Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	101	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

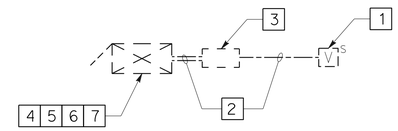
REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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

RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-241 FOR DETAILS.



TYPICAL DETAIL

LEGEND (THIS SHEET ONLY):

1. SPLICE NEW TYPE D TO TYPE C CABLE IN EXISTING SPLICE VAULT. SEE SHEET E-92 FOR SPLICING DETAILS.
2. INSTALL TYPE D CABLE IN EXISTING CONDUIT.
3. PULL TYPE D CABLE THROUGH EXISTING PULL BOX.
4. INSTALL NEW FDU IN EXISTING MODEL 334 CABINET.
5. TERMINATE NEW TYPE D CABLE IN NEW FDU.
6. INSTALL NEW ETHERNET ACCESS SWITCH.
7. INSTALL NEW 170 CONTROLLER ETHERNET MODULE.

LOCATIONS OF WORK

Loc No.	RMS/TMS I.D.	PM	ROUTE 5 RMS/TMS LOCATION	Exist CONTROLLER TYPE	ADDITIONAL COMMENTS
72	3559	24.05	NB, SAND CANYON Ave	170	
73	3665	24.05	SB, SAND CANYON Ave	170	
74	2620	24.80	NB, N/O SAND CANYON Ave	170	
75	3664	24.84	SB, JEFFREY Rd	170	
76	3560	25.15	NB, JEFFREY Rd, ON, 1	170	
77	4825	25.15	NB, JEFFREY Rd, ON, 2	170	
78	2591	25.80	SB, YALE Ave	170	
79	4510	26.81	NB, CULVER Dr, ON, 1	170	
80	3561	26.81	NB, CULVER Dr, ON, 2	170	
81	3663	26.81	SB, CULVER Dr, ON, 1	170	
82	4511	26.81	SB, CULVER Dr, ON, 2	170	
83	4800	27.55	NB, JAMBOREE Rd, ON, 1	170	
84	3562	27.55	NB, JAMBOREE Rd, ON, 2	170	
85	3662	27.55	SB, JAMBOREE Rd, ON, 1	170	
86	4801	27.55	SB, JAMBOREE Rd, ON, 2	170	
87	4817	28.10	NB, TUSTIN RANCH Rd	170	
88	4822	28.10	SB, TUSTIN RANCH Rd	170	

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-76

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	102	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

PLANS APPROVAL DATE 06-08-15

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-59 FOR CCTV LOCATION LAYOUT.
3. SEE SHEET E-236 FOR DETAILS.

LEGEND (THIS SHEET ONLY):

1 REMOVE FODM, REMOVE CCR, INSTALL NEW ETHERNET ACCESS SWITCH, AND INSTALL NEW VIDEO ENCODER.

2 REMOVE EXISTING ETHERNET SWITCH, REMOVE EXISTING VIDEO ENCODER, INSTALL NEW ETHERNET ACCESS SWITCH, AND INSTALL NEW VIDEO ENCODER.

LOCATIONS OF WORK

Loc No.	CCTV I.D.	PM	ROUTE 22 CCTV LOCATION	CCR	FODM	ADDITIONAL COMMENTS
1	009	0.30	EB, CONSTRUCTION AT 605	N/A	N/A	Exist IP CONVERSION 2
2	163	0.75	EB, E/O VALLEY VIEW St	N/A	N/A	Exist IP CONVERSION 2
3	164	0.80	EB, W/O SPRINGDALE St	Exist	Exist	1
4	162	2.40	EB, KNOTT St, ON	Exist	Exist	1
5	161	2.40	WB, KNOTT St, ON	Exist	Exist	1
6	160	3.70	WB, E/O BEACH Blvd	Exist	Exist	1
7	158	4.80	EB, W/O MAGNOLIA St	Exist	Exist	1
8	159	4.98	WB, E/O MAGNOLIA St	Exist	Exist	1
9	030	5.50	WB, E/O BROOKHURST St	Exist	Exist	1
10	031	6.80	WB, E/O EUCLID St	Exist	Exist	1
11	032	7.00	WB, W/O HARBOR Blvd	Exist	Exist	1
12	008	8.60	EB, W/O FAIRVIEW St	Exist	Exist	1
13	033	9.60	WB, W/O CITY Dr	Exist	Exist	1
14	157	10.30	WB, E/O Rte 5	Exist	Exist	1
15	156	11.20	WB, E/O MAIN St	Exist	Exist	1
16	155	11.60	EB, E/O GRAND Ave	Exist	Exist	1
17	154	12.30	WB, E/O CAMBRIDGE St	Exist	Exist	1

MODIFY COMMUNICATION SYSTEMS

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF

CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ

CHECKED BY: JOSHUA MCNEILL

REVISED BY / DATE REVISED

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	103	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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

RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-60 FOR CMS LOCATION LAYOUT.
3. SEE SHEET E-237 FOR DETAILS.

LEGEND (THIS SHEET ONLY):

[1] REMOVE FODM, INSTALL NEW ETHERNET ACCESS SWITCH, AND INSTALL NEW TERMINAL SERVER.

LOCATIONS OF WORK

Loc No.	CMS I.D.	PM	ROUTE 22 CMS LOCATION	Exist CONTROLLER TYPE	FODM	ADDITIONAL COMMENTS
18	25	1.72	EB, W/O SPRINGDALE St	170	Exist	[1]
19	84	4.60	WB, E/O MAGNOLIA St	170	Exist	[1]
20	98	8.40	EB, E/O HARBOR Blvd	170	Exist	[1]
21	16	9.00	EB, W/O CAMBRIDGE St	170	Exist	[1]
22	77	12.40	WB, E/O CAMBRIDGE St	170	Exist	[1]

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-78

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	104	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-2 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-61 FOR RMS/TMS LOCATION LAYOUT.
3. SEE SHEET E-238 FOR DETAILS.

LOCATIONS OF WORK

Loc No.	RMS/TMS I.D.	PM	ROUTE 22 RMS/TMS LOCATION	Exist CONTROLLER TYPE	FODM	ADDITIONAL COMMENTS
23	4504	0.20	WB, VALLEY VIEW St, ON	170	Exist	1
24	3882	0.22	EB, Rte 405 N/B, ON	170	Exist	1
25	913	0.25	WB, E/O VALLEY VIEW St	170	Exist	1
26	5042	1.41	EB, E/O VALLEY VIEW St	170	Exist	1
27	5041	1.74	EB, W/O SPRINGDALE St	170	Exist	1
28	2220	1.75	EB, E/O VALLEY VIEW St	170	Exist	1
29	5040	2.07	EB, E/O YUMA Pl	170	Exist	1
30	3912	2.49	WB, KNOTT St, ON	170	Exist	1
31	5039	2.71	WB, E/O KNOTT St	170	Exist	1
32	3883	2.88	EB, GOLDENWEST St, ON	170	Exist	1
33	3884	3.44	EB, BEACH Blvd, ON, 1	170	Exist	1
34	3911	3.45	WB, BEACH Blvd, ON, 1	170	Exist	1
35	3885	3.73	EB, BEACH Blvd, ON, 2	170	Exist	1
36	3910	3.73	WB, BEACH Bvld, ON, 2	170	Exist	1
37	5038	4.03	EB, W/O NEWLAND St	170	Exist	1
38	5037	4.34	WB, W/O MAGNOLIA St	170	Exist	1
39	3909	4.60	WB, MAGNOLIA St, ON	170	Exist	1
40	3886	4.99	EB, MAGNOLIA ST, ON	170	Exist	1
41	3908	5.57	WB, BROOKHURST St, ON	170	Exist	1
42	3887	5.77	EB, BROOKHURST St, ON	170	Exist	1
43	5036	6.05	WB, E/O BROOKHURST St	170	Exist	1
44	5035	6.34	WB, WARD St	170	Exist	1
45	5034	6.61	EB, E/O WARD St	170	Exist	1
46	3907	6.94	WB, EUCLID St, ON	170	Exist	1
47	3888	6.95	EB, EUCLID St, ON	170	Exist	1
48	2223	7.29	WB, E/O NEWHOPE St	170	Exist	1
49	5051	7.30	WB, E/O NEWHOPE St CENSUS	170	Exist	1
50	3906	7.72	WB, HARBOR Blvd, ON, 1	170	Exist	1
51	3905	7.93	WB, HARBOR Blvd, ON, 2	170	Exist	1
52	3889	8.02	EB, HARBOR Blvd, ON	170	Exist	1
53	5033	8.30	EB, E/O HARBOR Blvd	170	Exist	1
54	3904	8.68	WB, HASTER St, ON	170	Exist	1
55	3890	9.04	EB, FAIRVIEW St, ON	170	Exist	1
56	5030	9.44	EB, W/O THE CITY Dr	170	Exist	1
57	3903	9.69	WB, THE CITY Dr, ON	170	Exist	1
58	3891	9.70	EB, THE CITY Dr, ON	170	Exist	1
59	2341	9.90	WB, E/O THE CITY Dr	170	Exist	1
60	3892	10.13	EB, BRISTOL St, ON	170	Exist	1
61	3901	10.14	WB, BRISTOL St, ON	170	Exist	1
62	2338	10.53	WB, E/O Rte 5	170	Exist	1
63	2340	10.71	EB, E/O Rte 5	170	Exist	1
64	3899	11.23	WB, MAIN St, ON	170	Exist	1
65	3894	11.25	EB, MAIN St, ON	170	Exist	1
66	3898	11.69	WB, GLASSELL St, ON	170	Exist	1
67	3895	12.01	EB, GLASSELL St, ON	170	Exist	1
68	5032	12.25	EB, W/O CAMBRIDGE St	170	Exist	1
69	5031	12.70	EB, W/O TUSTIN St	170	Exist	1
70	3897	12.70	WB, TUSTIN St, ON	170	Exist	1

LEGEND (THIS SHEET ONLY):

1 REMOVE FODM, INSTALL NEW ETHERNET ACCESS SWITCH, AND INSTALL NEW 170 CONTROLLER ETHERNET MODULE.

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-79

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

LAST REVISION 06-08-15
DATE PLOTTED => 29-SEP-2015
TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	105	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

PLANS APPROVAL DATE 06-08-15

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-62 FOR TRAFFIC SIGNAL LOCATION LAYOUT.
3. SEE SHEET E-238 FOR DETAILS.

LOCATIONS OF WORK

Loc No.	PM	ROUTE 22 TS LOCATION	Exist CONTROLLER TYPE	FODM	ADDITIONAL COMMENTS
71	0.92	EB, GARDEN GROVE Blvd/VALLEY VIEW St	170/2070	N/A	Exist IP CONVERSION [3]
72	0.93	WB, VALLEY VIEW St, OFF	2070	Exist	[1]
73	0.90	WB, VALLEY VIEW St/TIFFANY Ave	170	Exist	[1] [2]
74	1.12	EB, GARDEN GROVE Blvd, ON	2070	N/A	Exist IP CONVERSION [3]
75	2.44	EB, KNOTT St, OFF	2070	Exist	[1]
76	2.46	WB, KNOTT St, ON	2070	Exist	[1]
77	2.65	EB, KNOTT St, ON	2070	Exist	[1]
78	2.81	WB, KNOTT St, OFF	2070	Exist	[1]
79	4.83	EB, MAGNOLIA St, ON	2070	Exist	[1]
80	5.11	WB, MAGNOLIA St, OFF	2070	Exist	[1]
81	5.74	WB, BROOKHURST St, OFF	2070	Exist	[1]
82	5.82	EB, BROOKHURST St, ON	2070	Exist	[1]
83	6.83	EB, EUCLID St, OFF	2070	Exist	[1]
84	6.98	WB, EUCLID St, OFF	2070	Exist	[1]
85	7.80	WB, HARBOR Blvd, OFF	2070	Exist	[1]
86	7.85	EB, HARBOR Blvd, ON	2070	Exist	[1]
87	8.62	EB, FAIRVIEW St, OFF	2070	Exist	[1]
88	8.63	WB, HASTER St, ON	2070	Exist	[1]
89	9.07	WB, HASTER St, OFF	2070	Exist	[1]
90	9.08	EB, FAIRVIEW St, ON	2070	Exist	[1]
91	9.42	WB, METROPOLITAN Dr, OFF	2070	Exist	[1]
92	9.67	EB, THE CITY Dr, OFF	2070	Exist	[1]
93	10.02	EB, BRISTOL St, OFF	2070	Exist	[1]
94	10.25	WB, BRISTOL St/LA VETA Ave, ON	2070	N/A	NO FIBER AT THIS TS
95	11.28	EB, TOWN AND COUNTRY Rd, ON	2070	Exist	[1]
96	11.83	EB, GLASSELL St/GRAND Ave, ON	2070	Exist	[1]
97	11.85	WB, GLASSELL St/GRAND Ave, OFF	2070	Exist	[1]
98	12.87	WB, TUSTIN St, ON	2070	Exist	[1]
99	12.88	EB, TUSTIN St, OFF	2070	Exist	[1]

LEGEND (THIS SHEET ONLY):

[1] REMOVE FODM AND INSTALL NEW ETHERNET ACCESS SWITCH.

[2] INSTALL NEW 170 CONTROLLER ETHERNET MODULE.

[3] REMOVE EXISTING ETHERNET SWITCH AND INSTALL NEW ETHERNET ACCESS SWITCH.

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-80

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF

CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ

CHECKED BY: JOSHUA MCNEILL

REVISED BY / DATE REVISED

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	106	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-63 FOR CCTV LOCATION LAYOUT.
3. SEE SHEET E-236 FOR DETAILS.

LEGEND (THIS SHEET ONLY):

1 REMOVE FODM, REMOVE CCR, INSTALL NEW ETHERNET ACCESS SWITCH, AND INSTALL NEW VIDEO ENCODER.

2 REMOVE EXISTING ETHERNET SWITCH, REMOVE EXISTING VIDEO ENCODER, INSTALL NEW ETHERNET ACCESS SWITCH, AND INSTALL NEW VIDEO ENCODER.

LOCATIONS OF WORK

Loc No.	CCTV I.D.	PM	ROUTE 57 CCTV LOCATION	CCR	FODM	ADDITIONAL COMMENTS
1	012	11.20	NB, CHAPMAN Ave, ON	Exist	Exist	1
2	170	11.37	NB, Rte 22, ON	Exist	Exist	1
3	174	11.80	NB, S/O ORANGEWOOD Ave	Exist	Exist	1
4	078	12.50	NB, S/O KATELLA Ave	Exist	Exist	1
5	006	13.38	NB, S/O BALL Rd	Exist	Exist	1
6	176	13.90	NB, WAGNER Ave	N/A	N/A	Exist IP CONVERSION 2
7	079	14.84	NB, N/O LINCOLN Ave	Exist	Exist	1
8	177	15.54	NB, S/O MIRA LOMA Ave	Exist	Exist	1
9	080	16.42	NB, ORANGETHORPE Ave, ON	Exist	Exist	1
10	178	17.30	SB, CHAPMAN Ave	Exist	Exist	1
11	179	17.60	NB, NUTWOOD Ave	Exist	Exist	1
12	180	18.16	NB, S/O YORBA LINDA Blvd	Exist	Exist	1
13	181	18.86	NB, BASTANCHURY Rd	Exist	Exist	1
14	182	19.34	NB, N/O ROLLING HILLS Dr	Exist	Exist	1
15	081	19.72	NB, S/O IMPERIAL Hwy	Exist	Exist	1
16	183	20.40	NB, BIRCH St, UC	Exist	Exist	1
17	082	20.91	NB, LAMBERT Rd	Exist	Exist	1
18	184	21.66	NB, S/O TONNER CANYON Rd	Exist	Exist	1
19	185	22.16	NB, N/O TONNER CANYON Rd	Exist	Exist	1

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-81

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

LAST REVISION 06-08-15
DATE PLOTTED => 29-SEP-2015
TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	107	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

PLANS APPROVAL DATE 06-08-15

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-64 FOR CMS LOCATION LAYOUT.
3. SEE SHEET E-237 FOR DETAILS.

LEGEND (THIS SHEET ONLY):

1 REMOVE FODM, INSTALL NEW ETHERNET SWITCH, AND INSTALL NEW TERMINAL SERVER.

LOCATIONS OF WORK

Loc No.	CMS I.D.	PM	ROUTE 57 CMS LOCATION	Exist CONTROLLER TYPE	FODM	ADDITIONAL COMMENTS
20	066	11.20	NB, S/O CHAPMAN Ave	170	Exist	1
21	019	11.90	SB, ORANGEWOOD Ave, OFF	170	Exist	1
22	079	13.90	NB, WAGNER Ave	170	Exist	1
23	078	13.92	SB, WAGNER Ave	170	Exist	1
24	020	16.90	SB, S/O CHAPMAN Ave	170	Exist	1
25	063	18.42	NB, S/O YORBA LINDA Blvd	170	Exist	1
26	099	18.42	SB, N/O YORBA LINDA Blvd	170	Exist	1
27	021	21.50	SB, N/O LAMBERT Rd	170	Exist	1

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-82

REVISED BY | DATE REVISED
RUBEN MANRIQUEZ | JOSHUA MCNEILL
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR | STEVE HUFF
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 TIME PLOTTED => 11:39

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12	Ora	5, 22, 57, 73, 133, *etc.*	Var	108	308

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PLANS APPROVAL DATE 06-08-15

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-65 FOR RMS/TMS LOCATION LAYOUT.
3. SEE SHEET E-238 FOR DETAILS.

LEGEND (THIS SHEET ONLY):

[1] REMOVE FODM, INSTALL NEW ETHERNET SWITCH, AND INSTALL NEW 170 CONTROLLER ETHERNET MODULE.

LOCATIONS OF WORK

Loc No.	RMS/TMS I.D.	PM	ROUTE 57 RMS/TMS LOCATION	Exist CONTROLLER TYPE	FODM	ADDITIONAL COMMENTS
28	HUB No. 1	10.70	SB, BEFORE Rte 22/Rte 5/Rte 57	170	Exist	[1]
29	2352	10.80	NB, Rte 22/Rte 5	170	Exist	[1]
30	4004	11.08	SB, CHAPMAN Ave, ON	170	Exist	[1]
31	2351	11.10	NB, CHAPMAN Ave, OFF	170	Exist	[1]
32	3955	11.20	NB, CHAPMAN Ave, ON, 1	170	Exist	[1]
33	3956	11.30	NB, CHAPMAN Ave, ON, 2	170	Exist	[1]
34	4003	11.55	SB, ORANGEWOOD St, ON	170	Exist	[1]
35	3957	11.68	NB, ORANGEWOOD St, ON, 1	170	Exist	[1]
36	3958	11.78	NB, ORANGEWOOD St, ON, 2	170	Exist	[1]
37	4002	12.40	SB, KATELLA Ave, ON	170	Exist	[1]
38	3960	12.80	NB, KATELLA Ave, ON	170	Exist	[1]
39	4000	13.27	SB, BALL Rd, ON	170	Exist	[1]
40	3961	13.30	NB, BALL Rd, ON, 1	170	Exist	[1]
41	3999	13.70	NB, BALL Rd, ON, 2	170	Exist	[1]
42	2510	14.20	NB, WAGNER Ave	170	Exist	[1]
43	0308	14.50	NB, SOUTH St	170	Exist	[1]
44	3998	14.65	SB, LINCOLN Ave, ON, 2	170	Exist	[1]
45	4554	14.83	SB, LINCOLN Ave, ON, 1	170	Exist	[1]
46	3963	15.00	NB, LINCOLN Ave, ON	170	Exist	[1]
47	2358	15.10	NB, UNDERHILL Ave	170	Exist	[1]
48	2357	15.40	NB, LA PALMA Ave	170	Exist	[1]
49	2376	15.80	EB Rte 91 TO SB Rte 57	170	Exist	[1]
50	2185	16.12	NB, LA JOLLA St	170	Exist	[1]
51	3995	16.46	NB, ORANGETHORPE Ave, ON	170	Exist	[1]
52	3994	17.18	SB, CHAPMAN Ave, ON	170	Exist	[1]
53	3993	17.41	SB, NUTWOOD Ave, ON	170	Exist	[1]
54	3968	17.70	NB, NUTWOOD Ave, ON	170	Exist	[1]
55	3970	18.10	NB, YORBA LINDA Blvd, ON	170	Exist	[1]
56	3992	18.18	SB, YORBA LINDA Blvd, ON, 2	170	Exist	[1]
57	3991	18.99	SB, YORBA LINDA Blvd, ON, 1	170	Exist	[1]
58	3990	19.73	SB, IMPERIAL Hwy, ON	170	Exist	[1]

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-83

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF

CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ

CHECKED BY: JOSHUA MCNEILL

REVISED BY | DATE REVISED

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	109	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

PLANS APPROVAL DATE 06-08-15

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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

RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-66 FOR TRAFFIC SIGNAL LOCATION LAYOUT.
3. SEE SHEET E-238 FOR DETAILS.

LEGEND (THIS SHEET ONLY):

1. REMOVE FODM AND INSTALL ETHERNET ACCESS SWITCH.
2. INSTALL NEW 170 CONTROLLER ETHERNET MODULE.
3. REMOVE ETHERNET SWITCH AND INSTALL NEW ETHERNET ACCESS SWITCH.

LOCATIONS OF WORK

Loc No.	PM	ROUTE 57 TRAFFIC SIGNAL LOCATION	Exist CONTROLLER TYPE	FODM	ADDITIONAL COMMENTS
59	10.80	SB, BRISTOL St, OFF	2070	Exist	1
60	11.24	NB, CHAPMAN Ave, OFF	170	Exist	1 2
61	11.25	SB, CHAPMAN Ave, OFF	170	None	NO WORK AT THIS LOCATION
62	11.82	NB, ORANGEWOOD Ave, OFF	2070	None	3
63	11.83	SB, ORANGEWOOD Ave, OFF	TI-70	None	NO WORK AT THIS LOCATION
64	12.54	NB, KATELLA Ave, OFF	2070	None	3
65	12.55	SB, KATELLA Ave, OFF	TI-70	None	NO WORK AT THIS LOCATION
66	13.42	SB, BALL Rd, OFF	170	None	NO WORK AT THIS LOCATION
67	13.43	NB, BALL Rd, OFF	170	Exist	1
68	14.78	NB, LINCOLN Ave, OFF	2070	Exist	1
69	14.79	SB, LINCOLN Ave, OFF	2070	None	NO WORK AT THIS LOCATION
70	16.40	NB, ORANGETHORPE Ave, OFF	2070	None	3
71	16.50	SB, ORANGETHORPE Ave, OFF	2070	None	NO WORK AT THIS LOCATION
72	17.30	SB, CHAPMAN Ave, OFF	2070	None	NO WORK AT THIS LOCATION
73	17.40	NB, CHAPMAN Ave, OFF	2070	Exist	1
74	17.60	NB, NUTWOOD Ave, OFF	170	Exist	1 2
75	17.70	SB, NUTWOOD Ave, OFF	170	None	NO WORK AT THIS LOCATION
76	18.30	NB, YORBA LINDA Blvd, OFF	2070	Exist	1
77	18.40	SB, YORBA LINDA Blvd, OFF	2070	None	NO WORK AT THIS LOCATION
78	20.73	NB, LAMBERT Rd, OFF	2070	Exist	1
79	20.74	SB, LAMBERT Rd, OFF	2070	None	NO WORK AT THIS LOCATION

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-84

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF

CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ

CHECKED BY: JOSHUA MCNEILL

REVISED BY / DATE REVISED

LAST REVISION 06-08-15

DATE PLOTTED => 29-SEP-2015
TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	110	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

PLANS APPROVAL DATE 06-08-15

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. Loc No. 1 THROUGH Loc No. 6 ARE SHOWN FOR REFERENCE ONLY.
3. SEE SHEETS E-67 & E-68 FOR CCTV LOCATION LAYOUT.
4. SEE SHEET E-236 FOR DETAILS.

LEGEND (THIS SHEET ONLY):

[1] REMOVE EXISTING ETHERNET SWITCH, REMOVE EXISTING VIDEO ENCODER, INSTALL NEW ETHERNET ACCESS SWITCH, AND INSTALL NEW VIDEO ENCODER.

LOCATIONS OF WORK

Loc No.	CCTV I.D.	PM	ROUTE 405 CCTV LOCATION	IP CONVERSION	VIDEO ENCODER	ADDITIONAL COMMENTS
1	231	0.50	NB, S/O IRVINE CENTER Dr	N/A	N/A	
2	028	4.00	NB, N/O JEFFREY Rd	N/A	N/A	
3	027	5.60	SB, S/O CULVER Dr	N/A	N/A	
4	026	6.92	SB, S/O JAMBOREE Rd	N/A	N/A	
5	025	7.80	SB, N/O MACARTHUR Blvd	N/A	N/A	
6	242	8.70	SB, S/O Rte 55	N/A	N/A	
7	141	9.44	SB, N/O BRISTOL St	Exist	Exist	[1]
8	014	9.75	NB, Rte 73	Exist	Exist	[1]
9	166	10.25	SB, S/O FAIRVIEW Rd	Exist	Exist	[1]
10	165	11.50	SB, S/O HARBOR Blvd	Exist	Exist	[1]
11	220	12.80	NB, N/O EUCLID St	Exist	Exist	[1]
12	221	13.10	NB, S/O TALBERT Ave	Exist	Exist	[1]
13	222	13.90	NB, S/O BROOKHURST St	Exist	Exist	[1]
14	223	14.50	NB, S/O BUSHARD St	Exist	Exist	[1]
15	224	14.90	NB, N/O WARNER Ave	Exist	Exist	[1]
16	225	15.80	NB, S/O NEWLAND St	Exist	Exist	[1]
17	226	16.90	NB, S/O BEACH Blvd	Exist	Exist	[1]
18	227	17.60	NB, N/O BOLSA Ave	Exist	Exist	[1]
19	228	19.20	NB, N/O WESTMINISTER Blvd	Exist	Exist	[1]
20	010	20.70	NB, N/O BOLSA CHICA Rd	Exist	Exist	[1]
21	143	21.40	NB, N/O VALLEY VIEW St	Exist	Exist	[1]
22	229	21.90	NB, S/O SEAL BEACH Blvd	Exist	Exist	[1]
23	144	22.70	NB, N/O SEAL BEACH Blvd	Exist	Exist	[1]
24	145	23.10	SB, S/O Rte 605	Exist	Exist	[1]
25	146	23.80	NB, N/O Rte 605	Exist	Exist	[1]

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-85

REVISED BY | DATE REVISED
RUBEN MANRIQUEZ | JOSHUA MCNEILL
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	111	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. Loc No. 26 IS SHOWN FOR REFERENCE ONLY.
3. SEE SHEETS E-69 & E-70 FOR CMS LOCATION LAYOUT.
4. SEE SHEET E-237 FOR DETAILS.

LEGEND (THIS SHEET ONLY):

[1] REMOVE EXISTING ETHERNET SWITCH AND INSTALL NEW ETHERNET ACCESS SWITCH.

LOCATIONS OF WORK

Loc No.	CMS I.D.	PM	ROUTE 405 CMS LOCATION	Exist CONTROLLER TYPE	IP CONVERSION	ADDITIONAL COMMENTS
26	089	7.40	SB, VON KARMAN Ave	170	N/A	
27	086	11.92	SB, NEW HAMPSHIRE Dr	170	Exist	[1]
28	071	15.10	NB, S/O MAGNOLIA St	170	Exist	[1]
29	023	18.70	SB, N/O EDWARDS St	170	Exist	[1]
30	083	21.90	SB, S/O SEAL BEACH Blvd	170	Exist	[1]

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-86

REVISED BY | DATE REVISED
RUBEN MANRIQUEZ | JOSHUA MCNEILL
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR | STEVE HUFF
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	112	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. Loc No. 31 THROUGH Loc No. 62 ARE SHOWN FOR REFERENCE ONLY.
3. SEE SHEETS E-71 & E-72 FOR RMS/TMS LOCATION LAYOUT.
4. SEE SHEET E-238 FOR DETAILS.

LOCATIONS OF WORK

Loc No.	RMS/TMS I.D.	PM	ROUTE 405 RMS/TMS LOCATION	Exist CONTROLLER TYPE	FODM	ADDITIONAL COMMENTS
31	2346	0.60	SB, N/O Rte 5	170	NONE	
32	4414	0.77	SB, IRVINE CENTER Dr, ON, 1	170	NONE	
33	4331	0.93	NB, FORTUNE Dr, ON	170	NONE	
34	4413	0.96	SB, IRVINE CENTER Dr, ON, 2	170	NONE	
35	4332	1.11	NB, IRVINE CENTER Dr, ON	170	NONE	
36	2474	1.57	SB, S/O Rte 133	170	NONE	
37	2435	1.73	SB, Rte 133	170	NONE	
38	2475	1.93	SB, N/O Rte 133	170	NONE	
39	2041	2.35	NB, LAGUNA CANYON Rd	170	NONE	
40	4560	2.88	SB, SAND CANYON Ave, ON	170	NONE	
41	4515	2.89	NB, SAND CANYON Ave, ON, 1	170	NONE	
42	4551	2.99	NB, SAND CANYON Ave, ON, 2	170	NONE	
43	2040	3.31	NB, N/O SAND CANYON Ave	170	NONE	
44	4410	3.84	SB, JEFFREY Rd, ON, 1	170	NONE	
45	4335	3.86	NB, JEFFREY Rd, ON, 1	170	NONE	
46	4336	4.03	NB, JEFFREY Rd, ON, 2	170	NONE	
47	4409	4.03	SB, JEFFREY Rd, ON, 2	170	NONE	
48	2603	5.01	SB, YALE Br	170	NONE	
49	2604	5.05	SB, SPRUCE TREE Ln	170	NONE	
50	4408	5.50	SB, CULVER Dr, ON, 1	170	NONE	
51	4341	5.55	NB, CULVER Dr, ON, 1	170	NONE	
52	4407	5.69	SB, CULVER Dr, ON, 2	170	NONE	
53	4342	5.74	NB, CULVER Dr, ON, 2	170	NONE	
54	2602	6.10	SB, HARVARD Ave	170	NONE	
55	4406	6.80	SB, JAMBOREE Rd, ON, 1	170	NONE	
56	4343	6.85	NB, JAMBOREE Rd, ON, 1	170	NONE	
57	4405	7.01	SB, JAMBOREE Rd, ON, 2	170	NONE	
58	4344	7.07	NB, JAMBOREE Rd, ON, 2	170	NONE	
59	4404	7.69	SB, MACARTHUR Blvd, ON	170	NONE	
60	4345	7.73	NB, MACARTHUR Blvd, ON	170	NONE	
61	2433	8.26	SB, S/O AIRPORT LOOP Dr	170	NONE	
62	2605	8.40	SB, RED HILL Ave	170	NONE	
63	8558	8.70	NB, ANTON Blvd, ON	170	NONE	Exist IP CONVERSION 1
64	2415	8.90	SB, N/O Rte 55	170	NONE	Exist IP CONVERSION 1
65	5027	9.20	SB, S/O LUDINGTON St	170	NONE	Exist IP CONVERSION 1
66	4347	9.46	NB, BRISTOL St, ON, 1	170	NONE	Exist IP CONVERSION 1
67	4401	9.54	SB, BRISTOL St, ON	170	NONE	Exist IP CONVERSION 1
68	4348	9.65	NB, BRISTOL St, ON, 2	170	NONE	Exist IP CONVERSION 1
69	5026	9.90	NB, BEAR St	170	NONE	Exist IP CONVERSION 1
70	5557	10.10	NB, N/O Rte 73	170	NONE	Exist IP CONVERSION 1
71	4400	10.28	SB, N/O Rte 73	170	NONE	Exist IP CONVERSION 1
72	2601	10.40	SB, S/O FAIRVIEW Rd	170	NONE	Exist IP CONVERSION 1
73	4350	10.90	NB, FAIRVIEW Rd, ON	170	NONE	Exist IP CONVERSION 1
74	4399	11.20	SB, HARBOR Blvd, ON, 1	170	NONE	Exist IP CONVERSION 1
75	4351	11.40	NB, HARBOR Bvld, ON	170	NONE	Exist IP CONVERSION 1

LEGEND (THIS SHEET ONLY):

1 REMOVE EXISTING ETHERNET SWITCH AND INSTALL NEW ETHERNET ACCESS SWITCH.

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-87

REVISED BY | DATE REVISED
RUBEN MANRIQUEZ | JOSHUA MCNEILL
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	113	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

PLANS APPROVAL DATE 06-08-15

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEETS E-71 & E-72 FOR RMS/TMS LOCATION LAYOUT.
3. SEE SHEET E-238 FOR DETAILS.

LOCATIONS OF WORK

Loc No.	RMS/TMS I.D.	PM	ROUTE 405 RMS/TMS LOCATION	Exist CONTROLLER TYPE	FODM	ADDITIONAL COMMENTS
76	4398	11.50	SB, HARBOR Blvd, ON, 2	170	NONE	Exist IP CONVERSION 1
77	4352	11.60	NB, HYLAND Ave, ON	170	NONE	Exist IP CONVERSION 1
78	5012	12.16	SB, NEW HAMPSHIRE Dr	170	NONE	Exist IP CONVERSION 1
79	4397	12.50	SB, EUCLID St, ON	170	Exist	1 2
80	4353	12.85	NB, NEWHOPE St, ON	170	Exist	1 2
81	5013	13.16	NB, WARD St	170	Exist	1 2
82	4396	13.30	SB, TALBERT Ave, ON	170	Exist	1 2
83	4354	13.74	NB, BROOKHURST St, ON, 1	170	Exist	1 2
84	4395	13.81	SB, BROOKHURST St, ON	170	Exist	1 2
85	4355	13.97	NB, BROOKHURST St, ON, 2	170	Exist	1 2
86	5014	14.54	NB, N/O BUSHARD St	170	Exist	1 2
87	4394	14.72	SB, WARNER Ave, ON	170	Exist	1 2
88	4356	14.82	NB, WARNER Ave, ON	170	Exist	1 2
89	4393	15.16	SB, MAGNOLIA St, ON	170	Exist	1 2
90	4357	15.17	NB, MAGNOLIA St, ON, 1	170	Exist	1 2
91	4358	15.39	NB, MAGNOLIA St, ON, 2	170	Exist	1 2
92	5015	15.87	NB, S/O NEWLAND St	170	Exist	1 2
93	4392	16.26	SB, EDINGER Ave, ON	170	Exist	1 2
94	4359	16.52	NB, BEACH Blvd, ON, 1	170	Exist	1 2
95	4391	16.60	SB, BEACH Blvd, ON	170	Exist	1 2
96	4360	16.76	NB, BEACH Blvd, ON, 2	170	Exist	1 2
97	5016	17.45	SB, CARLTON Ave	170	Exist	1 2
98	4390	17.66	SB, BOLSA Ave, ON	170	Exist	1 2
99	4361	17.92	NB, GOLDENWEST St, ON	170	Exist	1 2
100	4389	17.98	SB, GOLDENWEST St, ON	170	Exist	1 2
101	5017	18.65	SB, EDWARDS St	170	Exist	1 2
102	4388	19.05	SB, WESTMINSTER Blvd, ON	170	Exist	1 2
103	4362	19.24	NB, WESTMINSTER Blvd, ON	170	Exist	1 2
104	5018	19.64	SB, SPRINGDALE St	170	Exist	1 2
105	2240	20.33	NB, BRYANT Cir	170	Exist	1 2
106	4387	20.69	SB, BOLSA CHICA Rd, ON	170	Exist	1 2
107	2417	20.88	NB, S/O Rte 22	170	Exist	1 2
108	5020	21.56	NB, N/O Rte 22	170	NONE	Exist IP CONVERSION 1
109	5021	21.91	NB, LAMPSON Ave	170	NONE	Exist IP CONVERSION 1
110	N/A	22.12	NB, S/O SEAL BEACH Blvd	170	NONE	Exist IP CONVERSION 1
111	N/A	22.33	SB, S/O SEAL BEACH Blvd	170	NONE	Exist IP CONVERSION 1
112	4386	22.54	SB, SEAL BEACH Blvd, ON	170	NONE	Exist IP CONVERSION 1
113	4364	22.55	NB, SEAL BEACH Blvd, ON	170	NONE	Exist IP CONVERSION 1
114	5048	22.90	NB, N/O SEAL BEACH Blvd Br	170	NONE	Exist IP CONVERSION 1
115	2241	23.17	NB, 7TH St	170	NONE	Exist IP CONVERSION 1
116	5022	23.30	SB, N/O 7TH St	170	NONE	Exist IP CONVERSION 1
117	2218	23.62	NB, SALMON Dr	170	NONE	Exist IP CONVERSION 1
118	2430	23.80	NB, S/O Rte 605	170	NONE	Exist IP CONVERSION 1
119	5049	23.93	SB, Rte 605 Br Conn	170	NONE	Exist IP CONVERSION 1
120	2219	24.08	NB, COUNTY LINE AT Rte 605	170	NONE	Exist IP CONVERSION 1

LEGEND (THIS SHEET ONLY):

1. INSTALL NEW ETHERNET ACCESS SWITCH.
2. REMOVE EXISTING FODM AND INSTALL NEW 170 CONTOLLER ETHERNET MODULE.

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-88

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF

CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ

CHECKED BY: JOSHUA MCNEILL

REVISED BY / DATE REVISED

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	114	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

PLANS APPROVAL DATE 06-08-15

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. Loc No. 121 THROUGH Loc No. 133 ARE SHOWN FOR REFERENCE ONLY.
3. SEE SHEETS E-73 & E-74 FOR TRAFFIC SIGNAL LOCATION LAYOUT.
4. SEE SHEET E-238 FOR DETAILS.

LEGEND (THIS SHEET ONLY):

1. REMOVE FODM.
2. INSTALL NEW 170 CONTROLLER ETHERNET MODULE.
3. REMOVE ETHERNET SWITCH.
4. INSTALL NEW ETHERNET ACCESS SWITCH.

LOCATIONS OF WORK

Loc No.	PM	ROUTE 405 TRAFFIC SIGNAL LOCATION	Exist CONTROLLER TYPE	FODM	ADDITIONAL COMMENTS
121	1.10	NB, ENTERPRISE Dr, OFF	MULTISONIC	None	
122	1.12	SB, IRVINE CENTER Dr, OFF	MULTISONIC	None	
123	1.13	NB, IRVINE CENTER Dr/ENTERTAINMENT WAY	MULTISONIC	None	
124	2.90	SB, SAND CANYON Ave, OFF	170	None	
125	3.04	NB, SAND CANYON Ave, OFF	170	None	
126	3.95	NB, JEFFREY Rd, OFF	170	None	
127	3.96	SB, JEFFREY Rd, OFF	170	None	
128	5.62	SB, CULVER Dr, OFF	170	None	
129	5.63	NB, CULVER Dr, OFF	170	None	
130	6.92	SB, JAMBOREE Rd, OFF	170	None	
131	6.93	NB, JAMBOREE Rd, OFF	170	None	
132	7.58	NB, MACARTHUR Blvd, OFF	170	None	
133	7.62	SB, MACARTHUR Blvd, OFF	170	None	
134	8.90	NB, ANTON Blvd, ON	170	Exist	1 2 4
135	9.30	NB, Ave OF THE ARTS, OFF	170	Exist	1 2 4
136	9.51	SB, BRISTOL St, OFF	170	Exist	1 2 4
137	9.75	NB, BRISTOL St, OFF	2070	None	Exist IP CONVERSION 3 4
138	10.07	NB, FAIRVIEW Rd, OFF	170	None	Exist IP CONVERSION 3 4
139	10.08	SB, FAIRVIEW Rd, OFF	170	Exist	1 2 4
140	10.28	NB, SOUTH COAST Dr	170	Exist	1 2 4
141	11.20	NB, SUSAN St, OFF	170	Exist	1 2 4
142	11.26	NB, HARBOR Blvd, OFF	2070	None	Exist IP CONVERSION 3 4
143	11.67	SB, HARBOR Blvd, OFF	170	Exist	1 2 4
144	12.30	NB, SOUTH COAST Dr/HYLAND Ave, ON	2070	Exist	1 2 4
145	12.62	NB, EUCLID St, OFF	170	Exist	1 2 4
146	12.64	SB, EUCLID St, ON	170	Exist	1 2 4
147	15.36	SB, MAGNOLIA St, OFF	170	Exist	1 2 4
148	16.20	SB, BEACH Blvd SOUTH, OFF	170	Exist	1 2 4
149	17.90	SB, GOLDENWEST St, OFF	170	Exist	1 2 4
150	20.80	SB, BOLSA CHICA Rd, OFF	170	Exist	1 2 4
151	22.60	NB, SEAL BEACH Blvd, OFF	170	None	Exist IP CONVERSION 3 4
152	22.70	SB, SEAL BEACH Blvd, OFF	170	None	Exist IP CONVERSION 3 4

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-89

REVISED BY: RUBEN MANRIQUEZ
DATE REVISED: JOSHUA MCNEILL
CALCULATED-DESIGNED BY
CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	115	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

PLANS APPROVAL DATE 06-08-15

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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

RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-110 FOR SPLICING DETAIL.
3. AT HUB No. 9, PATCH FIBER No. 36-38 TO TYPE B CABLE FIBER No. 5-6 GOING SOUTH TO HUB No. 3. FOR HUB No. 9 DETAILS SEE SHEETS E-178 THROUGH E-182.
4. AT HUB No. 9, PATCH FIBER No. 53-54 TO TYPE B CABLE FIBER No. 7-8 GOING SOUTH TO HUB No. 3. FOR HUB No. 9 DETAILS SEE SHEETS E-178 THROUGH E-182.
5. AT HUB No. 10, PATCH FIBER No. 36-38 TO TYPE B CABLE FIBER No. 11-12 GOING NORTH TO HUB No. 2. FOR HUB No. 10 DETAILS SEE SHEETS E-183 THROUGH E-190.
6. AT HUB No. 10, PATCH FIBER No. 53-54 TO TYPE B CABLE FIBER No. 13-14 GOING NORTH TO HUB No. 2. FOR HUB No. 10 DETAILS SEE SHEETS E-183 THROUGH E-190.

TYPE C CABLE (ROUTE 5)
FROM HUB No. 3 TO HUB No. 2

FIBER No.	HUB No. 3 Rte 5/AVERY	HUB No. 9 Rte 5/SAND CANYON	CCTV 219 NB, N/O Rte 133	CCTV 101 NB, SAND CANYON Ave, ON	CCTV 102 NB, JEFFREY Rd, OFF	VN 2, CCTV 103 NB, YALE Ave	CCTV 104 NB, CULVER Dr	CCTV 105 NB, JAMBOREE Rd, ON	CCTV 106 NB, TUSTIN RANCH Rd	CCTV 197 NB, S/O RED HILL Ave	CCTV 107 NB, S/O NEWPORT Ave	VN 3, CCTV 018 NB, Rte 55	HUB No. 10 Rte 5/Rte 55	HUB No. 2 Rte 91/Rte 55	FIBER No.	REMARKS
1-4															1-4	
5-6	X>	<X													5-6	CCC; CCTV 219 TO HUB 3
7-8	X>	<X													7-8	CCC; CCTV 197 TO HUB 3
9-10															9-10	
11-12													X>	<X	11-12	CCC; CCTV 106 TO HUB 2
13-14													X>	<X	13-14	CCC; CCTV 018 TO HUB 2
15-35															15-35	
36 & 38		X>	<X>	<X>	<X>	<X>	<X>	<X>	<X>				<X		36 & 38	CCC; CCTV 106 HUB 3 PR1 / HUB 2 SEC
37															37	
39-52															39-52	
53-54		X>								<X>	<X>	<X>	<X		53-54	CCC; CCTV 018 HUB 3 PRI / HUB 2 SEC

FIBER ASSIGNMENTS
(ROUTE 5)

MODIFY COMMUNICATION SYSTEM
NO SCALE

E-90

REVISED BY | DATE REVISED
RUBEN MANRIQUEZ | JOSHUA MCNEILL
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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12	Ora	5, 22, 57, 73, 133, *etc.*	Var	116	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

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14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-110 FOR SPLICING DETAIL.
3. AT HUB No. 9, PATCH FIBER No. 23-24 TO TYPE C CABLE FIBER No. 25-26 GOING SOUTH TO HUB No. 3. FOR HUB No. 9 DETAILS SEE SHEETS E-178 THROUGH E-182.
4. AT HUB No. 10, PATCH FIBER No. 23-24 TO TYPE C CABLE FIBER No. 11-12 GOING NORTH TO HUB No. 2. FOR HUB No. 10 DETAILS SEE SHEETS E-183 THROUGH E-190.

TYPE C CABLE (ROUTE 5) FROM HUB No. 3 TO HUB No. 2

FIBER No.	HUB No. 3 R+e 5/AVERY	HUB No. 9 R+e 5/SAND CANYON	CMS 075 SB, JEFFREY Rd	CMS 014 NB, YALE Ave	CMS 015 SB, TUSTIN RANCH Rd	CMS 093 NB, TUSTIN RANCH Rd	HUB No. 10 R+e 5/R+e 55	HUB No. 2 R+e 91/R+e 55	FIBER No.	REMARKS
1-10									1-10	
11-12							X>	<X	11-12	CMS; CMS 093 HUB 3 PRI / HUB 2 SEC
13-22									13-22	
23-24		X>	<X>	<X>	<X>	<X>	<X		23-24	CMS; CMS 093 HUB 3 PRI / HUB 2 SEC
25-26	X>	<X							25-26	CMS 075 TO HUB 3

FIBER ASSIGNMENTS
(ROUTE 5)

MODIFY COMMUNICATION SYSTEM
NO SCALE

E-91

REVISED BY | DATE REVISED
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14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-110 FOR SPLICING DETAIL.
3. AT HUB No. 9, PATCH FIBER No. 9-10 TO TYPE C CABLE FIBER No. 11-12 GOING SOUTH TO HUB No. 3. FOR HUB No. 9 DETAILS SEE SHEETS E-178 THROUGH E-182.
4. AT HUB No. 9, PATCH FIBER No. 13-14 TO TYPE C CABLE FIBER No. 13-14 GOING SOUTH TO HUB No. 3. FOR HUB No. 9 DETAILS SEE SHEETS E-178 THROUGH E-182.
5. AT HUB No. 9, PATCH FIBER No. 17-18 TO TYPE C CABLE FIBER No. 23-24 GOING SOUTH TO HUB No. 3. FOR HUB No. 9 DETAILS SEE SHEETS E-178 THROUGH E-182.
6. AT HUB No. 10, PATCH FIBER No. 9-10 TO TYPE C CABLE FIBER No. 5-6 GOING NORTH TO HUB No. 2. FOR HUB No. 10 DETAILS SEE SHEETS E-183 THROUGH E-190.
7. AT HUB No. 10, PATCH FIBER No. 13-14 TO TYPE C CABLE FIBER No. 13-14 GOING NORTH TO HUB No. 2. FOR HUB No. 10 DETAILS SEE SHEETS E-183 THROUGH E-190.
8. AT HUB No. 10, PATCH FIBER No. 17-18 TO TYPE C CABLE FIBER No. 17-18 GOING NORTH TO HUB No. 2. FOR HUB No. 10 DETAILS SEE SHEETS E-183 THROUGH E-190.

