58A	a	3.2									2			634								GD-1 INLET	36.20 Lt "A-1" 94+32.22
D-10	58A	b	12.9																		43		24" RCP	
D-10	58A	c	0.3																				JUNCTION STRUCTURE	34.92 Lt "A-1" 94+77.63
			36.5			43.3			35.0	174.9		10			3170					240	113		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-73

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:16

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	531	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-10	56	a																						JUNCTION STRUCTURE	14.00 Lt "C-2" 15+48.00
D-10	56	b		S																			9.1	18" RCP	
D-10	56	c																					6.1	GD-1 INLET	26.70 Rt "A-1" 91+52.13
D-10	56	d		S																				18" RCP	
D-10	56	e																					5.1	GD-1 INLET	2.30 Lt "A-1" 91+66.50
D-10	56	f																					3.3	18" RCP	
D-10	56	g		S																				CONCRETE ENCASEMENT	
D-10	56	h																					5.1	GD-1 INLET	1.30 Lt "A-1" 90+98.03
D-10	56	j																					10.6	GD-1 INLET	23.35 Rt "C-1" 25+25.20
D-10	56	j		S																			8.4	18" RCP	
D-10	57	a										3.27	22.39											HOT MIX ASPHALT OVERSIDE DRAIN	34.30 Rt "C-1" 27+14.83
D-10	57	b													1									REMOVE ACOD	14.12 Lt "C-1" 27+00.52
D-10	57A	a																						CONCRETE CHANNEL	
D-10	57A	b																						CONCRETE HEADWALL	10.40 Lt "C-2" 17+12.27
D-10	57A	c		S																			11.7	18" RCP	
D-10	57A	d																						JUNCTION STRUCTURE	9.20 Lt "C-2" 17+83.78
D-10	58	a																						BIOSWALE	
D-10	58A	a																					8.0	GD-1 INLET	36.20 Lt "A-1" 94+32.22
D-10	58A	b		S																			30.3	24" RCP	
D-10	58A	c																						JUNCTION STRUCTURE	34.92 Lt "A-1" 94+77.63
												3.27	22.4		1							34.9	62.8	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-74

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:16

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id074.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	532	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

JENNIFER BROOKE RIVERA No. C70332 Exp. 09/30/10 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

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999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	(N) GRATES TYPE 36R	(N) GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-11	59	a																					ROCK SLOPE PROTECTION FABRIC	83.37′ Rt "C-1" 31+59.13
D-11	59	b																					24" AFES	63.37′ Rt "C-1" 31+59.14
D-11	59	c																			64		24" RCP	
D-11	59	d	3.2									2			634								GD1 INLET	38.40′ Rt "A-1" 98+28.31
D-11	59	e						140															GRATED LINE DRAIN	
D-11	59	f																			8		24" RCP	
D-11	59	g	2.9									2			634								GD1 INLET	26.70′ Rt "A-1" 98+27.69
D-11	59	h																			5		24" RCP	
D-11	59	i	2.5									2			634								GD1 INLET	26.70′ Rt "A-1" 98+37.48
D-11	59	j																					REMOVE 18" CMP	
D-10	59A	a	0.9																				CONCRETE COLLAR	62.32′ Lt "A-3" 64+23.24
D-10	59A	b																			39		24" RCP	
D-10	59A	c	0.9																				CONCRETE ENCASEMENT	
D-10	59A	d	1.2																				CONCRETE HEADWALL	38.20′ Lt "A-3" 64+55.15
D-10	59A	e				3				10.5													CONCRETE CHANNEL	
D-11	59A	e				13.4				44.9													CONCRETE CHANNEL	
D-10	59A	f																					REMOVE 24" RCP	
D-10	59A	g																					REMOVE HEAD WALL	88.81 Rt "C-1" 30+15.08
D-10	59A	h																					REMOVE CONCRETE CHANNEL	
D-11	59A	h																					REMOVE CONCRETE CHANNEL	
			11.6			16.5		140		55.4		6			1902						116		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-75

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:16

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id075.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	533	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-11	59	a								2.6	0.74													ROCK SLOPE PROTECTION FABRIC	83.37′ Rt "C-1" 31+59.13
D-11	59	b							1															24" AFES	63.37′ Rt "C-1" 31+59.14
D-11	59	c		S																			5.8	24" RCP	
D-11	59	d																				8.0		GD1 INLET	38.40′ Rt "A-1" 98+28.31
D-11	59	e																						GRATED LINE DRAIN	
D-11	59	f		S																			5.1	24" RCP	
D-11	59	g																				7.0		GD1 INLET	26.70′ Rt "A-1" 98+27.69
D-11	59	h		S																			4.1	24" RCP	
D-11	59	i																				5.7		GD1 INLET	26.70′ Rt "A-1" 98+37.48
D-11	59	j														50								REMOVE 18" CMP	
D-10	59A	a																						CONCRETE COLLAR	62.32′ Lt "A-3" 64+23.24
D-10	59A	b		S																			0.8	24" RCP	
D-10	59A	c																						CONCRETE ENCASEMENT	
D-10	59A	d																						CONCRETE HEADWALL	38.20′ Lt "A-3" 64+55.15
D-10	59A	e																						CONCRETE CHANNEL	
D-11	59A	e																						CONCRETE CHANNEL	
D-10	59A	f														25								REMOVE 24" RCP	
D-10	59A	g																1.2						REMOVE HEAD WALL	88.81 Rt "C-1" 30+15.08
D-10	59A	h																	39					REMOVE CONCRETE CHANNEL	
D-11	59A	h																	131					REMOVE CONCRETE CHANNEL	
									1	2.6	0.7					75.0		1.2	170			20.7	15.7	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-76

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 11:16
08-10-09

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id076.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	534	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES			Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
												TYPE 24-12	TYPE 36R	COMBINATION CATCH BASIN										
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-11	60	a	0.9																				CONCRETE COLLAR	33.61′ Lt "A-1" 98+74.81
D-11	60	b																			9		24" RCP	
D-11	60	c	2.4																				CONCRETE ENCASEMENT	
D-11	60	d	2.2									2			634								GD-1 INLET	25.68′ Lt "A-1" 98+74.54
D-11	60	e																					REMOVE DI	27.69′ Lt "A-1" 98+74.63
D-11	60	f																					REMOVE 24" RCP	
D-11	60A	a																					HOT MIX ASPHALT OVERSIDE DRAIN	107.34′ Lt "A-1" 97+50.59
D-11	60A	b																					REMOVE 18" CMP	
D-11	61	a	2.4									2			634								GD1 INLET	32.58′ Rt "C-1" 34+52.48
D-11	61	b																			45		24" RCP	
D-11	61	c	0.8																				CONCRETE ENCASEMENT	
D-11	61	d																					REMOVE DI	26.89′ Rt "C-1" 34+71.20
D-11	61	e																					REMOVE 24" RCP	
			8.6									4			1268						54		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-77

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION: DATE PLOTTED => 03-FEB-2010 08-10-09 TIME PLOTTED => 11:17

BORDER LAST REVISED 8/1/2008 — RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 — USERNAME => trmikesl DGN FILE => c07163id077.dgn — CU 12235 — EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	535	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-11	60	a																						CONCRETE COLLAR	33.61′ Lt "A-1" 98+74.81
D-11	60	b		S																			2	24" RCP	
D-11	60	c																						CONCRETE ENCASEMENT	
D-11	60	d																				4.7		GD-1 INLET	25.68′ Lt "A-1" 98+74.54
D-11	60	e												1										REMOVE DI	27.69′ Lt "A-1" 98+74.63
D-11	60	f														5.9								REMOVE 24" RCP	
D-11	60A	a										3.50	23.9											HOT MIX ASPHALT OVERSIDE DRAIN	107.34′ Lt "A-1" 97+50.59
D-11	60A	b														77								REMOVE 18" CMP	
D-11	61	a																				5.3		GD1 INLET	32.58′ Rt "C-1" 34+52.48
D-11	61	b		S																			4	24" RCP	
D-11	61	c																						CONCRETE ENCASEMENT	
D-11	61	d												1										REMOVE DI	26.89′ Rt "C-1" 34+71.20
D-11	61	e														27.6								REMOVE 24" RCP	
												3.50	23.9	2		110.5						10.0	6.0	SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-78

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:17

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trmikesl
DGN FILE => c07163id078.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	536	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES			Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
												TYPE 24-12	TYPE 36R	COMBINATION CATCH BASIN										
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-11	62	a	3.1									2			634								GD1 INLET	28.03' Lt "A-1" 101+74.60
D-11	62	b																			85		24" RCP	
D-11	62	c	2.7									2			634								GD1 INLET	10.80' Lt "A-3" 69+29.49
D-11	62	d																			44		24" RCP	
D-11	62	e	5.7																				CONCRETE ENCASEMENT	
D-11	62	f	1.7									2			634								GD1 INLET	32.44 Rt "A-3" 69+15.30
D-11	62	g																					REMOVE DI	27.49' Rt "A-3" 69+16.61
D-11	62	h																					REMOVE 24" RCP	
D-11	62	i																					REMOVE DI	13.62' Lt "A-3" 69+31.05
D-11	62	j																					REMOVE 24" RCP	
D-11	62	k																					REMOVE DI	20.17' Lt "A-1" 101+74.64
D-11	62	l																					REMOVE 24" RCP	
D-11	63	a																			51		24" RCP	
D-11	63	b	2.9									2			634								GD1 INLET	31.31' Rt "A-1" 101+18.70
D-11	63	c																			2		24" RCP	
D-11	63	d	2.5									2			634								GD1 INLET	26.18' Rt "A-1" 101+18.72
			18.5									10			3170						182		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-79

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION: DATE PLOTTED => 03-FEB-2010 08-10-09 TIME PLOTTED => 11:17

BORDER LAST REVISED 8/1/2008
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USERNAME => trmikesl
DGN FILE => c07163id079.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	537	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

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999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-11	62	a																				7.5		GD1 INLET	28.03′ Lt "A-1" 101+74.60
D-11	62	b		S																			8	24" RCP	
D-11	62	c																				6.3		GD1 INLET	10.80′ Lt "A-3" 69+29.49
D-11	62	d		S																			4	24" RCP	
D-11	62	e																						CONCRETE ENCASEMENT	
D-11	62	f																				3.3		GD1 INLET	32.44 Rt "A-3" 69+15.30
D-11	62	g												1										REMOVE DI	27.49′ Rt "A-3" 69+16.61
D-11	62	h														43.5								REMOVE 24" RCP	
D-11	62	i												1										REMOVE DI	13.62′ Lt "A-3" 69+31.05
D-11	62	j														75.3								REMOVE 24" RCP	
D-11	62	k												1										REMOVE DI	20.17′ Lt "A-1" 101+74.64
D-11	62	l														10								REMOVE 24" RCP	
D-11	63	a		S																			5	24" RCP	
D-11	63	b																				7.0		GD1 INLET	31.31′ Rt "A-1" 101+18.70
D-11	63	c		S																			4.1	24" RCP	
D-11	63	d																				5.6		GD1 INLET	26.18′ Rt "A-1" 101+18.72
														3		128.8					29.6	21.1	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-80

CALCULATED-DESIGNED BY	CHECKED BY	REVISED BY	DATE REVISED
RASHOD GIBSON	BROOKE RIVERA	DUC TRAN	8/10/09

CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION DATE PLOTTED => 03-FEB-2010 08-10-09 TIME PLOTTED => 11:17

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trmikesl
DGN FILE => c07163id080.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	538	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES			Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
												TYPE 24-12	TYPE 36R	COMBINATION CATCH BASIN										
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-11	64	a	2.5									2			634								GD1 INLET	25.03′ Rt "B-1" 18+15.12
D-11	64	b																			135		24" RCP	
D-11	64	c	2.5									2			634								GD1 INLET	12.35′ Rt "B-1" 19+52.92
D-11	64	d																			15		24" RCP	
D-11	64	e	2.6									2			634								GD1 INLET	11.41′ Rt "B-1" 19+78.81
D-11	64	f																			59		24" RCP	
D-11	64	g	0.3																				JUNCTION STRUCTURE	7.66′ Lt "B-1" 20+30.70
D-11	65	a	0.9																				CONCRETE COLLAR	27.35 Lt "A-4" 36+02.73
D-11	65	b																			22		24" RCP	
D-11	65	c	1.2																				CONCRETE HEADWALL	46.61 Lt "A-4" 36+12.52
D-11	65	d								39.7													EARTHEN SWALE	
D-11	65	e	1.2																				CONCRETE HEADWALL	30.52′ Lt "A-4" 38+80.18
D-11	65	f																			27		24" RCP	
D-11	65	g	0.8																				CONCRETE COLLAR	14.34′ Lt "A-4" 39+01.45
D-11	65	h																					REMOVE CONCRETE CHANNEL	
D-11	65	i																					REMOVE ACOD	29.90′ Rt "A-3" 71+91.11
D-11	65	j																					REMOVE CONCRETE CHANNEL	
D-11	65A	a																					HOT MIX ASPHALT OVERSIDE DRAIN	21.95′ Lt "B-1" 19+35.90
D-11	65A	b																					REMOVE ACOD	17.39′ Lt "B-1" 19+35.51
			11.8							39.7		6			1902						258		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-81

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:17

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trmikesl
DGN FILE => c07163id081.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	539	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-11	64	a																				5.7		GD1 INLET	25.03′ Rt "B-1" 18+15.12
D-11	64	b		S																			3.4	24" RCP	
D-11	64	c																				5.7		GD1 INLET	12.35′ Rt "B-1" 19+52.92
D-11	64	d		S																			3.6	24" RCP	
D-11	64	e																				5.9		GD1 INLET	11.41′ Rt "B-1" 19+78.81
D-11	64	f		S																			3.6	24" RCP	
D-11	64	g																						JUNCTION STRUCTURE	7.66′ Lt "B-1" 20+30.70
D-11	65	a																						CONCRETE COLLAR	27.35 Lt "A-4" 36+02.73
D-11	65	b																						24" RCP	
D-11	65	c																						CONCRETE HEADWALL	46.61 Lt "A-4" 36+12.52
D-11	65	d																						EARTHEN SWALE	
D-11	65	e																						CONCRETE HEADWALL	30.52′ Lt "A-4" 38+80.18
D-11	65	f		S																			3.3	24" RCP	
D-11	65	g																						CONCRETE COLLAR	14.34′ Lt "A-4" 39+01.45
D-11	65	h																			309			REMOVE CONCRETE CHANNEL	
D-11	65	i													1									REMOVE ACOD	29.90′ Rt "A-3" 71+91.11
D-11	65	j																		304				REMOVE CONCRETE CHANNEL	
D-11	65A	a										0.91	6.20											HOT MIX ASPHALT OVERSIDE DRAIN	21.95′ Lt "B-1" 19+35.90
D-11	65A	b													1									REMOVE ACOD	17.39′ Lt "B-1" 19+35.51
												0.91	6.2		2				304		309	17.3	14.0	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-82

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:17

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trmikesl
DGN FILE => c07163id082.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	540	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE) CY	CLASS 1 CONCRETE (BIXBY CHANNEL) CY	STRUCTURAL CONCRETE (BOX CULVERT) CY	CONCRETE (DITCH LINING) CY	CLASS 3 AGGREGATE BASE CY	GRATED LINE DRAIN LF	(N) BIOSWALE LF	DITCH EXCAVATION CY	(N) BIOSTRIP SF	(N) GRATES TYPE 24-12 EA	GRATES TYPE 36R EA	GRATES COMBINATION CATCH BASIN EA	Misc IRON & STEEL ** LB	BAR REINFORCING STEEL (CHANNEL) LB	BAR REINFORCING STEEL (BOX CULVERT) LB	(N) STRUCTURAL BACKFILL CY	12" CSP (0.079" THICK) LF	18" REINFORCED Conc PIPE LF	24" REINFORCED Conc PIPE LF	36" REINFORCED Conc PIPE LF	DESCRIPTION	STATION
D-11	66	a	0.5																				JUNCTION STRUCTURE	42.38' Lt "B-1" 20+27.41
D-11	66	b																			48		24" RCP	
D-11	66	c	1.2																				CONCRETE HEADWALL	35.90' Lt "B-1" 20+77.01
D-11	66	d							55														BIOSWALE	
D-11	66	e				58.3				299.6													CONCRETE CHANNEL	
D-12	66	e				35.6				182.7													CONCRETE CHANNEL	
D-12	66	e				53.1				162.5													CONCRETE CHANNEL	
D-11	66	f																					REMOVE CONCRETE CHANNEL	
D-12	66	f																					REMOVE CONCRETE CHANNEL	
D-11	66	g																					REMOVE 24" RCP	
D-11	66	h																					REMOVE CONCRETE HEADWALL	37.73' Lt "B-1" 20+54.89
D-11	66B	a	2.3									2			634								GD1 INLET	22.14' Rt "A-4" 39+99.76
D-11	66B	b																			54		24" RCP	
D-11	66B	c	0.3																				JUNCTION STRUCTURE	21.94' Rt "A-4" 40+62.52
D-11	66B	d																					REMOVE DI	21.16' Rt "A-4" 40+41.53
D-11	66B	e																					REMOVE 24" RCP	
D-12	66C	a	2.2									2			634								GD1 INLET	20.71' Rt "A-4" 45+10.16
D-12	66C	b																		20			18" RCP	
D-12	66C	c	1.2																				CONCRETE HEADWALL	41.00' Rt "A-4" 45+10.25
D-12	66C	d				0.8				2.4													CONCRETE CHANNEL	
			7.7			147.8			55.0	647.3		4			1268					20	102		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-83

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:17

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	541	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORCED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-11	66	a																						JUNCTION STRUCTURE	42.38′ Lt "B-1" 20+27.41
D-11	66	b		S																			2.5	24" RCP	
D-11	66	c																						CONCRETE HEADWALL	35.90′ Lt "B-1" 20+77.01
D-11	66	d																						BIOSWALE	
D-11	66	e																						CONCRETE CHANNEL	
D-12	66	e																						CONCRETE CHANNEL	
D-12	66	e																						CONCRETE CHANNEL	
D-11	66	f																		393				REMOVE CONCRETE CHANNEL	
D-12	66	f																		790				REMOVE CONCRETE CHANNEL	
D-11	66	g														24.3								REMOVE 24" RCP	
D-11	66	h																1.2						REMOVE CONCRETE HEADWALL	37.73′ Lt "B-1" 20+54.89
D-11	66B	a																					5.2	GD1 INLET	22.14′ Rt "A-4" 39+99.76
D-11	66B	b		S																			6.2	24" RCP	
D-11	66B	c																						JUNCTION STRUCTURE	21.94′ Rt "A-4" 40+62.52
D-11	66B	d													1									REMOVE DI	21.16′ Rt "A-4" 40+41.53
D-11	66B	e														13.4								REMOVE 24" RCP	
D-12	66C	a																					4.9	GD1 INLET	20.71′ Rt "A-4" 45+10.16
D-12	66C	b		S																			4.1	18" RCP	
D-12	66C	c																						CONCRETE HEADWALL	41.00′ Rt "A-4" 45+10.25
D-12	66C	d																						CONCRETE CHANNEL	
															1		37.7		1.2	1182			10.0	12.7	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-84

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:18

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	542	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

