Southern California Edison
WODUP A.13-10-020

DATA REQUEST SET A.13-10-020 WODUP ED-SCE-01

To: ENERGY DIVISION
Prepared by: Scott Lacy, P.E.
Title: Project Engineer
Dated: 02/21/2014

Question V-01:

Aesthetics

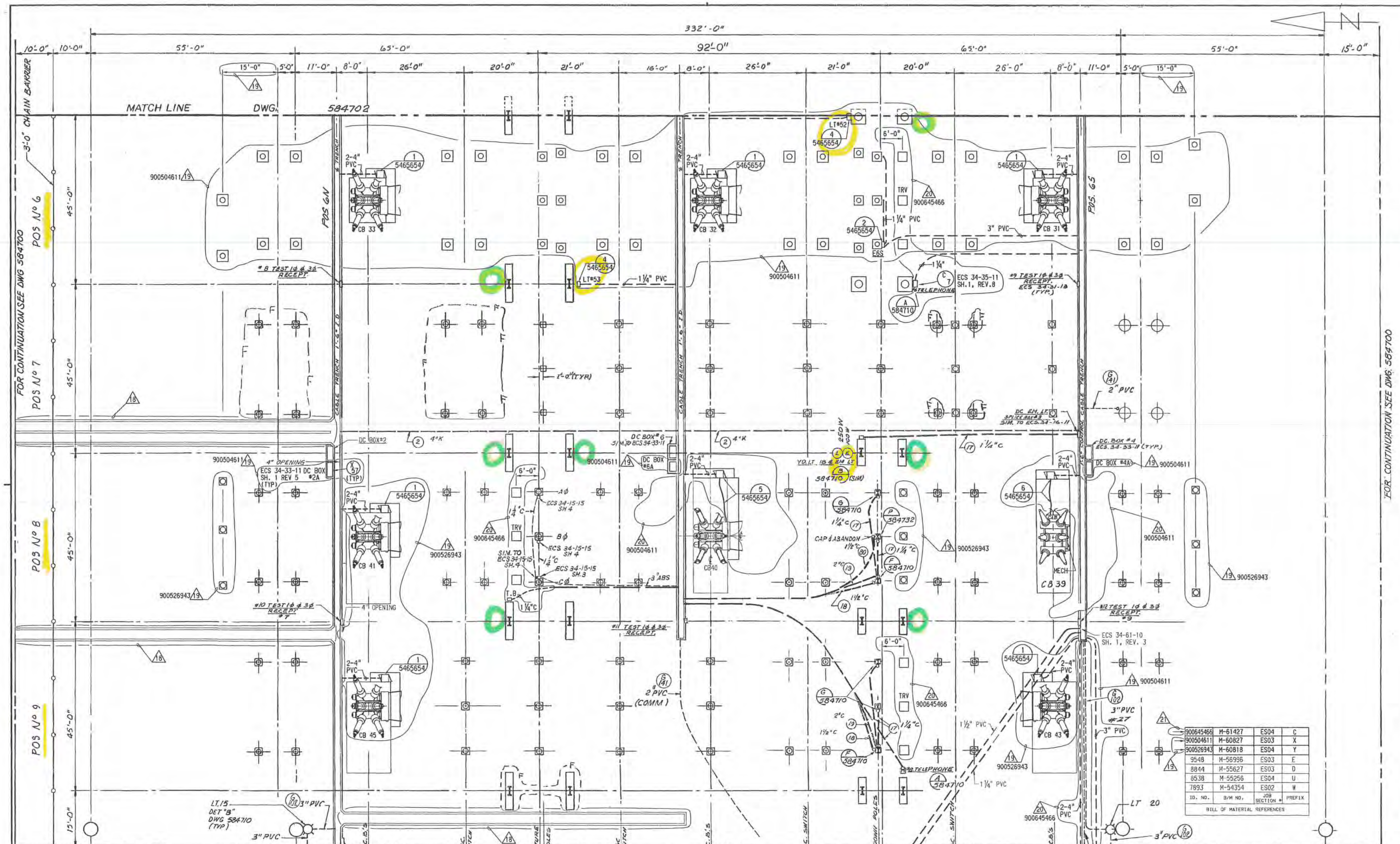
V-1 Please provide the location and a detailed description of new and replacement lighting at the various substations. The plan needs to be provided in site plan form, and should include narrative describing the requirements. The description must include the type of lighting to be installed and measures to be taken to: (1) prevent the visibility of bulbs and reflectors from public viewing areas, (2) avoid the occurrence of reflected glare, and (3) minimize the illumination of project facilities, vicinity, and nighttime sky.

Response to Question V-01:

The attached file "WOD Light Plan.pdf" includes marked-up drawings for the substation switchracks at Devers, El Casco, Vista, and San Bernardino Substations, indicating where new lighting is to be installed or where existing high-pressure sodium flood lights are to be replaced. The last sheet in that file shows a typical profile view of how those lights would be mounted on a standard disconnect support structure.

The attached file "Ventus LED Light Fixtures.pdf" provides catalog cut sheets of the standard LED fixture that would be used at these locations. These lights are the same as those that were recently installed at Colorado River, Red Bluff, and the California Series Capacitor Substations as part of the DPV2 (aka DCR) project.

These lights are typically controlled by a switch in the relay room and normally only operated when needed for personnel use after dark. The use of these lighting fixtures should result in a lighting profile from these substations that could be considered "no change" from the existing conditions.



ID. NO.	B/M NO.	JOB SECTION #	PREFIX
900645466	M-61427	ES04	C
900504611	M-60827	ES03	X
900526943	M-60818	ES04	Y
9548	M-56996	ES03	E
8844	M-55627	ES03	D
8538	M-55256	ES04	U
7893	M-54354	ES02	W

BILL OF MATERIAL REFERENCES

LEGEND

🟨 REPLACE

🟩 NEW INSTALL

JOB ORDER	B/M NO	JOB SECTION NO	PREFIX
8091	M-51759	ES03	T
5621	M-48574	ES03	S
4716	M-46479	ES03	R
1546	M-40080	ES05	M
1264	M-38814	ES03	L

BILL OF MATERIAL REFERENCES

JOB ORDER	B/M NO	JOB SECTION NO	PREFIX
9548	M-56996	ES03	E
3440	M-33553	7	G
3097	M-30525	3	F
0312	M-25921	JS#4	C
6762	M-21173	7&8	NONE

BILL OF MATERIAL REFERENCES

Reference Drawings	
584700	CONDUIT PLAN GENERAL SH.2
584722	GROUNDING PLAN 220KV SWRK SH#3
583909	ELEC EQUIP 220KV SWRK SH#3
583890	PLOT PLAN SH 2
5275869	A.G. CONDUIT DETAILS SH. 1
3320609	COND. PLAN B G SH 36

No	Revisions	Date	Approved	OK	OK	Ck'd	Made	JO No
20	ADDED TRV TO POS 6S 8N,&9S,RELOCATED TEL BOXES	1-16-13	CEN/IZS	EVM	DC7	DB	ORSA	900645466
-	ADDED OIC TO CB 39 & 40	—	—	—	—	—	ORSA	900504611
19	COMPLETED POS 6, REPL'D CB 41,43 & 45, ADDED TRV TO POS 8S	3-30-11	BC/IZS	CCC			ORSA	900504611 900526943
18	INSTALLED CONTROL TRENCHES	4-6-11	DAS	GE		DMZ	ORSA	[illegible]
17	ADDED 2" LTF CND TO CB'S 39,40,43, & 45 FOR MVPP RAS	5-21-08	JMC/JPM	JPM	HK	DZ	ORSA	9548
16	ADDED 2"LTF CND TO CB'S 39,40,41,43,45 & DET REF DWG.	2-13-07	IZS	NAP	PK	MS	EVER	8844
15	REPLACE 2" LTEF CONDUIT FOR 220KV CB#40	6-16-06	JMC/IZS	IZS/TL	TL	WJJ	SM/DEC	8538
14	RESTORE SOUTH TRENCH	1-9-06	SS/PF		PF	DZ	ORSA	7893
13	EXTENDED NORTH & SOUTH TRENCHES TO POS 10	11-1-05	SS/PF		PF	DZ	ORSA	7893
12	REPL'D 220KV CB#39 POS 8S	11-26-02			CWL	NN	IDI	8091
0	ISSUED FOR CONSTRUCTION	5-13-66	JEC/P	JEC/P	JTA		RH/JLT	6762

Scale ~1"=10'-0"

BECHTEL CORPORATION
ENGINEERS & CONTRACTORS LOS ANGELES CALIF
6-7-66 APPR. K F

Location DEVERS SUBSTATION

ABOVE GRADE CONDUIT PLAN
220KV SWITCHRACK

SH. 3

Southern California Edison Company SCE

12-14-12 LC/ORSA

REVISE ELECTRONICALLY ONLY

584703-20

GENERAL NOTES:

1. ALL ECS NUMBERS SHOWN ARE TYPICAL. SEE SCE CO ENGINEERING STANDARDS, ELECTRICAL CONSTRUCTION, STATION, SECTION 34. FOR CONDUIT GENERAL REQUIREMENTS, SEE ECS 34-01-00, ECS 34-44-01, ECS 34-45-01, ECS 34-61-01 AND ECS 34-62-01.
2. FOR EXACT SIZE AND SHAPE OF FOUNDATIONS SEE FOUNDATION DRAWINGS.
3. ALL UNDERGROUND CONDUITS SHALL BE PLACED AFTER CONCRETE FOUNDATIONS ARE POURED UNLESS THEY ARE PART OF THE POUR.
4. ALL UNDERGROUND CONDUIT RUNS STUBBING UP ADJACENT TO FOUNDATIONS SHALL BE STUBBED UP 6" ABOVE TOP OF FOUNDATION OR 1'-0" ABOVE FINISH GRADE UNLESS OTHERWISE NOTED. TERMINATE WITH A PVC CAP OR PLUG. DO NOT CEMENT CAPS OR PLUGS ON CONDUIT STUB UPS OR BELOW GRADE STUBOUTS.
5. DIMENSIONS SHOWN ON DUCT BANKS ARE CENTER TO CENTER OF DUCT BANKS.
6. FURNISHED AND INSTALLED BY SECURITY CONTRACTOR.
7. * DENOTES BELOW GRADE DRAWING.
   △ DENOTES ABOVE GRADE DRAWING.

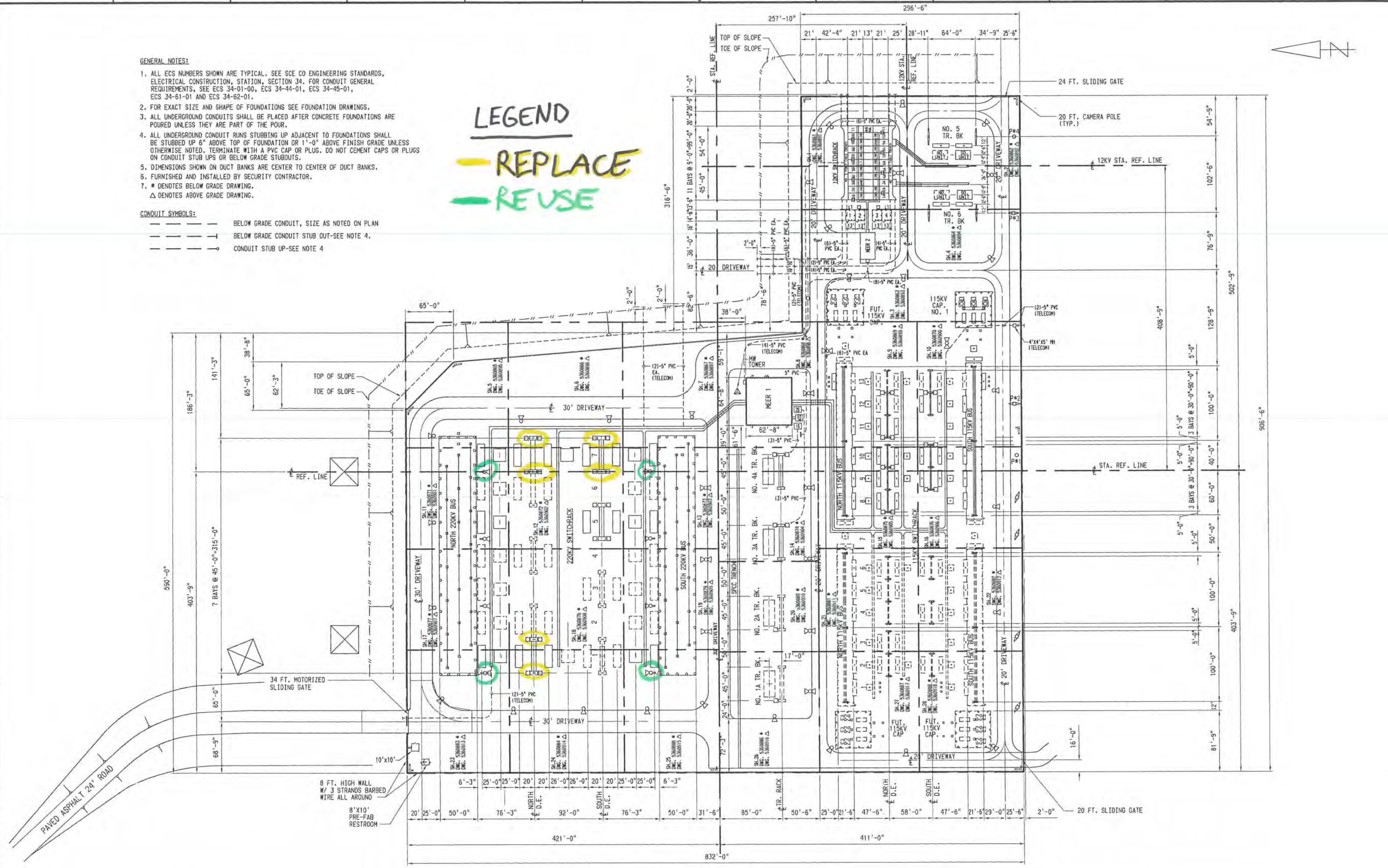
CONDUIT SYMBOLS:

— — — —	BELOW GRADE CONDUIT, SIZE AS NOTED ON PLAN
— — — —┤	BELOW GRADE CONDUIT STUB OUT-SEE NOTE 4.
— — — —o	CONDUIT STUB UP-SEE NOTE 4

LEGEND

— REPLACE

— REUSE



* REVISE ON AUTOCAD SYSTEM ONLY *

5360924	GROUNDING PLAN GENERAL
5360816	PLOT PLAN
REFERENCE DRAWINGS	REFERENCE DRAWINGS

NO.	REVISIONS	DATE	SAP WO	SUPV	APPROVED	ENGR	CK'D	MADE	P.E.
3	ADDED LA'S AT 115KV CAP BK CLR	2-11-11	800063494	SL/J	SL/J	JR	02/GZ	ORSA	SL/J
2	ADDED RESTROOM & TELECOM CONDUITS	12-13-10	800063494		SL/V	JR	DZ/GZ	GZ/ORSA	SL/V
1	REV'D 115KV CAP. BK NO.1 LAYOUT	10-21-09	800063494		SL/V	VJ	DZ	GZ/ORSA	SL/V
0	ISSUED FOR CONSTRUCTION	6-9-09	800063494		SL/V	VJ	DZ	GZ/ORSA	SL/V

LOCATION: EL CASCO SUBSTATION

CONDUIT PLAN GENERAL

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

SHEET NO. E

SCALE: 1"=50'-0"