TYPE C CABLE (ROUTE 5) FROM HUB No. 3 TO HUB No. 2

FIBER No.	HUB No. 3 Rte 5/AVERY	HUB No. 9 Rte 5/SAND CANYON	RMS 3559 NB, SAND CANYON Ave	RMS 3665 SB, SAND CANYON Ave	TMS 2620 NB, N/O SAND CANYON Ave	RMS 3664 SB, JEFFREY Rd	RMS 3560 NB, JEFFREY Rd, ON, 1	RMS 4825 NB, JEFFREY Rd, ON, 2	TMS 2591 SB, YALE Ave	RMS 4510 NB, CULVER Dr, ON, 1	RMS 3561 NB, CULVER Dr, ON, 2	RMS 3663 SB, CULVER Dr, ON, 1	RMS 4511 SB, CULVER Dr, ON, 2	RMS 4800 NB, JAMBOREE Rd, ON, 1	RMS 3562 NB, JAMBOREE Rd, ON, 2	RMS 3662 SB, JAMBOREE Rd, ON, 1	RMS 4801 SB, JAMBOREE Rd, ON, 2	RMS 4817 NB, TUSTIN RANCH Rd	RMS 4822 SB, TUSTIN RANCH Rd	HUB No. 10 Rte 5/Rte 55	HUB No. 2 Rte 91/Rte 55	FIBER No.	REMARKS
1-4																						1-4	
5-6																				X>	<X	5-6	TMS 2591 TO HUB 2
7-8																						7-8	
9-10		X>	<X>	<X>	<X>	<X>	<X>	<X>	<X>											<X		9-10	TMS; TMS 2591 HUB 3 PRI / HUB 2 SEC
11-12	X>	<X																				11-12	RMS 3559 TO HUB 3
13-14	X>	<X>								<X>	<X>	<X>	<X>	<X>	<X>	<X>				<X>	<X	13-14	RMS 3662; HUB 3 PRI / HUB 2 SEC
15-16																						15-16	
17-18		X>															<X>	<X>	<X>	<X>	<X	17-18	RMS 4882; HUB 2 PRI/HUB 3 SEC
19-22																						19-22	
23-24	X>	<X																				23-24	RMS 4801 TO HUB 3

FIBER ASSIGNMENTS (ROUTE 5)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-92

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

LAST REVISION 06-08-15
DATE PLOTTED => 29-SEP-2015
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REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-111 FOR SPLICING DETAILS.
3. SEE SHEET E-104 FOR CCTV 009 FIBER ASSIGNMENT DETAILS.
4. AT HUB No. 1, PATCH FIBER No. 67-68 TO TYPE B CABLE FIBER No. 67-68 GOING WEST TO HUB No. 8.
5. AT HUB No. 8, PATCH FIBER No. 38-39 TO TYPE B CABLE FIBER No. 44-45 GOING SOUTH TO HUB No. 4.
6. AT HUB No. 8, PATCH FIBER No. 42-43 TO TYPE B CABLE FIBER No. 47-48 GOING SOUTH TO HUB No. 4.
7. AT HUB No. 8, PATCH FIBER No. 67-68 TO TYPE B CABLE FIBER No. 67-68 GOING SOUTH TO HUB No. 4.

TYPE B CABLE-TRUNKLINE No. 1 (ROUTE 22) FROM HUB No. 4 TO HUB No. 1

FIBER No.	HUB No. 4 Rte 405/EUCLID	HUB No. 8 Rte 405/Rte 22	CCTV 163 EB, E/O VALLEY VIEW St	CCTV 164 EB, W/O SPRINGDALE St	CCTV 162 EB, KNOTT St, ON	CCTV 161 WB KNOTT St, ON	CCTV 160 WB, E/O BEACH Blvd	CCTV 158 EB, W/O MAGNOLIA St	CCTV 159 WB, E/O MAGNOLIA St	CCTV 030 WB, E/O BROOKHURST St	CCTV 031 WB, E/O EUCLID St	CCTV 032 WB, W/O HARBOR Blvd	CCTV 008 EB, W/O FAIRVIEW St	CCTV 033 WB, W/O CITY Dr	HUB No. 1 Rte 5/LA VETA	FIBER No.	REMARKS
1-35		O>													<O	1-35	
36-37		O>						X>							<X	36-37	CCC; CCTV 158 PRI HUB 1/SEC HUB 4
38-39		X>	<X>*	<X>*	<X>*	<X>*	<X>*	<X	X>	<X>*	<X>*	<X>*	<X>*	<X>*	<X	38-39	CCC; CCTV 033 PRI HUB 1/SEC HUB 4
40-41		O>													<O	40-41	
42-43		X>							<X						<O	42-43	CCTV 159 TO HUB 4
44-45	X>	<X													<O	44-45	CCTV 163 TO HUB 4
46		O>													<O	46	Exist VOICE
47-48	X>	<X														47-48	CCTV 159 TO HUB 4
63-64		<X>													<X	63-64	Exist 405 SEC RETURN
65-66		O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O	65-66	FUTURE
67-68	X>	<X>													<X>	67-68	CCC 15 RETURN TO HUB 4
69-72		O>													<O	69-72	FUTURE

TYPE B CABLE-TRUNKLINE No. 1 (ROUTE 22) FROM HUB No. 4 TO CABLE NODE Y

FIBER No.	HUB No. 4 Rte 405/EUCLID	HUB No. 8 Rte 405/Rte 22	HUB No. 1 Rte 5/LA VETA	CCTV 157 WB, E/O ROUTE 5	CCTV 156 WB, E/O MAIN St	CCTV 155 WB, E/O GRAND Ave	CCTV 154 WB, E/O CAMBRIDGE St	CN Y WB, Rte 55/Rte 22 IC	FIBER No.	REMARKS
1-39			O>					<O	1-39	
40-41			X>*	<X>*	<X>*	<X>*	<X>*	<X*	40-41	CCC 15, PRI HUB 1 / SEC HUB 4
42-43			O>					<O	42-43	FUTURE
44-45			O>					<O	44-45	
46			O>						46	Exist VOICE
47-62			X>*					<X*	47-62	Exist CN Y TO HUB 1
63-64			O>						63-64	
65-66			O>	<O>	<O>	<O>	<O>	<O	65-66	FUTURE
67-68	X>	<X>	<X>					<X*	67-68	CCC 15 RETURN TO HUB 4
69-72			O>					<O	69-72	FUTURE

FIBER ASSIGNMENTS
(ROUTE 22)

MODIFY COMMUNICATION SYSTEM
NO SCALE

E-93

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:39

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14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-112 FOR SPLICING DETAILS.
3. AT HUB No. 1, PATCH FIBER No. 13-14 TO TYPE C CABLE FIBER No. 15-16 GOING WEST TO HUB No. 8.
4. AT HUB No. 8, PATCH FIBER No. 13-14 TO TYPE C CABLE FIBER No. 13-14 GOING SOUTH TO HUB No. 4.
5. AT HUB No. 8, PATCH FIBER No. 15-16 TO TYPE C CABLE FIBER No. 15-16 GOING SOUTH TO HUB No. 4.

TYPE C CABLE-TRUNKLINE (ROUTE 22) FROM HUB No. 4 TO HUB No. 1

FIBER No.	HUB No. 4 Rte 405/EUCLID	HUB No. 8 Rte 405/Rte 22	CMS 25 EB, W/O SPRINGDALE St	CMS 84 WB, E/O MAGNOLIA St	CMS 98 EB, E/O HARBOR Blvd	HUB No. 1 Rte 5/LA VETA	FIBER No.	REMARKS
1-2		X>*				<X*	1-2	Exist TMS 23
3-4		X>*				<X*	3-4	Exist TMS 40
5-6		X>*				<X*	5-6	Exist TMS 41
7-8		X>*				<X*	7-8	Exist TMS 42
9-10		X>*				<X*	9-10	Exist TMS 43
11-12		O>				<O	11-12	FUTURE
13-14	X>	<X>	<X>*	<X>*	<X>*	<X	13-14	CMS 17
15-16	X>	<X>				<X	15-16	CMS 17 TO HUB 4
17-18		O>				<O	17-18	FUTURE USE
19-20		X>*				<X*	19-20	Exist TS 17
21-22		X>*				<X*	21-22	Exist TS 40
23-24		X>*				<X*	23-24	Exist TS 41
25-26		X>*				<X*	25-26	TS 20
27-30		O>				<O	27-30	FUTURE USE
31		O>	<O>	<O>	<O>	<O	31	Exist VOICE
32-33		X>*				<X*	32-33	Exist HUB 8 TO HUB 1
34-45		O>				<X*	34-45	Exist CN Y TO HUB 1
46-47		X>*				<X*	46-47	Exist 405 SEC RETURN
48-57		O>				<X*	34-57	Exist CN Y TO HUB 1
58-59		O>				<X*	58-59	Exist 405 SEC RETURN
60-61		X>*				<X*	60-61	TMS 45
62-63		X>*				<X*	62-63	TMS 46
64-65		X>*				<X*	64-65	TMS 47
66-67		X>*				<X*	66-67	TMS 48
68-69		O>				<O	68-69	FUTURE USE
70-72		O>				<O	70-72	FUTURE USE

TYPE C CABLE-TRUNKLINE (ROUTE 22) FROM HUB No. 4 TO CABLE NODE Y

FIBER No.	HUB No. 4 Rte 405/EUCLID	HUB No. 8 Rte 405/Rte 22	HUB No. 1 Rte 5/LA VETA	CMS 16 EB, W/O CAMBRIDGE St	CMS 77 WB, E/O CAMBRIDGE St	CN Y WB, Rte 55/Rte 22 IC	FIBER No.	REMARKS
1-2			X>*			<X*	1-2	Exist TMS 23
3-4			X>*			<X*	3-4	Exist TMS 40
5-6			X>*			<X*	5-6	Exist TMS 41
7-8			X>*			<X*	7-8	Exist TMS 42
9-10			X>*			<X*	9-10	Exist TMS 43
11-12			O>			<O	11-12	FUTURE
13-14			X>	<X>*	<X>*	<X*	13-14	CMS 17
15-16	X>	<X>	<X			<O	15-16	CMS 17 TO HUB 4
17-18			O>			<O	17-18	FUTURE USE
19-20			X>*			<X*	19-20	Exist TS 17
21-22			X>*			<X*	21-22	Exist TS 40
23-24			X>*			<X*	23-24	Exist TS 41
25-26			X>*			<O	25-26	TS 20
27-30			O>			<O	27-30	FUTURE USE
31			O>	<O>	<O>	<O	31	Exist VOICE
32-33			X>*			<X*	32-33	Exist HUB 8 TO HUB 1
34-45			X>*			<X*	34-45	Exist CN Y TO HUB 1
46-47			<X>*			<X*	46-47	CMS 17 TO HUB 4
34-57			X>*			<X*	34-57	Exist CN Y TO HUB 1
58-59			X>*			<O	58-59	Exist 405 SEC RETURN
60-61			X>*			<O	60-61	TMS 45
62-63			X>*			<O	62-63	TMS 46
64-65			X>*			<O	64-65	TMS 47
66-67			X>*			<O	66-67	TMS 48
68-69			O>			<O	68-69	FUTURE USE
70-72			O>			<O	70-72	FUTURE USE

FIBER ASSIGNMENTS
(ROUTE 22)

MODIFY COMMUNICATION SYSTEM
NO SCALE

E-94

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

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06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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

RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-112 FOR SPLICING DETAILS.

TYPE C CABLE-TRUNKLINE (ROUTE 22) FROM HUB No. 8 TO HUB No. 1

FIBER No.	HUB No. 8 Rte 405/Rte 22	RMS 4504 WB, VALLEY VIEW St, ON	RMS 3882 EB, Rte 405 N/B, ON	TMS 913 WB, E/O VALLEY VIEW St	TMS 5042 EB, E/O VALLEY VIEW St	TMS 5041 EB, W/O SPRINGDALE St	TMS 2220 EB, E/O VALLEY VIEW St	TMS 5040 EB, E/O YUMA Pl	RMS 3912 WB, KNOTT St, ON	TMS 5039 WB, E/O KNOTT St	RMS 3883 EB, GOLDENWEST, ON	RMS 3884 EB, BEACH Blvd, ON, 1	RMS 3911 WB, BEACH Blvd, ON, 1	RMS 3885 EB, BEACH Blvd, ON, 2	RMS 3910 WB, BEACH Bvld, ON, 2	TMS 5038 EB, W/O NEWLAND St	TMS 5037 WB, W/O MAGNOLIA St	RMS 3909 WB, MAGNOLIA St, ON	RMS 3886 EB, MAGNOLIA ST, ON	RMS 3908 WB, BROOKHURST St, ON	RMS 3887 EB, BROOKHURST St, ON	FIBER No.	REMARKS
1-2	X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*														1-2	Exist TMS 23, PRI HUB 1/SEC HUB 4
3-4	X>*													<X>*	<X>*	<X>*	<X>*	<X>*	<X>*			3-4	Exist TMS 40, PRI HUB 1/SEC HUB 4
5-6	X>*																					5-6	Exist TMS 41, PRI HUB 1/SEC HUB 4
7-8	X>*																					7-8	Exist TMS 42, PRI HUB 1/SEC HUB 4
9-10	X>*																			<X>	<X>	9-10	Exist TMS 43, PRI HUB 1/SEC HUB 4
11-12	O>																					11-12	FUTURE
13-14	<X>*																					13-14	Exist CMS 15 / CMS 17
15-16	<X>*																					15-16	CMS 24
17-18	X>								<X>	<X>	<X>	<X>	<X>									17-18	TMS, PRI HUB 1/SEC HUB 4
19-20	X>*																					19-20	Exist TS 17
21-22	X>*																					21-22	Exist TS 40
23-24	X>*																					23-24	Exist TS 41
25-26	X>*																					25-26	TS 20
27-30	O>																					27-30	FUTURE USE
31	O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	31	Exist VOICE
32-33	X>*																					32-33	Exist HUB 8 TO HUB 1
34-57	O>																					34-57	Exist CN Y TO HUB 1
58-59	O>																					58-59	Exist 405 SEC RETURN
60-61	X>*																					60-61	TMS 45
62-63	X>*																					62-63	TMS 46
64-65	X>*																					64-65	TMS 47
66-67	X>*																					66-67	TMS 48
68-69	O>																					68-69	FUTURE USE
70-72	O>																					70-72	FUTURE USE

FIBER ASSIGNMENTS
(ROUTE 22)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-95

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

LAST REVISION 06-08-15
DATE PLOTTED => 29-SEP-2015
TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	121	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

PLANS APPROVAL DATE 06-08-15

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-112 FOR SPLICING DETAILS.

TYPE C CABLE-TRUNKLINE (ROUTE 22) FROM HUB No. 8 TO HUB No. 1

FIBER No.	TMS 5036 WB, E/O BROOKHURST St	TMS 5035 WB, WARD St	TMS 5034 EB, E/O WARD St	RMS 3907 WB, EUCLID St, ON	RMS 3888 EB, EUCLID St, ON	TMS 2223 WB, E/O NEWHOPE St	TMS 5051 WB, E/O NEWHOPE St CENSUS	RMS 3906 WB, HARBOR Blvd, ON, 1	RMS 3905 WB, HARBOR Blvd, ON, 2	RMS 3889 EB, HARBOR Blvd, ON	TMS 5033 EB, E/O HARBOR Blvd	RMS 3904 WB, HASTER St, ON	RMS 3890 EB, FAIRVIEW St, ON	TMS 5030 EB, W/O THE CITY Dr	RMS 3903 WB, THE CITY Dr, ON	RMS 3891 EB, THE CITY Dr, ON	TMS 2341 WB, E/O THE CITY Dr	RMS 3892 EB, BRISTOL St, ON	RMS 3901 WB, BRISTOL St, ON	HUB No. 1 Rte 5/LA VETA	FIBER No.	REMARKS
1-2																				<X*	1-2	Exist TMS 23, PRI HUB 1/SEC HUB 4
3-4																				<X*	3-4	Exist TMS 40, PRI HUB 1/SEC HUB 4
5-6						<X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*								<X*	5-6	Exist TMS 41, PRI HUB 1/SEC HUB 4
7-8													<X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X*	7-8	Exist TMS 42, PRI HUB 1/SEC HUB 4
9-10	<X>	<X>	<X>	<X>	<X>															<X*	9-10	Exist TMS 43, PRI HUB 1/SEC HUB 4
11-12																				<O	11-12	FUTURE
13-14																				<X*	13-14	Exist CMS 15 / CMS 17
15-16																				<X*	15-16	CMS 24
17-18																				<X	17-18	TMS, PRI HUB 1/SEC HUB 4
19-20																				<X*	19-20	Exist TS 17
21-22																				<X*	21-22	Exist TS 40
23-24																				<X*	23-24	Exist TS 41
25-26																				<X*	25-26	TS 20
27-30																				<O	27-30	FUTURE USE
31	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O	31	Exist VOICE
32-33																				<X*	32-33	Exist HUB 8 TO HUB 1
34-57																				<X*	34-57	Exist CN Y TO HUB 1
58-59																				<X*	58-59	Exist 405 SEC RETURN
60-61																				<X*	60-61	TMS 45
62-63																				<X*	62-63	TMS 46
64-65																				<X*	64-65	TMS 47
66-67																				<X*	66-67	TMS 48
68-69																				<O	68-69	FUTURE USE
70-72																				<O	70-72	FUTURE USE

FIBER ASSIGNMENTS
(ROUTE 22)

MODIFY COMMUNICATION SYSTEM
NO SCALE

E-96

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

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06-08-15
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2. SEE SHEET E-112 FOR SPLICING DETAILS.
3. AT HUB No. 8, PATCH TMS 23 FIBER No. 1-2 TO TYPE C FIBER No. 32-33 GOING SOUTH TO HUB No. 4.
4. AT HUB No. 8, PATCH TMS 40 FIBER No. 3-4 TO TYPE C FIBER No. 34-35 GOING SOUTH TO HUB No. 4.
5. AT HUB No. 8, PATCH TMS 41 FIBER No. 5-6 TO TYPE C FIBER No. 36-37 GOING SOUTH TO HUB No. 4.
6. AT HUB No. 8, PATCH TMS 42 FIBER No. 7-8 TO TYPE C FIBER No. 38-39 GOING SOUTH TO HUB No. 4.
7. AT HUB No. 8, PATCH TMS 43 FIBER No. 9-10 TO TYPE C FIBER No. 40-41 GOING SOUTH TO HUB No. 4.
8. AT HUB No. 8, PATCH TMS 43 FIBER No. 40-41 (TMS 43 FROM CABLE NODE Y) TO TYPE C FIBER No. 44-45 GOING SOUTH TO HUB No. 4.
9. AT HUB No. 8, PATCH TMS 42 FIBER No. 42-43 (TMS 42 FROM CABLE NODE Y) TO TYPE C FIBER No. 42-43 GOING SOUTH TO HUB No. 4.

TYPE C CABLE-TRUNKLINE (ROUTE 22) FROM HUB No. 1 TO CABLE NODE Y

FIBER No.	HUB No. 1 Rte 5/LA VETA	TMS 2338 WB, E/O Rte 5	TMS 2340 EB, E/O Rte 5	RMS 3899 WB, MAIN St, ON	RMS 3894 EB, MAIN St, ON	RMS 3898 WB, GLASSELL St, ON	RMS 3895 EB, GLASSELL St, ON	TMS 5032 EB, W/O CAMBRIDGE St	TMS 5031 EB, W/O TUSTIN St	RMS 3897 WB, TUSTIN St, ON	CN Y WB, Rte 55/Rte 22 IC	FIBER No.	REMARKS
1-2	X>										<X*	1-2	Exist TMS 23
3-4	X>										<X*	3-4	Exist TMS 40
5-6	X>										<X*	5-6	Exist TMS 41
7-8	X>	<X>*	<X>*	<X>*	<X>*						<X*	7-8	Exist TMS 42, PRI HUB 1/SEC HUB 4
9-10	X>					<X>*	<X>*	<X>*	<X>*	<X>*	<X*	9-10	Exist TMS 43, PRI HUB 1/SEC HUB 4
11-12	O>										<O	11-12	FUTURE
13-14	X>										<X*	13-14	Exist CMS 15 / CMS 17
15-16	X>										<X*	15-16	CMS 24
17-18	O>										<O	17-18	FUTURE USE
19-20	X>										<X*	19-20	Exist TS 17
21-22	X>										<X*	21-22	Exist TS 40
23-24	X>										<X*	23-24	Exist TS 41
25-26	X>										<X*	25-26	TS 20
27-30	O>										<O	27-30	FUTURE USE
31	O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O	31	Exist VOICE
32-33	X>										<X*	32-33	Exist HUB 8 TO HUB 1
34-39	X>										<X*	34-39	Exist CN Y TO HUB 1
40-41	X>										<X*	40-41	TMS 43 RETURN FROM CN Y
42-43	X>										<X*	42-43	TMS 42 RETURN FROM CN Y TO HUB 4
44-57	X>										<X*	44-57	Exist CN Y TO HUB 1
58-59	X>										<X*	58-59	Exist 405 SEC RETURN
60-61	X>										<X*	60-61	TMS 45
62-63	X>										<X*	62-63	TMS 46
64-65	X>										<X*	64-65	TMS 47
66-67	X>										<X*	66-67	TMS 48
68-69	O>										<O	68-69	FUTURE USE
70-72	O>										<O	70-72	FUTURE USE

TYPE C CABLE-TRUNKLINE (ROUTE 405) FROM HUB No. 4 TO HUB No. 8

FIBER No.	HUB No. 4 Rte 405/EUCLID	HUB No. 8 Rte 405/Rte 22	FIBER No.	REMARKS
1-10			1-10	
32-33	X>	<X	32-33	TMS 23 FROM HUB 8 TO HUB 4
34-35	X>	<X	34-35	TMS 40 FROM HUB 8 TO HUB 4
36-37	X>	<X	36-37	TMS 41 FROM HUB 8 TO HUB 4
38-39	X>	<X	38-39	TMS 42 FROM HUB 8 TO HUB 4
40-41	X>	<X	40-41	TMS 43 FROM HUB 8 TO HUB 4
42-43	X>	<X	42-43	TMS 42 RETURN FROM CN Y TO HUB 4
44-45	X>	<X	44-45	TMS 43 RETURN FROM CN Y TO HUB 4
46-72			46-72	

FIBER ASSIGNMENTS
(ROUTE 22)

MODIFY COMMUNICATION SYSTEM
NO SCALE

E-97

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

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12	Ora	5, 22, 57, 73, 133, *etc.*	Var	123	308

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06-08-15
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2. SEE SHEET E-113 FOR SPLICING DETAILS.

TYPE C CABLE-TRUNKLINE No. 1 (ROUTE 22) FROM HUB No. 8 TO HUB No. 1

FIBER No.	HUB No. 8 Rte 405/Rte 22	TS Loc No. 71 EB, GARDEN GROVE Blvd/VALLEY VIEW St	TS Loc No. 72 WB, VALLEY VIEW St, OFF	TS Loc No. 73 WB, VALLEY VIEW St/TIFFANY Ave	TS Loc No. 74 EB, GARDEN GROVE Blvd, ON	TS Loc No. 75 EB, KNOTT St, OFF	TS Loc No. 76 WB, KNOTT St, ON	TS Loc No. 77 EB, KNOTT St, ON	TS Loc No. 78 WB, KNOTT St, OFF	TS Loc No. 79 EB, MAGNOLIA St, ON	TS Loc No. 80 WB, MAGNOLIA St, OFF	TS Loc No. 81 WB, BROOKHURST St, OFF	TS Loc No. 82 EB, BROOKHURST St, ON	TS Loc No. 83 EB, EUCLID St, OFF	FIBER No.	REMARKS
1-10	X>*														1-10	
11-12	X>*														11-12	TS RETURN; HUB 1 PRI / HUB 2 SEC
13-14	X>*														13-14	
15-18	O>														15-18	
19-20	X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*							19-20	Exist TS 17 HUB 1 PRI / HUB 4 SEC
21-22	X>*												<X>*	<X>*	21-22	Exist TS 40 HUB 1 PRI / HUB 4 SEC
23-24	X>*														23-24	Exist TS 41 HUB 1 PRI / HUB 4 SEC
25-26	O>														25-26	
27-28	X>								<X>	<X>	<X>	<X>			27-28	TS HUB 1 PRI / HUB 4 SEC
29-30															29-30	
31	O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	31	Exist VOICE
32-33	X>*														32-33	Exist HUB 8 TO HUB 1
34-57	O>														34-57	Exist CN Y TO HUB 1
58-59	O>														58-59	Exist 405 SEC RETURN
60-72	O>														60-72	

TYPE C CABLE-TRUNKLINE No. 1 (ROUTE 22) FROM HUB No. 8 TO HUB No. 1

FIBER No.	TS Loc No. 84 WB, EUCLID St, OFF	TS Loc No. 85 WB, HARBOR Blvd, OFF	TS Loc No. 86 EB, HARBOR Blvd, ON	TS Loc No. 87 EB, FAIRVIEW St, OFF	TS Loc No. 88 WB, HASTER St, ON	TS Loc No. 89 WB, HASTER St, OFF	TS Loc No. 90 EB, FAIRVIEW St, ON	TS Loc No. 91 WB, METROPOLITAN Dr, OFF	TS Loc No. 92 EB, THE CITY Dr, OFF	TS Loc No. 93 EB, BRISTOL St, OFF	TS Loc No. 94 WB, BRISTOL St/LA VETA Ave, ON	HUB No. 1 Rte 5/LA VETA	FIBER No.	REMARKS
1-10													1-10	
11-12												<X*	11-12	TS RETURN; HUB 1 PRI / HUB 2 SEC
13-14													13-14	
15-18													15-18	
19-20												<X*	19-20	Exist TS 17 HUB 1 PRI / HUB 4 SEC
21-22	<X>*	<X>*	<X>*	<X>*	<X>*							<X*	21-22	Exist TS 40 HUB 1 PRI / HUB 4 SEC
23-24						<X>	<X>	<X>	<X>*	<X>*	<X>*	<X*	23-24	Exist TS 41 HUB 1 PRI / HUB 4 SEC
25-26													25-26	
27-28												<X	27-28	TS HUB 1 PRI / HUB 4 SEC
29-30													29-30	
31	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O	31	Exist VOICE
32-33												<X*	32-33	Exist HUB 8 TO HUB 1
34-57													34-57	Exist CN Y TO HUB 1
58-59													58-59	Exist 405 SEC RETURN
60-72													60-72	

FIBER ASSIGNMENTS
(ROUTE 22)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-98

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
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2. SEE SHEET E-113 FOR SPLICING DETAILS.
3. AT CABLE NODE Y, PATCH FIBER No. 23-24 TO FIBER No. 11-12.
4. AT HUB No. 8, PATCH FIBER No. 11-12 TO TYPE C FIBER No. 48-49 GOING SOUTH TO HUB No. 4.
5. AT HUB No. 8, PATCH FIBER No. 19-20 TO TYPE C FIBER No. 21-22 GOING SOUTH TO HUB No. 4.
6. AT HUB No. 8, PATCH FIBER No. 21-22 TO TYPE C FIBER No. 23-24 GOING SOUTH TO HUB No. 4.
7. AT HUB No. 8, PATCH FIBER No. 23-24 TO TYPE C FIBER No. 25-26 GOING SOUTH TO HUB No. 4.
8. AT HUB No. 8, PATCH FIBER No. 25-26 TO TYPE C FIBER No. 46-47 GOING SOUTH TO HUB No. 4.

TYPE C CABLE-TRUNKLINE No.1 (ROUTE 22) FROM HUB No. 1 TO CABLE NODE Y

FIBER No.	HUB No. 1 Rte 5/LA VETA	TS Loc No. 95 EB, TOWN AND COUNTRY Rd, ON	TS Loc No. 96 EB, GLASSELL St/GRAND Ave, ON	TS Loc No. 97 WB, GLASSELL St/GRAND Ave, OFF	TS Loc No. 98 WB, TUSTIN St, ON	TS Loc No. 99 EB, TUSTIN St, OFF	CN Y WB, Rte 55/Rte 22 IC	FIBER No.	REMARKS
1-10							<X*	1-10	
11-12	X>						<X	11-12	TS RETURN; HUB 1 PRI / HUB 2 SEC
13-14							<X*	13-14	
15-18							<O	15-18	
19-20							<X*	19-20	Exist TS 17
21-22	X>*						<X*	21-22	Exist TS 40
23-24	X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X	23-24	TS; HUB 1 PRI / HUB 2 SEC
25-26							<O	25-26	
27-28							<O	27-28	
29-30							<O	29-30	
31	O>	<O>	<O>	<O>	<O>	<O>	<O	31	Exist VOICE
32-72								32-72	

TYPE C CABLE-TRUNKLINE No.1 (ROUTE 405) FROM HUB No. 4 TO HUB No. 8

FIBER No.	HUB No. 4 Rte 405/EUCLID	HUB No. 8 Rte 405/Rte 22	FIBER No.	REMARKS
1-20			1-20	
21-22	X>	<X	21-22	TS 17 FROM HUB 8 TO HUB 4
23-24	X>	<X	23-24	TS 40 FROM HUB 8 TO HUB 4
25-26	X>	<X	25-26	TS 41 FROM HUB 8 TO HUB 4
27-28			27-28	
46-47	X>	<X	46-47	TS FROM HUB 8 TO HUB 4
48-49	X>	<X	48-49	HUB 1 TO HUB 4 VIA HUB 8
50-72			50-72	

FIBER ASSIGNMENTS
(ROUTE 22)

MODIFY COMMUNICATION SYSTEM
NO SCALE

E-99

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
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1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEETS E-114 & E-115 FOR SPLICING DETAILS.
3. AT CABLE NODE 3, PATCH FIBER No. 37-38 TO TYPE B CABLE FIBER No. 37-38 GOING EAST TO HUB No. 2.
4. AT CABLE NODE 3, PATCH FIBER No. 41-42 TO TYPE B CABLE FIBER No. 41-42 GOING EAST TO HUB No. 2.
5. AT CABLE NODE 3, PATCH FIBER No. 39-40 TO TYPE B CABLE FIBER No. 44-45 GOING EAST TO HUB No. 2.

TYPE B CABLE-TRUNKLINE (ROUTE 57) FROM CABLE NODE 3 TO CCTV 185

FIBER No.	CN 3 Rte 91/Rte 57	CCTV 177 NB, S/O MIRA LOMA Ave	CCTV 080 NB, ORANGETHORPE Ave, ON	CCTV 178 SB, CHAPMAN Ave	CCTV 179 NB, NUTWOOD Ave	CCTV 180 NB, S/O YORBA LINDA Blvd	CCTV 181 NB, BASTANCHURY Rd	CCTV 182 NB, N/O ROLLING HILLS Dr	CCTV 081 NB, S/O IMPERIAL Hwy	DN 10 Rte 57/Rte 90	CCTV 183 NB, BIRCH St, UC	CCTV 082 NB, LAMBERT Rd	CCTV 184 NB, S/O TONNER CANYON Rd	CCTV 185 NB, N/O TONNER CANYON Rd	FIBER No.	REMARKS
8-31	O>														8-31	
32															32	
33-34	<X>	<X					X>			<X					33-34	CCC, HUB 1 PRI, CCTV 181
35-36	<X>							<X							35-36	CCC, HUB 1 PRI, CCTV 182
37-38		X>	<X>*	<X>*	<X>*	<X>*	<X	X>	<X>*	<X>	<X>*	<X>*	<X>*	<X	37-38	CCC, HUB 1 PRI, CCTV 185
39-40	X>									<X>				<X	39-40	CCC LOOPBACK; HUB 2 PRI, CCTV 185
41-42	X>									<X					41-42	CCC LOOPBACK; HUB 2 PRI, CCTV 081
43	<O>		<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	43	Exist VOICE
44-72															44-72	FUTURE

TYPE B CABLE-TRUNKLINE (ROUTE 57) FROM HUB No. 1 TO CABLE NODE 3

FIBER No.	HUB No. 1 Rte 5/LA VETA	CCTV 012 NB, CHAPMAN Ave, ON	CCTV 170 NB, Rte 22, ON	CCTV 174 NB, S/O ORANGEWOOD Ave	CCTV 078 NB, S/O KATELLA Ave	CCTV 006 NB, S/O BALL Rd	CCTV 176 NB, WAGNER Ave	CCTV 079 NB, N/O LINCOLN Ave	CN 3 Rte 91/Rte 57	FIBER No.	REMARKS
1-7									<O	1-7	
8-32										8-32	
33-34	X>								<X>	33-34	CCC, HUB 2 PRI, CCTV 177
35-36	X>								<X>	35-36	CCC, HUB 2 PRI, CCTV 182
37-38	X>	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X	37-38	CCC 12, PRI HUB 1/SEC HUB 2
39-42										39-42	
43	O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	43	Exist VOICE
44-72										44-72	FUTURE

TYPE B CABLE-TRUNKLINE (ROUTE 91) FROM HUB No. 2 TO CABLE NODE 3

FIBER No.	HUB No. 2 Rte 91/Rte 55	CN 3 Rte 91/Rte 57	FIBER No.	REMARKS
1-36			1-36	
37-38	X>	<X	37-38	CCC 12
39-40		<X	39-40	CCTV 185 TO HUB 2
41-42	X>	<X	41-42	CCTV 081
43			43	
44-45	X>		44-45	CCTV 185

FIBER ASSIGNMENTS
(ROUTE 57)

MODIFY COMMUNICATION SYSTEM
NO SCALE

E-100

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

LAST REVISION 06-08-15
DATE PLOTTED => 29-SEP-2015
TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	126	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-116 FOR SPLICING DETAILS.
3. AT CABLE NODE 3, PATCH FIBER No. 9-10 FROM HUB No. 1 TO TYPE C CABLE FIBER No. 11-12 GOING EAST TO HUB No. 2.
4. AT CABLE NODE 3, PATCH FIBER No. 7-8 FROM HUB No. 1 TO TYPE C CABLE FIBER No. 9-10 GOING NORTH TO CMS 020.
5. AT CABLE NODE 3, PATCH FIBER No. 13-14 FROM CMS 11 TO TYPE C CABLE FIBER No. 13-14 GOING EAST TO HUB No. 2.

TYPE C CABLE-TRUNKLINE (ROUTE 57) FROM HUB No. 1 TO CMS 021

FIBER No.	HUB No. 1 Rte 5/LA VETA	CMS 066 NB, S/O CHAPMAN Ave	CMS 019 SB, ORANGEWOOD Ave, OFF	CMS 079 NB, WAGNER Ave	CMS 078 SB, WAGNER Ave	CN 3 Rte 91/Rte 57	FIBER No.	REMARKS
1-2							1-2	TMS 17 AND 18
3-4							3-4	TMS 16 AND 19
5-6							5-6	TMS 17 TO HUB 2
7-8	X>					<X	7-8	CMS 11 TO HUB 1
9-10	X>	<X>*	<X>*	<X>*	<X>*	<X	9-10	CMS 12; HUB 1 PRI / HUB 2 SEC
11-12							11-12	CMS 12 TO HUB 2
13-14							13-14	CMS 11 TO HUB 2
15-18							15-18	FUTURE
19-20	X>						19-20	TS 11 AND 12
21-22							21-22	TS 11 TO HUB 2
23-26							23-26	FUTURE
27	O>	<O>	<O>	<O>	<O>	<O>	27	Exist VOICE
28-31							28-31	
32-72							32-72	FUTURE

TYPE C CABLE-TRUNKLINE (ROUTE 57) FROM HUB No. 1 TO CMS 021

FIBER No.	CN 3 Rte 91/Rte 57	CMS 020 SB, S/O CHAPMAN Ave	CMS 063 NB, S/O YORBA LINDA Blvd	CMS 099 SB, N/O YORBA LINDA Blvd	DN 10 Rte 57/Rte 90	CMS 021 SB, N/O LAMBERT Rd	FIBER No.	REMARKS
1-2							1-2	TMS 17 AND 18
3-4							3-4	TMS 16 AND 19
5-6							5-6	TMS 17 TO HUB 2
7-8							7-8	CMS 11 TO HUB 1
9-10	X>	<X>*	<X>*	<X>*	<X>	<X	9-10	CMS 12; HUB 1 PRI / HUB 2 SEC
11-12							11-12	CMS 12 TO HUB 2
13-14	X>				<X>	<X	13-14	CMS 11 TO HUB 2
15-18							15-18	FUTURE
19-20							19-20	TS 11 AND 12
21-22							21-22	TS 11 TO HUB 2
23-26							23-26	FUTURE
27	<O>	<O>	<O>	<O>	<O>		27	Exist VOICE
28-31							28-31	
32-72							32-72	FUTURE

TYPE C CABLE-TRUNKLINE (ROUTE 91) FROM HUB No. 2 TO CABLE NODE 3

FIBER No.	HUB No. 2 Rte 91/Rte 55	CN 3 Rte 91/Rte 57	FIBER No.	REMARKS
1-10			1-10	
11-12	X>	<X	11-12	CMS 12 TO HUB 2
13-14	X>	<X	13-14	CMS 11 TO HUB 2
15-72			15-72	

FIBER ASSIGNMENTS
(ROUTE 57)

MODIFY COMMUNICATION SYSTEM
NO SCALE

E-101

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

LAST REVISION 06-08-15
DATE PLOTTED => 29-SEP-2015
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12	Ora	5, 22, 57, 73, 133, *etc.*	Var	127	308

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06-08-15
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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEETS E-117 & E-118 FOR SPLICING DETAILS.
3. AT CABLE NODE 3, PATCH FIBER No. 1-2 FROM HUB No. 1 TO TYPE C CABLE FIBER No. 21-22 GOING EAST TO HUB No. 2.
4. AT CABLE NODE 3, PATCH FIBER No. 3-4 FROM HUB No. 1 TO TYPE C CABLE FIBER No. 23-24 GOING EAST TO HUB No. 2.
5. AT CABLE NODE 3, PATCH FIBER No. 5-6 FROM HUB No. 1 TO TYPE C CABLE FIBER No. 25-26 GOING EAST TO HUB No. 2.
6. AT CABLE NODE 3, PATCH FIBER No. 23-24 FROM DATA NODE 10 TO TYPE C CABLE FIBER No. 30-31 GOING EAST TO HUB No. 2.
7. AT CABLE NODE 3, PATCH FIBER No. 25-26 FROM DATA NODE 10 TO TYPE C CABLE FIBER No. 32-33 GOING EAST TO HUB No. 2.

TYPE C CABLE-TRUNKLINE (ROUTE 57) FROM HUB No.1 TO DATA NODE 10

FIBER No.	HUB No. 1 Rte 5/LA VETA	TMS 2352 NB, Rte 22/Rte 5	RMS 4004 SB, CHAPMAN Ave, ON	TMS 2351 NB, CHAPMAN Ave, OFF	RMS 3955 NB, CHAPMAN Ave, ON, 1	RMS 3956 NB, CHAPMAN Ave, ON, 2	RMS 4003 SB, ORANGEWOOD St, ON	RMS 3957 NB, ORANGEWOOD St, ON, 1	RMS 3958 NB, ORANGEWOOD St, ON, 2	RMS 4002 SB, KATELLA Ave, ON	RMS 3960 NB, KATELLA Ave, ON	RMS 4000 SB, BALL Rd, ON	RMS 3961 NB, BALL Rd, ON, 1	RMS 3999 NB, BALL Rd, ON, 2	TMS 2510 NB, WAGNER Ave	TMS 0308 NB, SOUTH St	RMS 3998 SB, LINCOLN Ave, ON, 2	RMS 4554 SB, LINCOLN Ave, ON, 1	RMS 3963 NB, LINCOLN Ave, ON	TMS 2358 NB, UNDERHILL Ave	TMS 2357 NB, LA PALMA Ave	CN 3 Rte 91/Rte 57	FIBER No.	REMARKS
1-2	X>	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*														<X	1-2	TMS 18; HUB 1 PRI
3-4	X>								<X>	<X>	<X>	<X>*	<X>*	<X>*	<X>*							<X	3-4	TMS 19; HUB 1 PRI
5-6	X>															<X>	<X>	<X>	<X>	<X>	<X>	<X	5-6	TMS 11; HUB 1 PRI
7-8																							7-8	CMS 11
9-10																							9-10	CMS 12
11-14																							11-14	FUTURE
15-16	X>																					<X>	15-16	TMS 17; HUB 1 SEC
17-18	X>																					<X>	17-18	TMS 16; HUB 1 SEC
19-20	X>																					<X	19-20	TS 12
21-26																							21-26	FUTURE
27	O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	27	Exist VOICE
28-29	X>*																					<X>	28-29	DN 10 TO TMC
30-31																							30-31	DN 13 (BU) TO HUB 2
32-72																							32-72	FUTURE

TYPE C CABLE-TRUNKLINE (ROUTE 57) FROM HUB No. 1 TO DATA NODE 10

FIBER No.	CN 3 Rte 91/Rte 57	TMS 2376 Rte 91 EB TO Rte 57 SB	TMS 2185 NB, LA JOLLA St	RMS 3995 SB, ORANGETHORPE Ave, ON	RMS 3994 SB, CHAPMAN Ave, ON	RMS 3968 NB, NUTWOOD Ave, ON	RMS 3993 SB, NUTWOOD Ave, ON	RMS 3970 NB, YORBA LINDA Blvd, ON	RMS 3992 SB, YORBA LINDA Blvd, ON, 2	RMS 3991 SB, YORBA LINDA Blvd, ON, 1	RMS 3990 SB, IMPERIAL Hwy, ON	DN 10 Rte 57/Rte 90	FIBER No.	REMARKS
1-2	X>								<X>	<X>	<X>*	<X	1-2	TMS 17; HUB 2 PRI
3-4	X>	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*				<X	3-4	TMS 16; HUB 2 PRI
5-6	X>											<X	5-6	NU
7-8													7-8	CMS 11
9-10													9-10	CMS 11, PRI:DN 10
11-12													11-12	CMS 11 TO HUB 2
13-14													13-14	FUTURE
15-16	<X>												15-16	TMS 17
17-18	<X>												17-18	TMS 16
19-20													19-20	TS 11
21-22													21-22	FUTURE
23-24	X>											<X	23-24	TMS 17 TO HUB 2 PRI
25-26	X>											<X	25-26	TMS 16 TO HUB 2 PRI
27	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O	27	Exist VOICE
28-29	<X>*											<X*	28-29	DN 10 TO TMC AND HUB 1
30-31	O>												30-31	DN 10 (BU) TO HUB 2 TO TMC
32-72	O>												32-72	FUTURE

TYPE C CABLE-TRUNKLINE (ROUTE 91) FROM HUB No. 2 TO CABLE NODE 3

FIBER No.	HUB No. 2 Rte 91/Rte 55	CN 3 Rte 91/Rte 57	FIBER No.	REMARKS
1-20			1-20	
21-22	X>	<X	21-22	TMS 18; HUB 1 PRI / HUB 2 SEC
23-24	X>	<X	23-24	TMS 19; HUB 1 PRI / HUB 2 SEC
25-26	X>	<X	25-26	TMS 11; HUB 1 PRI / HUB 2 SEC
27-29			27-29	
30-31	X>	<X	30-31	TMS 17; HUB 2 PRI / HUB 1 SEC
32-33	X>	<X	32-33	TMS 16; HUB 2 PRI / HUB 1 SEC
34-72			34-72	

FIBER ASSIGNMENTS
(ROUTE 57)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-102

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY / DATE REVISED

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:39

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06-08-15
PLANS APPROVAL DATE

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-119 FOR SPLICING DETAILS.
3. AT CABLE NODE 3, PATCH FIBER No. 21-22 FROM HUB No. 1 TO TYPE C CABLE FIBER No. 19-20 GOING NORTH TO TS Loc No. 70.
4. AT CABLE NODE 3, PATCH FIBER No. 19-20 TO TYPE C CABLE FIBER No. 36-37 GOING EAST TO HUB No. 2.
5. AT CABLE NODE 3, PATCH FIBER No. 23-24 TO TYPE C CABLE FIBER No. 34-35 GOING EAST TO HUB No. 2.