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999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES			Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
												TYPE 24-12	TYPE 36R	COMBINATION CATCH BASIN										
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-11	72	a	2.4									2			634								GD1 INLET	8.64′ L† "A-1" 106+23.86
D-11	72	b																			7		24" RCP	
D-11	72	c	2.3									2			634								GD1 INLET	2.98′ R† "A-1" 106+25.00
D-11	72	d						171															GRATED LINE DRAIN	
D-11	72	e																					REMOVE 18" RCP	
D-11	72	f																					REMOVE DI	9.07′ L† "A-1" 106+01.11
D-11	72	g																					REMOVE DI	8.64′ L† "A-1" 106+23.86
D-11	72A	a	0.4																				JUNCTION STRUCTURE	2.51′ R† "A-1" 107+15.56
D-11	72A	b																			27		24" RCP	
D-11	72A	c	2.3									2			634								GD1 INLET	2.98′ R† "A-1" 109+00.00
D-11	72A	d						321															GRATED LINE DRAIN	
D-11	72A	e																					REMOVE 18" RCP	
D-11	72A	f																					REMOVE DI	3.45′ L† "B" 107+17.78
D-11	72A	g																					REMOVE 18" RCP	
D-11	72A	h																					REMOVE DI	3.00′ L† "B" 108+28.37
D-11	72A	i																					REMOVE 18" RCP	
D-11	72A	j																					REMOVE DI	2.43′ L† "B" 108+75.39
D-11	72A	k																					REMOVE 18" RCP	
D-11	72A	l																					REMOVE DI	1.23′ L† "B" 109+74.38
D-11	72A	m																					REMOVE 18" RCP	
D-11	72A	n																					REMOVE DI	0.33′ L† "B" 110+65.05
			7.5					492				6			1902						34		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-85

REVISED BY: DUC TRAN
DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION: DATE PLOTTED => 03-FEB-2010 08-10-09 TIME PLOTTED => 11:18

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id085.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	543	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-11	72	a																				5.4		GD1 INLET	8.64′ L+ "A-1" 106+23.86
D-11	72	b		S																			3.1	24" RCP	
D-11	72	c																				5.2		GD1 INLET	2.98′ R+ "A-1" 106+25.00
D-11	72	d																						GRATED LINE DRAIN	
D-11	72	e														19								REMOVE 18" RCP	
D-11	72	f												1										REMOVE DI	9.07′ L+ "A-1" 106+01.11
D-11	72	g												1										REMOVE DI	8.64′ L+ "A-1" 106+23.86
D-11	72A	a																						JUNCTION STRUCTURE	2.51′ R+ "A-1" 107+15.56
D-11	72A	b		S																			6.9	24" RCP	
D-11	72A	c																				5.2		GD1 INLET	2.98′ R+ "A-1" 109+00.00
D-11	72A	d																						GRATED LINE DRAIN	
D-11	72A	e														13								REMOVE 18" RCP	
D-11	72A	f												1										REMOVE DI	3.45′ L+ "B" 107+17.78
D-11	72A	g														110								REMOVE 18" RCP	
D-11	72A	h												1										REMOVE DI	3.00′ L+ "B" 108+28.37
D-11	72A	i														43								REMOVE 18" RCP	
D-11	72A	j												1										REMOVE DI	2.43′ L+ "B" 108+75.39
D-11	72A	k														95								REMOVE 18" RCP	
D-11	72A	l												1										REMOVE DI	1.23′ L+ "B" 109+74.38
D-11	72A	m														87								REMOVE 18" RCP	
D-11	72A	n												1										REMOVE DI	0.33′ L+ "B" 110+65.05
														7		367.0						15.8	10.0	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-86

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:18

BORDER LAST REVISED 8/1/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => trmikesl DGN FILE => c07163id086.dgn | CU 12235 | EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	544	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	GRATES TYPE 36R	GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-11	72B	a	1.9									2			634								GD1 INLET	1.50′ Rt "A-1" 110+87.50
D-11	72B	b						10															GRATED LINE DRAIN	
D-12	72B	b						146															GRATED LINE DRAIN	
D-11	72B	c																			10		24" RCP	
D-12	72B	c																			149		24" RCP	
D-12	72B	d	2.3									2			634								GD1 INLET	1.5′ Rt "A-1" 112+50.00
D-12	72B	e						118															GRATED LINE DRAIN	
D-12	72B	f																			122		24" RCP	
D-12	72B	g	2.7									2			634								GD1 INLET	1.50 Rt "A-1" 113+75.00
D-12	72B	h						86															GRATED LINE DRAIN	
D-12	72B	i																			97		24" RCP	
D-12	72B	j	2.3									2			634								GD1 INLET	1.50 Rt "A-1" 114+75.00
D-12	72B	k						142															GRATED LINE DRAIN	
D-12	72B	l																			146		24" RCP	
			9.2					502				8			2536						523		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-87

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION: DATE PLOTTED => 03-FEB-2010 TIME PLOTTED => 11:18
08-10-09

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id087.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	545	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

JENNIFER BROOKE RIVERA No. C70332 Exp. 09/30/10 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

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AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	(N) 48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-11	72B	a																				4.0		GD1 INLET	1.50' Rt "A-1" 110+87.50
D-11	72B	b																						GRATED LINE DRAIN	
D-12	72B	b																						GRATED LINE DRAIN	
D-11	72B	c		S																			3.2	24" RCP	
D-12	72B	c		S																			3.2	24" RCP	
D-12	72B	d																				5.2		GD1 INLET	1.5' Rt "A-1" 112+50.00
D-12	72B	e																						GRATED LINE DRAIN	
D-12	72B	f		S																			4.0	24" RCP	
D-12	72B	g																				6.3		GD1 INLET	1.50 Rt "A-1" 113+75.00
D-12	72B	h																						GRATED LINE DRAIN	
D-12	72B	i		S																			4.8	24" RCP	
D-12	72B	j																				5.0		GD1 INLET	1.50 Rt "A-1" 114+75.00
D-12	72B	k																						GRATED LINE DRAIN	
D-12	72B	l		S																			6.8	24" RCP	
																						20.4	21.9	SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-88

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON — CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION: DATE PLOTTED => 03-FEB-2010 — 08-10-09 TIME PLOTTED => 11:18

BORDER LAST REVISED 8/1/2008 — RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 — USERNAME => trmikesl — DGN FILE => c07163id088.dgn — CU 12235 — EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	546	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

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999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	GRATES TYPE 36R	COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-12	72B	m	3.6									2			634								GD1 INLET	1.67′ R† "B" 209+75.00
D-12	72B	n						62															GRATED LINE DRAIN	
D-12	72B	o																			310		24" RCP	
D-12	72B	p	0.3																				JUNCTION STRUCTURE	3.30′ R† "B" 212+86.48
D-11	72B	q																					REMOVE 18" RCP	
D-11	72B	r																					REMOVE 18" RCP	
D-11	72B	s																					REMOVE DI	0.33′ L† "A-1" 110+85..30
D-11	72B	†																					REMOVE 18" RCP	
D-12	72B	†																					REMOVE 18" RCP	
D-12	72B	u																					REMOVE DI	0.13′ R† "A-1" 111+53.46
D-12	72B	v																					REMOVE 18" RCP	1.28′ R† "A-1" 113+18.40
D-12	72B	w																					REMOVE DI	1.28 R† "A-1" 113+18.40
D-12	72B	x																					REMOVE 18" RCP	
D-12	72B	y																					REMOVE DI	1.80 R† "A-1" 114+64.86
D-11	72B	z	0.4																				CONCRETE BULKHEAD	21.07′ L† "A-1" 110+75.16
			4.2					62				2			634						310		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-89

REVISED BY: DUC TRAN
DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:18

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id089.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	547	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-12	72B	m																				9.0		GD1 INLET	1.67′ R† "B" 209+75.00
D-12	72B	n																						GRATED LINE DRAIN	
D-12	72B	o		S																			11.8	24" RCP	
D-12	72B	p																						JUNCTION STRUCTURE	3.30′ R† "B" 212+86.48
D-11	72B	q														18								REMOVE 18" RCP	
D-11	72B	r														16								REMOVE 18" RCP	
D-11	72B	s												1										REMOVE DI	0.33′ L† "A-1" 110+85..30
D-11	72B	†														12								REMOVE 18" RCP	
D-12	72B	†														52.3								REMOVE 18" RCP	
D-12	72B	u												1										REMOVE DI	0.13′ R† "A-1" 111+53.46
D-12	72B	v														162								REMOVE 18" RCP	1.28′ R† "A-1" 113+18.40
D-12	72B	w												1										REMOVE DI	1.28 R† "A-1" 113+18.40
D-12	72B	x														143.3								REMOVE 18" RCP	
D-12	72B	y												1										REMOVE DI	1.80 R† "A-1" 114+64.86
D-11	72B	z																						CONCRETE BULKHEAD	21.07′ L† "A-1" 110+75.16
														4		403.6						9.0	11.8	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-90

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:19

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trmikesl
DGN FILE => c07163id090.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	548	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

JENNIFER BROOKE RIVERA No. C70332 Exp. 09/30/10 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE) CY	CLASS 1 CONCRETE (BIXBY CHANNEL) CY	STRUCTURAL CONCRETE (BOX CULVERT) CY	CONCRETE (DITCH LINING) CY	CLASS 3 AGGREGATE BASE CY	GRATED LINE DRAIN LF	(N) BIOSWALE LF	DITCH EXCAVATION CY	(N) BIOSTRIP SF	(N) GRATES TYPE 24-12 EA	(N) GRATES TYPE 36R EA	(N) GRATES COMBINATION CATCH BASIN EA	Misc IRON & STEEL ** LB	BAR REINFORCING STEEL (CHANNEL) LB	BAR REINFORCING STEEL (BOX CULVERT) LB	(N) STRUCTURAL BACKFILL CY	12" CSP (0.079" THICK) LF	18" REINFORCED Conc PIPE LF	24" REINFORCED Conc PIPE LF	36" REINFORCED Conc PIPE LF	DESCRIPTION	STATION
D-12	73	a	0.3																				JUNCTION STRUCTURE	79.86′ Rt "B" 212+90.90
D-12	73	b																			24		24" RCP	
D-12	73	c	4.7									2			634								GD1 INLET	93.17′ Rt "B" 213+12.07
D-12	73	d																			63		24" RCP	
D-12	73	e	4.5									2			634								GD1 INLET	92.59′ Rt "B" 213+72.25
D-12	73	f																			86		24" RCP	
D-12	73	g	4.3									2			634								GD1 INLET	91.82′ Rt "B" 214+66.03
D-12	73	h																			82		24" RCP	
D-13	73	h																			27		24" RCP	
D-12	73	†																					REMOVE ACOD	89.54′ Rt "B" 215+09.57
			13.8									6.0			1902.0						282.1		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-91

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:19

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trmikesl
DGN FILE => c07163id091.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	549	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

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999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORCED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-12	73	a																						JUNCTION STRUCTURE	79.86′ Rt "B" 212+90.90
D-12	73	b		S																			11	24" RCP	
D-12	73	c																				12.6		GD1 INLET	93.17′ Rt "B" 213+12.07
D-12	73	d																					10.3	24" RCP	
D-12	73	e																				12.0		GD1 INLET	92.59′ Rt "B" 213+72.25
D-12	73	f		S																			9.7	24" RCP	
D-12	73	g																				11.2		GD1 INLET	91.82′ Rt "B" 214+66.03
D-12	73	h		S																			8.9	24" RCP	
D-13	73	h		S																			8.9	24" RCP	
D-12	73	†													1									REMOVE ACOD	89.54′ Rt "B" 215+09.57
															1							35.7	48.9	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-92

CALCULATED-DESIGNED BY	REVISED BY	DUC TRAN
CHECKED BY	DATE REVISED	8/10/09
RASHOD GIBSON		
BROOKE RIVERA		

CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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USERNAME => trmikesl
DGN FILE => c07163id092.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	550	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE) CY	CLASS 1 CONCRETE (BIXBY CHANNEL) CY	STRUCTURAL CONCRETE (BOX CULVERT) CY	CONCRETE (DITCH LINING) CY	CLASS 3 AGGREGATE BASE CY	GRATED LINE DRAIN LF	(N) BIOSWALE LF	DITCH EXCAVATION CY	(N) BIOSTRIP SF	(N) GRATES TYPE 24-12 EA	GRATES TYPE 36R EA	GRATES COMBINATION CATCH BASIN EA	Misc IRON & STEEL ** LB	BAR REINFORCING STEEL (CHANNEL) LB	BAR REINFORCING STEEL (BOX CULVERT) LB	(N) STRUCTURAL BACKFILL CY	12" CSP (0.079" THICK) LF	18" REINFORCED Conc PIPE LF	24" REINFORCED Conc PIPE LF	36" REINFORCED Conc PIPE LF	DESCRIPTION	STATION
D-13	73	i	3.9									2			634								GD1 INLET	90.86' Rt "B" 215+76.98
D-13	73	j																			121		24" RCP	
D-13	73	k	3.6									2			634								GD1 INLET	89.78' Rt "B" 216+99.96
D-13	73	l																			158		24" RCP	
D-13	73	m	3.2									2			634								GD1 INLET	88.38' Rt "B" 218+60.00
D-13	73	n																			42		24" RCP	
D-13	73	o	3.1									2			634								GD1 INLET	88.00' Rt "B" 219+04.07
D-13	73	p																			144		24" RCP	
D-13	73	q	2.7									2			634								GD1 INLET	86.73' Rt "B" 220+50.75
D-13	73	r																			132		24" RCP	
D-13	73	s	2.3									2			634								GD1 INLET	85.55' Rt "B" 221+84.70
D-13	73	u																					REMOVE ACOD	89.23' Rt "B" 217+00.12
D-13	73	v																					REMOVE ACOD	89.17' Rt "B" 219+03.88
D-13	73	w																					REMOVE ACOD	89.30' Rt "B" 220+25.04
			18.9									12			3804						597		SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-93

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
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CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	551	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-13	73	i																				10.2		GD1 INLET	90.86′ Rt "B" 215+76.98
D-13	73	j		S																			8	24" RCP	
D-13	73	k																				9.2		GD1 INLET	89.78′ Rt "B" 216+99.96
D-13	73	l		S																			7	24" RCP	
D-13	73	m																				7.9		GD1 INLET	88.38′ Rt "B" 218+60.00
D-13	73	n		S																			5.6	24" RCP	
D-13	73	o																				7.6		GD1 INLET	88.00′ Rt "B" 219+04.07
D-13	73	p		S																			5.3	24" RCP	
D-13	73	q																				6.3		GD1 INLET	86.73′ Rt "B" 220+50.75
D-13	73	r		S																			4.1	24" RCP	
D-13	73	s																				5.3		GD1 INLET	85.55′ Rt "B" 221+84.70
D-13	73	u													1									REMOVE ACOD	89.23′ Rt "B" 217+00.12
D-13	73	v													1									REMOVE ACOD	89.17′ Rt "B" 219+03.88
D-13	73	w													1									REMOVE ACOD	89.30′ Rt "B" 220+25.04
															3							46.4	29.9	SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-94

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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USERNAME => trmikesl
DGN FILE => c07163id094.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	552	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	(N) GRATES TYPE 36R	(N) GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-12	73A	a	0.4																				JUNCTION STRUCTURE	110.36′ Rt "B" 212+90.88
D-12	73A	b																			27		24" RCP	
D-12	73A	c	1.2																				CONCRETE HEADWALL	110.36′ Rt "B" 213+12.39
D-12	73A	d				21.0				64.3													CONCRETE CHANNEL	
D-13	73A	d				61.5				188.1													CONCRETE CHANNEL	
D-12	73A	e																					REMOVE CONCRETE CHANNEL	
D-13	73A	e																					REMOVE CONCRETE CHANNEL	
D-12	74	a	0.5																				JUNCTION STRUCTURE	107.44′ Lt "B" 212+91.08
D-12	74	b																			32		24" RCP	
D-12	74	c	1.2																				CONCRETE HEADWALL	107.40′ Lt "B" 213+25.47
D-12	74	d							55	12.4													BIOSWALE	
D-12	74	e				14.9				45.7													CONCRETE CHANNEL	
D-13	74	e				84.7				257.1													CONCRETE CHANNEL	
D-12	74	f																					REMOVE CONCRETE CHANNEL	
D-13	74	f																					REMOVE CONCRETE CHANNEL	
			3.3			182.2			55.0	567.7											59		SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-95

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	553	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-12	73A	a																						JUNCTION STRUCTURE	110.36' Rt "B" 212+90.88
D-12	73A	b		S																			5	24" RCP	
D-12	73A	c																						CONCRETE HEADWALL	110.36' Rt "B" 213+12.39
D-12	73A	d																						CONCRETE CHANNEL	
D-13	73A	d																						CONCRETE CHANNEL	
D-12	73A	e																	260					REMOVE CONCRETE CHANNEL	
D-13	73A	e																	735					REMOVE CONCRETE CHANNEL	
D-12	74	a																						JUNCTION STRUCTURE	107.44' Lt "B" 212+91.08
D-12	74	b		W	1																		9.2	24" RCP	
D-12	74	c																						CONCRETE HEADWALL	107.40' Lt "B" 213+25.47
D-12	74	d																						BIOSWALE	
D-12	74	e																						CONCRETE CHANNEL	
D-13	74	e																						CONCRETE CHANNEL	
D-12	74	f																	259					REMOVE CONCRETE CHANNEL	
D-13	74	f																	905					REMOVE CONCRETE CHANNEL	
					1														2159				14.2	SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-96

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
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CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

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DGN FILE => c07163id096.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	554	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
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JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
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STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	(N) GRATES TYPE 36R	(N) GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-12	74B	a																					HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 213+30.80
D-12	74B	b																					REMOVE ACOD	76.09′ Lt "B" 213+00.59
D-12	74B	c																					REMOVE DI	100.17′ Lt "B" 212+88.91
D-12	75	a																					HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 215+05.37
D-12	75	b																					REMOVE ACOD	76.78′ Lt "B" 215+05.59
D-12	76	a						208															GRATED LINE DRAIN	
D-12	76	b	3.0									2			634								GD1 INLET	95.02′ Rt "B" 212+00.00
D-12	76	c																			87		24" RCP	
D-12	76	d	0.4																				JUNCTION STRUCTURE	93.36′ Rt "B" 212+86.39
D-12	76	e																					REMOVE ACOD	96.22′ Rt "B" 210+53.97
D-12	76	f																					REMOVE ACOD	91.83′ Rt "B" 212+54.92
			3.3					208				2			634						87		SUB TOTAL	

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** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-97

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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BORDER LAST REVISED 8/1/2008
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USERNAME => trmikesl
DGN FILE => c07163id097.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	555	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-12	74B	a										0.25	1.73												HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 213+30.80
D-12	74B	b													1										REMOVE ACOD	76.09′ Lt "B" 213+00.59
D-12	74B	c												1											REMOVE DI	100.17′ Lt "B" 212+88.91
D-12	75	a										0.62	4.27												HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 215+05.37
D-12	75	b													1										REMOVE ACOD	76.78′ Lt "B" 215+05.59
D-12	76	a																							GRATED LINE DRAIN	
D-12	76	b																					7.3		GD1 INLET	95.02′ Rt "B" 212+00.00
D-12	76	c		S																				9.1	24" RCP	
D-12	76	d																							JUNCTION STRUCTURE	93.36′ Rt "B" 212+86.39
D-12	76	e													1										REMOVE ACOD	96.22′ Rt "B" 210+53.97
D-12	76	f													1										REMOVE ACOD	91.83′ Rt "B" 212+54.92
												0.88	6.0	1	4							7.3	9.1		SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-98