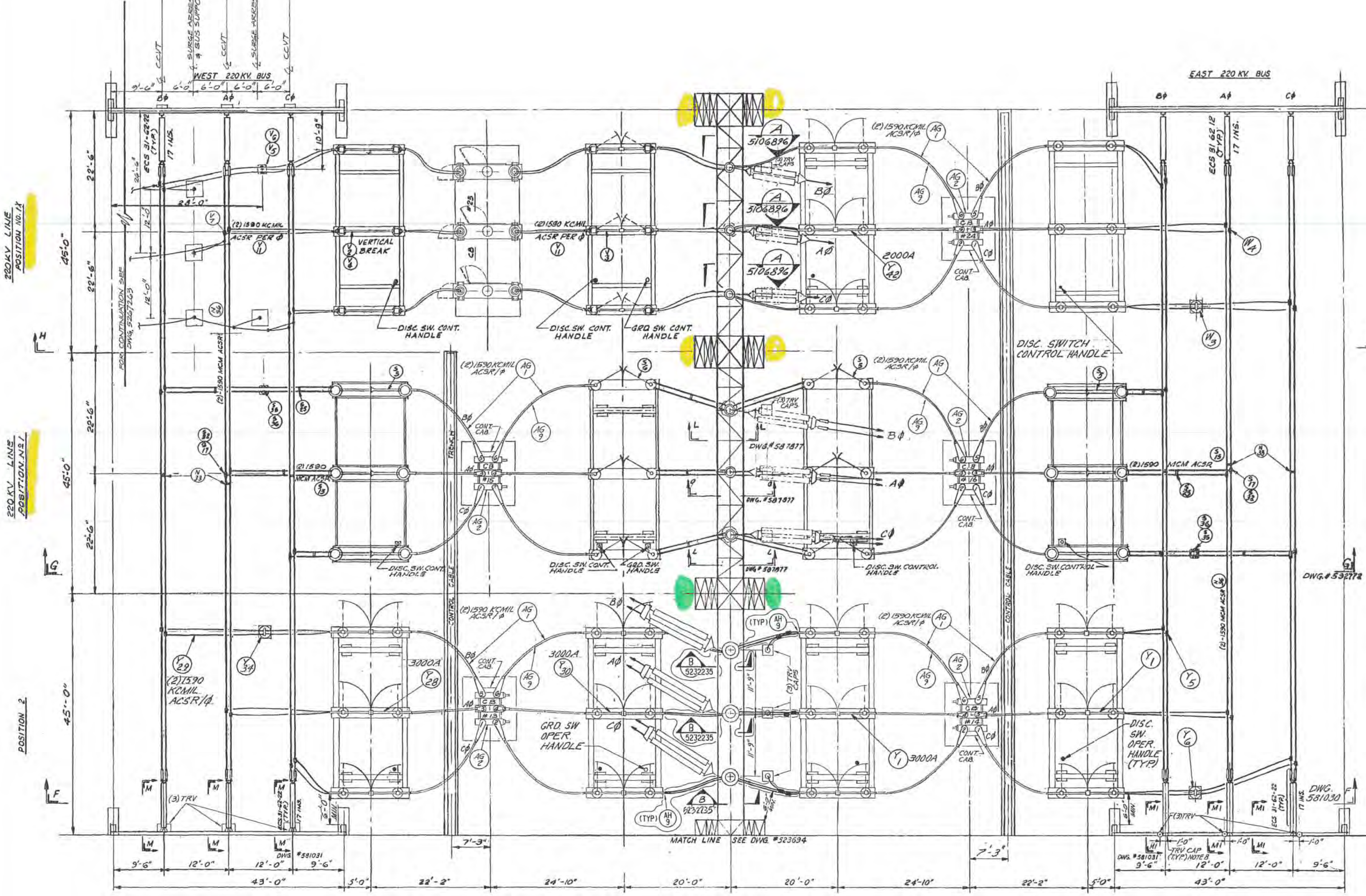
___ OF ___ SHTS.

02-03-11 JR/ORSA

5360860-3

ORSA Consulting Engineers, Inc. Fullerton, California

SCE E4-652-CADD 03-85



LEGEND

▬ REPLACE

▬ NEW INSTALL

GENERAL NOTES:

1. FOR CONDUCTOR SPAN SAG BUS CLEARANCES SEE DWG. # 122997
2. USE STAINLESS STEEL BOLTS WHEN BOLTING ALUMINUM TO ALUMINUM OR TO TINNED BRONZE FITTINGS.
3. FIELD TO PROVIDE DRIP LOOPS WHERE NECESSARY.
4. COAT ALL CABLES & FITTINGS WITH EDCO INHIBITOR PER S.C.E. CO. ENG'G. STD. ELEC. CONST. STA. BOOK NO. 3, SECT. NO. 31-70-10.
5. USE TINNED COPPER OR BRONZE STRAP OR FITTINGS WHEN BOLTED TO ALUMINUM.
6. FOR DETAILS OF OVERHEAD TERMINATION SEE S.C.E. CO. ENG'G. STD. ELEC. CONST. STA. BOOK NO. 3, SECT. NO. 31
7. ALLOW SUFFICIENT SLACK ON BUS TAPS TO PROVIDE CONDUCTOR POSITION DISPLACEMENT DUE TO SHORT CIRCUIT STRESSES. SLACK TO BE DETERMINED ON INSTALLATION OF INDIVIDUAL TAP LOCATION AND TO CONFIRM TO CLEARANCES AS PER SCE CO. ENG'G. STD. BOOK NO. 3 SECTION 32.
8. TRV CAPS INSTALLED ON TOP OF STEEL STRUCTURE.

7418	M-53949	ES05	T
6786	M-52153	ES02	AG
6526	M-51190	ES02	AD
5525	M-48252	ES02	AC
4894	M-46741	ES02	AB
4715	M-46365	ES02	AA
4482	M-46122	ES02	B
9110	M-43804	ES02	Z
1225	M-40846	ES02	Y
3612	M-34074	2	X
0522	M-27118	2	W
9646	M-26104	2	V
9797	M-25450	JS # 2	U
7019	M-22864	1	S
6584	M-20134	J.S. #1	N

800395486	M-58509	ES02	AH
SAP WO	B/M NO.	JOB SECTION #	PREFIX

BILL OF MATERIAL REFERENCES

		581031	EL. EQ. 220 KV. SWRK. SECTION M-M
5267263	220KV CAP. BANK NO. 6 PLAN	581030	EL. EQ. 220 KV. SWRK. SECTION F-F
587877	220KV SWRK POT. DEVICE	576312	EL. EQ. 220 KV. SWRK. SEC. V-V, W-W, Z-Z
592772	220KV SWRK LINE POS. #1 & IX		
581033	GRDG. PLAN 220 KV. SWYD. POS. IX, 1 & 2	538436	EQUIP. PLOT PLAN
581032	CONDUIT PLAN 220 KV. SWYD. POS. IX, 1 & 2	523694	PLAN 220 KV. SWRK. POS. 3, 4 & 5
Reference Drawings		Reference Drawings	

No.	Revisions	Date	Approved	O.K.	O.K.	Ch'd.	Made	J.O. No.
18	REMV'D & REPL'D EXISTING AØ, BØ & CØ CCVT's AND REMOVED CØ LINE TRAP & LINE TUNER	6-11-10	TT/DDS	RG	CAA	PL	LA	8003 95486
17	REMOVED WAVE TRAPS IN POS. 1	9-2004	JMC/DDS	DL	HMJ	CGD	LA	7418
16	REPLACED 220KV CB'S 13, 14, 15, 16 & 24	[illegible]	RGH		JTM	DH	LA	6786
	INSTALLED TRV CAPS AT 220KV LINE POS/AS BUILT		JMcC		JTM	DH	LA	6526
15	AS BUILT, GENERAL REVISION	1-18-05	[illegible]		JTM	DH	LA	6526
14	REPLACED RISERS, POS. 1 & IX	7-8-02	[illegible]		DRS	DZ	ORSA	6889
13	INSTALLED BUS TRV'S	12-14-01	[illegible]		JTM	DH	LA	6586
12	ADDED CAP. BANK NO. 6	11-9-11	[illegible]	[illegible]	[illegible]	EH	B&V	5525
		1-3 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	L.E.S.	6534

Scale: 1/8" = 1'-0"

