DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	290 S1R2	1204

Syn Yee Chin 03/26/10
REGISTERED ELECTRICAL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER SYN YEE CHIN No. 18186 Exp. 09/30/2011 ELECTRICAL STATE OF CALIFORNIA

PLANS APPROVAL DATE

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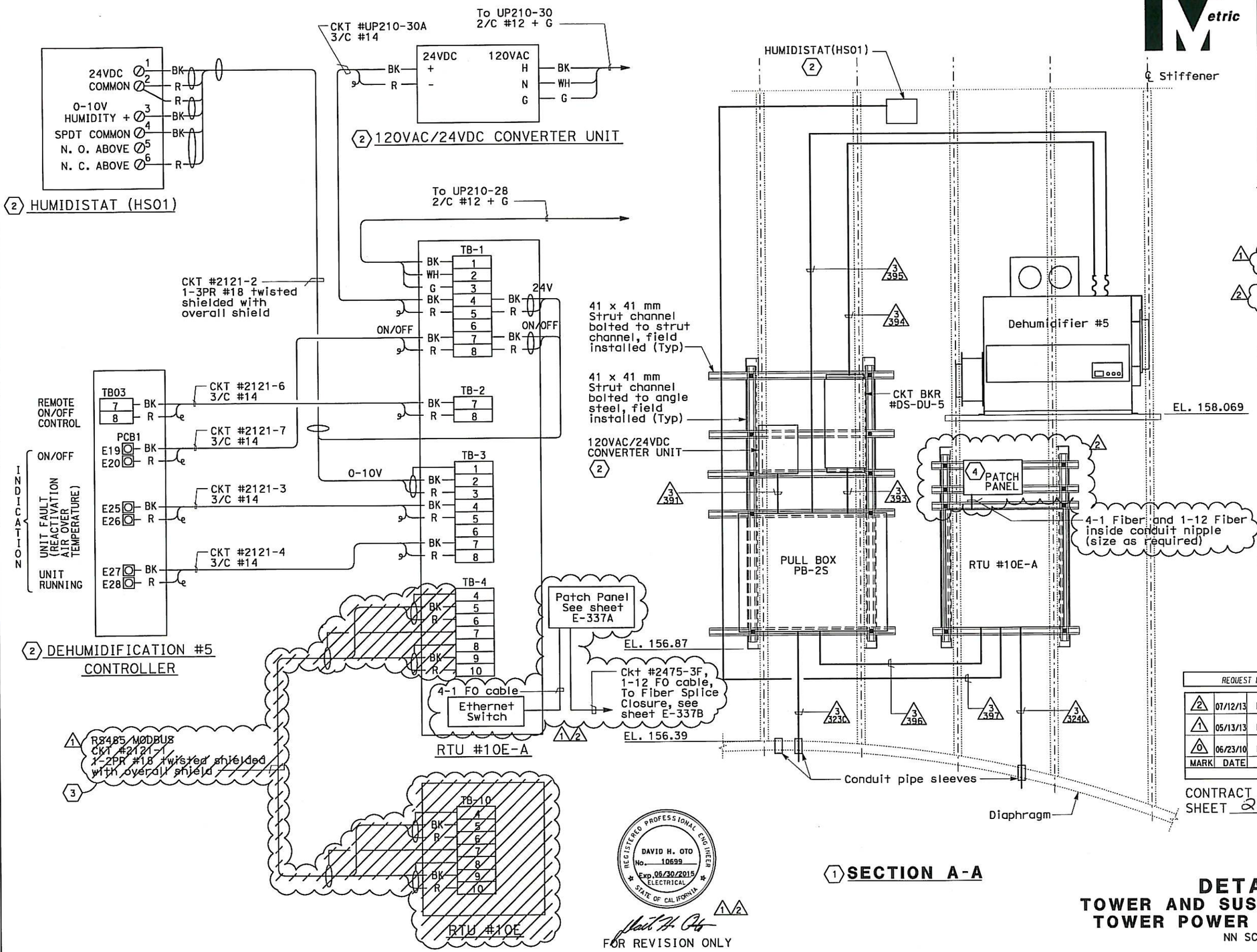

SHEET NOTES:

1. For Dehumidification Unit #5 plan drawing, see sheet E-287.
2. Furnished by the Dehumidifier vendor.
3. Abandon in place (hatched items) if installed.
4. Contractor shall locate the equipment and build the support to suit field condition.

NOTES:

1. References:
   - For types of pull boxes, splice boxes and enclosures, see sheets E-83 and E-169.
   - For conduit and cable tray schedules, see sheets starting at E-401.
   - For typical conduit installation details, see sheet E-268.
   - For RTU #10E Elementary and connection diagram, see sheet E-331.
   - For RTU #10E-A Elementary and connection diagram, see sheet E-331A.
   - For Mini-Power Center (MPC-1) panel schedule, see sheet E-236.
2. For other related work not shown on this sheet, see Electrical Special Provisions.

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
2	07/12/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
1	05/13/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
0	06/23/10	DEHUMIDIFIER SCADA INTERFACE	RR	RG FW	130

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 2 OF 23

REGISTERED PROFESSIONAL ENGINEER DAVID H. OTO No. 10699 Exp. 06/30/2015 ELECTRICAL STATE OF CALIFORNIA

FOR REVISION ONLY

1 SECTION A-A

DETAILS
TOWER AND SUSPENSION CABLE TOWER POWER AND LIGHTING
NN SCALE

CONNECTION DIAGRAM - DEHUMIDIFICATION #5

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

E-287A

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

DESIGN OVERSIGHT: BEHZAD GOLEMOHAMMADI
CALCULATED/DESIGNED BY: FK — DATE 10/01
CHECKED BY: EDC — DATE 11/01
REVISED BY — DATE REVISED

LAST REVISION 07-12-13 — DATE PLOTTED => 12-JUL-2013 — TIME PLOTTED => 15:41

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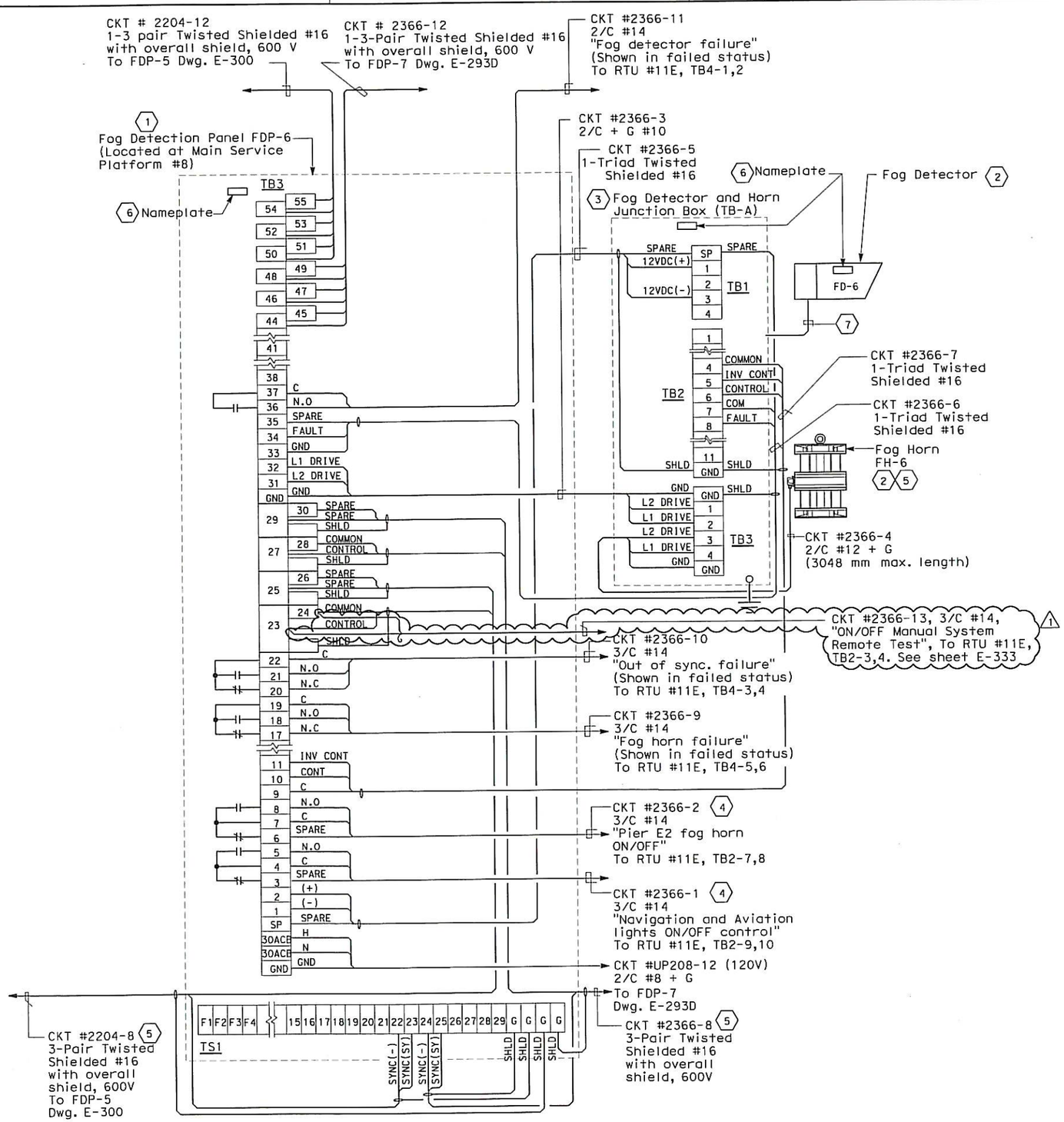
USERNAME =>Llorica

CU 04251 | EA 0120F1



PIER E2

FOG HORN AND FOG DETECTION SYSTEM

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	298 S1R1	1204

REGISTERED ELECTRICAL ENGINEER — DATE 5-2-12

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID H. OTO No. 10699 Exp. 06/30/2013 ELECTRICAL — STATE OF CALIFORNIA

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SHEET NOTES:

1. Fog Detection Panel FDP-6 shall be installed at the Service Platform #8. Enclosure shall be Nema 4X.
2. Fog Detector FD-6 and Fog Horn FH-6 shall be installed at the base of Pier E2.
3. Junction Box (TB-A) shall be Nema 4X enclosure.
4. Fog Detection System at Main Tower T1, see SCADA Wiring Diagram RTU # 10E Sheet E-331. For Pier E2, see SCADA Wiring Diagram RTU # 11E. Sheet E-333.
5. Fog Horns FH-5 & FH-6 shall be synchronized in accordance with the chart shown on drawing E-293D.
6. Refer to Nameplate Schedules.
7. Cable (10/C #16 AWG Type S.O.) between Fog Detector and TB-A is furnished and installed by vendor.

NOTE:

1. For Fog Synchronization, see chart on dwg E-293D.
2. For Nameplate Schedule see Dwg. E-300.

REGISTERED PROFESSIONAL ENGINEER — DAVID H. OTO No. 10699 Exp. 06/30/2013 ELECTRICAL — STATE OF CALIFORNIA 1

FOR REVISION ONLY

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
1	05/13/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
0	05/02/12	ELECTRICAL WARNING SYSTEMS	RR	RG	61

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 3 OF 23

DETAILS

NAVIGATION AND AVIATION WARNING SYSTEMS FOG DETECTION SYSTEM CONNECTION DIAGRAMS

NO SCALE

E-300A

REVISED BY	DATE REVISED
EDC	10/01
KG	11/01

CALCULATED/DESIGNED BY — CHECKED BY

DESIGN OVERSIGHT — BEHZAD GOLEMOHAMMADI

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	307 R2	1204

REGISTERED ELECTRICAL ENGINEER 12/19/02 DATE

12-6-04
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER JENS ERLINGSSON No. 8249 Exp. 9/30/06 ELECTRICAL STATE OF CALIFORNIA

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Caltrans Metric

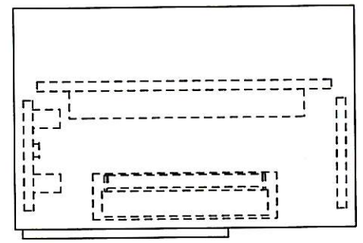
MATERIAL LIST

ITEM No	DESCRIPTION	QUANTITY RTU #10W	RTU #10E	RTU #11W	RTU #11E
A	Enclosure, stainless steel, NEMA Type 4X, with interior panels	1	1	1	1
B	Terminal Blocks, Rated 300 V 20 A (Minimum) Barrier Type with screw terminals	as req'd	as req'd	as req'd	as req'd
C	Relay, general purpose, 120 VAC coil, (1.2 volt-amps) 4PDT 10 amp contacts (Type IV Relay)	4	4	2	4
D	Terminal blocks, rated 600 V 20 A (minimum.) barrier type with screw terminals.	as req'd	as req'd	as req'd	as req'd
E	Wireway, plastic, size and length as required	as req'd	as req'd	as req'd	as req'd
F	Light fixture, fluorescent, 120 VAC	1	1	1	1
G	Toggle light switch, 120/277 VAC, 15 A, single pole	1	1	1	1
H	Duplex receptacle, straight blade, 125 VAC, 1ø , 3W	1	1	1	1
J	Selector switch, 3 position, corrosion resistant watertight, 2 NO and 2 NC contacts	1	1	-	1
K	Indication light, corrosion resistant watertight transformer type 120 VAC, red lens	2	2	-	2
L	Indication light, corrosion resistant watertight transformer type 120 VAC, white lens	1	1	-	1
M	Fuse block single pole, rated 30 A with 5 A fuse	2	2	2	2
N	Nameplate to be white lamicoid with black core, size 19 x 80, lettering to be condensed gothic. (See Nameplate Schedule)	as req'd	as req'd	as req'd	as req'd
O	Relay general purpose, 120 VAC coil, (0.9 W) DPDT 10 AMP contacts (Type I relay)	2	2	-	1
P	Programmable Logic Controller	1	1	1	1
Q	Copper grounding bar and insulated mounting brackets 200 mm length with 10 M5 holes.				
R	FSK Modem	1	1	1	1
S	Ethernet Switch (1)	1	1	1	1
T	Patch Panel (2)	1	1	1	1
U	RJ45 to TB (1)	-	1	1	1
V	RS-422/485 Isolated Repeater (1)	-	1	1	1
W	24VDC Power Supply (1)	1	1	1	1

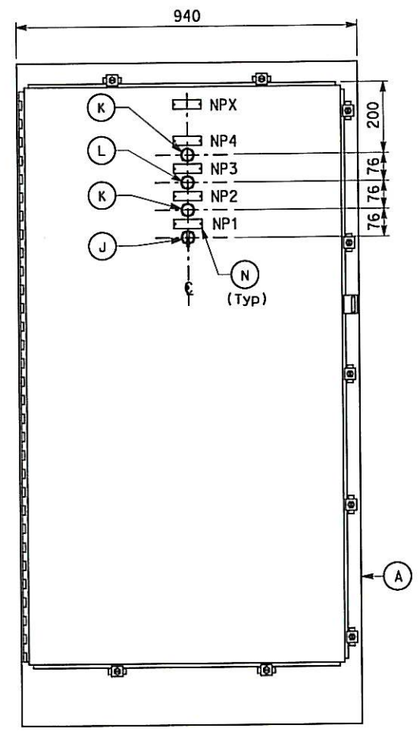
SHEET NOTES:

(1) Furnished by vendor

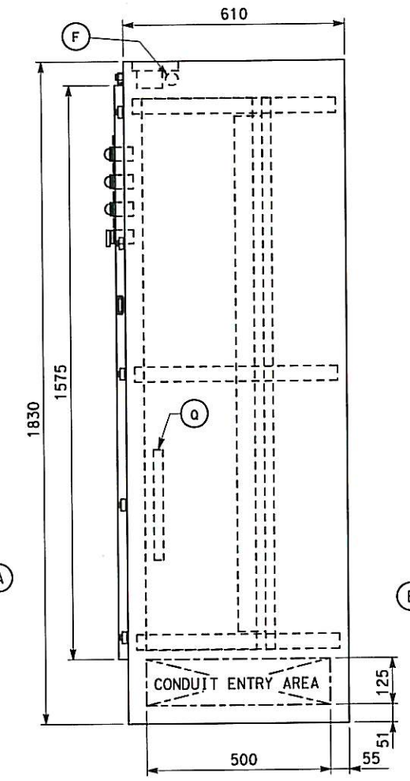
(2) Furnished by contractor



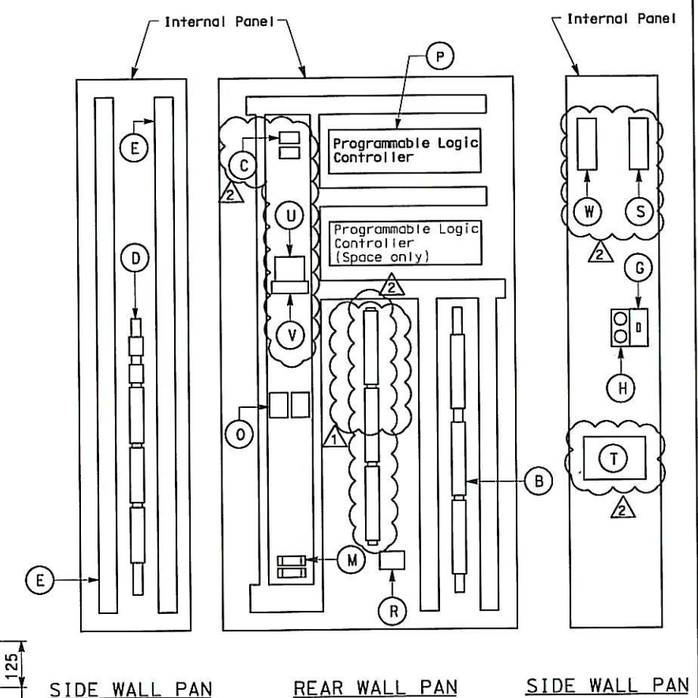
CABINET TOP



FRONT ELEVATION



SIDE ELEVATION

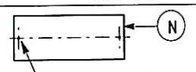


INTERNAL ARRANGEMENT

NAMEPLATE SCHEDULE (N)

ITEM	QTY	ENGRAVINGS LINE No 1	LINE No 2
NP1	1	Navigation Warning Control	Hand - Off - Auto
NP2	1	Navigation Warning Control	Auto Mode
NP3	1	Navigation Warning Control	Manual Mode
NP4	1	Photo Cell Control	Lights On
NPX	1	RTU Cabinet	No. 10W
NPX	1	RTU Cabinet	No. 10E
NPX	1	RTU Cabinet	No. 11W
NPX	1	RTU Cabinet	No. 11E

Note: Nameplates shall be mounted to the enclosure front panel with 4-40 stainless steel machine screws. The control panel to be drilled and tapped. (no self-tapping screws)



NOTES:

1. Provide cabinet ground lug for connection to system ground and isolated ground bus for shielded low level signal terminations.
2. References:
   - For elementary and connection diagrams for RTU #10W, see sheet E-330.
   - For elementary and connection diagrams for RTU #10E, see sheet E-331.
   - For elementary and connection diagrams for RTU #11W, see sheet E-332.
   - For elementary and connection diagrams for RTU #11E, see sheet E-333
3. For relay type configuration, see sheet E-336.
4. Enclosure dimensions not to be exceeded. Dimensions are per standard electrical equipment sizes.
5. Photoelectric control unit, weatherproof, 120 VAC (not shown on drawing) to be mounted on top of each cabinet.

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REGISTERED PROFESSIONAL ENGINEER DAVID H. OTO No. 10699 Exp. 06/30/2015 ELECTRICAL STATE OF CALIFORNIA

1 2

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REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
2	07/12/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
1	05/13/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 4 OF 23

DETAILS
SCADA REMOTE TERMINAL UNIT SYSTEM RTU #10W, #10E, #11W AND #11E PANEL LAYOUT

NO SCALE

E-320

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

REVISED BY	AB	DATE REVISED	2/04
DATE	10/01	11/01	
CALCULATED/DESIGNED BY	EDC	JL	
CHECKED BY			

DESIGN OVERSIGHT
BEHZAD GOLEMOHAMMADI

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DGN FILE =>04-0120f1_0307R02.dgn
USERNAME =>Llorico

CU 04251

EA 0120F1

LAST REVISION 07-12-13

DATE PLOTTED => 12-JUL-2013
TIME PLOTTED => 15:41

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	307 S1R2	1204

REGISTERED ELECTRICAL ENGINEER 01/22/10 DATE

REGISTERED PROFESSIONAL ENGINEER FADI WALIEDDINE No. 11465 Exp. 12/31/2011 ELECTRICAL STATE OF CALIFORNIA

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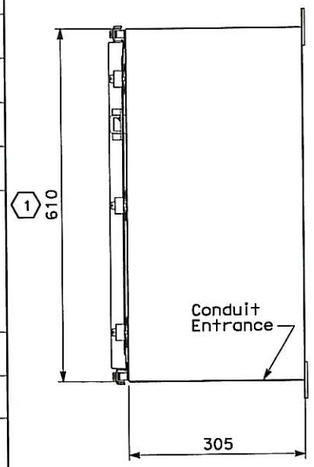
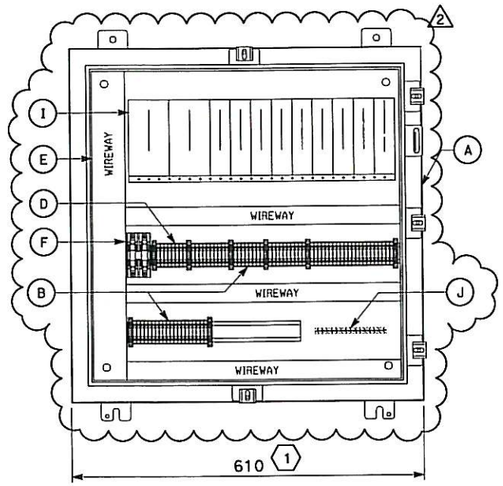
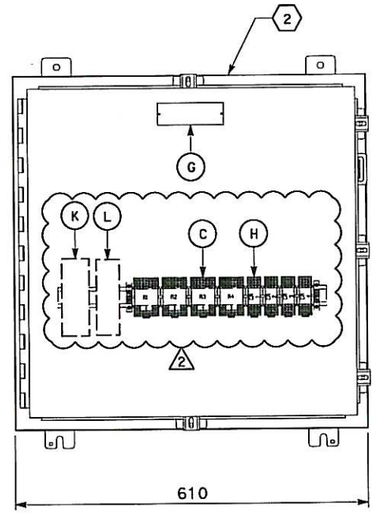


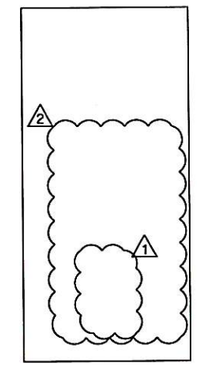
SIDE ELEVATION



INTERNAL ARRANGEMENT



FRONT ELEVATION



SIDE WALL PANS

SHEET NOTES:

(1) Because of limited space, in the main tower, RTU #10E-A shall be furnished as small as possible with outside dimensions not to exceed 610(H) x 610(W) x 305(D).

(2) The RTU enclosure shall be furnished for wall mounting.

(3) Furnished by vendor

NOTES:

1. Refer to sheet E-331A for elementary and connection diagrams for RTU #10E-A.

	MATERIAL LIST	DET.1
ITEM	DESCRIPTION	QTY
A	Enclosure, stainless steel, NEMA Type 4X, with interior panels	1
B	Terminal blocks, Rated 300 V 20 A (minimum) Barrier Type with screw terminals	as req'd
C	Relay, general purpose, 120 VAC coil, (1.2 volt-amps) 4PDT 10 amp contacts (Type IV Relay)	4
D	Terminal blocks, rated 600 V 20 A (minimum) Barrier Typle with screw terminals	as req'd
E	Wireway, plastic, size and length as required	as req'd
F	Fuse block single pole, rated 30 A with 5 A fuse	2
G	Nameplate to be white lamicoid with black core, size 19 x 80, lettering to be condensed gothic (RTUT)	as req'd
H	Relay general purpose, 120 VAC coil, (0.9 W) DPDT 10 AMP contacts (Type 1 relay)	4
I	Programmable Logic Controller	1
J	Copper grounding bar and insulated mounting brackets 200 mm length with 10 MS holes	
K	Ethernet Switch (2) (3)	1
L	24VDC Power Supply (3)	1

REGISTERED PROFESSIONAL ENGINEER DAVID H. OTO No. 10699 Exp. 06/30/2015 ELECTRICAL STATE OF CALIFORNIA

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REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
2	07/12/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
1	05/13/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
0	02/01/10	DEHUMIDIFIER SCADA INTERFACE	RG	JE FW	130

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 5 OF 23

DETAILS
SCADA REMOTE TERMINAL UNIT SYSTEM
MAIN TOWER RTU #10E-A PANEL LAYOUT
NO SCALE

E-320A

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

DESIGN OVERSIGHT: BEHZAD GOLEMOHAMMADI

CALCULATED/DESIGNED BY | CHECKED BY | DATE | REVISED BY | DATE REVISED

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DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	309 R1	1204

REGISTERED ELECTRICAL ENGINEER 12/19/02 DATE

12-6-04
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER JENS ERLINGSSON No. 8249 Exp. 9/30/06 ELECTRICAL STATE OF CALIFORNIA

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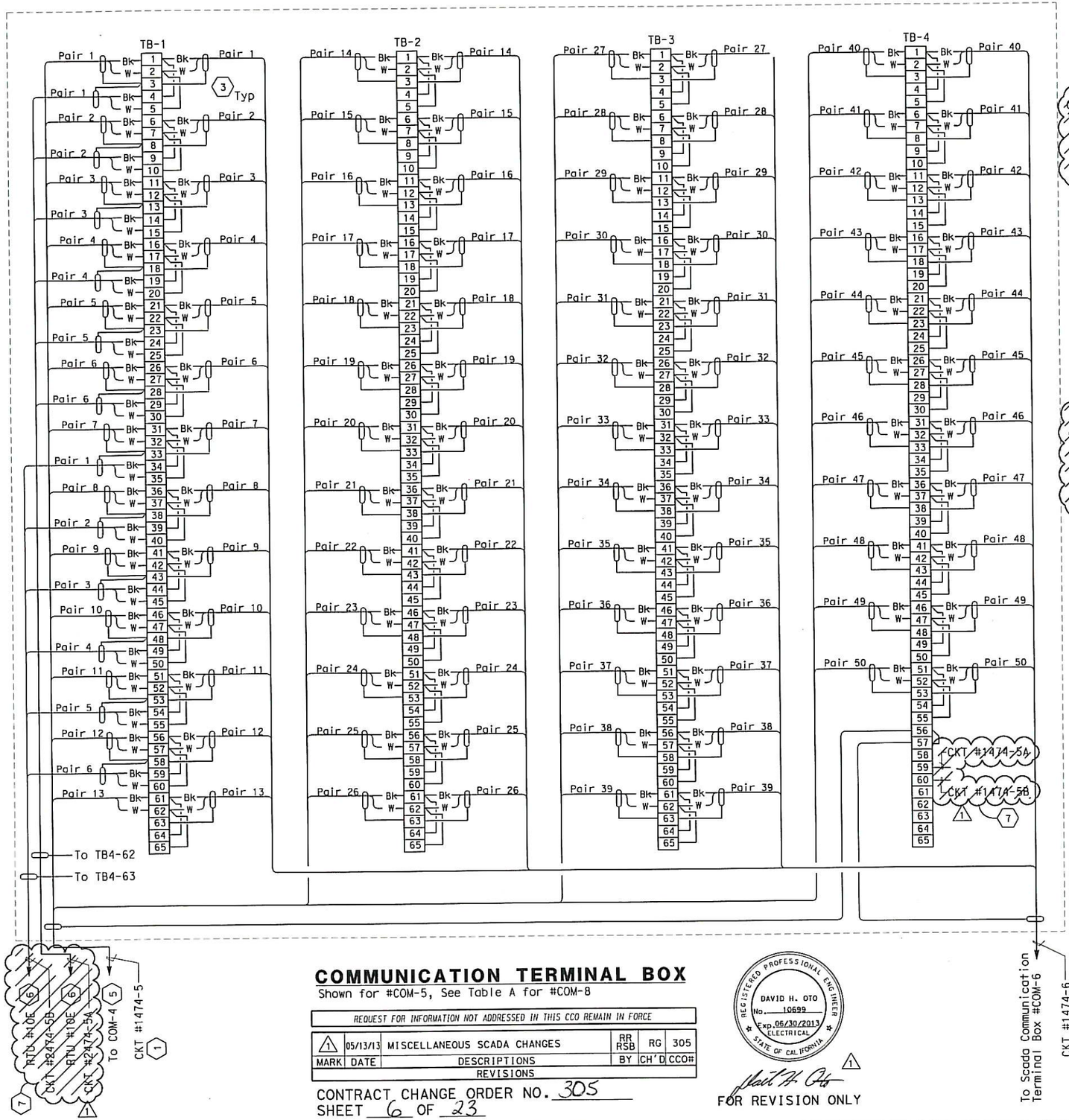
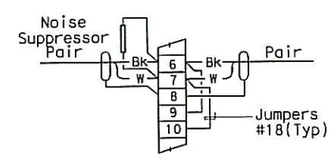


TYPICAL WIRING WITH CONNECTION TO SCADA RTU CABINET

SHOWN FOR RTU #10W



TYPICAL WIRING - EACH PAIR

COMMUNICATION TERMINAL BOX

Shown for #COM-5, See Table A for #COM-8

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE					
1	05/13/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
		REVISIONS			

CONTRACT CHANGE ORDER NO. 305
SHEET 6 OF 23

REGISTERED PROFESSIONAL ENGINEER DAVID H. OTO No. 10699 Exp. 06/30/2013 ELECTRICAL STATE OF CALIFORNIA

FOR REVISION ONLY

SHEET NOTES:

1. SCADA communication cable 50 pairs #18, shielded pairs and overall shield.
2. RTU communication cable 1-6 pairs shielded and overall shield. 1
3. Individual and overall shields shall be grounded at the interface cabinet only.
4. For RTU #10W connection diagram, see sheet E-330. 1
5. The Contractor shall extend and coil 5 meters of cable in Manhole-27. All cables shall be tagged with circuit numbers as shown. For location of Manhole-27, see sheet E-11.
6. For RTU #10E connection diagram, see sheet E-331. 1
7. Abandon in place (hatched items) if installed.

NOTES:

1. References:
   - For circuit and conduit/cable tray schedules, see sheets starting at E-401.
   - For SCADA and telephone cable block diagram, see sheet E-317.
   - For RTU #10W panel layout, see sheet E-320.
   - For SCADA communication terminal box layout, see sheet E-321.
   - For SCADA interface plan and cable block diagram, see sheet E-315.