TYPE C CABLE-TRUNKLINE (ROUTE 57) FROM HUB No. 1 TO TS Loc No. 78

FIBER No.	HUB No. 1 Rte 5/LA VETA	TS Loc No. 59 SB, BRISTOL St, OFF	TS Loc No. 60 NB, CHAPMAN Ave, OFF	TS Loc No. 62 NB, ORANGEWOOD Ave, OFF	TS Loc No. 64 NB, KATELLA Ave, OFF	TS Loc No. 67 NB, BALL Rd, OFF	TS Loc No. 68 NB, LINCOLN Ave, OFF	CN 3 Rte 91/Rte 57	FIBER No.	REMARKS
1-18									1-18	
19-20	X>	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X	19-20	Exist TS 12; HUB 1 PRI / HUB 2 SEC
21-22	X>							<X	21-22	TS 11; HUB 1 PRI / HUB 2 SEC
23-26									23-26	
27	O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	27	Exist VOICE
28-31									28-31	
32-72									32-72	FUTURE

TYPE C CABLE-TRUNKLINE (ROUTE 57) FROM HUB No. 1 TO TS Loc No. 78

FIBER No.	CN 3 Rte 91/Rte 57	TS Loc No. 70 NB, ORANGETHORPE Ave, OFF	TS Loc No. 73 NB, CHAPMAN Ave, OFF	TS Loc No. 74 NB, NUTWOOD Ave, OFF	TS Loc No. 76 NB, YORBA LINDA Blvd, OFF	DN 10 Rte 57/Rte 90	TS Loc No. 78 NB, LAMBERT Rd, OFF	FIBER No.	REMARKS
1-18								1-18	
19-20	X>	<X>*	<X>*	<X>*	<X>*		<X	19-20	Exist TS 11. HUB 1 PRI / HUB 2 SEC
21-22	<X							21-22	
23-24	X>					<X>	<X	23-24	TS 11 RETURN TO HUB 2
25-26								25-26	
27	<O>	<O>	<O>	<O>	<O>	<O>	<O>	27	Exist VOICE
28-29	<O>							28-29	
30-31	<O>							30-31	
32-72								32-72	

TYPE C CABLE-TRUNKLINE (ROUTE 91) FROM HUB No. 2 TO CABLE NODE 3

FIBER No.	HUB No. 2 Rte 91/Rte 55	CN 3 Rte 91/Rte 57	FIBER No.	REMARKS
1-33			1-33	
34-35	X>	<X	34-35	TS 11; HUB 1 PRI / HUB 2 SEC
36-37	X>	<X	36-37	TS 12; HUB 1 PRI / HUB 2 SEC
38-72			38-72	

FIBER ASSIGNMENTS
(ROUTE 57)

MODIFY COMMUNICATION SYSTEM
NO SCALE

E-103

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
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14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. FOR CCTV Loc No. 1 THROUGH Loc No. 6, SEE SHEET E-42.
3. SEE SHEET E-120 FOR SPLICING DETAILS.
4. AT CABLE NODE 9, PATCH FIBER No. 31-32 TO TYPE B CABLE FIBER No. 31-32 GOING SOUTH TO SPLICE VAULT SB Rte 5.
5. AT SPLICE VAULT NB Rte 5, SPLICE FIBER No. 31-32 TO TYPE B CABLE FIBER No. 31-32 GOING SOUTH TO HUB No. 3.
6. AT HUB No. 8, PATCH FIBER No. 3-4 TO TYPE B CABLE FIBER No. 13-14 GOING SOUTH TO HUB No. 4.
7. AT HUB No. 8, PATCH TYPE B CABLE FIBER No. 1-2 ON TRUNKLINE (ROUTE 405) TO FIBER No. 65-66 ON TRUNKLINE (ROUTE 22) TO HUB No. 1.
8. AT HUB No. 8, PATCH FIBER No. 37-38 TO TYPE B CABLE FIBER No. 34-35 GOING EAST TO HUB No. 1.
9. AT HUB No. 8, PATCH FIBER No. 39-40 TO TYPE B CABLE FIBER No. 36-37 GOING EAST TO HUB No. 1.

TYPE B CABLE-TRUNKLINE (ROUTE 405) FROM HUB No. 3 TO SPLICE VAULT AT NB ROUTE 605

FIBER No.	◆ HUB No. 3 Rte 5/AVERY Pkwy	◆ SPLICE VAULT NB, Rte 5 Sta 109+80	CN 9 Rte 405/Rte 55	CCTV 141 SB, N/O BRISTOL St	CCTV 014 NB, Rte 73	CCTV 166 SB, S/O FAIRVIEW Rd	CCTV 165 SB, S/O HARBOR Blvd	HUB No. 4 Rte 405/EUCLID	CCTV 220 NB, N/O EUCLID St	CCTV 221 NB, S/O TALBERT Ave	CCTV 222 NB, S/O BROOKHURST St	CCTV 223 NB, S/O BUSHARD St	CCTV 224 NB, N/O WARNER Ave	CCTV 225 NB, S/O NEWLAND St	CCTV 226 NB, S/O BEACH Blvd	CCTV 227 NB, N/O BOLSA Ave	CCTV 228 NB, N/O WESTMINSTER Blvd	CCTV 010 NB, N/O BOLSA CHICA Rd	CCTV 143 NB, N/O BOLSA CHICA Rd	CCTV 229 NB, S/O SEAL BEACH Blvd	HUB No. 8 Rte 405/Rte 22	FIBER No.	REMARKS
1-2			<O>					<O>													X>	1-2	CCR 20; HUB 1 SEC
3-4			<O>					<O>													X>	3-4	CCR 20; HUB 4 PRI
5-12			<O>					<O>														5-12	FUTURE
13-14			<O>					X>													<X	13-14	CCR 20 TO HUB 4
15-30																						15-30	FUTURE
31-32	X>	<X>	<X>	<X>*	<X>*	<X>*	<X>*	<X														31-32	CCC 18; HUB 4 PRI / HUB 3 SEC
33-36			<O>					<O>														33-36	FUTURE
37-38								X>	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*						<X	37-38	CCC 19, PRI HUB 8
39-40								X>								<X>	<X>	<X>	<X>	<X>	<X	39-40	CCC, CCTV 229
41-72			<O>					<O>														41-72	FUTURE

◆ TYPE B CABLE - TRUNKLINE (ROUTE 5)

TYPE B CABLE-TRUNKLINE (ROUTE 405) FROM HUB No. 3 TO SPLICE VAULT AT NB ROUTE 605

FIBER No.	CCTV 144 NB, N/O SEAL BEACH Blvd	CCTV 009 SB, CONSTRUCTION AT Rte 605	CCTV 145 SB, S/O Rte 605	CCTV 146 NB, N/O Rte 605	SPLICE VAULT NB Rte 605 Sta 264+85	FIBER No.	REMARKS
1-2	<X>*	<X>*	<X>*	<X>*	<X*	1-2	CCR 20; HUB 1 SEC
3-4					<X*	3-4	CCR 20; HUB 4 PRI
5-12						5-12	FUTURE
13-14						13-14	CCR 20 TO HUB 4
15-30						15-30	FUTURE
31-32						31-32	CCC 18; HUB 4 PRI / HUB 3 SEC
33-36						33-36	FUTURE
37-38						37-38	CCC 19, PRI HUB 8
39-40						39-40	CCC, CCTV 229
41-72						41-72	FUTURE

TYPE B CABLE-TRUNKLINE (ROUTE 22) FROM HUB No. 1 TO HUB No. 8

FIBER No.	HUB No. 1 Rte 5/LA VETA Ave	HUB No. 8 Rte 405/Rte 22	FIBER No.	REMARKS
34-35	X>	<X	34-35	CCC 19
36-37	X>	<X	36-37	CCC, CCTV 229
65-66	X>	<X	65-66	CCR 20 TO HUB 1

FIBER ASSIGNMENTS (ROUTE 405)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-104

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY / DATE REVISED

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	130	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. FOR CMS Loc No. 26, SEE SHEET E-44.
3. SEE SHEET E-121 FOR SPLICING DETAILS.
4. AT CABLE NODE 9, PATCH FIBER No. 9-10 TO TYPE C CABLE FIBER No. 35-36 GOING SOUTH TO HUB No. 3.
5. AT SPLICE VAULT NB, Rte 5, SPLICE FIBER No. 35-36 TO TYPE C CABLE FIBER No. 35-36 GOING SOUTH TO HUB No. 3.
6. AT HUB No. 8, PATCH FIBER No. 11-12 TO TYPE C CABLE FIBER No. 29-30 GOING NORTH TO CMS 083.
7. AT HUB No. 8, PATCH FIBER No. 31-32 TO TYPE C CABLE FIBER No. 11-12 GOING EAST TO HUB No. 1.
8. AT HUB No. 8, PATCH FIBER No. 15-16 TO TYPE C CABLE FIBER No. 15-16 GOING EAST TO HUB No. 1.

TYPE C CABLE-TRUNKLINE (ROUTE 405) FROM HUB No. 3 TO SPLICE VAULT AT NB ROUTE 605

FIBER No.	◆ HUB No. 3 SB, Rte 5/AVERY Pkwy	◆ SPLICE VAULT NB, Rte 5 Sta 109+80	CN 9 Rte 405/Rte 55	CMS 086 SB, NEW HAMPSHIRE Dr	HUB No. 4 Rte 405/EUCLID	CMS 071 NB, S/O MAGNOLIA St	CMS 023 SB, N/O EDWARDS St	HUB No. 8 Rte 405/Rte 22	CMS 083 SB, S/O SEAL BEACH Blvd	SPLICE VAULT NB Rte 605 Sta 264+85	FIBER No.	REMARKS
1-8											1-8	
9-10			X>	<X>*	<X>	<X>*	<X>*	<X			9-10	HUB 4 PRI / HUB 1 SEC
11-12					X>			<X			11-12	CMS 52 / CMS 24
13-14											13-14	
15-16											15-16	HUB 4 PRI / HUB 1 SEC
17-28											17-28	
29-30								X>	<X>*	<X*	29-30	CMS 24
31-32								X>		<X*	31-32	CMS 24 LOOP BACK
33-34											33-34	
35-36	X>	<X>	<X								35-36	
37-72											37-72	

◆ TYPE C CABLE - TRUNKLINE (ROUTE 5)

TYPE C CABLE-TRUNKLINE (ROUTE 22) FROM HUB No. 1 TO HUB No. 8

FIBER No.	HUB No. 1 Rte 5/LA VETA Ave	HUB No. 8 Rte 405/Rte 22	FIBER No.	REMARKS
1-10			1-10	
11-12	X>		11-12	CMS 24 TO HUB No. 1
15-16	X>	<X	15-16	CMS CIRCUIT 19 TO HUB
31-32		X>	31-32	CMS 24 (LOOP BACK)

FIBER ASSIGNMENTS
(ROUTE 405)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-105

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

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06-08-15
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14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. FOR RMS/TMS Loc No. 31 THROUGH Loc No. 62, SEE SHEETS E-43 AND E-44.
3. SEE SHEETS E-122 THROUGH E-124 FOR SPLICING DETAILS.
4. AT CABLE NODE 9, PATCH FIBER No. 1-2 TO TYPE C CABLE FIBER No. 37-38 GOING SOUTH TO HUB No. 3.
5. AT CABLE NODE 9, PATCH FIBER No. 3-4 TO TYPE C CABLE FIBER No. 39-40 GOING SOUTH TO HUB No. 3.
6. AT CABLE NODE 9, PATCH FIBER No. 5-6 TO TYPE C CABLE FIBER No. 41-42 GOING SOUTH TO HUB No. 3.
7. AT SPLICE VAULT SB, Rte 5, SPLICE FIBER No. 37-38 TO TYPE C FIBER No. 37-38 GOING SOUTH TO HUB No. 3.
8. AT SPLICE VAULT SB, Rte 5, SPLICE FIBER No. 39-40 TO TYPE C FIBER No. 39-40 GOING SOUTH TO HUB No. 3.
9. AT SPLICE VAULT SB, Rte 5, SPLICE FIBER No. 41-42 TO TYPE C FIBER No. 41-42 GOING SOUTH TO HUB No. 3.

TYPE C CABLE (ROUTE 405) FROM HUB No. 3 TO HUB No. 4

FIBER No.	◆ HUB No. 3 Rte 5/AVERY Pkwy	◆ SPLICE VAULT SB, Rte 5 Sta 109+80	CN 9 Rte 405/Rte 55	RMS 8558 NB, ANTON Blvd, ON	TMS 2415 SB, N/O Rte 55	TMS 5027 SB, S/O LUDINGTON St	RMS 4347 NB, BRISTOL St, ON, 1	RMS 4401 SB, BRISTOL St, ON	RMS 4348 NB, BRISTOL St, ON, 2	TMS 5026 NB, BEAR St	TMS 5557 NB, N/O Rte 73	RMS 4400 SB, N/O Rte 73	TMS 2601 SB, S/O FAIRVIEW Rd	RMS 4350 NB, FAIRVIEW Rd, ON	RMS 4399 SB, HARBOR Blvd, ON, 1	RMS 4351 NB, HARBOR Blvd, ON	RMS 4398 SB, HARBOR Blvd, ON, 2	RMS 4352 NB, HYLAND Ave, ON	TMS 5012 SB, NEW HAMPSHIRE Dr	RMS 4397 SB, EUCLID St, ON	HUB No. 4 Rte 405/EUCLID	FIBER No.	REMARKS
1-2			X>												<X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X>	1-2	TMS CIRCUIT 32, HUB 4 PRI/HUB 3 SEC
3-4			X>							<X>*	<X>*	<X>*	<X>*	<X>*							<X>	3-4	TMS CIRCUIT 45, HUB 4 PRI/HUB 3 SEC
5-6			X>	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*												<X>	5-6	TMS CIRCUIT 46, HUB 4 PRI/HUB 3 SEC
7-8			<O>																		<O>	7-8	FUTURE
9-10			<O>																		<X>*	9-10	CMS CIRCUIT 18
11-18			<O>																		<O>	11-18	FUTURE
19-20			<O>																		<X>*	19-20	TS CIRCUIT 18
21-22			<O>																		<X>*	21-22	TS CIRCUIT 45
23-26			<O>																		<O>	23-26	FUTURE
27			<O>																	<O>	<O>	27	FUTURE
28-29			<O>																		<O>	28-29	FUTURE
30-33			<X>																		<X>*	30-33	HUB 4 TO TMC (THRU 61-63 ON Rte 5)
37-38	X>	<X>	<X																		<O>	37-38	TMS CIRCUIT 32, HUB 4 PRI/HUB 3 SEC
39-40	X>	<X>	<X																		<O>	39-40	TMS CIRCUIT 45, HUB 4 PRI/HUB 3 SEC
41-42	X>	<X>	<X																		<O>	41-42	TMS CIRCUIT 46, HUB 4 PRI/HUB 3 SEC

◆ TYPE C CABLE - TRUNKLINE (ROUTE 5)

FIBER ASSIGNMENTS
(ROUTE 405)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-106

REVISED BY | DATE REVISED
RUBEN MANRIQUEZ | JOSHUA MCNEILL
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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PLANS APPROVAL DATE 06-08-15

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEETS E-122 THROUGH E-124 FOR SPLICING DETAILS.

TYPE C CABLE (ROUTE 405) FROM HUB No. 4 TO HUB No. 8

FIBER No.	HUB No. 4 Rte 405/EUCLID	RMS 4353 NB, NEWHOPE St, ON	TMS 5013 NB, WARD St	RMS 4396 SB, TALBERT Ave, ON	RMS 4354 NB, BROOKHURST St, ON, 1	RMS 4395 SB, BROOKHURST St, ON	RMS 4355 NB, BROOKHURST St, ON, 2	TMS 5014 NB, N/O BUSHARD St	RMS 4394 SB, WARNER Ave, ON	RMS 4356 NB, WARNER Ave, ON	RMS 4393 SB, MAGNOLIA St, ON, 1	RMS 4357 NB, MAGNOLIA St, ON	RMS 4358 SB, MAGNOLIA St, ON, 2	TMS 5015 NB, S/O NEWLAND St	FIBER No.	REMARKS
1-2	X>	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*							1-2	TMS 20, HUB 4 PRI/HUB 1 SEC
3-4	X>												<X>*	<X>*	3-4	TMS 29, HUB 4 PRI/HUB 1 SEC
5-6	X>														5-6	TMS 37, HUB 4 PRI/HUB 1 SEC
7-8	X>								<X>	<X>	<X>	<X>			7-8	TMS 4357, HUB 4 PRI/HUB 1 SEC
9-10															9-10	Exist CMS 19
11-12	X>														11-12	TMS 2417, HUB 4 PRI/HUB 1 SEC
13-18															13-18	FUTURE
19-20															19-20	Exist TS 19
21-26															21-26	FUTURE
27	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	27	Exist VOICE
28-29															28-29	Exist DN 9 TO HUB
30-31															30-31	Exist HUB TO TMC
32-72															32-72	FUTURE

TYPE C CABLE (ROUTE 405) FROM HUB No. 4 TO HUB No. 8

FIBER No.	RMS 4392 SB, EDINGER Ave, ON	RMS 4359 NB, BEACH Blvd, ON, 1	RMS 4391 SB, BEACH Blvd, ON	RMS 4360 NB, BEACH Blvd, ON, 2	TMS 5016 SB, CARLTON Ave	RMS 4390 SB, BOLSA Ave, ON	RMS 4361 NB, GOLDENWEST St, ON	RMS 4389 SB, GOLDENWEST St, ON	TMS 5017 SB, EDWARDS St	RMS 4388 SB, WESTMINSTER Blvd, ON	RMS 4362 NB, WESTMINSTER Blvd, ON	TMS 5018 SB, SPRINGDALE St	TMS 2240 NB, BRYANT Cir	RMS 4387 SB, BOLSA CHICA Rd, ON	TMS 2417 NB, S/O Rte 22	HUB No. 8 Rte 405/Rte 22	FIBER No.	REMARKS
1-2																<X	1-2	TMS 20, HUB 4 PRI/HUB 1 SEC
3-4	<X>*	<X>*	<X>*	<X>*	<X>*											<X	3-4	TMS 29, HUB 4 PRI/HUB 1 SEC
5-6						<X>*	<X>*	<X>*	<X>*	<X>*	<X>*					<X	5-6	TMS 37, HUB 4 PRI/HUB 1 SEC
7-8																<X	7-8	TMS 4357, HUB 4 PRI/HUB 1 SEC
9-10																<X>*	9-10	Exist CMS 19
11-12												<X>	<X>	<X>	<X>	<X	11-12	TMS 2417, HUB 4 PRI/HUB 1 SEC
13-18																	13-18	FUTURE
19-20																<X>*	19-20	Exist TS 19
21-26																	21-26	FUTURE
27	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	27	Exist VOICE
28-29																	28-29	Exist DN 9 TO HUB
30-31																	30-31	Exist HUB TO TMC
32-72																	32-72	FUTURE

FIBER ASSIGNMENTS
(ROUTE 405)

MODIFY COMMUNICATION SYSTEM
NO SCALE

E-107

REVISED BY | DATE REVISED
RUBEN MANRIQUEZ | JOSHUA MCNEILL
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
STEVE HUFF
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEETS E-122 THROUGH E-124 FOR SPLICING DETAILS.
3. AT HUB No. 8, PATCH FIBER No. 1-2 TO TYPE C CABLE FIBER No. 51-50 GOING EAST TO HUB No. 1.
4. AT HUB No. 8, PATCH FIBER No. 3-4 TO TYPE C CABLE FIBER No. 52-53 GOING EAST TO HUB No. 1.
5. AT HUB No. 8, PATCH FIBER No. 5-6 TO TYPE C CABLE FIBER No. 54-55 GOING EAST TO HUB No. 1.
6. AT HUB No. 8, PATCH FIBER No. 7-8 TO TYPE C CABLE FIBER No. 56-57 GOING EAST TO HUB No. 1.
7. AT HUB No. 8, PATCH FIBER No. 11-12 TO TYPE C CABLE FIBER No. 58-59 GOING EAST TO HUB No 1.
8. AT HUB No. 8, PATCH FIBER No. 3-4 FROM TMS 45 LOOP BACK TO TYPE C CABLE FIBER No. 60-61 GOING EAST TO HUB No. 1.
9. AT HUB No. 8, PATCH FIBER No. 7-8 FROM TMS 46 LOOP BACK TO TYPE C CABLE FIBER No. 64-65 GOING EAST TO HUB No. 1.
10. AT HUB No. 8, PATCH FIBER No. 11-12 FROM TMS 47 LOOP BACK TO TYPE C CABLE FIBER No. 66-67 GOING EAST TO HUB No. 1.

TYPE C CABLE-TRUNKLINE (ROUTE 22) FROM HUB No. 8 TO HUB No. 1

FIBER No.	HUB No. 1 Rte 5/LA VETA Ave	HUB No. 8 Rte 405/Rte 22	FIBER No.	REMARKS
51-50	X>	<X	51-50	TMS 20
52-53	X>	<X	52-53	TMS 29
54-55	X>	<X	54-55	TMS 37
56-57	X>	<X	56-57	TMS 4357
58-59	X>	<X	58-59	TMS 2417
60-61	X>	<X	60-61	TMS 45 (LOOP BACK) TO HUB
64-65	X>	<X	64-65	TMS 46 (LOOP BACK) TO HUB
66-67	X>	<X	66-67	TMS 47 (LOOP BACK) TO HUB

TYPE C CABLE-TRUNKLINE (ROUTE 405) FROM HUB No. 4 TO SPLICE VAULT AT NB ROUTE 605

FIBER No.	HUB No. 4 Rte 405/EUCLID	HUB No. 8 Rte 405/Rte 22	TMS 5020 NB, N/O Rte 22	TMS 5021 NB, LAMPSON Ave	TMS NB, S/O SEAL BEACH Blvd	TMS SB, S/O SEAL BEACH Blvd	RMS 4386 SB, SEAL BEACH Blvd, ON	RMS 4364 NB, SEAL BEACH Blvd, ON	TMS 5048 NB, N/O SEAL BEACH Blvd Br	TMS 2241 NB, 7TH St	TMS 5022 SB, N/O 7TH St	TMS 2218 NB, N/O SALMON Dr	TMS 2430 NB, S/O Rte 605	TMS 5049 SB, Rte 605 Br Conn	TMS 2219 NB, COUNTY LINE AT Rte 605	SPLICE VAULT NB Rte 605 Sta 264+85	FIBER No.	REMARKS
1-2		X>	<X>*	<X>*												<X	1-2	TMS 45
3-4		X>														<X	3-4	TMS 45 (LOOP BACK)
5-6		X>			<X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*					<X	5-6	TMS 46
7-8		X>														<X	7-8	TMS 46 (LOOP BACK)
9-10		X>										<X>*	<X>*	<X>*	<X>*	<X	9-10	TMS 47
11-12		X>														<X	11-12	TMS 47 (LOOP BACK)
13-18																	13-18	FUTURE
19-20																	19-20	Exist TS 19
21-26																	21-26	
27		<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>	<O>		27	Exist VOICE
28-29																	28-29	Exist DN9 TO HUB
30-31																	30-31	Exist HUB TO TMC
32-48																	32-48	FUTURE
49-50	X>	<X															49-50	RMS 4386/TMS 46 TO HUB 4
51-52	X>	<X															51-52	TMS 5049/TMS 47 TO HUB 4
57-58	X>	<X															57-58	TMS 5021/TMS 45 TO HUB 4

FIBER ASSIGNMENTS (ROUTE 405)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-108

REVISED BY	DATE REVISED
RUBEN MANRIQUEZ	JOSHUA MCNEILL
CALCULATED-DESIGNED BY	CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR	STEVE HUFF

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. FOR TS Loc No. 121 THROUGH Loc No. 133, SEE SHEETS E-43 THROUGH E-44.
3. SEE SHEETS E-125 & E-126 FOR SPLICING DETAILS.
4. AT CABLE NODE 9, PATCH FIBER No. 19-20 TO TYPE C CABLE FIBER No. 43-44 GOING SOUTH TO HUB No. 3.
5. AT CABLE NODE 9, PATCH FIBER No. 21-22 TO TYPE C CABLE FIBER No. 45-46 GOING SOUTH TO HUB No. 3.
6. AT SPLICE VAULT NB, Rte 5, SPLICE FIBER No. 43-44 TO TYPE C FIBER No. 43-44 GOING SOUTH TO HUB No. 3.
7. AT SPLICE VAULT NB, Rte 5, SPLICE FIBER No. 45-46 TO TYPE C FIBER No. 45-46 GOING SOUTH TO HUB No. 3.
8. AT HUB No. 8, PATCH FIBER No. 21-22 TO TYPE C FIBER No. 55-56 GOING SOUTH TO HUB No. 4.
9. AT HUB No. 8, PATCH FIBER No. 19-20 TO TYPE C CABLE FIBER No. 68-69 GOING EAST TO HUB No. 1.
10. AT HUB No. 8, PATCH FIBER No. 23-24 TO TYPE C CABLE FIBER No. 70-71 GOING EAST TO HUB No. 1.

TYPE C CABLE-TRUNKLINE (ROUTE 405) FROM HUB No. 3 TO SPLICE VAULT AT NB ROUTE 605

FIBER No.	◆ HUB No. 3 Rte 5/AVERY Pkwy	◆ SPLICE VAULT NB, Rte 5 Sta 109+80	CN 9 Rte 405/Rte 55	TS Loc No. 134 NB, ANTON Blvd, ON	TS Loc No. 135 NB, Ave OF THE ARTS, OFF	TS Loc No. 136 SB, BRISTOL St, OFF	TS Loc No. 137 NB, BRISTOL St, OFF	TS Loc No. 138 NB, FAIRVIEW Rd, OFF	TS Loc No. 139 SB, FAIRVIEW Rd, OFF	TS Loc No. 141 NB, SUSAN St, OFF	TS Loc No. 140 NB, SOUTH COAST Dr	TS Loc No. 142 NB, HARBOR Blvd, OFF	TS Loc No. 143 SB, HARBOR Blvd, OFF	TS Loc No. 144 NB, SOUTH COAST Dr/ HYLAND Ave, ON	TS Loc No. 145 NB, EUCLID St, OFF	TS Loc No. 146 SB, EUCLID St, ON	HUB No. 4 Rte 405/EUCLID	FIBER No.	REMARKS
1-18																		1-18	
19-20			X>							<X>	<X>*	<X>*	<X>*	<X>*	<X>*	<X>*	<X	19-20	TS CIRCUIT 18; HUB 4 PRI / HUB 3 SEC
21-22			X>	<X>*	<X>*	<X>*	<X>*	<X>	<X>								<X	21-22	TS CIRCUIT 45; HUB 4 PRI / HUB 3 SEC
23-42																		23-42	
43-44	X>	<X>	<X															43-44	TS CIRCUIT 18 TO HUB 3
45-46	X>	<X>	<X															45-46	TS CIRCUIT 45 TO HUB 3
47-72																		47-72	

◆ TYPE C CABLE - TRUNKLINE (ROUTE 5)

TYPE C CABLE-TRUNKLINE (ROUTE 405) FROM HUB No. 3 TO SPLICE VAULT AT NB ROUTE 605

FIBER No.	HUB No. 4 Rte 405/EUCLID	TS Loc No. 147 SB, MAGNOLIA St, OFF	TS Loc No. 148 SB, BEACH Blvd SOUTH, OFF	TS Loc No. 149 SB, GOLDENWEST St, OFF	TS Loc No. 150 SB, BOLSA CHICA Rd, OFF	HUB No. 8 Rte 405/Rte 22	TS Loc No. 151 NB, SEAL BEACH Blvd, OFF	TS Loc No. 152 SB, SEAL BEACH Blvd, OFF	SPLICE VAULT NB Rte 605 Sta 264+85	FIBER No.	REMARKS
1-18										1-18	
19-20	X>	<X>*	<X>*	<X>*	<X>*	<X				19-20	TS CIRCUIT 18; HUB 4 PRI
21-22						X>	<X>*	<X>*	<X	21-22	TS 20
23-24						X>			<X	23-24	TS 20 (LOOP BACK)
25-54										25-54	
55-56	X>					<X				55-56	
57-72										57-72	

TYPE C CABLE TRUNKLINE (ROUTE 22) FROM HUB No. 1 TO HUB No. 8

FIBER No.	HUB No. 1 Rte 5/LA VETA	HUB No. 8 Rte 405/Rte 22	FIBER No.	REMARKS
68-69	X>	<X	68-69	TS CIRCUIT 18 TO HUB 1 SEC
70-71	X>	<X	70-71	TS 20 (LOOP BACK) TO HUB 1 SEC

FIBER ASSIGNMENTS
(ROUTE 405)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-109

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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CHECKED BY: JOSHUA MCNEILL
REVISED BY / DATE REVISED

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	135	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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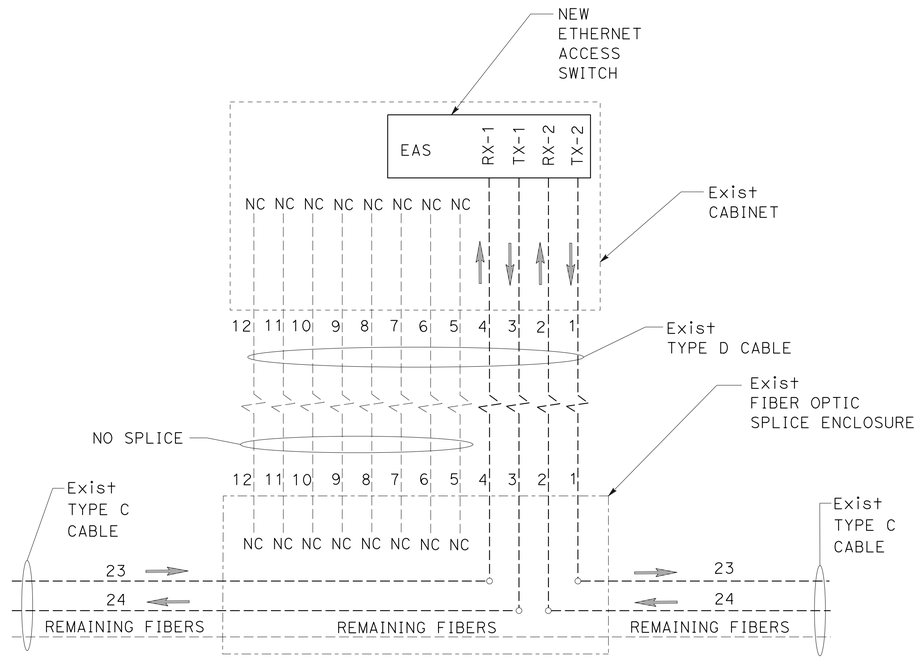
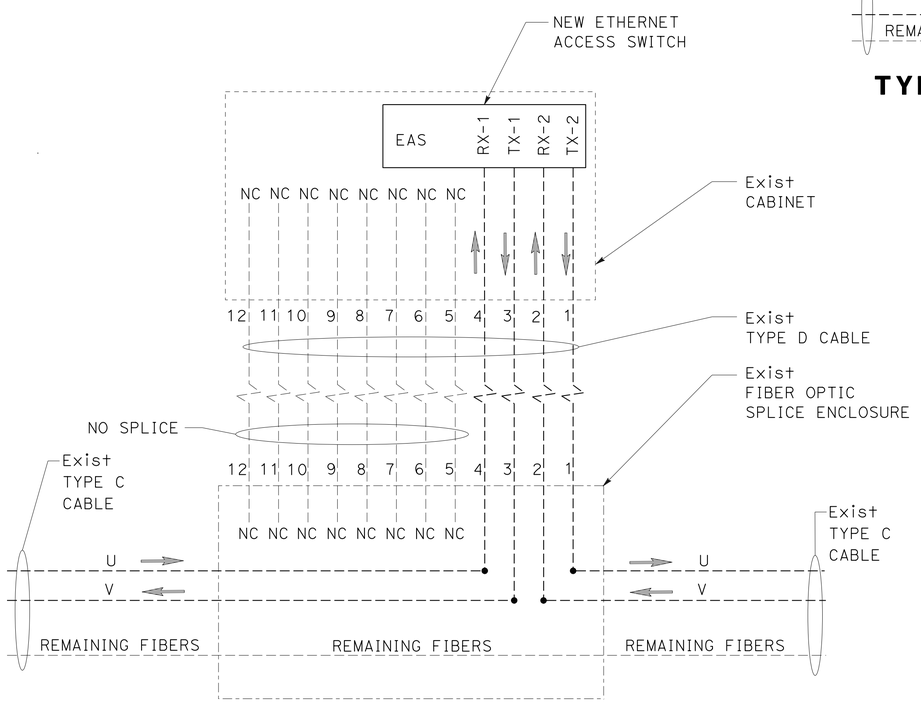
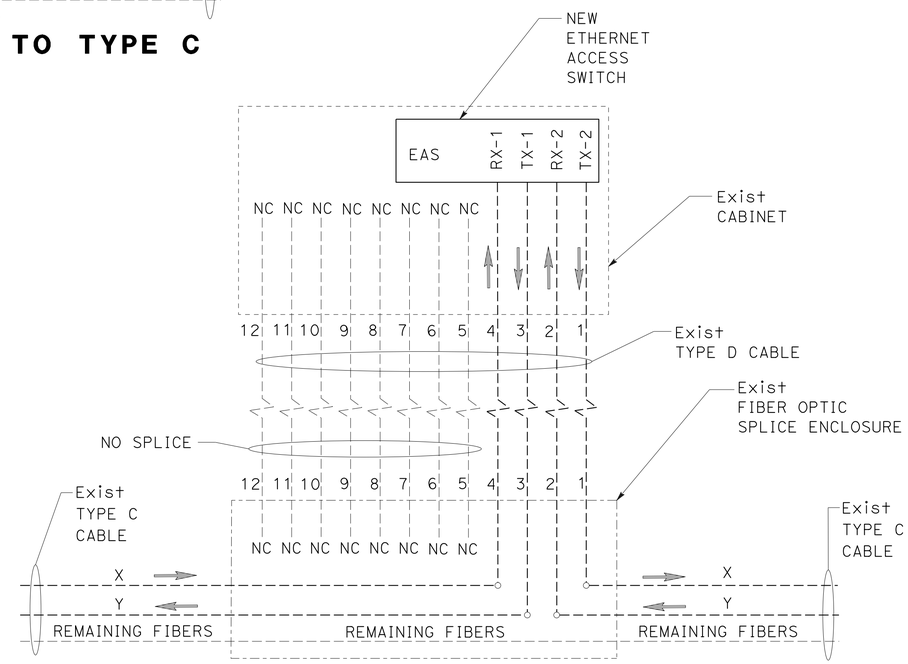
2. FOR CCTV U AND V FIBER ASSIGNMENTS, SEE SHEET E-90.
3. FOR RMS/TMS X AND Y FIBER ASSIGNMENTS, SEE SHEET E-92.



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR CMS



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR CCTV



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR RMS/TMS

FIBER OPTIC SPLICING FOR TYPE D TO TYPE C DETAILS
(ROUTE 5)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-110

REVISED BY	DATE REVISED
RUBEN MANRIQUEZ	JOSHUA MCNEILL

CALCULATED-DESIGNED BY / CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF

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12	Ora	5, 22, 57, 73, 133, *etc.*	Var	136	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

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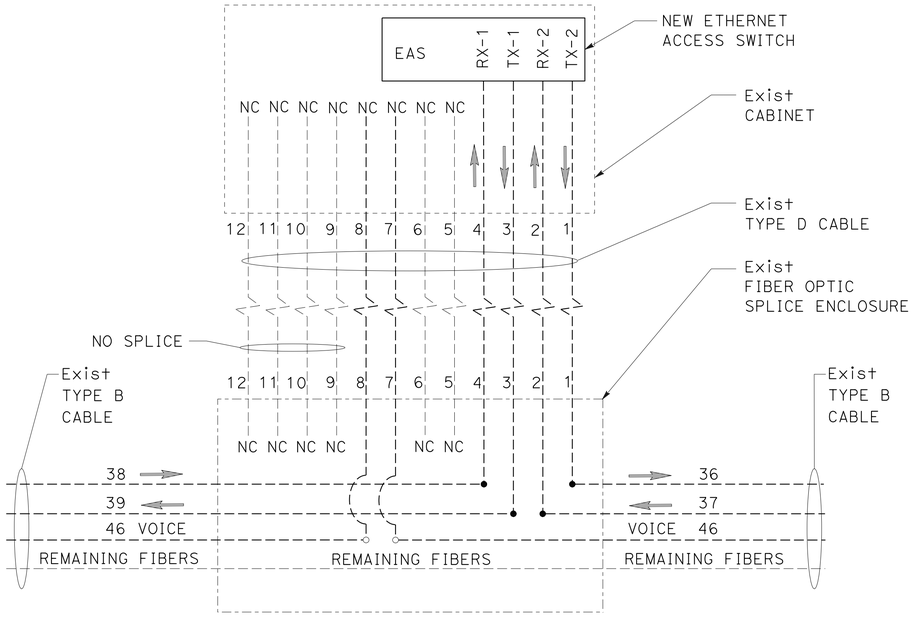
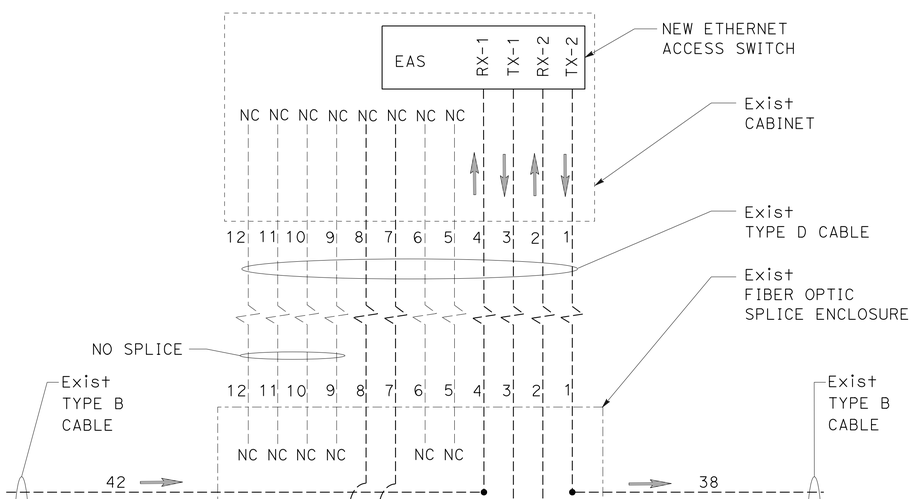
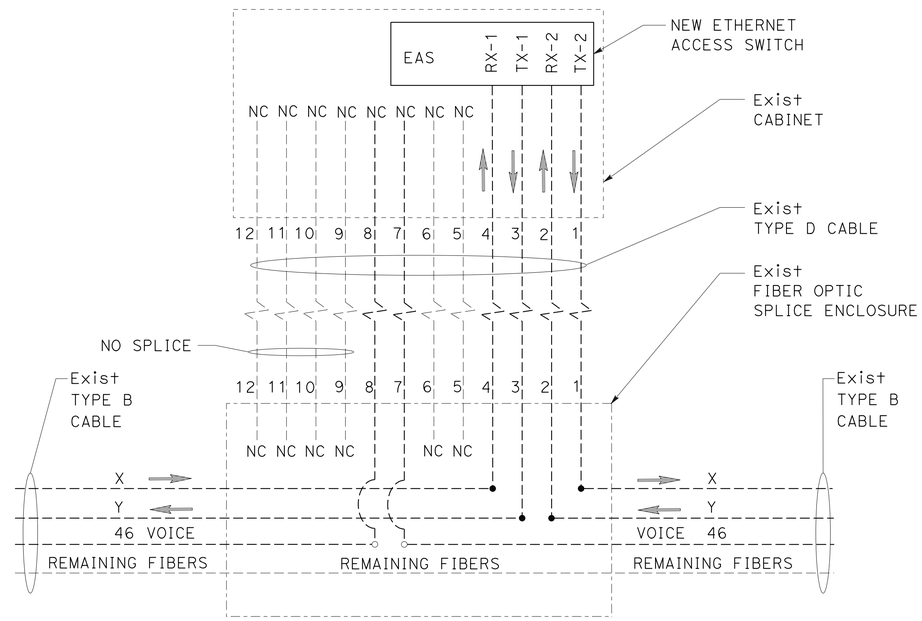


TYPE D TO B CONNECTION FOR CCTV 158



TYPE D TO B CONNECTION FOR CCTV 159



TYPICAL CONNECTION OF TYPE D TO TYPE B FOR CCTV

FIBER ASSIGNMENT (TYPE B CABLE)	
	Y-Z
CCTV 163	38-39
CCTV 164	38-39
CCTV 162	38-39
CCTV 161	38-39
CCTV 160	38-39
CCTV 030	38-39
CCTV 031	38-39
CCTV 032	38-39
CCTV 008	38-39
CCTV 033	38-39
CCTV 157	40-41
CCTV 156	40-41
CCTV 155	40-41
CCTV 154	40-41

(ROUTE 22)

FIBER OPTIC SPLICING FOR TYPE D TO TYPE B DETAILS
(ROUTE 22)

MODIFY COMMUNICATION SYSTEM

NO SCALE

APPROVED FOR ELECTRICAL WORK ONLY

E-111

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	137	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

PLANS APPROVAL DATE 06-08-15

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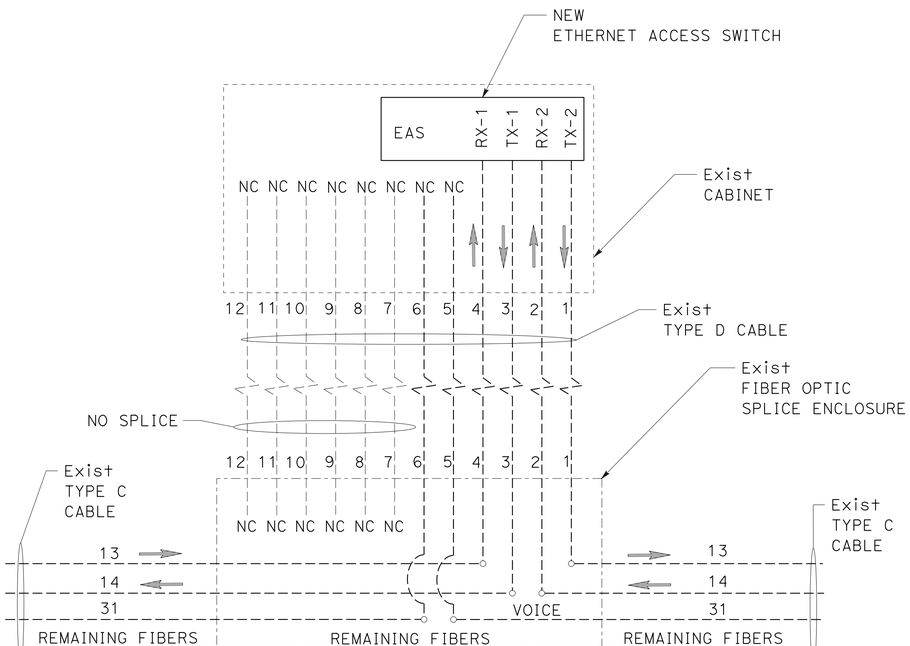
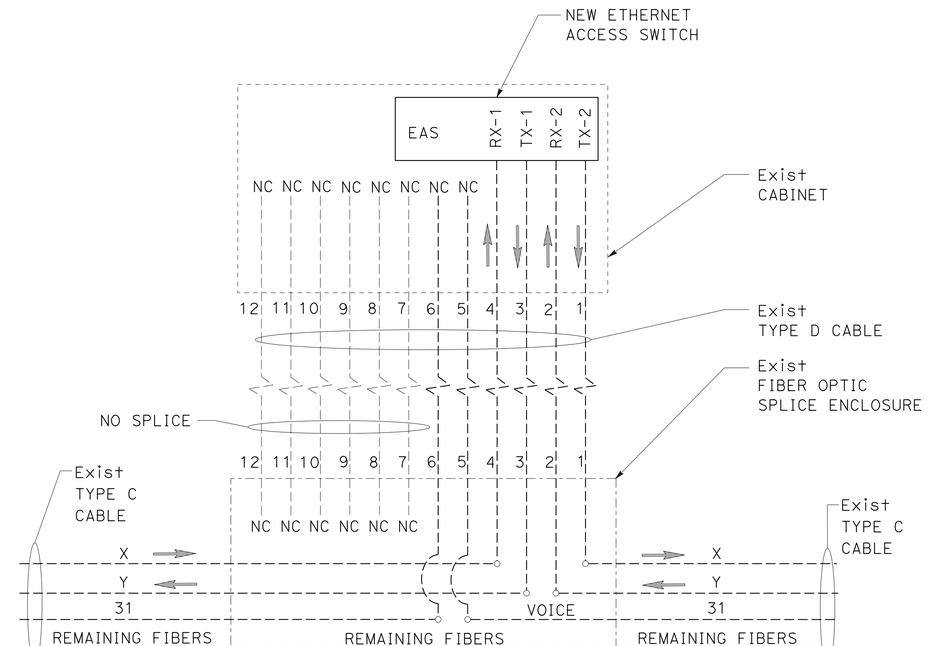
2. FOR RMS/TMS X AND Y FIBER ASSIGNMENTS, SEE SHEETS E-95 THROUGH E-97.