12-22-64 | KF

LOCATION VISTA SUBSTATION

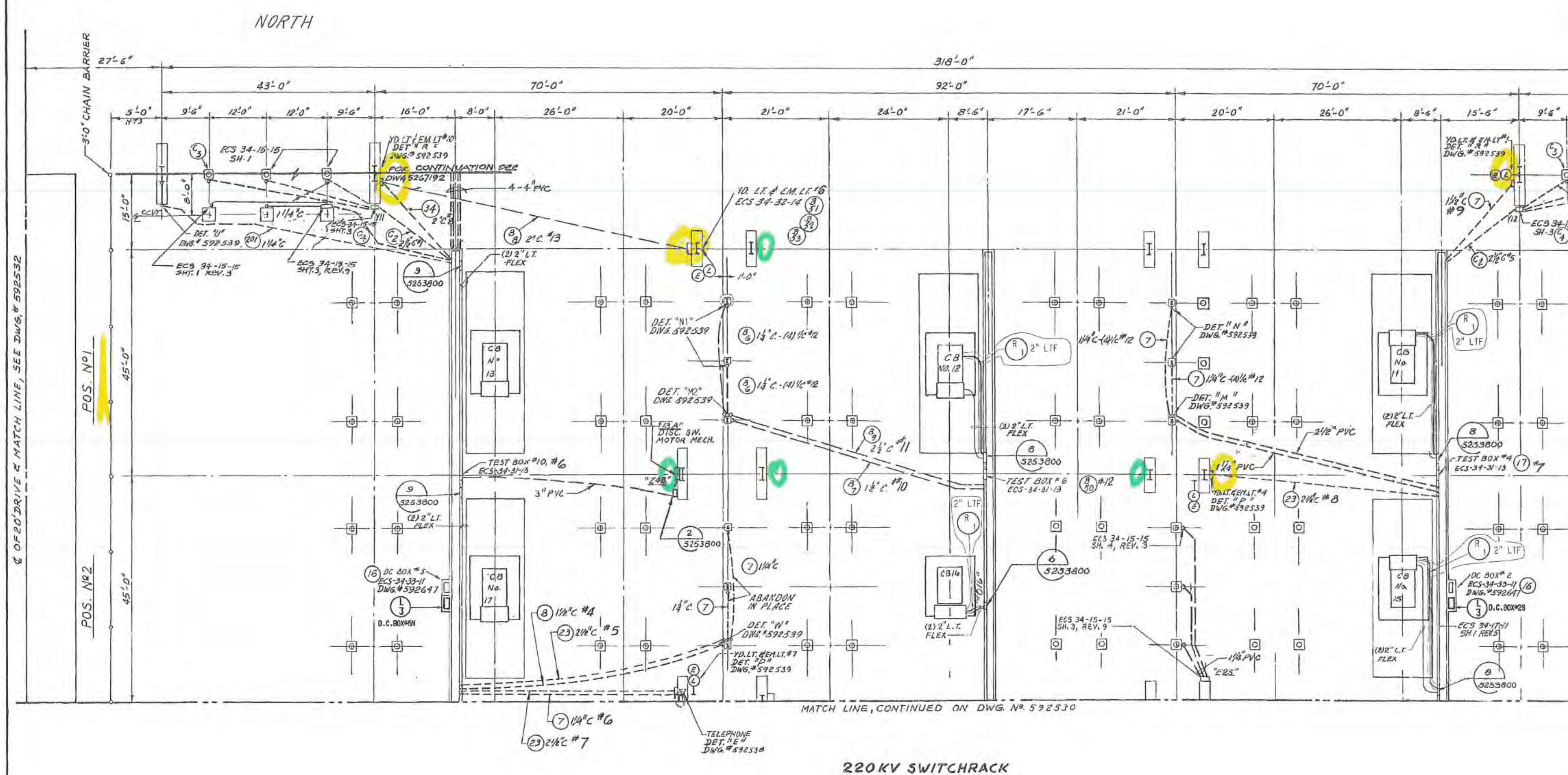
ELECTRICAL EQUIPMENT
220 KV. SWITCHRACK PLAN
POS. NO. IX, 1, & 2

Southern California Edison Company SCE

01-05-10 LA/REH

REVISE ELECTRONICALLY ONLY

581029-18



POS. No	COND. No	COND. SIZE	CABLES
1.	1.	4" OPEN	13-17A-4/C#8, 13-CO2C-3/C#12, 13-R18C-1/C#4, 13-R12C-1/C#4, 13-D05D-2/C#10, 13A01P-2/C#10, 13R23A-4/C#8
	2.	4" OPEN	11-R22A-4/C#8, 11-CO2C-3/C#12, 11-R18C-1/C#4, 11-R06C-1/C#4, 11-D0D2-2/C#10, 11A02P-2/C#10, 11-15A-4/C#8.
	3.	4" OPEN	12-R22A-4/C#8, 12-CO2C-3/C#12, 12-CO2C-1/C#4, 12-R18C-1/C#4, 12-D03D-2/C#10, 12-A01P-2/C#10, 12-R23A-4/C#8
	4.	1½"C	E01-CP1X-COAX
	5	2½"C	E01S-R22B1-4/C#10, E01S-CO2B-2/C#10, E01S-K22B2-2/C#10
	6.	4"OP	B09-B10-P1-3/C#10, B09-B10-P3-(3)1/C#4, B10-B09-T-4/C#8
	7	2"OP	B03-B04-P1-3/C#10, B03-B04-P3-(3)1/C#4, B04-B03-T-4/C#8
	8.	2"C	L07-L10-L-2/C#10, L07-L10-LE-2/C#10
	9	1½"C	L01-L04-L-2/C#12, L01-L04-LE-2/C#12
	10.	1½"C	E01N-CP2X-COAX
	11.	2½"C	E01N-R23B1-4/C#10, E01N-CO2B-2/C#10, E01N-R23B2-2/C#10
	12	4"OP	A09-B06-P1-2/C#10, A01-B06-P3-(3)1/C#4, B34-B06-T-4/C#8
	13	2"C	L10-L06-L-2/C#12, L10-L06-LE-2/C#12
2.	1.	4" OPEN	17-R12A-4/C#8, 13-17A-4/C#8, 17-CO2C-3/C#12, 17-R18C-1/C#4, 17-R12C-1/C#4, 17-D05D-2/C#10, 17-A01P-2/C#10, 17-R21A-4/C#8
	2.	4" OPEN	15-R21A-4/C#8, 15-CO2C-3/C#12, 15-R18C-1/C#4, 15-R06C-1/C#4, 15-D02D-2/C#10, 15A02P-3/C#4, 15-R06A-4/C#8, 11-15A-4/C#8, 015Z19E-2FR#18
	3.		
	4.	1½"C	E02N-CP4X-COAX
	5	2½"C	E02N-R218-2/C#10
	6	1¼"C	TELEPHONE
	7	2½"C	L07-L11-L-2/C#8, L07-L10-L-2/C#10, L07-L11-LE-2/C#10, L07-L10-LE-2/C#10
	8	2½"C	L02-L04-L-2/C#10, L01-L04-L-2/C#12, L02-L04-LE-2/C#10, L01-L04-LE-2/C#12
	9		
	10		
	11		
N & S BUS	1	2"	Y11R21B-4/C#10
	2	2"	Y12R21B-4/C#10

LEGEND

- REPLACE
- NEW INSTALL

NOTE.
FOR GENERAL NOTES SEE DWG. # 592528

900520590	M-61325	ES04	R
SAP W.O.	B/M NO.	JOB SECTION #	PREFIX

BILL OF MATERIAL REFERENCES

9549	M-56997	ES03	P
8809	M-55566	ES03	M
7247	M-54422	ES04	L
6569	M-49970	ES04	H
6516	M-49834	ES05	F
6078	M-49297	ES03	E
5524	M-48250	ES05	D
2316	M-28531	J.S.#4	C
0648	M-26224	J.S.#3	B
7106	M-22874	9,10 & 28	—
JOB ORDER	B/M NO	JOB SECTION NO	PREFIX

BILL OF MATERIAL REFERENCES

592529	BELOW GROUND CONDUIT PLAN SH.1
592503	220KV SWRK-PLAN-POS. 1&2
5267198	ABOVE GRD. GRDG. PLAN-SH. 1
Reference Drawings	

5253800	ABOVE GRADE COND. DETAILS
592538&539	CONDUIT DETAILS SH#1&2
592532	CONDUIT PLAN SH#4
592530	ABOVEGRD. COND. PLAN SH. 2
592528	CONDUIT PLAN GENERAL
Reference Drawings	

No.	Revisions	Date	Approved	O.K.	O.K.	Ck'd.	Made	J.O. No.
7	ADDED 2" LTF TO CB NO. 11, 12, 15 & 16, AS BUILT	9/26/12	CEW	[illegible]		RGH	MESA	900520590
6	ADDED 2" LTF TO CB'S 11 & 12	08-08-08	JMC/HK	JMC/HK	HK	DZ	ORSA	9549
5	REPL'D (2)220KV POT. DEV.(AØ & BØ) @ POS. 1N	10-31-06	JMC/IZS	IZS	VRF	RCP	LA	8809
4	ADDED D.C. BOXES	2-22-06	[illegible]	[illegible]	[illegible]	MZD	ORSA	7247
3	REPL'D 220KV CB NO. 11,12,13,15 & 17 W/ABB TYPE	1-4-02	SS/AL		[illegible]	DZ	ORSA	6569
2	ADDED COND. FOR MOD POS. 1, CB & DISC. SW. POS. 2	11-4-01	RGH AL		[illegible]	DZ	ORSA	6516
1	REPL'D 220KV CB NO. 15 W/ABB. ADDED BUS SUPPORTS	9/25/00	RGH AL		[illegible]	MS	[illegible]	6078
0	ADDED CAP. BANK 3A & 3B	[illegible]	RGH	[illegible]	[illegible]		B&V	5524

Scale 1" = 10'