TABLE A 4 1

Westbound

Circuit No.	Termination To
1474-4	SCADA Communication Term. Box #COM-4
1474-5	SCADA Communication Term. Box #COM-5
1474-5A	RTU #10W
1474-5B	RTU #10W 1
1474-6	SCADA Communication Term. Box #COM-6
1474-7	SCADA Communication Term. Box #COM-7
1474-8	SCADA Communication Term. Box #COM-8
1474-8A	RTU #11W
1474-8B	RTU #11W 1
1474-10	SAS Superstructure and Skyway Structure Girder Interface, see sheet note 1 of sheet E-315

Eastbound 6 1

Circuit No.	Termination To
2474-5A	RTU #10E
2474-5B	RTU #10E 1
2474-8A	RTU #11E
2474-8B	RTU #11E
2474-10	SAS Superstructure and Skyway Structure Girder Interface, see sheet note 2 of sheet E-315

DETAILS

SCADA REMOTE TERMINAL UNIT SYSTEM #COM-5 TERMINAL BOX WIRING DIAGRAM

NO SCALE

E-324

DATE	REVISED BY	DATE	REVISED BY
10/01	EDC	11/01	JL

CALCULATED/DESIGNED BY EDC
CHECKED BY JL

DESIGN OVERSIGHT
BEHZAD GOLEMOHAMMADI

EJL 2/04

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CU 04251 EA 0120F1

LAST REVISION 05-13-13

DATE PLOTTED => 14-MAY-2013
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DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	310 R1	1204

REGISTERED ELECTRICAL ENGINEER 12/19/02 DATE

12-6-04
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER JENS ERLINGSSON No. 8249 Exp. 9/30/06 ELECTRICAL STATE OF CALIFORNIA

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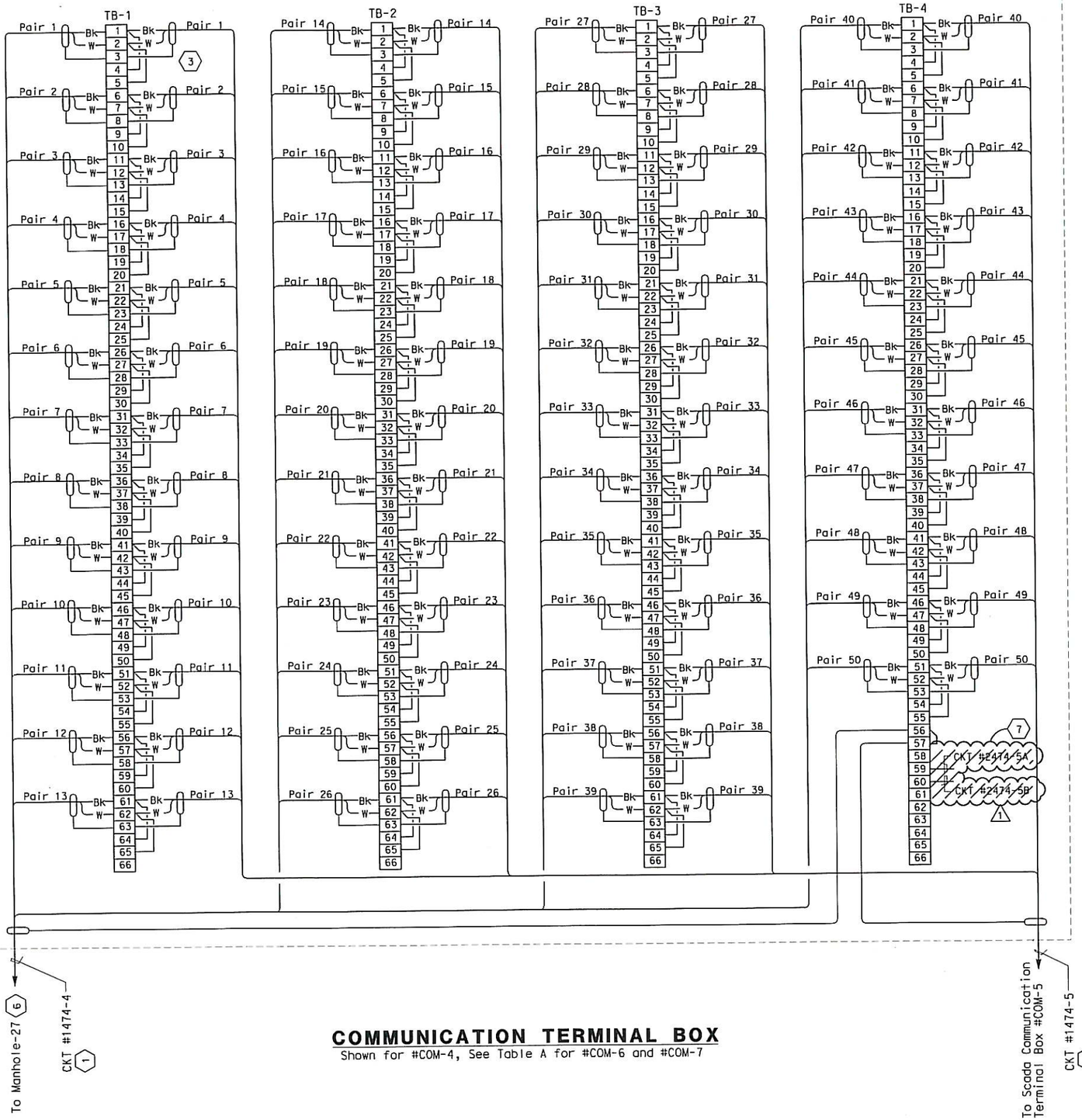


COMMUNICATION TERMINAL BOX

Shown for #COM-4, See Table A for #COM-6 and #COM-7

See Sheet E-324

SHEET NOTES:

(1) SCADA communication cable 50 pairs #18, shielded pairs and overall shield.

(2) RTU communication cable 1-6 pairs shielded and overall shield.

(3) Individual and overall shiels shall be grounded at the interface cabinet only.

(4) Work this table with sheet E-317.

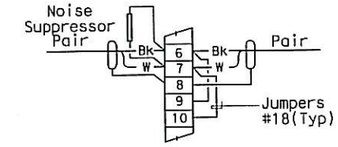
(5) For RTU #10E connection diagram, see sheet E-331.

(6) The Contractor shall extend and coil 5 meters of cable in Manhole-27. All cables shall be tagged with circuit numbers as shown. For location of Manhole-27, see sheet E-11.

(7) Abandon in place (hatched items) if installed. (1)

NOTES:

1. References:
   - For circuit and conduit/cable tray schedules, see sheets starting at E-401.
   - For SCADA cable block diagram, see sheet E-317.
   - For RTU #10E panel layout, see sheet E-320.
   - For SCADA communication terminal box layout, see sheet E-321.



TYPICAL WIRING - EACH PAIR

TABLE A (4)	
Westbound	
Circuit No.	Termination To
1474-4	SCADA Communication Term. Box #COM-4
1474-5	SCADA Communication Term. Box #COM-5
1474-6	SCADA Communication Term. Box #COM-6
1474-7	SCADA Communication Term. Box #COM-7
1474-8	SCADA Communication Term. Box #COM-8

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MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
1	05/13/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 7 OF 23

DETAILS
SCADA REMOTE TERMINAL UNIT SYSTEM #COM-4 TERMINAL BOX WIRING DIAGRAM

NO SCALE

E-325

DATE	REVISED BY	DATE	REVISED BY
10/01	EDC	11/01	JL

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DESIGN OVERSIGHT — BEHZAD GOLEMOHAMMADI

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

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DGN FILE =>04-0120f1_0310R01.DGN
USERNAME =>Liorico

CU 04251 — EA 0120F1

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	311 R5	1204

REGISTERED ELECTRICAL ENGINEER 12/19/02 DATE

12-6-04
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER JENS ERLINGSSON No. 8249 Exp. 9/30/06 ELECTRICAL STATE OF CALIFORNIA

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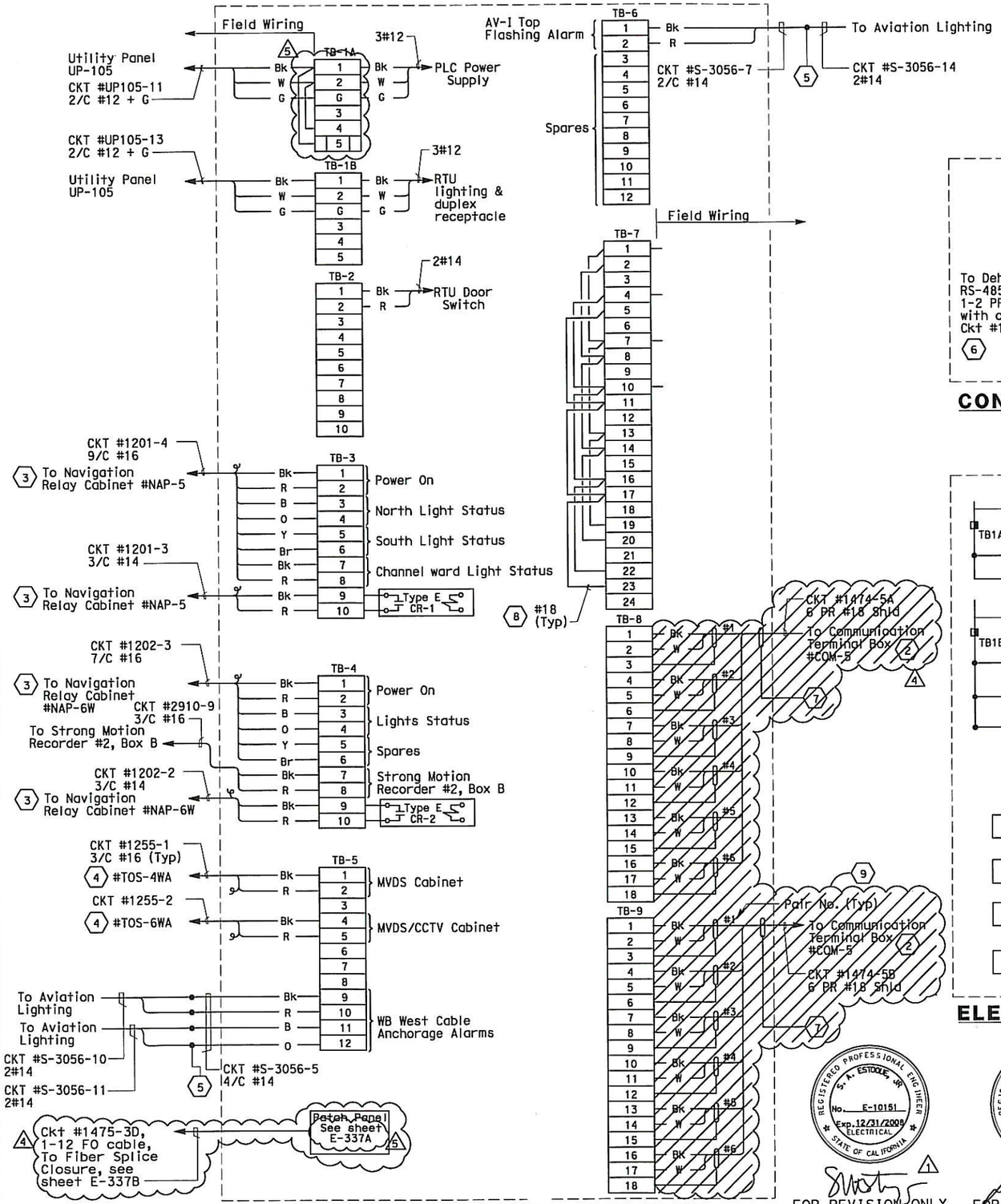
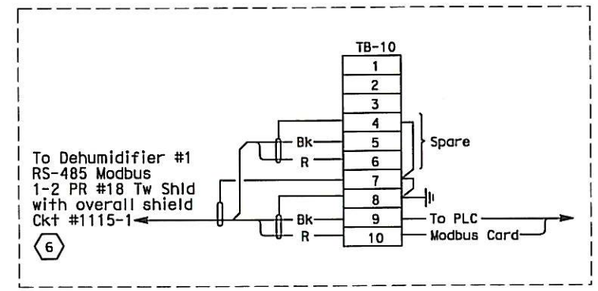
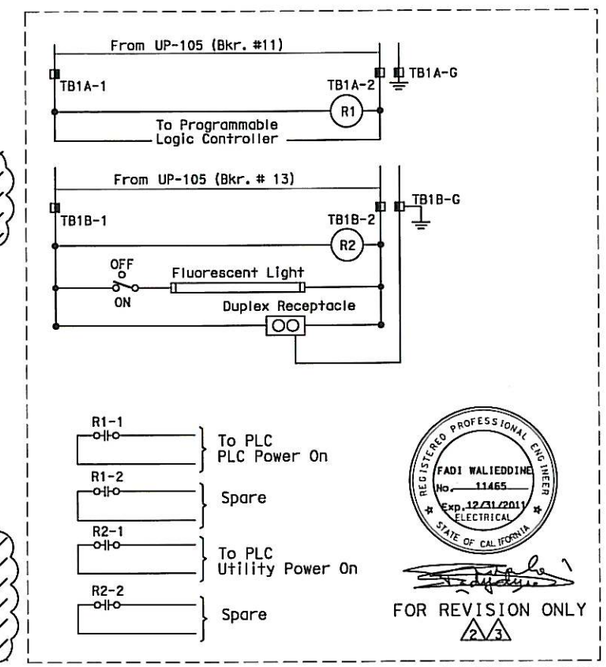


CONNECTION DIAGRAM - RTU #10W



CONNECTION DIAGRAM - RTU #10W
(Continued)



ELEMENTARY DIAGRAM - RTU #10W
(Navigation Lighting System)

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FOR REVISION ONLY 2 3

REGISTERED PROFESSIONAL ENGINEER S. A. ESTOQUE, JR. No. E-10151 Exp. 12/31/2008 ELECTRICAL STATE OF CALIFORNIA

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REGISTERED PROFESSIONAL ENGINEER DAVID H. OTO No. 10599 Exp. 06/30/2015 ELECTRICAL STATE OF CALIFORNIA

FOR REVISION ONLY 4 5

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SHEET NOTES:

1. Deleted.
2. For connection diagram to scada system, see sheet E-324. (4)
3. For navigation system connection diagrams, see sheet E-303.
4. Connections to panel door switch. For remote alarm status to RTU.
5. Conductors spliced inside junction box PB-2A located inside the girder.
6. For connection diagram to dehumidification controller, see sheet E-79.
7. Field to tape cable overall shield wire. (4)
8. The Contractor shall install resistors, approximately equal to the impedance (Zo) of the twised pairs, at the extreme ends of the multidrop network. (4)
9. Abandon in place (hatched items) if installed.

NOTES:

1. All spare conductors shall be coiled and taped at conductor ends unless terminated.
2. Terminate cable shields to low level ground bus.
3. References:
   - For UP-105 panel schedule, see sheet E-60.
   - For navigation system elementary diagram, see sheet E-298.
   - For RTU #10W panel layout, see sheet E-320.
   - For circuit and conduit/cable tray schedules, see sheets starting at E-401.
   - For strong motion detection system cable block diagrams, see sheet E-383.