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR CMS



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR RMS/TMS

FIBER OPTIC SPLICING FOR TYPE D TO TYPE C DETAILS (ROUTE 22)

APPROVED FOR ELECTRICAL WORK ONLY

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-112

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DATE REVISED

LAST REVISION 06-08-15
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TIME PLOTTED => 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	138	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

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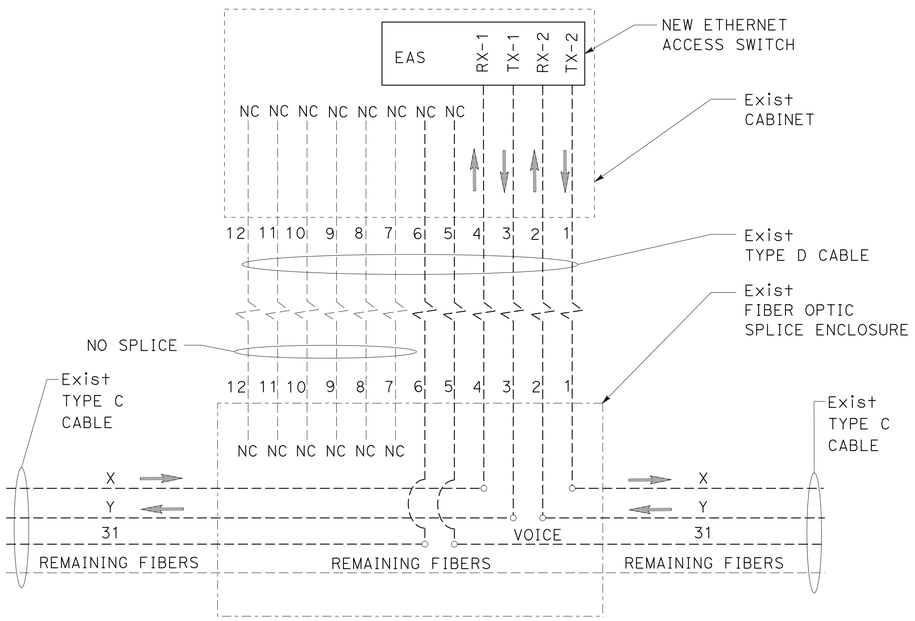
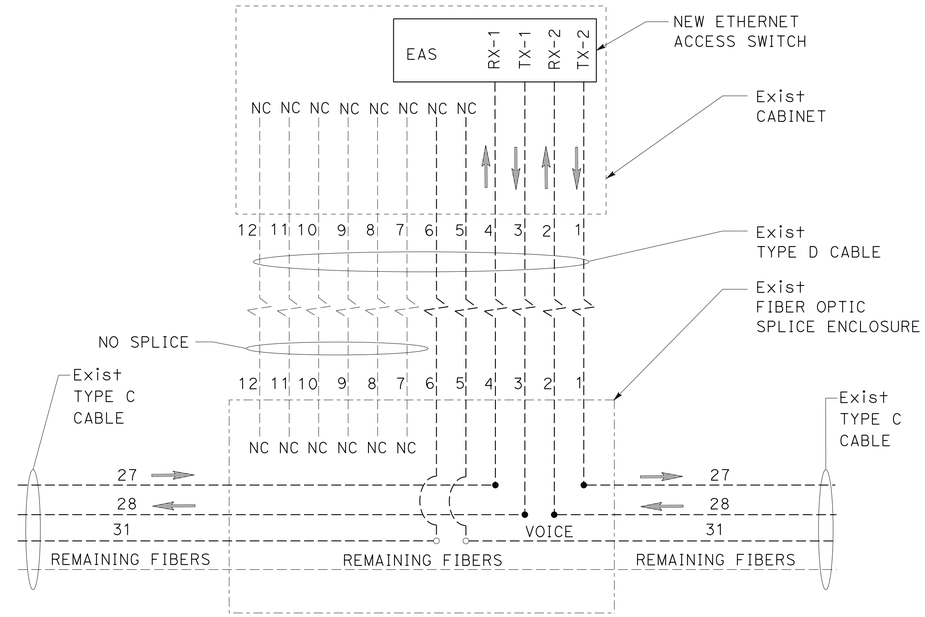
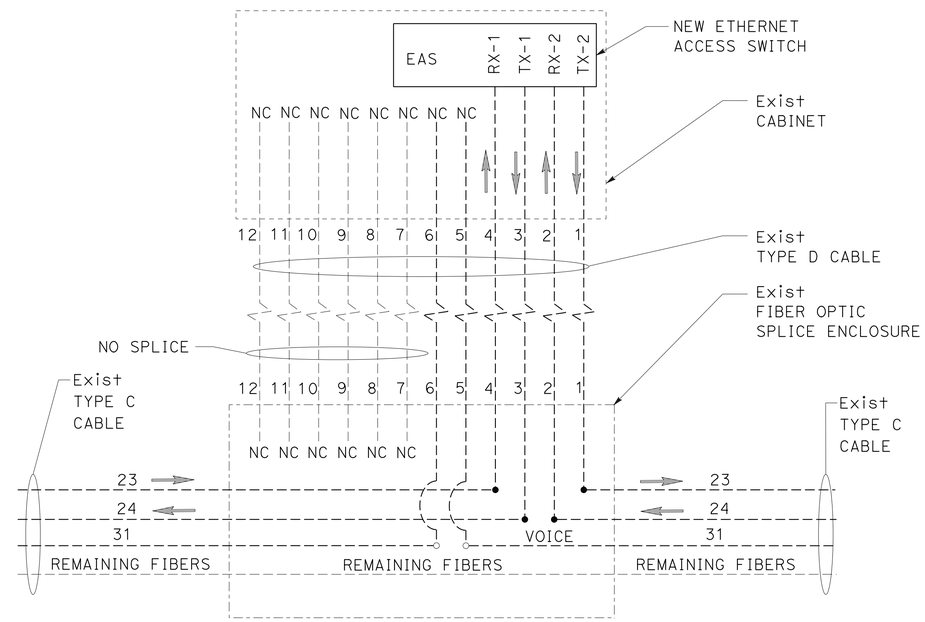
2. FOR TS X AND Y FIBER ASSIGNMENTS, SEE SHEETS E-98 & E-99.



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR TS



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR TS Loc No. 78 THROUGH TS Loc No. 81



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR TS Loc No. 89 THROUGH TS Loc No. 94

FIBER OPTIC SPLICING FOR TYPE D TO TYPE C DETAILS (ROUTE 22)

MODIFY COMMUNICATION SYSTEM

NO SCALE

APPROVED FOR ELECTRICAL WORK ONLY

E-113

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	139	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

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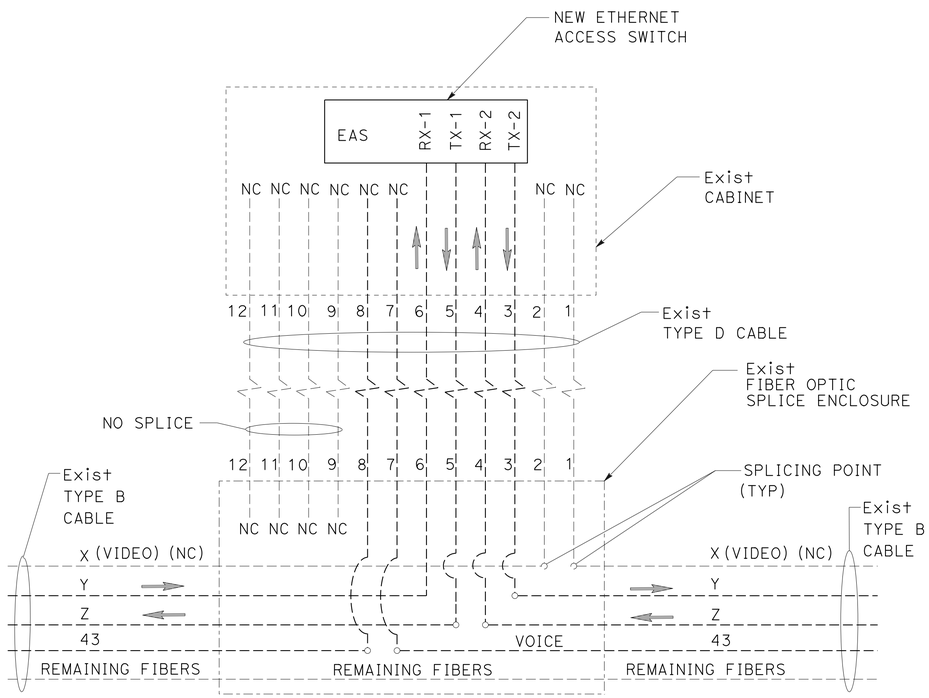
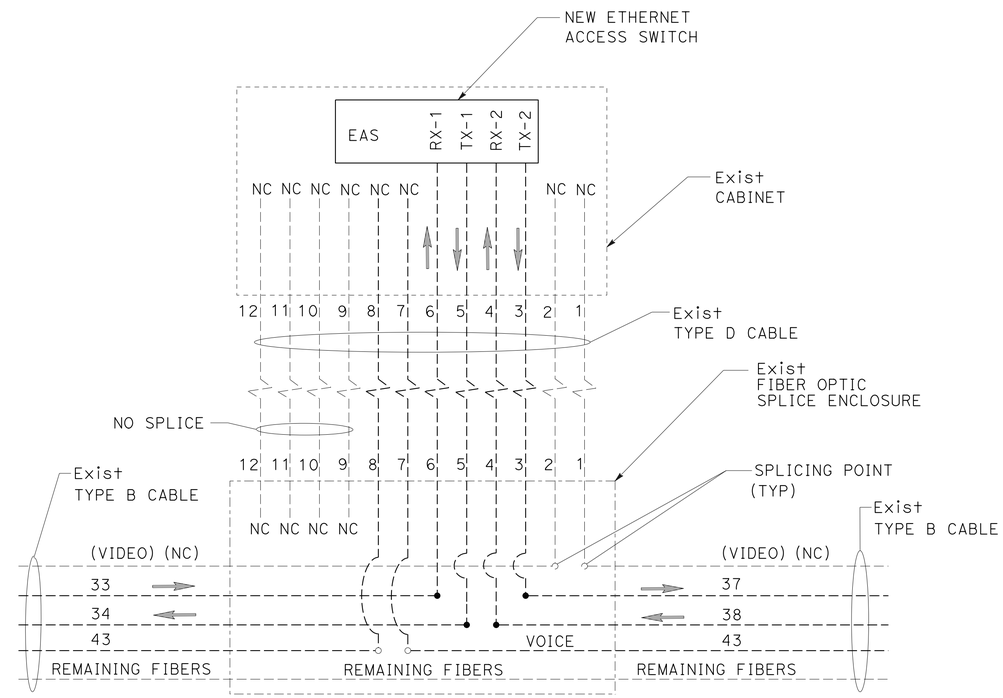


TYPICAL CONNECTION OF TYPE D TO TYPE B FOR CCTV

FIBER ASSIGNMENT (TYPE B CABLE)	
	Y-Z
CCTV 012	37-38
CCTV 170	37-38
CCTV 174	37-38
CCTV 078	37-38
CCTV 006	37-38
CCTV 176	37-38
CCTV 079	37-38
CCTV 080	37-38
CCTV 178	37-38
CCTV 179	37-38
CCTV 180	37-38
CCTV 081	37-38
CCTV 183	37-38
CCTV 082	37-38
CCTV 184	37-38

TRUNKLINE (ROUTE 57)



TYPE D TO TYPE B CONNECTION FOR CCTV 177

FIBER OPTIC SPLICING FOR TYPE D TO TYPE B DETAILS (ROUTE 57)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-114

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	140	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

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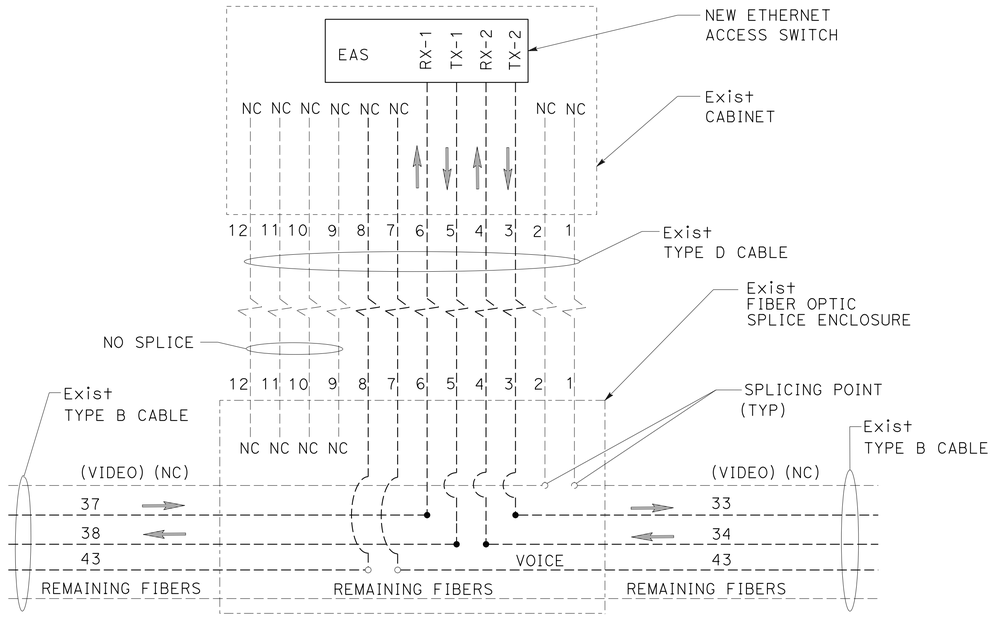
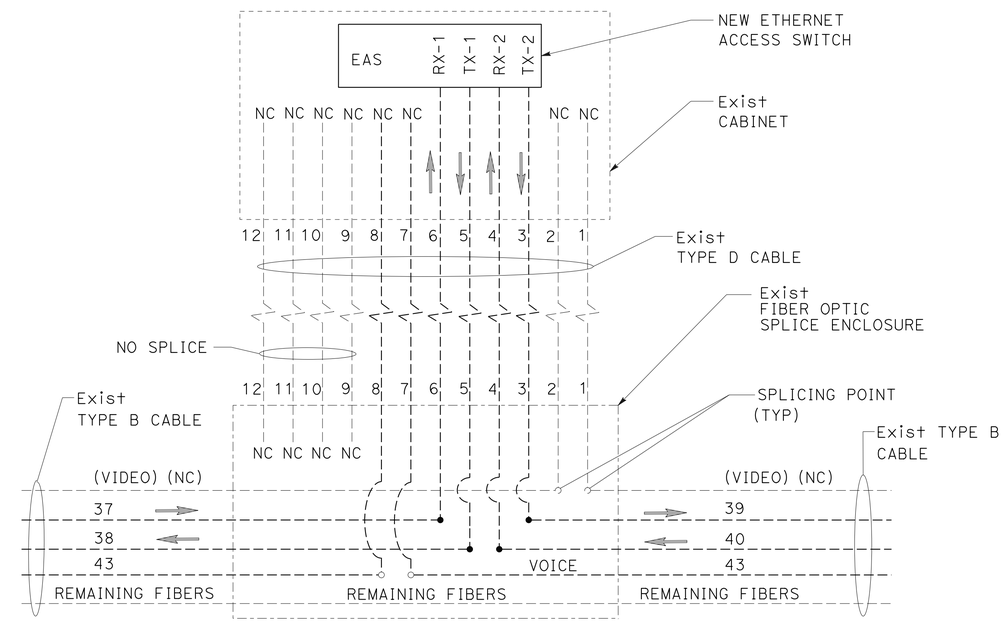
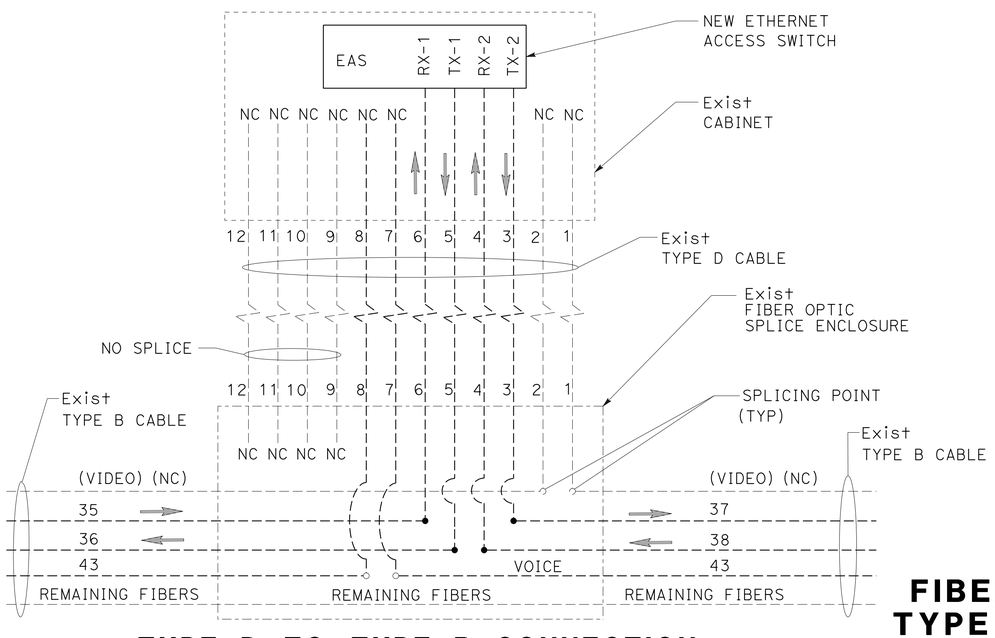


TYPE D TO TYPE B CONNECTION FOR CCTV 181



TYPE D TO TYPE B CONNECTION FOR CCTV 185



TYPE D TO TYPE B CONNECTION FOR CCTV 182

FIBER OPTIC SPLICING FOR TYPE D TO TYPE B DETAILS (ROUTE 57)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-115

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TIME PLOTTED => 11:40

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12	Ora	5, 22, 57, 73, 133, *etc.*	Var	141	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

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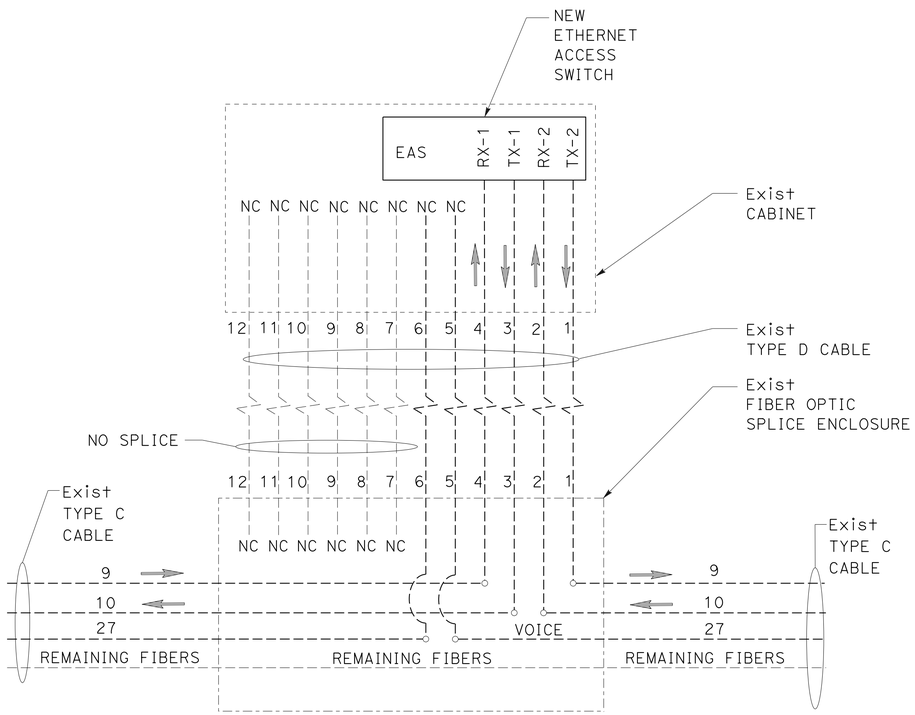
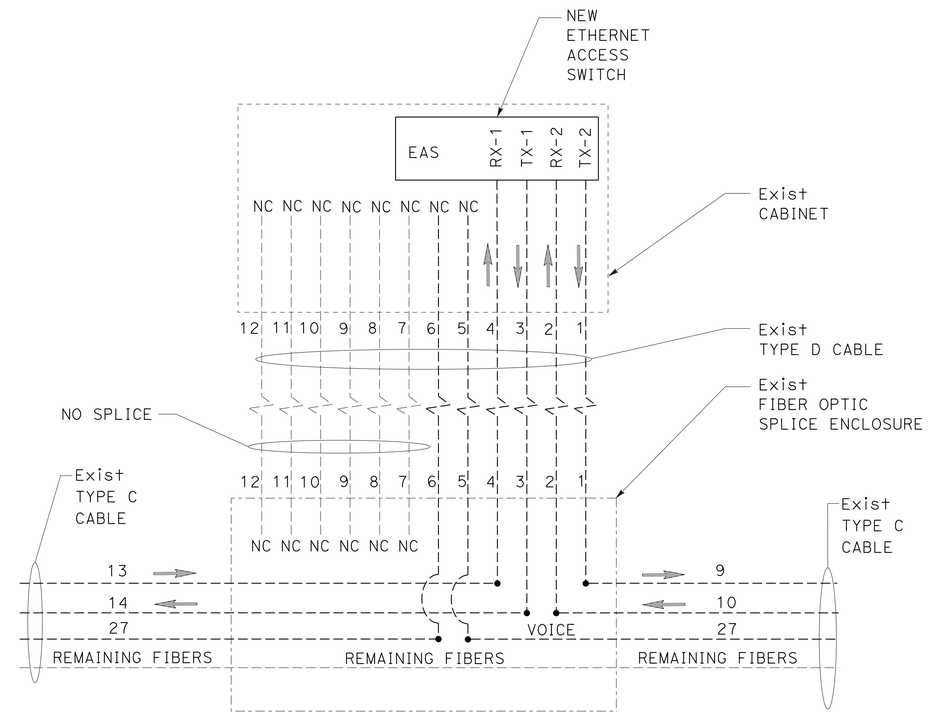


TYPICAL CONNECTION OF TYPE D TO TYPE C FOR CMS



TYPE D TO C CONNECTION FOR CMS 021

FIBER OPTIC SPLICING FOR TYPE D TO TYPE C DETAILS (ROUTE 57)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-116

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REVISED BY
DATE REVISED

LAST REVISION 06-08-15
DATE PLOTTED => 29-SEP-2015
TIME PLOTTED => 11:40

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	142	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

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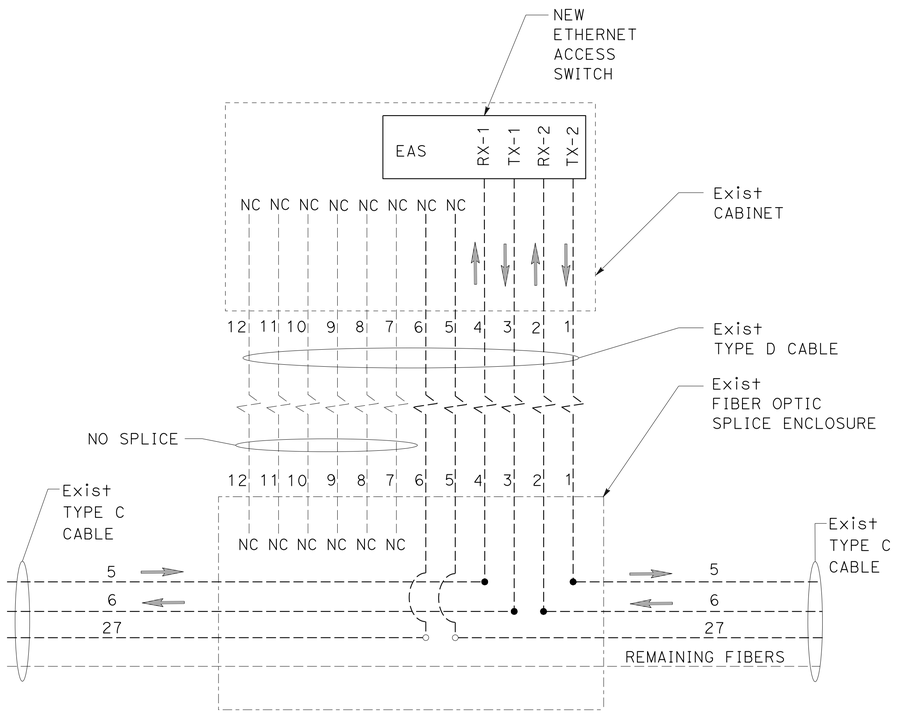
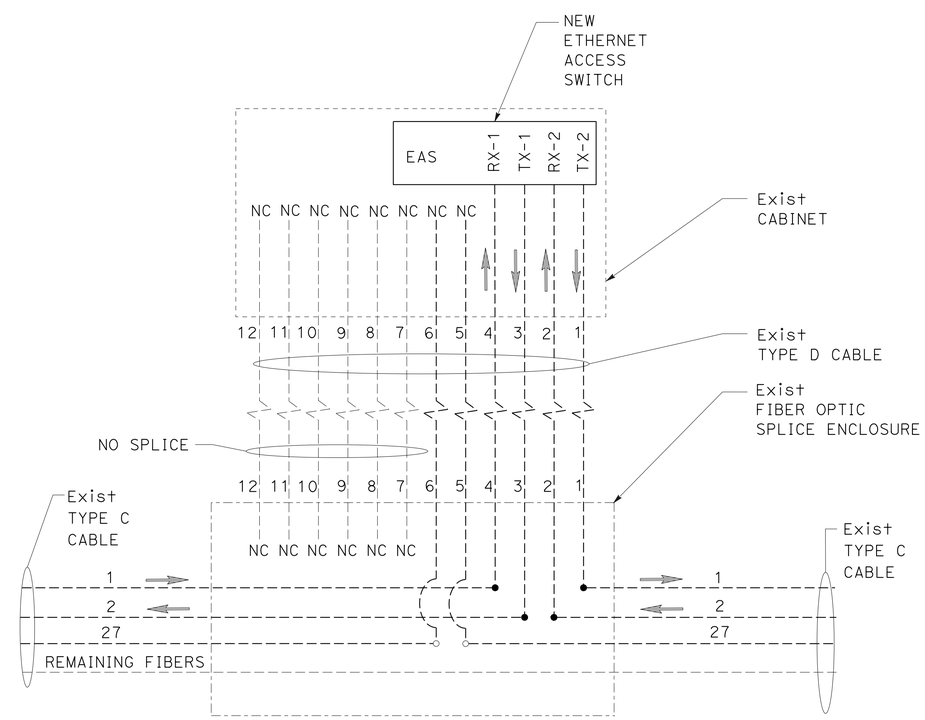


TYPICAL CONNECTION OF TYPE D TO TYPE C FOR RMS/TMS 3958 TO RMS/TMS 3960 AND RMS/TMS 0308 TO RMS/TMS 2357



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR RMS/TMS 3992 TO RMS/TMS 3990

FIBER OPTIC SPLICING FOR TYPE D TO TYPE C DETAILS
(ROUTE 57)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-117

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	143	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

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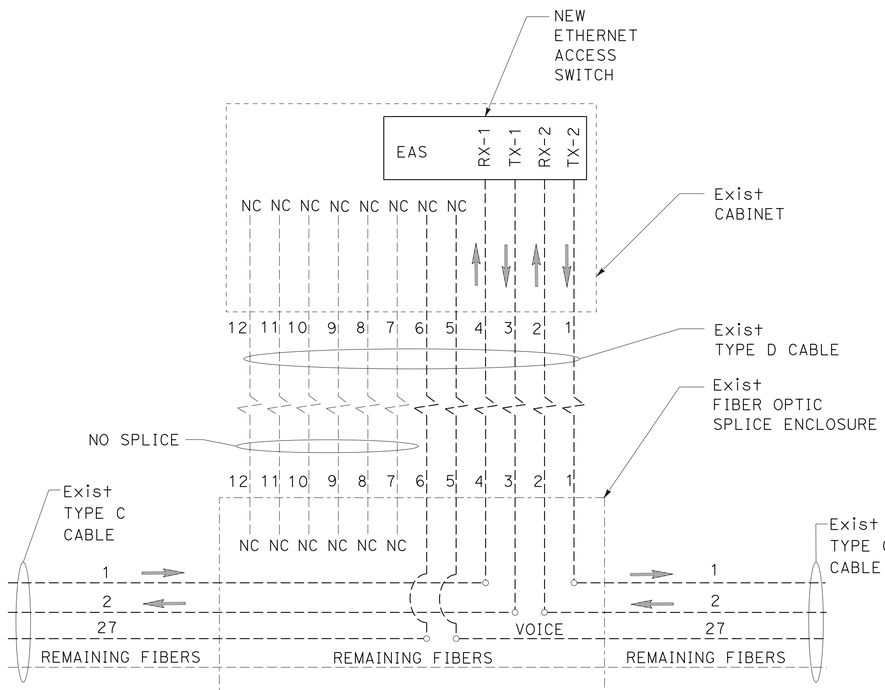
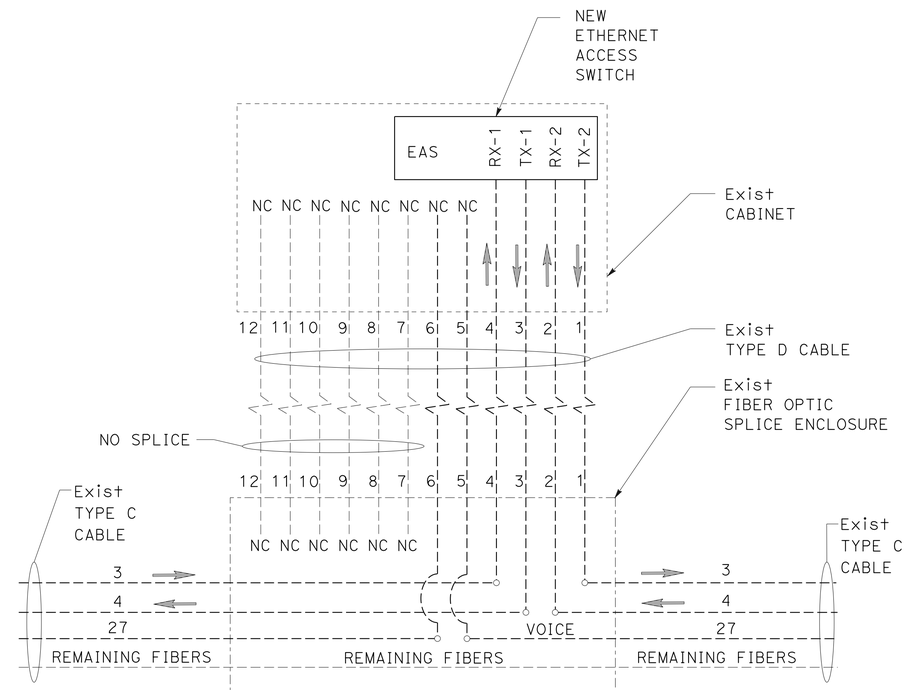


TYPICAL CONNECTION OF TYPE D TO TYPE C FOR RMS/TMS 2352 TO RMS/TMS 3957



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR RMS/TMS 4000 TO RMS/TMS 2510 AND RMS/TMS 2376 TO RMS/TMS 3970

FIBER OPTIC SPLICING FOR TYPE D TO TYPE C DETAILS
(ROUTE 57)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-118

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CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF

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12	Ora	5, 22, 57, 73, 133, *etc.*	Var	144	308

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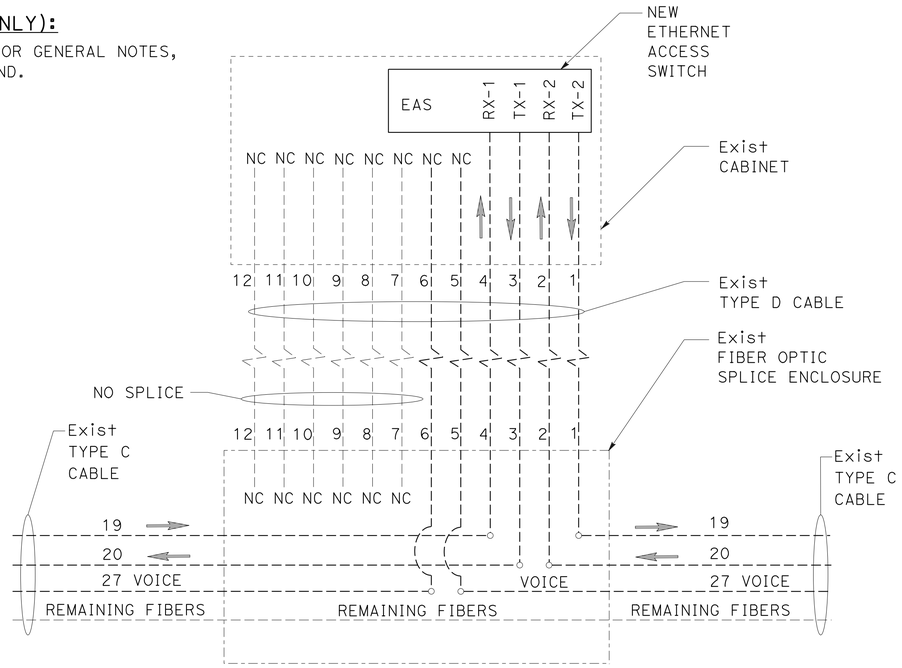
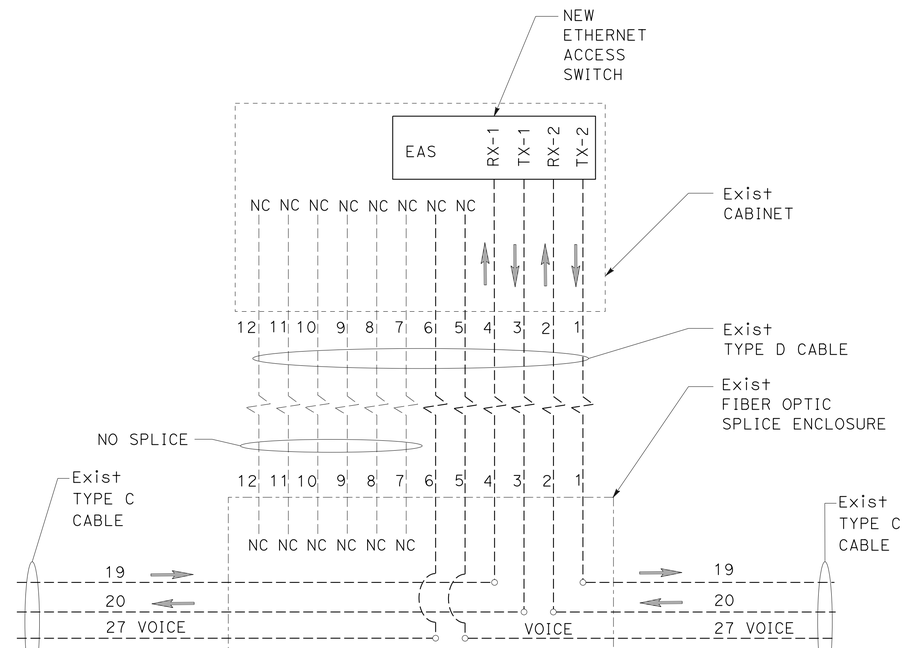
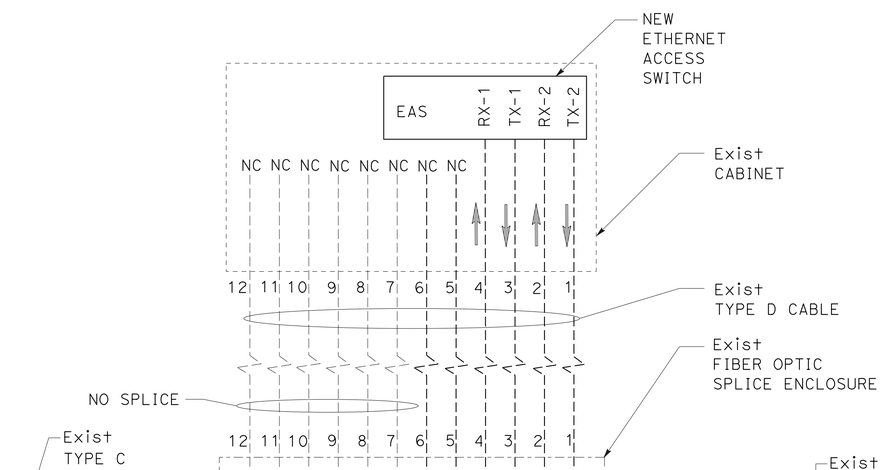


TYPICAL CONNECTION OF TYPE D TO TYPE C FOR TS Loc No. 59 THROUGH TS Loc No. 68



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR TS Loc No. 70 THROUGH TS Loc No. 76



TYPE D TO C CONNECTION FOR TS Loc No. 78

FIBER OPTIC SPLICING FOR TYPE D TO TYPE C DETAILS (ROUTE 57)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-119

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

LAST REVISION 06-08-15
DATE PLOTTED => 29-SEP-2015
TIME PLOTTED => 11:40

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	145	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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14725 ALTON PKWY
IRVINE, CA 92618

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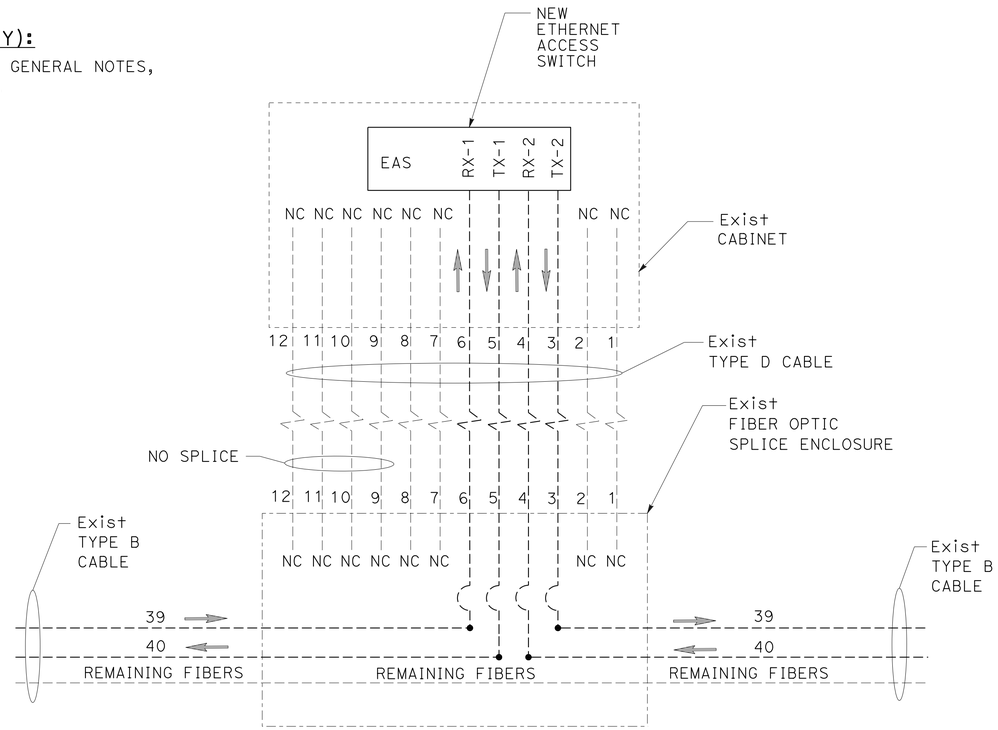
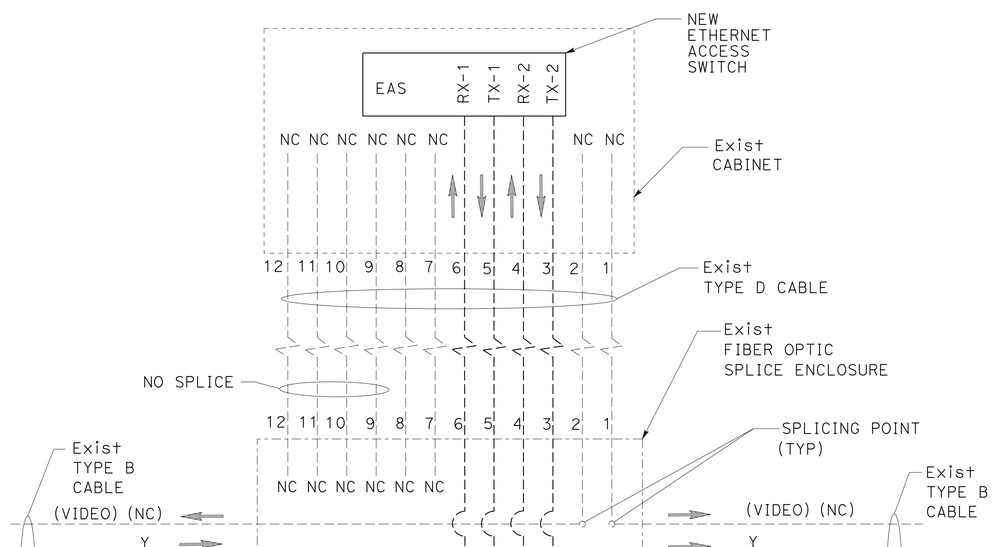


TYPICAL CONNECTION OF TYPE D TO TYPE B FOR CCTV 227, CCTV 228, CCTV 010, CCTV 143, AND CCTV 229

FIBER OPTIC SPLICING FOR TYPE D TO TYPE B DETAILS (ROUTE 405)

NO SCALE



TYPICAL CONNECTION OF TYPE D TO TYPE B FOR CCTV

FIBER ASSIGNMENT (TYPE B CABLE)	
	Y-Z
CCTV 141	31-32
CCTV 014	31-32
CCTV 166	31-32
CCTV 165	31-32
CCTV 220	37-38
CCTV 221	37-38
CCTV 222	37-38
CCTV 223	37-38
CCTV 224	37-38
CCTV 225	37-38
CCTV 226	37-38
CCTV 144	1-2
CCTV 145	1-2
CCTV 146	1-2

TRUNKLINE (ROUTE 405)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-120

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	146	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
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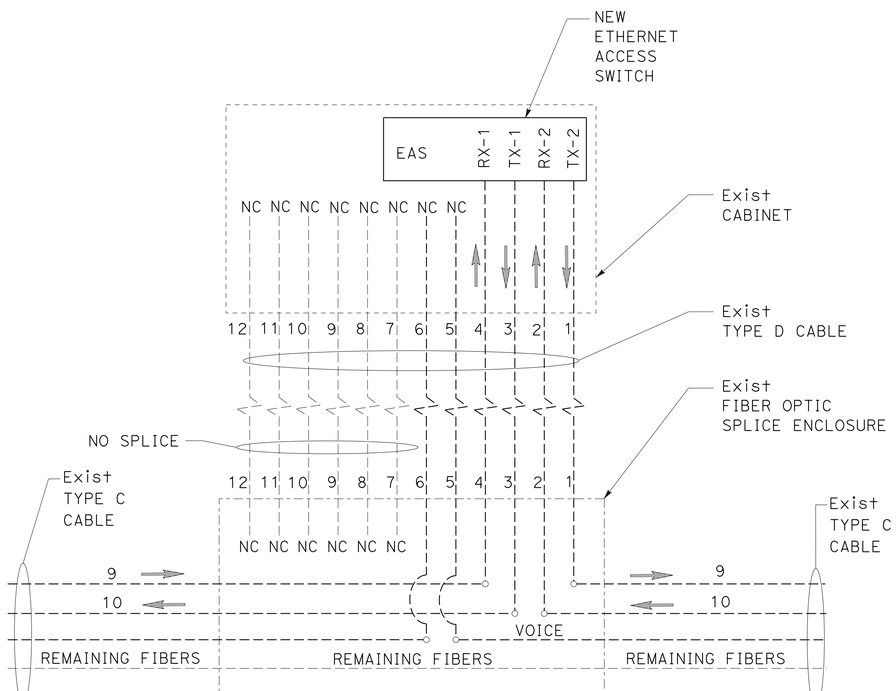
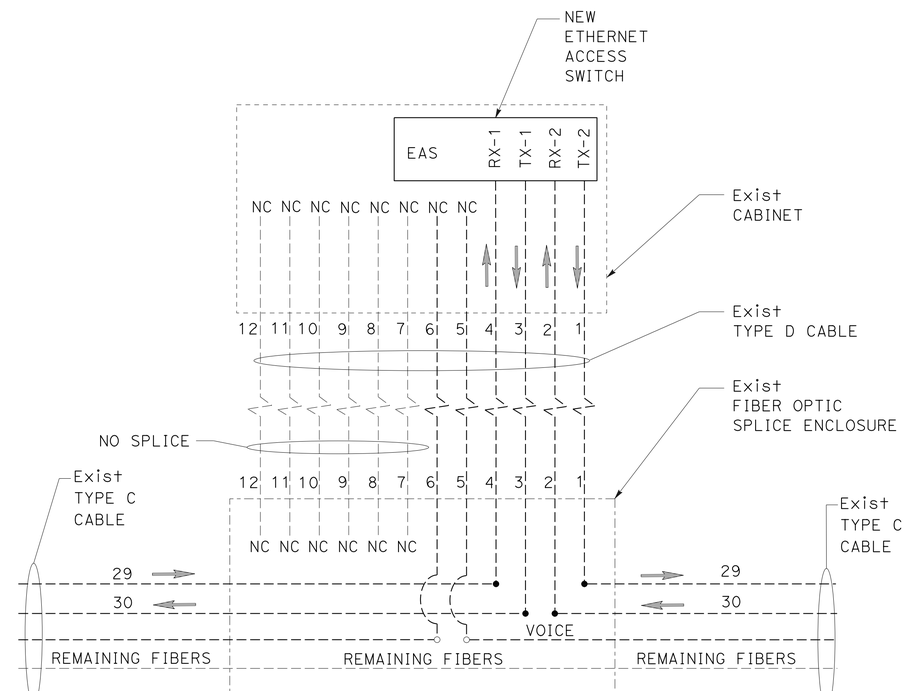


TYPE D TO TYPE C CONNECTION FOR CMS 086, CMS 071, AND CMS 023



TYPE D TO TYPE C CONNECTION FOR CMS 083

FIBER OPTIC SPLICING FOR TYPE D TO TYPE C DETAILS
(ROUTE 405)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-121

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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DATE REVISED

LAST REVISION 06-08-15
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TIME PLOTTED => 11:40

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	147	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