Location SAN BERNARDINO SUBSTATION

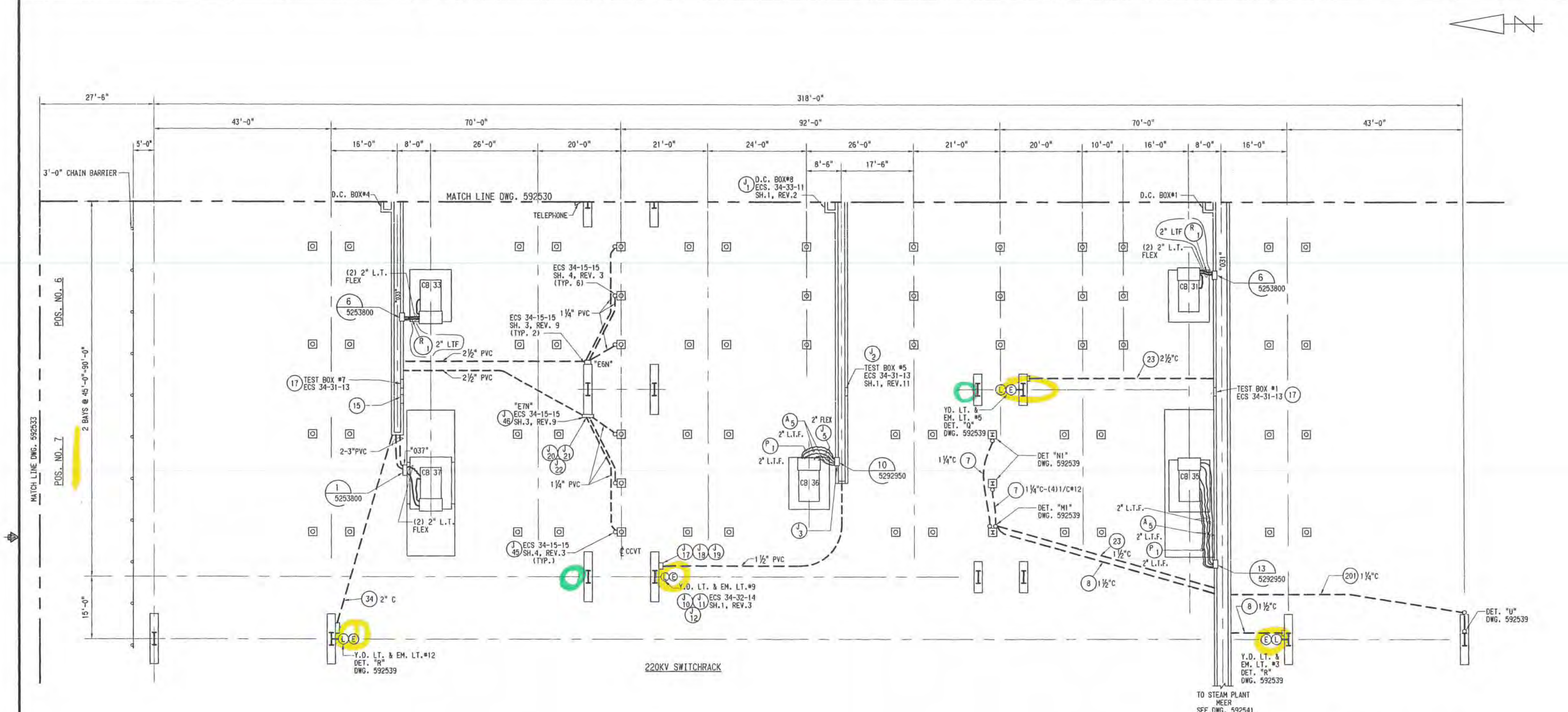
ABOVE GROUND CONDUIT PLAN
SHEET No 1

Southern California Edison Company SCE

REVISE ELECTRONICALLY ONLY

5267200-7

LOPEZ & ASSOCIATES ENGINEERS
700 Glendora Ave., La Puente, CA 91744



NOTE:

1. FOR GENERAL NOTES SEE DWG. 592528

LEGEND

🟨 REPLACE

🟩 NEW INSTALL

900520590	M-61325	ES04	R
SAP W.O.	B/M NO.	JOB SECTION *	PREFIX
BILL OF MATERIAL REFERENCES			

9549	M-56997	ES03	P
8845	M-55628	ES03	A
9090	M-55596	ES03	N
6753	M-51360	ES07	J
6569	M-49970	ES04	H
6662	M-51168	ES05	G
6516	M-49834	ES05	F
5524	M-48250	ES05	D
3247	M-30349	3	C
0648	M-26224	3	B
7106	M-22874	9,10	—
SAP W.O.	B/M NO.	JOB SECTION *	PREFIX
BILL OF MATERIAL REFERENCES			

* REVISE ON AUTOCAD SYSTEM ONLY *

5267201	ABOVE GRD. GRDG. PLAN SH. 3
5253800	ABOVE GRD. CONDUIT DETAILS
592541	CONDUIT DETAILS SH. 4
REFERENCE DRAWINGS	

592539	CONDUIT DETAILS SH. 2
592533	CONDUIT PLAN SH. 5
592531	BELOW GRD. COND. PLAN SH. 3
592530	ABOVE GRD. COND. PLAN SH. 2
592528	CONDUIT PLAN GENERAL
592505	220KV SWRK. PLAN POS. NO. 6 & 7
REFERENCE DRAWINGS	

NO.	REVISIONS	DATE	SAP WO	SUPV	APPROVED	ENGR	CK'D	MADE	P.E.
8	ADDED CND TO CB NO. 31 & 33	9/26/12	900520590	CEN		EDM	RGH	MESA	EDM
7	ADDED 2" LTF TO CB'S 35 & 36	08-08-08	9549	JMC/JPM		HK	DZ	ORSA	JPM
6	ADDED LTF CONDUITS TO CB'S 35 & 36	1-2-07	IZS		MAP		MS	EVER	8845

NO.	REVISIONS	DATE	SAP WO	SUPV	APPROVED	ENGR	CK'D	MADE	P.E.
5	REPL'D (3) 220KV POT. DEV. @ POS. 7S	10-31-06	IZS	JMC/IZS	IZS	VRF	RCP	LA	9090
4	ADDED 220KV C.B. NO.36, EXTENDED CABLE TRENCH	10-4-02	IZS	AL/IZS	IZS	HRB	ERF	OEC	6753
3	REPLACED 220KV CB #35	2-4-02	IZS/JPM	AL/JPM		JPM	DZ	ORSA	6569
2	ADDED COND. FOR MOD, POS. 7 & EQUIPPED POS. 6	12-4-01	RGH	ALH		JPM	DZ	ORSA	6662/6516
1	REPLACED OCB 472 W/NEW CB	10-22-99	CGM	PR	RGH/NAP			B&V	5524
0	ORIGINAL CONSTRUCTION	10-03-67		FRQ/P	JEC/P		PW	S.P.	7106

LOCATION: SAN BERNARDINO SUBSTATION

ABOVE GROUND
CONDUIT PLAN
SHEET 3

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

SHEET NO. E

SCALE: 1"=10'-0"

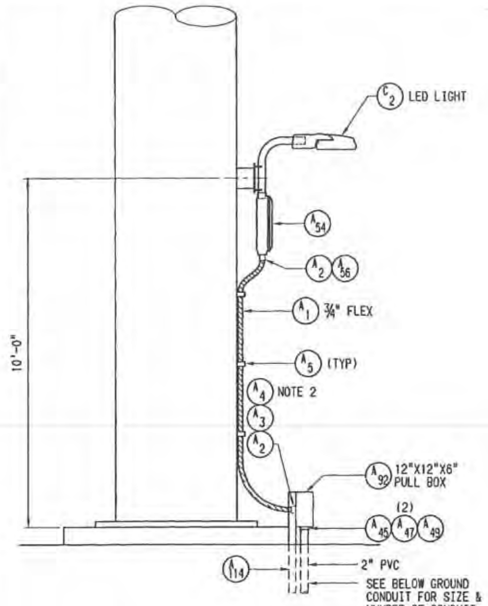
___ OF ___ SHTS.

08-01-12 GHP/MESA

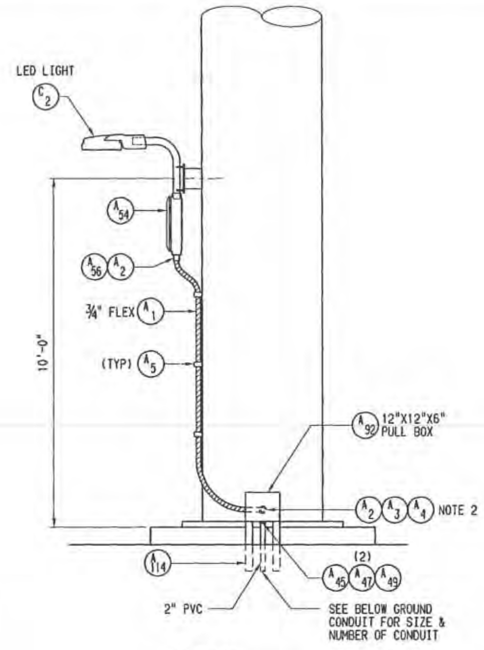
E4-652-CADD 03-85

5267199-8

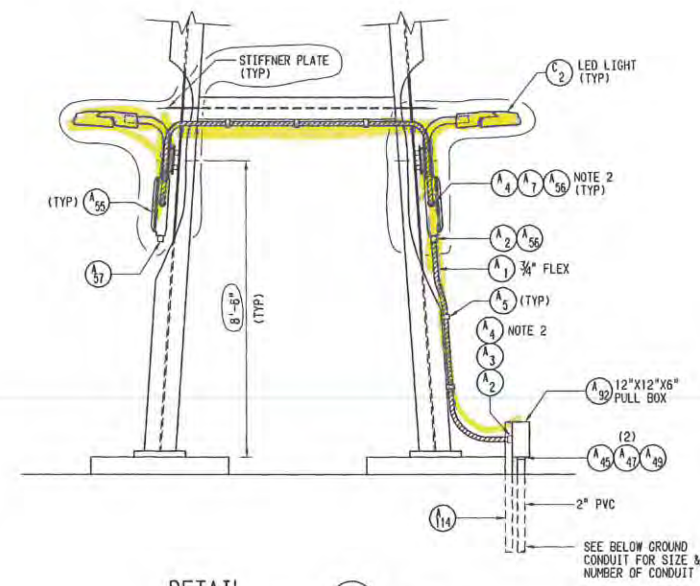
P:\2011_PROJECTS\Colorado River_800403645_800404139\00 AG CND\5450089.dwg, 2/19/2013 9:28:46 AM, JessicaR, NTWOS