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MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
5	07/12/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
4	05/13/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
3	02/01/10	DEHUMIDIFIER SCADA INTERFACE	RG	JE FW	130
2	08/03/09	ELECTRICAL WARNING SYSTEMS	RG	JE FW	61
1	03/04/08	BARRIER MODIFICATIONS	JS BM	RG SE	44

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 8 OF 23

DETAILS
SCADA REMOTE TERMINAL UNIT SYSTEM
RTU #10W ELEMENTARY AND CONNECTION DIAGRAM
NO SCALE

E-330

REVISED BY	DATE REVISED
EDC	JL
DATE 10/01	12/01

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DESIGN OVERSIGHT — BEHZAD GOLEMOHAMMADI

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USERNAME =>Llorico

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DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	311 S1	1204

REGISTERED ELECTRICAL ENGINEER 7/12/13 DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DAVID H. OTO No. 10699 Exp. 06/30/2015 ELECTRICAL STATE OF CALIFORNIA

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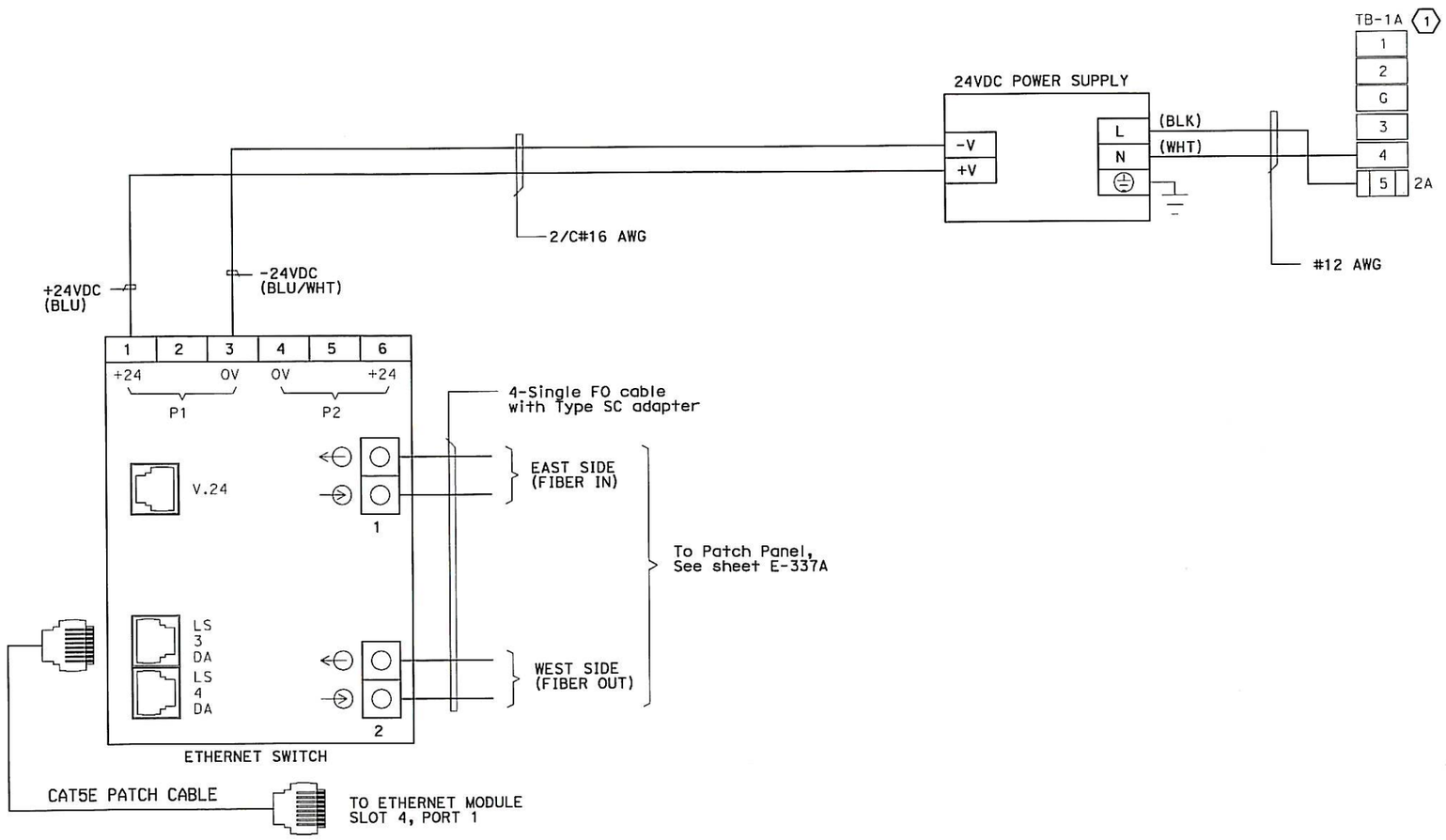

FIBER OPTIC CABLE CONNECTION

SHEET NOTES:

(1) Terminal blocks shown for reference only, see sheet E-330.

NOTES:

1. All equipment shown are vendor furnished, installed by Contractor.

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
0	07/12/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 9 OF 23

DETAILS
SCADA REMOTE TERMINAL UNIT SYSTEM
RTU #10W CONNECTION DIAGRAM
NO SCALE

E-330A

CALCULATED/ DESIGNED BY	RR RSB	DATE 07/13	REVISED BY
CHECKED BY	RG	07/13	DATE REVISED

DESIGN OVERSIGHT
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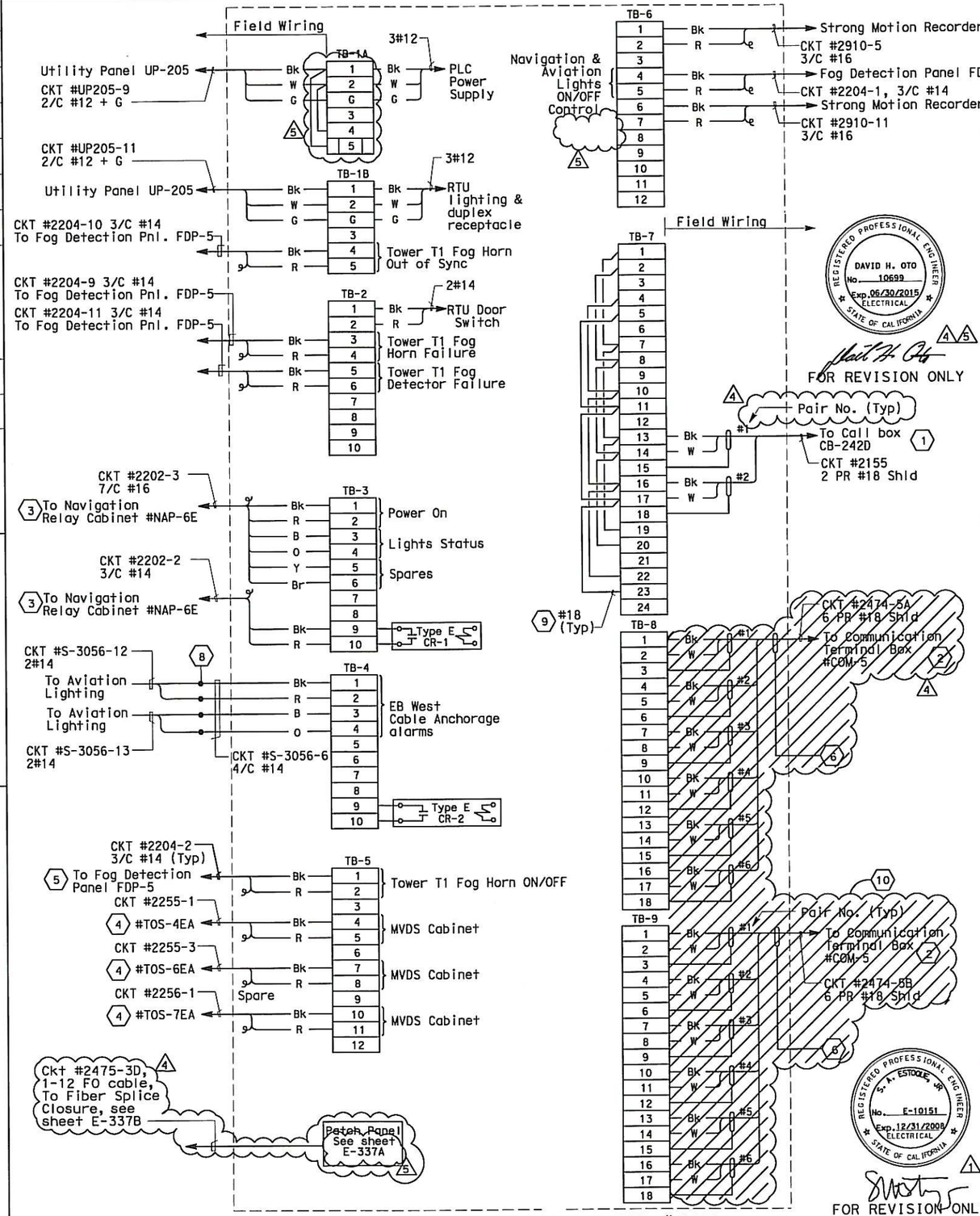

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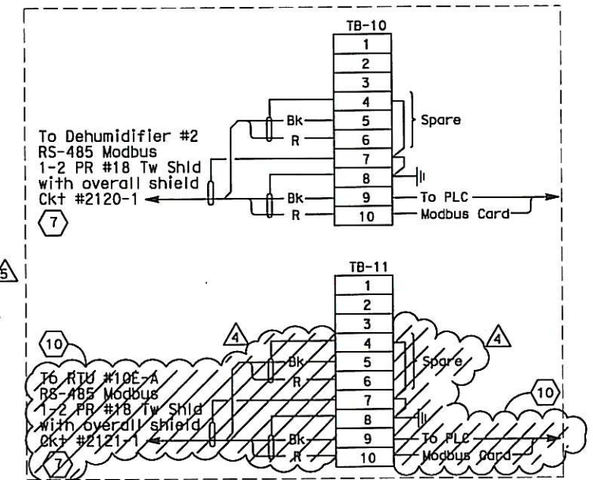
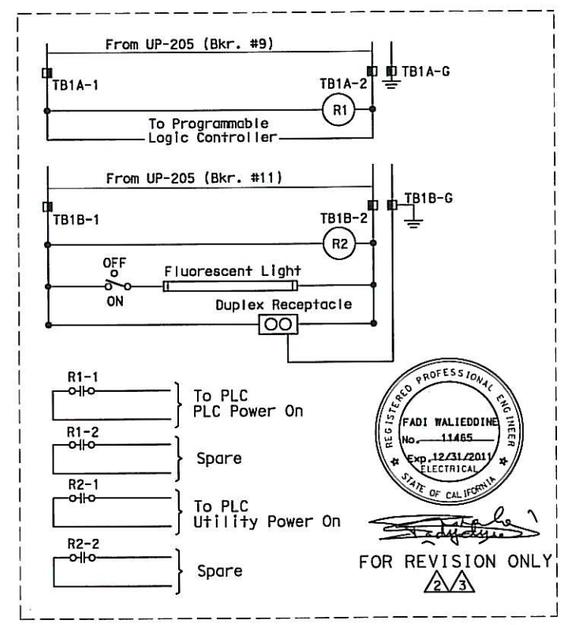
CONNECTION DIAGRAM - RTU #10E



CONNECTION DIAGRAM - RTU #10E
(Continued)



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ELEMENTARY DIAGRAM - RTU #10E
(Navigation Lighting System)

Caltrans Metric

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	312 R5	1204

REGISTERED ELECTRICAL ENGINEER 12/19/02 DATE

12-6-04
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REGISTERED PROFESSIONAL ENGINEER JENS ERLINGSSON No. 8249 Exp. 9/30/06 ELECTRICAL STATE OF CALIFORNIA

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SHEET NOTES:

1. For Connection Diagram to Call Boxes, see sheet E-399.
2. For Connection Diagram to SCADA System, see sheet E-325. (4)
3. For Connection Diagram to Navigation System, see sheet E-303.
4. Connections to panel door switch. For remote alarm status to RTU.
5. For Connection Diagram to Fog Detection Panel, see sheet E-300.
6. Field to tape cable overall shield wire. (4)
7. For Connection Diagram to Dehumidification Controllers, see sheet E-79.
8. Conductors spliced inside junction box PB-2A located inside the girder.
9. The Contractor shall install resistors, approximately equal to the impedance (Zo) of the twisted pairs, at the extreme ends of the multidrop network. (4)
10. Abandon in place (hatched items) if installed.

NOTES:

1. All spare conductors shall be coiled and taped at conductor ends unless terminated.
2. Terminate cable shields to low level ground bus.
3. References:
   - For UP-205 Panel Schedule, see sheet E-151.
   - For Navigation System Elementary Diagram, see sheet E-299.
   - For RTU #10E panel layout, see sheet E-320.
   - For Circuit and Conduit/Cable Tray Schedules, see sheets starting at E-401.
   - For Strong Motion Detection System Cable Block Diagrams, see sheets E-383 and E-384.

REGISTERED PROFESSIONAL ENGINEER FADI WALIEDDINE No. 11465 Exp. 12/31/2011 ELECTRICAL STATE OF CALIFORNIA

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MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
5	07/12/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
4	05/13/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
3	02/01/10	DEHUMIDIFIER SCADA INTERFACE	RG	JE FW	130
2	08/03/09	ELECTRICAL WARNING SYSTEMS	RG	JE FW	61
1	03/04/08	BARRIER MODIFICATIONS	JS BM	RG SE	44

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 10 OF 23

DETAILS
SCADA REMOTE TERMINAL UNIT SYSTEM
RTU #10E ELEMENTARY AND CONNECTION DIAGRAM
NO SCALE

E-331

DATE	REVISED BY	DATE	REVISED
10/01	EDC	12/01	JL

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DESIGN OVERSIGHT — BEHZAD GOLEMOHAMMADI

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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USERNAME =>Llorico

CU 04251 | EA 0120F1

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	312 S1R2	1204

Syn Yee Chin 03/26/10
REGISTERED ELECTRICAL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER SYN YEE CHIN No. 18186 Exp. 09/30/2011 ELECTRICAL STATE OF CALIFORNIA

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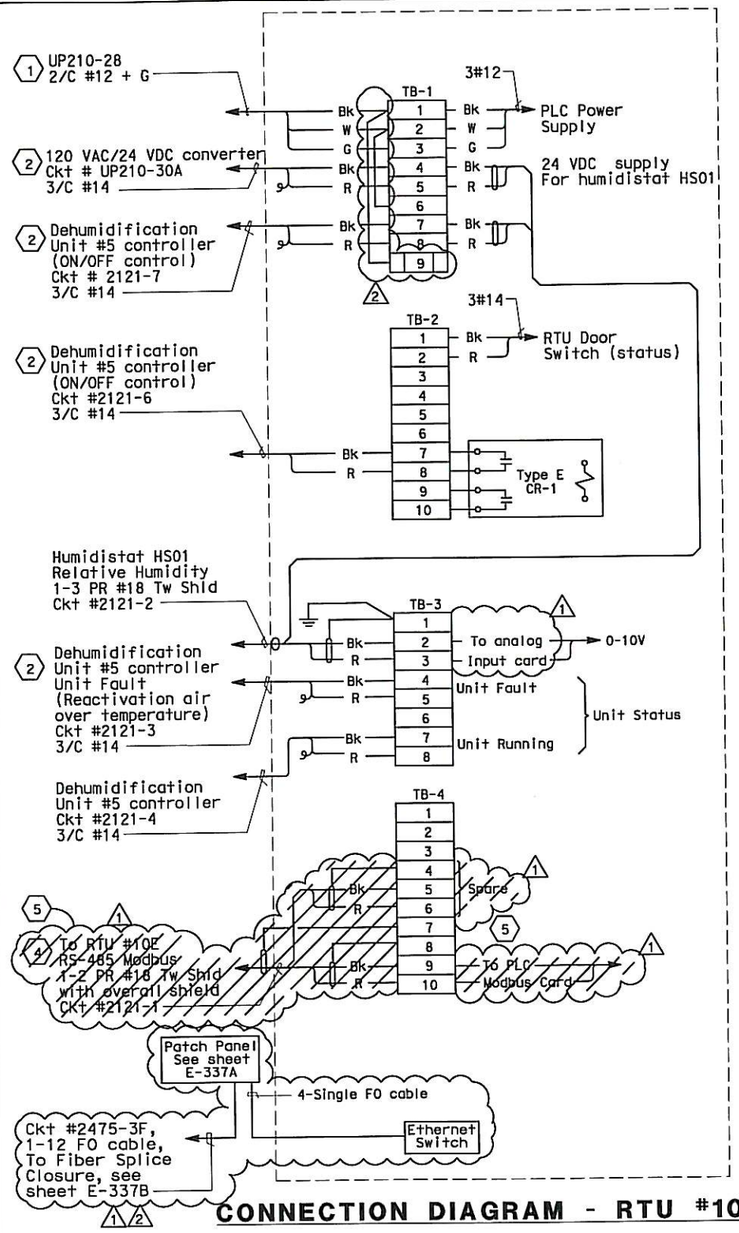
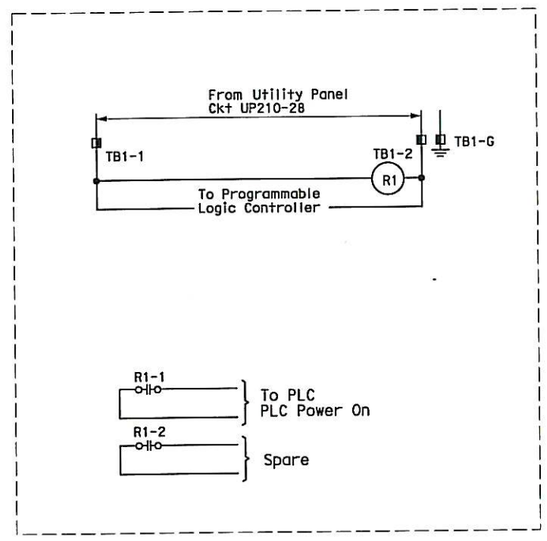


CONNECTION DIAGRAM - RTU #10E-A



ELEMENTARY DIAGRAM - RTU #10E-A

SHEET NOTES:

1. For connections to Mini-Power Center MPC-1 see E-236.
2. For connections to Dehumidifier Unit #5 see E-287A.
3. ~~For connections to RTU #10E see E-331.~~
4. ~~Field to tape shield wires. Do not ground shield wires at RTU #10E-A.~~
5. Abandon in place (hatched items) if installed.