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	556	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
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JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES			Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
												TYPE 24-12	TYPE 36R	COMBINATION CATCH BASIN										
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-13	77	a																					HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 216+75.00
D-13	77	b																					REMOVE ACOD	76.68′ Lt "B" 216+74.95
D-13	78	a	0.1																				JUNCTION STRUCTURE	112.92′ Lt "B" 216+99.95
D-13	78	b																			18		24" RCP	
D-13	78	c	1.3																				CONCRETE ENCASEMENT	
D-13	78	d	0.9																				CONCRETE COLLAR	94.37′ Lt "B" 216+99.69
D-13	79	a																					HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 218+02.16
D-13	80	a																					HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 219+65.00
D-13	81	a																					HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 221+34.98
			2.2																		18		SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-99

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:30

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	557	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	PIPE JOINT CLASSIFICATION (N)	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY (N)	REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	REMOVE EARTHEN SWALE (N)	HEIGHT OF INLET (N)	MAXIMUM COVER (N)	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-13	77	a										0.68	4.67											HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 216+75.00
D-13	77	b													1									REMOVE ACOD	76.68′ Lt "B" 216+74.95
D-13	78	a																						JUNCTION STRUCTURE	112.92′ Lt "B" 216+99.95
D-13	78	b		S																			1.2	24" RCP	
D-13	78	c																						CONCRETE ENCASEMENT	
D-13	78	d																						CONCRETE COLLAR	94.37′ Lt "B" 216+99.69
D-13	79	a										0.68	4.67											HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 218+02.16
D-13	80	a										0.73	4.97											HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 219+65.00
D-13	81	a										0.75	5.16											HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 221+34.98
												2.85	19.5		1								1.2	SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-100

CALCULATED-DESIGNED BY	CHECKED BY	REVISED BY	DATE REVISED
RASHOD GIBSON	BROOKE RIVERA	DUC TRAN	8/10/09

CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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USERNAME => trmikesl
DGN FILE => c07163id100.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	558	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

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ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	(N) GRATES TYPE 36R	(N) GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-13	82	a	0.1																				JUNCTION STRUCTURE	111.33 Lt "B" 220+99.22
D-13	82	b																			47		24" RCP	
D-13	82	c	8.2																				CONCRETE ENCASEMENT	
D-13	82	d	0.9																				CONCRETE COLLAR	93.56' Lt "B" 220+99.43
D-13	83	a																					HOT MIX ASPHALT OVERSIDE DRAIN	97.0' Lt "B" 223+05.00
D-13	83	b																					REMOVE ACOD	77.08' Lt "B" 223+05.17
D-13	83A	a																					HOT MIX ASPHALT OVERSIDE DRAIN	97.0' Lt "B" 223+05.00
D-14	83B	a																					HOT MIX ASPHALT OVERSIDE DRAIN	97.0' Lt "B" 225+72.30
D-14	84	a																					HOT MIX ASPHALT OVERSIDE DRAIN	97.0' Lt "B" 227+06.66
D-14	84	b																					REMOVE ACOD	77.05' Lt "B" 227+06.15
D-14	84A	a																					HOT MIX ASPHALT OVERSIDE DRAIN	97.0' Lt "B" 228+07.00
			9.1																		47		SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-101

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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DGN FILE => c07163id101.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	559	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-13	82	a																						JUNCTION STRUCTURE	111.33 Lt "B" 220+99.22
D-13	82	b		S																			0.6	24" RCP	
D-13	82	c																						CONCRETE ENCASEMENT	
D-13	82	d																						CONCRETE COLLAR	93.56′ Lt "B" 220+99.43
D-13	83	a										0.77	5.25											HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 223+05.00
D-13	83	b													1									REMOVE ACOD	77.08′ Lt "B" 223+05.17
D-13	83A	a										0.81	5.52											HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 223+05.00
D-14	83B	a										0.79	5.43											HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 225+72.30
D-14	84	a										0.76	5.19											HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 227+06.66
D-14	84	b													1									REMOVE ACOD	77.05′ Lt "B" 227+06.15
D-14	84A	a										0.75	5.10											HOT MIX ASPHALT OVERSIDE DRAIN	97.0′ Lt "B" 228+07.00
												3.87	26.5		2								0.6	SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-102

CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
REVISED BY: DUC TRAN
DATE REVISED: 8/10/09
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
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BORDER LAST REVISED 8/1/2008
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USERNAME => trmikesl
DGN FILE => c07163id102.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	560	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE) CY	CLASS 1 CONCRETE (BIXBY CHANNEL) CY	STRUCTURAL CONCRETE (BOX CULVERT) CY	CONCRETE (DITCH LINING) CY	CLASS 3 AGGREGATE BASE CY	GRATED LINE DRAIN LF	(N) BIOSWALE LF	DITCH EXCAVATION CY	(N) BIOSTRIP SF	(N) GRATES TYPE 24-12 EA	(N) GRATES TYPE 36R EA	(N) GRATES COMBINATION CATCH BASIN EA	Misc IRON & STEEL ** LB	BAR REINFORCING STEEL (CHANNEL) LB	BAR REINFORCING STEEL (BOX CULVERT) LB	(N) STRUCTURAL BACKFILL CY	12" CSP (0.079" THICK) LF	18" REINFORCED Conc PIPE LF	24" REINFORCED Conc PIPE LF	36" REINFORCED Conc PIPE LF	DESCRIPTION	STATION
D-16	87	a																					ROCK SLOPE PROTECTION FABRIC	177.68 Rt "SB" 50+53.31
D-16	87	b																					18" AFES	
D-16	87	c																		119			18" RCP	
D-16	87	d	7.4											1	560								APWA CB 301	59.90 Rt "SB" 50+49.33
D-16	87	e																					REMOVE 18" CMP	
D-16	87	f																					REMOVE DI	44.78 Rt "SB" 50+49.74
D-16	88	a																					ROCK SLOPE PROTECTION FABRIC	
D-16	88	b																					18" AFES	86.42 Rt "SB" 46+95.88
D-16	88	c																		23			18" RCP	
D-16	88	d	7.4											1	560								APWA CB 301	63.79 Rt "SB" 47+00.00
			14.8											2	1120					142			SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-103

REVISED BY	RASHOD GIBSON
DATE REVISED	BROOKE RIVERA
CALCULATED-DESIGNED BY	DUC TRAN
CHECKED BY	8/10/09
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	561	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORCED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-16	87	a								3.1	0.87														ROCK SLOPE PROTECTION FABRIC	177.68 Rt "SB" 50+53.31
D-16	87	b						1																	18" AFES	
D-16	87	c		S																				6.1	18" RCP	
D-16	87	d																					8.0		APWA CB 301	59.90 Rt "SB" 50+49.33
D-16	87	e														23									REMOVE 18" CMP	
D-16	87	f												1											REMOVE DI	44.78 Rt "SB" 50+49.74
D-16	88	a								2	0.56														ROCK SLOPE PROTECTION FABRIC	
D-16	88	b						1																	18" AFES	86.42 Rt "SB" 46+95.88
D-16	88	c		S																				5.9	18" RCP	
D-16	88	d																					8.0		APWA CB 301	63.79 Rt "SB" 47+00.00
								2		5.1	1.4			1		23.0						16.0	12.0	SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-104

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

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CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	562	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

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ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES			Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
												TYPE 24-12	TYPE 36R	COMBINATION CATCH BASIN										
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-15	89	a	0.5																				JUNCTION STRUCTURE	3.75 Rt "A-2" 10+66.81
D-15	89	b																			44		24" RCP	
D-15	89	c	2.5									2			634								GD-1 INLET	3.70 Rt "A-2" 11+12.84
D-15	89	d																			64		24" RCP	
D-15	89	e	13.9																				CONCRETE ENCASEMENT	
D-15	89	f	2.5									2			634								GD-1 INLET	3.70 Rt "A-2" 11+81.80
D-15	89	g																			96		24" RCP	
D-15	89	h	10.6																				CONCRETE ENCASEMENT	
D-15	89	i	2.6									2			634								GD-1 INLET	3.65 Rt "A-2" 12+82.02
D-15	89	j																					REMOVE DI	14.09 Rt "A-2" 10+98.74
D-15	89	k																					REMOVE 24" RCP	
D-15	89	l																					REMOVE DI	14.46 Rt "A-2" 10+60.45
			32.5									6			1902						203		SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-105

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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USERNAME => trmikesl
DGN FILE => c07163id105.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	563	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-15	89	a																						JUNCTION STRUCTURE	3.75 Rt "A-2" 10+66.81
D-15	89	b		W	12																		4.4	24" RCP	
D-15	89	c																				5.7		GD-1 INLET	3.70 Rt "A-2" 11+12.84
D-15	89	d		S																			3.4	24" RCP	
D-15	89	e																						CONCRETE ENCASEMENT	
D-15	89	f																				5.7		GD-1 INLET	3.70 Rt "A-2" 11+81.80
D-15	89	g		S																			3.6	24" RCP	
D-15	89	h																						CONCRETE ENCASEMENT	
D-15	89	i																				5.9		GD-1 INLET	3.65 Rt "A-2" 12+82.02
D-15	89	j												1										REMOVE DI	14.09 Rt "A-2" 10+98.74
D-15	89	k														34.5								REMOVE 24" RCP	
D-15	89	l												1										REMOVE DI	14.46 Rt "A-2" 10+60.45
					12									2		34.5						17.3	11.4	SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-106

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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LAST REVISION DATE PLOTTED => 03-FEB-2010
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USERNAME => trmikesl
DGN FILE => c07163id106.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	564	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
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ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES			Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
												TYPE 24-12	TYPE 36R	COMBINATION CATCH BASIN										
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-15	89A	a	2.4									2			634								GD-1 INLET	3.70 Rt "A-2" 10+01.98
D-15	89A	b																			16		24" RCP	
D-15	89A	c	2.4									2			634								GD-1 INLET	3.70 Rt "A-2" 10+22.43
D-15	89A	d																			26		24" RCP	
D-15	89A	e	2.5									2			634								GD-1 INLET	3.70 Rt "A-2" 10+53.14
D-15	89A	f																			6		24" RCP	
D-15	89A	g	0.5																				JUNCTION STRUCTURE	3.75 Rt "A-2" 10+61.54
D-15	89A	h																					REMOVE DI	
D-15	89A	i																					REMOVE 24" RCP	
			7.8									6			1902						47		SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-107

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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USERNAME => trmikesl
DGN FILE => c07163id107.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	565	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

JENNIFER BROOKE RIVERA No. C70332 Exp. 09/30/10 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

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ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-15	89A	a																				5.3		GD-1 INLET	3.70 Rt "A-2" 10+01.98
D-15	89A	b		S																			3.2	24" RCP	
D-15	89A	c																				5.4		GD-1 INLET	3.70 Rt "A-2" 10+22.43
D-15	89A	d		S																			3.5	24" RCP	
D-15	89A	e																				5.3		GD-1 INLET	3.70 Rt "A-2" 10+53.14
D-15	89A	f		W	2																		4.2	24" RCP	
D-15	89A	g																						JUNCTION STRUCTURE	3.75 Rt "A-2" 10+61.54
D-15	89A	h												1										REMOVE DI	
D-15	89A	i														28.5								REMOVE 24" RCP	
					2									1		28.5						16.0	10.9	SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-108

LAST REVISION DATE PLOTTED => 03-FEB-2010
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CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
REVISED BY: DUC TRAN
DATE REVISED: 8/10/09
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id108.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	566	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

JENNIFER BROOKE RIVERA No. C70332 Exp. 09/30/10 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

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ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE) CY	CLASS 1 CONCRETE (BIXBY CHANNEL) CY	STRUCTURAL CONCRETE (BOX CULVERT) CY	CONCRETE (DITCH LINING) CY	CLASS 3 AGGREGATE BASE CY	GRATED LINE DRAIN LF	(N) BIOSWALE LF	DITCH EXCAVATION CY	(N) BIOSTRIP SF	(N) GRATES TYPE 24-12 EA	(N) GRATES TYPE 36R EA	COMBINATION CATCH BASIN EA	Misc IRON & STEEL ** LB	BAR REINFORCING STEEL (CHANNEL) LB	BAR REINFORCING STEEL (BOX CULVERT) LB	(N) STRUCTURAL BACKFILL CY	12" CSP (0.079" THICK) LF	18" REINFORCED Conc PIPE LF	24" REINFORCED Conc PIPE LF	36" REINFORCED Conc PIPE LF	DESCRIPTION	STATION
D-16	90	a	2.2																				JUNCTION STRUCTURE	89.84 Lt "SB" 42+89.71
D-16	90	b																			27		24" RCP	
D-16	90	c	7.9											1	560								APWA CB 301	62.33 Lt "SB" 43+00.00
D-16	90	d																			216		24" RCP	
D-16	90	e	6.5											1	560								APWA CB 301	61.19 Lt "SB" 45+00.00
D-13	91	a	0.5																				JUNCTION STRUCTURE	114.86' Lt "B" 225+13.36
D-13	91	b																			37		24" RCP	
D-14	91	b																			9		24" RCP	
D-14	91	c	1.2																				CONCRETE HEADWALL	114.82' Lt "B" 225+58.82
D-14	91	d							100	7.4													BIOSWALE	
D-14	91	e				61.7				188.7													CONCRETE CHANNEL	
D-13	91	f																					REMOVE CONCRETE CHANNEL	
D-14	91	f																					REMOVE CONCRETE CHANNEL	
			18.3			61.7			100.0	196.1				2	1120						288		SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-109

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	567	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

JENNIFER BROOKE RIVERA No. C70332 Exp. 09/30/10 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-16	90	a																						JUNCTION STRUCTURE	89.84 Lt "SB" 42+89.71
D-16	90	b		S																			3.5	24" RCP	
D-16	90	c																					7.5	APWA CB 301	62.33 Lt "SB" 43+00.00
D-16	90	d		S																			3.1	24" RCP	
D-16	90	e																					5.7	APWA CB 301	61.19 Lt "SB" 45+00.00
D-13	91	a																						JUNCTION STRUCTURE	114.86' Lt "B" 225+13.36
D-13	91	b		S																			9.4	24" RCP	
D-14	91	b		S																			9.4	24" RCP	
D-14	91	c																						CONCRETE HEADWALL	114.82' Lt "B" 225+58.82
D-14	91	d																						BIOSWALE	
D-14	91	e																						CONCRETE CHANNEL	
D-13	91	f																			44			REMOVE CONCRETE CHANNEL	
D-14	91	f																			805			REMOVE CONCRETE CHANNEL	
																					849			SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-110

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
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CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	568	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	GRATES TYPE 36R	GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-10	93	a							70	6.5													BIOSWALE	
D-10	93	b																					REMOVE CONCRETE CHANNEL	
D-11	94	a																					HOT MIXED ASPHALT OVERSIDE DRAIN	96.58' Lt "A-1" 101+52.25
D-11	94	b							75	11.1													BIOSWALE	
D-11	94	c																					REMOVE 18" CMP	
D-11	95	a							95	9.7													BIOSWALE	
D-11	96	a							90	5.0													BIOSWALE	
									330.0	32.3													SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-111

REVISED BY: DUC TRAN
DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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USERNAME => trmikesl
DGN FILE => c07163id111.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	569	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JENNIFER BROOKE RIVERA — No. C70332 — Exp. 09/30/10 — CIVIL — STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-10	93	a																						BIOSWALE	
D-10	93	b																	76					REMOVE CONCRETE CHANNEL	
D-11	94	a										1.42	9.71											HOT MIXED ASPHALT OVERSIDE DRAIN	96.58' Lt "A-1" 101+52.25
D-11	94	b																						BIOSWALE	
D-11	94	c														31.7								REMOVE 18" CMP	
D-11	95	a																						BIOSWALE	
D-11	96	a																						BIOSWALE	
												1.42	9.7			31.7			76					SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-112

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
REVISED BY: DUC TRAN
DATE REVISED: 8/10/09

LAST REVISION DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 11:32

BORDER LAST REVISED 8/1/2008
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USERNAME => trmikesl
DGN FILE => c07163id112.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	570	1929

REGISTERED CIVIL ENGINEER — DATE 8/10/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES			Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	TYPE 24-12 EA	TYPE 36R EA	COMBINATION CATCH BASIN EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-3	100	a																					REMOVE DI	108.58 Lt "SB-3" 33+51.52
D-3	100	b																					REMOVE 18" RCP	
D-3	100	c																					REMOVE CONCRETE CHANNEL	
D-4	102	a																					REMOVE CONCRETE CHANNEL	
D-5	102	a																					REMOVE CONCRETE CHANNEL	
D-3	103	a																					REMOVE 24" CMP	
D-3	103	b																					REMOVE CONCRETE HEADWALL	
D-4	104	a																					REMOVE ACOD	
D-4	105	a																					REMOVE 18" RCP	
																							SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-113

REVISED BY: DUC TRAN — DATE REVISED: 8/10/09
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 11:47
08-10-09

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id113.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	571	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE COUNTY
TRANSPORTATION AUTHORITY
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ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORCED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-3	100	a												1											REMOVE DI	108.58 Lt "SB-3" 33+51.52
D-3	100	b														8									REMOVE 18" RCP	
D-3	100	c																	161						REMOVE CONCRETE CHANNEL	
D-4	102	a																	283						REMOVE CONCRETE CHANNEL	
D-5	102	a																	307						REMOVE CONCRETE CHANNEL	
D-3	103	a														13									REMOVE 24" CMP	
D-3	103	b												1											REMOVE CONCRETE HEADWALL	
D-4	104	a													1										REMOVE ACOD	
D-4	105	a														15									REMOVE 18" RCP	
														2	1	36.0			751						SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-114

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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LAST REVISION DATE PLOTTED => 03-FEB-2010
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BORDER LAST REVISED 8/1/2008

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USERNAME => trmikesl
DGN FILE => c07163id114.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	572	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

JENNIFER BROOKE RIVERA No. C70332 Exp. 09/30/10 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

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ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES			Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
												TYPE 24-12	TYPE 36R	COMBINATION CATCH BASIN										
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-4	106	a																					REMOVE ACOD	
D-4	107	a																					REMOVE 18" RCP	
D-5	108	a																					REMOVE 18" RCP	
D-4	109	a																					REMOVE 18" RCP	
D-6	110	a																					REMOVE DI	18.86 Lt "A-2" 28+93.46
D-6	110	b																					REMOVE 18" CMP	
D-6	111	a																					REMOVE 18" CMP	
D-6	111	b																					REMOVE DI	11.53 Rt "A-2" 31+91.04
D-5	112	a																					REMOVE ACOD	
																							SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-115

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:47

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	573	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORCED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-4	106	a													1									REMOVE ACOD	
D-4	107	a														12								REMOVE 18" RCP	
D-5	108	a														16								REMOVE 18" RCP	
D-4	109	a														16								REMOVE 18" RCP	
D-6	110	a												1										REMOVE DI	18.86 L† "A-2" 28+93.46
D-6	110	b														56								REMOVE 18" CMP	
D-6	111	a														38								REMOVE 18" CMP	
D-6	111	b												1										REMOVE DI	11.53 R† "A-2" 31+91.04
D-5	112	a													1									REMOVE ACOD	
														2	2	138.0								SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-116

CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
REVISED BY	DUC TRAN
DATE REVISED	8/10/09

CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 11:47
08-10-09

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trmikesl
DGN FILE => c07163id116.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	574	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES			Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
												TYPE 24-12	TYPE 36R	COMBINATION CATCH BASIN										
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-6	113	a																					REMOVE DI	56.85 Rt "A-2" 28+83.77
D-6	113	b																					REMOVE 18" RCP	
D-6	113	c																					REMOVE DI	26.77 Rt "A-2" 27+40.84
D-6	113	d																					REMOVE 18" RCP	
D-5	114	a																					REMOVE ACOD	
D-12	115	a																					REMOVE ACOD	76.86' Lt "B" 210+55.10
D-5	116	a																					REMOVE DI	99.13 Lt "A" 433+01.87
D-5	116	b																					REMOVE 18" RCP	
D-5	116	c																					REMOVE CONCRETE HEADWALL	110.58 Lt "A" 433+01.82
D-5	116	d																					REMOVE 18" RCP	
																							SUB TOTAL	

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* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-117

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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08-10-09

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id117.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	575	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORCED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-6	113	a												1											REMOVE DI	56.85 Rt "A-2" 28+83.77
D-6	113	b														140									REMOVE 18" RCP	
D-6	113	c												1											REMOVE DI	26.77 Rt "A-2" 27+40.84
D-6	113	d														251									REMOVE 18" RCP	
D-5	114	a													1										REMOVE ACOD	
D-12	115	a													1										REMOVE ACOD	76.86' Lt "B" 210+55.10
D-5	116	a												1											REMOVE DI	99.13 Lt "A" 433+01.87
D-5	116	b														10									REMOVE 18" RCP	
D-5	116	c												1											REMOVE CONCRETE HEADWALL	110.58 Lt "A" 433+01.82
D-5	116	d														27									REMOVE 18" RCP	
														4	2	428.0									SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-118

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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LAST REVISION DATE PLOTTED => 03-FEB-2010
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08-10-09

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	576	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES			Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
												TYPE 24-12	TYPE 36R	COMBINATION CATCH BASIN										
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-7	118	a																					REMOVE CMP DOWNDRAIN	53.95 Lt "A-2" 18+97.68
D-11	120	a																					REMOVE CONCRETE CHANNEL	
D-11	121	b																					REMOVE ACOD	7.95' Lt "B-1" 21+98.54
D-11	123	a																					REMOVE ACOD	80.45' Lt "A-1" 110+67.98
D-12	124	b																					REMOVE ACOD	79.91' Lt "A-1" 111+49.16
D-12	125	a																					REMOVE ACOD	77.83' Lt "A-1" 113+51.48
																							SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-119

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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LAST REVISION DATE PLOTTED => 03-FEB-2010
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	577	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORCED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-7	118	a													1	62								REMOVE CMP DOWNDRAIN	53.95 Lt "A-2" 18+97.68
D-11	120	a																	38					REMOVE CONCRETE CHANNEL	
D-11	121	b													1									REMOVE ACOD	7.95′ Lt "B-1" 21+98.54
D-11	123	a													1									REMOVE ACOD	80.45′ Lt "A-1" 110+67.98
D-12	124	b													1									REMOVE ACOD	79.91′ Lt "A-1" 111+49.16
D-12	125	a													1									REMOVE ACOD	77.83′ Lt "A-1" 113+51.48
															5	62.0			38					SUB TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-120

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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08-10-09

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trmikesl
DGN FILE => c07163id120.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	578	1929

REGISTERED CIVIL ENGINEER — DATE 12/22/09

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

AECOM
999 TOWN & COUNTRY RD
ORANGE, CA 92868

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	MINOR CONCRETE (MINOR STRUCTURE)	CLASS 1 CONCRETE (BIXBY CHANNEL)	STRUCTURAL CONCRETE (BOX CULVERT)	CONCRETE (DITCH LINING)	CLASS 3 AGGREGATE BASE	GRATED LINE DRAIN	(N) BIOSWALE	DITCH EXCAVATION	(N) BIOSTRIP	(N) GRATES TYPE 24-12	(N) GRATES TYPE 36R	(N) GRATES COMBINATION CATCH BASIN	Misc IRON & STEEL **	BAR REINFORCING STEEL (CHANNEL)	BAR REINFORCING STEEL (BOX CULVERT)	(N) STRUCTURAL BACKFILL	12" CSP (0.079" THICK)	18" REINFORCED Conc PIPE	24" REINFORCED Conc PIPE	36" REINFORCED Conc PIPE	DESCRIPTION	STATION
			CY	CY	CY	CY	CY	LF	LF	CY	SF	EA	EA	EA	LB	LB	LB	CY	LF	LF	LF	LF		
D-12	126	a																					REMOVE ACOD	77' Lt "A-1" 115+24.63
D-12	126	b																					REMOVE 24" RCP	
D-13	128	a																					REMOVE ACOD	77.06' Lt "B" 219+05.39
D-13	129	a																					REMOVE ACOD	79.32' Lt "B" 219+88.95
D-13	130	a																					REMOVE ACOD	77.44' Lt "B" 220+74.46
D-16	132	a										1			326								REMOVE JUNCTURE STRUCTURE	25.25 Lt "SB-3" 23+47.85
D-16	132	b																					REMOVE 24" RCP	
D-16	132	c																					REMOVE DI	53.33 Lt "SB-3" 23+49.38
D-16	132	d																					REMOVE 24" RCP	
												1			326								SUB TOTAL	
			1180.6	2541.1	1104.2	1389.1	4747.6	2058.3	1501	15246.2	62821.9	272	4	6	89958	272865	139000	5908	14	2069.1	8323.1	313.7	TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-121

REVISED BY	DUC TRAN
DATE REVISED	8/10/09
CALCULATED-DESIGNED BY	RASHOD GIBSON
CHECKED BY	BROOKE RIVERA
CONSULTANT FUNCTIONAL SUPERVISOR	ANDRZEJ NOWAK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 11:48

BORDER LAST REVISED 8/1/2008

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USERNAME => trmikesl
DGN FILE => c07163id121.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	579	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JENNIFER BROOKE RIVERA
No. C70332
Exp. 09/30/10
CIVIL
STATE OF CALIFORNIA

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TRANSPORTATION AUTHORITY
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ORANGE, CA 92863-1584

DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	SYSTEM No.	UNIT	48" REINFORCED Conc PIPE	(N) PIPE JOINT CLASSIFICATION	FIELD LEAKAGE TESTING	16" WELDED STEEL PIPE (0.375" WALL THICKNESS)	24" WELDED STEEL PIPE (0.375" WALL THICKNESS)	18" AFES	24" AFES	ROCK SLOPE PROTECTION FABRIC	ROCK SLOPE PROTECTION (FACING, METHOD B)	HOT MIX ASPHALT *	PLACE HOT MIX ASPHALT (Misc AREA)	REMOVE DRAINAGE FACILITY	(N) REMOVE ACOD	REMOVE CULVERT	REMOVE REINFORED CONCRETE BOX CULVERT	REMOVE CONCRETE (HEADWALL)	REMOVE CONCRETE (DITCH)	REMOVE CONCRETE (CHANNEL)	(N) REMOVE EARTHEN SWALE	(N) HEIGHT OF INLET	(N) MAXIMUM COVER	DESCRIPTION	STATION
			LF		LF	LF	LF	EA	EA	SQYD	TON	TON	SQYD	EA	EA	LF	LF	CY	LF	CY	LF	LF	LF		
D-12	126	a													1									REMOVE ACOD	77' Lt "A-1" 115+24.63
D-12	126	b														3.4								REMOVE 24" RCP	
D-13	128	a													1									REMOVE ACOD	77.06' Lt "B" 219+05.39
D-13	129	a													1									REMOVE ACOD	79.32' Lt "B" 219+88.95
D-13	130	a													1									REMOVE ACOD	77.44' Lt "B" 220+74.46
D-16	132	a																						REMOVE JUNCTURE STRUCTURE	25.25 Lt "SB-3" 23+47.85
D-16	132	b														18.8								REMOVE 24" RCP	
D-16	132	c												1										REMOVE DI	53.33 Lt "SB-3" 23+49.38
D-16	132	d														27								REMOVE 24" RCP	
														1	4	49.2								SUB TOTAL	
			30		1642	156.4	35	3	3	8346.6	39.8	40.6	277.9	61	34	2787	980.4	17.7	13353.4	473	309	809	1011.4	TOTAL	

(N) INFORMATION ONLY, NOT A SEPARATE BID ITEM

* FOR ADDITIONAL QUANTITIES, SEE SUMMARY OF QUANTITIES
** FOR ADDITIONAL QUANTITIES, SEE STAGE CONSTRUCTION QUANTITIES

DRAINAGE QUANTITIES
DQ-122

LAST REVISION DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 11:48
08-10-09

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR: ANDRZEJ NOWAK
CALCULATED-DESIGNED BY: RASHOD GIBSON
CHECKED BY: BROOKE RIVERA
REVISED BY: DUC TRAN
DATE REVISED: 8/10/09

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trmikesl
DGN FILE => c07163id122.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	580	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
ROSS E. LEW
No. C53399
Exp. 6/30/11
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

TRC
21 TECHNOLOGY Dr
IRVINE, CA 92618

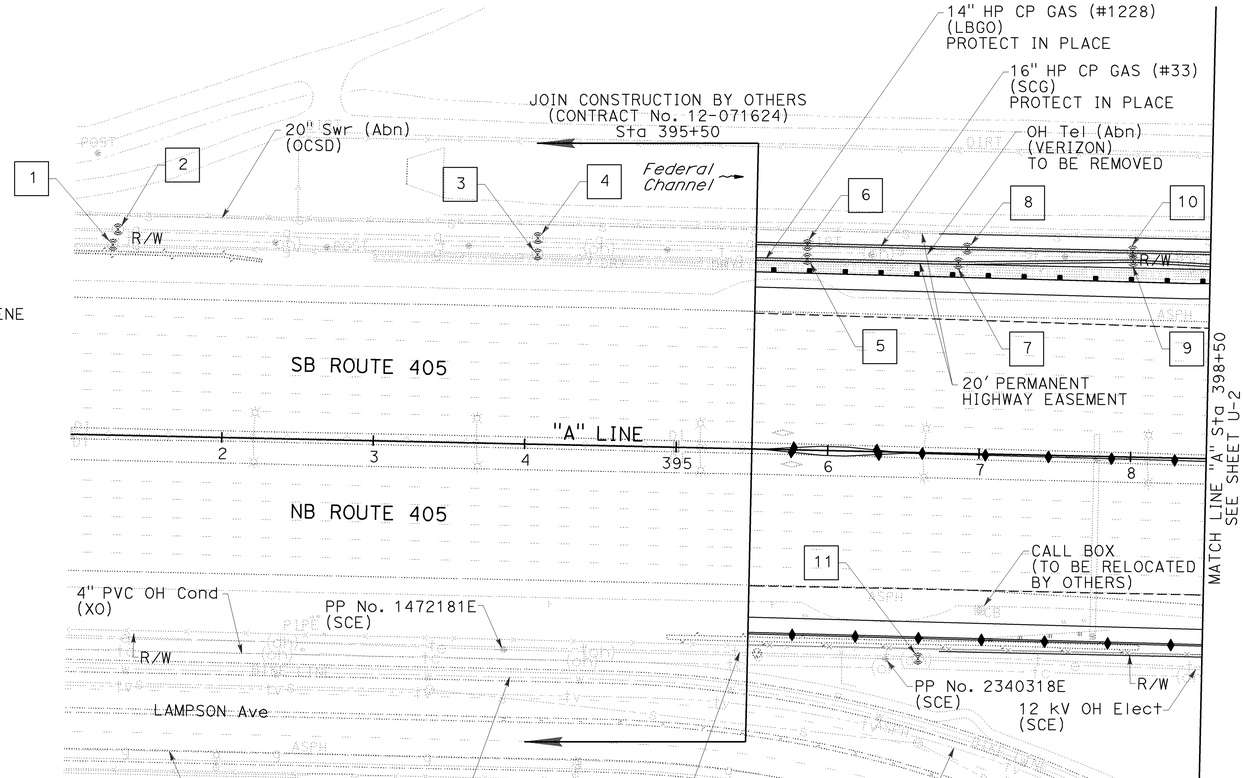
ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

ABBREVIATIONS

CP	CATHODIC PROTECTION
kV	KILOVOLT
HP	HIGH PRESSURE
PEM	POLY-ETHYLENE MEDIUM
Coax	COAXIAL
TV	TELEVISION
HDPE	HIGH DENSITY POLY-ETHYLENE
PH	POTHOLE
GV	GAS VALVE

LEGEND

- POTHOLE LOCATION
- XX — POTHOLE NUMBER



NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.
2. LOCATIONS OF UTILITY FACILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
3. FOR POTHOLING INFORMATION, SEE SHEET UD-2.
4. UTILITY OWNERSHIP ON THIS PROJECT:

AT&T	AMERICAN TELEPHONE & TELEGRAPH (TELEPHONE)
CHEVRON	CHEVRON PIPELINE (OIL,GAS)
CPLP	CRIMSON PIPELINE LP (OIL)
CSB	CITY OF SEAL BEACH PUBLIC WORKS DEPARTMENT (WATER,SEWER)
CSDLAC	COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY (SEWER)
GRF	GOLDEN RAIN FOUNDATION (SEWER)
LADWP	LOS ANGELES DEPARTMENT OF WATER AND POWER (ELECTRICAL)
LBGO	LONG BEACH GAS AND OIL (GAS)
MPWDSC	METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA (SEWER)
OCSD	ORANGE COUNTY SANITATION DISTRICT (SEWER)
OCWD	ORANGE COUNTY WATER DISTRICT (WATER)
PAAP	PLAINS ALL AMERICAN PIPELINE (OIL)
Qwest	Qwest COMMUNICATION INTERNATIONAL (TELECOMMUNICATION)
RLASD	ROSSMOOR/LOS ALAMITOS AREA SEWER DISTRICT (SEWER)
SCE	SOUTHERN CALIFORNIA EDISON (ELECTRIC)
SCG	SOUTHERN CALIFORNIA GAS (GAS)
TWC	TIME WARNER CABLE COMPANY (TELEVISION)
VERIZON	VERIZON TELEPHONE COMPANY (TELEPHONE)
XO	XO COMMUNICATIONS (TELECOMMUNICATION)

UTILITY PLAN

SCALE 1" = 50'

U-1

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

REVISED BY	DBL
DATE REVISED	12/22/09
CALCULATED-DESIGNED BY	ALI JERAJ
CHECKED BY	KAREN CHAPMAN
CONSULTANT FUNCTIONAL SUPERVISOR	ROSS LEW

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 12-22-09
DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 10:57

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trrichf
DGN FILE => c07163ka001.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	581	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

ROSS E. LEW No. C53399 Exp. 6/30/11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

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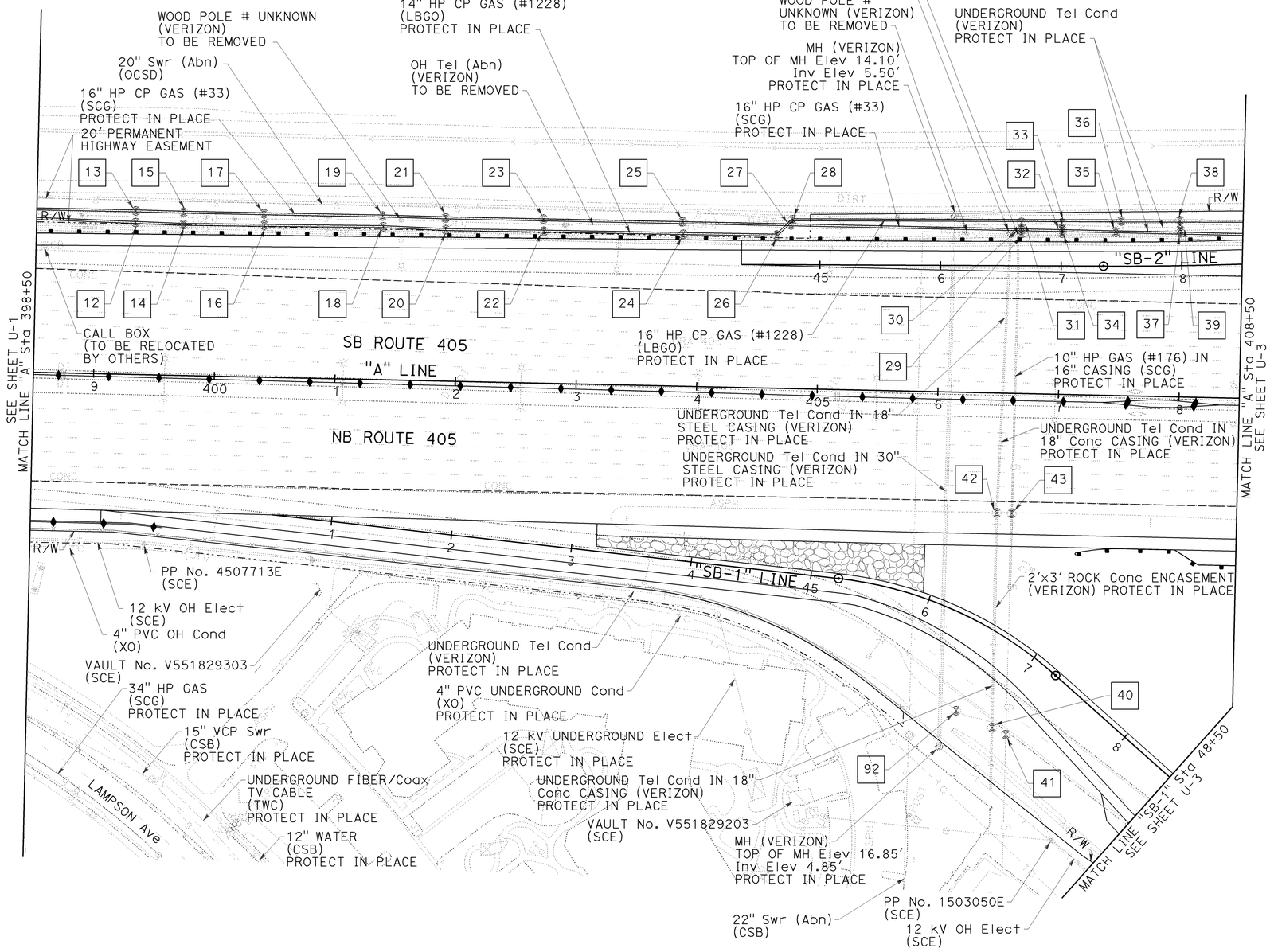
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-2

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW
CALCULATED-DESIGNED BY: ALI JERAJ
CHECKED BY: KAREN CHAPMAN
REVISED BY: DBL
DATE REVISED: 12/22/09

LAST REVISION DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 10:57
12-22-09

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trrichf
DGN FILE => c07163ka002.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	582	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

ROSS E. LEW No. C53399 Exp. 6/30/11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