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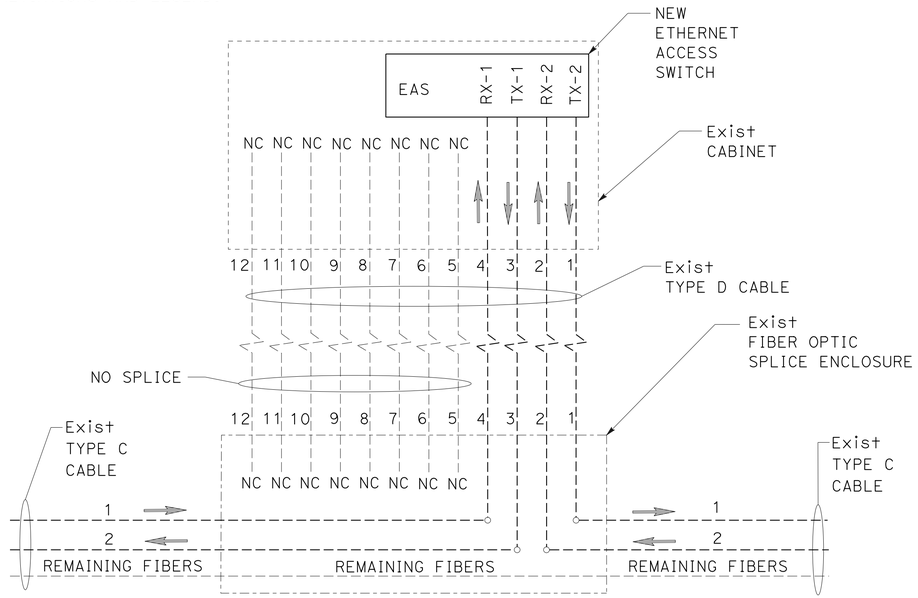
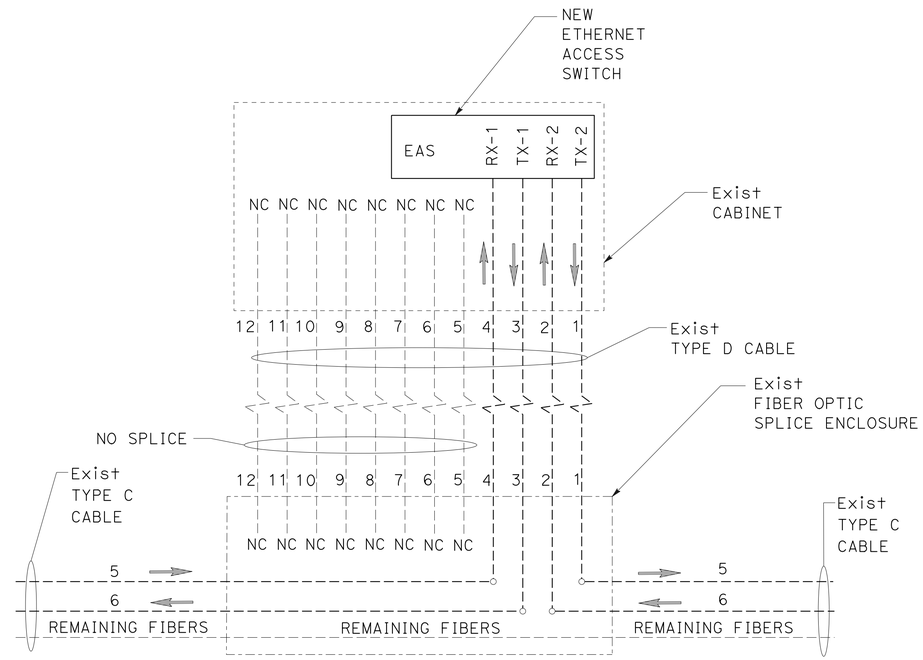
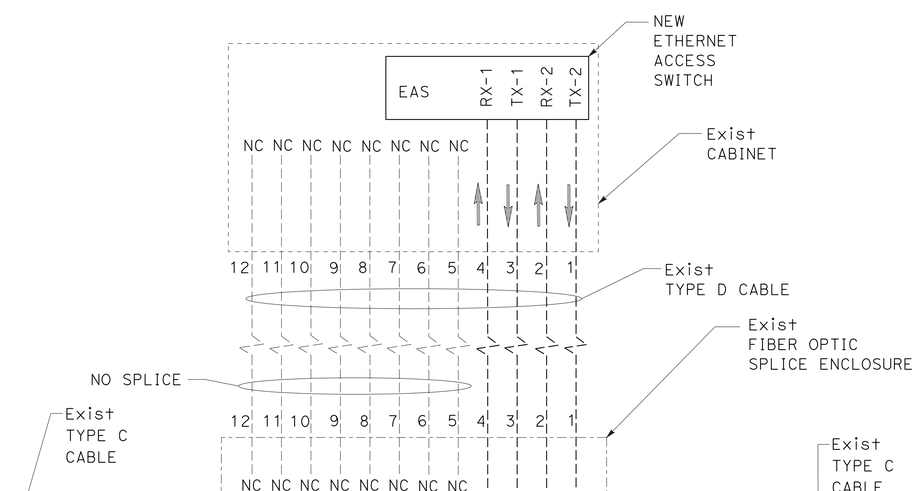


TYPICAL CONNECTION OF TYPE D TO TYPE C FOR RMS/TMS 4399 TO RMS/TMS 4397



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR RMS/TMS 8558 TO RMS/TMS 4348



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR RMS/TMS 5026 TO RMS/TMS 4350

FIBER OPTIC SPLICING FOR TYPE D TO TYPE C DETAILS
(ROUTE 405)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-122

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	148	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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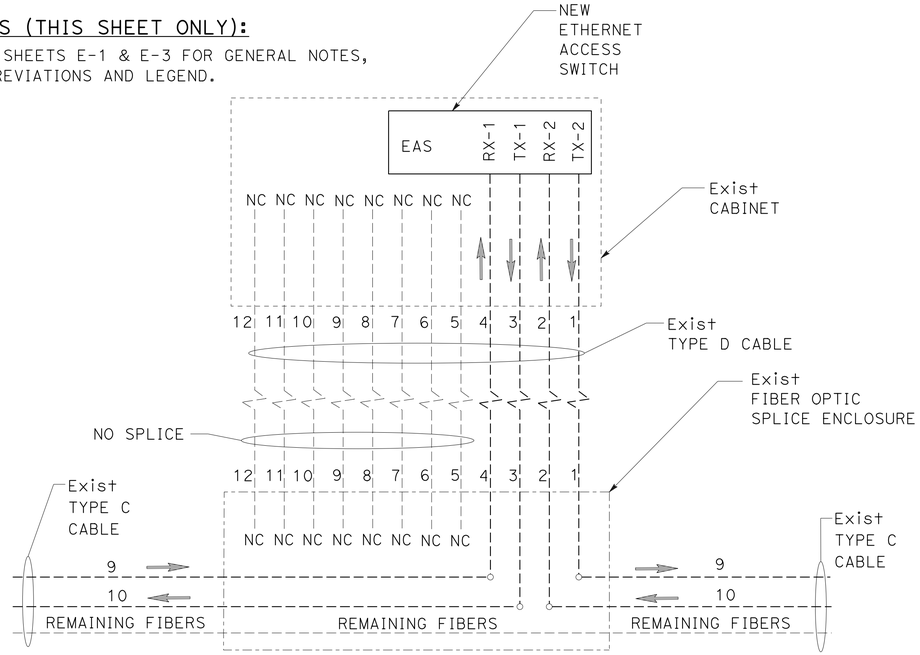
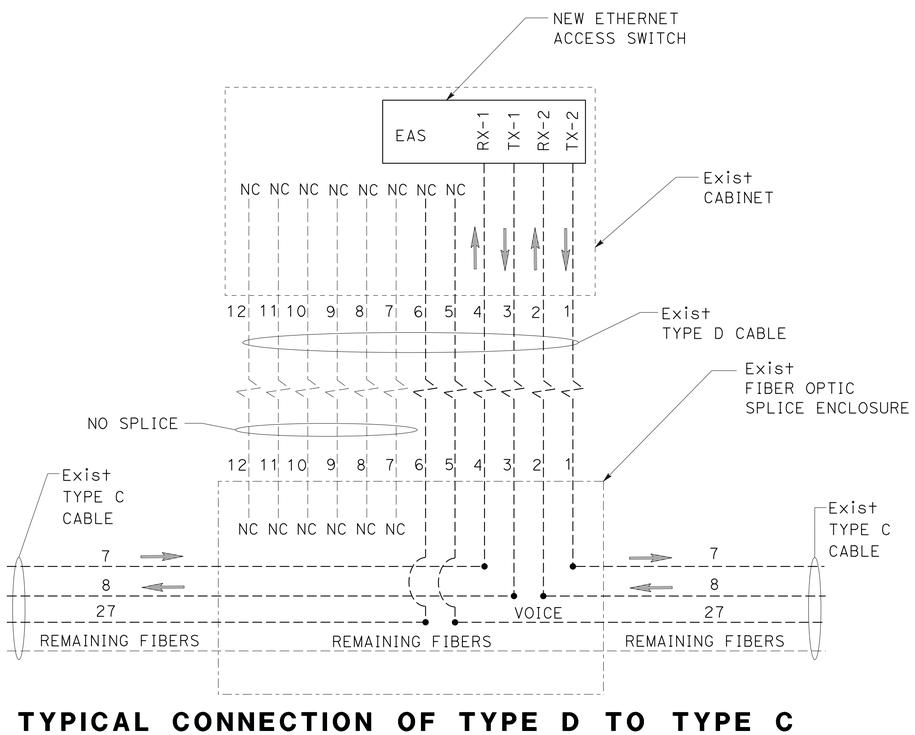
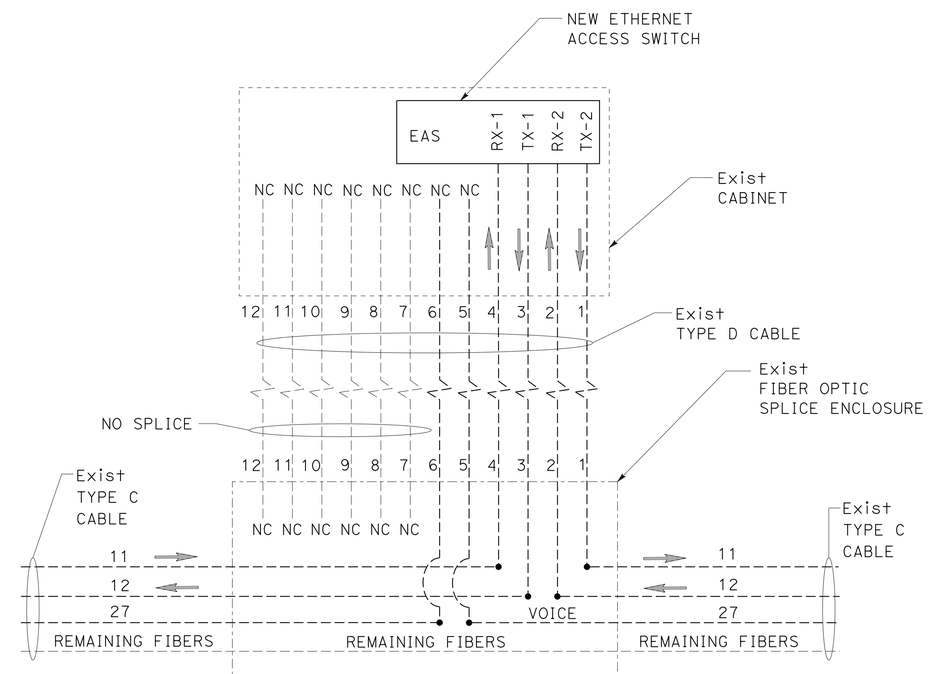


TYPICAL CONNECTION OF TYPE D TO TYPE C FOR RMS/TMS 2218 TO RMS/TMS 2219



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR RMS/TMS 4394 TO RMS/TMS 4357



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR RMS/TMS 5018 TO RMS/TMS 2417

FIBER OPTIC SPLICING FOR TYPE D TO TYPE C DETAILS
(ROUTE 405)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-123

REVISED BY	DATE REVISED
RUBEN MANRIQUEZ	JOSHUA MCNEILL

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	149	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

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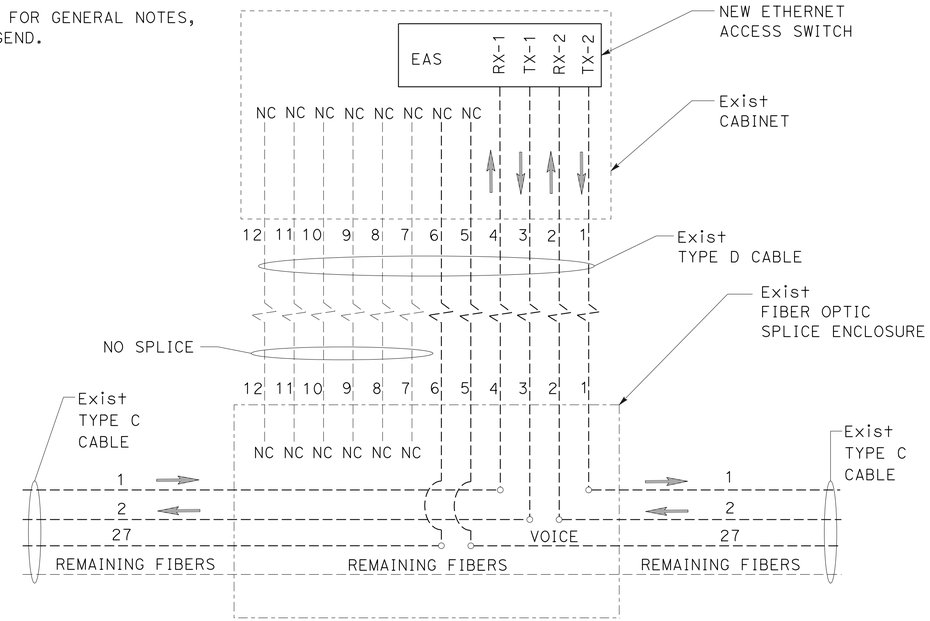
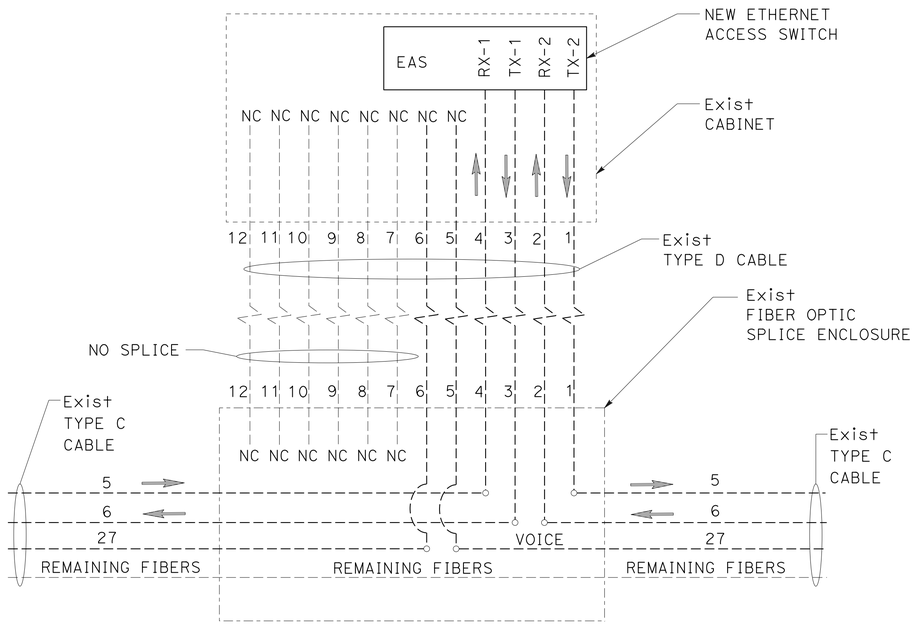
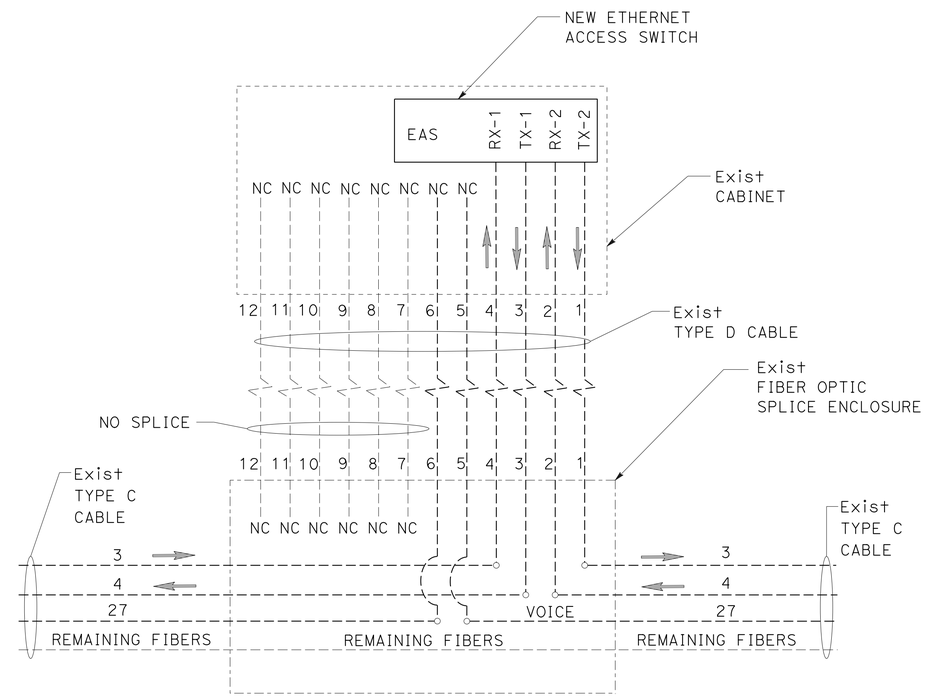


TYPICAL CONNECTION OF TYPE D TO TYPE C FOR RMS/TMS 4353 TO RMS/TMS 5014 AND RMS/TMS 5020 TO RMS/TMS 5021



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR RMS/TMS 4390 TO RMS/TMS 4362 AND RMS/TMS 4386 TO RMS/TMS 5022



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR RMS/TMS 4358 TO RMS/TMS 5016

FIBER OPTIC SPLICING FOR TYPE D TO TYPE C DETAILS (ROUTE 405)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-124

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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DATE REVISED

LAST REVISION 06-08-15
DATE PLOTTED => 29-SEP-2015
TIME PLOTTED => 11:40

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	150	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

PLANS APPROVAL DATE 06-08-15

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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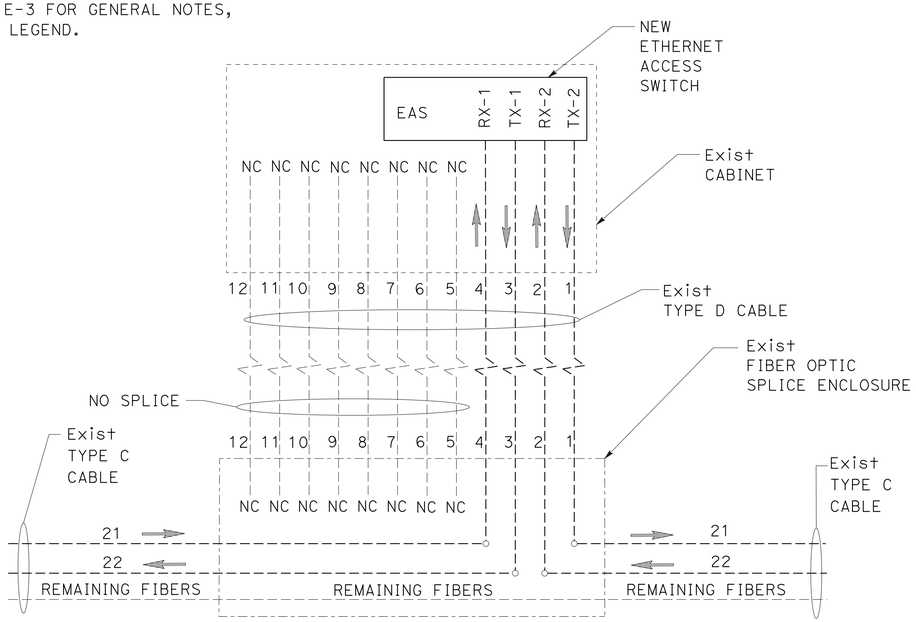
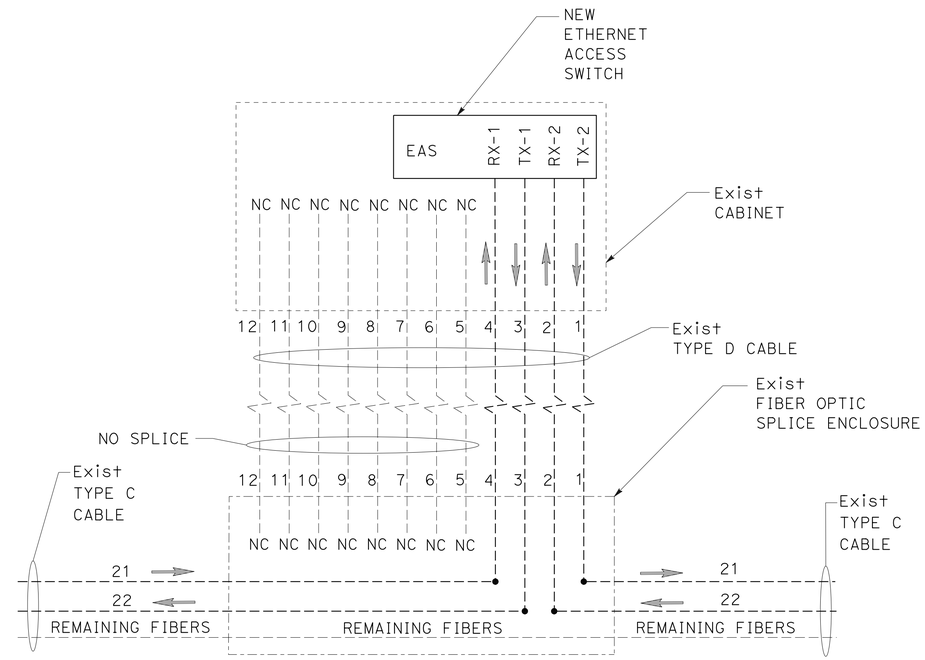
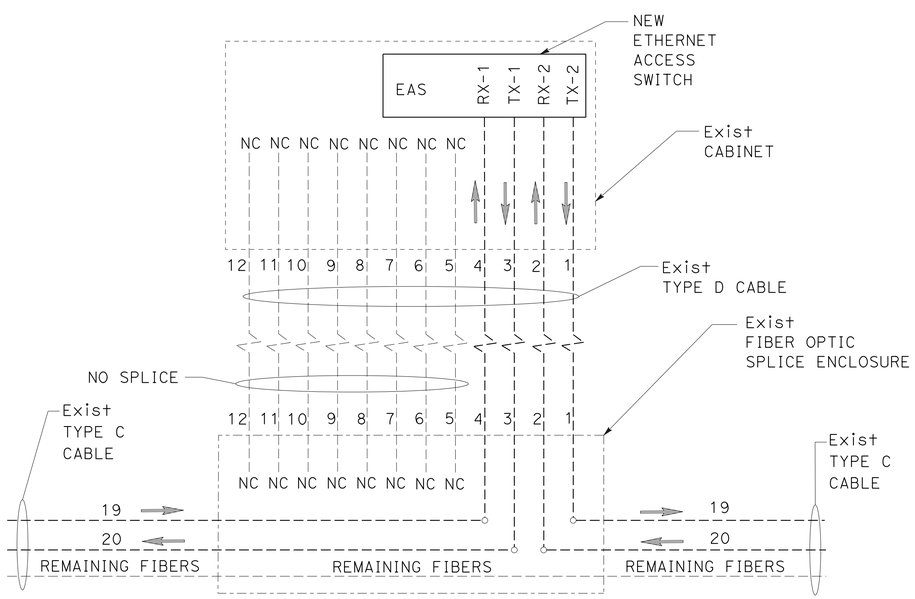


TYPICAL CONNECTION OF TYPE D TO TYPE C FOR TS Loc No. 134 THROUGH TS Loc No. 137, TS Loc No. 151, AND TS Loc No. 152



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR TS Loc No. 138 AND TS Loc No. 139



TYPICAL CONNECTION OF TYPE D TO TYPE C FOR TS Loc No. 140 THROUGH TS Loc No. 150

FIBER OPTIC SPLICING FOR TYPE D TO TYPE C DETAILS (ROUTE 405)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-125

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

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DATE REVISED

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	151	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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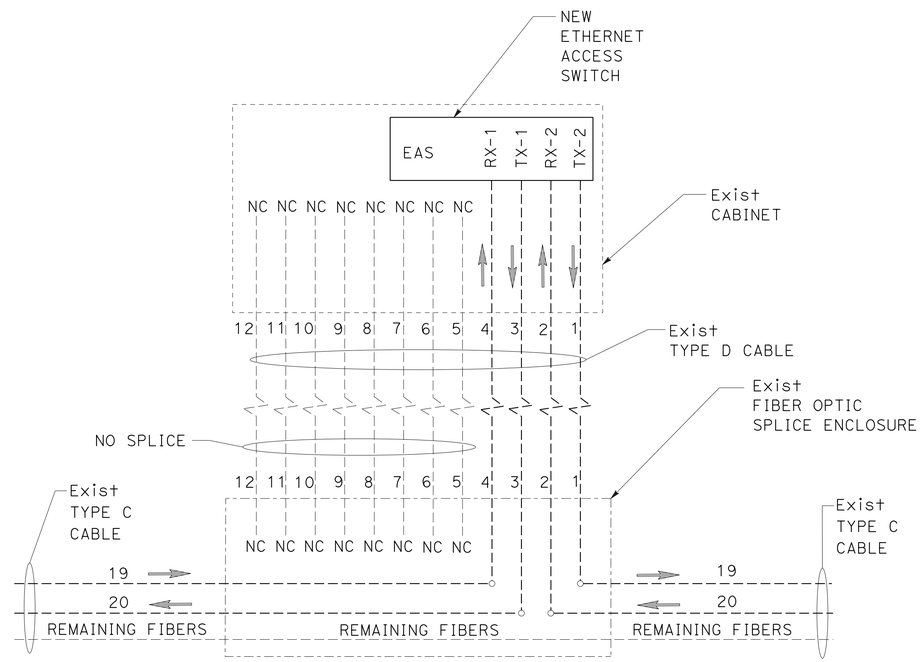

TYPICAL CONNECTION OF TYPE D TO TYPE C FOR TS Loc No. 141

FIBER OPTIC SPLICING FOR TYPE D TO TYPE C DETAILS (ROUTE 405)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-126

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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LAST REVISION 06-08-15
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	152	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
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IRVINE, CA 92618

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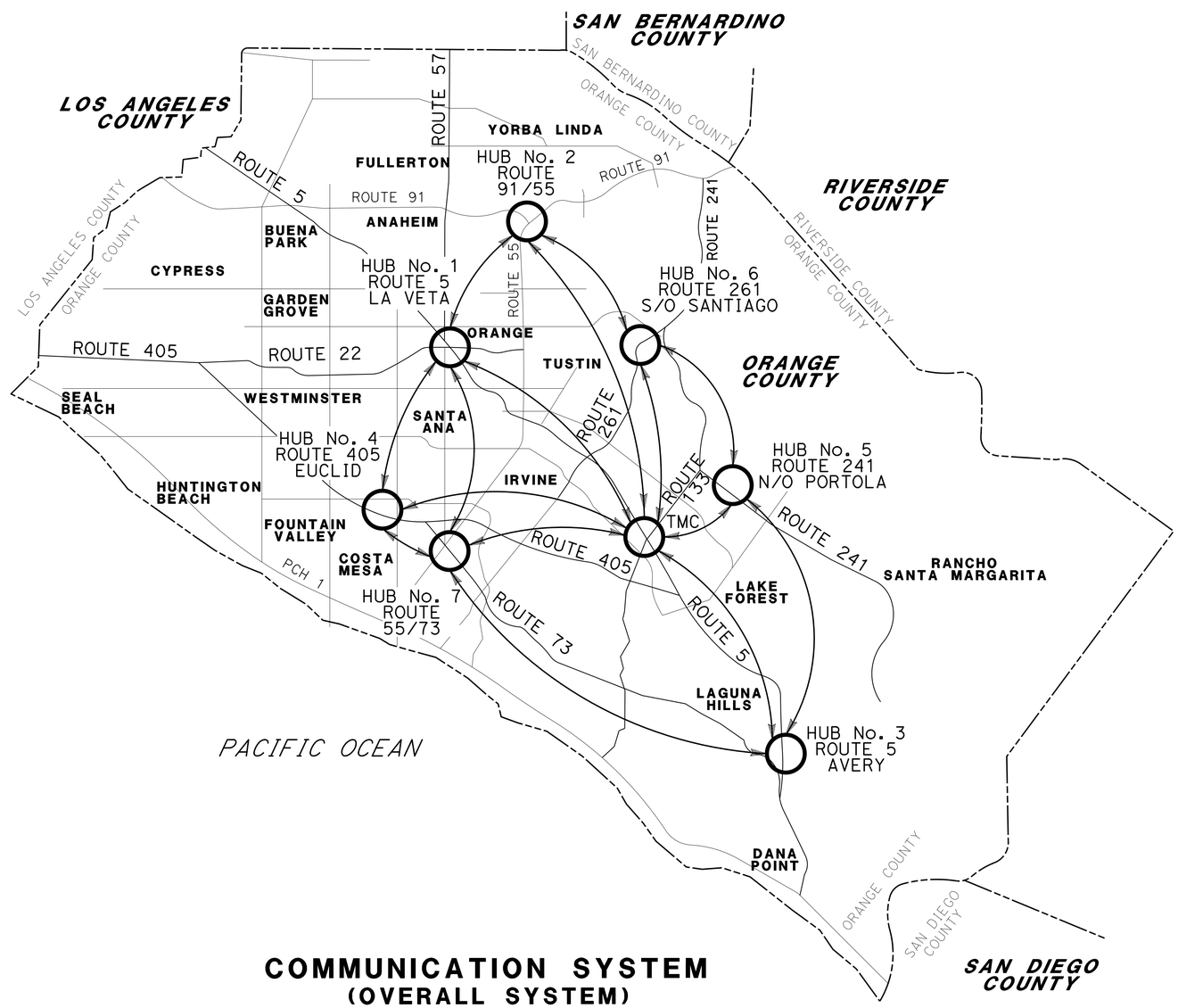

COMMUNICATION SYSTEM
(OVERALL SYSTEM)

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-127

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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RUBEN MANRIQUEZ | JOSHUA MCNEILL
CALCULATED-DESIGNED BY | CHECKED BY
REVISED BY | DATE REVISED

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BORDER LAST REVISED 7/2/2010 | USERNAME => s111173 | DGN FILE => 1215000036ua127.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 2995 | PROJECT NUMBER & PHASE 12150000361

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	153	308

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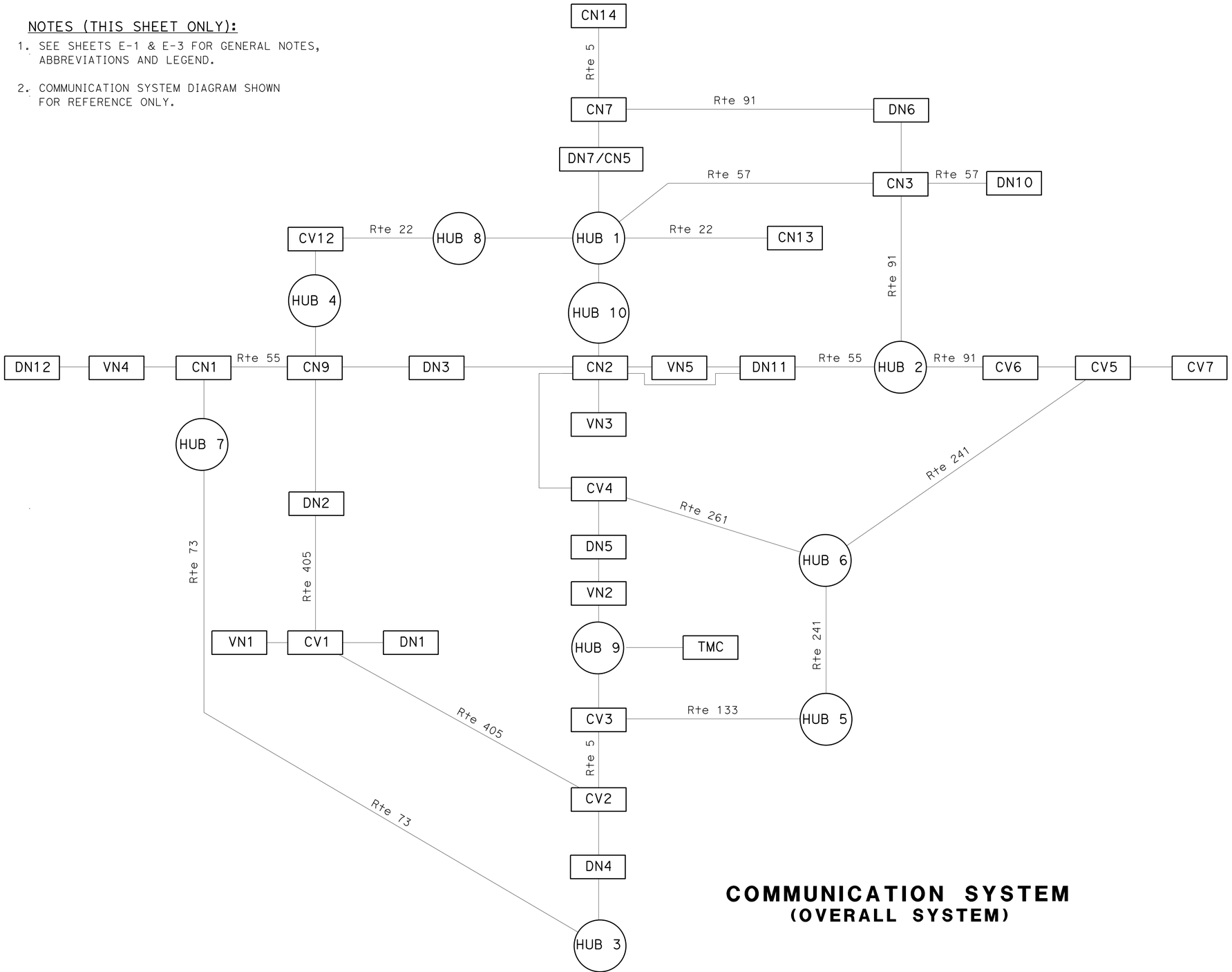
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 & E-3 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. COMMUNICATION SYSTEM DIAGRAM SHOWN FOR REFERENCE ONLY.



COMMUNICATION SYSTEM
(OVERALL SYSTEM)

COMMUNICATION SYSTEM TABLE

I.D.	DESCRIPTION
HUB 1	Rte 5/ LA VETA Ave
HUB 2	Rte 91 AT Rte 55
HUB 3	SB Rte 5 AT AVERY Pkwy
HUB 4	NB Rte 405 AT EUCLID St
HUB 5	NB Rte 241 AT PORTOLA Pkwy
HUB 6	NB Rte 261 AT SANTIAGO CANYON Rd
HUB 7	NB Rte 55 AT Rte 73- DEL MAR EXIT
HUB 8	WB Rte 22 AT VALLEY VIEW St
HUB 9	NB Rte 5 AT SAND CANYON Ave
HUB 10	NB Rte 5 TO SB Rte 55
TMC	NB Rte 5 AT SAND CANYON Ave
CN1	NB Rte 55 AT Rte 73
CN2	NB Rte 5 AT Rte 55
CN3	NB Rte 57 AT Rte 91
CN5	NB Rte 5 AT LOARA
CN7	NB Rte 5 AT Rte 91
CN9	NB Rte 55 AT Rte 405
CN13	SB Rte 55 AT Rte 22
CN14	SB Rte 5 AT ARTESIA Blvd
CV1	SB Rte 405 S/O IRVINE CENTER Dr
CV2	NB Rte 5 AT Rte 405
CV3	NB Rte 5 AT Rte 133
CV4	NB Rte 5 AT JAMBOREE Rd
CV5	EB Rte 91 AT Rte 241
CV6	EB Rte 91 E/O WEIR CANYON Rd
CV7	RIVERSIDE COUNTY LINE
CV12	NB Rte 405 AT WB Rte 22
DN1	NB Rte 405 AT IRVINE CENTER Dr
DN2	SB Rte 405 AT JAMBOREE Rd
DN3	NB Rte 55 AT EDINGER Ave
DN4	NB Rte 5 AT ALICIA Pkwy
DN5	NB Rte 5 N/O YALE Ave
DN6	EB Rte 91 AT BROOKHURST St
DN7	NB Rte 5 AT LOARA
DN8	NB Rte 5 AT EL CAMINO REAL
DN10	NB Rte 57 AT IMPERIAL Hwy
DN11	NB Rte 55 AT CHAPMAN Ave
DN12	NB Rte 55 AT SANTA ISABEL
VN1	SB Rte 405 AT JEFFREY Rd
VN2	NB Rte 5 AT YALE Ave
VN3	NB Rte 5 AT SB Rte 55
VN4	NB Rte 55 AT 73
VN5	NB Rte 5 AT SB Rte 55

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-128

REVISED BY	DATE REVISED
RUBEN MANRIQUEZ	JOSHUA MCNEILL

CALCULATED-DESIGNED BY / CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

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12	Ora	5, 22, 57, 73, 133, *etc.*	Var	154	308

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06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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14725 ALTON PKWY
IRVINE, CA 92618

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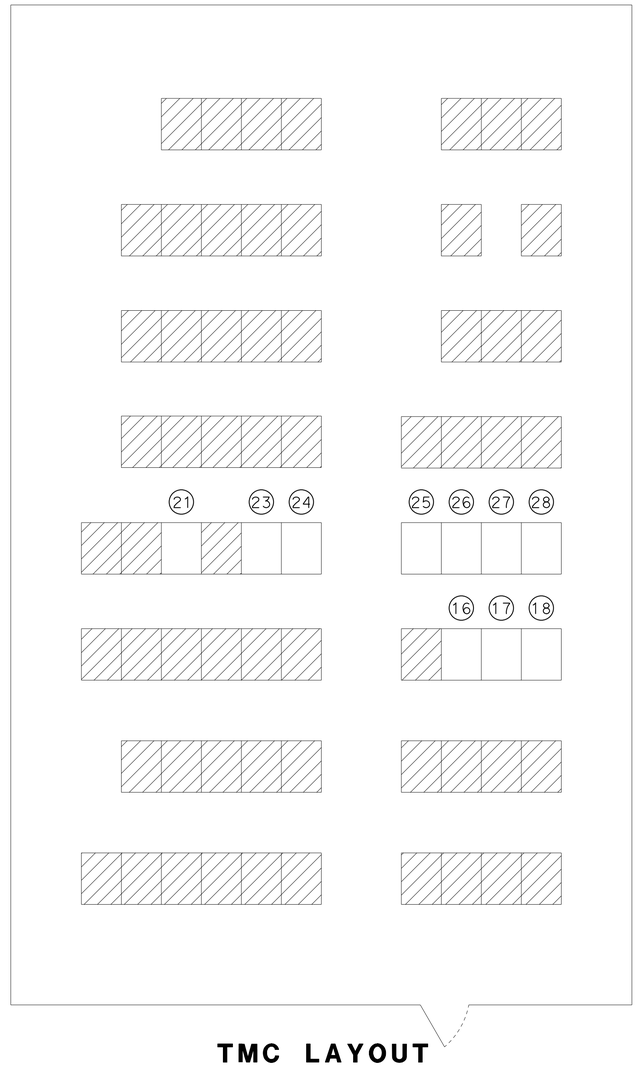


TMC LAYOUT

(16) SEE SHEET E-130

(17) SEE SHEET E-131

(18) SEE SHEET E-132

(21) SEE SHEETS E-133 & E-134

(23) SEE SHEET E-135

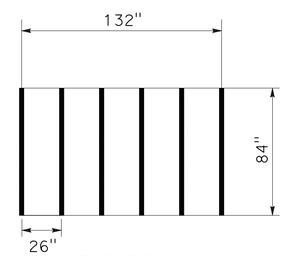
(24) SEE SHEET E-136

(25) SEE SHEET E-137

(26) SEE SHEET E-138

(27) SEE SHEET E-139

(28) SEE SHEET E-140



RACK DIMENSIONS

TRANSPORTATION MANAGEMENT CENTER

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-129

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

LAST REVISION 06-08-15
DATE PLOTTED => 29-SEP-2015
TIME PLOTTED => 11:40

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	155	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

06-08-15
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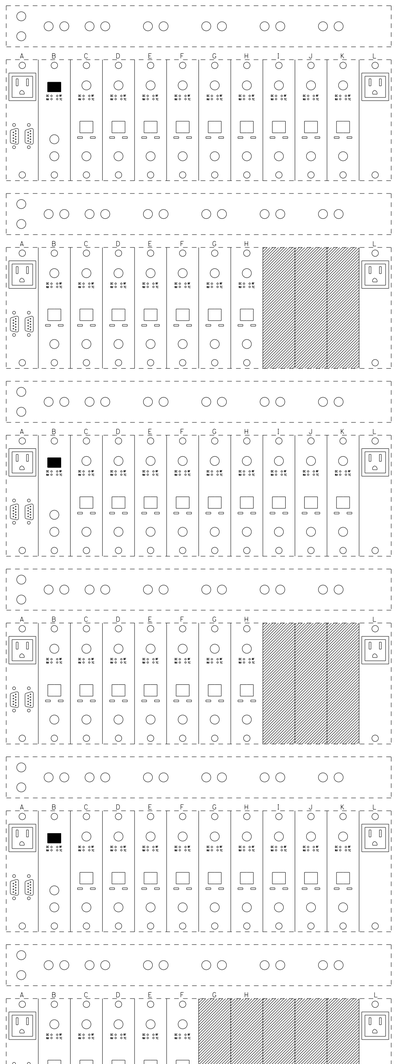

Exist EQUIPMENT RACK No. 16

TABLE HTR16.1

CONNECTED FROM	CONNECTED TO	LABEL
HTR16.1-A		
HTR16.1-B		22 VIV MUX PRIMARY (GOING TO FLOOR)
HTR16.1-C		157
HTR16.1-D		156
HTR16.1-E		155
HTR16.1-F		154
HTR16.1-G		8
HTR16.1-H		30
HTR16.1-I		31
HTR16.1-J		32
HTR16.1-K		33

TABLE HTR16.2

CONNECTED FROM	CONNECTED TO	LABEL
HTR16.2-A		
HTR16.2-B		158
HTR16.2-C		159
HTR16.2-D		160
HTR16.2-E		161
HTR16.2-F		162
HTR16.2-G		163
HTR16.2-H		164

TABLE HTR16.3

CONNECTED FROM	CONNECTED TO	LABEL
HTR16.3-A		
HTR16.3-B		158
HTR16.3-C		157
HTR16.3-D		156
HTR16.3-E		155
HTR16.3-F		154
HTR16.3-G		8
HTR16.3-H		30
HTR16.3-I		31
HTR16.3-J		32
HTR16.3-K		33

TABLE HTR16.4

CONNECTED FROM	CONNECTED TO	LABEL
HTR16.4-A		
HTR16.4-B		
HTR16.4-C		159
HTR16.4-D		160
HTR16.4-E		161
HTR16.4-F		162
HTR16.4-G		163
HTR16.4-H		164

TABLE HTR16.5

CONNECTED FROM	CONNECTED TO	LABEL
HTR16.5-A		
HTR16.5-B		405 VMUX BACKUP (GOING TO FLOOR)
HTR16.5-C		220
HTR16.5-D		221
HTR16.5-E		222
HTR16.5-F		223
HTR16.5-G		224
HTR16.5-H		225
HTR16.5-I		226
HTR16.5-J		227
HTR16.5-K		228

TRANSPORTATION MANAGEMENT CENTER

TABLE HTR16.6

CONNECTED FROM	CONNECTED TO	LABEL
HTR16.6-A		
HTR16.6-B		229
HTR16.6-C		10
HTR16.6-D		NO LABEL
HTR16.6-E		NO LABEL
HTR16.6-F		NO LABEL

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-130

REVISED BY | DATE REVISED
RUBEN MANRIQUEZ | JOSHUA MCNEILL
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR
STEVE HUFF
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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IRVINE, CA 92618

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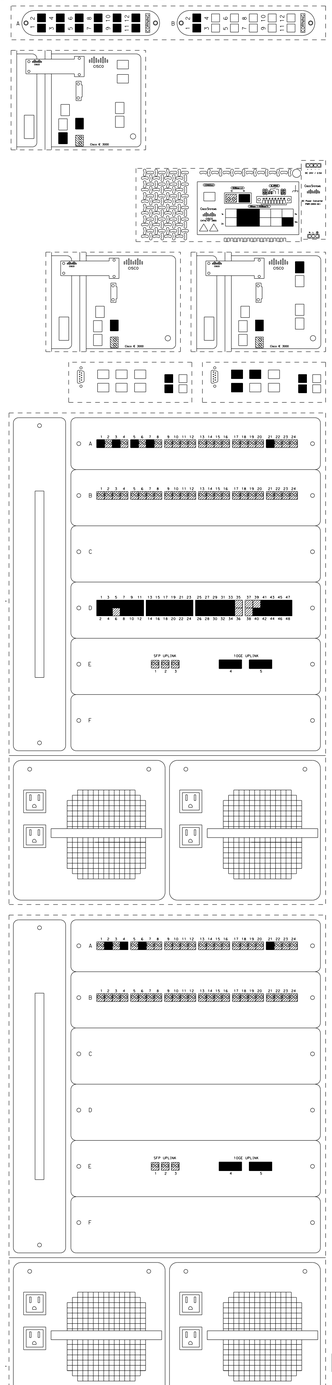