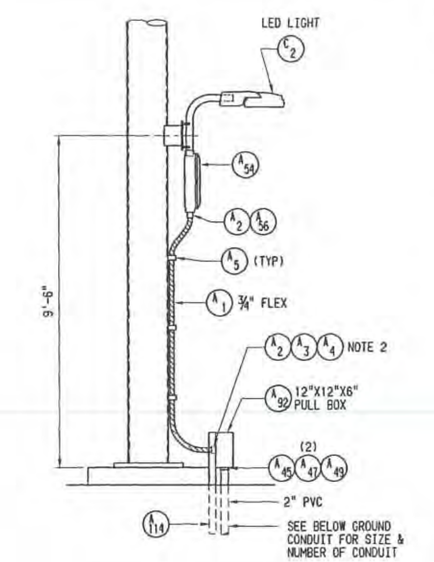
DETAIL 52
5450030,5450031
NTS
220KV SPARE CONDUCTOR
FOR A LIST OF LIGHTS
SEE DWG. 5449775



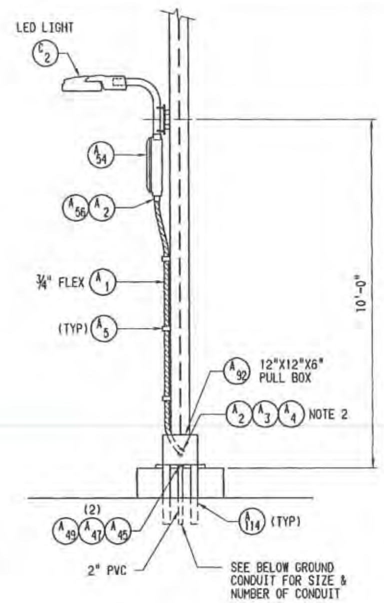
DETAIL 53
5450032
NTS
220KV SPARE CONDUCTOR
FOR A LIST OF LIGHTS
SEE DWG. 5449775



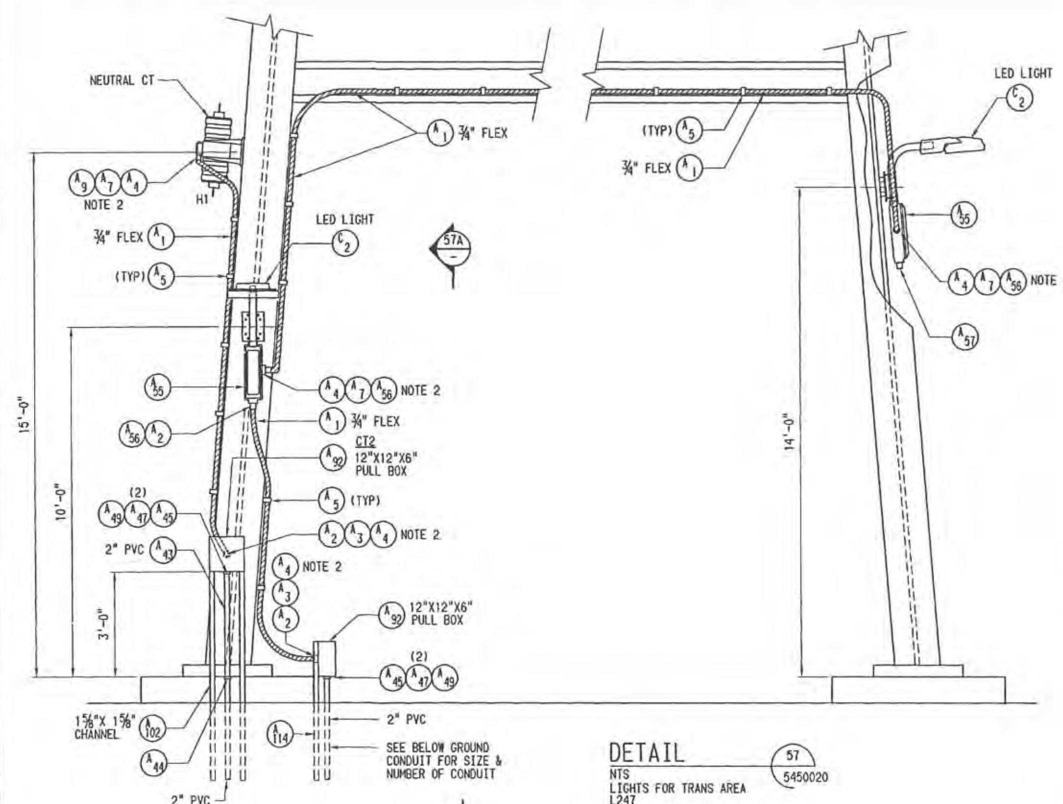
DETAIL 54
5450039,5450040,
5450042,5450049,
5450050,5450052
NTS
220KV BUS DE
FOR A LIST OF LIGHTS
SEE DWG. 5449775



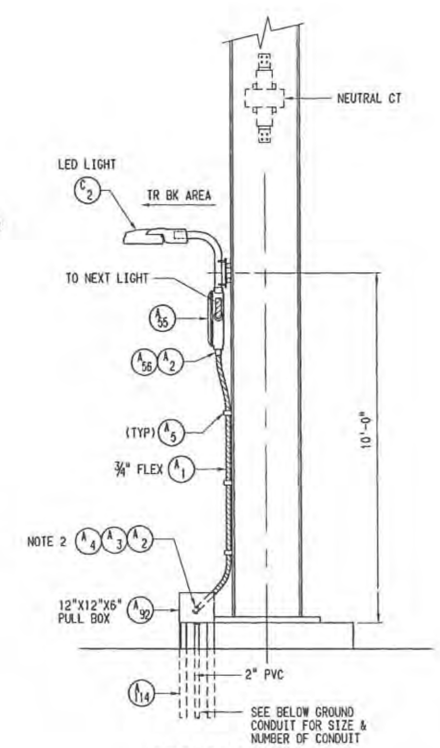
DETAIL 55
5450040,5450042,
5450050,5450052
NTS
COLUMN MOUNTED LIGHTS
(AS SHOWN OR OPPOSITE HAND)
FOR A LIST OF LIGHTS
SEE DWG. 5449775



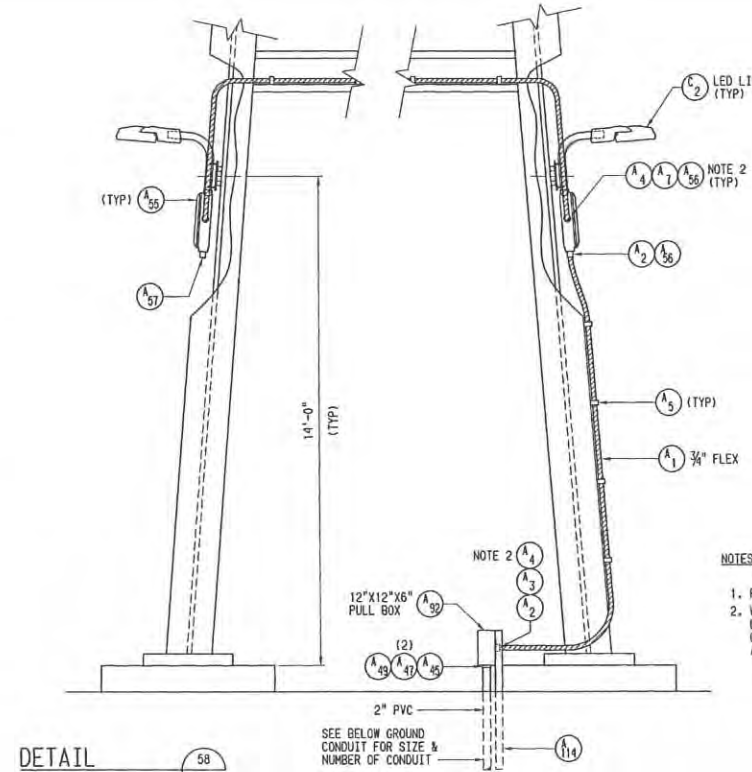
DETAIL 56
5450020,5440030
NTS
TERTIARY AND
GROUND BANK
FOR A LIST OF LIGHTS
SEE DWG. 5449775



DETAIL 57
5450020
NTS
LIGHTS FOR TRANS AREA
L247
CT2 2AA BK NEUT CT
(SEE BG PLAN FOR
DESTINATION AND NUMBER OF CONDUITS)



SECTION 57A
NTS
L247



DETAIL 58
5450020,5450021
NTS
LIGHTS FOR TRANS AREA
FOR A LIST OF LIGHTS
SEE DWG. 5449775

NOTES:

1. FOR GENERAL NOTES & SYMBOLS REFER TO DWG. 5449777.
2. WEATHER SEALS SHALL BE INSTALLED AT ALL LIQUID TIGHT FLEX CONNECTIONS, REGARDLESS OF FITTING CONNECTING POINT (SIDES, BACK AND/OR TOP OF CABINETS AND BOXES).