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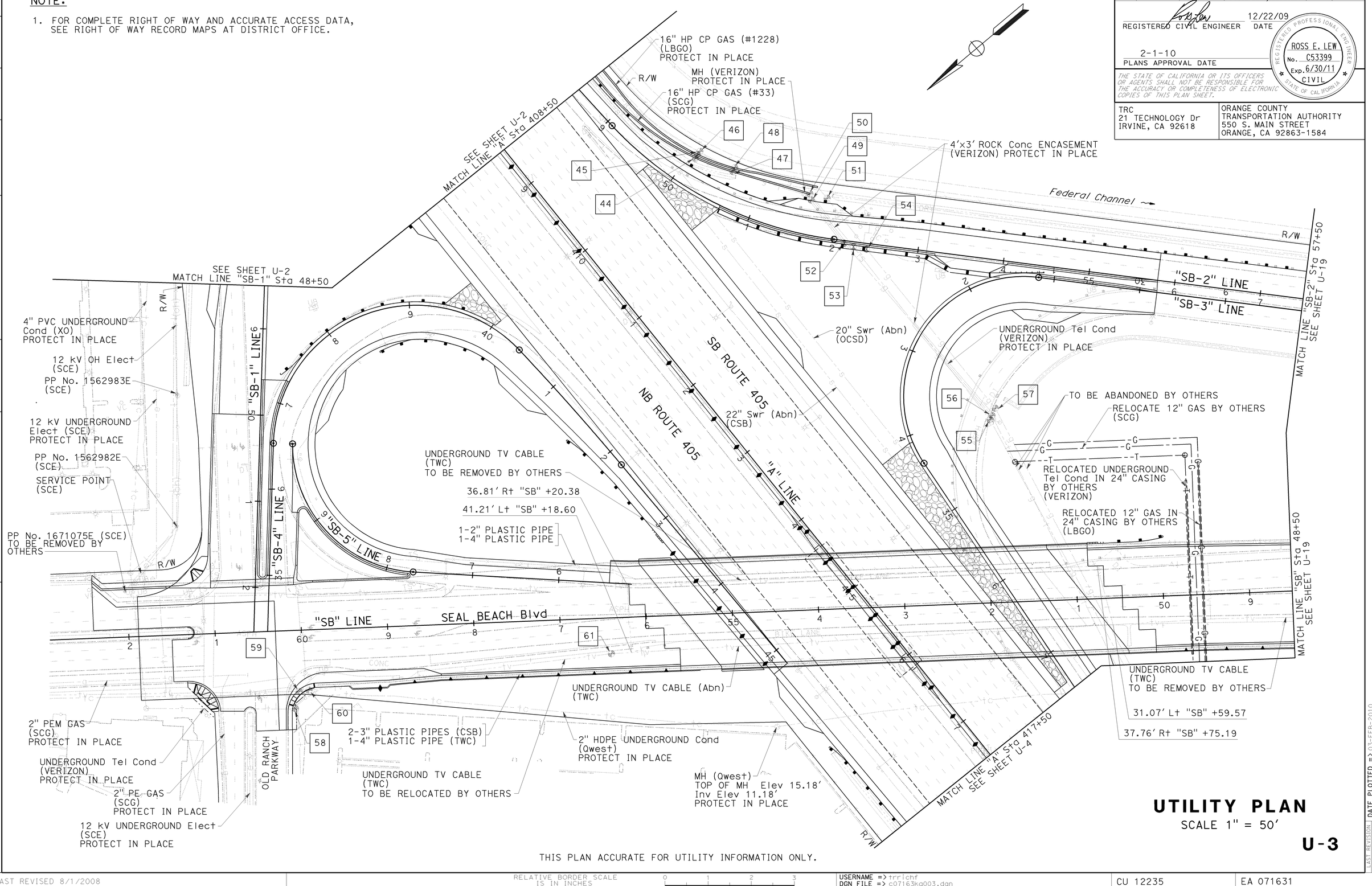
TRC
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-3

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW

CALCULATED-DESIGNED BY: ALI JERAJ

CHECKED BY: KAREN CHAPMAN

REVISED BY	DATE REVISED
DBL	12/22/09

LAST REVISION DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 10:57
12-22-09

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trrichf
DGN FILE => c07163ka003.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	583	1929

REGISTERED CIVIL ENGINEER 12/22/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER ROSS E. LEW No. C53399 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

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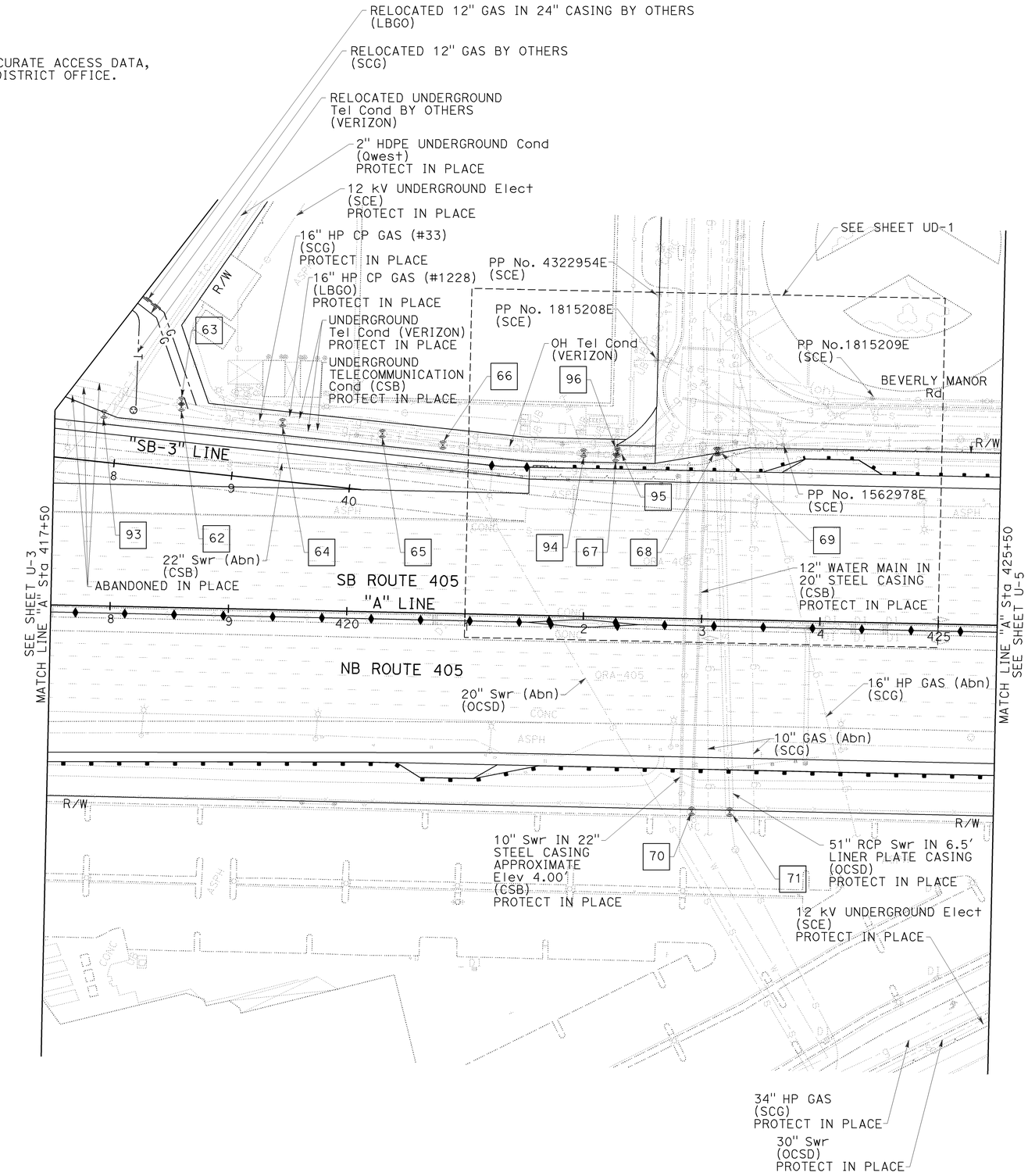
TRC
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-4

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW
CALCULATED-DESIGNED BY: ALI JERAJ
CHECKED BY: KAREN CHAPMAN
REVISED BY: DBL
DATE REVISED: 12/22/09

LAST REVISION 12-22-09
DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 11:19

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	584	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

ROSS E. LEW No. C53399 Exp. 6/30/11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

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IRVINE, CA 92618

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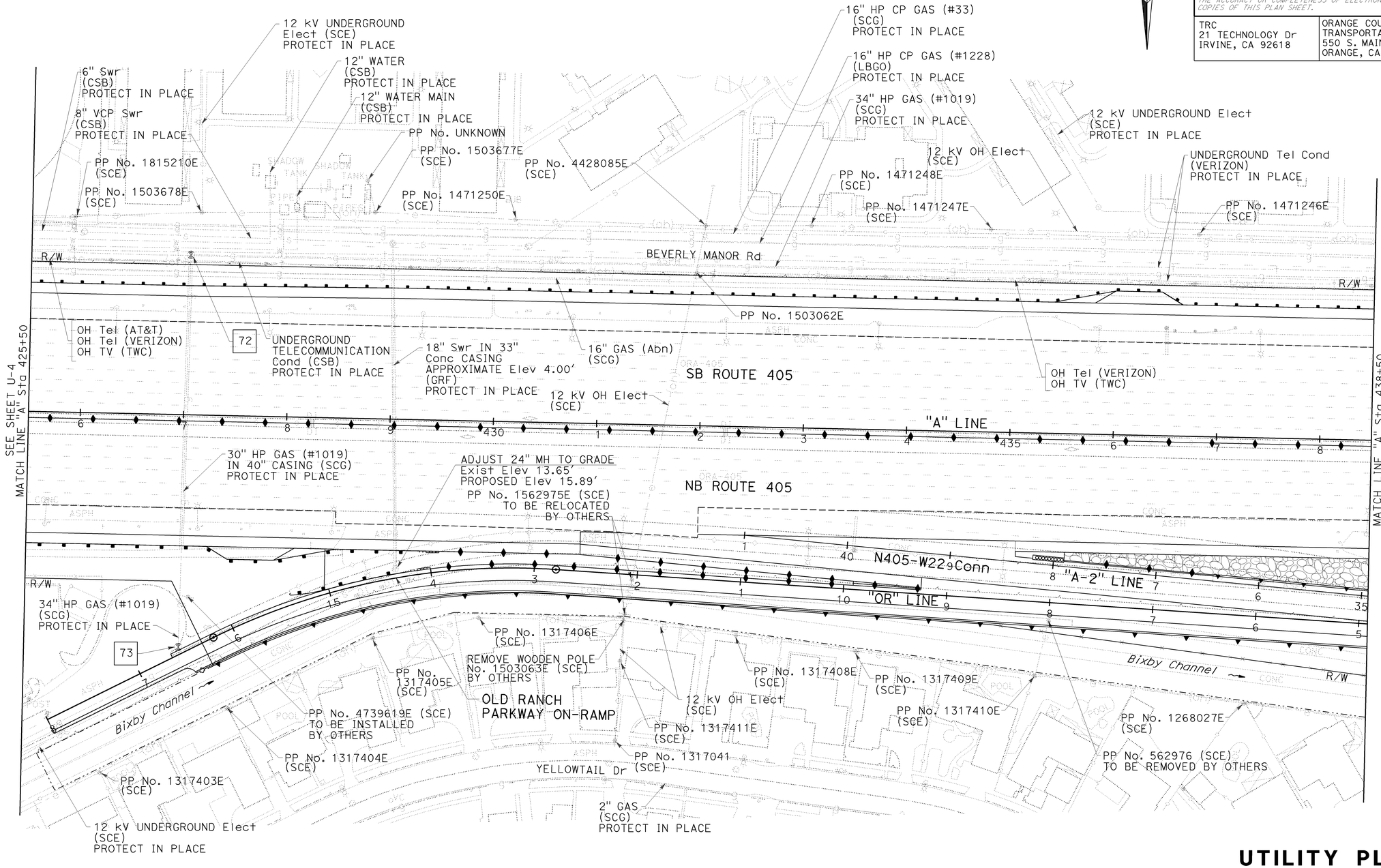
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-5

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

REVISED BY	DBL
DATE REVISED	12/22/09
DESIGNED - CALCULATED BY	ALI JERAJ
CHECKED BY	KAREN CHAPMAN
CONSULTANT FUNCTIONAL SUPERVISOR	ROSS LEW

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION — DATE PLOTTED => 03-FEB-2010 — TIME PLOTTED => 10:58 — 12-22-09

BORDER LAST REVISED 8/1/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => trrichf | DGN FILE => c07163ka005.dgn | CU 12235 | EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	585	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

2-1-10
PLANS APPROVAL DATE

ROSS E. LEW No. C53399 Exp. 6/30/11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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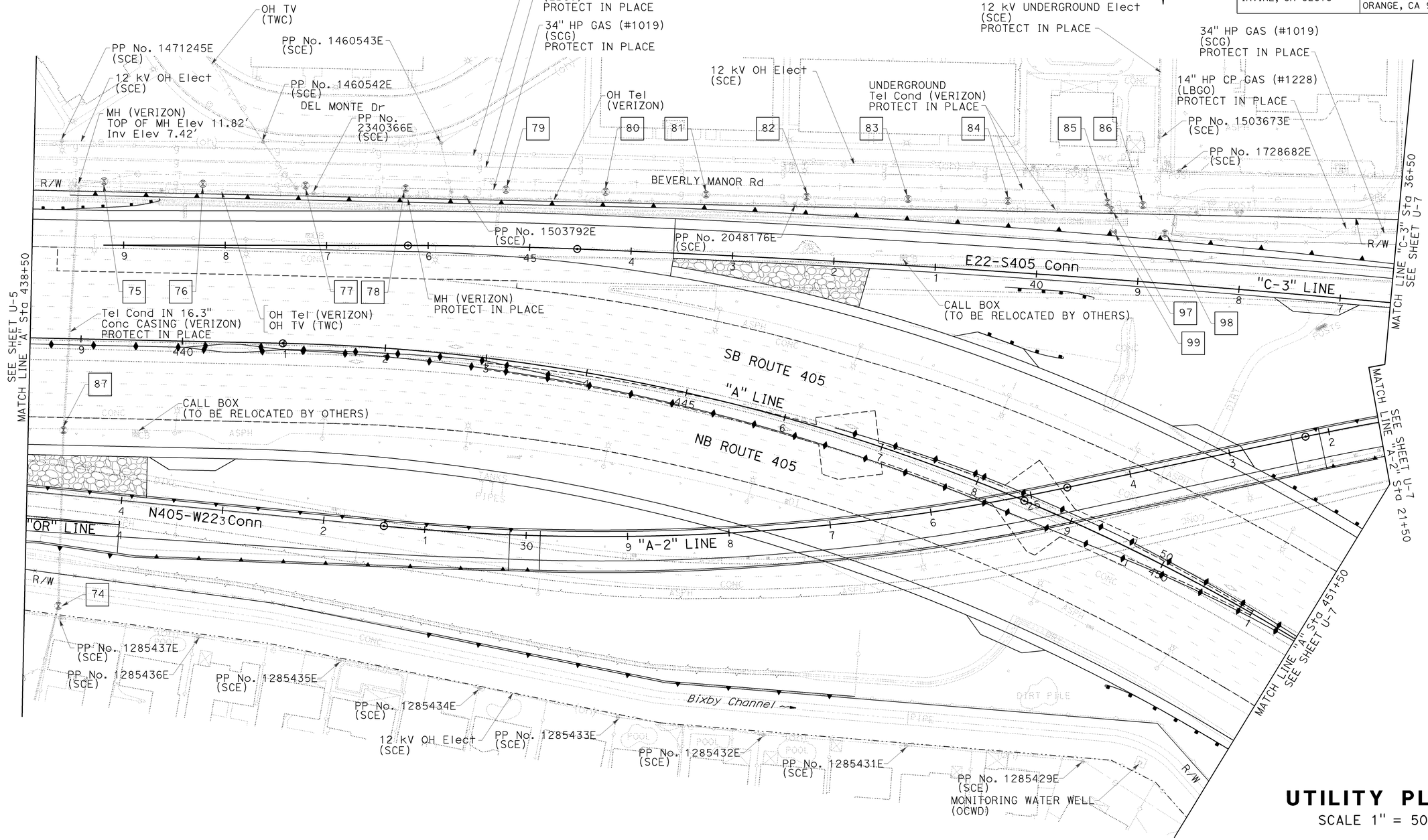
TRC
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-6

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

LAST REVISION DATE PLOTTED => 03-FEB-2010
12-22-09 TIME PLOTTED => 10:58

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW

CALCULATED-DESIGNED BY: ALI JERAJ

CHECKED BY: KAREN CHAPMAN

REVISED BY	DATE REVISED
DBL	12/22/09

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trrichf
DGN FILE => c07163ka006.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	586	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
ROSS E. LEW
No. C53399
Exp. 6/30/11
CIVIL
STATE OF CALIFORNIA

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IRVINE, CA 92618

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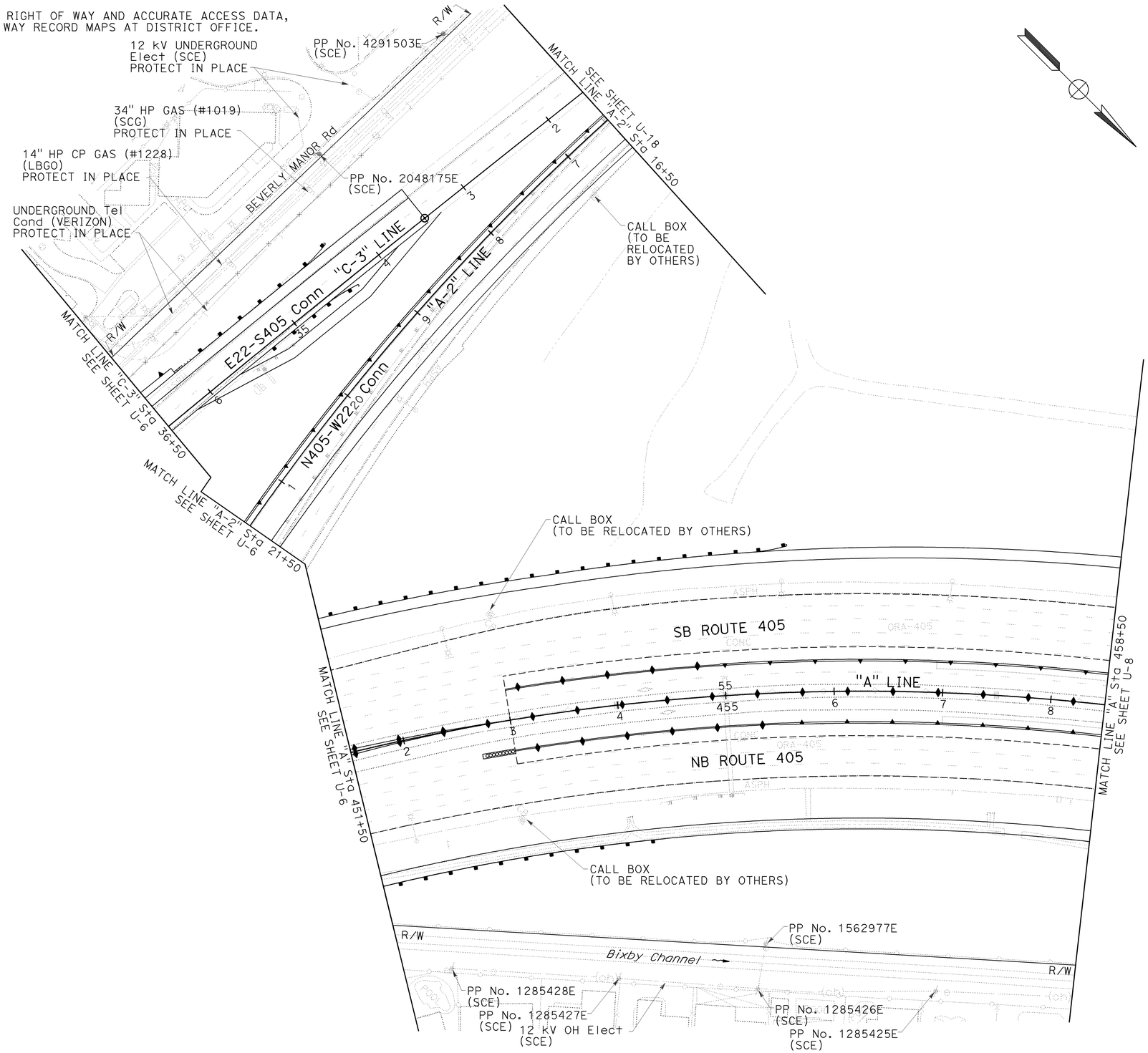
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-7