HTR17.1

HTR17.2

HTR17.3

HTR17.4A,
HTR17.4B

HTR17.5A,
HTR17.5B

HTR17.6-BL1

HTR17.6-BL2

HTR17.6-BL3

HTR17.6-BL4

HTR17.6-BL5

HTR17.6-BL6

HTR17.7-BL1

HTR17.7-BL2

HTR17.7-BL3

HTR17.7-BL4

HTR17.7-BL5

HTR17.7-BL6

Exist EQUIPMENT
RACK No. 17

TABLE HTR17.1

CONNECTED FROM	CONNECTED TO	LABEL
HTR17.1-A1,A2		NO LABEL (GOES TO FLOOR)
HTR17.1-A3,A4	HTR17.4A-FX1	NO LABEL
HTR17.1-A5,A6	HTR17.4B-FX1	NO LABEL
HTR17.1-A7,A8	HTR17.2-FX1	NO LABEL
HTR17.1-A9,A10		NO LABEL (GOES TO FLOOR)
HTR17.1-A11,A12	HTR17.5B-FX7	NO LABEL
HTR17.1-B1,B2	HTR17.5A-FX7	NO LABEL
HTR17.1-B3,B4		
HTR17.1-B5,B6		
HTR17.1-B7,B8		
HTR17.1-B9,B10		
HTR17.1-B11,B12		

TABLE HTR17.2

CONNECTED FROM	CONNECTED TO	LABEL
HTR17.2-FX1		NO LABEL

TABLE HTR17.3

CONNECTED FROM	CONNECTED TO	LABEL
HTR17.3-FX1		
HTR17.3-FX2		NO LABEL (GOES TO FLOOR)

TABLE HTR17.4A

CONNECTED FROM	CONNECTED TO	LABEL
HTR17.4A-FX1	HTR17.1-A3,A4	NO LABEL

TABLE HTR17.4B

CONNECTED FROM	CONNECTED TO	LABEL
HTR17.4B-FX1	HTR17.1-A5,A6	NO LABEL

TABLE HTR17.5A

CONNECTED FROM	CONNECTED TO	LABEL
HTR17.5A-FX7	HTR17.1-A11,A12	NO LABEL

TABLE HTR17.5B

CONNECTED FROM	CONNECTED TO	LABEL
HTR17.5B-FX7	HTR17.1-B1,B2	NO LABEL

TABLE HTR17.6-BL1

CONNECTED FROM	CONNECTED TO	LABEL
HTR17.6-BL1-FX1		HUB 5 N5 49-50 (GOES TO FLOOR)
HTR17.6-BL1-FX3		HUB 3 SC 61-62 (GOES TO FLOOR)
HTR17.6-BL1-FX5		HUB 5 SC 63-64 (GOES TO FLOOR)
HTR17.6-BL1-FX7		HUB 7 SC 57-58 (GOES TO FLOOR)
HTR17.6-BL1-FX21	HTR18.5-BL1-FX9	1/1/9 BROCADE

TABLE HTR17.6-BL5

CONNECTED FROM	CONNECTED TO	LABEL
HTR17.6-BL5-FX4	HTR17.7-BL5-FX5	NO LABEL
HTR17.6-BL5-FX5	HTR17.7-BL5-FX4	NO LABEL

TRANSPORTATION MANAGEMENT CENTER

TABLE HTR17.7-BL1

CONNECTED FROM	CONNECTED TO	LABEL
HTR17.7-BL1-FX2		N5 51-52 (GOES TO FLOOR)
HTR17.7-BL1-FX4		N5 69-70 (GOES TO FLOOR)
HTR17.7-BL1-FX6		N5 3-4 (GOES TO FLOOR)
HTR17.7-BL1-FX21		2/1/9 BROCADE --> HTR18.6 BLADE 1-FX9

TABLE HTR17.7-BL5

CONNECTED FROM	CONNECTED TO	LABEL
HTR17.7-BL5-FX4	HTR17.6-BL5-FX5	NO LABEL
HTR17.7-BL5-FX5	HTR17.6-BL5-FX4	NO LABEL

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-131

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: JOSHUA MCNEILL
CHECKED BY
REVISED BY: RUBEN MANRIQUEZ
DATE REVISED

LAST REVISION 06-08-15
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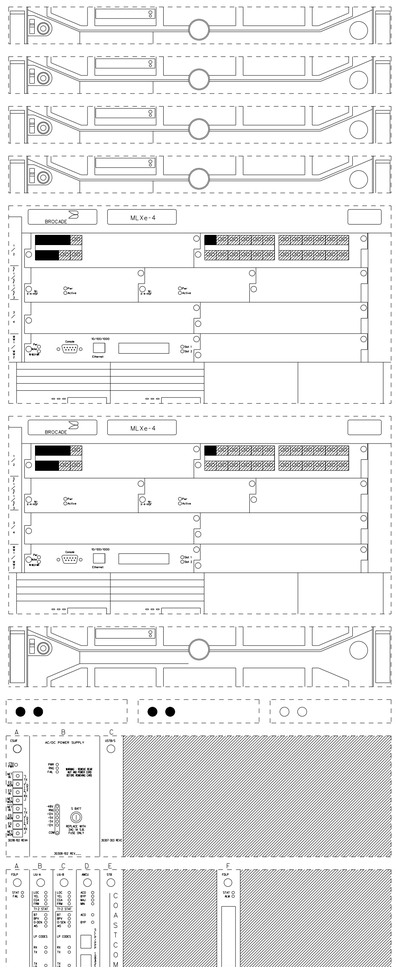

Exist EQUIPMENT RACK No. 18

TABLE HTR18.5-BL1

CONNECTED FROM	CONNECTED TO	LABEL
HTR18.5-BL1-FX1	HTR18.6-BL1-FX2	NO LABEL
HTR18.5-BL1-FX2	HTR18.6-BL1-FX1	NO LABEL
HTR18.5-BL1-FX3		HUB 3 S5 19-20 (GOES TO FLOOR)
HTR18.5-BL1-FX4		HUB 4 N5 11-12 (GOES TO FLOOR)
HTR18.5-BL1-FX5		HUB 6 N5 23-24 (GOES TO FLOOR)
HTR18.5-BL1-FX9	HTR17.6-BL1-FX21	CISCO 1/1/21

TABLE HTR18.6-BL1

CONNECTED FROM	CONNECTED TO	LABEL
HTR18.6-BL1-FX1		NO LABEL --> HTR18.5 BLADE 1-FX2
HTR18.6-BL1-FX2		NO LABEL --> HTR18.5 BLADE 1-FX1
HTR18.6-BL1-FX3		HUB 1 N5 53-54 (GOES TO FLOOR)
HTR18.6-BL1-FX4		HUB 5 S5C 71-72 (GOES TO FLOOR)
HTR18.6-BL1-FX5		HUB 7 N5 57-58 (GOES TO FLOOR)
HTR18.6-BL1-FX9		CISCO 1/1/21 --> HTR17.7 BLADE 1-FX21

TRANSPORTATION MANAGEMENT CENTER

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-132

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY / DATE REVISED

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IRVINE, CA 92618

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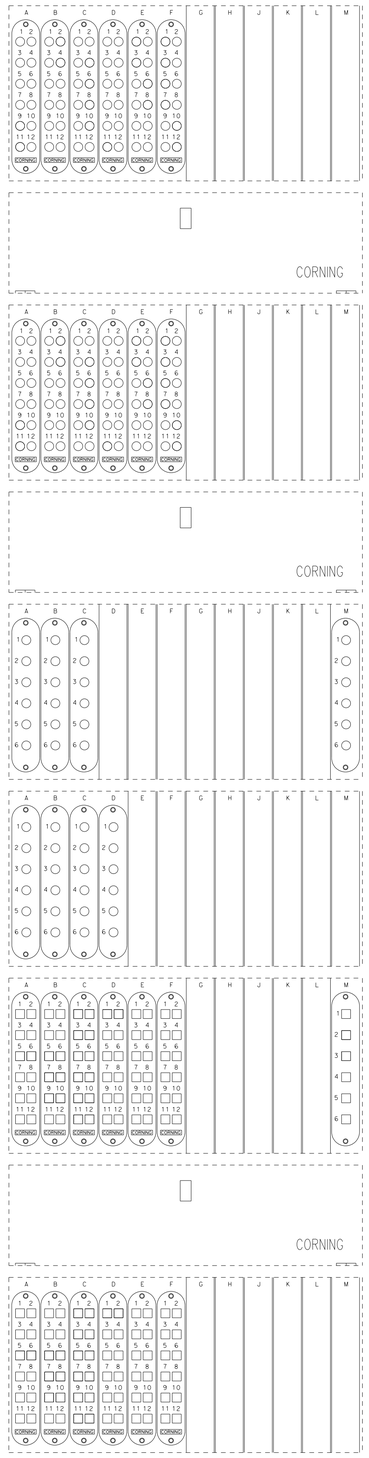

Exist EQUIPMENT RACK No. 21

TABLE HTR21.1

CONNECTED FROM	CONNECTED TO	LABEL
HTR21.1-A1		NO LABEL
HTR21.1-A2		NO LABEL
HTR21.1-A3		NO LABEL
HTR21.1-A4		NO LABEL
HTR21.1-A5		HUB 1
HTR21.1-A6		T1 FIBER 9/10 405/22 HUB
HTR21.1-A7		HUB 1
HTR21.1-A8		T1 FIBER 9/10 405/22 HUB
HTR21.1-A9		OCTA VIDEO/DATA FEED
HTR21.1-A10		HUB 4
HTR21.1-A11		OCTA VIDEO/DATA FEED
HTR21.1-A12		HUB 4
HTR21.1-B1		T1 DN-13 TX
HTR21.1-B2		VIDEO MUX LA VETA
HTR21.1-B3		T1 DN-13 RX
HTR21.1-B4		VIDEO MUX 405/22
HTR21.1-B5		
HTR21.1-B6		405/22 MINI T1 BACKUP
HTR21.1-B7		
HTR21.1-B8		405/22 MINI T1 BACKUP
HTR21.1-B9		HUB 2
HTR21.1-B10		HUB 6
HTR21.1-B11		HUB 2
HTR21.1-B12		HUB 6
HTR21.1-C1		TO VN-5 H2 FIBER 25
HTR21.1-C2		NO LABEL
HTR21.1-C3		LV HUB 27 MUX
HTR21.1-C4		
HTR21.1-C5		
HTR21.1-C6		DEMUX
HTR21.1-C7		NO LABEL
HTR21.1-C8		
HTR21.1-C9		NO LABEL
HTR21.1-C10		NO LABEL
HTR21.1-C11		NO LABEL
HTR21.1-C12		
HTR21.1-D1		VMX#3
HTR21.1-D2		DN3
HTR21.1-D3		VMX#3
HTR21.1-D4		DN2
HTR21.1-D5		DN5
HTR21.1-D6		DN2
HTR21.1-D7		DN5
HTR21.1-D8		
HTR21.1-D9		
HTR21.1-D10		DN1
HTR21.1-D11		DN3
HTR21.1-D12		DN1
HTR21.1-E1		1/1/1
HTR21.1-E2		NO LABEL
HTR21.1-E3		1/1/1
HTR21.1-E4		NO LABEL
HTR21.1-E5		2/1/2
HTR21.1-E6		HUB 7 2/1/5 BROCADE
HTR21.1-E7		2/1/2
HTR21.1-E8		HUB 7 2/1/5 BROCADE
HTR21.1-E9		2/1/6
HTR21.1-E10		NO LABEL
HTR21.1-E11		2/1/6
HTR21.1-E12		NO LABEL
HTR21.1-F1		

TRANSPORTATION MANAGEMENT CENTER

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-133

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

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TABLE HTR21.1 (CONTINUED)

CONNECTED FROM	CONNECTED TO	LABEL
HTR21.1-F2		NO LABEL
HTR21.1-F3		LA VETA VMX
HTR21.1-F4		LV HUB 68 T1-TX
HTR21.1-F5		NO LABEL
HTR21.1-F6		2/1/4
HTR21.1-F7		NO LABEL
HTR21.1-F8		2/1/4
HTR21.1-F9		
HTR21.1-F10		5 LOARA DN 71 T1-RX
HTR21.1-F11		
HTR21.1-F12		5 LOARA DN 71 T1-TX

TABLE HTR21.3

CONNECTED FROM	CONNECTED TO	LABEL
HTR21.3-A1		
HTR21.3-A2		
HTR21.3-A3		
HTR21.3-A4		
HTR21.3-A5		
HTR21.3-A6		
HTR21.3-A7		
HTR21.3-A8		
HTR21.3-A9		NO LABEL
HTR21.3-A10		
HTR21.3-A11		NO LABEL
HTR21.3-A12		
HTR21.3-B1		
HTR21.3-B2		HUB 3
HTR21.3-B3		
HTR21.3-B4		HUB 3
HTR21.3-B5		
HTR21.3-B6		
HTR21.3-B7		
HTR21.3-B8		
HTR21.3-B9		
HTR21.3-B10		
HTR21.3-B11		
HTR21.3-B12		
HTR21.3-C1		
HTR21.3-C2		
HTR21.3-C3		
HTR21.3-C4		NO LABEL
HTR21.3-C5		
HTR21.3-C6		NO LABEL
HTR21.3-C7		
HTR21.3-C8		NO LABEL
HTR21.3-C9		
HTR21.3-C10		NO LABEL
HTR21.3-C11		
HTR21.3-C12		
HTR21.3-D1		
HTR21.3-D2		
HTR21.3-D3		
HTR21.3-D4		
HTR21.3-D5		
HTR21.3-D6		
HTR21.3-D7		
HTR21.3-D8		
HTR21.3-D9		
HTR21.3-D10		
HTR21.3-D11		R23 ORI

TABLE HTR21.3 (CONTINUED)

CONNECTED FROM	CONNECTED TO	LABEL
HTR21.3-D12		
HTR21.3-E1		DN1 49 T-1-TX
HTR21.3-E2		
HTR21.3-E3		DN1 50 T-1-RX
HTR21.3-E4		
HTR21.3-E5		
HTR21.3-E6		HUB 7
HTR21.3-E7		
HTR21.3-E8		HUB 7
HTR21.3-E9		
HTR21.3-E10		
HTR21.3-E11		
HTR21.3-E12		
HTR21.3-F1		HUB 3
HTR21.3-F2		
HTR21.3-F3		HUB 3
HTR21.3-F4		
HTR21.3-F5		HUB 5
HTR21.3-F6		
HTR21.3-F7		HUB 5
HTR21.3-F8		
HTR21.3-F9		
HTR21.3-F10		HUB 5
HTR21.3-F11		
HTR21.3-F12		HUB 5

TABLE HTR21.7

CONNECTED FROM	CONNECTED TO	LABEL
HTR21.7-L2		NO LABEL
HTR21.7-L3		NO LABEL

TRANSPORTATION MANAGEMENT CENTER

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-134

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
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IRVINE, CA 92618

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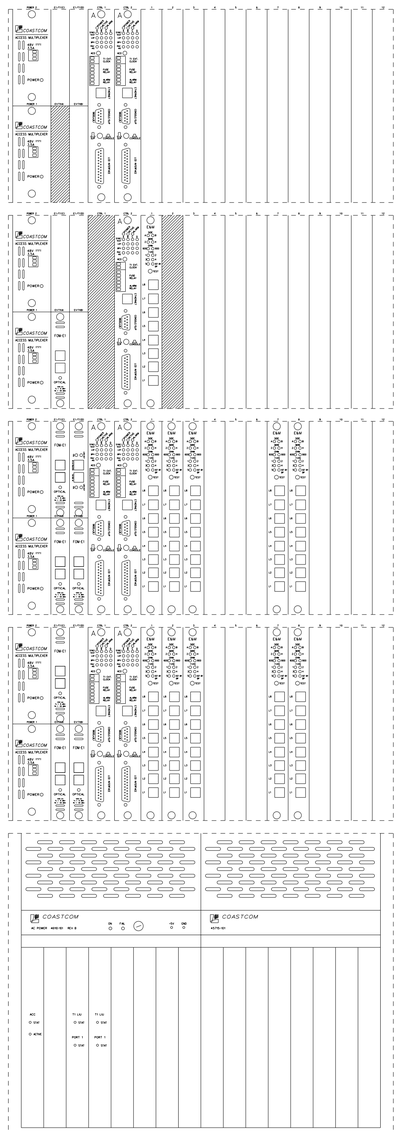
2. SEE SHEET E-129 FOR TMC LAYOUT.



Exist EQUIPMENT RACK No. 23

TABLE HTR23.3

CONNECTED FROM	CONNECTED TO	LABEL
HTR23.3-E1/T1-C1	TMC 3-5 (GOING TO FLOOR)	
HTR23.3-E1/T1-B1		DN2 (GOING TO FLOOR)
HTR23.3-E1/T1-A1		DN1 (GOING TO FLOOR)

TABLE HTR23.4

CONNECTED FROM	CONNECTED TO	LABEL
HTR23.4-E1/T1-C1	TMC 1-2 (GOING TO FLOOR)	
HTR23.4-E1/T1-B1		DN5 (*ICD = IRVINE CENTER DRIVE)
HTR23.4-E1/T1-A1		DN3

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NO SCALE

E-135

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	161	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
CARLOS A. ORTIZ
No. 57535
Exp. 12-31-15
CIVIL
STATE OF CALIFORNIA

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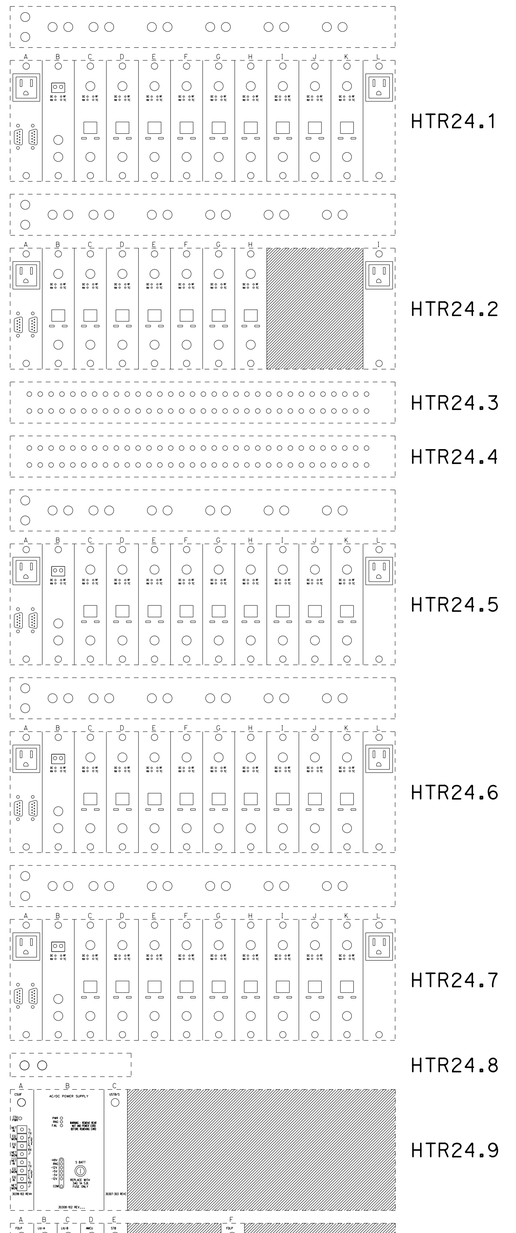

Exist EQUIPMENT RACK No. 24

TABLE HTR24.1

CONNECTED FROM	CONNECTED TO	LABEL
HTR24.1-FX1		VMX2 (GOING TO FLOOR)

TABLE HTR24.5

CONNECTED FROM	CONNECTED TO	LABEL
HTR24.5-FX1		VMX3 (GOING TO FLOOR)

TABLE HTR24.6

CONNECTED FROM	CONNECTED TO	LABEL
HTR24.6-FX1		VIS 3 TO 5

TABLE HTR24.8

CONNECTED FROM	CONNECTED TO	LABEL
HTR24.8-FX1		DN4 50 T-1 RX
HTR24.8-FX2		DN4 49 T-1 TX

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E-136

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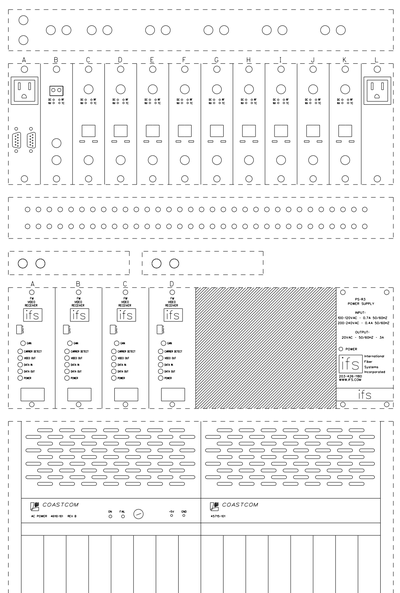

Exist EQUIPMENT RACK No. 25 F6

TABLE HTR25.1

CONNECTED FROM	CONNECTED TO	LABEL
HTR25.1-FX1		NO LABEL (GOING TO FLOOR)

TABLE HTR25.3A

CONNECTED FROM	CONNECTED TO	LABEL
HTR25.3A-FX1		NO LABEL (GOING TO FLOOR)

TABLE HTR25.3B

CONNECTED FROM	CONNECTED TO	LABEL
HTR25.3B-FX1		NO LABEL (GOING TO FLOOR)

TABLE HTR25.4

CONNECTED FROM	CONNECTED TO	LABEL
HTR25.4-A		NO LABEL (GOING TO FLOOR)
HTR25.4-B		NO LABEL (GOING TO FLOOR)
HTR25.4-C		NO LABEL (GOING TO FLOOR)
HTR25.4-D		NO LABEL (GOING TO FLOOR)

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E-137

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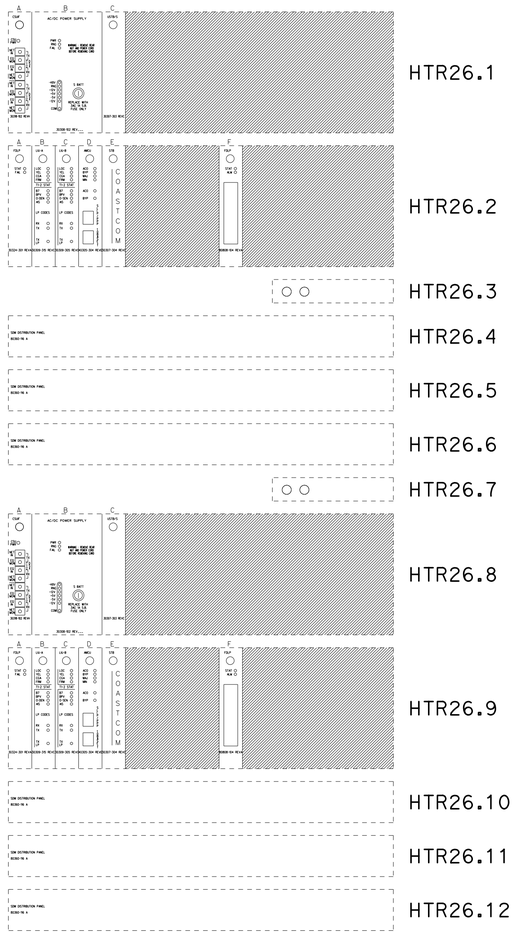

Exist EQUIPMENT RACK No. 26 F7

TABLE HTR26.1

CONNECTED FROM	CONNECTED TO	LABEL
		5-LOARA DN
HTR26.1-FX1		71-T1-RX (GOING TO FLOOR)
HTR26.1-FX2		72-T1-TX (GOING TO FLOOR)

TABLE HTR26.4

CONNECTED FROM	CONNECTED TO	LABEL
		LV HUB 1
HTR26.4-FX1		67-T1-RX (GOING TO FLOOR)
HTR26.4-FX2		NO LABEL (GOING TO FLOOR)

TABLE HTR26.8

CONNECTED FROM	CONNECTED TO	LABEL
		T-1 TRANSCEIVER
HTR26.8-FX1		NO LABEL (GOING TO FLOOR)
HTR26.8-FX2		

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E-138

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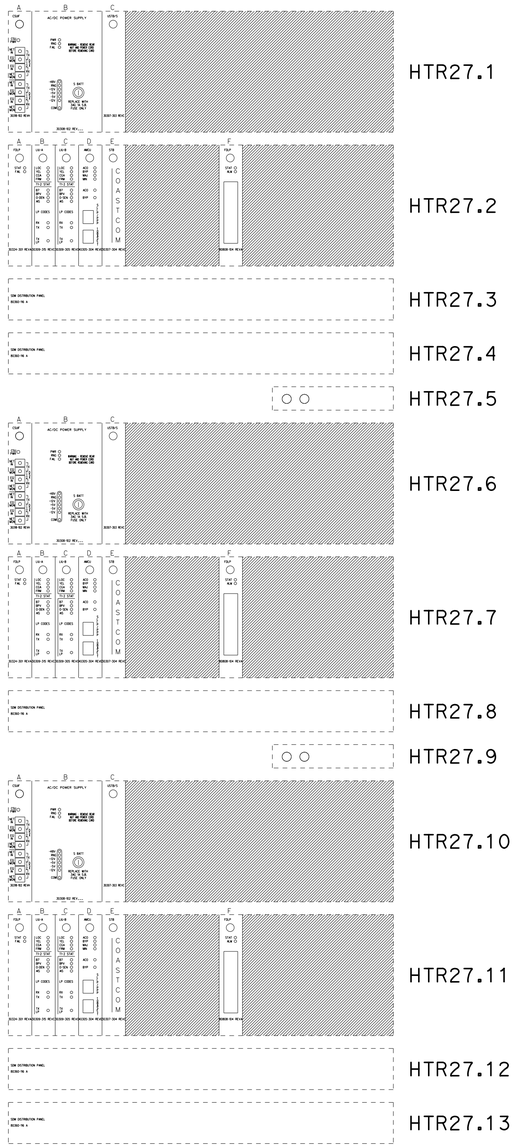

Exist EQUIPMENT RACK No. 27 F8

TABLE HTR27.1

CONNECTED FROM	CONNECTED TO	LABEL
HTR27.1-FX1		I-5N FDU-16, T-1 DN13 RX (GOING TO FLOOR)
HTR27.1-FX2		I-5N FDU-15, T-1 DN13 TX (GOING TO FLOOR)

TABLE HTR27.6

CONNECTED FROM	CONNECTED TO	LABEL
HTR27.6-FX1		NO LABEL (GOING TO FLOOR)
HTR27.6-FX2		NO LABEL (GOING TO FLOOR)

TABLE HTR27.10

CONNECTED FROM	CONNECTED TO	LABEL
HTR27.10-FX1		NO LABEL (GOING TO FLOOR)
HTR27.10-FX2		NO LABEL (GOING TO FLOOR)

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E-139

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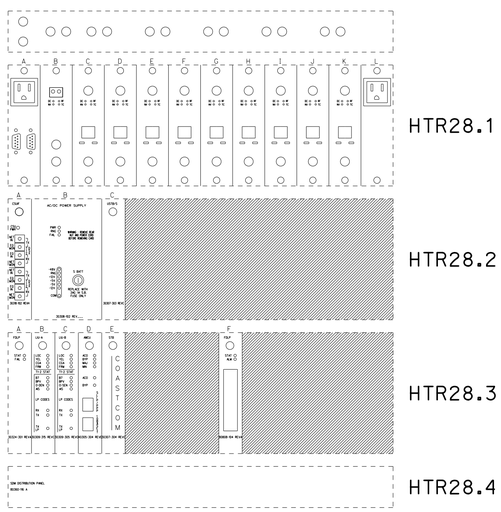

Exist EQUIPMENT RACK No. 28 F9

TABLE HTR28.1

CONNECTED FROM	CONNECTED TO	LABEL
HTR28.1-FX		NO LABEL (GOING TO FLOOR)

TABLE HTR28.2

CONNECTED FROM	CONNECTED TO	LABEL
HTR28.2-FX		NO LABEL (GOING TO FLOOR)
HTR28.2-FX		NO LABEL (GOING TO FLOOR)

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E-140

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2. SEE SHEET E-142 FOR HUB LAYOUT.

HUB No. 1 INTERCONNECTION DETAILS TABLE

ITEM	DEVICE	CONNECTED FROM	CONNECTED TO	LEGEND
1	CCTV 108	H1R7.4 - BL7 FX36	2	3
2	CCTV 114	H1R7.4 - BL7 FX7	H1R1.5 - F5, F6	1
3	CCTV 109	H1R7.4 - BL7 FX8	H1R1.5 - G1, G2	1
4	CCTV 119	H1R7.4 - BL7 FX15	H1R1.5 - J1, J2	1
5	CMS 020	H1R7.4 - BL7 FX37	2	3
6	CMS 066	H1R7.4 - BL7 FX38	2	3
7	CCTV 012	H1R7.4 - BL7 FX35	H1R4.1 - A1, A1	3
8	CCTV 177	H1R7.4 - BL7 FX33	H1R4.1 - B2, B3	3
9	CCTV 182	H1R7.4 - BL7 FX34	H1R4.1 - C2, C3	3
10	TS Loc No. 76	H1R7.4 - BL7 FX29	H1R4.2 - E6, F1	3
11	CCTV 157	H1R7.4 - BL7 FX23	H1R11.2 - B3, B4	3
12	CCTV 160	H1R7.4 - BL7 FX21	H1R11.2 - G7, G8	3
13	CCTV 163	H1R7.4 - BL7 FX22	H1R11.2 - H11, H12	3
14	CMS 17	H1R7.4 - BL7 FX39	H1R11.5 - B1, B2	3
15	TMS 23	H1R7.4 - BL7 FX24	H1R11.5 - G1, G2	3
16	TMS 40	H1R7.4 - BL7 FX25	H1R11.5 - G3, G4	3
17	TMS 41	H1R7.4 - BL7 FX26	H1R11.5 - G5, G6	3
18	TMS 42	H1R7.4 - BL7 FX27	H1R11.5 - A7, A8	3
19	TMS 43	H1R7.4 - BL7 FX28	H1R11.5 - A9, A10	3
20	TS 40	H1R7.4 - BL7 FX30	H1R11.5 - B11, B12	3
21	TS 41	H1R7.4 - BL7 FX31	H1R11.5 - H1, H2	3
22	TS Loc No. 80	H1R7.4 - BL7 FX32	2	3
23	CMS 17	H1R7.4 - BL7 FX39	SEE SHEET E-216 HUB 8 ITEM 14	3
24	CMS 83	H1R7.4 - BL7 FX40	SEE SHEET E-216 HUB 8 ITEM 15	3
25	TMS 5014	H1R7.4 - BL7 FX41	SEE SHEET E-216 HUB 8 ITEM 16	3
26	TMS 5016	H1R7.4 - BL7 FX42	SEE SHEET E-216 HUB 8 ITEM 17	3
27	RMS 4362	H1R7.4 - BL7 FX43	SEE SHEET E-216 HUB 8 ITEM 18	3
28	RMS 4357	H1R7.4 - BL7 FX44	SEE SHEET E-216 HUB 8 ITEM 19	3
29	TMS 2417	H1R7.4 - BL7 FX45	SEE SHEET E-216 HUB 8 ITEM 20	3
30	TMS 5021	H1R7.4 - BL7 FX46	SEE SHEET E-216 HUB 8 ITEM 21	3
31	TMS 5022	H1R7.4 - BL7 FX47	SEE SHEET E-216 HUB 8 ITEM 22	3
32	TMS 2219	H1R7.4 - BL7 FX48	SEE SHEET E-216 HUB 8 ITEM 23	3
33	TS Loc No. 130	H1R7.4 - BL3 FX1	SEE SHEET E-216 HUB 8 ITEM 24	3
34	TS Loc No. 131	H1R7.4 - BL3 FX2	SEE SHEET E-216 HUB 8 ITEM 25	3

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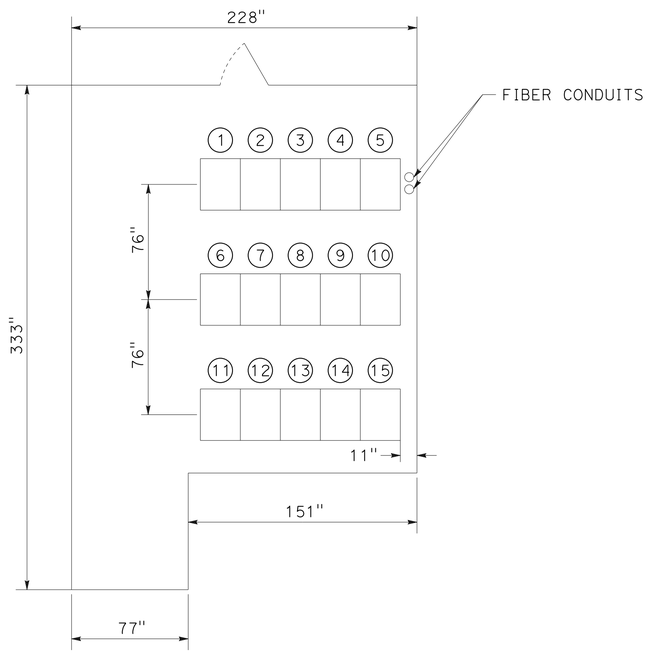
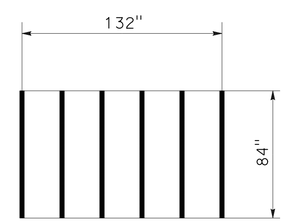


HUB 1 LAYOUT

1. SEE SHEET E-143
2. SEE SHEET E-144
3. EMPTY
4. SEE SHEET E-145
5. SEE SHEET E-146
6. ABANDONED CONTROLLERS
7. SEE SHEET E-147
8. EMPTY
9. EMPTY
10. EMPTY
11. SEE SHEET E-148
12. SEE SHEETS E-149 & E-150
13. EMPTY
14. EMPTY
15. EMPTY



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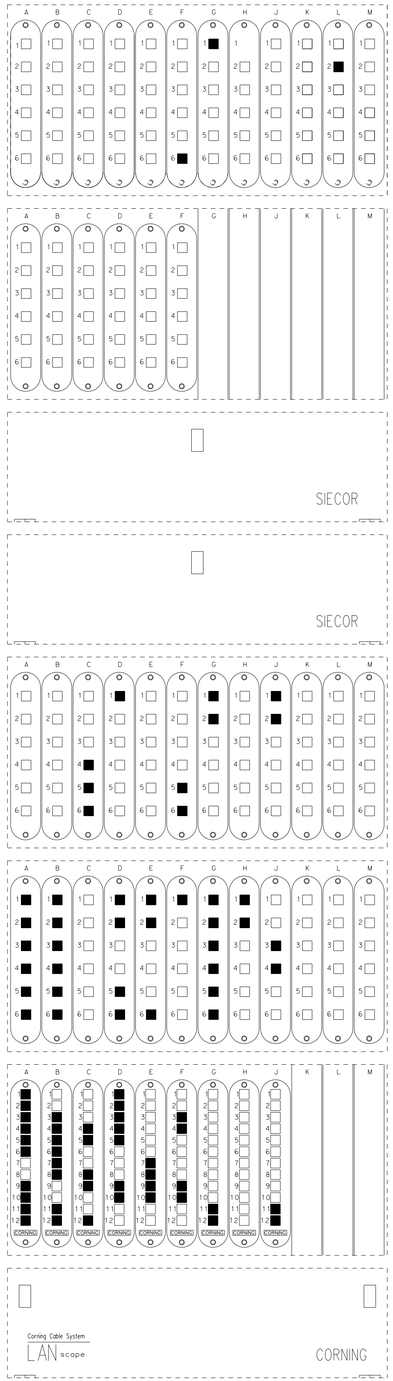

Exist EQUIPMENT RACK No. 1

TABLE H1R1.1

CONNECTED FROM	CONNECTED TO	LABEL
H1R1.1-F6,G1	H1R7.4-BL7-FX5	N/A
H1R1.1-L2	H1R12.1	22 Video Mux/62 - TMC 62

TABLE H1R1.5

CONNECTED FROM	CONNECTED TO	LABEL
H1R1.5-C4	H1R2.B	CCTV-189 VR RTE 91W, 91/GILBERT, B FO 16
H1R1.5-C5	H1R2.C	CCTV-186 91/MAGNOLIA WB, B FO 17
H1R1.5-C6	H1R2.D	CCTV-187 VR RTE 91E 91/STANTON, B FO 18
H1R1.5-D1	H1R2.A	BEACH CCTV VIDEO
H1R1.5-F5,F6	H1R7.4-BL7-FX7	I5 N B EUCLID, FO 35-36
H1R1.5-G1,G2	H1R7.4-BL7-FX8	I5 N ST COLLEGE, FO 37-38
H1R1.5-J1,J2	H1R7.4-BL7-FX15	CCTV-119 SW 6/3, FO 49-50

TABLE H1R1.6

CONNECTED FROM	CONNECTED TO	LABEL
H1R1.6-A1,A2	H1R7.4-BL7-FX3	N/A
H1R1.6-A3,A4	H1R7.4-BL7-FX12	N/A
H1R1.6-A5,A6	H1R7.4-BL7-FX10	N/A
H1R1.6-B1,B2	H1R7.4-BL7-FX11	N/A
H1R1.6-B3,B4	H1R7.4-BL7-FX19	N/A
H1R1.6-B5,B6	H1R7.4-BL7-FX13	C1112, RMS-51 3580
H1R1.6-D1,D2	N/A	5N 19-20, TS 7P
H1R1.6-D5,D6	H1R7.4-BL4-FX4	CHAPMAN/RIMPART, FO 21-22
H1R1.6-E1,E2	H1R7.4-BL4-FX6	I5 BEACH, I5 91 C-WB 25-26, FO 7-8
H1R1.6-E6,F1	H1R1.7-C8,C9	TO TMC DN7
H1R1.6-G1,G2	H1R7.4-BL7-FX16	RMS-266, FO 37-38
H1R1.6-G3,G4	H1R7.4-BL7-FX17	TS-5005, FO 39-40
H1R1.6-G5,G6	H1R7.4-BL7-FX18	CMS-54, FO 41-42
H1R1.6-H1,H2	H1R7.4-BL6-FX1	TS-5, FO 43-44

TABLE H1R1.7

CONNECTED FROM	CONNECTED TO	LABEL
H1R1.7-A1,A2	H1R7.4-BL7-FX4	N/A
H1R1.7-A3,A4	N/A	FODM XMTR B/FODM REC A - TMS 33P
H1R1.7-A5,A6	H1R11.2-M4,M5	N/A
H1R1.7-A9,A10	H1R7.4-BL7-FX3 ??	N/A
H1R1.7-A11,A12	H1R11.5-J8,J9	N/A
H1R1.7-B3,B4	H1R7.4-BL7-FX13	N/A
H1R1.7-B5,B6	H1R7.4-BL7-FX1	N/A
H1R1.7-B7,B8	H1R5.11-F	TS-6 REC A
H1R1.7-C4,C5	N/A	FROM TMC, DS1 TX to TMC
H1R1.7-C8,C9	H1R1.6-E6,F1	TMC DN7
H1R1.7-C12,D1	H1R5.11	T-1 RX, T-1 TX
H1R1.7-D2,D3	H1R7.4-BL4-FX1	12-055 H07, C CABLE 5 FO 38-39/39-40, C FO 57-58
H1R1.7-D4,D5	H1R7.4-BL1-FX1	12-055 T01, C CABLE FO 40-41, 49-50 @ 5/55
H1R1.7-D9,D10	H1R7.4-BL4-FX2	12-091-H02, B CABLE N FO 69-70
H1R1.7-E7,E8	H1R7.4-BL0-GE 0/1	N/A
H1R1.7-F3,F4	H1R12.5	TMS-24
H1R1.7-F9,F10	H1R11.2-M9,M10	N/A
H1R1.7-G11,G12	H1R7.2-2X	BROCADE
H1R1.7-J11,J12	H1R7.2-1X	BROCADE

HUB 1

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-143

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

LAST REVISION 06-08-15
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12	Ora	5, 22, 57, 73, 133, *etc.*	Var	169	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
CARLOS A. ORTIZ
No. 57535
Exp. 12-31-15
CIVIL
STATE OF CALIFORNIA

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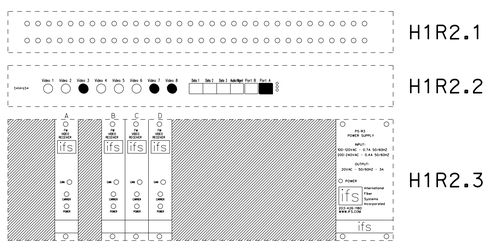

Exist EQUIPMENT RACK No. 2

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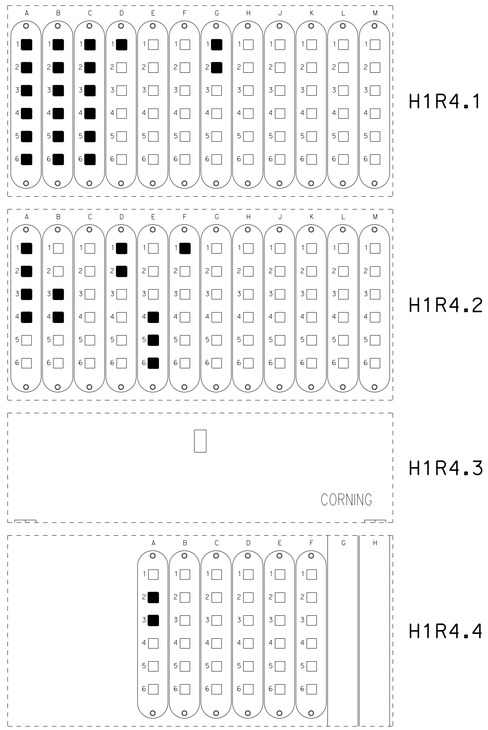

Exist EQUIPMENT RACK No. 4

TABLE H1R4.1

CONNECTED FROM	CONNECTED TO	LABEL
H1R4.1-A1	H1R5.6-A	CCTV-12
H1R4.1-A2	H1R5.6-B	CCTV-170
H1R4.1-A3	H1R5.6-C	CCTV-174
H1R4.1-A4	H1R5.6-D	CCTV-78
H1R4.1-A5	H1R5.6-E	CCTV-6
H1R4.1-A6	H1R5.6-F	CCTV-176
H1R4.1-B1	H1R5.6-G	CCTV-79
H1R4.1-B2	H1R5.6-H	CCTV-177
H1R4.1-B3	H1R5.6-I	CCTV-80
H1R4.1-B4	H1R5.6-J	CCTV-178
H1R4.1-B5	H1R5.6-K	CCTV-179
H1R4.1-B6	H1R5.6-L	CCTV-180
H1R4.1-C1	H1R5.6-A	CCTV-181
H1R4.1-C2	H1R5.6-B	CCTV-182
H1R4.1-C3	H1R5.6-C	CCTV-81
H1R4.1-C4	H1R5.6-D	CCTV-183
H1R4.1-C5	H1R5.6-E	CCTV-82
H1R4.1-C6	H1R5.6-F	CCTV-184
H1R4.1-D1	H1R5.6-G	CCTV-185
H1R4.1-G1,G2	H1R5.11-D	CCC-12 (FODM #5)

TABLE H1R4.2

CONNECTED FROM	CONNECTED TO	LABEL
H1R4.2-A1,A2	H1R5.11-B	LINE 63 (FODM#2)
H1R4.2-A3,A4	H1R5.11-A	LINE 62 (FODM#1)
H1R4.2-B3,B4	H1R5.11-C	CMC-12 (FODM#3)
H1R4.2-D1,D2	H1R5.11-E	TS-12 (FODM#4)
H1R4.2-E4,E5	H1R5.3-T-1	DN10 (IFS Unit between devices 3&4)
H1R4.2-E6,F1	H1R5.11-A	LINE 62 (TS 17)

TABLE H1R4.4

CONNECTED FROM	CONNECTED TO	LABEL
H1R4.4-A2,A3		Back of Cisco GE 0/2

HUB 1

MODIFY COMMUNICATION SYSTEM

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E-145

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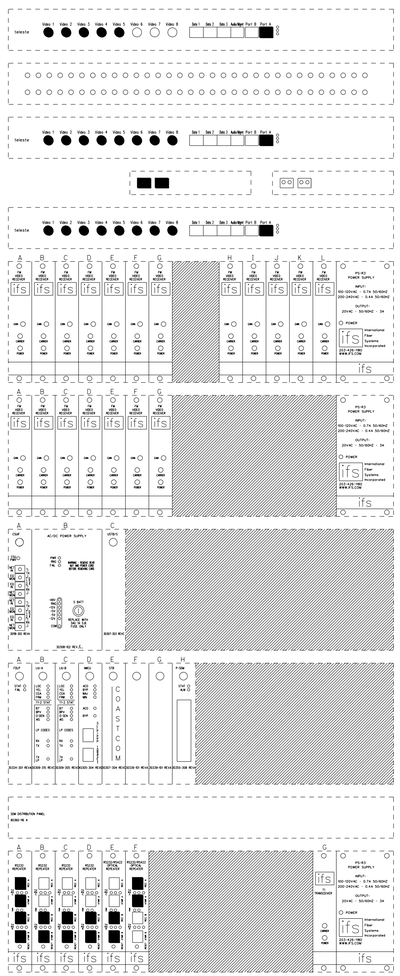

Exist EQUIPMENT RACK No. 5

TABLE H1R5.11

CONNECTED FROM	CONNECTED TO	LABEL
H1R5.11-A (TOP)	N/A	LINE 62
H1R5.11-A (BOT)	N/A	LINE 62
H1R5.11-B (BOT)	N/A	LINE 63
H1R5.11-C (BOT)	N/A	CMC-12
H1R5.11-D (BOT)	N/A	CCC-12
H1R5.11-E (BOT)	N/A	TS-12
H1R5.11-F (TOP)	N/A	TS-6
H1R5.11-G	N/A	N/A

HUB 1

MODIFY COMMUNICATION SYSTEM

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E-146

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Caltrans

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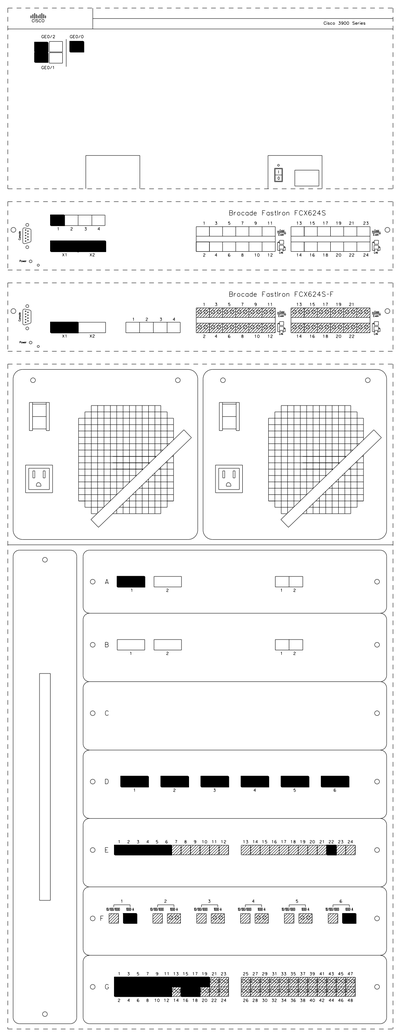
2. SEE SHEET E-142 FOR HUB LAYOUT.
3. INSTALL ONE(1) 48 PORT COMMUNICATIONS MODULE AT H1R7.4-BL3 PER SPECIFICATIONS.
4. INSTALL 35 SFP MODULES (29 ON H1R7.4-BL7 AND 6 ON H1R7.4-BL3) PER SPECIFICATIONS.