NOTES:

1. All spare conductors shall be coiled and taped at conductor ends unless terminated.

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MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
2	07/12/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
1	05/13/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
0	06/23/10	DEHUMIDIFIER SCADA INTERFACE	RG	JE FW	130

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 11 OF 23

DETAILS
SCADA REMOTE TERMINAL UNIT SYSTEM
RTU #10E-A ELEMENTARY AND CONNECTION DIAGRAM
NO SCALE

E-331A

DATE	REVISED BY	DATE REVISED

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04	SF	80	13.2/13.9	312 S2	1204

REGISTERED ELECTRICAL ENGINEER 7/12/13 DATE

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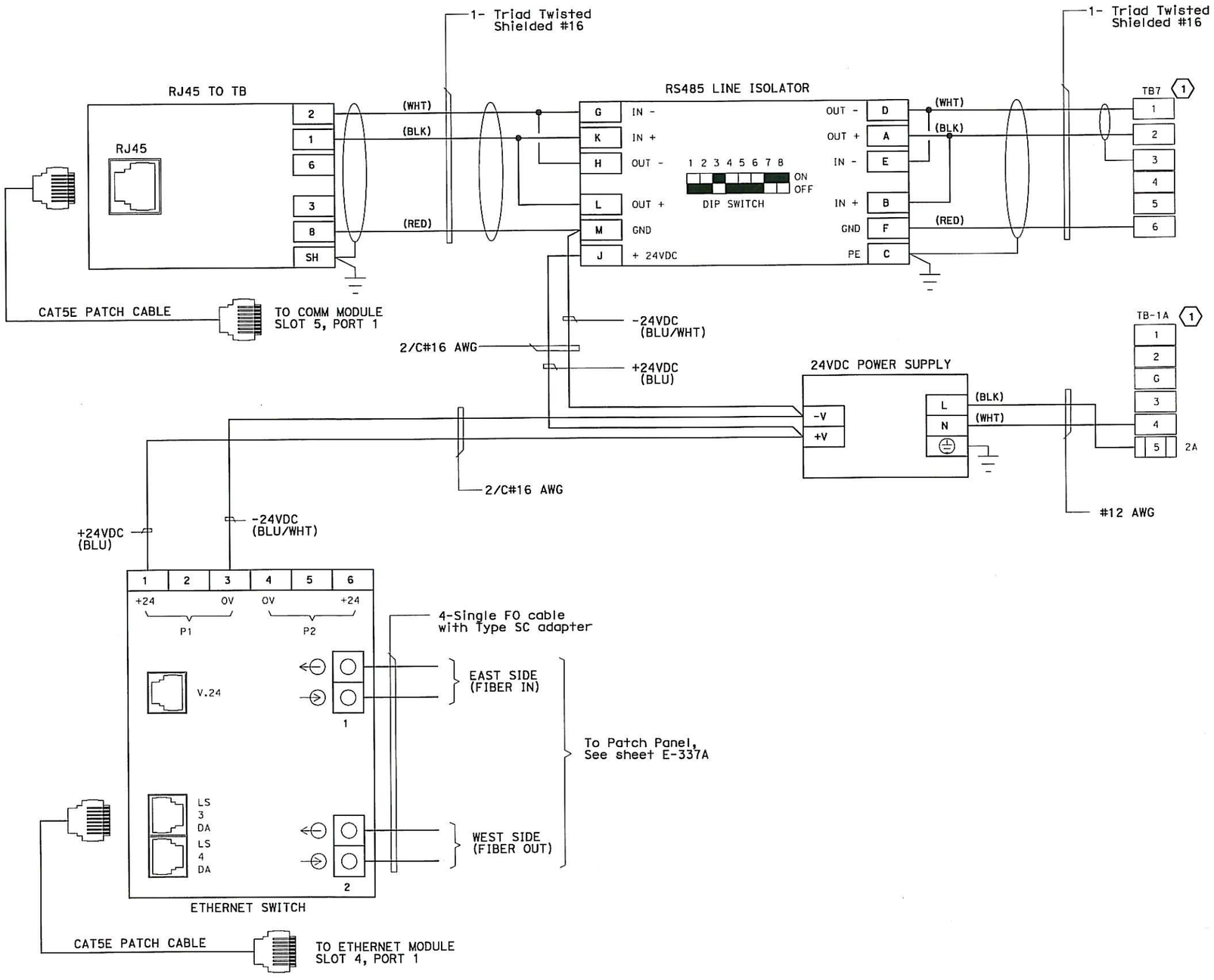

FIBER OPTIC CABLE CONNECTION

SHEET NOTES:

(1) Terminal blocks shown for reference only, see sheet E-331.

NOTES:

1. All equipment shown are vendor furnished, installed by Contractor.

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
0	07/12/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 12 OF 23

DETAILS
SCADA REMOTE TERMINAL UNIT SYSTEM
RTU #10E CONNECTION DIAGRAM
NO SCALE

E-331B

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CALCULATED/DESIGNED BY: RR RSB DATE 07/13
CHECKED BY: RG 07/13
REVISED BY
DATE REVISED

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DATE PLOTTED => 12-JUL-2013
TIME PLOTTED => 15:41

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	312 S3	1204

REGISTERED ELECTRICAL ENGINEER 7/12/13 DATE

PLANS APPROVAL DATE

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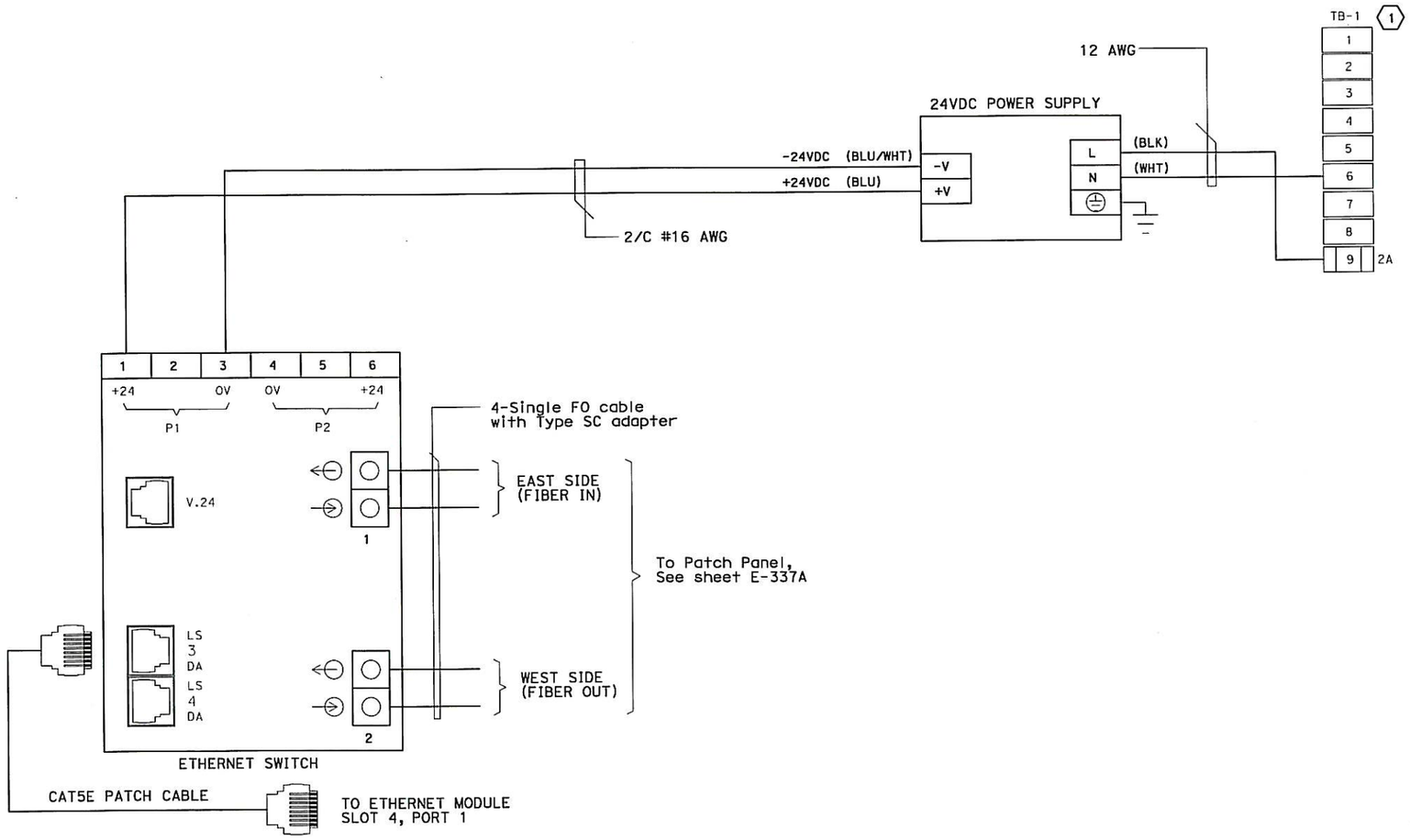

FIBER OPTIC CABLE CONNECTION

SHEET NOTES:

(1) Terminal blocks shown for reference only, see sheet E-331A.

NOTES:

1. All equipment shown are vendor furnished, installed by Contractor.

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MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
0	07/12/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 13 OF 23

DETAILS
SCADA REMOTE TERMINAL UNIT SYSTEM
RTU #10E-A CONNECTION DIAGRAM
NO SCALE

E-331C

REVISED BY	DATE REVISED
RR RSB	07/13

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RR RSB	RG

DESIGN OVERSIGHT
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EA 0120F1

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DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF	80	13.2/13.9	313 R4	1204

REGISTERED ELECTRICAL ENGINEER 12/19/02 DATE

12-6-04
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REGISTERED PROFESSIONAL ENGINEER JENS ERLINGSSON No. 8249 Exp. 9/30/06 ELECTRICAL STATE OF CALIFORNIA

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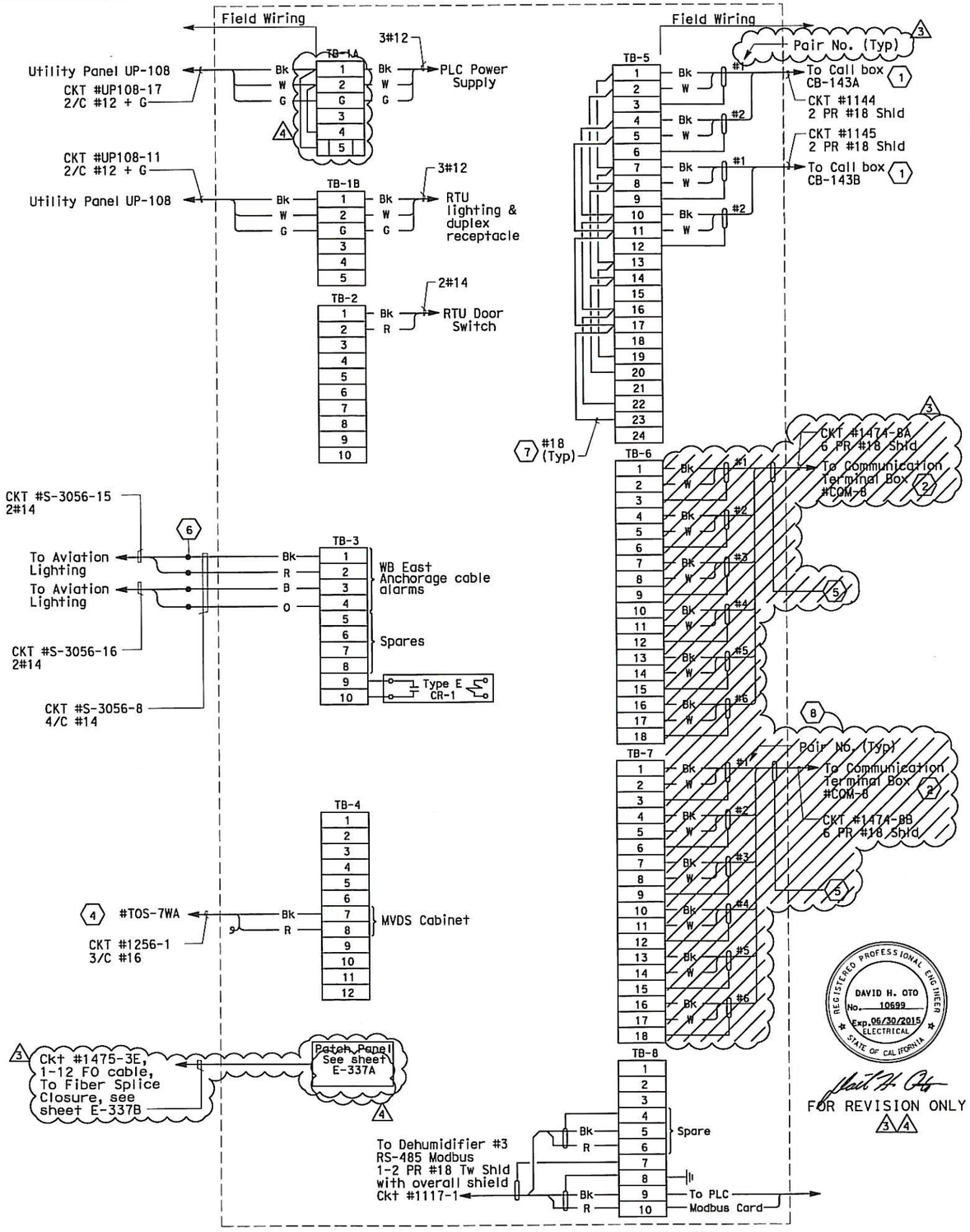
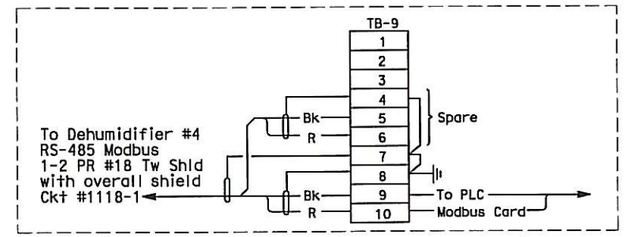
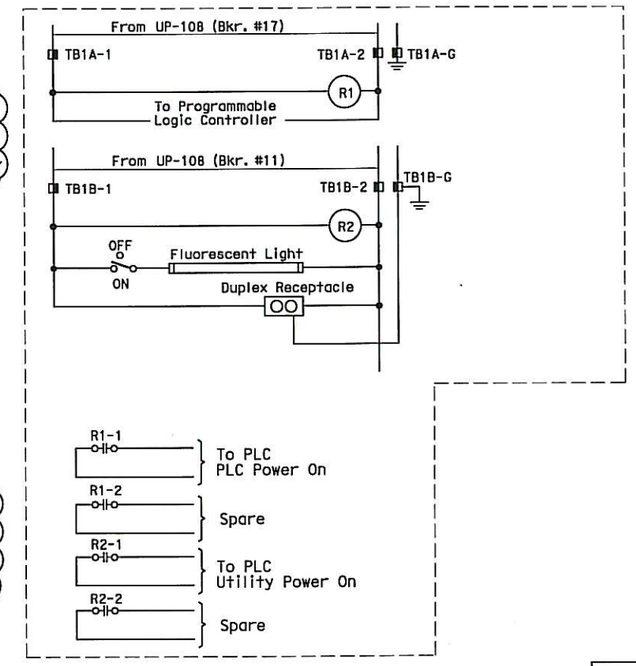


CONNECTION DIAGRAM - RTU #11W



CONNECTION DIAGRAM - RTU #11W
(Continued)



ELEMENTARY DIAGRAM - RTU #11W

SHEET NOTES:

1. For connection diagram to call boxes, see sheet E-398.
2. For connection diagram to scada system, see table A, sheet E-325. (3)
3. For connection diagram to dehumification controllers, see sheets E-79.
4. Connections to panel door switch. For remote alarm status to RTU.
5. Field to tape cable overall shield wire. (3)
6. Conductors spliced inside junction box PB-2A located inside the girder.
7. The Contractor shall install resistors, approximately equal to the impedance (Zo) of the twised pairs, at the extreme ends of the multidrop network.
8. Abandon in place (hatched items) if installed. (3)

NOTES:

1. All spare conductors shall be coiled and taped at conductor ends unless terminated.
2. Terminate cable shields to low level ground bus.
3. References:
   - For UP-108 panel schedule, see sheet E-63.
   - For RTU #11W panel layout, see sheet E-320.
   - For circuit and conduit/cable tray schedules, see sheets starting at E-401.