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW

CALCULATED-DESIGNED BY	CHECKED BY	REVISED BY	DATE REVISED
ALI JERAJ	KAREN CHAPMAN	DBL	8/10/09

LAST REVISION DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 10:58
08-10-09

BORDER LAST REVISED 8/1/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => trrichf | DGN FILE => c07163ka007.dgn | CU 12235 | EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	587	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
ROSS E. LEW
No. C53399
Exp. 6/30/11
CIVIL
STATE OF CALIFORNIA

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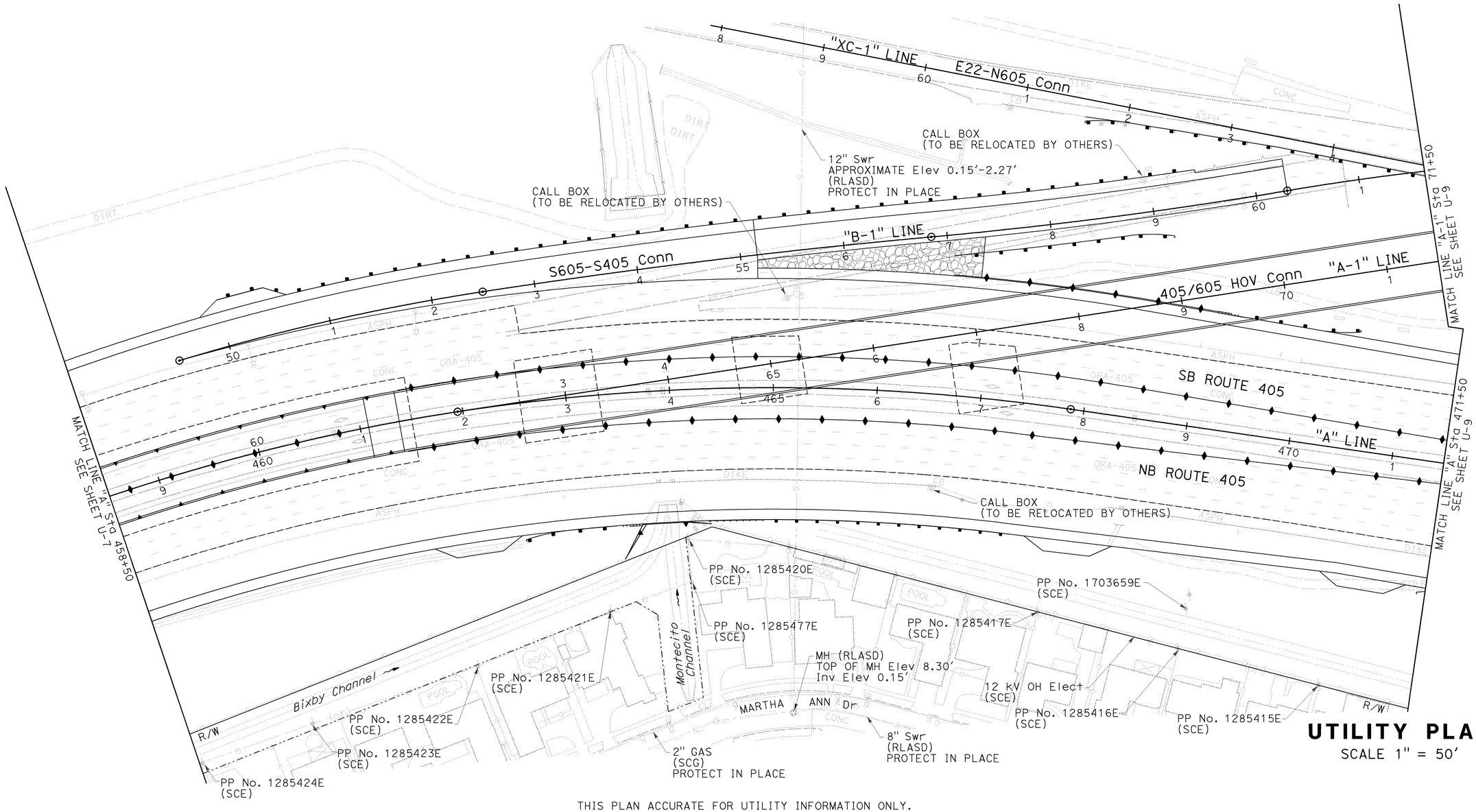
TRC
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-8

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW

CALCULATED-DESIGNED BY: ALI JERAJ
CHECKED BY: KAREN CHAPMAN

REVISED BY: DBL
DATE REVISED: 12/22/09

LAST REVISION — DATE PLOTTED => 03-FEB-2010
12-22-09 TIME PLOTTED => 10:58

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trrichf
DGN FILE => c07163ka008.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	588	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

ROSS E. LEW No. C53399 Exp. 6/30/11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

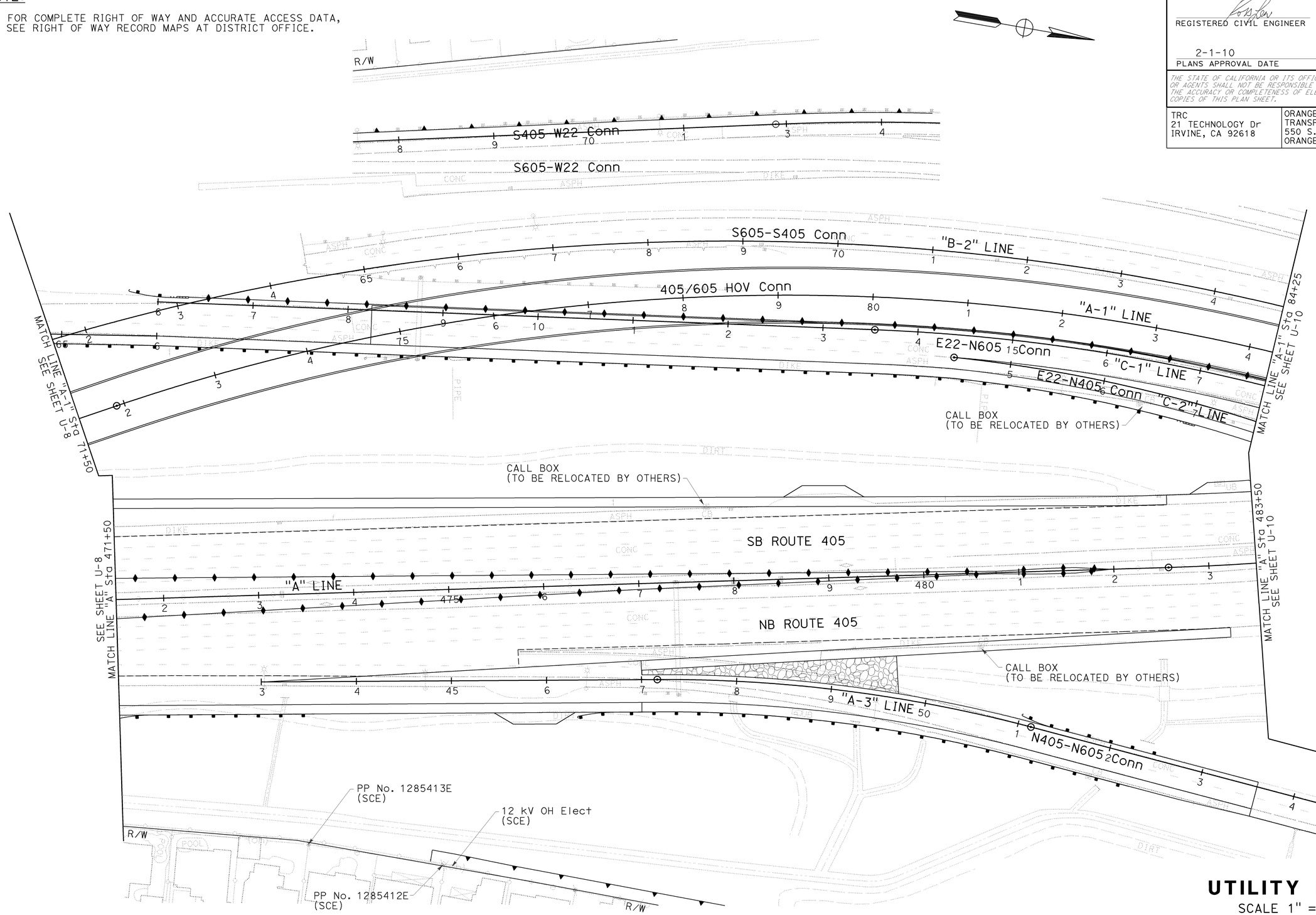
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

TRC
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-9

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW

CALCULATED-DESIGNED BY: ALI JERAJ
CHECKED BY: KAREN CHAPMAN

REVISED BY: DBL
DATE REVISED: 8/10/09

LAST REVISION DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 10:58
08-10-09

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trrichf
DGN FILE => c07163ka009.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	589	1929

REGISTERED CIVIL ENGINEER 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER ROSS E. LEW No. C53399 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

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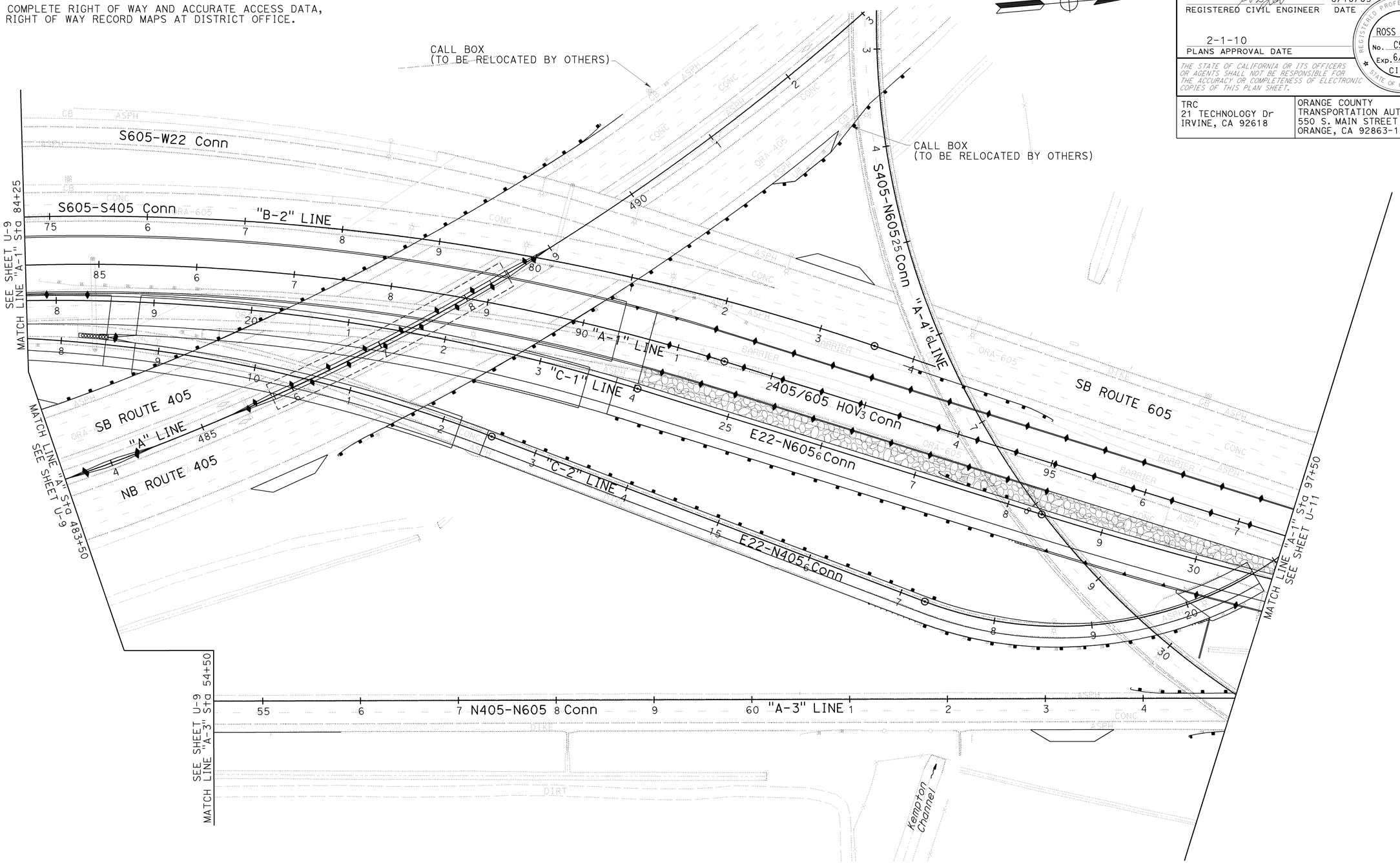
TRC
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-10

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW
CALCULATED-DESIGNED BY: ALI JERAJ
CHECKED BY: KAREN CHAPMAN
REVISED BY: DBL
DATE REVISED: 8/10/09

LAST REVISION 08-10-09
DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 10:59

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	590	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

ROSS E. LEW No. C53399 Exp. 6/30/11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

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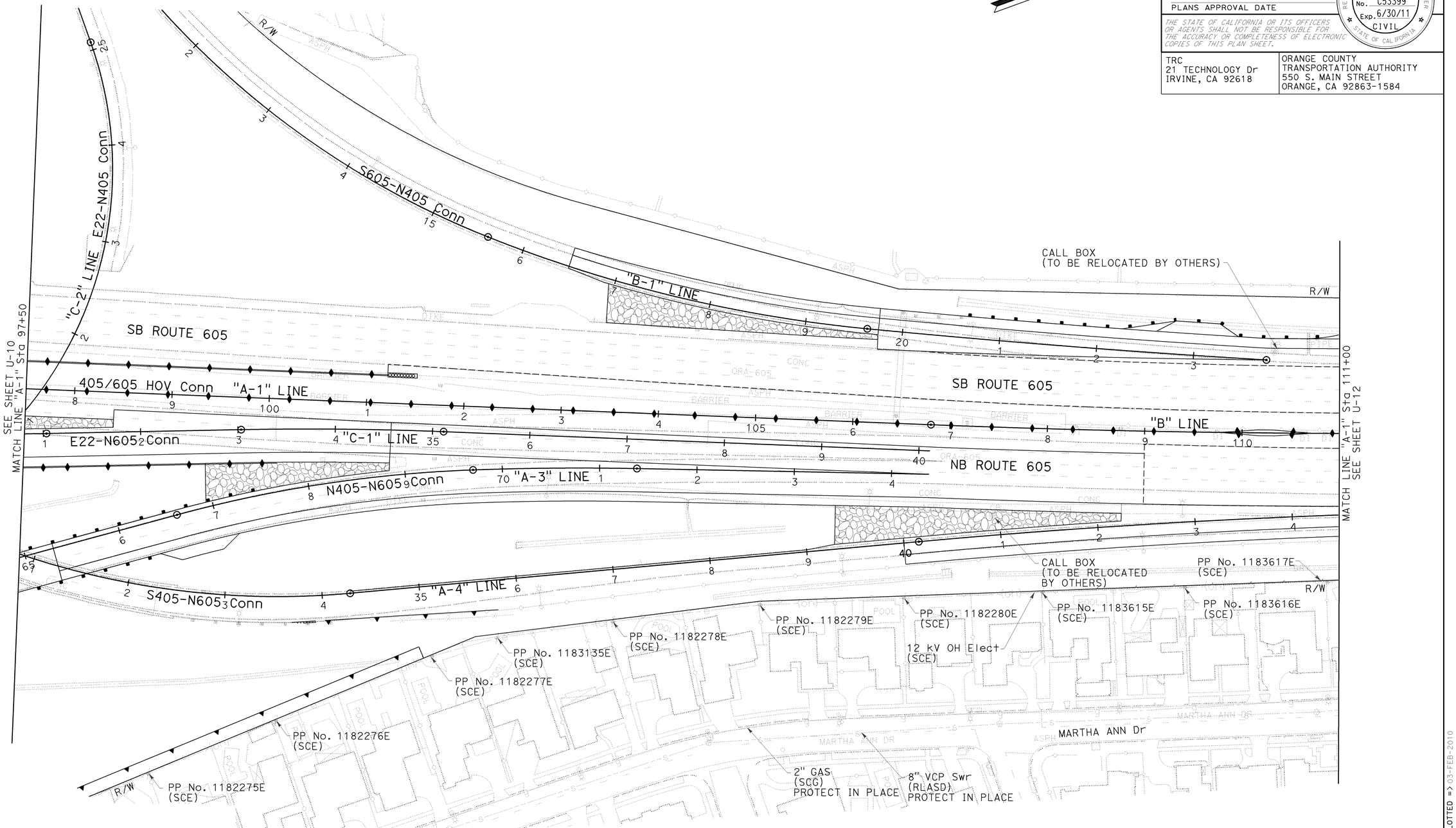
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-11

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	ALI JERAJ	DBL	8/10/09
CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW	CALCULATED-DESIGNED BY: KAREN CHAPMAN	REVISED BY	DATE REVISED
	CHECKED BY		

LAST REVISION: DATE PLOTTED => 03-FEB-2010 08-10-09 TIME PLOTTED => 10:59

BORDER LAST REVISED 8/1/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => trrichf DGN FILE => c07163ka011.dgn | CU 12235 | EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	591	1929

REGISTERED CIVIL ENGINEER 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER ROSS E. LEW No. C53399 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