Exist EQUIPMENT RACK No. 7

TABLE H1R7.1

CONNECTED FROM	CONNECTED TO	LABEL
H1R7.1-GE0/0	N/A	N/A
H1R7.1-GE0/1	N/A	N/A
H1R7.1-GE0/2	N/A	N/A

TABLE H1R7.2

CONNECTED FROM	CONNECTED TO	LABEL
H1R7.2-FX1	N/A	N/A
H1R7.2-X1	N/A	N/A
H1R7.2-X2	N/A	N/A

TABLE H1R7.3

CONNECTED FROM	CONNECTED TO	LABEL
H1R7.3-X1	N/A	N/A

TABLE H1R7.4-BL1

CONNECTED FROM	CONNECTED TO	LABEL
H1R7.4-BL1-FX1	H1R1.7-E7,E8	N/A

TABLE H1R7.4-BL4

CONNECTED FROM	CONNECTED TO	LABEL
H1R7.4-BL4-FX1	H1R1.7-D2,D3	N/A
H1R7.4-BL4-FX2	H1R1.7-D9,D10	N/A
H1R7.4-BL4-FX3	N/A	N/A
H1R7.4-BL4-FX4	H1R1.6-D5,D6	N/A
H1R7.4-BL4-FX5	N/A	N/A
H1R7.4-BL4-FX6	H1R1.6-E1,E2	N/A

TABLE H1R7.4-BL6

CONNECTED FROM	CONNECTED TO	LABEL
H1R7.4-BL6-FX1	H1R1.6-H1,H2	N/A
H1R7.4-BL6-FX6	N/A	N/A

TABLE H1R7.4-BL7

CONNECTED FROM	CONNECTED TO	LABEL
H1R7.4-BL7-FX1	H1R1.7-B5,B6	N/A
H1R7.4-BL7-FX2	N/A	N/A
H1R7.4-BL7-FX3	H1R1.6-A1,A2	N/A
H1R7.4-BL7-FX4	N/A	N/A
H1R7.4-BL7-FX5	H1R1.1-F6,G1	N/A
H1R7.4-BL7-FX6	N/A	N/A
H1R7.4-BL7-FX7	H1R1.6-A3,A4	N/A
H1R7.4-BL7-FX8	H1R1.5-G1,G2	N/A
H1R7.4-BL7-FX9	N/A	N/A
H1R7.4-BL7-FX10	H1R1.6-A5,A6	N/A
H1R7.4-BL7-FX11	H1R1.6-B1,B2	N/A
H1R7.4-BL7-FX12	H1R1.6-A3,A4	N/A
H1R7.4-BL7-FX13	H1R1.7-B3,B4	N/A
H1R7.4-BL7-FX15	H1R1.5-J1,J2	N/A
H1R7.4-BL7-FX16	H1R1.6-G1,G2	N/A
H1R7.4-BL7-FX17	H1R1.6-G3,G4	N/A
H1R7.4-BL7-FX18	H1R1.6-G5,G6	N/A
H1R7.4-BL7-FX19	H1R1.6-B3,B4	N/A

HUB 1

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-147

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans®

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CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
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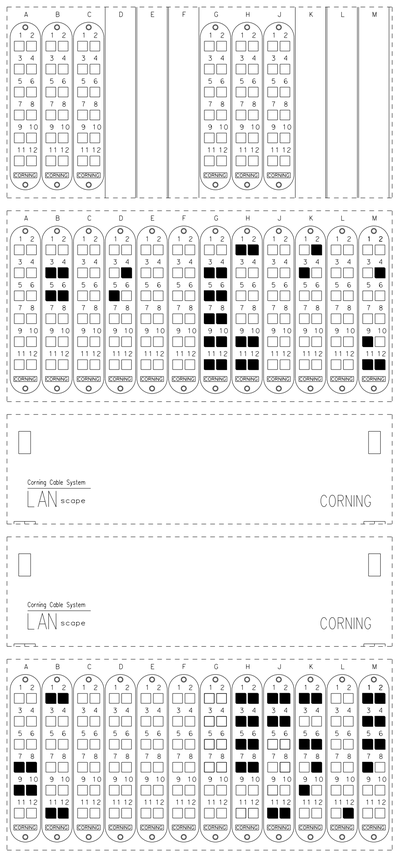

Exist EQUIPMENT RACK No. 11

TABLE H1R11.2

CONNECTED FROM	CONNECTED TO	LABEL
H1R11.2-B3	H1R12.3-I	CCTV-157, WB RTE 22 NB 5
H1R11.2-B4	H1R12.3-H	CCTV-156, WB LA VETA
H1R11.2-B5	H1R12.3-G	CCTV-155, EB GRAND
H1R11.2-B6	H1R12.3-F	CCTV-154, WB E/O CAMBRIDGE
H1R11.2-D4	N/A	CCR-15, FO 40-41
H1R11.2-D5	N/A	CCR-15, FO 40-41
H1R11.2-G3	H1R12.4-A	CCTV-163, EB VALLEY VIEW
H1R11.2-G4	H1R12.4-B	CCTV-164, EB V L ALISOS
H1R11.2-G5	H1R12.3-N	CCTV-162, WB KNOTT
H1R11.2-G6	H1R12.3-M	CCTV-161, EB E/O KNOTT
H1R11.2-G7	H1R12.3-L	CCTV-160, WB E/O RTE 39/BCH
H1R11.2-G8	H1R12.3-J	CCTV-158, EB W/O MAGNOLIA
H1R11.2-G9	H1R12.3-K	CCTV-159, WB E/O MAGNOLIA
H1R11.2-G10	H1R12.3-B	CCTV-30, WB E/O BROOKHURST
H1R11.2-G11	H1R12.3-C	CCTV31, WB E/O EUCLID
H1R11.2-G12	H1R12.3-D	CCTV-32, WB HARBOR
H1R11.2-H1	H1R12.3-A	CCTV-8, EB HASTER
H1R11.2-H2	H1R12.3-E	CCTV-33, WB W/O CITY DR
H1R11.2-H9,H10	N/A	CCTV-144, FO 21-22, SW-23
H1R11.2-H11,H12	N/A	CCTV-163, FO 23-24, SW-24
H1R11.2-K2	N/A	CCR-17, FO 38
H1R11.2-K3	N/A	CCR-17, FO 39
H1R11.2-M4	H1R1.7-A5	N/A
H1R11.2-M9	H1R1.7-F9	N/A
H1R11.2-M10	H1R1.7-F10	RPTR1 P-R, FDU-6#30
H1R11.2-M11,M12		M11= ,M12= (MISSING, NEED TO FIND)

TABLE H1R11.5

CONNECTED FROM	CONNECTED TO	LABEL
H1R11.5-A7,A8	H1R12.6-E	TMS-42, FO 7-8
H1R11.5-A9,A10	H1R12.6-F	TMS-43, FO 9-10
H1R11.5-B1,B2	H1R12.6-D	CMS-17, FO 13-14
H1R11.5-B11,B12	H1R12.6-K	TS-40, FO 21-22
H1R11.5-G1,G2	H1R12.6-G	TMS-23, FO 1-2
H1R11.5-G3,G4	H1R12.6-H	TMS-40, FO 3-4
H1R11.5-G5,G6	H1R12.6-J	TMS-41, FO 5-6
H1R11.5-G7,G8	H1R12.6-E3,4 (BOT)	TMS-42
H1R11.5-H1,H2	N/A	TS-41, FO 23-24
H1R11.5-H3,H4	N/A	CMS-83 FO 15-16, SW-22
H1R11.5-H11,H12	H1R12.6-C3,4 (BOT)	TS-41
H1R11.5-J1,J2	N/A	22/BEACH FO 9-10, 22-C WB FO 25-26, CISCO 4/5
H1R11.5-J5,J6	N/A	TS-20-KATELLA, FO 29-30, SW-21
H1R11.5-J7	H1R1.7-A11	N/A
H1R11.5-J9	H1R1.7-A12	N/A
H1R11.5-L12,M1	N/A	RMS-4, FO 60-61, SW-7/26
H1R11.5-M2	N/A	TMS-5022, FO 62-63, SW-20
H1R11.5-M3	N/A	TMS-5022, FO 62-63, SW-20
H1R11.5-M4,M5	N/A	TMS-2218, FO 64-65, SW-7/27
H1R11.5-M6,M7	N/A	RMS-434, FO 66-67, SW-7/25

HUB 1

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-148

REVISED BY | DATE REVISED
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CALCULATED-DESIGNED BY | CHECKED BY
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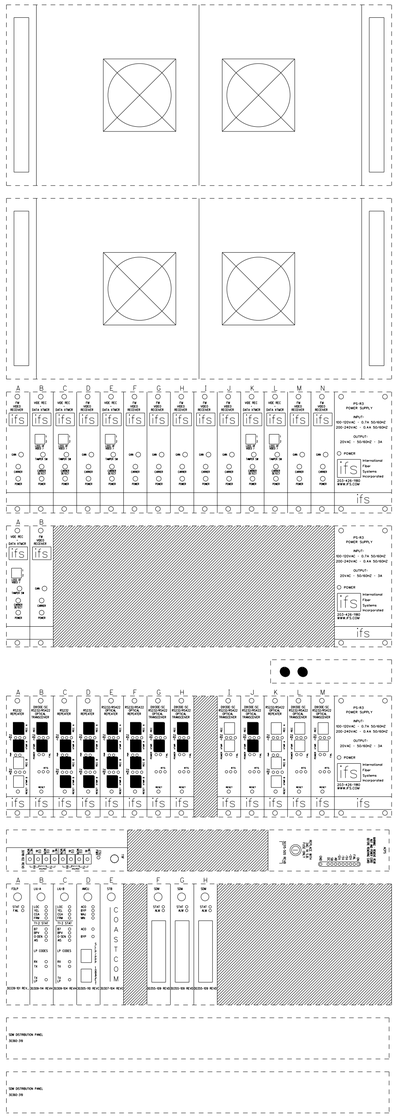

Exist EQUIPMENT RACK No. 12

TABLE H1R12.1

CONNECTED FROM	CONNECTED TO	LABEL
H1R12.1-AWS-TX	H1R1.1-K2	22 VIDEO MUX

TABLE H1R12.3

CONNECTED FROM	CONNECTED TO	LABEL
H1R12.3-A	H1R11.2-H1	CCTV-8, EB HASTER
H1R12.3-B	H1R11.2-G10	CCTV-30, WB E/O BROOKHURST
H1R12.3-C	H1R11.2-G11	CCTV-31, WB E/O EUCLID
H1R12.3-D	H1R11.2-G12	CCTV-32, WB HARBOR
H1R12.3-E	H1R11.2-H2	CCTV-33, WB W/O CITY DR
H1R12.3-F	H1R11.2-B6	CCTV-154, WB E/O CAMBRIDGE
H1R12.3-G	H1R11.2-B5	CCTV-155, EB GRAND
H1R12.3-H	H1R11.2-B4	CCTV-156, WB LA VETA
H1R12.3-I	H1R11.2-B3	CCTV-157, WB RTE 22 NB 5
H1R12.3-J	H1R11.2-G8	CCTV-158, EB W/O MAGNOLIA
H1R12.3-K	H1R11.2-G9	CCTV-159, WB E/O MAGNOLIA
H1R12.3-L	H1R11.2-G7	CCTV-160, WB E/O RTE 39/BCH
H1R12.3-M	H1R11.2-G6	CCTV-161, EB E/O KNOTT
H1R12.3-N	H1R11.2-G5	CCTV-162, WB KNOTT

TABLE H1R12.4

CONNECTED FROM	CONNECTED TO	LABEL
H1R12.4-A	H1R11.2-G3	CCTV-163, EB VALLEY VIEW
H1R12.4-B	H1R11.2-G4	CCTV-164, EB V L ALISOS

TABLE H1R12.5

CONNECTED FROM	CONNECTED TO	LABEL
H1R12.5-FX	H1R1.7-F3,F4	LA VETA (P) T-1

TABLE H1R12.6

CONNECTED FROM	CONNECTED TO	LABEL
H1R12.6-A	H1R11.2-D4,D5	CCR-15, FO 40-41
H1R12.6-B	H1R11.2-K2,K3	CCR-17, FO 38-39
H1R12.6-C	H1R11.2-H1,H2	TS-41, FO 23-24
H1R12.6-D	H1R11.5-B1,B2	CMS-15/17, FO 13-14
H1R12.6-E	H1R11.5-A7,A8	TMS-42, FO 7,8
H1R12.6-F	H1R11.5-A9,A10	TMS-43, FO 9-10
H1R12.6-G	H1R11.5-G1,G2	TMS-23, FO 1-2
H1R12.6-H	H1R11.5-G3,G4	TMS-40, FO 3-4
H1R12.6-J	H1R11.5-G5,G6	TMS-41, FO 5-6
H1R12.6-K	H1R11.5-B11,B12	TS-40, FO 21-22

HUB 1

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-149

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY / DATE REVISED

LAST REVISION 06-08-15
DATE PLOTTED => 29-SEP-2015
TIME PLOTTED => 11:40

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	175	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
CARLOS A. ORTIZ
No. 57535
Exp. 12-31-15
CIVIL
STATE OF CALIFORNIA

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14725 ALTON PKWY
IRVINE, CA 92618

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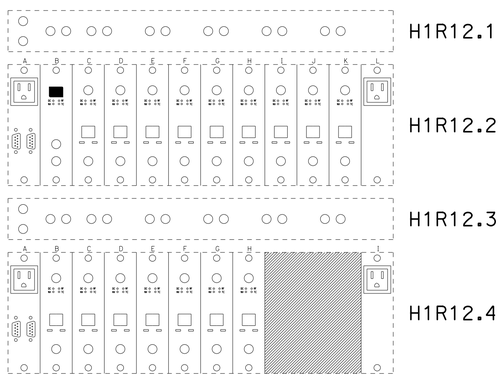
2. SEE SHEET E-142 FOR HUB LAYOUT.



Exist EQUIPMENT RACK No. 12 (BACK)

HUB 1

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-150

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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LAST REVISION 06-08-15
DATE PLOTTED => 29-SEP-2015
TIME PLOTTED => 11:40

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	176	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 THROUGH E-4 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-152 FOR HUB LAYOUT.

HUB No. 2 INTERCONNECTION DETAILS TABLE

ITEM	DEVICE	CONNECTED FROM	CONNECTED TO	LEGEND
1	CCTV 017	H2R8.4 - BL3 FX26	2	3
2	CCTV 079	H2R8.4 - BL3 FX27	2	3
3	CCTV 185	H2R8.4 - BL3 FX28	2	3
4	CCTV 078	H2R8.4 - BL3 FX29	2	3
5	CMS 021	H2R8.4 - BL3 FX30	2	3
6	TMS 2591	H2R8.4 - BL3 FX31	2	3
7	RMS 4510	H2R8.4 - BL3 FX32	2	3
8	RMS 4801	H2R8.4 - BL3 FX33	2	3
9	CMS 093	H2R8.4 - BL3 FX34	2	3
10	CCTV 106	H2R8.4 - BL3 FX35	2	3
11	CCTV 020	H2R8.4 - BL3 FX36	2	3
12	CCTV 308	H2R8.4 - BL3 FX1	H2R10.1 - F5, F6	1
13	CCTV 303	H2R8.4 - BL3 FX2	H2R10.1 - G1, G2	1

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-151

REVISED BY | DATE REVISED
RUBEN MANRIQUEZ | JOSHUA MCNEILL
CALCULATED-DESIGNED BY | CHECKED BY
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STEVE HUFF
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	177	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

06-08-15
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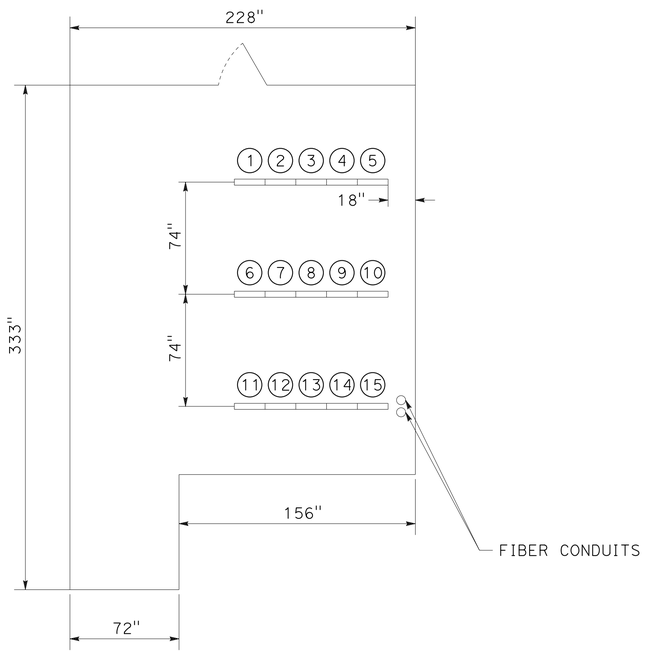
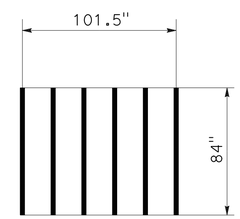


HUB 2 LAYOUT

1. EMPTY
2. EMPTY
3. EMPTY
4. EMPTY
5. EMPTY
6. EMPTY
7. EMPTY
8. SEE SHEET E-153
9. EMPTY
10. SEE SHEET E-154
11. SEE SHEET E-155
12. EMPTY
13. SEE SHEET E-156
14. SEE SHEET E-157
15. SEE SHEET E-158



RACK DIMENSIONS

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-152

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	178	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
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REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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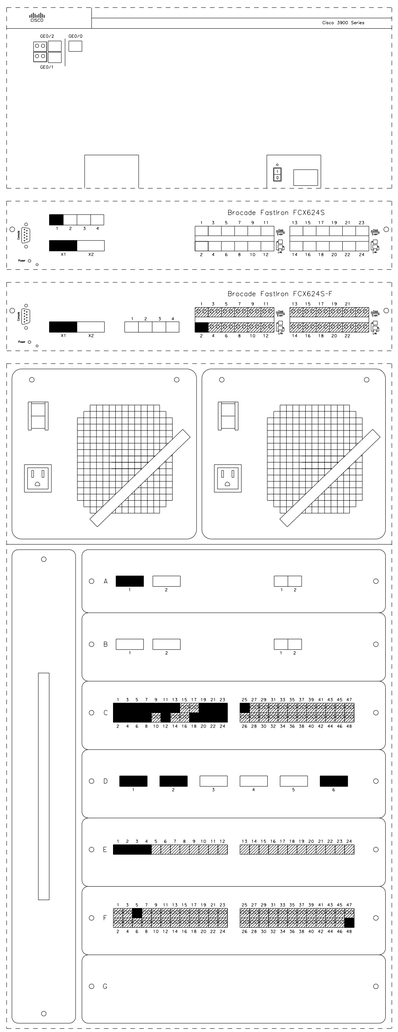
NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1, E-3, E-4 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-152 FOR HUB LAYOUT.
3. INSTALL 15 SFP MODULES ON H2R8.4-BLD3 PER SPECIFICATIONS.



Exist EQUIPMENT RACK No. 8

TABLE H2R8.1

CONNECTED FROM	CONNECTED TO	LABEL
H2R8.1-GE0/1		GE 0/1

TABLE H2R8.2

CONNECTED FROM	CONNECTED TO	LABEL
H2R8.2-FX1	H2R8.4-BL4-FX6	
H2R8.2-X1		

TABLE H2R8.3

CONNECTED FROM	CONNECTED TO	LABEL
H2R8.3-X1		
H2R8.3-FX2		

TABLE H2R8.4-BL1

CONNECTED FROM	CONNECTED TO	LABEL
H2R8.4-BL1-FX1	H2R11.4-F3	12-005-T01, 33-34 C-CBLE

TABLE H2R8.4-BL3

CONNECTED FROM	CONNECTED TO	LABEL
H2R8.4-BL3-FX1	H2R10.1-F5,F6	12-241 CCTV-0308, C Cable 35-36/B9-10
H2R8.4-BL3-FX2	H2R10.1-G1,G2	12-241 CCTV-0303, C Cable 37-38/B5-6
H2R8.4-BL3-FX3	H2R10.1-G5,G6	12-241 TMS-6086, C Cable 41-42/C1-2
H2R8.4-BL3-FX4	H2R10.1-H1,H2	12-241 TMS-6091, C Cable 43-44/C3-4
H2R8.4-BL3-FX5	H2R10.1-H3,H4	
H2R8.4-BL3-FX6	H2R11.4-C1,C2	5N E3571, B3P3/6
H2R8.4-BL3-FX7	H2R11.4-B1,B2	5N 17TH ES057
H2R8.4-BL3-FX8	H2R11.4-C5,C6	5N E3569, B3P8
H2R8.4-BL3-FX9		
H2R8.4-BL3-FX11		
H2R8.4-BL3-FX12		
H2R8.4-BL3-FX13		
H2R8.4-BL3-FX18	H2R10.1-F1,F2	CCTV-04, FO 31-32
H2R8.4-BL3-FX19	H2R10.1-A3,A4	RMS-1116
H2R8.4-BL3-FX20	H2R10.1-B1,B2	RMS-1105
H2R8.4-BL3-FX21	H2R10.1-B3,B4	CMS-82
H2R8.4-BL3-FX22	H2R10.1-B5,B6	RS 1101
H2R8.4-BL3-FX23	H2R10.1-D1,D2	TS-91 EB STA WA CYN, FO 19-20
H2R8.4-BL3-FX24	H2R10.1-A5,A6	
H2R8.4-BL3-FX25	H2R11.4-F5,F6	NO LABEL

TABLE H2R8.4-BL4

CONNECTED FROM	CONNECTED TO	LABEL
H2R8.4-BL4-FX1	H2R10.1-F3,F4	
H2R8.4-BL4-FX2	H2R11.4-H3,H4	12-22-H1, B-CBL 69,70
H2R8.4-BL4-FX6		

TABLE H2R8.4-BL6

CONNECTED FROM	CONNECTED TO	LABEL
H2R8.4-BL6-FX5		
H2R8.4-BL6-FX48		

HUB 2

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-153

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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TIME PLOTTED => 11:40

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	179	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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14725 ALTON PKWY
IRVINE, CA 92618

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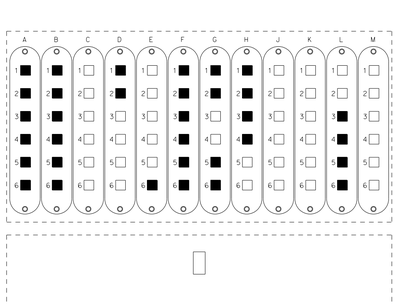
2. SEE SHEET E-152 FOR HUB LAYOUT.

TABLE H2R10.1

CONNECTED FROM	CONNECTED TO	LABEL
H2R10.1-A1,A2	H2R13.1-C	LINE 77 BOTTOM
H2R10.1-A3,A4	H2R8.4-BL3-FX19	RMS-1116
H2R10.1-A5,A6	H2R8.4-BL3-FX24	
H2R10.1-B1,B2	H2R8.4-BL3-FX20	RMS-1105
H2R10.1-B3,B4	H2R8.4-BL3-FX21	CMS-82
H2R10.1-B5,B6	H2R8.4-BL3-FX22	RS-1101
H2R10.1-D1,D2	H2R8.4-BL3-FX23	TS-91 EB STA WA CYN, FO 19-20
H2R10.1-E6	H2R13.1 To IFS Unit	CCTV-4 FODM, 91 PORT 30
H2R10.1-F1,F2	H2R8.4-BL3-FX18	CCTV-04, FO 31-32
H2R10.1-F3,F4	H2R8.4-BL4-FX1	
H2R10.1-F5,F6	H2R8.4-BL3-FX1	12-241 CCTV 0308, C Cable 35-36/B9-10
H2R10.1-G1,G2	H2R8.4-BL3-FX2	12-241 CCTV-0303, C Cable 37-38/B5-6
H2R10.1-G5,G6	H2R8.4-BL3-FX3	12-241 TMS-6086, C Cable 41-42/C1-2
H2R10.1-H1,H2	H2R8.4-BL3-FX4	12-241 TMS-6091, C Cable 43-44/C3-4
H2R10.1-H3,H4	H2R8.4-BL3-FX5	
H2R10.1-L3,L4	H2R11.1-A1,A2	
H2R10.1-L5,L6	H2R11.1-E1,E2	



Exist EQUIPMENT RACK No. 10

HUB 2

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-154

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	180	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

PLANS APPROVAL DATE 06-08-15

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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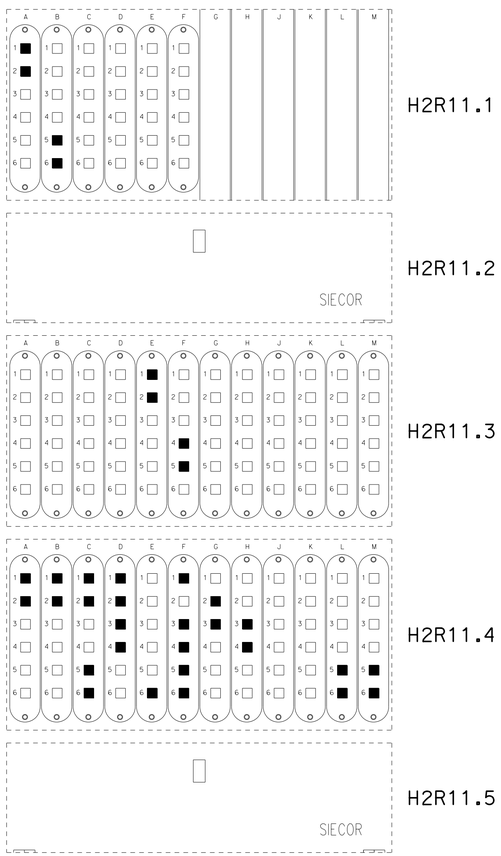
2. SEE SHEET E-152 FOR HUB LAYOUT.



Exist EQUIPMENT RACK No. 11

TABLE H2R11.1

CONNECTED FROM	CONNECTED TO	LABEL
H2R11.1-A1	H2R10.1-K3	
H2R11.1-A2	H2R10.1-K4	
H2R11.1-B5	H2R8.2-X1	
H2R11.1-B6	H2R8.2-X1	

TABLE H2R11.3

CONNECTED FROM	CONNECTED TO	LABEL
H2R11.3-E2	H2R10.1-K6	

TABLE H2R11.4

CONNECTED FROM	CONNECTED TO	LABEL
H2R11.4-B1,B2	H2R8.4-BL3-FX7	5N 17TH ES057
H2R11.4-C1,C2	H2R8.4-BL3-FX6	5N E3571, B3P3/6
H2R11.4-C5,C6	H2R8.4-BL3-FX8	5N E3569, B3P8
H2R11.4-D3	H2R11.4-L5	N) CCR#92
H2R11.4-D4	H2R11.4-L6	N) CCTV
H2R11.4-E6	H2R14.1R† (TOP)	
H2R11.4-F1	H2R14.1R† (TOP)	
H2R11.4-F3,F4	H2R8.4-BL1-FX1	12-005-T01, 33-34 C-CBLE
H2R11.4-F5,F6	H2R8.4-BL3-FX25	NO LABEL
H2R11.4-G2		FROM C58 CN3
H2R11.4-G3		FROM C59 CN3
H2R11.4-H3,H4	H2R8.4-BL4-FX2	12-22-H1, B-CBL 69,70
H2R11.4-L5	H2R15.4-E6	TS 14 TX
H2R11.4-L6	H2R15.4-F1	TS 14 RX
H2R11.4-M5	H2R11.4-D3	N) CCR#92
H2R11.4-M6	H2R11.4-D4	N) CCTV

HUB 2

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-155

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	181	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
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REGISTERED PROFESSIONAL ENGINEER
CARLOS A. ORTIZ
No. 57535
Exp. 12-31-15
CIVIL
STATE OF CALIFORNIA

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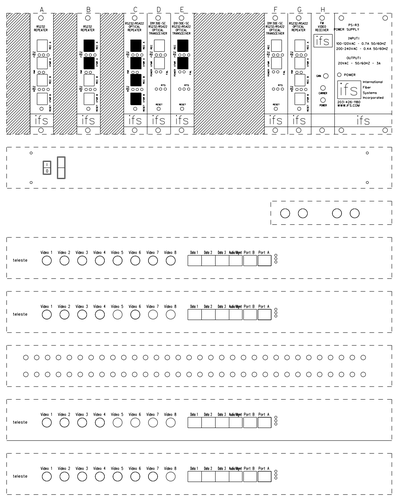
2. SEE SHEET E-152 FOR HUB LAYOUT.

TABLE H2R13.1

CONNECTED FROM	CONNECTED TO	LABEL
H2R13.1-A1,A2 TOP		
H2R13.1-A3,A4 BOT		
H2R13.1-B1,B2 TOP		
H2R13.1-B3,B4 BOT		
H2R13.1-C1,C2 TOP		
H2R13.1-C3,C4 BOT		
H2R13.1-D1,D2		
H2R13.1-E1,E2		
H2R13.1-F1,F2		
H2R13.1-G1,G2 TOP		
H2R13.1-G3,G4 BOT		
H2R13.1-H		



Exist EQUIPMENT RACK No. 13

HUB 2

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-156

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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DATE REVISED

LAST REVISION 06-08-15
DATE PLOTTED => 29-SEP-2015
TIME PLOTTED => 11:41

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	182	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

PLANS APPROVAL DATE 06-08-15

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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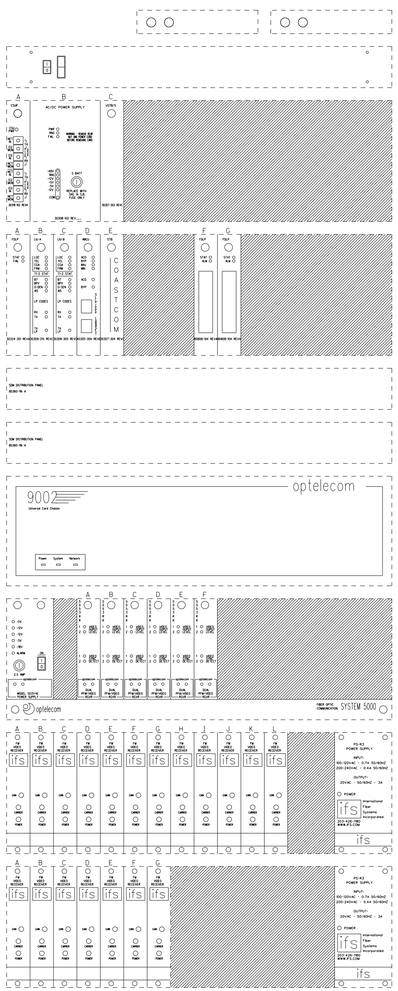
2. SEE SHEET E-152 FOR HUB LAYOUT.



Exist EQUIPMENT RACK No. 14

HUB 2

TABLE H2R14.1

CONNECTED FROM	CONNECTED TO	LABEL
H2R14.1-E6,F1		HUB 2

TABLE H2R14.8

CONNECTED FROM	CONNECTED TO	LABEL
H2R14.8-A1 TOP		CCTV-132
H2R14.8-A2 BOT		
H2R14.8-B1 TOP		CCTV-134
H2R14.8-B2 BOT		CCTV-136
H2R14.8-C1 TOP		CCTV-133
H2R14.8-C2 BOT		TV-57/91, CCTV-3
H2R14.8-D1 TOP		CCTV-138
H2R14.8-D2 BOT		CCTV-139
H2R14.8-E1 TOP		BAD
H2R14.8-E2 BOT		CCTV-140
H2R14.8-F1 TOP		CCTV-40
H2R14.8-F2 BOT		CCTV-168

TABLE H2R14.9

CONNECTED FROM	CONNECTED TO	LABEL
H2R14.9-A		CCTV12
H2R14.9-B		CCTV170
H2R14.9-C		CCTV174
H2R14.9-D		CCTV78
H2R14.9-E		CCTV6
H2R14.9-F		CCTV76
H2R14.9-G		CCTV79
H2R14.9-H		CCTV177
H2R14.9-I		CCTV90
H2R14.9-J		CCTV178
H2R14.9-K		CCTV180
H2R14.9-L		CCTV179

TABLE H2R14.10

CONNECTED FROM	CONNECTED TO	LABEL
H2R14.10-A		CCTV92
H2R14.10-B		CCTV182
H2R14.10-C		CCTV81
H2R14.10-D		CCTV183
H2R14.10-E		CCTV184
H2R14.10-F		CCTV
H2R14.10-G		CCTV185

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-157

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF

CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ

CHECKED BY: JOSHUA MCNEILL

REVISED BY

DATE REVISED

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:41

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	183	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

PLANS APPROVAL DATE 06-08-15

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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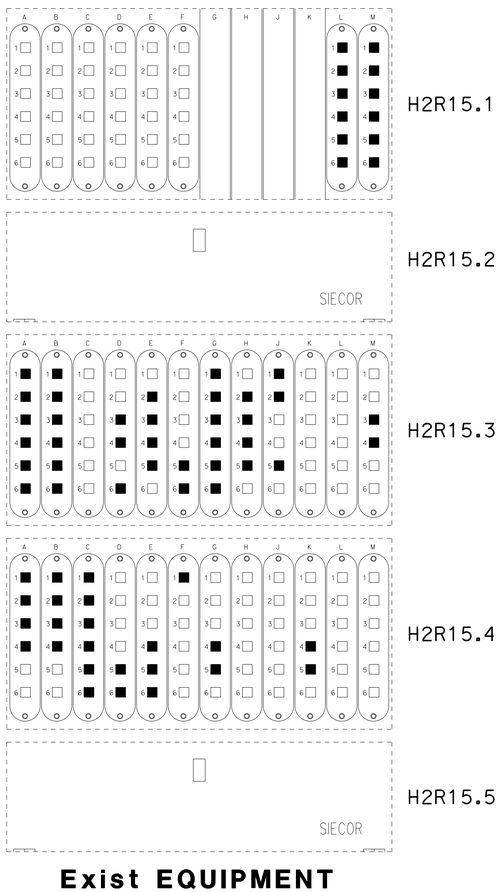
RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1, E-3, E-4 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-152 FOR HUB LAYOUT.



Exist EQUIPMENT RACK No. 15

TABLE H2R15.1

CONNECTED FROM	CONNECTED TO	LABEL
H2R15.1-L1	H2R15.4-C5	
H2R15.1-L2	H2R15.4-C6	
H2R15.1-L3	H2R15.4-D5	
H2R15.1-L4	H2R15.4-D6	
H2R15.1-L5	H2R15.4-C1	
H2R15.1-L6	H2R15.4-C2	
H2R15.1-M1	H2R15.4-B1	
H2R15.1-M2	H2R15.4-B2	
H2R15.1-M4	H2R15.3-J5	CCTV-203 FO 53-54 SW 6/1
H2R15.1-M5	H2R15.4-C3	CHAMAN/RMPR T FO 21-22 SW PORT 9
H2R15.1-M6	H2R15.4-C4	CHAMAN/RMPR T FO 21-22 SW PORT 9

TABLE H2R15.3

CONNECTED FROM	CONNECTED TO	LABEL
H2R15.3-A1		B CABLE-1 CAM40 OUT
H2R15.3-A2		B CABLE-2 CAM268 OUT
H2R15.3-A3		B CABLE-3 CAM132 OUT
H2R15.3-A4		B CABLE-4 CAM269 OUT
H2R15.3-A5		B CABLE-5 CAM134 OUT
H2R15.3-A6		B CABLE-6 CAM136 OUT
H2R15.3-B1		B CABLE-7 CAM133 OUT
H2R15.3-B2		B CABLE-8 EXIST OUT
H2R15.3-B3		B CABLE-9 CAM138 OUT
H2R15.3-B4		B CABLE-10 CAM139 OUT
H2R15.3-B5		B CABLE-11 CAM140 OUT
H2R15.3-B6		TEMP CCTV185
H2R15.3-D3		TEMP CCTV80
H2R15.3-D4		TEMP CCTV178
H2R15.3-D6		TEMP CCTV180
H2R15.3-E2		TEMP CCTV184
H2R15.3-E3		TEMP CCTV182
H2R15.3-E4		TEMP CCTV179
H2R15.3-E5		TEMP CCTV183
H2R15.3-F5		NOT LABELED
H2R15.3-F6		NOT LABELED
H2R15.3-G1		B CABLE-37 CCTV TX1
H2R15.3-G2		B CABLE-38 CCTV RX1
H2R15.3-G3		NOT LABELED
H2R15.3-G4		NOT LABELED
H2R15.3-G5		CCTV PORT 15 & 16
H2R15.3-G6		CCTV PORT 15 & 16
H2R15.3-H2		CCTV-12, B/FDU#44
H2R15.3-H3		CCTV-170, B/FDU#45
H2R15.3-H4		CCTV-174, B/FDU#46
H2R15.3-H5		CCTV-78, B/FDU#47
H2R15.3-J1		TEMP CCTV81
H2R15.3-J2		TEMP CCTV181
H2R15.3-J5		CCTV-283, FO 53-54, SW 6/1
H2R15.3-M3		
H2R15.3-M4		

TABLE H2R15.4

CONNECTED FROM	CONNECTED TO	LABEL
H2R15.4-A1	H2R13.3	CCTV TX
H2R15.4-A2	H2R13.3	CCTV RX
H2R15.4-A3		C-CABLE 3 RMS2 TX-1
H2R15.4-A4		C-CABLE 4 RMS2 RX-1
H2R15.4-B1		RMS-7015 FO 7-8 SW 6/3
H2R15.4-B2		RMS-7015 FO 7-8 SW 6/3
H2R15.4-B3		NOT LABELED
H2R15.4-B4		NOT LABELED
H2R15.4-C1		TMS-7013 FO 13-14 SW 6/1 OR 4
H2R15.4-C2		TMS-7013 FO 13-14 SW 6/1 OR 4
H2R15.4-C3		CHAMAN/RMPRT FO 21-22 SW PORT 9
H2R15.4-C4		CHAMAN/RMPRT FO 21-22 SW PORT 9
H2R15.4-C5		CMS-54 FO 17-18 SW 6/2
H2R15.4-C6		CMS-54 FO 17-18 SW 6/2
H2R15.4-D5		TS-ARESIA FO 23-24 SW 6/5
H2R15.4-D6		TS-ARESIA FO 23-24 SW 6/5
H2R15.4-E4		NOT LABELED
H2R15.4-E5		NOT LABELED
H2R15.4-E6	H2R11.4-L5	TS-14 RX
H2R15.4-F1	H2R11.4-L6	TS-14 TX
H2R15.4-G4		CMS PORT 13 & 14
H2R15.4-G5		
H2R15.4-K4	H2R11.4-G2	TO C-38 SOUTH
H2R15.4-K5	H2R11.4-G3	TO C-39 SOUTH

HUB 2

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-158

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF

CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ

CHECKED BY: JOSHUA MCNEILL

REVISED BY / DATE REVISED

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:41

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	184	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 THROUGH E-4 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-160 FOR HUB LAYOUT.

HUB No. 3 INTERCONNECTION DETAILS TABLE

ITEM	DEVICE	CONNECTED FROM	CONNECTED TO	LEGEND
1	CMS 086	H3R1.3 - BL3 FX36	2	3
2	RMS 4399	H3R1.3 - BL3 FX38	2	3
3	TMS 5026	H3R1.3 - BL3 FX39	2	3
4	TS Loc No. 119	H3R1.3 - BL6 FX1	2	3
5	TS Loc No. 115	H3R1.3 - BL6 FX2	2	3
6	CCTV 231	H3R1.3 - BL6 FX3	2	3
7	CCTV 28	H3R1.3 - BL6 FX4	2	3
8	TMS 2346	H3R1.3 - BL6 FX5	2	3
9	TMS 2435	H3R1.3 - BL6 FX6	2	3
10	TMS 2040	H3R1.3 - BL6 FX7	2	3
11	TMS 2604	H3R1.3 - BL6 FX8	2	3
12	RMS 4406	H3R1.3 - BL6 FX9	2	3
13	TMS 2605	H3R1.3 - BL6 FX10	2	3
14	TS Loc No. 1	H3R1.3 - BL6 FX11	2	3
15	TS Loc No. 8	H3R1.3 - BL6 FX12	2	3
16	CMS 089	H3R1.3 - BL6 FX13	2	3
17	RMS 3559	H3R1.3 - BL6 FX14	2	3
18	RMS 4510	H3R1.3 - BL6 FX15	2	3
19	RMS 4801	H3R1.3 - BL6 FX16	2	3
20	CMS 075	H3R1.3 - BL6 FX17	2	3
21	CCTV 219	H3R1.3 - BL6 FX18	2	3
22	CCTV 197	H3R1.3 - BL6 FX19	2	3
23	CCTV 34	H3R1.3 - BL3 FX34	H3R6.7 - E3, E4	1
24	CCTV 212	H3R1.3 - BL3 FX28	H3R6.3 - F2, F3	1
25	CCTV 213	H3R1.3 - BL3 FX27	H3R6.3 - F4, F5	1
26	CCTV 217	H3R1.3 - BL3 FX25	H3R6.3 - G1, G2	1
27	CCTV 218	H3R1.3 - BL3 FX29	H3R6.3 - G3, G4	1
28	CCTV 235	H3R1.3 - BL3 FX30	H3R6.3 - H4, H5	1
29	CCTV 323	H3R1.3 - BL3 FX1	H3R10.1 - G1, G2	1
30	CCTV 348	H3R1.3 - BL3 FX8	H3R10.1 - G3, G4	1
31	CCTV 330	H3R1.3 - BL3 FX2	H3R10.1 - G5, G6	1
32	CCTV 337	H3R1.3 - BL3 FX10	H3R10.1 - G7, G8	1
33	CCTV 344	H3R1.3 - BL3 FX9	H3R10.1 - G9, G10	1

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-159

REVISED BY | DATE REVISED
RUBEN MANRIQUEZ | JOSHUA MCNEILL
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 06-08-15 | DATE PLOTTED => 29-SEP-2015 | TIME PLOTTED => 11:41

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06-08-15
PLANS APPROVAL DATE

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

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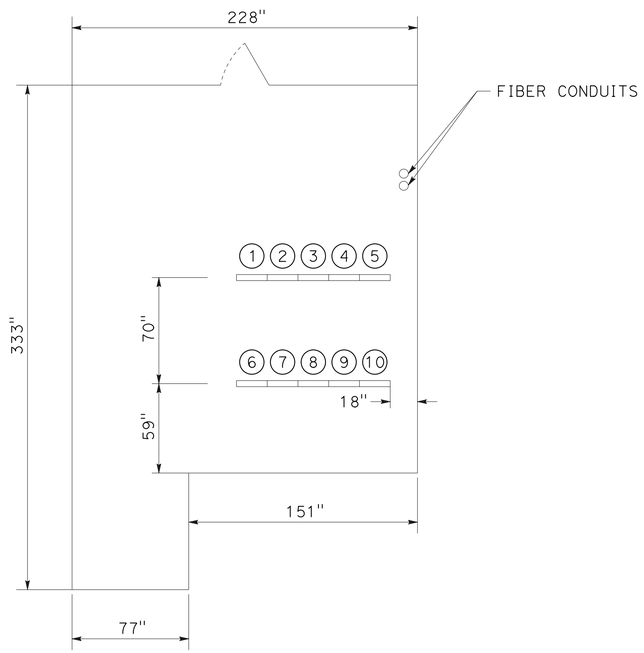
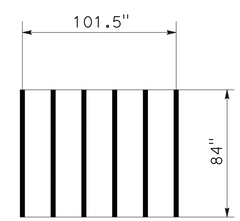


HUB 3 LAYOUT

1. SEE SHEET E-161
2. EMPTY
3. EMPTY
4. EMPTY
5. EMPTY
6. SEE SHEET E-162
7. SEE SHEET E-163
8. EMPTY
9. EMPTY
10. SEE SHEET E-164
11. EMPTY
12. EMPTY
13. EMPTY
14. EMPTY
15. EMPTY



RACK DIMENSIONS

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-160

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

LAST REVISION 06-08-15
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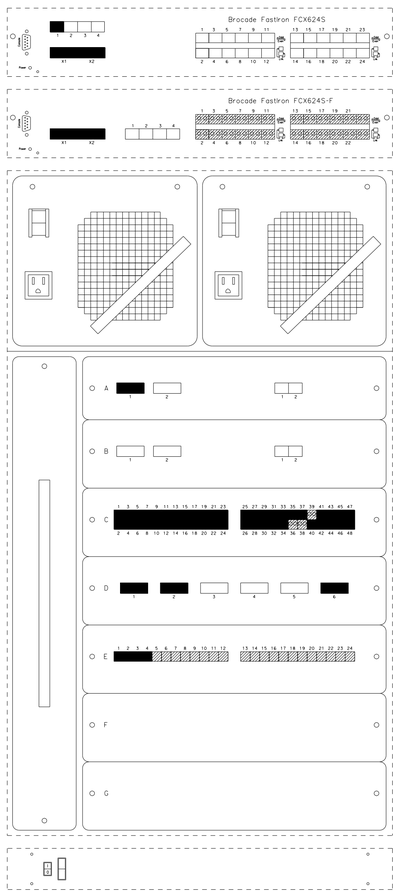
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1, E-3, E-4 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-160 FOR HUB LAYOUT.
3. INSTALL ONE (1) COMMUNICATIONS MODULE AT H3R1.3-BL6 PER SPECIFICATIONS.
4. INSTALL 26 SFP MODULES (THREE (3) ON H3R1.3-BL3 AND TWENTY THREE (23) ON H3R1.3-BL6) PER SPECIFICATIONS.