REGISTERED PROFESSIONAL ENGINEER DAVID H. OTO No. 10699 Exp. 06/30/2015 ELECTRICAL STATE OF CALIFORNIA
FOR REVISION ONLY (3)(4)

REGISTERED PROFESSIONAL ENGINEER S. A. ESTOOLE, JR. No. E-10151 Exp. 12/31/2006 ELECTRICAL STATE OF CALIFORNIA
FOR REVISION ONLY (1)

REGISTERED PROFESSIONAL ENGINEER FADI WALIEDDINE No. 11465 Exp. 12/31/2011 ELECTRICAL STATE OF CALIFORNIA
FOR REVISION ONLY (2)

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
4	07/12/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
3	05/13/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
2	02/01/10	DEHUMIDIFIER SCADA INTERFACE	RG	JE FW	130
1	03/04/08	BARRIER MODIFICATIONS	JS BM	RG SE	44

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 14 OF 23

DETAILS
SCADA REMOTE TERMINAL UNIT SYSTEM
RTU #11W ELEMENTARY AND CONNECTION DIAGRAM
NO SCALE

E-332

REVISED BY	DATE REVISED
EDC	JL
DATE 10/01	12/01

CALCULATED/DESIGNED BY — CHECKED BY

DESIGN OVERSIGHT — BEHZAD GOLEMOHAMMADI

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 07-12-13 — DATE PLOTTED => 12-JUL-2013 TIME PLOTTED => 15:42

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DGN FILE =>04-0120f1_0313R04.dgn
USERNAME =>Llorico

CU 04251 | EA 0120F1

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF	80	13.2/13.9	313 S1	1204

REGISTERED ELECTRICAL ENGINEER 7/12/13 DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DAVID H. OTO No. 10699 Exp. 06/30/2015 ELECTRICAL STATE OF CALIFORNIA

PB AMERICAS, Inc.
A Parsons Brinckerhoff Company
303 Second St., Suite 700N
San Francisco, CA 94107-1317

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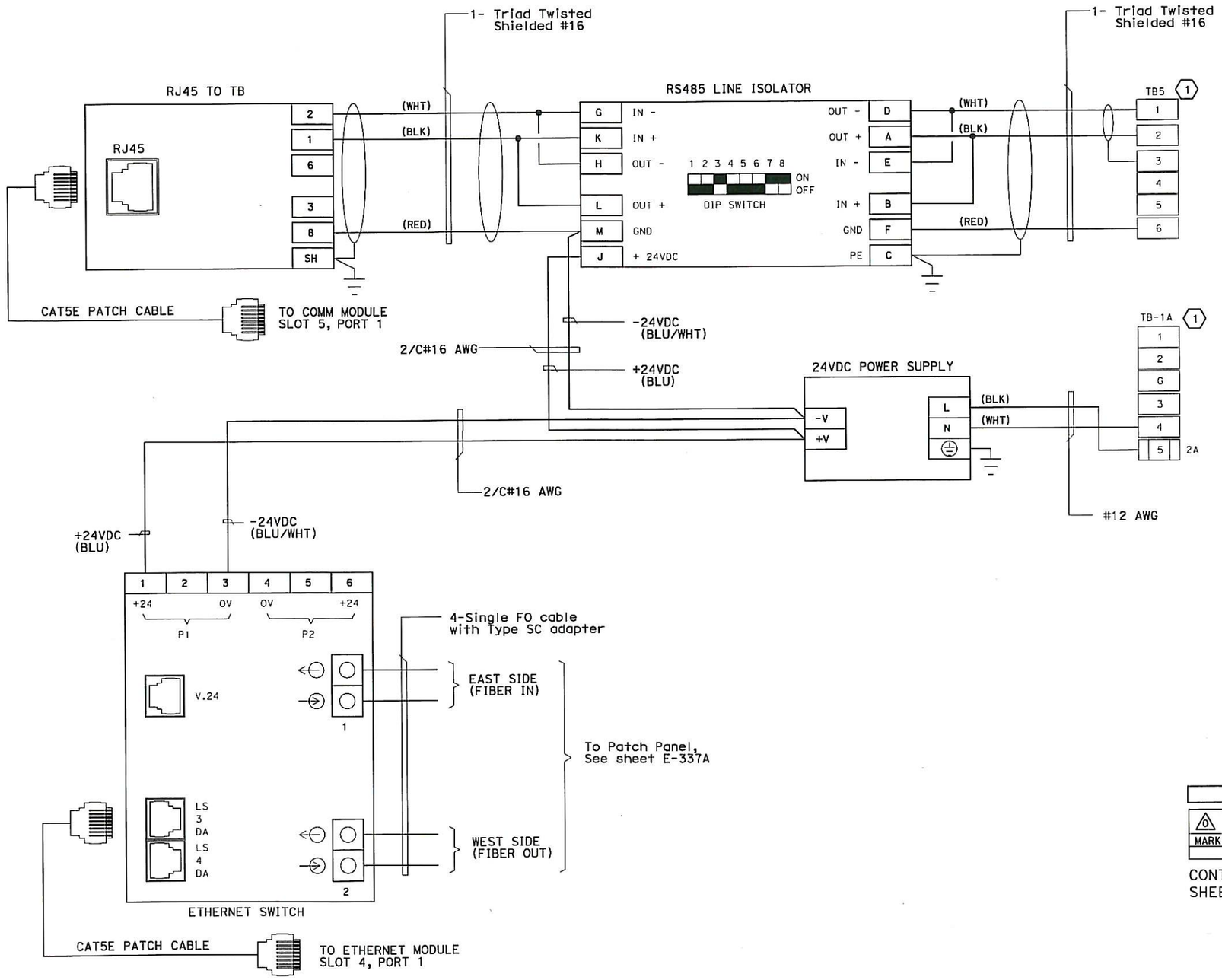

FIBER OPTIC CABLE CONNECTION

SHEET NOTES:

(1) Terminal blocks shown for reference only, see sheet E-332.

NOTES:

1. All equipment shown are vendor furnished, installed by Contractor.

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
0	07/12/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 15 OF 23

DETAILS
SCADA REMOTE TERMINAL UNIT SYSTEM
RTU #11W CONNECTION DIAGRAM
NO SCALE

E-332A

DATE	REVISED BY	DATE	REVISED BY
07/13	RR RSB	07/13	RG

CALCULATED/DESIGNED BY — CHECKED BY

DESIGN OVERSIGHT — BEHZAD GOLEMOHAMMADI

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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USERNAME =>Llorico

CU 04251 | EA 0120F1

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	314 R4	1204

REGISTERED ELECTRICAL ENGINEER 12/19/02 DATE

12-6-04
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER JENS ERLINGOSSON No. 8249 Exp. 9/30/06 ELECTRICAL STATE OF CALIFORNIA

PB POWER, Inc.
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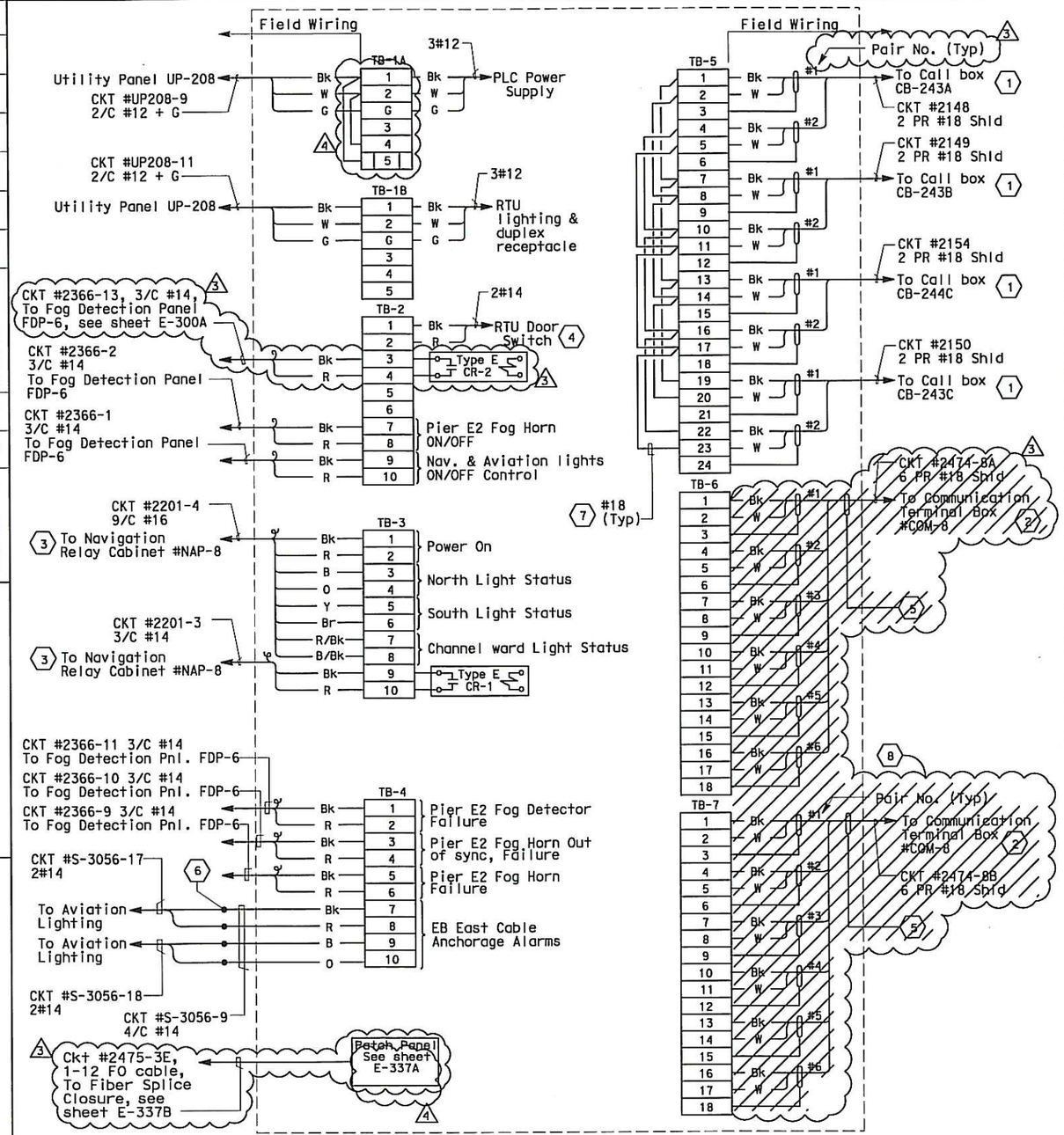
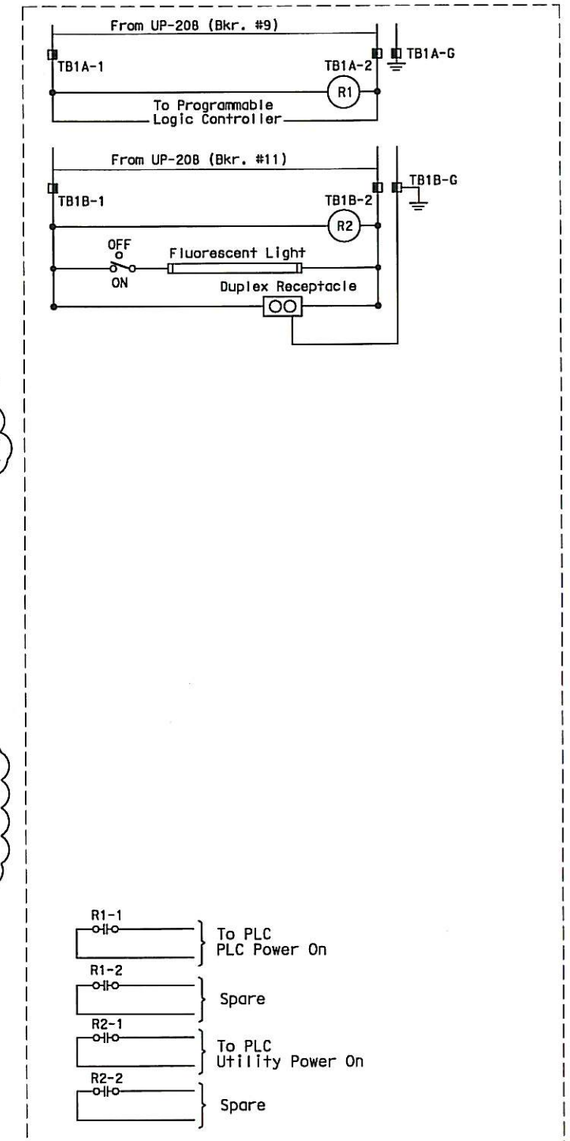


CONNECTION DIAGRAM - RTU #11E



ELEMENTARY DIAGRAM - RTU #11E

SHEET NOTES:

1. For connection diagram to call boxes, see sheet E-400.
2. For connection diagram to scada system, see table A, sheet E-325. (3)
3. For connection diagram to navigation system, see sheet E-303.
4. Connections to panel door switch. For remote alarm status to RTU.
5. Field to tape cable overall shield wires. (3)
6. Conductors spliced inside junction box PB-2A located inside the girder.
7. The Contractor shall install resistors, approximately equal to the impedance (Zo) of the twisted pairs, at the extreme ends of the multidrop network.
8. Abandon in place (hatched items) if installed. (3)

NOTES:

1. All spare conductors shall be coiled and taped at conductor ends unless terminated.
2. Terminate cable shields to low level ground bus.
3. References:
   - For Up-208 panel schedule, see sheet E-154.
   - For navigation system elementary diagram, see sheet E-298.
   - For RTU #11E panel layout, see sheet E-320.
   - For circuit and conduit/cable tray schedules, see sheets starting at E-401.