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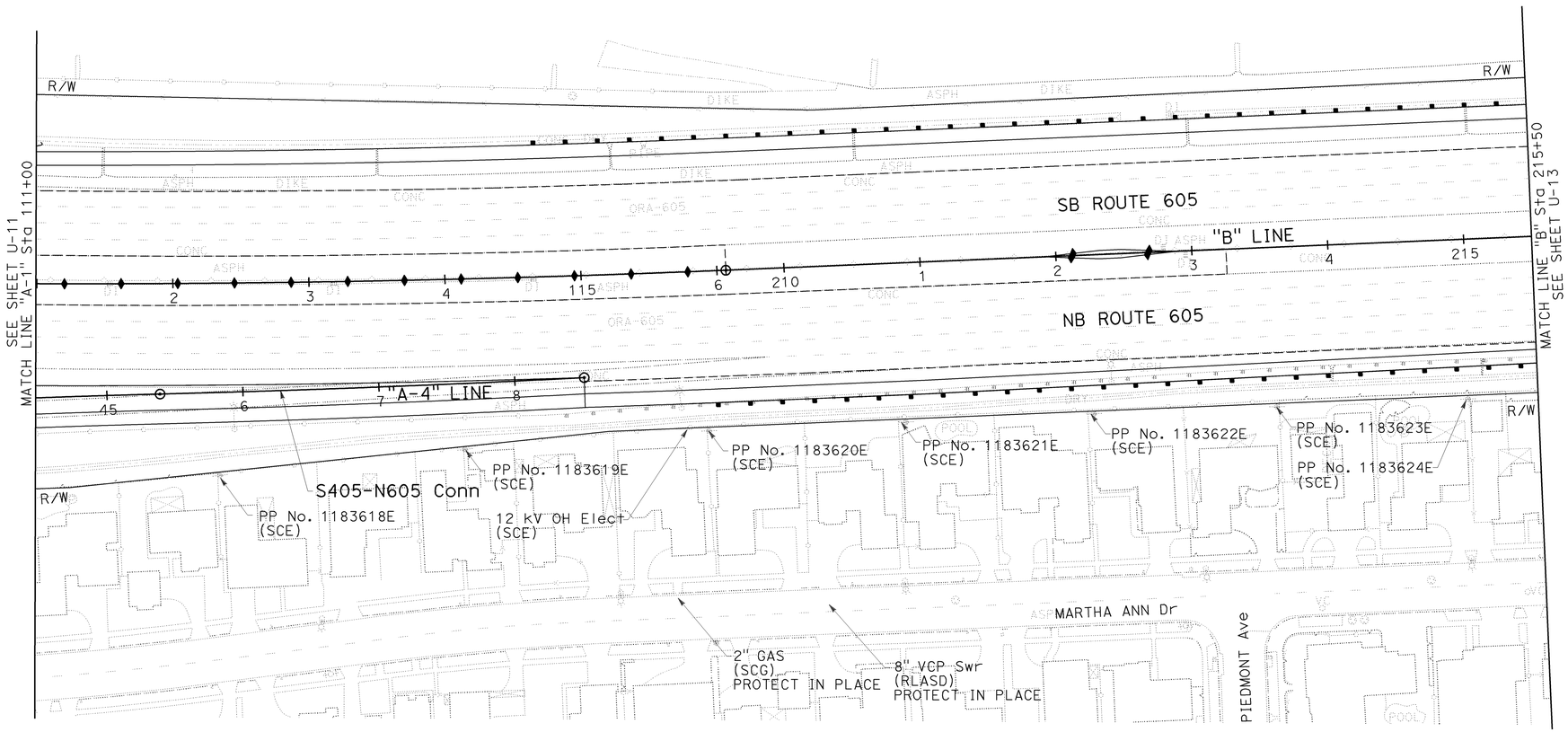
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-12

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW
CALCULATED-DESIGNED BY: ALI JERAJ
CHECKED BY: KAREN CHAPMAN
REVISED BY: DBL
DATE REVISED: 8/10/09

LAST REVISION 08-10-09
DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 10:59

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	592	1929

REGISTERED CIVIL ENGINEER 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER ROSS E. LEW No. C53399 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

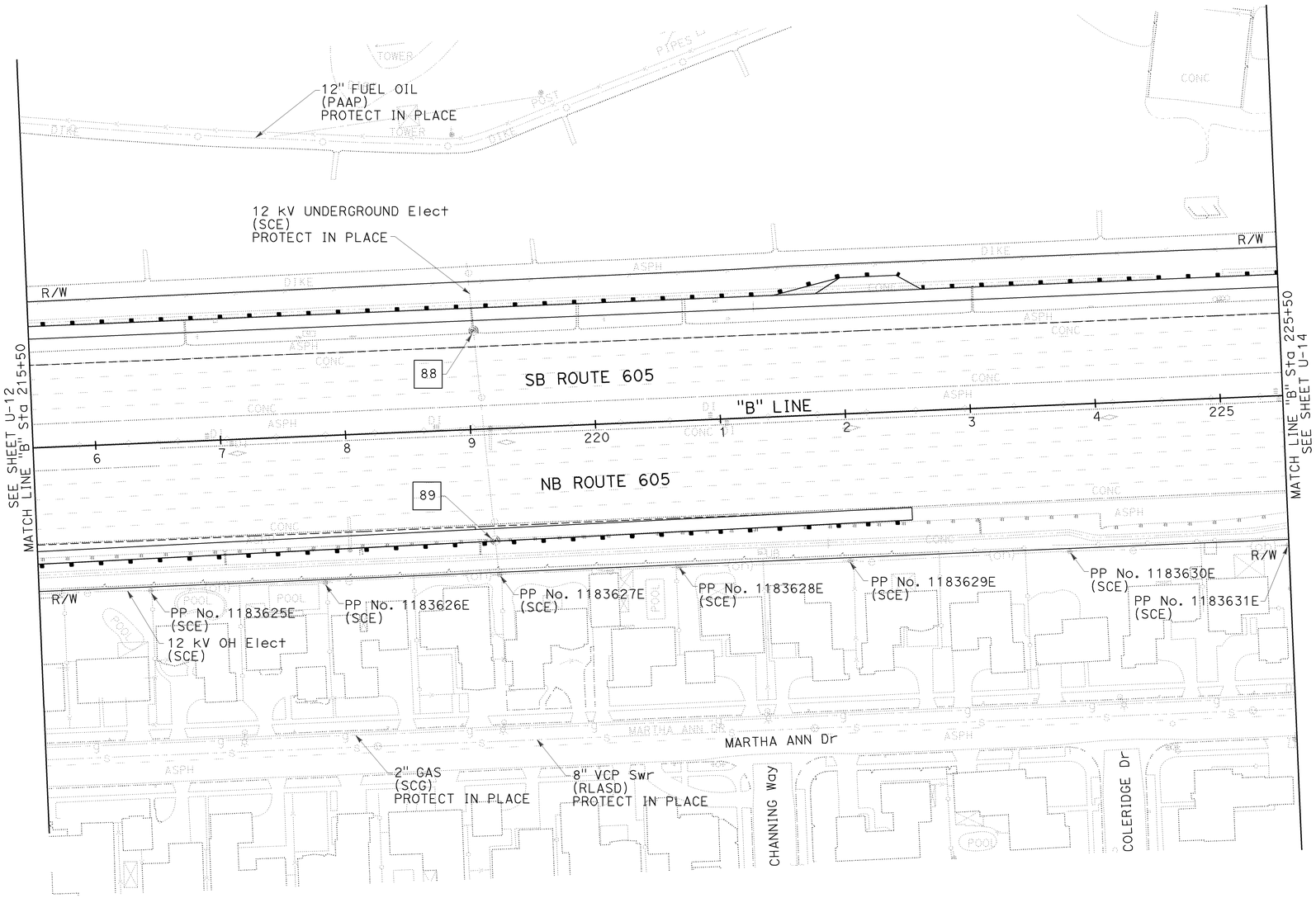
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

TRC
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.
2. FOR POTHOLING INFORMATION, SEE SHEET UD-2.



UTILITY PLAN

SCALE 1" = 50'

U-13

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW
CALCULATED-DESIGNED BY: ALI JERAJ
CHECKED BY: KAREN CHAPMAN
REVISED BY: DBL
DATE REVISED: 8/10/09

LAST REVISION 08-10-09
DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 10:59

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	593	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

ROSS E. LEW No. C53399 Exp. 6/30/11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

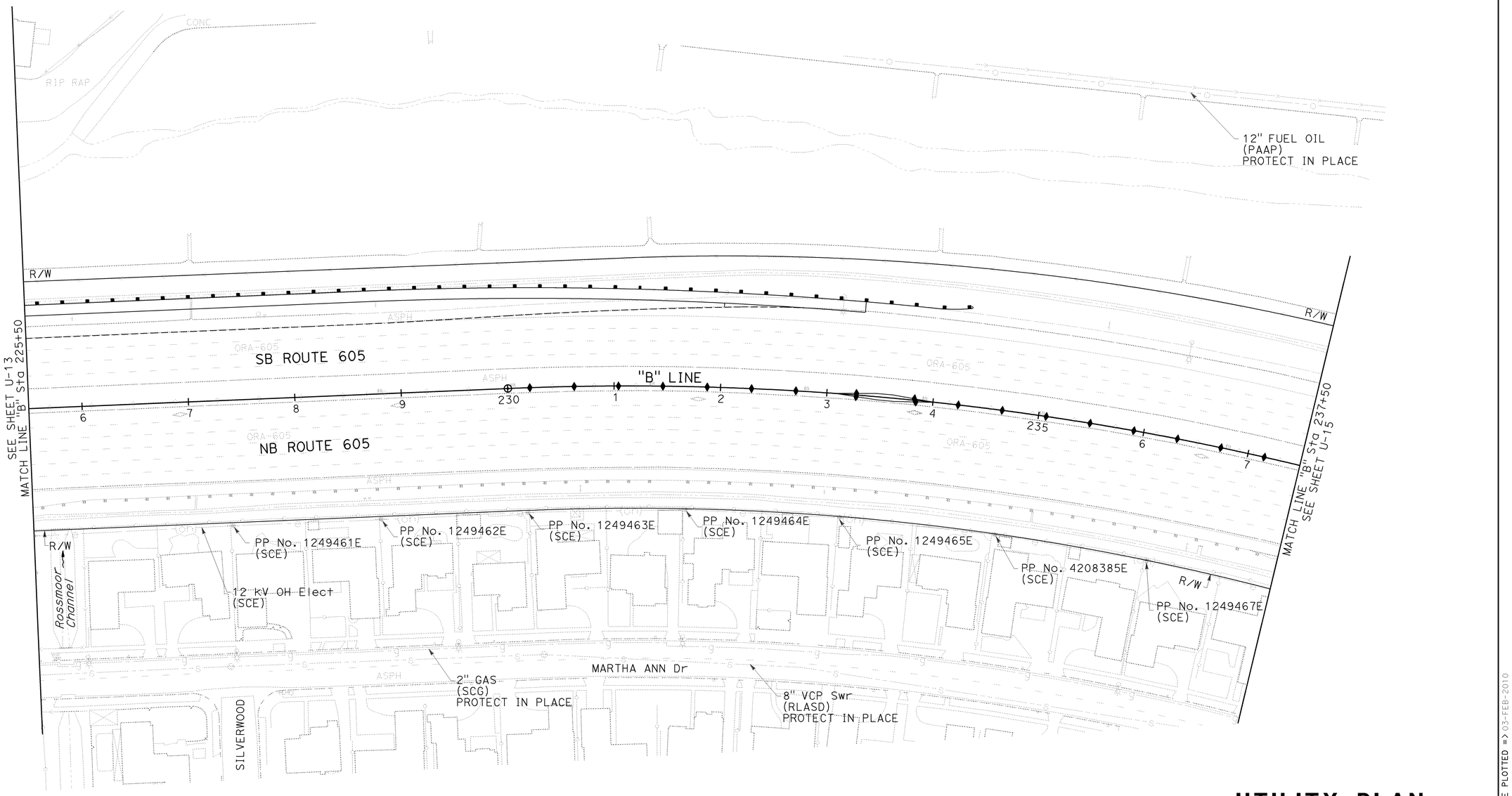
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

TRC
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-14

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW
CALCULATED-DESIGNED BY: ALI JERAJ
CHECKED BY: KAREN CHAPMAN
REVISED BY: DBL
DATE REVISED: 8/10/09

LAST REVISION DATE PLOTTED => 03-FEB-2010
LAST REVISION TIME PLOTTED => 10:59
08-10-09

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trrichf
DGN FILE => c07163ka014.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	594	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
ROSS E. LEW
No. C53399
Exp. 6/30/11
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

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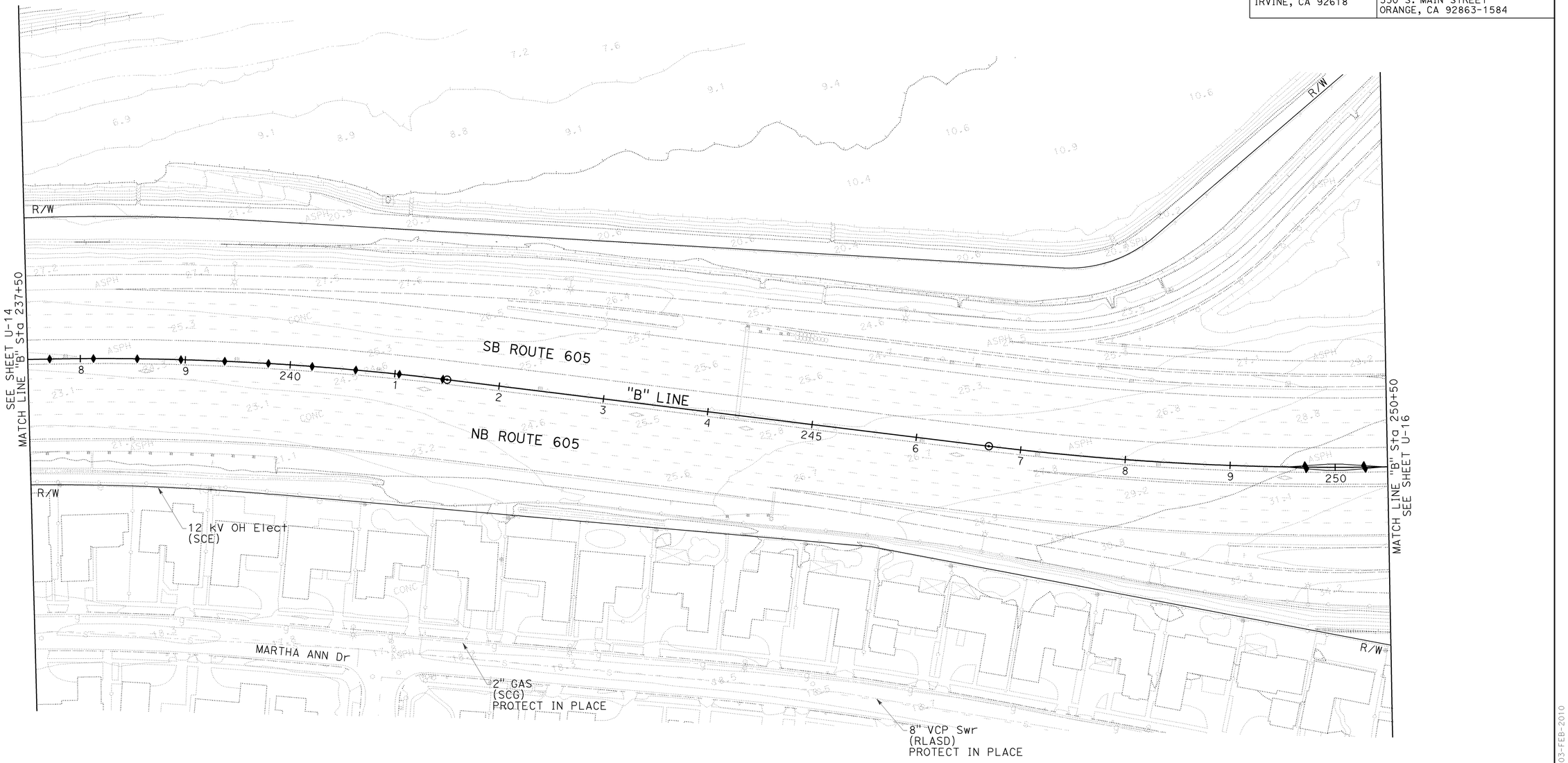
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-15

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

CALCULATED-DESIGNED BY	REVISED BY	DBL
CHECKED BY	DATE REVISED	8/10/09
ALI JERAJ		
KAREN CHAPMAN		

CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 10:59

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trrichf
DGN FILE => c07163ka015.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	595	1929

REGISTERED CIVIL ENGINEER 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER ROSS E. LEW No. C53399 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

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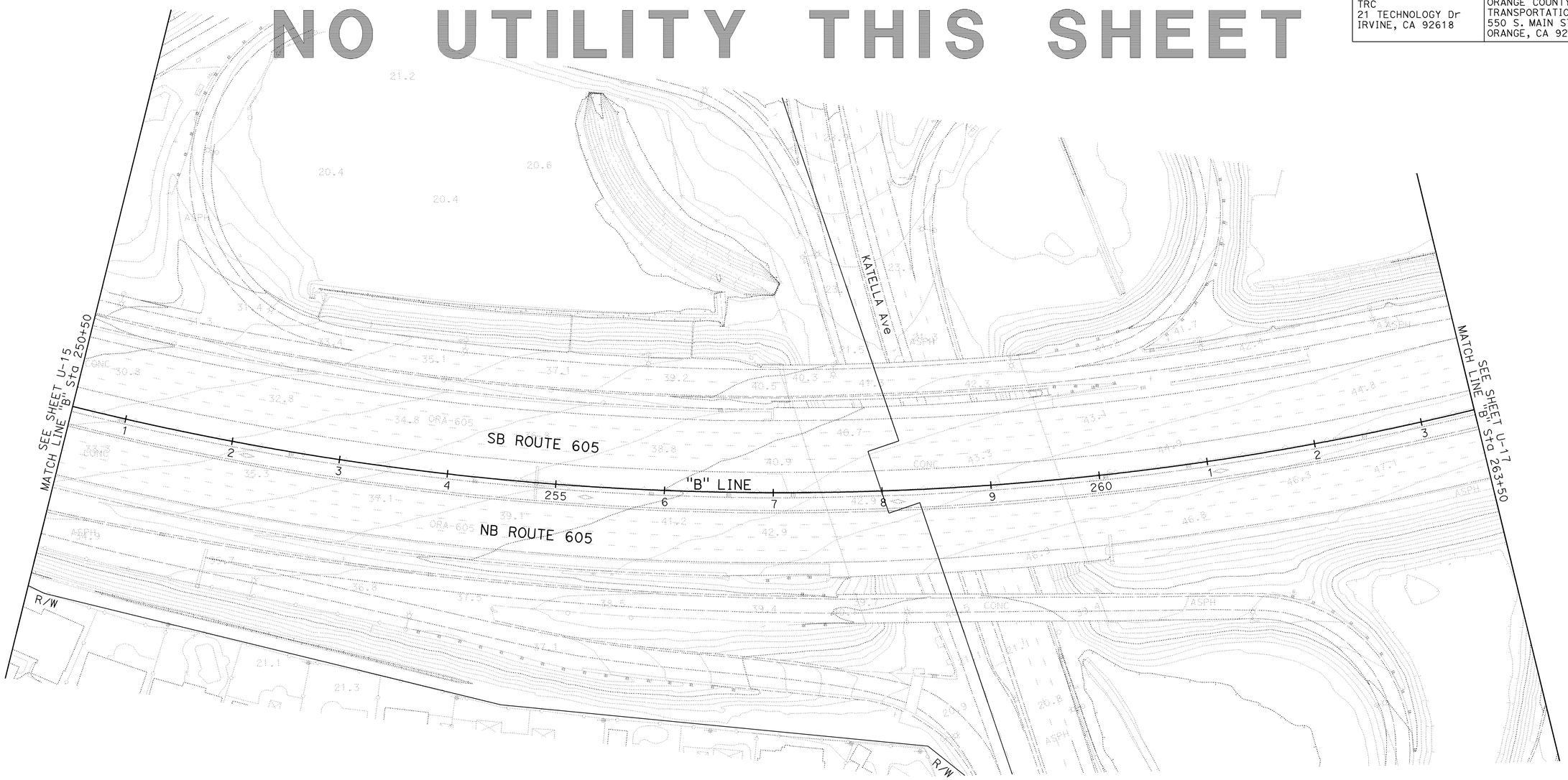
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

NO UTILITY THIS SHEET



UTILITY PLAN

SCALE 1" = 50'

U-16

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW
CALCULATED-DESIGNED BY: ALI JERAJ
CHECKED BY: KAREN CHAPMAN
REVISED BY: DBL
DATE REVISED: 8/10/09

LAST REVISION 08-10-09
DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 11:00

BORDER LAST REVISED 8/1/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trrichf
DGN FILE => c07163ka016.dgn
CU 12235
EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	596	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

ROSS E. LEW
No. C53399
Exp. 6/30/11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

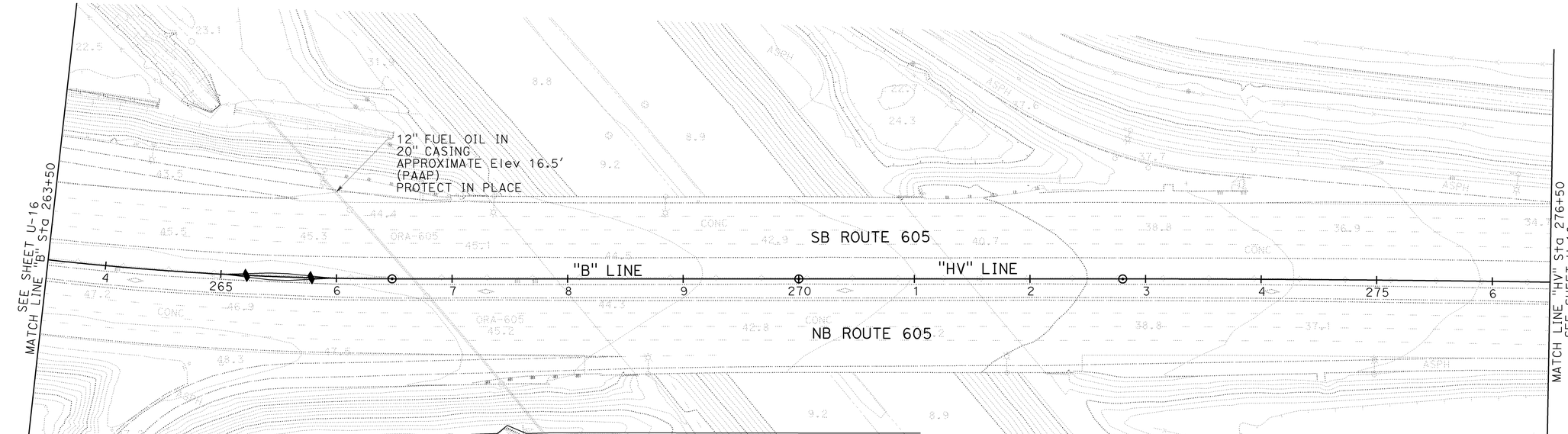
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

TRC
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.
2. "HV" LINE TO BE USED FOR INFORMATION ONLY.