800404139	M-59462	ES21	C
800404139	M-59462	ES10	A
SAP W.O.	B/M NO.	JOB SECTION *	PREFIX

BILL OF MATERIAL REFERENCES

* REVISE ON AUTOCAD SYSTEM ONLY *

5449777	CONDUIT GENERAL NOTES & SYMBOLS
5449776	CONDUIT PLAN GENERAL
726631	PLOT PLAN

REFERENCE DRAWINGS

NO.	REVISIONS	DATE	SAP WO	SUPV	APPROVED	ENGR	CK'D	MADE	P.E.
1	REVISED LT HEIGHT TO AVOID STIFFNER PLATE DETAIL 54	2/26/13	800404139	SYC	IZS	SYC	MG	N2S PEI	SL
0	ISSUED FOR CONSTRUCTION	07-13-12	800404139	IZS	IZS	SYC	MG	N2S PEI	SL

LOCATION: COLORADO RIVER SUBSTATION

ABOVE GROUND
CONDUIT DETAILS
SHEET 16

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

SHEET NO. E

SCALE: NONE

16 OF 22 SHTS.

02-18-2013 N2S/PEI

5450089-1

E4-652-CADD 03-85

McGRAW-EDISON®

DESCRIPTION

The Ventus™ LED area luminaire provides uncompromising optical performance and outstanding versatility for a wide variety of area and roadway applications. Patent pending modular LightBAR™ technology delivers uniform and energy conscious illumination to walkways, parking lots, roadways, building areas, and any security lighting application. UL/cUL Listed for wet locations.

		Type
Catalog #		
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction
Die-cast aluminum frame secures thermally conductive, extruded aluminum heat sink to independent electrical chamber. Heavy-wall, die-cast aluminum housing and door isolates driver components for cooler operation. The unique construction allows for passive cooling and natural cleaning of the extruded heat sink ensuring reliable operation at 40°C high ambient conditions. Stainless steel fasteners and hinging allow access to electrical components for installation and maintenance. Optional tool-less hardware available for ease of entry into electrical chamber.

Optics
Choice of thirteen (13) patented, high-efficiency AccuLED Optics™ manufactured from injection-molded acrylic. Optics are precisely designed to shape the distribution maximizing efficiency and application spacing. AccuLED Optics create consistent distributions with the scalability to meet customized application requirements. Offered standard in 4000K (+/- 275K) CCT and nominal 70 CRI.

Electrical
LED drivers mount to die-cast aluminum back casting for optimal heat sinking and operation efficiency. 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation. Shipped standard with Cooper Lighting proprietary circuit module designed to withstand 10kV of transient line surge. 50,000 + hour life with >70% lumen maintenance. The Ventus LED luminaire is suitable for operation in -30°C to 40°C ambient environments. LightBARs feature an IP66 enclosure rating.

Mounting
Cast aluminum 6" arm includes bolt guides allowing for easy positioning of fixture during installation to pole or wall surface. Standard single carton packaging of housing, square pole arm and round pole adapter for contractor friendly arrival of product on site. Optional internal mast arm mount accepts a 1-1/4" to 2" O.D. horizontal tenon, while a 2-bolt clamping mechanism secures fixture. Cast-in leveling guides provide +/-5° vertical leveling adjustment. Tenon adapters available to slipfit over poles equipped with 2-3/8" or 3-1/2" O.D. tenon. 3G vibration rated.

Finish
Cast components and arm finished in SuperTGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum, and graphite metallic. RAL and custom color matches available. Consult the McGraw-Edison Architectural Colors brochure for the complete selection.

Warranty
Ventus features a five-year limited warranty.

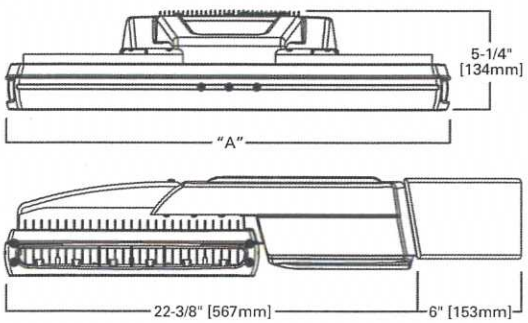
VTS
VENTUS LED

2 - 12 LightBARs
Solid State LED

AREA LUMINAIRE

SustainabLEDesign

DIMENSIONS

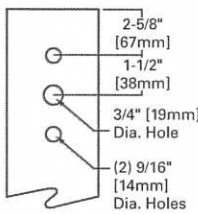


TABULATED REFERENCE DATA

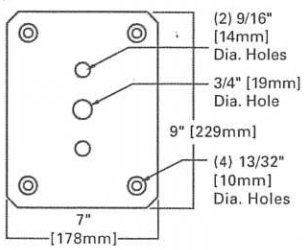
# of Bars	"A" Width [in/mm]	Weight [lbs.] w/o Arm	w/Arm	EPA [sq. ft.] w/o Arm	w/Arm
2-4	12-7/8 [328]	24 [10.91 kgs.]	29 [13.18 kgs.]	0.94	1.00
5-8	18 [458]	30 [13.64 kgs.]	35 [15.91 kgs.]	1.10	1.20
9-12	25-7/8 [658]	39 [17.73 kgs.]	44 [20.00 kgs.]	1.31	1.44

DRILLING PATTERNS

Type "C"



Wall Mount [WM]



CERTIFICATION DATA
UL/cUL Listed
LM79 / LM80 Compliant
IP66 LightBARs
3G Vibration Rated
ARRA Compliant
ISO 9001

ENERGY DATA
Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120-277V/50 & 60hz, 347V/60hz, 480V/60hz
-30°C Minimum Temperature
40°C Ambient Temperature Rating

SHIPPING DATA
Approximate Net Weight:
(See Tabulated Reference Data)

COOPER Lighting
www.cooperlighting.com

ADH091647 pc
2012-01-26 09:42:51

FIXTURE ROADWAY P/N VTS - B04 - LED - E1 - T4 - AP

FIXTURE SWITCHPACK P/N VTS - B08 - LED - E1 - T4 - AP

ORDERING INFORMATION

Sample Number: VTS-B12-LED-E1-T3-GM

Product Family [1]
VTS=Ventus

Number of LightBARs [2, 3]
B02: [2] 21 LED LightBARs
B03: [3] 21 LED LightBARs
B04: [4] 21 LED LightBARs
B05: [5] 21 LED LightBARs
B06: [6] 21 LED LightBARs
B07: [7] 21 LED LightBARs
B08: [8] 21 LED LightBARs
B09: [9] 21 LED LightBARs
B10: [10] LED LightBARs
B11: [11] 21 LED LightBARs
B12: [12] 21 LED LightBARs
C02: [2] 7 LED LightBARs
C03: [3] 7 LED LightBARs
C04: [4] 7 LED LightBARs
C05: [5] LED LightBARs
C06=[6] 7 LED LightBARS
C07=[7] LED LightBARs
C08=[8] 7 LED LightBARs
C09=[9] 7 LED LightBARs
C10=[10] 7 LED LightBARs
C11=[11] 7 LED LightBARs
C12=[12] 7 LED LightBARs

Lamp Type
LED=Solid State Light Emitting Diodes

Voltage
E1: Electronic (120-277V)
347: 347V[4]
480: 480V[4]

Distribution
T2=Type II
T3=Type III
T3S=Type III Short
T4: Type IV
5MQ: Type V Square Medium
5WQ: Type V Square Wide
5XQ: Type V Square Extra Wide
SL2: Type II w/Spill Control
SL3: Type III w/Spill Control
SL4: Type IV w/Spill Control
RW: Rectangular Wide
SLL: 90 Degree Spill Light Eliminator Left
SLR: 90 Degree Spill Light Eliminator Right

Finish
AP=Grey
BZ=Bronze
BK=Black
DP: Dark Platinum
GM: Graphite Metallic
WH: White