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
4	07/12/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
3	05/13/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
2	08/03/09	ELECTRICAL WARNING SYSTEMS	RG	JE FW	61
1	03/04/08	BARRIER MODIFICATIONS	JS BM	RG SE	44

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 16 OF 23

DETAILS
SCADA REMOTE TERMINAL UNIT SYSTEM
RTU #11E ELEMENTARY AND CONNECTION DIAGRAM
NO SCALE

REGISTERED PROFESSIONAL ENGINEER S. A. ESTOQUE, JR. No. E-10151 Exp. 12/31/2008 ELECTRICAL STATE OF CALIFORNIA
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REGISTERED PROFESSIONAL ENGINEER DAVID H. OTO No. 10699 Exp. 06/30/2015 ELECTRICAL STATE OF CALIFORNIA
FOR REVISION ONLY (3 4)

REGISTERED PROFESSIONAL ENGINEER FADI WALIEDDINE No. 11465 Exp. 12/31/2009 ELECTRICAL STATE OF CALIFORNIA
FOR REVISION ONLY (2)

REVISED BY	DATE REVISED
EDC	JL
DATE 10/01	11/01

CALCULATED/DESIGNED BY
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DESIGN OVERSIGHT
BEHZAD GOLEMOHAMMADI

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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E-333

LAST REVISION 07-12-13
DATE PLOTTED => 12-JUL-2013
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DGN FILE =>04-0120f1_0314R04.dgn
USERNAME =>Llorico

CU 04251 | EA 0120F1

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	314 S1	1204

REGISTERED ELECTRICAL ENGINEER 7/12/13 DATE

PLANS APPROVAL DATE

PB AMERICAS, Inc.
A Parsons Brinckerhoff Company
303 Second St., Suite 700N
San Francisco, CA 94107-1317

REGISTERED PROFESSIONAL ENGINEER DAVID H. OTO No. 10699 Exp. 06/30/2015 ELECTRICAL STATE OF CALIFORNIA

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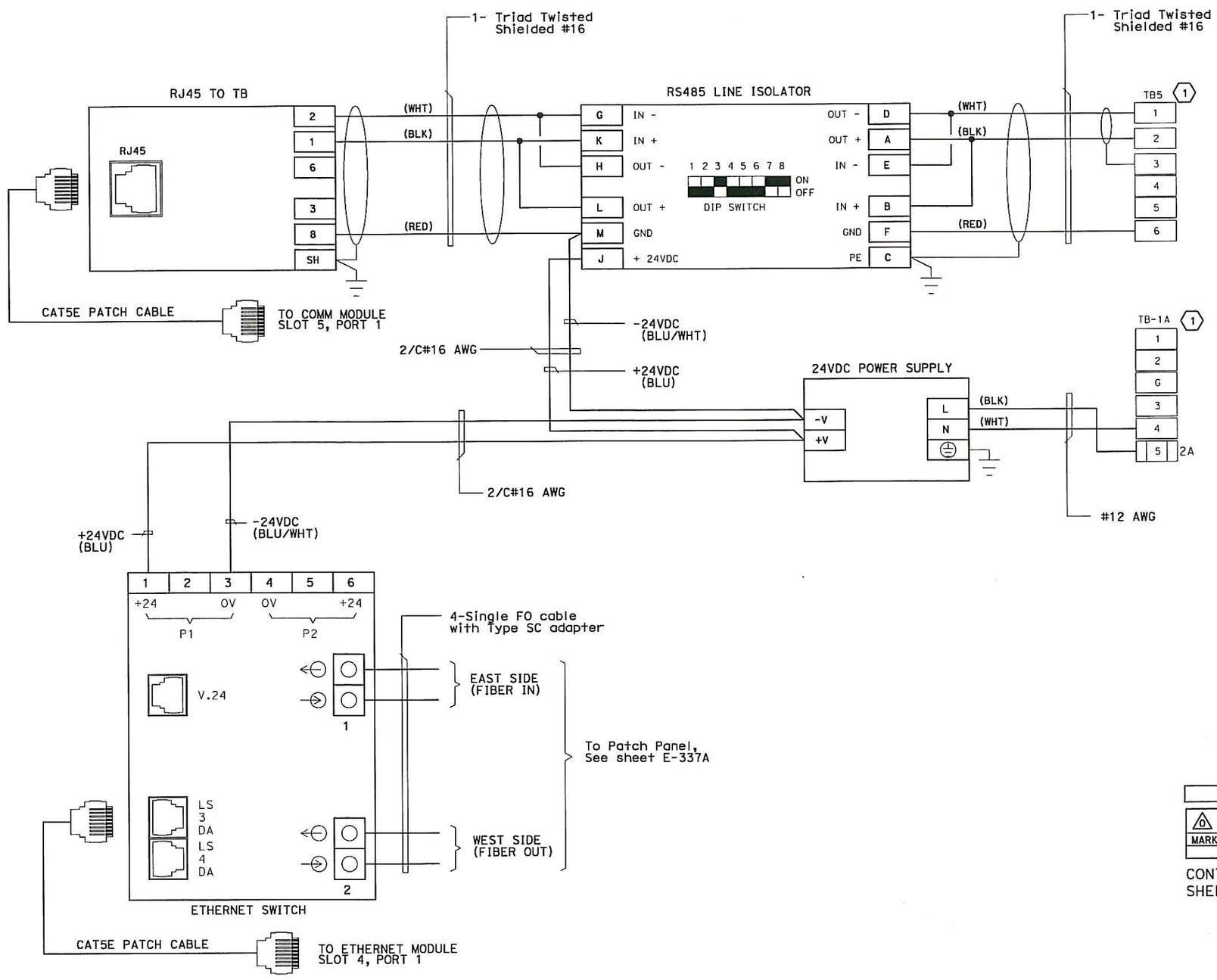

FIBER OPTIC CABLE CONNECTION

SHEET NOTES:

(1) Terminal blocks shown for reference only, see sheet E-333.

NOTES:

1. All equipment shown are vendor furnished, installed by Contractor.

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
0	07/12/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 17 OF 23

DETAILS
SCADA REMOTE TERMINAL UNIT SYSTEM
RTU #11E CONNECTION DIAGRAM
NO SCALE

E-333A

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DESIGN OVERSIGHT: BEHZAD GOLEMOHAMMADI
CALCULATED/DESIGNED BY: RR RSB DATE 07/13
CHECKED BY: RG 07/13
REVISED BY
DATE REVISED

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USERNAME =>Llorico

CU 04251 EA 0120F1

LAST REVISION 07-12-13
DATE PLOTTED => 12-JUL-2013
TIME PLOTTED => 15:42

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF	80	13.2/13.9	316 S1R1	1204

REGISTERED ELECTRICAL ENGINEER 5/10/13 DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DAVID H. OTO No. 10699 Exp. 06/30/2013 ELECTRICAL STATE OF CALIFORNIA

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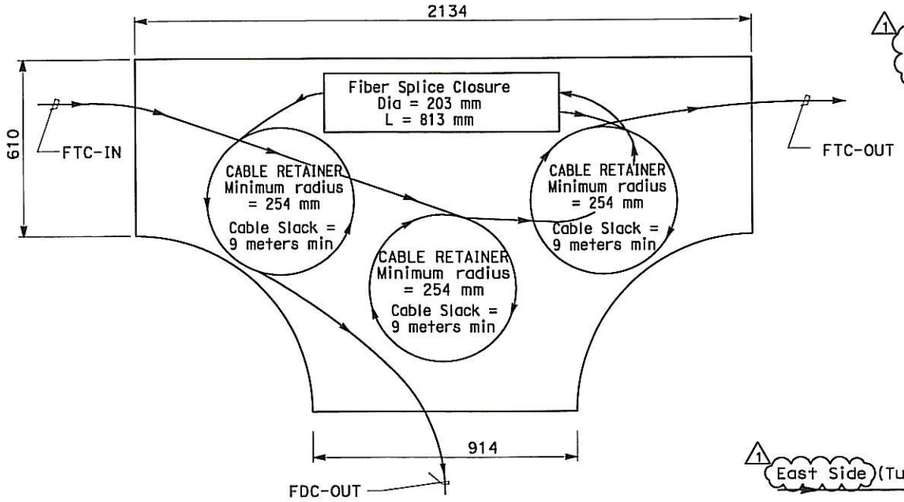
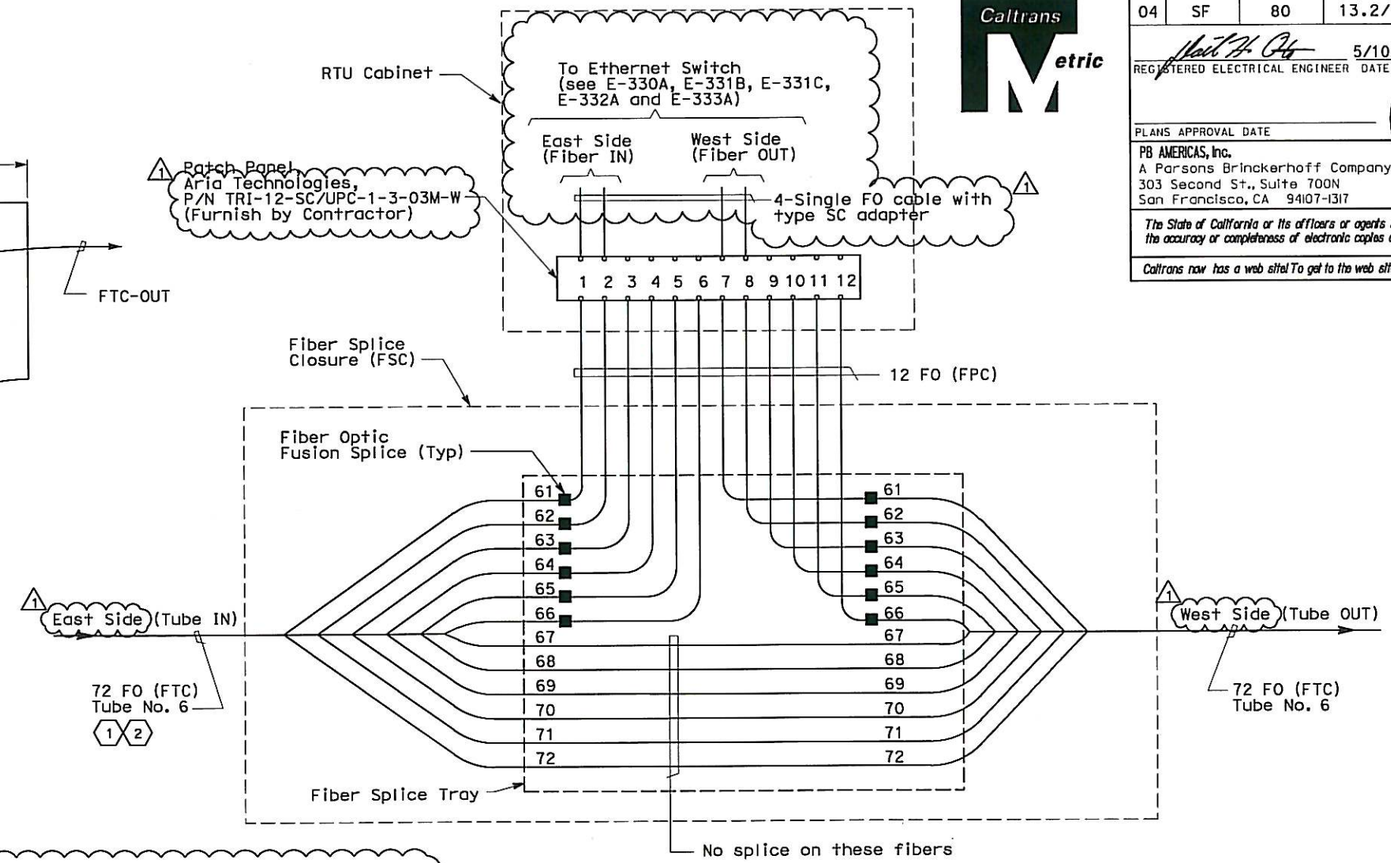


FIBER SPLICE TRAY DETAIL

NO SCALE



FIBER SPLICE CLOSURE DETAIL (SHOWN FOR TUBE No.6)

NO SCALE

REGISTERED PROFESSIONAL ENGINEER DAVID H. OTO No. 10699 Exp. 06/30/2015 ELECTRICAL STATE OF CALIFORNIA

1 FOR REVISION ONLY

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE					
1	07/12/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
0	05/13/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
REVISIONS					

CONTRACT CHANGE ORDER NO. 305
SHEET 18 OF 23

SHEET NOTES:

1. Refer to E-337B for overall TOS Fiber Optic Interface Plan and Cable Block Diagram.
2. Refer to E-357C & E-357D for Fiber Optic cable terminations.

NOTES:

1. The Contractor shall submit cable installation plan and any recommendation of the manufacturer to the Engineer for review and approval.

DETAILS
SCADA REMOTE TERMINAL UNIT SYSTEM
FIBER OPTIC SPLICE

NO SCALE

E-337A

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

REVISED BY	DATE REVISED
DATE 04/13	05/13
RR RB	RG
CALCULATED/ DESIGNED BY	CHECKED BY
DESIGN OVERSIGHT	
BEHZAD GOLEMOHAMMADI	

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LAST REVISION 07-12-13
DATE PLOTTED => 12-JUL-2013
TIME PLOTTED => 15:42

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	316 S2	1204

REGISTERED ELECTRICAL ENGINEER 5/10/13 DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DAVID H. OTO No. 10699 Exp. 06/30/2013 ELECTRICAL STATE OF CALIFORNIA

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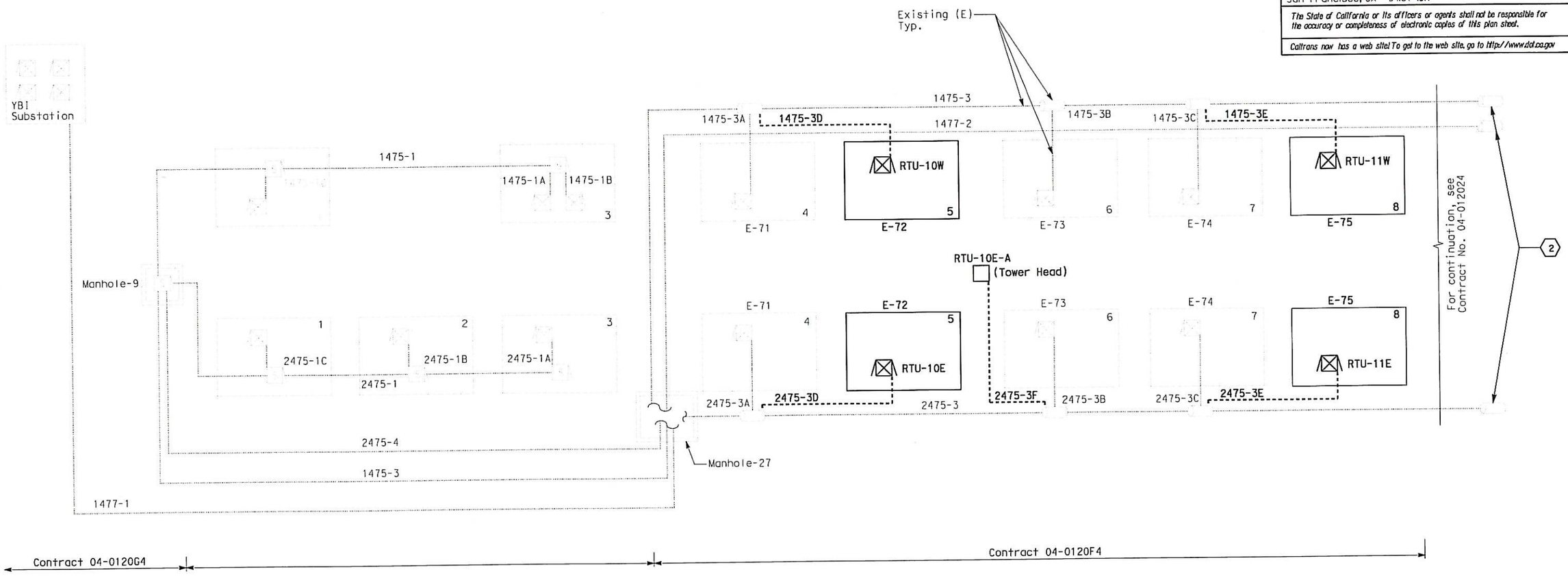

SHEET NOTES:

(1) For splice details, see sheet E-337A.