Exist EQUIPMENT RACK No. 1

HUB 3

TABLE H3R1.1

CONNECTED FROM	CONNECTED TO	LABEL
H3R1.1-FX1		
H3R1.1-X1	H3R6.1-F1,F2	TMC LINK
H3R1.1-X2	H3R6.3-L4,L5	

TABLE H3R1.2

CONNECTED FROM	CONNECTED TO	LABEL
H3R1.2-X1	H3R10.1-H11,H12	HUB 7 LINK
H3R1.2-FX2		

TABLE H3R1.3-BL1

CONNECTED FROM	CONNECTED TO	LABEL
H3R1.3-BL1-FX1	H3R6.1-F3,F4	HUB 3, FIBER A FO 33-34 TO TMC C FO 61-62

TABLE H3R1.3-BL3

CONNECTED FROM	CONNECTED TO	LABEL
H3R1.3-BL3-FX1	H3R10.1-G1,G2	CCTV-323, B FO 1-2
H3R1.3-BL3-FX2	H3R10.1-G5,G6	CC7TV-330, B FO 5-6
H3R1.3-BL3-FX3	H3R10.1-B5,B6	TS-1, FO 17-18
H3R1.3-BL3-FX4	H3R10.1-B9,B10	RSM-7313, FO 21-22
H3R1.3-BL3-FX5	H3R10.1-A1,A2	TMS-7310
H3R1.3-BL3-FX6	H3R10.1-C7,C8	TMS-7322, FO 31-32
H3R1.3-BL3-FX7	H3R10.1-C9,C10	TMS-7336, FO 33-34
H3R1.3-BL3-FX8	H3R10.1-G3,G4	CC7TV-348, B FO 3-4
H3R1.3-BL3-FX9	H3R10.1-G9,G10	CC7TV-334, B FO 9-10
H3R1.3-BL3-FX10	H3R10.1-G7,G8	CC7TV-337, B FO 7-8
H3R1.3-BL3-FX11	H3R10.1-B3,B4	TS-13 FO 19-20
H3R1.3-BL3-FX12	H3R10.1-B11,B12	RMS-7353, FO 23-24
H3R1.3-BL3-FX13	H3R10.1-A11,A12	RMS-7335
H3R1.3-BL3-FX14	H3R10.1-D1,D2	TMS-7349, FO 37-38
H3R1.3-BL3-FX15	H3R10.1-C11,C12	TMS-7343, FO 35-36
H3R1.3-BL3-FX16	H3R6.7-B3,B4	CMS-30
H3R1.3-BL3-FX17		
H3R1.3-BL3-FX18	H3R6.7-A3,A4	TMS 2033, FO 3-4
H3R1.3-BL3-FX19	H3R6.7-L5,L6	TMS-5008, FO 71-72
H3R1.3-BL3-FX20	H3R6.7-A5,A6	TMS-5011
H3R1.3-BL3-FX21	H3R6.7-B1,B2	CMS-74
H3R1.3-BL3-FX22	H3R6.7-A1,A2	TMS-5009
H3R1.3-BL3-FX23	HR3R6.7-K1,K2	TMS-8508, FO 61-62
H3R1.3-BL3-FX24	H3R6.7-L3,L4	RMS-535, FO 63-64
H3R1.3-BL3-FX25	H3R6.7-G1,G2	CCTV-217, FO 37-38
H3R1.3-BL3-FX26	H3R6.7-J3,J4	RMS-1514, FO 57-58
H3R1.3-BL3-FX27	H3R6.7-F4,F5	CCTV-13, FO 34-35
H3R1.3-BL3-FX28	H3R6.7-F2,F3	CCTV-12, FO 32-33
H3R1.3-BL3-FX29	H3R6.7-G3,G4	CCTV-3018 FO 39-40
H3R1.3-BL3-FX30	H3R6.7-H4,H5	CCT5V-235 FO 46-47
H3R1.3-BL3-FX31	H3R6.7-L3,L4	TMS-2031, FO 69-70
H3R1.3-BL3-FX32	H3R6.7-J1,J2	TMS-2611, FO 55-56
H3R1.3-BL3-FX33	H3R6.7-J5,J6	RMS-532, FO 59-60
H3R1.3-BL3-FX34	H3R6.7-E3,E4	CCTV FO 27-28
H3R1.3-BL3-FX35	H3R6.4-A1,A2	TMS LN64 3679 SAVRY, F1 F2
H3R1.3-BL3-FX37	H3R6.7-L1,L2	RMS-682, FO 67-68
H3R1.3-BL3-FX40	H3R6.3-G5,G6	
H3R1.3-BL3-FX41		
H3R1.3-BL3-FX42	H3R6.4-C5,C6	
H3R1.3-BL3-FX43	H3R6.4-A3,A4	TMS LN65, F3/F4, DATA NODE 4 = DN4
H3R1.3-BL3-FX44	H3R6.4-B1,B2	
H3R1.3-BL3-FX45	H3R6.4-A3,A4	CMS-11
H3R1.3-BL3-FX46	H3R6.4-C4,C4	
H3R1.3-BL3-FX47	H3R6.3-C3,C4	
H3R1.3-BL3-FX48	H3R10.1-C3,C4	

TABLE H3R1.3-BL4

CONNECTED FROM	CONNECTED TO	LABEL
H3R1.3-BL4-FX1	H3R10.1-J1,J2	HUB 7 FO 25-26
H3R1.3-BL4-FX2		
H3R1.3-BL4-FX6	H3R1.1-FX1	

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-161

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: JOSHUA MCNEILL
CHECKED BY: RUBEN MANRIQUEZ
REVISED BY
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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

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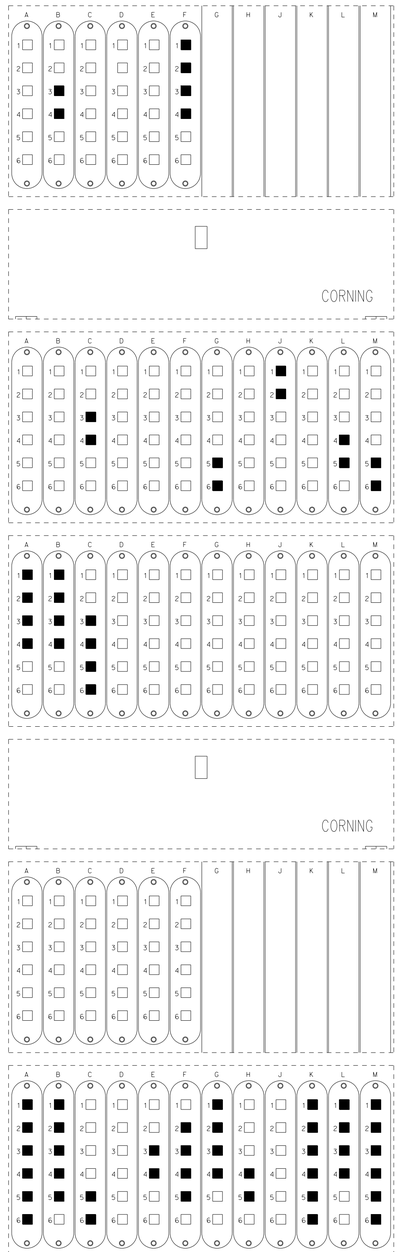
2. SEE SHEET E-160 FOR HUB LAYOUT.



Exist EQUIPMENT
RACK No. 6

TABLE H3R6.1

CONNECTED FROM	CONNECTED TO	LABEL
H3R6.1-B3,B4	H3R7.X	◆
H3R6.1-F1,F2	H3R1.1-1X	TMC LINK
H3R6.1-F3,F4	H3R1.3-BL1-FX1	HUB 3 A 33-34 TO TMC C 61-62

◆ CONNECTED TO INDEPENDENT IFS ON TOP OF DEVICE 1 ON RACK

TABLE H3R6.3

CONNECTED FROM	CONNECTED TO	LABEL
H3R6.3-C3,C4	H3R1.3-BL3-FX47	PORT 47
H3R6.3-G5,G6	H3R1.3-BL3-FX40	PORT 40
H3R6.3-J1,J2	H3R1.3-BL3-FX41	BROCADE HUB 5 LINK
H3R6.3-L4,L5	H3R1.3-BL4-FX2	
H3R6.3-M5,M6	H3R1.1-2X	

TABLE H3R6.4

CONNECTED FROM	CONNECTED TO	LABEL
H3R6.4-A1,A2	H3R1.3-BL3-FX35	TMS LN 64, FO 1-2
H3R6.4-A3,A4	H3R1.3-BL3-FX43	TMS LN 65, Data Node 4, FO 1-2
H3R6.4-B1,B2	H3R1.3-BL3-FX44	
H3R6.4-B3,B4	H3R1.3-BL3-FX45	CMS-11, FO 9-10
H3R6.4-C3,C4	H3R1.3-BL3-FX46	
H3R6.4-C5,C6	H3R1.3-BL3-FX42	

TABLE H3R6.7

CONNECTED FROM	CONNECTED TO	LABEL
H3R6.7-A1,A2	H3R1.3-BL3-FX22	TMS-5009, FO 1-2
H3R6.7-A3,A4	H3R1.3-BL3-FX18	TMS-2033, FO 3-4
H3R6.7-A5,A6	H3R1.3-BL3-FX20	TMS-5011, FO 5-6
H3R6.7-B1,B2	H3R1.3-BL3-FX21	CMS-24, FO 7-8
H3R6.7-B3,B4	H3R1.3-BL3-FX16	CMS-30, FO 9-10
H3R6.7-B5		◆
H3R6.7-C5,C6		◆
H3R6.7-E3,E4	H3R1.3-BL3-FX34	CCTV-34, FO 27-28
H3R6.7-F2,F3	H3R1.3-BL3-FX28	CCTV-212, FO 32-33
H3R6.7-F4,F5	H3R1.3-BL3-FX27	CCTV-213, FO 34-35
H3R6.7-G1,G2	H3R1.3-BL3-FX25	CCTV-217, FO 37-38
H3R6.7-G3,G4	H3R1.3-BL3-FX29	CCTV-218, FO 39-40
H3R6.7-H4,H5	H3R1.3-BL3-FX30	CCTV-235, FO 46-47
H3R6.7-K1,K2	H3R1.3-BL3-FX32	TMS-2611, FO 55-56
H3R6.7-K3,K4	H3R1.3-BL3-FX26	RMS-1514, FO 57-58
H3R6.7-K5,K6	H3R1.3-BL3-FX33	RMS-532, FO 59-60
H3R6.7-L1,L2	H3R1.3-BL3-FX23	TMS-8508, FO 61-62
H3R6.7-L3,L4	H3R1.3-BL3-FX24	RMS-535, FO 63-64
H3R6.7-M1,M2	H3R1.3-BL3-FX37	RMS-682, FO 67-68
H3R6.7-M3,M4	H3R1.3-BL3-FX31	TMS-2031, FO 69-70
H3R6.7-M5,M6	H3R1.3-BL3-FX19	TMS-5008, FO 71-72

◆ MISSING NOTES

HUB 3

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-162

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

LAST REVISION 06-08-15
DATE PLOTTED => 29-SEP-2015
TIME PLOTTED => 11:41

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	188	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
CARLOS A. ORTIZ
No. 57535
Exp. 12-31-15
CIVIL
STATE OF CALIFORNIA

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RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

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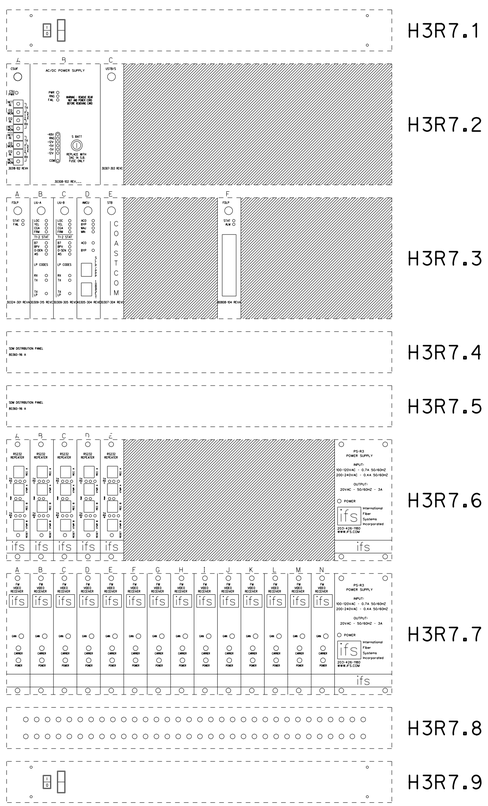
2. SEE SHEET E-160 FOR HUB LAYOUT.



Exist EQUIPMENT RACK No. 7

HUB 3

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-163

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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DATE REVISED

LAST REVISION 06-08-15
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	189	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

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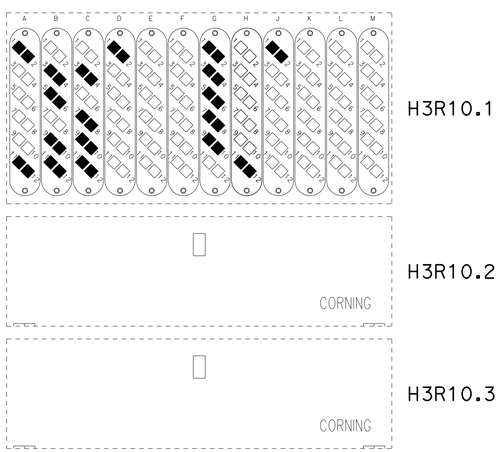
2. SEE SHEET E-160 FOR HUB LAYOUT.

TABLE H3R10.1

CONNECTED FROM	CONNECTED TO	LABEL
H3R10.1-A1,A2	H3R1.3-BL3-FX5	TMS-7310
H3R10.1-A11,A12	H3R1.3-BL3-FX13	RMS-7335
H3R10.1-B3,B4	H3R1.3-BL3-FX11	TS-13, FO 19-20
H3R10.1-B5, B6	H3R1.3-BL3-FX3	TS-1, FO 17-18
H3R10.1-B9,B10	H3R1.3-BL3-FX4	RMS-7313, FO 21-22
H3R10.1-B11,B12	H3R1.3-BL3-FX12	RMS-7353, FO 23-24
H3R10.1-C3,C4	H3R1.3-BL3-FX48	
H3R10.1-C7,C8	H3R1.3-BL3-FX6	TMS-7322, FO 31-32
H3R10.1-C9,C10	H3R1.3-BL3-FX7	TMS-7336, FO 33-34
H3R10.1-C11,C12	H3R1.3-BL3-FX15	TMS-7343, FO 35-36)
H3R10.1-D1,D2	H3R1.3-BL3-FX14	TMS-7349, FO 37-38
H3R10.1-G1,G2	H3R1.3-BL3-FX1	CCTV-323, FO B 1-2
H3R10.1-G3,G4	H3R1.3-BL3-FX8	CC7TV-348, FO B 3-4
H3R10.1-G5,G6	H3R1.3-BL3-FX2	CC7TV-330, B FO 5-6
H3R10.1-G7,G8	H3R1.3-BL3-FX10	CC7TV-337, B FO 7-8)
H3R10.1-G9,G10	H3R1.3-BL3-FX9	CC7TV-344, B FO 9-10)
H3R10.1-H11,H12	H3R1.2-1X	HUB 7 LINK
H3R10.1-J1,J2	H3R1.3-BL4-FX1	HUB 7, FO 25-26



Exist EQUIPMENT RACK No. 10

HUB 3

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-164

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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CHECKED BY: JOSHUA MCNEILL
REVISED BY
DATE REVISED

LAST REVISION 06-08-15
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	190	308

REGISTERED CIVIL ENGINEER DATE 05-13-15

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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IRVINE, CA 92618

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1. SEE SHEETS E-1 THROUGH E-4 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-166 FOR HUB LAYOUT.

HUB No. 4 INTERCONNECTION DETAILS TABLE

ITEM	DEVICE	CONNECTED FROM	CONNECTED TO	LEGEND
1	CCTV 145	H4R6.3 - BL3 FX22	2	3
2	RMS 4397	H4R6.3 - BL3 FX23	2	3
3	RMS 4350	H4R6.3 - BL3 FX24	2	3
4	RMS 4353	H4R6.3 - BL3 FX25	2	3
5	RMS 4358	H4R6.3 - BL3 FX26	2	3
6	RMS 4390	H4R6.3 - BL3 FX27	2	3
7	RMS 4394	H4R6.3 - BL3 FX17	2	3
8	TMS 5018	H4R6.3 - BL3 FX18	2	3
9	TS Loc No. 128	H4R6.3 - BL3 FX19	2	3
10	CCTV 39	H4R6.3 - BL3 FX20	2	3
11	CCTV 242	H4R6.3 - BL3 FX21	2	3
12	TS Loc No. 132	H4R6.3 - BL3 FX39	2	3
13	TS Loc No. 125	H4R6.3 - BL3 FX29	2	3
14	TS Loc No. 127	H4R6.3 - BL3 FX30	2	3
15	TMS 2474	H4R6.3 - BL3 FX31	2	3
16	RMS 4551	H4R6.3 - BL3 FX32	2	3
17	TMS 2603	H4R6.3 - BL3 FX33	2	3
18	TMS 2602	H4R6.3 - BL3 FX34	2	3
19	TMS 2433	H4R6.3 - BL3 FX35	2	3
20	TMS 2605	H4R6.3 - BL3 FX36	2	3
21	TS Loc No. 7	H4R6.3 - BL3 FX37	2	3
22	TS Loc No. 13	H4R6.3 - BL3 FX28	2	3
23	CMS 089	H4R6.3 - BL3 FX38	2	1
24	RMS 4504	H4R6.3 - BL3 FX39	SEE SHEET E-216 HUB 8 ITEM 1	3
25	RMS 3884	H4R6.3 - BL3 FX40	SEE SHEET E-216 HUB 8 ITEM 2	3
26	TMS 2223	H4R6.3 - BL3 FX41	SEE SHEET E-216 HUB 8 ITEM 3	3
27	RMS 3980	H4R6.3 - BL3 FX42	SEE SHEET E-216 HUB 8 ITEM 4	3
28	RMS 3908	H4R6.3 - BL3 FX43	SEE SHEET E-216 HUB 8 ITEM 5	3
29	TS Loc No. 70	H4R6.3 - BL3 FX44	SEE SHEET E-216 HUB 8 ITEM 6	3
30	TS Loc No. 81	H4R6.3 - BL3 FX45	SEE SHEET E-216 HUB 8 ITEM 7	3
31	TS Loc No. 77	H4R6.3 - BL3 FX46	SEE SHEET E-216 HUB 8 ITEM 8	3
32	TS Loc No. 88	H4R6.3 - BL3 FX47	SEE SHEET E-216 HUB 8 ITEM 9	3
33	CCTV 163	H4R6.3 - BL3 FX48	SEE SHEET E-216 HUB 8 ITEM 10	3
34	CCTV 157	H4R6.3 - BL6 FX1	SEE SHEET E-216 HUB 8 ITEM 11	3
35	CCTV 30	H4R6.3 - BL6 FX2	SEE SHEET E-216 HUB 8 ITEM 12	3
36	CMS 17	H4R6.3 - BL6 FX3	SEE SHEET E-216 HUB 8 ITEM 13	3

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-165

REVISED BY | DATE REVISED
RUBEN MANRIQUEZ | JOSHUA MCNEILL
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	191	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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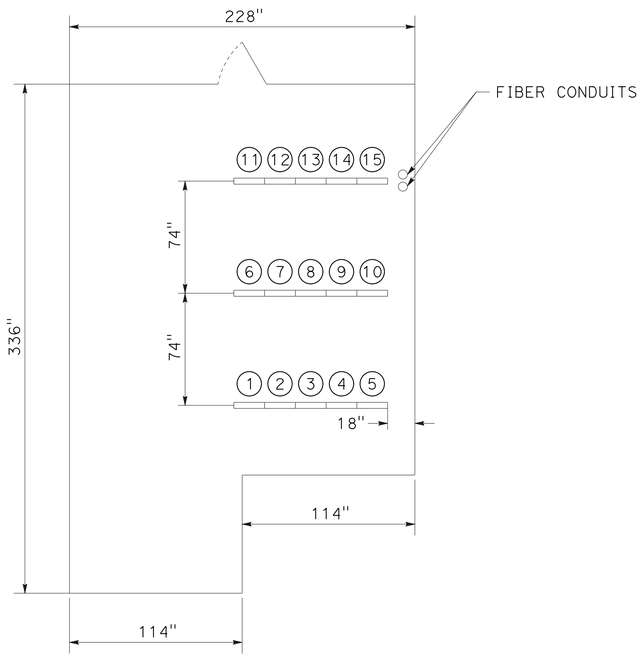
14725 ALTON PKWY
IRVINE, CA 92618

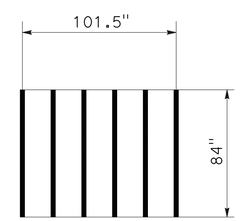
NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1, E-3, E-4 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.



HUB 4 LAYOUT

1. SEE SHEET E-167
2. EMPTY
3. EMPTY
4. SEE SHEET E-168
5. SEE SHEET E-169
6. SEE SHEET E-170
7. EMPTY
8. EMPTY
9. EMPTY
10. EMPTY
11. EMPTY
12. EMPTY
13. EMPTY
14. EMPTY
15. EMPTY



RACK DIMENSIONS

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-166

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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DATE REVISED

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IRVINE, CA 92618

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2. SEE SHEET E-166 FOR HUB LAYOUT.

TABLE H4R1.3

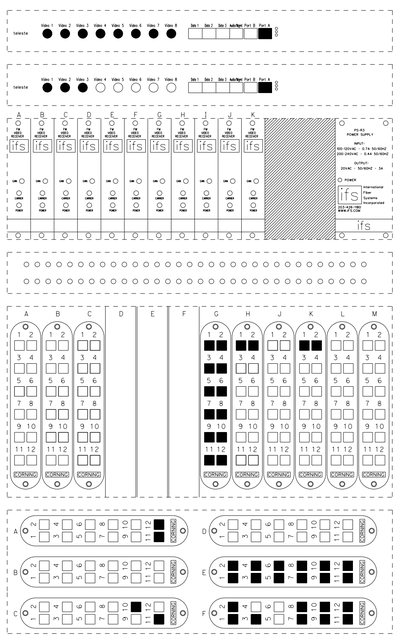
CONNECTED FROM	CONNECTED TO	LABEL
H4R1.3-A	H4R1.5-G1	CCTV-220
H4R1.3-B	H4R1.3-B	CCTV-221
H4R1.3-C	H4R1.5-G3	CCTV-222
H4R1.3-D	HR41.5-G4	CCTV-223
H4R1.3-E	H4R1.5-G5	CCTV-224
H4R1.3-F	H4R1.5-G6	CCTV-225
H4R1.3-G	H4R1.5-G7	CCTV-226
H4R1.3-H	H4R1.5-G8	CCTV-227
H4R1.3-I	H4R1.5-G9	CCTV-228

TABLE H4R1.5

CONNECTED FROM	CONNECTED TO	LABEL
H4R1.5-G1	H4R1.3-A	CCTV-220
H4R1.5-G2	H4R1.3-B	CCTV-221
H4R1.5-G3	H4R1.3-C	CCTV-222
H4R1.5-G4	HR41.3-D	CCTV-223
H4R1.5-G5	H4R1.3-E	CCTV-224
H4R1.5-G6	H4R1.3-F	CCTV-225
H4R1.5-G7	H4R1.3-G	CCTV-226
H4R1.5-G8	H4R1.3-H	CCTV-227
H4R1.5-G9	HR41.3-I	CCTV-228
H4R1.5-G11,G12	H4R6.3-BL3-FX10	CTV-10
H4R1.5-H1,H2	H4R6.3-BL3-FX13	CTV-148, FO 13-14, SW13
H4R1.5-K1,K2	H4R1.6-E11,E12	

TABLE H4R1.6

CONNECTED FROM	CONNECTED TO	LABEL
H4R1.6-A11,12	H4R6.3-BL3-FX9	CMS-52, FO 11-12
H4R1.6-C10,C11	H4R6.3-BL4-FX1	FO 1-2, 405/BEACH, 405 C NB FO 34-35
H4R1.6-E1,E2	H4R6.3-BL3-FX12	RMS-1386, FO 49-50
H4R1.6-E3,E4	H4R6.3-BL3-FX14	TMS-5049, FO 51-52
H4R1.6-E5,E6	H4R6.3-BL3-FX16	TMS-5045, FO 53-54
H4R1.6-E7,E8	H4R6.3-BL3-FX11	TS-1, FO 55-56
H4R1.6-E9,E10	H4R6.3-BL3-FX15	TMS-5021, FO 57-58
H4R1.6-E11,E12	H4R1.5-K1,K2	FO 59-60
H4R1.6-F3	H4R5.1-G3	
H4R1.6-F7,F8	H4R6.1-X2	
H4R1.6-F9,F10	H4R6.3-BL4-FX3	
H4R1.6-F11,F12	H4R6.3-BL1-FX1	



Exist EQUIPMENT RACK No. 1

HUB 4

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-167

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
PLANS APPROVAL DATE

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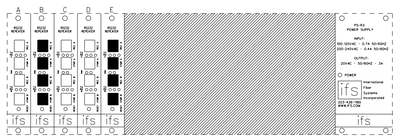
RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1, E-3, E-4 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-166 FOR HUB LAYOUT.

TABLE H4R4.1

CONNECTED FROM	CONNECTED TO	LABEL
H4R4.1-B1,B2 (TOP)		TMS-29
H4R4.1-B3,B4 (BOT)		TMS-29
H4R4.1-E1,E2 (TOP)		TMS-37
H4R4.1-E3,E4 (BOT)		TMS-37



H4R4.1

Exist EQUIPMENT RACK No. 4

HUB 4

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-168

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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LAST REVISION 06-08-15
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12	Ora	5, 22, 57, 73, 133, *etc.*	Var	194	308

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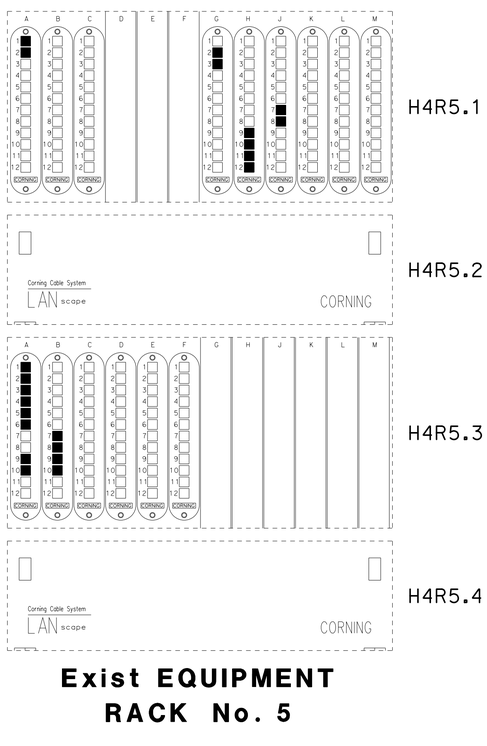
2. SEE SHEET E-166 FOR HUB LAYOUT.

TABLE H4R5.1

CONNECTED FROM	CONNECTED TO	LABEL
H4R5.1-A1,A2	H4R6.3-BL4-FX4	
H4R5.1-G2,G3		
H4R5.1-H1		
H4R5.1-H9,H10	H4R6.1-X1	
H4R5.1-H11,H12	H4R6.2-X1	
H4R5.1-J7,J8	H4R6.3-BL3-FX1	CCTV-165, FO 31-32

TABLE H4R5.3

CONNECTED FROM	CONNECTED TO	LABEL
H4R5.3-A1,A2	H4R6.3-BL3-FX5	RMS-1352, FO 1-2
H4R5.3-A3,A4	H4R6.3-BL3-FX8	RMS 1400, FO 3-4
H4R5.3-A5,A6	H4R6.3-BL3-FX6	RMS-1348, FO 5-6
H4R5.3-A9,A10	H4R6.3-BL3-FX7	CMS-1, FO 9-10
H4R5.3-B7,B8	H4R6.3-BL3-FX2	TS-1, FO 19-20, HYLN
H4R5.3-B9,B10	H4R6.3-BL3-FX3	TS-7, FO 21-22, SC



Exist EQUIPMENT RACK No. 5

HUB 4

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-169

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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CHECKED BY: JOSHUA MCNEILL
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06-08-15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CARLOS A. ORTIZ No. 57535 Exp. 12-31-15 CIVIL STATE OF CALIFORNIA

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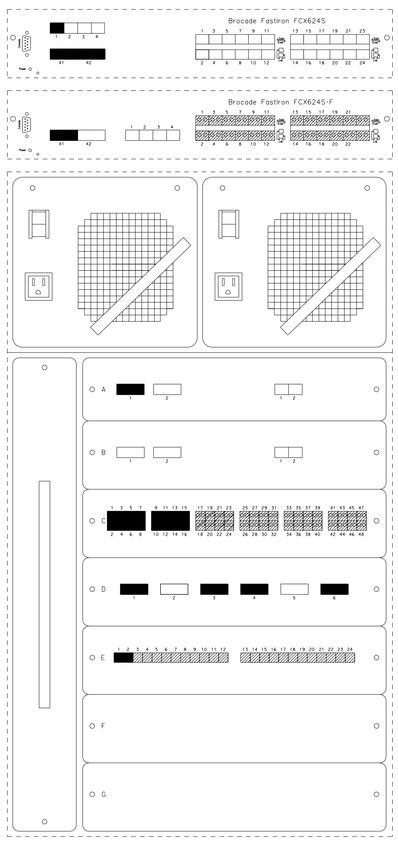
RBF CONSULTING
14725 ALTON PKWY
IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1, E-3, E-4 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-166 FOR HUB LAYOUT.
3. INSTALL ONE (1) COMMUNICATIONS MODULE AT H4R6.3-BL6 PER SPECIFICATIONS.
4. INSTALL 40 SFP MODULES (THIRTY-TWO (32) ON H4R6.3BL3 AND EIGHT (8) ON H4R6.3-BL6) PER SPECIFICATIONS.



Exist EQUIPMENT RACK No. 6

TABLE H4R6.1

CONNECTED FROM	CONNECTED TO	LABEL
H4R6.1-FX1	H4R6.3-BL4-FX6	
H4R6.1-X1	H4R5.1-H9,H10	
H4R6.1-X2	H4R1.6-F7,F8	

TABLE H4R6.2

CONNECTED FROM	CONNECTED TO	LABEL
H4R6.2-X1	H4R5.1-H11,H12	

TABLE H4R6.3-BL1

CONNECTED FROM	CONNECTED TO	LABEL
H4R6.3-BL1-FX1	H4R1.6-F11,F12	

TABLE H4R6.3-BL3

CONNECTED FROM	CONNECTED TO	LABEL
H4R6.3-BL3-1	H4R5.1-J7,J8	CCTV-165
H4R6.3-BL3-2	H4R5.3-B7,B8	TS-1 HYLN
H4R6.3-BL3-3	H4R5.3-B9,B10	TS-7, SC
H4R6.3-BL3-5	H4R5.3-A1,A2	RMS-1352
H4R6.3-BL3-6	H4R5.3-A5,A6	RMS-1338
H4R6.3-BL3-7	H4R5.3-A9,A10	CMS-1
H4R6.3-BL3-8	H4R5.3-A3,A4	RMS-1400
H4R6.3-BL3-9	H4R1.6-A11,A12	CMS-52
H4R6.3-BL3-10	H4R1.5-G11,G12	CTV-10
H4R6.3-BL3-11	H4R1.6-E7,E8	TS-1
H4R6.3-BL3-12	H4R1.6-E1,E2	RMS-1386
H4R6.3-BL3-13	H4R1.5-H1,H2	CTV-148
H4R6.3-BL3-14	H4R1.6-E3,E4	TMS-5049
H4R6.3-BL3-15	H4R1.6-E9,E10	TMS-5021
H4R6.3-BL3-16	H4R1.6-E5,E6	TMS-5045

TABLE H4R6.3-BL4

CONNECTED FROM	CONNECTED TO	LABEL
H4R6.3-BL4-FX1	H4R1.6-C10,C11	FO 1-2 - 405/BEACH, 405 C NB FO 34-35
H4R6.3-BL4-FX3	H4R1.6-F9,F10	
H4R6.3-BL4-FX4	H4R5.1-A1,A2	
H4R6.3-BL4-FX6	H4R6.1-FX1	

HUB 4

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-170

REVISED BY | DATE REVISED
RUBEN MANRIQUEZ | JOSHUA MCNEILL
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: STEVE HUFF
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5, 22, 57, 73, 133, *etc.*	Var	196	308

REGISTERED CIVIL ENGINEER 05-13-15 DATE

06-08-15
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IRVINE, CA 92618

NOTES (THIS SHEET ONLY):

1. SEE SHEETS E-1 THROUGH E-4 FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND.
2. SEE SHEET E-172 FOR HUB LAYOUT.

HUB No. 8 INTERCONNECTION DETAILS TABLE

ITEM	DEVICE	CONNECTED FROM	CONNECTED TO	LEGEND
1	RMS 4504	HUB 8	HUB 4	4
2	RMS 3884	HUB 8	HUB 4	4
3	TMS 2223	HUB 8	HUB 4	4
4	RMS 3980	HUB 8	HUB 4	4
5	RMS 3908	HUB 8	HUB 4	4
6	TS Loc No. 70	HUB 8	HUB 4	4
7	TS Loc No. 81	HUB 8	HUB 4	4
8	TS Loc No. 77	HUB 8	HUB 4	4
9	TS Loc No. 88	HUB 8	HUB 4	4
10	CCTV 163	H8R1.2 - A11, A12	HUB 4	4
11	CCTV 157	H8R1.2 - G8, G9	HUB 4	4
12	CCTV 30	H8R1.2 - G10, G11	HUB 4	4
13	CMS 17	H8R1.4 - K10, G11	HUB 4	4
14	CMS 17	HUB 8	HUB 1	4
15	CMS 83	HUB 8	HUB 1	4
16	TMS 5014	HUB 8	HUB 1	4
17	TMS 5016	HUB 8	HUB 1	4
18	RMS 4362	HUB 8	HUB 1	4
19	RMS 4357	HUB 8	HUB 1	4
20	TMS 2417	HUB 8	HUB 1	4
21	TMS 5021	HUB 8	HUB 1	4
22	TMS 5022	HUB 8	HUB 1	4
23	TMS 2219	HUB 8	HUB 1	4
24	TS Loc No. 130	HUB 8	HUB 1	4
25	TS Loc No. 131	HUB 8	HUB 1	4

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-171

REVISED BY | DATE REVISED
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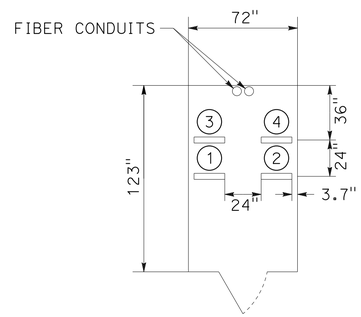
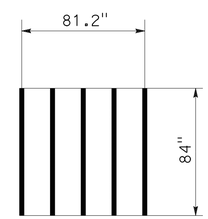


1. SEE SHEET E-173
2. SEE SHEET E-174
3. SEE SHEET E-175
4. SEE SHEETS E-176 & E-177

HUB 8 LAYOUT



RACK DIMENSIONS

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-172

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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CALCULATED-DESIGNED BY: RUBEN MANRIQUEZ
CHECKED BY: JOSHUA MCNEILL
REVISED BY
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REGISTERED CIVIL ENGINEER 05-13-15 DATE

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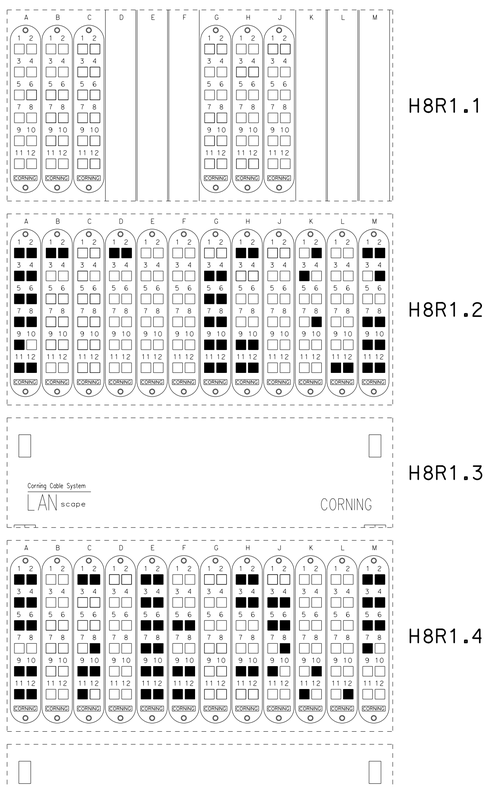

Exist EQUIPMENT RACK No. 1

HUB 8

TABLE H8R1.2

CONNECTED FROM	CONNECTED TO	LABEL
H8R1.2-A1		CCTV-201, FO 1
H8R1.2-A2	H8R4.2-C	CCTV-221, FO 2
H8R1.2-A3	H8R4.1-J	CCTV-222, FO 3
H8R1.2-A4	H8R4.1-I	CCTV-223, FO 4
H8R1.2-A5	H8R4.1-H	CCTV-224, FO 5
H8R1.2-A6	H8R4.1-G	CCTV-225, FO 6
H8R1.2-A7	H8R4.1-F	CCTV-226, FO 7
H8R1.2-A8	H8R4.1-E	CCTV-227, FO 8
H8R1.2-A9	H8R4.1-D	CCTV-228, FO 9
H8R1.2-A11,A12		CCTV-163 TO PANEL H 11&12
H8R1.2-B1,B2		CT-148, FO 3-4
H8R1.2-D1,D2	H8R4.2-D	CCTV-229, CCC19 FO BW 37-38 --> CCTV-229
H8R1.2-G3		CCTV-163 L ALISOS
H8R1.2-G4		CCTV-164 VALLEY VIEW
H8R1.2-G5		CCTV-162 KNOTT
H8R1.2-G6		CCTV-161 KNOTT
H8R1.2-G7		CCTV-160 BEACH FO 7
H8R1.2-G8		CCTV-157 MAGNOLIA FO 8
H8R1.2-G9		CCTV-159 MAGNOLIA FO 9
H8R1.2-G10		CCTV-30 BROOKHURST FO 10
H8R1.2-G11		CCTV-31 EUCLID FO 11
H8R1.2-G12		CCTV-32 HARBOR BLVD
H8R1.2-H1		CCTV-08 HASTER ST FO 13
H8R1.2-H2		CCTV-33 CITY DRIVE FO 14
H8R1.2-H9,H10		CT-144, FO 1-2, CCR-24
H8R1.2-H11,H12		TO A 11-12
H8R1.2-K2,K3		CCR-17
H8R1.2-K8		NOT LABELED
H8R1.2-L11		NOT LABELED
H8R1.2-L12		NOT LABELED
H8R1.2-M1,M2	H8R4-X	CCTV-155
H8R1.2-M4		D MUX 405 FWY
H8R1.2-M7,M8		CCR-15
H8R1.2-M9,M10	H8R1.4-F9,F10	NO LABEL
H8R1.2-M11,M12	H8R1.4-F11,F12	NO LABEL

TABLE H8R1.4

CONNECTED FROM	CONNECTED TO	LABEL
H8R1.4-A1,A2	H8R2-X	TMS-20
H8R1.4-A3,A4	H8R2-X	TMS-29
H8R1.4-A5,A6	H8R2-X	TMS-37
H8R1.4-A9,A10	H8R2-X	CMS-19 --> CMC-19 ON RACK 2
H8R1.4-A11,A12		CMS-52
H8R1.4-C1,C2		TS-41
H8R1.4-C10,C11	H8R1.4-J3,J4	NO LABEL
H8R1.4-E1,E2		1386 FO 5-6
H8R1.4-E3,E4		5049 FO 11-12
H8R1.4-E5,E6		5045 FO 13-14
H8R1.4-E7,E8		TS-1, FO 21-22
H8R1.4-E9,E10	H8R3.2-G3,G4	NO LABEL
H8R1.4-E11,E12	H8R2.5-B	TMS-23
H8R1.4-F5,F6		NO LABEL --> IFS RACK4 (IFS LABELED 405/22 HUB)
H8R1.4-F9,F10	H8R1.2-M9,M10	NO LABEL
H8R1.4-F11,F12	H8R1.2-F11,F12	NO LABEL
H8R1.4-H1,H2		CMS-15, FO 13-14
H8R1.4-H3,H4		CMS-83, FO 29-30
H8R1.4-H9,H10	H8R2.5-K	TS-40
H8R1.4-J3,J4	H8R1.4-C10,C11	NO LABEL
H8R1.4-J5,J6	H8R3.2-H11,H12	CCTV-163, FO 11-12
H8R1.4-J8,J9		T-1
H8R1.4-K10,K11		CMS-17
H8R1.4-L12,M1		RM-04
H8R1.4-M2,M3		5022 FO 7-8
H8R1.4-M4,M5		2218 FO 9-10
H8R1.4-M6,M7		434 FO 15-16

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-173

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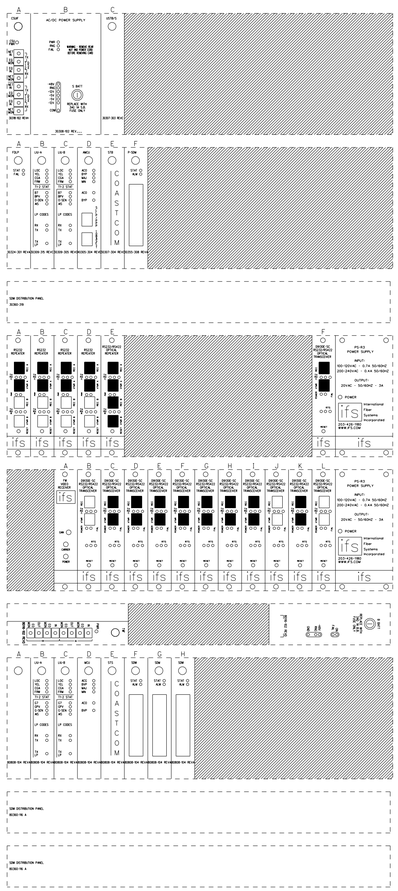

Exist EQUIPMENT RACK No. 2

HUB 8

TABLE H8R2.4

CONNECTED FROM	CONNECTED TO	LABEL
H8R2.4-A		LINE 47 / 1356
H8R2.4-B		LINE 48 / 253
H8R2.4-C		LINE 49 / 1387
H8R2.4-D		CMC 19 /23
H8R2.4-E		CCC 19
H8R2.4-F		TSC 19

TABLE H8R2.5

CONNECTED FROM	CONNECTED TO	LABEL
H8R2.5-A		22
H8R2.5-B	H8R1.4-E11,E12	TMS-23 / TDM-1
H8R2.5-C		TMS-42 / TDM-4
H8R2.5-D		CCR-17 / TDM-1
H8R2.5-E		CCR-15 / TDM-2
H8R2.5-F		TMS-40 / TDM-2
H8R2.5-G		CMS-17 / TDM-7
H8R2.5-H		TMS-41 / TDM-3
H8R2.5-I		CMS-15
H8R2.5-J		TS-41 / TDM-10
H8R2.5-K	H8R1.4-H9,H10	TS-40 / TDM-9
H8R2.5-L		TMS-43 / TDM-5

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-174

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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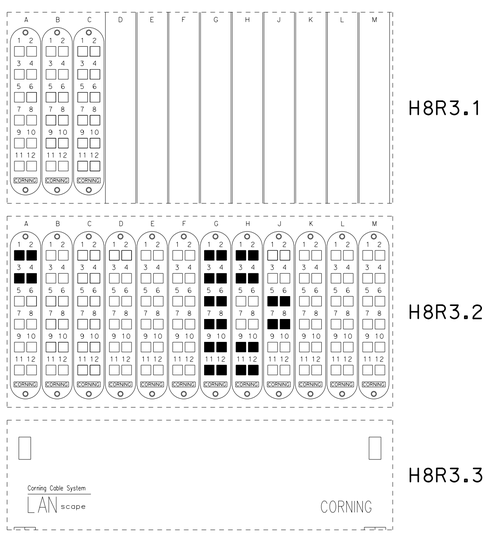

Exist EQUIPMENT RACK No. 3

HUB 8

MODIFY COMMUNICATION SYSTEM

NO SCALE

E-175

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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