Options [5]
P: Button Type Photocontrol [4, 6] (120V, 208, 240, or 277V)
R: NEMA Photocontrol Receptacle
HA: 50 Degrees C High Ambient Temperature Rating [7]
2L: Two Circuits [8, 9]
L90: Optics Rotated 90 Degrees Left
R90: Optics Rotated 90 Degrees Right
7060=70 CRI/6000K CCT [10]
8030=80 CRI/3000K CCT [10]
LCF=LightBAR Cover Plate Matches Housing Finish
TH=Toolless Door Hardware
WM=Wall Mount with Arm
IM=Internal Mast Arm
MS-LXX=Motion sensor for [11] on/off operation
MX/X-LXX=Motion sensor [12] for bi-level operation

Accessories [13]
VA1033-XX=Single Tenon Adapter for 2-3/8" O.D. Tenon
VA1034-XX=2 @180 Degrees Tenon Adapter for 2-3/8" O.D. Tenon
VA1035-XX: 3 @ 120 Degree Tenon Adapter for 2-3/8" O.D. Tenon
VA1036-XX: 4 @ 90 Degree Tenon Adapter for 2-3/8" O.D. Tenon
VA1037-XX: 2 @ 90 Degree Tenon Adapter for 2-3/8" Tenon
VA1038-XX: 3 @ 90 Degree Tenon Adapter for 2-3/8" Tenon
VA1039-XX: 2 @ 120 Degree Tenon Adapter for 2-3/8" O.D. Tenon
VA1040-XX: Single Tenon Adapter for 3-1/2" O.D. Tenon
VA1041-XX: 2 @ 180 Degree Tenon Adapter for 3-1/2" O.D. Tenon
VA1042-XX: 3 @ 120 Degree Tenon Adapter for 3-1/2" O.D. Tenon
VA1043-XX: 4 @ 90 Degree Tenon Adapter for 3-1/2" O.D. Tenon
VA1044-XX: 2 @ 90 Degree Tenon Adapter for 3-1/2" O.D. Tenon
VA1045-XX=3 @ 90 Degree Tenon Adapter for 3-1/2" O.D. Tenon
VA1046-XX=4 @ 90 Degree Tenon Adapter for 3-1/2" O.D. Tenon
OA/RA1016=NEMA Twistlock Photocontrol - Multi-Tap
OA/RA1027=NEMA Twistlock Photocontrol - 480V
OA/RA1201=NEMA Twistlock Photocontrol - 347V
MA1253=10kV Circuit Module Replacement

Notes:
1. 6" arm and round pole adapter included with fixture.
2. 21 LED LightBAR powered at 350mA, 7 LED LightBAR powered at 1A.
3. Standard 4000K CCT and greater than 70CRI.
4. Not available with HA option.
5. Add as suffix.
6. Must specify voltage.
7. Not available with button photocontrol or motion sensor.120 - 277V only.
8. Requires two electrical circuits to luminaire. See LightBAR operation table for additional information.
9. Consult factory before ordering in combination with MS-LXX or MS/X-LXX options.
10. Consult Factory for lead times and lumen multiplier.
11. Sensor housed in external box mounted to the luminaire. Available in B02 - B12 and C02 - C12 configurations. Replace XX with mounting height in feet for proper lens selection, (i.e., MS-L25). Consult factory for additional information.
12. Sensor housed in external box mounted to the luminaire. Available in B02 - B12 and C02 - C12 configurations. Replace X with number of bars operating in low output mode and replace XX with mounting height for proper lens selection, (i.e., MS/3-L25). Maximum 4 bars in low output mode. Consult factory for additional information.
13. Order separately, replace XX with color suffix.

LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
10°C	1.04
15°C	1.03
25°C	1.00
40°C	0.96
50°C	0.92

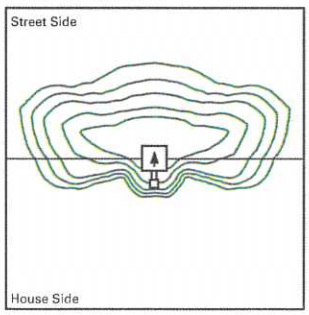
POWER AND LUMENS BY BAR COUNT

Number of LightBARs	Power [Watts]	Current @ 120V [A]	Current @ 277V [A]	DISTRIBUTION											
				T2A	T3A	T3S	T4S	SL2	SL3	SL4	5MQ	5WQ	5XQ	RWQ	SLR/ SLL
	7 LED LIGHTBAR														
C02	54	0.46	0.21	3,668	3,654	3,503	3,594	3,550	3,610	3,855	3,832	3,738	3,663	3,433	3,433
C03	77	0.65	0.29	5,554	5,533	5,305	5,442	5,375	5,465	5,837	5,802	5,660	5,546	5,198	5,198
C04	101	0.86	0.37	7,557	7,528	7,217	7,404	7,313	7,435	7,941	7,894	7,701	7,545	7,072	7,072
C05	131	1.11	0.50	9,228	9,193	8,813	9,041	8,930	9,080	9,697	9,640	9,404	9,214	8,636	8,636
C06	154	1.30	0.58	11,209	11,167	10,705	10,982	10,847	11,030	11,779	11,710	11,423	11,192	10,490	10,490
C07	178	1.51	0.66	12,969	12,919	12,385	12,706	12,550	12,761	13,628	13,548	13,216	12,949	12,137	12,137
C08	202	1.72	0.74	14,481	14,426	13,830	14,187	14,013	14,249	15,217	15,127	14,757	14,459	13,552	13,552
C09	232	1.97	0.87	16,800	16,737	16,045	16,460	16,258	16,531	17,654	17,550	17,121	16,775	15,723	15,723
C010	255	2.16	0.95	18,738	18,667	17,895	18,358	18,133	18,437	19,690	19,574	19,095	18,709	17,536	17,536
C011	279	2.37	1.03	20,506	20,429	19,584	20,091	19,844	20,178	21,549	21,422	20,898	20,475	19,191	19,191
C012	303	2.58	1.11	22,109	22,025	21,114	21,661	21,395	21,754	23,232	23,096	22,530	22,075	20,690	20,690
	21 LED LIGHTBAR														
B02	51	0.43	0.20	4,512	4,495	4,309	4,421	4,366	4,440	4,741	4,714	4,598	4,505	4,223	4,223
B03	73	0.62	0.28	6,832	6,806	6,525	6,693	6,611	6,722	7,179	7,137	6,962	6,822	6,394	6,394
B04	95	0.81	0.35	9,295	9,259	8,877	9,106	8,995	9,146	9,767	9,710	9,472	9,281	8,698	8,698
B05	124	1.05	0.48	11,350	11,307	10,840	11,120	10,984	11,168	11,927	11,857	11,567	11,333	10,622	10,622
B06	146	1.24	0.56	13,787	13,735	13,167	13,508	13,342	13,566	14,488	14,403	14,050	13,767	12,903	12,903
B07	168	1.43	0.63	15,951	15,891	15,234	15,628	15,436	15,696	16,762	16,664	16,256	15,927	14,928	14,928
B08	190	1.62	0.70	17,811	17,744	17,010	17,450	17,236	17,526	18,717	18,607	18,151	17,784	16,669	16,669
B09	219	1.86	0.83	20,664	20,586	19,735	20,246	19,997	20,333	21,715	21,587	21,059	20,633	19,339	19,339
B010	241	2.05	0.91	23,047	22,960	22,011	22,580	22,303	22,678	24,219	24,076	23,487	23,012	21,569	21,569
B011	263	2.24	0.98	25,223	25,127	24,089	24,712	24,408	24,818	26,505	26,349	25,704	25,185	23,605	23,605
B012	285	2.43	1.05	27,194	27,091	25,971	26,643	26,315	26,758	28,576	28,408	27,712	27,152	25,449	25,449

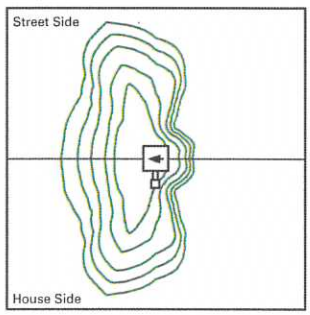
LIGHTBAR OPERATION WITH 2L TWO CIRCUIT OPTION

# of LightBARs	Circuit 1	Circuit 2
2	1	1
3	2	1
4	2	2
5	3	2
6	3	3
7	4	3
8	4	4
9	5	4
10	6	4
11	7	4
12	8	4

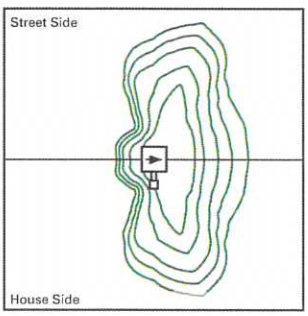
OPTIC ORIENTATION



Standard



Optics Rotated Left @ 90° [L90]



Optics Rotated Right @ 90° [R90]