(2) For splices at contract boundaries, refer to sheet E-357, Fiber Optic Interface Plan and Cable Block Diagram.

NOTES:

1. For cable numbering scheme, see Project Notes.

LEGEND:

- 72 Fiber Optic Cable
- 12 Fiber Optic Cable
- Fiber Splice Closure
- Fiber Splice Cabinet
- Controller Cabinet
- RTU
- Manhole
- E-XXX Corresponding Platform Layout sheet
- Platform
- Platform ID

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE					
0	05/13/13	MISCELLANEOUS SCADA CHANGES	RR RSB	RG	305
MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
		REVISIONS			

CONTRACT CHANGE ORDER NO. 305
SHEET 19 OF 23

DETAILS
SCADA REMOTE TERMINAL UNIT SYSTEM FIBER OPTIC CABLE BLOCK DIAGRAM

NO SCALE

E-337B

DATE	REVISED BY	DATE	REVISED BY
04/13	RR RB	05/13	RG

CALCULATED/DESIGNED BY RR RB
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CU 04251 EA 0120F1

LAST REVISION 05-13-13
DATE PLOTTED => 17-MAY-2013
TIME PLOTTED => 15:44

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF, Ala	80	12.2/14.3 0.0/4.0	328 S1R1	1204

REGISTERED ELECTRICAL ENGINEER DATE

PLANS APPROVAL DATE

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FOR REVISION ONLY 1

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE					
1	05/13/13	MISCELLANEOUS SCADA CHANGES	RG RSB	RG	305
0	07/01/11	TOS MODIFICATIONS	RG RR	ML	81
MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
		REVISIONS			

CONTRACT CHANGE ORDER NO. 305
SHEET 20 OF 23

		YBI-1				SAS			SKYWAY											OTD-1		OTD-2				
		YBI-SUB TOS-Y04 (FDU-W)	01WA 01W W 52.18	03WA 03W W 54.44	CCTV-W01 03WB 03W W 54.44	04WA 04W W 56.38	CCTV-E01B 06WA 06W W 58.18	07WA 07W W 59.62	09WA 09W W 63.23	10WA 10WA W 64.83	11WA 11W W 66.43	11WB 11W W 66.43	CCTV-W03 12WA 12W W 68.03	13WA 13W W 69.63	15WA 15W W 72.83	16WA 16W W 74.43	CCTV-W02 17WA 17W W 76.03	18WA 18W W 77.63	20WA 20W W 80.51	21WA 21W W 81.71	22WA 22W W 84.04	23WA 23W W 85.55	CCTV-E10 26A 23W MS 86+70	24A 23W MN 88.25	CCTV-W03 25A 23W MN 90.50	SFOBB-HUB ADMIN BLDG TOS-A04 (FDU-W)	EQ ID cabinet ID FSC ID cabinet station
Tube 1	1	X			X X				X X				X X				X X				X X				X X	X	Circuit 1
	2	X			X X				X X				X X				X X				X X				X X	X	Circuit 1
	3	X			X X				X X				X X				X X				X X				X X	X	Circuit 2
	4	X			X X				X X				X X				X X				X X				X X	X	Circuit 2
	5	X			X X				X X				X X				X X				X X				X X	X	Circuit 3
	6	X			X X				X X				X X				X X				X X				X X	X	Circuit 3
	7	X																								X	SPARE
	8	X																								X	
	9	X																								X	
	10	X																								X	
	11	X																								X	
	12	X																								X	
Tube 2	13	X						X X				X X				X X				X X			X X			X	Circuit 4
	14	X						X X				X X				X X				X X			X X			X	Circuit 4
	15	X						X X				X X				X X				X X			X X			X	Circuit 5
	16	X						X X				X X				X X				X X			X X			X	Circuit 5
	17	X						X X				X X				X X				X X			X X			X	Circuit 6
	18	X						X X				X X				X X				X X			X X			X	Circuit 6
	19	X																								X	SPARE
	20	X																								X	
	21	X																								X	
	22	X																								X	
	23	X																								X	
	24	X																								X	
Tube 3	25	X		X X			X X			X X				X X			X X						X X		X	Circuit 7
	26	X		X X			X X			X X				X X			X X						X X		X	Circuit 7
	27	X		X X			X X			X X				X X			X X						X X		X	Circuit 8
	28	X		X X			X X			X X				X X			X X						X X		X	Circuit 8
	29	X		X X			X X			X X				X X			X X						X X		X	Circuit 9
	30	X		X X			X X			X X				X X			X X						X X		X	Circuit 9
	31	X																								X	SPARE
	32	X																								X	
	33	X																								X	
	34	X																								X	
	35	X																								X	
	36	X																								X	
Tube 4	37	X	X X			X X				X X				X X			X X				X X					X	Circuit 10
	38	X	X X			X X				X X				X X			X X				X X					X	Circuit 10
	39	X	X X			X X				X X				X X			X X				X X					X	Circuit 11
	40	X	X X			X X				X X				X X			X X				X X					X	Circuit 11
	41	X	X X			X X				X X				X X			X X				X X					X	Circuit 12
	42	X	X X			X X				X X				X X			X X				X X					X	Circuit 12
	43	X																								X	SPARE
	44	X																								X	
	45	X																								X	
	46	X																								X	
	47	X																								X	
	48	X																								X	
Tube 5	49~60																									X	SPARES
Tube 6	61~72																									X	

(1) (2) (3) 1

SHEET NOTES:

(1) Terminate fibers at this location, represented with bold "X".

(2) These terminations by others.

(3) For Tube 6, see sheet E-357C 1

GENERAL NOTE:

1. For notes, abbreviations and legend, see sheets E-8 and E-970.

FIBER OPTIC TERMINATIONS - WESTBOUND

DETAILS
TRAFFIC OPERATIONS SYSTEM
FTC-WESTBOUND
NO SCALE

E-357A

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

DESIGN OVERSIGHT MICHAEL P. LEE

CALCULATED/DESIGNED BY ML DATE 09/09 REVISED BY
CHECKED BY FW 12/09 DATE REVISED

LAST REVISION 05-13-13 DATE PLOTTED => 13-MAY-2013 TIME PLOTTED => 16:17

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF, Ala	80	12.2/14.3 0.0/4.0	328 S2R1	1204

REGISTERED ELECTRICAL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER M.P. Lee No. 13435 Exp. 9-30-10 ELECTRICAL STATE OF CALIFORNIA

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FOR REVISION ONLY (1)

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
1	05/13/13	MISCELLANEOUS SCADA CHANGES	RG RSB	RG	305
0	07/01/11	TOS MODIFICATIONS	RG RR	ML	81

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 21 OF 23

Tube	Fiber	YBI-SUB TOS-Y04 (FDU-E)	01EA 1E E 52.16	RM01 1E R1 51.80	02EA 2E E 53.70	03EA 3E E 54.38	04EA 4E E 56.29	CCTV-E01 06EA 6E E 58.10	07EA 7E E 59.54	09EA 9E E 63.08	10EA 10E E 64.62	11EA 11E E 66.15	12EA 12E E 67.75	13EA 13E E 69.36	CCTV-E02 13EB 13E E 69.36	15EA 15E E 72.55	16EA 16E E 74.16	17EA 17E E 75.75	18EA 18E E 77.36	CCTV-XXX 20EA 20E E 80.24	21EA 21E E 81.43	CCTV-E03 22EA 22E E 83.75	23EA 23E E 85.24	SFOBB-HUB ADMIN BLDG TOS-A04 (FDU-E)	EQ ID cabinet ID FSC ID cabinet station
		YBI-1					SAS			SKYWAY											OTD-1		OTD-2		
Tube 1	1	X	X X				X X				X X				X X				X X				X X	X	Circuit 1
	2	X	X X				X X				X X				X X				X X				X X	X	Circuit 1
	3	X	X X				X X				X X				X X				X X				X X	X	Circuit 2
	4	X	X X				X X				X X				X X				X X				X X	X	Circuit 2
	5	X	X X				X X				X X				X X				X X				X X	X	Circuit 3
	6	X	X X				X X				X X				X X				X X				X X	X	Circuit 3
	7	X																						X	SPARE
	8	X																						X	
	9	X																						X	
	10	X																						X	
	11	X																						X	
	12	X																						X	
Tube 2	13	X		X X				X X				X X				X X				X X				X	Circuit 4
	14	X		X X				X X				X X				X X				X X				X	Circuit 4
	15	X		X X				X X				X X				X X				X X				X	Circuit 5
	16	X		X X				X X				X X				X X				X X				X	Circuit 5
	17	X		X X				X X				X X				X X				X X				X	Circuit 6
	18	X		X X				X X				X X				X X				X X				X	Circuit 6
	19	X																						X	SPARE
	20	X																						X	
	21	X																						X	
	22	X																						X	
	23	X																						X	
	24	X																						X	
Tube 3	25	X			X X				X X				X X				X X				X X			X	Circuit 7
	26	X			X X				X X				X X				X X				X X			X	Circuit 7
	27	X			X X				X X				X X				X X				X X			X	Circuit 8
	28	X			X X				X X				X X				X X				X X			X	Circuit 8
	29	X			X X				X X				X X				X X				X X			X	Circuit 9
	30	X			X X				X X				X X				X X				X X			X	Circuit 9
	31	X																						X	SPARE
	32	X																						X	
	33	X																						X	
	34	X																						X	
	35	X																						X	
	36	X																						X	
Tube 4	37	X				X X				X X				X X				X X				X X		X	Circuit 10
	38	X				X X				X X				X X				X X				X X		X	Circuit 10
	39	X				X X				X X				X X				X X				X X		X	Circuit 11
	40	X				X X				X X				X X				X X				X X		X	Circuit 11
	41	X				X X				X X				X X				X X				X X		X	Circuit 12
	42	X				X X				X X				X X				X X				X X		X	Circuit 12
	43	X																						X	SPARE
	44	X																						X	
	45	X																						X	
	46	X																						X	
	47	X																						X	
	48	X																						X	
Tube 5	49~60	X																						X	SPARES
Tube 6	61~72																							X	

(2) YBI-1 (3) For Tube 6, see sheet E-357D (1)

SHEET NOTES:

(1) Terminate fibers at this location, represented with bold "X".

(2) These terminations by others.

(3) For Tube 6, see sheet E-357D (1)

GENERAL NOTE:

1. For notes, abbreviations and legend, see sheets E-8 and E-970.

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

FIBER OPTIC TERMINATIONS - EASTBOUND

DETAILS
TRAFFIC OPERATIONS SYSTEM
FTC-EASTBOUND
NO SCALE

E-357B

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DESIGN OVERSIGHT: MICHAEL P. LEE

CALCULATED/DESIGNED BY: ML — CHECKED BY: FW

DATE 09/09 — 12/09

REVISED BY — DATE REVISED

LAST REVISION 05-13-13 — DATE PLOTTED => 17-MAY-2013 — TIME PLOTTED => 15:39

BORDER LAST REVISED 3/1/2009

RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

DGN FILE => 04-0120f1_0328S02R01.dgn
USERNAME => Liorico

CU 04251 — EA 0120F1

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	328 S3	1204

REGISTERED ELECTRICAL ENGINEER 5/01/13 DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DAVID H. OTO No. 10699 Exp. 06/30/2013 ELECTRICAL STATE OF CALIFORNIA

PB AMERICAS, Inc.
A Parsons Brinckerhoff Company
303 Second St., Suite 700N
San Francisco, CA 94107-1317

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Caltrans Metric

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
0	05/13/13	MISCELLANEOUS SCADA CHANGES	RG RSB	RG	305

REVISIONS

CONTRACT CHANGE ORDER NO. 305
SHEET 22 OF 23

SAS

(2) Tube #	Fiber	YBI-SUB TOS-Y04 (FDU-W)	RTU-10W 04W	RTU-11W 07W	SFOBB-HUB ADMIN BLDG TOS-A04 (FDU-W)	EQ ID / cabinet ID / FSC ID / cabinet station
Tube 1	1~12	X			X	See E-357A
Tube 2	13~24	X			X	
Tube 3	25~36	X			X	
Tube 4	37~48	X			X	
Tube 5	49~60	X			X	
Tube 6	61	X	X X	X X	X	TBD
	62	X	X X	X X	X	
	63	X	X X	X X	X	
	64	X	X X	X X	X	
	65	X	X X	X X	X	
	66	X	X X	X X	X	
	67	X			X	Spare
	68	X			X	Spare
	69	X			X	Spare
	70	X			X	Spare
	71	X			X	Spare
	72	X			X	Spare

(1) (1)

SHEET NOTES:

(1) Terminate fibers at this location, represented with bold "X".

(2) For Tube 1 thru Tube 5 termination See sheet E-357A.

GENERAL NOTE:

1. For notes, abbreviations and legend, see sheets E-8 and E-970.

FIBER OPTIC TERMINATIONS - WESTBOUND

DETAILS
SCADA/TRAFFIC OPERATIONS SYSTEM
FTC-WESTBOUND
NO SCALE

E-357C

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

DESIGN OVERSIGHT
BEHZAD GOLEMOHAMMADI

CALCULATED/DESIGNED BY | CHECKED BY | REVISED BY | DATE REVISED
RR RSB | RG | DATE 04/13 | 04/13

LAST REVISION 05-13-13
DATE PLOTTED => 13-MAY-2013
TIME PLOTTED => 16:17

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80

DGN FILE =>04-0120F1_0328S03.dgn
USERNAME =>Llorico

CU 04251 | EA 0120F1

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	328 S4	1204

REGISTERED ELECTRICAL ENGINEER 5/01/13 DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DAVID H. OTO No. 10699 Exp. 06/30/2013 ELECTRICAL STATE OF CALIFORNIA

PB AMERICAS, Inc.
A Parsons Brinckerhoff Company
303 Second St., Suite 700N
San Francisco, CA 94107-1317

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Caltrans Metric

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE					
0	05/13/13	MISCELLANEOUS SCADA CHANGES	RG RSB	RG	305
MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
		REVISIONS			

CONTRACT CHANGE ORDER NO. 305
SHEET 23 OF 23

SAS

(2) Tube #	Fiber	YBI-SUB TOS-Y04 (FDU-W)	RTU-10E 04E	RTU-10E-A 06E	RTU-11E 07E	SFOBB-HUB ADMIN BLDG TOS-A04 (FDU-W)	EQ ID / cabinet ID / FSC ID / cabinet station
Tube 1	1~12	X				X	See E-357B
Tube 2	13~24	X				X	
Tube 3	25~36	X				X	
Tube 4	37~48	X				X	
Tube 5	49~60	X				X	
Tube 6	61	X	X X	X X	X X	X	TBD
	62	X	X X	X X	X X	X	
	63	X	X X	X X	X X	X	
	64	X	X X	X X	X X	X	
	65	X	X X	X X	X X	X	
	66	X	X X	X X	X X	X	
	67	X				X	Spare
	68	X				X	Spare
	69	X				X	Spare
	70	X				X	Spare
	71	X				X	Spare
	72	X				X	Spare

(1) (1) (1)

SHEET NOTES:

(1) Terminate fibers at this location, represented with bold "X".

(2) For Tube 1 thru Tube 5 termination, see sheet E-357B.

GENERAL NOTE:

1. For notes, abbreviations and legend, see sheets E-8 and E-970.

FIBER OPTIC TERMINATIONS - EASTBOUND

DETAILS
SCADA/TRAFFIC OPERATIONS SYSTEM
FTC-EASTBOUND
NO SCALE

E-357D

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

DESIGN OVERSIGHT: BEHZAD GOLEMOHAMMADI

CALCULATED/DESIGNED BY: RR RSB DATE 04/13
CHECKED BY: RG 04/13

REVISED BY / DATE REVISED

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80

DGN FILE =>04-0120f1_0328S04.dgn
USERNAME =>Liorico

CU 04251

EA 0120F1

LAST REVISION 05-13-13

DATE PLOTTED => 13-MAY-2013
TIME PLOTTED => 16:17