UTILITY PLAN

SCALE 1" = 50'

U-17

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

CALCULATED-DESIGNED BY	ALI JERAJ	REVISED BY	DBL
CHECKED BY	KAREN CHAPMAN	DATE REVISED	8/10/09
CONSULTANT FUNCTIONAL SUPERVISOR	ROSS LEW		
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	Caltrans		

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:00

BORDER LAST REVISED 8/1/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => trrichf DGN FILE => c07163ka017.dgn | CU 12235 | EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	597	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

ROSS E. LEW No. C53399 Exp. 6/30/11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

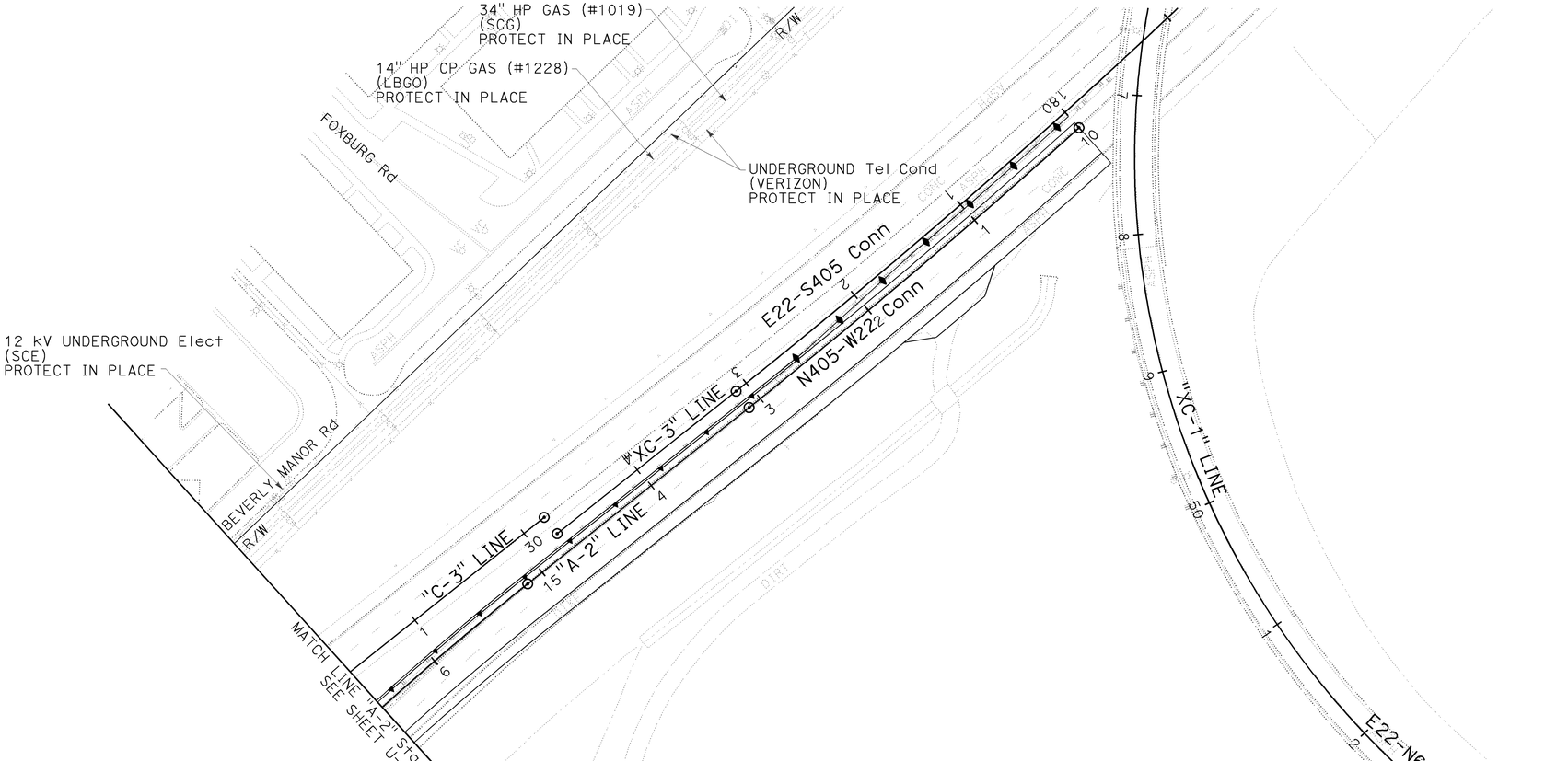
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

TRC
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-18

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW

CALCULATED-DESIGNED BY: ALI JERAJ
CHECKED BY: KAREN CHAPMAN

REVISED BY: DBL
DATE REVISED: 8/10/09

LAST REVISION: 08-10-09
DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 11:00

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trrichf
DGN FILE => c07163ka018.dgn

CU 12235

EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	598	1929

REGISTERED CIVIL ENGINEER — 12/22/09 DATE

ROSS E. LEW No. C53399 Exp. 6/30/11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

2-1-10
PLANS APPROVAL DATE

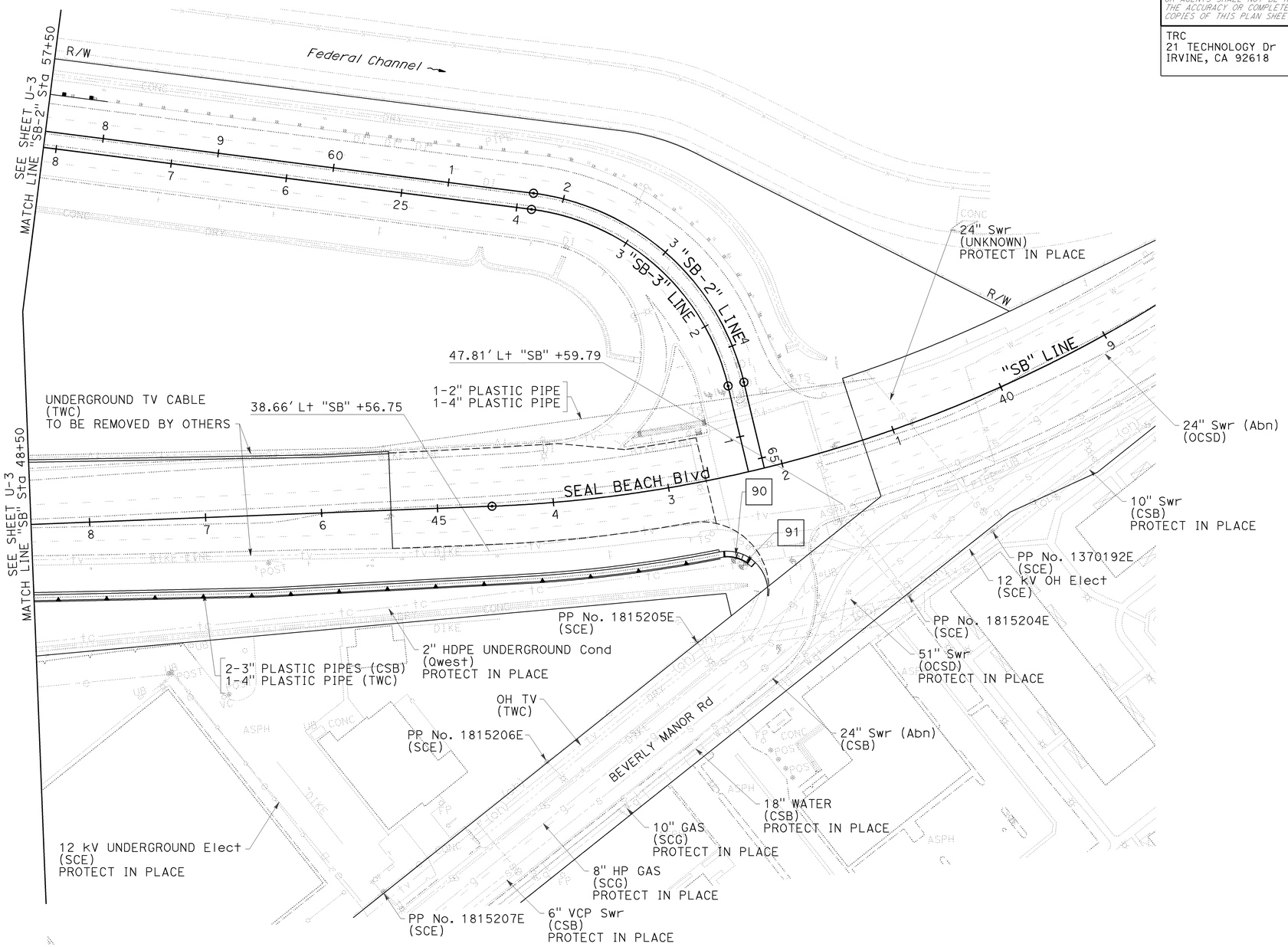
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

TRC
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-19

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

CALCULATED-DESIGNED BY	ALI JERAJ	REVISED BY	DBL
CHECKED BY	KAREN CHAPMAN	DATE REVISED	12/22/09

CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION DATE PLOTTED => 03-FEB-2010
LAST REVISION TIME PLOTTED => 11:00

BORDER LAST REVISED 8/1/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => trrichf | DGN FILE => c07163ka019.dgn | CU 12235 | EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	599	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

ROSS E. LEW No. C53399 Exp. 6/30/11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

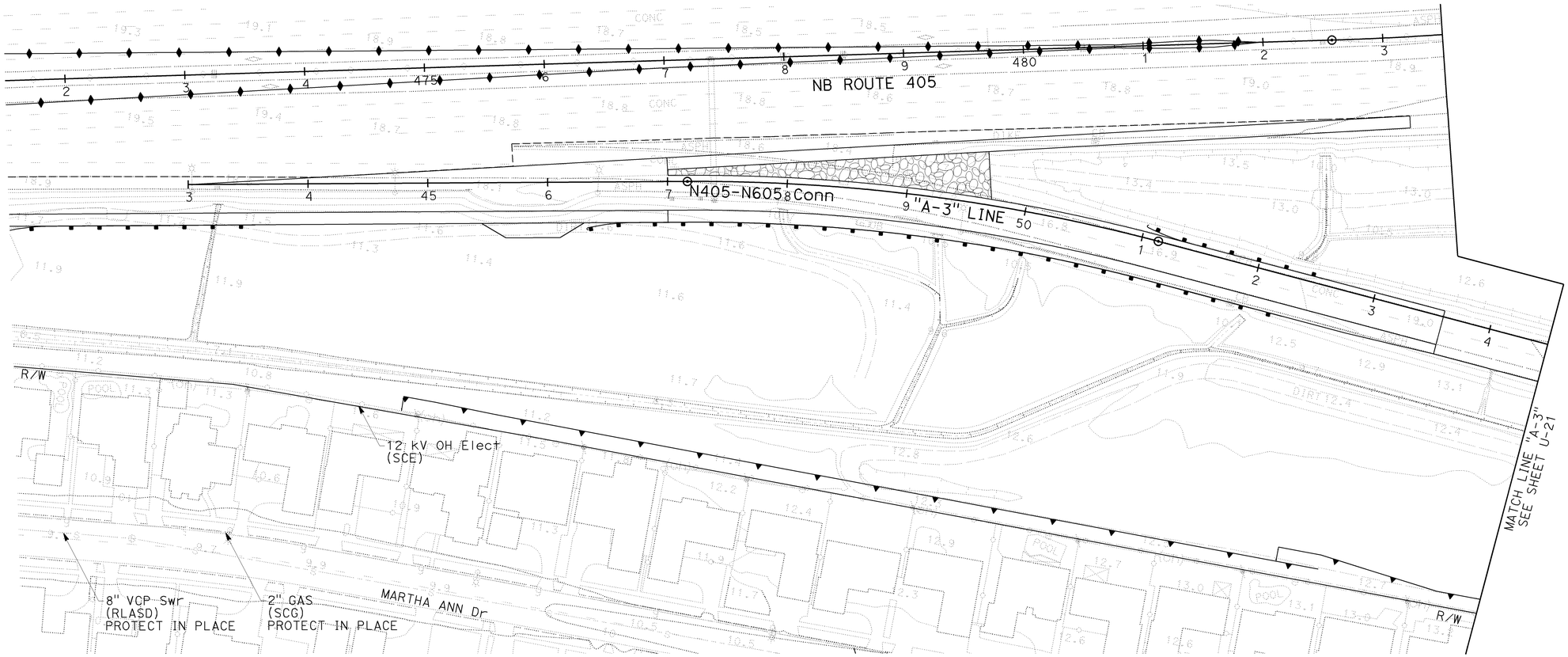
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

TRC
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50' **U-20**

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

CALCULATED-DESIGNED BY	ALI JERAJ	REVISED BY	DBL
CHECKED BY	KAREN CHAPMAN	DATE REVISED	8/10/09
CONSULTANT FUNCTIONAL SUPERVISOR	ROSS LEW		
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	Caltrans		

LAST REVISION DATE PLOTTED => 03-FEB-2010
08-10-09 TIME PLOTTED => 11:01

BORDER LAST REVISED 8/1/2008 — RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 — USERNAME => trrichf — DGN FILE => c07163ka020.dgn — CU 12235 — EA 071631

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405, 605	R0.3/R0.9, 22.3/24.0,3.0/R1.6	600	1929

REGISTERED CIVIL ENGINEER — 8/10/09 DATE

2-1-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
ROSS E. LEW
No. C53399
Exp. 6/30/11
CIVIL
STATE OF CALIFORNIA

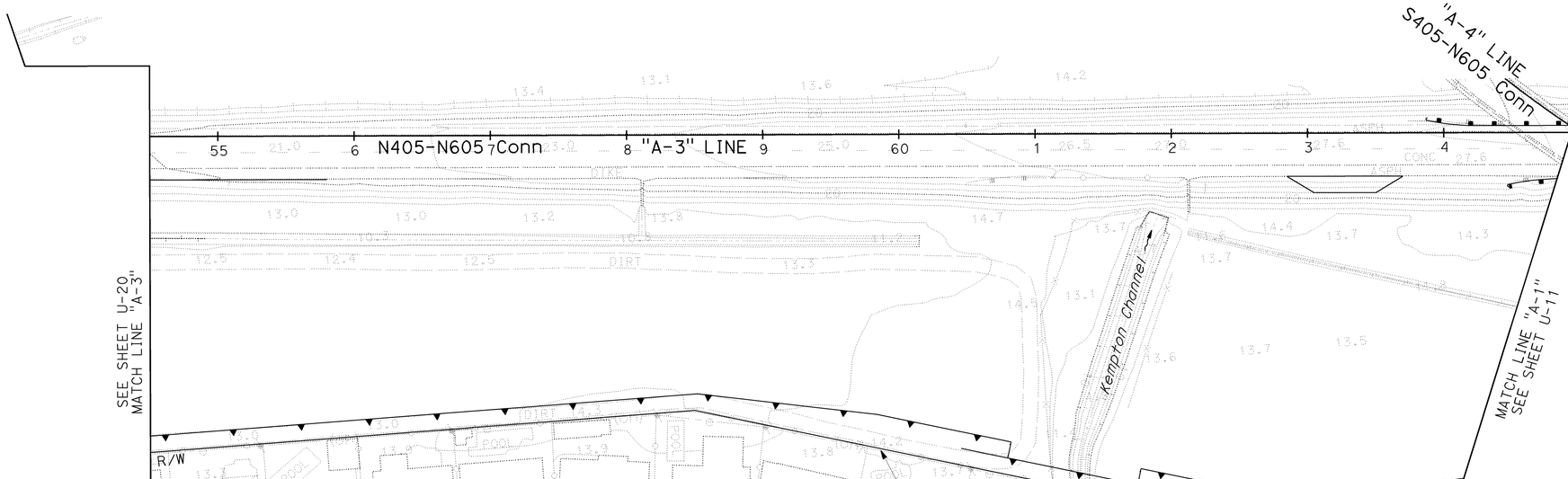
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

TRC
21 TECHNOLOGY Dr
IRVINE, CA 92618

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 S. MAIN STREET
ORANGE, CA 92863-1584

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



UTILITY PLAN

SCALE 1" = 50'

U-21

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: ROSS LEW

CALCULATED-DESIGNED BY: ALI JERAJ
CHECKED BY: KAREN CHAPMAN

REVISED BY: DBL
DATE REVISED: 8/10/09

LAST REVISION
DATE PLOTTED => 03-FEB-2010
TIME PLOTTED => 11:01
08-10-09

BORDER LAST REVISED 8/1/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trrichf
DGN FILE => c07163ka021.dgn

CU 12235

EA 071631